

DRAFT
ENVIRONMENTAL IMPACT STATEMENT

APPENDICES

for the

**SEATTLE PACIFIC
UNIVERSITY**

Major Institution Master Plan

Seattle Master Use Permit Project No. 3035844-LU

July 20, 2023

Prepared by

Seattle Department of Construction and Inspections
Seattle, Washington

APPENDICES

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Appendix A

Distribution List

Appendix A

DISTRIBUTION LIST

Tribes

Duwamish Tribe
Muckleshoot Indian Tribe, Fisheries Division
Seattle Indian Services Commission
Suquamish Tribe
Tulalip Tribes

Federal Agencies

U.S. Army Corp of Engineers
U.S. Department of Fish & Wildlife

State Agencies

Washington State Department of Archaeology and Historic Preservation
Washington State Department of Commerce
Washington State Department Ecology, NW Regional Office
Washington State Department Ecology, Environmental Review Section
Washington State Department of Natural Resources, DNR Sepa Center

Local Agencies

King County Department of Natural Resources and Parks
King County Department of Permitting And Environmental Review
King County Department Of Public Health
King County Department of Transportation
King County Department Of Transportation, Roads & Eng.
King County Metro
King County Metro Transit, Environmental Planning
King County Wastewater Treatment Division, Environmental Planning – OAP

Seattle City Light
Seattle Department of Neighborhoods, Historic Preservation
Seattle Department of Neighborhoods, MIMP Development Advisory Committee
Seattle Department of Parks and Recreation
Seattle-King County, Department of Public Health
Seattle Office of Housing
Seattle Public Library
Seattle Public Utilities
Port Of Seattle, Environmental Management
Public Health Seattle & King County, Environmental Health Division,
Puget Sound Clean Air Agency
Sound Transit

Organizations

Queen Anne Community Council

Community Outreach

Appendix B

COMMUNITY OUTREACH

Given the nature and scale of Seattle Pacific University's proposed new Major Institution Master Plan, to-date numerous opportunities have been provided for public awareness, involvement, and the submittal of comments regarding the *Draft MIMP*, as well as the range of alternatives and environmental elements that are analyzed in this DEIS. Opportunities to date have included the following:

- **Seattle Dept. of Neighborhoods, SPU Development Advisory Committee (DAC) Meetings**

2023

May 17, 2023

May 31, 2023

June 21, 2023

2022

April 5, 2022

May 18, 2022

June 15, 2022

July 20, 2022

August 17, 2022

September 7, 2022

September 21, 2022

October 5, 2022

October 19, 2022

November 2, 2022

November 16, 2022

2021

January 5, 2021

March 2, 2021

April 6, 2021

May 4, 2021

June 1, 2021

July 6, 2021

2020

September 1, 2020

October 6, 2020

November 5, 2020

December 1, 2020

- EIS Scoping meeting – December 1, 2020
- SPU Faculty/Staff bulletin – August 24, 2020;
- Queen Anne & Magnolia News – October 21, 2020;
- Queen Anne & Magnolia News – December 16, 2020;
- Queen Anne Community Council presentation – December 21, 2020
- Queen Anne Community Council presentation – June 21, 2021
- Queen Anne Community Council, Land Use Review Committee presentation – June 19, 2023
- SPU outreach to 62 owners and tenants of property near SPU's campus – January 13, 2021;
- Draft EIS public meeting – August 17, 2023;

Opportunities for ongoing community involvement will continue through the MIMP entitlement process.

GHG Worksheets

SPU MIMP Building Uses for Project Alternatives

Notes: the No Action (Planned) Student center is considered an "Public Assembly" land use for GHG calculations and has been added to the Athletics & Recreation Cumulative GFA

Cells highlighted in yellow to be used in GHG calcs.

Data used in calculations from Tables 2-2 through 2-12; Perkins + Will, 2023

Cumulate Sq. Feet for each Alternative for GHG Calculations

Aggregated Categories	Existing gfa	Demolition gfa	Planned gfa ¹	Potential gfa ²	GHG Worksheet Category	Alternative 2			Alternative 3			Alternative 4			Alternative 5		
						Excess gfa ¹	DMIMP footprints gfa ²	Cumulative gfa	Excess gfa ¹	DMIMP footprints gfa ²	Cumulative gfa	Excess gfa ¹	DMIMP footprints gfa ²	Cumulative gfa	Excess gfa ¹	DMIMP footprints gfa ²	Cumulative gfa
Mixed-Use	11,500	11,500		237,100	Retail (other than Mall)	153,200	83,900	237,100	27,600	209,500	237,100	128,200	108,900	237,100	39,200	197,900	237,100
Housing	525,900	149,500		856,100	Lodging	188,800	667,300	1,232,500	141,400	714,700	1,232,500	47,400	808,700	1,232,500	17,700	838,400	1,232,500
Education & General	547,700	308,600	61,000	716,900	Education	76,100	640,800	956,000	126,900	590,000	956,000		716,900	956,000		716,900	956,000
Athletics & Recreation	82,700	82,700		388,500	Public Assembly	26,000	362,500	449,500		388,500	449,500	26,000	362,500	449,500	69,900	318,600	449,500
Vacant	60,900	60,900			Vacant			0			0			0			0
Total (gfa)	1,228,700	613,200	61,000	2,198,600		444,100	1,754,500	2,875,100	295,900	1,902,700	2,875,100	201,600	1,997,000	2,875,100	126,800	2,071,800	2,875,100

1 This square footage is associated with the excess buildings that would need to be built that are listed below
2 This square footage is associated with the space that could be accommodated within the building footprints shown for the Draft MIMP.

Excess Buildings for each Alternative

Alternative	Building #	Number of Floors	Total Gross Square Footage	New Bldg #	Floors	GSF	Use
2	1	3	40,200	EG-4	5	20400	Education & General
2	2	3	10,800	H-9	6	144000	Residential
2	3	3	35,500	H-12	6	85800	Residential
2	4-H	1	13,400	H-4	3	17300	Campus Housing & Apartments
2	4-MUC	3	40,200	MUC-4 & MUC-4(H)	4	215200	Mixed Use + Housing
2	5	4	16,100	H-14	3	17600	Campus Housing & Apartments
2	6	4	36,800	H-15	3	20400	Campus Housing & Apartments
2	7	4	60,000	H-16	3	17400	Campus Housing & Apartments
2	8	4	43,200	H-10	6	91500	Residential
2	9	3	45,400	EG-10	4	88000	Education & General
2	10	3	40,400	EG-11	4	5200	Education & General
2	11	3	26,000	H-11 & H-11(EG)	5	97500	Education & General + Housing
2	12	4	36,000	EG-12	4	45200	Education & General
2	Total		444,100				
3	1	3	30,600	EG-4	5	20400	Education & General
3	2	2	27,500	H-9	6	144000	Residential
3	3	4	35,400	H-12	6	85800	Residential
3	4	4	60,100	H-13	3	17600	Campus Housing & Apartments
3	5	4	43,550	H-14	3	17600	Campus Housing & Apartments
3	6	3	45,950	H-15	3	20400	Campus Housing & Apartments
3	7	4	52,800	H-16	3	17400	Campus Housing & Apartments
3	Total		295,900				
4	1	5	67,000	EG-4	5	20400	Education & General
4	2	3	26,000	H-9	6	144000	Residential
4	3	3	43,700	H-12	6	85800	Residential
4	4	1	3,700	H-13	3	17600	Campus Housing & Apartments
4	5	5	61,200	H-14	3	17600	Campus Housing & Apartments
4	Total		201,600				
5	1	5	39,600	EG-4	5	20400	Education & General
5	2	3	17,900	H-9	6	144000	Residential
5	3	5	39,700	H-12	6	85800	Residential
5	4	5	30,000	H-13	3	17600	Campus Housing & Apartments
5	Total		126,800				

SPU MIMP Building Uses for No Action and Proposed Project

Planned (No Action) Development Project Areas for GHG Calculations

From May 2023 Draft MIMP

Note: Student Center is also included in MIMP and each Alternative as Public Assembly

Planned (No Action) Development Projects		
Project	King County GHG Category	New Sq Ft
Student Center	Public Assembly	61,000
Marston Hall Open Space	n/a	0
Moyer Hall Repurpose	n/a	0

Note: Only the student center creates new build square footage. Therefore the other two projects do not need to be included.

MIMP Development Project Areas for GHG Calculations

Notes: Cells highlighted in yellow to be used in final calcs.

The Public assembly category includes the new square footage from the planned development project table

Category	Total Square Footage
Education	716,900
Lodging	856,100
Retail (Other Than Mall)	237,100
Public Assembly	449,500

Potential Project Comparisons, Old Building Numbering, and GHG Category Assignments

From Table 2-2 Potential Long-Term Development Projects

Old Building #	New Bldg. #	Project Type	Anticipated Building Use	New Bldg. Use	New Square Footage	Anticipated # of Levels	GHG Category
1	EG-4	Addition	Education & General	Education & General	20,400	5	Education
2	H-9	New Build	Residential	Housing	144,000	6	Lodging
3	H-12	New Build	Residential	Housing	85,800	6	Lodging
4	H-13	New Build	Campus Housing & Apartments	Housing	17,600	3	Lodging
5	H-14	New Build	Campus Housing & Apartments	Housing	17,600	3	Lodging
6	H-15	New Build	Campus Housing & Apartments	Housing	20,400	3	Lodging
7	H-16	New Build	Campus Housing & Apartments	Housing	17,400	3	Lodging
8	H-10	New Build	Residential	Housing	91,500	6	Lodging
9	EG-10	New Build	Education & General	Education & General	88,000	4	Education
10	EG-11	Addition	Education & General	Education & General	5,200	4	Education
11	H-11 & H-11(EG)	New Build	Education & General + Housing	EG (19,500 sq. ft.) & Housing (78,000 sq. ft.)	19,500 78,000	5	Education
12	EG-12	New Build	Education & General	Education & General	45,200	4	Education
13	EG(R)-1	Renovation	Education & General	EG (70,200 sq. ft. renovation)	0	3	Education
14	EG-13	New Build	Education & General	Education & General	72,000	5	Education
15	H-21	New Build	Housing	Housing	5,000	3	Lodging
16	H-22	New Build	Housing	Housing	5,000	3	Lodging
17	H-23	New Build	Housing	Housing	5,000	3	Lodging
18	H-17	New Build	Campus Housing & Apartments	Housing	17,700	5	Lodging
19	H-18	New Build	Campus Housing & Apartments	Housing	27,600	5	Lodging
20	H-19	New Build	Campus Housing	Housing	37,500	5	Lodging
21	H-20	New Build	Campus Housing & Apartments	Housing	28,200	4	Lodging
22	MUC-5	New Build	Mixed Use	Mixed-Use & Commercial	33,900	3	Retail (Other Than Mall)
23	EG(R)-4	Renovation	Education & General	EG (27,900 sq. ft. renovation)	0	4	Education
24	EG(R)-3	Renovation	Education & General	EG (42,000 sq. ft. renovation)	0	4	Education
25	EG(R)-2	Renovation	Education & General	EG (27,400 sq. ft. renovation)	0	3	Education
26	EG-9	New Build	Education & General + Parking	Education & General	16,800	1	Education
27	EG-8	New Build	Education & General	Education & General	94,000	4	Education
28	EG-7	New Build	Education & General	Education & General	90,000	4	Education
29	EG-6	New Build	Education & General	Education & General	65,400	4	Education
30	EG-5	Addition	Education & General	Education & General	56,000	4	Education
31	H-6	New Build	Housing	Housing	5,000	2	Lodging
32	H-5	New Build	Housing	Housing	5,000	2	Lodging
33	H-7	New Build	Housing	Housing	5,000	2	Lodging
34	H-8	Addition	Housing	Housing	5,000	2	Lodging

Old Building #	New Bldg. #	Project Type	Anticipated Building Use	New Bldg. Use	New Square Footage	Anticipated # of Levels	GHG Category
35	H-4	New Build	Campus Housing & Apartments	Housing	17,300	3	Lodging
36	H-2	New Build	Campus Housing & Apartments	Housing	19,200	3	Lodging
37	H-3	New Build	Campus Housing & Apartments	Housing	23,100	3	Lodging
38	H-1	New Build	Campus Housing & Apartments	Housing	16,800	3	Lodging
39	MUC-4 & MUC-4(H)	New Build	Mixed Use + Housing	Mixed-Use & Commercial (53800 sq. ft.) and Housing (161,400 sq. ft.)	53,800 161,400	4	Retail (Other Than Mall)
40	EG-1	New Build	Education & General	Education & General	48,800	4	Education
41	EG-2	New Build	Education & General	Education & General	57,200	4	Education
42	EG-3	New Build	Education & General	Education & General	38,400	4	Education
43	MUC-3	New Build	Mixed Use	Mixed-Use & Comm.	110,200	4	Retail (Other Than Mall)
44	MUC-1	New Build	Mixed Use	Mixed-Use & Comm.	27,900	3	Retail (Other Than Mall)
45	MUC-2	New Build	Mixed Use	Mixed-Use & Comm.	11,300	1	Retail (Other Than Mall)
46	AR-1	New Build	Athletics & Recreation	Athletics & Recreation	222,600	3	Public Assembly
47	AR-2	New Build	Athletics & Recreation	Athletics & Recreation	165,900	3	Public Assembly

Proposed MIMP 2035

Section I: Buildings

			Emissions Per Unit or Per Thousand Square Feet (MTCO2e)			Lifespan Emissions (MTCO2e)	Assumed Lifetime (years)	GHG per year (MTCO2e)
Type (Residential) or Principal Activity (Commercial)	# Units	Square Feet (in thousands of square feet)	Embodied	Energy	Transportation			
Single-Family Home.....	0		98	672	792	0	57.89	
Multi-Family Unit in Large Building	0		33	357	766	0	80.55	
Multi-Family Unit in Small Building	0		54	681	766	0	80.55	
Mobile Home.....	0		41	475	709	0	57.89	
Education		716.9	39	646	361	749,505	62.55	11,992.08
Food Sales		0.0	39	1,541	282	0	62.55	
Food Service		0.0	39	1,994	561	0	62.55	
Health Care Inpatient		0.0	39	1,938	582	0	62.55	
Health Care Outpatient		0.0	39	737	571	0	62.55	
Lodging		856.1	39	777	117	798,851	62.55	12,781.62
Retail (Other Than Mall).....		237.1	39	577	247	204,559	62.55	3,272.95
Office		0.0	39	723	588	0	62.55	
Public Assembly		449.5	39	733	150	414,427	62.55	6,630.84
Public Order and Safety		0.0	39	899	374	0	62.55	
Religious Worship		0.0	39	339	129	0	62.55	
Service		0.0	39	599	266	0	62.55	
Warehouse and Storage		0.0	39	352	181	0	62.55	
Other		0.0	39	1,278	257	0	62.55	
Vacant		0.0	39	162	47	0	62.55	
Total Project Emissions:						2,167,343	Percent of WA Annual GHGs	
								34,677
								0.03%

Alternatives (Same inputs for all 4 alts)

Section I: Buildings

			Emissions Per Unit or Per Thousand Square Feet (MTCO2e)			Lifespan Emissions (MTCO2e)	Assumed Lifetime (years)	GHG per year (MTCO2e)
Type (Residential) or Principal Activity (Commercial)	# Units	Square Feet (in thousands of square feet)	Embodied	Energy	Transportation			
Single-Family Home.....	0		98	672	792	0	57.89	
Multi-Family Unit in Large Building	0		33	357	766	0	80.55	
Multi-Family Unit in Small Building	0		54	681	766	0	80.55	
Mobile Home.....	0		41	475	709	0	57.89	
Education		956.000	39	646	361	999,479	62.55	15,991.67
Food Sales		0.0	39	1,541	282	0	62.55	
Food Service		0.0	39	1,994	561	0	62.55	
Health Care Inpatient		0.0	39	1,938	582	0	62.55	
Health Care Outpatient		0.0	39	737	571	0	62.55	
Lodging		1,232.500	39	777	117	1,150,081	62.55	18,401.30
Retail (Other Than Mall).....		237.100	39	577	247	204,559	62.55	3,272.95
Office		0.0	39	723	588	0	62.55	
Public Assembly		449.500	39	733	150	414,427	62.55	6,630.84
Public Order and Safety		0.0	39	899	374	0	62.55	
Religious Worship		0.0	39	339	129	0	62.55	
Service		0.0	39	599	266	0	62.55	
Warehouse and Storage		0.0	39	352	181	0	62.55	
Other		0.0	39	1,278	257	0	62.55	
Vacant		0.0	39	162	47	0	62.55	
Total Project Emissions:						2,768,547	Percent of WA Annual GHGs	
								44,297
								0.04%

No Action

Section I: Buildings

			Emissions Per Unit or Per Thousand Square Feet (MTCO2e)			Lifespan Emissions (MTCO2e)	Assumed Lifetime (years)	GHG per year (MTCO2e)
Type (Residential) or Principal Activity (Commercial)	# Units	Square Feet (in thousands of square feet)	Embodied	Energy	Transportation			
Single-Family Home.....	0		98	672	792	0	57.89	
Multi-Family Unit in Large Building	0		33	357	766	0	80.55	
Multi-Family Unit in Small Building	0		54	681	766	0	80.55	
Mobile Home.....	0		41	475	709	0	57.89	
Education		61.0	39	646	361	63,774	62.55	1,020.39
Food Sales		0.0	39	1,541	282	0	62.55	
Food Service		0.0	39	1,994	561	0	62.55	
Health Care Inpatient		0.0	39	1,938	582	0	62.55	
Health Care Outpatient		0.0	39	737	571	0	62.55	
Lodging		0.0	39	777	117	0	62.55	
Retail (Other Than Mall).....		0.0	39	577	247	0	62.55	
Office		0.0	39	723	588	0	62.55	
Public Assembly		0.0	39	733	150	0	62.55	
Public Order and Safety		0.0	39	899	374	0	62.55	
Religious Worship		0.0	39	339	129	0	62.55	
Service		0.0	39	599	266	0	62.55	
Warehouse and Storage		0.0	39	352	181	0	62.55	
Other		0.0	39	1,278	257	0	62.55	
Vacant		0.0	39	162	47	0	62.55	
Total Project Emissions:						63,774	Percent of WA Annual GHGs	
								1,020
								0.001%

Arborist Report

Arborist Report

To: City of Seattle; EA Engineering; Seattle Pacific University
Site: Seattle Pacific University
Re: SPU Draft MIMP/EIS
Date: November 18, 2021
Revised: May 23, 2023
Project Arborist: Tyler Bunton
ISA Certified Arborist PN-8715A
ISA Qualified Tree Risk Assessor
Josh Petter
ISA Board Certified Master Arborist PN-8406B
ISA Qualified Tree Risk Assessor
Reviewed By: Connor McDermott
ISA Certified Arborist PN-8704A
ISA Qualified Tree Risk Assessor
Referenced Documents: Seattle Pacific University Concept Plan
Attached: Table of Trees
Tree Site Map

Summary

We inventoried and assessed 1070 trees, 1068 of which remain, within the 2000 Major Institution Overlay (MIO). Additionally, we inventoried an additional 158 trees in the proposed MIO, for a total of 1227 inventoried trees.

Of the trees assessed in the 2000 MIO, 252 met the exceptional tree criteria outlined in the Seattle Director's Rule 16-2008, 158 of which are located within exceptional groves. Twenty-seven grove trees are also exceptional by size. In the expanded MIO, 15 met the exceptional tree criteria by size, for a total of 267 exceptional trees.

In some areas access was limited or properties were not owned by Seattle Pacific University (SPU) and tree sizes were estimated.

Two trees (536, 1025) were removed since the original inventory and are not included in the tree counts.

Assignment and Scope of Work

This report documents the visits by Josh Petter, Tyler Bunton, Andrea Starbird, Connor McDermott, and Katie Hogan, of Tree Solutions Inc., in March and April, 2021 to the above referenced site. We were asked to complete a tree inventory and assessment by EA Engineering in preparation for the expanded MIO and revised Major Institution Master Plan (MIMP).

Trees were located using the Global Position System and GLONASS with a Trimble TDC600. This produced a tree map with approximately 1.5-meter accuracy. Tree points were manually adjusted based on the aerial imagery as needed. On parcels that were not owned by the university, or were restricted due to access, tree measurements and locations were estimated from public property.

Observations and Discussion

Site and Trees

The 44-acre university campus is located in the Queen Anne neighborhood of Seattle and is comprised of numerous buildings and green space.

The understory was a mix of native, ornamental, and invasive plants. There is invasive ivy (*Hedera* spp.), Himalayan blackberry (*Rubus bifrons*), and bindweed (*Convolvulus* spp.) located throughout the campus and existing MIO.

According to Seattle Department of Construction and Inspection (SDCI) GIS map there are two environmentally critical areas (ECA) distributed across much of the campus. There are numerous Steep Slope (40% average)-ECA 1 on the campus. There are also large portions of the site that are classified as Potential Slide Area – ECA2. There are also areas along the ship canal which are within the shoreline designation.

Tree species were varied and included natives, ornamentals, and invasive species. Using i-Tree Eco, the species composition and benefits provided by the trees were calculated and are located in the attached table of trees. The three most common tree species were bigleaf maple (*Acer macrophyllum*), red maple (*Acer rubrum*), and Leyland cypress (*Cuprocyparis leylandii*), at 10.8 percent, 7.2 percent, and 5.1 percent respectively. Increasing tree species diversity is important to urban forest resiliency. New plantings should strive to increase diversity throughout the campus and should avoid these three species. Red maple can be a problematic species in urban areas due to a large concentration of surface and girdling roots, as well as narrow branch unions that are more prone to failure.

There are several exceptional tree groves within the existing MIO. Typically, groups of trees provide higher quality habitat and have a higher ecological value than individually spaced trees not only due to the trees, but also the forested understory. Large individual exceptional trees also provide habitat and ecological value, however, depending on the surrounding trees and landscaping their influence may be dispersed. Additionally young trees are better able to adapt to construction disturbances than mature exceptional trees and can provide replacement canopy as mature trees decline. When developing the campus, the locations of groves in particular, individual exceptional trees, and other trees of all sizes should be taken into consideration to ensure a diversity of size, age, and species on campus.

The current MIO is proposed to be expanded in the revised MIMP; this proposes an increase in building height and in some areas vacating street and alley requirements. There are five additional alternatives that are explored in the case that the proposed MIMP is not approved.

Trees: 2000 MIO

There are a total of 1068 trees within the 2000 MIO. Of those trees, 801 are estimated to be on private property, which is regulated by SDCI. There are 266 that are estimated to be growing partially or fully in the right-of-way (ROW), these trees are regulated by Seattle Department of Transportation (SDOT).

There are a total of 252 exceptional trees within the 2000 MIO. One hundred and fifty-eight of the exceptional trees are growing within exceptional groves, 27 of which are also exceptional by size. There are a total of 121 trees within the 2000 MIO that are exceptional by size.

Exceptional groves were determined by drawing the measured driplines of all trees 8-inches diameter at standard height (DSH) on a map and assessing whether at least eight trees had overlapping canopies. Trees which appeared to have overlapping canopies in satellite imagery but did not have overlapping drawn canopies were confirmed to either overlap or not overlap with google street view images where possible.

Within the 2000 MIO there are a total of 579 trees within a steep slope ECA, steep slope buffer, or potential slide area ECA; 181 of these trees are located within both a steep slope ECA/steep slope buffer and a potential slide area ECA. There is one tree within the shoreline area in the 2000 MIO.

Trees: 2021 MIO

There are a total of 158 trees in the expanded or 2021 MIO. Of those trees, 102 are estimated to be on private property, which is regulated by SDCI. There are 56 that are estimated to be growing partially or fully in the ROW, these trees are regulated by SDOT.

There are 15 exceptional trees by size in the proposed MIO.

Within the 2021 MIO there are a total of 79 trees within a steep slope ECA, steep slope buffer, or potential slide area ECA; 12 of these trees are located within both a steep slope ECA/steep slope buffer and a potential slide area ECA. There are 29 trees within the shoreline area in the 2021 MIO.

Discussion—Construction Impacts

This report provides a high-level analysis of tree impacts based on building schematics. Tree removals listed are an estimate; specific tree removal, retention, and replacement numbers for each building must be revised based on tree inventories for each project and design and construction plans prior to construction.

Planned Projects

There are three planned projects:

1. Renovation of Moyer Hall
2. Demolition of a 3-story building (Marston Site Future Open Space)
3. Expanded student center

1. Renovation of Moyer Hall

An interior renovation and repurposing is planned for this building. No substantial impacts to trees are anticipated in the renovation.

2. Marston Site Future Open Space

Marston Hall is planned to be demolished and converted into open space. Trees 570, 573, 574, 576, 584, 585, 598, and 599 have canopies that are touching Marston Hall. Tree protection must be in place and demolition will have to occur very carefully to preserve these trees. It is likely that these trees will have to be pruned in order to minimize disturbance during development. Additionally, it is possible that some of these trees may have to be removed during demolition.

Once removed there will be an increased amount of open space and improved growing conditions for existing and new trees within this location.

3. Expanded Student Center

This plan will include the demolition of Weter Memorial Hall and construction of a 4-story building.

Trees 291 through 308, 334 and 335 are located approximately within the footprint of the expanded student center, necessitating removal. Trees 309 through 311 would also likely require removal due to proximity to construction activities.

Trees 291 through 299 and 306 through 311 are located within a steep slope ECA/steep slope buffer or a potential landslide area ECA.

The construction of the student center would likely necessitate the removal of trees **291 through 311, 334, and 335, a total of 22 trees**. Trees 292, 308, and 311 are exceptional due to size and/or grove status.

Proposed MIMP Expansion

There are 47 potential projects proposed in the MIMP where projects buildings would be renovated or constructed. Potential projects **EG-4, EG-5, EG-11, and H-8** would be additions to existing buildings. Potential projects **EG(R)-1, EG(R)-2, EG(R)-3, and EG(R)-4** would be renovated, and the remainder of the projects would be new buildings.

The renovated buildings would have the least impact on existing trees and depending on the renovations could lead to little or no impact on tree retention. These buildings are not discussed in-depth as there is not enough information to quantify the impacts to those trees.

For new buildings and additions, we assume that trees that are within the building footprints or directly adjacent to the buildings would require removal. Depending on the final configuration of the building, grading, utilities, and construction feasibility other trees may also require removal.

The cumulative impact of this construction would result in an estimated **249 tree removals, of which 47 are exceptional by size and/or grove**.

A total of 153 of the 250 trees proposed for removal are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA. One of the trees proposed for removal is located within the shoreline area.

Potential Project EG-4

The expansion around building EG-4 would likely necessitate the removal of trees **293 through 311, 334 through 336, 340, 342, 347, and 348**. This includes the student center planned project. Trees 292, 303, 308, 311, and 340 are exceptional due to size and/or grove status.

Trees 291 through 299, 306 through 311, 342, and 347 are located within a steep slope ECA/steep slope buffer or a potential landslide area ECA.

Potential Project H-9

This is an L-shaped building along W Dravus St and would require the removal of trees **354 through 356, 433 through 447, and 454 through 470**. Trees 354, 355, 356, 433, 454, 467, and 469 are exceptional due to size and/or grove status. Construction of this building may also impact additional trees in the exceptional grove to the east of the proposed building.

All trees proposed for removal are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Potential Project H-12

This is a new building along W Etruria St that involves the demolition of three existing buildings and the construction of a new building. Trees **111 through 113, 120, 122 through 131, 133, and 134** would need to be removed to accommodate this building. Trees 111 and 113 are exceptional due to size.

All trees proposed for removal are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Potential Projects H-13 and H-14

These are two new adjacent campus housing buildings along W Dravus St. The construction of these buildings would require the removal of trees **720, 721, 723, 729 through 737**. Trees 721 and 734 are exceptional due to size.

All trees proposed for removal are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Potential Projects H-15 and H-16

These are two new adjacent campus housing buildings along W Dravus St. These two buildings would require the removal of trees **708, 710, and 715**. Tree 708 is of exceptional size.

All trees proposed for removal are located within a potential landslide area ECA.

Potential Project H-10

This building is proposed within an existing parking lot and may not require the removal of any trees.

Potential Project EG-10

This building would be constructed to the north of building H-10, with a portion of the building being constructed on an existing parking area. The construction of this education and general building would require the removal of trees **521, 535, and 537 through 562**. Trees 543 and 553 are of exceptional size. Tree 536 failed in the winter of 2022/2023 and was removed at that time.

All trees proposed for removal are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Potential Project EG-11

Building EG-11 would be a small expansion on the southern side of an existing building. There are no regulated trees within the footprint of the proposed expansion.

Potential Project H-11 & H-11(EG)

This would be a new building along W Dravus St and involve the removal of three existing houses; the eastern portion of the building would be constructed on a gravel parking area. In order to construct this building, trees **639 through 648** would have to be removed; trees 641 through 645, and 648 are exceptional grove trees.

All trees proposed for removal are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Potential Project EG-12

Building EG-12 would involve the removal of an existing building and construction of a new building along 3rd Ave W. This would be constructed adjacent to the Tiffany Loop trees, specifically trees 678 through 680 which are large-statured trees overhanging the existing building. In order to retain these trees, the height of the new building would have to remain the same as the old building and very careful construction methods would have to be employed. Trees **633 through 637** would have to be removed to accommodate the construction of this new building. Trees 635 and 637 are of exceptional size.

None of the trees proposed for removal are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Potential Project EG(R)-1

This building is proposed to be renovated with no changes to the footprint. It is assumed that no trees would be removed in the renovation process.

Potential Project EG-13

This building would be constructed between W Dravus St and W Cremona St. In order to construct this building trees **818 to 821, 824 to 830, 848 to 852, and 872 to 874** would require removal, none of which are exceptional. Additional trees may have to be removed depending on the final parking configuration in this area.

None of the trees proposed for removal are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Potential Projects H-21, H-22, and H-23

These are three new residential buildings along W Dravus St. These would require the removal of trees **772, 780, and 782**. Trees 772, and 780 are of exceptional size.

All three trees proposed for removal are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Potential Project H-17

This is a new building proposed along W Cremona St and would require the removal of trees **853, 876, and 877**.

None of the trees proposed for removal are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Potential Projects H-18 and H-19

These two buildings would involve the removal of two existing buildings along Queen Anne Ave N and replacement of new buildings in approximately the same location.

The demolition and construction of building H-19 would likely require the removal of trees **855 through 861**. No trees would be required for removal and replacement of building H-18. Tree 861 is of exceptional size.

None of the trees proposed for removal are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Potential Projects H-20 and MUC-5

These two buildings are proposed along the east side of Queen Anne Ave N between W Dravus St and W Nickerson St. There are no trees within the proposed footprints of these buildings.

Potential Projects EG(R)-2, EG(R)-3, and EG(R)-4

These three buildings are proposed for renovation, and it is assumed that no tree removal would be required.

Potential Project EG-9

This building would be constructed along W Nickerson St and includes parking that fronts W Cremona St. This would require the removal of trees **887, 888, 924, and 925**. Tree 887 is exceptional by size.

None of the trees proposed for removal are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Potential Projects EG-7 and EG-8

These two buildings would be constructed on an existing parking lot to the north of W Cremona St. The construction of these two buildings would necessitate the removals of trees **914, 915, 926 through 929**, none of which are exceptional. There are numerous right-of-way trees that would require protection during construction, however, since these buildings would be constructed in an already disturbed area it should be feasible to retain the trees on the perimeter.

None of the trees proposed for removal are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Potential Project EG-6

Building EG-6 would involve the removal and replacement of an existing building along W Bertona St and the northern portion of Tiffany Loop. The demolition and construction would require the removal of trees **699, 700, 703, and 704**. Tree 699 is exceptional by size.

None of the trees proposed for removal are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Potential Project EG-5

This is an addition to an existing building along W Bertona St that would require the demolition of an existing building. In order to accommodate this addition trees **593 through 597** would have to be removed. Tree 595 is exceptional by size.

None of the trees proposed for removal are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Potential Projects H-5, H-6, H-7, and H-8

These four buildings would be an expansion of housing with three new buildings (H-5, H-6, H-7) and an addition (H-8). The construction of these four buildings would require the removal of trees **249 through 261**. Trees 255, 257, 258, and 261 are exceptional by size.

All trees proposed for removal are located within a potential landslide area ECA.

Potential Project H-4

This building would involve the demolition of two buildings and the construction of one building in the same location. The demolition and construction of a new building would require the removal of tree **270**, which is not exceptional.

Tree 270 is located within a potential landslide area ECA.

Potential Projects H-2 and H-3

Two buildings would be demolished and replaced with expanded footprints along W Emerson St. Building H-2 would require the removal of trees **1218, 1219, and 1223 through 1227**. The construction of building H-3 would require the removal of trees **271 through 275, 278, and 279**. The construction of buildings H-2 and H-3 would not require removal of exceptional trees.

All trees proposed for removal for projects H-2 and H-3 are located within a potential landslide area ECA.

Potential Project H-1

This would be a new building along the corner of 6th Ave W and W Nickerson St. Two buildings would be demolished and replaced with one building. This would necessitate the removal of trees **283 and 284**. Tree 283 is exceptional by size.

Tree 284 is located within a potential landslide area ECA.

Potential Project MUC-4 & MUC-4(H)

Building MUC-4 & MUC-4(H) would be built along W Nickerson St and would be constructed on an existing parking lot. The construction of this building would require the removal of trees **998, 999, and 1005 through 1007**. Trees 1005 through 1007 are exceptional by size.

Tree 998 is located within a steep slope ECA/steep slope buffer.

Potential Project EG-1

This building would front W Nickerson St. The construction of this building would require the removal of trees **1011 through 1013, and 1020 through 1025**. Trees 1011 and 1013 are exceptional by size.

None of the trees proposed for removal are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Potential Project EG-2

This building would be directly to the east of building EG-1 along W Nickerson St. The demolition of an existing building and construction of a new building would require the removals of trees **1019, and 1026 through 1028**. Trees 1026 and 1028 are exceptional by size.

None of the trees proposed for removal are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Potential Project EG-3

This would involve the demolition of two connected buildings and the construction of a new building with a modified footprint. This would be constructed between W Nickerson St. and W Bertona St. The demolition and construction of a new building would require the removal of trees **945, 947, 949, 951, 952, and 1031 through 1037**. Trees 945 and 1035 are exceptional by size.

None of the trees proposed for removal are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Potential Projects MUC-1, MUC-2, and MUC-3

These three projects are a cluster of buildings that would be to the north of W Nickerson St along the Ship Canal Trail. These three buildings are proposed to replace an area that is largely paved and includes various existing buildings. Tree **1164** is the only tree growing in the vicinity and would require removal for the construction of building MUC-1. Based on the schematic this area could increase the amount of green space present. Tree 1164 is not an exceptional tree.

Tree 1164 is the only tree proposed for removal in the shoreline area.

Potential Project AR-1

This building would be constructed on the western corner of W Nickerson St and 3rd Ave W. The construction of this building would be largely in an area occupied by parking and existing buildings, resulting in only the removal of trees **1044 and 1051**. Based on the schematic design this area could increase the amount of green space present. Tree 1044 is exceptional by size.

Neither of the trees proposed for removal are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Potential Project AR-2

The proposed building is to the west of the playfield along W Nickerson St. The construction of this building would include the demolition and replacement of a new building in approximately the same footprint. It is possible that this would not require the removal of any trees.

Parking

One structured parking area, two surface parking areas and a number of underground parking structures are proposed within the MIMP. Some of the tree removals discussed below are also encompassed within the potential projects, however, these are broken out for clarity and are included in a separate tab within the table of trees.

Two underground parking areas and one above-ground parking structure will be constructed between W Cremona St and W Bertona St. The two western structures will be partially constructed under proposed buildings. These will require the removal of trees **887 through 889, 894, 897 through 902, 914, 915, 924 through 929**. Trees 887, 889, and 900 are exceptional by size.

None of the trees proposed for removal for the structures between W Cremona St and W Bertona St are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

One parking structure located along the alley west of 6th Ave W and between W Nickerson St and W Emerson St will require the removal of trees **1005 through 1007**, which are exceptional by size. Trees 1005 through 1007 are not located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Proposed surface parking north of W Nickerson St and W Cremona St and will be constructed in a similar location to existing parking. This is not anticipated to have impacts on tree retention.

Two underground parking structures are proposed within the area of the existing Dravus lot. These structures will be partially under proposed buildings. The construction of these two structures would likely result in the removal of trees **471 through 479, 481, 489, 551, 552, 556 through 561**. Tree 477 is exceptional by size.

All trees proposed for removal for the two underground parking structures within the area of the existing Dravus lot are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

One underground parking structure would be constructed at the northwest corner 3rd Ave W and W Dravus St. This will be partially under a proposed building and would likely require the removal of trees **636, 639 through 659**. Trees 641 through 645, 648 through 652, and 655 through 658 are exceptional grove trees.

Trees 639 through 659 proposed for removal for the underground parking structure at the northwest corner 3rd Ave W and W Dravus St are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

One underground parking structure will be constructed partially over the existing alley between W Bertona St and W Nickerson St and surface parking. This would likely require the removal of trees **1008 through 1010, and 1026**. Tree 1026 is exceptional by size. None of the trees which would require removal for this underground parking structure are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

One underground parking structure would be constructed at the northwest corner of 6th Ave W and W Dravus St under a proposed building. This construction would require the removal of trees **354 through**

356, 433 through 447, and 454 through 470. Trees 354, 355, 356, 433, 454, 467, and 469 are exceptional by size and/or their location within a grove. All trees which would require removal for this structure are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

One underground parking structure would be constructed between W Etruria St and 5th Ave W. This would be constructed under a proposed building and would require the removal of trees **109 through 116**. Trees 110, 111, and 113 are exceptional by size. Trees 109 through 116 are located within a steep slope ECA/steep slope buffer.

Two underground parking structures would be constructed along W Dravus St to the east and west of 4th Ave W. Construction of parking structure to the west of 4th Ave W would require the removal of trees **718 through 721, 723, 726 through 728, and 733 through 737**. For construction of parking structure to the east of 4th Ave W it would likely require the removal of trees **708 through 710, and 715**. Trees 708, 709, 718, 721, and 734 are exceptional by size. All trees which would be removed for parking structures these two parking structures are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

One underground parking structure is between W Cremona St and W Dravus St to the west of Queen Anne Ave N. This will be constructed below ground, partially under proposed buildings. This would likely require the removal of trees **855 through 861**. Tree 861 is exceptional by size. Trees 855 through 861 are not located in any ECAs.

One underground parking structure is proposed mid-block between W Cremona St and W Dravus St. and 3rd Ave W and Queen Anne Ave N. **Trees 821, 824 through 830, 848 through 850, and 874**, none of which are exceptional, would likely require removal. None of the trees which would be removed are located within ECAs.

Parking structures would require removal of approximately **145 trees** and **38 trees that are exceptional by size and/or their location within a grove**. They would also require the removal of 100 trees located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA. No trees located within the shoreline area would be removed for parking structures.

Alternative 1 – No Action

This alternative retains the current MIO with two new planned developments, numbered 1 and 2. Building 1 would be an expansion and connected to an existing building. The construction of this building would require the removal of trees **293 through 311, 334 to 336, and 340 to 342**. Trees 303, 308, 311, and 340 are exceptional by size and/or their location within a grove.

Trees 293 through 299, 306 through 311, and 342 which would be removed for building 1 are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

The second building would be constructed to the south of Tiffany Loop and would replace a number of existing buildings. This would involve the demolition of a building that has an overhanging canopy from trees 678 to 680. These are three integral trees in Tiffany Loop and careful construction methods would be required in order to retain these trees. Trees **633 to 637 and 639 to 657** would have to be removed to accommodate the construction. Trees 635, 637, 641 through 645, 648 through 652, and 655 through 657 are exceptional by size or their location within a grove.

Trees 639 through 657 which would be removed for building 2 are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

This alternative would not remove Marston Hall, which would reduce the amount of future open space in this area. Additionally, this would mean that Moyer Hall would not be demolished, which was assessed as having no impact on tree retention.

This alternative has the least amount of trees removed as little construction is planned and there are no proposed projects. The cumulative impact of this construction would result in an estimated **51 tree removals, 19 of which are exceptional by size and/or their location within a grove**. A total of 35 trees within ECAs and no shoreline area trees would be removed for alternative 1.

Alternative 2 – No Boundary Expansion and No Change to Height Limits

This alternative retains the existing MIO and height limitations. Additional buildings would be constructed within the current MIO. This would include some of the potential projects/buildings in the MIMP. Potential projects EG-1, EG(R)-1, EG-2, EG-3, EG-4, EG-5, EG-6, EG-7, EG-9, EG-10, EG-11, EG-12, H-1, H-3, H-4, H-5, H-6, H-7, H-8, H-9, H-10, H-11 & H-11(EG), H-12, H-13, H-14, H-15, H-16, H-17, H-18, H-19, H-21, H-22, H-23, MUC-4 & MUC-4(H), and AR-2 would have the same footprint in this scenario as in the potential MIMP and therefore are assumed to have the same impact to tree retention in this alternative.

Potential projects H-2, H-20, MUC-1, MUC-2, and MUC-5 are outside of the existing MIO and would not be constructed.

Potential projects EG(R)-2, EG(R)-3, and EG(R)-4 are leased by SPU and would not be renovated without an expanded MIO.

The footprint of potential project MUC-3 would be reduced to remain within the existing MIO and connect to building AR-1.

Twelve potential projects, referenced as 2.1 through 2.12 below, would be constructed in addition to those within the proposed in the MIMP.

The student center and Moyer Hall renovation would still occur under this alternative; however, Marston Hall would not be demolished.

The cumulative impact of this construction would result in an estimated **278 tree removals, 65 of which are exceptional by size and/or their location within a grove**. Of the trees that would be removed for alternative 2, 166 trees are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA. No shoreline area trees would be removed for alternative 2.

Potential projects 2.1 through 2.3

This is a cluster of buildings that have a similar footprint to building EG-13 in the proposed MIMP. The construction of these buildings would have a similar impact to building EG-13 and would require the removal of trees **818 to 821, 824 to 830, 848 to 852, and 872 to 874**, none of which are exceptional nor located within ECAs.

Potential project 2.4

Building EG-8 would be replaced by building 2.4, which has a slightly different footprint. The revised footprint would require the same number of trees as in the proposed MIMP, which are trees **914, 915, and 926 through 929**, none of which are exceptional nor located within ECAs.

None of the trees which would be removed for project 2.4 are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Potential project 2.5

This building would be constructed to the north of W Dravus St and to the south of Tiffany Loop. Trees **488, 657, 660, and 661** would require removal to accommodate this building. Trees 657 and 661 are exceptional due to their location within a grove.

All trees which would be removed for project 2.5 are located within a potential landslide area ECA.

Potential project 2.6

This building would be constructed along the southeastern edge of Tiffany Loop and require the removal of trees **678 to 682**. These are some of the largest and most prominent trees on the campus and are all exceptional due to size and their location within a grove.

Trees 678 through 682 are not located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Potential project 2.7

This building would involve the demolition and construction of a building to the west of Tiffany Loop. Trees **570, 573, 574, 576, 584, 598, and 599** would require removal. Trees 570, 573, and 584 are exceptional by size.

Trees 570, 573, 574, and 576 are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Potential project 2.8

This building would be constructed at the corner of 7th Ave W and W Dravus St in a grassy patch, which would require the removals of trees **152, 153, and 156 through 159**. Tree 153 is exceptional by size.

Trees 153, and 156 through 159 are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Potential project 2.9

This is a building proposed to the south of W Dravus St on the western edge of the current MIO. Construction of this building would require the removal of trees **145 to 149, 151, and 243 to 247**. Trees 145, 147, 244, and 247 are exceptional by size.

Trees 147 and 244 through 247 are located within a steep slope ECA/steep slope buffer.

Potential project 2.10

This building would largely be constructed on an existing parking area, and may require the removal of tree **241**, which is exceptional by size and its location within a grove. Tree 241 is not located within any ECAs.

Potential project 2.11

This building would be constructed along W Nickerson St on an existing parking area and would require the removal of tree **1044**, an exceptional tree by size.

Potential project 2.12

This would involve the construction of a building along 3rd Ave W, within the northeastern portion of Tiffany Loop. This would likely require the removal of trees **702 and 703**, neither of which are located in ECAs. Tree 702 is an exceptional tree by size. Additionally, ROW trees 624 through 627 would likely be impacted by construction.

Alternative 3 – Boundary Expansion and No Change to Height Limits

This option expands the MIO but does not change the height limits on buildings. The potential projects EG-1, EG-2, EG-3, EG-4, EG-5, EG-6, EG-7, EG-9, EG-10, EG-11, EG-12, EG-13, EG(R)-1, EG(R)-2, EG(R)-3, EG(R)-4, H-1, H-2, H-3, H-4, H-5, H-6, H-7, H-8, H-9, H-10, H-11 & H-11(EG), H-12, H-13, H-14, H-15, H-16, H-17, H-18, H-19, H-20, H-21, H-22, H-23, MUC-1, MUC-2, MUC-3, MUC-4 & MUC-4(H), MUC-5, AR-1, and AR-2 would have the same footprint in this scenario and are assumed to have the same impact to tree retention in this alternative as the proposed MIMP.

An additional seven potential projects would be constructed to achieve a similar square footage as the proposed MIMP, these are referred to as buildings 3.1 through 3.7 below.

The student center and Moyer Hall renovation would still occur under this alternative; however, Marston Hall would not be demolished.

The cumulative impact of this construction would result in an estimated **274 tree removals, of which 56 are exceptional by size and/or their location within a grove**. One hundred and sixty-nine of the trees which would be removed for alternative 3 are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA. One shoreline area tree would be removed for alternative 3.

Potential projects 3.1, 3.2, and 3.7

Building EG-8 would have a different footprint than the proposed MIMP. In order to construct buildings 3.1, 3.2, and 3.7 trees **914, 915, and 926 through 929** would require removal. None of the trees which would be removed are exceptional or located within ECAs.

Potential project 3.3

This building is proposed along 3rd Ave W along the eastern side of Tiffany Loop. The construction of this building would require the removal of tree **702**, which is exceptional by size. Tree 702 is not located in any ECAs.

Potential project 3.4

This building would involve the demolition and construction of a building to the west of Tiffany Loop. Trees **570, 573, 574 576, 584, 598, and 599** would require removal. Trees 570, 573, 584, and 599 are exceptional by size.

Trees 570, 573, 574 and 576 are located within a steep slope ECA/steep slope buffer and a potential landslide area ECA.

Potential project 3.5

This building would be constructed at the corner of 7th Ave W and W Dravus St in a grassy patch, which would require the removals of trees **152, 153, and 156 through 159**. Tree 153 is exceptional by size.

Trees 153 and 156 through 159 are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Potential project 3.6

This is a building proposed to the south of W Dravus St on the western edge of the current MIO. Construction of this building would require the removal of trees **145 to 149, 151, and 243 to 247**. Trees 145, 147, 244, and 247 are exceptional by size.

Trees 146, 147, 149, and 244 through 247 are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Alternative 4 – No Boundary Expansion and Increased Height Limits

This option retains the existing MIO but increases the height limits of buildings.

The footprints of potential projects EG-1, EG-2, EG-3, EG-4, EG-5, EG-6, EG-7, EG-9, EG-10, EG-11, EG-12, EG-13, EG(R)-1, H-1, H-3, H-4, H-5, H-6, H-7, H-8, H-9, H-10, H-11 & H-11(EG), H-12, H-13, H-14, H-15, H-16, H-17, H-18, H-19, H-21, H-22, H-23, MUC-4 & MUC-4(H), and AR-2 would be the same in this scenario and are assumed to have the same impact to tree retention in this alternative as the proposed MIMP.

Five additional potential projects would be constructed in this scenario and are referred to as 4.1 through 4.5 below.

Potential projects H-20 and MUC-5 are outside the existing MIO and would not be constructed.

Potential projects EG(R)-2, EG(R)-3, EG(R)-4 are proposed for renovation in the MIMP but are outside the MIO and would not be renovated in this scenario; no changes to tree impacts would occur.

Potential project EG-8 would have an additional expansion discussed below as 4.1, but no changes to tree retention are anticipated.

Potential project H-2 is outside the existing MIO and would not be constructed in this scenario.

Potential project MUC-3 would have a reduced footprint to fit within the existing MIO.

Potential project AR-1 would have a modified footprint, with the inclusion of an additional building portion on the southeastern side.

All three planned developments would occur under Alternative 4.

The cumulative impact of this construction would result in an estimated **266 tree removals**, of which **55 are exceptional by size and/or their location within a grove**. One hundred and fifty-eight of the trees which would be removed for alternative 4 are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA. No shoreline area trees would be removed for alternative 4.

Potential project 4.1

Building EG-8 would have a different footprint than the proposed MIMP, with building 4.1 proposed along W Bertona St, connecting two additional wings. In order to construct building 4.1 and EG-8, trees **914, 915, and 926 through 929** would require removal, none of which are exceptional or located within ECAs.

Potential project 4.2

This building would be constructed along W Nickerson St on an existing parking area and would require the removal of tree **1044**, an exceptional tree by size. Tree 1044 is not located within any ECAs.

Potential project 4.3

This is a building proposed to the south of W Dravus St on the western edge of the current MIO. Construction of this building would require the removal of trees **145 to 149, 151, and 243 to 247**. Trees 145, 147, 244, and 247 are exceptional by size.

Trees 146, 147, 149, and 244 through 247 are located within a steep slope ECA/steep slope buffer.

Potential project 4.4

This building would be constructed at the end of W Etruria St in an existing parking lot and would likely require the removals of trees **103 and 239**. Both of which are exceptional by size and/or due to their location within a grove.

Potential project 4.5

Building 4.6 is connected to building 14. Collectively, this would require the removal of trees **811, 813 to 821, 824 to 830, 832, 848 to 852, and 872 to 874**. Tree 832 is exceptional by size. None of the trees which would be removed are located within any ECAs.

Alternative 5 – Boundary Expansion, Increased Height and No Street / Alley Vacations

This option expands the MIO and increases the height but retains the streets and alleys in their current state. It is likely that the changes in street and alleys would have an impact on tree retention; however, without more detailed plans it is difficult to elaborate on potential impacts.

Four additional potential projects would be constructed in this scenario and are referred to as 5.1 through 5.4 below.

Potential projects AR-2, EG(R)-1, EG(R)-2, EG(R)-3, EG(R)-4, EG-1, EG-2, EG-3, EG-4, EG-5, EG-6, EG-7, EG-8, EG-9, EG-10, EG-11, EG-12, EG-13, H-1, H-2, H-3, H-4, H-5, H-6, H-7, H-8, H-9, H-10, H-11 & H-11(EG), H-12, H-13, H-14, H-15, H-16, H-17, H-18, H-19, H-20, H-21, H-22, H-23, MUC-4 & MUC-4(H), and MUC-5

would be the same in this scenario and are assumed to have the same impact to tree retention in this alternative as the proposed MIMP.

Potential projects AR-1, MUC-1, MUC-2, and MUC-3 would have modified footprints as the existing alleys would remain in place. This would not change the overall impacts to tree removals.

The cumulative impact of this construction would result in an estimated **265 tree removals**, of which **38 are exceptional by size and/or their location within a grove**. One hundred and sixty-four trees which would be removed for alternative 5 are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA. One shoreline area tree would be removed for alternative 5.

Potential project 5.1

This building is proposed to the west of Tiffany Loop in approximately the same location as another building. In the proposed MIMP expansion the building would be demolished and returned to green space. However, in alternative 5 the demolition and construction of a new building would necessitate the removal of trees **570 to 576, 598, and 599**. Trees 570 and 573 are exceptional by size.

Trees 570 through 576 are located within a steep slope ECA/steep slope buffer and/or a potential landslide area ECA.

Potential project 5.2

Building 5.2 would be constructed to the south of W Dravus St and just to the east of 7th Ave W. This construction would require the removal of trees **243 through 247**. Trees 243 and 247 are exceptional by size.

Trees 244 through 247 are located within a steep slope ECA/steep slope buffer.

Potential project 5.3

In alternative 5 Building EG-8 would have a different footprint than the proposed MIMP, with building 5.3 proposed along W Bertona St, connecting two additional wings. In order to construct building 4.1 and EG-8 trees **914, 915, and 926 through 929** would require removal, none of which are exceptional or located within ECAs.

Potential project 5.4

This building is proposed along W Cremona St and would require the removal of trees **832 and 833**. Tree 832 is exceptional by size. Neither of the trees which would be removed are located in any ECAs.

Conclusions

The proposed MIMP results in less tree removal than alternatives 2 through 5 as it is largely proposing construction in areas that are already dominated by hardscapes and buildings. Alternative 2 has the highest overall tree removal and the greatest number of exceptional tree removals. Additionally, alternative 2 removes some of the most iconic trees in the Tiffany Loop area. Alternative 1 represents the lowest tree removal as there is comparably little proposed development.

Potential project H-9 of the proposed MIMP has the potential to impact the largest number of exceptional grove trees depending on the building's final placement and size. The exceptional grove to the east of the proposed building should be taken into consideration when finalizing a design.

Prior to construction the exact locations of trees should be surveyed, and plans should be reviewed by an arborist to determine impacts to trees, final retention numbers, and locations in relation to specific ECAs. It is possible that utilities, demolition, grading, and revised building footprints could have a considerable impact on overall tree retention. Considering tree retention throughout the design and development phase can lead to an increase in overall tree retention.

Table 1. Summary of tree totals in existing MIO.

Site trees	801
ROW trees	266
Exceptional trees by size	121
Exceptional trees by grove	158
Exceptional trees by size within exceptional groves	27
Total exceptional trees	252
Trees within steep slope ECA/buffer (includes trees also in potential landslide area ECA)	355
Trees within potential landslide area ECA (includes trees also in steep slope ECA/buffer)	405
Trees in steep slope/buffer and landslide area ECAs	181
Total trees in ECAs	579
Trees in shoreline area	1
Total trees in existing MIO	1067

Table 2. Summary of tree totals in expanded MIO.

Site trees	102
ROW trees	56
Exceptional trees by size	15
Exceptional trees by grove	0
Exceptional trees by size within exceptional groves	0
Total exceptional trees	15
Trees within steep slope ECA/buffer (includes trees also in potential landslide area ECA)	12
Trees within potential landslide area ECA (includes trees also in steep slope ECA/buffer)	79
Trees in steep slope/buffer and landslide area ECAs	12
Total trees in ECAs	79
Trees in shoreline area	29
Total trees in expanded MIO	158

Table 3. Summary of tree totals in existing and expanded MIO.

Site trees	903
ROW trees	322
Exceptional trees by size	136
Exceptional trees by grove	158
Exceptional trees by size within exceptional groves	27
Total exceptional trees	267
Trees within steep slope ECA/buffer (includes trees also in potential landslide area ECA)	367
Trees within potential landslide area ECA (includes trees also in steep slope ECA/buffer)	484

Trees in steep slope/buffer and potential landslide area ECAs	193
Total trees in ECAs	658
Trees in shoreline area	30
Total trees in existing and expanded MIO	1225

Table 4. Summary of tree removals in the proposed MIMP.

Total trees removed	249
Exceptional trees removed (grove and/or size)	47
ECA trees removed (steep slope/buffer and/or potential landslide area)	153
Shoreline area trees removed	1

Table 5. Summary of tree removals in alternative 1.

Total trees removed	51
Exceptional trees removed (grove and/or size)	19
ECA trees removed (steep slope/buffer and/or potential landslide area)	35
Shoreline area trees removed	0

Table 6. Summary of tree removals in alternative 2.

Total trees removed	278
Exceptional trees removed (grove and/or size)	65
ECA trees removed (steep slope/buffer and/or potential landslide area)	166
Shoreline area trees removed	0

Table 7. Summary of tree removals in alternative 3.

Total trees removed	274
Exceptional trees removed (grove and/or size)	56
ECA trees removed (steep slope/buffer and/or potential landslide area)	169
Shoreline area trees removed	1

Table 8. Summary of tree removals in alternative 4.

Total trees removed	266
Exceptional trees removed (grove and/or size)	55
ECA trees removed (steep slope/buffer and/or potential landslide area)	158
Shoreline area trees removed	0

Table 9. Summary of tree removals in alternative 5.

Total trees removed	265
Exceptional trees removed (grove and/or size)	52
ECA trees removed (steep slope/buffer and/or potential landslide area)	164
Shoreline area trees removed	1

Table 10. Summary of tree removals for parking.

Total trees removed	145
Exceptional trees removed (grove and/or size)	38
ECA trees removed (steep slope/buffer and/or potential landslide area)	100
Shoreline area trees removed	0

Recommendations

- Site planning around exceptional trees must follow the requirements outlined in SMC 25.11.050.¹
- Site planning around trees in critical areas must follow the requirements outlined in SMC 25.09.070.²
- All pruning required for construction clearance must be performed by a Seattle Department of Construction and Inspections registered tree service provider conforming to current ANSI A300 standards.
- Trees should be surveyed prior to construction and final impacts analyzed. Tree retention should be considered throughout the design process to ensure that trees with high retention value can be protected.

Respectfully submitted,



Tyler Bunton,
Consulting Arborist

¹ Seattle Municipal Code 25.11.050. General Provisions for Exceptional Trees

² Seattle Municipal Code 25.09.070 Standards for Trees and Vegetation in Critical Areas

Appendix A Glossary

ANSI A300: American National Standards Institute (ANSI) standards for tree care

DBH or DSH: diameter at breast or standard height; the diameter of the trunk measured 54 inches (4.5 feet) above grade (Council of Tree and Landscape Appraisers 2019)

ISA: International Society of Arboriculture

Regulated Tree: A tree required by municipal code to be identified in an arborist report.

Visual Tree Assessment (VTA): method of evaluating structural defects and stability in trees by noting the pattern of growth. Developed by Claus Mattheck (Harris, *et al* 1999)

Appendix B References

Accredited Standards Committee A300 (ASC 300). ANSI A300 (Part 1) Tree, Shrub, and Other Woody Plant Management – Standard Practices (Pruning). Londonderry: Tree Care Industry Association, 2017.

Council of Tree and Landscape Appraisers, Guide for Plant Appraisal, 10th Edition, Second Printing. Atlanta, GA: The International Society of Arboriculture (ISA), 2019.

Mattheck, Claus and Helge Breloer, The Body Language of Trees.: A Handbook for Failure Analysis. London: HMSO, 1994.

Seattle Municipal Code 25.09.070. Standards for Trees and Vegetation in Critical Areas.

Seattle Municipal Code 25.11.050. General Provisions for Exceptional Trees.

Sugimura, D.W. “DPD Director’s Rule 16-2008”. Seattle, WA, 2009

Appendix C Assumptions & Limiting Conditions

- 1 Consultant assumes that the site and its use do not violate, and is in compliance with, all applicable codes, ordinances, statutes or regulations.
- 2 The consultant may provide a report or recommendation based on published municipal regulations. The consultant assumes that the municipal regulations published on the date of the report are current municipal regulations and assumes no obligation related to unpublished city regulation information.
- 3 Any report by the consultant and any values expressed therein represent the opinion of the consultant, and the consultant's fee is in no way contingent upon the reporting of a specific value, a stipulated result, the occurrence of a subsequent event, or upon any finding to be reported.
- 4 All photographs included in this report were taken by Tree Solutions, Inc. during the documented site visit, unless otherwise noted. Sketches, drawings and photographs (included in, and attached to, this report) are intended as visual aids and are not necessarily to scale. They should not be construed as engineering drawings, architectural reports or surveys. The reproduction of any information generated by architects, engineers or other consultants and any sketches, drawings or photographs is for the express purpose of coordination and ease of reference only. Inclusion of such information on any drawings or other documents does not constitute a representation by the consultant as to the sufficiency or accuracy of the information.
- 5 Unless otherwise agreed, (1) information contained in any report by consultant covers only the items examined and reflects the condition of those items at the time of inspection; and (2) the inspection is limited to visual examination of accessible items without dissection, excavation, probing, climbing, or coring.
- 6 These findings are based on the observations and opinions of the authoring arborist, and do not provide guarantees regarding the future performance, health, vigor, structural stability or safety of the plants described and assessed.
- 7 Measurements are subject to typical margins of error, considering the oval or asymmetrical cross-section of most trunks and canopies.
- 8 Tree Solutions did not review any reports or perform any tests related to the soil located on the subject property unless outlined in the scope of services. Tree Solutions staff are not and do not claim to be soils experts. An independent inventory and evaluation of the site's soil should be obtained by a qualified professional if an additional understanding of the site's characteristics is needed to make an informed decision.
- 9 Our assessments are made in conformity with acceptable evaluation/diagnostic reporting techniques and procedures, as recommended by the International Society of Arboriculture.

Appendix D Methods

Measuring

We measured the diameter of each tree at 54 inches above grade, diameter at standard height (DSH). If a tree had multiple stems, we measured each stem individually at standard height and determined a single-stem equivalent diameter by using the method outlined in the city of Seattle Director's Rule 16-2008 or. A tree is regulated based on this single-stem equivalent diameter value. Because this value is calculated in the office following field work, some trees in our data set may have diameters smaller than 6 inches.

Evaluating

We evaluated tree health and structure utilizing visual tree assessment (VTA) methods. The basis behind VTA is the identification of symptoms, which the tree produces in reaction to a weak spot or area of mechanical stress. A tree reacts to mechanical and physiological stresses by growing more vigorously to re-enforce weak areas, while depriving less stressed parts. An understanding of the uniform stress allows the arborist to make informed judgments about the condition of a tree.

Rating

When rating tree health, we took into consideration crown indicators such as foliar density, size, color, stem and shoot extensions. When rating tree structure, we evaluated the tree for form and structural defects, including past damage and decay. Tree Solutions has adapted our ratings based on the Purdue University Extension formula values for health condition (*Purdue University Extension bulletin FNR-473-W - Tree Appraisal*). These values are a general representation used to assist arborists in assigning ratings.

Excellent - Perfect specimen with excellent form and vigor, well-balanced crown. Normal to exceeding shoot length on new growth. Leaf size and color normal. Trunk is sound and solid. Root zone undisturbed. No apparent pest problems. Long safe useful life expectancy for the species.

Good - Imperfect canopy density in few parts of the tree, up to 10% of the canopy. Normal to less than ¾ typical growth rate of shoots and minor deficiency in typical leaf development. Few pest issues or damage, and if they exist they are controllable or tree is reacting appropriately. Normal branch and stem development with healthy growth. Safe useful life expectancy typical for the species.

Fair - Crown decline and dieback up to 30% of the canopy. Leaf color is somewhat chlorotic/necrotic with smaller leaves and "off" coloration. Shoot extensions indicate some stunting and stressed growing conditions. Stress cone crop clearly visible. Obvious signs of pest problems contributing to lesser condition, control might be possible. Some decay areas found in main stem and branches. Below average safe useful life expectancy

Poor - Lacking full crown, more than 50% decline and dieback, especially affecting larger branches. Stunting of shoots is obvious with little evidence of growth on smaller stems. Leaf size and color reveals overall stress in the plant. Insect or disease infestation may be severe and uncontrollable. Extensive decay or hollows in branches and trunk. Short safe useful life expectancy.



Table of Trees
Seattle Pacific University, Seattle, WA

Arborist: TB / JP
Date of Inventory: Spring 2021
Table Prepared: May 23, 2023

Column headers highlighted in green indicate columns of data which were calculated using i-Tree Eco.

Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (S/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking	
1	Private	Tsuga heterophylla	Western hemlock	25.0		Good	Good	21	24		Exceptional S	ivy climbing trunk, fence very close to trunk	x				7303.78	1460.1	124.51	26.2	2.23	84.3	5.64	28.3	12.4	20.27								
2	Private	Acer platanoides	Norway maple	8.4	6.4,5.5	Good	Good	13	30		-	ivy at base	x				1529.58	286	24.39	28.5	2.43	19.1	1.28	6.4	2.81	6.52								
3	Private	Quercus rubra	Red oak	15.1		Good	Fair	23	30		-		x				4406.1	1013.4	86.42	41.6	3.55	39.9	2.67	13.4	5.88	12.09								
4	Private	Quercus rubra	Red oak	13.2		Good	Fair	25	30		-		x				3412.67	731	62.33	34.6	2.95	32.9	2.2	11.1	4.85	9.99								
5	Private	Pseudotsuga	Douglas-fir	27.2		Good	Good	24	30		-	ivy climbing	x				8657.38	1662.3	141.75	38.3	3.27	58	3.88	19.5	8.53	15.68								
6	Private	Chamaecyparis lawsoniana	Lawson cypress	12.0		Fair	Fair	10	30	Grove	Exceptional G	bark sloughing	x				1214.84	488.2	41.63	19.2	1.64	6	0.4	2	0.88	2.93								
7	Private	Acer macrophyllum	Bigleaf maple	36.0		Good	Good	30	30	Grove	Exceptional SG	survey number 100, ivy climbing canopy					18410.88	6047.8	515.73	3.1	0.26	176.9	11.82	59.4	26.03	38.12								
8	Private	Acer macrophyllum	Bigleaf maple	20.0	10.5,17	Good	Fair	22	30	Grove	Exceptional G	tag 102, ivy climbing trunk					5459.02	1617.6	137.94	17.6	1.5	57	3.81	19.2	8.39	13.71								
9	Private	Populus nigra 'Italica'	Lombardy poplar	33.0		Good	Good	16	30	Grove	Exceptional SG	survey tag 103					7988.07	14992.1	1278.45	323.5	27.59	97.9	6.55	32.9	14.41	48.54								
10	Private	Populus nigra 'Italica'	Lombardy poplar	25.0		Good	Good	15	30	Grove	Exceptional G	survey tag 104					4835.19	7519.9	641.26	214.1	18.26	88.8	5.94	29.8	13.07	37.26								
11	Private	Acer macrophyllum	Bigleaf maple	35.0		Fair	Poor	35	30	Grove	Exceptional SG	survey tag 54, hollow, ivy on trunk	x				11835.89	5677.4	484.14	2	0.17	77.2	5.16	25.9	11.37	16.7								
12	Private	Populus nigra 'Italica'	Lombardy poplar	28.0		Good	Good	15	30	Grove	Exceptional G	ivy climbing trunk, tag 105					5979.04	9964.4	849.72	253.2	21.59	92.4	6.18	31	13.6	41.37								
13	Private	Pseudotsuga menziesii	Douglas-fir	25.5		Good	Good	19	30	Grove	Exceptional G	ivy climbing trunk					7601.4	1462.1	124.69	35.6	3.03	54.9	3.67	18.4	8.07	14.77								
14	Private	Pinus strobus	Eastern white pine	16.0		Good	Good	14	30	Grove	Exceptional G	survey tag 52					2388.66	558.4	47.61	30.1	2.57	40.8	2.73	13.7	6	11.3								
15	Private	Aesculus hippocastanum	Horsechestnut	10.1		Fair	Fair	15	30		-	survey tag 107					1571.79	404.3	34.47	23	1.96	20.6	1.38	6.9	3.04	6.37								
16	ROW	Populus nigra 'Italica'	Lombardy poplar	30.0		Good	Good	25	30		-	survey tag C					6813.55	11828	1008.64	280.6	23.93	94.7	6.33	31.8	13.93	44.19	0							
17	ROW	Pinus nigra	Austrian black pine	30.3	18.5,24	Good	Good	23	24		-	Survey tag B					10520.73	2499.1	213.11	54.7	4.66	42.1	2.81	14.1	6.19	13.67	0							
18	ROW	Pinus nigra	Austrian black pine	28.8		Good	Good	25	24		-	Tree A on tag					9713.49	2229.3	190.1	51.2	4.37	41.3	2.76	13.9	6.08	13.21	0							
19	ROW	Acer macrophyllum	Bigleaf maple	27.7	21,18	Good	Fair	21	30		-	Tree D on tag, growing through fence					10249.04	3359.2	286.45	2	0.17	95.6	6.39	32.1	14.06	20.62	0							
20	ROW	Acer macrophyllum	Bigleaf maple	30.7	12,15,13,10,9,15	Good	Fair	24	30		-	tagged tree E, near fence					12277.3	4230.8	360.78	2.3	0.19	111.6	7.46	37.5	16.42	24.08	0							
21	ROW	Acer macrophyllum	Bigleaf maple	8.0		Good	Fair	15	30		-	growing through fence					1077.06	207.1	17.66	19.7	1.68	12.1	0.81	4.1	1.78	4.27	0							
22	ROW	Acer macrophyllum	Bigleaf maple	13.0		Good	Good	8	30		-						2744.76	615.4	52.48	31.8	2.71	39.6	2.65	13.3	5.83	11.18	0							
23	ROW	Acer macrophyllum	Bigleaf maple	26.7	10,8,9,18,12	Fair	Fair	18	30		-						8957.9	3093.2	263.77	1.8	0.15	79.5	5.31	26.7	11.69	17.16	0							
24	ROW	Acer macrophyllum	Bigleaf maple	24.8	12,8,10,15,9	Fair	Fair	18	30		-	growing through fence					7759.6	2621.1	223.51	1.6	0.14	70.8	4.73	23.8	10.42	15.29	0							
25	Private	Acer macrophyllum	Bigleaf maple	26.0		Good	Fair	30	30	Grove	Exceptional G	Survey tag 1					9058.48	2914.2	248.51	1.8	0.16	86.3	5.77	29	12.7	18.63								
26	Private	Acer macrophyllum	Bigleaf maple	16.7	12.5,11	Fair	Fair	30	30	Grove	Exceptional G	survey tag 4					3643	1079.4	92.05	23.5	2	40	2.68	13.4	5.89	10.57								
27	Private	Acer macrophyllum	Bigleaf maple	27.4	12.5,15,12,15	Fair	Fair	29	30	Grove	Exceptional G	survey tag 5, ivy, k deusta					9421.67	3278.1	279.54	1.8	0.16	82.7	5.53	27.8	12.17	17.86								
28	Private	Acer macrophyllum	Bigleaf maple	30.0	15,26	Fair	Poor	32	30	Grove	Exceptional SG	survey tag 6, k deusta					9057.89	4017.4	342.59	1.7	0.14	61.7	4.13	20.7	9.08	13.35								
29	Private	Acer macrophyllum	Bigleaf maple	19.4	13.5,14,	Fair	Poor	12	30	Grove	Exceptional G	tag 2	x				3894.44	1510.8	128.83	14.3	1.22	33.4	2.23	11.2	4.91	8.36								
30	Private	Aesculus hippocastanum	Horsechestnut	13.0		Good	Fair	15	30	Grove	Exceptional G		x				2620.31	747.7	63.76	31.2	2.66	35.9	2.4	12.1	5.28	10.34								
31	Private	Acer macrophyllum	Bigleaf maple	15.0		Fair	Fair	30	30	Grove	Exceptional G	tag is 9, ivy	x				2983.04	848.3	72.34	25.4	2.17	34.9	2.33	11.7	5.13	9.63								
32	Private	Acer macrophyllum	Bigleaf maple	17.5	15,9	Poor	Fair	12	30	Grove	Exceptional G	tag 8	x				3203.11	1198.9	102.23	17.7	1.51	28.9	1.93	9.7	4.25	7.69								
33	Private	Acer macrophyllum	Bigleaf maple	15.0		Fair	Poor	32	30	Grove	Exceptional G	tag 7					2401.93	848.3	72.34	20.4	1.74	22.4	1.5	7.5	3.3	6.54								
34	Private	Acer macrophyllum	Bigleaf maple	15.5		Poor	Fair	15	30	Grove	Exceptional G	tag 10	x				2552.31	913.1	77.87	20	1.71	23.8	1.59	8	3.5	6.79								
35	Private	Acer macrophyllum	Bigleaf maple	20.0		Fair	Fair	18	30	Grove	Exceptional G	tag 11, heavy ivy	x				5126.15	1617.6	137.94	16.3	1.39	50.6	3.38	17	7.44	12.21								



Table of Trees
Seattle Pacific University, Seattle, WA

Arborist: TB / JP
Date of Inventory: Spring 2021
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Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (S/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking	
36	Private	Acer macrophyllum	Bigleaf maple	8.5		Fair	Fair	15	30		-	heavy ivy, tag 12	x				1112.42	237.2	20.23	19.9	1.69	12	0.8	4	1.77	4.26								
37	Private	Acer macrophyllum	Bigleaf maple	12.7	5.5,6,6,3,7	Fair	Poor	12	30	Grove	Exceptional G	tag 13, heavy ivy	x				1773.71	584	49.8	21.4	1.82	16.4	1.09	5.5	2.41	5.33								
38	Private	Acer macrophyllum	Bigleaf maple	9.5	7,4,5	Fair	Fair	12	30		-	tag 14, ivy	x				1332.85	304.5	25.96	22.7	1.94	15	1.01	5.1	2.21	5.16								
39	Private	Prunus emarginata var. mollis	Bitter cherry	8.0		Fair	Fair	10			-	tree tag 15	x				1042.89	314	26.77	8.3	0.71	6.1	0.4	2	0.89	2.01								
40	Private	Acer macrophyllum	Bigleaf maple	8.0		Fair	Fair	15	30		-	tag 16, ivy soil at base	x				1011.39	207.1	17.66	18.4	1.57	10.4	0.7	3.5	1.54	3.8								
41	Private	Acer macrophyllum	Bigleaf maple	14.1	8.8,11	Good	Good	25	30	Grove	Exceptional G		x				3180.94	738.4	62.97	31.3	2.67	44.1	2.95	14.8	6.49	12.1								
42	Private	Acer macrophyllum	Bigleaf maple	27.3	20.5,18	Fair	Fair	20	30	Grove	Exceptional G	ivy, tag 55,	x				9354.68	3251.3	277.26	1.8	0.16	82.3	5.5	27.6	12.11	17.77								
43	Private	Acer macrophyllum	Bigleaf maple	12.7		Fair	Fair	15	30	Grove	Exceptional G	tag 57, cherry laurel	x				2202.83	584	49.8	26.5	2.26	26.6	1.77	8.9	3.91	7.94								
44	Private	Acer macrophyllum	Bigleaf maple	16.0		Good	Good	20	30	Grove	Exceptional G	no tag	x				4017.75	980.5	83.61	29.1	2.48	50.6	3.38	17	7.44	13.31								
45	Private	Acer macrophyllum	Bigleaf maple	14.0		Good	Good	15	30	Grove	Exceptional G	tag 98	x				3139.83	726.7	61.97	31.4	2.67	43.8	2.93	14.7	6.44	12.04								
46	Private	Acer macrophyllum	Bigleaf maple	12.0		Good	Good	15	30	Grove	Exceptional G	tag 97, ivy	x				2378.97	514.2	43.85	31.8	2.71	34.9	2.33	11.7	5.14	10.18								
47	Private	Acer macrophyllum	Bigleaf maple	15.0		Fair	Fair	25	30	Grove	Exceptional G	tag 96, dieback	x				2983.04	848.3	72.34	25.4	2.17	34.9	2.33	11.7	5.13	9.63								
48	Private	Acer macrophyllum	Bigleaf maple	23.0		Poor	Poor	30	30	Grove	Exceptional G	tag 99, severe decay	x				4964.13	2213.4	188.75	5	0.42	35.1	2.34	11.8	5.16	7.93								
49	Private	Acer macrophyllum	Bigleaf maple	19.4	13.5,14	Good	Good	40	30	Grove	Exceptional G	no tag	x				5778.85	1510.8	128.83	21.2	1.81	68.8	4.6	23.1	10.12	16.53								
50	Private	Acer macrophyllum	Bigleaf maple	7.0		Fair	Fair	10	30		-	tag 76, ivy	x				827.69	153.5	13.09	15.7	1.34	7.9	0.53	2.6	1.16	3.02								
51	Private	Acer macrophyllum	Bigleaf maple	8.5		Good	Good	20	30		-	tag 60	x				1329.12	237.2	20.23	23.8	2.03	18.3	1.22	6.1	2.69	5.94								
52	Private	Acer macrophyllum	Bigleaf maple	13.0		Good	Fair	20	30	Grove	Exceptional G	tag 59	x				2446.42	615.4	52.48	28.3	2.41	31.5	2.1	10.6	4.63	9.15								
53	Private	Acer macrophyllum	Bigleaf maple	8.9	5.5,4,4.5,3.5	Fair	Fair	15	30		-	tag 61	x				1197.65	263	22.43	21	1.79	13.1	0.87	4.4	1.93	4.59								
54	Private	Prunus avium	Wild cherry	8.7		Good	Good	15	29.4		-	tag 62	x				1425.1	323.2	27.56	24.4	2.08	10.7	0.72	3.6	1.58	4.38								
55	Private	Prunus avium	Wild cherry	10.5		Good	Good	30	29.4		-	tag 71	x				1954.43	510.9	43.57	27.3	2.32	14.8	0.99	5	2.17	5.48								
56	Private	Prunus avium	Wild cherry	6.5		Good	Good	15	29.4		-	tag 72	x				912.92	158.9	13.55	17.5	1.49	6.5	0.43	2.2	0.95	2.87								
57	Private	Acer macrophyllum	Bigleaf maple	8.5		Fair	Fair	15	30		-	heavy ivy, no tag	x				1112.42	237.2	20.23	19.9	1.69	12	0.8	4	1.77	4.26								
58	Private	Acer macrophyllum	Bigleaf maple	8.5		Fair	Fair	15	30		-	heavy ivy, no tag	x				1112.42	237.2	20.23	19.9	1.69	12	0.8	4	1.77	4.26								
59	Private	Acer macrophyllum	Bigleaf maple	13.0		Fair	Fair	12	30	Grove	Exceptional G	heavy ivy	x				2297.25	615.4	52.48	26.5	2.26	27.6	1.85	9.3	4.07	8.18								
60	Private	Acer macrophyllum	Bigleaf maple	15.5		Good	Good	25	30	Grove	Exceptional G	heavy ivy	x				3787.29	913.1	77.87	29.8	2.54	49.1	3.28	16.5	7.22	13.05								
61	Private	Acer macrophyllum	Bigleaf maple	9.0		Fair	Fair	18	30		-	tag 84, heavy ivy	x				1219.57	269.7	23	21.3	1.82	13.5	0.9	4.5	1.98	4.7								
62	Private	Acer macrophyllum	Bigleaf maple	6.0		Fair	Fair	18	30		-	tag 85, heavy ivy	x				668.49	108.6	9.26	13	1.11	5.7	0.38	1.9	0.84	2.33								
63	Private	Acer macrophyllum	Bigleaf maple	15.0		Fair	Fair	18	30	Grove	Exceptional G	tag 86	x				2983.04	848.3	72.34	25.4	2.17	34.9	2.33	11.7	5.13	9.63								
64	Private	Acer macrophyllum	Bigleaf maple	6.5		Fair	Poor	15	30		-	tag 90	x				599.89	129.9	11.08	11.5	0.98	4	0.27	1.3	0.59	1.83								
65	Private	Acer macrophyllum	Bigleaf maple	13.0		Fair	Fair	25	30	Grove	Exceptional G	tag 91	x				2297.25	615.4	52.48	26.5	2.26	27.6	1.85	9.3	4.07	8.18								
66	Private	Acer macrophyllum	Bigleaf maple	9.0		Good	Good	20	30		-	tag 89	x				1457.15	269.7	23	25.5	2.18	20.6	1.38	6.9	3.03	6.59								
67	Private	Acer macrophyllum	Bigleaf maple	8.0		Fair	Fair	20	30		-	tag 88	x				1011.39	207.1	17.66	18.4	1.57	10.4	0.7	3.5	1.54	3.8								
68	Private	Acer macrophyllum	Bigleaf maple	7.5		Fair	Poor	20	30		-	tag 87	x				737.94	179.1	15.28	13.7	1.16	5.4	0.36	1.8	0.79	2.31								
69	Private	Acer macrophyllum	Bigleaf maple	14.0		Fair	Fair	25	30	Grove	Exceptional G	tag 92, heavy ivy	x				2627.9	726.7	61.97	26.2	2.23	31.3	2.09	10.5	4.6	8.93								
70	Private	Acer macrophyllum	Bigleaf maple	20.0		Good	Good	30	30	Grove	Exceptional G	tag 93, heavy ivy	x				6124.75	1617.6	137.94	19.5	1.66	72.1	4.82	24.2	10.6	17.08								
71	Private	Acer macrophyllum	Bigleaf maple	17.0		Good	Good	22	30	Grove	Exceptional G	tag 94, heavy ivy	x				4500.6	1123.4	95.8	27.4	2.34	55.4	3.71	18.6	8.16	14.2								
72	Private	Acer macrophyllum	Bigleaf maple	16.0		Fair	Fair	20	30	Grove	Exceptional G	tag 82, heavy ivy	x				3362.68	980.5	83.61	24.3	2.07	38.1	2.54	12.8	5.6	10.22								
73	Private	Acer macrophyllum	Bigleaf maple	12.0		Good	Good	16	30	Grove	Exceptional G	tag 81, heavy ivy	x				2378.97	514.2	43.85	31.8	2.71	34.9	2.33	11.7	5.14	10.18								



Table of Trees
Seattle Pacific University, Seattle, WA

Arborist: TB / JP
Date of Inventory: Spring 2021
Table Prepared: May 23, 2023

Column headers highlighted in green indicate columns of data which were calculated using i-Tree Eco.

Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (S/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking
74	Private	Acer macrophyllum	Bigleaf maple	14.0		Good	Good	20	30	Grove	Exceptional G	heavy ivy, tag 80	x			3139.83	726.7	61.97	31.4	2.67	43.8	2.93	14.7	6.44	12.04								
75	Private	Acer macrophyllum	Bigleaf maple	18.0		Fair	Fair	20	30	Grove	Exceptional G	no tag, heavy ivy	x			4195.43	1277.1	108.9	21.1	1.8	43.5	2.91	14.6	6.4	11.11								
76	Private	Acer macrophyllum	Bigleaf maple	8.3		Good	Good	25	30		-	no tag	x			1279.96	224.9	19.18	23.1	1.97	17.4	1.16	5.8	2.55	5.69								
77	Private	Acer macrophyllum	Bigleaf maple	13.5		Good	Good	25	30	Grove	Exceptional G	tag 63, ivy	x			2938.64	669.8	57.11	31.6	2.69	41.8	2.79	14	6.15	11.63								
78	Private	Acer macrophyllum	Bigleaf maple	7.0		Fair	Good	15	30		-	no tag	x			881.44	153.5	13.09	16.7	1.43	9.2	0.61	3.1	1.35	3.39								
79	Private	Acer macrophyllum	Bigleaf maple	24.0		Good	Fair	30	30	Grove	Exceptional G	no tag	x			7754.33	2435.2	207.66	3.1	0.26	76.2	5.09	25.6	11.21	16.57								
80	Private	Acer macrophyllum	Bigleaf maple	38.2	24,22,20	Fair	Poor	50	30	Grove	Exceptional SG	decay, on slope, no tag	x			13634.89	6908.7	589.14	2.2	0.19	86.7	5.8	29.1	12.76	18.74								
81	Private	Prunus avium	Wild cherry	9.0		Fair	Fair	25	29.4		-	tag 67	x			1260.82	351	29.93	20.8	1.77	7.4	0.49	2.5	1.09	3.36								
82	Private	Acer macrophyllum	Bigleaf maple	10.5		Good	Fair	20	30		-	no tag	x			1680.23	381.1	32.5	27.4	2.34	21.4	1.43	7.2	3.15	6.92								
83	Private	Acer macrophyllum	Bigleaf maple	11.0		Good	Fair	15	30		-	tag 65, ivy	x			1820.43	423	36.07	27.9	2.38	23.4	1.56	7.9	3.44	7.39								
84	Private	Pinus strobus	Eastern white pine	19.0		Good	Good	25	30	Grove	Exceptional G	ivy at base, tag 19	x			3378.75	841	71.72	38.3	3.27	54.2	3.63	18.2	7.98	14.87								
85	Private	Ilex aquifolium	English holly	6.5		Good	Good	20	18.8		-	no tag	x			912.92	129.5	11.04	8.5	0.73	3.6	0.24	1.2	0.53	1.49								
86	Private	Acer macrophyllum	Bigleaf maple	12.0		Good	Good	18	30	Grove	Exceptional G	tag 70, ivy	x			2378.97	514.2	43.85	31.8	2.71	34.9	2.33	11.7	5.14	10.18								
87	Private	Acer macrophyllum	Bigleaf maple	27.7	17,12,15.5, 9.8	Good	Good	23	30		-	in rockery				11498.92	3359.2	286.45	2.2	0.19	120.4	8.05	40.4	17.71	25.95								
88	Private	Picea pungens	Colorado spruce	11.5		Good	Good	12	23.1		-					1039.06	428.7	36.56	15.3	1.3	16.3	1.09	5.5	2.4	4.8								
89	Private	Picea pungens	Colorado spruce	15.5		Good	Good	13	23.1		-					1887.72	833.8	71.1	22	1.88	32.7	2.19	11	4.82	8.88								
90	Private	Pinus sylvestris	Scots pine	13.5		Good	Good	12	24	Grove	Exceptional G	tag 21 ivy	x			1431.96	485.5	41.4	28.1	2.39	22	1.47	7.4	3.23	7.09								
91	Private	Acer macrophyllum	Bigleaf maple	34.0	15.5,5,13.5,11,10,7,7,12,10,8,6,4,4,4	Good	Fair	35	30	Grove	Exceptional SG	tag 20	x			14887.01	5319.9	453.66	2.6	0.22	129.7	8.67	43.6	19.09	27.98								
92	Private	Populus trichocarpa	Black cottonwood	23.7	16,15,9	Good	Good	50		Grove	Exceptional G	tag 25	x			4379.73	6586.1	561.63	197.9	16.87	86	5.75	28.9	12.65	35.28								
93	Private	Populus trichocarpa	Black cottonwood	10.0		Good	Good	15			-	no tag	x			1058.31	773.4	65.95	55.7	4.75	14.2	0.95	4.8	2.08	7.78								
94	Private	Populus trichocarpa	Black cottonwood	19.8	13,12,9	Good	Fair	50		Grove	Exceptional G	tag 23	x			2815.86	4214.9	359.43	135.2	11.53	51.7	3.45	17.4	7.6	22.58								
95	Private	Populus trichocarpa	Black cottonwood	8.8		Good	Fair	25			-	tree tag 27, heavy blackberry and ivy	x			798.62	563.2	48.03	41.1	3.5	7.5	0.5	2.5	1.1	5.1								
96	Private	Populus trichocarpa	Black cottonwood	33.7	14,10,16,15,12,13,7	Good	Fair	60		Grove	Exceptional G	tag 26, ivy, blackberry	x			7388.15	15796.2	1347.03	297.3	25.36	78.2	5.23	26.3	11.5	42.09								
97	Private	Populus trichocarpa	Black cottonwood	9.4	8.5,4	Good	Good	12			-	tag 28	x			974.57	663.3	56.56	50.9	4.34	11.9	0.8	4	1.75	6.89								
98	Private	Populus trichocarpa	Black cottonwood	28.6	13,18,18	Good	Fair	50		Grove	Exceptional G	tag 29, ivy	x			5546.9	10503.4	895.68	232.7	19.85	74.1	4.95	24.9	10.9	35.69								
99	Private	Cedrus deodara	Deodar cedar	13.0		Good	Good	23	30	Grove	Exceptional G	ivy climbing trunk, tag 30	x			2409.87	638.6	54.46	36.1	3.08	8.9	0.6	3	1.31	4.99								
100	Private	Alnus rubra	Red alder	15.0	9,9,8	Good	Good	28		Grove	Exceptional G	no tag. ivy	x			3711.99	216	18.42	10.8	0.92	38.8	2.59	13	5.7	9.21								
101	Private	Cedrus deodara	Deodar cedar	19.0		Good	Good	23	30	Grove	Exceptional G	tag 31	x			5276.44	1406.3	119.93	54.5	4.65	20	1.34	6.7	2.95	8.93								
102	Private	Cedrus deodara	Deodar cedar	17.7		Good	Good	25	30	Grove	Exceptional G	tag 22	x			4564.13	1213.6	103.49	50.5	4.3	17.3	1.16	5.8	2.55	8.01								
103	Private	Betula pendula	European white birch	14.0		Good	Fair	25	24	Grove	Exceptional G					3069.52	898.8	76.65	53.4	4.55	22.3	1.49	7.5	3.28	9.33						Remove		
104	Private	Betula pendula	European white birch	9.2		Good	Good	14	24		-					1633.39	318.5	27.16	32.6	2.78	15.6	1.04	5.2	2.29	6.12								
105	Private	Robinia pseudoacacia	Black locust	25.0		Good	Good	20	30		-	dsh estimated due to access	x			9416.94	2507.3	213.81	2.1	0.17	57.9	3.87	19.4	8.52	12.56								
106	Private	Picea pungens	Colorado spruce	11.2		Good	Good	11	23.1		-					985.55	403.9	34.45	14.8	1.26	15.2	1.02	5.1	2.24	4.52								
107	Private	Robinia pseudoacacia	Black locust	30.0		Good	Good	29	30		Exceptional S	dsh estimated	x			13440.73	3951	336.93	2.7	0.23	61.7	4.13	20.7	9.08	13.44								
108	Private	Pinus sylvestris	Scots pine	17.7		Good	Good	17	24		-					2461.66	872.7	74.42	37.9	3.23	37.7	2.52	12.7	5.55	11.31								
109	Private	Robinia pseudoacacia	Black locust	14.8	7.5,8,10	Good	Good	16	30		-		x			3476.95	689.2	58.77	13.9	1.19	31.3	2.09	10.5	4.61	7.89								Remove



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Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (\$/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking	
110	Private	Prunus laurocerasus	Cherry laurel	30.0		Good	Good	25	26.2		Exceptional S	48 trunk hedge with dsh ranging from 3 to 12 inches	x			14050.53	7912.1	674.71	5.2	0.45	50.8	3.39	17	7.47	11.31								Remove	
111	Private	Acer macrophyllum	Bigleaf maple	56.5	17.5,33,30,30	Fair	Fair	30	30		Exceptional S	severe decay and old tear outs	x			27655.55	16534.7	1410	33.1	2.82	204.4	13.66	68.6	30.07	46.55		Remove		Remove	Remove	Remove	Remove	Remove	Remove
112	Private	Acer platanoides	Norway maple	10.5		Good	Good	19	30		-		x			2255.51	473.8	40.41	37.9	3.23	29.3	1.96	9.8	4.31	9.5		Remove		Remove	Remove	Remove	Remove	Remove	Remove
113	Private	Salix sp. (native)	Native Willow	15.3	4,5,4,6,5,3,3,3,4,5,7	Good	Good	18	8		Exceptional S	Scoulers willow, dsh est, holly in canopy	x			2599.32	2222.3	189.51	40	3.41	30.2	2.02	10.2	4.45	9.88		Remove		Remove	Remove	Remove	Remove	Remove	Remove
114	Private	Acer macrophyllum	Bigleaf maple	20.8	3,4,4,4,4,5,6,6,3,4,4,3,3,7,4,5,7,5,5,4,2,2,5	Good	Fair	19	30		-		x			5884.69	1766.4	150.63	14.9	1.27	60.9	4.07	20.4	8.96	14.3								Remove	
115	Private	Prunus serrulata	Flowering cherry	15.0	7,7,3,6,5,9,	Good	Fair	19	23		-		x			3308.51	1451	123.74	1.3	0.11	17.1	1.14	5.7	2.52	3.77								Remove	
116	Private	Betula pendula	European white birch	10.0		Good	Good	15	24		-		x			1883.1	391.3	33.37	36.8	3.14	17.7	1.18	5.9	2.6	6.92								Remove	
117	Private	Betula pendula	European white birch	10.0		Good	Good	14	24		-		x			1883.1	391.3	33.37	36.8	3.14	17.7	1.18	5.9	2.6	6.92									
118	Private	Betula pendula	European white birch	7.6		Good	Good	10	24		-		x			1196.38	198.8	16.96	24.8	2.11	11.4	0.76	3.8	1.68	4.56									
119	Private	Acer macrophyllum	Bigleaf maple	20.5	13,5,12,9	Good	Fair	20	30		-		x			5723.11	1709.8	145.8	16.1	1.37	59.5	3.97	20	8.75	14.09									
120	Private	Acer platanoides	Norway maple	12.5		Good	Good	22	30		-	blackberry at base	x			3096.85	703.8	60.02	42	3.58	39.1	2.62	13.1	5.76	11.96		Remove		Remove	Remove	Remove	Remove		
121	Private	Malus domestica	Apple	8.5	6,6	Fair	Fair	22	20		-	phototropic	x			1148.65	276.4	23.57	19.3	1.65	4.9	0.33	1.6	0.72	2.7									
122	Private	Zelkova serrata	Japanese zelkova	10.4	6,5,4,5,5,2,4,4	Good	Good	18	21		-		x			2217.28	226.3	19.29	9.8	0.84	25.2	1.69	8.5	3.71	6.24		Remove		Remove	Remove	Remove	Remove		
123	Private	Acer rubrum	Red maple	6.0		Good	Good	8	25		-		x			732.87	119.7	10.2	18.4	1.57	9.7	0.65	3.2	1.42	3.63		Remove		Remove	Remove	Remove	Remove		
124	Private	Acer pseudoplatanus	Sycamore maple	15.4	9,5,5,11	Good	Good	21	24		-		x			4187.2	1163.5	99.22	45	3.84	47.9	3.2	16.1	7.05	14.1		Remove		Remove	Remove	Remove	Remove		
125	Private	Betula pendula	European white birch	7.0		Good	Good	12	24		-		x			1053.96	162.3	13.84	22	1.88	9.9	0.66	3.3	1.45	3.99		Remove		Remove	Remove	Remove	Remove		
126	Private	Acer pseudoplatanus	Sycamore maple	7.5		Good	Good	14	24		-		x			1187.19	225.3	19.21	19	1.62	15.7	1.05	5.3	2.31	4.98		Remove		Remove	Remove	Remove	Remove		
127	Private	Populus trichocarpa	Black cottonwood	7.7	6,3,4,5	Good	Fair	12			-		x			682.24	404.5	34.49	33.8	2.88	5.3	0.35	1.8	0.78	4.02		Remove		Remove	Remove	Remove	Remove		
128	Private	Prunus avium	Wild cherry	10.0	7,7,5,4	Fair	Poor	19	29.4		-		x			1211.32	453.7	38.69	17.7	1.51	5.3	0.35	1.8	0.78	2.64		Remove		Remove	Remove	Remove	Remove		
129	Private	Betula pendula	European white birch	9.2		Good	Good	13	24		-		x			1633.39	318.5	27.16	32.6	2.78	15.6	1.04	5.2	2.29	6.12		Remove		Remove	Remove	Remove	Remove		
130	Private	Prunus serrulata	Flowering cherry	7.7		Good	Good	12	23		-		x			1173.91	286	24.39	0.6	0.05	6.1	0.41	2.1	0.9	1.36		Remove		Remove	Remove	Remove	Remove		
131	Private	Acer platanoides	Norway maple	12.4		Good	Good	16	30		-		x			3051.3	690.9	58.92	42	3.58	38.6	2.58	13	5.68	11.85		Remove		Remove	Remove	Remove	Remove		
132	Private	Prunus serrulata	Flowering cherry	13.3	8,2,8,6,7	Good	Fair	16	23		-		x			2651.73	1082.6	92.32	1.1	0.1	13.8	0.92	4.6	2.03	3.05									
133	Private	Chamaecyparis lawsoniana	Lawson cypress	11.2	8,6,5	Good	Good	9	30		-		x			1259.24	432.5	36.88	21.4	1.82	7.9	0.53	2.7	1.17	3.52		Remove		Remove	Remove	Remove	Remove		
134	Private	Chamaecyparis lawsoniana	Lawson cypress	14.0		Good	Good	9	30		-		x			1990.16	688.7	58.73	27.2	2.32	13.3	0.89	4.5	1.95	5.16		Remove		Remove	Remove	Remove	Remove		
135	Private	Abies procera	Noble fir	15.3		Fair	Good	12	20.3		-					1868.5	652.3	55.63	27.2	2.32	22.1	1.48	7.4	3.25	7.05									
136	Private	Camellia japonica	Japanese camellia	10.2	5,4,8,3,5,4,3,5,4	Good	Good	11	30		-					1859.32	668.8	57.03	0.7	0.06	9.8	0.66	3.3	1.44	2.16									
137	Private	Sorbus aucuparia	European mountain ash	10.6	4,3,4,9,4,8,5,6,4	Good	Good	15	29		-					1986.75	490.1	41.79	22.4	1.91	14.3	0.95	4.8	2.1	4.96									
138	Private	Tsuga mertensiana	Mountain hemlock	7.2		Good	Good	7.5	10.8		-			x		548.02	89.5	7.63	5.4	0.46	5.7	0.38	1.9	0.83	1.67									
139	Private	Tsuga heterophylla	Western hemlock	19.9		Good	Good	17	24		-					4604.71	892.1	76.07	19.5	1.66	58.6	3.92	19.7	8.62	14.2									
140	Private	Photinia x fraseri	Fraser photinia	11.4	7,2,4,5,8,5,3	Good	Good	18	12		-			x		2256.32	968.4	82.58	1.3	0.11	16.4	1.09	5.5	2.41	3.61									
141	Private	Tsuga mertensiana	Mountain hemlock	7.1		Good	Good	10	10.8		-			x		531.17	86.4	7.37	5.3	0.45	5.4	0.36	1.8	0.8	1.61									
142	Private	Prunus laurocerasus	Cherry laurel	10.6	7,2,4,5,1,3,3	Good	Good	13	26.2		-					1986.75	643.7	54.89	1.2	0.1	16.5	1.1	5.5	2.42	3.62									
143	Private	Acer palmatum	Japanese maple	12.7	8,5,9,5	Good	Good	10	12		Exceptional S					2435.65	572.9	48.85	0.5	0.04	25.8	1.73	8.7	3.8	5.57									



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Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (S/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking	
144	Private	Acer palmatum	Japanese maple	10.4	6.5,4.5,4.2,5.2	Good	Good	13	12		-		x				1726.74	362.1	30.88	4.4	0.37	16.4	1.09	5.5	2.41	3.88								
145	Private	Sequoia sempervirens	Coast redwood	50.6		Good	Good	22	30		Exceptional S						21826.53	8273.7	705.54	139.1	11.86	78.9	5.27	26.5	11.61	28.75				Remove	Remove	Remove		
146	Private	Acer macrophyllum	Bigleaf maple	28.0		Good	Fair	40	30		-		x				10466.97	3441.3	293.46	2	0.17	97	6.49	32.6	14.27	20.93				Remove	Remove	Remove		
147	Private	Acer macrophyllum	Bigleaf maple	33.5		Good	Good	50	30		Exceptional S		x				16267.61	5146	438.83	2.8	0.24	159.8	10.68	53.7	23.52	34.44				Remove	Remove	Remove		
148	Private	Prunus laurocerasus	Cherry laurel	13.1	5.2,7.6,9.3,	Good	Good	15	26.2		-						2894.24	1073.8	91.57	1.6	0.14	24.2	1.62	8.1	3.56	5.32				Remove	Remove	Remove		
149	Private	Ilex aquifolium	English holly	11.0		Good	Good	9	18.8		-		x				2119.08	420.1	35.83	15.2	1.3	9	0.6	3	1.33	3.23				Remove	Remove	Remove		
150	Private	Betula pendula	European white birch	15.9		Good	Good	17	24		-		x				4367.45	1231.6	105.02	72.3	6.16	35.5	2.37	11.9	5.22	13.76								
151	Private	Acer platanoides	Norway maple	16.2		Good	Good	17	30		-						5039.06	1269.8	108.28	43	3.66	54.2	3.62	18.2	7.97	15.26				Remove	Remove	Remove		
152	Private	Acer platanoides	Norway maple	15.0		Good	Good	15	30		-						4354.28	1065.8	90.89	43.2	3.68	50.1	3.35	16.8	7.38	14.41				Remove	Remove	Remove		
153	Private	Acer macrophyllum	Bigleaf maple	38.2		Good	Good	42	30		Exceptional S			x			20232.42	6908.7	589.14	3.3	0.28	191	12.77	64.2	28.11	41.16				Remove	Remove	Remove		
154	Private	Acer macrophyllum	Bigleaf maple	43.3		Good	Good	45	30		Exceptional S			x			24222.72	9151.6	780.41	3.9	0.33	221	14.77	74.2	32.51	47.62								
155	Private	Acer platanoides	Norway maple	16.7		Good	Good	18	30		-		x	x			5339.93	1361.1	116.06	42.6	3.63	55.7	3.72	18.7	8.19	15.54								
156	Private	Sorbus aucuparia	European mountain ash	11.0		Good	Good	12	29		-		x	x			2119.08	536.6	45.76	21.6	1.84	15.3	1.03	5.2	2.26	5.13				Remove	Remove	Remove		
157	Private	Acer rubrum	Red maple	6.2		Good	Good	8	25		-			x			762.62	129.4	11.03	19.2	1.64	10.3	0.69	3.5	1.52	3.85				Remove	Remove	Remove		
158	Private	Acer platanoides	Norway maple	16.5		Good	Good	19	30		-			x			5218.48	1324	112.91	42.8	3.65	55.2	3.69	18.5	8.11	15.45				Remove	Remove	Remove		
159	Private	Acer pseudoplatanus	Sycamore maple	12.8		Good	Good	15	24		-		x	x			2971.35	762.3	65	37.8	3.23	38.5	2.57	12.9	5.67	11.47				Remove	Remove	Remove		
160	Private	Halesia carolina	Carolina silverbell	20.5	13,10.5,11.8	Good	Good	17	15.6		Exceptional S			x			6702.51	1178.5	100.5	1	0.08	51	3.41	17.1	7.51	11				Remove	Remove	Remove		
161	Private	Malus domestica	Apple	12.5		Good	Good	17	20		-			x			2658.98	710.5	60.59	40.2	3.43	13.5	0.9	4.5	1.99	6.33								
162	Private	Quercus palustris	Pin oak	27.0		Fair	Fair	32	30		-		x	x			11359.53	3278.5	279.57	1.7	0.14	90.4	6.04	30.4	13.3	19.49								
163	Private	Malus domestica	Apple	7.0		Fair	Fair	10	20		-		x	x			850.6	171.9	14.66	14.6	1.25	3.6	0.24	1.2	0.53	2.02								
164	Private	Cornus florida	Eastern flowering dogwood	8.3	5.8,5.9	Fair	Fair	15	12		-		x	x			1105.58	255.2	21.76	13.8	1.18	5.4	0.36	1.8	0.8	2.34								
165	Private	Malus domestica	Apple	11.3		Good	Good	17	20		-		x	x			2221.55	554.9	47.32	34.8	2.97	11.7	0.78	3.9	1.72	5.46								
166	Private	Acer macrophyllum	Bigleaf maple	60.4	25,26,26,19,27,24	Fair	Poor	40	30		Exceptional S	cables in canopy, ivy at base, decline and decay, k deusta	x	x			23743.82	16534.7	1410	33.1	2.82	141.3	9.45	47.5	20.79	33.06								
167	Private	Robinia pseudoacacia	Black locust	41.1	27,31	Good	Fair	35	30		Exceptional S						20091.1	8712.6	742.97	3.9	0.33	54.8	3.66	18.4	8.06	12.06								
168	Private	Malus domestica	Apple	7.0		Good	Good	14	20		-			x			1016.3	171.9	14.66	17.6	1.5	5.5	0.37	1.9	0.81	2.68								
169	Private	Gleditsia triacanthos	Honeylocust	20.2		Good	Good	32	20		Exceptional S						4782.71	1323.8	112.89	60.8	5.18	43.7	2.92	14.7	6.43	14.53								
170	Private	Malus domestica	Apple	9.4	6,7.2	Good	Good	13	20		-						1619.16	353.6	30.15	26.7	2.28	8.7	0.58	2.9	1.28	4.14								
171	Private	Fagus sylvatica	European beech	21.0		Good	Good	25	30		-			x			10411.92	2687.1	229.14	1.3	0.11	135.8	9.08	45.6	19.99	29.18								
172	Private	Quercus palustris	Pin oak	40.5		Good	Good	28	30		Exceptional S						27489.29	7370.3	628.51	3	0.26	254.9	17.04	85.6	37.51	54.8								
173	Private	Tsuga heterophylla	Western hemlock	19.0		Good	Good	23	24		-	ivy, surface roots					4192.05	800.9	68.29	18.3	1.56	54.3	3.63	18.2	7.98	13.17								
174	Private	Tsuga heterophylla	Western hemlock	14.0		Good	Good	18	24		-						2247.22	374.6	31.95	11.3	0.97	29.5	1.97	9.9	4.34	7.28								
175	Private	Malus domestica	Apple	7.3		Good	Good	15	20		-	ivy at base					1082.01	190.5	16.24	18.7	1.59	5.9	0.4	2	0.87	2.86								
176	Private	Robinia pseudoacacia	Black locust	27.5		Good	Good	32	30		-						11337.39	3179.2	271.1	2.4	0.2	60.1	4.02	20.2	8.85	13.07								



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177	Private	Prunus laurocerasus	Cherry laurel	14.1	7,5,2,4,5,4,3,6,5,6,5	Good	Good	19	26.2		-						3310.85	1282.5	109.37	1.8	0.15	27.4	1.83	9.2	4.03	6.02								
178	Private	Prunus laurocerasus	Cherry laurel	14.1	7,5,2,4,5,4,3,6,5,6,5	Good	Good	19	26.2		-						3310.85	1282.5	109.37	1.8	0.15	27.4	1.83	9.2	4.03	6.02								
179	Private	Quercus palustris	Pin oak	34.5		Fair	Fair	30	30		Exceptional S						17841.35	5349.7	456.19	2.1	0.18	137.5	9.19	46.2	20.23	29.6								
180	Private	Ginkgo biloba	Ginkgo biloba	10.5		Good	Good	12	24		-						2255.51	160.5	13.68	7.8	0.66	18.6	1.25	6.3	2.74	4.65								
181	ROW	Malus domestica	Apple	9.3		Good	Good	16	20		-						1590.52	344.5	29.37	26.3	2.25	8.6	0.57	2.9	1.26	4.08	0							
182	Private	Malus domestica	Apple	10.3	5,5,7,5,4,5	Good	Good	17	20		-						1890.72	442.3	37.72	30.5	2.6	10.1	0.68	3.4	1.49	4.77								
183	Private	Malus domestica	Apple	14.5	8,5,7,5,8	Good	Fair	15	20		-						3107.15	1021.9	87.14	44	3.75	13	0.87	4.3	1.91	6.52								
184	Private	Ginkgo biloba	Ginkgo biloba	14.5		Good	Fair	14	24		-	Codominant trunks					3640.54	362.6	30.92	11.3	0.96	27.7	1.85	9.3	4.08	6.89	0							
185	Private	Quercus palustris	Pin oak	36.0		Good	Good	30	30		-						22912.68	5824.5	496.69	2.7	0.23	211.3	14.13	71	31.09	45.44	0							
186	Private	Prunus serrulata	Flowering cherry	24.4	18,2,16,2	Good	Fair	20	23		Exceptional S						8364.49	4745.2	404.65	2.7	0.23	28.5	1.91	9.6	4.2	6.33								
187	Private	Liquidambar styraciflua	American sweetgum	20.8		Good	Fair	25	27		-						8002.58	1196.4	102.03	47.5	4.05	59.1	3.95	19.8	8.69	16.68	0							
188	Private	Malus domestica	Apple	8.2		Good	Good	12	20		-						1295.68	253.1	21.59	22	1.88	7.1	0.47	2.4	1.05	3.4								
189	Private	Malus domestica	Apple	10.6		Good	Good	15	20		-						1986.75	474.5	40.46	31.8	2.71	10.5	0.7	3.5	1.55	4.96								
190	Private	Cercis canadensis	Redbud	15.7	9,9,9,8,2	Good	Fair	33	9.5		Exceptional S	previously failed, growing vertically now					3601.88	695	59.27	0.6	0.05	25.5	1.7	8.5	3.74	5.5								
191	Private	Sorbus aucuparia	European mountain ash	8.5		Good	Good	11	29		-						1372.41	285.5	24.34	25.7	2.19	9.1	0.61	3	1.33	4.13								
192	Private	Chamaecyparis obtusa	Hinoki cypress	10.0		Good	Good	10	16.4		-						995.72	418.9	35.73	16.1	1.37	6.2	0.41	2.1	0.91	2.69								
193	Private	Quercus palustris	Pin oak	25.0		Good	Good	30	30		-		x				11670.27	2811.5	239.75	8.7	0.74	112.6	7.53	37.8	16.57	24.85								
194	Private	Malus domestica	Apple	9.1	6,6,8	Good	Good	13	20		-						1534.15	326.6	27.85	25.5	2.18	8.3	0.55	2.8	1.22	3.95								
195	Private	Malus domestica	Apple	9.4	5,2,5,6,5,5	Good	Good	15	20		-		x				1619.16	353.6	30.15	26.7	2.28	8.8	0.59	2.9	1.29	4.16								
196	ROW	Liquidambar styraciflua	American sweetgum	24.3		Good	Fair	27	27		-	possible row tree	x	x			10850.32	1756.4	149.78	59.2	5.05	66.5	4.44	22.3	9.78	19.27	0							
197	Private	Acer rubrum	Red maple	10.0		Good	Good	15	25		-		x				1513.24	405.6	34.59	37	3.15	27.1	1.81	9.1	3.99	8.96								
198	Private	Cornus kousa	Kousa dogwood	11.7	10,6	Good	Good	12	12		-		x				2362.46	881.1	75.14	0.8	0.07	15	1	5	2.21	3.27								
199	Private	Acer rubrum	Red maple	7.5		Good	Good	10	25		-		x				979.78	203.8	17.38	24.9	2.12	15.4	1.03	5.2	2.27	5.42								
200	Private	Aesculus hippocastanum	Horsechestnut	15.3	7,6,8,7,8	Good	Fair	16	30		-	heavy ivy	x				3539.92	1114.1	95	31.5	2.69	44.5	2.97	14.9	6.54	12.2								
201	Private	Malus domestica	Apple	9.2		Good	Good	12	20		-	ivy	x				1562.18	335.5	28.61	25.9	2.21	8.4	0.56	2.8	1.24	4.02								
202	Private	Malus domestica	Apple	12.1	10,6,8	Good	Good	12	20		-		x				2508.27	656.1	55.95	38.4	3.27	12.9	0.86	4.3	1.89	6.03								
203	Private	Crataegus monogyna	Common hawthorn	9.1		Good	Good	14	16.2		-		x	x			1534.15	374.8	31.96	0.4	0.04	5.8	0.38	1.9	0.85	1.27								
204	Private	Salix matsudana 'Tortuosa'	Corkscrew willow	33.5	22,7,20,14,3	Good	Fair	25	24		Exceptional S		x	x			9786.19	15563.8	1327.21	6.5	0.55	78.7	5.26	26.4	11.58	17.39								
205	Private	Juniperus scopulorum	Rocky Mountain juniper	13.0		Good	Good	12	30		-		x	x			1087.39	1539.9	131.32	18.5	1.58	28.8	1.93	9.7	4.24	7.74								
206	Private	Juniperus scopulorum	Rocky Mountain juniper	10.2		Good	Good	12	30		-		x	x			679.03	895	76.32	31.3	2.67	16.9	1.13	5.7	2.49	6.3								
207	Private	Pinus contorta var. contorta	Shore pine	6.2		Good	Good	10	12		-			x			316.61	70.5	6.01	8.6	0.73	3.8	0.25	1.3	0.56	1.54								
208	Private	Acer palmatum	Japanese maple	10.0		Good	Good	14	12		-			x			1617.86	331	28.23	4.8	0.41	15.1	1.01	5.1	2.22	3.64								
209	Private	Cornus florida	Eastern flowering dogwood	15.6	9,8,7,5,6,5	Good	Good	15	12		Exceptional S			x			3993.19	1098.3	93.66	17.3	1.47	22.5	1.5	7.6	3.31	6.29								
210	Private	Acer palmatum	Japanese maple	15.4	9,4,9,8,2	Good	Good	16	12		Exceptional S			x			3447.98	891.9	76.06	0.6	0.05	37.2	2.49	12.5	5.48	8.02								
211	ROW	Picea pungens	Colorado spruce	10.0		Good	Good	12	23.1		-	possible row tree		x			785.64	313.5	26.74	12.9	1.1	11.5	0.77	3.9	1.69	3.56	0							
212	Private	Cedrus deodara	Deodar cedar	20.0		Good	Good	25	30		-	dsh estimated due to access		x			5858.71	1564.7	133.43	57.7	4.92	22.1	1.48	7.4	3.25	9.65								
213	Private	Magnolia grandiflora	Southern magnolia	9.0		Good	Good	12	16		-		x	x			1334.24	289.4	24.68	20.1	1.71	18	1.2	6	2.65	5.57								
214	Private	Ilex aquifolium	English holly	7.0		Good	Good	8	18.8		-		x	x			1016.3	152.6	13.01	9.3	0.8	4	0.27	1.4	0.59	1.66								



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Table Prepared: May 23, 2023

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Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (S/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking	
215	ROW	<i>Acer circinatum</i>	Vine maple	8.2	4.5,4.5,3,3,2,2	Good	Good	11	8		-			x			1180.74	543.1	46.31	0.9	0.08	17.8	1.19	6	2.63	3.9	0							
216	ROW	<i>Viburnum sp.</i>	Viburnum	10.0	3.3,4,3.5,3,3.2,3.5,4.5,3	Good	Good	16	30		-	viburnum sp.		x			1797.44	481	41.01	31.5	2.68	3	0.2	1	0.44	3.32	0							
217	ROW	<i>Juglans cinerea</i>	Butternut	10.9	9,4,3,3.5	Good	Good	18	18.2		-			x			2144.28	190.5	16.25	16.2	1.38	24.8	1.66	8.3	3.65	6.69	0							
218	Private	<i>Arbutus unedo</i>	Strawberry tree	19.2	6,5,7,7.2,5,5,6,4,6,4,6,4	Good	Good	20	10.2		Exceptional S		x	x			5912.03	2498.1	213.03	1.4	0.12	10.6	0.71	3.6	1.56	2.39								
219	Private	<i>Malus domestica</i>	Apple	8.5		Good	Good	15	20		-		x	x			1372.41	276.4	23.57	23.2	1.98	7.5	0.5	2.5	1.1	3.58								
220	Private	<i>Acer pseudoplatanus</i>	Sycamore maple	7.0		Good	Good	10	24		-		x	x			1066.97	192.7	16.43	17.4	1.49	13.8	0.92	4.6	2.03	4.43								
221	ROW	<i>Liquidambar styraciflua</i>	American sweetgum	24.0		Fair	Fair	26	27		-	decay, surface roots, possible row tree		x			9943.24	1703.4	145.26	54.5	4.65	58.4	3.91	19.6	8.6	17.15	0							
222	Private	<i>Acer macrophyllum</i>	Bigleaf maple	12.4		Good	Good	21	30	Grove	Exceptional G		x				2521.77	553.5	47.2	31.8	2.71	36.9	2.47	12.4	5.43	10.61								
223	Private	<i>Corylus cornuta</i>	Beaked hazelnut	6.7	4.5,3.5,3.5	Good	Good	15	0		Exceptional S		x				953.35	258.6	22.05	16.9	1.44	11	0.74	3.7	1.62	3.8								
224	Private	<i>Acer macrophyllum</i>	Bigleaf maple	14.0	4,7,13,2	Good	Fair	20	30	Grove	Exceptional G		x				2798.54	726.7	61.97	27.8	2.37	35.5	2.37	11.9	5.22	9.97								
225	Private	<i>Alnus rubra</i>	Red alder	27.0		Fair	Fair	35		Grove	Exceptional G		x				9567.61	700	59.69	9.4	0.8	47.7	3.19	16	7.01	11								
226	Private	<i>Acer macrophyllum</i>	Bigleaf maple	11.1		Good	Good	15	30		-		x				2074.77	431.7	36.81	31.5	2.69	30.5	2.04	10.2	4.49	9.21								
227	Private	<i>Acer macrophyllum</i>	Bigleaf maple	23.0		Good	Good	30	30	Grove	Exceptional G		x				8012.27	2213.4	188.75	8	0.68	89.7	5.99	30.1	13.19	19.87								
228	Private	<i>Acer macrophyllum</i>	Bigleaf maple	27.0		Good	Good	26	30	Grove	Exceptional G		x				10938.67	3171.7	270.47	2.2	0.18	115.6	7.73	38.8	17.01	24.92								
229	Private	<i>Alnus rubra</i>	Red alder	13.5		Fair	Fair	15		Grove	Exceptional G		x				2558.75	175	14.92	8.1	0.69	22.9	1.53	7.7	3.37	5.6								
230	Private	<i>Alnus rubra</i>	Red alder	11.5		Fair	Fair	12			-		x				1917.8	127	10.83	6.9	0.59	17.9	1.2	6	2.64	4.43								
231	Private	<i>Acer macrophyllum</i>	Bigleaf maple	13.3	10,6,3,6	Good	Fair	20	30	Grove	Exceptional G		x				2549.32	647.7	55.23	28.3	2.41	32.6	2.18	11	4.8	9.39								
232	Private	<i>Acer macrophyllum</i>	Bigleaf maple	22.2		Good	Good	28	30	Grove	Exceptional G		x				7483.18	2044.4	174.34	11.4	0.97	85	5.68	28.5	12.51	19.16								
233	Private	<i>Acer macrophyllum</i>	Bigleaf maple	15.9		Fair	Fair	16	30	Grove	Exceptional G		x				3323.61	966.8	82.45	24.4	2.08	37.7	2.52	12.7	5.55	10.15								
234	Private	<i>Acer macrophyllum</i>	Bigleaf maple	9.2		Good	Fair	16	30		-		x				1346.24	283.3	24.16	23.3	1.99	16.4	1.09	5.5	2.41	5.49								
235	Private	<i>Acer macrophyllum</i>	Bigleaf maple	6.0		Fair	Fair	8	30		-		x				668.49	108.6	9.26	13	1.11	5.7	0.38	1.9	0.84	2.33								
236	Private	<i>Prunus avium</i>	Wild cherry	8.7		Good	Good	12	29.4		-		x				1425.1	323.2	27.56	24.4	2.08	10.7	0.72	3.6	1.58	4.38								
237	Private	<i>Acer macrophyllum</i>	Bigleaf maple	12.0		Fair	Fair	16	30	Grove	Exceptional G		x				1991.09	514.2	43.85	26.5	2.26	23.9	1.6	8	3.52	7.38								
238	Private	<i>Quercus alba</i>	White oak	32.0		Good	Good	40	15.5	Grove	Exceptional SG						17367.63	6735.2	574.35	55.9	4.76	118.7	7.93	39.9	17.46	30.16								
239	Private	<i>Quercus alba</i>	White oak	32.0		Good	Good	40	15.5	Grove	Exceptional SG						17367.63	6735.2	574.35	55.9	4.76	118.7	7.93	39.9	17.46	30.16						Remove		
240	Private	<i>Acer macrophyllum</i>	Bigleaf maple	10.4	5,3,4,4,5,3,3	Good	Fair	15	30		-		x				1652.97	373	31.81	27.1	2.31	21.1	1.41	7.1	3.11	6.83								
241	Private	<i>Quercus alba</i>	White oak	30.0		Good	Good	35	15.5	Grove	Exceptional SG						15613.58	5733.7	488.95	51	4.35	116	7.76	39	17.07	29.17								
242	Private	<i>Acer macrophyllum</i>	Bigleaf maple	16.6	9,10,6,9	Fair	Fair	20	30	Grove	Exceptional G		x				3602.22	1064.9	90.81	23.6	2.01	39.8	2.66	13.4	5.85	10.53								
243	Private	<i>Alnus rubra</i>	Red alder	28.0		Good	Fair	29			-						10939.72	752.8	64.19	9.5	0.81	53.5	3.58	18	7.88	12.27				Remove	Remove	Remove	Remove	
244	Private	<i>Acer macrophyllum</i>	Bigleaf maple	33.0		Good	Good	40	30		Exceptional S	on property line	x				15829.6	4975.3	424.27	2.8	0.24	156.8	10.48	52.7	23.07	33.79				Remove	Remove	Remove	Remove	
245	Private	<i>Prunus laurocerasus</i>	Cherry laurel	9.7		Good	Good	15	26.2		-		x				1706.92	519.3	44.28	1	0.09	13.8	0.93	4.6	2.04	3.05					Remove	Remove	Remove	Remove
246	Private	<i>Prunus avium</i>	Wild cherry	18.0		Good	Good	25	29.4		-	on property line	x				5228.31	1898.5	161.9	25.4	2.16	32.9	2.2	11.1	4.84	9.21				Remove	Remove	Remove	Remove	
247	Private	<i>Acer macrophyllum</i>	Bigleaf maple	34.1	14,18,20,12,10	Good	Fair	42	30		Exceptional S		x				14964.21	5355.1	456.66	2.6	0.22	130.4	8.71	43.8	19.18	28.11				Remove	Remove	Remove	Remove	
248	ROW	<i>Malus domestica</i>	Apple	11.0		Fair	Fair	12	20		-			x			1773.58	519.5	44.3	27.9	2.38	7.2	0.48	2.4	1.07	3.93	0							
249	Private	<i>Prunus cerasifera</i>	Cherry plum	7.7	5,4,3,3	Good	Good	15	21		-			x			1173.91	240.1	20.47	0.5	0.04	9.3	0.62	3.1	1.37	2.03		Remove		Remove	Remove	Remove	Remove	
250	ROW	<i>Thuja occidentalis</i>	Arborvitae	11.2	6,8,5	Good	Good	4	11.8		-			x			1243.54	483.1	41.2	16.3	1.39	5.7	0.38	1.9	0.84	2.61	0	Remove		Remove	Remove	Remove	Remove	
251	ROW	<i>Thuja occidentalis</i>	Arborvitae	11.4	9,7	Good	Good	4	11.8		-			x			1289.71	500.2	42.65	16.5	1.41	6	0.4	2	0.89	2.7	0	Remove		Remove	Remove	Remove	Remove	
252	ROW	<i>Ilex aquifolium</i>	English holly	7.0		Good	Good	6	18.8		-			x			1016.3	152.6	13.01	9.3	0.8	4	0.27	1.4	0.59	1.66	0	Remove		Remove	Remove	Remove	Remove	



Table of Trees
Seattle Pacific University, Seattle, WA

Arborist: TB / JP
Date of Inventory: Spring 2021
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Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (S/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking	
253	Private	<i>Pinus sylvestris</i>	Scots pine	18.4	12,14	Good	Fair	16	24		-	estimated dsh		x			2371.07	938	79.99	35.2	3	31.6	2.11	10.6	4.65	9.75		Remove		Remove	Remove	Remove	Remove	
254	Private	<i>Tsuga heterophylla</i>	Western hemlock	18.0		Good	Good	16	24		-			x			3755.93	703	59.95	16.8	1.44	49.2	3.29	16.5	7.24	11.97		Remove		Remove	Remove	Remove	Remove	
255	Private	<i>Acer macrophyllum</i>	Bigleaf maple	34.3	18,12,15,22	Good	Fair	28	30		Exceptional S			x			15118.25	5425.8	462.69	2.6	0.22	131.3	8.78	44.1	19.32	28.32		Remove		Remove	Remove	Remove	Remove	
256	Private	<i>Acer palmatum</i>	Japanese maple	9.0	9	Good	Good	12	12		-			x			1364.34	260.1	22.18	5.8	0.5	11.8	0.79	3.9	1.73	3.01		Remove		Remove	Remove	Remove	Remove	
257	Private	<i>Quercus alba</i>	White oak	28.0	28	Good	Good	35	15.5		Exceptional S			x			13633.39	4827.3	411.65	46.8	3.99	113.8	7.61	38.2	16.75	28.35		Remove		Remove	Remove	Remove	Remove	
258	Private	<i>Pseudotsuga menziesii</i>	Douglas-fir	30.0		Good	Good	23	30		Exceptional S	DSH estimated, measure to confirm exceptional status		x			10545.17	2009	171.32	42.8	3.65	60	4.01	20.2	8.83	16.5		Remove		Remove	Remove	Remove	Remove	
259	Private	<i>Malus domestica</i>	Apple	12.0	8,9	Fair	Poor	15	20		-			x			1665.48	642.9	54.82	25.4	2.17	5	0.34	1.7	0.74	3.24		Remove		Remove	Remove	Remove	Remove	
260	Private	<i>Malus domestica</i>	Apple	7.2	6,4	Fair	Fair	12	20		-			x			887.01	184.1	15.7	15.2	1.3	3.8	0.25	1.3	0.56	2.11		Remove		Remove	Remove	Remove	Remove	
261	Private	<i>Prunus serrulata</i>	Flowering cherry	26.0		Good	Fair	25	23		Exceptional S			x			9465.35	5539	472.34	2.9	0.25	29.1	1.95	9.8	4.28	6.48		Remove		Remove	Remove	Remove	Remove	
262	Private	<i>Quercus alba</i>	White oak	21.5		Good	Good	30	15.5		Exceptional S						8140.91	2498.3	213.04	40.4	3.45	90.1	6.02	30.3	13.26	22.73								
263	ROW	<i>Parrotia persica</i>	Persian ironwood	6.0		Good	Good	7	14.3		-						817.19	122.7	10.47	0.2	0.02	6.3	0.42	2.1	0.92	1.36	0							
264	ROW	<i>Prunus serrulata</i>	Flowering cherry	6.7		Good	Good	9	23		-						953.35	203.9	17.38	0.5	0.04	4.6	0.31	1.5	0.68	1.03	0							
265	ROW	<i>Prunus serrulata</i>	Flowering cherry	7.2		Good	Good	11	23		-						1059.8	242.9	20.71	0.5	0.04	5.3	0.36	1.8	0.78	1.18	0							
266	ROW	<i>Prunus serrulata</i>	Flowering cherry	6.2		Good	Good	13	23		-			x			854.56	168.8	14.39	0.4	0.04	3.9	0.26	1.3	0.58	0.88	0							
267	Private	<i>Chamaecyparis pisifera</i>	Sawara cypress	25.7		Fair	Fair	15	26.9		-						5692.73	5945.8	507.03	70.3	5.99	27.3	1.83	9.2	4.02	11.84								
268	Private	<i>Chamaecyparis pisifera</i>	Sawara cypress	29.2		Fair	Fair	15	26.9		Exceptional S						7358.64	7730.5	659.22	69.2	5.9	30.9	2.06	10.4	4.54	12.51								
269	Private	<i>Prunus serrulata</i>	Flowering cherry	9.2		Good	Good	9	23		-			x			1562.18	441.2	37.63	0.7	0.06	9	0.6	3	1.32	1.98								
270	Private	<i>Ilex aquifolium</i>	English holly	14.2	9,11	Good	Good	18	18.8		-	on northwest property corner		x			3354.19	748.9	63.87	12.7	1.08	15	1	5	2.21	4.29		Remove		Remove	Remove	Remove	Remove	
271	Private	<i>Betula pendula</i>	European white birch	7.0		Good	Good	10	24		-			x			1053.96	162.3	13.84	22	1.88	9.9	0.66	3.3	1.45	3.99		Remove		Remove	Remove	Remove	Remove	
272	Private	<i>Betula pendula</i>	European white birch	6.0		Good	Good	12	24		-			x			842.61	111	9.47	17.7	1.51	7.6	0.51	2.6	1.13	3.14		Remove		Remove	Remove	Remove	Remove	
273	Private	<i>Betula pendula</i>	European white birch	7.0		Good	Good	15	24		-			x			1053.96	162.3	13.84	22	1.88	9.9	0.66	3.3	1.45	3.99		Remove		Remove	Remove	Remove	Remove	
274	Private	<i>Betula pendula</i>	European white birch	10.0		Good	Good	20	24		-			x			1883.1	391.3	33.37	36.8	3.14	17.7	1.18	5.9	2.6	6.92		Remove		Remove	Remove	Remove	Remove	
275	Private	<i>Betula pendula</i>	European white birch	12.0		Good	Good	20	24		-			x			2598.45	613.9	52.35	47.9	4.09	23.6	1.58	7.9	3.48	9.14		Remove		Remove	Remove	Remove	Remove	
276	ROW	<i>Prunus serrulata</i>	Flowering cherry	14.0		Good	Fair	16	23		-			x			2912.61	1226.6	104.6	1.2	0.1	15.1	1.01	5.1	2.23	3.34	0							
277	ROW	<i>Prunus serrulata</i>	Flowering cherry	17.0		Good	Fair	18	23		-			x			4182.21	1968.1	167.83	1.6	0.14	20.4	1.36	6.8	3	4.5	0							
278	ROW	<i>Pinus nigra</i>	Austrian black pine	27.1		Good	Good	25	24		-			x			8593.38	1945.2	165.88	47.3	4.04	40.5	2.7	13.6	5.95	12.69	0	Remove		Remove	Remove	Remove	Remove	
279	ROW	<i>Pinus nigra</i>	Austrian black pine	22.0		Good	Fair	18	24		-			x			5028.59	1211.6	103.32	32.2	2.74	28.7	1.92	9.6	4.22	8.88	0	Remove		Remove	Remove	Remove	Remove	
280	ROW	<i>Photinia x fraseri</i>	Fraser photinia	8.4	4,3,3,6	Good	Fair	10	12		-			x			1200.16	456.1	38.89	6.3	0.54	6.7	0.45	2.3	0.99	1.97	0							
281	ROW	<i>Prunus serrulata</i>	Flowering cherry	8.0		Fair	Fair	16	23		-			x	x		1042.89	314	26.77	0.5	0.04	4.4	0.29	1.5	0.64	0.98	0							
282	ROW	<i>Picea abies</i>	Norway spruce	16.0		Good	Good	16	30		-						2124.63	1041.3	88.8	26	2.22	50	3.34	16.8	7.35	12.91	0							
283	Private	<i>Arbutus menziesii</i>	Pacific madrone	19.8	14,14	Fair	Fair	16	6		Exceptional S						5248.08	2355.6	200.88	1.5	0.13	7	0.47	2.3	1.03	1.62		Remove		Remove	Remove	Remove	Remove	
284	Private	<i>Prunus serrulata</i>	Flowering cherry	16.0		Good	Fair	12	23		-			x			3731.71	1698	144.8	1.5	0.12	18.7	1.25	6.3	2.75	4.13		Remove		Remove	Remove	Remove	Remove	
285	Private	<i>Gleditsia triacanthos</i>	Honeylocust	17.0		Good	Good	15	20		-			x			3476.36	866	73.85	47	4.01	37.8	2.53	12.7	5.57	12.1								
286	Private	<i>Cedrus libani</i>	Cedar of Lebanon	27.6		Good	Good	18	30		-	blue cultivar		x			11259.8	6926.4	590.65	25.8	2.2	36.3	2.43	12.2	5.35	9.97								
287	Private	<i>Fagus pendula 'Purpurea Tricolor'</i>	Weeping beech	15.2		Good	Good	15	13.6		Exceptional S			x			5141.6	1278.7	109.05	1.2	0.11	88.9	5.94	29.9	13.08	19.13								
288	Private	<i>Thuja plicata</i>	Western redcedar	39.9		Good	Good	24	30		Exceptional S			x			17116.78	2751.7	234.65	31.1	2.65	48	3.21	16.1	7.06	12.92								



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Seattle Pacific University, Seattle, WA

Arborist: TB / JP
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289	Private	Cedrus deodara	Deodar cedar	24.7		Good	Good	20	30		-			x			8995.36	2423.2	206.64	69.6	5.94	31.5	2.1	10.6	4.63	12.67								
290	Private	Malus domestica	Apple	23.0	10.2,12.5,16.4	Good	Fair	16	20		Exceptional S			x			7458.58	3164.4	269.85	63.7	5.43	25	1.67	8.4	3.67	10.77								
291	Private	Acer platanoides	Norway maple	17.6		Good	Good	17	30		-			x			5904.54	1533.6	130.78	41.9	3.58	57.8	3.86	19.4	8.51	15.95								
292	Private	Acer palmatum	Japanese maple	22.8	16,12,11	Good	Fair	19	12		Exceptional S			x			6435.01	2199.9	187.59	0.9	0.07	45.2	3.02	15.2	6.66	9.75								
293	Private	Fraxinus pennsylvanica	Green ash	8.3	6,5,7	Good	Fair	11	30		-		x				984.62	183.2	15.62	13.5	1.15	12.5	0.84	4.2	1.84	3.83		Remove	Remove	Remove	Remove	Remove	Remove	
294	Private	Rhus typhina	Staghorn sumac	7.7	5,9,5	Good	Fair	12	11		-		x				1046.31	286	24.39	9.7	0.83	6.5	0.44	2.2	0.96	2.23		Remove	Remove	Remove	Remove	Remove	Remove	
295	Private	Parrotia persica	Persian ironwood	12.0	6,4,5,4,5,3,5,4,7,4,2,4	Good	Good	10	14.3		-		x				2471.36	668.2	56.98	0.6	0.05	31.2	2.08	10.5	4.58	6.72		Remove	Remove	Remove	Remove	Remove	Remove	
296	Private	Magnolia x soulangeana	Saucer magnolia	7.7	4,2,4,8,3,3	Good	Fair	13	16		-		x				977.38	221.5	18.89	8.2	0.7	9.8	0.66	3.3	1.45	2.8		Remove	Remove	Remove	Remove	Remove	Remove	
297	Private	Magnolia x soulangeana	Saucer magnolia	8.1	4,9,3,1,3,3,3,4,3,2	Good	Fair	18	16		-		x				1054.99	250.3	21.35	7.8	0.66	10.9	0.73	3.6	1.6	2.99		Remove	Remove	Remove	Remove	Remove	Remove	
298	Private	Sorbus aucuparia	European mountain ash	9.7	3,8,8,9	Good	Fair	7	29		-		x				1521.38	394.4	33.63	21.9	1.87	9	0.6	3	1.33	3.8		Remove	Remove	Remove	Remove	Remove	Remove	
299	Private	Juniperus scopulorum	Rocky Mountain juniper	10.9	9,5,3,8,3,9	Good	Fair	15	30		-		x				687.98	1003.9	85.61	25.5	2.18	15	1	5	2.21	5.39		Remove	Remove	Remove	Remove	Remove	Remove	
300	Private	Tsuga heterophylla	Western hemlock	13.1		Fair	Good	12	24		-						1746.72	311.1	26.53	9	0.77	19.3	1.29	6.5	2.84	4.9		Remove	Remove	Remove	Remove	Remove	Remove	
301	Private	Acer palmatum	Japanese maple	6.6	5,6,3,5	Good	Good	10	12		-						864.78	128.2	10.93	6.6	0.57	6	0.4	2	0.88	1.85		Remove	Remove	Remove	Remove	Remove	Remove	
302	Private	Acer palmatum	Japanese maple	7.8	5,1,3,2,3,9,3,1	Good	Fair	10	12		-						976.29	187.6	16	5.7	0.49	6.6	0.44	2.2	0.96	1.89		Remove	Remove	Remove	Remove	Remove	Remove	
303	Private	Cornus mas	Cornelian cherry dogwood	10.9	4,6,4,7,4,9,5,5,2	Good	Fair	9	9.6		Exceptional S						1858.85	748	63.78	0.6	0.05	10.3	0.69	3.5	1.51	2.25		Remove	Remove	Remove	Remove	Remove	Remove	
304	Private	Acer palmatum	Japanese maple	11.2	6,4,4,6,3,7,4,2,4,3,3,8	Good	Good	10	12		-						1957.3	429.2	36.6	3.3	0.28	19.5	1.3	6.6	2.87	4.45		Remove	Remove	Remove	Remove	Remove	Remove	
305	Private	Umbellularia californica	California laurel	13.3	6,6,9,5,3,5,2,6,2	Good	Fair	12	30		-						2651.73	1001.6	85.41	45.9	3.92	21.3	1.43	7.2	3.14	8.48		Remove	Remove	Remove	Remove	Remove	Remove	
306	Private	Umbellularia californica	California laurel	7.8	4,2,3,8,5,3	Good	Good	13	30		-		x				1197.65	279.3	23.82	24.6	2.1	9.5	0.63	3.2	1.39	4.12		Remove	Remove	Remove	Remove	Remove	Remove	
307	Private	Betula papyrifera	Paper birch	9.9	4,6,6,5,5,8	Good	Good	16	20		-		x				1923.11	397.6	33.9	39.3	3.35	18.8	1.25	6.3	2.76	7.37		Remove	Remove	Remove	Remove	Remove	Remove	
308	Private	Betula papyrifera	Paper birch	12.7		Good	Good	17	20	Grove	Exceptional G		x				3003.34	753.8	64.28	57.8	4.93	31.9	2.14	10.7	4.7	11.76		Remove	Remove	Remove	Remove	Remove	Remove	
309	Private	Betula papyrifera	Paper birch	8.8	5,5,6,9	Good	Good	12	20		-		x				1571.96	293.8	25.05	32.8	2.8	14.8	0.99	5	2.17	5.96		Remove	Remove	Remove	Remove	Remove	Remove	
310	Private	Betula papyrifera	Paper birch	8.9		Good	Good	16	20		-		x				1602.18	302.4	25.79	33.4	2.85	15	1	5	2.2	6.05		Remove	Remove	Remove	Remove	Remove	Remove	
311	Private	Arbutus unedo	Strawberry tree	12.1	7,4,6,9,3,7,5,6	Good	Good	15	10.2	Grove	Exceptional SG		x				2508.27	823.4	70.22	0.7	0.06	9	0.6	3	1.32	1.99		Remove	Remove	Remove	Remove	Remove	Remove	
312	Private	Pyrus calleryana	Callery pear	9.8		Good	Good	15	13		-						1736.79	385.2	32.84	27.9	2.38	13.2	0.88	4.4	1.94	5.21								
313	Private	Betula papyrifera	Paper birch	14.2		Good	Good	18	20	Grove	Exceptional G						3692.14	1004.1	85.62	67.8	5.78	38.7	2.59	13	5.7	14.07								
314	Private	Betula papyrifera	Paper birch	13.5		Good	Good	19	20	Grove	Exceptional G						3361.14	881.8	75.2	63.5	5.41	35.5	2.37	11.9	5.23	13.02								
315	Private	Betula papyrifera	Paper birch	13.5		Good	Good	17	20	Grove	Exceptional G						3361.14	881.8	75.2	63.5	5.41	35.5	2.37	11.9	5.23	13.02								
316	Private	Betula papyrifera	Paper birch	14.6		Good	Good	17	20	Grove	Exceptional G						3888.79	1078.3	91.96	69.1	5.89	40.4	2.7	13.6	5.95	14.55								
317	Private	Betula papyrifera	Paper birch	14.8	10,5,2,4,9,5,2,6,3	Good	Good	20	20	Grove	Exceptional G						3989.16	1116.7	95.23	70.1	5.98	41	2.74	13.8	6.04	14.76								
318	Private	Betula papyrifera	Paper birch	13.8	11,8,3	Good	Good	20	20	Grove	Exceptional G						3500.94	933	79.56	65.7	5.6	36.9	2.47	12.4	5.44	13.51								
319	Private	Pyrus calleryana	Callery pear	9.7		Good	Good	16	13		-						1706.92	375.6	32.03	27.5	2.35	13	0.87	4.4	1.91	5.12								
320	Private	Betula papyrifera	Paper birch	10.7		Good	Good	16	20		-			x			2204.43	485.4	41.39	44.3	3.78	22.5	1.5	7.6	3.31	8.59								
321	Private	Betula papyrifera	Paper birch	9.5		Good	Good	17	20		-			x			1790.64	357.6	30.49	36.9	3.15	17.4	1.16	5.8	2.56	6.87								
322	Private	Arbutus unedo	Strawberry tree	6.0	5,1,3,2	Good	Good	11	10.2		-						817.19	155.4	13.25	0.3	0.02	5.7	0.38	1.9	0.84	1.24								
323	Private	Betula papyrifera	Paper birch	8.4		Good	Good	16	20		-						1454.52	260.7	22.23	30.6	2.61	13.2	0.88	4.4	1.94	5.43								
324	Private	Betula papyrifera	Paper birch	9.5		Good	Fair	18	20		-						1596	357.6	30.49	32.8	2.8	13.2	0.88	4.4	1.94	5.61								
325	Private	Gleditsia triacanthos	Honeylocust	6.7		Good	Good	9	20		-						797.51	93.3	7.96	12.4	1.06	10.5	0.7	3.5	1.54	3.31								



Table of Trees
Seattle Pacific University, Seattle, WA

Arborist: TB / JP
Date of Inventory: Spring 2021
Table Prepared: May 23, 2023

Column headers highlighted in green indicate columns of data which were calculated using i-Tree Eco.

Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (S/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking		
326	Private	<i>Gleditsia triacanthos</i>	Honeylocust	8.0		Good	Good	13	20		-						1007.22	141.2	12.04	15.9	1.36	14.1	0.95	4.8	2.08	4.38									
327	Private	<i>Gleditsia triacanthos</i>	Honeylocust	7.2		Good	Good	12	20		-						873.78	110.3	9.41	13.7	1.17	11.9	0.8	4	1.75	3.72									
328	Private	<i>Gleditsia triacanthos</i>	Honeylocust	6.1		Good	Good	14	20		-						713.23	75.1	6.41	10.9	0.93	8.9	0.59	3	1.31	2.83									
329	Private	<i>Gleditsia triacanthos</i>	Honeylocust	6.5		Fair	Good	12	20		-						685	87	7.42	10.6	0.9	7.6	0.51	2.5	1.11	2.52									
330	Private	<i>Gleditsia triacanthos</i>	Honeylocust	6.5		Good	Good	15	20		-						768.53	87	7.42	11.9	1.02	10	0.67	3.3	1.47	3.15									
331	Private	<i>Gleditsia triacanthos</i>	Honeylocust	8.5		Good	Good	14	20		-						1097.75	162.9	13.89	17.3	1.47	15.6	1.04	5.2	2.3	4.82									
332	Private	<i>Gleditsia triacanthos</i>	Honeylocust	8.2		Good	Good	13	20		-						1042.77	149.7	12.76	16.4	1.4	14.7	0.98	4.9	2.17	4.55									
333	Private	<i>Gleditsia triacanthos</i>	Honeylocust	8.4		Good	Good	9	20		-						1079.21	158.4	13.51	17	1.45	15.3	1.02	5.1	2.24	4.71									
334	Private	<i>Acer palmatum</i>	Japanese maple	9.3	6.5,3,3.8,4.6	Good	Fair	13	12		-						1281.34	280.5	23.92	4.9	0.41	9.8	0.66	3.3	1.44	2.51		Remove	Remove	Remove	Remove	Remove	Remove		
335	Private	<i>Acer palmatum</i>	Japanese maple	10.0	4,3,7,4,4,7,5,4	Good	Fair	14	12		-						1442.01	331	28.23	4.3	0.37	11.5	0.77	3.8	1.69	2.82		Remove	Remove	Remove	Remove	Remove	Remove		
336	Private	<i>Prunus serrulata</i>	Flowering cherry	13.0		Good	Good	18	23		-						2854.27	1024.1	87.33	1.2	0.1	17.2	1.15	5.8	2.53	3.79		Remove	Remove	Remove	Remove	Remove	Remove		
337	Private	<i>Prunus serrulata</i>	Flowering cherry	17.7		Good	Fair	21	23		-						4513.8	2171.4	185.16	1.7	0.14	21.5	1.44	7.2	3.16	4.74									
338	Private	<i>Acer palmatum</i>	Japanese maple	12.2	5,7,5,2,4,4,4,9,6,7	Fair	Fair	11	12		Exceptional S						1899.5	522	44.51	1.4	0.12	15.6	1.04	5.2	2.3	3.46									
339	Private	<i>Acer palmatum</i>	Japanese maple	8.0	3,8,3,5,4,5,4,2	Fair	Fair	11	12		-						952.05	198.8	16.95	5.3	0.45	6	0.4	2	0.88	1.73									
340	Private	<i>Cercis canadensis</i>	Redbud	10.3		Good	Good	14	9.5		Exceptional S						1890.72	250.8	21.38	0.4	0.03	15.7	1.05	5.3	2.31	3.38		Remove	Remove	Remove	Remove	Remove	Remove		
341	Private	<i>Cercis canadensis</i>	Redbud	7.3		Good	Good	9	9.5		-						1082.01	111.1	9.47	0.2	0.02	7.9	0.53	2.7	1.16	1.71		Remove	Remove	Remove	Remove	Remove	Remove		
342	Private	<i>Prunus cerasifera</i> 'Thundercloud'	Cherry plum	20.3	9,4,15,7,8,7	Good	Fair	17	21		-			x			5862.58	3031.7	258.53	2	0.17	34.5	2.31	11.6	5.08	7.56		Remove	Remove	Remove	Remove	Remove	Remove		
343	Private	<i>Acer palmatum</i>	Japanese maple	9.6	5,7,5,5,3	Good	Fair	14	12		-			x			1348.77	301.3	25.7	4.8	0.41	10.3	0.69	3.5	1.52	2.61									
344	Private	<i>Fagus sylvatica</i>	European beech	16.6	9,7,11,4,7,1	Good	Fair	17	30		-			x			5864	1556.5	132.73	0.9	0.07	79.9	5.34	26.8	11.76	17.18									
345	Private	<i>Picea abies</i>	Norway spruce	14.7		Good	Good	16	30		-			x			1792.21	863.9	73.67	23.5	2	41.7	2.79	14	6.13	10.92									
346	Private	<i>Umbellularia californica</i>	California laurel	8.8	4,4,4,4,3,6,3,6	Good	Fair	10	30		-			x			1294.09	371.2	31.66	25.8	2.2	9.4	0.63	3.1	1.38	4.2									
347	Private	<i>Sorbus aucuparia</i>	European mountain ash	13.3	7,1,3,5,3,2,7,7,3,2,5,9	Fair	Fair	10	29		-			x			2490.04	854.2	72.84	10.3	0.88	14.5	0.97	4.9	2.13	3.97		Remove		Remove	Remove	Remove	Remove		
348	Private	<i>Gleditsia triacanthos</i>	Honeylocust	6.3		Good	Good	10	20		-			x			740.44	80.9	6.9	11.4	0.98	9.4	0.63	3.1	1.38	2.98		Remove		Remove	Remove	Remove	Remove		
349	Private	<i>Tsuga mertensiana</i>	Mountain hemlock	6.6		Good	Good	5	10.8		-			x			450.43	72	6.14	4.8	0.41	4.5	0.3	1.5	0.67	1.37									
350	Private	<i>Tsuga mertensiana</i>	Mountain hemlock	6.1		Good	Good	6	10.8		-		x	x			375.58	59.2	5.05	4.2	0.36	3.8	0.25	1.3	0.55	1.16									
351	Private	<i>Abies concolor</i>	White fir	15.6		Good	Good	12	25.6		-		x	x			2626.78	691.8	59	16.6	1.42	30	2	10.1	4.41	7.83									
352	Private	<i>Gleditsia triacanthos</i>	Honeylocust	7.5		Fair	Fair	8	20		-			x			771.82	121.4	10.35	12.1	1.03	8.4	0.56	2.8	1.23	2.82									
353	Private	<i>Juniperus virginiana</i>	Eastern redcedar	11.2	10,5	Good	Good	11	12.5		-		x	x			813.56	483.9	41.26	16.5	1.41	20.3	1.36	6.8	2.99	5.75									
354	Private	<i>Picea abies</i>	Norway spruce	12.0		Good	Good	12	30	Grove	Exceptional G		x	x			1191.74	550.2	46.92	18.4	1.57	25.9	1.73	8.7	3.8	7.1		Remove		Remove	Remove	Remove	Remove	Remove	Remove
355	Private	<i>Acer macrophyllum</i>	Bigleaf maple	32.0		Good	Good	19	30	Grove	Exceptional SG		x	x			14944.21	4643.4	395.97	2.7	0.23	149.8	10.01	50.3	22.03	32.27		Remove		Remove	Remove	Remove	Remove	Remove	Remove
356	Private	<i>Calocedrus decurrens</i>	Incense cedar	18.8	14,9,11,4	Good	Fair	14	30	Grove	Exceptional G		x	x			3227.45	1094.4	93.33	20.3	1.73	19.7	1.31	6.6	2.89	5.94		Remove		Remove	Remove	Remove	Remove	Remove	Remove
357	Private	<i>Cercidiphyllum japonicum</i>	Katsura tree	6.4		Good	Good	12	30		-		x	x			1066.14	61.7	5.26	4	0.34	7.2	0.48	2.4	1.05	1.88									
358	Private	<i>Alnus rubra</i>	Red alder	12.8		Good	Good	12		Grove	Exceptional G		x	x			2775.24	157.3	13.41	9.2	0.79	31.5	2.1	10.6	4.63	7.52									
359	Private	<i>Cercidiphyllum japonicum</i>	Katsura tree	6.7		Good	Good	13	30		-		x	x			1147.6	69	5.88	3.8	0.33	7.9	0.53	2.7	1.17	2.02									
360	Private	<i>Chamaecyparis lawsoniana</i>	Lawson cypress	12.1		Good	Good	12	30	Grove	Exceptional G		x	x			1476.47	508.4	43.35	23.2	1.98	9.6	0.64	3.2	1.41	4.03									
361	Private	<i>Cercidiphyllum japonicum</i>	Katsura tree	13.2		Good	Fair	10	30	Grove	Exceptional G						3412.67	363.5	31	0.4	0.03	29.7	1.98	10	4.36	6.38									
362	Private	<i>Cercidiphyllum japonicum</i>	Katsura tree	13.1		Good	Fair	17	30	Grove	Exceptional G						3364.08	356.7	30.42	0.4	0.03	29	1.94	9.8	4.27	6.25									



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Seattle Pacific University, Seattle, WA

Arborist: TB / JP
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Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (S/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking
363	Private	Umbellularia californica	California laurel	8.5	5,3,5,4,5,3,8	Good	Fair	11	30		-		x	x		1223.24	341.5	29.12	24.6	2.1	8.7	0.58	2.9	1.28	3.96								
364	Private	Alnus rubra	Red alder	25.9	12.5,15,3,13,2,10,2	Fair	Fair	36		Grove	Exceptional G		x	x		8821.67	644.1	54.92	9.9	0.84	46.3	3.1	15.6	6.81	10.75								
365	Private	Cuprocyparis leylandii	Leyland cypress	9.0		Good	Good	6	30		-		x	x		840.65	685.5	58.46	55.5	4.73	4.9	0.33	1.6	0.72	5.78								
366	Private	Cuprocyparis leylandii	Leyland cypress	14.9		Good	Good	16	30	Grove	Exceptional G		x	x		2391.91	1952.5	166.5	81.4	6.94	15.2	1.02	5.1	2.24	10.2								
367	Private	Pseudotsuga menziesii	Douglas-fir	7.7		Good	Good	10	30		-		x	x		635.83	70.4	6	5.2	0.44	5.4	0.36	1.8	0.8	1.6								
368	Private	Cuprocyparis leylandii	Leyland cypress	12.5		Good	Good	15	30	Grove	Exceptional G		x	x		1668.48	1353.8	115.45	78.7	6.71	10.2	0.68	3.4	1.5	8.9								
369	Private	Cuprocyparis leylandii	Leyland cypress	12.3	7,1,10	Good	Fair	15	30	Grove	Exceptional G		x	x		1438.49	1289.5	109.96	68.8	5.87	7.4	0.49	2.5	1.09	7.45								
370	Private	Cuprocyparis leylandii	Leyland cypress	12.4		Good	Good	18	30	Grove	Exceptional G		x	x		1641.09	1331.5	113.55	78	6.65	10.1	0.67	3.4	1.48	8.81								
371	Private	Cuprocyparis leylandii	Leyland cypress	12.4		Good	Good	16	30	Grove	Exceptional G		x	x		1641.09	1331.5	113.55	78	6.65	10.1	0.67	3.4	1.48	8.81								
372	Private	Cuprocyparis leylandii	Leyland cypress	12.0		Good	Good	16	30	Grove	Exceptional G		x	x		1533.72	1243.7	106.05	75.3	6.42	9.3	0.62	3.1	1.37	8.42								
373	Private	Cuprocyparis leylandii	Leyland cypress	15.9	7,10,9,2,4,5	Good	Fair	20	30	Grove	Exceptional G		x	x		2433.92	2199.9	187.6	70.5	6.01	13	0.87	4.4	1.92	8.8								
374	Private	Cuprocyparis leylandii	Leyland cypress	10.6		Good	Good	16	30		-		x	x		1185.64	960.9	81.94	66	5.63	7	0.47	2.3	1.03	7.12								
375	Private	Cuprocyparis leylandii	Leyland cypress	15.6		Good	Good	17	30	Grove	Exceptional G		x	x		2626.78	2148.8	183.24	79.7	6.79	16.9	1.13	5.7	2.48	10.4								
376	Private	Cuprocyparis leylandii	Leyland cypress	20.8		Good	Good	18	30	Grove	Exceptional G		x	x		4709.07	3908	333.26	58.3	4.98	30.1	2.01	10.1	4.43	11.42								
377	Private	Cuprocyparis leylandii	Leyland cypress	10.4		Good	Good	12	30		-		x	x		1139.44	924.3	78.82	64.7	5.51	6.8	0.45	2.3	1	6.96								
378	Private	Cuprocyparis leylandii	Leyland cypress	10.4		Good	Good	15	30		-		x	x		1139.44	924.3	78.82	64.7	5.51	6.8	0.45	2.3	1	6.96								
379	Private	Cuprocyparis leylandii	Leyland cypress	12.0		Good	Good	18	30	Grove	Exceptional G		x	x		1533.72	1243.7	106.05	75.3	6.42	9.3	0.62	3.1	1.37	8.42								
380	Private	Cuprocyparis leylandii	Leyland cypress	7.4		Good	Good	12	30		-		x	x		551.98	458.6	39.11	45.1	3.85	3.2	0.22	1.1	0.48	4.54								
381	Private	Cuprocyparis leylandii	Leyland cypress	10.3		Good	Good	12	30		-		x	x		1116.67	905.6	77.22	64	5.46	6.6	0.44	2.2	0.97	6.87								
382	Private	Cuprocyparis leylandii	Leyland cypress	11.7		Good	Good	11	30		-		x	x		1455.5	1179.9	100.62	73.3	6.25	8.8	0.59	3	1.3	8.14								
383	Private	Cuprocyparis leylandii	Leyland cypress	13.5		Good	Good	14	30	Grove	Exceptional G		x	x		1954.51	1589.9	135.58	82.3	7.02	12.2	0.82	4.1	1.8	9.64								
384	Private	Cuprocyparis leylandii	Leyland cypress	15.7	7,14	Good	Fair	17	30	Grove	Exceptional G		x	x		2371.95	2141.8	182.64	71.4	6.09	12.6	0.84	4.2	1.86	8.79								
385	Private	Cuprocyparis leylandii	Leyland cypress	14.1	5,2,13,1	Good	Fair	15	30	Grove	Exceptional G		x	x		1904.44	1713.2	146.09	73.3	6.25	10.1	0.67	3.4	1.48	8.4								
386	Private	Alnus rubra	Red alder	9.9		Good	Good	14			-		x	x		1766.96	94.1	8.02	7.2	0.61	21.3	1.43	7.2	3.14	5.18								
387	Private	Pinus nigra	Austrian black pine	13.0		Good	Fair	10	24		-		x	x		1719.3	363.3	30.98	16	1.36	15.3	1.02	5.1	2.25	4.63								
388	Private	Cuprocyparis leylandii	Leyland cypress	14.9		Good	Good	11	30		-		x	x		2391.91	1952.5	166.5	81.4	6.94	15.2	1.02	5.1	2.24	10.2								
389	Private	Pinus nigra	Austrian black pine	11.3		Good	Fair	13	24		-		x	x		1285.31	262.4	22.38	13.2	1.13	12.1	0.81	4.1	1.78	3.71								
390	Private	Umbellularia californica	California laurel	9.7	6,3,9,5,1,4	Good	Fair	13	30		-		x	x		1521.38	469	40	29.6	2.52	11.3	0.75	3.8	1.66	4.93								
391	Private	Alnus rubra	Red alder	7.0		Good	Good	13			-		x	x		1016.3	47	4.01	5.1	0.44	12	0.8	4	1.76	3								
392	Private	Alnus rubra	Red alder	7.0		Good	Good	12			-		x	x		1016.3	47	4.01	5.1	0.44	12	0.8	4	1.76	3								
393	Private	Pinus nigra	Austrian black pine	8.6		Fair	Good	12	24		-		x	x		720.84	138.9	11.84	9.1	0.78	7.4	0.5	2.5	1.09	2.37								
394	Private	Pinus nigra	Austrian black pine	9.8		Good	Good	12	24		-		x	x		1069	191.7	16.35	12.2	1.04	12.5	0.83	4.2	1.84	3.72								
395	Private	Pinus nigra	Austrian black pine	12.8		Good	Good	12	24		-		x	x		1868.15	355.9	30.35	17.6	1.5	19.7	1.32	6.6	2.9	5.71								
396	Private	Cuprocyparis leylandii	Leyland cypress	9.3		Good	Good	13	30		-		x	x		901.05	733.4	62.54	57.4	4.9	5.3	0.35	1.8	0.78	6.02								
397	Private	Pinus nigra	Austrian black pine	11.5		Good	Fair	16	24		-		x	x		1333.22	273.4	23.32	13.5	1.15	12.5	0.84	4.2	1.84	3.83								
398	Private	Pinus nigra	Austrian black pine	13.2		Good	Fair	17	24		-		x	x		1774.35	376.5	32.11	16.3	1.39	15.7	1.05	5.3	2.3	4.74								
399	Private	Cuprocyparis leylandii	Leyland cypress	9.8		Good	Good	12	30		-		x	x		1006.11	817.5	69.72	60.7	5.18	6	0.4	2	0.88	6.45								
400	Private	Populus trichocarpa	Black cottonwood	8.7		Good	Good	12			-		x	x		883.42	547.5	46.69	45.4	3.88	9.7	0.65	3.3	1.43	5.95								



Table of Trees

Seattle Pacific University, Seattle, WA

Arborist: TB / JP

Date of Inventory: Spring 2021

Table Prepared: May 23, 2023

Column headers highlighted in green indicate columns of data which were calculated using i-Tree Eco.

Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (S/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking	
401	Private	<i>Pinus nigra</i>	Austrian black pine	9.3		Fair	Fair	9	24		-		x	x		800.5	165.4	14.1	9.5	0.81	7.4	0.49	2.5	1.08	2.39									
402	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	8.5		Good	Good	13	30		-		x	x		744.39	609.3	51.96	52.2	4.45	4.3	0.29	1.5	0.64	5.38									
403	Private	<i>Pinus nigra</i>	Austrian black pine	12.2		Good	Good	14	24		-		x	x		1691.35	318.4	27.15	16.5	1.4	18.1	1.21	6.1	2.67	5.28									
404	Private	<i>Pinus nigra</i>	Austrian black pine	11.2		Good	Good	11	24		-		x	x		1415.53	261.2	22.27	14.7	1.25	15.7	1.05	5.3	2.31	4.61									
405	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	11.9		Good	Good	12	30		-		x	x		1507.42	1222.2	104.23	74.7	6.37	9.1	0.61	3.1	1.34	8.32									
406	Private	<i>Pinus nigra</i>	Austrian black pine	19.2		Good	Good	13	24		-			x		4282.1	899.2	76.68	30.2	2.58	33.5	2.24	11.2	4.92	9.74									
407	Private	<i>Pinus nigra</i>	Austrian black pine	13.4		Good	Good	13	24		-		x	x		2053.44	395.3	33.71	18.7	1.59	21.1	1.41	7.1	3.1	6.1									
408	Private	<i>Pinus nigra</i>	Austrian black pine	17.6		Good	Good	15	24		-		x	x		3588.09	738.3	62.96	26.9	2.3	30.7	2.05	10.3	4.52	8.87									
409	Private	<i>Pinus nigra</i>	Austrian black pine	7.4		Good	Good	11	24		-		x	x		582.44	99.9	8.52	8.4	0.71	7.5	0.5	2.5	1.1	2.32									
410	Private	<i>Parrotia persica</i>	Persian ironwood	10.6	5,4,5,5,8,3,4,4,6	Good	Good	13	14.3		-			x		1986.75	492.3	41.99	0.5	0.04	23.3	1.56	7.8	3.43	5.02									
411	Private	<i>Parrotia persica</i>	Persian ironwood	10.9	4,5,5,5,4,5,3,8,4,2,4,1	Good	Good	16	14.3		-			x		2085.54	527.3	44.97	0.5	0.04	25.3	1.69	8.5	3.72	5.46									
412	Private	<i>Parrotia persica</i>	Persian ironwood	10.2	3,9,3,5,5,2,3,6,4,8,3,6	Good	Good	17	14.3		-			x		1859.32	447.9	38.2	0.5	0.04	21.4	1.43	7.2	3.15	4.63									
413	Private	<i>Pinus nigra</i>	Austrian black pine	15.9		Good	Good	15	24		-			x		2916.83	585.6	49.94	23.5	2	27.1	1.81	9.1	3.98	7.79									
414	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	21.6		Good	Good	18	30		-			x		5082.22	4225.5	360.33	53.3	4.54	32.2	2.15	10.8	4.73	11.43									
415	Private	<i>Pinus nigra</i>	Austrian black pine	9.6		Fair	Good	10	24		-			x		912.04	179.6	15.31	10.6	0.9	9.1	0.61	3.1	1.34	2.85									
416	Private	<i>Cedrus deodara</i>	Deodar cedar	6.7		Good	Good	7	30		-			x		556.91	162.8	13.89	17.9	1.53	2.1	0.14	0.7	0.31	1.97									
417	Private	<i>Pinus nigra</i>	Austrian black pine	9.9		Fair	Good	13	24		-			x		973.5	192.9	16.45	11	0.94	9.6	0.64	3.2	1.41	2.99									
418	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	21.5	5,8,4,4,9,2,18	Good	Fair	16	30		-			x		4487.55	4121.6	351.47	47.9	4.09	23.9	1.59	8	3.51	9.19									
419	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	13.9		Good	Good	12	30		-			x		2075.08	1689.1	144.04	82.1	7	13	0.87	4.4	1.91	9.78									
420	Private	<i>Pinus nigra</i>	Austrian black pine	9.4		Good	Good	9	24		-		x	x		978.48	174	14.84	11.6	0.99	11.6	0.77	3.9	1.7	3.46									
421	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	16.3		Good	Good	15	30		-		x	x		2872.44	2354.2	200.75	78	6.65	18.5	1.23	6.2	2.72	10.6									
422	Private	<i>Alnus rubra</i>	Red alder	10.0		Good	Good	11			-		x	x		1797.44	96	8.19	7.2	0.62	21.7	1.45	7.3	3.19	5.25									
423	Private	<i>Pseudotsuga menziesii</i>	Douglas-fir	7.0		Good	Good	9	30		-		x	x		514.55	54.2	4.62	4.3	0.37	4.4	0.29	1.5	0.65	1.31									
424	Private	<i>Robinia pseudoacacia</i>	Black locust	13.9	9,3,10,3	Fair	Fair	13	30		-		x	x		2593.73	591.6	50.45	13.3	1.13	19.3	1.29	6.5	2.84	5.26									
425	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	17.4		Good	Good	18	30		-		x	x		3280.25	2697.3	230.02	74.8	6.37	21.2	1.42	7.1	3.13	10.92									
426	Private	<i>Salix matsudana 'Tortuosa'</i>	Corkscrew willow	8.9		Fair	Fair	12	24		-		x	x		911.05	579.2	49.39	39.2	3.34	6.6	0.44	2.2	0.97	4.76									
427	Private	<i>Alnus rubra</i>	Red alder	7.9		Good	Good	15			-		x	x		1221.7	59.9	5.11	5.8	0.49	14.6	0.98	4.9	2.15	3.61									
428	Private	<i>Alnus rubra</i>	Red alder	7.7		Good	Good	15			-		x	x		1173.91	56.9	4.85	5.6	0.48	14.1	0.94	4.7	2.07	3.49									
429	Private	<i>Robinia pseudoacacia</i>	Black locust	10.0	4,9,8,7	Fair	Fair	15	30		-		x	x		1452.25	267.6	22.82	16.7	1.43	10.3	0.69	3.4	1.51	3.62									
430	Private	<i>Alnus rubra</i>	Red alder	14.0		Good	Fair	17		Grove	Exceptional G		x	x		2912.61	188.2	16.05	9	0.77	27.8	1.86	9.3	4.08	6.7									
431	Private	<i>Populus trichocarpa</i>	Black cottonwood	15.9		Good	Good	14		Grove	Exceptional G		x	x		2157.63	2445	208.5	110	9.38	43.8	2.93	14.7	6.45	18.75									
432	Private	<i>Robinia pseudoacacia</i>	Black locust	11.7	8,1,8,4	Good	Fair	16	30		-		x	x		2027.66	389.9	33.25	17	1.45	16.3	1.09	5.5	2.39	4.93									
433	Private	<i>Pinus sp.</i>	pine	20.0		Good	Good	18	30	Grove	Exceptional G	Pinus sp	x	x		3394.47	2647.9	225.8	32.3	2.75	43.3	2.89	14.5	6.37	12.02		Remove		Remove	Remove	Remove	Remove	Remove	Remove
434	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	7.0		Good	Good	7	30		-		x	x		488.62	409.2	34.89	42.6	3.63	2.9	0.19	1	0.42	4.24		Remove		Remove	Remove	Remove	Remove	Remove	Remove
435	Private	<i>Aesculus hippocastanum</i>	Horsechestnut	8.6	6,4,5,7	Good	Fair	14	30		-		x	x		1277.55	273.7	23.34	19.4	1.66	17.6	1.18	5.9	2.59	5.43		Remove		Remove	Remove	Remove	Remove	Remove	Remove
436	Private	<i>Cercidiphyllum japonicum</i>	Katsura tree	12.5		Good	Good	11	30		-		x	x		3455.94	317.8	27.1	0.4	0.03	34.1	2.28	11.4	5.01	7.32		Remove		Remove	Remove	Remove	Remove	Remove	Remove
437	Private	<i>Quercus robur</i>	English oak	7.5		Good	Fair	10	30		-		x	x		1027.34	253.1	21.58	22.3	1.9	7.9	0.53	2.6	1.16	3.59		Remove		Remove	Remove	Remove	Remove	Remove	Remove



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Seattle Pacific University, Seattle, WA

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Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (S/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking	
438	Private	Cedrus deodara	Deodar cedar	26.0		Good	Good	18	30		-			x			9979.4	2694.1	229.74	69.4	5.92	33.8	2.26	11.4	4.97	13.15		Remove		Remove	Remove	Remove	Remove	Remove
439	Private	Robinia pseudoacacia	Black locust	8.7		Good	Good	13	30		-			x			1379.46	192.2	16.39	19.9	1.7	11.9	0.8	4	1.76	4.25		Remove		Remove	Remove	Remove	Remove	Remove
440	Private	Photinia x fraseri	Fraser photinia	11.7	8.5,8.1	Good	Fair	17	12		-			x			2105.67	1022	87.15	1.2	0.1	13.2	0.88	4.4	1.94	2.93		Remove		Remove	Remove	Remove	Remove	Remove
441	Private	Pseudotsuga menziesii	Douglas-fir	6.4		Good	Good	8	30		-			x			419.78	42.2	3.6	3.7	0.31	3.6	0.24	1.2	0.53	1.08		Remove		Remove	Remove	Remove	Remove	Remove
442	Private	Pinus ponderosa	Ponderosa pine	28.0		Good	Fair	17	30		-	estimated dsh		x			5939.08	2145.4	182.95	43.8	3.73	62.8	4.2	21.1	9.25	17.18		Remove		Remove	Remove	Remove	Remove	Remove
443	Private	Pseudotsuga menziesii	Douglas-fir	22.0		Good	Good	17	30		-			x			5641.83	1065.6	90.87	29.4	2.51	46.4	3.1	15.6	6.82	12.43		Remove		Remove	Remove	Remove	Remove	Remove
444	Private	Thuja plicata	Western redcedar	17.2	11.2,13.1	Good	Good	17	30		-			x			3424.02	269.5	22.98	6.1	0.52	19	1.27	6.4	2.8	4.59		Remove		Remove	Remove	Remove	Remove	Remove
445	Private	Cedrus deodara	Deodar cedar	6.8		Good	Good	9	30		-			x			577.06	167.9	14.31	18.2	1.55	2.2	0.14	0.7	0.32	2.01		Remove		Remove	Remove	Remove	Remove	Remove
446	Private	Thuja plicata	Western redcedar	18.7		Good	Good	15	30		-			x			4058.74	341.2	29.09	7.2	0.61	23.5	1.57	7.9	3.46	5.65		Remove		Remove	Remove	Remove	Remove	Remove
447	Private	Ilex aquifolium	English holly	8.6	5,7	Fair	Fair	8	18.8		-		x	x			1170.57	238.4	20.33	10.1	0.86	3.7	0.25	1.2	0.55	1.66		Remove		Remove	Remove	Remove	Remove	Remove
448	Private	Alnus rubra	Red alder	17.0		Good	Good	16			-		x	x			4692.23	277.5	23.66	12.2	1.04	44.4	2.97	14.9	6.53	10.53				Remove	Remove	Remove	Remove	Remove
449	Private	Pinus nigra	Austrian black pine	11.0		Good	Good	10	24		-			x			1363.2	250.4	21.35	14.3	1.22	15.1	1.01	5.1	2.23	4.46								
450	Private	Acer macrophyllum	Bigleaf maple	8.3		Good	Good	11	30		-			x			1279.96	224.9	19.18	23.1	1.97	17.4	1.16	5.8	2.55	5.69								
451	Private	Pinus nigra	Austrian black pine	12.0		Fair	Good	14	24		-			x			1456.66	301.7	25.73	14.3	1.22	13.4	0.9	4.5	1.97	4.09								
452	Private	Abies procera	Noble fir	6.2		Fair	Good	4	20.3		-		x	x			292.67	102	8.69	10.8	0.92	2.9	0.19	1	0.43	1.54								
453	Private	Quercus robur	English oak	8.5	6.4,5.6	Good	Fair	11	30		-		x	x			1253.39	323.7	27.61	25.2	2.15	10.5	0.7	3.5	1.55	4.41								
454	Private	Abies grandis	Grand fir	27.0		Good	Fair	17	24		Exceptional S		x	x			5854.69	1937.5	165.22	35.5	3.03	52.4	3.5	17.6	7.71	14.24		Remove		Remove	Remove	Remove	Remove	Remove
455	Private	Tsuga heterophylla	Western hemlock	15.6	10,12	Good	Fair	15	24		-			x			2500.5	489.2	41.72	12	1.03	28.9	1.93	9.7	4.26	7.22		Remove		Remove	Remove	Remove	Remove	Remove
456	Private	Chamaecyparis pisifera	Sawara cypress	8.8	5,4,6	Good	Fair	13	26.9		-			x			679.19	647.2	55.19	25.5	2.18	3.5	0.24	1.2	0.52	2.93		Remove		Remove	Remove	Remove	Remove	Remove
457	Private	Betula pendula	European white birch	9.0		Good	Good	10	24		-			x			1574.21	301.7	25.73	31.6	2.69	15	1.01	5.1	2.21	5.91		Remove		Remove	Remove	Remove	Remove	Remove
458	Private	Betula pendula	European white birch	18.0		Fair	Fair	22	24		-	decay at base		x			4624.05	1674.5	142.79	72.3	6.17	27.6	1.84	9.3	4.05	12.06		Remove		Remove	Remove	Remove	Remove	Remove
459	Private	Cedrus libani	Cedar of Lebanon	26.0		Good	Good	24	30		-			x			9979.4	6123	522.14	36.7	3.13	33.8	2.26	11.4	4.97	10.36		Remove		Remove	Remove	Remove	Remove	Remove
460	Private	Calocedrus decurrens	Incense cedar	12.0		Good	Good	11	30		-			x			1451.5	437	37.27	14	1.19	10	0.67	3.3	1.47	3.32		Remove		Remove	Remove	Remove	Remove	Remove
461	Private	Calocedrus decurrens	Incense cedar	10.0		Good	Good	8	30		-			x			995.72	299.3	25.52	11.5	0.98	6.6	0.44	2.2	0.97	2.39		Remove		Remove	Remove	Remove	Remove	Remove
462	Private	Chamaecyparis lawsoniana	Lawson cypress	10.8	9,6	Good	Fair	9	30		-			x			1041.12	395.3	33.71	18.3	1.56	5.6	0.37	1.9	0.82	2.75		Remove		Remove	Remove	Remove	Remove	Remove
463	Private	Chamaecyparis lawsoniana	Lawson cypress	10.8	9,6	Good	Fair	9	30		-			x			1041.12	395.3	33.71	18.3	1.56	5.6	0.37	1.9	0.82	2.75		Remove		Remove	Remove	Remove	Remove	Remove
464	Private	Chamaecyparis lawsoniana	Lawson cypress	16.0		Good	Good	10	30		-			x			2611.69	909.1	77.52	31.4	2.68	17.6	1.18	5.9	2.59	6.45		Remove		Remove	Remove	Remove	Remove	Remove
465	Private	Chamaecyparis lawsoniana	Lawson cypress	23.8	14,15,12	Good	Good	12	30		-		x	x			5827.46	2072.5	176.74	48.7	4.15	37.5	2.51	12.6	5.52	12.18		Remove		Remove	Remove	Remove	Remove	Remove
466	Private	Chamaecyparis lawsoniana	Lawson cypress	15.0		Good	Good	11	30		-		x	x			2290.56	794.9	67.79	29.3	2.5	15.4	1.03	5.2	2.26	5.79		Remove		Remove	Remove	Remove	Remove	Remove
467	Private	Acer palmatum	Japanese maple	27.8	10,12,9,4,12,17	Good	Fair	30	12		Exceptional S			x			9443.85	3472	296.08	1.1	0.1	47.8	3.2	16.1	7.03	10.33		Remove		Remove	Remove	Remove	Remove	Remove
468	Private	Chamaecyparis lawsoniana	Lawson cypress	11.0		Good	Good	9	30		-			x			1213.25	416.8	35.54	21	1.79	7.6	0.51	2.6	1.12	3.42		Remove		Remove	Remove	Remove	Remove	Remove
469	Private	Quercus robur	English oak	12.9		Good	Good	14	30	Grove	Exceptional G		x	x			2898.8	739.2	63.04	34.5	2.94	32.8	2.19	11	4.82	9.96		Remove		Remove	Remove	Remove	Remove	Remove
470	Private	Prunus serrulata	Flowering cherry	7.2	4,6	Fair	Fair	13	23		-		x	x			887.01	242.9	20.71	0.4	0.04	3.5	0.23	1.2	0.51	0.78		Remove		Remove	Remove	Remove	Remove	Remove
471	Private	Liquidambar styraciflua	American sweetgum	10.0		Good	Good	10	27		-			x			2245.57	196.3	16.74	18.3	1.56	20.7	1.39	7	3.05	6							Remove	
472	Private	Liquidambar styraciflua	American sweetgum	12.0		Good	Good	11	27		-			x			3136.17	307.4	26.21	23.9	2.04	31.2	2.09	10.5	4.59	8.72							Remove	
473	Private	Liquidambar styraciflua	American sweetgum	13.3		Good	Good	14	27		-			x			3801.89	396.2	33.78	27.8	2.37	38.4	2.57	12.9	5.65	10.59							Remove	
474	Private	Liquidambar styraciflua	American sweetgum	11.7		Good	Good	14	27		-			x			2992.26	288.8	24.63	23.1	1.97	29.6	1.98	9.9	4.35	8.3							Remove	
475	Private	Liquidambar styraciflua	American sweetgum	17.1		Good	Good	17	27		-			x			6140.12	737.2	62.87	40.1	3.42	57.3	3.83	19.2	8.43	15.68							Remove	
476	Private	Cercidiphyllum japonicum	Katsura tree	7.0		Good	Fair	8	30		-			x			1098.8	76.7	6.54	3.2	0.27	6.6	0.44	2.2	0.97	1.69							Remove	



Table of Trees
Seattle Pacific University, Seattle, WA

Arborist: TB / JP
Date of Inventory: Spring 2021
Table Prepared: May 23, 2023

Column headers highlighted in green indicate columns of data which were calculated using i-Tree Eco.

Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (\$/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking	
477	Private	Salix sp. (native)	Native Willow	22.9	21.6,7.6	Good	Fair	12	8		Exceptional S			x			4840.93	6047.9	515.74	3.7	0.31	44.3	2.96	14.9	6.52	9.8								Remove
478	Private	Liquidambar styraciflua	American sweetgum	13.9		Good	Good	14	27		-			x			4132.22	441.8	37.67	29.7	2.53	41.7	2.79	14	6.13	11.45								Remove
479	Private	Liquidambar styraciflua	American sweetgum	13.7		Good	Good	16	27		-			x			4020.49	426.2	36.35	29	2.48	40.7	2.72	13.7	5.99	11.18								Remove
480	ROW	Chamaecyparis lawsoniana	Lawson cypress	28.7		Fair	Fair	12	30		-			x			7107.65	2985.6	254.6	50.2	4.28	30.7	2.05	10.3	4.52	10.85	16408							
481	Private	Chamaecyparis lawsoniana	Lawson cypress	6.5		Good	Good	4	30		-		x	x			397.5	141.3	12.05	12	1.02	2.5	0.16	0.8	0.36	1.55								Remove
482	ROW	Quercus rubra	Red oak	11.2		Good	Good	13	30		-		x	x			2817.29	490.4	41.82	30.8	2.63	32.3	2.16	10.9	4.75	9.54	0							
483	ROW	Fraxinus oxycarpa	Raywood ash	16.8		Good	Fair	18	24		-			x			3076.92	2102.1	179.26	87.7	7.48	44.1	2.95	14.8	6.49	16.92	0							
484	ROW	Fraxinus oxycarpa	Raywood ash	13.2		Good	Fair	16	24		-			x			2002.95	1211.2	103.29	67.5	5.76	31.8	2.13	10.7	4.68	12.57	0							
485	ROW	Fraxinus oxycarpa	Raywood ash	16.0		Good	Fair	18	24		-			x			2815.99	1880.4	160.35	86.6	7.38	41.8	2.8	14.1	6.16	16.34	0							
486	ROW	Fraxinus oxycarpa	Raywood ash	11.1		Fair	Fair	15	24		-			x			1404.31	815.3	69.53	50.7	4.32	20.3	1.35	6.8	2.98	8.66	0							
487	Private	Liquidambar styraciflua	American sweetgum	12.1		Good	Good	12	27		-			x			3184.95	313.7	26.75	24.2	2.07	31.7	2.12	10.7	4.67	8.85								
488	Private	Liquidambar styraciflua	American sweetgum	11.8		Good	Good	12	27		-			x			3039.82	294.9	25.15	23.3	1.99	30.1	2.01	10.1	4.43	8.43			Remove	Remove				
489	Private	Liquidambar styraciflua	American sweetgum	12.4		Good	Good	14	27		-			x			3333.72	333.3	28.42	25.1	2.14	33.4	2.23	11.2	4.91	9.28			Remove					Remove
490	ROW	Acer macrophyllum	Bigleaf maple	24.5	10.5,7.4,10.8,8.2,8.7,10.6,5	Fair	Fair	21	30		-			x			7578.47	2550.5	217.49	0.8	0.07	69.4	4.64	23.3	10.2	14.91	0							
491	ROW	Acer macrophyllum	Bigleaf maple	11.5	6.5, 4, 8.6	Good	Fair	12	30		-		x	x			1967.14	467.4	39.86	28.1	2.4	25.5	1.71	8.6	3.76	7.86	0							
492	ROW	Acer macrophyllum	Bigleaf maple	31.2	6.8, 17, 13, 15, 12, 10	Fair	Fair	23	30		-		x	x			11907.3	4387	374.1	2.2	0.19	100.7	6.73	33.8	14.82	21.74	0							
493	ROW	Quercus garryana	Garry oak	7.6		Good	Fair	21	6		-		x	x			1154.66	291.7	24.87	13.5	1.15	9.4	0.63	3.1	1.38	3.15	0							
494	ROW	Acer macrophyllum	Bigleaf maple	8.0		Good	Fair	20	30		-		x	x			1077.06	207.1	17.66	19.7	1.68	12.1	0.81	4.1	1.78	4.27	0							
495	ROW	Acer macrophyllum	Bigleaf maple	17.3	10.2, 14	Fair	Fair	17	30		-		x	x			3892.82	1168.3	99.63	22.2	1.89	41.8	2.79	14	6.15	10.84	0							
496	ROW	Quercus garryana	Garry oak	10.7		Good	Fair	22	6		-		x	x			2079.46	572.8	48.84	18.9	1.61	20.4	1.36	6.8	2.99	5.97	0							
497	ROW	Acer macrophyllum	Bigleaf maple	7.0		Poor	Fair	8	30		-		x	x			666.45	153.5	13.09	12.6	1.07	4.7	0.31	1.6	0.69	2.07	0							
498	ROW	Acer macrophyllum	Bigleaf maple	10.7		Good	Fair	15	30		-		x	x			1735.53	397.6	33.9	27.7	2.37	22.2	1.48	7.5	3.27	7.12	0							
499	ROW	Acer macrophyllum	Bigleaf maple	10.1		Good	Good	12	30		-		x	x			1764.57	349.3	29.79	29.4	2.51	25.7	1.72	8.6	3.78	8.01	0							
500	ROW	Acer macrophyllum	Bigleaf maple	8.6		Fair	Fair	10	30		-		x	x			1133.36	243.5	20.77	20.1	1.72	12.2	0.82	4.1	1.8	4.33	0							
501	ROW	Acer macrophyllum	Bigleaf maple	9.7		Good	Good	21	30		-		x	x			1648.68	319	27.2	28	2.39	23.9	1.6	8	3.52	7.5	0							
502	ROW	Acer macrophyllum	Bigleaf maple	23.6	12.3, 13.7, 10.1, 10.8	Fair	Fair	26	30		-		x	x			7048.33	2345	199.97	4.4	0.37	65.6	4.38	22	9.65	14.41	0							
503	ROW	Acer macrophyllum	Bigleaf maple	13.9	7, 8, 9	Fair	Poor	18	30		-		x	x			2088.46	715.1	60.98	21	1.79	19.6	1.31	6.6	2.88	5.98	0							
504	ROW	Acer macrophyllum	Bigleaf maple	21.2	11, 14.3, 11.2	Good	Fair	28	30		-		x	x			6103.79	1843.5	157.21	13.6	1.16	62.7	4.19	21.1	9.22	14.58	0							
505	ROW	Acer macrophyllum	Bigleaf maple	13.1		Fair	Fair	26	30		-		x	x			2329.21	626	53.39	26.5	2.26	28	1.87	9.4	4.12	8.26	0							
506	ROW	Acer macrophyllum	Bigleaf maple	16.9	8, 10, 11	Fair	Fair	23	30		-		x	x			3725.29	1108.6	94.54	23.1	1.97	40.6	2.72	13.6	5.98	10.66	0							
507	ROW	Acer macrophyllum	Bigleaf maple	13.4	6.4, 6.7, 9.7	Fair	Fair	15	30		-		x	x			2426.57	658.7	56.17	26.4	2.25	29.2	1.95	9.8	4.3	8.5	0							
508	ROW	Acer macrophyllum	Bigleaf maple	9.3	6.4, 6.7	Fair	Fair	12	30		-		x	x			1286.8	290.3	24.75	22.2	1.89	14.4	0.96	4.8	2.12	4.97	0							
509	ROW	Ilex aquifolium	English holly	7.1		Good	Good	9	18.8		-		x	x			1037.9	157.5	13.43	9.5	0.81	4.2	0.28	1.4	0.61	1.7	0							
510	ROW	Acer macrophyllum	Bigleaf maple	17.1	8, 9, 10, 7	Fair	Poor	19	30		-		x	x			3066.64	1138.3	97.07	18.2	1.55	27.9	1.87	9.4	4.11	7.53	0							
511	ROW	Acer macrophyllum	Bigleaf maple	24.6	9.9, 11.5, 14.3, 13	Fair	Fair	20	30		-		x	x			7638.6	2573.9	219.49	0.3	0.02	70	4.68	23.5	10.3	15.01	0							
512	ROW	Acer macrophyllum	Bigleaf maple	19.1	9, 10, 11, 6, 5	Fair	Fair	25	30		-		x	x			4695.2	1458.9	124.41	18.8	1.6	46.7	3.12	15.7	6.87	11.59	0							
513	ROW	Prunus avium	Wild cherry	11.9	9.1, 7.6	Fair	Fair	18	29.4		-		x	x			2037.78	693	59.1	23.9	2.04	11.9	0.8	4	1.76	4.59	0							



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Seattle Pacific University, Seattle, WA

Arborist: TB / JP
Date of Inventory: Spring 2021
Table Prepared: May 23, 2023

Column headers highlighted in green indicate columns of data which were calculated using i-Tree Eco.

Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (S/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking
514	ROW	Acer macrophyllum	Bigleaf maple	24.4	16.5, 18	Good	Fair	22	30		-		x	x		8006.81	2527.2	215.5	1.1	0.1	78.2	5.23	26.3	11.51	16.84	0							
515	ROW	Acer macrophyllum	Bigleaf maple	23.8	6, 19, 13	Fair	Fair	20	30		-		x	x		7164.43	2389.9	203.8	3.6	0.31	66.4	4.44	22.3	9.76	14.51	0							
516	ROW	Acer macrophyllum	Bigleaf maple	21.0	10, 11, 5, 14	Fair	Fair	20	30		-		x	x		5628.25	1804.8	153.9	13.3	1.14	54.7	3.66	18.4	8.05	12.85	0							
517	ROW	Acer macrophyllum	Bigleaf maple	9.8	6, 6, 5	Fair	Fair	16	30		-		x	x		1403.76	326.5	27.84	23.6	2.01	16.2	1.08	5.4	2.39	5.48	0							
518	ROW	Acer macrophyllum	Bigleaf maple	7.8	6, 5	Good	Fair	10	30		-		x	x		1035.85	195.6	16.68	19.1	1.63	11.6	0.78	3.9	1.71	4.12	0							
519	ROW	Prunus avium	Wild cherry	7.5	4, 4, 5	Fair	Fair	15	29.4		-		x	x		943.54	225.2	19.2	17.8	1.52	5.4	0.36	1.8	0.8	2.68	0							
520	ROW	Acer macrophyllum	Bigleaf maple	12.0		Poor	Fair	14	30		-		x	x		1603.22	514.2	43.85	21.3	1.82	14.6	0.97	4.9	2.14	4.94	0							
521	ROW	Alnus rubra	Red alder	15.0		Good	Fair	15			-		x	x		3308.51	216	18.42	9.6	0.82	30.5	2.04	10.2	4.49	7.34	0	Remove		Remove	Remove	Remove	Remove	
522	ROW	Acer macrophyllum	Bigleaf maple	9.0		Good	Fair	14	30		-		x	x		1298.77	269.7	23	22.7	1.94	15.6	1.04	5.2	2.3	5.27	0							
523	ROW	Acer macrophyllum	Bigleaf maple	16.3	6, 7, 10, 9	Good	Fair	22	30		-		x	x		3707.41	1022.2	87.17	25.5	2.17	43.3	2.9	14.6	6.38	11.45	0							
524	ROW	Acer macrophyllum	Bigleaf maple	15.6	10, 12	Good	Fair	19	30		-		x	x		3416.19	926.4	79	26.3	2.24	41.2	2.75	13.8	6.06	11.05	0							
525	ROW	Aesculus hippocastanum	Horsechestnut	10.0		Good	Fair	20	30		-		x	x		1645.45	394.6	33.65	24.1	2.06	23.3	1.56	7.8	3.42	7.04	0							
526	ROW	Acer macrophyllum	Bigleaf maple	15.6	10, 12	Fair	Fair	18	30		-		x	x		3207.89	926.4	79	24.7	2.1	36.9	2.47	12.4	5.43	10	0							
527	ROW	Acer macrophyllum	Bigleaf maple	21.0	10, 12, 14	Poor	Fair	15	30		-		x	x		4531.84	1804.8	153.9	10.9	0.93	36.4	2.43	12.2	5.35	8.71	0							
528	ROW	Acer macrophyllum	Bigleaf maple	11.6	5, 5, 6, 7	Good	Fair	20	30		-		x	x		1997.27	476.6	40.64	28.2	2.4	25.8	1.73	8.7	3.8	7.93	0							
529	ROW	Acer macrophyllum	Bigleaf maple	15.7	7, 6, 8, 7, 7	Fair	Fair	18	30		-		x	x		3246.22	939.8	80.14	24.7	2.11	37.1	2.48	12.4	5.45	10.04	0							
530	ROW	Ilex aquifolium	English holly	6.0		Good	Good	8	18.8		-		x	x		817.19	108.4	9.24	7.7	0.66	3.1	0.21	1.1	0.46	1.33	0							
531	ROW	Acer macrophyllum	Bigleaf maple	12.8	8, 10	Fair	Fair	20	30		-		x	x		2234.06	594.3	50.68	26.5	2.26	27.1	1.81	9.1	3.98	8.05	0							
532	Private	Betula papyrifera	Paper birch	8.5	6.5, 5.5	Good	Fair	13	20		-			x		1322.13	268.7	22.92	27.6	2.36	10.2	0.68	3.4	1.5	4.54								
533	Private	Populus x canadensis	Hybrid black poplar	21.5		Good	Good	19	30		-		x	x		3664.35	1809.9	154.34	78.4	6.69	74.2	4.96	24.9	10.92	22.56								
534	Private	Populus x canadensis	Hybrid black poplar	7.9		Good	Good	8	30		-		x	x		787.88	150.9	12.86	18.1	1.55	7.4	0.5	2.5	1.1	3.14								
535	Private	Betula papyrifera	Paper birch	11.5		Fair	Fair	15	20		-		x	x		2098.76	584.1	49.81	41.3	3.52	17.3	1.16	5.8	2.54	7.22		Remove		Remove	Remove	Remove	Remove	
536	-	Pinus sylvestris	Scots pine	15.5		Good	Good	17	24		-	Failed at base in winter 2022/2023	-	-		1887.72	656	55.94	32.8	2.79	29.4	1.97	9.9	4.33	9.09		-		-	-	-	-	
537	Private	Betula papyrifera	Paper birch	8.6		Fair	Fair	15	20		-		x	x		1265.95	276.9	23.62	26.4	2.25	9	0.6	3	1.33	4.18		Remove		Remove	Remove	Remove	Remove	
538	Private	Betula papyrifera	Paper birch	9.3		Fair	Fair	11	20		-		x	x		1444.97	338.6	28.87	29.8	2.54	10.7	0.72	3.6	1.58	4.84		Remove		Remove	Remove	Remove	Remove	
539	Private	Betula papyrifera	Paper birch	9.1		Fair	Fair	12	20		-		x	x		1392.39	320.2	27.31	28.8	2.45	10.2	0.68	3.4	1.49	4.63		Remove		Remove	Remove	Remove	Remove	
540	Private	Pinus sylvestris	Scots pine	14.1		Good	Good	20	24		-		x	x		1562.08	533.9	45.53	29.5	2.51	24.1	1.61	8.1	3.55	7.68		Remove		Remove	Remove	Remove	Remove	
541	Private	Pinus sylvestris	Scots pine	13.7		Good	Fair	18	24		-		x	x		1314.41	495.1	42.22	25.4	2.17	17.1	1.14	5.7	2.52	5.83		Remove		Remove	Remove	Remove	Remove	
542	Private	Pinus sylvestris	Scots pine	12.4		Good	Good	18	24		-		x	x		1208.09	403	34.37	25.5	2.18	18.2	1.22	6.1	2.68	6.07		Remove		Remove	Remove	Remove	Remove	
543	Private	Arbutus unedo	Strawberry tree	12.6	5.5, 5.9, 5, 5.2, 6.4	Good	Good	11	10.2		Exceptional S		x	x		2697.43	907.3	77.37	0.8	0.06	9.1	0.61	3.1	1.34	2.02		Remove		Remove	Remove	Remove	Remove	
544	Private	Pinus sylvestris	Scots pine	9.4		Good	Good	10	24		-		x	x		694.18	218.5	18.63	18.6	1.58	9.7	0.65	3.3	1.43	3.67		Remove		Remove	Remove	Remove	Remove	
545	Private	Acer rubrum	Red maple	18.3		Good	Fair	22	25		-		x	x		3901.53	1738	148.21	33.3	2.84	54.4	3.64	18.3	8	14.48		Remove		Remove	Remove	Remove	Remove	
546	Private	Acer rubrum	Red maple	15.0		Good	Fair	16	25		-		x	x		2707.25	1075.5	91.72	39.6	3.38	41.2	2.76	13.8	6.07	12.2		Remove		Remove	Remove	Remove	Remove	
547	Private	Betula papyrifera	Paper birch	11.7		Fair	Fair	14	20		-		x	x		2165.05	610.6	52.07	42.4	3.62	18.1	1.21	6.1	2.66	7.48		Remove		Remove	Remove	Remove	Remove	
548	Private	Pinus sylvestris	Scots pine	17.4	11.4, 13.2	Good	Fair	17	24		-		x	x		2120.34	832.1	70.96	33.1	2.82	28.5	1.9	9.6	4.19	8.92		Remove		Remove	Remove	Remove	Remove	
549	Private	Pinus sylvestris	Scots pine	10.2		Good	Good	13	24		-		x	x		817.39	261.8	22.33	20.4	1.74	11.7	0.78	3.9	1.72	4.24		Remove		Remove	Remove	Remove	Remove	
550	Private	Pinus ponderosa	Ponderosa pine	7.1		Good	Good	7	30		-			x		418.5	86.2	7.35	7.6	0.64	6	0.4	2	0.89	1.94		Remove		Remove	Remove	Remove	Remove	
551	Private	Betula papyrifera	Paper birch	10.7		Fair	Poor	13	20		-			x		1485.59	485.4	41.39	29.6	2.53	8.7	0.58	2.9	1.28	4.39		Remove		Remove	Remove	Remove	Remove	Remove
552	Private	Betula papyrifera	Paper birch	12.1		Poor	Poor	5	20		-			x		1703.39	665.7	56.76	32.9	2.81	9.5	0.64	3.2	1.4	4.85		Remove		Remove	Remove	Remove	Remove	Remove
553	Private	Thuja occidentalis	Arborvitae	12.2	7.5, 4.5, 5.9, 3.8, 4.8	Good	Good	7	11.8		Exceptional S			x		1482.58	571	48.69	17.6	1.5	7.1	0.48	2.4	1.05	3.02		Remove		Remove	Remove	Remove	Remove	
554	Private	Thuja occidentalis	Arborvitae	8.6	5.3, 3.8, 4.3, 3.7	Good	Fair	6	11.8		-			x		639.65	287.3	24.5	11.3	0.96	2.5	0.16	0.8	0.36	1.49		Remove		Remove	Remove	Remove	Remove	



Table of Trees
Seattle Pacific University, Seattle, WA

Arborist: TB / JP
Date of Inventory: Spring 2021
Table Prepared: May 23, 2023

Column headers highlighted in green indicate columns of data which were calculated using i-Tree Eco.

Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (S/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking		
555	Private	Betula papyrifera	Paper birch	15.1	13.4, 7	Good	Fair	15	20		-			x			3692.04	1175.8	100.26	62.8	5.36	34.6	2.31	11.6	5.09	12.77		Remove		Remove	Remove	Remove	Remove		
556	Private	Betula papyrifera	Paper birch	7.3		Fair	Fair	9	20		-			x			970.63	181.8	15.5	20.5	1.75	6.3	0.42	2.1	0.92	3.09		Remove		Remove	Remove	Remove	Remove	Remove	
557	Private	Betula papyrifera	Paper birch	7.5		Fair	Fair	8	20		-			x			1012.92	194.9	16.62	21.4	1.82	6.7	0.45	2.2	0.98	3.25		Remove		Remove	Remove	Remove	Remove	Remove	
558	Private	Betula papyrifera	Paper birch	13.6	6.4, 5, 10, 4.5	Fair	Poor	14	20		-			x			2296.29	898.7	76.64	43	3.67	15.6	1.04	5.2	2.29	6.99		Remove		Remove	Remove	Remove	Remove	Remove	
559	Private	Betula papyrifera	Paper birch	9.6		Fair	Fair	12	20		-			x			1525.98	367.4	31.33	31.2	2.66	11.5	0.77	3.9	1.69	5.12		Remove		Remove	Remove	Remove	Remove	Remove	
560	Private	Betula papyrifera	Paper birch	8.1		Fair	Fair	12	20		-			x			1146.65	237.4	20.25	24	2.05	7.8	0.52	2.6	1.15	3.73		Remove		Remove	Remove	Remove	Remove	Remove	
561	Private	Betula papyrifera	Paper birch	7.7		Fair	Fair	8	20		-			x			1056.35	208.5	17.78	22.2	1.9	7	0.47	2.4	1.04	3.41		Remove		Remove	Remove	Remove	Remove	Remove	
562	Private	Betula papyrifera	Paper birch	13.9		Good	Good	17	20		-			x			3548.23	950.5	81.05	66.4	5.66	37.5	2.51	12.6	5.52	13.69		Remove		Remove	Remove	Remove	Remove		
563	Private	Pinus thunbergii	Japanese black pine	12.9		Fair	Fair	21	15.8		-			x			1176.74	922.8	78.69	0.8	0.07	11.2	0.75	3.8	1.65	2.47									
564	Private	Liquidambar styraciflua	American sweetgum	16.2		Good	Good	17	27		-						5533.5	645	55	37.1	3.16	53.1	3.55	17.8	7.82	14.53									
565	Private	Prunus serrulata	Flowering cherry	9.1	7.9, 4.6	Good	Fair	13	23		-						1367.4	429.6	36.64	0.6	0.06	6.6	0.44	2.2	0.97	1.47									
566	Private	Sorbus aria	White Beam	10.6	5, 7.3, 4.2, 4	Good	Fair	10	12.5		-						1770.8	497.8	42.45	0.6	0.06	10.9	0.73	3.7	1.6	2.38									
567	Private	Cedrus libani	Cedar of Lebanon	11.1		Good	Good	15	30		-			x			1726.23	1045.1	89.12	53	4.52	6.2	0.42	2.1	0.91	5.85									
568	Private	Thuja plicata	Western redcedar	61.0		Good	Fair	24	30		Exceptional S			x			25275.31	9408.1	802.28	42.3	3.61	44.5	2.97	14.9	6.54	13.13									
569	Private	Stewartia pseudocamellia	Japanese stewartia	9.6	5.4, 4.2, 5.2, 4.3	Good	Fair	13	7.7		Exceptional S			x			1495.04	564	48.09	0.6	0.05	6.5	0.44	2.2	0.96	1.44									
570	Private	Pinus contorta var. latifolia	Lodgepole pine	18.1		Good	Fair	15	6		Exceptional S		x	x			2476.25	2079.4	177.32	11	0.94	28.6	1.91	9.6	4.21	7.06				Remove	Remove		Remove		
571	Private	Thuja occidentalis	Arborvitae	7.8	5.1, 5.9	Good	Good	5	11.8		-	pyramidalis		x			583.63	239	20.38	11.6	0.99	2.6	0.17	0.9	0.38	1.54							Remove		
572	Private	Thuja occidentalis	Arborvitae	7.9	4.5, 4.2, 4, 3	Good	Good	5	11.8		-	pyramidalis	x	x			599.67	245	20.89	11.7	1	2.7	0.18	0.9	0.39	1.57							Remove		
573	Private	Thuja occidentalis	Arborvitae	12.6	9, 7.7, 4.2	Good	Good	8	11.8		Exceptional S	pyramidalis	x	x			1583.91	608.2	51.87	18.1	1.55	7.7	0.52	2.6	1.14	3.2				Remove	Remove		Remove		
574	Private	Thuja occidentalis	Arborvitae	9.5	6.5, 3.5, 3.4, 4, 3	Good	Good	7	11.8		-	pyramidalis	x	x			884.06	350.6	29.9	13.9	1.19	4	0.26	1.3	0.58	2.04				Remove	Remove		Remove		
575	Private	Pyrus calleryana	Callery pear	7.8		Good	Fair	10	13		-			x	x		1067.47	220.3	18.79	17.9	1.53	5.7	0.38	1.9	0.84	2.76							Remove		
576	Private	Prunus cerasifera 'Thundercloud'	Thundercloud plum	12.0	9, 8	Good	Fair	12	12.4		-			x	x		2202.73	842.7	71.86	1	0.08	16.1	1.08	5.4	2.37	3.53				Remove	Remove		Remove		
577	Private	Acer griseum	Paperbark maple	7.8	4.5, 5.6, 3	Good	Good	10	12		-			x			1095.35	485	41.36	0.6	0.05	16.3	1.09	5.5	2.39	3.53									
578	Private	Acer griseum	Paperbark maple	6.4	3.5, 4.5, 3	Good	Good	11	12		-			x			830.09	310	26.43	0.9	0.08	10.8	0.72	3.6	1.59	2.39									
579	Private	Pyrus calleryana	Callery pear	8.6		Good	Fair	10	13		-						1246.58	279.8	23.86	20.6	1.76	7.2	0.48	2.4	1.07	3.31									
580	Private	Cuprocyparis leylandii	Leyland cypress	9.3		Good	Good	9	30		-						901.05	733.4	62.54	57.4	4.9	5.3	0.35	1.8	0.78	6.02									
581	Private	Cuprocyparis leylandii	Leyland cypress	12.1		Good	Good	15	30		-						1560.23	1266	107.96	76	6.48	9.6	0.64	3.2	1.41	8.53									
582	Private	Cuprocyparis leylandii	Leyland cypress	7.7		Good	Good	7	30		-						601.82	497.5	42.43	47.1	4.01	3.5	0.24	1.2	0.52	4.77									
583	Private	Cuprocyparis leylandii	Leyland cypress	8.8	7.5, 3.1, 3.4	Good	Fair	8	30		-						714.37	645.7	55.06	48.2	4.11	3.6	0.24	1.2	0.53	4.87									
584	Private	Quercus garryana	Garry oak	33.5		Good	Fair	29	6		Exceptional S						18034.3	5566.1	474.65	25.9	2.21	84.3	5.64	28.3	12.41	20.25				Remove	Remove				
585	Private	Gleditsia triacanthos	Honeylocust	6.3		Fair	Good	11	20		-						659.96	80.9	6.9	10.2	0.87	7.2	0.48	2.4	1.06	2.4									
586	Private	Gleditsia triacanthos	Honeylocust	12.7		Good	Good	22	20		-						2074.88	425.6	36.3	30.7	2.62	27.6	1.84	9.3	4.05	8.51									
587	Private	Gleditsia triacanthos	Honeylocust	15.6		Good	Good	18	20		-						2975.51	701.8	59.84	41.4	3.53	34.8	2.33	11.7	5.12	10.98									
588	Private	Chamaecyparis obtusa	Hinoki cypress	11.5		Good	Good	10	16.4		-						1329.79	560.1	47.76	18.7	1.6	8.5	0.57	2.9	1.25	3.41									
589	Private	Arbutus unedo	Strawberry tree	23.3	14.6, 9.5, 11.4, 10.4	Good	Fair	19	10.2		Exceptional S						7648.2	3981.3	339.51	1.6	0.14	8.6	0.57	2.9	1.26	1.97									
590	ROW	Acer rubrum	Red maple	18.6		Good	Fair	17	25		-	SDOT					4021.84	1807.6	154.14	32.6	2.78	55.7	3.72	18.7	8.2	14.7	16402								
591	ROW	Acer rubrum	Red maple	15.4		Good	Fair	17	25		-	SDOT					2839.41	1146	97.72	39.1	3.34	42.6	2.84	14.3	6.26	12.44	16412								



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Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (S/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking
592	ROW	Acer rubrum	Red maple	13.3	4.9, 6.2, 10.7	Good	Fair	18	25		-	SDOT				2184.39	804.9	68.64	40	3.41	34.9	2.33	11.7	5.13	10.88	16413							
593	Private	Prunus serrulata	Flowering cherry	7.1	6, 3.8	Good	Fair	14	23		-					925.09	234.8	20.02	0.5	0.04	3.9	0.26	1.3	0.57	0.87		Remove		Remove	Remove	Remove	Remove	
594	Private	Prunus serrulata	Flowering cherry	10.1	7.9, 5.5, 3.2	Good	Fair	15	23		-					1629.51	553.8	47.23	0.8	0.06	8.3	0.55	2.8	1.22	1.84		Remove		Remove	Remove	Remove	Remove	
595	Private	Acer palmatum	Japanese maple	12.8	5.5, 5.9, 5.4, 5.2, 4.5, 4.7	Good	Good	13	12		Exceptional S					2469.67	583	49.71	0.5	0.04	26.1	1.74	8.8	3.84	5.62		Remove		Remove	Remove	Remove	Remove	
596	Private	Acer palmatum	Japanese maple	9.4	6.2, 7.1	Good	Good	12	12		-					1462.55	287.4	24.51	5.4	0.46	13.1	0.87	4.4	1.92	3.25		Remove		Remove	Remove	Remove	Remove	
597	Private	Acer rubrum	Red maple	14.7		Good	Fair	19	25		-					2610.42	1024.4	87.35	39.8	3.39	40.1	2.68	13.5	5.9	11.97		Remove		Remove	Remove	Remove	Remove	
598	Private	Magnolia x soulangeana	Saucer magnolia	9.5	4.4, 3.6, 5.4, 4.4, 3	Good	Fair	12	16		-					1357.59	367.9	31.37	6.2	0.53	13.9	0.93	4.7	2.05	3.51				Remove	Remove	Remove	Remove	
599	Private	Fagus sylvatica	European beech	11.7	5.5, 10.3	Good	Fair	9	30		-					3000.59	689	58.75	8.8	0.75	46.8	3.13	15.7	6.88	10.75				Remove	Remove		Remove	
600	Private	Pinus nigra	Austrian black pine	14.6		Good	Good	13	24	Grove	Exceptional G					2449.48	481.7	41.07	21	1.79	24	1.61	8.1	3.54	6.93								
601	Private	Ulmus parviflora	Lacebark elm	13.9		Good	Good	19	20.1	Grove	Exceptional G	Ulmus parviflora				3997.46	1030.5	87.87	56.5	4.82	33	2.21	11.1	4.86	11.89								
602	Private	Acer tegmentosum	Stripebark maple	13.7		Good	Fair	18	12.8	Grove	Exceptional SG	Acer pensylvanicum				2484.87	770	65.66	0.5	0.04	36.6	2.44	12.3	5.38	7.86								
603	Private	Umbellularia californica	California laurel	14.3		Good	Fair	22	30	Grove	Exceptional G					3028.52	1192.1	101.66	50.8	4.33	24.4	1.63	8.2	3.59	9.55								
604	Private	Acer platanoides	Norway maple	20.1		Fair	Fair	21	30	Grove	Exceptional G					6384.61	2076.2	177.05	31.6	2.69	50.2	3.35	16.9	7.38	13.43								
605	Private	Ulmus pumila	Siberian elm	13.0		Good	Good	21	30	Grove	Exceptional G					1184.02	631.9	53.88	44	3.76	25.5	1.71	8.6	3.75	9.22								
606	Private	Calitropsis nootkatensis	Alaskan cedar	8.2		Fair	Good	9	12.9		-					585.02	235.2	20.06	9.9	0.85	3.1	0.2	1	0.45	1.5								
607	Private	Calitropsis nootkatensis	Alaskan cedar	11.5		Fair	Good	12	12.9		-					1185.25	472.6	40.3	14.3	1.22	6.4	0.43	2.1	0.94	2.58								
608	Private	Calitropsis nootkatensis	Alaskan cedar	12.5		Good	Good	14	12.9	Grove	Exceptional G					1578.4	570.8	48.68	17.6	1.5	10.2	0.68	3.4	1.5	3.68								
609	Private	Calitropsis nootkatensis	Alaskan cedar	15.2		Good	Good	14	12.9	Grove	Exceptional SG					2353.13	858.2	73.18	21.7	1.85	15.9	1.06	5.3	2.33	5.24								
610	Private	Ulmus americana	American elm	12.0	7.5, 7.9, 5.1	Good	Good	13	14.3		-					2471.36	668.2	56.98	0.6	0.05	31.2	2.08	10.5	4.58	6.72								
611	ROW	Acer rubrum	Red maple	11.9	6, 9.2, 4.6	Good	Fair	17	25		-	SDOT				1800.97	615.9	52.52	39.4	3.36	29	1.94	9.7	4.26	9.56	16414							
612	ROW	Acer rubrum	Red maple	11.9		Good	Fair	15	25		-	SDOT				1800.97	615.9	52.52	39.4	3.36	29	1.94	9.7	4.26	9.56	16415							
613	ROW	Acer rubrum	Red maple	11.6	9, 7.3	Good	Fair	16	25		-	SDOT				1724.35	579.2	49.39	39.1	3.33	27.7	1.85	9.3	4.08	9.26	16416							
614	ROW	Acer rubrum	Red maple	9.6		Good	Fair	14	25		-	SDOT				1263.55	367.8	31.36	31.1	2.65	19.3	1.29	6.5	2.84	6.78	16417							
615	ROW	Acer rubrum	Red maple	12.7	5.2, 8.9, 7.4	Good	Fair	17	25		-	SDOT				2014.85	720.2	61.42	40	3.41	32.2	2.16	10.8	4.74	10.31	16418							
616	Private	Chamaecyparis obtusa	Hinoki cypress	6.0		Good	Good	5	16.4		-					332.76	147.3	12.56	9.4	0.8	2.1	0.14	0.7	0.31	1.25								
617	Private	Chamaecyparis obtusa	Hinoki cypress	7.1		Good	Good	6	16.4		-					482.03	207.2	17.67	11.2	0.95	3	0.2	1	0.43	1.59								
618	ROW	Acer rubrum	Red maple	7.4		Good	Fair	10	25		-	SDOT				857.09	197.3	16.83	21.7	1.85	11.4	0.76	3.8	1.67	4.28	16419							
619	ROW	Acer rubrum	Red maple	12.2		Good	Fair	10	25		-	SDOT				1879.55	653.9	55.76	39.6	3.38	30.1	2.01	10.1	4.43	9.83	16420							
620	ROW	Gleditsia triacanthos	Honeylocust	16.1		Fair	Fair	17	20		-	SDOT				2635.95	758	64.64	36.2	3.09	25.7	1.72	8.6	3.79	8.6	16421							
621	ROW	Gleditsia triacanthos	Honeylocust	15.1		Fair	Fair	19	20		-	SDOT				2349.39	648.1	55.27	33	2.81	23.8	1.59	8	3.51	7.91	16403							
622	Private	Acer negundo	Boxelder	29.8		Fair	Fair	25	26.7		Exceptional S					5720.34	4211.9	359.17	12.4	1.06	46.9	3.14	15.8	6.91	11.1								
623	ROW	Aesculus hippocastanum	Horsechestnut	41.1		Good	Fair	22	30		-	SDOT				21735.38	12768.8	1088.87	4.3	0.36	63.4	4.24	21.3	9.32	13.93	16404							
624	ROW	Aesculus hippocastanum	Horsechestnut	45.1		Good	Fair	30	30		-	SDOT				24644.01	16036.8	1367.55	4.9	0.42	63.4	4.24	21.3	9.32	13.98	16422							
625	ROW	Aesculus hippocastanum	Horsechestnut	37.1		Good	Fair	30	30		-	SDOT				18633.9	9925	846.36	3.7	0.31	61.8	4.13	20.7	9.09	13.53	16423							
626	ROW	Aesculus hippocastanum	Horsechestnut	26.7		Fair	Fair	21	30		-	SDOT				9676.24	4393.3	374.64	2.1	0.18	57.9	3.87	19.5	8.52	12.58	16424							
627	ROW	Aesculus hippocastanum	Horsechestnut	39.7		Good	Fair	32	30		-	SDOT				20671.79	11725.7	999.91	4.1	0.35	63.3	4.23	21.2	9.31	13.88	16425							



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Table Prepared: May 23, 2023

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Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (S/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking
628	ROW	Aesculus hippocastanum	Horsechestnut	32.7		Good	Fair	28	30		-	SDOT				14999.55	7259.6	619.07	3.1	0.26	60.5	4.04	20.3	8.9	13.2	16426							
629	ROW	Aesculus hippocastanum	Horsechestnut	26.8		Good	Fair	18	30		-	SDOT				10380.15	4434.4	378.14	2.3	0.19	60.7	4.06	20.4	8.93	13.18	16637							
630	ROW	Aesculus hippocastanum	Horsechestnut	19.7		Good	Fair	20	30		-	SDOT				5715.68	2073.5	176.82	25.5	2.18	55.6	3.72	18.7	8.18	14.08	16638							
631	ROW	Aesculus hippocastanum	Horsechestnut	38.5		Good	Fair	30	30		-	SDOT				19741.35	10872.5	927.16	3.9	0.33	62.6	4.18	21	9.21	13.72	0							
632	ROW	Aesculus hippocastanum	Horsechestnut	29.8		Good	Fair	20	30		-	SDOT				12779.14	5766.9	491.78	2.7	0.23	60.5	4.04	20.3	8.9	13.16	16639							
633	Private	Prunus serrulata	Flowering cherry	8.3	5.2, 5.3, 3.8	Good	Fair	8	23		-					1177.37	343.4	29.28	0.6	0.05	5.5	0.37	1.8	0.81	1.22		Remove	Remove	Remove	Remove	Remove	Remove	
634	Private	Prunus serrulata	Flowering cherry	9.0	5, 6, 3, 3.3	Good	Good	12	23		-					1506.43	418.2	35.67	0.7	0.06	8.5	0.57	2.9	1.25	1.88		Remove	Remove	Remove	Remove	Remove	Remove	
635	Private	Malus domestica	Apple	20.1	15.8, 8.6, 9	Good	Fair	25	20		Exceptional S	red leaf cultivar				5752.27	2274.3	193.94	57.7	4.92	20.9	1.4	7	3.07	9.38		Remove	Remove	Remove	Remove	Remove	Remove	
636	Private	Acer campestre	Hedge maple	17.1		Good	Fair	20	22.2		-					3730.27	1510	128.77	0.8	0.07	48.5	3.24	16.3	7.14	10.45		Remove	Remove	Remove	Remove	Remove	Remove	Remove
637	Private	Magnolia grandiflora	Southern magnolia	19.9		Good	Fair	20	16		Exceptional S					4818.14	1847	157.51	54.9	4.69	47.5	3.17	15.9	6.98	14.84		Remove	Remove	Remove	Remove	Remove	Remove	
638	Private	Quercus palustris	Pin oak	6.2		Good	Good	10	30		-			x		942.11	177.6	15.14	21.2	1.81	8.2	0.55	2.8	1.21	3.57								
639	Private	Acer platanoides	Norway maple	23.3	20, 12	Fair	Fair	21	30		-			x		8510.57	2908.3	248	23.8	2.03	54.1	3.62	18.2	7.96	13.61		Remove	Remove	Remove	Remove	Remove	Remove	Remove
640	Private	Acer macrophyllum	Bigleaf maple	24.2	12, 19, 9	Fair	Fair	26	30		-		x	x		7399.56	2480.9	211.56	1.8	0.16	68.2	4.56	22.9	10.03	14.75		Remove	Remove	Remove	Remove	Remove	Remove	Remove
641	Private	Acer campestre	Hedge maple	13.0		Good	Fair	19	22.2	Grove	Exceptional G			x		2262.6	807.3	68.84	0.5	0.05	33.6	2.24	11.3	4.94	7.23		Remove	Remove	Remove	Remove	Remove	Remove	Remove
642	Private	Acer campestre	Hedge maple	17.9		Good	Fair	19	22.2	Grove	Exceptional G			x		4063.26	1676.4	142.96	0.8	0.07	51.1	3.41	17.1	7.51	10.99		Remove	Remove	Remove	Remove	Remove	Remove	Remove
643	Private	Cuprocyparis leylandii	Leyland cypress	17.4	7.8, 15.6	Good	Fair	14	30	Grove	Exceptional G			x		2923.7	2655.1	226.41	66.6	5.68	15.9	1.06	5.3	2.34	9.08		Remove	Remove	Remove	Remove	Remove	Remove	Remove
644	Private	Cuprocyparis leylandii	Leyland cypress	15.6		Good	Good	15	30	Grove	Exceptional G			x		2626.78	2148.8	183.24	79.7	6.79	16.9	1.13	5.7	2.48	10.4		Remove	Remove	Remove	Remove	Remove	Remove	Remove
645	Private	Cuprocyparis leylandii	Leyland cypress	13.4		Good	Good	13	30	Grove	Exceptional G			x		1924.92	1564.6	133.42	82.5	7.04	11.9	0.8	4	1.76	9.59		Remove	Remove	Remove	Remove	Remove	Remove	Remove
646	Private	Cuprocyparis leylandii	Leyland cypress	11.5		Good	Good	14	30		-			x		1404.45	1138.6	97.1	72	6.14	8.5	0.57	2.9	1.25	7.96		Remove	Remove	Remove	Remove	Remove	Remove	Remove
647	Private	Cuprocyparis leylandii	Leyland cypress	11.5		Good	Good	15	30		-			x		1404.45	1138.6	97.1	72	6.14	8.5	0.57	2.9	1.25	7.96		Remove	Remove	Remove	Remove	Remove	Remove	Remove
648	Private	Cuprocyparis leylandii	Leyland cypress	20.8	9.8, 18.4	Good	Fair	17	30	Grove	Exceptional G			x		4197.21	3848.3	328.17	52	4.43	22.6	1.51	7.6	3.32	9.26		Remove	Remove	Remove	Remove	Remove	Remove	Remove
649	Private	Liquidambar styraciflua	American sweetgum	15.7		Good	Good	19	27	Grove	Exceptional G			x		5210.66	596.9	50.9	35.4	3.02	50.9	3.4	17.1	7.49	13.91			Remove					Remove
650	Private	Liquidambar styraciflua	American sweetgum	13.4		Good	Good	13	27	Grove	Exceptional G			x		3855.94	403.6	34.41	28.1	2.4	39	2.61	13.1	5.74	10.74			Remove					Remove
651	Private	Liquidambar styraciflua	American sweetgum	13.0		Good	Good	14	27	Grove	Exceptional G			x		3642.19	374.5	31.93	26.9	2.29	36.7	2.45	12.3	5.4	10.15			Remove					Remove
652	Private	Liquidambar styraciflua	American sweetgum	15.7		Good	Good	14	27	Grove	Exceptional G			x		5210.66	596.9	50.9	35.4	3.02	50.9	3.4	17.1	7.49	13.91			Remove					Remove
653	Private	Acer campestre	Hedge maple	9.9		Good	Fair	9	22.2		-			x		1418.34	433.8	36.99	0.4	0.03	20.2	1.35	6.8	2.97	4.35			Remove					Remove
654	Private	Prunus serrulata	Flowering cherry	11.7	9, 4.3, 6.1	Good	Fair	11	23		-			x		2105.67	792.3	67.57	0.9	0.08	11	0.73	3.7	1.62	2.43			Remove					Remove
655	Private	Liquidambar styraciflua	American sweetgum	17.2		Good	Good	22	27	Grove	Exceptional G			x		6209.55	747.9	63.78	40.5	3.45	58	3.88	19.5	8.54	15.87			Remove					Remove
656	Private	Liquidambar styraciflua	American sweetgum	16.7		Good	Fair	16	27	Grove	Exceptional G			x		5228.8	695.3	59.29	34.5	2.94	44.6	2.98	15	6.56	12.48			Remove					Remove
657	Private	Liquidambar styraciflua	American sweetgum	12.2		Good	Fair	16	27	Grove	Exceptional G			x		2882.6	320.2	27.3	21.8	1.86	24.7	1.65	8.3	3.64	7.15			Remove	Remove				Remove
658	Private	Chamaecyparis pisifera	Sawara cypress	25.4	15.8, 13.1, 14.9	Good	Fair	13	26.9	Grove	Exceptional G			x		5920.85	5839.4	497.96	75.1	6.4	31.3	2.09	10.5	4.6	13.09								Remove
659	Private	Thuja plicata 'Zebrina'	Zebrina redcedar	8.2		Good	Fair	11	30		-			x		650.24	33	2.81	1.4	0.12	2.4	0.16	0.8	0.35	0.63								Remove
660	Private	Liquidambar styraciflua	American sweetgum	9.2		Good	Good	10	27		-			x		1934.67	159.9	13.64	16.3	1.39	17.1	1.14	5.7	2.51	5.04				Remove				
661	Private	Cedrus libani	Cedar of Lebanon	27.8		Good	Good	23	30	Grove	Exceptional G			x		11425.22	7029.9	599.48	24.6	2.09	36.6	2.45	12.3	5.39	9.93				Remove				
662	Private	Umbellularia californica	California laurel	6.8		Good	Fair	9	30		-			x		868.16	199.7	17.03	18.1	1.54	5.5	0.37	1.8	0.81	2.71								
663	Private	Umbellularia californica	California laurel	6.7	4.5, 5	Good	Fair	10	30		-			x		849.73	192.8	16.44	17.7	1.51	5.3	0.36	1.8	0.78	2.65								
664	Private	Taxus brevifolia	Western yew	15.4	5.9, 8.4, 6, 8, 5.6	Good	Good	11	6		Exceptional S			x		2416.53	1018.6	86.86	0.6	0.05	29.5	1.97	9.9	4.34	6.37								



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665	Private	Juniperus chinensis	Chinese juniper	8.1	4.8, 6.5	Good	Fair	8	7.4		Exceptional S			x		389.9	266.2	22.7	22.4	1.91	7.2	0.48	2.4	1.06	3.45								
666	Private	Juniperus chinensis	Chinese juniper	6.5	5.8, 3	Good	Fair	8	7.4		-					259.01	161.9	13.81	17.1	1.46	4.3	0.29	1.4	0.63	2.37								
667	Private	Juniperus chinensis	Chinese juniper	7.2	5.5, 3.5, 3	Good	Fair	12	7.4		-					312.74	203.8	17.38	19.4	1.65	5.4	0.36	1.8	0.8	2.81								
668	Private	Juniperus chinensis	Chinese juniper	8.1	5.9, 5.5	Good	Fair	8	7.4		Exceptional S					389.9	266.2	22.7	22.4	1.91	7.2	0.48	2.4	1.06	3.45								
669	Private	Juniperus chinensis	Chinese juniper	11.7	6.7, 7.7, 5.7	Good	Fair	13	7.4		Exceptional S					789.28	611.1	52.11	35.1	2.99	17.3	1.16	5.8	2.55	6.7								
670	Private	Tsuga canadensis	Eastern hemlock	6.0		Good	Good	6	28.2		-	Tsuga canadensis cultivar				361.32	70	5.97	5.2	0.44	3.6	0.24	1.2	0.54	1.22								
671	Private	Juniperus chinensis 'Kaizuka'	Hollywood juniper	11.2		Good	Good	11	10.3		Exceptional S			x		1539.48	1105.1	94.23	1.2	0.1	21	1.41	7.1	3.09	4.6								
672	Private	Betula papyrifera	Paper birch	20.4	6.4, 8.7, 16.3, 5.9	Fair	Fair	18	20	Grove	Exceptional SG					6155.08	2546.2	217.13	68.1	5.8	39.1	2.61	13.1	5.75	14.16								
673	Private	Betula papyrifera	Paper birch	15.0		Fair	Fair	22	20	Grove	Exceptional G					3423.91	1155.9	98.57	58.7	5.01	30.4	2.03	10.2	4.47	11.51								
674	Private	Betula papyrifera	Paper birch	17.8		Fair	Fair	18	20	Grove	Exceptional G					4736.06	1794	152.98	64.9	5.53	38.4	2.56	12.9	5.64	13.74								
675	Private	Betula papyrifera	Paper birch	11.3		Fair	Fair	17	20		-					2033.61	558.4	47.62	40.2	3.43	16.6	1.11	5.6	2.44	6.98								
676	Private	Betula papyrifera	Paper birch	8.0		Good	Good	10	20		-					1342.53	230	19.61	28.4	2.42	12	0.8	4	1.76	4.98								
677	Private	Zelkova serrata	Japanese zelkova	21.0	10.3,18.3	Good	Fair	21	21	Grove	Exceptional G					7402.2	1121.5	95.64	21.8	1.86	49.2	3.29	16.5	7.25	12.4								
678	Private	Quercus garryana	Garry oak	37.2		Good	Fair	40	6	Grove	Exceptional SG	Confirm ID in spring				21537.48	6862.3	585.18	28.6	2.44	87.5	5.85	29.4	12.87	21.16								
679	Private	Quercus garryana	Garry oak	52.0		Good	Fair	50	6	Grove	Exceptional SG	Confirm ID in spring				33646.39	13403.6	1142.99	39.2	3.34	99.1	6.62	33.3	14.58	24.55								
680	Private	Quercus garryana	Garry oak	50.1		Good	Good	45	6	Grove	Exceptional SG	Confirm ID in spring				36196.73	12442.3	1061.03	42.7	3.64	122.3	8.17	41.1	17.99	29.8								
681	Private	Aesculus hippocastanum	Horsechestnut	35.2		Good	Fair	35	30	Grove	Exceptional SG					17093.14	8713.6	743.06	3.4	0.29	61	4.08	20.5	8.98	13.35								
682	Private	Aesculus hippocastanum	Horsechestnut	38.0		Good	Fair	28	30	Grove	Exceptional SG					19348.55	10528.7	897.84	3.8	0.33	62.3	4.16	20.9	9.16	13.65								



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683	Private	Acer pseudoplatanus	Sycamore maple	27.4		Good	Fair	28	30	Grove	Exceptional G					10839.61	4684.3	399.46	2.4	0.2	60.7	4.06	20.4	8.93	13.19								
684	Private	Aesculus hippocastanum	Horsechestnut	41.8		Good	Fair	35	30	Grove	Exceptional SG					22258.31	13310.5	1135.06	4.4	0.37	64	4.28	21.5	9.42	14.07								
685	Private	Acer pseudoplatanus	Sycamore maple	29.0		Good	Fair	25	30	Grove	Exceptional G					12114.55	5391.4	459.75	2.6	0.22	60.6	4.05	20.4	8.92	13.19								
686	Private	Chamaecyparis pisifera	Sawara cypress	27.7		Fair	Fair	12	26.9	Grove	Exceptional SG					6618.67	6943.6	592.12	69.3	5.91	30.1	2.01	10.1	4.43	12.35								
687	Private	Paulownia tomentosa	Empress tree	17.5		Good	Good	22	26.4	Grove	Exceptional G					4753	493.8	42.11	23.7	2.02	18.4	1.23	6.2	2.7	5.95								
688	Private	Quercus palustris	Pin oak	17.8		Good	Good	26	30	Grove	Exceptional G	Confirm ID in spring				6034.03	1427.7	121.75	35.9	3.06	62.4	4.17	21	9.18	16.41								
689	Private	Ulmus americana	American elm	57.7		Fair	Poor	35	30	Grove	Exceptional SG					22735.8	16534.7	1410	33.1	2.82	68.8	4.6	23.1	10.12	17.54								
690	Private	Quercus palustris	Pin oak	31.0		Good	Good	29	30	Grove	Exceptional SG					17457	4320.2	368.41	2.3	0.2	163.4	10.92	54.9	24.05	35.17								
691	Private	Cornus florida	Eastern flowering dogwood	7.4	5.9, 4.5	Good	Good	9	12		-					1104.53	195.9	16.71	15.5	1.32	6.9	0.46	2.3	1.02	2.8								
692	Private	Prunus serrulata	Flowering cherry	11.4	10.2, 5	Good	Fair	12	23		-					2011.07	743.8	63.42	0.9	0.08	10.3	0.69	3.5	1.52	2.29								
693	Private	Prunus serrulata	Flowering cherry	16.3	10, 9.2, 9	Good	Fair	17	23	Grove	Exceptional G					3863.99	1776.6	151.5	1.5	0.13	19.3	1.29	6.5	2.84	4.25								
694	Private	Quercus palustris	Pin oak	28.2		Good	Fair	31	30	Grove	Exceptional G					13177	3575.9	304.94	1.9	0.16	110.4	7.38	37.1	16.24	23.77								
695	Private	Acer palmatum	Japanese maple	16.7	6, 6.1, 7, 6.2, 7, 6.4, 5.4	Good	Good	17	12	Grove	Exceptional SG					4004.78	1074.9	91.66	0.7	0.06	42.4	2.83	14.2	6.24	9.13								
696	Private	Populus alba 'Pyramidalis'	Bolleana poplar	4.2		Good	Good	4	30		-					465.81	90.1	7.68	21	1.79	1.6	0.11	0.5	0.23	2.13								
697	Private	Acer platanoides	Norway maple	39.6		Fair	Poor	50	30	Grove	Exceptional SG					17925.58	9669.9	824.61	3	0.26	65.6	4.39	22	9.66	14.3								
698	Private	Zelkova serrata	Japanese zelkova	10.1		Good	Good	16	30		-					2172.85	305.1	26.02	20.6	1.76	18.5	1.24	6.2	2.73	5.72								
699	Private	Acer palmatum	Japanese maple	14.4	10.9, 9.4	Good	Fair	18	12		Exceptional S					2718.8	764.1	65.16	0.5	0.04	26	1.74	8.7	3.83	5.61		Remove		Remove	Remove	Remove	Remove	
700	Private	Acer palmatum	Japanese maple	11.4	8.7, 7.4	Good	Fair	17	12		-					1798.31	447	38.11	2.6	0.23	15.6	1.04	5.2	2.29	3.56		Remove		Remove	Remove	Remove	Remove	
701	Private	Ulmus americana	American elm	46.7		Good	Fair	35	30		Exceptional S					23800.11	11565.1	986.22	107.9	9.2	111.2	7.43	37.3	16.36	32.99								
702	Private	Ulmus americana	American elm	52.8		Good	Fair	46	30		Exceptional S					27443.28	15525.3	1323.92	88.1	7.51	116.6	7.8	39.2	17.16	32.47				Remove	Remove			
703	Private	Acer palmatum	Japanese maple	8.5		Good	Good	12	12		-					1247.59	228.3	19.47	6.1	0.52	10.4	0.69	3.5	1.53	2.74		Remove		Remove	Remove	Remove	Remove	
704	Private	Acer palmatum	Japanese maple	10.7	7.2, 7.3, 3.1	Good	Good	17	12		-					1811.2	386.5	32.96	4	0.34	17.7	1.18	5.9	2.6	4.12		Remove		Remove	Remove	Remove	Remove	



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705	Private	Populus alba 'Pyramidalis'	Bolleana poplar	79.8		Good	Fair	37	30	Grove	Exceptional SG					19159.94	16534.7	1410	33.1	2.82	106.4	7.11	35.7	15.65	25.59								
706	Private	Stewartia pseudocamellia	Japanese stewartia	4.7		Good	Good	8	7.7		-					604.14	98.6	8.41	7.6	0.65	2	0.14	0.7	0.3	1.08								
707	Private	Stewartia pseudocamellia	Japanese stewartia	4.0		Good	Good	8	7.7		-					510.86	66.6	5.68	7.7	0.65	1.5	0.1	0.5	0.22	0.98								
708	Private	Arbutus unedo	Strawberry tree	13.6	9, 8, 3, 4, 4	Good	Fair	17	10.2		Exceptional S			x		2761.9	1087.1	92.7	0.8	0.06	7.1	0.47	2.4	1.04	1.58		Remove		Remove	Remove	Remove	Remove	Remove
709	Private	Tsuga heterophylla	Western hemlock	27.0		Good	Good	24	24		Exceptional S			x		8529.61	1699.3	144.91	28.6	2.44	86.6	5.79	29.1	12.75	20.98								Remove
710	Private	Juglans regia	English walnut	10.0	6, 8	Good	Fair	14	28.8		-			x		1447.66	240.1	20.48	19.8	1.69	15.9	1.06	5.3	2.34	5.09		Remove		Remove	Remove	Remove	Remove	Remove
711	ROW	Pinus contorta var. contorta	Shore pine	21.0	13, 9.2, 13.7	Fair	Fair	14	12		-			x		3133.14	1020.6	87.03	31.4	2.67	34.2	2.29	11.5	5.04	10	16523							
712	ROW	Acer campestre	Hedge maple	23.6		Good	Fair	19	22.2		-			x		6876.47	3155	269.04	1.2	0.1	79.4	5.31	26.7	11.69	17.1	0							
713	ROW	Ilex aquifolium	English holly	11.1	8.3, 7.4	Good	Good	10	18.8		-			x		2152.93	428.9	36.57	15.1	1.29	9.2	0.61	3.1	1.35	3.25	0							
714	ROW	Ilex aquifolium	English holly	16.4	6.1, 6, 8.9, 8.4, 4, 5.4	Good	Good	11	18.8		-			x		4385.29	1039.3	88.63	8.5	0.72	20.4	1.37	6.9	3	5.09	0							
715	Private	Juglans regia	English walnut	5.8	5, 3	Good	Fair	14	28.8		-			x		654.34	63.8	5.44	9.2	0.78	4.6	0.31	1.5	0.68	1.77		Remove		Remove	Remove	Remove	Remove	Remove
716	ROW	Ilex aquifolium	English holly	13.9	5.2, 3.5, 5.7, 7, 3.2, 7.8	Good	Fair	11	18.8		-			x		2874.53	707.4	60.33	11.8	1	10.7	0.71	3.6	1.57	3.29	0							
717	ROW	Crataegus laevigata	English hawthorn	11.5		Good	Fair	10	16		-			x		2042.33	588.8	50.21	0.7	0.06	4.7	0.31	1.6	0.69	1.06	16536							
718	Private	Betula pendula	European white birch	28.0		Good	Fair	25	24		Exceptional S			x		11589.99	5003.8	426.7	122.7	10.46	53.2	3.56	17.9	7.83	21.85								Remove
719	Private	Acer rubrum	Red maple	17.0		Good	Fair	23	25		-		x	x		3402.8	1454.7	124.05	36.6	3.12	48.2	3.22	16.2	7.09	13.43								Remove
720	Private	Robinia pseudoacacia	Black locust	16.0		Good	Fair	18	30		-		x	x		3581.03	833.7	71.09	10.2	0.87	27.9	1.86	9.4	4.1	6.83		Remove		Remove	Remove	Remove	Remove	Remove
721	Private	Pinus nigra	Austrian black pine	25.0		Good	Fair	25	24		Exceptional S		x	x		6509.89	1613.9	137.63	38	3.24	30.3	2.03	10.2	4.46	9.73		Remove		Remove	Remove	Remove	Remove	Remove
722	ROW	Crataegus laevigata	English hawthorn	12.6		Good	Fair	11	16		-			x		2404.23	736.4	62.79	0.8	0.07	5.3	0.36	1.8	0.78	1.21	16509							
723	Private	Ilex aquifolium	English holly	18.0	10, 9, 12	Good	Good	14	18.8		-			x		5228.31	1279.9	109.14	3.6	0.31	21.4	1.43	7.2	3.15	4.89		Remove		Remove	Remove	Remove	Remove	Remove
724	ROW	Crataegus laevigata	English hawthorn	12.5		Good	Fair	16	16		-			x		2369.96	722.1	61.58	0.8	0.07	5.3	0.36	1.8	0.79	1.21	16517							
725	ROW	Crataegus laevigata	English hawthorn	16.6		Good	Fair	17	16		-			x		3998.73	1446.6	123.36	1.2	0.1	8.2	0.55	2.8	1.21	1.86	16515							
726	Private	Prunus laurocerasus	Cherry laurel	12.6	4.5, 4, 3, 4, 6, 5, 6	Good	Fair	12	26.2		-			x		2404.23	971	82.8	1.3	0.11	17.5	1.17	5.9	2.57	3.85								Remove
727	Private	Cuprocyparis leylandii	Leyland cypress	18.0		Good	Fair	11	30		-			x		3131.96	2848.8	242.94	64.7	5.52	17	1.14	5.7	2.5	9.16								Remove
728	Private	Cuprocyparis leylandii	Leyland cypress	10.0		Good	Good	10	30		-			x		1049.67	851.8	72.63	62	5.29	6.2	0.41	2.1	0.91	6.61								Remove
729	ROW	Betula pendula 'Purpurea'	European white birch	6.2		Fair	Poor	7	12.4		-			x		575.9	168.8	14.39	0.3	0.02	2.1	0.14	0.7	0.31	0.48	16514	Remove		Remove	Remove	Remove	Remove	
730	ROW	Betula pendula 'Purpurea'	European white birch	6.2		Fair	Poor	8	12.4		-			x		575.9	168.8	14.39	0.3	0.02	2.1	0.14	0.7	0.31	0.48	16513	Remove		Remove	Remove	Remove	Remove	
731	ROW	Betula pendula 'Purpurea'	European white birch	6.4		Fair	Poor	11	12.4		-			x		601.91	182.3	15.55	0.3	0.03	2.3	0.15	0.8	0.33	0.51	16512	Remove		Remove	Remove	Remove	Remove	



Table of Trees
Seattle Pacific University, Seattle, WA

Arborist: TB / JP
Date of Inventory: Spring 2021
Table Prepared: May 23, 2023

Column headers highlighted in green indicate columns of data which were calculated using i-Tree Eco.

Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (S/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking		
732	ROW	<i>Betula pendula 'Purpurea'</i>	European white birch	4.4		Poor	Poor	9	24		-			x			354.44	51.6	4.4	6.9	0.59	1.4	0.1	0.5	0.21	0.9	16508	Remove		Remove	Remove	Remove	Remove		
733	Private	<i>Prunus cerasifera 'Thundercloud'</i>	Thundercloud plum	7.0		Good	Fair	12	12.4		-			x			905.84	226.8	19.34	0.4	0.04	5.3	0.35	1.8	0.78	1.17		Remove		Remove	Remove	Remove	Remove	Remove	
734	Private	<i>Pseudotsuga menziesii</i>	Douglas-fir	30.0		Good	Good	22	30		Exceptional S			x			10545.17	2009	171.32	42.8	3.65	60	4.01	20.2	8.83	16.5		Remove		Remove	Remove	Remove	Remove	Remove	Remove
735	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	8.0		Good	Good	7	30		-			x			653.63	537.6	45.85	49	4.18	3.8	0.25	1.3	0.55	4.98		Remove		Remove	Remove	Remove	Remove	Remove	
736	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	10.0		Good	Good	11	30		-		x	x			1049.67	851.8	72.63	62	5.29	6.2	0.41	2.1	0.91	6.61		Remove		Remove	Remove	Remove	Remove	Remove	
737	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	6.0		Good	Good	6	30		-		x	x			345.6	299.5	25.54	36.3	3.09	2.1	0.14	0.7	0.31	3.55		Remove		Remove	Remove	Remove	Remove	Remove	
738	Private	<i>Chamaecyparis obtusa</i>	Hinoki cypress	8.0		Good	Good	9	16.4		-						622.8	264.4	22.55	12.7	1.08	3.8	0.25	1.3	0.55	1.89									
739	Private	<i>Acer rubrum</i>	Red maple	14.0		Good	Good	23	25		-		x				2683.8	910.7	77.66	45	3.84	46.1	3.08	15.5	6.78	13.71									
740	Private	<i>Fraxinus latifolia</i>	Oregon ash	14.0		Good	Good	22	24		-		x				2489.99	692.8	59.08	25.7	2.19	41.7	2.79	14	6.14	11.12									
741	Private	<i>Cedrus deodara</i>	Deodar cedar	15.0	12, 9	Good	Fair	12	30		-		x				2893.13	849.1	72.41	37.5	3.2	9.1	0.61	3.1	1.34	5.15									
742	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	13.4		Good	Good	9	30		-	survey tag 42					1924.92	1564.6	133.42	82.5	7.04	11.9	0.8	4	1.76	9.59									
743	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	7.0		Good	Good	7	30		-	survey tag 43					488.62	409.2	34.89	42.6	3.63	2.9	0.19	1	0.42	4.24									
744	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	7.3		Good	Good	8	30		-	survey tag 44					535.81	446.1	38.04	44.5	3.79	3.2	0.21	1.1	0.46	4.47									
745	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	8.6		Good	Good	9	30		-						763.2	624	53.21	52.9	4.51	4.4	0.3	1.5	0.65	5.46									
746	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	9.6		Good	Good	8	30		-	survey tag 46					963.42	782.8	66.75	59.4	5.06	5.6	0.38	1.9	0.83	6.27									
747	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	7.4		Good	Fair	8	30		-	survey tag 47					491.98	452.5	38.59	40.1	3.42	2.5	0.16	0.8	0.36	3.95									
748	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	9.0		Good	Fair	9	30		-	survey tag 48					749.27	676.3	57.67	49.3	4.21	3.8	0.25	1.3	0.55	5.01									
749	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	8.9		Fair	Fair	8	30		-	survey tag 49					687.11	656.8	56.01	45.7	3.9	3.1	0.21	1.1	0.46	4.57									
750	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	10.7		Good	Fair	10	30		-	survey tag 50					1077.65	966.6	82.43	59.3	5.06	5.5	0.37	1.8	0.81	6.23									
751	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	10.6		Fair	Fair	10	30		-	survey tag 51					992.33	941.4	80.28	55.1	4.7	4.5	0.3	1.5	0.67	5.66									
752	Private	<i>Sequoia sempervirens</i>	Coast redwood	16.0		Fair	Good	20	30		-						2465.2	657.7	56.08	29.6	2.53	24.1	1.61	8.1	3.55	7.69									
753	Private	<i>Aesculus hippocastanum</i>	Horsechestnut	7.8		Good	Good	16	30		-	survey tag 36					1225.38	216.3	18.44	19	1.62	19.4	1.3	6.5	2.85	5.77									
754	Private	<i>Aesculus hippocastanum</i>	Horsechestnut	10.5		Good	Fair	18	30		-	survey tag 37					1790.27	444.3	37.89	25.9	2.21	25.4	1.7	8.5	3.74	7.65									
755	Private	<i>Prunus avium</i>	Wild cherry	13.0		Poor	Poor	12	29.4		-						1768.41	859.5	73.29	17.8	1.52	6.8	0.45	2.3	1	2.97									
756	Private	<i>Prunus avium</i>	Wild cherry	14.9	5, 14	Poor	Poor	12	29.4		-	survey tag 41					2271.44	1198.2	102.17	17.9	1.53	8.6	0.57	2.9	1.26	3.36									
757	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	12.0		Good	Good	9	30	Grove	Exceptional G		x				1533.72	1243.7	106.05	75.3	6.42	9.3	0.62	3.1	1.37	8.42									
758	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	10.0		Good	Good	10	30		-		x				1049.67	851.8	72.63	62	5.29	6.2	0.41	2.1	0.91	6.61									
759	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	13.0		Good	Good	14	30	Grove	Exceptional G		x				1808.74	1470	125.35	82.1	7	11.3	0.75	3.8	1.66	9.42									
760	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	14.0		Good	Good	15	30	Grove	Exceptional G	all estimated in this area due to access	x				2105.77	1714.7	146.22	82.2	7.01	13.3	0.89	4.5	1.95	9.85									
761	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	15.0		Good	Good	15	30	Grove	Exceptional G						2424.8	1979.3	168.78	80.9	6.9	15.4	1.03	5.2	2.26	10.19									
762	Private	<i>Pinus ponderosa</i>	Ponderosa pine	7.0		Good	Fair	7	30		-						362.32	81.9	6.98	6.6	0.56	4.4	0.3	1.5	0.65	1.51									
763	Private	<i>Tsuga heterophylla</i>	Western hemlock	28.0		Good	Good	20	24	Grove	Exceptional SG						9177.89	1824.6	155.6	29.8	2.54	87.7	5.87	29.5	12.91	21.32									
764	Private	<i>Pseudotsuga menziesii</i>	Douglas-fir	18.0		Good	Good	18	30	Grove	Exceptional G						3755.93	665.5	56.75	21.9	1.87	34.5	2.31	11.6	5.08	9.26									
765	Private	<i>Cuprocyparis leylandii</i>	Leyland cypress	12.0		Good	Good	12	30	Grove	Exceptional G						1533.72	1243.7	106.05	75.3	6.42	9.3	0.62	3.1	1.37	8.42									
766	Private	<i>Prunus laurocerasus</i>	Cherry laurel	13.9	9,8,7	Good	Good	15	26.2	Grove	Exceptional G						3225.08	1239.1	105.67	1.7	0.15	26.8	1.79	9	3.95	5.89									
767	Private	<i>Acer pseudoplatanus</i>	Sycamore maple	22.8		Good	Good	15	24		-						8874.86	2857.3	243.66	40	3.41	68.3	4.56	22.9	10.04	18.01									
768	Private	<i>Calitropsis nootkatensis</i>	Alaskan cedar	5.4		Good	Good	8	13		-						261.9	102.1	8.71	7.2	0.61	1.7	0.12	0.6	0.26	0.98									



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Seattle Pacific University, Seattle, WA

Arborist: TB / JP
Date of Inventory: Spring 2021
Table Prepared: May 23, 2023

Column headers highlighted in green indicate columns of data which were calculated using i-Tree Eco.

Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (S/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking		
769	Private	Calitropsis nootkatensis	Alaskan cedar	9.9	7,7,3,6,5,1	Good	Good	10	13		-						975.1	352.2	30.03	13.7	1.16	6.1	0.41	2.1	0.9	2.48									
770	Private	Thuja occidentalis	Arborvitae	8.8	4,5,6	Good	Good	7	11.8		-						753.21	301.9	25.75	13	1.11	3.3	0.22	1.1	0.48	1.8									
771	Private	Chamaecyparis lawsoniana	Lawson cypress	7.0		Good	Good	9	30		-			x			467.42	164.3	14.01	13	1.11	2.9	0.19	1	0.42	1.72									
772	Private	Tsuga heterophylla	Western hemlock	25.0		Good	Fair	19	24		Exceptional S		x	x			6509.89	1448.6	123.53	23.3	1.99	66.7	4.46	22.4	9.82	16.27		Remove		Remove	Remove	Remove	Remove		
773	ROW	Pyrus calleryana	Callery pear	8.9		Good	Fair	15	13		-		x				1318.25	304.3	25.95	21.6	1.85	7.9	0.53	2.7	1.17	3.54	0								
774	ROW	Acer palmatum	Japanese maple	7.0		Good	Good	9	12		-						937.37	146.6	12.5	6.6	0.57	6.8	0.46	2.3	1.01	2.03	0								
775	ROW	Acer ginnala	Amur maple	7.4		Good	Good	11	15.6		-						1014.22	430.7	36.73	0.8	0.07	14.6	0.97	4.9	2.14	3.19	0								
776	ROW	Acer ginnala	Amur maple	7.9		Good	Good	11	15.6		-						1116.3	499.4	42.58	0.9	0.07	16.6	1.11	5.6	2.44	3.63	0								
777	ROW	Prunus serrulata	Flowering cherry	7.0		Good	Fair	9	23		-						905.84	226.8	19.34	0.4	0.04	3.8	0.26	1.3	0.56	0.86	0								
778	ROW	Prunus serrulata	Flowering cherry	7.0		Good	Good	8	23		-						1016.3	226.8	19.34	0.5	0.04	5	0.34	1.7	0.74	1.12	0								
779	ROW	Aesculus hippocastanum	Horsechestnut	25.0		Good	Good	19	30		-						10168.05	3733.6	318.39	6	0.51	64.4	4.31	21.6	9.48	14.3	16540								
780	Private	Betula pendula	European white birch	31.8	22,23	Fair	Fair	20	24		Exceptional S			x			13693.78	6857.9	584.81	130.7	11.15	51.3	3.43	17.2	7.55	22.12		Remove		Remove	Remove	Remove	Remove		
781	Private	Cedrus deodara	Deodar cedar	35.0		Good	Good	25	30		Exceptional S			x			17529.89	4947.1	421.86	64.1	5.47	40.1	2.68	13.5	5.9	14.04									
782	Private	Ilex aquifolium	English holly	8.0		Good	Good	8	18.8		-			x			1246.05	205.5	17.52	11	0.94	5.1	0.34	1.7	0.74	2.02		Remove		Remove	Remove	Remove	Remove		
783	Private	Acer platanoides	Norway maple	9.0		Good	Good	16	30		-			x			1720.53	334.1	28.49	31.1	2.66	21.7	1.45	7.3	3.19	7.3									
784	Private	Ilex aquifolium	English holly	12.0		Good	Good	15	18.8		-			x			2471.36	511.5	43.62	14.9	1.27	10.7	0.72	3.6	1.58	3.56									
785	Private	Acer platanoides	Norway maple	9.0		Good	Good	15	30		-		x	x			1720.53	334.1	28.49	31.1	2.66	21.7	1.45	7.3	3.19	7.3									
786	Private	Fraxinus pennsylvanica	Green ash	12.5		Good	Fair	14	30		-		x	x			1896.07	433.6	36.98	21.5	1.84	27.8	1.86	9.3	4.1	7.79									
787	Private	Ilex aquifolium	English holly	17.5	7,16	Good	Good	11	18.8		-		x	x			4956.44	1201.6	102.47	5.4	0.46	21.2	1.42	7.1	3.12	5									
788	Private	Prunus laurocerasus	Cherry laurel	9.3	5,8,5,4,4,8	Good	Good	17	26.2		-			x			1590.52	468.8	39.98	1	0.08	12.6	0.84	4.2	1.85	2.77									
789	Private	Prunus laurocerasus	Cherry laurel	10.4	6,2,5,8,6	Good	Good	15	26.2		-			x			1922.42	614.7	52.42	1.1	0.1	15.9	1.06	5.3	2.34	3.5									
790	Private	Prunus avium	Wild cherry	11.0		Good	Good	15	29.4		-			x			2119.08	572.2	48.8	27.7	2.36	15.9	1.06	5.3	2.34	5.77									
791	Private	Fraxinus pennsylvanica	Green ash	35.2		Good	Good	37	30		Exceptional S			x			14267.54	3821.7	325.9	36.1	3.08	138.9	9.29	46.7	20.44	32.81									
792	Private	Fraxinus pennsylvanica	Green ash	35.0		Fair	Fair	39	30		Exceptional S		x	x			11827.1	3777.7	322.15	30.4	2.59	96.7	6.46	32.5	14.23	23.28									
793	Private	Thuja plicata	Western redcedar	16.0		Good	Fair	16	30		-		x	x			2633.29	210.1	17.91	4.8	0.41	11.8	0.79	4	1.73	2.93									
794	Private	Fraxinus pennsylvanica	Green ash	30.0		Good	Fair	30	30		Exceptional S		x	x			9655.78	2732.5	233.02	37.2	3.17	87.7	5.86	29.5	12.91	21.94									
795	Private	Populus trichocarpa	Black cottonwood	60.0		Good	Fair	25			-		x	x			15528.16	16534.7	1410	33.1	2.82	96.2	6.43	32.3	14.15	23.41									
796	Private	Ilex aquifolium	English holly	10.3	5,9	Good	Good	7	18.8		-		x				1890.72	362.1	30.88	15.2	1.3	7.9	0.53	2.7	1.16	2.98									
797	Private	Prunus avium	Wild cherry	11.0		Good	Fair	18	29.4		-		x				1888.75	572.2	48.8	24.7	2.1	12.2	0.81	4.1	1.79	4.7									
798	Private	Populus trichocarpa	Black cottonwood	20.0		Good	Good	18			-		x				3216.52	4321.4	368.51	154.1	13.14	65.8	4.4	22.1	9.68	27.22									
799	Private	Acer platanoides	Norway maple	13.0		Good	Fair	15	30		-		x				2968.08	769.6	65.63	37.7	3.22	33.1	2.21	11.1	4.87	10.3									
800	Private	Fraxinus pennsylvanica	Green ash	20.0		Good	Good	20	30		-						4980.53	1165.6	99.4	41.5	3.54	61.9	4.13	20.8	9.1	16.77									
801	Private	Acer palmatum	Japanese maple	10.0		Good	Good	12	12		-						1617.86	331	28.23	4.8	0.41	15.1	1.01	5.1	2.22	3.64									
802	ROW	Aesculus hippocastanum	Horsechestnut	16.6	7,5,6,7,6,5,5,5,5,4,9	Good	Poor	18	30		-		x				3874.25	1360.8	116.04	28.8	2.46	43.5	2.91	14.6	6.4	11.76	0								
803	ROW	Aesculus hippocastanum	Horsechestnut	13.7		Good	Fair	20	30		-		x				2884.37	850	72.48	31.5	2.69	38.6	2.58	13	5.68	10.95	0								
804	ROW	Aesculus hippocastanum	Horsechestnut	13.1	5,8,6,5,8,5,9,5,7	Fair	Poor	14	30		-		x				2009.09	761.6	64.94	23.7	2.02	19.5	1.3	6.6	2.87	6.19	0								
805	ROW	Crataegus monogyna	Common hawthorn	12.2	6,5,5,4,6,6,5	Good	Fair	11	16.2		-						2268.81	768.2	65.51	0.6	0.05	6.8	0.45	2.3	1	1.5	0								
806	ROW	Acer platanoides	Norway maple	12.5		Good	Good	12	30		-						3096.85	703.8	60.02	42	3.58	39.1	2.62	13.1	5.76	11.96	0								
807	ROW	Acer platanoides	Norway maple	9.9		Good	Good	11	30		-						2031.64	414.5	35.35	35.1	3	26.2	1.75	8.8	3.86	8.61	0								
808	ROW	Liquidambar styraciflua	American sweetgum	18.0		Good	Good	17	27		-						6779.53	836.9	71.37	43.2	3.69	61.7	4.12	20.7	9.08	16.89	0								
809	ROW	Acer platanoides	Norway maple	11.3		Good	Fair	12	30		-						2294.65	559.6	47.72	36	3.07	25.7	1.72	8.6	3.79	8.58									



Table of Trees
Seattle Pacific University, Seattle, WA

Arborist: TB / JP
Date of Inventory: Spring 2021
Table Prepared: May 23, 2023

Column headers highlighted in green indicate columns of data which were calculated using i-Tree Eco.

Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (S/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking	
810	ROW	Acer platanoides	Norway maple	8.2		Good	Fair	12	30		-					1309.2	270.7	23.08	24.6	2.1	13.8	0.92	4.6	2.02	5.04	0								
811	ROW	Betula pendula	European white birch	18.1		Good	Good	18	24		-					5583.53	1697.6	144.76	87.4	7.45	41.9	2.8	14.1	6.16	16.41	0					Remove			
812	Private	Pyrus calleryana	Callery pear	7.0		Good	Good	11	13		-					1016.3	169.1	14.42	17.3	1.47	5.9	0.39	2	0.87	2.74									
813	Private	Liquidambar styraciflua	American sweetgum	9.9		Good	Good	10	27		-					2205.29	191.5	16.33	18.1	1.54	20.3	1.36	6.8	2.99	5.89						Remove			
814	Private	Liquidambar styraciflua	American sweetgum	7.9		Good	Good	11	27		-					1484.72	110.2	9.4	13	1.11	12	0.8	4	1.77	3.68						Remove			
815	Private	Liquidambar styraciflua	American sweetgum	9.9		Good	Good	14	27		-					2205.29	191.5	16.33	18.1	1.54	20.3	1.36	6.8	2.99	5.89						Remove			
816	Private	Pyrus calleryana	Callery pear	7.0		Good	Good	10	13		-					1016.3	169.1	14.42	17.3	1.47	5.9	0.39	2	0.87	2.74						Remove			
817	Private	Pyrus calleryana	Callery pear	6.6		Good	Good	8	13		-					932.98	146.4	12.48	15.9	1.36	5.1	0.34	1.7	0.76	2.46						Remove			
818	Private	Pyrus calleryana	Callery pear	8.3		Good	Good	10	13		-					1320.95	256.5	21.87	22	1.88	8.8	0.59	2.9	1.29	3.76		Remove			Remove	Remove	Remove	Remove	
819	Private	Liquidambar styraciflua	American sweetgum	8.4		Good	Good	9	27		-					1649.68	128	10.92	14.3	1.22	13.8	0.92	4.6	2.03	4.17		Remove			Remove	Remove	Remove	Remove	
820	Private	Liquidambar styraciflua	American sweetgum	7.5		Good	Good	10	27		-					1360.03	97.1	8.28	12.1	1.03	10.5	0.7	3.5	1.55	3.28		Remove			Remove	Remove	Remove	Remove	
821	ROW	Liquidambar styraciflua	American sweetgum	8.0		Good	Good	9	27		-					1516.9	113.6	9.69	13.3	1.13	12.3	0.82	4.1	1.81	3.77	0	Remove			Remove	Remove	Remove	Remove	Remove
822	ROW	Acer platanoides	Norway maple	8.5		Good	Fair	10	30		-					1390.87	293.6	25.04	25.7	2.2	14.8	0.99	5	2.17	5.36	0					Remove	Remove	Remove	
823	ROW	Acer platanoides	Norway maple	7.7		Good	Fair	7	30		-					1179.6	234.8	20.02	22.7	1.94	12.1	0.81	4.1	1.78	4.52	0								
824	ROW	Liquidambar styraciflua	American sweetgum	6.1		Good	Good	9	27		-					974.65	58.8	5.01	9	0.77	6.5	0.44	2.2	0.96	2.17	0	Remove			Remove	Remove	Remove	Remove	Remove
825	ROW	Liquidambar styraciflua	American sweetgum	7.0		Good	Good	7	27		-					1213.29	82.1	7	11	0.94	9	0.6	3	1.33	2.86	0	Remove			Remove	Remove	Remove	Remove	Remove
826	ROW	Liquidambar styraciflua	American sweetgum	6.7		Good	Good	8	27		-					1130.1	73.8	6.29	10.3	0.88	8.2	0.55	2.7	1.2	2.63	0	Remove			Remove	Remove	Remove	Remove	Remove
827	ROW	Liquidambar styraciflua	American sweetgum	10.4		Good	Good	11	27		-					2410.74	216.1	18.43	19.4	1.66	22.7	1.52	7.6	3.34	6.51	0	Remove			Remove	Remove	Remove	Remove	Remove
828	ROW	Liquidambar styraciflua	American sweetgum	7.2		Good	Good	7	27		-					1270.77	87.9	7.49	11.4	0.97	9.6	0.64	3.2	1.41	3.03	0	Remove			Remove	Remove	Remove	Remove	Remove
829	Private	Acer palmatum	Japanese maple	10.0		Good	Fair	10	12		-					1442.01	331	28.23	4.3	0.37	11.5	0.77	3.8	1.69	2.82		Remove			Remove	Remove	Remove	Remove	Remove
830	Private	Chamaecyparis lawsoniana	Lawson cypress	11.0		Good	Good	7	30		-					1213.25	416.8	35.54	21	1.79	7.6	0.51	2.6	1.12	3.42		Remove			Remove	Remove	Remove	Remove	Remove
831	ROW	Acer platanoides	Norway maple	17.6		Good	Good	19	30		-					5904.54	1533.6	130.78	41.9	3.58	57.8	3.86	19.4	8.51	15.95	0				Remove	Remove	Remove		
832	Private	Sequoiadendron giganteum	Giant sequoia	93.4		Good	Good	25	30		Exceptional S					46711.42	16534.7	1410	33.1	2.82	94.8	6.33	31.8	13.94	23.09						Remove	Remove		
833	Private	Liquidambar styraciflua	American sweetgum	8.4		Good	Good	9	27		-					1649.68	128	10.92	14.3	1.22	13.8	0.92	4.6	2.03	4.17							Remove		
834	Private	Chamaecyparis lawsoniana	Lawson cypress	13.5	10.5,8.5	Good	Good	6	30		-					1847.73	638.5	54.45	26.2	2.23	12.2	0.82	4.1	1.8	4.85									
835	ROW	Acer platanoides	Norway maple	17.0		Good	Good	17	30		-					5524.84	1417.5	120.87	42.3	3.61	56.5	3.77	19	8.31	15.69	0								
836	ROW	Acer platanoides	Norway maple	19.4		Good	Good	17	30		-					7122.65	1915.3	163.32	39	3.33	60.7	4.05	20.4	8.92	16.31	0								
837	Private	Chamaecyparis lawsoniana	Lawson cypress	12.7		Good	Good	8	30		-					1630.61	562.1	47.93	24.5	2.09	10.6	0.71	3.6	1.56	4.36									
838	ROW	Acer platanoides	Norway maple	11.1		Good	Good	13	30		-					2492.55	537.5	45.84	40.1	3.42	32.3	2.16	10.9	4.75	10.34	0								
839	ROW	Acer platanoides	Norway maple	13.4		Good	Good	18	30		-					3523.19	824.5	70.31	42.7	3.64	43.6	2.91	14.6	6.41	12.96	0								
840	ROW	Acer platanoides	Norway maple	16.6		Good	Good	19	30		-					5279.02	1342.2	114.45	42.8	3.65	55.3	3.7	18.6	8.14	15.49	0								
841	ROW	Acer campestre	Hedge maple	10.4		Good	Good	18	22.2		-					1726.74	485.5	41.4	0.5	0.04	29	1.94	9.7	4.26	6.24	16495								
842	ROW	Acer campestre	Hedge maple	11.2		Good	Fair	15	22.2		-					1744.55	574.8	49.01	0.4	0.04	25.9	1.73	8.7	3.81	5.58	16494								
843	ROW	Acer campestre	Hedge maple	9.4		Good	Fair	15	22.2		-					1303.57	385.6	32.88	0.4	0.03	18.2	1.22	6.1	2.68	3.93	16493								
844	ROW	Acer campestre	Hedge maple	13.4		Good	Fair	15	22.2		-					2388.18	865.3	73.79	0.6	0.05	35.3	2.36	11.9	5.2	7.61	16492								
845	ROW	Acer campestre	Hedge maple	8.8		Good	Fair	12	22.2		-					1173.71	332	28.31	0.3	0.03	15.9	1.06	5.3	2.34	3.43	16491								
846	ROW	Acer campestre	Hedge maple	8.5		Good	Fair	14	22.2		-					1111.98	306.8	26.16	0.3	0.03	14.8	0.99	5	2.18	3.2	16490								
847	ROW	Acer campestre	Hedge maple	14.0		Good	Fair	16	22.2		-					2583.7	956	81.52	0.6	0.05	37.7	2.52	12.7	5.55	8.13	16488								
848	Private	Umbellularia californica	California laurel	12.0		Good	Good	10	30		-					2471.36	786.1	67.03	44.7	3.81	22.8	1.53	7.7	3.36	8.7		Remove			Remove	Remove	Remove	Remove	Remove
849	Private	Ficus carica	Common fig	10.7	6,7,5.5	Good	Good	10	17.2		-					2019.37	505.1	43.07	5.3	0.46	21	1.4	7	3.08	4.94		Remove			Remove	Remove	Remove	Remove	Remove
850	Private	Betula pendula	European white birch	7.0		Good	Good	12	24		-					1053.96	162.3	13.84	22	1.88	9.9	0.66	3.3	1.45	3.99		Remove			Remove	Remove	Remove	Remove	Remove



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Seattle Pacific University, Seattle, WA

Arborist: TB / JP
Date of Inventory: Spring 2021
Table Prepared: May 23, 2023

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Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (S/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking		
851	Private	<i>Pseudotsuga menziesii</i>	Douglas-fir	16.0		Good	Good	15	30		-						2954.43	496.4	42.33	18.2	1.55	27.6	1.85	9.3	4.07	7.47		Remove		Remove	Remove	Remove	Remove		
852	Private	<i>Tilia cordata</i>	Littleleaf linden	10.8		Good	Good	12	30		-						2451.13	357.3	30.47	22.6	1.93	21.5	1.44	7.2	3.16	6.52		Remove		Remove	Remove	Remove	Remove		
853	Private	<i>Betula pendula</i>	European white birch	9.0		Good	Good	14	24		-						1574.21	301.7	25.73	31.6	2.69	15	1.01	5.1	2.21	5.91		Remove		Remove	Remove	Remove	Remove		
854	Private	<i>Tilia cordata</i>	Littleleaf linden	9.7		Good	Good	12	30		-						2022.19	277.4	23.65	19.6	1.67	17.1	1.14	5.7	2.52	5.33									
855	ROW	<i>Juniperus chinensis</i>	Chinese juniper	10.2		Good	Good	7	7.4		-						679.03	465.4	39.69	33.3	2.84	16.9	1.13	5.7	2.49	6.47	0	Remove		Remove	Remove	Remove	Remove	Remove	
856	ROW	<i>Juniperus chinensis</i>	Chinese juniper	7.5		Good	Good	5	7.4		-						378.6	231.4	19.73	22.9	1.95	8	0.53	2.7	1.18	3.66	0	Remove		Remove	Remove	Remove	Remove	Remove	
857	ROW	<i>Juniperus chinensis</i>	Chinese juniper	7.3		Good	Good	5	7.4		-						360	217.5	18.55	22.2	1.89	7.5	0.5	2.5	1.1	3.49	0	Remove		Remove	Remove	Remove	Remove	Remove	
858	ROW	<i>Prunus serrulata</i>	Flowering cherry	11.3		Fair	Fair	10	23		-						1859.34	728	62.08	0.8	0.07	8.8	0.59	3	1.3	1.96	0	Remove		Remove	Remove	Remove	Remove	Remove	
859	ROW	<i>Prunus serrulata</i>	Flowering cherry	7.8		Good	Fair	12	23		-						1067.47	295.2	25.17	0.5	0.04	4.8	0.32	1.6	0.7	1.07	0	Remove		Remove	Remove	Remove	Remove	Remove	
860	Private	<i>Arbutus unedo</i>	Strawberry tree	8.1	5,4,8,4,1	Good	Good	15	10.2		-						1270.71	316.7	27.01	0.4	0.03	7.8	0.52	2.6	1.15	1.71		Remove		Remove	Remove	Remove	Remove	Remove	
861	Private	<i>Juniperus chinensis</i>	Chinese juniper	12.5		Good	Good	11	7.4		Exceptional S						1007.24	734.4	62.62	42.8	3.65	26.7	1.78	9	3.92	9.35		Remove		Remove	Remove	Remove	Remove	Remove	
862	ROW	<i>Sorbus aria</i>	White Beam	8.0	6,4,4,8	Good	Fair	10	12.5		-						1110.61	250	21.32	0.4	0.04	6	0.4	2	0.89	1.33	0							Remove	
863	Private	<i>Picea omorika</i>	Serbian spruce	20.0		Fair	Fair	12	8.7		Exceptional S						2706.33	4049.1	345.29	64.9	5.54	45.1	3.02	15.2	6.64	15.2									
864	Private	<i>Acer rubrum</i>	Red maple	9.9		Good	Fair	8	25		-						1327.13	395.9	33.76	32.4	2.76	20.5	1.37	6.9	3.02	7.15									
865	Private	<i>Ficus carica</i>	Common fig	10.0		Good	Good	7	17.2		-						1797.44	428.9	36.57	8.3	0.71	19	1.27	6.4	2.79	4.77									
866	ROW	<i>Thuja plicata</i>	Western redcedar	33.1		Good	Good	14	30		-						12540.3	1626.9	138.74	21.6	1.84	44.9	3	15.1	6.61	11.46	0								
867	ROW	<i>Chamaecyparis pisifera</i>	Sawara cypress	19.6		Fair	Fair		26.9		-						3296.99	3384.9	288.65	57.1	4.87	17	1.14	5.7	2.5	8.51	0								
868	Private	<i>Chamaecyparis pisifera</i>	Sawara cypress	19.1		Good	Fair	8	26.9		-						3332.43	3233.2	275.71	59.1	5.04	19.1	1.28	6.4	2.82	9.14									
869	Private	<i>Chamaecyparis pisifera</i>	Sawara cypress	25.0		Good	Good	14	26.9		-						6434.07	5735.9	489.13	84.1	7.17	40.6	2.71	13.6	5.97	15.85									
870	Private	<i>Chamaecyparis pisifera</i>	Sawara cypress	20.8		Good	Good	12	26.9		-						4441.46	3923.9	334.61	72.9	6.22	30.1	2.01	10.1	4.43	12.66									
871	ROW	<i>Chamaecyparis pisifera</i>	Sawara cypress	22.7		Good	Poor	11	26.9		-						4433.87	4596.3	391.95	67.2	5.73	22.5	1.51	7.6	3.32	10.55	0								
872	ROW	<i>Araucaria araucana</i>	Monkey puzzle tree	22.0		Good	Good	12	22		-	remove rope					4973.49	1950.6	166.34	28.9	2.46	52	3.48	17.5	7.66	13.59	0	Remove		Remove	Remove	Remove	Remove	Remove	
873	ROW	<i>Cedrus deodara</i>	Deodar cedar	25.0		Good	Fair	14	30		-						8216.01	2457.4	209.55	61.9	5.27	24.2	1.62	8.1	3.56	10.45	0	Remove		Remove	Remove	Remove	Remove	Remove	
874	Private	<i>Acer palmatum</i>	Japanese maple	9.0		Good	Good	15	12		-						1364.34	260.1	22.18	5.8	0.5	11.8	0.79	3.9	1.73	3.01		Remove		Remove	Remove	Remove	Remove	Remove	Remove
875	ROW	<i>Cercidiphyllum japonicum</i>	Katsura tree	17.8		Good	Fair	11	30		-						6047.28	761	64.9	0.6	0.05	49.5	3.31	16.6	7.29	10.65	0								
876	Private	<i>Juglans regia</i>	English walnut	15.0		Good	Good	23	28.8		-						3300.78	647.3	55.2	22.6	1.92	44.2	2.96	14.9	6.51	11.39		Remove		Remove	Remove	Remove	Remove	Remove	
877	Private	<i>Fraxinus pennsylvanica</i>	Green ash	18.0		Good	Fair	20	30		-						3646.24	933.4	79.59	32.7	2.79	48.2	3.22	16.2	7.09	13.09		Remove		Remove	Remove	Remove	Remove	Remove	
878	Private	<i>Pinus sylvestris</i>	Scots pine	19.7		Good	Fair	18	24		-						2717.97	1084.9	92.51	37.8	3.22	35.6	2.38	11.9	5.23	10.83									
879	Private	<i>Pseudotsuga menziesii</i>	Douglas-fir	18.0		Good	Good	14	30		-						3755.93	665.5	56.75	21.9	1.87	34.5	2.31	11.6	5.08	9.26									
880	ROW	<i>Acer platanoides</i>	Norway maple	15.4		Good	Fair	13	30		-						4079.22	1131.4	96.48	38.5	3.29	42.4	2.83	14.2	6.23	12.35	0								
881	ROW	<i>Acer platanoides</i>	Norway maple	16.3		Good	Fair	14	30		-						4544.32	1287.5	109.8	38.3	3.27	45.3	3.03	15.2	6.66	12.96	0								
882	ROW	<i>Acer platanoides</i>	Norway maple	12.8		Good	Fair	15	30		-						2883.96	743	63.36	37.6	3.2	32.2	2.16	10.8	4.74	10.1	0								
883	ROW	<i>Acer platanoides</i>	Norway maple	13.2		Good	Fair	16	30		-						3053.5	796.8	67.95	37.9	3.23	33.8	2.26	11.4	4.97	10.46	0								
884	ROW	<i>Acer platanoides</i>	Norway maple	12.0		Good	Fair	12	30		-						2560.53	641.4	54.7	36.9	3.15	28.8	1.92	9.7	4.23	9.31	0								
885	ROW	<i>Acer platanoides</i>	Norway maple	12.1		Good	Fair	14	30		-						2599.82	653.8	55.75	36.9	3.15	29.1	1.95	9.8	4.29	9.38	0								
886	Private	<i>Chamaecyparis pisifera</i>	Sawara cypress	27.0		Good	Fair	12	26.9		Exceptional S						6694.93	6626.9	565.11	74.3	6.34	34.1	2.28	11.5	5.02	13.63									
887	Private	<i>Crataegus laevigata</i>	English hawthorn	23.9	15.2,18.5	Good	Fair	14	16		Exceptional S						8034.81	3533.6	301.33	2	0.17	11.3	0.76	3.8	1.67	2.6		Remove		Remove	Remove	Remove	Remove	Remove	Remove
</																																			



Table of Trees
Seattle Pacific University, Seattle, WA

Arborist: TB / JP
Date of Inventory: Spring 2021
Table Prepared: May 23, 2023

Column headers highlighted in green indicate columns of data which were calculated using i-Tree Eco.

Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (S/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking
894	Private	Cedrus libani	Cedar of Lebanon	17.0		Good	Good	17	30		-					4201.48	2535.4	216.2	70.2	5.99	15.9	1.06	5.3	2.34	9.39								Remove
895	ROW	Acer campestre	Hedge maple	13.1		Good	Fair	18	22.2		-					2293.64	821.5	70.05	0.5	0.05	34.1	2.28	11.5	5.02	7.35	16470							
896	ROW	Acer campestre	Hedge maple	10.2		Good	Good	12	22.2		-					1671.77	464.4	39.61	0.4	0.04	28	1.87	9.4	4.12	6.03	16472							
897	ROW	Acer campestre	Hedge maple	14.9		Good	Fair	18	22.2		-					2893.03	1102.4	94.01	0.6	0.05	41.3	2.76	13.9	6.08	8.9	16473							Remove
898	ROW	Acer campestre	Hedge maple	11.9		Good	Good	18	22.2		-					2173.06	660	56.28	0.5	0.05	36.9	2.47	12.4	5.43	7.94	0							Remove
899	ROW	Acer campestre	Hedge maple	10.7		Good	Fair	20	22.2		-					1614.33	517.9	44.17	0.4	0.04	23.7	1.58	8	3.48	5.1	0							Remove
900	Private	Acer palmatum	Japanese maple	12.3		Good	Good	16	12		Exceptional S					2302.22	532.2	45.39	1.3	0.11	24	1.61	8.1	3.54	5.25								Remove
901	Private	Cedrus libani	Cedar of Lebanon	17.1		Good	Good	18	30		-					4252.39	2568	218.99	69.8	5.95	16.3	1.09	5.5	2.39	9.43								Remove
902	Private	Betula populifolia	Gray birch	8.1		Fair	Good	9	15.1		-	pendulous cultivar				1180.09	201.3	17.17	0.4	0.04	10.4	0.69	3.5	1.53	2.26								Remove
903	ROW	Acer campestre	Hedge maple	13.6		Good	Good	15	22.2		-					2751.48	894.9	76.32	0.6	0.05	45	3.01	15.1	6.62	9.69	1049551							
904	ROW	Acer campestre	Hedge maple	12.0		Good	Good	11	22.2		-					2204.95	672.6	57.35	0.5	0.05	37.2	2.49	12.5	5.48	8.02	1049552							
905	ROW	Acer campestre	Hedge maple	11.0		Good	Good	11	22.2		-					1898.06	551.6	47.04	0.5	0.04	32.2	2.15	10.8	4.73	6.92	1049553							
906	ROW	Acer campestre	Hedge maple	11.8		Good	Good	11	22.2		-					2141.44	647.1	55.19	0.5	0.05	36.1	2.42	12.1	5.32	7.78	109554							
907	ROW	Acer campestre	Hedge maple	12.5		Good	Good	13	22.2		-					2368.4	738.2	62.95	0.6	0.05	39.7	2.65	13.3	5.84	8.54	104955							
908	ROW	Acer campestre	Hedge maple	11.0		Good	Good	12	22.2		-					1898.06	551.6	47.04	0.5	0.04	32.2	2.15	10.8	4.73	6.92	1049556							
909	ROW	Acer campestre	Hedge maple	8.7		Good	Good	11	22.2		-					1293.49	323.4	27.58	0.4	0.03	20.4	1.37	6.9	3.01	4.4	16467							
910	ROW	Acer campestre	Hedge maple	12.6		Good	Good	11	22.2		-					2401.89	751.6	64.1	0.6	0.05	40.2	2.69	13.5	5.91	8.65	16468							
911	ROW	Acer campestre	Hedge maple	12.5		Good	Good	13	22.2		-					2368.4	738.2	62.95	0.6	0.05	39.7	2.65	13.3	5.84	8.54	16466							
912	ROW	Acer rubrum	Red maple	7.6		Good	Good	11	25		-					998.2	210.3	17.93	25.3	2.16	15.7	1.05	5.3	2.32	5.53	1049550							
913	ROW	Acer rubrum	Red maple	13.3		Good	Fair	15	25		-					2184.39	804.9	68.64	40.2	3.43	34.8	2.33	11.7	5.12	10.87	16469							
914	Private	Cornus kousa	Kousa dogwood	6.0		Good	Good	5	12		-					817.19	189	16.12	2.4	0.2	4.8	0.32	1.6	0.7	1.22		Remove		Remove	Remove	Remove	Remove	Remove
915	Private	Chamaecyparis obtusa	Hinoki cypress	6.5		Good	Good	3	16.4		-					397.5	173.1	14.76	10.2	0.87	2.5	0.16	0.8	0.36	1.39		Remove		Remove	Remove	Remove	Remove	Remove
916	ROW	Acer rubrum	Red maple	12.0		Good	Fair	13	25		-					1826.95	628.4	53.59	39.4	3.36	29.4	1.97	9.9	4.33	9.65	1049021							
917	ROW	Acer rubrum	Red maple	13.4		Good	Fair	14	25		-					2213.41	819.5	69.89	40.1	3.42	35.2	2.35	11.8	5.18	10.95	1049020							
918	ROW	Acer rubrum	Red maple	13.0		Good	Fair	14	25		-					2098.65	761.9	64.97	40	3.41	33.5	2.24	11.3	4.93	10.59	1049019							
919	ROW	Acer rubrum	Red maple	12.2		Good	Fair	12	25		-					1879.55	653.9	55.76	39.6	3.38	30.1	2.01	10.1	4.43	9.83	1049018							
920	ROW	Acer rubrum	Red maple	11.3		Good	Fair	15	25		-					1649.69	543.9	46.38	38.7	3.3	26.5	1.77	8.9	3.89	8.96	1049017							
921	ROW	Acer rubrum	Red maple	12.4		Good	Good	16	25		-					2168.75	680	57.99	44.8	3.82	39	2.61	13.1	5.74	12.16	1049016							
922	ROW	Acer platanoides	Norway maple	8.5		Good	Fair	8	30		-					1390.87	293.6	25.04	25.7	2.2	14.8	0.99	5	2.17	5.36	0							
923	ROW	Acer platanoides	Norway maple	7.0		Good	Fair	9	30		-					1011.85	189.4	16.15	20.1	1.72	10	0.67	3.4	1.47	3.85	0							
924	Private	Acer rubrum	Red maple	14.3		Good	Good	12	25		-					2787.32	958.5	81.73	45	3.84	47.2	3.15	15.8	6.94	13.93		Remove		Remove	Remove	Remove	Remove	Remove
925	Private	Acer rubrum	Red maple	13.4		Good	Fair	18	25		-					2213.41	819.5	69.89	40.1	3.42	35.2	2.35	11.8	5.18	10.95		Remove		Remove	Remove	Remove	Remove	Remove
926	Private	Acer rubrum	Red maple	17.8		Good	Fair	16	25		-					3705.36	1625.5	138.62	34.7	2.96	52.1	3.48	17.5	7.67	14.11		Remove		Remove	Remove	Remove	Remove	Remove
927	Private	Acer rubrum	Red maple	13.3		Good	Fair	15	25		-					2184.39	804.9	68.64	40.2	3.43	34.8	2.33	11.7	5.12	10.87		Remove		Remove	Remove	Remove	Remove	Remove
928	Private	Acer rubrum	Red maple	7.6		Good	Fair	11	25		-					889.7	210.3	17.93	22.5	1.92	12	0.8	4	1.77	4.48		Remove		Remove	Remove	Remove	Remove	Remove
929	Private	Acer rubrum	Red maple	8.2		Good	Fair	10	25		-					992.72	252.2	21.51	25	2.13	14.1	0.94	4.7	2.07	5.14		Remove		Remove	Remove	Remove	Remove	Remove
930	Private	Ulmus americana	American elm	22.7		Good	Fair	24	30		-					6962.57	2049.6	174.78	72.2	6.16	44.9	3	15.1	6.61	15.78								
931	Private	Ulmus americana	American elm	26.9		Fair	Fair	15	30		-					9089.18	3079.7	262.63	85.8	7.32	51.6	3.45	17.3	7.59	18.36								
932	Private	Ulmus americana	American elm	24.6		Good	Fair	25	30		-					8134.62	2485.5	211.95	80.8	6.89	50.8	3.39	17	7.47	17.75								
933	Private	Ulmus americana	American elm	24.9		Fair	Fair	25	30		-					7820.46	2558.8	218.2	77.1	6.57	45.7	3.06	15.4	6.73	16.35								
934	Private	Ulmus americana	American elm	36.5		Good	Good	32	30		Exceptional S					18830.17	6403.8	546.08	130.7	11.14	121.7	8.13	40.9	17.9	37.18								
935	Private	Ulmus americana	American elm	21.2		Good	Good	15	30		-					6848.15	1739.6	148.35	73.8	6.29	50.8	3.39	17	7.47	17.15								
936	Private	Ulmus americana	American elm	12.8		Good	Good	16	30		-					2669.26	518.6	44.23	36.7	3.13	30.5	2.04	10.3	4.49	9.66								
937	Private	Ulmus americana	American elm	8.2		Good	Good	16	30		-					1255.82	178.2	15.2	19.9	1.7	12.8	0.85	4.3	1.88	4.43								
938	Private	Ulmus americana	American elm	15.6		Good	Good	16	30		-					3832.8	833.5	71.08	48.3	4.12	39.6	2.65	13.3	5.83	12.59								
939	Private	Ulmus americana	American elm	18.4		Good	Good	12	30		-					5225.76	1238.5	105.61	60.6	5.17	44.2	2.95	14.8	6.5	14.63								
940	Private	Ulmus americana	American elm	22.1		Good	Good	23	30		-					7418.36	1922.1	163.9	78.2	6.67	53.8	3.6	18.1	7.92	18.19								
941	Private	Ulmus americana	American elm	21.1		Good	Good	21	30		-					6786.26	1720	146.67	73.3	6.25	50.4	3.37	16.9	7.42	17.04								
942	Private	Ulmus americana	American elm	24.0		Fair	Fair	22	30		-					7281.5	2342.5	199.76	73.2	6.25	42.9	2.87	14.4	6.32	15.43								
943	Private	Ulmus americana	American elm	34.6		Good	Good	28	30		Exceptional S					17220.26	5633.1	480.36	129.4	11.04	110.9	7.41	37.2	16.32	34.77								
944	ROW	Gleditsia triacanthos	Honeylocust	13.8		Good	Fair	16	20		-					2134.47	520.6	44.39	30.8	2.63	24.2	1.62	8.1	3.56	7.8	16452							



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Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (S/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking	
945	Private	Magnolia grandiflora	Southern magnolia	20.6	13.4,15.6	Good	Good	20	16		Exceptional S						5772.14	2027.7	172.91	64.8	5.52	62.4	4.17	21	9.19	18.88		Remove		Remove	Remove	Remove	Remove	
946	ROW	Gleditsia triacanthos	Honeylocust	13.3		Fair	Fair	13	20		-						1879.86	476	40.59	27.4	2.33	20.2	1.35	6.8	2.97	6.66	16453							
947	Private	Prunus serrulata	Flowering cherry	15.5	7.4,6.8,10.5,5.5	Good	Fair	17	23		-						3516.69	1571.7	134.02	1.4	0.12	17.9	1.2	6	2.63	3.95		Remove		Remove	Remove	Remove	Remove	
948	ROW	Carpinus betulus	European hornbeam	14.5		Good	Good	11	16		-						3486.07	1008.5	86	26.9	2.29	46.1	3.08	15.5	6.79	12.16	0							
949	Private	Trachycarpus fortunei	Windmill Fan Palm	9.0		Good	Good	7			-						189.75	86.9	7.41	-18.6	-1.59	0.8	0.06	0.3	0.12	-1.41		Remove		Remove	Remove	Remove	Remove	
950	ROW	Gleditsia triacanthos	Honeylocust	12.5		Good	Fair	15	20		-						1800.05	409.6	34.93	26.7	2.27	21.2	1.42	7.1	3.12	6.81	16455							
951	Private	Trachycarpus fortunei	Windmill Fan Palm	9.0		Good	Good	6			-						189.75	86.9	7.41	-18.6	-1.59	0.8	0.06	0.3	0.12	-1.41		Remove		Remove	Remove	Remove	Remove	
952	Private	Trachycarpus fortunei	Windmill Fan Palm	8.5		Good	Good	4			-						189.75	78.9	6.72	-16.8	-1.43	0.8	0.05	0.3	0.11	-1.27		Remove		Remove	Remove	Remove	Remove	
953	ROW	Carpinus betulus	European hornbeam	16.5		Good	Good	10	16		-						4435.68	1359.7	115.95	26.8	2.29	50.1	3.35	16.8	7.37	13.01	0							
954	ROW	Acer rubrum	Red maple	19.0		Fair	Fair	18	25		-						3930.09	1902.9	162.27	29.3	2.5	50.9	3.4	17.1	7.49	13.4	16462							
955	Private	Prunus serrulata	Flowering cherry	15.1		Good	Fair	12	23		-						3349.6	1474.7	125.76	1.3	0.11	17.1	1.15	5.8	2.52	3.78								
956	Private	Prunus serrulata	Flowering cherry	15.1		Good	Fair	10	23		-						3349.6	1474.7	125.76	1.3	0.11	17.1	1.15	5.8	2.52	3.78								
957	ROW	Acer rubrum	Red maple	17.0		Good	Fair	20	25		-						3402.8	1454.7	124.05	36.6	3.12	48.2	3.22	16.2	7.09	13.43	16460							
958	ROW	Acer rubrum	Red maple	16.6		Good	Fair	21	25		-						3256.73	1373.4	117.12	37.4	3.19	46.4	3.1	15.6	6.82	13.11	16459							
959	ROW	Acer rubrum	Red maple	19.1		Good	Fair	16	25		-						4226.7	1927.2	164.34	30.9	2.64	58.1	3.88	19.5	8.54	15.06	16458							
960	ROW	Acer rubrum	Red maple	18.3		Good	Fair	25	25		-						3901.53	1738	148.21	33.3	2.84	54.4	3.64	18.3	8	14.48	16457							
961	ROW	Acer rubrum	Red maple	18.7		Good	Fair	18	25		-						4062.38	1831.2	156.15	32.1	2.73	56.3	3.77	18.9	8.29	14.79	16463							
962	ROW	Acer rubrum	Red maple	16.8		Good	Fair	21	25		-						3329.33	1413.7	120.56	37.1	3.16	47.3	3.16	15.9	6.95	13.28	16464							
963	Private	Prunus serrulata	Flowering cherry	12.2		Good	Good	11	23		-						2545.49	877.3	74.81	1.1	0.09	15.5	1.04	5.2	2.28	3.41								
964	Private	Prunus serrulata	Flowering cherry	9.0		Fair	Fair	12	23		-						1260.82	418.2	35.67	0.6	0.05	5.6	0.37	1.9	0.82	1.24								
965	Private	Prunus serrulata	Flowering cherry	8.6		Good	Good	12	23		-						1398.6	374.4	31.93	0.7	0.06	7.8	0.52	2.6	1.15	1.72								
966	Private	Prunus serrulata	Flowering cherry	15.6		Good	Fair	16	23		-						3559.15	1596.5	136.14	1.4	0.12	18.1	1.21	6.1	2.66	3.99								
967	Private	Prunus serrulata	Flowering cherry	8.1		Fair	Fair	9	23		-						1063.53	323.6	27.59	0.5	0.04	4.5	0.3	1.5	0.66	1								
968	Private	Prunus serrulata	Flowering cherry	9.1		Good	Fair	10	23		-						1367.4	429.6	36.64	0.6	0.06	6.6	0.44	2.2	0.97	1.47								
969	Private	Prunus serrulata	Flowering cherry	8.3		Good	Fair	9	23		-						1177.37	343.4	29.28	0.6	0.05	5.5	0.37	1.8	0.81	1.22								
970	ROW	Pinus strobus	Eastern white pine	16.5		Good	Fair	11	30		-						2265.59	593.8	50.64	27.9	2.38	33.7	2.25	11.3	4.96	9.6	0							
971	ROW	Pinus strobus	Eastern white pine	14.3		Good	Fair	14	30		-						1696.1	420.7	35.87	22.8	1.95	25	1.67	8.4	3.68	7.31	0							
972	ROW	Pinus strobus	Eastern white pine	18.9		Good	Fair	15	30		-			x			2979.65	822.1	70.1	33.8	2.89	42.6	2.85	14.3	6.27	12.01	0							
973	ROW	Pinus strobus	Eastern white pine	17.9		Good	Fair	12	30		-			x			2670.36	721.8	61.55	31.4	2.67	39	2.6	13.1	5.73	11.01	0							
974	ROW	Pinus strobus	Eastern white pine	15.6		Good	Good	14	30		-			x			2269.47	525.5	44.82	29	2.48	38.9	2.6	13.1	5.72	10.8	0							
975	ROW	Pinus strobus	Eastern white pine	20.9		Good	Good	14	30		-			x			4093.6	1055	89.97	43.8	3.74	62.3	4.16	20.9	9.16	17.07	0							
976	ROW	Prunus serrulata	Flowering cherry	12.7		Good	Fair	13	23		-			x			2438.77	967.5	82.5	1	0.09	12.8	0.86	4.3	1.89	2.84	0							
977	ROW	Prunus serrulata	Flowering cherry	8.1		Good	Fair	11	23		-			x			1132.59	323.6	27.59	0.5	0.05	5.2	0.34	1.7	0.76	1.15	0							
978	ROW	Prunus serrulata	Flowering cherry	10.6		Good	Fair	17	23		-			x			1770.8	623	53.13	0.8	0.07	9.1	0.61	3.1	1.34	2.01	0							
979	Private	Chamaecyparis obtusa	Hinoki cypress	6.2		Good	Good	9	16.4		-			x			358.03	157.4	13.42	9.7	0.83	2.3	0.15	0.8	0.33	1.31								
980	Private	Arbutus unedo	Strawberry tree	8.1	5,3,5,4,3,5	Good	Good		10.2		-			x			1270.71	316.7	27.01	0.4	0.03	7.8	0.52	2.6	1.15	1.71								
981	Private	Arbutus unedo	Strawberry tree	11.5	10.1,4,5,3	Good	Good	12	10.2		Exceptional S			x			2291.39	729.1	62.17	0.7	0.06	8.8	0.59	3	1.3	1.95								
982	Private	Styrax japonicus	Japanese snowbell	6.8		Good	Fair	8	12		-			x			868.16	150.4	12.83	0.2	0.02	6.4	0.43	2.2	0.95	1.39								
983	Private	Styrax japonicus	Japanese snowbell	6.0		Good	Good	10	12		-			x			817.19	108.1	9.21	1.6	0.14	6.4	0.43	2.1	0.94	1.51								
984	Private	Styrax japonicus	Japanese snowbell	9.4		Good	Good	9	12		-			x			1619.16	354.3	30.21	0.4	0.04	17.8	1.19	6	2.62	3.84								
985	ROW	Prunus serrulata	Flowering cherry	7.7		Good	Fair	10	23		-			x			1046.31	286	24.39	0.5	0.04	4.6	0.31	1.6	0.68	1.03	0							



Table of Trees
Seattle Pacific University, Seattle, WA

Arborist: TB / JP
Date of Inventory: Spring 2021
Table Prepared: May 23, 2023

Column headers highlighted in green indicate columns of data which were calculated using i-Tree Eco.

Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (S/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking	
986	ROW	<i>Prunus serrulata</i>	Flowering cherry	9.2		Good	Fair	12	23		-			x			1392.38	441.2	37.63	0.7	0.06	6.7	0.45	2.3	0.99	1.5	0							
987	ROW	<i>Prunus serrulata</i>	Flowering cherry	7.2		Good	Fair	12	23		-			x			944.61	242.9	20.71	0.5	0.04	4	0.27	1.4	0.59	0.9	0							
988	ROW	<i>Prunus serrulata</i>	Flowering cherry	6.3		Fair	Fair	12	23		-			x			731.26	175.5	14.96	0.4	0.03	2.6	0.18	0.9	0.39	0.6	0							
989	ROW	<i>Prunus serrulata</i>	Flowering cherry	13.4		Good	Fair	15	23		-			x			2688.18	1102.5	94.02	1.1	0.1	14.1	0.94	4.7	2.08	3.12	0							
990	ROW	<i>Prunus serrulata</i>	Flowering cherry	10.5		Good	Fair	14	23		-			x			1741.99	608.8	51.91	0.8	0.07	8.9	0.6	3	1.31	1.97	0							
991	ROW	<i>Prunus serrulata</i>	Flowering cherry	8.3		Good	Good	11	23		-			x			1320.95	343.4	29.28	0.6	0.05	7.2	0.48	2.4	1.06	1.6	0							
992	ROW	<i>Prunus serrulata</i>	Flowering cherry	7.3		Fair	Poor	10	23		-			x			729.18	251.2	21.42	0.4	0.03	2.1	0.14	0.7	0.31	0.49	0							
993	Private	<i>Acer rubrum</i>	Red maple	12.2		Good	Good	15	25		-			x			2108.76	653.9	55.76	44.6	3.8	38.1	2.55	12.8	5.6	11.95								
994	Private	<i>Acer rubrum</i>	Red maple	11.5		Good	Good	15	25		-						1906.48	567.3	48.38	43.7	3.73	34.7	2.32	11.7	5.11	11.15								
995	Private	<i>Acer rubrum</i>	Red maple	18.7		Good	Fair	16	25		-						4062.38	1831.2	156.15	32.1	2.73	56.3	3.77	18.9	8.29	14.79								
996	ROW	<i>Acer rubrum</i>	Red maple	11.4		Fair	Fair	16	25		-			x			1572.27	555.5	47.37	36.4	3.1	23.3	1.56	7.8	3.43	8.09	16431							
997	ROW	<i>Acer rubrum</i>	Red maple	14.4		Good	Fair	22	25		-			x			2515.54	974.7	83.12	39.9	3.4	39	2.61	13.1	5.74	11.74	16432							
998	Private	<i>Acer palmatum</i>	Japanese maple	10.7	5,5,6,5,5,8	Good	Fair	12			-			x			1614.33	386.5	32.96	3.6	0.3	13.4	0.9	4.5	1.97	3.17		Remove		Remove	Remove	Remove	Remove	
999	Private	<i>Acer palmatum</i>	Japanese maple	11.1	5,3,4,1,4,4, 4,2,3,3,4,3, 8	Good	Fair	12	12		-						1718.03	420.4	35.85	3.1	0.26	14.6	0.97	4.9	2.14	3.38		Remove		Remove	Remove	Remove	Remove	
1000	ROW	<i>Acer rubrum</i>	Red maple	11.7		Good	Fair	18	25		-						1749.68	591.3	50.42	39.1	3.34	28.1	1.88	9.4	4.14	9.36	16433							
1001	ROW	<i>Acer rubrum</i>	Red maple	17.0		Fair	Fair	20	25		-						3195.31	1454.7	124.05	34.3	2.93	43.1	2.88	14.5	6.34	12.14	16436							
1002	ROW	<i>Acer rubrum</i>	Red maple	24.1		Good	Fair	25	25		-						6574.18	3380.3	288.26	5.1	0.44	84.2	5.63	28.3	12.39	18.46	16437							
1003	ROW	<i>Acer rubrum</i>	Red maple	18.7		Good	Fair	18	25		-						4062.38	1831.2	156.15	32.1	2.73	56.3	3.77	18.9	8.29	14.79	16438							
1004	ROW	<i>Acer rubrum</i>	Red maple	30.3		Good	Fair	28	25		-						10020.58	5873.8	500.89	3.4	0.29	116.4	7.78	39.1	17.12	25.2	16439							
1005	Private	<i>Prunus cerasifera</i> 'Thundercloud'	Thundercloud plum	18.7	10,5,11,4,8, 2,6,5	Good	Fair	22	12.4		Exceptional S						5010.72	2482.3	211.68	1.8	0.16	31.7	2.12	10.7	4.67	6.95		Remove		Remove	Remove	Remove	Remove	Remove
1006	Private	<i>Prunus cerasifera</i> 'Thundercloud'	Thundercloud plum	16.9	10,9,12,9	Good	Fair	18	12.4		Exceptional S						4135.93	1940.1	165.44	1.6	0.13	28	1.87	9.4	4.12	6.13		Remove		Remove	Remove	Remove	Remove	Remove
1007	Private	<i>Prunus cerasifera</i> 'Thundercloud'	Thundercloud plum	17.9	5,7,4,13,2, 8,2	Good	Fair	15	12.4		Exceptional S						4611	2231.6	190.3	1.7	0.15	30.3	2.02	10.2	4.45	6.62		Remove		Remove	Remove	Remove	Remove	Remove
1008	Private	<i>Tsuga heterophylla</i>	Western hemlock	8.2		Good	Good	13	24		-						729.54	88.3	7.53	4.5	0.38	7.8	0.52	2.6	1.14	2.05								Remove
1009	Private	<i>Tsuga heterophylla</i>	Western hemlock	9.9		Good	Good	12	24		-						1092.22	148.6	12.67	6.3	0.54	12.7	0.85	4.3	1.86	3.25								Remove
1010	Private	<i>Thuja plicata</i>	Western redcedar	8.2		Fair	Good		30		-						650.24	33	2.81	1.4	0.12	2.4	0.16	0.8	0.35	0.63								Remove
1011	Private	<i>Quercus alba</i>	White oak	29.5		Good	Good	22	15.5		Exceptional S						15105.73	5498.3	468.87	49.7	4.24	115.9	7.75	38.9	17.05	29.03		Remove		Remove	Remove	Remove	Remove	
1012	Private	<i>Aesculus hippocastanum</i>	Horsechestnut	19.4		Good	Fair	18	30		-						5549.96	1996.4	170.25	26.3	2.24	55.1	3.68	18.5	8.1	14.02		Remove		Remove	Remove	Remove	Remove	
1013	Private	<i>Arbutus menziesii</i>	Pacific madrone	15.8	12,8,9,2	Good	Good	14	6		Exceptional S						4089.38	1370.1	116.83	1.3	0.11	9.9	0.66	3.3	1.46	2.23		Remove		Remove	Remove	Remove	Remove	
1014	ROW	<i>Acer rubrum</i>	Red maple	9.3		Good	Fair	10	25		-						1201.93	340.8	29.07	29.7	2.53	18.3	1.22	6.1	2.69	6.44	16441							
1015	ROW	<i>Acer rubrum</i>	Red maple	9.3		Good	Fair	11	25		-						1201.93	340.8	29.07	29.7	2.53	18.3	1.22	6.1	2.69	6.44	16442							
1016	ROW	<i>Acer rubrum</i>	Red maple	15.5		Fair	Fair	24	25		-						2697.81	1164	99.26	36.7	3.13	38.5	2.57	12.9	5.66	11.36	16443							
1017	ROW	<i>Acer rubrum</i>	Red maple	17.0		Good	Fair	24	25		-						3402.8	1454.7	124.05	36.6	3.12	48.2	3.22	16.2	7.09	13.43	16444							
1018	ROW	<i>Acer rubrum</i>	Red maple	12.4		Good	Fair	13	25		-						1933.02	680	57.99	39.8	3.39	31	2.07	10.4	4.56	10.03	16445							
1019	Private	<i>Tsuga mertensiana</i>	Mountain hemlock	10.3		Good	Good	9	10.8		-						1187.46	218.2	18.61	9.2	0.78	14	0.94	4.7	2.06	3.78		Remove		Remove	Remove	Remove	Remove	
1020	Private	<i>Ilex aquifolium</i>	English holly	12.4	6,3,9,5,5	Good	Good	8	18.8		-						2620.85	551.2	47	14.5	1.23	11.6	0.77	3.9	1.7	3.71		Remove		Remove	Remove	Remove	Remove	
1021	Private	<i>Tsuga mertensiana</i>	Mountain hemlock	9.7		Good	Good	8	10.8		-						1046.02	187.8	16.01	8.4	0.71	11.9	0.8	4	1.75	3.26		Remove		Remove	Remove	Remove	Remove	
1022	Private	<i>Prunus serrulata</i>	Flowering cherry	16.7		Good	Good	13	23		-						4537.38	1884.6	160.71	1.7	0.15	25	1.67	8.4	3.68	5.5		Remove		Remove	Remove	Remove	Remove	
1023	Private	<i>Crataegus laevigata</i>	English hawthorn	13.7		Good	Fair	15	16		-						2799.17	903.9	77.08	0.9	0.08	6.1	0.41	2.1	0.9	1.39		Remove		Remove	Remove	Remove	Remove	
1024	Private	<i>Fraxinus pennsylvanica</i>	Green ash	10.6		Good	Good	13	30		-						1613.54	306.9	26.17	20.1	1.71	26.8	1.79	9	3.95	7.45								



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1027	Private	<i>Chamaecyparis lawsoniana</i>	Lawson cypress	12.7		Good	Good	9	30		-					1630.61	562.1	47.93	24.5	2.09	10.6	0.71	3.6	1.56	4.36		Remove			Remove	Remove	Remove	Remove	
1028	Private	<i>Prunus cerasifera 'Thundercloud'</i>	Thundercloud plum	16.3		Good	Fair	17	12.4		Exceptional S					3863.99	1776.6	151.5	1.5	0.13	26.8	1.79	9	3.94	5.85		Remove			Remove	Remove	Remove	Remove	
1029	ROW	<i>Acer rubrum</i>	Red maple	24.2		Good	Fair	20	25		-					6626.67	3414.3	291.15	4.8	0.41	84.3	5.64	28.3	12.41	18.46	16446								
1030	ROW	<i>Acer rubrum</i>	Red maple	20.3		Good	Fair	22	25		-					4740.54	2232.9	190.41	26.2	2.23	64.2	4.29	21.6	9.44	15.97	16447								
1031	Private	<i>Thuja occidentalis</i>	Arborvitae	6.3		Good	Fair	4	11.8		-					327.63	157.2	13.4	8.5	0.72	1.3	0.09	0.4	0.19	1		Remove			Remove	Remove	Remove	Remove	
1032	Private	<i>Thuja occidentalis</i>	Arborvitae	6.0		Good	Fair	4	11.8		-					294.03	143.1	12.2	8.1	0.69	1.2	0.08	0.4	0.18	0.95		Remove			Remove	Remove	Remove	Remove	
1033	Private	<i>Thuja occidentalis</i>	Arborvitae	9.1	4,6,5,9,5,2	Good	Fair	4	11.8		-					720.23	320.5	27.33	11.9	1.02	2.7	0.18	0.9	0.4	1.6		Remove			Remove	Remove	Remove	Remove	
1034	Private	<i>Thuja occidentalis</i>	Arborvitae	8.0		Good	Fair	4	11.8		-					548.97	249.6	21.28	10.6	0.9	2.1	0.14	0.7	0.3	1.35		Remove			Remove	Remove	Remove	Remove	
1035	Private	<i>Thuja occidentalis</i>	Arborvitae	12.3	8,8,6,4,5,8	Good	Fair	4	11.8		Exceptional S					1343.74	576.2	49.14	15.8	1.35	5.5	0.37	1.9	0.81	2.53		Remove			Remove	Remove	Remove	Remove	
1036	Private	<i>Thuja occidentalis</i>	Arborvitae	11.2	8,7,8	Good	Fair	6	11.8		-					1108.37	480	40.93	14.5	1.23	4.4	0.29	1.5	0.64	2.17		Remove			Remove	Remove	Remove	Remove	
1037	Private	<i>Thuja occidentalis</i>	Arborvitae	8.4		Good	Fair	5	11.8		-					608.69	274.4	23.4	11.1	0.94	2.3	0.15	0.8	0.34	1.44		Remove			Remove	Remove	Remove	Remove	
1038	ROW	<i>Acer rubrum</i>	Red maple	20.3		Good	Fair	22	25		-					4740.54	2232.9	190.41	26.2	2.23	64.2	4.29	21.6	9.44	15.97	16448								
1039	ROW	<i>Acer rubrum</i>	Red maple	22.8		Fair	Fair	21	25		-					5551.1	2956.4	252.11	12.7	1.08	68.1	4.55	22.9	10.02	15.66	16449								
1040	ROW	<i>Acer rubrum</i>	Red maple	11.9		Good	Fair	15	25		-					1800.97	615.9	52.52	39.4	3.36	29	1.94	9.7	4.26	9.56	16450								
1041	ROW	<i>Acer rubrum</i>	Red maple	11.5		Good	Fair	13	25		-					1699.25	567.3	48.38	38.9	3.32	27.3	1.82	9.2	4.01	9.15	16451								
1042	Private	<i>Pinus nigra</i>	Austrian black pine	6.8		Fair	Fair	7	24		-	suppressed, contorted				403.43	79.7	6.79	6.2	0.53	4.2	0.28	1.4	0.62	1.43									
1043	ROW	<i>Acer campestre</i>	Hedge maple	10.5		Fair	Fair	12	22.2		-					1468.54	496.1	42.3	0.4	0.03	19.8	1.32	6.6	2.91	4.26	0								
1044	Private	<i>Cotinus coggygria</i>	Beaked hazelnut	6.1		Good	Good	7	0		Exceptional S					835.72	109.2	9.31	0.3	0.02	1.5	0.1	0.5	0.21	0.33		Remove			Remove	Remove	Remove	Remove	
1045	ROW	<i>Acer campestre</i>	Hedge maple	13.0		Good	Fair	18	22.2		-					2262.6	807.3	68.84	0.5	0.05	33.6	2.24	11.3	4.94	7.23	0				Remove		Remove		
1046	ROW	<i>Acer campestre</i>	Hedge maple	7.7		Good	Fair	13	22.2		-					957.86	245.1	20.9	0.3	0.02	12	0.8	4	1.77	2.6	16398								
1047	ROW	<i>Acer campestre</i>	Hedge maple	8.8		Good	Fair	10	22.2		-					1173.71	332	28.31	0.3	0.03	15.9	1.06	5.3	2.34	3.43	16399								
1048	ROW	<i>Acer rubrum</i>	Red maple	9.2		Good	Fair	13	25		-					1181.83	332.1	28.32	29.3	2.5	17.8	1.19	6	2.62	6.3	16400								
1049	ROW	<i>Acer rubrum</i>	Red maple	10.4		Good	Fair	13	25		-					1437.44	445.6	38	34.7	2.96	22.6	1.51	7.6	3.32	7.79	16401								
1050	ROW	<i>Acer rubrum</i>	Red maple	7.5		Good	Good	14	25		-					979.78	203.8	17.38	24.9	2.12	15.4	1.03	5.2	2.27	5.42	16397								
1051	Private	<i>Pinus sylvestris</i>	Scots pine	12.4		Good	Good	15	24		-					1208.09	403	34.37	25.5	2.18	18.2	1.22	6.1	2.68	6.07		Remove			Remove		Remove		
1052	ROW	<i>Acer campestre</i>	Hedge maple	14.1		Good	Good	12	22.2		-					2936.28	972	82.89	0.7	0.06	47.1	3.15	15.8	6.94	10.14	0								
1053	ROW	<i>Acer campestre</i>	Hedge maple	7.3		Good	Good	10	22.2		-					994.61	217.2	18.52	0.3	0.02	14.2	0.95	4.8	2.09	3.07	0								
1054	ROW	<i>Acer campestre</i>	Hedge maple	14.8		Good	Good	15	22.2		-					3206.21	1085.6	92.57	0.7	0.06	49.9	3.34	16.8	7.35	10.75	0								
1055	ROW	<i>Acer campestre</i>	Hedge maple	13.5		Good	Fair	12	22.2		-					2420.17	880	75.04	0.6	0.05	35.8	2.39	12	5.27	7.71	0								
1056	ROW	<i>Acer campestre</i>	Hedge maple	12.4		Good	Fair	14	22.2		-					2081.35	724.8	61.81	0.5	0.04	31	2.07	10.4	4.56	6.67	0								
1057	ROW	<i>Betula pendula</i>	European white birch	17.6		Good	Good	13	24		-					5293.33	1583.8	135.06	83.8	7.15	40.6	2.71	13.6	5.97	15.84	0								
1058	ROW	<i>Acer campestre</i>	Hedge maple	13.1		Fair	Fair	8	22.2		-					2153.78	821.5	70.05	0.5	0.04	29.9	2	10	4.4	6.44	0								
1059	ROW</																																	



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1076	Private	Liquidambar styraciflua	American sweetgum	13.3		Fair	Fair	9	27		-				x	3182.02	396.2	33.78	23.2	1.98	25.7	1.72	8.6	3.79	7.48								
1077	Private	Metasequoia glyptostroboides	Dawn redwood	13.1		Good	Good	13	30		-				x	2082.01	308.4	26.3	19.5	1.66	20.5	1.37	6.9	3.02	6.06								
1078	Private	Populus nigra 'Italica'	Lombardy poplar	44.2	23,32,20	Good	Fair	16	30		Exceptional S				x	11091.7	16534.7	1410	33.1	2.82	86.4	5.77	29	12.71	21.3								
1079	Private	Betula populifolia	Gray birch	9.9		Good	Good	10	15.1		-	weeping cultivar				1850.75	330.3	28.17	0.7	0.06	19.2	1.29	6.5	2.83	4.17								
1080	Private	Acer palmatum	Japanese maple	7.7	5,4,5,5	Good	Good	7	12		-					1074.67	182.1	15.53	6.5	0.56	8.3	0.56	2.8	1.22	2.34								
1081	Private	Acer palmatum	Japanese maple	10.2	6,3,8	Good	Fair	11	12		-					1490.05	346.4	29.54	4.1	0.35	12	0.8	4	1.76	2.91								
1082	Private	Acer palmatum	Japanese maple	10.4		Good	Good	11	12		-					1726.74	362.1	30.88	4.4	0.37	16.4	1.09	5.5	2.41	3.88								
1083	Private	Acer palmatum	Japanese maple	10.4	6,4,6,8,4,5	Good	Fair	13	12		-					1539.05	362.1	30.88	3.9	0.33	12.5	0.84	4.2	1.84	3.01								
1084	Private	Acer palmatum	Japanese maple	7.2	4,6,5,6	Fair	Fair	13	12		-					816.25	156.4	13.33	5.5	0.47	4.8	0.32	1.6	0.71	1.49								
1085	Private	Acer palmatum	Japanese maple	7.7	6,3,4,5	Good	Fair	8	12		-					957.86	182.2	15.54	5.7	0.49	6.4	0.43	2.2	0.94	1.86								
1086	Private	Acer palmatum	Japanese maple	10.1		Good	Good	16	12		-					1644.68	338.7	28.88	4.7	0.4	15.5	1.03	5.2	2.28	3.71								
1087	Private	Acer palmatum	Japanese maple	9.6	5,8,4,8,6	Good	Good	13	12		-					1513.25	301.6	25.72	5.2	0.44	13.8	0.92	4.6	2.03	3.39								
1088	ROW	Acer rubrum	Red maple	14.5		Good	Fair	14	25		-					2546.95	991.1	84.52	39.9	3.4	39.4	2.63	13.2	5.8	11.83	16485							
1089	ROW	Acer rubrum	Red maple	16.5		Good	Fair	8	25		-					3220.76	1353.6	115.42	37.7	3.21	46	3.07	15.4	6.77	13.05	16484							
1090	ROW	Acer palmatum	Japanese maple	10.1		Good	Good	15	12		-					1644.68	338.7	28.88	4.7	0.4	15.5	1.03	5.2	2.28	3.71	0							
1091	ROW	Acer rubrum	Red maple	15.5		Good	Good	8	25		-					3223.35	1164	99.26	43.9	3.74	52.1	3.48	17.5	7.67	14.9	16482							
1092	ROW	Acer x Freemanii	Freeman maple	10.8		Good	Good	8	20.8		-				x	1839.89	1017.1	86.74	6.4	0.54	31.1	2.08	10.4	4.57	7.19	16481							
1093	ROW	Acer rubrum	Red maple	10.9		Good	Good	16	25		-				x	1742.6	498.8	42.53	41.7	3.55	31.7	2.12	10.6	4.66	10.33	16480							
1094	ROW	Acer rubrum	Red maple	10.3		Good	Good	15	25		-				x	1587.5	435.4	37.13	38.5	3.29	28.5	1.91	9.6	4.2	9.39	16479							
1095	Private	Cercidiphyllum japonicum	Katsura tree	11.0		Fair	Fair	10	30		-				x	2280.92	231.9	19.78	0.3	0.02	16.8	1.13	5.7	2.48	3.63								
1096	Private	Cercidiphyllum japonicum	Katsura tree	6.3		Poor	Fair	4	30		-				x	700.74	59.4	5.06	2.7	0.23	2.7	0.18	0.9	0.4	0.81								
1097	Private	Pinus sylvestris	Scots pine	6.8		Good	Good	8	24		-				x	363.2	106	9.04	12.7	1.08	4.7	0.31	1.6	0.69	2.09								
1098	Private	Pinus sylvestris	Scots pine	7.4		Good	Good	7	24		-				x	430.15	128.1	10.93	14	1.2	5.7	0.38	1.9	0.83	2.41								
1099	Private	Pinus sylvestris	Scots pine	7.4		Good	Good	7	24		-				x	430.15	128.1	10.93	14	1.2	5.7	0.38	1.9	0.83	2.41								
1100	Private	Pinus sylvestris	Scots pine	5.9		Good	Good	7	24		-				x	273.39	77.1	6.57	10.8	0.92	3.5	0.23	1.2	0.51	1.66								
1101	Private	Pinus sylvestris	Scots pine	14.2		Good	Good	15	24		-				x	1584.32	542.2	46.24	29.7	2.53	24.5	1.64	8.2	3.6	7.77								
1102	Private	Pinus sylvestris	Scots pine	6.8		Fair	Fair	6	24		-				x	303.99	104.2	8.89	10.6	0.9	3.1	0.21	1	0.46	1.56								
1103	Private	Pinus sylvestris	Scots pine	11.2		Good	Good	10	24		-				x	985.55	322.1	27.46	22.7	1.94	14.5	0.97	4.9	2.13	5.04								
1104	ROW	Acer x Freemanii	Freeman maple	9.8	6,7,7	Good	Good	10	20.8		-					1565.02	814.9	69.49	15.1	1.28	25.6	1.71	8.6	3.77	6.76	16503							
1105	ROW	Acer rubrum	Red maple	22.0		Fair	Fair	24	25		-					5185.34	2711.9	231.26	16.9	1.44	64.4	4.31	21.6	9.48	15.23	16499							
1106	ROW	Acer rubrum	Red maple	14.8		Fair	Poor	16	25		-					1997.97	1041.3	88.79	30	2.56	23.2	1.55	7.8	3.42	7.53	16500							
1107	ROW	Acer rubrum	Red maple	16.4		Good	Fair	26	25		-					3185.01	1333.8	113.74	37.8	3.22	45.8	3.06	15.4	6.73	13.01	16501							
1108	ROW	Acer rubrum	Red maple	18.0		Fair	Poor	23	25		-					2860.45	1670	142.41	25.9	2.21	31.6	2.11	10.6	4.65	8.97	16502							
1109	ROW	Acer rubrum	Red maple	19.0		Fair	Fair	17	25		-					3930.09	1902.9	162.27	29.3	2.5	50.9	3.4	17.1	7.49	13.4	16498							
1110	Private	Acer rubrum	Red maple	17.4		Good	Fair	21	25		-					3552.34	1538.7	131.21	35.7	3.05	50	3.34	16.8	7.35	13.74								
1111	Private	Acer rubrum	Red maple	15.0		Fair	Fair	7	25		-					2542.18	1075.5	91.72	37.2	3.17	36.8	2.46	12.3	5.41	11.03								
1112	Private	Acer rubrum	Red maple	14.8		Fair	Fair	9	25		-					2481.35	1041.3	88.79	37.3	3.18	36.1	2.41	12.1	5.31	10.91								
1113	Private	Pinus nigra	Austrian black pine	19.5		Good	Good	12	24		-					4418.94	931.1	79.4	30.8	2.63	34	2.27	11.4	5	9.9								
1114	Private	Pinus nigra	Austrian black pine	18.2	13,8,11,9	Good	Fair	18	24		-					3423.74	788.6	67.25	25.1	2.14	24.4	1.63	8.2	3.6	7.37								
1115	Private	Pinus nigra	Austrian black pine	23.3	16,4,16,5	Good	Good	22	24		-					6335.96	1388.1	118.37	38.9	3.32	38.4	2.56	12.9	5.64	11.53								
1116	Private	Pinus nigra	Austrian black pine	13.4		Good	Good	18	24		-				x	2053.44	395.3	33.71	18.7	1.59	21.1	1.41	7.1	3.1	6.1								
1117	Private	Acer circinatum	Vine maple	10.4	4,6,4,5,4,3,5,2,4,7	Fair	Fair	13	8		Exceptional S					1445.2	934.1	79.66	1	0.09	19.6	1.31	6.6	2.88	4.27								
1118	ROW	Acer rubrum	Red maple	14.6		Fair	Fair	24	25		-					2421.34	1007.7	85.93	37.3	3.18	35.4	2.37	11.9	5.21	10.76	16497							
1119	ROW	Acer platanoides	Norway maple	11.7		Fair	Fair	17	30		-					2295.56	605.5	51.63	34.3	2.93	23.9	1.6	8	3.51	8.04	0							
1120	ROW	Acer platanoides	Norway maple	11.9		Fair	Fair	15	30		-					2367.82	629.5	53.68	34.4	2.94	24.8	1.65	8.3	3.64	8.23	0							
1121	ROW	Acer platanoides	Norway maple	10.1		Fair	Fair	13	30		-					1761.63	433.9	37	30.1	2.56	18	1.2	6.1	2.65	6.42	0							
1122	ROW	Acer platanoides	Norway maple	15.1		Fair	Fair	16	30		-					3690.42	1081.9	92.26	36.2	3.08	36.7	2.45	12.3	5.4	10.93	0							
1123	Private	Liquidambar styraciflua	American sweetgum	18.9		Good	Fair	15	27		-					6641.76	944.2	80.52	41.3	3.52	52.5	3.51	17.6	7.72	14.75								
1124	Private	Liquidambar styraciflua	American sweetgum	9.8		Fair	Fair	10	27		-					1812.36	186.8	15.93	14.8	1.27	12.8	0.86	4.3	1.88	4.01								
1125	Private	Liquidambar styraciflua	American sweetgum	11.7		Fair	Fair	11	27		-					2504.39	288.8	24.63	19.2	1.64	19.3	1.29	6.5	2.84	5.77								
1126	Private	Liquidambar styraciflua	American sweetgum	7.8		Fair	Fair	8	27		-					1216.05	106.8	9.11	10.7	0.91	7.4	0.5	2.5	1.09	2.5								



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Seattle Pacific University, Seattle, WA

Arborist: TB / JP
Date of Inventory: Spring 2021
Table Prepared: May 23, 2023

Column headers highlighted in green indicate columns of data which were calculated using i-Tree Eco.

Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (S/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking
1127	Private	Liquidambar styraciflua	American sweetgum	9.7		Good	Fair	12	27		-					1894.87	182.1	15.53	15.6	1.33	14.5	0.97	4.9	2.14	4.44								
1128	Private	Liquidambar styraciflua	American sweetgum	12.4		Fair	Fair	10	27		-					2790.18	333.3	28.42	20.9	1.79	22.2	1.48	7.4	3.26	6.53								
1129	Private	Liquidambar styraciflua	American sweetgum	28.9	12,26.3	Good	Fair	22	27		Exceptional S					15265.26	2691.5	229.52	75.5	6.44	71	4.75	23.9	10.45	21.63								
1130	Private	Acer macrophyllum	Bigleaf maple	11.5		Good	Good	15	30		-					2207.04	467.4	39.86	31.6	2.69	32.6	2.18	10.9	4.8	9.67								
1131	ROW	Liquidambar styraciflua	American sweetgum	31.9	23.5,21.5	Good	Fair	13	27		-					18177.85	3429.2	292.43	86.5	7.38	73.5	4.92	24.7	10.82	23.11	0							
1132	ROW	Acer palmatum	Japanese maple	10.9		Good	Good	12	12		-					1868.84	403.3	34.39	3.7	0.32	18.4	1.23	6.2	2.7	4.25	0							
1133	ROW	Cotinus coggygria	Common smoketree	10.1	8.3,5.8	Good	Fair	10	6.5		-					1629.51	349.9	29.84	0.5	0.04	2.1	0.14	0.7	0.31	0.49	0							
1134	ROW	Laburnum x Watereri, Laburnum Vossii	Golden chain tree	9.4	8,4.9	Good	Good	11	15.9		-					1619.16	344.7	29.39	0.6	0.05	13.2	0.88	4.4	1.93	2.86	0							
1135	ROW	Pinus sylvestris	Scots pine	9.6		Good	Fair	7	24		-					645.34	226	19.28	16.9	1.44	7.7	0.51	2.6	1.13	3.08	0							
1136	Private	Magnolia grandiflora	Southern magnolia	7.5		Good	Good	12	16		-			x		1014.35	189	16.12	15.6	1.33	13.1	0.87	4.4	1.93	4.13								
1137	ROW	Ficus carica	Common fig	18.4	12,14	Good	Good	14	17.2		-			x		5451.31	1871.6	159.61	2	0.17	42.8	2.86	14.4	6.3	9.33	0							
1138	ROW	Sorbus aucuparia	European mountain ash	7.0		Good	Good	8	29		-			x		1016.3	177.5	15.14	23.9	2.04	6.1	0.41	2.1	0.9	3.35	1051082							
1139	ROW	Pyrus calleryana	Callery pear	8.0		Good	Good	9	13		-			x		1246.05	234.4	19.99	20.9	1.78	8	0.54	2.7	1.18	3.51	0							
1140	ROW	Pyrus calleryana	Callery pear	7.0		Good	Good	8	13		-			x		1016.3	169.1	14.42	17.3	1.47	5.9	0.39	2	0.87	2.74	0							
1141	ROW	Sorbus aucuparia	European mountain ash	6.0		Good	Good	8	29		-			x		817.19	121.7	10.38	19.2	1.64	4.4	0.3	1.5	0.65	2.59	1051081							
1142	ROW	Pyrus calleryana	Callery pear	7.0		Good	Good	12	13		-			x		1016.3	169.1	14.42	17.3	1.47	5.9	0.39	2	0.87	2.74	0							
1143	ROW	Sorbus aucuparia	European mountain ash	7.6		Good	Good	11	29		-			x		1150.48	217.1	18.51	25.6	2.18	7.2	0.48	2.4	1.06	3.72	1051080							
1144	ROW	Pyrus calleryana	Callery pear	8.0		Good	Good	14	13		-			x		1246.05	234.4	19.99	20.9	1.78	8	0.54	2.7	1.18	3.51	0							
1145	Private	Thuja plicata	Western redcedar	14.0		Good	Good	14	30		-			x		2247.22	150.3	12.82	4.2	0.35	11.2	0.75	3.7	1.64	2.74								
1146	Private	Zelkova serrata	Japanese zelkova	32.0		Good	Good	36	21		Exceptional S			x		18579.34	2969.8	253.25	31.9	2.72	58.2	3.89	19.5	8.56	15.18								
1147	Private	Cedrus libani	Cedar of Lebanon	16.0		Good	Fair	16	30		-			x		3305.66	2207.2	188.22	63.4	5.4	10.5	0.7	3.5	1.55	7.65								
1148	Private	Liquidambar styraciflua	American sweetgum	11.0		Good	Good	10	27		-			x		2670.63	248.1	21.16	21.1	1.8	25.8	1.73	8.7	3.8	7.32								
1149	Private	Thuja plicata	Western redcedar	30.0		Good	Fair	22	30		Exceptional S			x		9398.95	1220.3	104.06	15.9	1.36	34.6	2.31	11.6	5.09	8.76								
1150	Private	Acer platanoides	Norway maple	14.0		Good	Good	18	30		-			x		3823.87	910.6	77.65	43.2	3.68	46.1	3.08	15.5	6.78	13.54								
1151	Private	Chamaecyparis pisifera	Sawara cypress	23.2	14,14,12	Good	Fair	11	26.9		-			x		4933.68	4838.4	412.6	73.3	6.25	27	1.8	9.1	3.97	12.02								
1152	ROW	Chamaecyparis pisifera	Sawara cypress	30.0	24,18	Good	Good	14	26.9		-			x		9282.74	8307.9	708.46	82.4	7.03	47.7	3.19	16	7.03	17.25	0							
1153	Private	Cornus florida	Eastern flowering dogwood	14.0		Fair	Fair	7	12		Exceptional S			x		2735.02	854.5	72.87	15.3	1.3	13	0.87	4.4	1.92	4.09								
1154	ROW	Cercis canadensis	Redbud	6.1		Good	Good	11	9.5		-			x		835.72	73.2	6.25	0.2	0.01	5.5	0.37	1.8	0.8	1.19	0							
1155	Private	Tsuga heterophylla	Western hemlock	16.0		Good	Good	16	24		-					2954.43	526.8	44.93	14.1	1.2	39.4	2.63	13.2	5.8	9.63								
1156	Private	Thuja occidentalis	Arborvitae	9.0		Fair	Good	4	11.8		-					703.75	313.8	26.76	11.8	1.01	2.7	0.18	0.9	0.4	1.58								
1157	Private	Thuja plicata	Western redcedar	18.0		Good	Good	16	30		-					3755.93	305.9	26.08	6.7	0.57	21.3	1.42	7.2	3.13	5.13								
1158	Private	Acer palmatum	Japanese maple	19.3	9,11,13	Good	Good	24	12		Exceptional S			x		5253.68	1498.9	127.82	0.8	0.07	48.8	3.26	16.4	7.18	10.51								
1159	Private	Malus domestica	Apple	18.0		Good	Good	17	20		-			x		5228.31	1735.5	148	59.8	5.1	22.9	1.53	7.7	3.37	10								
1160	Private	Prunus laurocerasus	Cherry laurel	22.5	9,15,11,9	Fair	Fair	20	26.2		-			x		6712.15	3937.5	335.77	2.9	0.25	33.8	2.26	11.4	4.97	7.48								
1161	Private	Pseudotsuga menziesii	Douglas-fir	16.0		Good	Good	19	30		-			x		2954.43	496.4	42.33	18.2	1.55	27.6	1.85	9.3	4.07	7.47								
1162	Private	Pseudotsuga menziesii	Douglas-fir	20.0		Good	Good	19	30		-			x		4651.74	856	73	25.7	2.19	40.8	2.73	13.7	6.01	10.92								
1163	Private	Abies grandis	Grand fir	22.0		Fair	Good	18	24		-			x		3881.37	1288.6	109.88	28.7	2.45	42.1	2.82	14.2	6.2	11.47								



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Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (S/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking	
1164	Private	Betula pendula	European white birch	11.0	7,6,6	Good	Fair	16	24		-				x	1982.72	495.2	42.23	37.5	3.2	15.4	1.03	5.2	2.27	6.51		Remove				Remove		Remove	
1165	Private	Betula pendula	European white birch	8.8	6.6,5,8	Fair	Fair	14	24		-				x	1269.1	285.4	24.34	25.5	2.17	9.1	0.61	3.1	1.34	4.12									
1166	ROW	Betula pendula	European white birch	10.0		Fair	Fair	8	24		-				x	1576.08	391.3	33.37	30.6	2.61	11.2	0.75	3.8	1.65	5.01	0								
1167	Private	Acer macrophyllum	Bigleaf maple	12.0	6,6,6,6	Fair	Poor	10	30		-					1603.22	514.2	43.85	21.3	1.82	14.6	0.97	4.9	2.14	4.94									
1168	Private	Malus domestica	Apple	10.0		Good	Good	10	20		-				x	1797.44	411.4	35.08	29.2	2.49	9.6	0.64	3.2	1.41	4.54									
1169	Private	Acer macrophyllum	Bigleaf maple	43.0		Fair	Fair	26	30		Exceptional S				x	20084.44	9010	768.33	3.2	0.28	153.6	10.26	51.6	22.59	33.13									
1170	ROW	Malus domestica	Apple	29.7		Good	Good	21	20		-				x	13776.22	5922.3	505.03	80.6	6.88	41	2.74	13.8	6.03	15.65	0								
1171	Private	Sorbus aucuparia	European mountain ash	12.2		Fair	Fair	15	29		-				x	2130.47	691.4	58.96	14.4	1.23	12.3	0.82	4.1	1.81	3.87									
1172	Private	Acer macrophyllum	Bigleaf maple	20.0		Good	Fair	18	30		-				x	5459.02	1617.6	137.94	17.4	1.48	57.3	3.83	19.2	8.43	13.74									
1173	Private	Thuja plicata	Western redcedar	19.8		Good	Poor	19	30		-			x		3814.77	378.3	32.26	6.7	0.57	17.3	1.16	5.8	2.54	4.27									
1174	Private	Thuja plicata	Western redcedar	16.4		Good	Poor	16	30		-			x		2600.58	221.2	18.86	4.7	0.4	10.7	0.72	3.6	1.58	2.69									
1175	Private	Thuja plicata	Western redcedar	17.0		Good	Poor	14	30		-			x		2798.28	244.5	20.85	5	0.43	11.6	0.78	3.9	1.71	2.92									
1176	Private	Thuja plicata	Western redcedar	16.6		Good	Fair	12	30		-			x		2838.78	232.9	19.86	5.1	0.43	12.9	0.86	4.3	1.9	3.19									
1177	ROW	Thuja plicata	Western redcedar	14.9		Good	Good	14	30		-			x		2553.79	179	15.26	4.7	0.4	13.1	0.87	4.4	1.92	3.2	0								
1178	Private	Cercidiphyllum japonicum	Katsura tree	20.0		Good	Fair	14	30		-					7583.7	1015.1	86.56	0.7	0.06	59.2	3.96	19.9	8.71	12.73									
1179	ROW	Prunus serrulata	Flowering cherry	18.3		Fair	Poor	4	23		-			x		3635.83	2355	200.82	1.3	0.11	12.4	0.83	4.2	1.82	2.77	0								
1180	ROW	Prunus serrulata	Flowering cherry	7.4		Fair	Poor	3	23		-			x		744.36	259.7	22.14	0.4	0.03	2.2	0.15	0.7	0.32	0.5	0								
1181	ROW	Malus domestica	Apple	6.1		Good	Good	9	20		-			x		835.72	122.7	10.47	14.5	1.23	4.5	0.3	1.5	0.66	2.19	0								
1182	ROW	Malus domestica	Apple	6.0		Good	Good	9	20		-			x		817.19	117.9	10.05	14.1	1.21	4.4	0.29	1.5	0.64	2.14	0								
1183	Private	Acer palmatum	Japanese maple	8.5		Good	Fair	13	12		-			x		1111.98	228.3	19.47	5.4	0.46	7.9	0.53	2.7	1.17	2.16									
1184	Private	Betula papyrifera	Paper birch	7.7	5,5,4,5,3	Poor	Fair	14	20		-			x		850.57	208.5	17.78	17.8	1.52	4.2	0.28	1.4	0.61	2.41									
1185	Private	Magnolia grandiflora	Southern magnolia	10.0		Good	Good	14	16		-			x		1579.82	370.2	31.57	23.3	1.99	21.4	1.43	7.2	3.15	6.57									
1186	Private	Magnolia grandiflora	Southern magnolia	8.7	8,3,5	Good	Good	10	16		-			x		1265.61	267.4	22.8	19.2	1.64	17	1.13	5.7	2.5	5.27									
1187	Private	Cercidiphyllum japonicum	Katsura tree	12.2	7,8,6	Good	Fair	11	30		-			x		2943.39	299.3	25.52	0.3	0.03	24.9	1.66	8.4	3.66	5.35									
1188	Private	Thuja occidentalis	Arborvitae	10.2	8,5,5,3	Good	Good	3	11.8		-			x		1024.93	402.6	34.33	14.9	1.27	4.6	0.31	1.5	0.68	2.26									
1189	Private	Thuja plicata	Western redcedar	30.0		Good	Fair	14	30		Exceptional S			x		9398.95	1220.3	104.06	15.9	1.36	34.6	2.31	11.6	5.09	8.76									
1190	ROW	Quercus palustris	Pin oak	27.3		Fair	Fair	20	30		-			x		11608.89	3351.6	285.81	1.7	0.14	92.1	6.16	30.9	13.55	19.85	16805								
1191	Private	Betula populifolia	Gray birch	15.0	9,12	Fair	Fair	12	15.1		-			x		3276.95	922.6	78.68	1	0.09	19.3	1.29	6.5	2.83	4.21									
1192	Private	Betula populifolia	Gray birch	17.0	8,15	Fair	Fair	15	15.1		Exceptional S			x		4147.8	1257.8	107.26	1.3	0.11	20.1	1.35	6.8	2.96	4.41									
1193	ROW	Quercus palustris	Pin oak	25.9		Fair	Poor	29	30		-			x		8429.39	3017.2	257.29	2.6	0.22	54.5	3.64	18.3	8.02	11.88	16806								
1194	Private	Prunus serrulata	Flowering cherry	10.0		Good	Good	10	23		-		x	x		1797.44	540.6	46.1	0.8	0.07	10.6	0.71	3.6	1.56	2.34									
1195	Private	Thuja plicata	Western redcedar	32.0		Good	Good	18	30		Exceptional S		x	x		11756.3	1481	126.29	20.2	1.73	44.4	2.97	14.9	6.53	11.23									
1196	Private	Thuja plicata	Western redcedar	30.0		Fair	Poor		30		Exceptional S			x		7106.53	1186.5	101.18	12	1.02	19.7	1.32	6.6	2.91	5.25									
1197	Private	Pseudotsuga menziesii	Douglas-fir	14.0		Good	Good	14	30		-			x		2247.22	352.7	30.08	14.7	1.25	21.1	1.41	7.1	3.1	5.76									
1198	Private	Ilex aquifolium	English holly	10.5		Good	Good	5	18.8		-			x		1954.43	378.2	32.25	15.3	1.3	8.2	0.55	2.8	1.21	3.06									
1199	ROW	Acer macrophyllum	Bigleaf maple	12.3		Fair	Poor	15	30		-		x	x		1675.1	543.5	46.35	21.3	1.82	15.4	1.03	5.2	2.27	5.12	0								
1200	ROW	Aesculus hippocastanum	Horsechestnut	28.0		Good	Fair	25	30		-		x	x		11309.23	4942.6	421.48	2.4	0.21	60.6	4.05	20.3	8.91	13.17	0								
1201	Private	Aesculus hippocastanum	Horsechestnut	30.0		Fair	Fair	15	30		Exceptional S		x	x		12158.6	5863.2	499.98	2.5	0.22	58.8	3.93	19.7	8.65	12.8									



Table of Trees
Seattle Pacific University, Seattle, WA

Arborist: TB / JP
Date of Inventory: Spring 2021
Table Prepared: May 23, 2023

Column headers highlighted in green indicate columns of data which were calculated using i-Tree Eco.

Tree ID	ROW / Private	Scientific Name	Common Name	DSH	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)	Exceptional Threshold	Exceptional Grove	Exceptional (\$/G/SG)	Notes	Steep Slope/ Buffer	Potential Landslide Area	Shoreline Area	Est. Structural Value (9th Ed.) (\$)	Carbon Storage (lbs/yr)	Carbon storage (\$)	Gross Carbon Sequestration (lbs/yr)	Gross Carbon Sequestration (\$/yr)	Avoided Runoff (ft^3/yr)	Avoided Runoff (\$/yr)	Pollution Removal (oz/yr)	Pollution Removal (\$/yr)	Total Annual Benefits (\$/yr)	SDOT Tree Number	Proposed MIMP	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Parking	
1202	Private	Malus domestica	Apple	17.3	9,9,6,10	Fair	Fair	9	20		-			x			4059.1	1574.8	134.29	48.4	4.13	14.5	0.97	4.9	2.13	7.23								
1203	ROW	Thuja plicata	Western redcedar	32.4		Good	Fair	18	30		-			x			10733.8	1512.2	128.96	18.5	1.57	35.6	2.38	11.9	5.23	9.19	0							
1204	Private	Pinus ponderosa	Ponderosa pine	11.0		Good	Good	13	30		-			x			1019.42	247.3	21.09	13.9	1.19	16.1	1.08	5.4	2.37	4.64								
1205	Private	Pseudotsuga menziesii	Douglas-fir	24.0		Good	Good	20	30		-		x	x			6726.22	1288.8	109.9	33	2.81	51.3	3.43	17.2	7.54	13.78								
1206	Private	Pseudotsuga menziesii	Douglas-fir	15.0		Good	Good	19	30		-		x	x			2589.03	421.4	35.94	16.4	1.4	24.4	1.63	8.2	3.59	6.62								
1207	Private	Tsuga heterophylla	Western hemlock	22.0		Fair	Good	24	24		-		x	x			5028.59	1109.2	94.59	19.9	1.7	55.2	3.69	18.5	8.12	13.51								
1208	Private	Crataegus monogyna	Common hawthorn	20.0		Fair	Fair	12	16.2		Exceptional S		x	x			5350.12	2578.2	219.86	1.2	0.1	12.3	0.82	4.1	1.81	2.73								
1209	Private	Crataegus monogyna	Common hawthorn	16.0		Fair	Fair	12	16.2		-		x	x			3504.16	1492.4	127.27	0.8	0.07	8.9	0.59	3	1.31	1.97								
1210	Private	Acer macrophyllum	Bigleaf maple	24.0		Fair	Poor	20	30		-		x	x			5863.03	2435.2	207.66	2.3	0.2	43.6	2.91	14.6	6.41	9.52								
1211	Private	Pseudotsuga menziesii	Douglas-fir	14.0		Good	Good	14	30		-			x			2247.22	352.7	30.08	14.7	1.25	21.1	1.41	7.1	3.1	5.76								
1212	Private	Acer macrophyllum	Bigleaf maple	15.0		Fair	Fair	18	30		-	Heavy ivy and blackberry very limited visual assessment	x	x			2983.04	848.3	72.34	25.4	2.17	34.9	2.33	11.7	5.13	9.63								
1213	Private	Ilex aquifolium	English holly	18.0		Good	Good	8	18.8		-			x			5228.31	1279.5	109.11	3.8	0.32	21.3	1.43	7.2	3.14	4.88								
1214	Private	Crataegus monogyna	Common hawthorn	22.0		Good	Fair	16	16.2		Exceptional S			x			6844.26	3256.5	277.7	1.4	0.12	14.6	0.98	4.9	2.15	3.26								
1215	Private	Prunus serrulata	Flowering cherry	12.0		Good	Good	10	23		-			x			2471.36	842.7	71.86	1.1	0.09	15	1	5	2.21	3.31								
1216	ROW	Tsuga mertensiana	Mountain hemlock	6.0		Good	Fair	5	10.8		-			x			322.04	56.1	4.78	3.7	0.31	2.8	0.18	0.9	0.41	0.9	0							
1217	ROW	Betula pendula	European white birch	7.0		Good	Good	10	24		-			x			1053.96	162.3	13.84	22	1.88	9.9	0.66	3.3	1.45	3.99	0							
1218	Private	Acer platanoides	Norway maple	18.0		Good	Fair	18	30		-			x			5494.88	1614.2	137.65	36.9	3.15	50.1	3.35	16.8	7.37	13.88		Remove			Remove		Remove	
1219	Private	Pinus sylvestris	Scots pine	9.0		Good	Good	11	24		-			x			636.34	198.4	16.92	17.6	1.5	8.8	0.59	3	1.3	3.4		Remove			Remove		Remove	
1220	ROW	Cornus florida	Eastern flowering dogwood	8.1	5,5,4	Good	Fair	8	12		-			x			1132.59	241.3	20.57	14.4	1.23	6.1	0.41	2.1	0.9	2.54	0							
1221	ROW	Cornus florida	Eastern flowering dogwood	7.1	5,4,3	Fair	Fair	8	12		-			x			868.68	178.1	15.19	12.6	1.07	4.2	0.28	1.4	0.61	1.96	0							
1222	ROW	Cornus florida	Eastern flowering dogwood	6.0		Good	Good	11	12		-			x			817.19	120.9	10.31	13.5	1.15	4.8	0.32	1.6	0.71	2.19	0							
1223	Private	Prunus serrulata	Flowering cherry	14.0		Good	Fair	15	23		-			x			2912.61	1226.6	104.6	1.2	0.1	15.1	1.01	5.1	2.23	3.34		Remove			Remove		Remove	
1224	ROW	Prunus serrulata	Flowering cherry	16.0		Fair	Fair	14	23		-			x			3504.16	1698	144.8	1.4	0.12	16.4	1.09	5.5	2.41	3.62	0	Remove			Remove		Remove	
1225	Private	Prunus serrulata	Flowering cherry	18.0		Fair	Fair	18	23		-			x			4375.86	2262.1	192.9	1.6	0.14	19.3	1.29	6.5	2.84	4.27		Remove			Remove		Remove	
1226	Private	Acer platanoides	Norway maple	16.0		Good	Fair	19	30		-			x			4386.35	1234.2	105.25	38.4	3.28	44.4	2.97	14.9	6.53	12.77		Remove			Remove		Remove	
1227	Private	Pinus monticola	Western white pine	17.1	6,16	Good	Good	14	24		-			x			2478.58	643.7	54.89	30.9	2.64	33.3	2.23	11.2	4.9	9.76		Remove			Remove		Remove	





SPU Draft MIMP/EIS
Seattle Pacific University

Tree inventory data
collected spring 2021.


Legend

Map_Series

Exceptional (S/G/SG)

○ Not Exceptional

- Exceptional Size

 King County parcels

Feet

0 20 40 80




Sheet 1 of 11

Date: May 23, 2023

Arborist:
Tyler Bunton
ISA #PN-8715A
ISA QTRA

King County, EagleView Technologies, Inc.





Tree
Solutions Inc
Consulting Arborists

2940 Westlake Ave N #200
Seattle, WA 98109
206-528-4670

SPU Draft MIMP/EIS
Seattle Pacific University

Tree inventory data
collected spring 2021.

Legend

- Map_Series
- Exceptional (S/G/SG)
 - Not Exceptional
 - Exceptional Size
- King County parcels

Feet
0 20 40 80

N

Sheet 2 of 11

Date: May 23, 2023

Arborist:
Tyler Bunton
ISA #PN-8715A
ISA QTRA



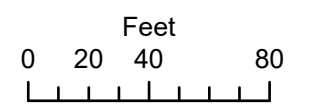
2940 Westlake Ave N #200
Seattle, WA 98109
206-528-4670

SPU Draft MIMP/EIS
Seattle Pacific University

Tree inventory data
collected spring 2021.

Legend

- Map_Series
- Exceptional (S/G/SG)
 - Not Exceptional
 - Exceptional Size
 - Removed
- King County parcels



Sheet 3 of 11

Date: May 23, 2023

Arborist:
Tyler Bunton
ISA #PN-8715A
ISA QTRA



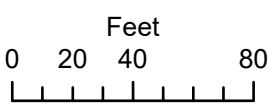
2940 Westlake Ave N #200
Seattle, WA 98109
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SPU Draft MIMP/EIS
Seattle Pacific University

Tree inventory data
collected spring 2021.

Legend

- Map_Series
- Exceptional (S/G/SG)
 - Not Exceptional
 - Exceptional Size
 - King County parcels

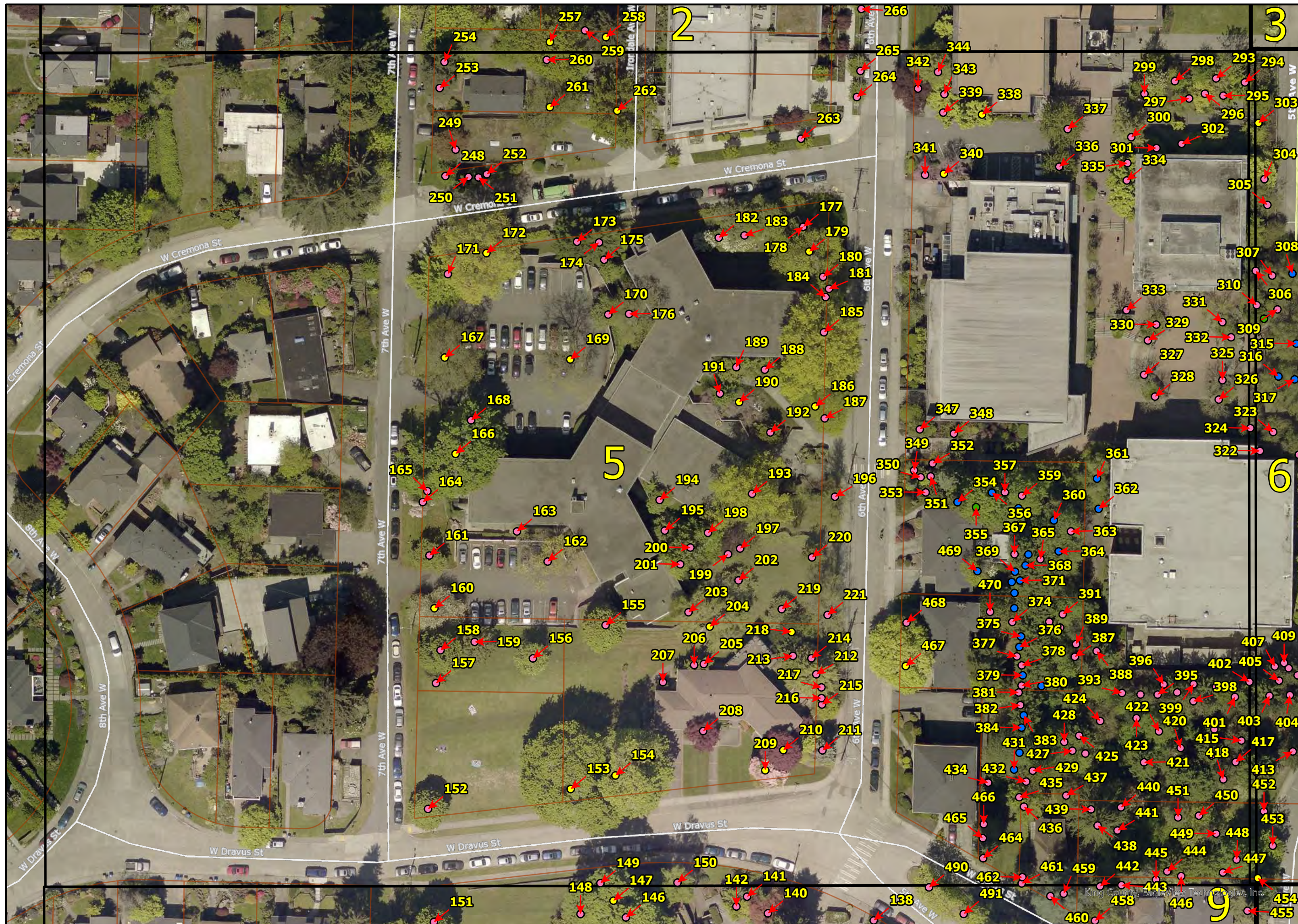


Sheet 4 of 11

Date: May 23, 2023

Arborist:
Tyler Bunton
ISA #PN-8715A
ISA QTRA

King County, EagleView Technologies, Inc.




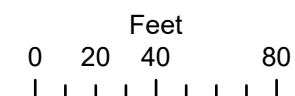
2940 Westlake Ave N #200
Seattle, WA 98109
206-528-4670

SPU Draft MIMP/EIS
Seattle Pacific University

Tree inventory data
collected spring 2021.

Legend

-  Map_Series
Exceptional (S/G/SG)
 Not Exceptional
 Exceptional Grove
 Exceptional Size
 Exceptional Size and Grove
 King County parcels



Sheet 5 of 11

Date: May 23, 2023

Arborist:
Tyler Bunton
ISA #PN-8715A
ISA QTRA

King County, EagleView Technologies, Inc.



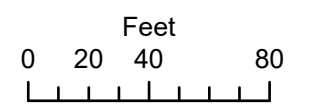
2940 Westlake Ave N #200
Seattle, WA 98109
206-528-4670

SPU Draft MIMP/EIS
Seattle Pacific University

Tree inventory data
collected spring 2021.

Legend

- Map_Series
- Exceptional (S/G/SG)
 - Not Exceptional
 - Exceptional Grove
 - Exceptional Size
 - Exceptional Size and Grove
 - Removed
- King County parcels

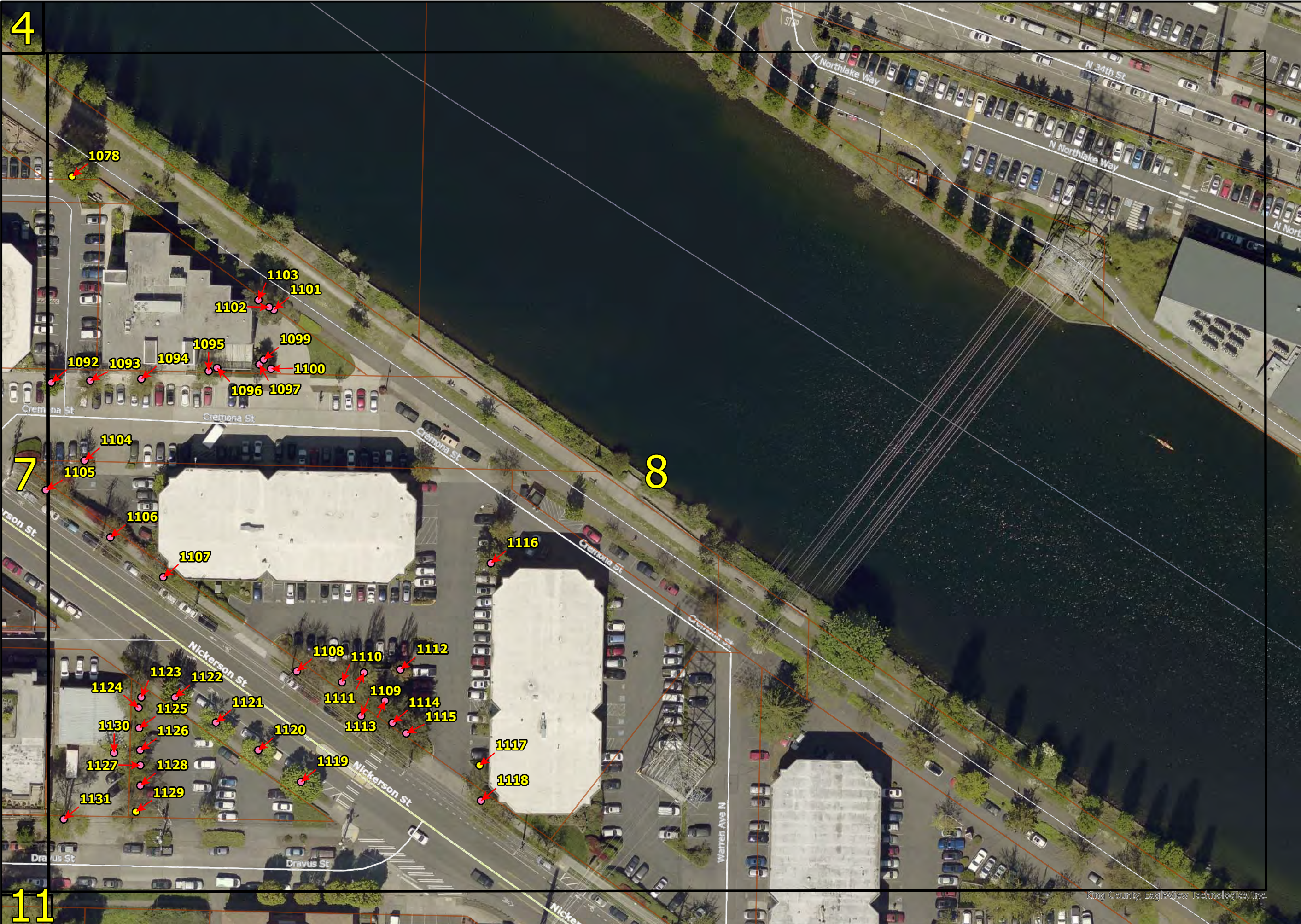


Sheet 6 of 11

Date: May 23, 2023

Arborist:
Tyler Bunton
ISA #PN-8715A
ISA QTRA

King County EagleView Technologies, Inc.



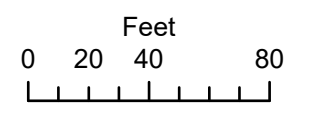
2940 Westlake Ave N #200
Seattle, WA 98109
206-528-4670

SPU Draft MIMP/EIS
Seattle Pacific University

Tree inventory data
collected spring 2021.

Legend

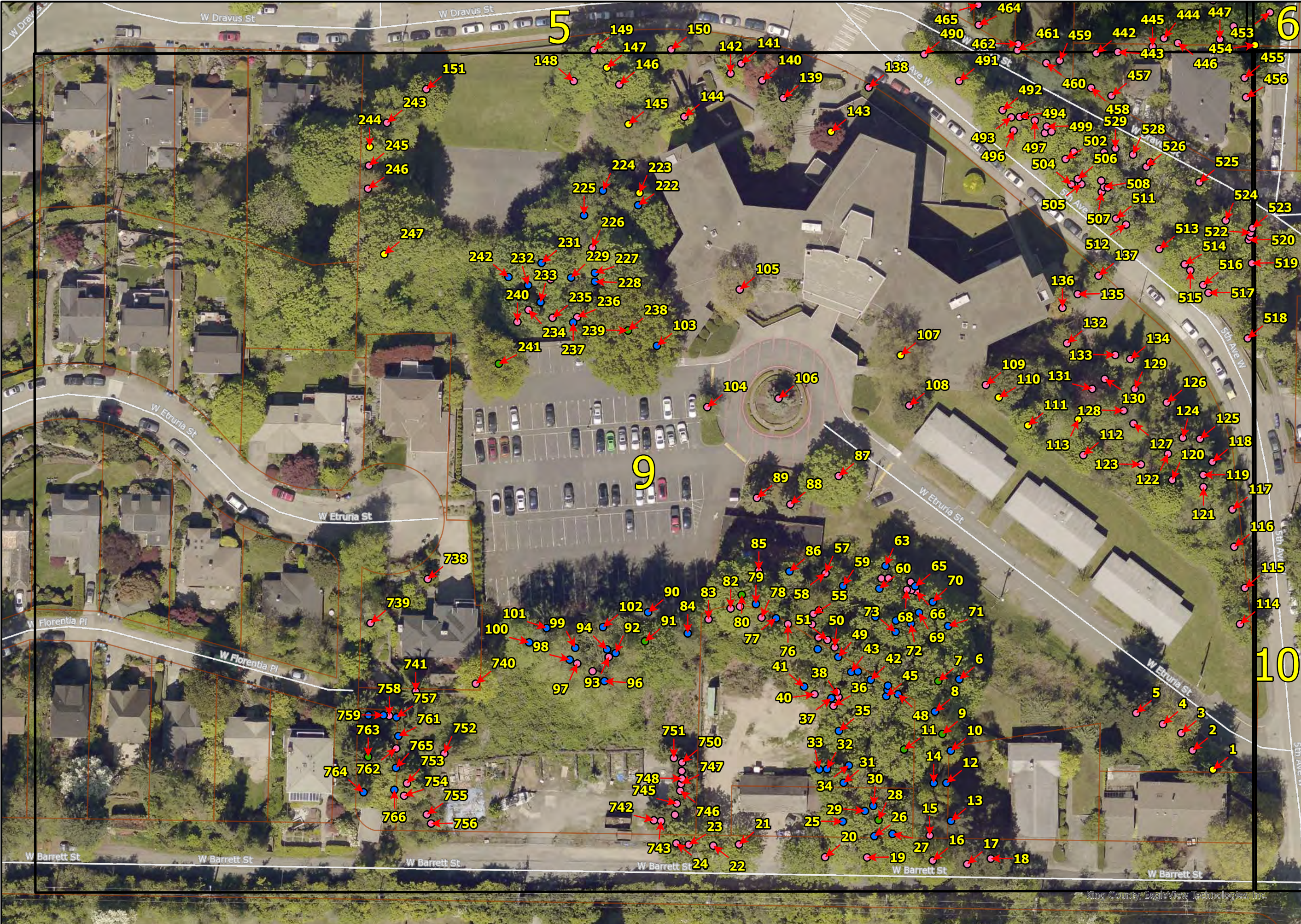
- Map_Series
- Exceptional (S/G/SG)
 - Not Exceptional
 - Exceptional Size
 - King County parcels



Sheet 8 of 11

Date: May 23, 2023

Arborist:
Tyler Bunton
ISA #PN-8715A
ISA QTRA



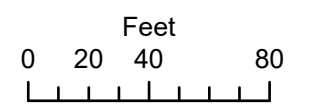
2940 Westlake Ave N #200
Seattle, WA 98109
206-528-4670

SPU Draft MIMP/EIS
Seattle Pacific University

Tree inventory data
collected spring 2021.

Legend

- Map_Series
- Exceptional (S/G/SG)
 - Not Exceptional
 - Exceptional Grove
 - Exceptional Size
 - Exceptional Size and Grove
- King County parcels



Sheet 9 of 11

Date: May 23, 2023

Arborist:
Tyler Bunton
ISA #PN-8715A
ISA QTRA



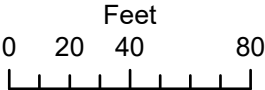
2940 Westlake Ave N #200
Seattle, WA 98109
206-528-4670

SPU Draft MIMP/EIS
Seattle Pacific University

Tree inventory data
collected spring 2021.

Legend

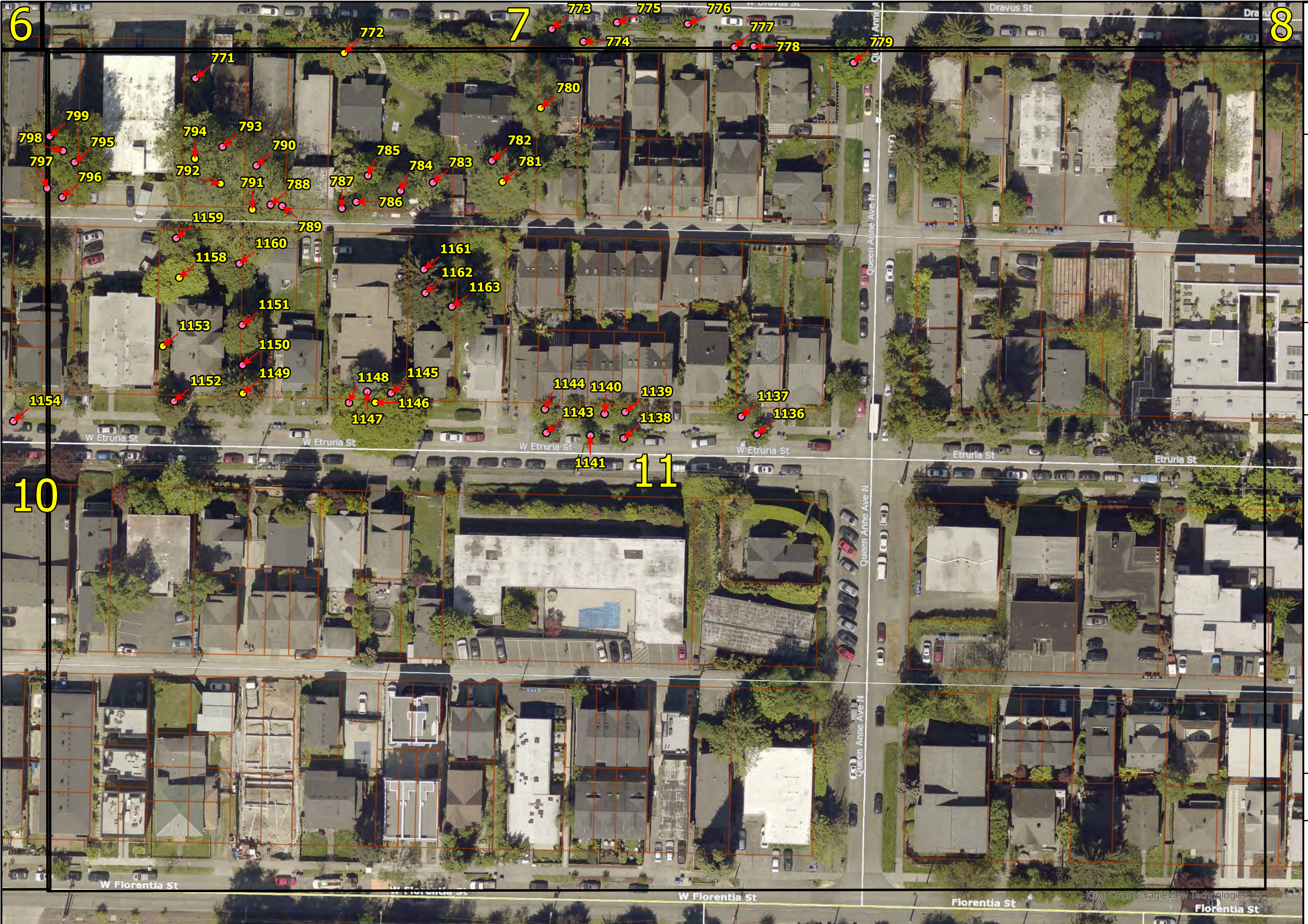
- Map_Series
- Exceptional (S/G/SG)
 - Not Exceptional
 - Exceptional Grove
 - Exceptional Size
- King County parcels



Sheet 10 of 11

Date: May 23, 2023

Arborist:
Tyler Bunton
ISA #PN-8715A
ISA QTRA



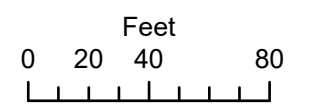
2940 Westlake Ave N #200
Seattle, WA 98109
206-528-4670

SPU Draft MIMP/EIS
Seattle Pacific University

Tree inventory data
collected spring 2021.

Legend

- Map_Series
- Exceptional (S/G/SG)
 - Not Exceptional
 - Exceptional Size
- King County parcels



Sheet 11 of 11

Date: May 23, 2023

Arborist:
Tyler Bunton
ISA #PN-8715A
ISA QTRA

Shadow Graphics



SEATTLE PACIFIC
UNIVERSITY

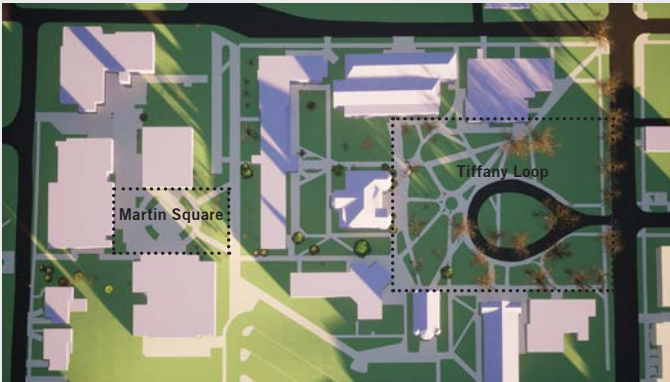
SHADOW STUDIES

MAY 2023



KEY PLAN





Existing Conditions



Proposed / Preferred Alternative



Alternative 1



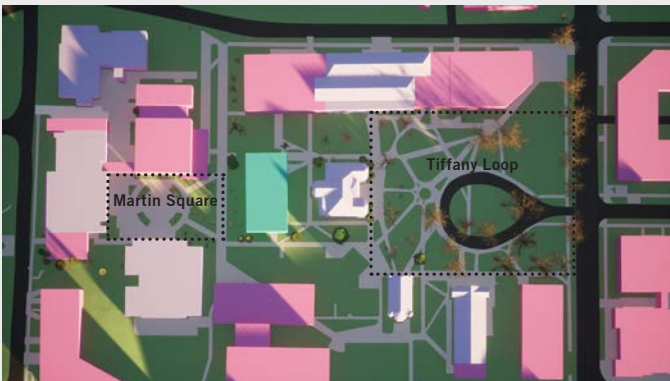
Alternative 2



Alternative 3



Alternative 4



Alternative 5

- Existing SPU Owned Buildings
- Proposed Buildings
- Development to be completed under the current MIMP

- Evergreen Trees
- Deciduous Trees
- Removed Trees

Existing Conditions: Maintain existing site conditions

Proposed/ Preferred Alternative: Proposed plan as described in the June 2021 Preliminary Draft

Alternative 1: No Action

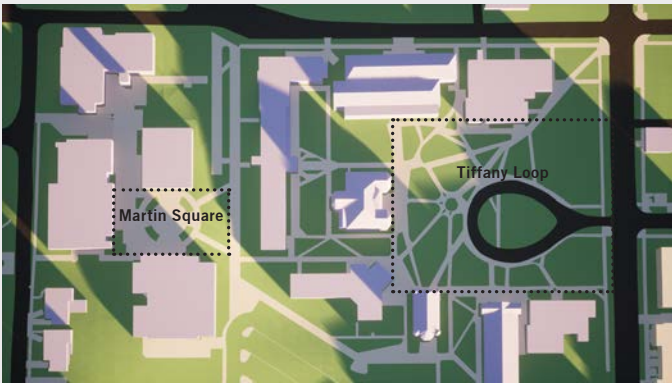
Alternative 2: No Boundary Expansion and No Change to Height Limits

Alternative 3: Boundary Expansion and No Change to Height Limits

Alternative 4: No Boundary Expansion and Increased Height Limits

Alternative 5: Boundary Expansion, Increased Height and No Street Vacations





Existing Conditions



Proposed / Preferred Alternative



Alternative 1



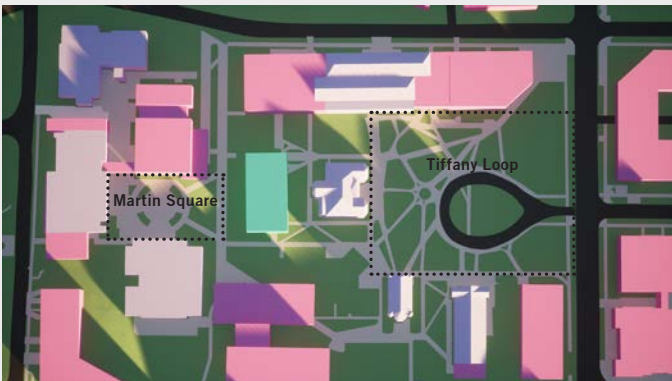
Alternative 2



Alternative 3



Alternative 4



Alternative 5

- Existing SPU Owned Buildings
- Proposed Buildings
- Development to be completed under the current MIMP

Existing Conditions: Maintain existing site conditions

Proposed/ Preferred Alternative: Proposed plan as described in the June 2021 Preliminary Draft

Alternative 1: No Action

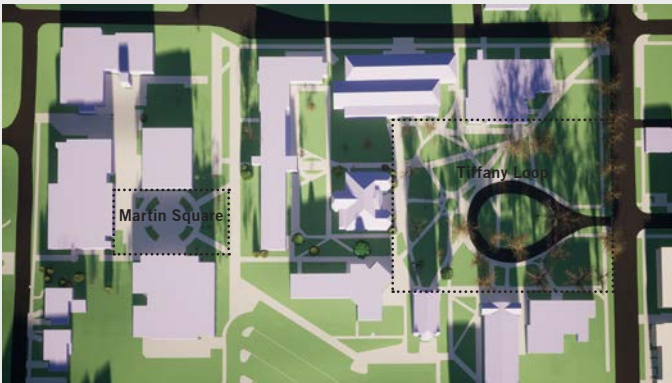
Alternative 2: No Boundary Expansion and No Change to Height Limits

Alternative 3: Boundary Expansion and No Change to Height Limits

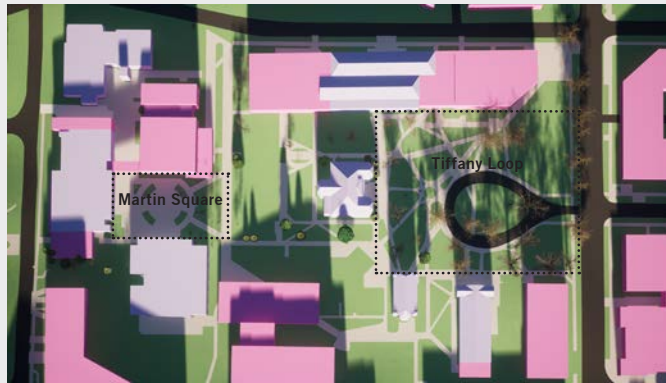
Alternative 4: No Boundary Expansion and Increased Height Limits

Alternative 5: Boundary Expansion, Increased Height and No Street Vacations

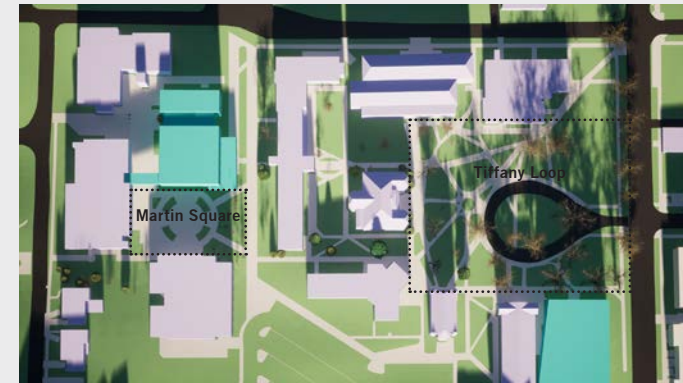




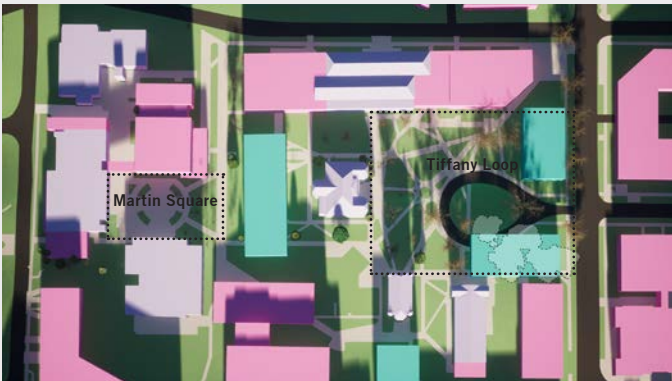
Existing Conditions



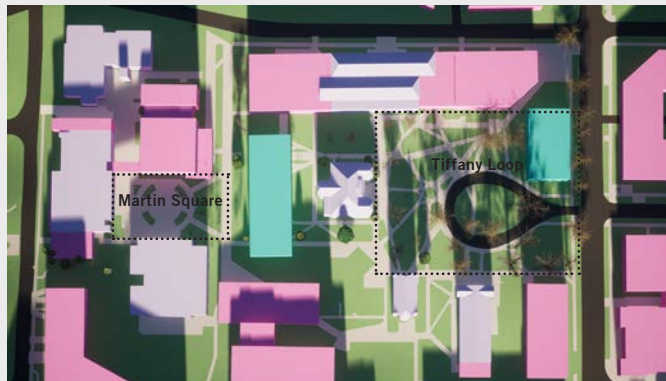
Proposed / Preferred Alternative



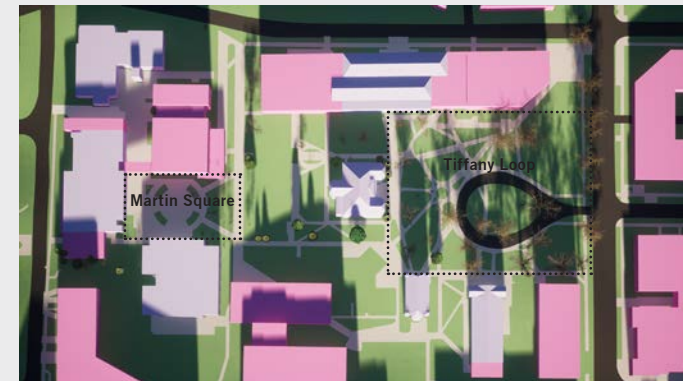
Alternative 1



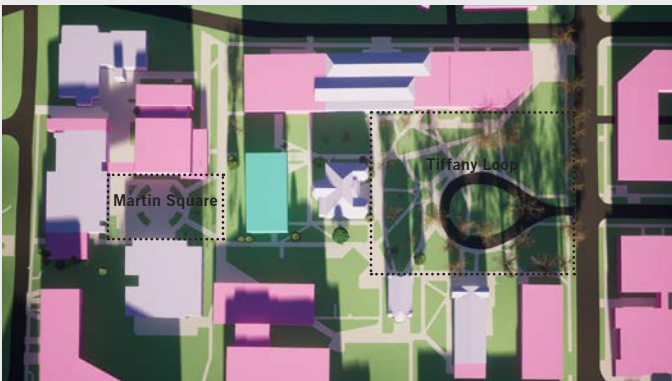
Alternative 2



Alternative 3



Alternative 4



Alternative 5

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- Evergreen Trees
- Deciduous Trees
- Removed Trees

Existing Conditions: Maintain existing site conditions

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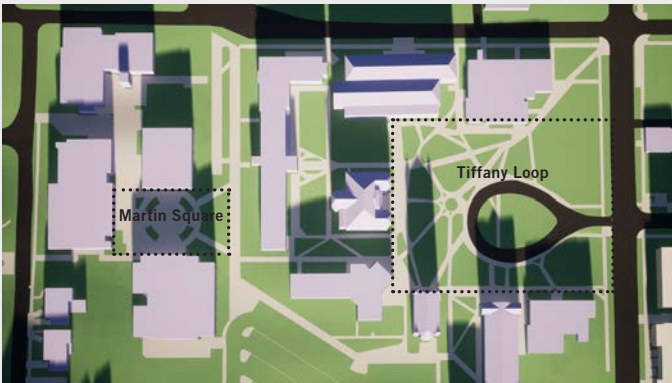
Alternative 2: No Boundary Expansion and No Change to Height Limits

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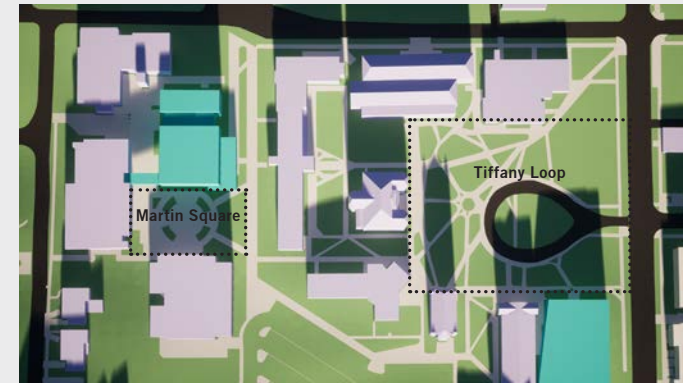




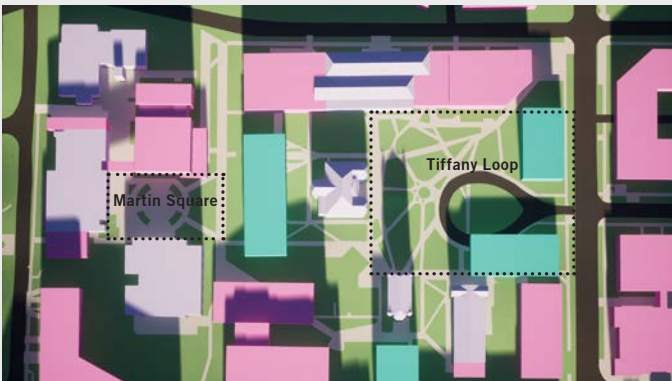
Existing Conditions



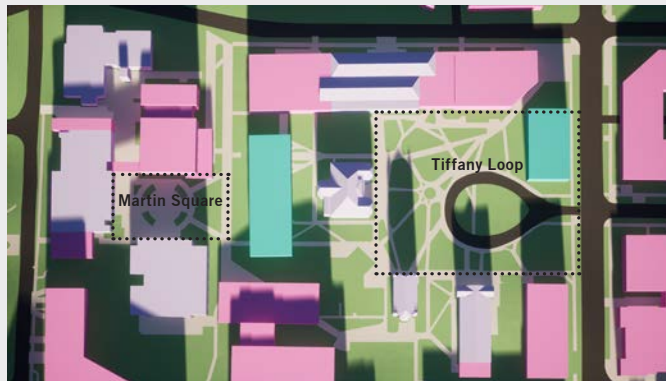
Proposed / Preferred Alternative



Alternative 1



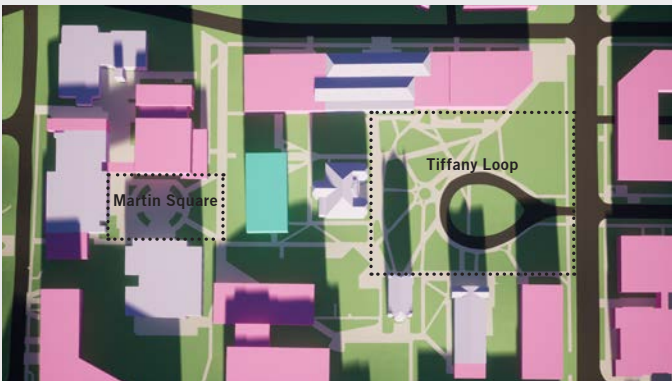
Alternative 2



Alternative 3



Alternative 4



Alternative 5

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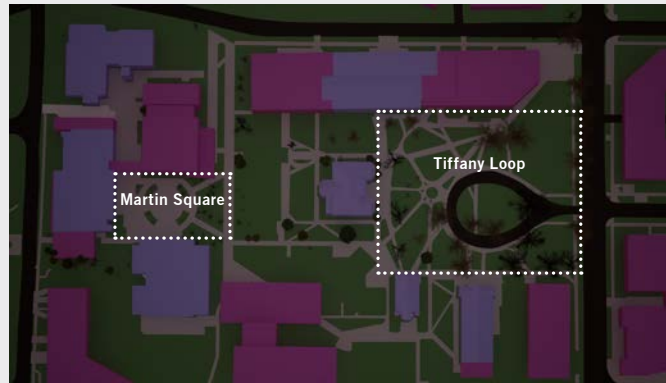
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Alternative 5: Boundary Expansion, Increased Height and No Street Vacations





Existing Conditions



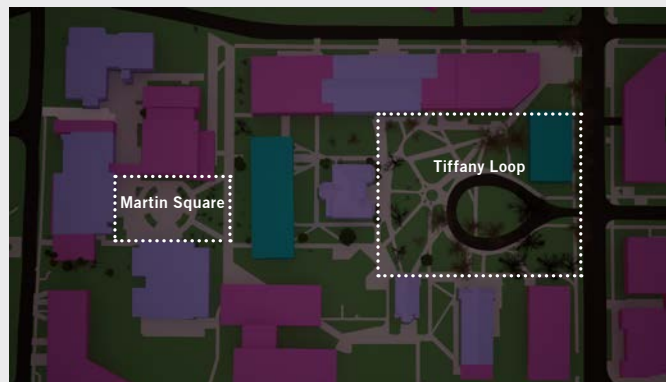
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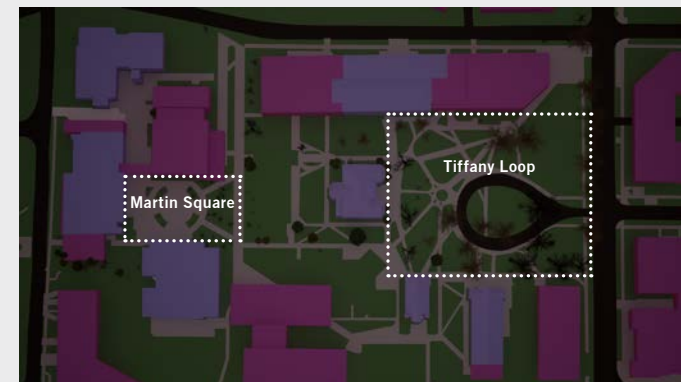
Alternative 1



Alternative 2



Alternative 3



Alternative 4



Alternative 5

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Existing Conditions



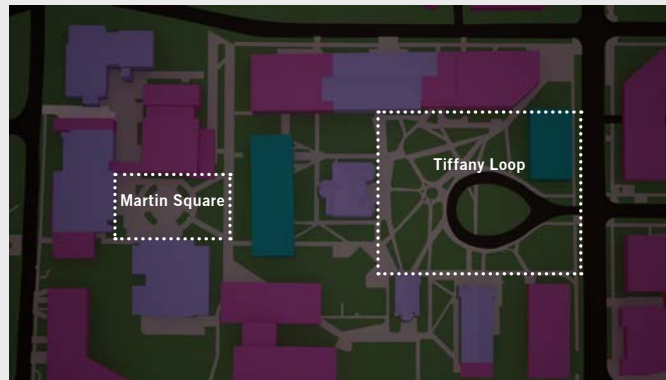
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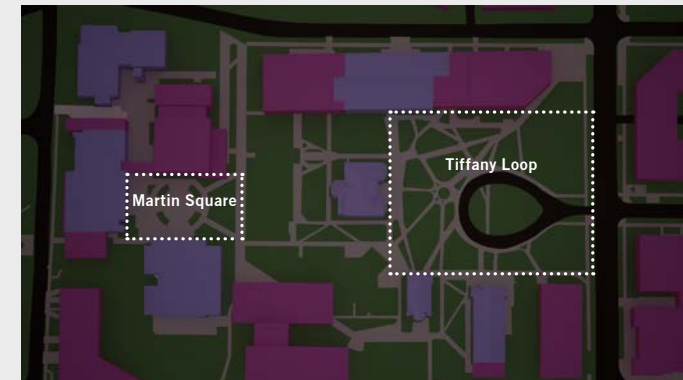
Alternative 1



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Alternative 3



Alternative 4



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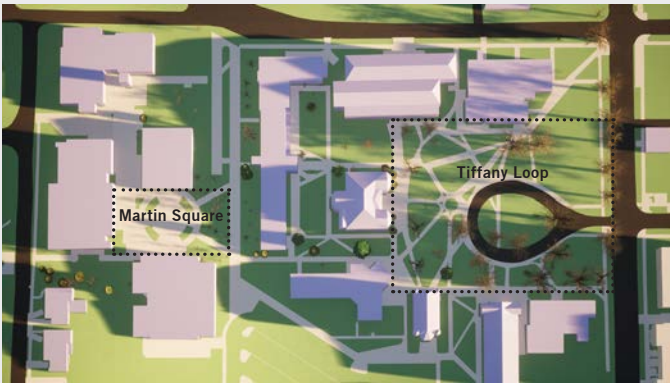
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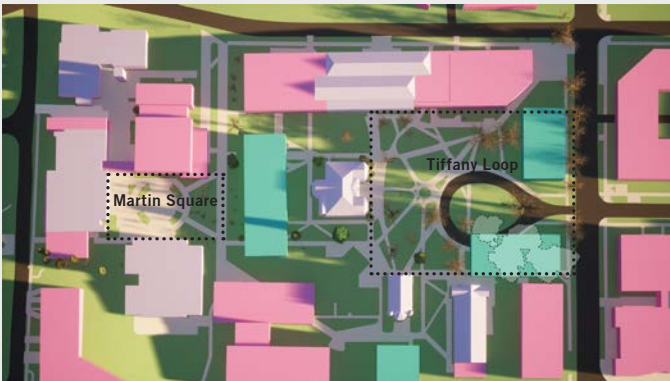
Existing Conditions



Proposed / Preferred Alternative



Alternative 1



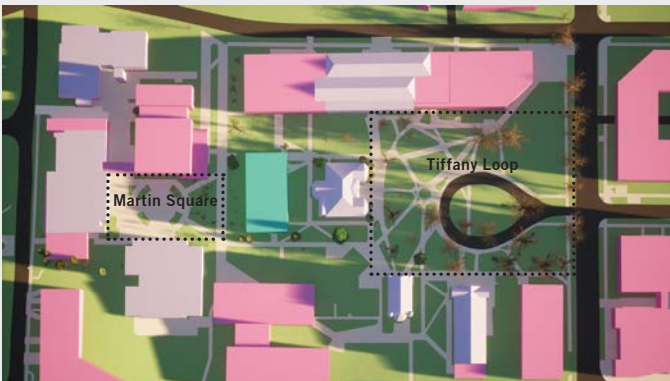
Alternative 2



Alternative 3



Alternative 4



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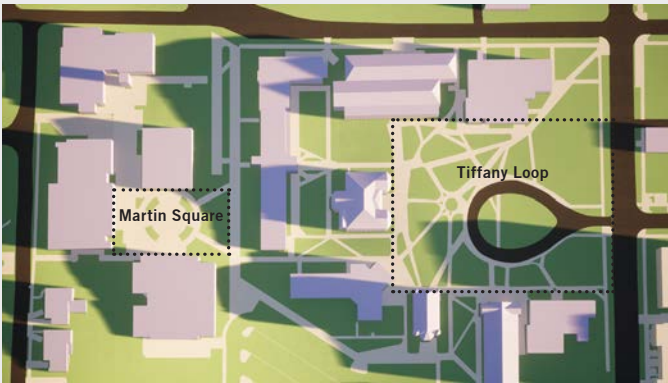
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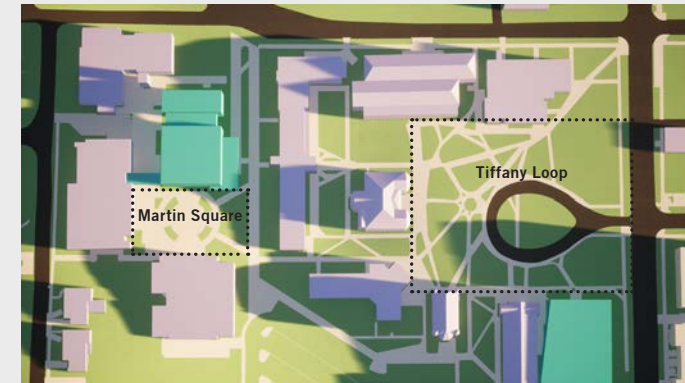




Existing Conditions



Proposed / Preferred Alternative



Alternative 1



Alternative 2



Alternative 3



Alternative 4



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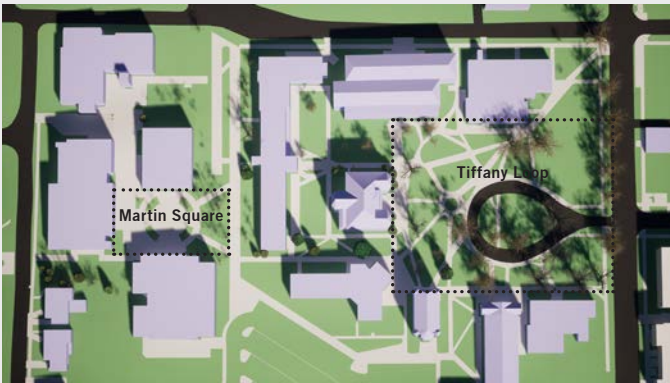
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Existing Conditions



Proposed / Preferred Alternative



Alternative 1



Alternative 2



Alternative 3



Alternative 4



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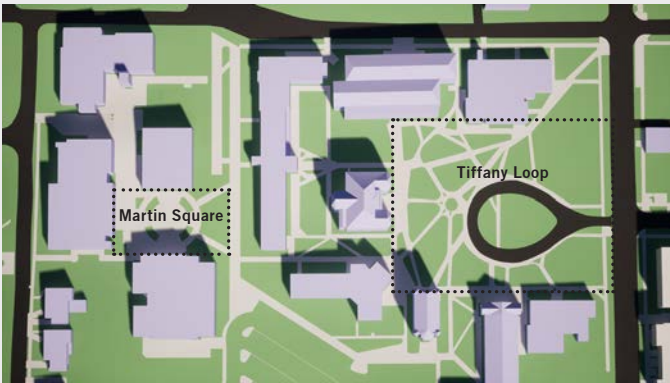
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Existing Conditions



Proposed / Preferred Alternative



Alternative 1



Alternative 2



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Alternative 4



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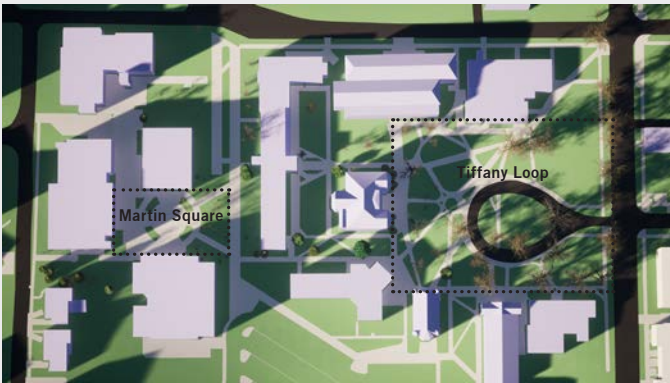
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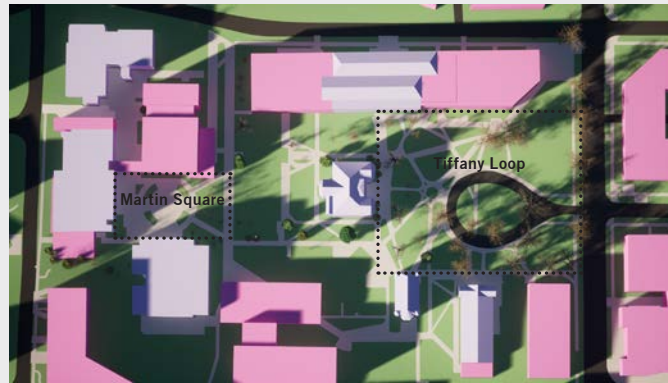
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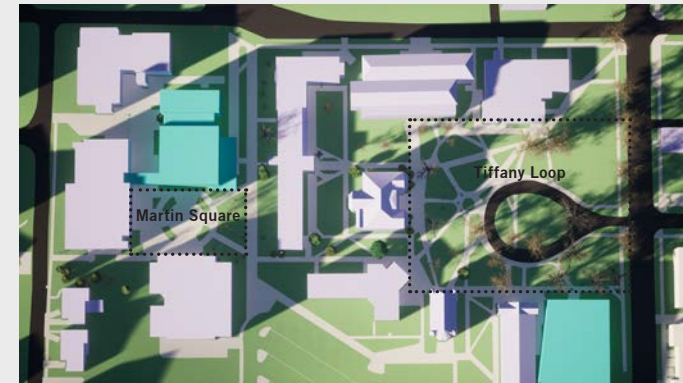




Existing Conditions



Proposed / Preferred Alternative



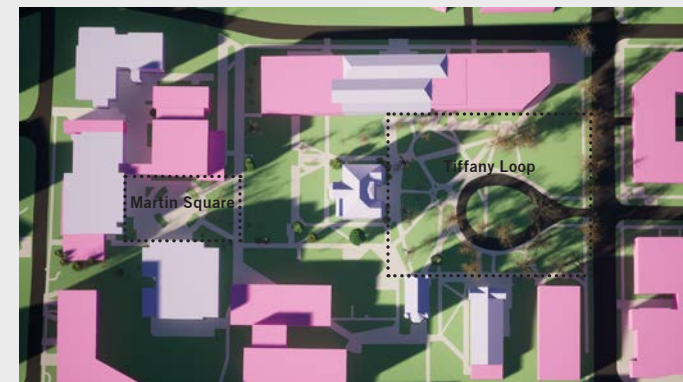
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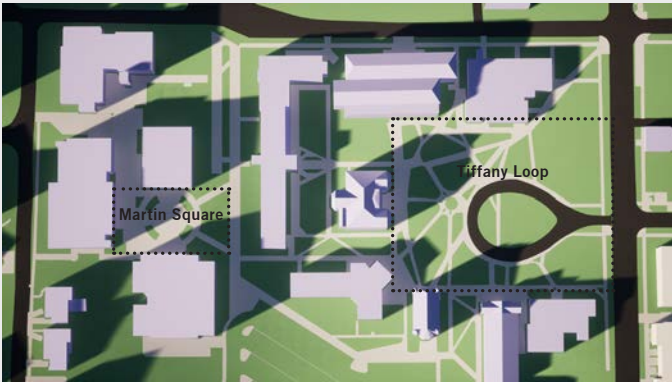
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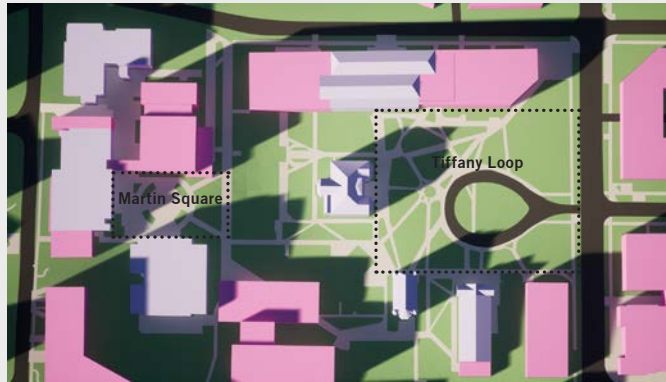
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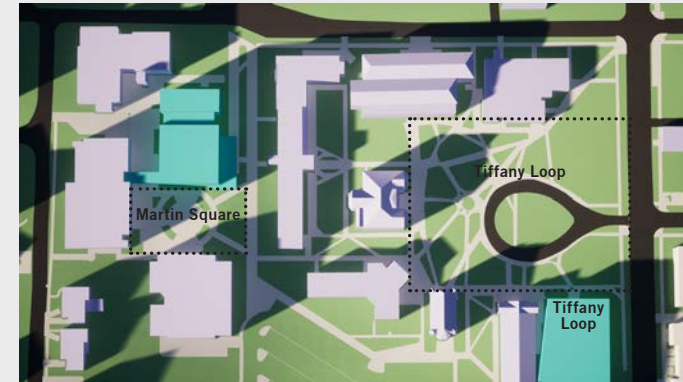




Existing Conditions



Proposed / Preferred Alternative



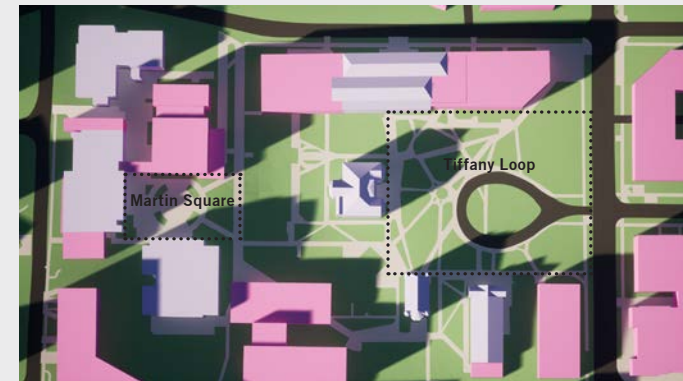
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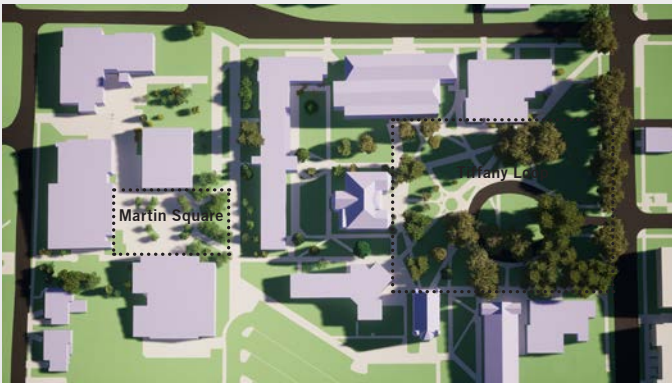
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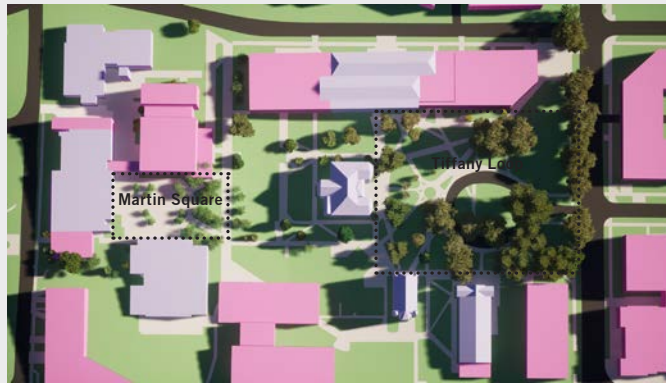
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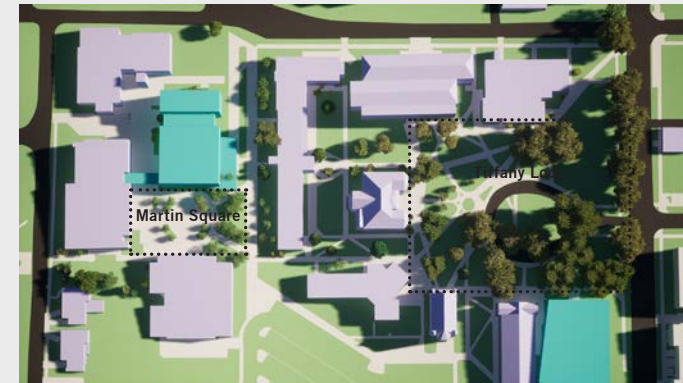




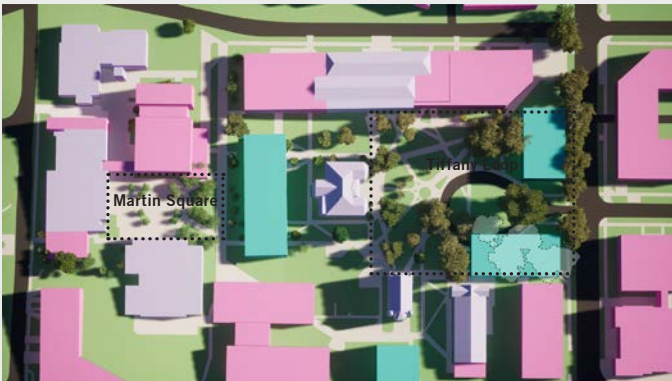
Existing Conditions



Proposed / Preferred Alternative



Alternative 1



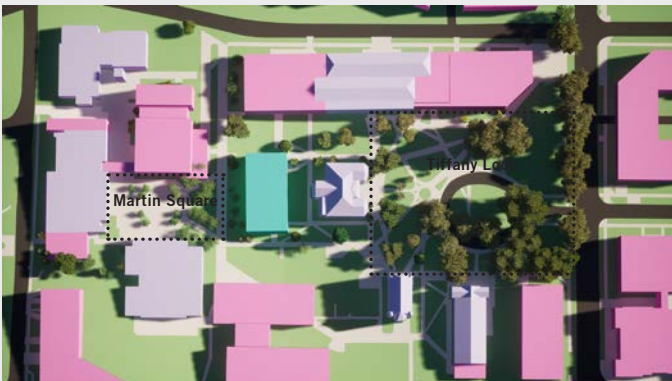
Alternative 2



Alternative 3



Alternative 4



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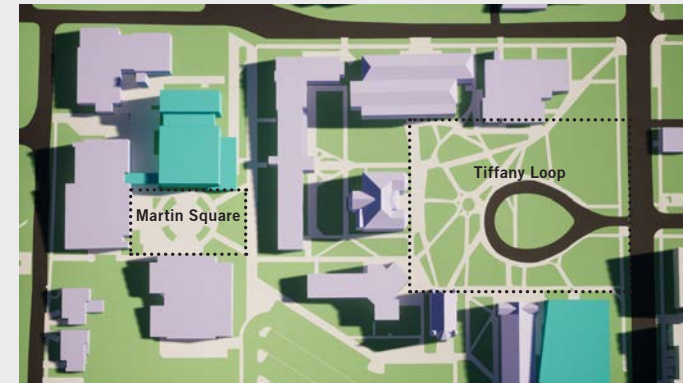




Existing Conditions



Proposed / Preferred Alternative



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Existing Conditions



Proposed / Preferred Alternative



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Alternative 2



Alternative 3



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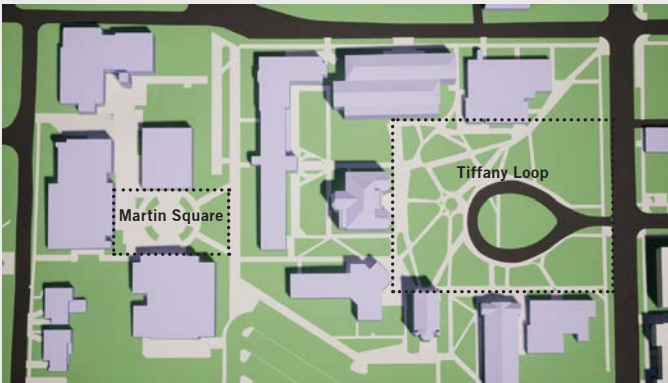
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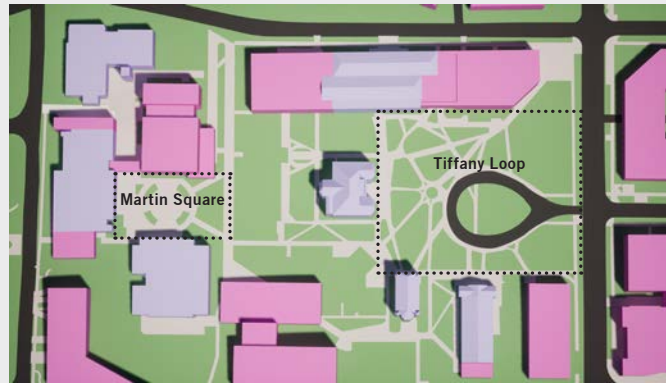
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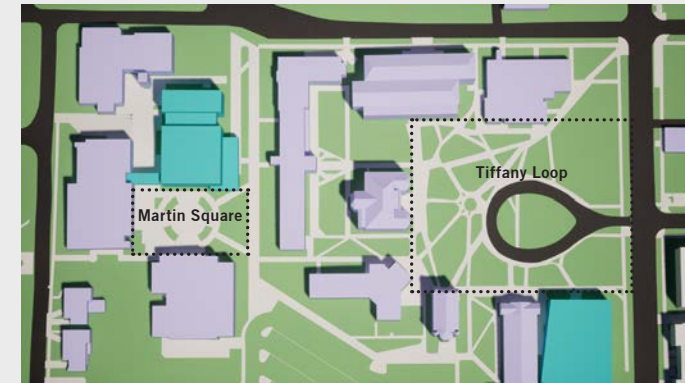




Existing Conditions



Proposed / Preferred Alternative



Alternative 1



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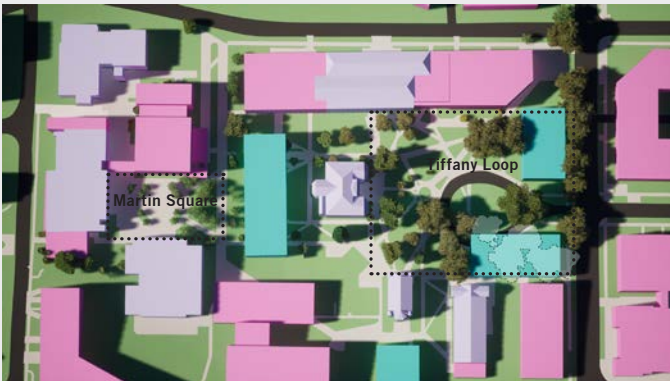
Existing Conditions



Proposed / Preferred Alternative



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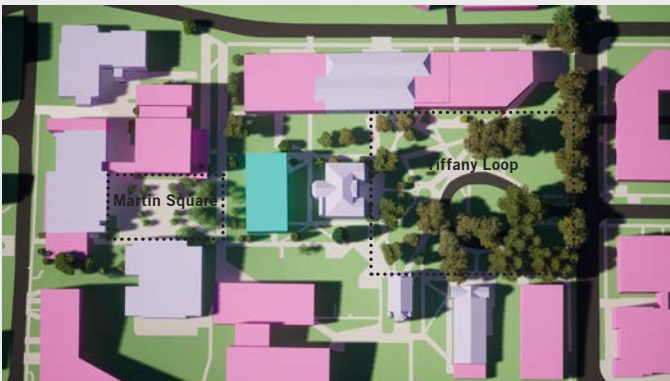
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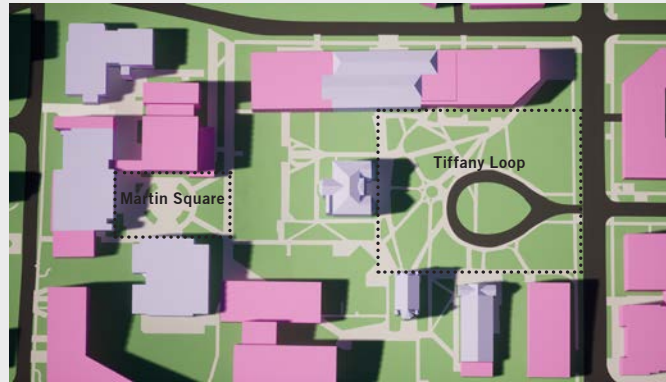
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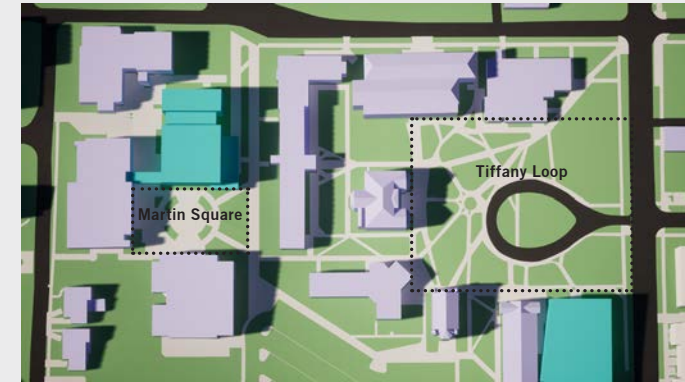




Existing Conditions



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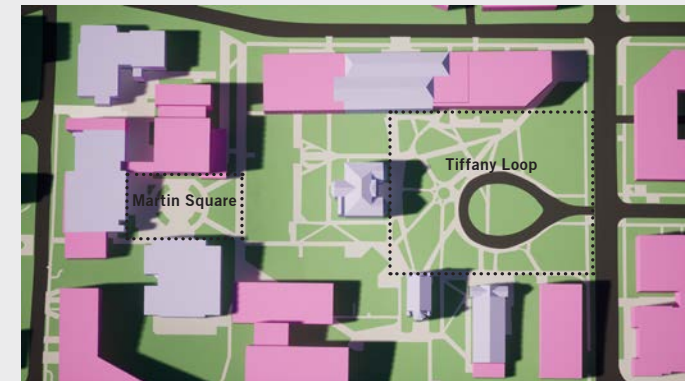
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Existing Conditions



Proposed / Preferred Alternative



Alternative 1



Alternative 2



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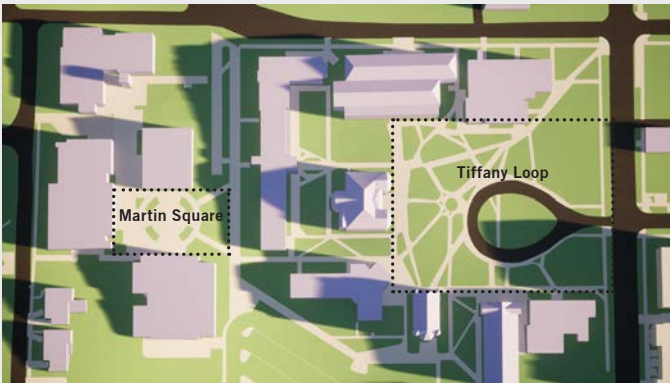
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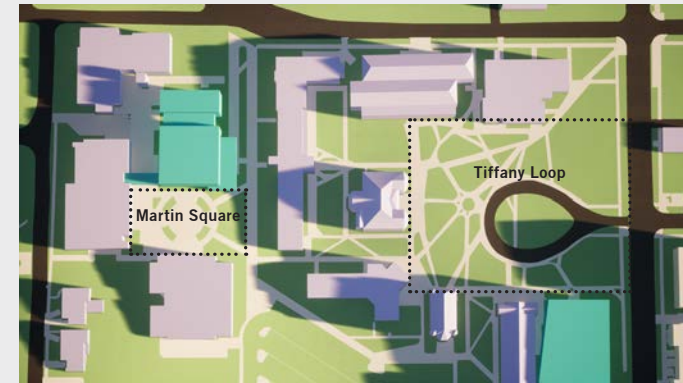




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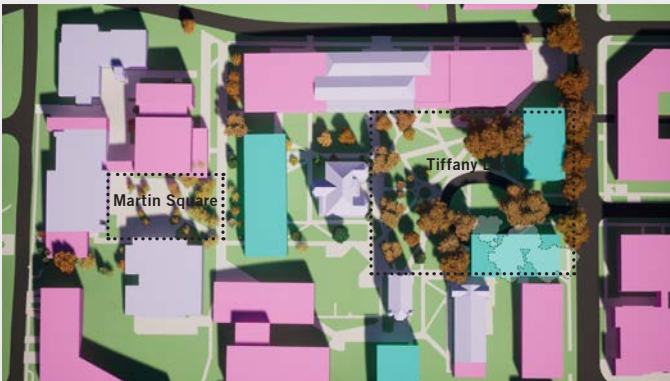
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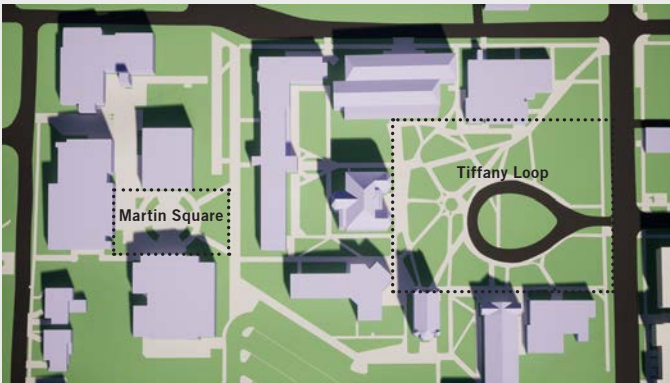
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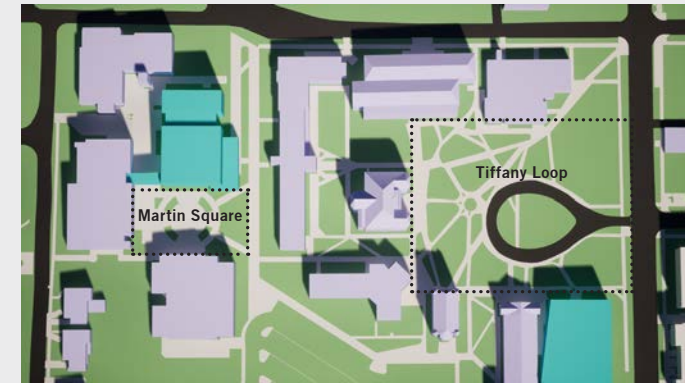




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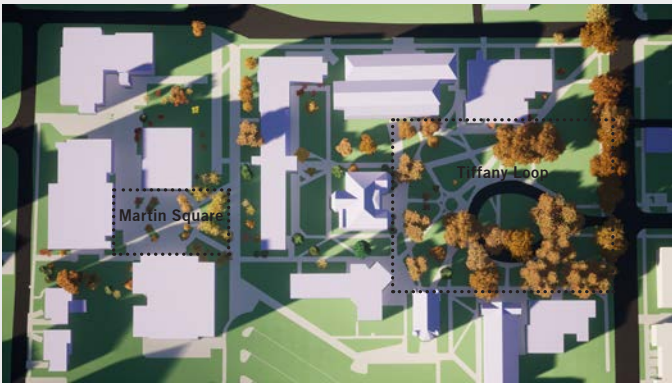
Alternative 2: No Boundary Expansion and No Change to Height Limits

Alternative 3: Boundary Expansion and No Change to Height Limits

Alternative 4: No Boundary Expansion and Increased Height Limits

Alternative 5: Boundary Expansion, Increased Height and No Street Vacations

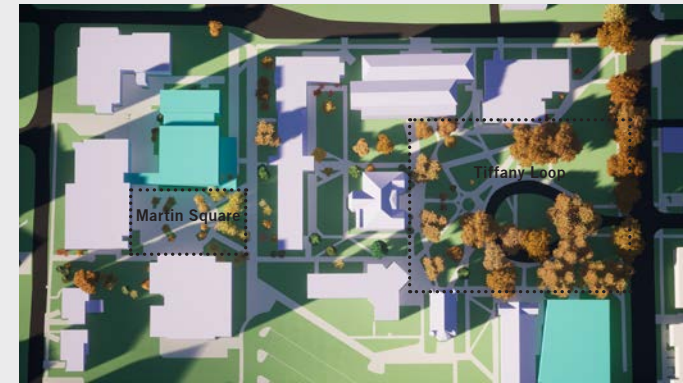




Existing Conditions



Proposed / Preferred Alternative



Alternative 1



Alternative 2



Alternative 3



Alternative 4



Alternative 5

- Existing SPU Owned Buildings
- Proposed Buildings
- Development to be completed under the current MIMP

- Evergreen Trees
- Deciduous Trees
- Removed Trees

Existing Conditions: Maintain existing site conditions

Proposed/ Preferred Alternative: Proposed plan as described in the June 2021 Preliminary Draft

Alternative 1: No Action

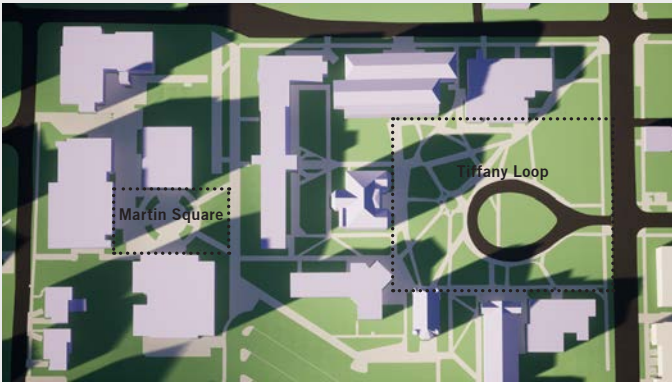
Alternative 2: No Boundary Expansion and No Change to Height Limits

Alternative 3: Boundary Expansion and No Change to Height Limits

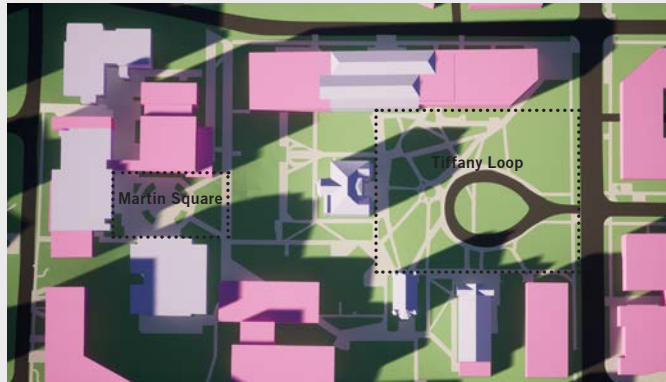
Alternative 4: No Boundary Expansion and Increased Height Limits

Alternative 5: Boundary Expansion, Increased Height and No Street Vacations

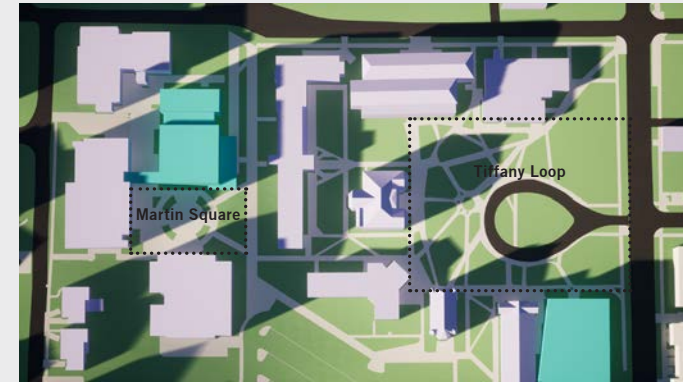




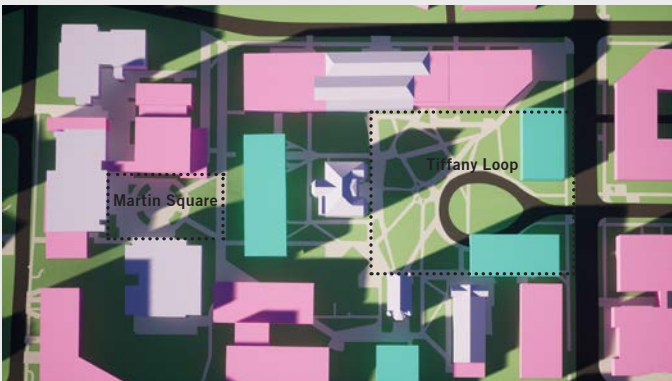
Existing Conditions



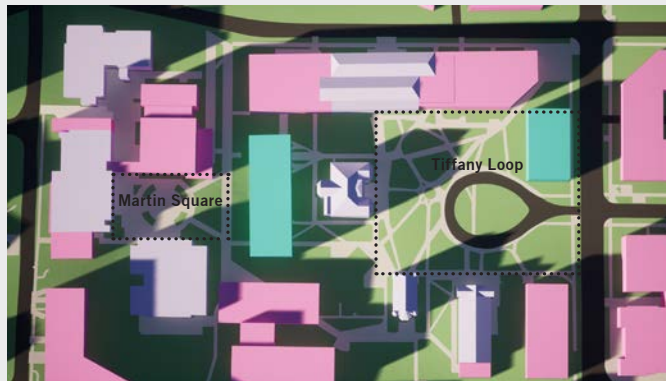
Proposed / Preferred Alternative



Alternative 1



Alternative 2



Alternative 3



Alternative 4



Alternative 5

- Existing SPU Owned Buildings
- Proposed Buildings
- Development to be completed under the current MIMP

Existing Conditions: Maintain existing site conditions

Proposed/ Preferred Alternative: Proposed plan as described in the June 2021 Preliminary Draft

Alternative 1: No Action

Alternative 2: No Boundary Expansion and No Change to Height Limits

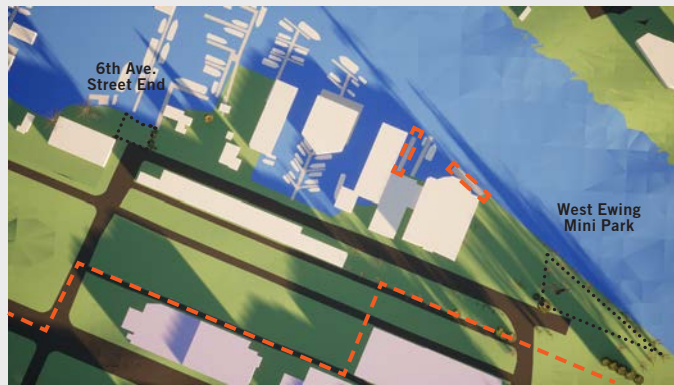
Alternative 3: Boundary Expansion and No Change to Height Limits

Alternative 4: No Boundary Expansion and Increased Height Limits

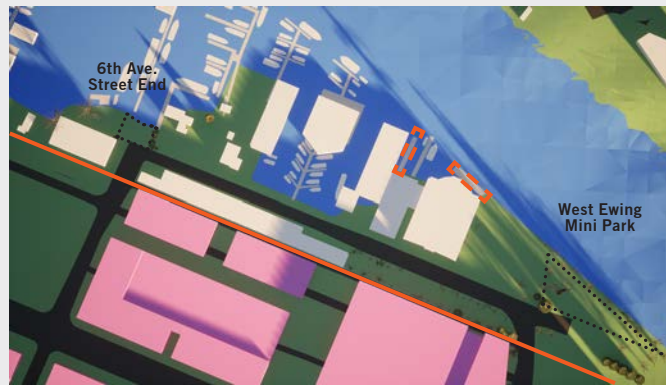
Alternative 5: Boundary Expansion, Increased Height and No Street Vacations



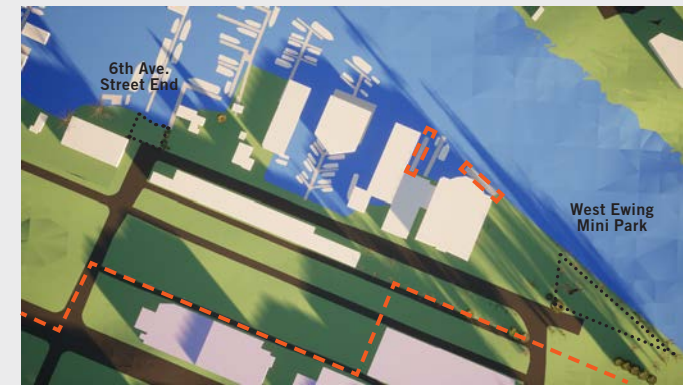
WEST EWING PARK | Winter Solstice (December 21), 9:00 AM - With Tree Coverage



Existing Conditions



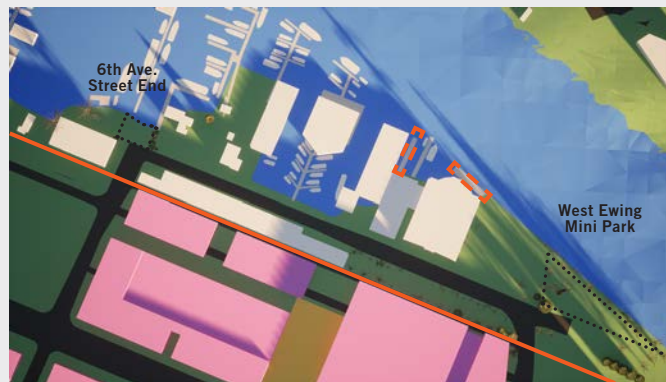
Proposed / Preferred Alternative



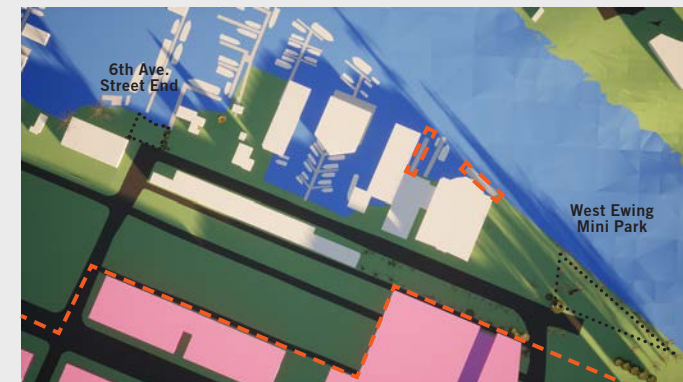
Alternative 1



Alternative 2



Alternative 3



Alternative 4



Alternative 5

- Proposed Buildings
- Non SPU Owned Buildings
- Existing SPU Owned Buildings

- Parking
- Existing MIO Boundary
- Proposed MIO Boundary

- Evergreen Trees
- ✱ Deciduous Trees

Existing Conditions: Maintain existing site conditions

Proposed/ Preferred Alternative: Proposed plan as described in the June 2021 Preliminary Draft

Alternative 1: No Action

Alternative 2: No Boundary Expansion and No Change to Height Limits

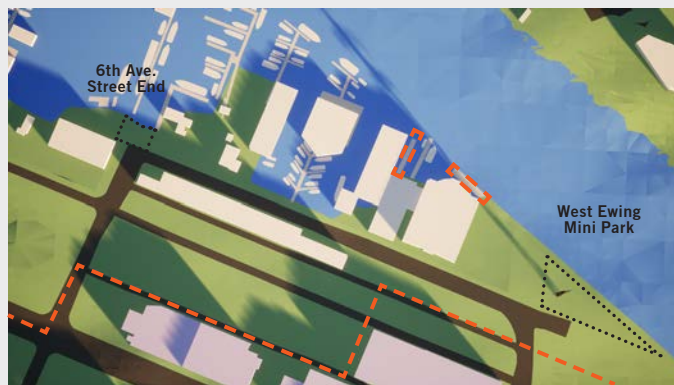
Alternative 3: Boundary Expansion and No Change to Height Limits

Alternative 4: No Boundary Expansion and Increased Height Limits

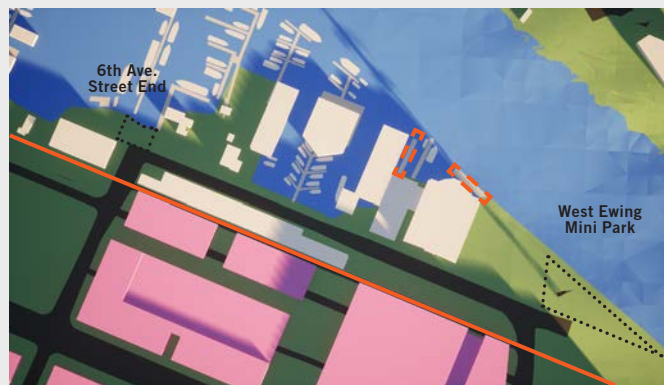
Alternative 5: Boundary Expansion, Increased Height and No Street Vacations



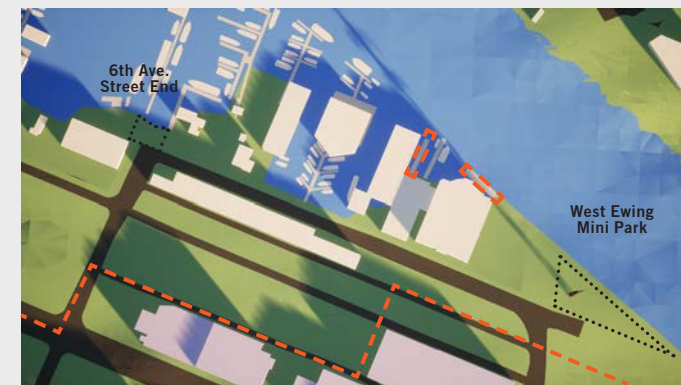
WEST EWING PARK | Winter Solstice (December 21), 9:00 AM - No Tree Coverage



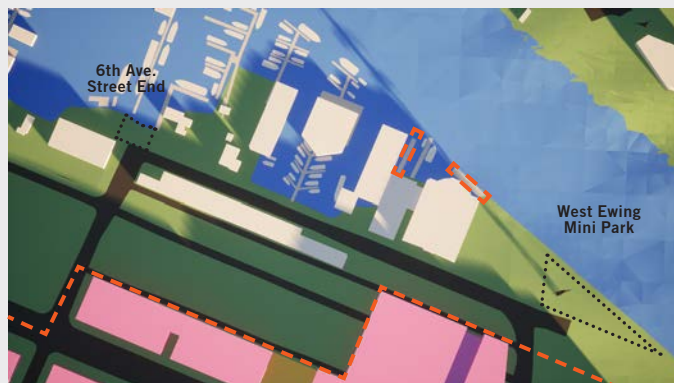
Existing Conditions



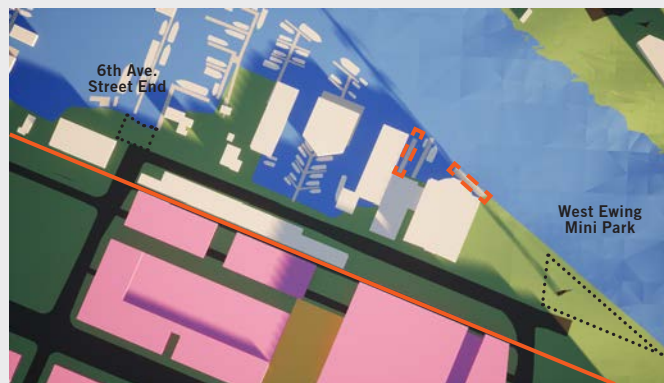
Proposed / Preferred Alternative



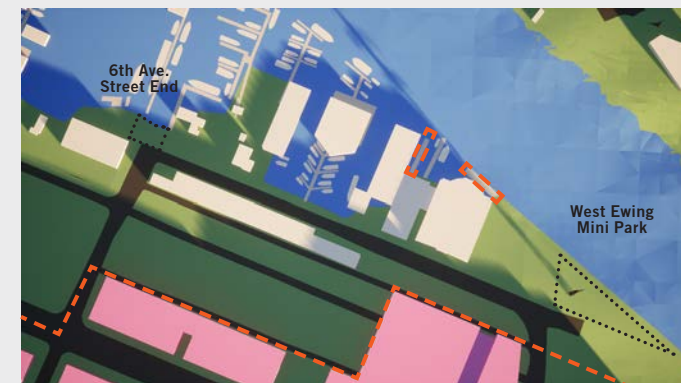
Alternative 1



Alternative 2



Alternative 3



Alternative 4



Alternative 5

- Proposed Buildings
- Parking
- Non SPU Owned Buildings
- Existing MIO Boundary
- Existing SPU Owned Buildings
- Proposed MIO Boundary

Existing Conditions: Maintain existing site conditions

Proposed/ Preferred Alternative: Proposed plan as described in the June 2021 Preliminary Draft

Alternative 1: No Action

Alternative 2: No Boundary Expansion and No Change to Height Limits

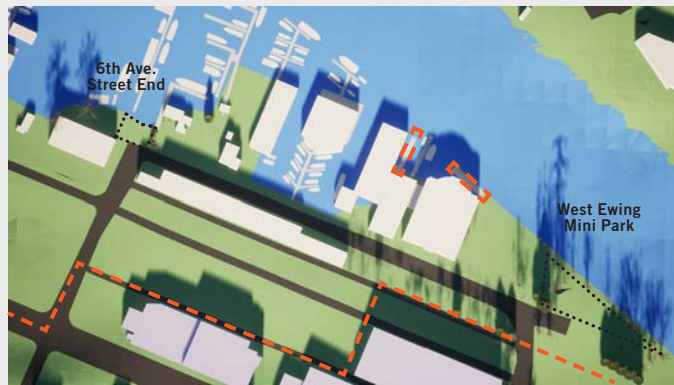
Alternative 3: Boundary Expansion and No Change to Height Limits

Alternative 4: No Boundary Expansion and Increased Height Limits

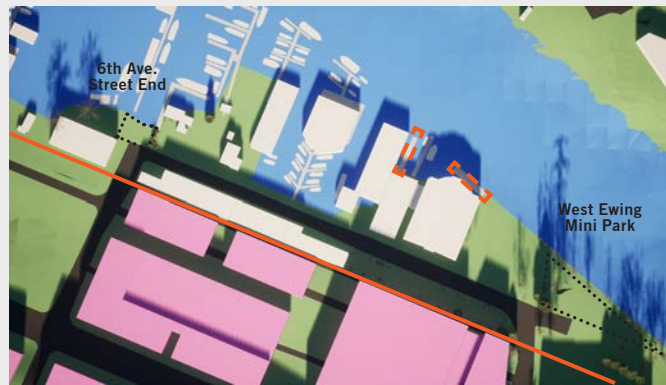
Alternative 5: Boundary Expansion, Increased Height and No Street Vacations



WEST EWING PARK | Winter Solstice (December 21), 12:00 PM - With Tree Coverage



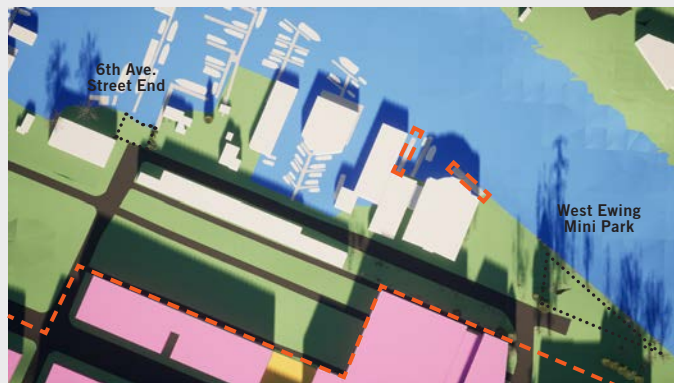
Existing Conditions



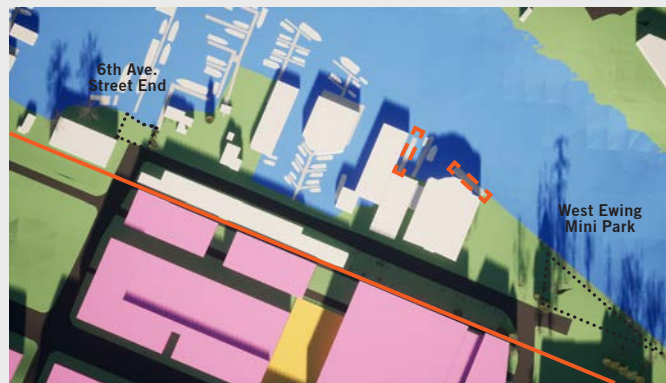
Proposed / Preferred Alternative



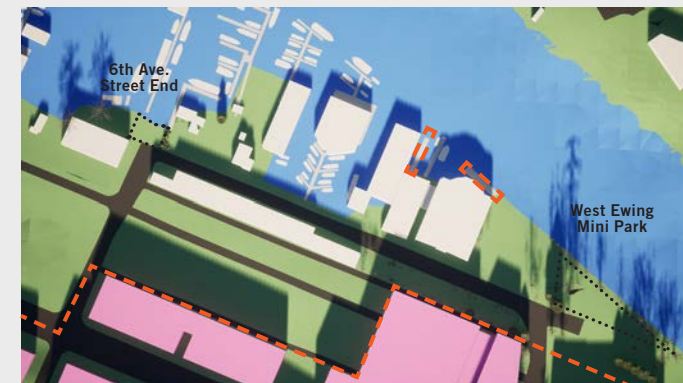
Alternative 1



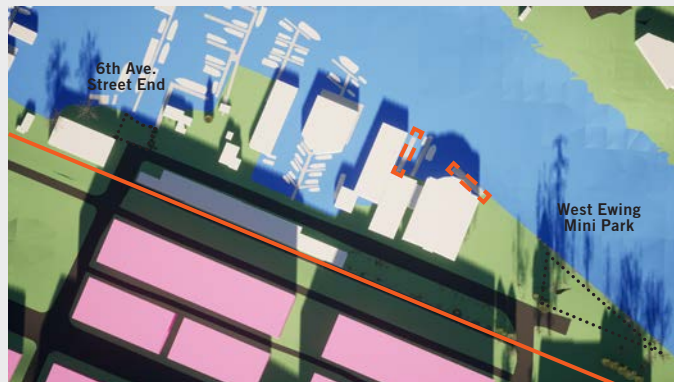
Alternative 2



Alternative 3



Alternative 4



Alternative 5

- Proposed Buildings
- Non SPU Owned Buildings
- Existing SPU Owned Buildings

- Parking
- Existing MIO Boundary
- Proposed MIO Boundary

- Evergreen Trees
- Deciduous Trees

Existing Conditions: Maintain existing site conditions

Proposed/ Preferred Alternative: Proposed plan as described in the June 2021 Preliminary Draft

Alternative 1: No Action

Alternative 2: No Boundary Expansion and No Change to Height Limits

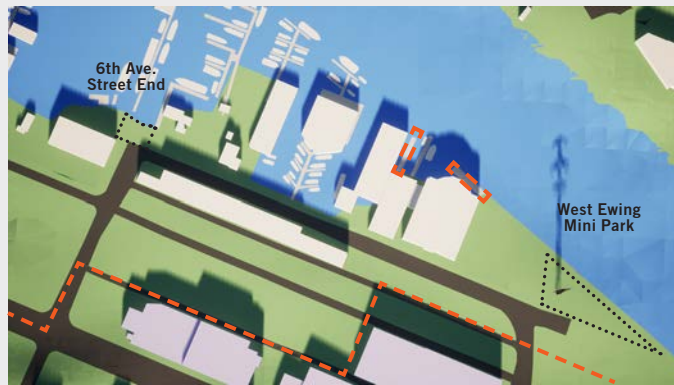
Alternative 3: Boundary Expansion and No Change to Height Limits

Alternative 4: No Boundary Expansion and Increased Height Limits

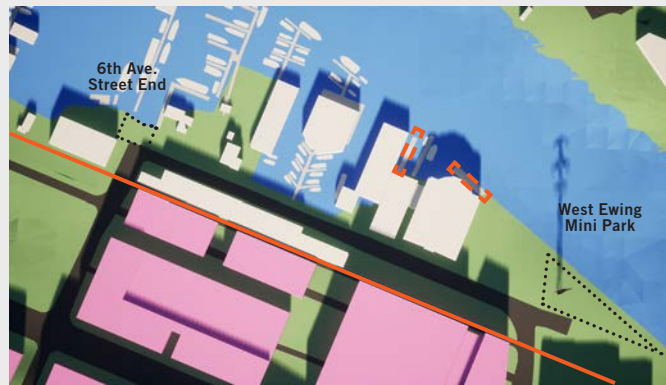
Alternative 5: Boundary Expansion, Increased Height and No Street Vacations



WEST EWING PARK | Winter Solstice (December 21), 12:00 PM - No Tree Coverage



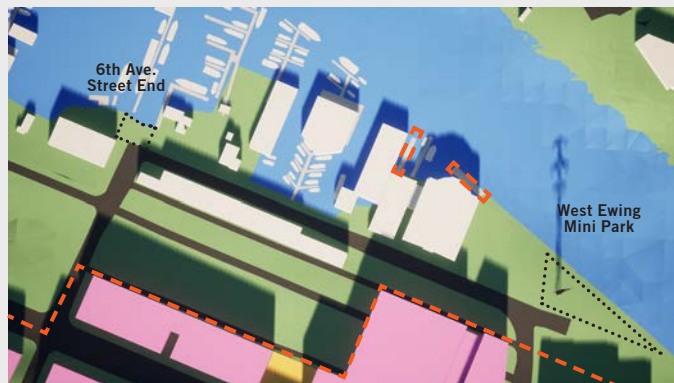
Existing Conditions



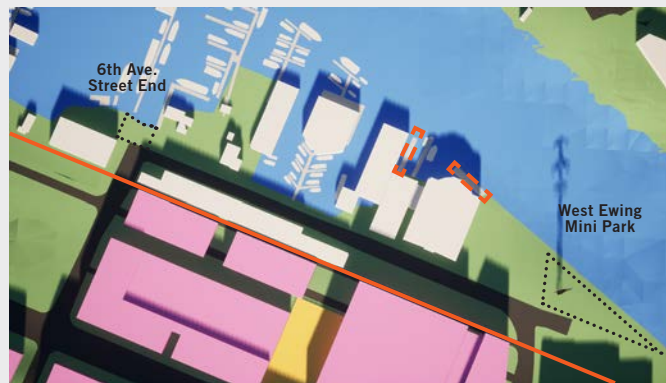
Proposed / Preferred Alternative



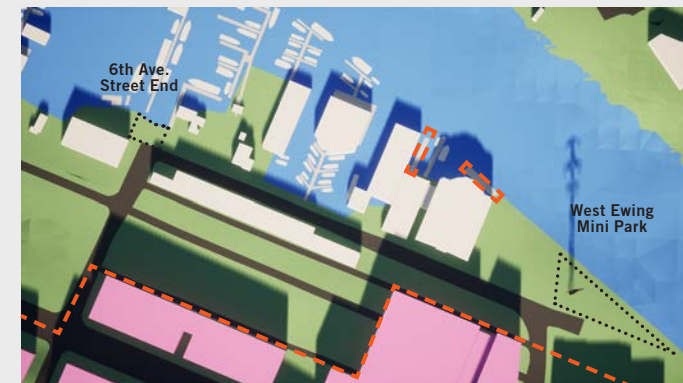
Alternative 1



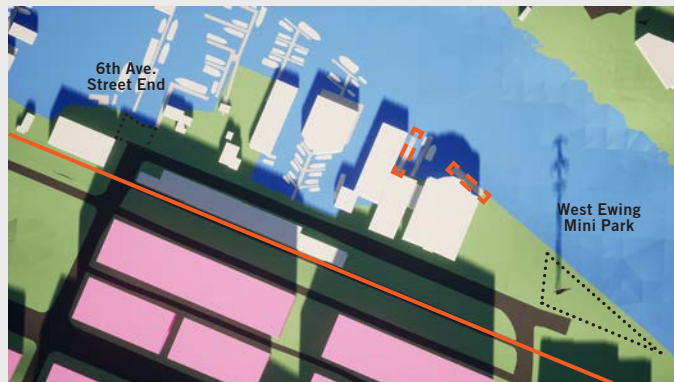
Alternative 2



Alternative 3



Alternative 4



Alternative 5

- | | |
|---|--|
| Proposed Buildings | Parking |
| Non SPU Owned Buildings | Existing MIO Boundary |
| Existing SPU Owned Buildings | Proposed MIO Boundary |

Existing Conditions: Maintain existing site conditions

Proposed/ Preferred Alternative: Proposed plan as described in the June 2021 Preliminary Draft

Alternative 1: No Action

Alternative 2: No Boundary Expansion and No Change to Height Limits

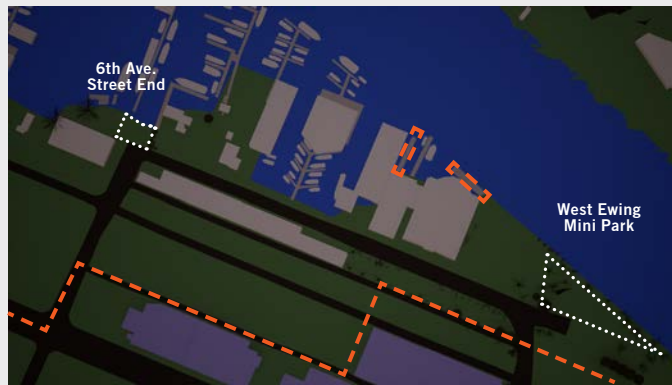
Alternative 3: Boundary Expansion and No Change to Height Limits

Alternative 4: No Boundary Expansion and Increased Height Limits

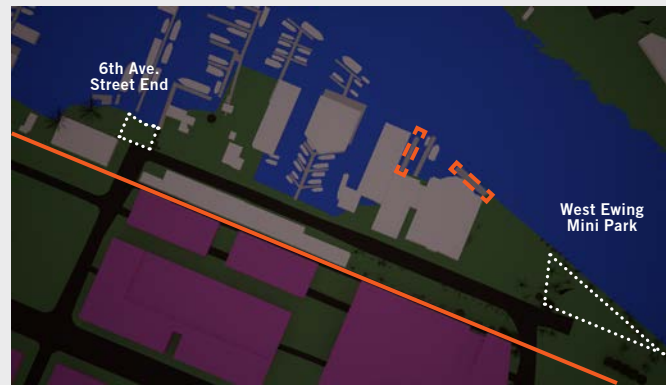
Alternative 5: Boundary Expansion, Increased Height and No Street Vacations



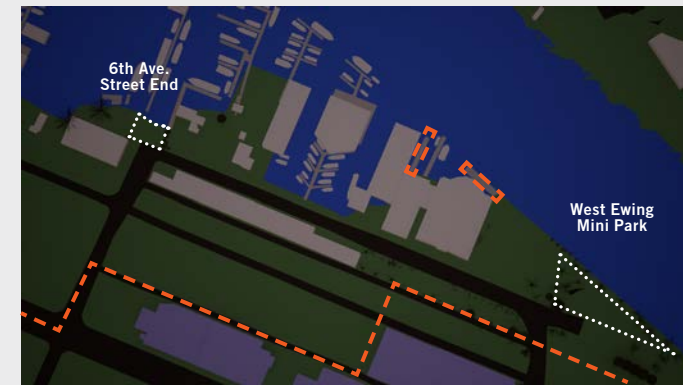
WEST EWING PARK | Winter Solstice (December 21), 4:00 PM - With Tree Coverage



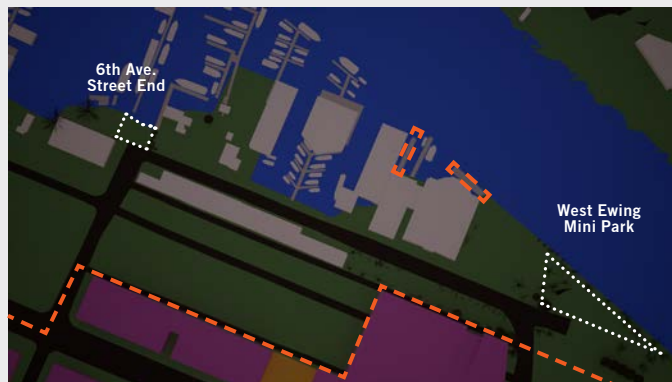
Existing Conditions



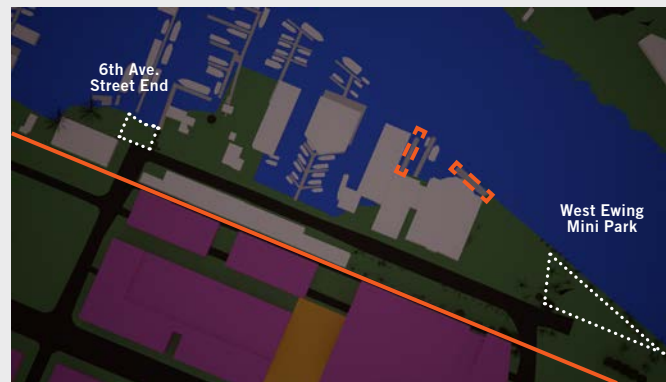
Proposed / Preferred Alternative



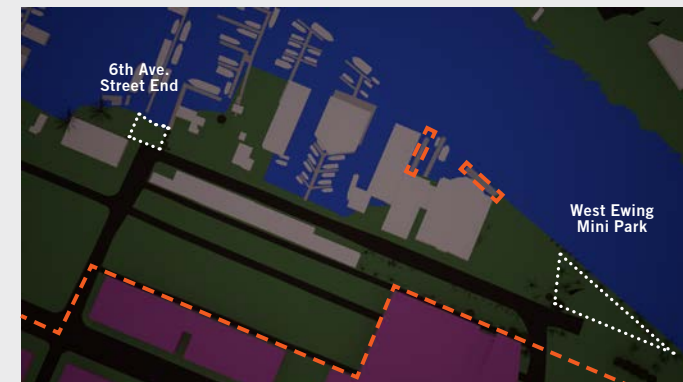
Alternative 1



Alternative 2



Alternative 3



Alternative 4



Alternative 5

Proposed Buildings
 Non SPU Owned Buildings
 Existing SPU Owned Buildings

Parking
 Existing MIO Boundary
 Proposed MIO Boundary

Evergreen Trees
 Deciduous Trees

Existing Conditions: Maintain existing site conditions

Proposed/ Preferred Alternative: Proposed plan as described in the June 2021 Preliminary Draft

Alternative 1: No Action

Alternative 2: No Boundary Expansion and No Change to Height Limits

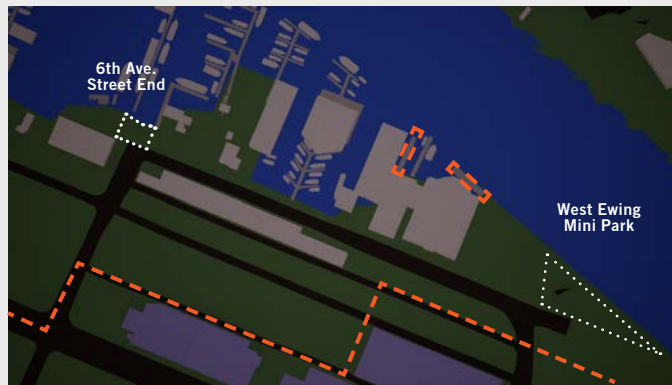
Alternative 3: Boundary Expansion and No Change to Height Limits

Alternative 4: No Boundary Expansion and Increased Height Limits

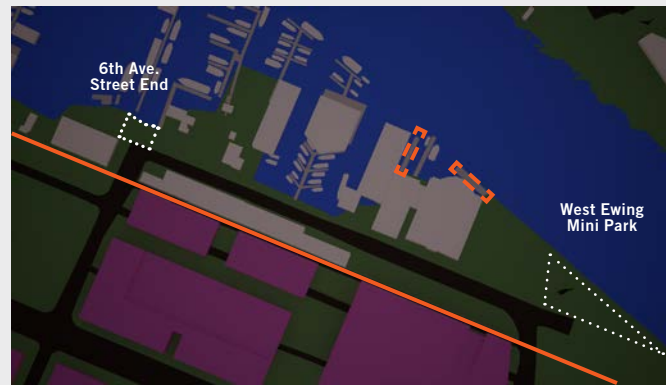
Alternative 5: Boundary Expansion, Increased Height and No Street Vacations



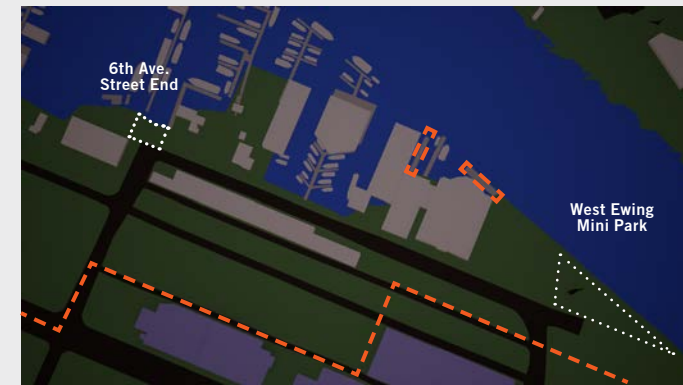
WEST EWING PARK | Winter Solstice (December 21), 4:00 PM - No Tree Coverage



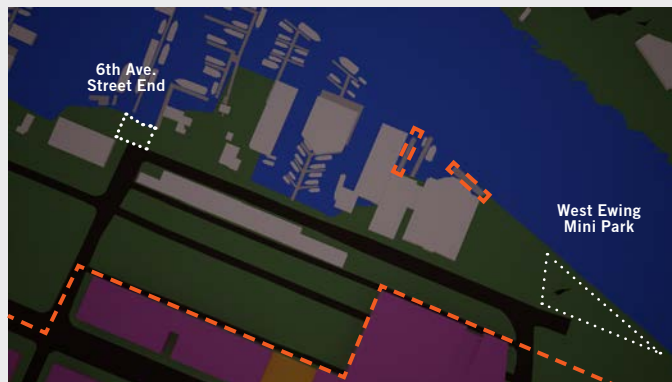
Existing Conditions



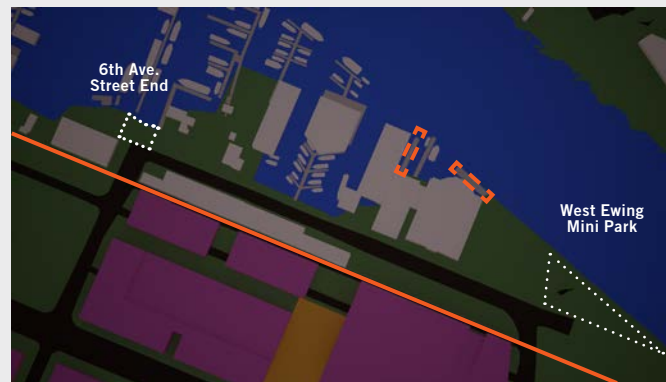
Proposed / Preferred Alternative



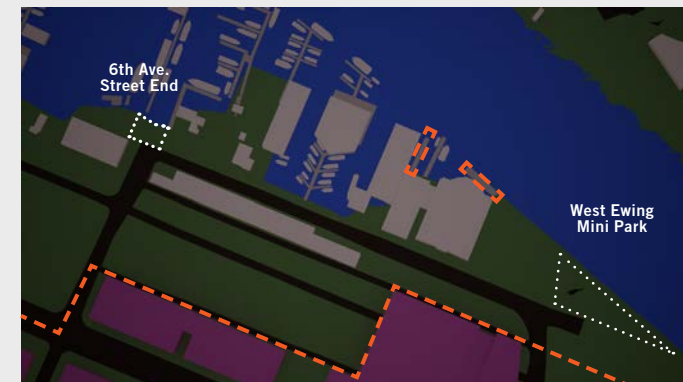
Alternative 1



Alternative 2



Alternative 3



Alternative 4



Alternative 5

- Proposed Buildings
- Non SPU Owned Buildings
- Existing SPU Owned Buildings
- Parking
- Existing MIO Boundary
- Proposed MIO Boundary

Existing Conditions: Maintain existing site conditions

Proposed/ Preferred Alternative: Proposed plan as described in the June 2021 Preliminary Draft

Alternative 1: No Action

Alternative 2: No Boundary Expansion and No Change to Height Limits

Alternative 3: Boundary Expansion and No Change to Height Limits

Alternative 4: No Boundary Expansion and Increased Height Limits

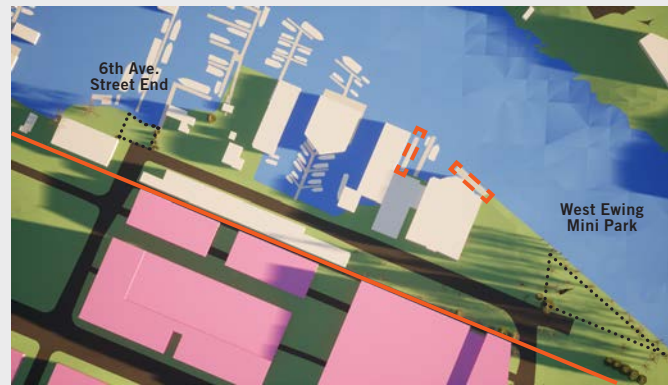
Alternative 5: Boundary Expansion, Increased Height and No Street Vacations



WEST EWING PARK | *Vernal Equinox (March 20), 8:00 AM - With Tree Coverage*



Existing Conditions



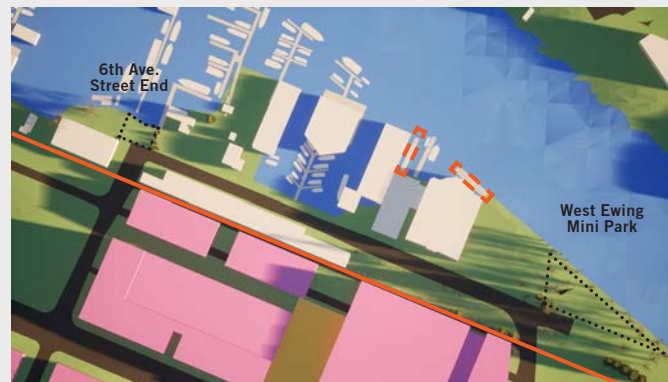
Proposed / Preferred Alternative



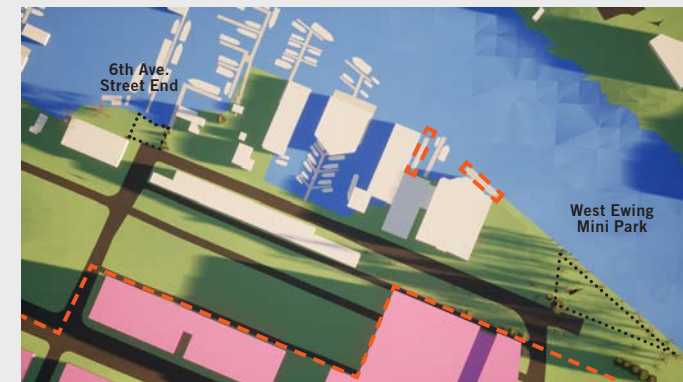
Alternative 1



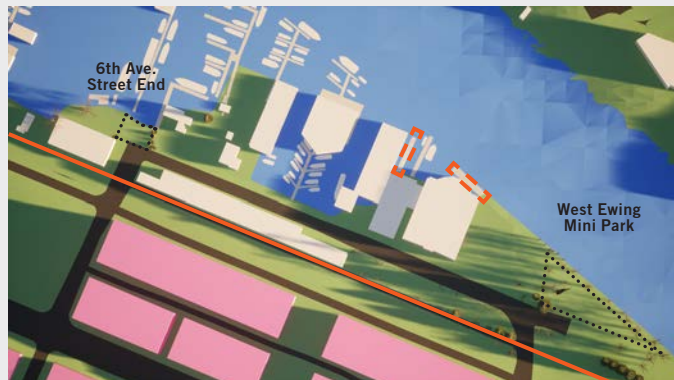
Alternative 2



Alternative 3



Alternative 4



Alternative 5

Proposed Buildings
 Non SPU Owned Buildings
 Existing SPU Owned Buildings

Parking
 Existing MIO Boundary
 Proposed MIO Boundary

Evergreen Trees
 Deciduous Trees

Existing Conditions: Maintain existing site conditions

Proposed/ Preferred Alternative: Proposed plan as described in the June 2021 Preliminary Draft

Alternative 1: No Action

Alternative 2: No Boundary Expansion and No Change to Height Limits

Alternative 3: Boundary Expansion and No Change to Height Limits

Alternative 4: No Boundary Expansion and Increased Height Limits

Alternative 5: Boundary Expansion, Increased Height and No Street Vacations



WEST EWING PARK | *Vernal Equinox (March 20), 8:00 AM - No Tree Coverage*



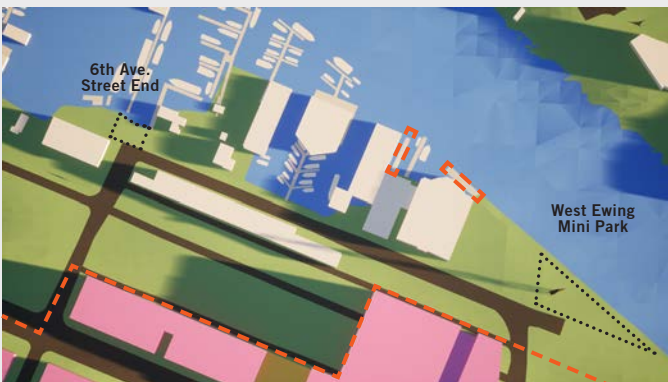
Existing Conditions



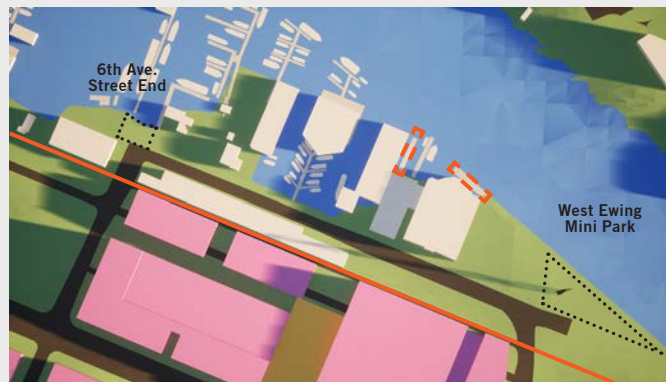
Proposed / Preferred Alternative



Alternative 1



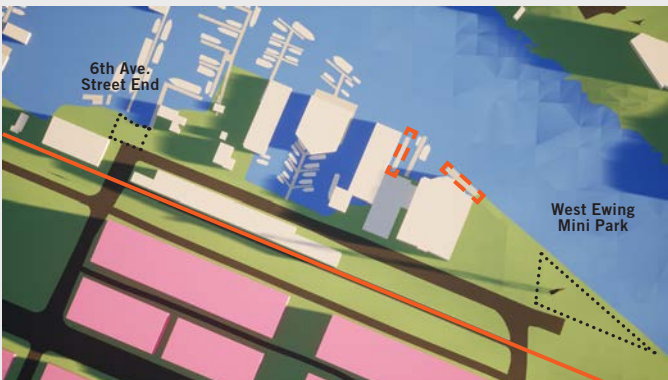
Alternative 2



Alternative 3



Alternative 4



Alternative 5

- | | |
|---|---|
| ■ Proposed Buildings | ■ Parking |
| □ Non SPU Owned Buildings | -- Existing MIO Boundary |
| ■ Existing SPU Owned Buildings | — Proposed MIO Boundary |

Existing Conditions: Maintain existing site conditions

Proposed/ Preferred Alternative: Proposed plan as described in the June 2021 Preliminary Draft

Alternative 1: No Action

Alternative 2: No Boundary Expansion and No Change to Height Limits

Alternative 3: Boundary Expansion and No Change to Height Limits

Alternative 4: No Boundary Expansion and Increased Height Limits

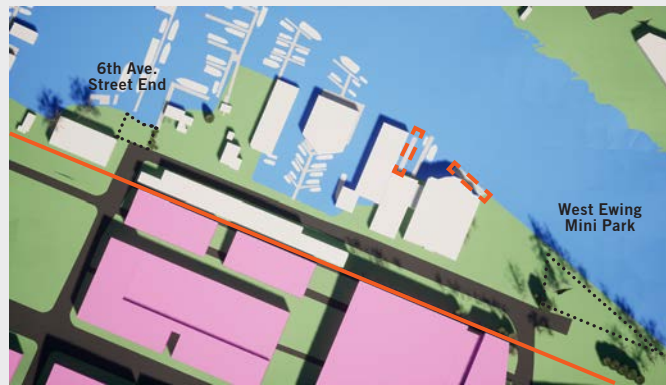
Alternative 5: Boundary Expansion, Increased Height and No Street Vacations



WEST EWING PARK | *Vernal Equinox (March 20), 12:00 PM - With Tree Coverage*



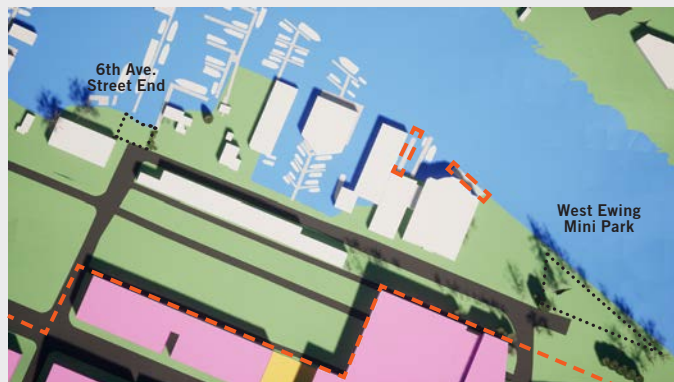
Existing Conditions



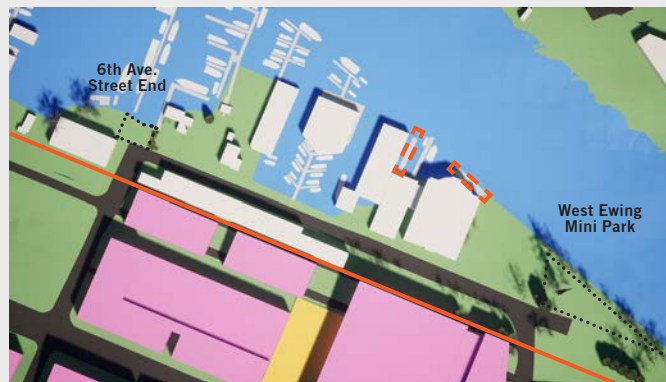
Proposed / Preferred Alternative



Alternative 1



Alternative 2



Alternative 3



Alternative 4



Alternative 5

- Proposed Buildings
- Non SPU Owned Buildings
- Existing SPU Owned Buildings

- Parking
- Existing MIO Boundary
- Proposed MIO Boundary

- Evergreen Trees
- Deciduous Trees

Existing Conditions: Maintain existing site conditions

Proposed/ Preferred Alternative: Proposed plan as described in the June 2021 Preliminary Draft

Alternative 1: No Action

Alternative 2: No Boundary Expansion and No Change to Height Limits

Alternative 3: Boundary Expansion and No Change to Height Limits

Alternative 4: No Boundary Expansion and Increased Height Limits

Alternative 5: Boundary Expansion, Increased Height and No Street Vacations



WEST EWING PARK | Vernal Equinox (March 20), 12:00 PM - No Tree Coverage



Existing Conditions



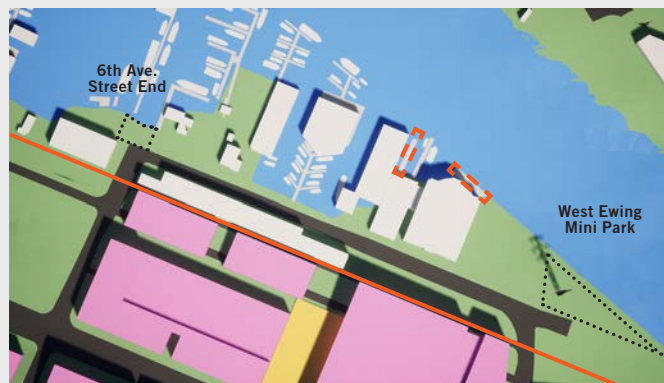
Proposed / Preferred Alternative



Alternative 1



Alternative 2



Alternative 3



Alternative 4



Alternative 5

- Proposed Buildings
- Non SPU Owned Buildings
- Existing SPU Owned Buildings
- Parking
- Existing MIO Boundary
- Proposed MIO Boundary

Existing Conditions: Maintain existing site conditions

Proposed/ Preferred Alternative: Proposed plan as described in the June 2021 Preliminary Draft

Alternative 1: No Action

Alternative 2: No Boundary Expansion and No Change to Height Limits

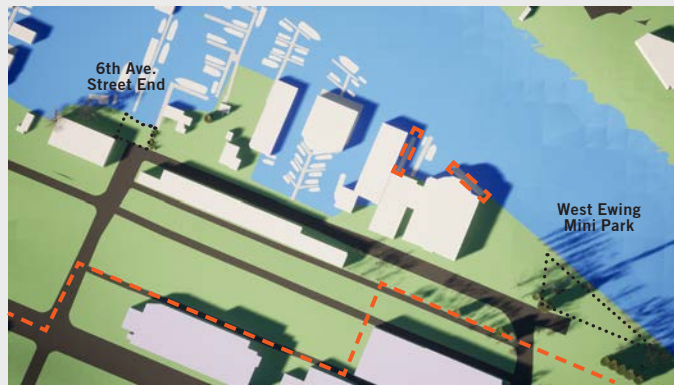
Alternative 3: Boundary Expansion and No Change to Height Limits

Alternative 4: No Boundary Expansion and Increased Height Limits

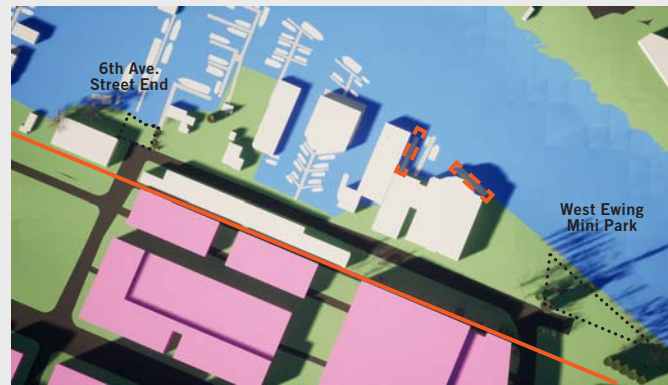
Alternative 5: Boundary Expansion, Increased Height and No Street Vacations



WEST EWING PARK | Vernal Equinox (March 20), 5:00 PM - With Tree Coverage



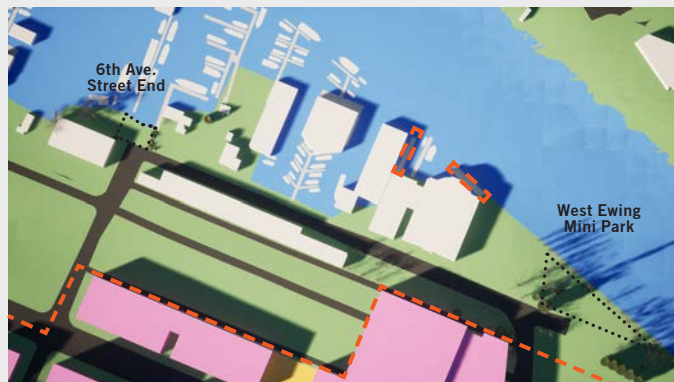
Existing Conditions



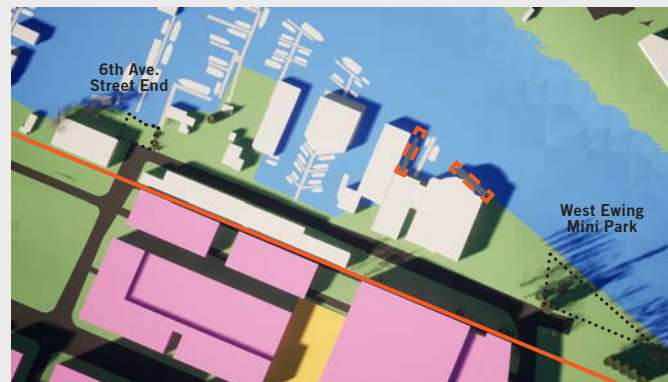
Proposed / Preferred Alternative



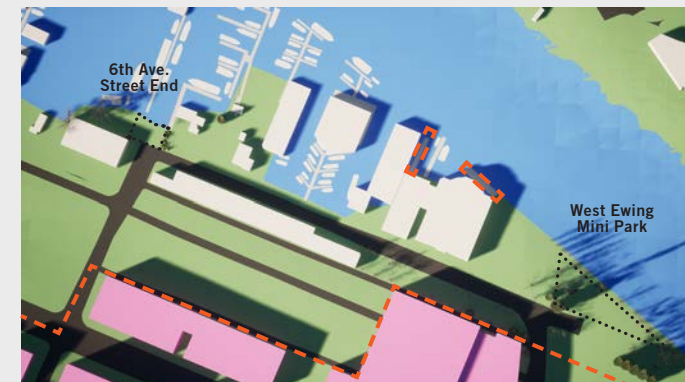
Alternative 1



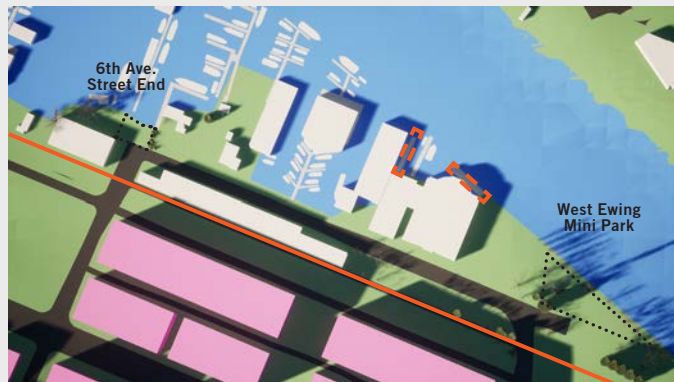
Alternative 2



Alternative 3



Alternative 4



Alternative 5

Proposed Buildings
 Non SPU Owned Buildings
 Existing SPU Owned Buildings

Parking
 Existing MIO Boundary
 Proposed MIO Boundary

Evergreen Trees
 Deciduous Trees

Existing Conditions: Maintain existing site conditions

Proposed/ Preferred Alternative: Proposed plan as described in the June 2021 Preliminary Draft

Alternative 1: No Action

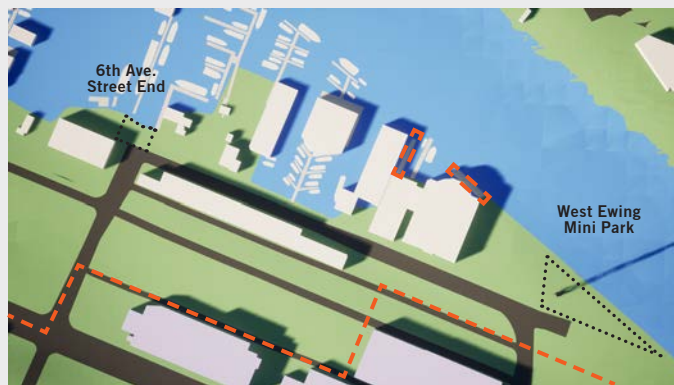
Alternative 2: No Boundary Expansion and No Change to Height Limits

Alternative 3: Boundary Expansion and No Change to Height Limits

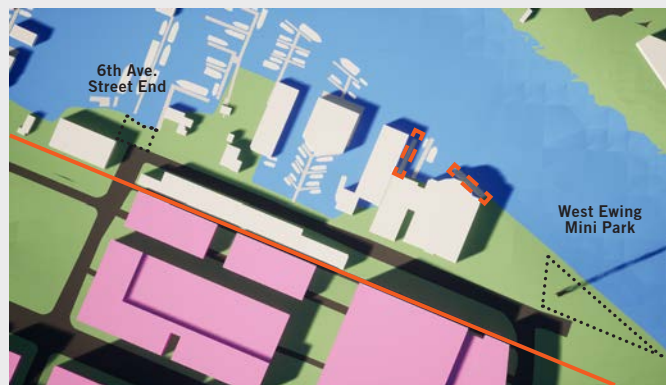
Alternative 4: No Boundary Expansion and Increased Height Limits

Alternative 5: Boundary Expansion, Increased Height and No Street Vacations





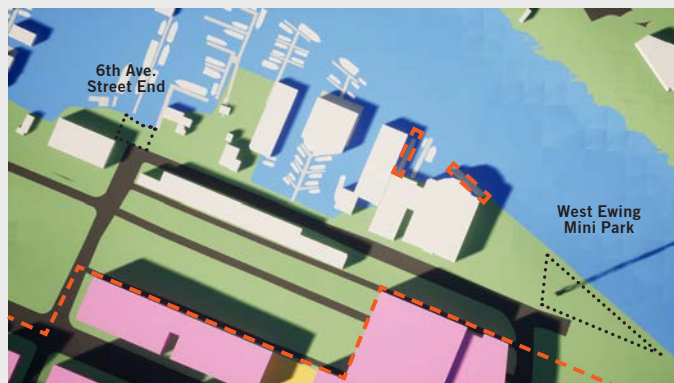
Existing Conditions



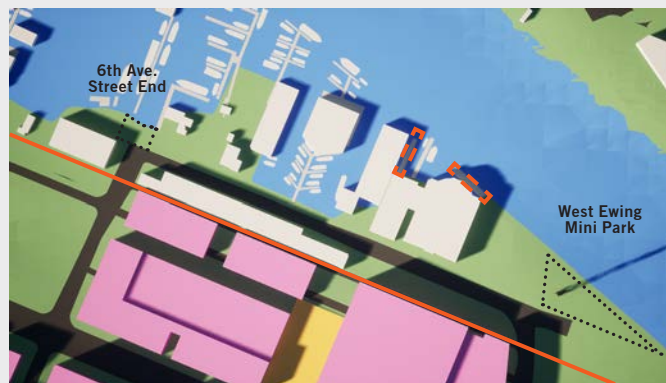
Proposed / Preferred Alternative



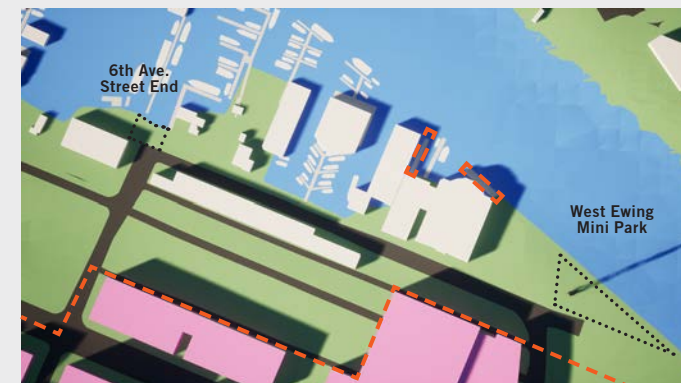
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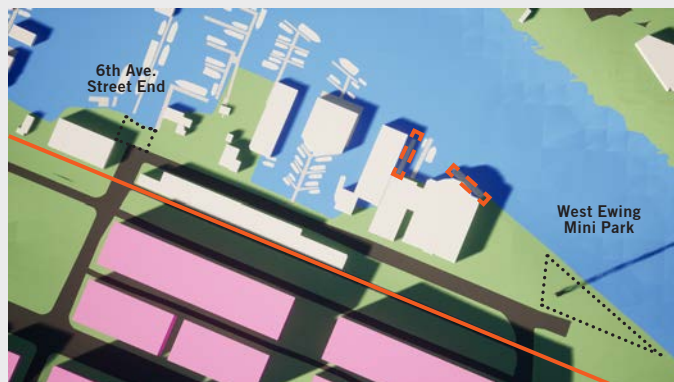
Alternative 2



Alternative 3



Alternative 4



Alternative 5

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|---|--|
| Proposed Buildings | Parking |
| Non SPU Owned Buildings | Existing MIO Boundary |
| Existing SPU Owned Buildings | Proposed MIO Boundary |

Existing Conditions: Maintain existing site conditions

Proposed/ Preferred Alternative: Proposed plan as described in the June 2021 Preliminary Draft

Alternative 1: No Action

Alternative 2: No Boundary Expansion and No Change to Height Limits

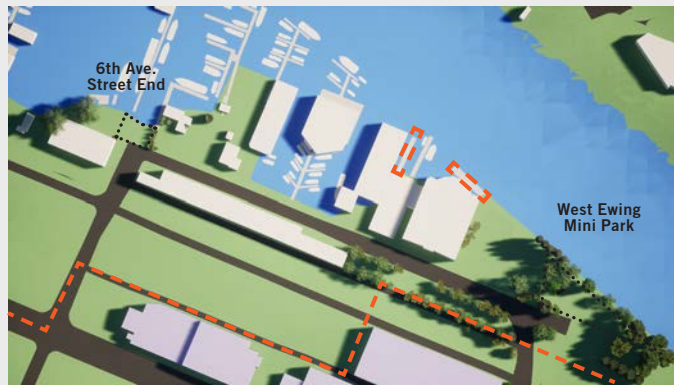
Alternative 3: Boundary Expansion and No Change to Height Limits

Alternative 4: No Boundary Expansion and Increased Height Limits

Alternative 5: Boundary Expansion, Increased Height and No Street Vacations



WEST EWING PARK | Summer Solstice (June 20), 8:00 AM - With Tree Coverage



Existing Conditions



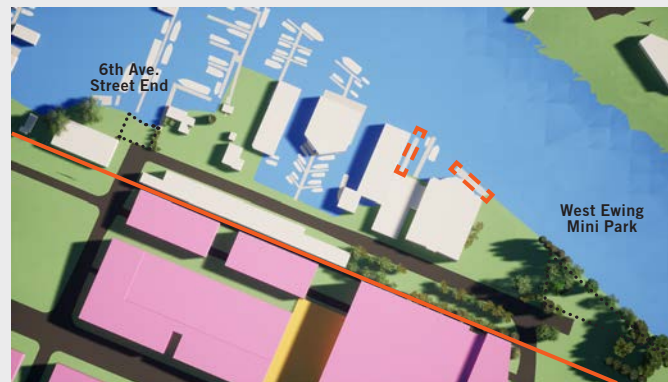
Proposed / Preferred Alternative



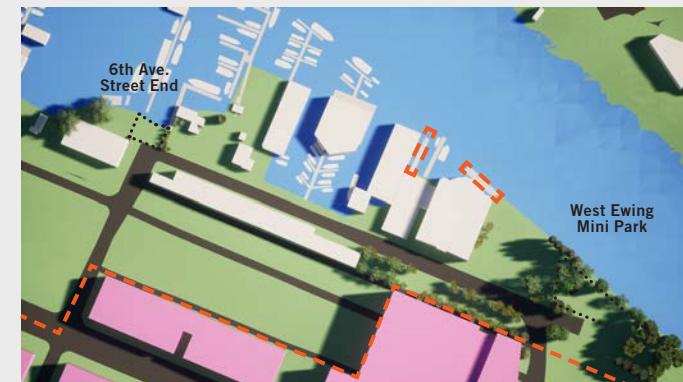
Alternative 1



Alternative 2



Alternative 3



Alternative 4



Alternative 5

- Proposed Buildings
- Non SPU Owned Buildings
- Existing SPU Owned Buildings

- Parking
- Existing MIO Boundary
- Proposed MIO Boundary

- Evergreen Trees
- Deciduous Trees

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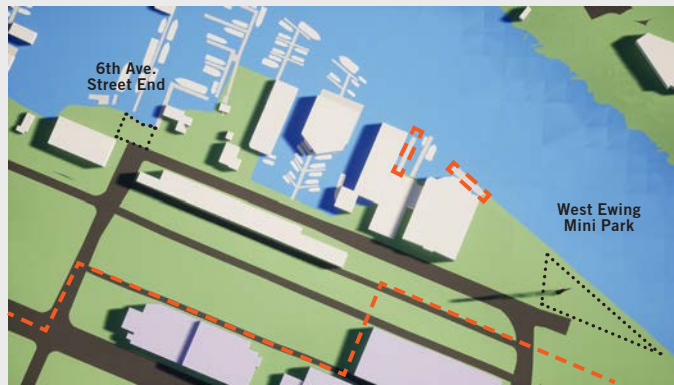
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Existing Conditions



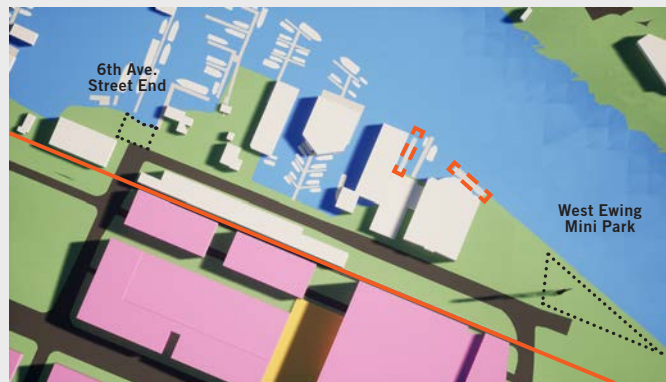
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Alternative 1



Alternative 2



Alternative 3



Alternative 4



Alternative 5

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|---|---|
| ■ Proposed Buildings | ■ Parking |
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Alternative 5: Boundary Expansion, Increased Height and No Street Vacations



WEST EWING PARK | Summer Solstice (June 20), 12:00 PM - With Tree Coverage



Existing Conditions



Proposed / Preferred Alternative



Alternative 1



Alternative 2



Alternative 3



Alternative 4



Alternative 5

- Proposed Buildings
- Non SPU Owned Buildings
- Existing SPU Owned Buildings

- Parking
- Existing MIO Boundary
- Proposed MIO Boundary

- Evergreen Trees
- Deciduous Trees

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Alternative 4: No Boundary Expansion and Increased Height Limits

Alternative 5: Boundary Expansion, Increased Height and No Street Vacations



WEST EWING PARK | Summer Solstice (June 20), 12:00 PM - No Tree Coverage



Existing Conditions



Proposed / Preferred Alternative



Alternative 1



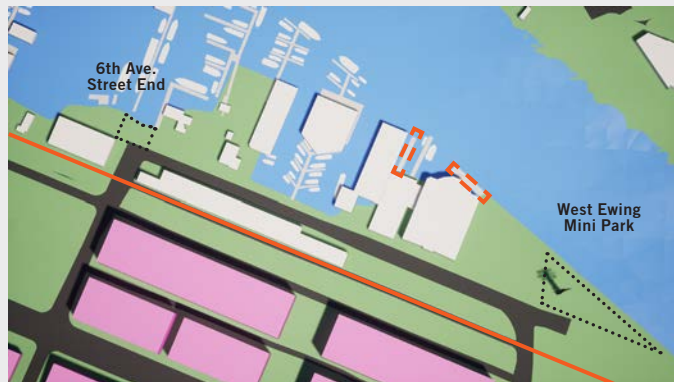
Alternative 2



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Alternative 4



Alternative 5

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| ■ Proposed Buildings | ■ Parking |
| □ Non SPU Owned Buildings | --- Existing MIO Boundary |
| ■ Existing SPU Owned Buildings | — Proposed MIO Boundary |

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Alternative 5: Boundary Expansion, Increased Height and No Street Vacations



WEST EWING PARK | Summer Solstice (June 20), 5:00 PM - With Tree Coverage



Existing Conditions



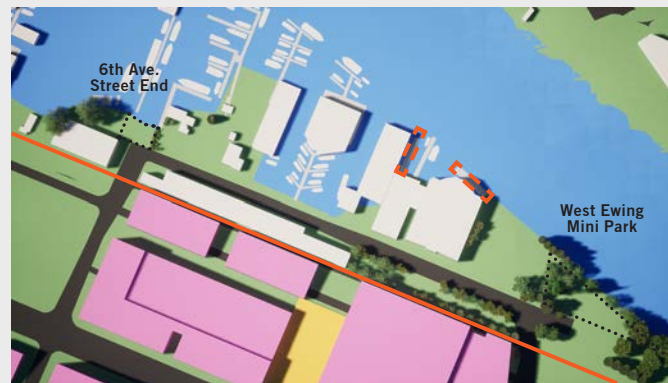
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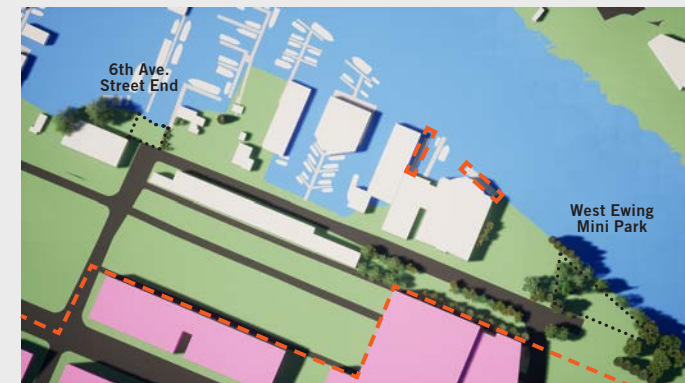
Alternative 1



Alternative 2



Alternative 3



Alternative 4



Alternative 5

Proposed Buildings
 Non SPU Owned Buildings
 Existing SPU Owned Buildings

Parking
 Existing MIO Boundary
 Proposed MIO Boundary

Evergreen Trees
 Deciduous Trees

Existing Conditions: Maintain existing site conditions

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Alternative 4: No Boundary Expansion and Increased Height Limits

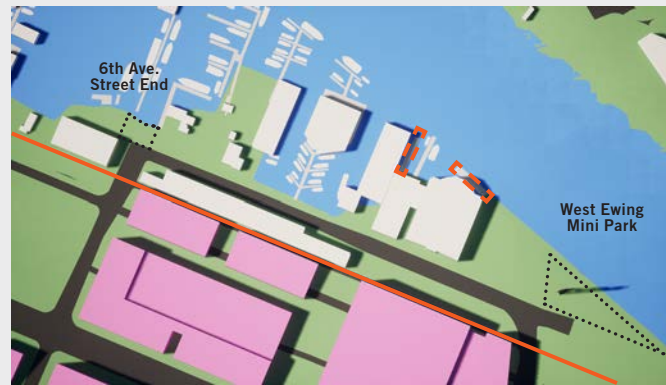
Alternative 5: Boundary Expansion, Increased Height and No Street Vacations



WEST EWING PARK | Summer Solstice (June 20), 5:00 PM - No Tree Coverage



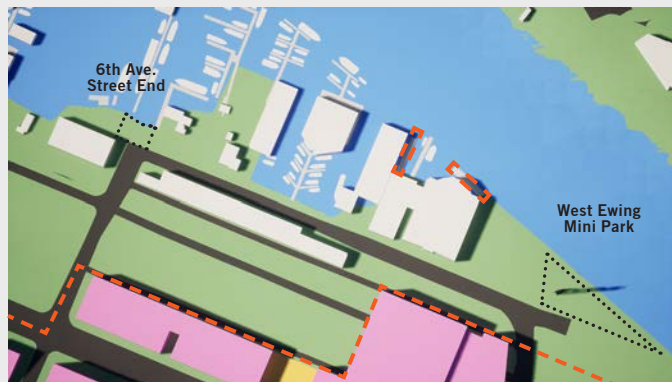
Existing Conditions



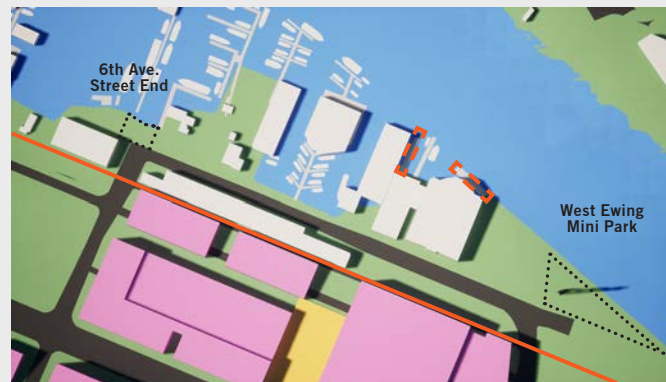
Proposed / Preferred Alternative



Alternative 1



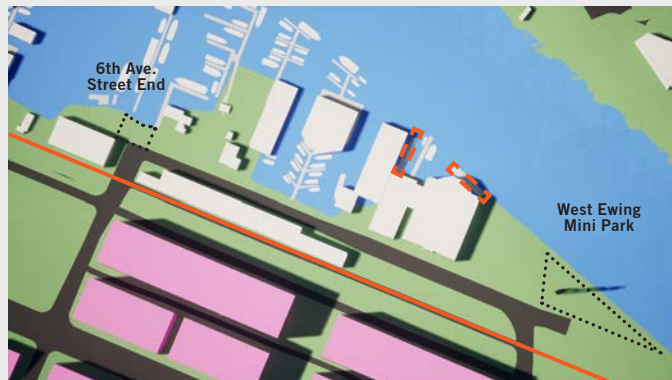
Alternative 2



Alternative 3



Alternative 4



Alternative 5

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|---|--|
| Proposed Buildings | Parking |
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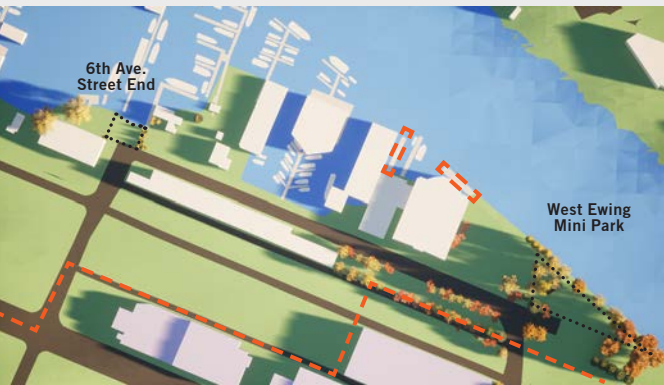
Alternative 3: Boundary Expansion and No Change to Height Limits

Alternative 4: No Boundary Expansion and Increased Height Limits

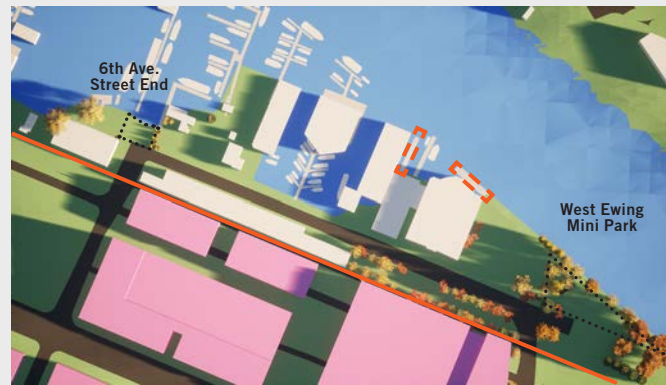
Alternative 5: Boundary Expansion, Increased Height and No Street Vacations



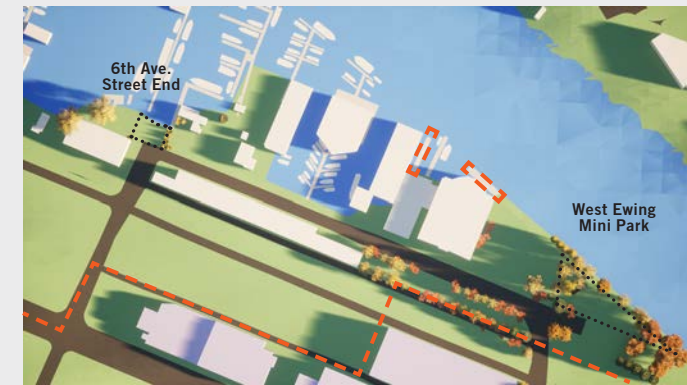
WEST EWING PARK | Autumn Equinox (September 22), 8:00 AM - With Tree Coverage



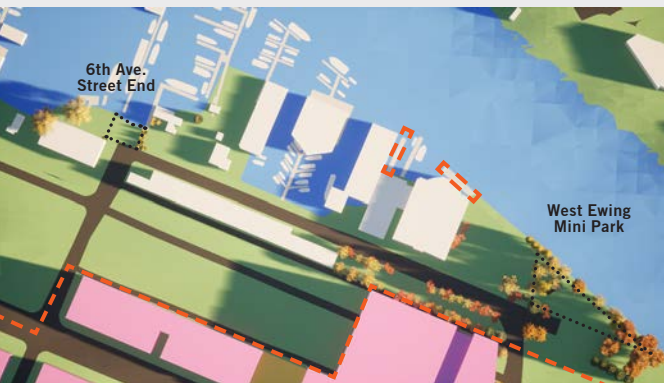
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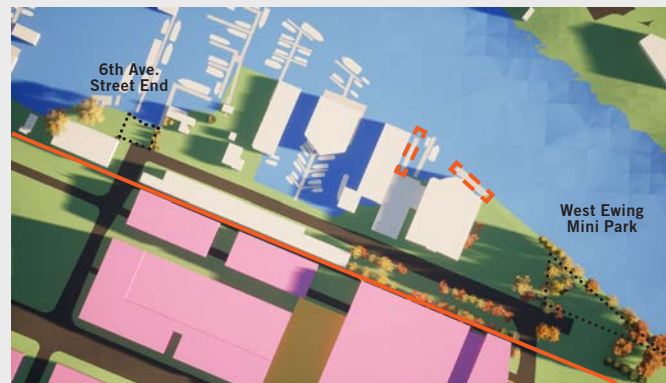
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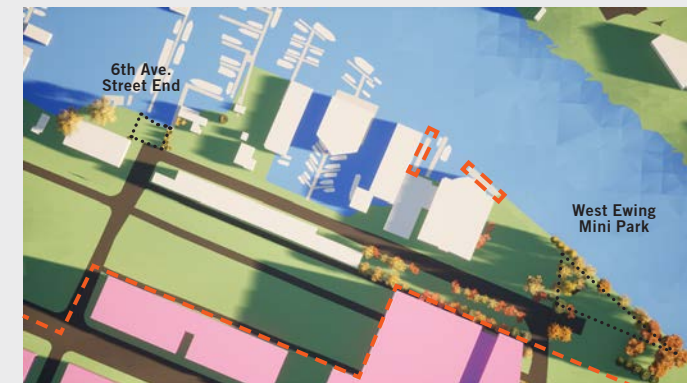
Alternative 1



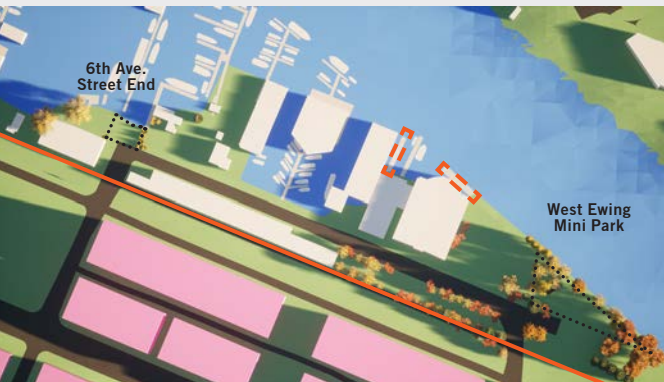
Alternative 2



Alternative 3



Alternative 4



Alternative 5

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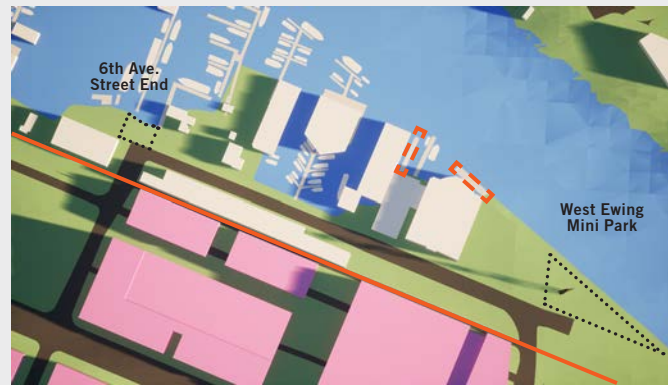
Alternative 5: Boundary Expansion, Increased Height and No Street Vacations



WEST EWING PARK | Autumn Equinox (September 22), 8:00 AM - No Tree Coverage



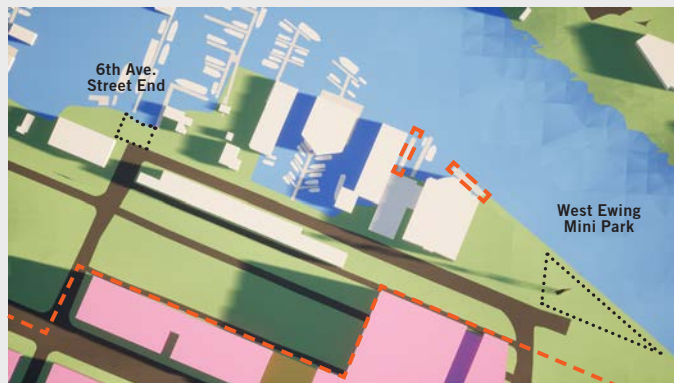
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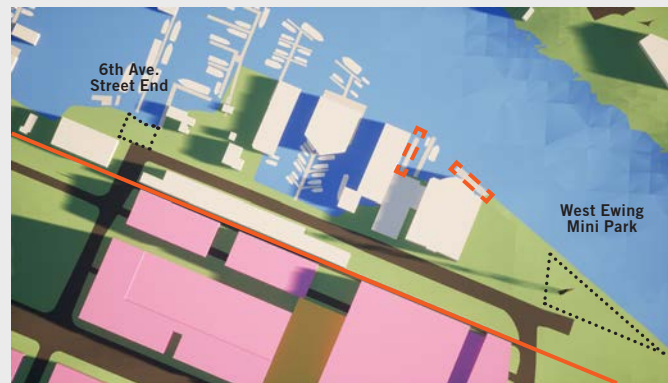
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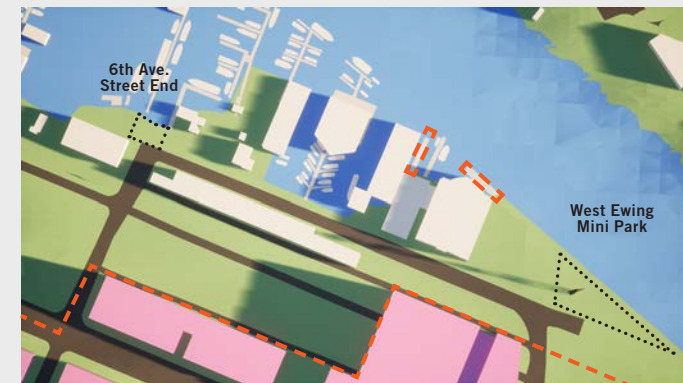
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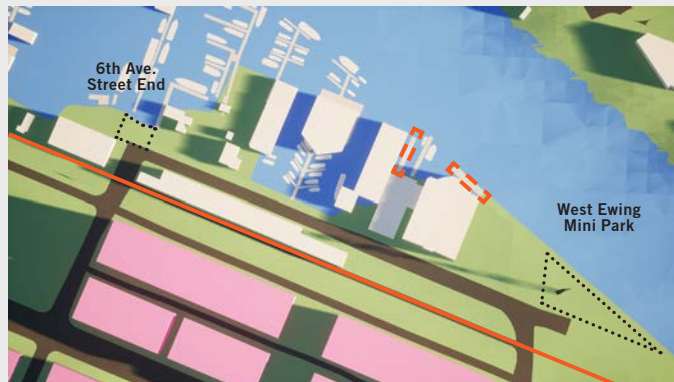
Alternative 2



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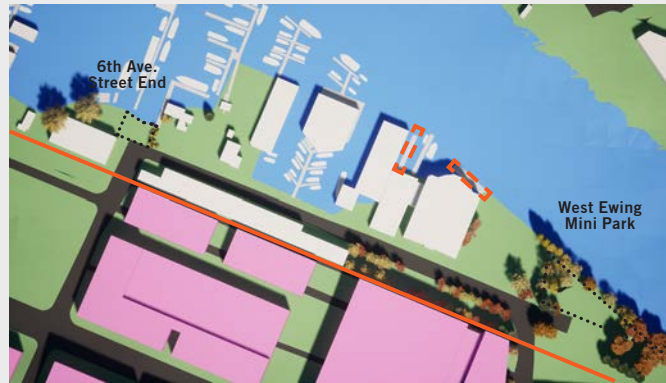
Alternative 4: No Boundary Expansion and Increased Height Limits

Alternative 5: Boundary Expansion, Increased Height and No Street Vacations





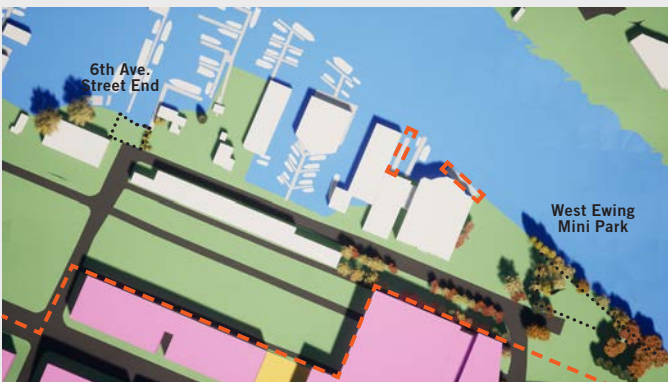
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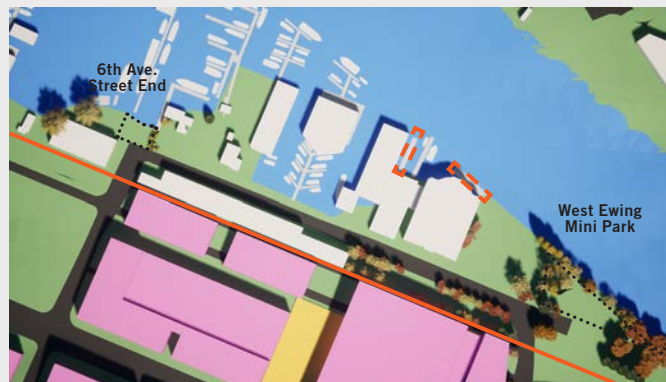
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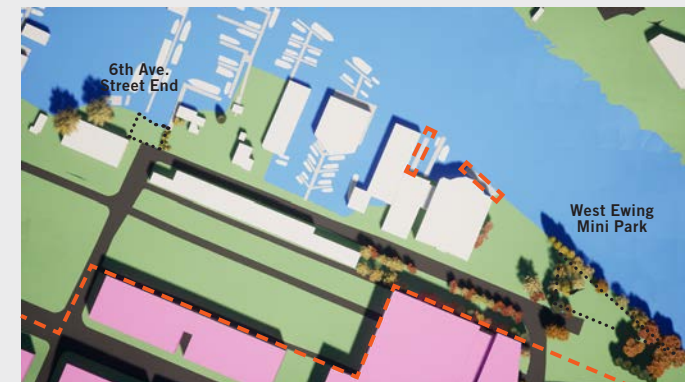
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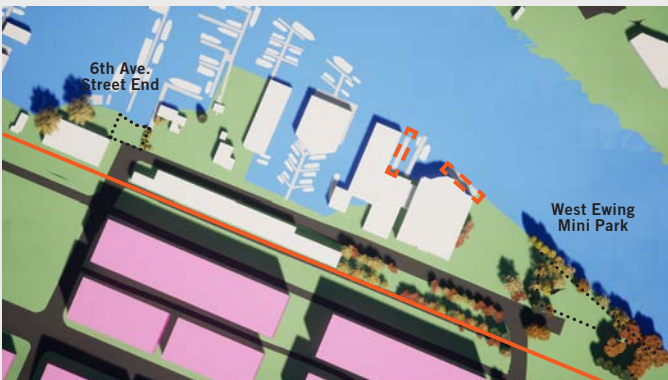
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Alternative 4



Alternative 5

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Alternative 5: Boundary Expansion, Increased Height and No Street Vacations



WEST EWING PARK | Autumn Equinox (September 22), 12:00 PM - No Tree Coverage



Existing Conditions



Proposed / Preferred Alternative



Alternative 1



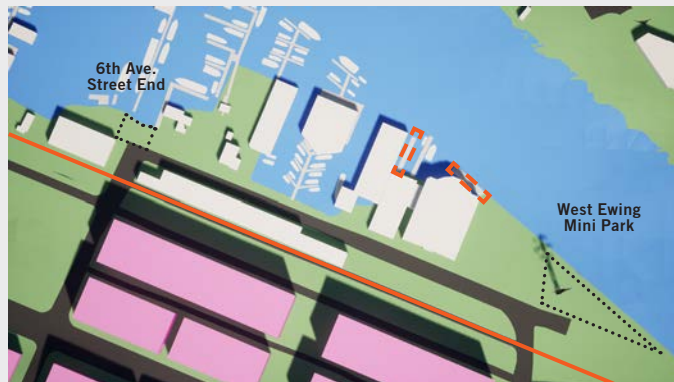
Alternative 2



Alternative 3



Alternative 4



Alternative 5

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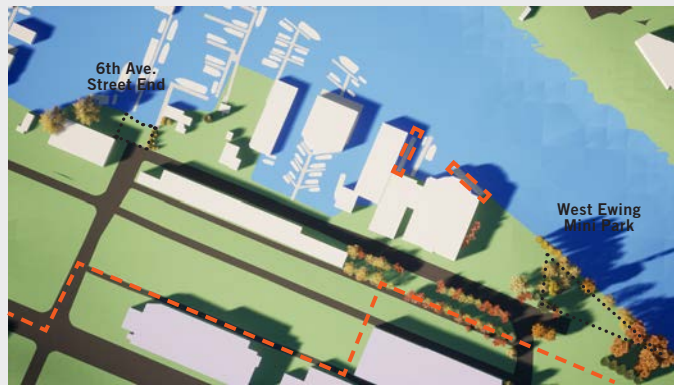
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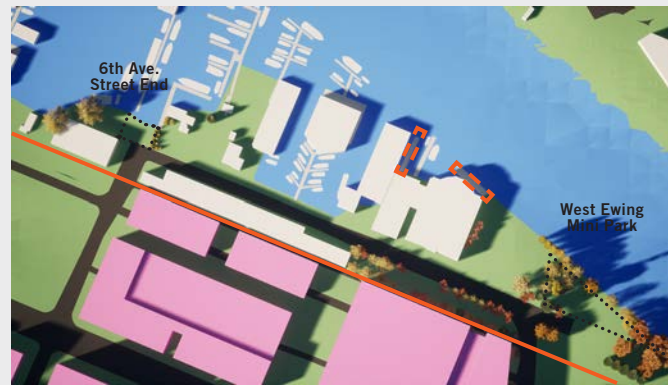
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WEST EWING PARK | Autumn Equinox (September 22), 5:00 PM - With Tree Coverage



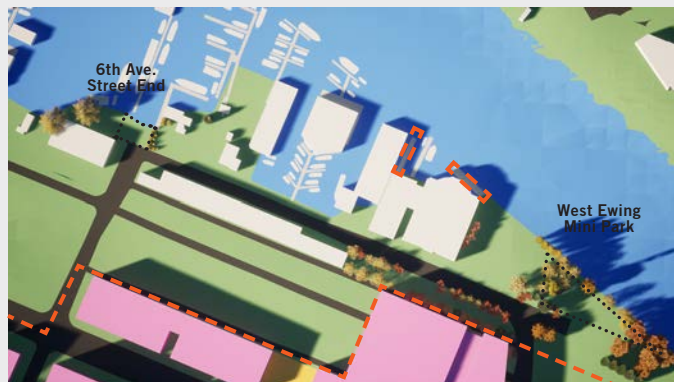
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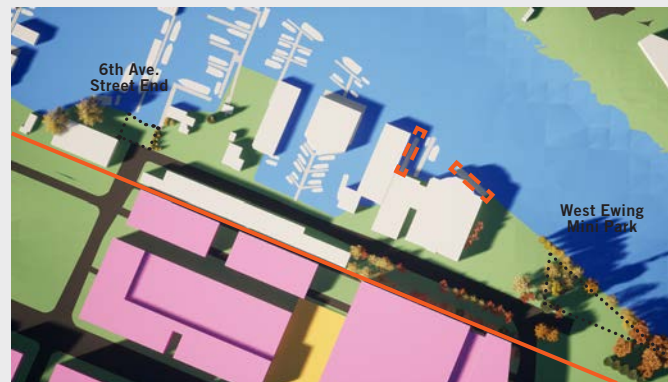
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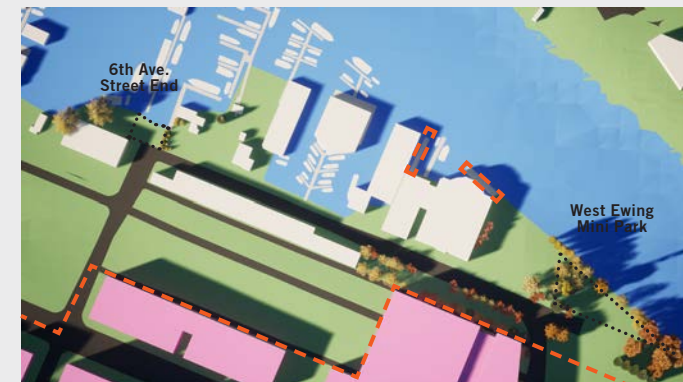
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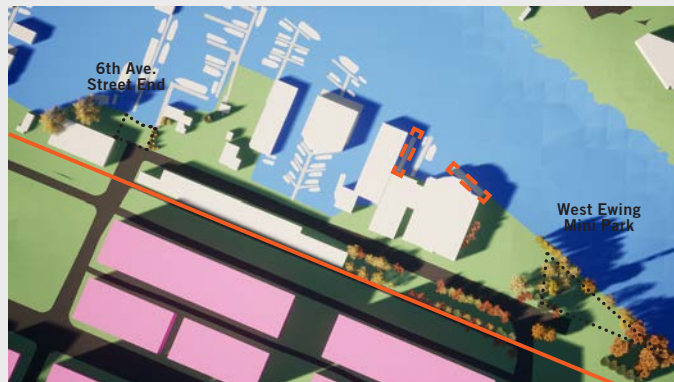
Alternative 2



Alternative 3



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Alternative 5

Proposed Buildings
 Non SPU Owned Buildings
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Parking
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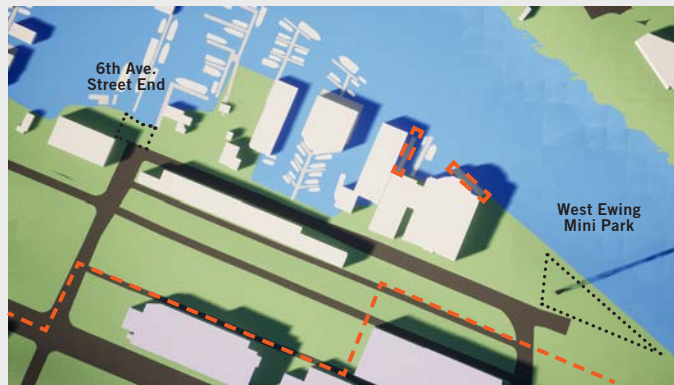
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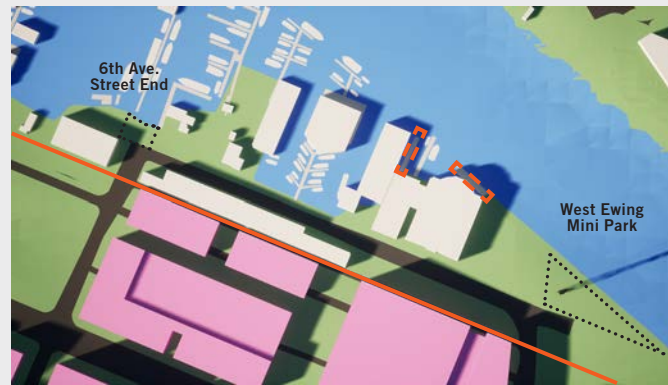
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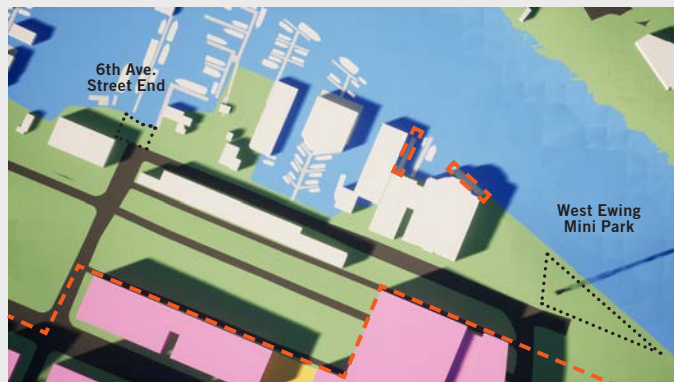
Existing Conditions



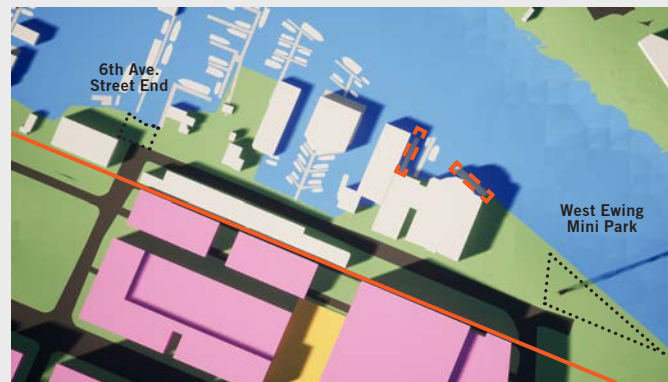
Proposed / Preferred Alternative



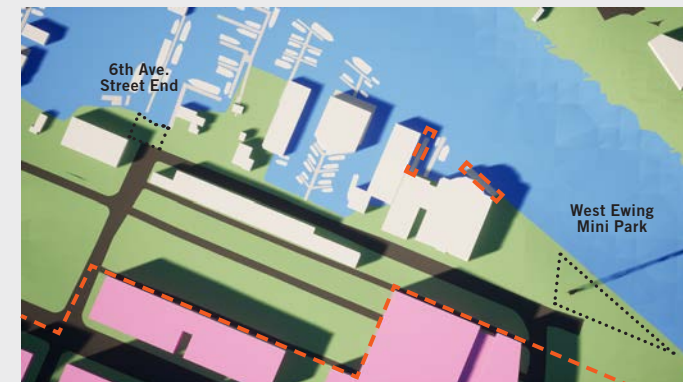
Alternative 1



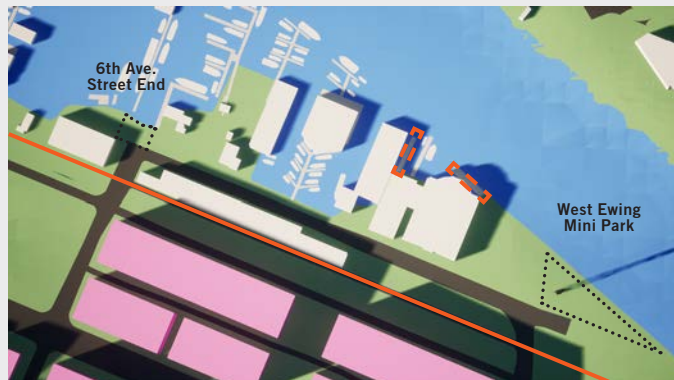
Alternative 2



Alternative 3



Alternative 4



Alternative 5

- | | |
|---|--|
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| Non SPU Owned Buildings | Existing MIO Boundary |
| Existing SPU Owned Buildings | Proposed MIO Boundary |

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Alternative 5: Boundary Expansion, Increased Height and No Street Vacations



Appendix F

Transportation Discipline Report

Transportation Discipline Report

SEATTLE PACIFIC UNIVERSITY MIMP EIS

Prepared for:
City of Seattle
Seattle Pacific University

June 2023

Prepared by:



12131 113th Avenue NE Suite 203
Kirkland, WA 98034-7120
Phone: 425-821-3665
Fax: 425-825-8434
www.transpogroup.com

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Introduction

This report summarizes the results of the transportation impact analysis conducted evaluating the transportation impacts of the proposed Seattle Pacific University (SPU) Major Institution Master Plan (MIMP). This report is organized into the following sections:

Introduction – This chapter outlines project background, description of alternatives, and overall approach and scope to the transportation analysis completed for the project.

Affected Environment – This chapter documents the existing transportation conditions focusing on the transportation elements noted above.

Impacts of No Action Alternatives – This chapter describes the 2031 and 2035 No Action transportation conditions for the elements noted above.

Impacts of the Proposed MIMP Action Alternative – This chapter describes the impacts of the Proposed MIMP on the transportation elements noted above. Transportation impacts are identified through a comparison of Proposed MIMP to the No Action Alternative.

Impacts of Action Alternative 2– This chapter describes the impacts of Action Alternative 2 on the transportation elements noted above. Transportation impacts are identified through a comparison of Alternative 2 to the Proposed MIMP.

Impacts of Action Alternative 3– This chapter describes the impacts of Action Alternative 3 on the transportation elements noted above. Transportation impacts are identified through a comparison of Alternative 3 to the Proposed MIMP.

Impacts of Action Alternative 4– This chapter describes the impacts of Action Alternative 4 on the transportation elements noted above. Transportation impacts are identified through a comparison of Alternative 4 to the Proposed MIMP.

Impacts of Action Alternative 5– This chapter describes the impacts of Action Alternative 5 on the transportation elements noted above. Transportation impacts are identified through a comparison of Alternative 5 to the Proposed MIMP.

Mitigation – This section describes the potential transportation mitigation measures to mitigate Alternative-related impacts.

Secondary and Cumulative Impacts – This chapter describes secondary and cumulative impacts that could occur with development of the MIMP.

Significant and Unavoidable Adverse Impacts – This section documents adverse transportation-related impacts that could not be fully mitigated with the MIMP Alternatives.

Alternatives Evaluated

The transportation analysis evaluates a horizon year of 2035 with a near-term analysis (2031) focusing on the planned projects only. The MIMP's main intent is to expand the boundary, improve existing facilities, provide new facilities to accommodate increased enrollment and additional on-campus student housing, increase Major Institution Overlay (MIO) height limits, and implement street vacations and intersection improvements.

The MIMP includes planned and potential projects with some of the potential development located outside of the current MIMP boundary. While the MIMP does not directly enable campus population growth, the future campus population has been estimated by SPU based on the increase in on-campus student housing and academic space as part of the potential projects.

Descriptions of the EIS Alternatives from a transportation perspective are provided below, with the applicable MIMP elements for each Alternative summarized in Table 1.

No Action Alternative: The campus population would include 4,300 FTE students on campus and 616 employees¹ for both the near-term (2031) and horizon (2035) conditions. The on-campus student housing would include 1,700 beds for undergraduates, consistent with the existing housing supply. Of the 2,600 off-campus students, 1,600 would be undergraduates and 1,000 would be graduate students. The location of parking and the number of spaces would remain the same as current conditions. No new mixed-use development would be constructed as part of the No Action Alternative, but some new previously approved academic buildings would be constructed.

Proposed MIMP Alternative: The near-term (2031) conditions assume the implementation of planned MIMP projects. The planned MIMP projects would include a new student center, new open space, and the repurposing of an existing building. The planned MIMP projects would not result in an increase in campus population or major changes to transportation-related elements of SPU's campus. As such, the campus population for the near-term conditions would be the same as that for the No Action Alternatives.

For the horizon (2035) conditions, the campus population would include 6,000 FTE students on campus and 860 employees. The on-campus student housing would include 3,150 beds for undergraduates. Of the 2,850 off-campus students, 1,350 would be undergraduates and 1,500 would be graduate students. The proposed MIMP would include planned (near-term) and potential buildings (long-term). In addition to academic buildings, the proposed MIMP would include approximately 237,100 square feet of mixed-use development located along W Nickerson Street. New parking lots and structures would be constructed, and some existing lots would be abandoned, resulting in an overall increase in parking. The street vacations and new garages would shift the local travel patterns of traffic to and from campus. There would also be a boundary expansion and increased height limits.

Action Alternative 2 (No Boundary Expansion and No Change to Height Limits): The campus population would be the same as that for the 2035 Proposed MIMP Alternative and would include potential academic and mixed-use buildings (long-term). Action Alternative 2 would include approximately 237,100 square feet of mixed-use development located along W Nickerson Street, 3rd Avenue W, W Bertona Street, and W Dravus Street. New parking lots and structures would be constructed, and some existing lots would be abandoned. Additionally, streets would be vacated to improve connectivity between student housing and academic buildings. The street vacations and new garages would shift the local trip distribution of traffic to and from campus. This alternative would not include a boundary expansion or increased height limits.

Action Alternative 3 (Boundary Expansion and No Change to Height Limits): The campus population would be the same as that for the 2035 Proposed MIMP Alternative and would include all planned and potential academic and mixed-use buildings. Action Alternative 3 would include approximately 237,100 square feet of mixed-use development located along W Nickerson Street, W Bertona Street, and W Cremona Street. New parking lots and structures would be constructed, and some existing lots would be abandoned. Additionally, streets would be vacated to improve connectivity between student housing and academic buildings. The street vacations and new garages would shift the local trip distribution of traffic to and from campus. This alternative would include a boundary expansion, but no increased height limits.

Action Alternative 4 (No Boundary Expansion and Increased Height Limits): The campus population would be the same as that for the 2035 Proposed MIMP Alternative and would include all planned and potential academic and mixed-use buildings. Action Alternative 4 would include approximately 231,700 square feet of mixed-use development located along W Nickerson Street, W Bertona Street, and W Dravus Street. New parking lots and structures would be constructed, and some existing lots would be abandoned. Additionally, streets would be vacated to improve connectivity between student housing and academic buildings. The street vacations and new garages would shift the local trip distribution of traffic to and from campus. This alternative would include increased height limits, but no boundary expansion.

Action Alternative 5 (Boundary Expansion, Increased Height and No Street/Alley Vacations): The campus population would be the same as that for the 2035 Proposed MIMP Alternative and would include potential academic and mixed-use buildings (long-term). Action Alternative 5 would include approximately 237,100 square feet of mixed-use development located along W Nickerson Street, W Bertona Street, and

¹ The No Action campus population is representative of the highest student population that could be realized at the campus with the existing facilities and resources. Within recent history, the highest student enrollment was realized in 2014 at 4,137 students.

W Cremona Street. New parking lots and structures would be constructed, and some existing lots would be abandoned. The new garages would shift the local trip distribution of traffic to and from campus. This alternative would include a boundary expansion, increased height limits, but no street vacations.

Table 1. SPU EIS Alternatives

Alternative	Proposed MIMP Elements				
	Boundary Expansions	New Development (Planned + Potential)	Repurpose Existing Facilities	Increased Height Limits	Street Vacations
No Action Alternative					
Proposed MIMP Alternative	X	X	X	X	X
Action Alternative 2		X	X		X
Action Alternative 3	X	X	X		X
Action Alternative 4		X	X	X	X
Action Alternative 5	X	X	X	X	

The campus populations for the existing conditions and Alternatives are summarized in Table 2. While the Action Alternatives vary as it relates to boundary expansions, increased height limits, and street vacations, it is anticipated that each alternative would result in the same overall campus population. As shown in the table, the No Action Alternative assumes 771 more students and 23 more staff than the existing (2019) conditions, to represent the maximum number of students that could feasibly be enrolled and/or housed at SPU based on the existing facilities available. As part of the Action Alternatives, the campus population would increase by 1,700 students and 267 staff from the No Action Alternatives.

Table 2. SPU Campus Population Assumptions

Alternative	FTE Students				Employees Staff
	Undergraduate Students		Graduate Students ¹	Total	
	Commuting	Resident			
Existing ²	1,231	1,497	801	3,529	593
No Action	1,600	1,700	1,000	4,300	616
Proposed MIMP (and all other Action Alternatives)	1,350	3,150	1,500	6,000	860

Notes: FTE = full-time equivalent

1. All graduate students are commuting students

2. Existing population numbers are based on Fall 2019 enrollment numbers, which represent the most recent pre-pandemic conditions

In addition to academic buildings, the Proposed MIMP and all other Action Alternatives would include buildings that support mixed-use development. Table 3 summarizes the assumed amount and type of mixed-use development assumed for the Proposed MIMP and all other Action Alternatives. In some cases, a proposed mixed-use building replaces an existing building, which offsets the traffic impacts associated with the proposed mixed-use development for each Alternative. More details regarding the mixed-use development assumptions are included in later sections of this report.

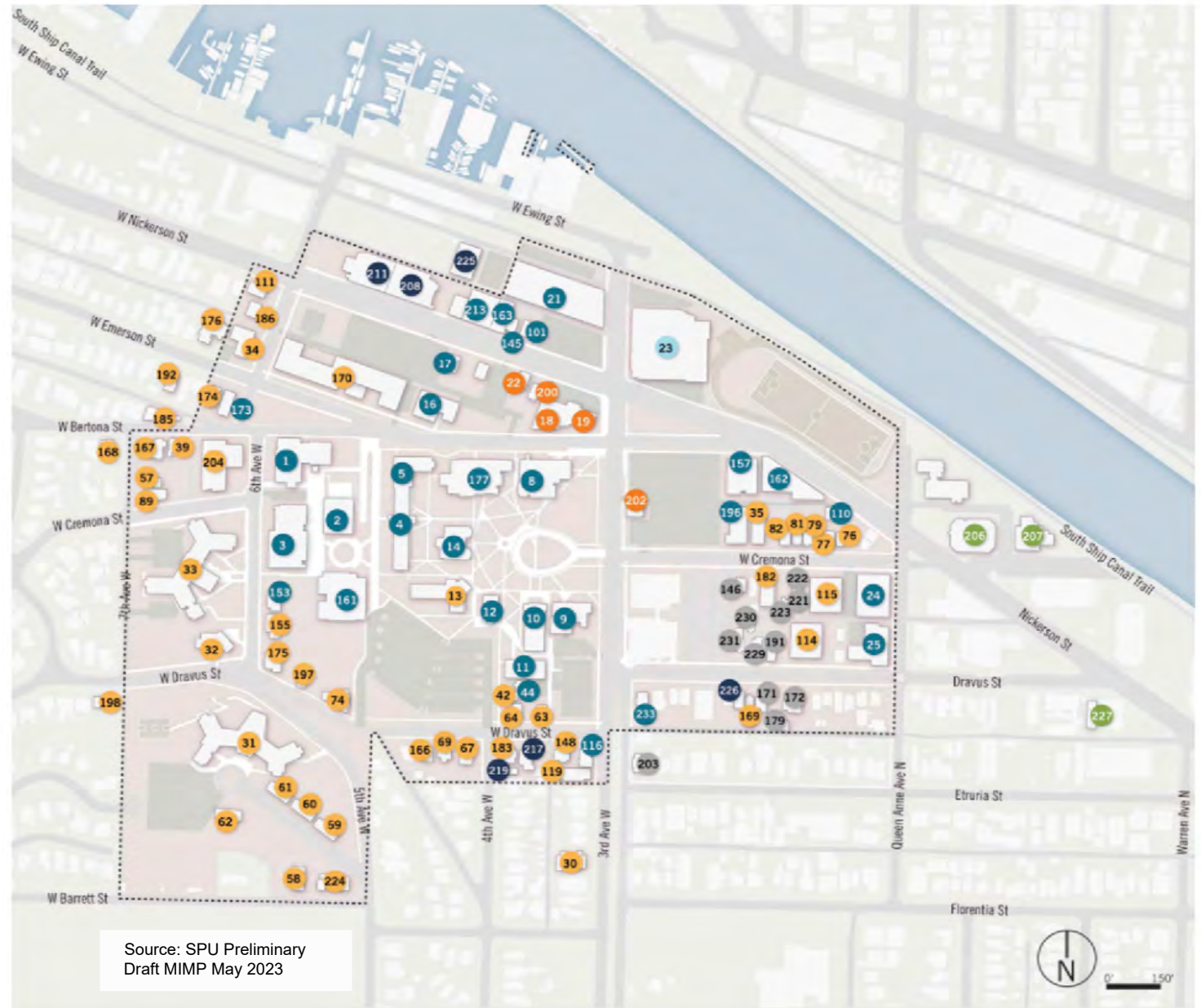
Table 3. EIS Mixed-Use Development Alternatives

Alternative	Land Use			
	Office	Retail	Grocery	Total
No Action Alternative	--	--	--	--
Proposed MIMP Alternative	123,850 sf	101,950 sf	11,300 sf	237,100 sf
Action Alternative 2	123,250 sf	100,450 sf	13,400 sf	237,100 sf
Action Alternative 3	139,800 sf	83,900 sf	13,400 sf	237,100 sf
Action Alternative 4	130,200 sf	93,500 sf	13,400 sf	237,100 sf
Action Alternative 5	131,300 sf	92,700 sf	13,100 sf	237,100 sf

Notes: sf = square feet

LEGEND

- Mixed Use & Commercial
- Education & General
- Education & General (Leased)
- Athletics & Recreation
- Housing
- Vacant
- Non-University Housing
- Existing MIO Boundary

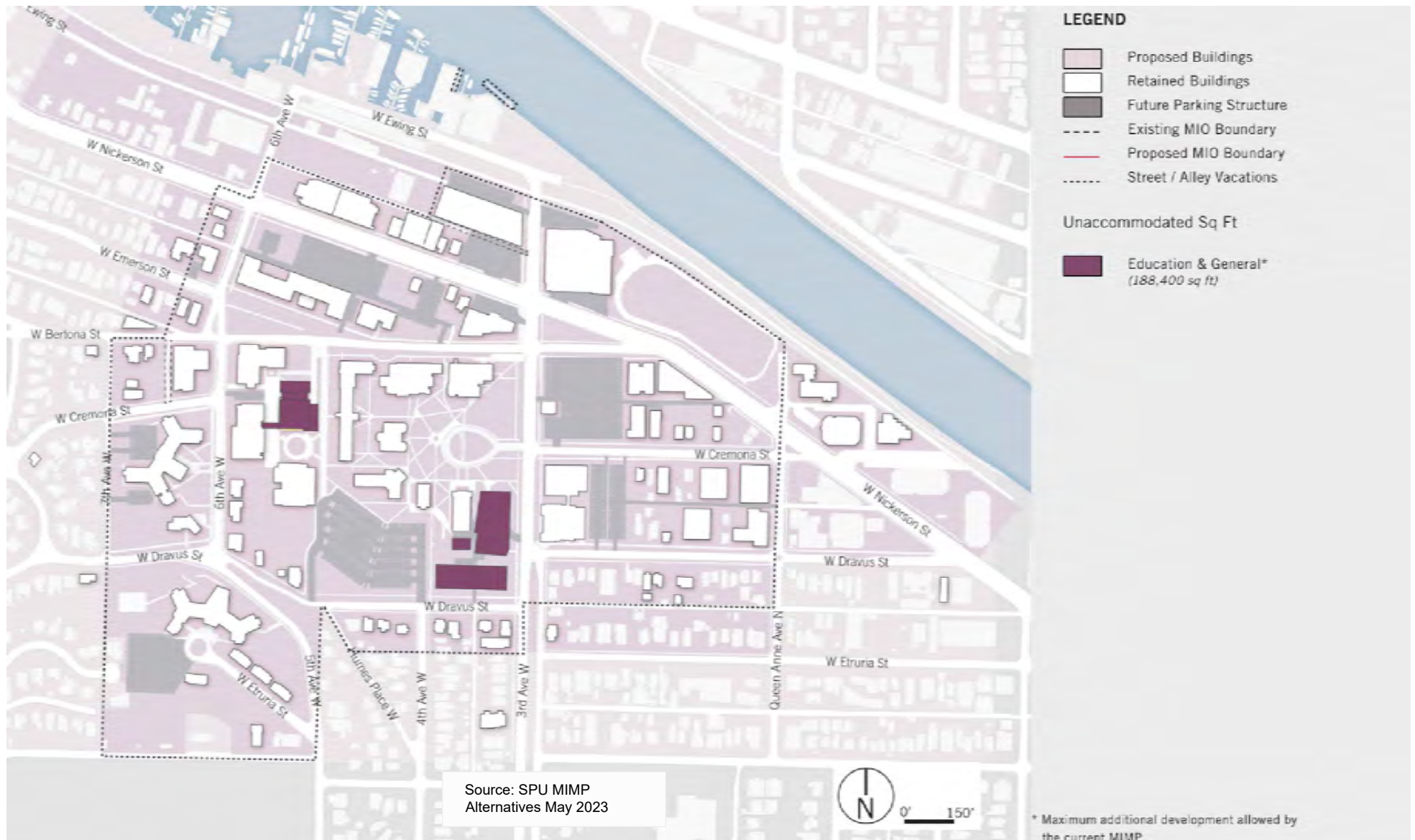


Existing Campus Map

SPU MIMP EIS

FIGURE

1

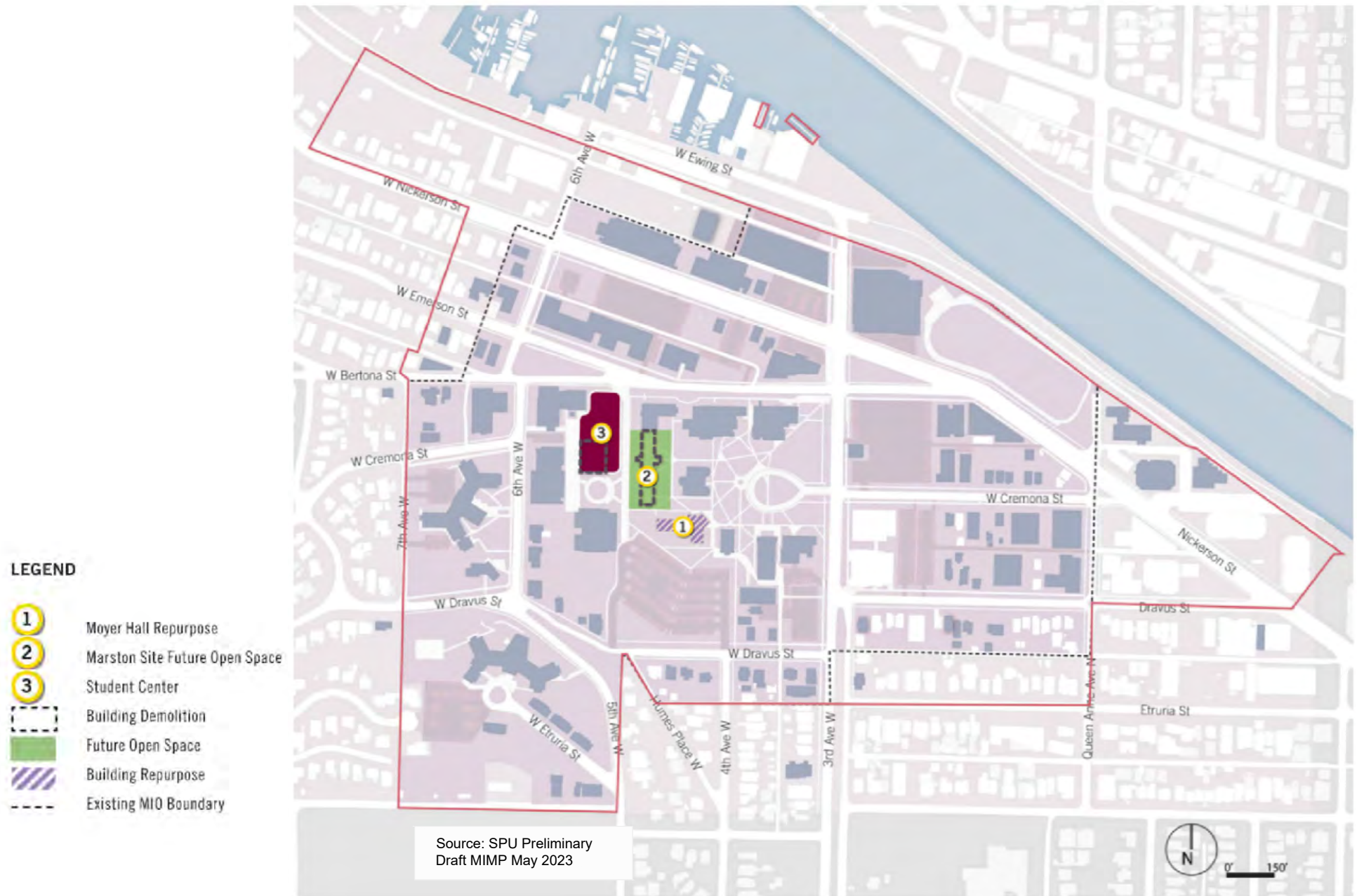


No Action Alternative Campus Map

SPU MIMP EIS

FIGURE

2



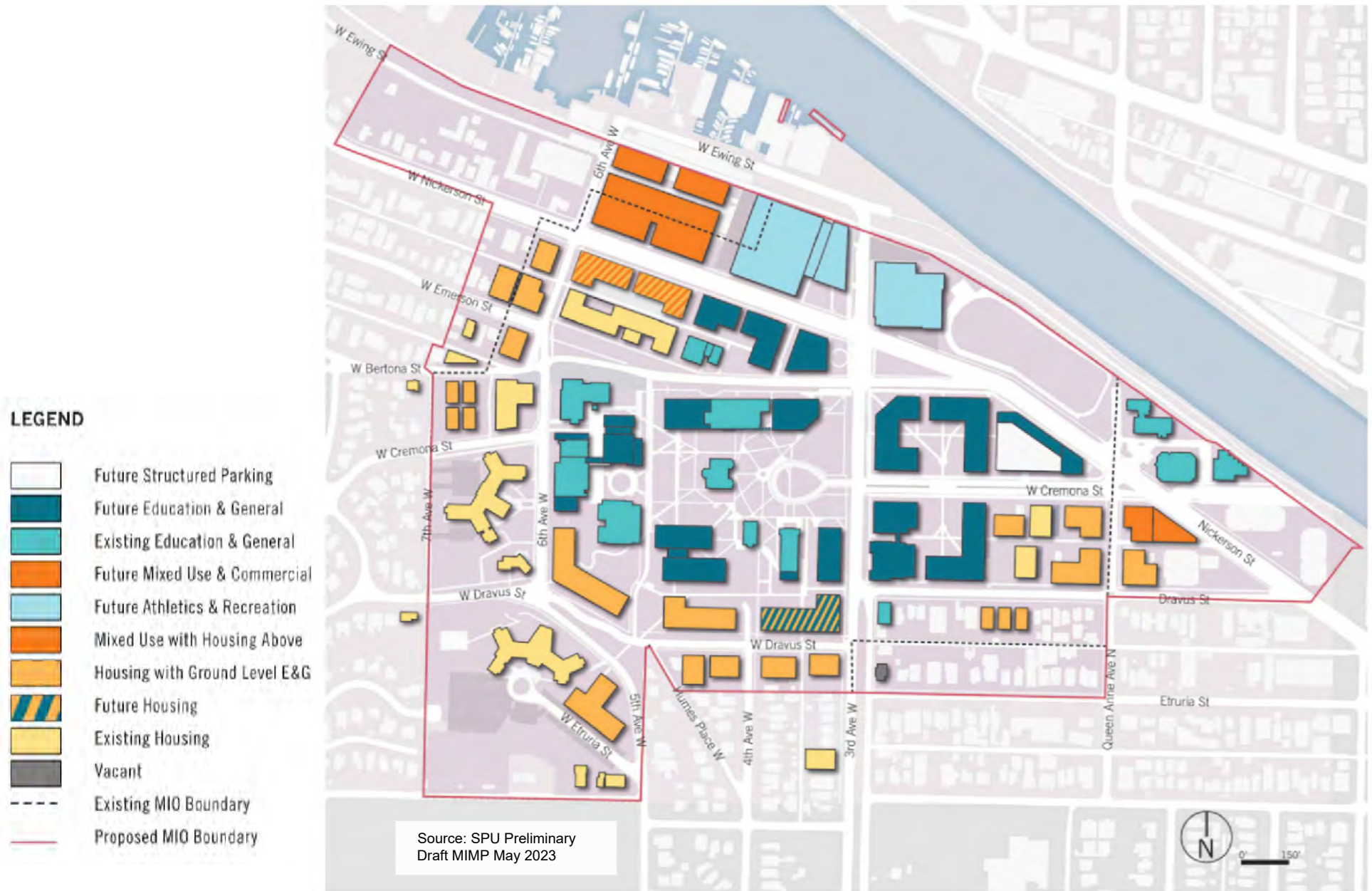
Proposed MIMP Alternative Campus Map (Planned Projects)

SPU MIMP EIS

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FIGURE

3

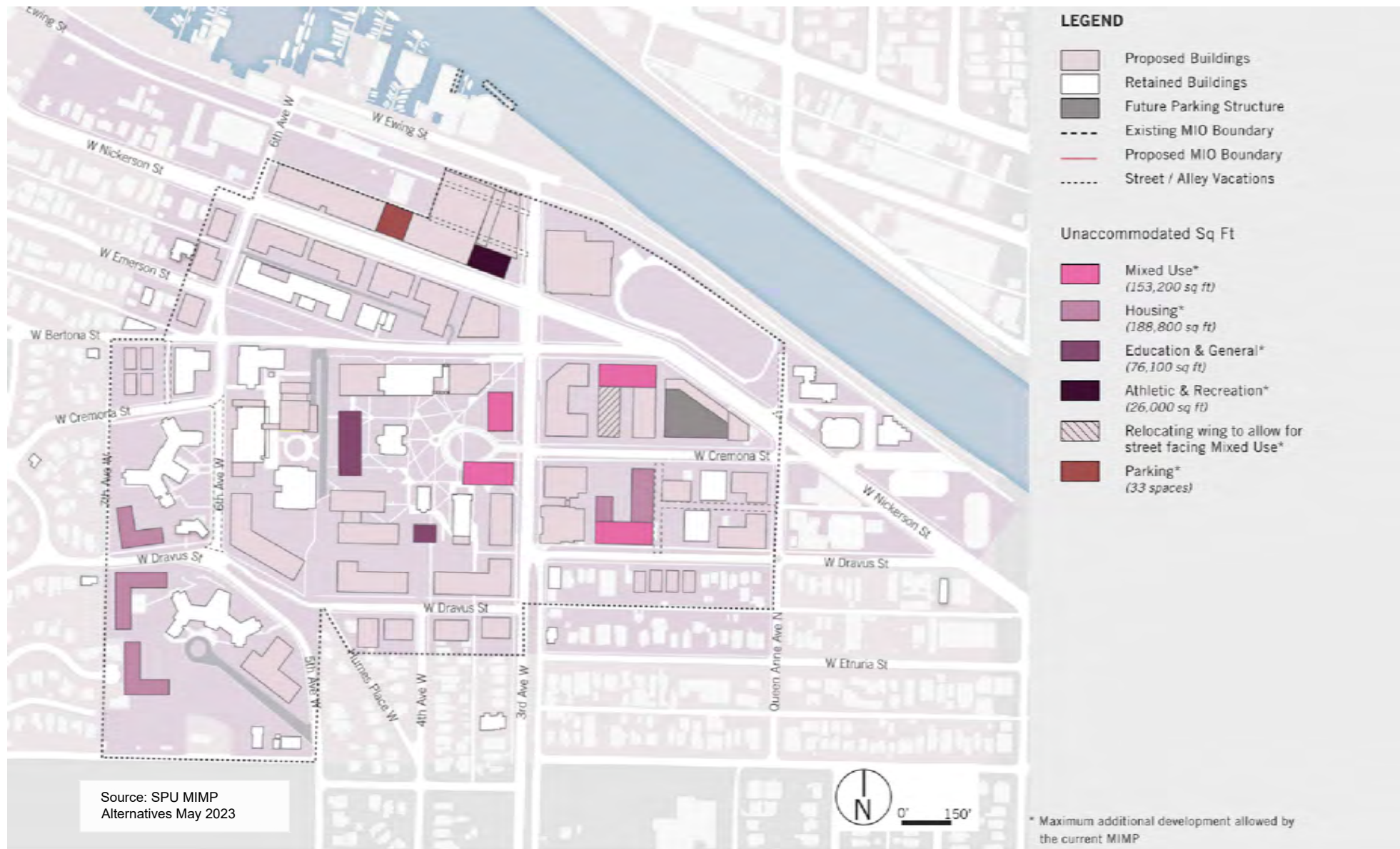


Proposed MIMP Alternative Campus Map (Potential Projects)

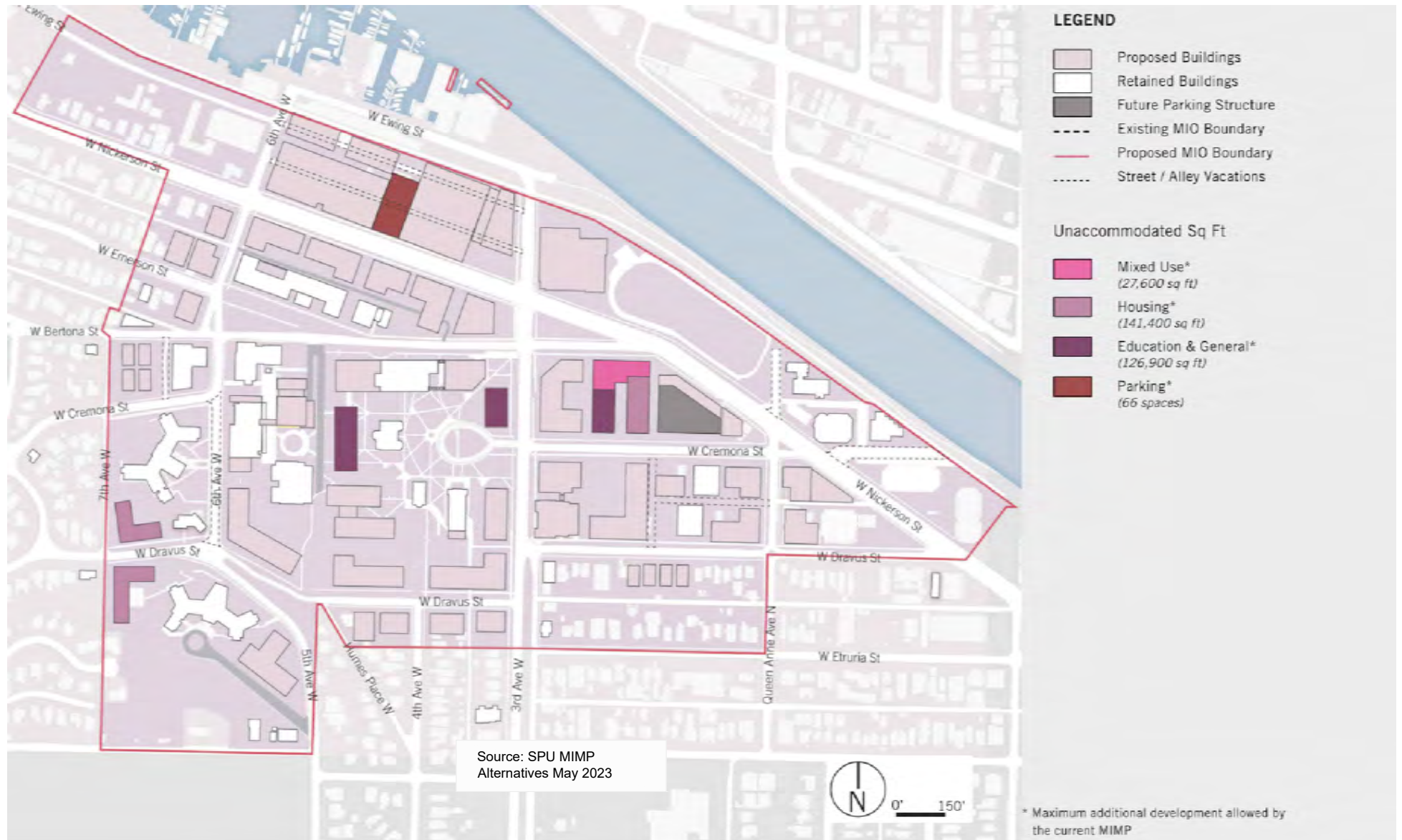
SPU MIMP EIS

FIGURE

4

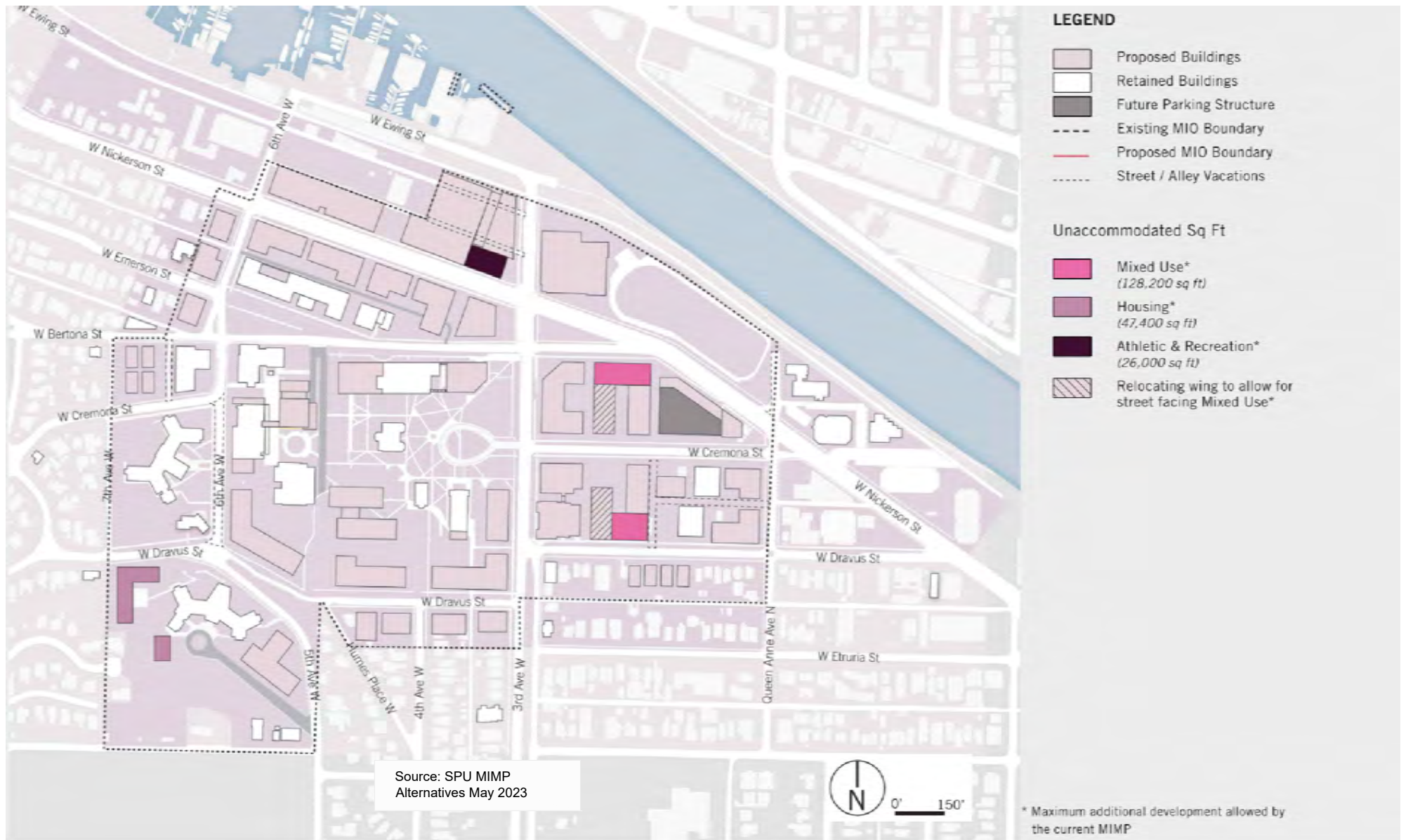


Action Alternative 2 Campus Map
SPU MIMP EIS



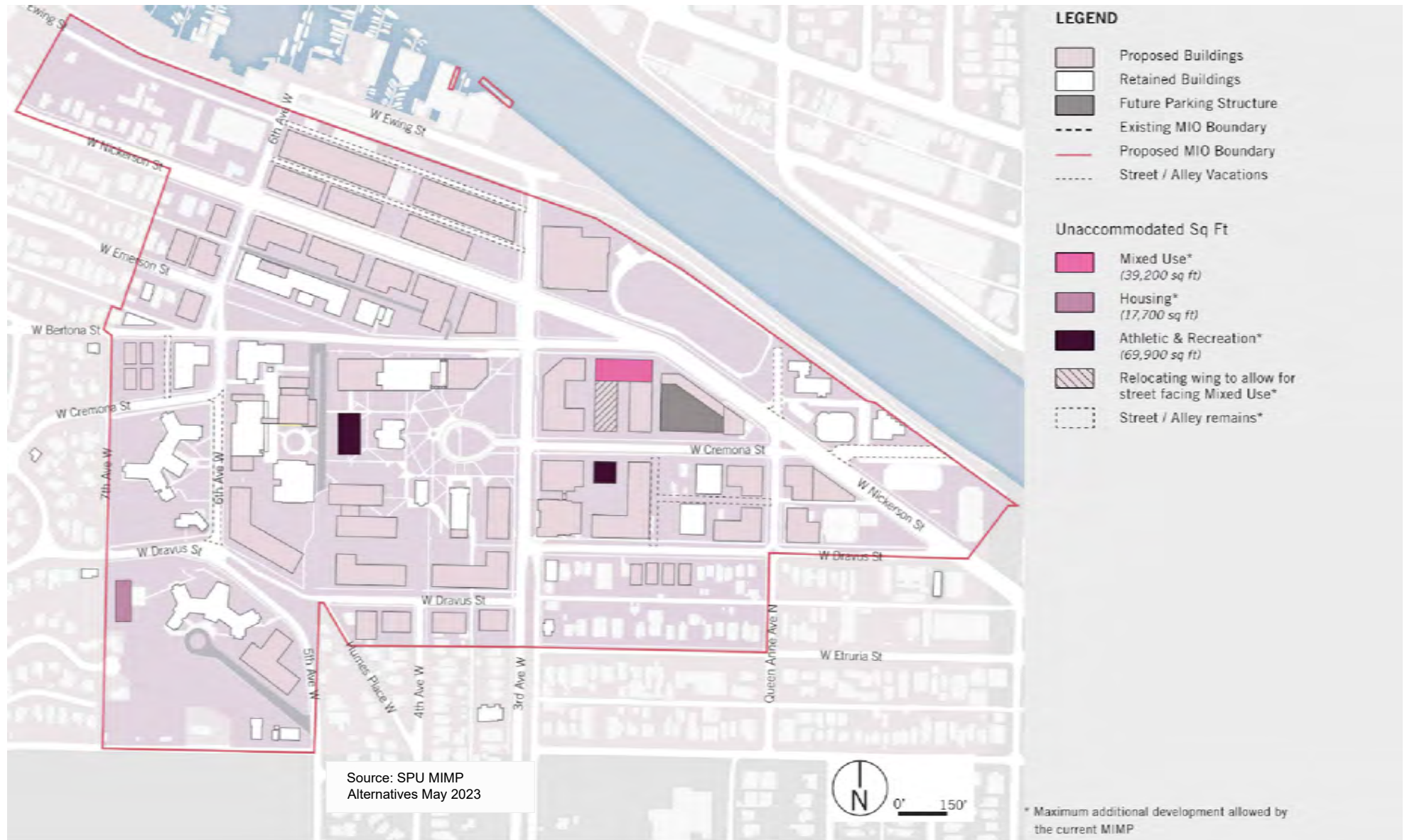
Action Alternative 3 Campus Map

SPU MIMP EIS



Action Alternative 4 Campus Map

SPU MIMP EIS



Action Alternative 5 Campus Map

SPU MIMP EIS

Study Approach and Area

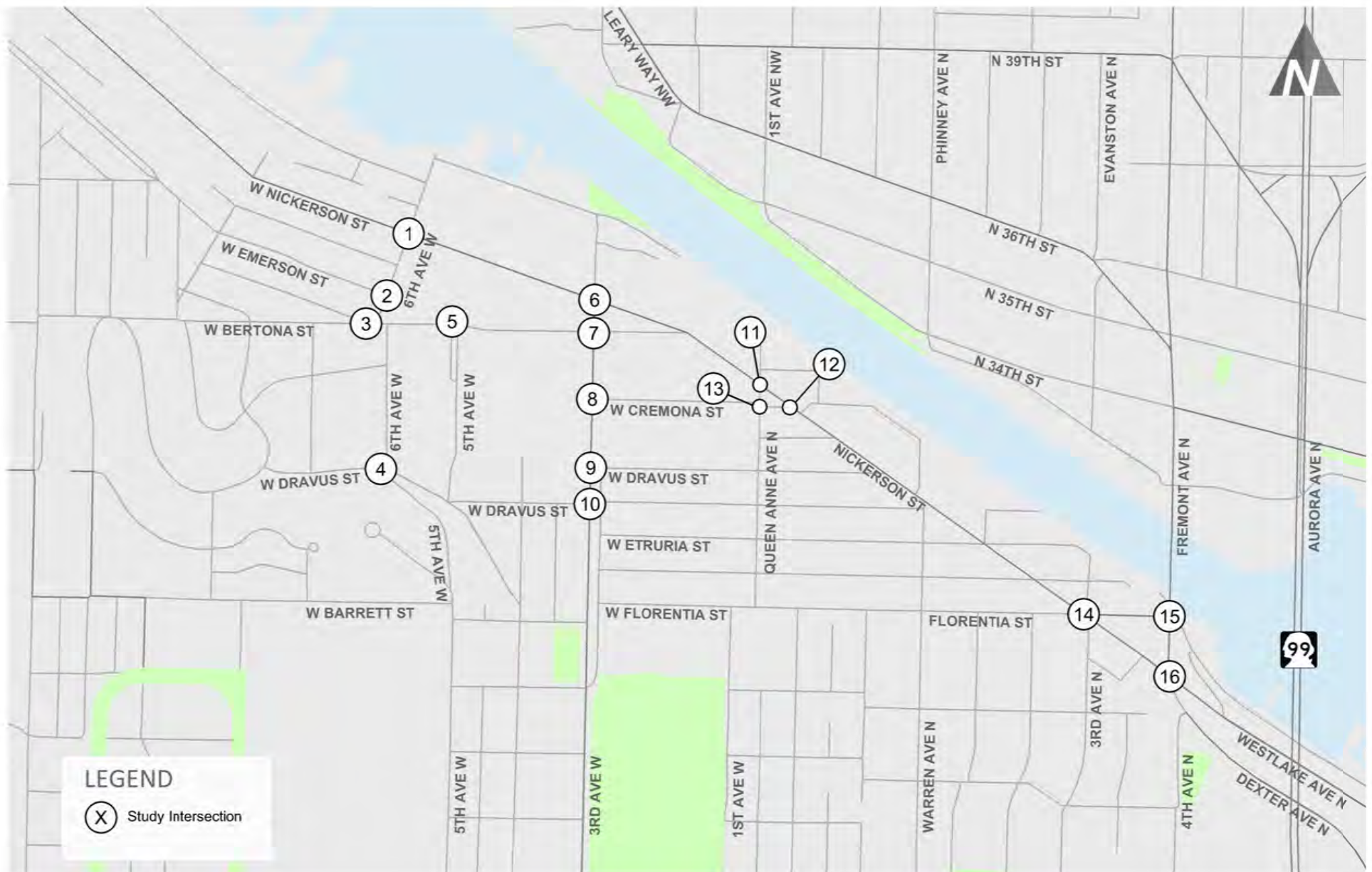
The scope of the transportation analysis conducted for the DEIS was outlined in the *Seattle Pacific University MIMP Transportation Analysis Scoping* (Transpo Group, May 2021) and was coordinated with Seattle Department of Transportation (SDOT) and Seattle Department of Construction and Inspections (SDCI) staff. The following transportation elements are addressed in this report:

- Trip Generation
- Street System
- Non-Motorized Transportation
- Transit Service
- Traffic Volumes
- Traffic Operations
- Traffic Safety
- Parking
- Loading/Curbside Management
- Special Events
- Transportation Management Program (TMP)

The transportation analysis evaluated a horizon year of 2035, consistent with the Seattle Comprehensive Plan. Additionally, a near-term analysis (2031) of the planned project was included. New trips generated by the Action Alternatives are anticipated to be relatively low given the significant increase in on-campus housing included in each and modest growth in enrollment; however, there would be changes in travel patterns in the immediate vicinity of the campus based on the location of proposed parking and potential street vacations. Additionally, there would be traffic generated by the mixed-use development associated with each Alternative. Based on the location of parking, trip distribution assumptions, and coordination with SDCI and SDOT staff, 16 study intersections were identified for weekday AM and PM peak hour analysis.

- | | |
|------------------------------|---|
| 1. W Nickerson St/6th Ave W | 9. W Dravus St/3rd Ave W (North) |
| 2. W Emerson St/6th Ave W | 10. W Dravus St/3rd Ave W (South) |
| 3. W Bertona St/6th Ave W | 11. W Nickerson St/Queen Anne Ave N |
| 4. W Dravus St/6th Ave W | 12. W Nickerson St/W Cremona St |
| 5. W Bertona St/W Emerson St | 13. W Cremona St/Queen Anne Ave N |
| 6. W Nickerson St/3rd Ave W | 14. W Nickerson St/Florentia St/3rd Ave N |
| 7. W Bertona St/3rd Ave W | 15. Florentia St/Fremont Ave N |
| 8. W Cremona St/3rd Ave W | 16. W Nickerson St/Fremont Avenue N |

The study intersections are shown on Figure 9.



Site Vicinity and Study Intersections

SPU MIMP EIS

FIGURE

9

COVID-19 Considerations

The COVID-19 pandemic has significantly changed how higher education is currently administered and the corresponding travel patterns. Classes for SPU include a mix of online and in-person attendance. As such traffic and parking levels on campus are down compared to previous years. Based on discussions with SPU staff, it is the intent that programs return to campus when permitted. Given this, the analysis assumes that transportation conditions will return back to pre-pandemic levels with most classes on-campus. This approach of assuming traffic and parking levels are consistent with pre-pandemic conditions as a foundation of the analysis is likely a conservative estimate of transportation impacts since there may ultimately be more classes administered online going forward.

In addition, it is not possible to collect existing trip generation data for the campus because programming is being conducted online and does not reflect typical on-campus behavior. Existing campus trip generation was based on the 2019 student and staff populations, 2019 Commuter Trip Reduction survey data, 2019 survey data, Institute of Transportation Engineers' (ITE) *Trip Generation Manual* methodology, and data from nearby colleges and universities. As necessary, traffic counts were also adjusted to reflect typical pre-pandemic conditions. Additional detail regarding analysis methodology is described in the following section.

Analysis Methods

This section describes the general methodology, key assumptions and how the Alternative impacts are identified for the transportation elements evaluated in this study. Impacts of the Proposed MIMP Action Alternative are based on a comparison to the No Action Alternative and impacts of the other Action Alternatives are based on a comparison to the Proposed MIMP Action Alternative.

Trip Generation

The foundation of the transportation analysis is trip generation. Trip generation for the campus is related to students, staff/faculty and visitors. Additionally, the MIMP would include trips generated by proposed mixed-use developments.

SPU Trip Generation

SPU-related trip generation was estimated based on three components: (1) commuter-related trips (inclusive of staff/faculty and students), (2) campus housing (residential) trips and (3) other trips related to deliveries, pick-up/drop-off activity, or visitors. Commuters and residents have different trip generating characteristics since on-campus residents typically drive less given that the campus is within walking distance. The details for commuter, residential and other trip generation are described below.

Commuter Trip Generation. The commuter weekday daily person trip generation was estimated based on the commuting student and staff populations as well as on the mode splits shown in Table 4. Commuter population includes all commuting trips that use campus parking such as student and staff/faculty. The vehicular person trips are converted to vehicular trips assuming an average vehicle occupancy of 2.5 for the carpool/vanpool mode based on the *2019 SPU Commute Trip Reduction (CTR) Employer Survey* and the *2019-2020 Student Commute Survey*. The weekday AM and PM peak hour trips were estimated based on their percentage of daily trips, derived from an average of ITE and local university studies (Seattle Central College and UW Bothell).

Table 4. SPU Mode Splits for Commuting Employees and Students

Mode of Travel	Employees ¹	Undergraduate Students ²	Graduate Students ²
Drive Alone/Motorcycle	50%	59%	79%
<u>Carpool/Vanpool</u>	<u>10%</u>	<u>5%</u>	<u>3%</u>
Total Auto	60%	64%	82%
Transit (Bus and Transit)	19%	20%	15%
<u>Non-Motorized/Other</u>	<u>21%</u>	<u>16%</u>	<u>3%</u>
Total Non-Auto	40%	36%	18%

Notes: Values presented in the table were rounded to the nearest whole number.

1. 2019 Seattle Pacific University Commute Trip Reduction Employer Survey

2. 2019-2020 Student Commute Survey conducted by Seattle Pacific University

Residential Trip Generation. The commuter weekday daily person trip generation was estimated based on the on-campus student population and assumed modal splits. Based on the availability of residential parking permits and data collected as part of the 2015 *Seattle Pacific University Transportation & Parking Analysis* (2015 Parking Analysis), it was assumed that 10 percent of daily trips are vehicular trips, 10 percent are transit trips, and 80 percent are non-motorized trips. Residential parking permits have been historically allocated to up to 25 percent of on-campus students and the lowest residential parking occupancy recorded in 2015 was 67 percent of the allocated permit spaces. As such, it was assumed that no more than 40 percent of on-campus students with parking permits leave the campus on a typical weekday. The weekday AM and PM peak hour trips were estimated based on the percentage of daily trips identified in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition for Off-Campus Student Apartment - Adjacent to Campus (LU #225).

Other Trip Generation. In addition to the residential and commuter trips, trip generation for visitors and other deliveries to the campus was included. While trips generated by these uses may differ from day to day, these trips were approximated as 5 percent of the commuter trip generation.

Mixed-Use Trip Generation

Trip generation estimates for the mixed-use components of the MIMP were prepared based on trip rates identified using the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 11th Edition (2021). For the proposed land uses, General Office Building (LU #710) was utilized for the office component, Shopping Plaza (40-150k) (LU #821) or Strip Retail Plaza (LU #822) was used for the general retail components, and Supermarket (LU #850) was used for the grocery store component.

Existing land uses were based on a review of information from the King County Parcel Viewer for buildings that would be demolished per each Action Alternative. Based on this review, existing trip generation was projected using Mini-Warehouse (LU #151), Strip Retail Plaza (<40k) (LU #822), Convenience Store Without Gas (LU #851), Walk-In Bank (LU #911), Copy, Print and Express Ship Store (LU #920), Fast Casual Restaurant (LU #930), Fast-Food Restaurant without Drive-Thru Window (LU #933), and Gas Station with Convenience Market (LU #945).

Person trips were developed based on vehicle trip rates and average vehicle occupancy (AVO) information from ITE's *Trip Generation*, 11th Edition and National Cooperative Highway Research Program Report 365 (NCHRP 365), or by utilizing person trip rates where available. Person trips were separated by mode based on the assumptions described below:

Office. Mode splits for office uses were based on employee commute trends from SPU's 2019 Commuter Mode Split survey and generally consistent with other projects approved within the vicinity of the project. This analysis assumes that 65 percent of employees would drive, 15 percent would use transit, and 20 percent would walk, bike, or use other modes. An AVO of 1.11 was used to convert vehicular person trips to vehicle trips.

Mini-Warehouse. Mode splits for mini-warehouse were based on those for office uses, but adjusted to account for a potentially higher reliance on vehicles for warehouse employees (i.e. a need to make deliveries, transport materials, etc.). This analysis assumes that 70 percent of employees would drive, 10 percent would use transit, and 20 percent would walk, bike, or use other modes. An AVO of 1.11 was used to convert vehicular person trips to vehicle trips.

Retail and Services. For retail, restaurant and service uses (including LU #821, LU #822, LU #851, LU #911, LU #920, LU #930, and LU #933, but not including LU #850 and LU #945), it was assumed that these spaces would primarily serve the local area including residents and employees living and working nearby, resulting in a high proportion of walking trips to and from the surrounding neighborhood. The analysis assumes that 20 percent of customers would drive, 10 percent would use transit, and 70 percent would walk, bike or use other modes. An AVO of 1.48 was used to convert vehicular person trips to vehicle trips. A pass-by reduction was applied to the PM peak hour vehicle trips, consistent with pass-by rates outlined in the *Trip Generation Handbook, 3rd Edition* for each respective retail, restaurant and service use.

Supermarket and Gas Station. It is anticipated that the proposed supermarket and the existing gas station with a food mart would observe a high proportion of vehicle trips but would also serve the local area and result in non-auto neighborhood-based trips. The analysis assumes that 70 percent of customers would drive, 10 percent would use transit, and 20 percent would walk, bike or use other modes. An AVO of 1.48 was used to convert vehicular person trips to vehicle trips. A pass-by reduction was applied to the PM peak hour vehicle trips, consistent with pass-by rates outlined in the *Trip Generation Handbook, 3rd Edition* for each respective retail, restaurant and service use.

Street System

The study provides a review of the existing and future planned street system and its connectivity to SPU and the surrounding area. Action Alternative impacts to the street system are evaluated based on potential changes to the nearby street network connectivity.

Non-Motorized Transportation

The pedestrian and bicycle system surrounding SPU is evaluated. A review of the existing and future planned bicycle system and its connectivity to SPU and the surrounding area, including transit stops, is provided. Additionally, existing barriers to connectivity are identified. Action Alternative impacts are evaluated based on potential changes to the nearby non-motorized network connectivity.

Transit Service

The transit service to and from campus is evaluated for vehicle capacity analysis across screenlines. Existing transit demand is based on pre-pandemic Fall 2019 average weekday AM and PM peak period ridership provided by the transit agencies.² Transit impacts of the alternatives are based on a comparison of anticipated demand to capacity.

An annual background growth rate of 1 percent is applied to existing ridership consistent with Seattle 2035 City Comprehensive Plan transit growth and the forecast annual background growth for the traffic volumes to determine future transit demand.

The vehicle capacity is estimated for transit buses assuming current bus frequency for the weekday AM and PM peak periods and a load factor of 1.25, as shown in Table 5.

² The peak periods for the transit analysis are assumed to be 7-9 a.m. and 4-6 p.m.

Table 5. Transit Capacity

Type	Seated Capacity (per bus or rail car)	Load Factor ¹	Approximate Capacity (passengers per bus) ²
40-foot standard bus	27-35 ³	1.25	34-44
60-foot articulated	56	1.25	70

Source: King County Metro

1. Based on coordination with King County Metro, buses typically accommodate additional standing passengers above what is seated leading to a load factor above 1.0.
2. Assumes a portion of passengers will be accommodated through standing.
3. 40' diesel/hybrid buses have a lower seated capacity

Five screenlines (see Figure 10 and Table 6) are analyzed around SPU to understand how weekday transit capacity compares to transit demand. Screenlines are imaginary lines drawn across corridors to capture transit operations (capacity and demand) to and from the SPU. Each screenline is evaluated by direction and by route for the weekday AM and PM peak periods. Using the capacity identified in Table 5 for transit and applying the frequency of service (trips per peak period) for the weekday AM and PM peak periods, transit capacities were defined at each of the screenlines. These are summarized in Table 6. The specific transit routes crossing each screenline were based on current transit service as noted in Table 6.

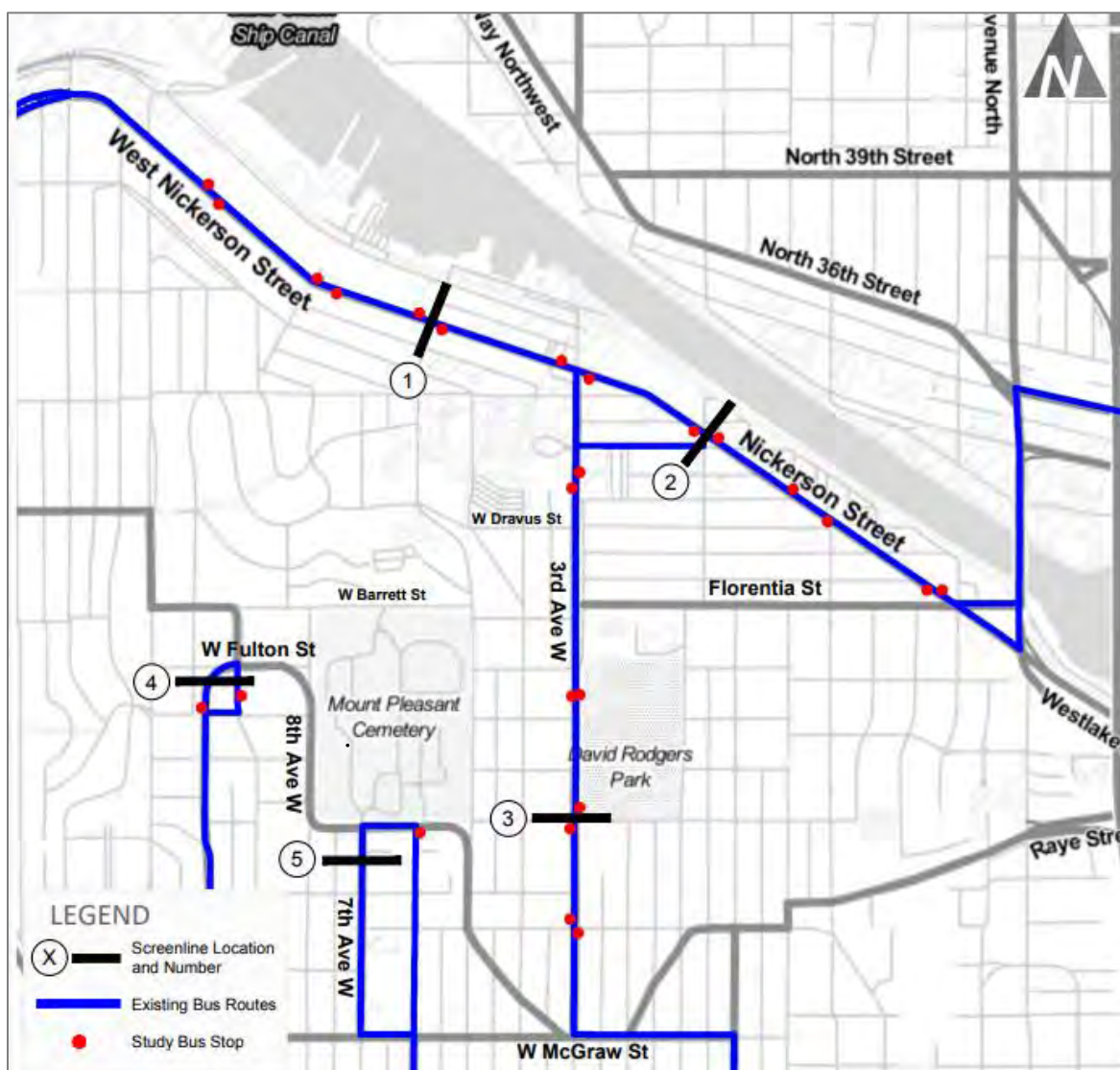


Figure 10. Vehicle Capacity Screenlines

Table 6. Passenger Capacity at Screenlines

Screenline/Location	Weekday Routes ¹	Direction of Travel	Peak Period Passenger Capacity	
			AM Peak Period	PM Peak Period
1 W Nickerson St west of 3rd Ave W	31	EB	289	228
	31	WB	201	341
	32	EB	289	375
	32	WB	219	305
2 W Nickerson St east of 3rd Ave W	31	EB	289	228
	31	WB	201	341
	32	EB	289	375
	32	WB	175	305
3 3rd Ave W at W Raye St	3	NB	340	255
	3	SB	340	212
	4	NB	255	170
	4	SB	255	298
	13	NB	298	382
	13	SB	298	340
4 9th Ave W / 10th Ave W north of W Armour St	1	NB	340	340
	1	SB	340	340
5 6th Ave W at W Raye St	2	NB	170	170

1. Assumes weekday peak period service and frequency as provided in the Fall 2019 service data from King County Metro as well as the capacity's as noted in Table 5.

Traffic Volumes

Existing 2021 traffic volumes at the study intersections were based on traffic counts collected in 2015, 2017, 2020 (pre-pandemic), and 2021. Table 7 summarizes the available historical traffic counts.

Table 7. Historical Traffic Count Availability

Intersection	AM Peak Hour	PM Peak Hour
1. 6th Ave W/W Nickerson St	January 2020	January 2020
2. 6th Ave W/W Emerson St	June 2021	April 2015
3. 6th Ave W/W Bertona St	June 2021	April 2015
4. 6th Ave W/W Dravus St	June 2021	June 2021
5. W Emerson St/W Bertona St	June 2021	April 2015
6. 3rd Ave W/W Nickerson St	June 2021	April 2015
7. 3rd Ave W/W Bertona St	June 2021	April 2015
8. 3rd Ave W/W Cremona St	June 2021	April 2015
9. 3rd Ave W/W Dravus St (N)	June 2021	June 2015
10. 3rd Ave W/W Dravus St (S)	June 2021	June 2015
11. Queen Anne Ave N/W Nickerson St	June 2021	April 2015
12. W Cremona St/W Nickerson St	June 2021	April 2015
13. Queen Anne Ave N/W Cremona St	June 2021	April 2015
14. 3rd Ave N/W Florentia St/W Nickerson St	February 2020	February 2020
15. Fremont Ave N/W Florentia St	June 2021	September 2017
16. Fremont Ave N/W Nickerson St	February 2020	February 2020

Traffic volumes collected in 2015, 2017, and 2020 were grown by 1.35 percent annually to represent 2021 conditions based on a comparison of historic traffic volumes within the study area. Traffic volumes collected in 2021 were adjusted to account for the pandemic-related decline in vehicular activity. As possible, 2021 volumes were compared to pre-pandemic volumes to approximate the impacts of the pandemic and adjust accordingly. Based on this comparison, the following Covid adjustment factors were applied to the study area intersections:

- Arterial Covid Factor: 1.2
- Non-Arterial (Internal to SPU Campus): Covid Factor: 1.9
- Non-Arterial (External to SPU Campus) Covid Factor: 1.5

No Action traffic forecasts include background traffic growth and the assumed population growth between the existing and No Action conditions. The background traffic growth is comprised of an annual background growth rate and traffic generated from the planned “pipeline” developments. An annual growth rate of 1 percent was applied, in line with other traffic analyses in the vicinity of the site and with the City of Seattle Comprehensive Plan growth projections. The annual growth rate was applied to existing study intersection traffic volumes to estimate future (2031) and future (2035) No Action traffic growth. In addition to the background growth rate, which accounts for the general growth in the area, traffic from specific pipeline development projects in the vicinity were reviewed on the SDCI website and through coordination with City staff. The pipeline projects are listed in Appendix D. Lastly, additional trips associated with the No Action campus population were distributed through the study area. Traffic volumes associated with annual growth, pipeline developments, and the No Action campus population were added to the existing volumes to represent 2031 and 2035 No Action conditions.

As noted, the near-term (2031) Proposed MIMP Alternative would not result in additional campus population beyond that observed in the 2031 No Action Alternative. As such, it assumed that the near-term Proposed MIMP would observe the same traffic volumes as the 2031 No Action Alternative. Additionally, there are no proposed near-term Alternatives.

Horizon (2035) volumes with the Proposed MIMP Alternative, and all other Action Alternatives were determined by adding trips related to campus growth with all planned and potential projects implemented. This includes trips associated with student and employee/staff population growth as well as the net new trips associated with the demolition and construction of commercial spaces. Additionally, existing trips to and from the campus were rerouted to account for the proposed distribution of on-campus parking as part of the MIMP and proposed street vacations, as applicable. Traffic volume impacts at the study intersections were determined based on a review of the change in traffic volumes between the No Action and Proposed MIMP Alternative. The impacts of all other Action Alternatives were based on a comparison to the Proposed MIMP Alternative.

Traffic Operations

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. At side-street stop-controlled intersections, LOS is measured in average delay per vehicle and is reported for the worst operating 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. Appendix F contains a detailed explanation of LOS criteria and definitions.

Signal timing and phasing information is obtained from the Seattle Department of Transportation (SDOT). Weekday AM and PM peak hour traffic operations are evaluated based on the procedures identified in the *Highway Capacity Manual, 6th Edition* (HCM 6) and are evaluated using *Synchro 11*. *Synchro 11* is a software program that uses HCM methodology to evaluate intersection LOS and average vehicle delay.

The City of Seattle's Comprehensive Plan does not define a LOS standard for individual intersections; however, the City generally recognizes LOS E and F as poor operations for signalized locations and LOS F for unsignalized locations.

Traffic Safety

Recent collision records are reviewed within the study area to identify existing traffic safety issues at the study intersections. The most recent three-year summary of collision data from the Washington Department of Transportation (WSDOT) is for 2017-2019. SDOT defines High Collision Locations (HCL) as signalized intersections with 10 or more collisions in the previous year, unsignalized intersections with 5 or more collisions in the previous year, mid-block locations with 10 or more collisions in the previous year, and locations with 5 or more pedestrian or bicycle collisions in the last three years. Intersections designated as high accident locations are targeted for future safety improvements in an effort to reduce the occurrence of accidents.

Parking

On January 20, 2023, the state enacted SEPA-related amendments that removed parking as an element of the environment and revised the SEPA environmental checklist. As a result of the new state law, Seattle Department of Construction and Inspections (SDCI) will no longer identify and analyze parking impacts in its SEPA analyses. As such, analysis and disclosure of parking impacts (e.g., related to the proposed supply of and demand for parking) are not included in this document. The information presented herein includes the proposed parking supply and Seattle Municipal Code (SMC) dictated parking requirements are included in the Transportation Management Plan.

Affected Environment

This section provides an overview of the existing conditions within the defined study area. The SPU existing trip generation is discussed first. The existing transportation system including street system, non-motorized transportation, transit service, traffic volumes, traffic operations, traffic safety and campus parking are also described.

Trip Generation

Existing trip generation was estimated for both commuters and residents based on the commuter trip rate of trips per student FTE and the residential trip rate of trips per bed, as outlined in the Analysis Methods section of this report. Existing conditions are represented by the Fall 2019 campus population which included 593 employees and 3,529 full time students. Of these, 1,497 students resided on campus and 2,032 students commuted.

The existing trip generation is summarized in Table 8. Detailed trip generation calculations are provided in Appendix C.

Table 8. Existing Trip Generation Summary

Time Period	One-Way Person Trips				Vehicular Trip Rate ³	Vehicle Trips ⁴		
	Vehicular ²	Transit	Non-Motorized/ Other	Total		In	Out	Total
<u>Commuter¹</u>								
Daily	3,604	958	688	5,250	<i>0.97 per FTE student</i>	1,716	1,716	3,432
AM Peak Hour	346	92	66	504	<i>0.09 per FTE student</i>	270	59	329
PM Peak Hour	360	96	69	525	<i>0.10 per FTE student</i>	134	209	343
<u>Residents</u>								
Daily	298	300	2,396	2,994	<i>0.20 per bed</i>	149	149	298
AM Peak Hour	11	11	86	108	<i>0.01 per bed</i>	5	6	11
PM Peak Hour	23	23	184	231	<i>0.02 per bed</i>	12	11	23
<u>Other⁵</u>								
Daily	180	48	34	263	<i>0.049 per FTE student</i>	86	86	172
AM Peak Hour	17	5	3	25	<i>0.005 per FTE student</i>	13	3	16
PM Peak Hour	18	5	3	26	<i>0.005 per FTE student</i>	7	10	17
<u>Total</u>								
Daily	4,082	1,306	3,118	8,507		1,951	1,951	3,902
AM Peak Hour	374	107	156	637		288	68	356
PM Peak Hour	401	124	257	782		152	231	383

Note: FTE = full-time equivalent.

1. Person trips are 1-way trips and include both students and employees.
2. Vehicular person trips include both single occupancy vehicles and carpools/vanpool. An average vehicle occupancy of 2.5 was assumed for the carpool/vanpool to convert person trips to vehicular trips.
3. Trip rate shown per FTE for commuters and per bed for residents. FTE = full-time equivalent.
4. Reflect two-way trips (both inbound and outbound).
5. Inclusive of visitors and other services for campus.

As shown in the table, the campus is projected to generate approximately 3,902 vehicles per day based on the 2019 campus population, with 356 trips occurring during the weekday AM peak hour and 383 trips occurring during the weekday PM peak hour.

Street System

SPU is located in the North Queen Anne area of Seattle and is generally bounded by W Barrett St, Queen Anne Ave N, 7th Ave W, and W Ewing St. Table 9 provides an inventory of the streets serving SPU and included in the study area. W Nickerson St and 3rd Ave W (both arterials) serve as primary routes to/from campus. Regional access to the campus is provided via Route 99 as well as the Fremont Bridge to the east of campus, and Ballard Bridge/15th Avenue W to the west of campus. Figure 9 illustrates the campus site vicinity.

Table 9. Roadway Network Existing Conditions Summary

Roadway	Roadway Classification	Speed Limit ¹	# Lanes	Pedestrian Facilities	Bicycle Facilities	Parking
Nickerson St	Arterial	25	3-5 ⁵	Yes	Bike Lane	Yes ²
W Emerson St	Residential	20	2	Yes	None	Yes
W Bertona St	Arterial	25	2	Yes	None	None
W Cremona St	Residential	20	2	Yes	None	Yes ³
W Dravus St	Residential	20	2	Yes ⁴	None	Yes ³
W Florentia St	Arterial	25	2	Yes	None	Yes ³
6th Ave W	Residential	20	2	Yes	None	Yes ³
3rd Ave W	Arterial	25	2	Yes	None	Yes
Queen Anne Ave N	Residential	20	2	Yes	None	Yes
4th Ave N	Arterial	25	2-4 ⁶	Yes	Partial Sharrows	None
Dexter Ave N	Arterial	25	4	Yes	Bike Lanes	None
Westlake Ave N	Arterial	25	4	Yes	None	None
Fremont Bridge	Arterial	25	4	Yes	Shared-Use Path	None

1. City of Seattle Speed Limit Map <https://www.seattle.gov/transportation/projects-and-programs/safety-first/vision-zero/speedlimits> (April 2021)

2. Parking is allowed on both sides in intermittent locations.

3. Parking is allowed on one side of the roadway.

4. Pedestrian facilities available along at north side of the street between Humes Place W and 6th Ave W.

5. Three lanes (including a two-way left-turn lane) west of Warren Ave N and four to five lanes east of Warren Ave N.

6. Two lanes south of the intersection with Dexter Ave N and four lanes between Fremont Bridge and Westlake Ave N.

Non-Motorized Transportation

The pedestrian and bicycle facilities surrounding SPU and connectivity to the neighborhood are described in this section.

Pedestrian

Pedestrian facilities are provided in the vicinity of the SPU campus, including an extensive sidewalk network and signalized crossings at many major intersections including Nickerson Street/Dexter Avenue N, Florentia Street/3rd Avenue W, and Nickerson Street/3rd Avenue W. There is also a signalized pedestrian crossing at W Nickerson Street/W Cremona Street and a signed crosswalk at W Nickerson Street/W Dravus Street. While there are crossings along W Nickerson Street under existing conditions, there are opportunities to improve pedestrian connectivity along this arterial, including improved pedestrian connectivity at W Nickerson Street/6th Avenue W.

Within and directly surrounding the SPU campus there exist many unsignalized intersections, but there are marked crosswalks and pedestrian signage at intersections along arterials such as W Bertona Street and 3rd Avenue W. Additionally, there are several roadway segments that are included in the City's Pedestrian Priority Investment Network. A summary of these segments is included in Table 10.

Table 10. Summary of Study Area Roadways in the Pedestrian Priority Investment Network

Roadway	Segment	Designation (per the City's Pedestrian Master Plan)
6th Avenue W	North of W Nickerson Street	Non-Arterial Missing Sidewalk
	South of W Nickerson to W Cremona Street	Non-Arterial
W Emerson Street	From 6th Avenue W to W Bertona Street	Non-Arterial
W Nickerson Street		Arterial
W Bertona Street	From 6th Avenue W to 7th Avenue W	Arterial Missing Sidewalk
3rd Avenue W	From W Nickerson Street to E Ewing Street	Non-Arterial
E Ewing Street	East of 3rd Avenue W	Non-Arterial Missing Sidewalk
Queen Anne Avenue N	North of W Nickerson Street	Non-Arterial Missing Sidewalk
	South of W Nickerson Street	Non-Arterial
W Cremona Street	From Queen Anne Avenue N to 3rd Avenue W	Non-Arterial
W Dravus Street	From 3rd Avenue W to Nickerson Street	Non-Arterial

Bicycle

The bicycle system surrounding the campus provides protected facilities that connect to surrounding neighborhood uses as well as Downtown. The following bicycle facilities are within direct vicinity of the SPU campus:

- **South Ship Canal Trail** – Located north of campus along the canal, the South Ship Canal Trail is a shared-use path and is accessible from 3rd Avenue W, 6th Avenue W, and Queen Anne Avenue. The Trail provides access to Magnolia to the west and to the Cheshiahud Lake Union Loop Trail (to Downtown) to the east.
- **Nickerson Street** – A bike lane is provided in the westbound (uphill) direction and a sharrow is provided in the eastbound direction

Within the campus there is a significant amount of bicycle parking available. Existing bicycle racks provide parking for up to 220 bicycles and there are an additional 104 secured bicycle parking spaces.

Shared Mobility

As it relates to shared mobility, SPU currently provides space for 2 zipcars on campus and provides shared mobility facilities when requested.

Transit Service

SPU is well served by transit with service provided by King County Metro. Table 11 summarizes the transit service including 7 bus routes (1, 2, 3, 4, 13, 31, 32.). The nearest stops to campus are provided along 3rd Ave W, W Nickerson St, and 10th Ave W. Transit routes and stops are illustrated on Figure 11.

Table 11. Summary of Existing Transit Service

Transit Service	Approximate Hours of Operation¹	Weekday Peak Hour Headway (Minutes)
1² (Kinnear to Downtown Seattle)	Mon – Fri: 5:00 a.m. to 12:30 a.m. Sat/Sun: 5:30 a.m. to 12:15 a.m.	15
2² (Seattle Pacific to Downtown Seattle Madrona Park)	Mon – Fri: 5:00 a.m. to 1:30 a.m. Sat/Sun: 6:00 a.m. to 1:30 a.m.	15-20
3 (Queen Anne Hill to Downtown Seattle to Madrona/Judkins Park)	Mon – Fri: 4:45 a.m. to 12:45 a.m. Sat/Sun: 4:30 a.m. to 1:15 a.m.	10-15
4 (Queen Anne Hill to Downtown Seattle to Madrona/Judkins Park)	Mon – Fri: 4:45 a.m. to 12:45 a.m. Sat/Sun: 4:30 a.m. to 1:15 a.m.	10-15
13² (Seattle Pacific to Downtown Seattle to Madrona Park)	Mon – Fri: 5:00 a.m. to 1:45 a.m. Sat: 6:00 a.m. to 1:45 a.m. Sun: 5:45 a.m. to 1:45 a.m.	5-15
31 (Magnolia to Fremont to University District)	Mon – Fri: 6:00 a.m. to 12:45 a.m. Sat/Sun: N/A	15
32 (Magnolia to Fremont to University District)	Mon – Fri: 5:45 a.m. to 12:45 a.m. Sat: 6:00 a.m. to 1:30 a.m. Sun: 6:00 a.m. to 1:00 a.m.	15

1. Schedule based on King County Metro accessed June 2021.
2. Under long-term construction reroute until 9/12/2021.
3. Under long-term construction reroute until further notice.

LEGEND



Existing Primary
Pedestrian Route



Existing South Ship
Canal Multiuse Trail



Existing City Bus
Stop



Existing Crosswalk



Difficulty seeing
pedestrians crossing



No marked crosswalk
on north side



High vehicle speeds,
narrow sidewalk



No crossing signal or
marked crosswalk



High pedestrian,
traffic, high left-turn
volumes, tight right
turn by buses



Existing MIO Boundary



Source: SPU Preliminary
Draft MIMP May 2023



Existing Transit, Pedestrian and Bike Access

SPU MIMP EIS

FIGURE

11

Transit Capacity

The transit capacity for service to and from the campus was completed for the screenlines identified previously (see Figure 10). The total available capacity, ridership and utilization at the screenlines is summarized in Table 12 for the weekday peak periods. The detailed calculations are included in Appendix E.

Table 12. Existing Transit Capacity Analysis

Screenline/Location	Direction of Travel	Weekday Routes	AM Peak Period			PM Peak Period		
			Capacity ¹	Passenger Load ¹	Utilization	Capacity ¹	Passenger Load ¹	Utilization
1 W Nickerson St west of 3rd Ave W	EB	31	289	89	31%	228	25	11%
		32	289	92	32%	375	88	23%
	WB	31	201	19	9%	341	74	22%
		32	219	59	27%	305	92	30%
2 W Nickerson St east of 3rd Ave W	EB	31	289	98	34%	228	33	15%
		32	289	107	37%	375	105	28%
	WB	31	201	28	14%	341	95	28%
		32	175	58	33%	305	119	39%
3 3rd Ave W at W Raye St	NB	3	340	23	7%	255	19	7%
		4	255	18	7%	170	16	9%
		13	298	29	10%	382	46	12%
	SB	3	340	48	14%	212	29	14%
		4	255	29	11%	298	43	15%
		13	298	36	12%	340	57	17%
4 9th Ave W / 10th Ave W north of W Armour St	NB	1	340	6	2%	340	8	2%
	SB	1	340	31	9%	340	10	3%
5 6th Ave W at W Raye St	NB	2	170	3	2%	170	8	5%

1. 1. Based on bus frequencies and ridership data provided by the respective agencies for Fall 2019 as well as the assumed capacity as shown in Table 5.

As shown in the table, the onboard utilization of the bus routes serving the campus range between 2 and 39 percent. All of the routes serving the campus have considerable remaining capacity to accommodate additional riders during the weekday peak periods.

Parking

The existing on-campus parking supply is 1,519 spaces. Parking is provided across 68 parking lots and garages throughout the SPU campus. The largest parking facility is the 326-space Dravus Parking Lot which is located along W Dravus Street between Humes Place W and 6th Avenue W. There are also several lots which contain between 100 and 200 parking spaces including the 119-space Emerson N Surface Lot located along W Nickerson Street between 3rd Avenue W and 6th Avenue W, the 173-space Ross Parking Lot located along 3rd Avenue W at W Bertona Street, the 105-space Upper Ashton Surface Lot which is located at Ashton Hall, and the 138-space Emerson Hall Garage, which is located at 500 W Emerson Street.

The existing parking spaces are currently reserved for specific uses as follows:

- 752 commuter spaces – most of which are located in the Ross Parking Lot, the Dravus Parking Lot and the Emerson N Surface Lot

- 564 residential spaces – most of which are located in the Emerson Hall Garage and the Upper Ashton Surface Lot, with smaller parking lots and garages surrounding each residential building
- 77 service vehicle spaces
- 37 ADA spaces
- 41 visitor spaces
- 40 carpool spaces
- 8 EV charging spaces

The location of existing campus parking facilities are shown on Figure 12. The campus parking supply is managed as a collective system. Allocation of stalls between uses may vary and change over time as the campus needs dictate.

Traffic Volumes

Existing 2021 traffic volumes at the study intersections were based on traffic counts collected in 2015, 2017, 2020 (pre-pandemic), and 2021, and adjusted as described in the Analysis Methods section of this report. The estimated existing (2021) weekday AM and PM peak hour traffic volumes are shown on Figure 13. The traffic volumes are rounded to the nearest five vehicles given the adjustments previously described. The detailed weekday peak period traffic counts are included in Appendix A.

Traffic Operations

Weekday peak hour traffic operations for existing conditions are evaluated at the study intersections as well as the existing parking lot access points. Results for the existing operations analyses are summarized in Table 13. Detailed LOS worksheets for each intersection analysis are included in Appendix G. As noted in the Analysis Methods section, the City generally recognizes LOS E and F as poor operations for signalized locations and LOS F for unsignalized locations.

Table 13. Existing Peak Hour LOS Summary

Intersection	Traffic Control	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS ¹	Delay ²	WM ³	LOS	Delay	WM
1. 6th Ave W/W Nickerson St	TWSC	E	37.6	SB	F	58.8	NB
2. 6th Ave W/W Emerson St	AWSC	A	7.2	-	A	7.3	-
3. 6th Ave W/W Bertona St	TWSC	B	12.1	NB	B	13.0	SB
4. 6th Ave W/W Dravus St	AWSC	A	7.2	-	A	7.2	-
5. W Emerson St/W Bertona St	TWSC	B	11.8	SB	D	25.4	SB
6. 3rd Ave W/W Nickerson St	Signal	B	15.4	-	C	21.6	-
7. 3rd Ave W/W Bertona St	TWSC	C	16.2	EB	F	60.1	EB
8. 3rd Ave W/W Cremona St	TWSC	B	11.8	WB	C	15.8	WB
9. 3rd Ave W/W Dravus St (N)	TWSC	B	10.4	WB	C	15.5	WB
10. 3rd Ave W/W Dravus St (S)	TWSC	B	11.0	EB	B	14.1	EB
11. Queen Anne Ave N/W Nickerson St	TWSC	F	119.2	NB	F	324.7	NB
12. W Cremona St/W Nickerson St	TWSC	C	17.5	NB	D	23.1	NB
13. Queen Anne Ave N/W Cremona St	TWSC	A	8.9	EB	B	10.0	EB
14. 3rd Ave N/W Florentia St/W Nickerson St ⁴	Signal	D	37.9	-	D	44.3	-
15. Fremont Ave N/W Florentia St	TWSC	C	23.8	EB	C	15.5	EB
16. Fremont Ave N/W Nickerson St	Signal	F	82.1	-	D	51.9	-

Note: TWSC = Two-Way Stop Controlled. AWSC = All-Way Stop Controlled. **Bold** text indicates operating at LOS E or F if signalized or LOS F for TWSC.

1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (HCM) 6th Edition (TRB, 2016)

2. Average delay per vehicle in seconds

3. Worst movement reported for TWSC intersections.

4. Evaluated using HCM 2000 because the configuration is not supported with the HCM 6th Edition method due to non-NEMA signal configuration

Table 13 shows that off-site study intersections currently operate acceptably at LOS D or better during the weekday AM and PM peak hour, with the following exceptions:

- **6th Avenue W/W Nickerson Street** – The northbound approach of this two-way stop-controlled (TWSC) intersection currently operates at LOS F during the PM peak hour. The poor operations are primarily due to high volumes along W Nickerson Street which limit the availability of gaps for side street traffic turning onto or crossing W Nickerson Street.
- **3rd Avenue W/W Bertona Street** – The eastbound approach of this TWSC intersection currently operates at LOS F during the PM peak hour. The poor operations are primarily due to high volumes along the side street approach (250 vehicles) conflicting with a significant number of pedestrians (85 pedestrians) observed crossing the western leg of the intersection during the

PM peak hour. Synchro software conservatively assumes that pedestrian travel across the crosswalk individual evenly spaced throughout the hour and assumes pedestrian never yield. This is likely overestimating delays given pedestrians frequently cross intersections in groups. Additionally, pedestrian activity is expected to be more clustered near a university consistent with class schedules and other scheduled activities. Without the conflicting pedestrian movements the side street approach would operate at LOS B.

- **Queen Anne Avenue N/W Nickerson Street** – The northbound approach of this TWSC intersection currently operates at LOS F during the AM and PM peak hours. The poor operations is primarily due to high volumes along W Nickerson Street which limit the availability of gaps for side street traffic turning onto W Nickerson Street.
- **Fremont Avenue N/W Nickerson Street** – This signalized intersection currently operates at LOS F during the AM peak hour. The poor operations is primarily due to the atypical configuration of the intersection and high turning volumes which necessitate split phase signal operations at the intersection. The split phase timing in conjunction with high intersection volumes at intersecting arterials results in higher levels of delay and fewer opportunities to optimize the signal timing.

Neighborhood Traffic

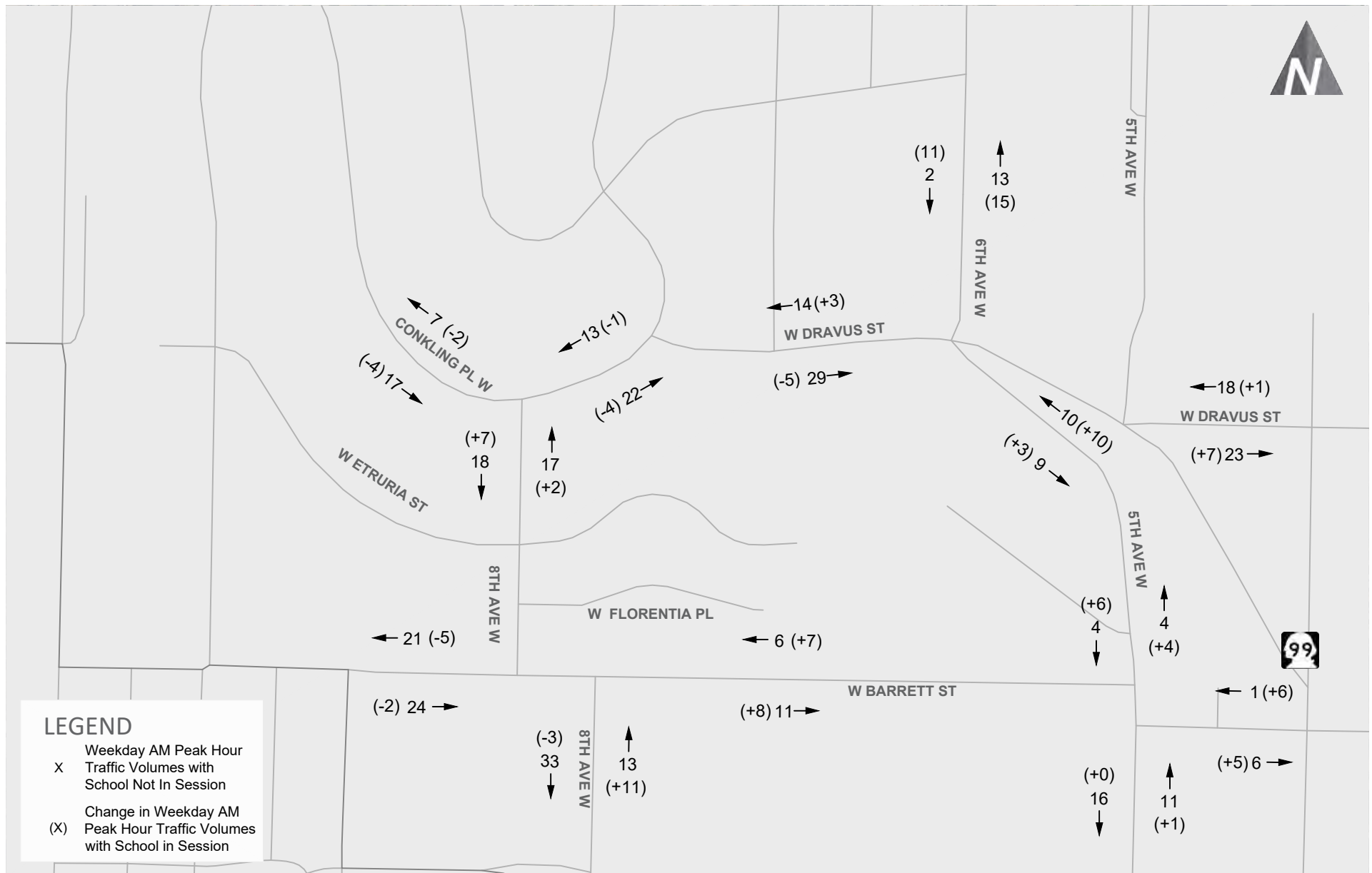
Traffic counts were also collected at the following intersections within the neighborhood to the west and south of SPU both when SPU classes were in session (January 12, 2023) and when they were not in session (December 15, 2022) to understand the impacts of SPU-related traffic along neighborhood streets. The differences in counts could be attributed to changes in background neighborhood traffic as well as University traffic. Detailed turning movement counts are included in Attachment A.

1. 8th Avenue W (West) & W Barrett Street
2. 8th Avenue W (East) & W Barrett Street
3. 8th Avenue W & W Dravus Street
4. 6th Avenue W & W Dravus Street
5. 5th Avenue W & W Barrett Street

Figure 14 and Figure 15 depict the neighborhood roadway segment volumes derived from the intersection counts with and without classes in session for the AM and PM peak hours, respectively. These counts indicate that volumes along the adjacent roadways are low during the AM and PM peak hours (generally below 60 vehicles per hour, or less than 1 vehicle per minute). Along several roadway segments the peak hour traffic volumes decrease when SPU classes are in session. The differences in neighborhood traffic volume conditions with and without classes in session are summarized below:

- Along W Barrett Street, traffic volumes increase by at most 15 vehicles during the AM peak hour, and 3 vehicles during the PM peak hour.
- Along W Dravus Street, traffic volumes decrease during the AM peak hour, and increase by at most 12 vehicles during the PM peak hour.
- Along 9th Avenue W, traffic volumes increase by at most 9 vehicles during the AM peak hour, and 2 vehicles during the PM peak hour.
- Along 5th Avenue W, traffic volumes increase by at most 13 vehicles during the AM peak hour, and 21 vehicles during the PM peak hour.

Overall, the neighborhood streets surrounding SPU observe low traffic volumes during the peak hours with limited differences between the two sets of traffic counts.

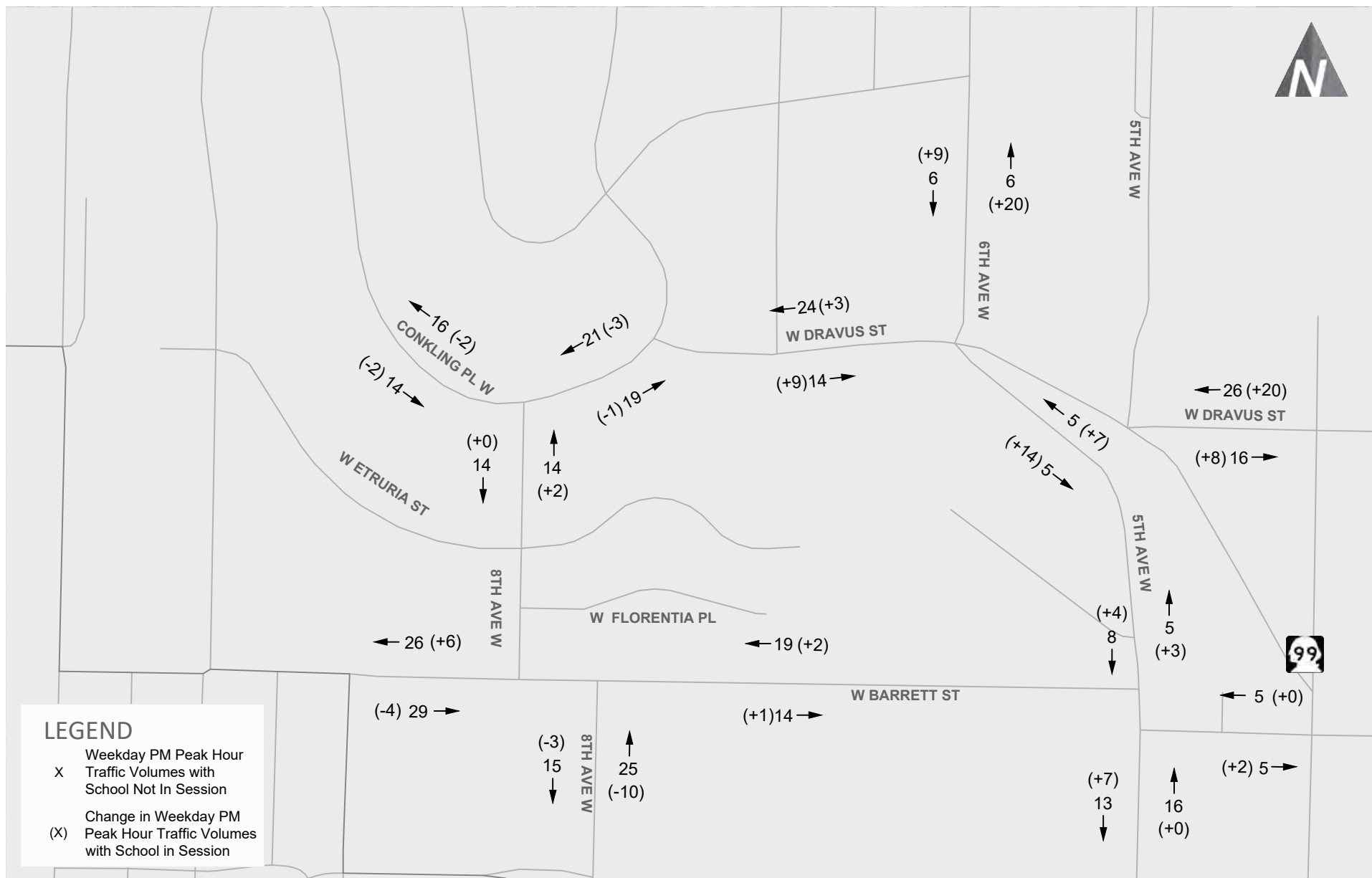


Existing AM Peak Hour Link Volumes

SPU MIMP EIS

FIGURE

14



Existing PM Peak Hour Link Volumes

SPU MIMP EIS

FIGURE

15

Traffic Safety

Collision records within the study area are reviewed to identify existing traffic safety issues at the study intersections. The most recent non-pandemic three-year summary of collision data from the Washington Department of Transportation (WSDOT) is for 2017-2019. Collisions are also evaluated along the 6th Avenue W, W Bertona Street, 3rd Avenue W, and Nickerson Street corridors to evaluate the vehicle, pedestrian and bicycle safety conditions. The collisions are summarized in Table 14.

Table 14. Collision Summary (2017-2019)

		Collisions per Year				Annual Average	Total Collisions Involving Pedestrian/ Bicyclist in the Last 3 Years
Location	Traffic Control	2017	2018	2019	Total		
Intersection							
1. 6th Ave W/W Nickerson St	TWSC	3	3	0	3	2.0	0
2. 6th Ave W/W Emerson St	AWSC	0	1	1	0	0.7	0
3. 6th Ave W/W Bertona St	TWSC	1	1	0	1	0.7	0
4. 6th Ave W/W Dravus St	AWSC	0	0	0	0	0.0	0
5. W Emerson St/W Bertona St	TWSC	0	0	0	0	0.0	0
6. 3rd Ave W/W Nickerson St	Signal	5	3	3	5	3.7	1
7. 3rd Ave W/W Bertona St	TWSC	1	4	2	1	2.3	0
8. 3rd Ave W/W Cremona St	TWSC	0	0	1	0	0.3	0
9. 3rd Ave W/W Dravus St (N)	TWSC	0	0	0	0	0.0	0
10. 3rd Ave W/W Dravus St (S)	TWSC	0	0	0	0	0.0	0
11. Queen Anne Ave N/W Nickerson St	TWSC	1	1	1	1	1.0	0
12. W Cremona St/W Nickerson St	TWSC	2	2	2	2	2.0	0
13. Queen Anne Ave N/W Cremona St	TWSC	0	0	0	0	0.0	0
14. 3rd Ave N/W Florentia St/W Nickerson St	Signal	1	3	3	1	2.3	0
15. Fremont Ave N/W Florentia St	TWSC	0	1	2	0	1.0	0
16. Fremont Ave N/W Nickerson St	Signal	5	6	7	5	6.0	1
Roadway Segment							
6th Ave W between W Nickerson St and W Emerson St		0	0	0	0	0.0	0
6th Ave W between W Emerson St and W Bertona St		0	0	0	0	0.0	0
6th Ave W between W Bertona St and W Dravus St		0	0	0	0	0.0	0
W Bertona St between 6th Ave W and 5th Ave W		0	0	0	0	0.0	0
W Bertona St between 5th Ave W and 3rd Ave W		0	0	0	0	0.0	0
3rd Ave W between W Nickerson St and W Bertona St		0	0	0	0	0.0	0
3rd Ave W between W Bertona St and W Cremona St		0	0	0	0	0.0	0
3rd Ave W between W Cremona St and W Dravus St (north)		0	0	0	0	0.0	0
3rd Ave W between W Cremona St and W Dravus St (north)		0	0	0	0	0.0	0
W Nickerson St between 6th Ave W and 3rd Ave W		3	0	0	3	1.0	0
W Nickerson St between 3rd Ave W and Queen Anne Ave N		0	0	0	0	0.0	0
Nickerson St between Queen Anne Ave N and W Cremona St		0	1	0	1	0.3	0
Nickerson St between Florentia St and Fremont Ave N		0	0	0	0	0.0	0

Source: WSDOT 2020

Note: 2020 was not included as it did not represent typical conditions.

As shown in the table, there were no study intersections or roadway segments that meet the signalized or unsignalized HCL criteria, nor were there any intersections that meet the pedestrian/bicycle HCL criteria. There were no reported fatalities, and one serious injury reported. The serious injury occurred at the intersection of 3rd Avenue W and W Nickerson Street when a turning vehicle struck a pedestrian.

Impacts of the No Action Alternative

This chapter describes the future transportation conditions for the 2031 and 2035 horizon years considering the No Action Alternative. The No Action Alternative is the metric by which the Action Alternatives impacts are measured against.

The No Action Alternatives reflect the existing campus infrastructure including the location and quantity of parking; however, the population is anticipated to increase. In both the 2031 and 2035 No Action Alternatives, the campus population would include 4,300 FTE students and 616 employees. These represent population figures that have occurred historically on campus. The on-campus student housing supply would include 1,700 beds for undergraduates, consistent with the existing housing supply. Of the 2,600 off-campus students, 1,600 would be undergraduates and 1,000 would be graduate students.

Trip Generation

The methodology used to estimate the SPU trip generation for the 2031 and 2035 No Action Alternatives is consistent with existing conditions with the exception of changes in population, as stated above. While Sound Transit's Link light rail extension is underway, the Ballard extension, which would include a station just over ½-mile from campus is not expected to complete until after 2035. As such, mode splits were not adjusted in estimating trip generation for the No Action Alternatives. Based on the change in campus population, the resulting No Action trip generation is summarized in Table 15.

Table 15. No Action Trip Generation Summary

Time Period	One-Way Person Trips				Vehicular Trip Rate ³	Vehicle Trips ⁴		
	Vehicular ²	Transit	Non-Motorized/ Other	Total		In	Out	Total
<u>Commuter¹</u>								
Daily	4,428	1,174	830	6,432	<i>0.98 per FTE student</i>	2,111	2,111	4,222
AM Peak Hour	425	113	80	617	<i>0.09 per FTE student</i>	332	73	405
PM Peak Hour	443	117	83	643	<i>0.10 per FTE student</i>	165	257	422
<u>Residents</u>								
Daily	340	340	2,720	3,400	<i>0.20 per bed</i>	170	170	340
AM Peak Hour	12	12	98	122	<i>0.01 per bed</i>	5	7	12
PM Peak Hour	26	26	209	262	<i>0.02 per bed</i>	13	13	26
<u>Other⁵</u>								
Daily	221	59	42	322	<i>0.049 per FTE student</i>	106	106	212
AM Peak Hour	21	6	4	31	<i>0.005 per FTE student</i>	17	4	20
PM Peak Hour	22	6	4	32	<i>0.005 per FTE student</i>	8	13	21
<u>Total No Action</u>								
Daily	4,989	1,573	3,592	10,154		2,386	2,386	4,774
AM Peak Hour	459	131	182	771		354	84	437
PM Peak Hour	491	149	297	937		186	283	469
<u>Net New Trips (No Action relative to Existing)</u>								
Daily	907	267	474	1,647		435	435	872
AM Peak Hour	85	24	26	134		65	15	81
PM Peak Hour	90	25	40	155		33	53	86

Note: FTE = full-time equivalent.

1. Person trips are 1-way trips and include both students and employees.
2. Vehicular person trips include both single occupancy vehicles and carpools/vanpool. An average vehicle occupancy of 2.5 was assumed for the carpool/vanpool to convert person trips to vehicular trips.
3. Trip rate shown per FTE for commuters and per bed for residents. FTE = full-time equivalent.
4. Reflect two-way trips (both inbound and outbound).
5. Inclusive of visitors and other services for campus.

As shown in the table, the No Action Alternatives would generate approximately 872 net new daily vehicular trips with 81 occurring during the weekday AM peak hour and 86 occurring during the weekday PM peak hour.

Street System

The No Action Alternative assumes no change in campus vehicle access and circulation. A review of local and regional capital improvement programs and long-range transportation plans was conducted to determine planned funded and unfunded transportation projects that would impact the off-site study area. The review included, but was not limited to, the City of Seattle 2021 – 2026 *Proposed Capital Improvement Program* (CIP) and Comprehensive Plan. No changes in the study area were identified.

Non-Motorized Transportation

No changes to the existing non-motorized system are assumed with the No Action condition as no improvements were identified in the review of the CIP. However, recommended improvements are outlined in the Seattle's 2035 Comprehensive Plan and 2014 Bicycle Master Plan, including bicycle lanes along W Bertona Street between 11th Avenue W and Nickerson Street. While specific plans for these improvements are not identified, these facilities would improve bicycle connectivity in the study area if implemented.

No changes to the on-campus bicycle parking facilities are assumed with the No Action alternatives.

Shared Mobility

No changes to the existing shared mobility services are assumed with the No Action alternatives.

Transit Service

Transit facilities on-campus may be improved with the No Action Alternatives, based on a review of Seattle's Transit Master Plan which highlights 3rd Avenue as a potential candidate for RapidRide service. However, the Transit Master Plan does not outline an implementation plan for this specific corridor. As such, the No Action Alternatives analysis assumes the current transit access patterns would continue and there would be no changes to transit frequency or capacity.

The transit capacity analysis is provided below for the No Action Alternatives. The analyses assume background transit growth associated with SPU specific growth as well as inherent transit growth unrelated to the SPU MIMP.

- **SPU Population Growth** – Specific transit growth associated with SPU is based on the net new transit trips as reflected in Table 15. This increase in transit trips is related to the growth in population. Person transit trips in Table 15 are one-way for the weekday AM and PM peak hour.
- **Background Growth** – An annual background growth rate of 1 percent was applied to existing ridership consistent with Seattle 2035 City Comprehensive Plan transit growth.

Based on the transit forecasts, the resulting 2031 and 2035 No Action transit vehicle capacity analysis is summarized in Table 16 and Table 17, respectively, relative to the existing utilization. The detailed transit capacity analysis is included in Appendix E.

As shown in the table, the vehicle utilization at the screenlines is under 50 percent under both No Action Alternatives, with estimated increases in utilization of 8 percent or less relative to existing conditions such that there is estimated to be available capacity to accommodate additional riders during the weekday peak periods.

Table 16. 2031 No Action Transit Capacity Analysis

Screenline/Location	Direction of Travel	Weekday Routes	AM Peak Period Utilization ¹			PM Peak Period Utilization		
			Existing	No Action	Change	Existing	No Action	Change
1 W Nickerson St west of 3rd Ave W	EB	31	31%	36%	+ 5%	11%	13%	+ 2%
		32	32%	36%	+ 4%	23%	26%	+ 3%
	WB	31	9%	10%	+ 1%	22%	25%	+ 3%
		32	27%	30%	+ 4%	30%	34%	+ 4%
2 W Nickerson St east of 3rd Ave W	EB	31	34%	38%	+ 4%	15%	18%	+ 3%
		32	37%	42%	+ 5%	28%	32%	+ 4%
	WB	31	14%	17%	+ 4%	28%	32%	+ 4%
		32	33%	40%	+ 7%	39%	44%	+ 5%
3 3rd Ave W at W Raye St	NB	3	7%	8%	+ 1%	7%	9%	+ 1%
		4	7%	8%	+ 1%	9%	10%	+ 1%
		13	10%	12%	+ 2%	12%	14%	+ 2%
	SB	3	14%	16%	+ 2%	14%	16%	+ 2%
		4	11%	13%	+ 2%	15%	17%	+ 2%
		13	12%	13%	+ 1%	17%	19%	+ 2%
4 9th Ave W / 10th Ave W north of W Armour St	NB	1	2%	2%	+ 0%	2%	3%	+ 0%
	SB	1	9%	10%	+ 1%	3%	3%	+ 0%
5 6th Ave W at W Raye St	NB	2	2%	2%	+ 0%	5%	5%	+ 1%

1. Capacity for each screenline assumed for the utilization calculation unchanged for No Action relative to existing conditions.

Table 17. 2035 No Action Transit Capacity Analysis

Screenline/Location	Direction of Travel	Weekday Routes	AM Peak Period Utilization ¹			PM Peak Period Utilization		
			Existing	No Action	Change	Existing	No Action	Change
1 W Nickerson St west of 3rd Ave W	EB	31	31%	37%	+ 6%	11%	13%	+ 2%
		32	32%	38%	+ 6%	23%	28%	+ 4%
	WB	31	9%	11%	+ 1%	22%	26%	+ 4%
		32	27%	32%	+ 5%	30%	36%	+ 6%
2 W Nickerson St east of 3rd Ave W	EB	31	34%	40%	+ 6%	15%	19%	+ 4%
		32	37%	44%	+ 7%	28%	34%	+ 6%
	WB	31	14%	18%	+ 4%	28%	33%	+ 5%
		32	33%	41%	+ 8%	39%	46%	+ 7%
3 3rd Ave W at W Raye St	NB	3	7%	8%	+ 1%	7%	9%	+ 2%
		4	7%	8%	+ 2%	9%	11%	+ 1%
		13	10%	12%	+ 2%	12%	14%	+ 2%
	SB	3	14%	17%	+ 3%	14%	16%	+ 3%
		4	11%	13%	+ 2%	15%	17%	+ 3%
		13	12%	14%	+ 2%	17%	20%	+ 3%
4 9th Ave W / 10th Ave W north of W Armour St	NB	1	2%	2%	+ 0%	2%	3%	+ 0%
	SB	1	9%	10%	+ 1%	3%	3%	+ 0%
5 6th Ave W at W Raye St	NB	2	2%	2%	+ 0%	5%	5%	+ 1%

2. Capacity for each screenline assumed for the utilization calculation unchanged for No Action relative to existing conditions.

Traffic Volumes

The 2031 and 2035 No Action traffic volumes were projected based on growth in background traffic and the campus population.

Background

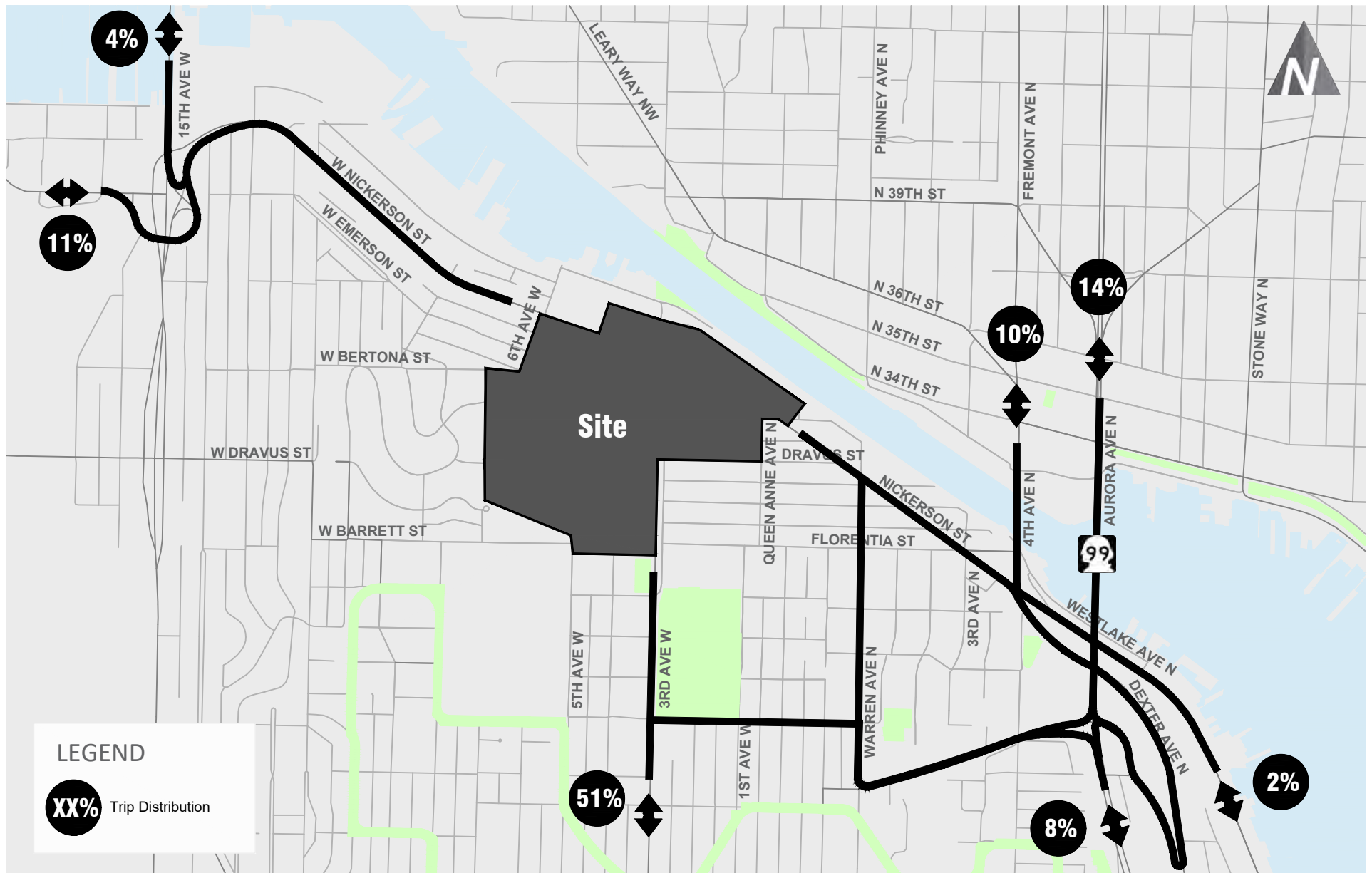
Background traffic growth is determined based on an annual growth rate and traffic generated from the planned “pipeline” developments. A 1.0 percent per year growth rate is applied to study intersection existing (2021) traffic volumes to estimate the future 2031 and 2035 background traffic growth. The annual growth rate is consistent with other traffic analyses in the vicinity of the site and accounts for the general traffic growth. The pipeline development traffic is added to the 2031 and 2035 background traffic volumes to form the basis of the 2031 and 2035 No Action Alternatives traffic forecasts at the study intersections.

Campus

Campus-related vehicle trip generation is summarized at the beginning of this chapter in Table 15. The 2031 and 2035 No Action Alternatives would generate approximately 846 net new daily vehicle trips with 79 occurring during the weekday AM peak hour and 84 during the weekday PM peak hour. The No Action Alternatives campus trip distribution is determined for residents and commuters as follows:

- **Student Commuter Trips** – The distribution for commuters (inclusive of undergraduate and graduate students that do not live on campus) was based on existing (2019) travel patterns and home location information for the student campus population, collected as part of the 2019 Student Commute Survey. The employee population is not expected to increase under the No Action Alternatives. Trip distribution patterns for student commuters is shown on Figure 16.
- **Residential Trips** – The residential trip distribution for students that live on campus is based on *OnTheMap*, a web-based mapping and reporting application, showing where people work that live within a quarter-mile radius of the proposed site. The zip codes were evaluated to determine if a person would be more likely to travel to the zip code via vehicle or by other means. Trips to zip codes closer to the proposed project site or in more transit-oriented locations are more likely to use transit, walk, bike, or other non-SOV modes. Zip codes outside the Seattle City limits and/or further from the site are more likely to drive. The anticipated residential distribution is shown in Figure 17.
- **Other Trips** – The distribution for “other” trips was assumed to be consistent with the distribution of student commuters.

The trips to and from campus are assigned proportionately to the locations of on-site parking based on the location, amount, and type of parking. Residential trips were routed to resident parking areas while commuter trips were routed to SPU commuter parking lots. The 2031 and 2035 No Action study intersection traffic volumes are determined by adding the net new No Action project trips to the 2031 and 2035 background forecasts. The resulting 2031 and 2035 No Action peak hour traffic volumes are summarized on Figure 18 and Figure 19, respectively.



Student Commuter Trip Distribution

SPU MIMP EIS

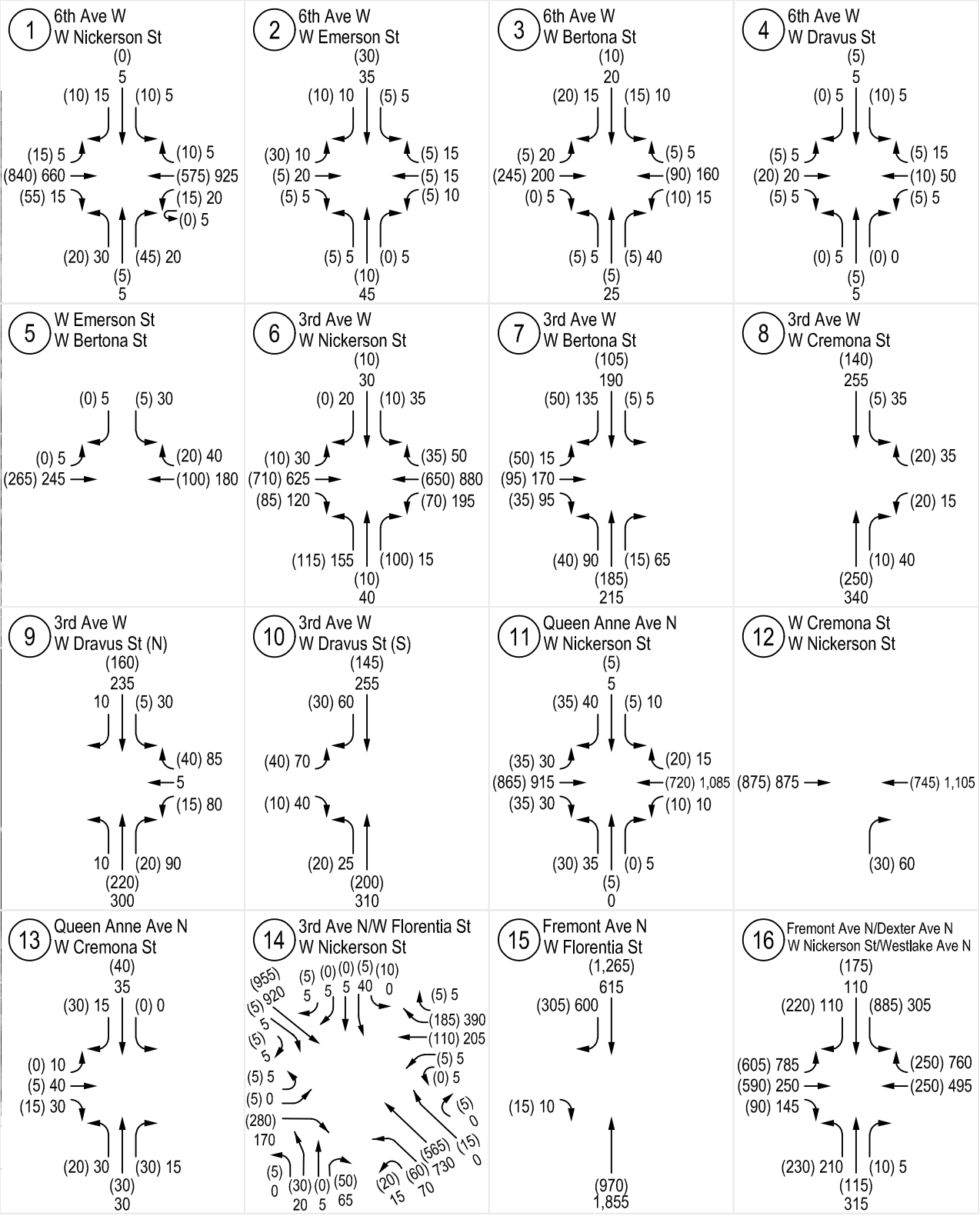
FIGURE

16

transpogroup 



17



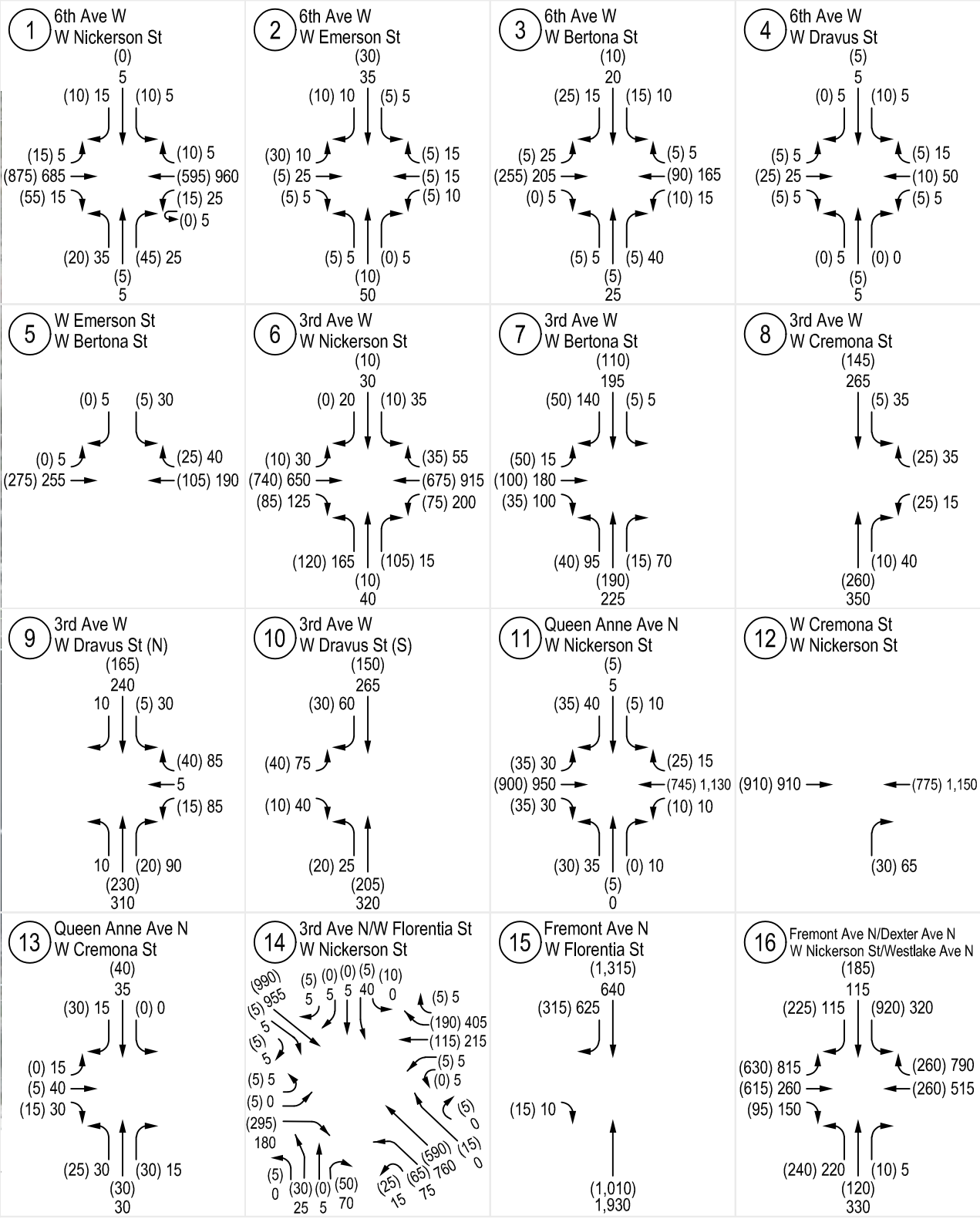
No-Action (2031) Weekday Peak Hour Traffic Volumes

SPU MIMP EIS

FIGURE

18





No-Action (2035) Weekday Peak Hour Traffic Volumes

SPU MIMP EIS

FIGURE

19



Traffic Operations

The future 2031 and 2035 No Action operations analysis was conducted using the same methodology and intersection parameters such as channelization and intersection control as existing conditions. The 2031 No Action weekday peak hour intersection operations are shown in Table 18 and the 2035 No Action weekday peak hour intersection operations are shown in Table 19.

Table 18. Existing (2021) and No Action (2031) Weekday Peak Hour LOS Summary

Intersection	Traffic Control	AM Peak Hour						PM Peak Hour					
		Existing			No Action (2031)			Existing			No Action (2031)		
		LOS ¹	Delay ²	WM ³	LOS	Delay	WM	LOS	Delay	WM	LOS	Delay	WM
1. 6th Ave W/W Nickerson St	TWSC	E	37.6	SB	F	52.6	SB	F	58.8	NB	F	118.1	NB
2. 6th Ave W/W Emerson St	AWSC	A	7.2	-	A	7.3	-	A	7.3	-	A	7.4	-
3. 6th Ave W/W Bertona St	TWSC	B	12.1	NB	B	12.6	NB	B	13.0	SB	B	13.7	SB
4. 6th Ave W/W Dravus St	AWSC	A	7.2	-	A	7.2	-	A	7.2	-	A	7.3	-
5. W Emerson St/W Bertona St	TWSC	B	11.8	SB	B	12.3	SB	D	25.4	SB	D	28.0	SB
6. 3rd Ave W/W Nickerson St	Signal	B	15.4	-	C	20.0	-	C	21.6	-	C	30.5	-
7. 3rd Ave W/W Bertona St	TWSC	C	16.2	EB	C	18.9	EB	F	60.1	EB	F	92.6	EB
8. 3rd Ave W/W Cremona St	TWSC	B	11.8	WB	B	12.7	WB	C	15.8	WB	C	17.0	WB
9. 3rd Ave W/W Dravus St (N)	TWSC	B	10.4	WB	B	11.2	WB	C	15.5	WB	C	18.8	WB
10. 3rd Ave W/W Dravus St (S)	TWSC	B	11.0	EB	B	12.0	EB	B	14.1	EB	C	16.1	EB
11. Queen Anne Ave N/ W Nickerson St	TWSC	F	119.2	NB	F	251.9	NB	F	324.7	NB	F	716.2	NB
12. W Cremona St/W Nickerson St	TWSC	C	17.5	NB	C	19.8	NB	D	23.1	NB	D	26.7	NB
13. Queen Anne Ave N/W Cremona St	TWSC	A	8.9	EB	A	8.9	EB	B	10.0	EB	B	10.4	EB
14. 3rd Ave N/W Florentia St/ W Nickerson St ⁴	Signal	D	37.9	-	D	42.4	-	D	44.3	-	E	57.6	-
15. Fremont Ave N/W Florentia St	TWSC	C	23.8	EB	D	27.3	EB	C	15.5	EB	C	16.5	EB
16. Fremont Ave N/W Nickerson St	Signal	F	82.1	-	F	94.6	-	D	51.9	-	E	75.5	-

Note: TWSC = Two-Way Stop Controlled. AWSC = All-Way Stop Controlled. **Bold** text indicates operating at LOS E or F if signalized or LOS F for TWSC.

1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (HCM) 6th Edition (TRB, 2016)

2. Average delay per vehicle in seconds

3. Worst movement reported for TWSC intersections.

4. Evaluated using HCM 2000 because the configuration is not supported with the HCM 6th Edition method due to non-NEMA signal configuration

As shown in Table 18, the majority of off-site study intersections would continue to operate acceptably at LOS D or better during the weekday AM and PM peak hours. During the weekday peak hours, five intersections are forecast to operate below LOS E or F at signalized locations and LOS F at stop-controlled intersections, consistent with existing conditions. In addition to increased delay at intersections operating poorly under existing conditions, the intersection of 6th Avenue W/W Nickerson Street degrades to LOS F during the AM peak hour (under existing conditions LOS F was observed during the PM peak hour only) and the intersection of Fremont Avenue N/W Nickerson Street degrades to LOS E during the PM peak hour (under existing conditions LOS E was observed during the AM peak hour only). The four intersections that would operate poorly under 2031 No Action conditions are outlined below:

- **6th Avenue W/W Nickerson Street** – The northbound approach of this two-way stop-controlled (TWSC) intersection would continue to operate at LOS F during the PM peak hour and the southbound approach would degrade to LOS F during the AM peak hour due to the forecast increase in volumes along both 6th Avenue W and W Nickerson Street.
- **3rd Avenue W/W Bertona Street** – The eastbound approach of this TWSC intersection would continue to operate at LOS F during the PM peak hour due to the forecast increase in volumes along both 3rd Avenue W and W Bertona Street.

- **Queen Anne Avenue N/W Nickerson Street** – The northbound approach of this TWSC intersection would continue to operate at LOS F during the AM and PM peak hours due to the forecast increase in volumes along both Queen Anne Avenue N and W Nickerson Street.
- **3rd Avenue N/W Florentia Street/W Nickerson Street** – This signalized intersection would degrade to LOS E during the PM peak hour. The poor operations are primarily due to the atypical six-leg configuration of the intersection which necessitates split phase signal operations at the intersection. The split phase timing in conjunction with high intersection volumes results in higher levels of delay and fewer opportunities to optimize the signal timing.
- **Fremont Avenue N/W Nickerson Street** – This signalized intersection would continue to operate at LOS F during the AM peak hour and degrade to LOS E during the PM peak hour due to the atypical intersection configuration and signal operations combined with the forecast increase in volumes along Fremont Avenue N and W Nickerson Street.

Table 19. Existing (2021) and No Action (2035) Weekday Peak Hour LOS Summary

Intersection	Traffic Control	AM Peak Hour						PM Peak Hour					
		Existing			No Action (2035)			Existing			No Action (2035)		
		LOS ¹	Delay ²	WM ³	LOS	Delay	WM	LOS	Delay	WM	LOS	Delay	WM
1. 6th Ave W/W Nickerson St	TWSC	E	37.6	SB	F	52.6	SB	F	58.8	NB	F	180.0	NB
2. 6th Ave W/W Emerson St	AWSC	A	7.2	-	A	7.3	-	A	7.3	-	A	7.4	-
3. 6th Ave W/W Bertona St	TWSC	B	12.1	NB	B	12.8	NB	B	13.0	SB	B	13.6	SB
4. 6th Ave W/W Dravus St	AWSC	A	7.2	-	A	7.3	-	A	7.2	-	A	7.3	-
5. W Emerson St/W Bertona St	TWSC	B	11.8	SB	B	12.5	SB	D	25.4	SB	D	28.8	SB
6. 3rd Ave W/W Nickerson St	Signal	B	15.4	-	C	23.6	-	C	21.6	-	C	35.6	-
7. 3rd Ave W/W Bertona St	TWSC	C	16.2	EB	C	20.1	EB	F	60.1	EB	F	116.8	EB
8. 3rd Ave W/W Cremona St	TWSC	B	11.8	WB	B	12.8	WB	C	15.8	WB	C	17.3	WB
9. 3rd Ave W/W Dravus St (N)	TWSC	B	10.4	WB	B	11.4	WB	C	15.5	WB	C	19.2	WB
10. 3rd Ave W/W Dravus St (S)	TWSC	B	11.0	EB	B	12.2	EB	B	14.1	EB	C	16.8	EB
11. Queen Anne Ave N/ W Nickerson St	TWSC	F	119.2	NB	F	313.6	NB	F	324.7	NB	F	925.3	NB
12. W Cremona St/W Nickerson St	TWSC	C	17.5	NB	C	20.8	NB	D	23.1	NB	D	28.3	NB
13. Queen Anne Ave N/W Cremona St	TWSC	A	8.9	EB	A	8.9	EB	B	10.0	EB	B	10.4	EB
14. 3rd Ave N/W Florentia St/ W Nickerson St ⁴	Signal	D	37.9	-	D	44.4	-	D	44.3	-	E	67.1	-
15. Fremont Ave N/W Florentia St	TWSC	C	23.8	EB	D	28.8	EB	C	15.5	EB	C	16.9	EB
16. Fremont Ave N/W Nickerson St	Signal	F	82.1	-	F	109.4	-	D	51.9	-	E	82.4	-

Note: TWSC = Two-Way Stop Controlled. AWSC = All-Way Stop Controlled. **Bold** text indicates operating at LOS E or F if signalized or LOS F for TWSC.

1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (HCM) 6th Edition (TRB, 2016)

2. Average delay per vehicle in seconds

3. Worst movement reported for TWSC intersections.

4. Evaluated using HCM 2000 because the configuration is not supported with the HCM 6th Edition method due to non-NEMA signal configuration

As shown in Table 19, the majority of off-site study intersections would continue to operate acceptably at LOS D or better during the weekday AM and PM peak hours. During the weekday peak hours, five intersections are forecast to operate below LOS E or F for signalized locations and LOS F at stop-controlled intersections. The projected operations are generally consistent between the 2031 and 2035 No Action conditions in terms of poor operations.

Traffic Safety

As traffic volumes increase, traffic safety issues could increase proportionally. However, there are no significant safety concerns identified within the study area under existing conditions.

Parking

No change to the existing parking supply of 1,519 stalls is proposed with the 2031 and 2035 No Action Alternatives (see Figure 12).

Impacts of the Proposed MIMP Action Alternatives

This chapter describes the impacts of the 2031 and 2035 Proposed MIMP Action Alternatives. The impacts of the Proposed MIMP Action Alternatives are identified through a comparison to the No Action Alternatives.

2031 Proposed MIMP Action Alternative. As noted previously, the 2031 Proposed MIMP Action Alternative would include planned projects only. The planned projects outlined in the MIMP include new Student Center, which will centralize and enhance student-related functions within the campus core, demolish Marston Hall to create new open space, and repurpose Moyer Hall to allow for the demolition of Marston Hall. The planned projects outlined in the MIMP would not result in an increase in student or employee populations, nor would they result in any notable changes to the transportation network, parking supply, or parking locations. There may be slight changes to internal pedestrian circulation due to the centralization of the Student Center and establishment of new open space, but from a transportation standpoint, the impacts of the 2031 Proposed MIMP would be functionally equivalent to the impacts of the 2031 No Action Alternative.

2035 Proposed MIMP Action Alternative. The 2035 Proposed MIMP Action Alternative would include planned projects (near-term) and potential projects (long-term). In coordination with the potential projects, the Proposed MIMP would include a boundary expansion, increased height limits, and street and alleyway vacations. The campus population would include 6,000 FTE students on campus and 860 employees. The on-campus student housing would include 3,150 beds for undergraduates. Of the 2,850 off-campus students, 1,350 would be undergraduates and 1,500 would be graduate students. The proposed MIMP would include approximately 237,100 square feet of mixed-use development located along W Nickerson Street. New parking lots and structures would be constructed, and some existing lots would be abandoned, resulting in an overall increase in parking.

The analysis outlined within this section focuses on a comparison between the 2035 Proposed MIMP and the 2035 No Action Alternative.

Trip Generation

Trip generation for the 2035 Proposed MIMP is comprised of a combination of trips generated by the following:

- **SPU Population Growth.** As part of the Proposed MIMP, the campus population would increase by 1,700 students and 244 employees/staff from the No Action Alternative to a total of 6,000 students and 860 employees.
- **Mixed-Use Development.** The Proposed MIMP would include approximately 237,100 square feet of mixed-use development, comprised of 123,850 square feet of office space, 101,950 square feet of retail space, and 11,300 square feet of grocery store space. Additionally, the boundary expansion and potential projects would result in the demolition of approximately 95,000 square feet of commercial space. This would be assumed as part of the 2035 development plan.

SPU Population Trip Generation

The method used to estimate the SPU trip generation for the Proposed MIMP is consistent with the No Action Alternative and based on the campus population outlined previously. A comparison of the existing, No Action, and Action Alternatives for SPU-related trip generation is summarized on Figure 20 for the weekday daily and peak hours.



Figure 20. SPU Weekday Trip Generation Comparison (2035)

Table 20 summarizes the trip generation for the campus population of the Proposed MIMP. Detailed trip generation calculations are provided in Appendix C. As shown in the table, the total daily person trips related to the campus population are forecast to increase with the Proposed MIMP Action Alternative compared to the No Action Alternative. The increase in daily person trips is due to additional student housing resulting in more non-motorized activity surrounding campus and a smaller increase in vehicular and transit trips.

The campus population of the Proposed MIMP would generate approximately 1,088 net new daily vehicle trips with 88 new trips occurring during the weekday AM peak hour and 103 new trips during the weekday PM peak hour, as compared to the No Action Alternative.

Table 20. Proposed MIMP Campus Trip Generation Summary (2035)

Time Period	One-Way Person Trips				Vehicular Trip Rate ³	Vehicle Trips ⁴		
	Vehicular ²	Transit	Non-Motorized/ Other	Total		In	Out	Total
<u>Commuter¹</u>								
Daily	5,220	1,318	884	7,422	<i>0.83 per FTE student</i>	2,491	2,491	4,982
AM Peak Hour	501	127	87	715	<i>0.08 per FTE student</i>	392	86	478
PM Peak Hour	522	132	88	742	<i>0.08 per FTE student</i>	194	304	498
<u>Residents</u>								
Daily	630	630	5,040	6,300	<i>0.20 per bed</i>	315	315	630
AM Peak Hour	23	23	180	225	<i>0.01 per bed</i>	9	14	23
PM Peak Hour	49	49	388	485	<i>0.02 per bed</i>	25	24	49
<u>Other⁵</u>								
Daily	261	66	44	371	<i>0.042 per FTE student</i>	125	125	250
AM Peak Hour	25	6	4	36	<i>0.004 per FTE student</i>	20	4	24
PM Peak Hour	26	7	4	37	<i>0.004 per FTE student</i>	10	15	25
<u>Total Action Alternatives</u>								
Daily	6,111	2,014	5,968	14,093		2,931	2,931	5,862
AM Peak Hour	549	156	271	976		421	104	525
PM Peak Hour	597	187	481	1,264		229	343	572
<u>Net New Trips (Action relative to No Action)</u>								
Daily	1,122	441	2,376	3,939		544	544	1,088
AM Peak Hour	90	25	89	205		67	21	88
PM Peak Hour	106	38	184	327		43	60	103

Note: FTE = full-time equivalent.

1. Person trips are 1-way trips and include both students and employees.
2. Vehicular person trips include both single occupancy vehicles and carpools/vanpool. An average vehicle occupancy of 2.5 was assumed for the carpool/vanpool to convert person trips to vehicular trips.
3. Trip rate shown per FTE for commuters and per bed for residents. FTE = full-time equivalent.
4. Reflect two-way trips (both inbound and outbound).
5. Inclusive of visitors and other services for campus.

Mixed Use Development Trip Generation

The method used to estimate trip generation for the mixed-use development components of the Proposed MIMP was provided in detail in the Analysis Methods section of the report and is based on trip rates outlined in *ITE Trip Generation, 11th Edition*. The Proposed MIMP Action Alternative includes development of the following mixed-use space:

- 123,850 square feet of office space (LU #710)
- 101,950 square feet of retail space (LU #821 and LU #822)
- 11,300 square-foot grocery store (LU #850)

Additionally, the boundary expansion and construction of potential projects results in the demolition of the following uses, which have been compiled based on information on the King County Parcel Viewer:

- 69,182 square feet of warehouse space (LU #151)
- 13,151 square feet of general retail space (LU #822)
- 2,024 square-foot convenience store without gas (LU #851)
- 2,503 square-foot walk-in bank (LU #911)
- 1,390 square-foot copy, print and express ship store (LU #920)
- 4,080 square-foot fast casual restaurant (LU #930)
- 1,600 square-foot fast-food restaurant without a drive-thru window (LU #933)

- 4-pump gas station with a convenience store (LU #945)

Table 21 summarizes the trip generation for the mixed-use components of the Proposed MIMP. As shown in the table, the mixed-use components of the Proposed MIMP are projected to generate approximately 1,268 net new daily vehicle trips with 25 new trips occurring during the weekday AM peak hour and 96 new trips during the weekday PM peak hour. Detailed trip generation calculations are provided in Appendix C

Table 21. Proposed MIMP Mixed-Use Trip Generation Summary							
Time Period	One-Way Person Trips				Vehicle Trips ²		
	Vehicular ¹	Transit	Non-Motorized/ Other	Total	In	Out	Total
<u>Proposed</u>							
Daily	3,921	1,154	6,404	11,479	1449	1449	2,898
AM Peak Hour	173	54	281	508	97	35	132
PM Peak Hour	311	118	729	1158	62	106	168
<u>Existing</u>							
Daily	2,386	772	4,572	7,731	815	815	1,630
AM Peak Hour	156	55	324	535	52	55	107
PM Peak Hour	182	62	367	611	35	37	72
<u>Net New Trips</u>							
Daily	1,535	382	1,832	3,748	634	634	1,268
AM Peak Hour	17	-1	-43	-27	45	-20	25
PM Peak Hour	129	56	362	547	27	69	96

1. Vehicular person trips include both single occupancy vehicles and carpools/vanpool
2. Reflect two-way trips (both inbound and outbound).

Cumulative Trip Generation

In total, and as summarized in Table 22, the Proposed MIMP Action Alternative would generate a total of 2,356 net new daily vehicle trips with 113 new trips occurring during the weekday AM peak hour and 199 new trips occurring during the weekday PM peak hour. Approximately 40 percent of these trips would be associated with the mixed-use development.

Table 22. Proposed MIMP Cumulative Trip Generation Summary							
Time Period	One-Way Person Trips				Vehicle Trips ²		
	Vehicular ¹	Transit	Non-Motorized/ Other	Total	In	Out	Total
Daily	2,657	823	4,208	7,687	1,178	1,178	2,356
AM Peak Hour	107	24	46	178	112	1	113
PM Peak Hour	235	94	546	874	70	129	199

1. Vehicular person trips include both single occupancy vehicles and carpools/vanpool
2. Reflect two-way trips (both inbound and outbound).

Street System

Several roadway/intersection modifications are included in the Proposed MIMP. Any improvements or roadway modifications proposed as part of the Proposed MIMP would be subject to SDOT review and would be designed consistent with the City's standards. These include the following:

- **Street and Alley Vacations³.** Street and alley vacations are proposed at the following locations and shown on Figure 21:
 - 6th Street W between W Cremona Street and W Dravus Street
 - W Emerson Street between 6th Avenue W and W Bertona Street
 - Two east-west alleys north of W Nickerson Street between 6th Avenue W and 3rd Avenue W
 - One north-south alley west of 6th Avenue W between W Bertona Street and W Cremona Street
 - One north-south alley north of W Nickerson Street in line with Queen Anne Avenue N
 - One east-west alley north of W Nickerson Street in line with W Cremona Street
 - One north-south alley and one east-west alley within the block bound by W Cremona Street, Queen Anne Avenue N, W Dravus Street, and 3rd Avenue W

The vacated streets and alleys would no longer be open to vehicular traffic. One exception to this may be the 6th Street W vacation which could ultimately be open to authorized vehicles only, as needed. Overall, the proposed street and alley vacations are incorporated to improve the pedestrian experience, most notably with the vacation of W Emerson Street for additional landscaped space. The 6th Avenue W vacation improves pedestrian connectivity to and from student housing facilities. Additional proposed alley vacations would provide flexibility to support future academic, athletic/recreation, mixed-use, and housing opportunities, all supported by expanded open space.

- **W Cremona Street.** Streetscape enhancements are proposed along W Cremona Street between 3rd Avenue W and W Nickerson Street including the widening of sidewalks, the addition of a planting island, formal tree planting along its length, and a mid-block crosswalk.
- **6th Avenue W/W Bertona Street.** Currently this intersection is offset. The intersection will be improved such that the northern leg of 6th Avenue W will be realigned to connect squarely with the southern leg of 6th Avenue W.
- **W Cremona Street/W Nickerson Street.** Currently this intersection exists within a cluster of three intersections (with Queen Anne Avenue N/W Cremona Street and Queen Anne Avenue N/W Nickerson Street). The three intersections are proposed to be reconstructed and consolidated such that Queen Anne Avenue N does not continue through W Cremona Street to W Nickerson Street and W Cremona Avenue is realigned to intersect with W Nickerson Street perpendicularly. Additionally, a crosswalk would be provided along the southern leg of W Cremona Street/W Nickerson Street. This improvement will result in a more intuitive configuration for pedestrians and vehicles.

A more detailed design would be completed as part of future project applications and would be consistent with the requirements outlined in the Seattle Municipal Code and the City's Right of Way Improvement Manual. While this proposed realignment is anticipated to result in the most beneficial geometry from a vehicular and pedestrian safety standpoint, other geometric alternatives that utilize the existing curbs and curb ramps in conjunction with turn restrictions will be explored.

³ The proposed street and alley vacations would be subject to the *Seattle City Council Resolution 31809: Street Vacation Policies*. Each proposed street and alley vacation would require Council approval of a street vacation petition that analyzes the public benefits of the proposed vacation, which can include impacts to circulation, access, parking, land use and urban form as well as impacts to certain communities, public assembly, and free speech.

- **Queen Anne Avenue N/W Cremona Street.** Currently this intersection operates as two-way stop-controlled with free-flowing traffic along Queen Anne Avenue N. In conjunction with the realignment of W Cremona Street/W Nickerson Street, this intersection would remain two-way stop-controlled but the stop control would shift to Queen Avenue N and W Cremona Street would be free-flowing.

Several of these changes are proposed as part of the other Action Alternatives, as detailed in following sections of this report. Table 23 shows a summary of the street system adjustments that are included in each Action Alternative.

Table 23. Summary of Proposed Street System Changes by Alternative					
Street System Change	<i>Proposed MIMP</i>	<i>Alternative 2</i>	<i>Alternative 3</i>	<i>Alternative 4</i>	<i>Alternative 5</i>
Street Vacations	X	X	X	X	
W Cremona St	X	X	X	X	X
6th Ave W/W Bertona St	X	X	X	X	X
W Cremona St/W Nickerson St	X	X	X	X	X

LEGEND

- ① Signaled intersection at 6th Avenue West & West Nickerson Street
- ② Intersection realignment of 6th Avenue West between West Bertona Street & West Emerson Street & West Bertona Street traffic calming
- ③ Pedestrian enhancement at Demaray parking lot
- ④ Crosswalk enhancement at West Nickerson Street & 3rd Avenue West
- ⑤ Street streetscape enhancement at West Cremona Street
- ⑥ Crosswalk enhancement at West Dravus Street & 3rd Avenue West
- ⑦ Intersection enhancement at West Cremona Street & West Nickerson Street
- ⑧ Traffic calming along West Bertona Street
- ⑨ Widening of West Dravus Street
- ⑩ Vacation & enhancement at 6th Avenue West
- ⑪ Vacation & open space extension at West Emerson Street
- ⑫ Street/alley vacation at parking lot
-  Proposed Street & Alleyway Vacations
-  Campus Buildings
-  Vacated Street
-  Existing MIO Boundary
-  Proposed MIO Boundary



Potential Street Vacations

SPU MIMP EIS

FIGURE

21

Non-Motorized Transportation

Changes to the existing off-campus non-motorized system are assumed with the Proposed MIMP Action Alternative. Impacts to the pedestrian and bicycle environment are described below and summarized in Figure 22.

Pedestrian

The Proposed MIMP Action Alternative includes a number of projects that would result in an improvement of the on-campus connections⁴. Proposed roadway improvements and street vacations that benefit pedestrian circulation are proposed as follows:

- **W Cremona Street.** The streetscape enhancement proposed along W Cremona Street will introduce a boulevard-style entrance to the campus that will include 8-foot sidewalks and 10-foot landscaped buffers. Additionally, a mid-block crosswalk is proposed. These improvements would improve access to bus stops at the intersection of W Nickerson Street/W Cremona Street.
- **W Bertona Street.** Traffic calming elements are proposed along W Bertona Street between 6th Avenue W and 3rd Avenue W which would aim to reduce vehicular speeds and create a more pedestrian-friendly environment along a key campus roadway. It is not anticipated that traffic calming elements would impact vehicular circulation or operations.
- **Street Vacations.** As outlined previously, street vacations are proposed along 6th Street W and W Emerson Street as part of the Proposed MIMP. The 6th Street W vacation would provide improved connectivity between the center of campus and residential halls by eliminating conflicts with vehicular traffic. The W Emerson Street vacation would eliminate a redundant roadway section and eliminate two pedestrian-vehicle conflict points. It would also allow for additional landscaped open space.

Intersection improvements that benefit pedestrian circulation are proposed as follows:

- **3rd Avenue W/W Nickerson Street.** The existing crosswalks would be enhanced to improve the pedestrian environment at the intersection. This would improve access to bus stops at the intersection.
- **3rd Avenue W/W Dravus Street.** The existing crosswalk would be enhanced to improve the pedestrian environment at the intersection. This would improve access to bus stops at the intersection.
- **6th Avenue W/W Bertona Street.** In coordination with the intersection realignment, a pedestrian crosswalk would be installed along the southern leg of the intersection.
- **6th Avenue W/W Cremona Street.** A pedestrian crosswalk would be implemented along the northern leg of the intersection.
- **W Cremona Street/W Nickerson Street.** In coordination with the intersection improvements at this intersection and the immediately surrounding intersections, a pedestrian crosswalk would be installed along the southern leg of W Cremona Street/W Nickerson Street. Additionally, the reconfigured intersections would result in more intuitive pedestrian flow and improve access to bus stops at the intersection.

In addition to the roadway and intersection improvements that improve the overall pedestrian environment within and surrounding campus, the Proposed MIMP intends to relocate existing academic and

⁴ While several new crosswalks are proposed as part of the MIMP, any new crosswalk within the ROW would be approved under a separate SDOT process on a project-specific basis.

administrative buildings from the north side of W Nickerson Street to the south side of W Nickerson Street. Additionally, a significant number of on-campus residences will be constructed. These two elements will help consolidate pedestrian activity within the main area of campus and reduce the number of crossings along W Nickerson Street.

Several of these changes are proposed as part of the other Action Alternatives, as detailed in following sections of this report. Table 24 shows a summary of the pedestrian improvements that are included in each Action Alternative.

Pedestrian Improvement	<i>Proposed MIMP</i>	<i>Alternative 2</i>	<i>Alternative 3</i>	<i>Alternative 4</i>	<i>Alternative 5</i>
W Cremona Street	X	X	X	X	X
W Bertona Street	X	X	X	X	X
Street Vacations	X	X	X	X	
3rd Ave W/W Nickerson St	X	X	X	X	X
3rd Ave W/W Bertona St	X	X	X	X	X
6th Ave W/W Bertona St	X	X	X	X	X
6th Ave W/W Cremona St	X	X	X	X	X
W Cremona St/W Nickerson St	X	X	X	X	X

Bicycle

There are existing bicycle amenities such as showers, lockers, bicycle storage/racks on-campus. As stated previously, the existing bicycle racks provide parking for up to 220 bicycles and there are an additional 104 secured bicycle parking spaces. The Proposed MIMP Action Alternative would continue to provide bicycle amenities on-campus and make improvements and/or additions as the MIMP develops. Improvements would include replacing older amenities and adding shower and locker facilities to new buildings. The number and location of bicycle amenities will be evaluated as part of the future project Mixed-Use Project (MUP) processes.

Off campus facilities (such as those identified in the Comprehensive Plan and Bicycle Master Plan, as described previously) could be implemented in the future. The existing and planned bicycle facilities could accommodate the expected growth in bicycle commuting. Additionally, some of the proposed pedestrian improvements outlined previously, such as the street vacations, would result in a more bicycle-friendly environment on-campus by improving bike connectivity and creating more comfortable spaces for cyclists.

Shared Mobility

While campus-wide or site-specific shared mobility strategies are not identified as part of the Proposed MIMP due to the timeline of the project and the rapidly evolving shared mobility landscape, there are several Transportation Management Program (TMP) strategies proposed that relate to shared mobility, including the support for third-party micromobility services, coordination with SDOT related to the establishment of shared mobility zones, and car share provisions and subsidies.

LEGEND



Existing Primary
Pedestrian Route

Future Primary
Pedestrian Route



Existing City Bus Stop



Existing Crosswalk



Future Crosswalk



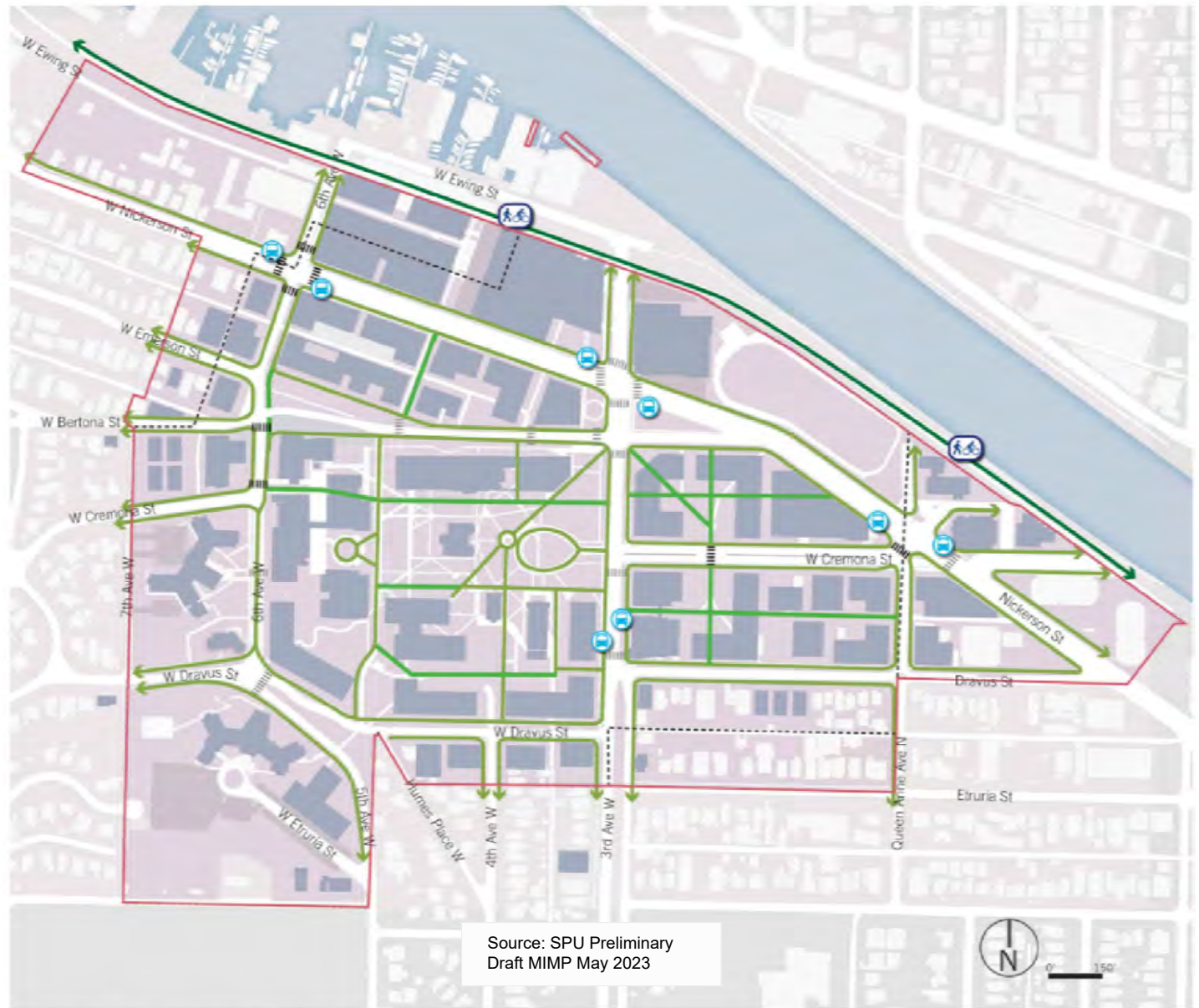
Existing South Ship
Canal Multiuse Trail



Existing MIO Boundary



Proposed MIO Boundary



Proposed Transit, Pedestrian, and Bicycle Access

SPU MIMP EIS

FIGURE

22

Transit Service

Transit Access

Access to surrounding bus stops would improve as part of the Proposed MIMP. As shown on Figure 22, the proposed improvements to pedestrian circulation such as new and enhanced crosswalks, coupled with the proposed street network improvements would result in improved access to bus stops along W Nickerson Street and 3rd Avenue W.

Transit Analysis

Transit service on and surrounding the campus is not anticipated to change with the Proposed MIMP. As such, the Proposed MIMP transit analysis assumes the current transit access patterns would continue and there would be no changes to transit frequency or capacity.

The transit vehicle capacity analysis is provided below for the Proposed MIMP Action Alternative. Consistent with the No Action Alternative, the analyses include transit growth associated with SPU specific growth (outlined in Table 20) as well as inherent transit growth unrelated to campus growth. Additionally, the Proposed MIMP analyses include transit growth associated with the proposed mixed-use development components (outlined in Table 21).

Based on the transit forecasts, the resulting Proposed MIMP transit capacity analysis is summarized in Table 25, relative to the No Action utilization. As shown in the table, the vehicle utilization at the screenlines is under 50 percent under the Proposed MIMP Action Alternative, with estimated increases in utilization of 3 percent or less relative to No Action conditions such that there is estimated to continue to be available capacity to accommodate additional riders during the weekday peak periods.

Table 25. 2035 Proposed MIMP Transit Capacity Analysis

Screenline/Location	Direction of Travel	Weekday Routes	AM Peak Period Utilization ¹			PM Peak Period Utilization		
			Existing	Action	Change	Existing	Action	Change
1 W Nickerson St west of 3rd Ave W	EB	31	37%	38%	+ 1%	13%	15%	+ 2%
		32	38%	39%	+ 1%	28%	28%	+ 0%
	WB	31	11%	12%	+ 1%	26%	27%	+ 1%
		32	32%	32%	+ 0%	36%	37%	+ 1%
2 W Nickerson St east of 3rd Ave W	EB	31	40%	41%	+ 1%	19%	21%	+ 2%
		32	44%	44%	+ 0%	34%	35%	+ 1%
	WB	31	18%	20%	+ 2%	33%	35%	+ 2%
		32	41%	44%	+ 3%	46%	48%	+ 2%
3 3rd Ave W at W Raye St	NB	3	8%	8%	+ 0%	9%	9%	+ 0%
		4	8%	9%	+ 1%	11%	11%	+ 0%
		13	12%	12%	+ 0%	14%	14%	+ 0%
	SB	3	17%	17%	+ 0%	16%	17%	+ 1%
		4	13%	13%	+ 0%	17%	18%	+ 1%
		13	14%	14%	+ 0%	20%	20%	+ 0%
4 9th Ave W / 10th Ave W north of W Armour St	NB	1	2%	2%	+ 0%	3%	3%	+ 0%
	SB	1	10%	10%	+ 0%	3%	3%	+ 0%
5 6th Ave W at W Raye St	NB	2	2%	2%	+ 0%	5%	5%	+ 1%

1. Capacity for each screenline assumed for the utilization calculation unchanged for Proposed MIMP relative to No Action.

Additionally, the operational impact on transit would be consistent to the operational impact of general-purpose traffic in terms of vehicle delay. Transit riders would experience the same change in delay as general-purpose riders given that the existing traffic signals do not include transit priority phasing.

Traffic Volumes

The Proposed MIMP Action Alternative traffic volumes were projected by adding trips related to the growth in the campus population and mixed-use development to the No Action Alternative traffic volumes. The distribution and assignment of the net new trips is described in detail below. Additionally, existing volumes and No Action campus trips would be rerouted due to the addition and shifting of parking facilities throughout the campus, as well as the proposed adjustments to the street network.

Campus

Campus-related vehicle trip generation is summarized at the beginning of this chapter in Table 20. The Proposed MIMP Action Alternative would generate approximately 1,114 net new daily vehicle trips with 90 new trips occurring during the weekday AM peak hour and 105 new trips during the weekday PM peak hour, as compared to the No Action Alternative. The Proposed MIMP campus trip distribution is determined for residents, student commuters, and employee commuters as follows:

- **Student Commuter Trips** – The distribution for student commuters was based on existing (2019) travel patterns and home location information for the student campus population collected as part of the 2019 Student Commute Survey. This survey information is provided in Appendix B. Trip distribution patterns for student commuters is shown previously on Figure 16.
- **Employee Commuter Trips** – The distribution for employee commuters was based on existing (2019) travel patterns and home location information for employees, collected as part of the 2019 CTR Employer Survey Report. The CTR report is provided in Appendix B. Trip distribution patterns for employee commuter trips is shown on Figure 23.
- **Residential Trips** – The residential trip distribution is based on *OnTheMap*, a web-based mapping and reporting application, showing where people work that live within a quarter-mile radius of the proposed site. The zip codes were evaluated to determine if a person would be more likely to travel to the zip code via vehicle or by other means. Trips to zip codes closer to the proposed project site or in more transit-oriented locations are more likely to use transit, walk, bike, or other non-SOV modes. Zip codes outside the Seattle City limits and/or further from the site are more likely to drive. The anticipated residential distribution is shown previously in Figure 17.
- **Other Trips** – The distribution for “other” trips was assumed to be consistent with the distribution of student commuters.

The trips to and from campus are assigned proportionately to the locations of on-site parking based on the location, amount, and type of parking. Residential trips were routed to resident parking areas while commuter trips were routed to SPU commuter parking lots. Routing of new campus-related trips accounts for changes in parking allocation throughout the site and street vacations. Due to the relatively low number of net new campus trips generated by the Proposed MIMP (as well as all other Action Alternatives) and the anticipated distribution of these trips, the impact to nearby residential roadways is expected to be insignificant.

Mixed-Use Development

Mixed-use vehicle trip generation is summarized at the beginning of this chapter in Table 21. The Proposed MIMP Action Alternative would generate approximately 1,102 net new daily vehicle trips with 83 new trips occurring during the weekday AM peak hour and 118 new trips during the weekday PM peak hour. The Proposed MIMP mixed-use trip distribution is determined for office-related trips and retail, restaurant, and service-related trips as follows:

- **Office-Related Trips** – The office trip distribution (inclusive of warehouse uses) is based on *OnTheMap*, a web-based mapping and reporting application, showing where people live that work within a quarter-mile radius of the proposed site. The zip codes were evaluated to determine if a person would be more likely to travel to the zip code via vehicle or by other means. Trips to zip codes closer to the proposed project site or in more transit-oriented locations are more likely to use transit, walk, bike, or other non-SOV modes. Zip codes outside the Seattle City limits and/or further from the site are more likely to drive. The anticipated office distribution is shown in Figure 24.
- **Retail, Restaurant and Service-Related Trips** – It is assumed that the retail, restaurant and service-related trips will primarily cater to residents who live in the surrounding residential neighborhoods. As such, there would be a higher reliance on local roads for these trips. The anticipated retail, restaurant, and service distribution is shown in Figure 25.

New trips to and from the mixed-use development components of the MIMP are assigned to blocks with proposed mixed-use development assuming access is from lower volumes streets. Existing trips are removed from the network based on the existing access locations.

Rerouted Traffic

In addition to new trips related to campus growth and mixed-use development, existing trips were rerouted to account changes in the campus parking allocation and changes to the roadway network, as follows:

- **Campus Parking Allocation** - The proportion of campus parking spaces within each block was compared between the existing and Proposed MIMP conditions. While there are multiple blocks with minor changes in campus parking allocation, the most significant parking allocation changes occur within a few key blocks. As part of the Proposed MIMP there would be a significant decrease in parking located north and south of W Nickerson Street between 6th Avenue W and 3rd Avenue W, while there would be a significant increase in parking between north and south of W Cremona Street between 3rd Avenue W and Queen Anne Ave N. To account for this change in parking allocation, approximately 10 percent of existing and No Action campus-related trips were rerouted from W Nickerson Street to W Cremona Street.
- **Street Vacations** - All existing and No Action traffic volumes were removed from streets that are proposed to be vacated and rerouted to parallel streets based on existing travel patterns. For the purpose of this analysis, the street vacations that have the greatest impact on overall circulation are the 6th Avenue W vacation and the W Emerson Street vacation.
- **Intersection Improvements** – The existing cluster of three intersections (W Cremona Street/W Nickerson Street, Queen Anne Avenue N/W Cremona Street and Queen Anne Avenue N/W Nickerson Street) will be reconstructed and consolidated such that Queen Anne Avenue N does not continue through W Cremona Street to W Nickerson Street and W Cremona Avenue is realigned to intersect with W Nickerson Street perpendicularly. Existing and No Build trips were rerouted to correspond with the proposed two-intersection configuration.

Overall Traffic Impact

The Proposed MIMP Action Alternative study intersection traffic volumes are determined by adding the net new campus and mixed-use development vehicle trips and accounting for traffic reroutes. The resulting Proposed MIMP peak hour traffic volumes are summarized on Figure 26. Table 26 summarizes the percent change in traffic volumes with the Proposed MIMP Action Alternative relative to the No Action Alternative during the peak hours.

Table 26. Proposed MIMP Peak Hour Traffic Volume Impacts at Study Intersections

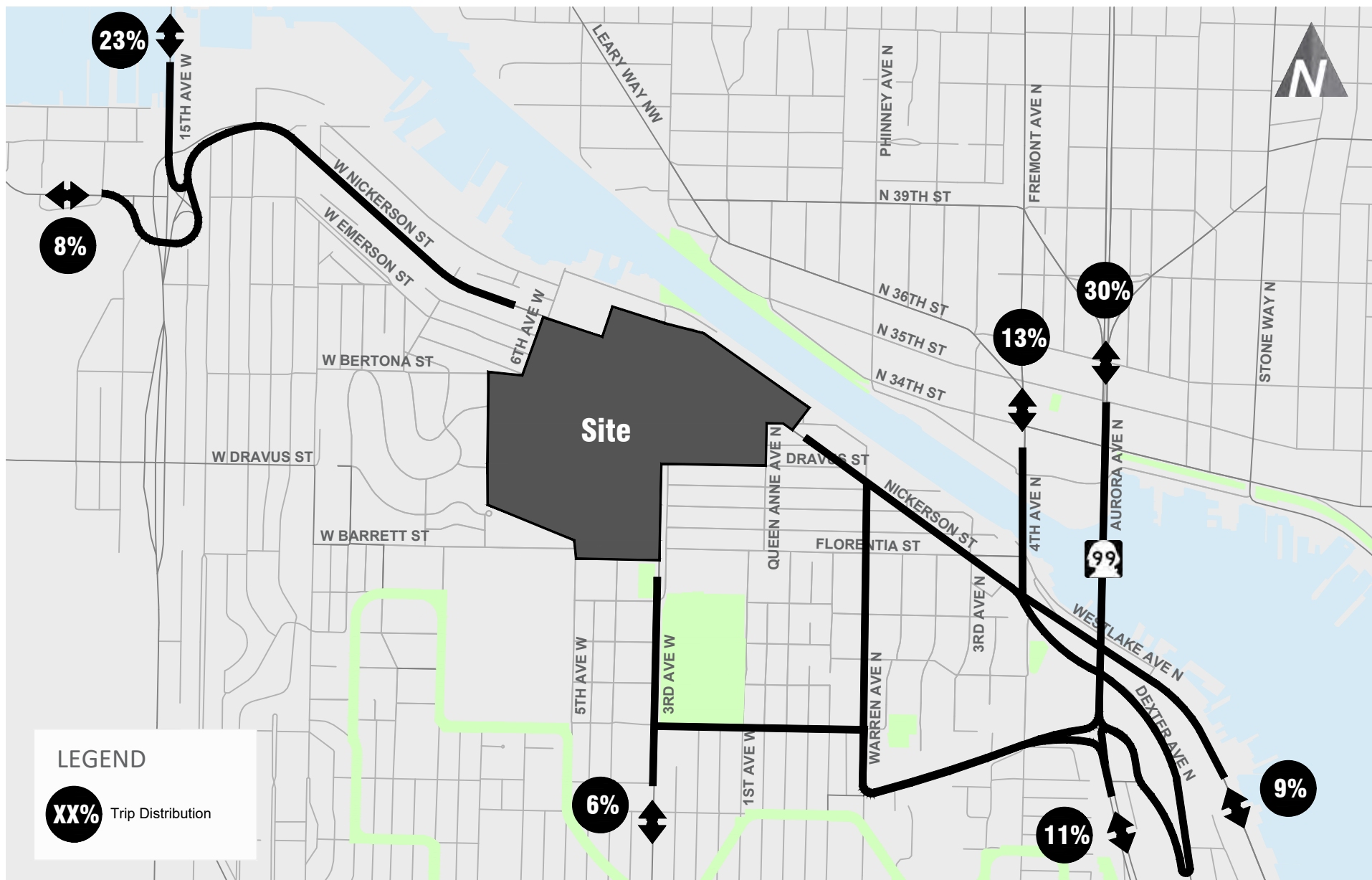
Intersection	AM Peak Hour				PM Peak Hour			
	No Action TEV	Net New Trips	Proposed MIMP TEV	Percent Change	No Action TEV	Net New Trips	Proposed MIMP TEV	Percent Change
1. 6th Ave W/W Nickerson St	1,655	+95	1,750	+5.7%	1,785	+140	1,925	+7.8%
2. 6th Ave W/W Emerson St	115	-9	106	7.8%	190	-30	160	-15.8%
3. 6th Ave W/W Bertona St	425	+12	437	+2.8%	550	+45	595	+8.2%
4. 6th Ave W/W Dravus St	75	-17	58	-22.7%	160	-26	134	-16.3%
5. W Emerson St/W Bertona St ¹	405	--	--	--	520	--	--	--
6. 3rd Ave W/W Nickerson St	1,855	+74	1,929	+4.0%	2,175	+119	2,294	+5.5%
7. 3rd Ave W/W Bertona St	615	+20	635	+3.3%	1,015	+57	1,072	+5.6%
8. 3rd Ave W/W Cremona St	460	+27	487	+5.9%	730	+73	803	+10.0%
9. 3rd Ave W/W Dravus St (N)	475	+36	511	+7.6%	850	+89	939	+10.5%
10. 3rd Ave W/W Dravus St (S)	460	+46	506	+10.0%	780	+93	873	+11.9%
11. Queen Anne Ave N/W Nickerson St ²	1,845	--	--	--	2,110	--	--	--
12. W Cremona St/W Nickerson St	1,720	+189	1,909	+11.0%	2,020	+202	2,222	+10.0%
13. Queen Anne Ave N/W Cremona St	180	+20	200	+11.1%	205	+23	228	+11.2%
14. 3rd Ave N/W Florentia St/W Nickerson St	2,420	+37	2,457	+1.5%	2,770	+76	2,846	+2.7%
15. Fremont Ave N/W Florentia St	2,655	+27	2,682	+1.0%	3,110	+51	3,161	+1.6%
16. Fremont Ave N/W Nickerson St	3,540	+15	3,555	+0.4%	3,640	+58	3,698	+1.6%

Note: TEV = Total Entering Vehicles.

1. Intersection of W Emerson St/W Bertona St eliminated as a result of the proposed Emerson Street vacation.

2. Intersections reconfigured such that Queen Anne Ave N/W Nickerson Street is eliminated Queen Anne Ave N/W Cremona Street is realigned to intersection with W Nickerson street perpendicularly.

As shown in Table 26, the majority of intersections along W Nickerson Street grow by less than 10 percent between the No Action and Proposed MIMP Action Alternative, with a few intersections projected to grow between 10 and 12 percent. Within the campus, some intersections observe traffic growth, while some observe a decline in traffic. The growth and shift in traffic volumes is primarily due to the increase in parking along W Cremona Street and the shifting in vehicular traffic as a result of the street vacations and intersection improvements.

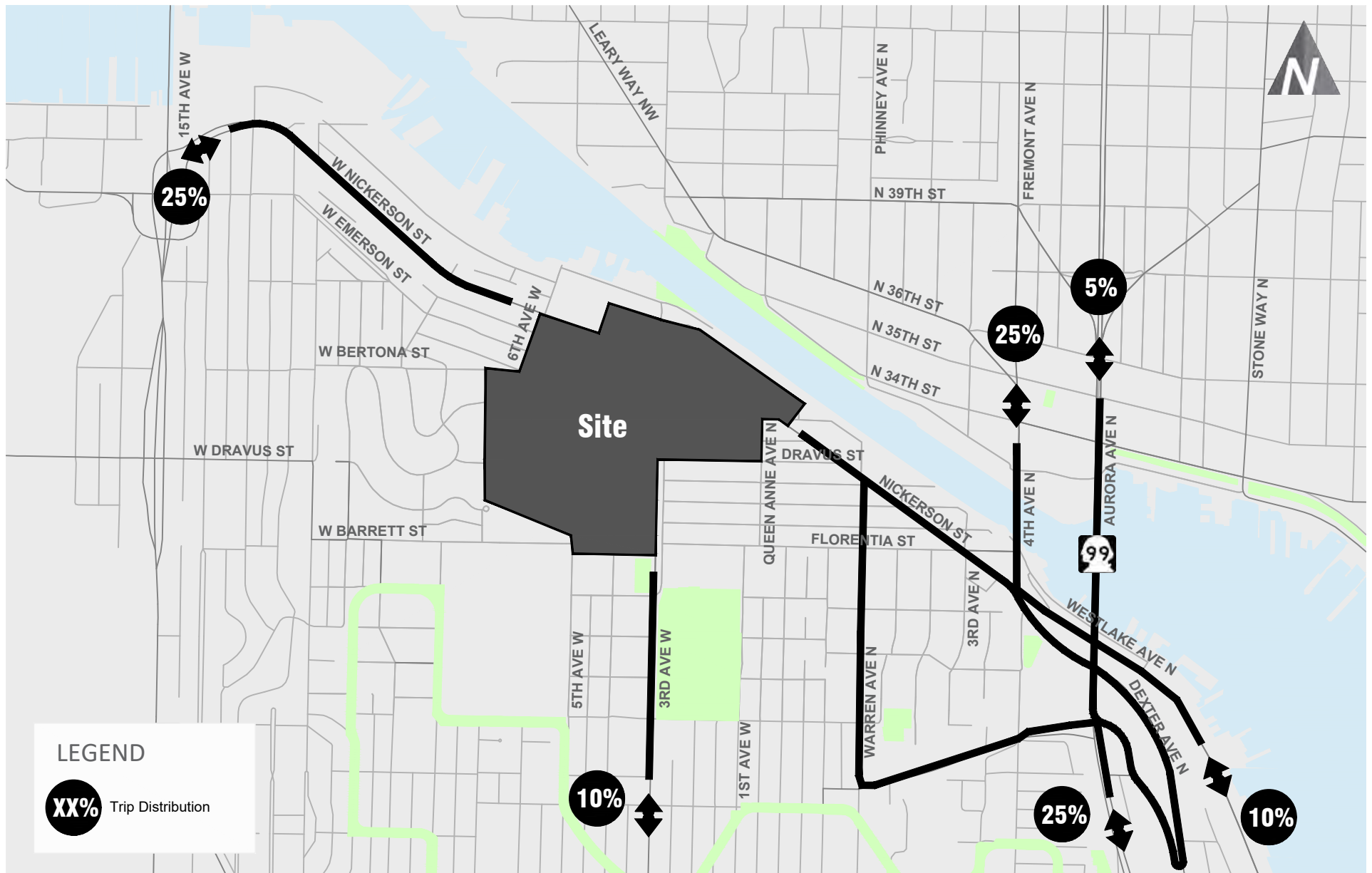


Employee Commuter Trip Distribution

SPU MIMP EIS

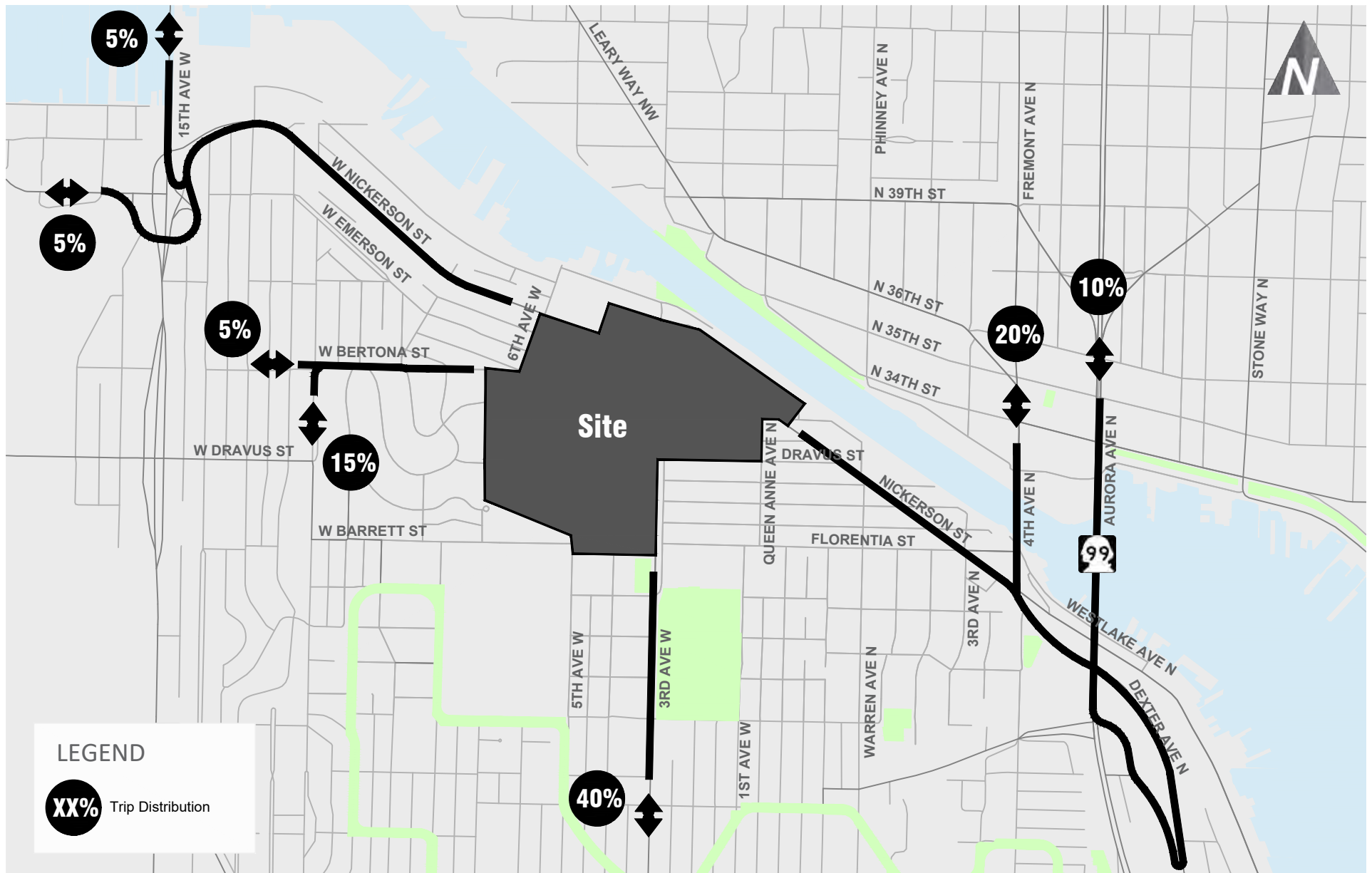
FIGURE

23



Office-Related Trip Distribution
 SPU MIMP EIS

FIGURE
 24



Retail, Restaurant and Service-Related Trip Distribution

SPU MIMP EIS

FIGURE

25

Traffic Operations

The Proposed MIMP Action Alternative LOS analysis utilized the same methodology as the Existing and No Action conditions. The intersection parameters and channelization are generally consistent with the No Action Alternatives with the exception of the intersection adjustments outlined previously, that are proposed as part of the Proposed MIMP. A comparison of the No Action and Proposed MIMP weekday peak hour operations are shown in Table 27.

Table 27. No Action (2035) and Proposed MIMP (2035) Weekday Peak Hour LOS Summary

Intersection	Traffic Control	AM Peak Hour						PM Peak Hour					
		No Action			Proposed MIMP			No Action			Proposed MIMP		
		LOS ¹	Delay ²	WM ³	LOS	Delay	WM	LOS	Delay	WM	LOS	Delay	WM
1. 6th Ave W/W Nickerson St	TWSC	F	52.6	SB	F	125.2	SB	F	180.0	NB	F	550.3	SB
2. 6th Ave W/W Emerson St	AWSC	A	7.3	-	A	7.3	-	A	7.4	-	A	7.5	-
3. 6th Ave W/W Bertona St	TWSC	B	12.8	NB	B	12.1	SB	B	13.6	SB	B	14.3	SB
4. 6th Ave W/W Dravus St	AWSC	A	7.3	-	A	7.0	-	A	7.3	-	A	7.3	-
5. W Emerson St/W Bertona St ⁴	TWSC	B	12.5	SB	--	--	--	D	28.8	SB	--	--	--
6. 3rd Ave W/W Nickerson St	Signal	C	23.6	-	C	26.0	-	C	35.6	-	D	39.8	-
7. 3rd Ave W/W Bertona St	TWSC	C	20.1	EB	C	20.2	EB	F	116.8	EB	F	128.4	EB
8. 3rd Ave W/W Cremona St	TWSC	B	12.8	WB	B	12.9	WB	C	17.3	WB	C	22.1	WB
9. 3rd Ave W/W Dravus St (N)	TWSC	B	11.4	WB	B	11.8	WB	C	19.2	WB	C	22.6	WB
10. 3rd Ave W/W Dravus St (S)	TWSC	B	12.2	EB	B	13.5	EB	C	16.8	EB	C	20.0	EB
11. Queen Anne Ave N/ W Nickerson St ⁵	TWSC	F	313.6	NB	--	--	--	F	925.3	NB	--	--	--
12. W Cremona St/W Nickerson St ⁵	TWSC	C	20.8	NB	F	317.5	NB	D	28.3	NB	F	1011.3	NB
13. Queen Anne Ave N/W Cremona St	TWSC	A	8.9	EB	A	9.8	NB	B	10.4	EB	A	9.4	NB
14. 3rd Ave N/W Florentia St/ W Nickerson St ⁶	Signal	D	44.4	-	D	45.9	-	E	67.1	-	E	70.6	-
15. Fremont Ave N/W Florentia St	TWSC	D	28.8	EB	D	29.5	EB	C	16.9	EB	C	17.0	EB
16. Fremont Ave N/W Nickerson St	Signal	F	109.4	-	F	110.6	-	E	82.4	-	F	88.8	-

Note: TWSC = Two-Way Stop Controlled. AWSC = All-Way Stop Controlled. **Bold** text indicates operating at LOS E or F if signalized or LOS F for TWSC.

1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (HCM) 6th Edition (TRB, 2016)

2. Average delay per vehicle in seconds

3. Worst movement reported for TWSC intersections.

4. Intersection of W Emerson St/W Bertona St eliminated as a result of the proposed Emerson Street vacation.

5. Intersections reconfigured such that Queen Anne Ave N/W Nickerson Street is eliminated Queen Anne Ave N/W Cremona Street is realigned to intersection with W Nickerson street perpendicularly.

6. Evaluated using HCM 2000 because the configuration is not supported with the HCM 6th Edition method due to non-NEMA signal configuration

As shown in Table 27, the majority of off-site study intersections would continue to operate acceptably at LOS D or better during the weekday AM and PM peak hours. Consistent with the No Action conditions, three intersections are forecast to operate below LOS E or F at signalized locations and LOS F at stop-controlled intersections during the AM peak hour, and five intersections are forecast to operate below these standards during the PM peak hour. The intersections that would operate below standards under the Proposed MIMP Action Alternative, and mitigation measures to address operational issues are outlined below:

- **6th Avenue W/W Nickerson Street** – The southbound approach of this two-way stop-controlled (TWSC) intersection would operate at LOS F during the AM and PM peak hours with or without the proposed MIMP.

To improve operations on the 6th Avenue W approach the installation of a traffic signal was considered. Installation of a traffic signal at this location has previously been discussed and considered at this location once warrants are met. The four- and eight-hour vehicular volume signal warrants were evaluated based on the HCS7 Software. Hourly traffic volumes were

developed using the weekday PM peak hour traffic volumes and applying the hourly distribution from the National Cooperative Highway Research Program (NCHRP) Report 365 Travel Estimation Techniques for Urban Planning. A traffic signal should not be installed unless one or more of the signal warrants are met. The satisfaction of a traffic signal warrant or warrants does not itself require the installation of traffic control signal; however, locations that would meet a warrant or warrants and would benefit with operational and safety improvements are candidates for installation of a traffic signal. The signal warrants are included in Appendix I and show a signal is warranted at this intersection based on the four- and eight-hour warrants.

A traffic signal would help address side street delay as well as provide a supplemental location for pedestrians to cross W Nickerson Street. Implementation of the signal is not expected to require right-of-way widening but existing on-street parking along the northbound approach of 6th Avenue W would likely need to be removed for at least some portion to ensure sufficient two-way flow of traffic. As proposed, this approach is projected to observe a 95th percentile queue length of approximately 80 feet during the PM peak hour therefore it is likely that on-street parking could be removed for at least 80 feet back from the intersection stop bar.

A detailed design of this improvement would be completed as part of future project applications and would be consistent with the requirements outlined in the Seattle Municipal Code and the City's Right of Way Improvement Manual.

- **3rd Avenue W/W Bertona Street** – The eastbound approach of this TWSC intersection would continue to operate at LOS F during the PM peak hour due to the forecast increase in volumes along both 3rd Avenue W and W Bertona Street. This increase in traffic volumes are projected based on the growth in the campus population and the street vacations noted above.

Given the close proximity to the signalized intersection of 3rd Avenue W/W Nickerson Street, there are limited opportunities to adjust the traffic control. However, the proposed traffic signal at 6th Avenue W/W Nickerson Street provides the opportunity to implement turn restrictions at 3rd Avenue W/W Bertona Street such that vehicles traveling east through W Bertona Street can access W Nickerson Street via 6th Avenue W as an alternative. The proposed turn restrictions would limit eastbound traffic to right-turns only thus reducing delay related to left-turning and through vehicles. The northbound left-turn movement would remain to help process traffic traveling west into campus, but c-curb would be implemented to restrict eastbound movements.

In conjunction with the proposed turn restrictions at 3rd Avenue W/W Bertona Street, changes to channelization along the northbound approach of 3rd Avenue W at W Nickerson are proposed to incorporate a northbound left-turn lane. Additionally, leading pedestrian intervals are proposed to reduce potential pedestrian-vehicle conflicts for pedestrians crossing W Nickerson Street.

A conceptual plan of the proposed improvements is shown in Figure 27. It is noted that turning maneuvers for buses at 3rd Avenue W/W Nickerson Street may result in the need to increase the curb radius at the southeast corner of the intersection and/or minor widening of 3rd Avenue W between W Bertona Street and W Nickerson Street. The turning radius remains at an acute angle and therefore would not be expected to result in increased speeds, but the leading pedestrian intervals are proposed to address pedestrian safety at this intersection. A more detailed design would be completed as part of future project applications and would be consistent with the requirements outlined in the Seattle Municipal Code and the City's Right of Way Improvement Manual.

- **W Cremona Street/W Nickerson Street** – The northbound approach of this TWSC intersection would operate at LOS F during the AM and PM peak hours due to the forecast increase in volumes along both W Cremona Ave and W Nickerson Street as well as the intersection reconfiguration which consolidates the existing three-intersection cluster into two intersections.

To address delay along the side streets, signal warrants were reviewed at the W Cremona Street/W Nickerson Street intersection. The methodology for evaluating signal warrants is consistent with that described previously. The signal warrants are included in Appendix I and show a signal is warranted at this intersection based on the four- and eight-hour warrants. A

traffic signal would help address side street delay as well as provide a supplemental location for pedestrians to cross W Nickerson Street.

- **3rd Avenue N/W Florentia Street/W Nickerson Street** – This signalized intersection would continue to operate at LOS E during the PM peak hour. The forecast delay with the Proposed MIMP would increase by less than 4 seconds compared to the No Action conditions. The impact of the Proposed MIMP at this intersection is not considered significant.
- **Fremont Avenue N/W Nickerson Street** – This signalized intersection would continue to operate at LOS F during the AM peak hour and degrade to LOS F from LOS E during the PM peak hour. The forecast delay with the Proposed MIMP would increase by just over one second during the AM peak hour and increase by just over six seconds during the PM peak hour as compared to the No Action conditions. While the impact of the Proposed MIMP at this intersection is considered significant based on the increase in delay, there are limited opportunities to implement improvements at this intersection due to the split-phased signal operations. The intersection already has a high cycle length and considerable turning volumes which result in limited opportunities to reallocate green time amongst the approaches. As such, no improvements are proposed at this intersection.

The proposed mitigation measures result in changes to both traffic control and vehicular circulation. In conjunction with the proposed turn restrictions at 3rd Avenue W/W Bertona Street, traffic accessing W Nickerson Street from W Bertona Street would be rerouted. The resulting traffic volumes are included in Figure 28. Additionally, given the implementation of additional signals along the W Nickerson Street corridor, it is assumed that the signals would operate as actuated-coordinated with consistent cycle lengths of 90 seconds during the peak periods between 6th Avenue W and W Cremona Street. This is a 10-second cycle length increase as compared to existing conditions at 3rd Avenue W/W Nickerson Street. The proposed mitigation measures and accompanying changes in circulation result in improvements to overall operations. A comparison of the Proposed MIMP weekday peak hour operations with and without proposed mitigation measures are shown in Figure 27

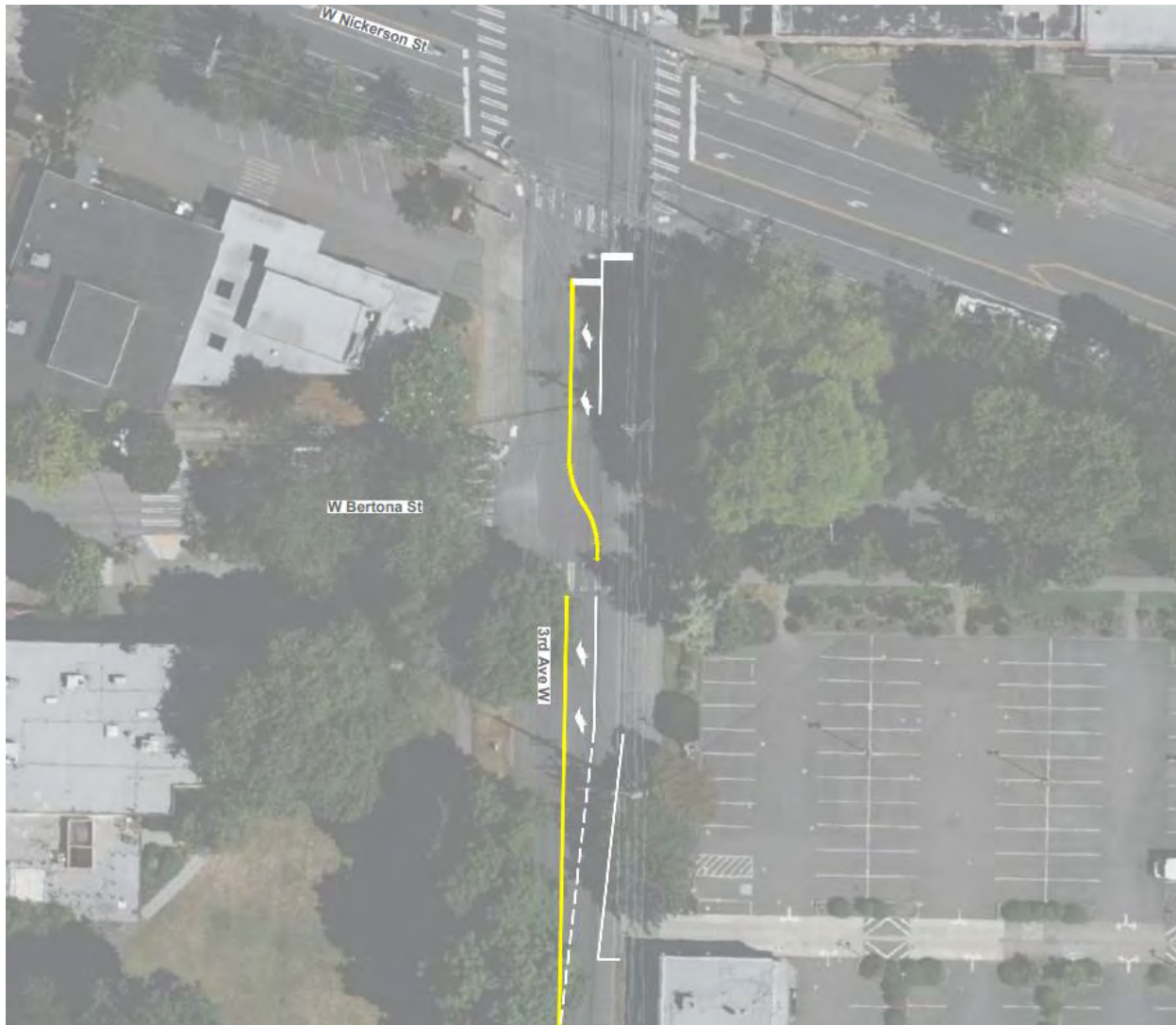


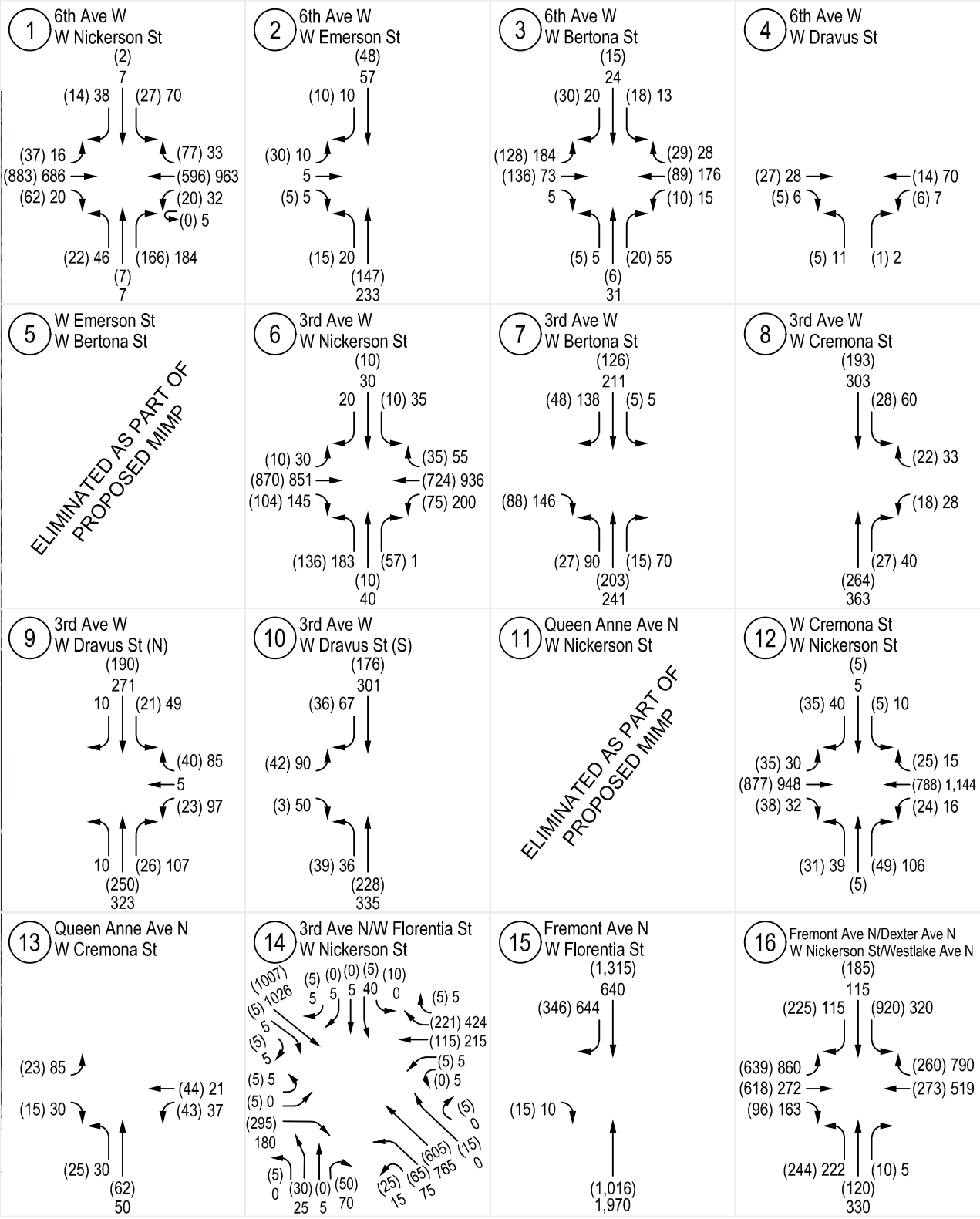
Figure 27. Proposed 3rd Avenue W Improvements – Conceptual Design

Table 28. Proposed MIMP (2035) Weekday Peak Hour LOS Summary with Improvements

Intersection	Traffic Control	AM Peak Hour						PM Peak Hour					
		Proposed MIMP			Proposed MIMP (w/ Improvements)			Proposed MIMP			Proposed MIMP (w/ Improvements)		
		LOS ¹	Delay ²	WM ³	LOS	Delay	WM	LOS	Delay	WM	LOS	Delay	WM
1. 6th Ave W/W Nickerson St	TWSC/ Signal ⁴	F	125.2	SB	B	18.8	-	F	550.3	SB	C	22.8	-
2. 6th Ave W/W Emerson St	AWSC	A	7.3	-	A	8.0	-	A	7.5	-	A	8.4	-
3. 6th Ave W/W Bertona St	TWSC	B	12.1	SB	B	14.4	SB	B	14.3	SB	C	17.4	SB
4. 6th Ave W/W Dravus St	AWSC	A	7.0	-	A	7.0	-	A	7.3	-	A	7.3	-
5. W Emerson St/W Bertona St ⁵	TWSC	--	--	--	--	--	--	--	--	--	--	--	--
6. 3rd Ave W/W Nickerson St	Signal	C	26.0	-	B	18.7	-	D	39.8	-	C	28.1	-
7. 3rd Ave W/W Bertona St	TWSC	C	20.2	EB	B	10.9	EB	F	128.4	EB	D	25.7	EB
8. 3rd Ave W/W Cremona St	TWSC	B	12.9	WB	B	13.4	WB	C	22.1	WB	C	23.7	WB
9. 3rd Ave W/W Dravus St (N)	TWSC	B	11.8	WB	B	12.1	WB	C	22.6	WB	C	24.2	WB
10. 3rd Ave W/W Dravus St (S)	TWSC	B	13.5	EB	B	13.5	EB	C	20.0	EB	C	20.0	EB
11. Queen Anne Ave N/ W Nickerson St ⁶	TWSC	--	--	--	--	--	--	--	--	--	--	--	--
12. W Cremona St/W Nickerson St ⁶	TWSC/ Signal ⁷	F	317.5	NB	A	8.0	-	F	1011.3	NB	B	10.5	-
13. Queen Anne Ave N/W Cremona St	TWSC	A	9.8	NB	A	9.8	NB	A	9.4	NB	A	9.4	NB
14. 3rd Ave N/W Florentia St/ W Nickerson St ⁸	Signal	D	45.9	-	D	45.9	-	E	70.6	-	E	70.6	-
15. Fremont Ave N/W Florentia St	TWSC	D	29.5	EB	D	29.5	EB	C	17.0	EB	C	17.0	EB
16. Fremont Ave N/W Nickerson St	Signal	F	110.6	-	F	110.6	-	F	88.8	-	F	88.8	-

Note: TWSC = Two-Way Stop Controlled. AWSC = All-Way Stop Controlled. **Bold** text indicates operating at LOS E or F if signalized or LOS F for TWSC.

- Level of Service (A – F) as defined by the *Highway Capacity Manual* (HCM) 6th Edition (TRB, 2016)
- Average delay per vehicle in seconds
- Worst movement reported for TWSC intersections.
- 6th Ave W/W Nickerson Street currently operates as TWSC, but a traffic signal is proposed as part of the mitigation plan
- Intersection of W Emerson St/W Bertona St eliminated as a result of the proposed Emerson Street vacation.
- Intersections reconfigured such that Queen Anne Ave N/W Nickerson Street is eliminated Queen Anne Ave N/W Cremona Street is realigned to intersection with W Nickerson street perpendicularly.
- W Cremona Street/W Nickerson Street currently operates as TWSC, but a traffic signal is proposed as part of the mitigation plan
- Evaluated using HCM 2000 because the configuration is not supported with the HCM 6th Edition method due to non-NEMA signal configuration



Proposed MIMP Action Alt. Weekday Peak Hour Traffic Volumes With Improvements

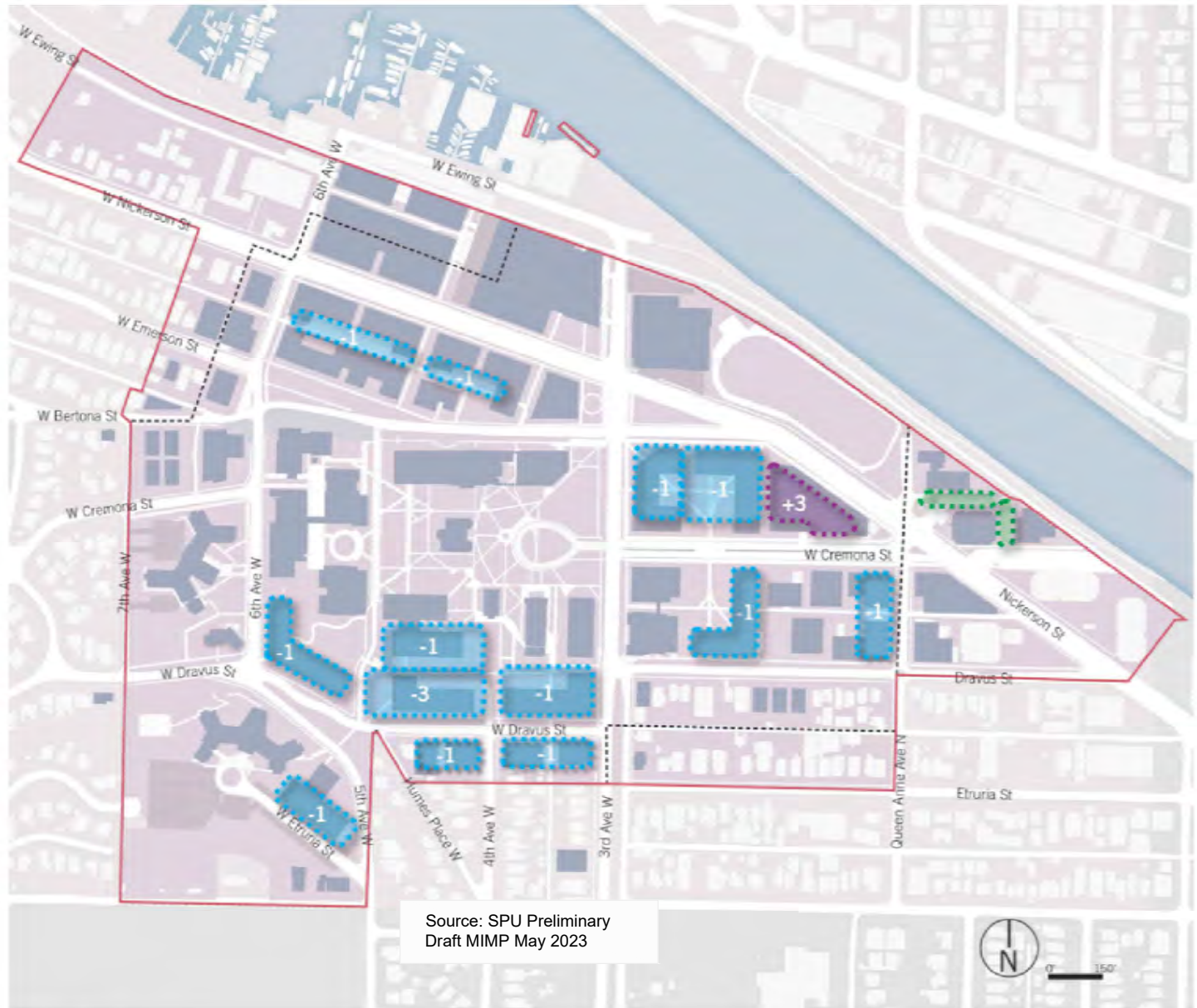
SPU MIMP EIS

Traffic Safety

As traffic volumes increase, traffic safety issues could increase proportionally. As shown in the trip generation table above (see Table 22), the total person trips and vehicle trips are forecast to increase with the Proposed MIMP Action Alternative relative to the No Action condition due to the increase in enrollment and the construction of mixed-use development. However, there are no significant safety concerns identified within the study area under existing conditions and the proposed vehicular and multi-modal improvements would be implemented in a way that adequately addresses safety considerations.

Parking

The Proposed MIMP Action Alternative would replace a significant amount of existing surface parking and transition to primarily underground parking below future residential and education buildings. Figure 29 depicts the proposed parking plan. The proposed parking plan would offer more consolidated parking options for commuters, staff, and visitors which could decrease impacts along the surrounding neighborhood streets. The proposed parking plan would be more user-friendly than the existing parking plan which primarily consists of several small surface parking lots dispersed throughout the campus. In particular, if commuter students and staff have access to a more consolidated parking area, this could result in decreased vehicular circulation within and surrounding the campus and reduced use of on-street parking. The Proposed MIMP Action Alternative depicts a total parking supply of 2,703 parking spaces. While it is understood that parking will ultimately conform with SMC 23.54.016.C4, and that parking will be evaluated on a project by project basis, the MIMP depicts the greatest amount of parking that could feasibly be constructed.



LEGEND

- Underground Parking
- Structured Parking
- Surface Parking
- Existing MIO Boundary
- Proposed MIO Boundary

Proposed MIMP Parking Plan

SPU MIMP EIS

FIGURE

29

Loading/Curbside Management

Under existing conditions, there is a loading dock at Gwinn Commons and a loading lay-by lane in front of the Student Union Building. Deliveries are routed to SPU's centralized parcel center and distributed from there. As part of the future project MUP processes, the number and location of loading facilities will be evaluated such that both the SMC requirements and practical loading demand are met. While the number of resident students is projected to increase as part of the MIMP, it is expected that SPU will maintain the use of a centralized parcel center in lieu of deliveries to each building individually.

Curbside management along the building entrance frontages will be evaluated at an individual level to determine if temporary loading zones or entrance zones are appropriate. It is anticipated that curbside loading or pick-up/drop-off areas may be desirable at residential buildings, but some educational buildings or other buildings may also benefit from curbside loading or pick-up/drop-off spaces. It is understood that curbside loading is not always the appropriate treatment given that street parking is not guaranteed in perpetuity. As such, the provision of short-term loading on-site versus within public space will be evaluated as part of future MUP processes.

The specific loading and curbside management needs of each building will be reevaluated as part of future project MUP processes when additional details regarding building design and function are known. The loading facilities will meet SMC requirements and will also consider campus-wide loading provisions and needs.

Special Events

SPU hosts a limited number of special events throughout a typical academic year including graduation, the highest attendance event, as well as sporting events such as basketball games and volleyball matches. These events are currently managed on a case-by-case basis by University staff and will continue to be managed as such as part of the Proposed MIMP. Special event management plans triggered by a specific event will be reviewed by the City under a separate process as is currently the case.

Transportation Management Program

The Transportation Management Plan (TMP) defines programs included in the Transportation and Parking Element of the Master Plan per SMC 23.69.030.F. The TMP includes programs and strategies applicable to faculty, resident and commuter students, and staff that are designed to reduce parking and traffic demands associated with projected growth at SPU. The detailed TMP is outlined in the MIMP, but it generally includes programs and strategies that address bicycle and pedestrian amenities, parking management, transit programs and incentives, carpool/vanpool programs and incentives, shared mobility amenities, and telecommuting benefits.

Impacts of the Action Alternative 2

This chapter describes the impacts of the Action Alternative 2. The impacts of Action Alternative 2 are identified through a comparison to the Proposed MIMP Action Alternative (2035 conditions).

Action Alternative 2 would include planned projects (near-term) and potential projects (long-term). In contrast to the Proposed MIMP, Action Alternative 2 would include street and alleyway vacations, but no boundary expansion and no increase to height limits. The campus population would be consistent with that outlined as part of the Proposed MIMP. Action Alternative 2 would include approximately 237,100 square feet of mixed-use development located along W Nickerson Street, 3rd Avenue W, W Bertona Street, and W Dravus Street. New parking lots and structures would be constructed, and some existing lots would be abandoned, resulting in an overall increase in parking.

Trip Generation

Trip generation for the Action Alternative 2 is comprised of a combination of trips generated by the following:

- **SPU Population Growth.** As part of Action Alternative 2, the campus population would increase by 1,700 students and 244 employees/staff from the No Action Alternative, consistent with the Proposed MIMP Action Alternative.
- **Mixed-Use Development.** Action Alternative 2 would include approximately 237,100 square feet of mixed-use development, comprised of 123,250 square feet of office space, 100,450 square feet of retail space, and 13,400 square feet of grocery store space. Additionally, the potential projects would result in the demolition of approximately 59,000 square feet of commercial space.

SPU Population Trip Generation

Trip generation related to the growth in the SPU campus population would be consistent with that outlined for the Proposed MIMP and summarized in Table 20. As outlined previously, the campus growth would result in approximately 1,088 net new daily vehicle trips with 88 new trips occurring during the weekday AM peak hour and 103 new trips during the weekday PM peak hour, as compared to the No Action Alternative.

Mixed Use Development Trip Generation

The method used to estimate trip generation for the mixed-use development components of Action Alternative 2 was provided in detail in the Analysis Methods section of the report and is based on trip rates outlined in ITE *Trip Generation, 11th Edition*. Action Alternative 2 includes development of the following mixed-use space:

- 123,250 square feet of office space (LU #710)
- 100,450 square feet of retail space (LU #821 and LU #822)
- 13,400 square-foot grocery store (LU #850)

Additionally, the construction of potential projects results in the demolition of the following uses, which have been compiled based on information on the King County Parcel Viewer:

- 47,552 square feet of warehouse space (LU #151)
- 5,128 square feet of general retail space (LU #822)
- 2,503 square-foot walk-in bank (LU #911)
- 1,390 square-foot copy, print and express ship store (LU #920)
- 1,600 square-foot fast-food restaurant without a drive-thru window (LU #933)
- 4-pump gas station with a convenience store (LU #945)

Table 29 summarizes the trip generation for the mixed-use components of Action Alternative 2. As shown in the table, the mixed-use components of Action Alternative 2 are projected to generate approximately 2,034 net new daily vehicle trips with 55 new trips occurring during the weekday AM peak hour and 116 new trips during the weekday PM peak hour.

Table 29. Action Alternative 2 Mixed-Use Trip Generation Summary							
Time Period	One-Way Person Trips				Vehicle Trips ²		
	Vehicular ¹	Transit	Non-Motorized/ Other	Total	In	Out	Total
<u>Proposed</u>							
Daily	4,319	1,260	7,104	12,683	1583	1583	3,166
AM Peak Hour	172	49	242	463	94	38	132
PM Peak Hour	293	106	642	1041	56	106	162
<u>Existing</u>							
Daily	1,659	418	2,103	4,180	566	566	1,132
AM Peak Hour	111	31	167	309	38	39	77
PM Peak Hour	119	31	156	306	21	25	46
<u>Net New Trips</u>							
Daily	2,660	842	5,001	8,503	1,017	1,017	2,034
AM Peak Hour	61	18	75	154	56	-1	55
PM Peak Hour	174	75	486	735	35	81	116

1. Vehicular person trips include both single occupancy vehicles and carpools/vanpool

2. Reflect two-way trips (both inbound and outbound).

Cumulative Trip Generation

In total, and as summarized in Table 30, Action Alternative 2 would generate a total of 3,122 net new daily vehicle trips with 143 new trips occurring during the weekday AM peak hour and 219 new trips occurring during the weekday PM peak hour, as compared to the No Action Alternative. Approximately 45 percent of these trips would be associated with the mixed-use development. As compared to the Proposed MIMP, Action Alternative 2 would generate a total of 766 more new daily trips with 30 more trips during the weekday AM peak hour and 20 more trips during the PM peak hour. Action Alternative 2 has a similar mix of mixed-use development as the Proposed MIMP, but it also results in the demolition of fewer existing buildings. The trips generated by the mixed-use components of Action Alternative 2, less the existing trips removed results in higher mixed-used trip generation in the AM and PM peak hours as compared to the Proposed MIMP.

Table 30. Action Alternative 2 Cumulative Trip Generation Summary							
Time Period	One-Way Person Trips				Vehicle Trips ²		
	Vehicular ¹	Transit	Non-Motorized/ Other	Total	In	Out	Total
<u>Net Change from 2035 No Action Alternative</u>							
Daily	3,782	1,283	7,377	12,442	1,561	1,561	3,122
AM Peak Hour	151	43	164	359	123	20	143
PM Peak Hour	280	113	670	1,062	78	141	219
<u>Net Change from 2035 Proposed MIMP</u>							
Daily	1,125	460	3,169	4,755	383	383	766
AM Peak Hour	44	19	118	181	11	19	30
PM Peak Hour	45	19	124	188	8	12	20

1. Vehicular person trips include both single occupancy vehicles and carpools/vanpool

2. Reflect two-way trips (both inbound and outbound).

Street System

The street system for Action Alternative 2 would be consistent with the Proposed MIMP Action Alternative. While Action Alternative 2 does not include the boundary expansion, all adjustments to the roadway system proposed as part of the Proposed MIMP would occur within the existing boundary and would therefore be implemented as part of Action Alternative 2.

Non-Motorized Transportation

Changes to the existing off-campus non-motorized system are assumed with Action Alternative 2. Impacts to the pedestrian and bicycle environment are described below.

Pedestrian

Consistent with the Proposed MIMP, Action Alternative 2 would improve on-campus connections and provide required frontage improvements where new buildings are constructed. Additionally, several roadway and intersections improvements, as well as street vacations would result in benefits to pedestrian access and circulation. All roadway and intersection improvements that would be included as part of the Proposed MIMP would also be included as part of Action Alternative 2.

However, given that Action Alternative 2 does not include the boundary expansion or increased height limits, some of the overarching pedestrian circulation improvements that would occur as part of the Proposed MIMP would not occur as part of Action Alternative 2. Action Alternative 2 would still aim to relocate existing academic and administrative buildings to the south side of W Nickerson Street and would construct the same amount of on-campus resident space, but there would be significant impacts to open space due to a more constrained developable area. This could lead to a less pedestrian-friendly campus layout. Additionally, there would be fewer opportunities for ground-floor retail space and overall street activation within and surrounding campus.

Bicycle

There are existing bicycle amenities such as showers, lockers, bicycle storage/racks on-campus. As stated previously, the existing bicycle racks provide parking for up to 220 bicycles and there are an additional 104 secured bicycle parking spaces. Action Alternative 2 would continue to provide bicycle amenities on-campus and make improvements and/or additions as the MIMP develops. Improvements would include replacing older amenities and adding shower and locker facilities to new buildings. The number and location of bicycle amenities will be evaluated as part of the future project Mixed-Use Project (MUP) processes.

The off-campus bicycle network would not change with Action Alternative 2 and would support any increase in bicycle activity. Additionally, some of the proposed pedestrian improvements outlined previously, such as the street vacations, would result in a more bicycle-friendly environment on-campus by improving bike connectivity and creating more comfortable spaces for cyclists.

Shared Mobility

While campus-wide or site-specific shared mobility strategies are not identified as part of Action Alternative 2 due to the timeline of the project and the rapidly evolving shared mobility landscape, there are several Transportation Management Program (TMP) strategies proposed that relate to shared mobility, including the support for third-party micromobility services, coordination with SDOT related to the establishment of shared mobility zones, and car share provisions and subsidies.

Transit Service

Consistent with the Proposed MIMP transit analysis, transit facilities on-campus are not anticipated to change with Action Alternative 2. While the projected transit trips are slightly higher for Action Alternative 2 as compared to the Proposed MIMP (19 additional trips during the AM peak hour and 19 additional trips during the PM peak hour), there would be sufficient capacity to absorb these new trips based on the analysis provided for the Proposed MIMP Action Alternative. This analysis shows that no route is anticipated to operate at above 50 percent capacity such that there is estimated to be available capacity to accommodate additional riders during the weekday peak periods.

Additionally, the operational impact on transit would be consistent to the operational impact of general-purpose traffic in terms of vehicle delay. Transit riders would experience the same change in delay as general-purpose riders given that the existing traffic signals do not include transit priority phasing.

Traffic Volumes

Action Alternative 2 traffic volumes were projected by adding trips related to the growth in the campus population and mixed-use development to the No Action Alternative traffic volumes. The distribution of the net new trips is consistent with that described for the Proposed MIMP Action Alternative; however, the assignment of new trips corresponds with the location of the proposed parking facilities and mixed-use development buildings.

The resulting Action Alternative 2 peak hour traffic volumes are summarized on Figure 30. Table 31 summarizes the percent change in traffic volumes of Action Alternative 2 relative to the Proposed MIMP Action Alternative during the peak hours.

Table 31. Action Alt. 2 Peak Hour Traffic Volume Impacts at Study Intersections

Intersection	AM Peak Hour				PM Peak Hour			
	Proposed MIMP TEV	Net New Trips	Action Alt 2 TEV	Percent Change	Proposed MIMP TEV	Net New Trips	Action Alt 2 TEV	Percent Change
1. 6th Ave W/W Nickerson St	1,750	-46	1,704	-2.6%	1,925	-52	1,873	-2.7%
2. 6th Ave W/W Emerson St	106	-7	99	-6.6%	160	-8	152	-5.0%
3. 6th Ave W/W Bertona St	437	1	438	0.2%	595	1	596	0.2%
4. 6th Ave W/W Dravus St	58	1	59	1.7%	134	0	134	0.0%
5. W Emerson St/W Bertona St ¹	--	--	--	--	--	--	--	--
6. 3rd Ave W/W Nickerson St	1,929	-29	1,900	-1.5%	2,294	-37	2,257	-1.6%
7. 3rd Ave W/W Bertona St	635	15	650	2.4%	1,072	13	1,085	1.2%
8. 3rd Ave W/W Cremona St	487	59	546	12.1%	803	76	879	9.5%
9. 3rd Ave W/W Dravus St (N)	511	6	522	1.2%	939	7	946	0.7%
10. 3rd Ave W/W Dravus St (S)	506	11	517	2.2%	873	6	879	0.7%
11. Queen Anne Ave N/W Nickerson St ²	--	--	--	--	--	--	--	--
12. W Cremona St/W Nickerson St	1,909	13	1,922	0.7%	2,222	14	2,236	0.6%
13. Queen Anne Ave N/W Cremona St	200	48	248	24.0%	228	50	278	21.9%
14. 3rd Ave N/W Florentia St/W Nickerson St	2,457	9	2,466	0.2%	2,846	-5	2,848	-0.1%
15. Fremont Ave N/W Florentia St	2,682	4	2,686	0.1%	3,161	-3	3,158	-0.1%
16. Fremont Ave N/W Nickerson St	3,555	4	3,559	0.1%	3,698	-1	3,697	-0.0%

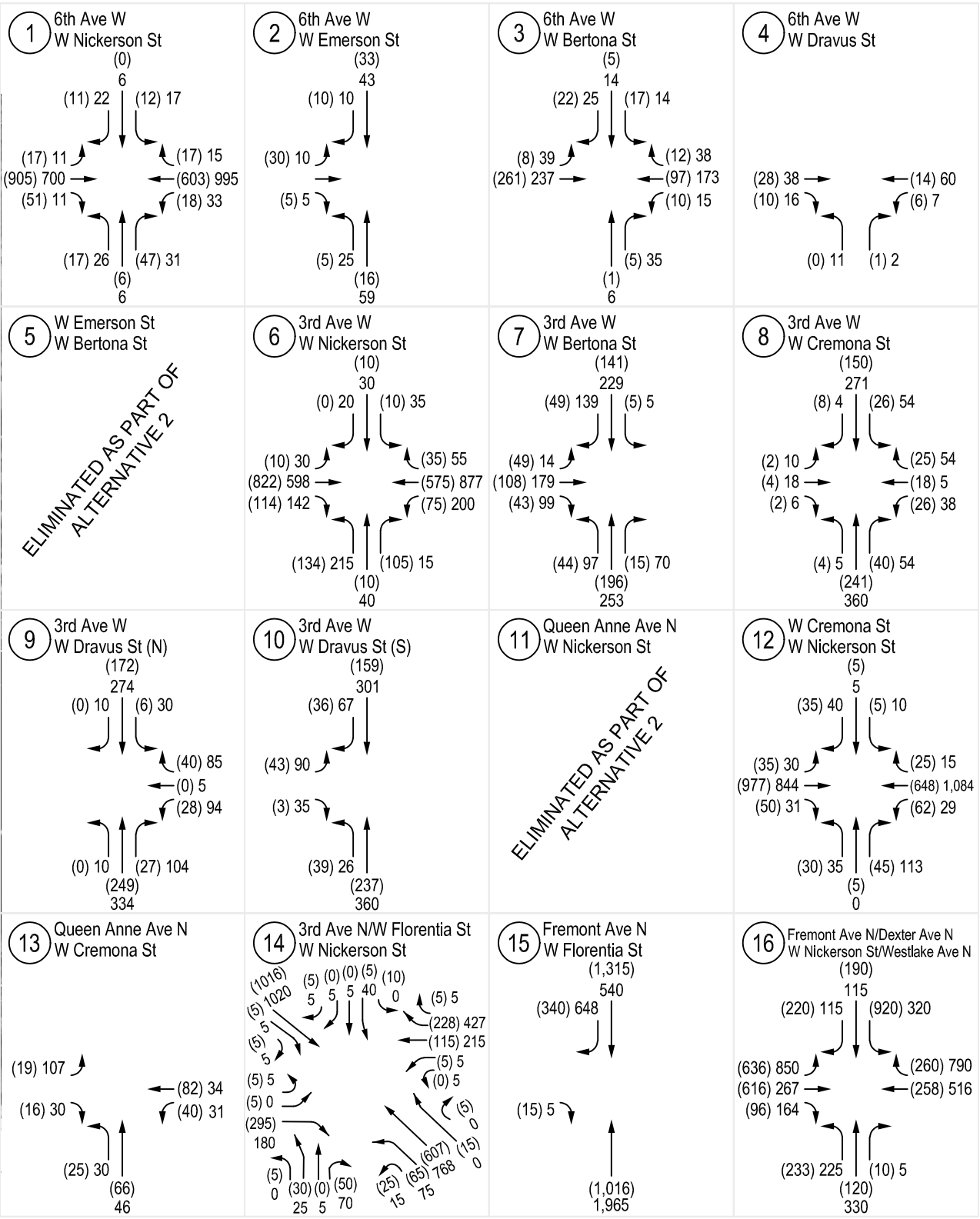
Note: TEV = Total Entering Vehicles.

1. Intersection of W Emerson St/W Bertona St eliminated as a result of the proposed Emerson Street vacation.

2. Intersections reconfigured such that Queen Anne Ave N/W Nickerson Street is eliminated Queen Anne Ave N/W Cremona Street is realigned to intersection with W Nickerson street perpendicularly.

As shown in Table 31, traffic volumes within the west side of campus (along 6th Avenue W) generally decrease as a result of Action Alternative 2, while traffic volumes within the east side of campus (along

3rd Avenue W and Queen Anne Avenue W) increase. This is primarily a result of mixed-use development centered around 3rd Avenue W and W Cremona Street as part of Action Alternative 2, rather than along W Nickerson Street between 6th Avenue W and 3rd Avenue W as part of the Proposed MIMP Action Alternative.



Action Alt. 2 Weekday Peak Hour Traffic Volumes

SPU MIMP EIS

Traffic Operations

The Action Alternative 2 LOS analysis assumes the same methods as the Existing, No Action, and Proposed MIMP conditions. The intersection parameters and channelization are consistent with those assumed as part of the Proposed MIMP. A comparison of the Proposed MIMP and Action Alternative 2 weekday peak hour operations are shown in Table 32.

Table 32. Proposed MIMP and Action Alternative 2 Weekday Peak Hour LOS Summary

Intersection	Traffic Control	AM Peak Hour						PM Peak Hour					
		Proposed MIMP			Action Alt 2			Proposed MIMP			Action Alt 2		
		LOS ¹	Delay ²	WM ³	LOS	Delay	WM	LOS	Delay	WM	LOS	Delay	WM
1. 6th Ave W/W Nickerson St	TWSC	F	125.2	SB	F	74.1	SB	F	550.3	SB	F	187.6	SB
2. 6th Ave W/W Emerson St	AWSC	A	7.3	-	A	7.2	-	A	7.5	-	A	7.4	-
3. 6th Ave W/W Bertona St	TWSC	B	12.1	SB	B	12.1	SB	B	14.3	SB	B	14.3	SB
4. 6th Ave W/W Dravus St	AWSC	A	7.0	-	A	7.0	-	A	7.3	-	A	7.3	-
5. W Emerson St/W Bertona St ⁴	TWSC	--	--	--	--	--	--	--	--	--	--	--	--
6. 3rd Ave W/W Nickerson St	Signal	C	26.0	-	C	24.5	-	D	39.8	-	D	37.5	-
7. 3rd Ave W/W Bertona St	TWSC	C	20.2	EB	C	20.8	EB	F	128.4	EB	F	132.2	EB
8. 3rd Ave W/W Cremona St	TWSC	B	12.9	WB	B	13.3	WB	C	22.1	WB	D	27.0	WB
9. 3rd Ave W/W Dravus St (N)	TWSC	B	11.8	WB	B	12.0	WB	C	22.6	WB	C	22.8	WB
10. 3rd Ave W/W Dravus St (S)	TWSC	B	13.5	EB	B	13.6	EB	C	20.0	EB	C	20.2	EB
11. Queen Anne Ave N/ W Nickerson St ⁵	TWSC	--	--	--	--	--	--	--	--	--	--	--	--
12. W Cremona St/W Nickerson St ⁵	TWSC	F	317.5	NB	F	400.4	NB	F	1011.3	NB	F	950.2	NB
13. Queen Anne Ave N/W Cremona St	TWSC	A	9.8	NB	B	10.0	NB	A	9.4	NB	B	10.1	NB
14. 3rd Ave N/W Florentia St/ W Nickerson St ⁶	Signal	D	45.9	-	D	44.7	-	E	70.6	-	E	70.9	-
15. Fremont Ave N/W Florentia St	TWSC	D	29.5	EB	D	29.5	EB	C	17.0	EB	C	17.0	EB
16. Fremont Ave N/W Nickerson St	Signal	F	110.6	-	F	110.5	-	F	88.8	-	F	87.6	-

Note: TWSC = Two-Way Stop Controlled. AWSC = All-Way Stop Controlled. **Bold** text indicates operating at LOS E or F if signalized or LOS F for TWSC.

1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (HCM) 6th Edition (TRB, 2016)
2. Average delay per vehicle in seconds
3. Worst movement reported for TWSC intersections.
4. Intersection of W Emerson St/W Bertona St eliminated as a result of the proposed Emerson Street vacation.
5. Intersections reconfigured such that Queen Anne Ave N/W Nickerson Street is eliminated Queen Anne Ave N/W Cremona Street is realigned to intersection with W Nickerson street perpendicularly.
6. Evaluated using HCM 2000 because the configuration is not supported with the HCM 6th Edition method due to non-NEMA signal configuration

As shown in Table 32, the operational impacts of Action Alternative 2 are generally consistent with the impacts of the Proposed MIMP. There are fluctuations in delay related to the limited development potential along W Nickerson Street as part of Action Alternative 2, but the intersections that operate below acceptable LOS thresholds remain the same. As such, the same mitigation measures would be proposed as part of Action Alternative 2, including traffic signals at 6th Avenue W/W Nickerson Street and W Cremona Street/W Nickerson Street, as well as turn restrictions at 3rd Avenue W/W Bertona Street and an accompanying northbound left-turn lane at 3rd Avenue W/W Nickerson Street. The resulting traffic volumes are included in Figure 31. Signal warrants were performed for the two proposed signals and the analyses are included in Appendix I. The analyses show that signals are warranted at both intersections based on the four- and eight-hour warrants.

The proposed mitigation measures and accompanying changes in circulation result in improvements to overall operations. A comparison of Action Alternative 2 weekday peak hour operations with and without proposed mitigation measures are shown in Table 33.

Table 33. Action Alternative 2 Weekday Peak Hour LOS Summary with Improvements

Intersection	Traffic Control	AM Peak Hour						PM Peak Hour					
		Action Alt. 2			Action Alt. 2 (w/ Improvements)			Action Alt. 2			Action Alt. 2 (w/ Improvements)		
		LOS ¹	Delay ²	WM ³	LOS	Delay	WM	LOS	Delay	WM	LOS	Delay	WM
1. 6th Ave W/W Nickerson St	TWSC/Signal ⁴	F	74.1	SB	B	18.4	-	F	187.6	SB	C	22.1	-
2. 6th Ave W/W Emerson St	AWSC	A	7.2	-	A	7.9	-	A	7.4	-	A	8.4	-
3. 6th Ave W/W Bertona St	TWSC	B	12.1	SB	B	14.6	SB	B	14.3	SB	C	17.6	SB
4. 6th Ave W/W Dravus St	AWSC	A	7.0	-	A	7.0	-	A	7.3	-	A	7.3	-
5. W Emerson St/W Bertona St ⁵	TWSC	--	--	--	--	--	--	--	--	--	--	--	--
6. 3rd Ave W/W Nickerson St	Signal	C	24.5	-	B	18.1	-	D	37.5	-	C	26.9	-
7. 3rd Ave W/W Bertona St	TWSC	C	20.8	EB	B	11.0	EB	F	132.2	EB	D	25.8	EB
8. 3rd Ave W/W Cremona St	TWSC	B	13.3	WB	B	13.9	WB	D	27.0	WB	D	30.0	WB
9. 3rd Ave W/W Dravus St (N)	TWSC	B	12.0	WB	B	12.3	WB	C	22.8	WB	C	24.5	WB
10. 3rd Ave W/W Dravus St (S)	TWSC	B	13.6	EB	B	13.6	EB	C	20.2	EB	C	20.2	EB
11. Queen Anne Ave N/ W Nickerson St ⁶	TWSC	--	--	--	--	--	--	--	--	--	--	--	--
12. W Cremona St/W Nickerson St ⁶	TWSC/Signal ⁷	F	400.4	NB	B	13.2	-	F	950.2	NB	B	17.9	-
13. Queen Anne Ave N/W Cremona St	TWSC	B	10.0	NB	B	10.0	NB	B	10.1	NB	B	10.1	NB
14. 3rd Ave N/W Florentia St/ W Nickerson St ⁸	Signal	D	44.7	-	D	44.7	-	E	70.9	-	E	70.9	-
15. Fremont Ave N/W Florentia St	TWSC	D	29.5	EB	D	29.5	EB	C	17.0	EB	C	17.0	EB
16. Fremont Ave N/W Nickerson St	Signal	F	110.5	-	F	111.6	-	F	87.6	-	F	87.8	-

Note: TWSC = Two-Way Stop Controlled. AWSC = All-Way Stop Controlled. **Bold** text indicates operating at LOS E or F if signalized or LOS F for TWSC.

1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (HCM) 6th Edition (TRB, 2016)
2. Average delay per vehicle in seconds
3. Worst movement reported for TWSC intersections.
4. 6th Ave W/W Nickerson Street currently operates as TWSC, but a traffic signal is proposed as part of the mitigation plan
5. Intersection of W Emerson St/W Bertona St eliminated as a result of the proposed Emerson Street vacation.
6. Intersections reconfigured such that Queen Anne Ave N/W Nickerson Street is eliminated Queen Anne Ave N/W Cremona Street is realigned to intersection with W Nickerson street perpendicularly.
7. W Cremona Street/W Nickerson Street currently operates as TWSC, but a traffic signal is proposed as part of the mitigation plan
8. Evaluated using HCM 2000 because the configuration is not supported with the HCM 6th Edition method due to non-NEMA signal configuration

Table 34 summarizes the LOS results of the 2035 No Action Alternative, the Proposed MIMP with improvements, and Action Alternative 2 with Improvements. As shown, the proposed mitigation measures result in the same overarching intersection improvements as compared to the No Action Alternative, consistent with the Proposed MIMP. However, higher delay is observed at 3rd Avenue W/W Cremona Street and W Nickerson Street/W Cremona Street. This is primarily a result of the higher level of development activity along W Cremona Street as part of Action Alternative 2 combined with the circulation changes associated with the 3rd Avenue W/W Bertona Street turn restrictions.

Table 34. LOS Comparison (2035 No Action, 2035 Proposed MIMP, Action Alternative 2)

Intersection	AM Peak Hour LOS ¹			PM Peak Hour LOS		
	No Action	Proposed MIMP (w/ Imps)	Action Alt. 2 (w/ Imps)	No Action	Proposed MIMP (w/ Imps)	Action Alt. 2 (w/ Imps)
1. 6th Ave W/W Nickerson St ²	F	B	B	F	C	C
2. 6th Ave W/W Emerson St	A	A	A	A	A	A
3. 6th Ave W/W Bertona St	B	B	B	B	C	C
4. 6th Ave W/W Dravus St	A	A	A	A	A	A
5. W Emerson St/W Bertona St ³	B	--	--	D	--	--
6. 3rd Ave W/W Nickerson St	C	B	B	C	C	C
7. 3rd Ave W/W Bertona St	C	B	B	F	D	D
8. 3rd Ave W/W Cremona St	B	B	B	C	C	D
9. 3rd Ave W/W Dravus St (N)	B	B	B	C	C	C
10. 3rd Ave W/W Dravus St (S)	B	B	B	C	C	C
11. Queen Anne Ave N/W Nickerson St ⁴	F	--	--	F	--	--
12. W Cremona St/W Nickerson St ⁵	C	A	B	D	B	B
13. Queen Anne Ave N/W Cremona St	A	A	B	B	A	B
14. 3rd Ave N/W Florentia St/W Nickerson St ⁶	D	D	D	E	E	E
15. Fremont Ave N/W Florentia St	D	D	D	C	C	C
16. Fremont Ave N/W Nickerson St	F	F	F	E	F	F

Bold text indicates operating at LOS E or F if signalized or LOS F for TWSC.

1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (HCM) 6th Edition (TRB, 2016)

2. 6th Ave W/W Nickerson Street currently operates as TWSC, but a traffic signal is proposed as part of the mitigation plan

3. Intersection of W Emerson St/W Bertona St eliminated as a result of the proposed Emerson Street vacation.

4. Intersections reconfigured such that Queen Anne Ave N/W Nickerson Street is eliminated Queen Anne Ave N/W Cremona Street is realigned to intersection with W Nickerson street perpendicularly.

5. W Cremona Street/W Nickerson Street currently operates as TWSC, but a traffic signal is proposed as part of the mitigation plan

6. Evaluated using HCM 2000 because the configuration is not supported with the HCM 6th Edition method due to non-NEMA signal configuration

Traffic Safety

As traffic volumes increase, traffic safety issues could increase proportionally. As shown in the trip generation table above (see Table 30), the total person trips and vehicle trips are forecast to increase with Action Alternative 2 relative to the No Action condition due to the increase in enrollment and the construction of mixed-use development. However, there are no significant safety concerns identified within the study area under existing conditions and the proposed vehicular and multi-modal improvements would be implemented in a way that adequately addresses safety considerations.

Parking

Consistent with the Proposed MIMP, Action Alternative 2 would replace a significant amount of existing surface parking and transition to primarily underground parking below future residential and education buildings. The proposed parking plan would offer more consolidated parking options for commuters, staff, and visitors. The plan depicts a total parking supply of 2,670 parking spaces (33 fewer spaces than the Proposed MIMP). While it is understood that parking will ultimately conform with SMC 23.54.016.C4, and that parking will be evaluated on a project by project basis, the MIMP depicts the greatest amount of parking that could feasibly be constructed.

Loading/Curbside Management

Each individual building will provide loading facilities that both meet SMC requirements and accommodate the practical demand for waste collection and deliveries. Additionally, curbside management along the building entrance frontages will be evaluated at an individual level to determine if

temporary loading zones or entrance zones are appropriate. It is anticipated that curbside loading or pick-up/drop-off areas may be desirable at residential buildings, but some educational buildings or other buildings may also benefit from curbside loading or pick-up/drop-off spaces. The specific loading and curbside management needs of each building will be reevaluated as part of future project MUP processes when additional details regarding building design and function are known.

Special Events

SPU hosts a limited number of special events throughout a typical academic year including graduation, the highest attendance event, as well as sporting events such as basketball games and volleyball matches. These events are currently managed on a case-by-case basis by University staff and will continue to be managed as such as part of Action Alternative 2. Special event management plans triggered by a specific event will be reviewed by the City under a separate process as is currently the case.

Transportation Management Program

The Transportation Management Program (TMP) program and associated goals for Action Alternative 2 would be consistent with the Proposed MIMP.

Impacts of the Action Alternative 3

This chapter describes the impacts of the Action Alternative 3. The impacts of Action Alternative 3 are identified through a comparison to the Proposed MIMP Action Alternative.

Action Alternative 3 would include planned projects (near-term) and potential projects (long-term). In contrast to the Proposed MIMP, Action Alternative 3 would include the MIO boundary expansion and street and alleyway vacations, but *no* increase to height limits. The campus population would be consistent with that outlined as part of the Proposed MIMP. Action Alternative 3 would include approximately 237,100 square feet of mixed-use development located along W Nickerson Street, W Bertona Street, and W Cremona Street. New parking lots and structures would be constructed, and some existing lots would be abandoned, resulting in an overall increase in parking.

Trip Generation

Trip generation for the Action Alternative 3 is comprised of a combination of trips generated by the following:

- **SPU Population Growth.** As part of Action Alternative 3, the campus population would increase by 1,700 students and 244 employees/staff from the No Action Alternative, consistent with the Proposed MIMP Action Alternative.
- **Mixed-Use Development.** The Proposed MIMP would include approximately 237,100 square feet of mixed-use development, comprised of 139,800 square feet of office space, 83,900 square feet of retail space, and 13,400 square feet of grocery store space. Additionally, the boundary expansion and potential projects would result in the demolition of approximately 95,000 square feet of commercial space.

SPU Population Trip Generation

Trip generation related to the growth in the SPU campus population would be consistent with that outlined for the Proposed MIMP and summarized in Table 20. As outlined previously, the campus growth would result in approximately 1,088 net new daily vehicle trips with 88 new trips occurring during the weekday AM peak hour and 103 new trips during the weekday PM peak hour, as compared to the No Action Alternative.

Mixed Use Development Trip Generation

The method used to estimate trip generation for the mixed-use development components of Action Alternative 3 was provided in detail in the Analysis Methods section of the report and is based on trip rates outlined in ITE *Trip Generation, 11th Edition*. Action Alternative 3 includes development of the following mixed-use space:

- 139,800 square feet of office space (LU #710)
- 83,900 square feet of retail space (LU #821 or LU #822)
- 13,400 square-foot grocery store (LU #850)

Additionally, the construction of potential projects results in the demolition of the following uses, which have been compiled based on information on the King County Parcel Viewer:

- 69,182 square feet of warehouse space (LU #151)
- 13,151 square feet of general retail space (LU #822)
- 2,024 square-foot convenience store without gas (LU #851)
- 2,503 square-foot walk-in bank (LU #911)
- 1,390 square-foot copy, print and express ship store (LU #920)

- 4,080 square-foot fast casual restaurant (LU #930)
- 1,600 square-foot fast-food restaurant without a drive-thru window (LU #933)
- 4-pump gas station with a convenience store (LU #945)

Table 35 summarizes the trip generation for the mixed-use components of Action Alternative 3. As shown in the table, the mixed-use components of Action Alternative 3 are projected to generate approximately 1,523 net new daily vehicle trips with 22 new trips occurring during the weekday AM peak hour and 82 new trips during the weekday PM peak hour.

Table 35. Action Alternative 3 Mixed-Use Trip Generation Summary

Time Period	One-Way Person Trips				Vehicle Trips ²		
	Vehicular ¹	Transit	Non-Motorized/ Other	Total	In	Out	Total
<u>Proposed</u>							
Daily	4,218	1,169	6,279	11,666	1,577	1577	3,153
AM Peak Hour	165	45	202	412	98	31	129
PM Peak Hour	269	91	525	885	53	101	154
<u>Existing</u>							
Daily	2,386	772	4,572	7,731	815	815	1,630
AM Peak Hour	156	55	324	535	52	55	107
PM Peak Hour	182	62	367	611	35	37	72
<u>Net New Trips</u>							
Daily	1,832	397	1,707	3,935	762	762	1,523
AM Peak Hour	9	-10	-122	-123	46	-24	22
PM Peak Hour	87	29	158	274	18	64	82

1. Vehicular person trips include both single occupancy vehicles and carpools/vanpool

2. Reflect two-way trips (both inbound and outbound).

Cumulative Trip Generation

In total, and as summarized in Table 36, Action Alternative 3 would generate a total of 2,612 net new daily vehicle trips with 110 new trips occurring during the weekday AM peak hour and 185 new trips occurring during the weekday PM peak hour, as compared to the No Action Alternative. Approximately 35 percent of these trips would be associated with mixed-use development. As compared to the Proposed MIMP, Action Alternative 3 would generate a total of 255 more new daily trips with 3 fewer trips during the weekday AM peak hour and 14 fewer trips during the PM peak hour.

Table 36. Action Alternative 3 Cumulative Trip Generation Summary

Time Period	One-Way Person Trips				Vehicle Trips ²		
	Vehicular ¹	Transit	Non-Motorized/ Other	Total	In	Out	Total
<u>Net Change from 2035 No Action Alternative</u>							
Daily	2,954	838	4,083	7,874	1,306	1,306	2,612
AM Peak Hour	99	15	-33	82	113	-3	110
PM Peak Hour	193	67	342	601	61	124	185
<u>Net Change from 2035 Proposed MIMP</u>							
Daily	297	15	-125	187	128	128	255
AM Peak Hour	-8	-9	-79	-96	1	-4	-3
PM Peak Hour	-42	-27	-204	-273	-9	-5	-14

1. Vehicular person trips include both single occupancy vehicles and carpools/vanpool

2. Reflect two-way trips (both inbound and outbound).

Street System

The street system for Action Alternative 3 would be consistent with the Proposed MIMP Action Alternative.

Non-Motorized Transportation

Changes to the existing off-campus non-motorized system are assumed with Action Alternative 3. Impacts to the pedestrian and bicycle environment are described below.

Pedestrian

Consistent with the Proposed MIMP, Action Alternative 3 would improve on-campus connections and provide required frontage improvements where new buildings are constructed. Additionally, several roadway and intersections improvements, as well as street vacations would result in benefits to pedestrian access and circulation. All roadway and intersection improvements that would be included as part of the Proposed MIMP would also be included as part of Action Alternative 3.

However, given that Action Alternative 3 does not include the increased height limits, some of the overarching pedestrian circulation improvements that would occur as part of the Proposed MIMP would not occur as part of Action Alternative 3. Action Alternative 3 would still aim to relocate existing academic and administrative buildings to the south side of W Nickerson Street and would construct the same amount of on-campus resident space, but there would be significant impacts to open space due to a more constrained developable area. This could lead to a less pedestrian-friendly campus layout. Additionally, there would be fewer opportunities for ground-floor retail space and overall street activation within and surrounding campus.

Bicycle

There are existing bicycle amenities such as showers, lockers, bicycle storage/racks on-campus. As stated previously, the existing bicycle racks provide parking for up to 220 bicycles and there are an additional 104 secured bicycle parking spaces. Action Alternative 3 would continue to provide bicycle amenities on-campus and make improvements and/or additions as the MIMP develops. Improvements would include replacing older amenities and adding shower and locker facilities to new buildings. The number and location of bicycle amenities will be evaluated as part of the future project Mixed-Use Project (MUP) processes.

Off campus facilities (such as those identified in the Comprehensive Plan and Bicycle Master Plan, as described previously) could be implemented in the future. The existing and planned bicycle facilities could accommodate the expected growth in bicycle commuting. Additionally, some of the proposed pedestrian improvements outlined previously, such as the street vacations, would result in a more bicycle-friendly environment on-campus by improving bike connectivity and creating more comfortable spaces for cyclists.

Shared Mobility

While campus-wide or site-specific shared mobility strategies are not identified as part of Action Alternative 3 due to the timeline of the project and the rapidly evolving shared mobility landscape, there are several Transportation Management Program (TMP) strategies proposed that relate to shared mobility, including the support for third-party micromobility services, coordination with SDOT related to the establishment of shared mobility zones, and car share provisions and subsidies.

Transit Service

Consistent with the Proposed MIMP transit analysis, transit facilities on-campus are not anticipated to change with Action Alternative 3. The projected transit trips are lower for Action Alternative 3 as

compared to the Proposed MIMP therefore there would be sufficient capacity to absorb the Action Alternative 3 transit trips based on the analysis provided for the Proposed MIMP Action Alternative.

Additionally, the operational impact on transit would be consistent to the operational impact of general-purpose traffic in terms of vehicle delay. Transit riders would experience the same change in delay as general-purpose riders given that the existing traffic signals do not include transit priority phasing.

Traffic Volumes

Action Alternative 3 traffic volumes were projected by adding trips related to the growth in the campus population and mixed-use development to the No Action Alternative traffic volumes. The distribution of the net new trips is consistent with that described for the Proposed MIMP Action Alternative; however, the assignment of new trips corresponds with the location of the proposed parking facilities and mixed-use development buildings.

The resulting Action Alternative 3 peak hour traffic volumes are summarized on Figure 32. Table 37 summarizes the percent change in traffic volumes of Action Alternative 3 relative to the Proposed MIMP Action Alternative during the peak hours.

Table 37. Action Alt. 3 Peak Hour Traffic Volume Impacts at Study Intersections

Intersection	AM Peak Hour				PM Peak Hour			
	Proposed MIMP TEV	Net New Trips	Action Alt 3 TEV	Percent Change	Proposed MIMP TEV	Net New Trips	Action Alt 3 TEV	Percent Change
1. 6th Ave W/W Nickerson St	1,750	-7	1,743	-0.4%	1,925	-5	1,920	-0.3%
2. 6th Ave W/W Emerson St	106	-9	97	-8.5%	160	-15	145	-9.4%
3. 6th Ave W/W Bertona St	437	-7	430	-1.6%	595	-12	583	-2.0%
4. 6th Ave W/W Dravus St	58	-2	56	-3.4%	134	-2	132	-1.5%
5. W Emerson St/W Bertona St ¹	--	--	--	--	--	--	--	--
6. 3rd Ave W/W Nickerson St	1,929	-3	1,926	-0.2%	2,294	-4	2,290	-0.2%
7. 3rd Ave W/W Bertona St	635	0	635	0.0%	1,072	-6	1,066	-0.6%
8. 3rd Ave W/W Cremona St	487	14	501	2.9%	803	26	829	3.2%
9. 3rd Ave W/W Dravus St (N)	511	-12	504	-2.3%	939	-11	928	-1.2%
10. 3rd Ave W/W Dravus St (S)	506	-7	499	-1.4%	873	-18	862	-1.3%
11. Queen Anne Ave N/W Nickerson St ²	--	--	--	--	--	--	--	--
12. W Cremona St/W Nickerson St	1,909	4	1,913	0.2%	2,222	0	2,222	0.0%
13. Queen Anne Ave N/W Cremona St	200	3	203	1.5%	228	3	231	1.3%
14. 3rd Ave N/W Florentia St/W Nickerson St	2,457	-4	2,453	-0.1%	2,846	-6	2,840	-0.2%
15. Fremont Ave N/W Florentia St	2,682	-4	2,678	-0.1%	3,161	-5	3,156	-0.2%
16. Fremont Ave N/W Nickerson St	3,555	-4	3,551	-0.1%	3,698	-1	3,697	0.0%

Note: TEV = Total Entering Vehicles.

1. Intersection of W Emerson St/W Bertona St eliminated as a result of the proposed Emerson Street vacation.

2. Intersections reconfigured such that Queen Anne Ave N/W Nickerson Street is eliminated Queen Anne Ave N/W Cremona Street is realigned to intersection with W Nickerson street perpendicularly.

As shown in Table 37, traffic volumes within the campus (along 6th Avenue W and 3rd Avenue W) generally decrease as a result of Action Alternative 3, while traffic volumes east of campus (along W Nickerson Street west of Queen Anne Avenue N) generally increase. This is primarily a result of some mixed-use development shifted to W Cremona Street as part of Action Alternative 3 from W Nickerson Street between 6th Avenue W and 3rd Avenue W as part of the Proposed MIMP Action Alternative.

Traffic Operations

The Action Alternative 3 LOS analysis assumes the same methods as the Existing, No Action, and Proposed MIMP conditions. The intersection parameters and channelization are consistent with those assumed as part of the Proposed MIMP. A comparison of the Proposed MIMP and Action Alternative 3 weekday peak hour operations are shown in Table 38.

Table 38. Proposed MIMP and Action Alternative 3 Weekday Peak Hour LOS Summary

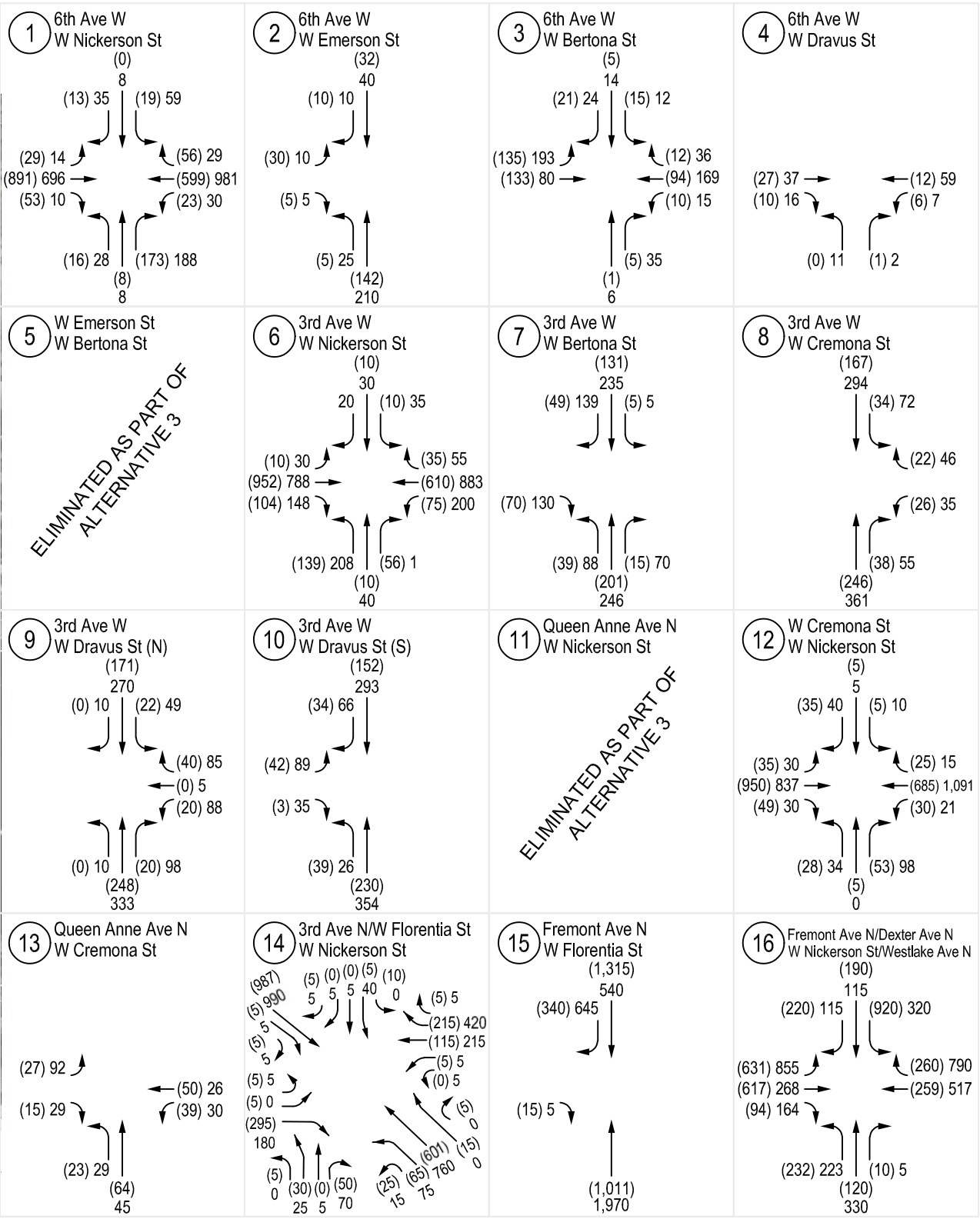
Intersection	Traffic Control	AM Peak Hour						PM Peak Hour					
		Proposed MIMP			Action Alt. 3			Proposed MIMP			Action Alt. 3		
		LOS ¹	Delay ²	WM ³	LOS	Delay	WM	LOS	Delay	WM	LOS	Delay	WM
1. 6th Ave W/W Nickerson St	TWSC	F	125.2	SB	F	116.7	SB	F	550.3	SB	F	606.2	SB
2. 6th Ave W/W Emerson St	AWSC	A	7.3	-	A	7.2	-	A	7.5	-	A	7.4	-
3. 6th Ave W/W Bertona St	TWSC	B	12.1	SB	B	12.0	SB	B	14.3	SB	B	14.0	SB
4. 6th Ave W/W Dravus St	AWSC	A	7.0	-	A	7.0	-	A	7.3	-	A	7.3	-
5. W Emerson St/W Bertona St ⁴	TWSC	--	--	--	--	--	--	--	--	--	--	--	--
6. 3rd Ave W/W Nickerson St	Signal	C	26.0	-	C	25.5	-	D	39.8	-	D	39.0	-
7. 3rd Ave W/W Bertona St	TWSC	C	20.2	EB	C	20.1	EB	F	128.4	EB	F	125.2	EB
8. 3rd Ave W/W Cremona St	TWSC	B	12.9	WB	B	13.3	WB	C	22.1	WB	D	26.1	WB
9. 3rd Ave W/W Dravus St (N)	TWSC	B	11.8	WB	B	11.7	WB	C	22.6	WB	C	21.8	WB
10. 3rd Ave W/W Dravus St (S)	TWSC	B	13.5	EB	B	13.4	EB	C	20.0	EB	C	19.7	EB
11. Queen Anne Ave N/ W Nickerson St ⁵	TWSC	--	--	--	--	--	--	--	--	--	--	--	--
12. W Cremona St/W Nickerson St ⁵	TWSC	F	317.5	NB	F	326.9	NB	F	1011.3	NB	F	968.5	NB
13. Queen Anne Ave N/W Cremona St	TWSC	A	9.8	NB	A	9.8	NB	A	9.4	NB	B	10.1	NB
14. 3rd Ave N/W Florentia St/ W Nickerson St ⁶	Signal	D	45.9	-	D	44.6	-	E	70.6	-	E	70.1	-
15. Fremont Ave N/W Florentia St	TWSC	D	29.5	EB	D	29.5	EB	C	17.0	EB	C	17.0	EB
16. Fremont Ave N/W Nickerson St	Signal	F	110.6	-	F	109.4	-	F	88.8	-	F	88.9	-

Note: TWSC = Two-Way Stop Controlled. AWSC = All-Way Stop Controlled. **Bold** text indicates operating at LOS E or F if signalized or LOS F for TWSC.

- Level of Service (A – F) as defined by the *Highway Capacity Manual* (HCM) 6th Edition (TRB, 2016)
- Average delay per vehicle in seconds
- Worst movement reported for TWSC intersections.
- Intersection of W Emerson St/W Bertona St eliminated as a result of the proposed Emerson Street vacation.
- Intersections reconfigured such that Queen Anne Ave N/W Nickerson Street is eliminated Queen Anne Ave N/W Cremona Street is realigned to intersection with W Nickerson street perpendicularly.
- Evaluated using HCM 2000 because the configuration is not supported with the HCM 6th Edition method due to non-NEMA signal configuration

As shown in Table 38, the operational impacts of Action Alternative 3 are generally consistent with the impacts of the Proposed MIMP. There are fluctuations in delay related to the limitations in development potential along W Nickerson Street as part of Action Alternative 3, but the intersections that operate below acceptable LOS thresholds remain the same. As such, the same mitigation measures would be proposed as part of Action Alternative 3, including traffic signals at 6th Avenue W/W Nickerson Street and W Cremona Street/W Nickerson Street, as well as turn restrictions at 3rd Avenue W/W Bertona Street and an accompanying northbound left-turn lane at 3rd Avenue W/W Nickerson Street. The resulting traffic volumes are included in Figure 33. Signal warrants were performed for the two proposed signals and the analyses are included in Appendix I. The analyses show that signals are warranted at both intersections based on the four- and eight-hour warrants.

The proposed mitigation measures and accompanying changes in circulation result in improvements to overall operations. A comparison of Action Alternative 3 weekday peak hour operations with and without proposed mitigation measures are shown in Table 39.



Action Alt. 3 Weekday Peak Hour Traffic Volumes With Improvements

SPU MIMP EIS

FIGURE

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Table 39. Action Alternative 3 Weekday Peak Hour LOS Summary with Improvements

Intersection	Traffic Control	AM Peak Hour						PM Peak Hour					
		Action Alt. 3			Action Alt. 3 (w/ Improvements)			Action Alt. 3			Action Alt. 3 (w/ Improvements)		
		LOS ¹	Delay ²	WM ³	LOS	Delay	WM	LOS	Delay	WM	LOS	Delay	WM
1. 6th Ave W/W Nickerson St	TWSC/Signal ⁴	F	116.7	SB	B	18.9	-	F	606.2	SB	C	23.1	-
2. 6th Ave W/W Emerson St	AWSC	A	7.2	-	A	7.9	-	A	7.4	-	A	8.4	-
3. 6th Ave W/W Bertona St	TWSC	B	12.0	SB	B	14.3	SB	B	14.0	SB	C	17.1	SB
4. 6th Ave W/W Dravus St	AWSC	A	7.0	-	A	7.0	-	A	7.3	-	A	7.3	-
5. W Emerson St/W Bertona St ⁵	TWSC	--	--	--	--	--	--	--	--	--	--	--	--
6. 3rd Ave W/W Nickerson St	Signal	C	25.5	-	B	18.6	-	D	39.0	-	C	28.1	-
7. 3rd Ave W/W Bertona St	TWSC	C	20.1	EB	B	10.9	EB	F	125.2	EB	D	25.2	EB
8. 3rd Ave W/W Cremona St	TWSC	B	13.3	WB	B	13.8	WB	D	26.1	WB	D	28.8	WB
9. 3rd Ave W/W Dravus St (N)	TWSC	B	11.7	WB	B	11.9	WB	C	21.8	WB	C	23.3	WB
10. 3rd Ave W/W Dravus St (S)	TWSC	B	13.4	EB	B	13.4	EB	C	19.7	EB	C	19.7	EB
11. Queen Anne Ave N/ W Nickerson St ⁶	TWSC	--	--	--	--	--	--	--	--	--	--	--	--
12. W Cremona St/W Nickerson St ⁶	TWSC/Signal ⁷	F	326.9	NB	B	13.1	-	F	968.5	NB	B	18.9	-
13. Queen Anne Ave N/W Cremona St	TWSC	A	9.8	NB	A	9.8	NB	B	10.1	NB	B	10.1	NB
14. 3rd Ave N/W Florentia St/ W Nickerson St ⁸	Signal	D	44.6	-	D	44.6	-	E	70.1	-	E	70.2	-
15. Fremont Ave N/W Florentia St	TWSC	D	29.5	EB	D	29.5	EB	C	17.0	EB	C	17.0	EB
16. Fremont Ave N/W Nickerson St	Signal	F	109.4	-	F	109.7	-	F	88.9	-	F	88.9	-

Note: TWSC = Two-Way Stop Controlled. AWSC = All-Way Stop Controlled. **Bold** text indicates operating at LOS E or F if signalized or LOS F for TWSC.

1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (HCM) 6th Edition (TRB, 2016)
2. Average delay per vehicle in seconds
3. Worst movement reported for TWSC intersections.
4. 6th Ave W/W Nickerson Street currently operates as TWSC, but a traffic signal is proposed as part of the mitigation plan
5. Intersection of W Emerson St/W Bertona St eliminated as a result of the proposed Emerson Street vacation.
6. Intersections reconfigured such that Queen Anne Ave N/W Nickerson Street is eliminated Queen Anne Ave N/W Cremona Street is realigned to intersection with W Nickerson street perpendicularly.
7. W Cremona Street/W Nickerson Street currently operates as TWSC, but a traffic signal is proposed as part of the mitigation plan
8. Evaluated using HCM 2000 because the configuration is not supported with the HCM 6th Edition method due to non-NEMA signal configuration

Table 40 summarizes the LOS results of the 2035 No Action Alternative, the Proposed MIMP with improvements, and Action Alternative 3 with Improvements. As shown, the proposed mitigation measures result in the overarching intersection improvements as compared to the No Action Alternative, consistent with the Proposed MIMP. However, higher delay is observed at 3rd Avenue W/W Cremona Street and W Nickerson Street/W Cremona Street. This is primarily a result of the higher level of development activity along W Cremona Street as part of Action Alternative 3 combined with the circulation changes associated with the 3rd Avenue W/W Bertona Street turn restrictions.

Table 40. LOS Comparison (2035 No Action, 2035 Proposed MIMP, Action Alternative 3)

Intersection	AM Peak Hour LOS ¹			PM Peak Hour LOS		
	No Action	Proposed MIMP (w/ Imps)	Action Alt. 3 (w/ Imps)	No Action	Proposed MIMP (w/ Imps)	Action Alt. 3 (w/ Imps)
1. 6th Ave W/W Nickerson St ²	F	B	B	F	C	C
2. 6th Ave W/W Emerson St	A	A	A	A	A	A
3. 6th Ave W/W Bertona St	B	B	B	B	C	C
4. 6th Ave W/W Dravus St	A	A	A	A	A	A
5. W Emerson St/W Bertona St ³	B	--	--	D	--	--
6. 3rd Ave W/W Nickerson St	C	B	B	C	C	C
7. 3rd Ave W/W Bertona St	C	B	B	F	D	D
8. 3rd Ave W/W Cremona St	B	B	B	C	C	D
9. 3rd Ave W/W Dravus St (N)	B	B	B	C	C	C
10. 3rd Ave W/W Dravus St (S)	B	B	B	C	C	C
11. Queen Anne Ave N/W Nickerson St ⁴	F	--	--	F	--	--
12. W Cremona St/W Nickerson St ⁵	C	A	B	D	B	B
13. Queen Anne Ave N/W Cremona St	A	A	A	B	A	B
14. 3rd Ave N/W Florentia St/W Nickerson St ⁶	D	D	D	E	E	E
15. Fremont Ave N/W Florentia St	D	D	D	C	C	C
16. Fremont Ave N/W Nickerson St	F	F	F	E	F	F

Bold text indicates operating at LOS E or F if signalized or LOS F for TWSC.

1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (HCM) 6th Edition (TRB, 2016)

2. 6th Ave W/W Nickerson Street currently operates as TWSC, but a traffic signal is proposed as part of the mitigation plan

3. Intersection of W Emerson St/W Bertona St eliminated as a result of the proposed Emerson Street vacation.

4. Intersections reconfigured such that Queen Anne Ave N/W Nickerson Street is eliminated Queen Anne Ave N/W Cremona Street is realigned to intersection with W Nickerson street perpendicularly.

5. W Cremona Street/W Nickerson Street currently operates as TWSC, but a traffic signal is proposed as part of the mitigation plan

6. Evaluated using HCM 2000 because the configuration is not supported with the HCM 6th Edition method due to non-NEMA signal configuration

Traffic Safety

As traffic volumes increase, traffic safety issues could increase proportionally. As shown in the trip generation table above (see Table 36), the total person trips and vehicle trips are forecast to increase with Action Alternative 3 relative to the No Action condition due to the increase in enrollment and the construction of mixed-use development. However, there are no significant safety concerns identified within the study area under existing conditions and the proposed vehicular and multi-modal improvements would be implemented in a way that adequately addresses safety considerations.

Parking

Consistent with the Proposed MIMP, Action Alternative 3 would replace a significant amount of existing surface parking and transition to primarily underground parking below future residential and education buildings. The proposed parking plan would offer more consolidated parking options for commuters, staff, and visitors. Consistent with the Proposed MIMP, the plan depicts a total parking supply of 2,703 parking spaces. While it is understood that parking will ultimately conform with SMC 23.54.016.C4, and that parking will be evaluated on a project by project basis, the MIMP depicts the greatest amount of parking that could feasibly be constructed.

Loading/Curbside Management

Each individual building will provide loading facilities that both meet SMC requirements and accommodate the practical demand for waste collection and deliveries. Additionally, curbside management along the building entrance frontages will be evaluated at an individual level to determine if

temporary loading zones or entrance zones are appropriate. It is anticipated that curbside loading or pick-up/drop-off areas may be desirable at residential buildings, but some educational buildings or other buildings may also benefit from curbside loading or pick-up/drop-off spaces. The specific loading and curbside management needs of each building will be reevaluated as part of future project MUP processes when additional details regarding building design and function are known.

Special Events

SPU hosts a limited number of special events throughout a typical academic year including graduation, the highest attendance event, as well as sporting events such as basketball games and volleyball matches. These events are currently managed on a case-by-case basis by University staff and will continue to be managed as such as part of Action Alternative 3. Special event management plans triggered by a specific event will be reviewed by the City under a separate process as is currently the case.

Transportation Management Program

The Transportation Management Program (TMP) program and associated goals for Action Alternative 3 would be consistent with the Proposed MIMP.

Impacts of the Action Alternative 4

This chapter describes the impacts of the Action Alternative 4. The impacts of Action Alternative 4 are identified through a comparison to the Proposed MIMP Action Alternative.

Action Alternative 4 would include planned projects (near-term) and potential projects (long-term). In contrast to the Proposed MIMP, Action Alternative 4 would include increased height limits and street and alleyway vacations, but *no* boundary expansion. The campus population would be consistent with that outlined as part of the Proposed MIMP. Action Alternative 4 would include approximately 203,200 square feet of mixed-use development located along W Nickerson Street, W Bertona Street, and W Dravus Street. New parking lots and structures would be constructed, and some existing lots would be abandoned, resulting in an overall increase in parking.

Trip Generation

Trip generation for the Action Alternative 3 is comprised of a combination of trips generated by the following:

- **SPU Population Growth.** As part of Action Alternative 3, the campus population would increase by 1,700 students and 244 employees/staff from the No Action Alternative, consistent with the Proposed MIMP Action Alternative.
- **Mixed-Use Development.** Action Alternative 3 would include approximately 237,100 square feet of mixed-use development, comprised of 130,200 square feet of office space, 93,500 square feet of retail space, and 13,400 square feet of grocery store space. Additionally, the potential projects would result in the demolition of approximately 59,000 square feet of commercial space.

SPU Population Trip Generation

Trip generation related to the growth in the SPU campus population would be consistent with that outlined for the Proposed MIMP and summarized in Table 20. As outlined previously, the campus growth would result in approximately 1,088 net new daily vehicle trips with 88 new trips occurring during the weekday AM peak hour and 103 new trips during the weekday PM peak hour, as compared to the No Action Alternative.

Mixed Use Development Trip Generation

The method used to estimate trip generation for the mixed-use development components of Action Alternative 3 was provided in detail in the Analysis Methods section of the report and is based on trip rates outlined in ITE *Trip Generation, 11th Edition*. Action Alternative 2 includes development of the following mixed-use space:

- 130,200 square feet of office space (LU #710)
- 93,500 square feet of retail space (LU #821 or LU #822)
- 13,400 square-foot grocery store (LU #850)

Additionally, the construction of potential projects results in the demolition of the following uses, which have been compiled based on information on the King County Parcel Viewer:

- 47,552 square feet of warehouse space (LU #151)
- 5,128 square feet of general retail space (LU #822)
- 2,503 square-foot walk-in bank (LU #911)
- 1,390 square-foot copy, print and express ship store (LU #920)
- 1,600 square-foot fast-food restaurant without a drive-thru window (LU #933)
- 4-pump gas station with a convenience store (LU #945)

Table 41 summarizes the trip generation for the mixed-use components of Action Alternative 4. As shown in the table, the mixed-use components of Action Alternative 4 are projected to generate approximately 2,014 net new daily vehicle trips with 54 new trips occurring during the weekday AM peak hour and 112 new trips during the weekday PM peak hour.

Table 41. Action Alternative 4 Mixed-Use Trip Generation Summary							
Time Period	One-Way Person Trips				Vehicle Trips²		
	Vehicular¹	Transit	Non-Motorized/ Other	Total	In	Out	Total
<u>Proposed</u>							
Daily	4,268	1,219	6,731	12,218	1,573	1,573	3,146
AM Peak Hour	170	47	226	443	96	35	131
PM Peak Hour	284	100	596	980	54	104	158
<u>Existing</u>							
Daily	1,659	418	2,103	4,180	566	566	1,132
AM Peak Hour	111	31	167	309	38	39	77
PM Peak Hour	119	31	156	306	21	25	46
<u>Net New Trips</u>							
Daily	2,609	801	4,628	8,038	1,007	1,007	2,014
AM Peak Hour	59	16	59	133	58	-4	54
PM Peak Hour	165	69	440	674	33	79	112

1. Vehicular person trips include both single occupancy vehicles and carpools/vanpool
2. Reflect two-way trips (both inbound and outbound).

Cumulative Trip Generation

In total, and as summarized in Table 42, Action Alternative 2 would generate a total of 3,102 net new daily vehicle trips with 142 new trips occurring during the weekday AM peak hour and 215 new trips occurring during the weekday PM peak hour, as compared to the No Action Alternative. Approximately 45 percent of these trips would be associated with the mixed-use development. As compared to the Proposed MIMP, Action Alternative 4 would generate a total of 746 more new daily trips with 29 more trips during the weekday AM peak hour and 16 more trips during the PM peak hour. While Action Alternative 4 has a similar mix of mixed-use development compared to the Proposed MIMP, it also results in the demolition of fewer existing buildings. The trips generated by the mixed-use components of Action Alternative 4, less the existing trips removed results in a higher mixed-used trip generation than the Proposed MIMP.

Table 42. Action Alternative 4 Cumulative Trip Generation Summary							
Time Period	One-Way Person Trips				Vehicle Trips²		
	Vehicular¹	Transit	Non-Motorized/ Other	Total	In	Out	Total
<u>Net Change from 2035 No Action Alternative</u>							
Daily	3,731	1,242	7,004	11,977	1,551	1,551	3,102
AM Peak Hour	149	41	148	338	125	17	142
PM Peak Hour	271	107	624	1,001	76	139	215
<u>Net Change from 2035 Proposed MIMP</u>							
Daily	1,074	419	2,796	4,290	373	373	746
AM Peak Hour	42	17	102	161	13	16	29
PM Peak Hour	36	13	78	127	6	10	16

1. Vehicular person trips include both single occupancy vehicles and carpools/vanpool
2. Reflect two-way trips (both inbound and outbound).

Street System

The street system for Action Alternative 4 would be consistent with the Proposed MIMP Action Alternative. While Action Alternative 4 does not include the boundary expansion, all adjustments to the roadway system proposed as part of the Proposed MIMP would occur within the existing boundary and would therefore be implemented as part of Action Alternative 4.

Non-Motorized Transportation

Changes to the existing off-campus non-motorized system are assumed with Action Alternative 4. Impacts to the pedestrian and bicycle environment are described below.

Pedestrian

Consistent with the Proposed MIMP, Action Alternative 4 would improve on-campus connections and provide required frontage improvements where new buildings are constructed. Additionally, several roadway and intersections improvements, as well as street vacations would result in benefits to pedestrian access and circulation. All roadway and intersection improvements that would be included as part of the Proposed MIMP would also be included as part of Action Alternative 4.

However, given that Action Alternative 4 does not include the boundary expansion, some of the overarching pedestrian circulation improvements that would occur as part of the Proposed MIMP would not occur as part of Action Alternative 4. Action Alternative 4 would still aim to relocate existing academic and administrative buildings to the south side of W Nickerson Street and would construct the same amount of on-campus resident space, but there would be significant impacts to open space due to a more constrained developable area. This could lead to a less pedestrian-friendly campus layout. Additionally, there would be fewer opportunities for ground-floor retail space and overall street activation within and surrounding campus.

Bicycle

There are existing bicycle amenities such as showers, lockers, bicycle storage/racks on-campus. As stated previously, the existing bicycle racks provide parking for up to 220 bicycles and there are an additional 104 secured bicycle parking spaces. Action Alternative 4 would continue to provide bicycle amenities on-campus and make improvements and/or additions as the MIMP develops. Improvements would include replacing older amenities and adding shower and locker facilities to new buildings. The number and location of bicycle amenities will be evaluated as part of the future project Mixed-Use Project (MUP) processes.

Off campus facilities (such as those identified in the Comprehensive Plan and Bicycle Master Plan, as described previously) could be implemented in the future. The existing and planned bicycle facilities could accommodate the expected growth in bicycle commuting. Additionally, some of the proposed pedestrian improvements outlined previously, such as the street vacations, would result in a more bicycle-friendly environment on-campus by improving bike connectivity and creating more comfortable spaces for cyclists.

Shared Mobility

While campus-wide or site-specific shared mobility strategies are not identified as part of Action Alternative 4 due to the timeline of the project and the rapidly evolving shared mobility landscape, there are several Transportation Management Program (TMP) strategies proposed that relate to shared mobility, including the support for third-party micromobility services, coordination with SDOT related to the establishment of shared mobility zones, and car share provisions and subsidies.

Transit Service

Consistent with the Proposed MIMP transit analysis, transit facilities on-campus are not anticipated to change with Action Alternative 4. While the projected transit trips are slightly higher for Action Alternative 4 as compared to the Proposed MIMP (17 additional trips during the AM peak hour and 13 additional trips during the PM peak hour), there would be sufficient capacity to absorb these new trips based on the analysis provided for the Proposed MIMP Action Alternative. This analysis shows that no route is anticipated to operate at above 50 percent capacity such that there is estimated to be available capacity to accommodate additional riders during the weekday peak periods.

Additionally, the operational impact on transit would be consistent to the operational impact of general-purpose traffic in terms of vehicle delay. Transit riders would experience the same change in delay as general-purpose riders given that the existing traffic signals do not include transit priority phasing.

Traffic Volumes

Action Alternative 4 traffic volumes were projected by adding trips related to the growth in the campus population and mixed-use development to the No Action Alternative traffic volumes. The distribution of the net new trips is consistent with that described for the Proposed MIMP Action Alternative; however, the assignment of new trips corresponds with the location of the proposed parking facilities and mixed-use development buildings.

The resulting Action Alternative 4 peak hour traffic volumes are summarized on Figure 34. Table 43 summarizes the percent change in traffic volumes of Action Alternative 4 relative to the Proposed MIMP Action Alternative during the peak hours.

Table 43. Action Alt. 4 Peak Hour Traffic Volume Impacts at Study Intersections

Intersection	AM Peak Hour				PM Peak Hour			
	Proposed MIMP TEV	Net New Trips	Action Alt 4 TEV	Percent Change	Proposed MIMP TEV	Net New Trips	Action Alt 4 TEV	Percent Change
1. 6th Ave W/W Nickerson St	1,750	-34	1,716	-1.9%	1,925	-39	1,886	-2.0%
2. 6th Ave W/W Emerson St	106	-5	101	-4.7%	160	-6	154	-3.8%
3. 6th Ave W/W Bertona St	437	1	438	0.2%	595	-2	593	-0.3%
4. 6th Ave W/W Dravus St	58	1	59	1.7%	134	0	134	0.0%
5. W Emerson St/W Bertona St ¹	--	--	--	--	--	--	--	--
6. 3rd Ave W/W Nickerson St	1,929	-26	1,907	-1.2%	2,294	-26	2,268	-1.1%
7. 3rd Ave W/W Bertona St	635	13	648	2.0%	1,072	10	1,082	0.9%
8. 3rd Ave W/W Cremona St	487	32	519	6.6%	803	40	843	5.0%
9. 3rd Ave W/W Dravus St (N)	511	10	521	2.0%	939	6	945	0.6%
10. 3rd Ave W/W Dravus St (S)	506	10	516	2.0%	873	5	878	0.6%
11. Queen Anne Ave N/W Nickerson St ²	--	--	--	--	--	--	--	--
12. W Cremona St/W Nickerson St	1,909	13	1,922	0.7%	2,222	13	2,235	0.6%
13. Queen Anne Ave N/W Cremona St	200	42	242	21.0%	228	41	269	16.0%
14. 3rd Ave N/W Florentia St/W Nickerson St	2,457	8	2,465	0.3%	2,846	0	2,846	0.0%
15. Fremont Ave N/W Florentia St	2,682	5	2,687	0.2%	3,161	-4	3,157	-0.1%
16. Fremont Ave N/W Nickerson St	3,555	5	3,560	0.1%	3,698	-1	3,697	0.0%

Note: TEV = Total Entering Vehicles.

1. Intersection of W Emerson St/W Bertona St eliminated as a result of the proposed Emerson Street vacation.

2. Intersections reconfigured such that Queen Anne Ave N/W Nickerson Street is eliminated Queen Anne Ave N/W Cremona Street is realigned to intersection with W Nickerson street perpendicularly.

As shown in Table 43, traffic volumes within the west side of campus (along 6th Avenue W) generally decrease as a result of Action Alternative 4, while traffic volumes within the east side of campus (along 3rd Avenue W and Queen Anne Avenue W) generally increase. This is primarily a result of some mixed-use development shifted to W Cremona Street as part of Action Alternative 4 from W Nickerson Street between 6th Avenue W and 3rd Avenue W as part of the Proposed MIMP Action Alternative.

Traffic Operations

The Action Alternative 4 LOS analysis assumes the same methods as the Existing, No Action, and Proposed MIMP conditions. The intersection parameters and channelization are consistent with those assumed as part of the Proposed MIMP. A comparison of the Proposed MIMP and Action Alternative 4 weekday peak hour operations are shown in Table 44.

Table 44. Proposed MIMP and Action Alternative 4 Weekday Peak Hour LOS Summary

Intersection	Traffic Control	AM Peak Hour						PM Peak Hour					
		Proposed MIMP			Action Alt 4			Proposed MIMP			Action Alt 4		
		LOS ¹	Delay ²	WM ³	LOS	Delay	WM	LOS	Delay	WM	LOS	Delay	WM
1. 6th Ave W/W Nickerson St	TWSC	F	125.2	SB	F	87.4	SB	F	550.3	SB	F	197.2	SB
2. 6th Ave W/W Emerson St	AWSC	A	7.3	-	A	7.2	-	A	7.5	-	A	7.4	-
3. 6th Ave W/W Bertona St	TWSC	B	12.1	SB	B	12.1	SB	B	14.3	SB	B	14.2	SB
4. 6th Ave W/W Dravus St	AWSC	A	7.0	-	A	7.0	-	A	7.3	-	A	7.3	-
5. W Emerson St/W Bertona St ⁴	TWSC	--	--	--	--	--	--	--	--	--	--	--	--
6. 3rd Ave W/W Nickerson St	Signal	C	26.0	-	C	24.7	-	D	39.8	-	D	38.0	-
7. 3rd Ave W/W Bertona St	TWSC	C	20.2	EB	C	20.8	EB	F	128.4	EB	F	129.7	EB
8. 3rd Ave W/W Cremona St	TWSC	B	12.9	WB	B	13.5	WB	C	22.1	WB	D	27.7	WB
9. 3rd Ave W/W Dravus St (N)	TWSC	B	11.8	WB	B	12.0	WB	C	22.6	WB	C	22.8	WB
10. 3rd Ave W/W Dravus St (S)	TWSC	B	13.5	EB	B	13.6	EB	C	20.0	EB	C	20.1	EB
11. Queen Anne Ave N/ W Nickerson St ⁵	TWSC	--	--	--	--	--	--	--	--	--	--	--	--
12. W Cremona St/W Nickerson St ⁵	TWSC	F	317.5	NB	F	404.4	NB	F	1011.3	NB	F	948.6	NB
13. Queen Anne Ave N/W Cremona St	TWSC	A	9.8	NB	A	9.9	NB	A	9.4	NB	B	10.1	NB
14. 3rd Ave N/W Florentia St/ W Nickerson St ⁶	Signal	D	45.9	-	D	44.7	-	E	70.6	-	E	70.6	-
15. Fremont Ave N/W Florentia St	TWSC	D	29.5	EB	D	29.6	EB	C	17.0	EB	C	17.0	EB
16. Fremont Ave N/W Nickerson St	Signal	F	110.6	-	F	111.4	-	F	88.8	-	F	87.8	-

Note: TWSC = Two-Way Stop Controlled. AWSC = All-Way Stop Controlled. **Bold** text indicates operating at LOS E or F if signalized or LOS F for TWSC.

- Level of Service (A – F) as defined by the *Highway Capacity Manual* (HCM) 6th Edition (TRB, 2016)
- Average delay per vehicle in seconds
- Worst movement reported for TWSC intersections.
- Intersection of W Emerson St/W Bertona St eliminated as a result of the proposed Emerson Street vacation.
- Intersections reconfigured such that Queen Anne Ave N/W Nickerson Street is eliminated Queen Anne Ave N/W Cremona Street is realigned to intersection with W Nickerson street perpendicularly.
- Evaluated using HCM 2000 because the configuration is not supported with the HCM 6th Edition method due to non-NEMA signal configuration

As shown in Table 44, the operational impacts of Action Alternative 4 are generally consistent with the impacts of the Proposed MIMP. There are fluctuations in delay related to the limited development potential along W Nickerson Street as part of Action Alternative 4, but the intersections that operate below acceptable LOS thresholds remain the same. As such, the same mitigation measures would be proposed as part of Action Alternative 4, including traffic signals at 6th Avenue W/W Nickerson Street and W Cremona Street/W Nickerson Street, as well as turn restrictions at 3rd Avenue W/W Bertona Street and an accompanying northbound left-turn lane at 3rd Avenue W/W Nickerson Street. The resulting traffic volumes are included in Figure 35. Signal warrants were performed for the two proposed signals and the analyses are included in Appendix I. The analyses show that signals are warranted at both intersections based on the four- and eight-hour warrants.

The proposed mitigation measures and accompanying changes in circulation result in improvements to overall operations. A comparison of Action Alternative 4 weekday peak hour operations with and without proposed mitigation measures are shown in Table 45.

Table 45. Action Alternative 4 Weekday Peak Hour LOS Summary with Improvements

Intersection	Traffic Control	AM Peak Hour						PM Peak Hour					
		Action Alt. 4			Action Alt. 4 (w/ Improvements)			Action Alt. 4			Action Alt. 4 (w/ Improvements)		
		LOS ¹	Delay ²	WM ³	LOS	Delay	WM	LOS	Delay	WM	LOS	Delay	WM
1. 6th Ave W/W Nickerson St	TWSC/Signal ⁴	F	87.4	SB	B	18.5	-	F	197.2	SB	C	22.3	-
2. 6th Ave W/W Emerson St	AWSC	A	7.2	-	A	7.9	-	A	7.4	-	A	8.4	-
3. 6th Ave W/W Bertona St	TWSC	B	12.1	SB	B	14.5	SB	B	14.2	SB	C	17.4	SB
4. 6th Ave W/W Dravus St	AWSC	A	7.0	-	A	7.0	-	A	7.3	-	A	7.3	-
5. W Emerson St/W Bertona St ⁵	TWSC	--	--	--	--	--	--	--	--	--	--	--	--
6. 3rd Ave W/W Nickerson St	Signal	C	24.7	-	B	18.2	-	D	38.0	-	C	27.3	-
7. 3rd Ave W/W Bertona St	TWSC	C	20.8	EB	B	11.0	EB	F	129.7	EB	D	25.7	EB
8. 3rd Ave W/W Cremona St	TWSC	B	13.5	WB	B	14.2	WB	D	27.7	WB	D	30.9	WB
9. 3rd Ave W/W Dravus St (N)	TWSC	B	12.0	WB	B	12.3	WB	C	22.8	WB	C	24.4	WB
10. 3rd Ave W/W Dravus St (S)	TWSC	B	13.6	EB	B	13.6	EB	C	20.1	EB	C	20.1	EB
11. Queen Anne Ave N/ W Nickerson St ⁶	TWSC	--	--	--	--	--	--	--	--	--	--	--	--
12. W Cremona St/W Nickerson St ⁶	TWSC/Signal ⁷	F	404.4	NB	A	7.1	-	F	948.6	NB	A	9.7	-
13. Queen Anne Ave N/W Cremona St	TWSC	A	9.9	NB	A	9.9	NB	B	10.1	NB	A	10.1	NB
14. 3rd Ave N/W Florentia St/ W Nickerson St ⁸	Signal	D	44.7	-	D	44.7	-	E	70.6	-	E	70.6	-
15. Fremont Ave N/W Florentia St	TWSC	D	29.6	EB	D	29.6	EB	C	17.0	EB	C	17.0	EB
16. Fremont Ave N/W Nickerson St	Signal	F	111.4	-	F	111.8	-	F	87.8	-	F	87.8	-

Note: TWSC = Two-Way Stop Controlled. AWSC = All-Way Stop Controlled. **Bold** text indicates operating at LOS E or F if signalized or LOS F for TWSC.

1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (HCM) 6th Edition (TRB, 2016)
2. Average delay per vehicle in seconds
3. Worst movement reported for TWSC intersections.
4. 6th Ave W/W Nickerson Street currently operates as TWSC, but a traffic signal is proposed as part of the mitigation plan
5. Intersection of W Emerson St/W Bertona St eliminated as a result of the proposed Emerson Street vacation.
6. Intersections reconfigured such that Queen Anne Ave N/W Nickerson Street is eliminated Queen Anne Ave N/W Cremona Street is realigned to intersection with W Nickerson street perpendicularly.
7. W Cremona Street/W Nickerson Street currently operates as TWSC, but a traffic signal is proposed as part of the mitigation plan
8. Evaluated using HCM 2000 because the configuration is not supported with the HCM 6th Edition method due to non-NEMA signal configuration

Table 46 summarizes the LOS results of the 2035 No Action Alternative, the Proposed MIMP with improvements, and Action Alternative 4 with Improvements. As shown, the proposed mitigation measures result in the overarching intersection improvements as compared to the No Action Alternative, consistent with the Proposed MIMP. However, higher delay is observed at 3rd Avenue W/W Cremona Street. This is primarily a result of the higher level of development activity along W Cremona Street as part of Action Alternative 4 combined with the circulation changes associated with the 3rd Avenue W/W Bertona Street turn restrictions.

Table 46. LOS Comparison (2035 No Action, 2035 Proposed MIMP, Action Alternative 4)

Intersection	AM Peak Hour LOS ¹			PM Peak Hour LOS		
	No Action	Proposed MIMP (w/ Imps)	Action Alt. 4 (w/ Imps)	No Action	Proposed MIMP (w/ Imps)	Action Alt. 4 (w/ Imps)
1. 6th Ave W/W Nickerson St ²	F	B	B	F	C	C
2. 6th Ave W/W Emerson St	A	A	A	A	A	A
3. 6th Ave W/W Bertona St	B	B	B	B	C	C
4. 6th Ave W/W Dravus St	A	A	A	A	A	A
5. W Emerson St/W Bertona St ³	B	--	--	D	--	--
6. 3rd Ave W/W Nickerson St	C	B	B	C	C	C
7. 3rd Ave W/W Bertona St	C	B	B	F	D	D
8. 3rd Ave W/W Cremona St	B	B	B	C	C	D
9. 3rd Ave W/W Dravus St (N)	B	B	B	C	C	C
10. 3rd Ave W/W Dravus St (S)	B	B	B	C	C	C
11. Queen Anne Ave N/W Nickerson St ⁴	F	--	--	F	--	--
12. W Cremona St/W Nickerson St ⁵	C	A	A	D	B	A
13. Queen Anne Ave N/W Cremona St	A	A	A	B	A	A
14. 3rd Ave N/W Florentia St/W Nickerson St ⁶	D	D	D	E	E	E
15. Fremont Ave N/W Florentia St	D	D	D	C	C	C
16. Fremont Ave N/W Nickerson St	F	F	F	E	F	F

Bold text indicates operating at LOS E or F if signalized or LOS F for TWSC.

1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (HCM) 6th Edition (TRB, 2016)

2. 6th Ave W/W Nickerson Street currently operates as TWSC, but a traffic signal is proposed as part of the mitigation plan

3. Intersection of W Emerson St/W Bertona St eliminated as a result of the proposed Emerson Street vacation.

4. Intersections reconfigured such that Queen Anne Ave N/W Nickerson Street is eliminated Queen Anne Ave N/W Cremona Street is realigned to intersection with W Nickerson street perpendicularly.

5. W Cremona Street/W Nickerson Street currently operates as TWSC, but a traffic signal is proposed as part of the mitigation plan

6. Evaluated using HCM 2000 because the configuration is not supported with the HCM 6th Edition method due to non-NEMA signal configuration

Traffic Safety

As traffic volumes increase, traffic safety issues could increase proportionally. As shown in the trip generation table above (see Table 42), the total person trips and vehicle trips are forecast to increase with Action Alternative 4 relative to the No Action condition due to the increase in enrollment and the construction of mixed-use development. However, there are no significant safety concerns identified within the study area under existing conditions and the proposed vehicular and multi-modal improvements would be implemented in a way that adequately addresses safety considerations.

Parking

Consistent with the Proposed MIMP, Action Alternative 4 would replace a significant amount of existing surface parking and transition to primarily underground parking below future residential and education buildings. The proposed parking plan would offer more consolidated parking options for commuters, staff, and visitors. The plan depicts a total parking supply of 2,670 parking spaces (33 fewer than the Proposed MIMP). While it is understood that parking will ultimately conform with SMC 23.54.016.C4, and that parking will be evaluated on a project by project basis, the MIMP depicts the greatest amount of parking that could feasibly be constructed.

Loading/Curbside Management

Each individual building will provide loading facilities that both meet SMC requirements and accommodate the practical demand for waste collection and deliveries. Additionally, curbside management along the building entrance frontages will be evaluated at an individual level to determine if

temporary loading zones or entrance zones are appropriate. It is anticipated that curbside loading or pick-up/drop-off areas may be desirable at residential buildings, but some educational buildings or other buildings may also benefit from curbside loading or pick-up/drop-off spaces. The specific loading and curbside management needs of each building will be reevaluated as part of future project MUP processes when additional details regarding building design and function are known.

Special Events

SPU hosts a limited number of special events throughout a typical academic year including graduation, the highest attendance event, as well as sporting events such as basketball games and volleyball matches. These events are currently managed on a case-by-case basis by University staff and will continue to be managed as such as part of Action Alternative 4. Special event management plans triggered by a specific event will be reviewed by the City under a separate process as is currently the case.

Transportation Management Program

The Transportation Management Program (TMP) program and associated goals for Action Alternative 4 would be consistent with the Proposed MIMP.

Impacts of the Action Alternative 5

This chapter describes the impacts of the Action Alternative 5. The impacts of Action Alternative 5 are identified through a comparison to the Proposed MIMP Action Alternative.

Action Alternative 5 would include planned projects (near-term) and potential projects (long-term). In contrast to the Proposed MIMP, Action Alternative 5 would include the boundary expansion and increased height limits, but *no* street and alleyway vacations. The campus population would be consistent with that outlined as part of the Proposed MIMP. Action Alternative 5 would include approximately 237,100 square feet of mixed-use development located along W Nickerson Street, W Bertona Street, and W Cremona Street. New parking lots and structures would be constructed, and some existing lots would be abandoned, resulting in an overall increase in parking.

Trip Generation

Trip generation for the Action Alternative 5 is comprised of a combination of trips generated by the following:

- **SPU Population Growth.** As part of Action Alternative 5, the campus population would increase by 1,700 students and 244 employees/staff from the No Action Alternative, consistent with the Proposed MIMP Action Alternative.
- **Mixed-Use Development.** The Proposed MIMP would include approximately 237,100 square feet of mixed-use development, comprised of 141,300 square feet of office space, 84,500 square feet of retail space, and 11,300 square feet of grocery store space. Additionally, the boundary expansion and potential projects would result in the demolition of approximately 95,000 square feet of commercial space.

SPU Population Trip Generation

Trip generation related to the growth in the SPU campus population would be consistent with that outlined for the Proposed MIMP and summarized in Table 20. As outlined previously, the campus growth would result in approximately 1,088 net new daily vehicle trips with 88 new trips occurring during the weekday AM peak hour and 103 new trips during the weekday PM peak hour, as compared to the No Action Alternative.

Mixed Use Development Trip Generation

The method used to estimate trip generation for the mixed-use development components of Action Alternative 5 was provided in detail in the Analysis Methods section of the report and is based on trip rates outlined in ITE *Trip Generation, 11th Edition*. Action Alternative 5 includes development of the following mixed-use space:

- 141,300 square feet of office space (LU #710)
- 84,500 square feet of retail space (LU #821 or LU #822)
- 11,300 square-foot grocery store (LU #850)

Additionally, the construction of potential projects results in the demolition of the following uses, which have been compiled based on information on the King County Parcel Viewer:

- 69,182 square feet of warehouse space (LU #151)
- 13,151 square feet of general retail space (LU #822)
- 2,024 square-foot convenience store without gas (LU #851)
- 2,503 square-foot walk-in bank (LU #911)
- 1,390 square-foot copy, print and express ship store (LU #920)

- 4,080 square-foot fast casual restaurant (LU #930)
- 1,600 square-foot fast-food restaurant without a drive-thru window (LU #933)
- 4-pump gas station with a convenience store (LU #945)

Table 47 summarizes the trip generation for the mixed-use components of Action Alternative 5. As shown in the table, the mixed-use components of Action Alternative 5 are projected to generate approximately 2,168 net new daily vehicle trips with 43 new trips occurring during the weekday AM peak hour and 95 new trips during the weekday PM peak hour.

Table 47. Action Alternative 5 Mixed-Use Trip Generation Summary							
Time Period	One-Way Person Trips				Vehicle Trips ²		
	Vehicular ¹	Transit	Non-Motorized/ Other	Total	In	Out	Total
<u>Proposed</u>							
Daily	5,230	1,198	6,357	12,785	1899	1899	3,798
AM Peak Hour	196	45	206	447	107	43	150
PM Peak Hour	302	91	524	917	58	109	167
<u>Existing</u>							
Daily	2,386	772	4,572	7,731	815	815	1,630
AM Peak Hour	156	55	324	535	52	55	107
PM Peak Hour	182	62	367	611	35	37	72
<u>Net New Trips</u>							
Daily	2,844	426	1,785	5,054	1,084	1,084	2,168
AM Peak Hour	40	-10	-118	-88	55	-12	43
PM Peak Hour	120	29	157	306	23	72	95

1. Vehicular person trips include both single occupancy vehicles and carpools/vanpool

2. Reflect two-way trips (both inbound and outbound).

Cumulative Trip Generation

In total, and as summarized in Table 48, Action Alternative 5 would generate a total of 3,256 net new daily vehicle trips with 131 new trips occurring during the weekday AM peak hour and 198 new trips occurring during the weekday PM peak hour, as compared to the No Action Alternative. Approximately 40 percent of these trips would be associated with mixed-use development. As compared to the Proposed MIMP, Action Alternative 5 would generate a total of 900 more new daily trips with 18 more trips during the weekday AM peak hour and 1 fewer trips during the PM peak hour.

Table 48. Action Alternative 5 Cumulative Trip Generation Summary							
Time Period	One-Way Person Trips				Vehicle Trips ²		
	Vehicular ¹	Transit	Non-Motorized/ Other	Total	In	Out	Total
<u>Net Change from 2035 No Action Alternative</u>							
Daily	3,966	867	4,161	8,993	1,628	1,628	3,256
AM Peak Hour	130	15	-29	117	122	9	131
PM Peak Hour	226	67	341	633	66	132	198
<u>Net Change from 2035 Proposed MIMP</u>							
Daily	1,309	44	-47	1,306	450	450	900
AM Peak Hour	23	-9	-75	-61	10	8	18
PM Peak Hour	-9	-27	-205	-241	-4	3	-1

1. Vehicular person trips include both single occupancy vehicles and carpools/vanpool

2. Reflect two-way trips (both inbound and outbound).

Street System

The street system for Action Alternative 5 would include all proposed roadway and intersection adjustments as the Proposed MIMP, with the exception of the street and alley vacations and all improvements associated with the street and alley vacations. Overall, Action Alternative 5 would include the following proposed roadway and intersection improvements:

- **W Cremona Street.** Streetscape enhancements are proposed along W Cremona Street between 3rd Avenue W and W Nickerson Street including the widening of sidewalks, the addition of a planting island, formal tree planting along its length, and a mid-block crosswalk.
- **6th Avenue W/W Bertona Street.** Currently this intersection is offset. The intersection will be improved such that the northern leg of 6th Avenue W will be realigned to connect squarely with the southern leg of 6th Avenue W.
- **W Cremona Street/W Nickerson Street.** Currently this intersection exists within a cluster of three intersections (with Queen Anne Avenue N/W Cremona Street and Queen Anne Avenue N/W Nickerson Street). The three intersections will be reconstructed and consolidated such that Queen Anne Avenue N does not continue through W Cremona Street to W Nickerson Street and W Cremona Avenue is realigned to intersection with W Nickerson Street perpendicularly. Additionally, a crosswalk would be provided along the southern leg of W Cremona Street/W Nickerson Street. This improvement will result in a more intuitive configuration for pedestrians.
- **Queen Anne Avenue N/W Cremona Street.** Currently this intersection operates as two-way stop-controlled with free-flowing traffic along Queen Anne Avenue N. In conjunction with the realignment of W Cremona Street/W Nickerson Street, this intersection would remain two-way stop-controlled but the stop control would shift to Queen Avenue N and W Cremona Street would be free-flowing.

Non-Motorized Transportation

Changes to the existing off-campus non-motorized system are assumed with Action Alternative 5. Impacts to the pedestrian and bicycle environment are described below. would result in a more bicycle-friendly environment on-campus.

Pedestrian

Consistent with the Proposed MIMP, Action Alternative 5 would improve on-campus connections and provide required frontage improvements where new buildings are constructed. Additionally, several of the roadway and intersections improvements outlined previously would result in benefits to pedestrian access and circulation.

However, given that Action Alternative 5 does not include the street vacations, some of the overarching pedestrian circulation improvements that would occur as part of the Proposed MIMP would not occur as part of Action Alternative 5. Action Alternative 5 would still aim to relocate existing academic and administrative buildings to the south side of W Nickerson Street and would construct the same amount of on-campus resident space, but without the street vacations, fewer improvements to pedestrian connectivity within the campus would occur. In particular, Action Alternative 5 would limit the ability to eliminate pedestrian-vehicle conflict points and would limit the ability to construct additional landscaped open spaces. This could lead to a less pedestrian-friendly campus layout as compared to the Proposed MIMP and all other Action Alternatives.

Bicycle

There are existing bicycle amenities such as showers, lockers, bicycle storage/racks on-campus. As stated previously, the existing bicycle racks provide parking for up to 220 bicycles and there are an additional 104 secured bicycle parking spaces. Action Alternative 5 would continue to provide bicycle amenities on-campus and make improvements and/or additions as the MIMP develops. Improvements would include replacing older amenities and adding shower and locker facilities to new buildings. The number and location of bicycle amenities will be evaluated as part of the future project Mixed-Use Project (MUP) processes.

Off campus facilities (such as those identified in the Comprehensive Plan and Bicycle Master Plan, as described previously) could be implemented in the future. The existing and planned bicycle facilities could accommodate the expected growth in bicycle commuting. While Action Alternative 5 would include some of the proposed roadway and intersection improvements, the improvements to bike connectivity within campus could be more limited without the proposed street vacations.

Shared Mobility

While campus-wide or site-specific shared mobility strategies are not identified as part of Action Alternative 5 due to the timeline of the project and the rapidly evolving shared mobility landscape, there are several Transportation Management Program (TMP) strategies proposed that relate to shared mobility, including the support for third-party micromobility services, coordination with SDOT related to the establishment of shared mobility zones, and car share provisions and subsidies.

Transit Service

Consistent with the Proposed MIMP transit analysis, transit facilities on-campus are not anticipated to change with Action Alternative 5. The projected transit trips are lower for Action Alternative 5 as compared to the Proposed MIMP therefore there would be sufficient capacity to absorb the Action Alternative 5 transit trips based on the analysis provided for the Proposed MIMP Action Alternative.

Additionally, the operational impact on transit would be consistent to the operational impact of general-purpose traffic in terms of vehicle delay. Transit riders would experience the same change in delay as general-purpose riders given that the existing traffic signals do not include transit priority phasing.

Traffic Volumes

Action Alternative 5 traffic volumes were projected by adding trips related to the growth in the campus population and mixed-use development to the No Action Alternative traffic volumes. The distribution of the net new trips is consistent with that described for the Proposed MIMP Action Alternative; however, the assignment of new trips corresponds with the location of the proposed parking facilities and mixed-use development buildings.

The resulting Action Alternative 5 peak hour traffic volumes are summarized on Figure 36. Table 49 summarizes the percent change in traffic volumes of Action Alternative 5 relative to the Proposed MIMP Action Alternative during the peak hours.

Table 49. Action Alt. 5 Peak Hour Traffic Volume Impacts at Study Intersections

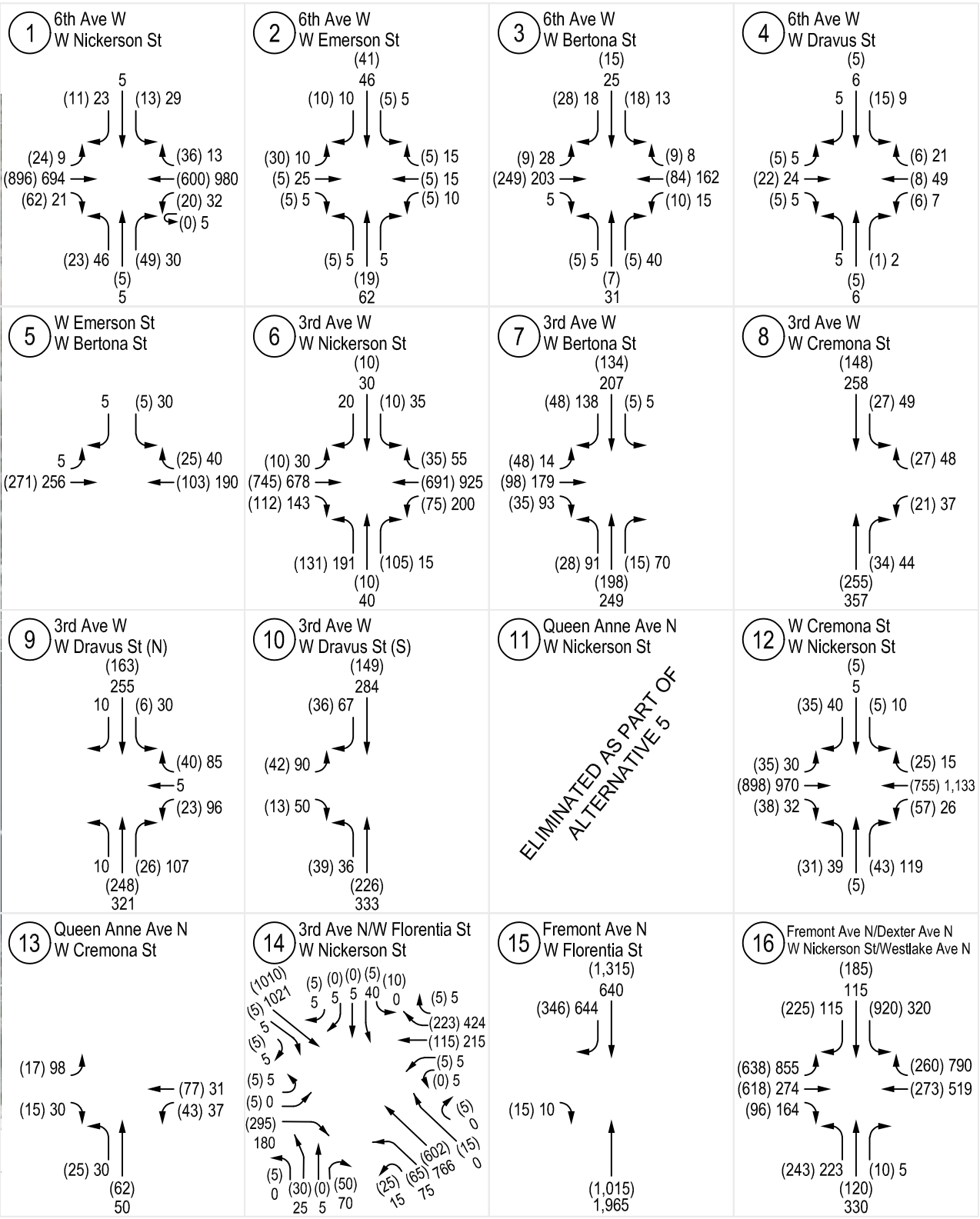
Intersection	AM Peak Hour				PM Peak Hour			
	Proposed MIMP TEV	Net New Trips	Action Alt 5 TEV	Percent Change	Proposed MIMP TEV	Net New Trips	Action Alt 5 TEV	Percent Change
1. 6th Ave W/W Nickerson St	1,750	-13	1,737	-0.7%	1,925	-21	1,904	-1.1%
2. 6th Ave W/W Emerson St	106	26	132	24.5%	160	59	219	36.9%
3. 6th Ave W/W Bertona St	437	0	437	0.0%	595	-19	576	-3.2%
4. 6th Ave W/W Dravus St	58	20	78	34.5%	134	40	174	29.9%
5. W Emerson St/W Bertona St ¹	--	--	400	N/A	--	--	525	N/A
6. 3rd Ave W/W Nickerson St	1,929	-23	1,906	-1.2%	2,294	-44	2,250	-1.9%
7. 3rd Ave W/W Bertona St	635	-10	625	-1.6%	1,072	-31	1,041	-2.9%
8. 3rd Ave W/W Cremona St	487	2	489	0.4%	803	-4	799	-0.5%
9. 3rd Ave W/W Dravus St (N)	511	-15	496	-2.9%	939	-31	908	-3.3%
10. 3rd Ave W/W Dravus St (S)	506	0	506	0.0%	873	-11	862	-1.3%
11. Queen Anne Ave N/W Nickerson St ²	--	--	--	--	--	--	--	--
12. W Cremona St/W Nickerson St	1,909	4	1,913	0.2%	2,222	2	2,224	0.1%
13. Queen Anne Ave N/W Cremona St	200	15	215	7.5%	228	14	242	6.1%
14. 3rd Ave N/W Florentia St/W Nickerson St	2,457	6	2,463	0.2%	2,846	0	2,846	0.0%
15. Fremont Ave N/W Florentia St	2,682	3	2,685	0.1%	3,161	-2	3,159	-0.1%
16. Fremont Ave N/W Nickerson St	3,555	5	3,552	0.1%	3,698	3	3,701	0.1%

Note: TEV = Total Entering Vehicles.

1. Intersection of W Emerson St/W Bertona St eliminated as a result of the proposed Emerson Street vacation.

2. Intersections reconfigured such that Queen Anne Ave N/W Nickerson Street is eliminated Queen Anne Ave N/W Cremona Street is realigned to intersection with W Nickerson street perpendicularly.

As shown in Table 49, traffic volumes would increase at intersections that would no longer be impacted by street vacations, but volumes would otherwise generally decrease as a result of Action Alternative 5. With all other Action Alternatives, the street vacations would result in an increase in traffic along 3rd Avenue W as an alternative to 6th Avenue W. Without the street vacations, volumes would not shift from 6th Avenue W and therefore 3rd Avenue is projected to see a decline in trips. Additionally, some mixed-use development would shifted to W Cremona Street as part of Action Alternative 5 from W Nickerson Street between 6th Avenue W and 3rd Avenue W as part of the Proposed MIMP Action Alternative.



Action Alt. 5 Weekday Peak Hour Traffic Volumes

SPU MIMP EIS

FIGURE
36

transpogroup 

Traffic Operations

The Action Alternative 5 LOS analysis assumes the same methods as the Existing, No Action, and Proposed MIMP conditions. The intersection parameters and channelization are generally consistent with those assumed as part of the Proposed MIMP, but no street vacations are assumed. A comparison of the Proposed MIMP and Action Alternative 5 weekday peak hour operations are shown in Table 50.

Table 50. Proposed MIMP and Action Alternative 5 Weekday Peak Hour LOS Summary

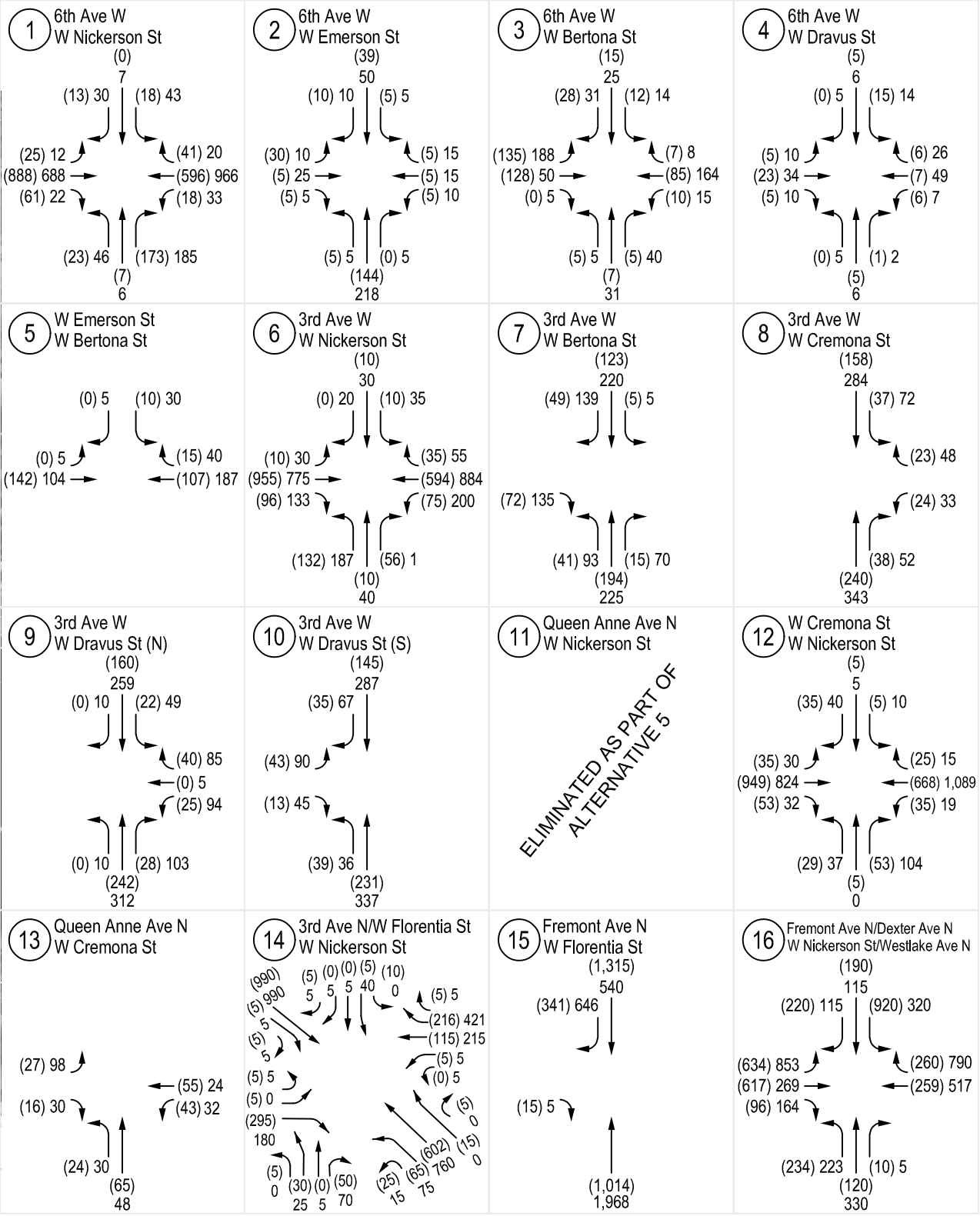
Intersection	Traffic Control	AM Peak Hour						PM Peak Hour					
		Proposed MIMP			Action Alt. 5			Proposed MIMP			Action Alt. 5		
		LOS ¹	Delay ²	WM ³	LOS	Delay	WM	LOS	Delay	WM	LOS	Delay	WM
1. 6th Ave W/W Nickerson St	TWSC	F	125.2	SB	F	103.4	SB	F	550.3	SB	F	403.0	NB
2. 6th Ave W/W Emerson St	AWSC	A	7.3	-	A	7.4	-	A	7.5	-	A	7.5	-
3. 6th Ave W/W Bertona St	TWSC	B	12.1	SB	B	13.0	SB	B	14.3	SB	B	14.3	SB
4. 6th Ave W/W Dravus St	AWSC	A	7.0	-	A	7.3	-	A	7.3	-	A	7.3	-
5. W Emerson St/W Bertona St	TWSC	--	--	--	B	12.4	SB	--	--	--	D	29.1	SB
6. 3rd Ave W/W Nickerson St	Signal	C	26.0	-	C	25.2	-	D	39.8	-	D	38.2	-
7. 3rd Ave W/W Bertona St	TWSC	C	20.2	EB	C	19.7	EB	F	128.4	EB	F	118.2	EB
8. 3rd Ave W/W Cremona St	TWSC	B	12.9	WB	B	13.0	WB	C	22.1	WB	D	24.2	WB
9. 3rd Ave W/W Dravus St (N)	TWSC	B	11.8	WB	B	11.8	WB	C	22.6	WB	C	21.3	WB
10. 3rd Ave W/W Dravus St (S)	TWSC	B	13.5	EB	B	12.9	EB	C	20.0	EB	C	19.7	EB
11. Queen Anne Ave N/ W Nickerson St ⁵	TWSC	--	--	--	--	--	--	--	--	--	--	--	--
12. W Cremona St/W Nickerson St ⁴	TWSC	F	317.5	NB	F	323.0	NB	F	1011.3	NB	F	1000.0	NB
13. Queen Anne Ave N/W Cremona St	TWSC	A	9.8	NB	A	9.8	NB	A	9.4	NB	A	10.1	NB
14. 3rd Ave N/W Florentia St/ W Nickerson St ⁵	Signal	D	45.9	-	D	44.6	-	E	70.6	-	E	70.4	-
15. Fremont Ave N/W Florentia St	TWSC	D	29.5	EB	D	29.6	EB	C	17.0	EB	C	17.0	EB
16. Fremont Ave N/W Nickerson St	Signal	F	110.6	-	F	111.2	-	F	88.8	-	F	88.5	-

Note: TWSC = Two-Way Stop Controlled. AWSC = All-Way Stop Controlled. **Bold** text indicates operating at LOS E or F if signalized or LOS F for TWSC.

1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (HCM) 6th Edition (TRB, 2016)
2. Average delay per vehicle in seconds
3. Worst movement reported for TWSC intersections.
4. Intersections reconfigured such that Queen Anne Ave N/W Nickerson Street is eliminated Queen Anne Ave N/W Cremona Street is realigned to intersection with W Nickerson street perpendicularly.
5. Evaluated using HCM 2000 because the configuration is not supported with the HCM 6th Edition method due to non-NEMA signal configuration

As shown in Table 50, the operational impacts of Action Alternative 5 are generally consistent with the impacts of the Proposed MIMP. There are fluctuations in delay related to the limited development potential along W Nickerson Street as part of Action Alternative 5 and the lack of street vacations, but the intersections that operate below acceptable LOS thresholds remain the same. For instance, the delay at 3rd Avenue W/Bertona Street decreases under Action Alternative 5 but does not eliminate the need for improvements. As such, the same mitigation measures would be proposed as part of Action Alternative 5, including traffic signals at 6th Avenue W/W Nickerson Street and W Cremona Street/W Nickerson Street, as well as turn restrictions at 3rd Avenue W/W Bertona Street and an accompanying northbound left-turn lane at 3rd Avenue W/W Nickerson Street. The resulting traffic volumes are included in Figure 37. Signal warrants were performed for the two proposed signals and the analyses are included in Appendix I. The analyses show that signals are warranted at both intersections based on the four- and eight-hour warrants.

The proposed mitigation measures and accompanying changes in circulation result in improvements to overall operations. A comparison of Action Alternative 5 weekday peak hour operations with and without proposed mitigation measures are shown in Table 51.



Action Alt. 5 Weekday Peak Hour Traffic Volumes With Improvements

SPU MIMP EIS

FIGURE

37



Table 51. Action Alternative 5 Weekday Peak Hour LOS Summary with Improvements

Intersection	Traffic Control	AM Peak Hour						PM Peak Hour					
		Action Alt. 5			Action Alt. 5 (w/ Improvements)			Action Alt. 5			Action Alt. 5 (w/ Improvements)		
		LOS ¹	Delay ²	WM ³	LOS	Delay	WM	LOS	Delay	WM	LOS	Delay	WM
1. 6th Ave W/W Nickerson St	TWSC/Signal ⁴	F	103.4	SB	B	19.0	-	F	403.0	NB	C	21.9	-
2. 6th Ave W/W Emerson St	AWSC	A	7.4	-	A	8.0	-	A	7.5	-	A	8.5	-
3. 6th Ave W/W Bertona St	TWSC	B	13.0	SB	C	15.7	SB	B	14.3	SB	C	17.7	SB
4. 6th Ave W/W Dravus St	AWSC	A	7.3	-	A	7.3	-	A	7.3	-	A	7.3	-
5. W Emerson St/W Bertona St	TWSC	B	12.4	SB	B	11.0	SB	D	29.1	SB	C	23.6	SB
6. 3rd Ave W/W Nickerson St	Signal	C	25.2	-	B	18.3	-	D	38.2	-	C	26.9	-
7. 3rd Ave W/W Bertona St	TWSC	C	19.7	EB	B	10.8	EB	F	118.2	EB	C	25.0	WB
8. 3rd Ave W/W Cremona St	TWSC	B	13.0	WB	B	13.6	WB	D	24.2	WB	D	26.5	WB
9. 3rd Ave W/W Dravus St (N)	TWSC	B	11.8	WB	B	12.0	WB	C	21.3	WB	C	22.9	EB
10. 3rd Ave W/W Dravus St (S)	TWSC	B	12.9	EB	B	12.9	EB	C	19.7	EB	C	19.7	EB
11. Queen Anne Ave N/ W Nickerson St ⁵	TWSC	--	--	--	--	--	--	--	--	--	--	--	--
12. W Cremona St/W Nickerson St ⁶	TWSC/Signal ⁷	F	323.0	NB	A	7.0	-	F	1000.0	NB	A	9.6	-
13. Queen Anne Ave N/W Cremona St	TWSC	A	9.8	NB	A	9.8	NB	A	10.1	NB	B	10.1	NB
14. 3rd Ave N/W Florentia St/ W Nickerson St ⁷	Signal	D	44.6	-	D	45.0	-	E	70.4	-	E	70.4	-
15. Fremont Ave N/W Florentia St	TWSC	D	29.6	EB	D	29.6	EB	C	17.0	EB	C	17.0	EB
16. Fremont Ave N/W Nickerson St	Signal	F	111.2	-	F	111.4	-	F	88.5	-	F	88.5	-

Note: TWSC = Two-Way Stop Controlled. AWSC = All-Way Stop Controlled. **Bold** text indicates operating at LOS E or F if signalized or LOS F for TWSC.

1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (HCM) 6th Edition (TRB, 2016)
2. Average delay per vehicle in seconds
3. Worst movement reported for TWSC intersections.
4. 6th Ave W/W Nickerson Street currently operates as TWSC, but a traffic signal is proposed as part of the mitigation plan
5. Intersections reconfigured such that Queen Anne Ave N/W Nickerson Street is eliminated Queen Anne Ave N/W Cremona Street is realigned to intersection with W Nickerson street perpendicularly.
6. W Cremona Street/W Nickerson Street currently operates as TWSC, but a traffic signal is proposed as part of the mitigation plan
7. Evaluated using HCM 2000 because the configuration is not supported with the HCM 6th Edition method due to non-NEMA signal configuration

Table 52 summarizes the LOS results of the 2035 No Action Alternative, the Proposed MIMP with improvements, and Action Alternative 5 with Improvements. As shown, the proposed mitigation measures result in the overarching intersection improvements as compared to the No Action Alternative, consistent with the Proposed MIMP. However, slight changes in LOS are observed at multiple intersections due to the lack of proposed street vacations which changes circulation patterns, higher level of development activity along W Cremona Street, and the circulation changes associated with the 3rd Avenue W/W Bertona Street turn restrictions.

Table 52. LOS Comparison (2035 No Action, 2035 Proposed MIMP, Action Alternative 5)

Intersection	AM Peak Hour LOS ¹			PM Peak Hour LOS		
	No Action	Proposed MIMP (w/ Imps)	Action Alt. 5 (w/ Imps)	No Action	Proposed MIMP (w/ Imps)	Action Alt. 5 (w/ Imps)
1. 6th Ave W/W Nickerson St ²	F	B	B	F	C	C
2. 6th Ave W/W Emerson St	A	A	A	A	A	A
3. 6th Ave W/W Bertona St	B	B	C	B	C	C
4. 6th Ave W/W Dravus St	A	A	A	A	A	A
5. W Emerson St/W Bertona St ³	B	--	B	D	--	C
6. 3rd Ave W/W Nickerson St	C	B	B	C	C	C
7. 3rd Ave W/W Bertona St	C	B	B	F	D	C
8. 3rd Ave W/W Cremona St	B	B	B	C	C	D
9. 3rd Ave W/W Dravus St (N)	B	B	B	C	C	C
10. 3rd Ave W/W Dravus St (S)	B	B	B	C	C	C
11. Queen Anne Ave N/W Nickerson St ⁴	F	--	--	F	--	--
12. W Cremona St/W Nickerson St ⁵	C	A	A	D	B	A
13. Queen Anne Ave N/W Cremona St	A	A	A	B	A	B
14. 3rd Ave N/W Florentia St/W Nickerson St ⁶	D	D	D	E	E	E
15. Fremont Ave N/W Florentia St	D	D	D	C	C	C
16. Fremont Ave N/W Nickerson St	F	F	F	E	F	F

Bold text indicates operating at LOS E or F if signalized or LOS F for TWSC.

1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (HCM) 6th Edition (TRB, 2016)

2. 6th Ave W/W Nickerson Street currently operates as TWSC, but a traffic signal is proposed as part of the mitigation plan

3. Intersection of W Emerson St/W Bertona St eliminated as a result of the proposed Emerson Street vacation.

4. Intersections reconfigured such that Queen Anne Ave N/W Nickerson Street is eliminated Queen Anne Ave N/W Cremona Street is realigned to intersection with W Nickerson street perpendicularly.

5. W Cremona Street/W Nickerson Street currently operates as TWSC, but a traffic signal is proposed as part of the mitigation plan

6. Evaluated using HCM 2000 because the configuration is not supported with the HCM 6th Edition method due to non-NEMA signal configuration

Traffic Safety

As traffic volumes increase, traffic safety issues could increase proportionally. As shown in the trip generation table above (see Table 48), the total person trips and vehicle trips are forecast to increase with Action Alternative 5 relative to the No Action condition due to the increase in enrollment and the construction of mixed-use development. However, there are no significant safety concerns identified within the study area under existing conditions and the proposed vehicular and multi-modal improvements would be implemented in a way that adequately addresses safety considerations.

Parking

Consistent with the Proposed MIMP, Action Alternative 5 would replace a significant amount of existing surface parking and transition to primarily underground parking below future residential and education buildings. The proposed parking plan would offer more consolidated parking options for commuters, staff, and visitors. Consistent with the Proposed MIMP, the plan depicts a total parking supply of 2,703 parking spaces. While it is understood that parking will ultimately conform with SMC 23.54.016.C4, and that parking will be evaluated on a project by project basis, the MIMP depicts the greatest amount of parking that could feasibly be constructed.

Loading/Curbside Management

Each individual building will provide loading facilities that both meet SMC requirements and accommodate the practical demand for waste collection and deliveries. Additionally, curbside management along the building entrance frontages will be evaluated at an individual level to determine if

temporary loading zones or entrance zones are appropriate. It is anticipated that curbside loading or pick-up/drop-off areas may be desirable at residential buildings, but some educational buildings or other buildings may also benefit from curbside loading or pick-up/drop-off spaces. The specific loading and curbside management needs of each building will be reevaluated as part of future project MUP processes when additional details regarding building design and function are known.

Special Events

SPU hosts a limited number of special events throughout a typical academic year including graduation, the highest attendance event, as well as sporting events such as basketball games and volleyball matches. These events are currently managed on a case-by-case basis by University staff and will continue to be managed as such as part of Action Alternative 5. Special event management plans triggered by a specific event will be reviewed by the City under a separate process as is currently the case.

Transportation Management Program

The Transportation Management Program (TMP) program and associated goals for Action Alternative 5 would be consistent with the Proposed MIMP.

Mitigation

This chapter presents mitigation measures that would offset or reduce potential impacts of the Action Alternatives. The impacts of the Action Alternatives (Proposed MIMP and all other Action Alternatives) are similar and would be improved by a consistent set of mitigation measures.

Intersection Improvements

Intersections that are impacted by the Action Alternatives could be mitigated with the following proposed intersection improvements:

- **6th Avenue W/W Nickerson Street** – A traffic signal is proposed which would help address side street delay as well as provide a supplemental location for pedestrians to cross W Nickerson Street. The signal was shown to meet warrants based on the projected volumes.
- **3rd Avenue W/W Bertona Street** – Given the close proximity to the signalized intersection of 3rd Avenue W/W Nickerson Street, there are limited opportunities to adjust the traffic control. However, the proposed traffic signal at 6th Avenue W/W Nickerson Street provides the opportunity to implement turn restrictions at 3rd Avenue W/W Bertona Street such that vehicles traveling east through W Bertona Street can access W Nickerson Street via 6th Avenue W as an alternative. The proposed turn restrictions would limit eastbound traffic to right-turns only thus reducing delay related to left-turning and through vehicles. The northbound left-turn movement would remain to help process traffic traveling west into campus, but c-curb would be implemented to restrict eastbound movements.

In conjunction with the proposed turn restrictions at 3rd Avenue W/W Bertona Street, changes to channelization along the northbound approach of 3rd Avenue W at W Nickerson are proposed to incorporate a northbound left-turn lane. Additionally, leading pedestrian intervals are proposed to reduce potential pedestrian-vehicle conflicts for pedestrians crossing W Nickerson Street.

- **W Cremona Street/W Nickerson Street** – A traffic signal is proposed which would help address side street delay as well as provide a supplemental location for pedestrians to cross W Nickerson Street.

Transportation Management Plan

In addition to the proposed intersection improvements, the proposed TMP would include programs and strategies applicable to faculty, resident and commuter students, and staff that are designed to reduce parking and traffic demands associated with projected growth at SPU.

Secondary and Cumulative Impacts

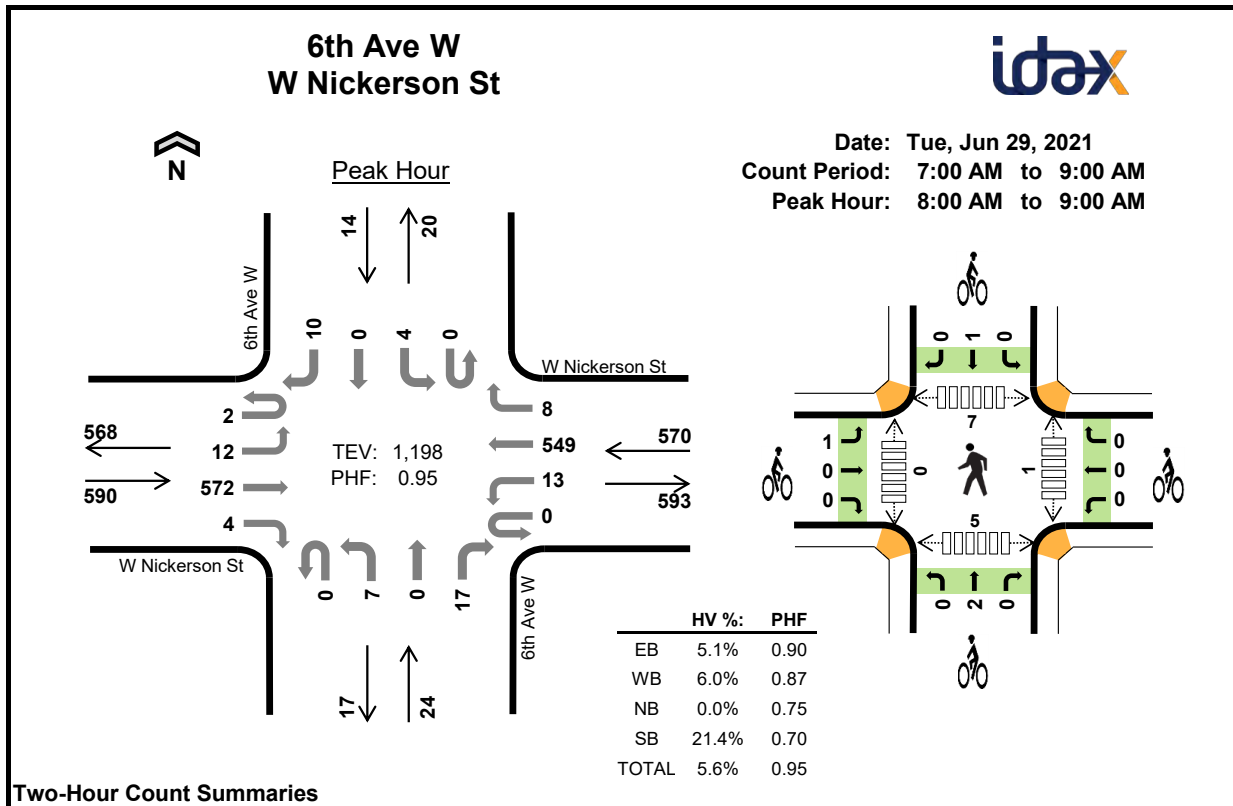
Secondary and cumulative impacts on area transportation system are included in the analysis of direct impacts. In addition, there is a potential for cumulative impacts due to the combined effects of traffic being generated by development of the Campus Master Plan and construction activities on campus and in the surrounding vicinity. This potential impact could be mitigated by scheduling construction activities such that arrival and departure of construction traffic occurs outside the peak hours.

Significant and Unavoidable Adverse Impacts

Development of the MIMP and increase in on-campus population to up to 6,000 student FTE by the year 2035, as well as construction of mixed-use development components would result in increases in all travel modes – vehicles, transit, pedestrians, and bicycles. It is anticipated there would be significant and unavoidable impacts at the intersection of Fremont Avenue N/W Nickerson Street as a result of the cumulative impacts of campus growth and mixed-use development.

This signalized intersection would continue to operate at LOS F during the AM peak hour and degrade to LOS F from LOS E during the PM peak hour. The forecast delay with the Proposed MIMP would increase by just over one second during the AM peak hour and increase by just over six seconds during the PM peak hour as compared to the No Action conditions. While the impact of the Proposed MIMP at this intersection is considered significant based on the increase in delay, there are limited opportunities to implement improvements at this intersection due to the split-phased signal operations. The intersection already has a high cycle length and considerable turning volumes which result in limited opportunities to reallocate green time amongst the approaches. As such, no improvements are proposed at this intersection.

Appendix A Traffic Counts

**Two-Hour Count Summaries**

Interval Start		W Nickerson St				W Nickerson St				6th Ave W				6th Ave W				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	4	85	0	0	2	89	1	0	0	1	5	0	1	0	0	188	0
7:15 AM		0	8	109	1	0	2	111	1	0	0	1	3	0	0	0	5	241	0
7:30 AM		0	2	125	2	0	1	107	2	0	1	0	4	0	0	0	3	247	0
7:45 AM		0	5	141	1	0	5	122	1	0	2	0	8	0	2	0	1	288	964
8:00 AM		0	1	134	0	0	4	140	2	0	2	0	6	0	2	0	2	293	1,069
8:15 AM		0	5	145	1	0	2	113	0	0	1	0	4	0	2	0	3	276	1,104
8:30 AM		2	4	156	1	0	5	136	4	0	1	0	3	0	0	0	4	316	1,173
8:45 AM		0	2	137	2	0	2	160	2	0	3	0	4	0	0	0	1	313	1,198
Count Total		2	31	1,032	8	0	23	978	13	0	10	2	37	0	7	0	19	2,162	0
Peak Hour	All	2	12	572	4	0	13	549	8	0	7	0	17	0	4	0	10	1,198	0
	HV	0	1	29	0	0	0	33	1	0	0	0	0	0	1	0	2	67	0
	HV%	0%	8%	5%	0%	-	0%	6%	13%	-	0%	-	0%	-	25%	-	20%	6%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	3	8	0	0	11	0	0	0	0	0	1	0	3	2	6
7:15 AM	5	5	1	1	12	0	0	0	0	0	0	0	1	0	1
7:30 AM	6	7	0	0	13	0	1	0	0	1	0	0	2	0	2
7:45 AM	6	6	1	1	14	0	0	0	0	0	0	0	0	0	0
8:00 AM	8	10	0	1	19	1	0	1	0	2	0	0	2	0	2
8:15 AM	9	8	0	1	18	0	0	0	1	1	0	0	1	1	2
8:30 AM	6	10	0	1	17	0	0	0	0	0	1	0	2	3	6
8:45 AM	7	6	0	0	13	0	0	1	0	1	0	0	2	1	3
Count Total	50	60	2	5	117	1	1	2	1	5	2	0	13	7	22
Peak Hour	30	34	0	3	67	1	0	2	1	4	1	0	7	5	13

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	W Nickerson St				W Nickerson St				6th Ave W				6th Ave W				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	3	0	0	0	8	0	0	0	0	0	0	0	0	0	11	0
7:15 AM	0	0	5	0	0	0	5	0	0	0	1	0	0	0	0	1	12	0
7:30 AM	0	0	5	1	0	0	6	1	0	0	0	0	0	0	0	0	13	0
7:45 AM	0	1	4	1	0	0	6	0	0	1	0	0	0	0	1	0	14	50
8:00 AM	0	0	8	0	0	0	10	0	0	0	0	0	0	0	1	0	19	58
8:15 AM	0	1	8	0	0	0	8	0	0	0	0	0	0	0	0	1	18	64
8:30 AM	0	0	6	0	0	0	9	1	0	0	0	0	0	0	0	1	17	68
8:45 AM	0	0	7	0	0	0	6	0	0	0	0	0	0	0	0	0	13	67
Count Total	0	2	46	2	0	0	58	2	0	1	1	0	0	2	0	3	117	0
Peak Hour	0	1	29	0	0	0	33	1	0	0	0	0	0	1	0	2	67	0

Two-Hour Count Summaries - Bikes																	
Interval Start	W Nickerson St			W Nickerson St			6th Ave W			6th Ave W			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
8:00 AM	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2	3	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	4	
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
8:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	4	
Count Total	1	0	0	0	1	0	0	2	0	0	1	0	1	0	5	0	
Peak Hour	1	0	0	0	0	0	0	2	0	0	1	0	1	0	4	0	

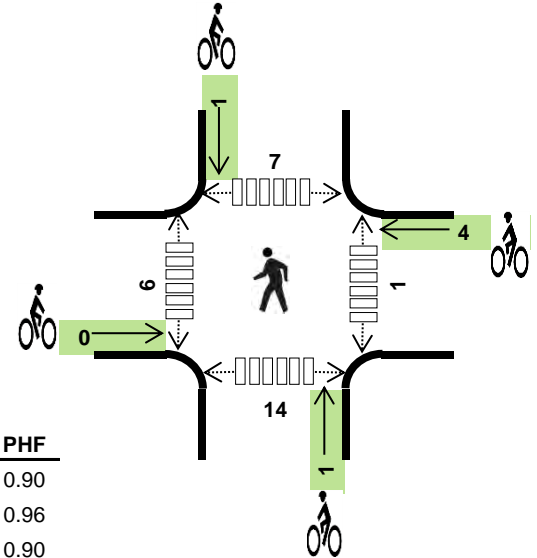
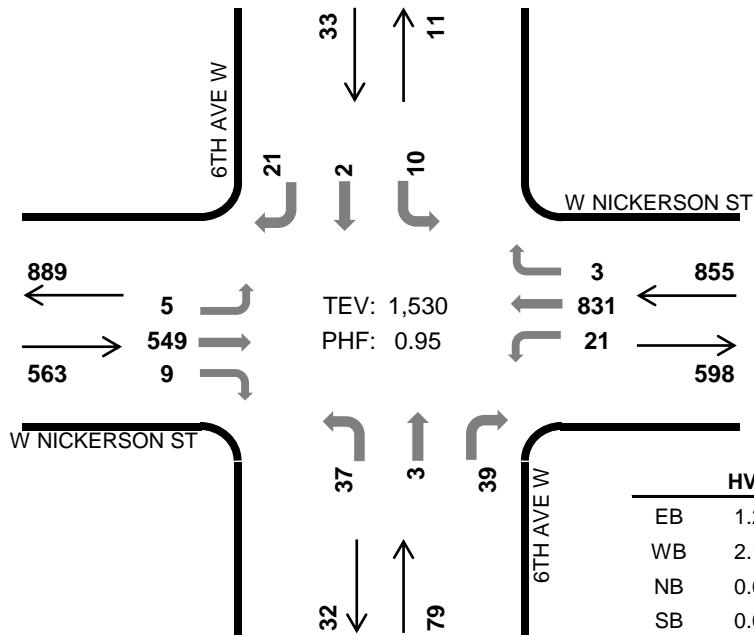
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

6TH AVE W W NICKERSON ST



Peak Hour

Date: Wed, Apr 22, 2015
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM



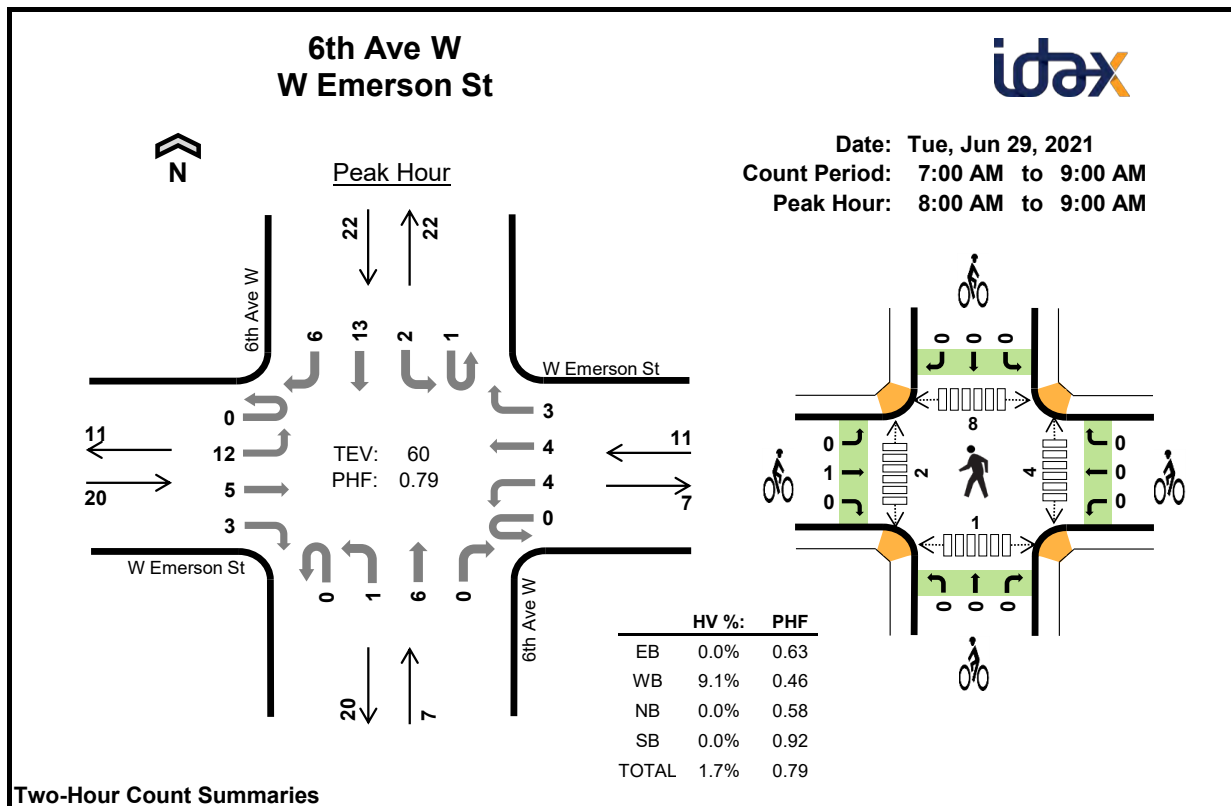
	HV %:	PHF
EB	1.2%	0.90
WB	2.1%	0.96
NB	0.0%	0.90
SB	0.0%	0.75
TOTAL	1.6%	0.95

Two-Hour Count Summaries

Interval Start	W NICKERSON ST			W NICKERSON ST			6TH AVE W			6TH AVE W			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	3	146	3	8	185	3	8	0	6	6	0	11	379	1,492 1,516 1,525 1,530 1,518
4:15 PM	2	121	6	4	193	3	4	0	10	8	0	9	360	
4:30 PM	3	138	3	5	190	2	11	1	7	6	1	2	369	
4:45 PM	1	153	2	4	191	1	6	1	14	4	1	6	384	
5:00 PM	0	148	2	7	214	1	13	0	9	2	0	7	403	
5:15 PM	1	122	2	4	218	0	7	1	8	1	0	5	369	
5:30 PM	3	126	3	6	208	1	11	1	8	3	1	3	374	
5:45 PM	2	135	2	8	206	2	5	1	6	1	0	4	372	
Count Total	15	1,089	23	46	1,605	13	65	5	68	31	3	47	3,010	
Peak Hr	5	549	9	21	831	3	37	3	39	10	2	21	1,530	

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	3	4	0	0	7	0	0	0	0	0	0	1	0	4	5
4:15 PM	3	7	0	1	11	0	1	0	0	1	1	3	2	1	7
4:30 PM	3	0	0	0	3	0	0	0	0	0	2	0	1	2	5
4:45 PM	2	7	0	0	9	0	2	0	0	2	1	2	2	2	7
5:00 PM	1	3	0	0	4	0	0	0	1	1	0	3	1	6	10
5:15 PM	1	3	0	0	4	0	1	0	0	1	0	0	2	1	3
5:30 PM	3	5	0	0	8	0	1	1	0	2	0	1	2	5	8
5:45 PM	2	2	0	0	4	1	1	0	0	2	0	1	4	3	8
Count Total	18	31	0	1	50	1	6	1	1	9	4	11	14	24	53
Peak Hr	7	18	0	0	25	0	4	1	1	6	1	6	7	14	28

**Two-Hour Count Summaries**

Interval Start		W Emerson St				W Emerson St				6th Ave W				6th Ave W				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	2	0	1	0	0	1	0	0	0	1	0	0	0	2	0	7	0
7:15 AM		0	2	3	0	0	0	0	0	0	0	2	0	0	0	1	1	9	0
7:30 AM		0	3	2	0	0	0	0	0	0	0	0	1	0	0	3	0	9	0
7:45 AM		0	6	1	0	0	0	0	0	0	0	1	1	0	0	5	1	15	40
8:00 AM		0	4	2	2	0	0	0	1	0	1	1	0	1	0	3	1	16	49
8:15 AM		0	1	2	0	0	0	0	0	0	0	1	0	0	1	3	1	9	49
8:30 AM		0	5	1	0	0	0	4	2	0	0	1	0	0	1	4	1	19	59
8:45 AM		0	2	0	1	0	4	0	0	0	0	3	0	0	0	3	3	16	60
Count Total		0	25	11	4	0	4	5	3	0	1	10	2	1	2	24	8	100	0
Peak Hour	All	0	12	5	3	0	4	4	3	0	1	6	0	1	2	13	6	60	0
	HV	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
	HV%	-	0%	0%	0%	-	25%	0%	0%	-	0%	0%	-	0%	0%	0%	0%	2%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	2	2	5
7:15 AM	0	0	1	0	1	0	0	0	0	0	0	0	4	0	4
7:30 AM	0	0	0	1	1	0	0	0	0	0	0	0	2	0	2
7:45 AM	1	0	0	1	2	1	0	0	0	1	1	0	3	0	4
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	2	0	3
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	2	1	3	0	6
8:45 AM	0	1	0	0	1	1	0	0	0	1	1	1	2	1	5
Count Total	1	1	1	2	5	2	0	0	0	2	6	2	19	3	30
Peak Hour	0	1	0	0	1	1	0	0	0	1	4	2	8	1	15

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	W Emerson St				W Emerson St				6th Ave W				6th Ave W				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
7:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	
Count Total	0	1	0	0	0	1	0	0	0	0	1	0	0	0	1	1	5	
Peak Hour	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	

Two-Hour Count Summaries - Bikes																	
Interval Start	W Emerson St			W Emerson St			6th Ave W			6th Ave W			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	1			
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1			
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1			
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1			
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	1			
Count Total	0	2	0	0	0	0	0	0	0	0	0	0	2	0			
Peak Hour	0	1	0	0	0	0	0	0	0	0	0	0	1	0			

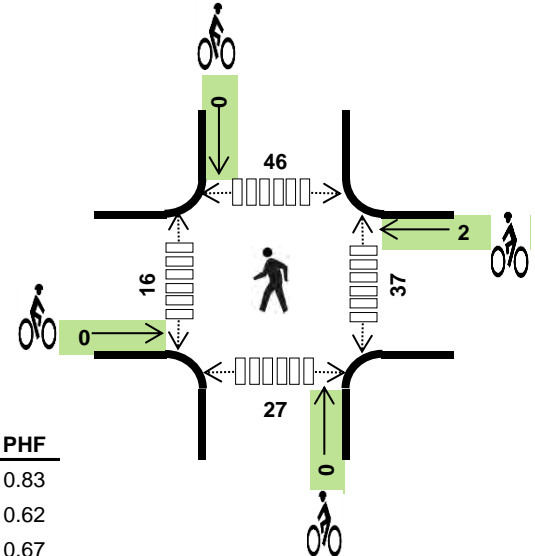
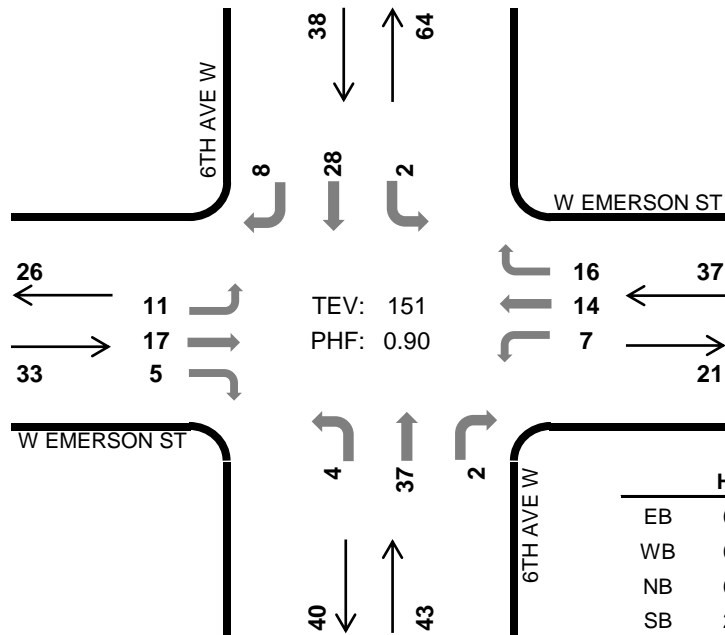
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

6TH AVE W W EMERSON ST



Peak Hour

Date: Wed, Apr 22, 2015
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM



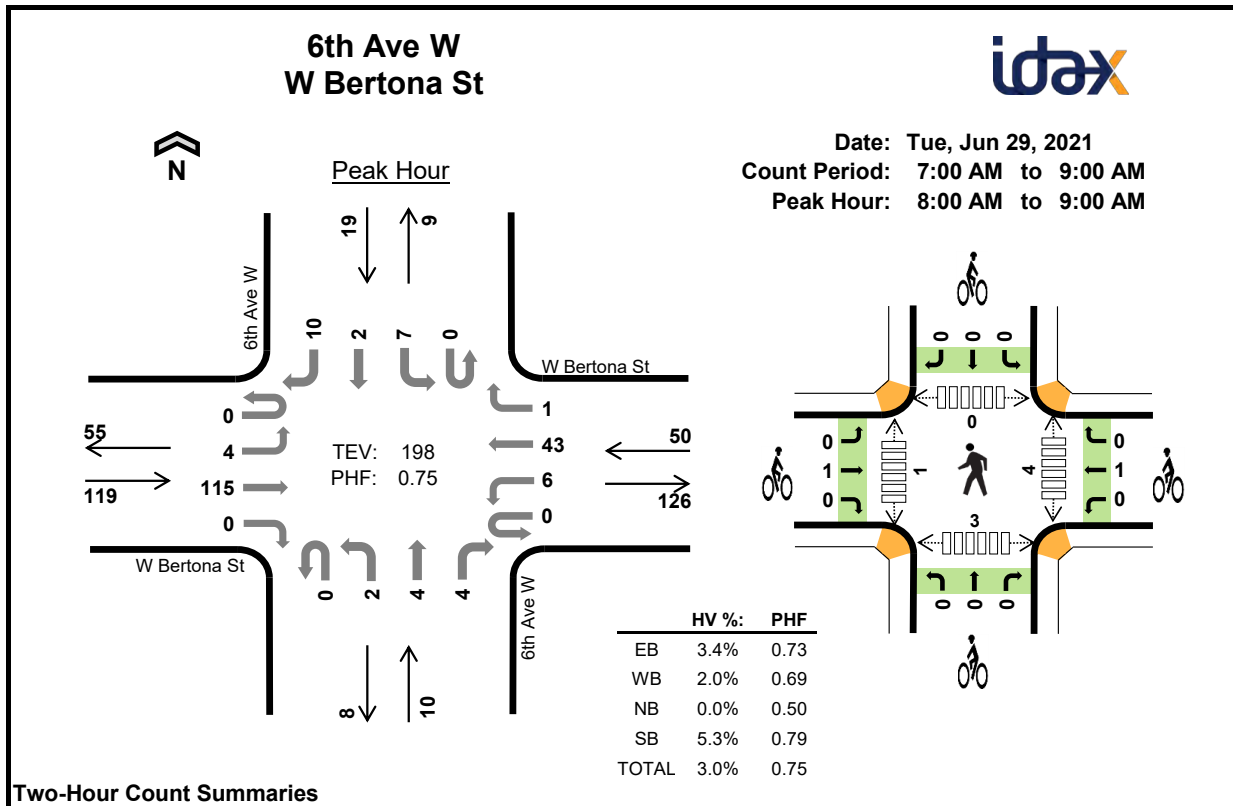
	HV %:	PHF
EB	0.0%	0.83
WB	0.0%	0.62
NB	0.0%	0.67
SB	2.6%	0.68
TOTAL	0.7%	0.90

Two-Hour Count Summaries

Interval Start	W EMERSON ST			W EMERSON ST			6TH AVE W			6TH AVE W			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	1	3	1	0	4	5	1	4	0	3	4	2	28	121 135 135 151 142
4:15 PM	5	3	0	1	3	3	0	4	0	0	8	3	30	
4:30 PM	0	1	3	0	1	4	1	8	0	1	6	0	25	
4:45 PM	3	4	3	4	6	5	0	6	1	1	3	2	38	
5:00 PM	4	4	1	1	4	5	1	8	0	1	10	3	42	
5:15 PM	2	3	1	0	2	2	0	11	0	0	8	1	30	
5:30 PM	2	6	0	2	2	4	3	12	1	0	7	2	41	
5:45 PM	3	2	0	0	4	0	1	9	0	0	6	4	29	
Count Total	20	26	9	8	26	28	7	62	2	6	52	17	263	
Peak Hr	11	17	5	7	14	16	4	37	2	2	28	8	151	

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	1	0	0	1	0	0	0	0	0	7	4	9	7	27
4:15 PM	0	0	0	0	0	0	0	0	0	0	14	10	15	9	48
4:30 PM	0	0	0	0	0	0	0	0	0	0	11	6	11	10	38
4:45 PM	0	0	0	0	0	0	1	0	0	1	9	3	8	12	32
5:00 PM	0	0	0	0	0	0	0	0	0	0	10	6	20	8	44
5:15 PM	0	0	0	1	1	0	0	0	0	0	11	3	10	6	30
5:30 PM	0	0	0	0	0	0	1	0	0	1	7	4	8	1	20
5:45 PM	0	0	0	0	0	0	0	0	0	0	3	4	11	4	22
Count Total	0	1	0	1	2	0	2	0	0	2	72	40	92	57	261
Peak Hr	0	0	0	1	1	0	2	0	0	2	37	16	46	27	126

**Two-Hour Count Summaries**

Interval Start		W Bertona St				W Bertona St				6th Ave W				6th Ave W				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	1	8	1	0	0	8	0	0	0	0	0	0	1	1	1	21	0
7:15 AM		0	1	15	0	0	2	4	0	0	0	0	0	0	0	1	0	23	0
7:30 AM		0	0	21	0	0	0	2	0	0	0	0	1	0	0	1	2	27	0
7:45 AM		0	3	14	1	0	2	12	0	0	0	0	1	0	1	1	3	38	109
8:00 AM		0	1	21	0	0	1	9	0	0	1	2	2	0	0	1	4	42	130
8:15 AM		0	0	30	0	0	3	5	0	0	0	1	0	0	1	1	2	43	150
8:30 AM		0	0	26	0	0	1	13	0	0	0	1	0	0	4	0	2	47	170
8:45 AM		0	3	38	0	0	1	16	1	0	1	0	2	0	2	0	2	66	198
Count Total		0	9	173	2	0	10	69	1	0	2	4	6	0	9	6	16	307	0
Peak Hour	All	0	4	115	0	0	6	43	1	0	2	4	4	0	7	2	10	198	0
	HV	0	0	4	0	0	1	0	0	0	0	0	0	0	0	0	1	6	0
	HV%	-	0%	3%	-	-	17%	0%	0%	-	0%	0%	0%	-	0%	0%	10%	3%	0

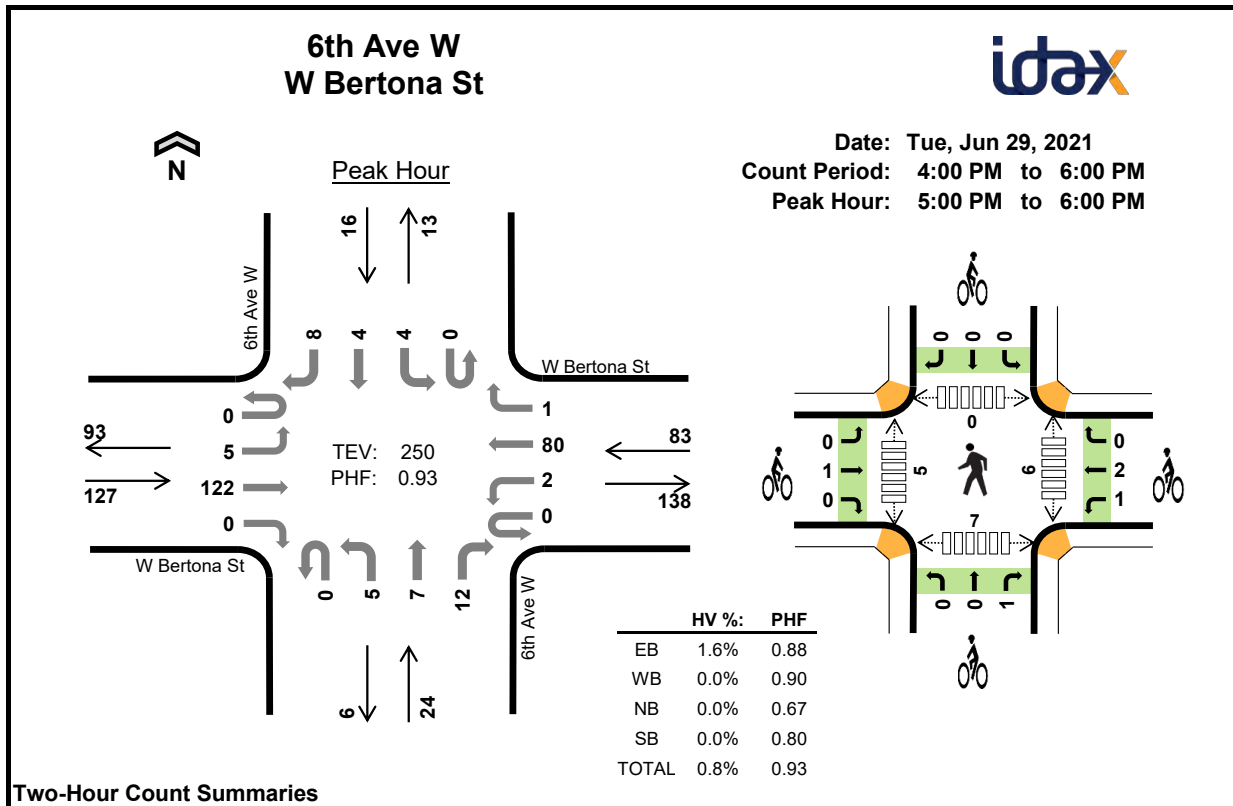
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
7:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	1	1	0	0	0	0	0	1	0	0	0	1
7:45 AM	2	1	0	0	3	0	0	0	0	0	2	2	1	3	8
8:00 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
8:30 AM	0	0	0	0	0	1	1	0	0	2	1	1	0	1	3
8:45 AM	4	1	0	0	5	0	0	0	0	0	2	0	0	2	4
Count Total	6	3	0	2	11	1	1	0	0	2	9	3	1	6	19
Peak Hour	4	1	0	1	6	1	1	0	0	2	4	1	0	3	8

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	W Bertona St				W Bertona St				6th Ave W				6th Ave W				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
7:45 AM	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	3	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 AM	0	0	4	0	0	1	0	0	0	0	0	0	0	0	0	0	5	
Count Total	0	1	5	0	0	2	1	0	0	0	0	0	0	0	0	2	11	
Peak Hour	0	0	4	0	0	1	0	0	0	0	0	0	0	0	0	1	6	

Two-Hour Count Summaries - Bikes																	
Interval Start	W Bertona St			W Bertona St			6th Ave W			6th Ave W			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	2	2			
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2			
Count Total	0	1	0	0	1	0	0	0	0	0	0	0	2	0			
Peak Hour	0	1	0	0	1	0	0	0	0	0	0	0	2	0			

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

**Two-Hour Count Summaries**

Interval Start		W Bertona St				W Bertona St				6th Ave W				6th Ave W				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	1	23	0	0	2	18	0	0	2	1	4	0	2	1	2	56	0
4:15 PM		0	0	15	0	0	0	18	0	0	0	2	3	0	2	1	2	43	0
4:30 PM		0	0	21	0	0	0	26	0	0	0	1	4	0	1	1	4	58	0
4:45 PM		0	0	26	1	0	0	20	0	0	1	6	2	0	0	0	5	61	218
5:00 PM		0	3	25	0	0	0	20	0	0	1	1	1	0	3	0	1	55	217
5:15 PM		0	2	31	0	0	0	18	1	0	2	1	4	0	0	4	1	64	238
5:30 PM		0	0	30	0	0	1	22	0	0	2	3	4	0	1	0	1	64	244
5:45 PM		0	0	36	0	0	1	20	0	0	0	2	3	0	0	0	5	67	250
Count Total		0	6	207	1	0	4	162	1	0	8	17	25	0	9	7	21	468	0
Peak Hour	All	0	5	122	0	0	2	80	1	0	5	7	12	0	4	4	8	250	0
	HV	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
	HV%	-	0%	2%	-	-	0%	0%	0%	-	0%	0%	0%	-	0%	0%	0%	1%	0

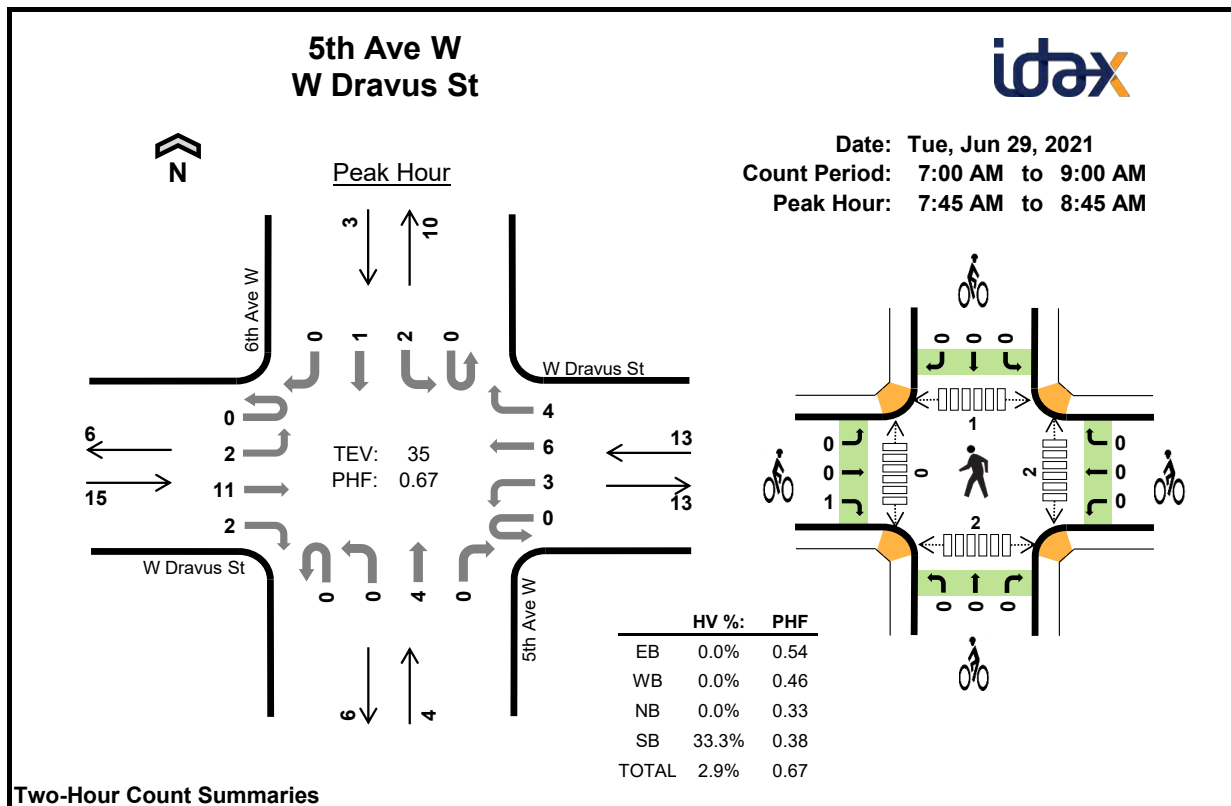
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	1	0	0	0	1	1	1	0	1	3
4:30 PM	1	0	0	0	1	0	0	1	0	1	0	0	0	1	1
4:45 PM	0	0	0	0	0	0	0	1	0	1	2	2	2	2	8
5:00 PM	1	0	0	0	1	1	2	0	0	3	3	1	0	2	6
5:15 PM	0	0	0	0	0	0	0	1	0	1	1	1	0	2	4
5:30 PM	1	0	0	0	1	0	0	0	0	0	2	2	0	2	6
5:45 PM	0	0	0	0	0	0	1	0	0	1	0	1	0	1	2
Count Total	3	1	0	0	4	2	3	3	0	8	9	8	2	11	30
Peak Hour	2	0	0	0	2	1	3	1	0	5	6	5	0	7	18

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	W Bertona St				W Bertona St				6th Ave W				6th Ave W				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Count Total	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	4	0
Peak Hour	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0

Two-Hour Count Summaries - Bikes																	
Interval Start	W Bertona St			W Bertona St			6th Ave W			6th Ave W			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0			
4:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	1	0			
4:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	3			
5:00 PM	0	1	0	0	2	0	0	0	0	0	0	0	3	6			
5:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	1	6			
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	5			
5:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	1	5			
Count Total	0	2	0	1	2	0	0	1	2	0	0	0	8	0			
Peak Hour	0	1	0	1	2	0	0	0	1	0	0	0	5	0			

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

**Two-Hour Count Summaries**

Interval Start		W Dravus St				W Dravus St				5th Ave W				6th Ave W				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
	7:00 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	1	1	0	4	0
	7:15 AM	0	0	1	0	0	0	4	0	0	1	0	0	0	0	0	0	6	0
	7:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
	7:45 AM	0	1	6	0	0	1	2	0	0	0	0	0	0	0	0	0	10	21
	8:00 AM	0	0	2	0	0	2	2	3	0	0	3	0	0	1	0	0	13	30
	8:15 AM	0	0	1	0	0	0	1	1	0	0	0	0	0	1	1	0	5	29
	8:30 AM	0	1	2	2	0	0	1	0	0	0	1	0	0	0	0	0	7	35
	8:45 AM	0	1	2	0	0	4	1	1	0	1	0	0	0	0	0	0	10	35
Count Total		0	3	15	3	0	7	11	6	0	2	4	0	0	3	2	0	56	0
Peak Hour	All	0	2	11	2	0	3	6	4	0	0	4	0	0	2	1	0	35	0
	HV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
	HV%	-	0%	0%	0%	-	0%	0%	0%	-	-	0%	-	-	0%	100%	-	3%	0

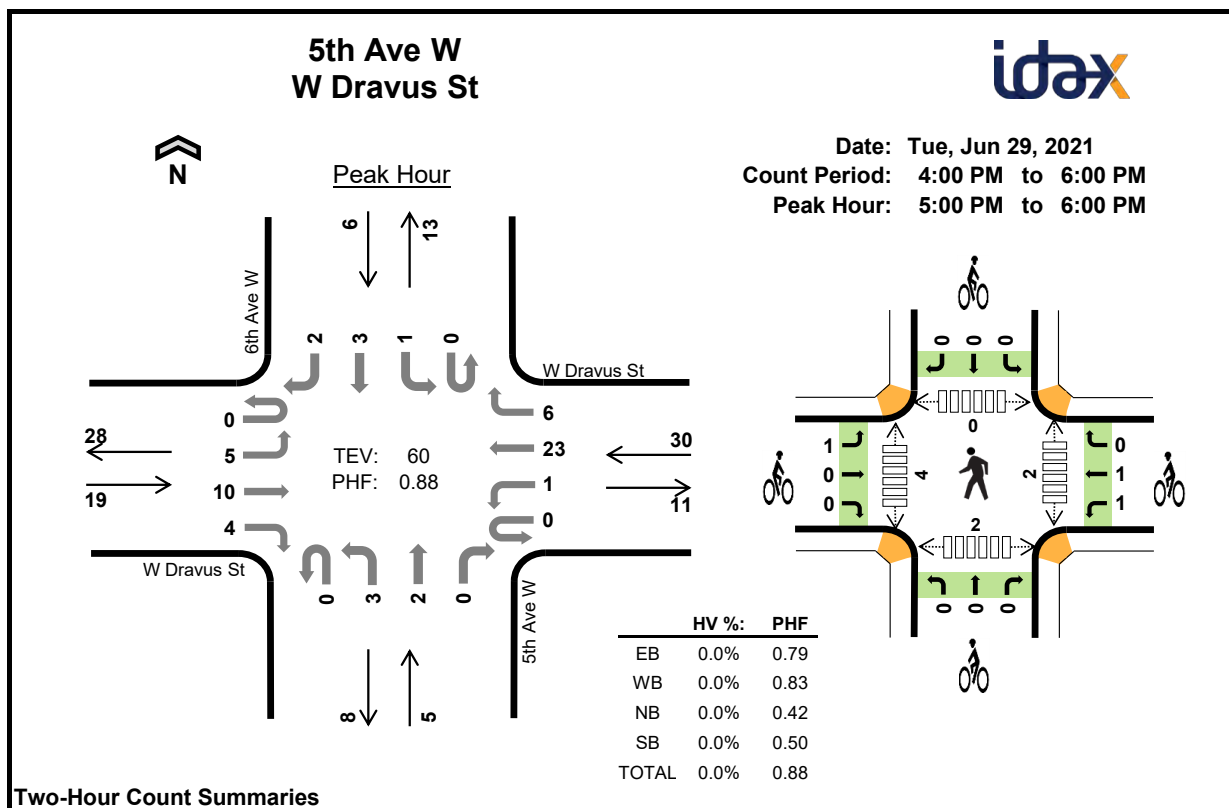
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	0	1	1	0	0	0	0	0	0	0	1	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	1	1	0	0	0	0	0	1	0	1	1	3
8:30 AM	0	0	0	0	0	1	0	0	0	1	1	0	0	1	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	2	2	1	0	0	0	1	2	0	3	2	7
Peak Hour	0	0	0	1	1	1	0	0	0	1	2	0	1	2	5

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	W Dravus St				W Dravus St				5th Ave W				6th Ave W				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	

Two-Hour Count Summaries - Bikes																	
Interval Start	W Dravus St			W Dravus St			5th Ave W			6th Ave W			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	1			
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1			
Count Total	0	0	1	0	0	0	0	0	0	0	0	0	1	0			
Peak Hour	0	0	1	0	0	0	0	0	0	0	0	0	1	0			

Note: U-Turn volumes for bikes are included in Left-Turn, if any.



Two-Hour Count Summaries

Interval Start		W Dravus St				W Dravus St				5th Ave W				6th Ave W				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
	4:00 PM	0	0	0	0	0	1	3	1	0	2	2	3	0	2	0	0	14	0
	4:15 PM	0	0	2	1	0	0	0	2	0	1	0	0	0	0	0	1	7	0
	4:30 PM	0	0	5	0	0	0	4	0	0	0	2	0	1	0	0	0	12	0
	4:45 PM	0	2	2	0	0	0	2	0	0	0	0	0	0	0	0	1	7	40
	5:00 PM	0	1	3	2	0	0	7	0	0	2	1	0	0	1	0	0	17	43
	5:15 PM	0	3	0	1	0	1	5	3	0	1	0	0	0	0	2	1	17	53
	5:30 PM	0	1	4	0	0	0	4	2	0	0	0	0	0	0	0	1	12	53
	5:45 PM	0	0	3	1	0	0	7	1	0	0	1	0	0	0	1	0	14	60
Count Total		0	7	19	5	0	2	32	9	0	6	6	3	1	3	3	4	100	0
Peak Hour	All	0	5	10	4	0	1	23	6	0	3	2	0	0	1	3	2	60	0
	HV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	HV%	-	0%	0%	0%	-	0%	0%	0%	-	0%	0%	-	-	0%	0%	0%	0%	0

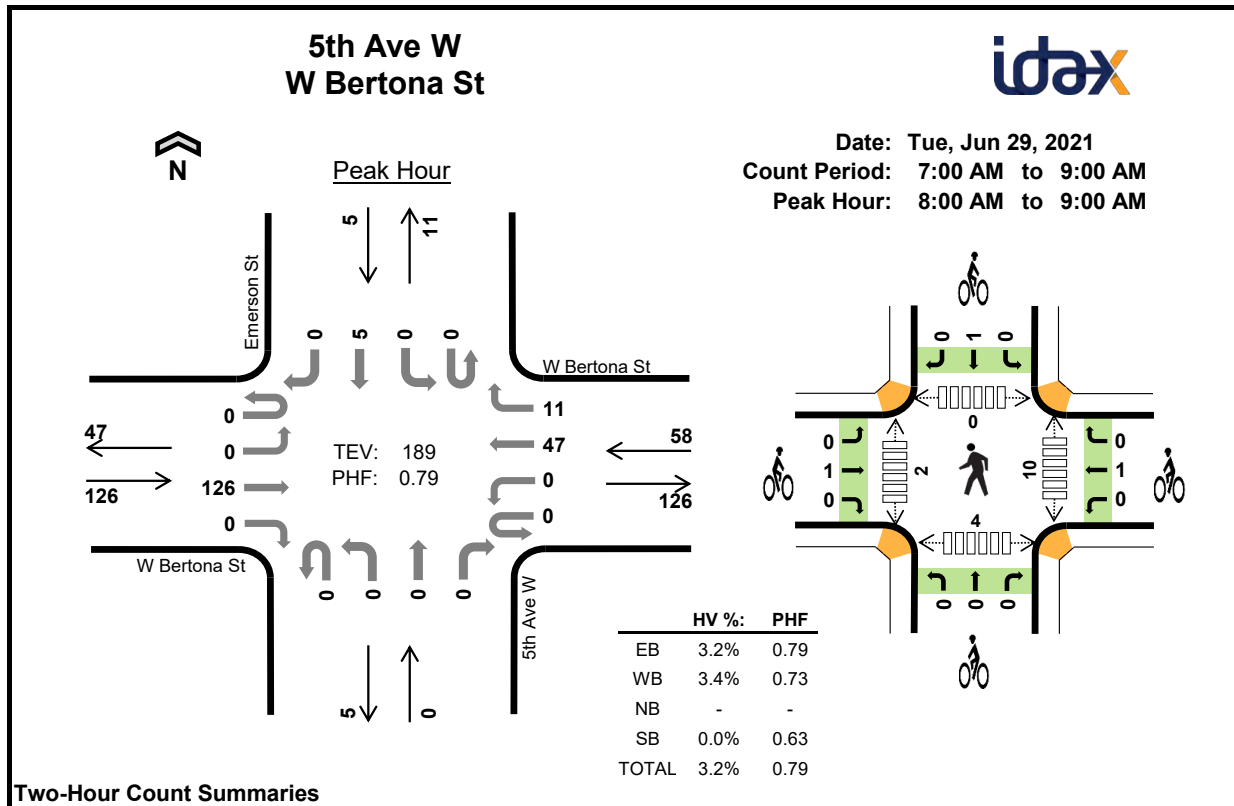
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1
4:30 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
4:45 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	2	0	1	4
5:15 PM	0	0	0	0	0	1	1	0	0	2	0	2	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
5:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
Count Total	0	0	0	0	0	3	2	1	0	6	2	4	1	2	9
Peak Hour	0	0	0	0	0	1	2	0	0	3	2	4	0	2	8

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	W Dravus St				W Dravus St				5th Ave W				6th Ave W				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Two-Hour Count Summaries - Bikes																	
Interval Start	W Dravus St			W Dravus St			5th Ave W			6th Ave W			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	1	0			
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0			
4:45 PM	1	0	0	0	0	0	0	0	0	0	0	0	1	3			
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3			
5:15 PM	1	0	0	0	1	0	0	0	0	0	0	0	2	4			
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3			
5:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	1	3			
Count Total	2	1	0	1	1	0	0	0	1	0	0	0	6	0			
Peak Hour	1	0	0	1	1	0	0	0	0	0	0	0	3	0			

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

**Two-Hour Count Summaries**

Interval Start		W Bertona St				W Bertona St				5th Ave W				Emerson St				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	9	0	0	0	8	1	0	0	0	0	0	0	0	0	18	0
7:15 AM		0	0	16	0	1	1	6	0	0	0	0	0	0	0	3	0	27	0
7:30 AM		0	0	19	0	0	0	4	0	0	0	0	0	0	0	3	0	26	0
7:45 AM		0	1	17	0	0	0	15	3	0	0	0	0	0	0	1	0	37	108
8:00 AM		0	0	24	0	0	0	10	1	0	0	0	0	0	0	2	0	37	127
8:15 AM		0	0	33	0	0	0	8	0	0	0	0	0	0	0	2	0	43	143
8:30 AM		0	0	29	0	0	0	13	6	0	0	0	0	0	0	1	0	49	166
8:45 AM		0	0	40	0	0	0	16	4	0	0	0	0	0	0	0	0	60	189
Count Total		0	1	187	0	1	1	80	15	0	0	0	0	0	0	12	0	297	0
Peak Hour	All	0	0	126	0	0	0	47	11	0	0	0	0	0	0	5	0	189	0
	HV	0	0	4	0	0	0	1	1	0	0	0	0	0	0	0	0	6	0
	HV%	-	-	3%	-	-	-	2%	9%	-	-	-	-	-	-	0%	-	3%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

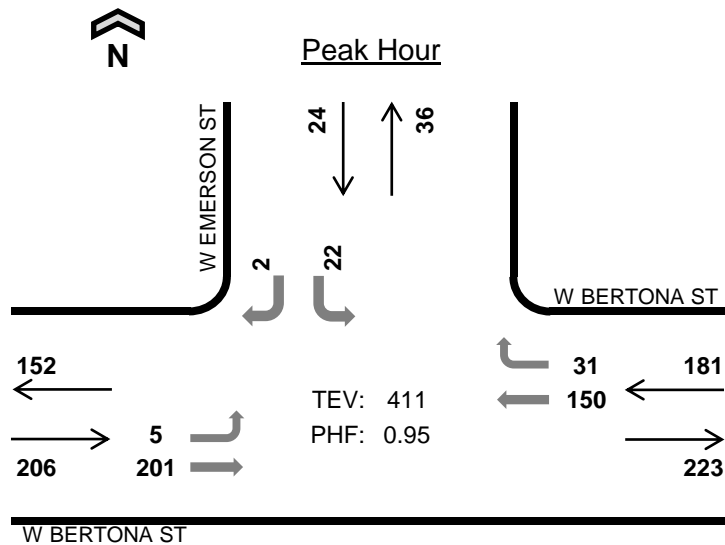
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	1	1	4
7:15 AM	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1
7:30 AM	0	0	0	0	0	2	0	0	0	2	2	0	0	1	3
7:45 AM	1	1	0	0	2	0	0	0	1	1	3	2	0	2	7
8:00 AM	1	0	0	0	1	0	0	0	0	0	4	0	0	2	6
8:15 AM	0	0	0	0	0	0	0	0	0	0	3	1	0	2	6
8:30 AM	1	0	0	0	1	1	1	0	0	2	3	1	0	0	4
8:45 AM	2	2	0	0	4	0	0	0	1	1	0	0	0	0	0
Count Total	5	4	0	0	9	3	1	0	2	6	18	4	1	8	31
Peak Hour	4	2	0	0	6	1	1	0	1	3	10	2	0	4	16

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	W Bertona St				W Bertona St				5th Ave W				Emerson St				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	
8:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
8:45 AM	0	0	2	0	0	0	1	1	0	0	0	0	0	0	0	0	4	
Count Total	0	0	5	0	0	0	3	1	0	0	0	0	0	0	0	0	9	
Peak Hour	0	0	4	0	0	0	1	1	0	0	0	0	0	0	0	0	6	

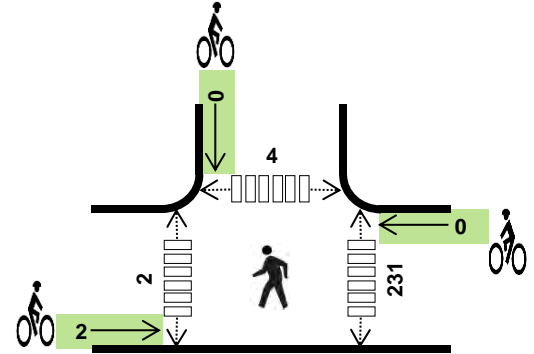
Two-Hour Count Summaries - Bikes																	
Interval Start	W Bertona St			W Bertona St			5th Ave W			Emerson St			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:30 AM	0	2	0	0	0	0	0	0	0	0	0	0	2	0			
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	3			
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3			
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3			
8:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	2	3			
8:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	3			
Count Total	0	3	0	0	1	0	0	0	0	0	2	0	6	0			
Peak Hour	0	1	0	0	1	0	0	0	0	0	1	0	3	0			

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

W EMERSON ST W BERTONA ST



Date: Wed, Apr 22, 2015
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM



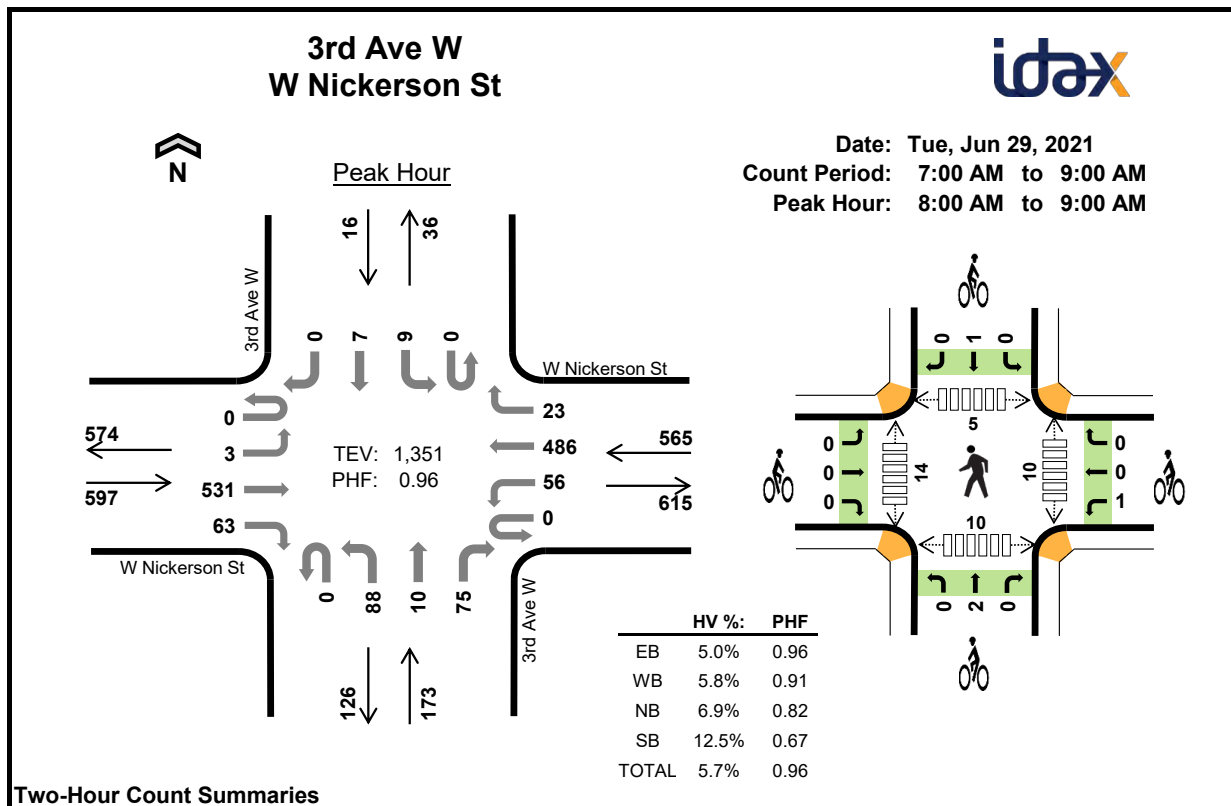
	HV %:	PHF
EB	0.5%	0.87
WB	0.0%	0.82
SB	0.0%	0.75
TOTAL	0.2%	0.95

Two-Hour Count Summaries

Interval Start	W BERTONA ST			W BERTONA ST			5TH AVE W			W EMERSON ST			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	1	31	0	0	26	9	0	0	0	6	0	1	74	
4:15 PM	1	36	0	0	25	5	0	0	0	4	0	0	71	
4:30 PM	0	31	0	0	35	5	0	0	0	1	0	0	72	
4:45 PM	2	51	0	0	37	12	0	0	0	6	0	0	108	325
5:00 PM	2	42	0	0	47	8	0	0	0	5	0	1	105	356
5:15 PM	0	59	0	0	32	6	0	0	0	4	0	0	101	386
5:30 PM	1	49	0	0	34	5	0	0	0	7	0	1	97	411
5:45 PM	2	35	0	0	32	6	0	0	0	2	0	0	77	380
Count Total	9	334	0	0	268	56	0	0	0	35	0	3	705	
Peak Hr	5	201	0	0	150	31	0	0	0	22	0	2	411	

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	3	0	0	3	1	1	0	0	2	33	1	2	7	43
4:15 PM	0	1	0	0	1	1	0	0	0	1	59	1	5	22	87
4:30 PM	0	0	0	0	0	0	0	0	0	0	47	1	1	19	68
4:45 PM	1	0	0	0	1	0	0	0	0	0	81	0	1	17	99
5:00 PM	0	0	0	0	0	1	0	0	0	1	65	0	2	28	95
5:15 PM	0	0	0	0	0	1	0	0	0	1	49	2	0	24	75
5:30 PM	0	0	0	0	0	0	0	0	0	0	36	0	1	20	57
5:45 PM	0	0	0	0	0	0	1	0	0	1	60	0	0	21	81
Count Total	1	4	0	0	5	4	2	0	0	6	430	5	12	158	605
Peak Hr	1	0	0	0	1	2	0	0	0	2	231	2	4	89	326

**Two-Hour Count Summaries**

Interval Start		W Nickerson St				W Nickerson St				3rd Ave W				3rd Ave W				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
	7:00 AM	0	0	79	8	0	6	91	1	0	7	1	3	0	2	1	0	199	0
	7:15 AM	0	0	110	9	0	7	97	1	0	16	0	12	0	1	1	0	254	0
	7:30 AM	0	0	121	8	0	6	97	2	0	18	1	14	0	1	1	0	269	0
	7:45 AM	0	1	123	16	0	18	105	3	0	22	0	15	0	1	1	0	305	1,027
	8:00 AM	0	0	136	12	0	13	137	5	0	15	5	15	0	1	1	0	340	1,168
	8:15 AM	0	1	133	18	0	9	98	7	0	19	1	21	0	2	1	0	310	1,224
	8:30 AM	0	1	139	16	0	21	116	6	0	28	1	15	0	2	3	0	348	1,303
	8:45 AM	0	1	123	17	0	13	135	5	0	26	3	24	0	4	2	0	353	1,351
Count Total		0	4	964	104	0	93	876	30	0	151	12	119	0	14	11	0	2,378	0
Peak Hour	All	0	3	531	63	0	56	486	23	0	88	10	75	0	9	7	0	1,351	0
	HV	0	0	28	2	0	0	32	1	0	2	0	10	0	2	0	0	77	0
	HV%	-	0%	5%	3%	-	0%	7%	4%	-	2%	0%	13%	-	22%	0%	-	6%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	3	7	1	0	11	0	0	1	0	1	1	3	1	0	5
7:15 AM	5	6	2	0	13	0	1	0	1	2	5	2	1	1	9
7:30 AM	5	6	6	0	17	0	2	1	0	3	2	6	2	1	11
7:45 AM	5	5	3	0	13	0	0	1	0	1	2	1	0	0	3
8:00 AM	11	8	5	0	24	0	0	2	0	2	2	5	2	4	13
8:15 AM	8	8	2	2	20	0	0	0	0	0	4	1	2	4	11
8:30 AM	6	11	2	0	19	0	1	0	1	2	4	2	0	2	8
8:45 AM	5	6	3	0	14	0	0	0	0	0	0	6	1	0	7
Count Total	48	57	24	2	131	0	4	5	2	11	20	26	9	12	67
Peak Hour	30	33	12	2	77	0	1	2	1	4	10	14	5	10	39

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	W Nickerson St				W Nickerson St				3rd Ave W				3rd Ave W				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	3	0	0	0	7	0	0	0	0	1	0	0	0	0	11	0
7:15 AM	0	0	4	1	0	0	6	0	0	1	0	1	0	0	0	0	13	0
7:30 AM	0	0	5	0	0	1	5	0	0	2	0	4	0	0	0	0	17	0
7:45 AM	0	0	5	0	0	0	5	0	0	0	0	3	0	0	0	0	13	54
8:00 AM	0	0	10	1	0	0	7	1	0	1	0	4	0	0	0	0	24	67
8:15 AM	0	0	7	1	0	0	8	0	0	0	0	2	0	2	0	0	20	74
8:30 AM	0	0	6	0	0	0	11	0	0	0	0	2	0	0	0	0	19	76
8:45 AM	0	0	5	0	0	0	6	0	0	1	0	2	0	0	0	0	14	77
Count Total	0	0	45	3	0	1	55	1	0	5	0	19	0	2	0	0	131	0
Peak Hour	0	0	28	2	0	0	32	1	0	2	0	10	0	2	0	0	77	0

Two-Hour Count Summaries - Bikes																	
Interval Start	W Nickerson St			W Nickerson St			3rd Ave W			3rd Ave W			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
7:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	0			
7:15 AM	0	0	0	0	1	0	0	0	0	0	1	0	2	0			
7:30 AM	0	0	0	0	1	1	0	1	0	0	0	0	3	0			
7:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	7			
8:00 AM	0	0	0	0	0	0	0	2	0	0	0	0	2	8			
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	6			
8:30 AM	0	0	0	1	0	0	0	0	0	0	1	0	2	5			
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	4			
Count Total	0	0	0	1	2	1	0	5	0	0	2	0	11	0			
Peak Hour	0	0	0	1	0	0	0	2	0	0	1	0	4	0			

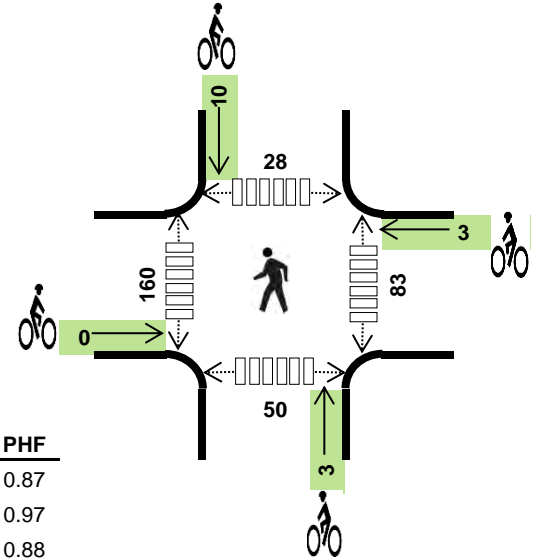
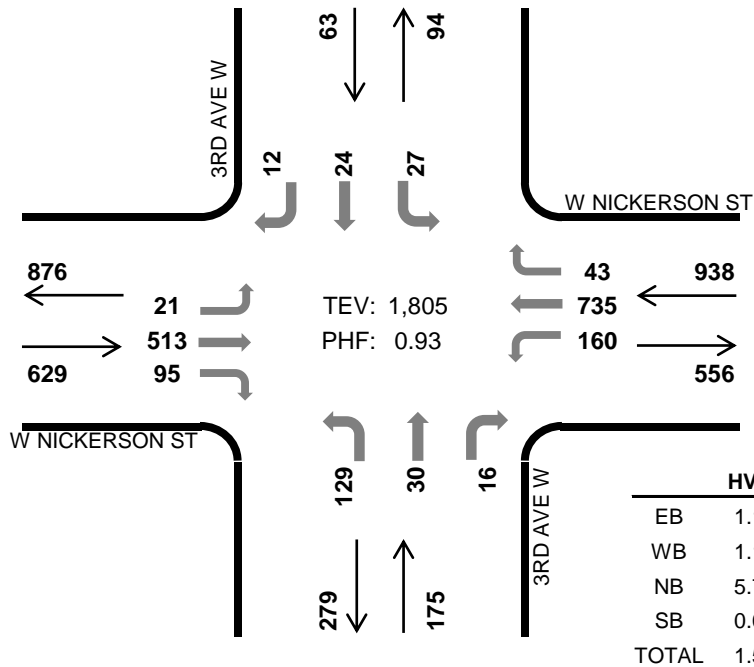
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

3RD AVE W W NICKERSON ST



Peak Hour

Date: Wed, Apr 22, 2015
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM



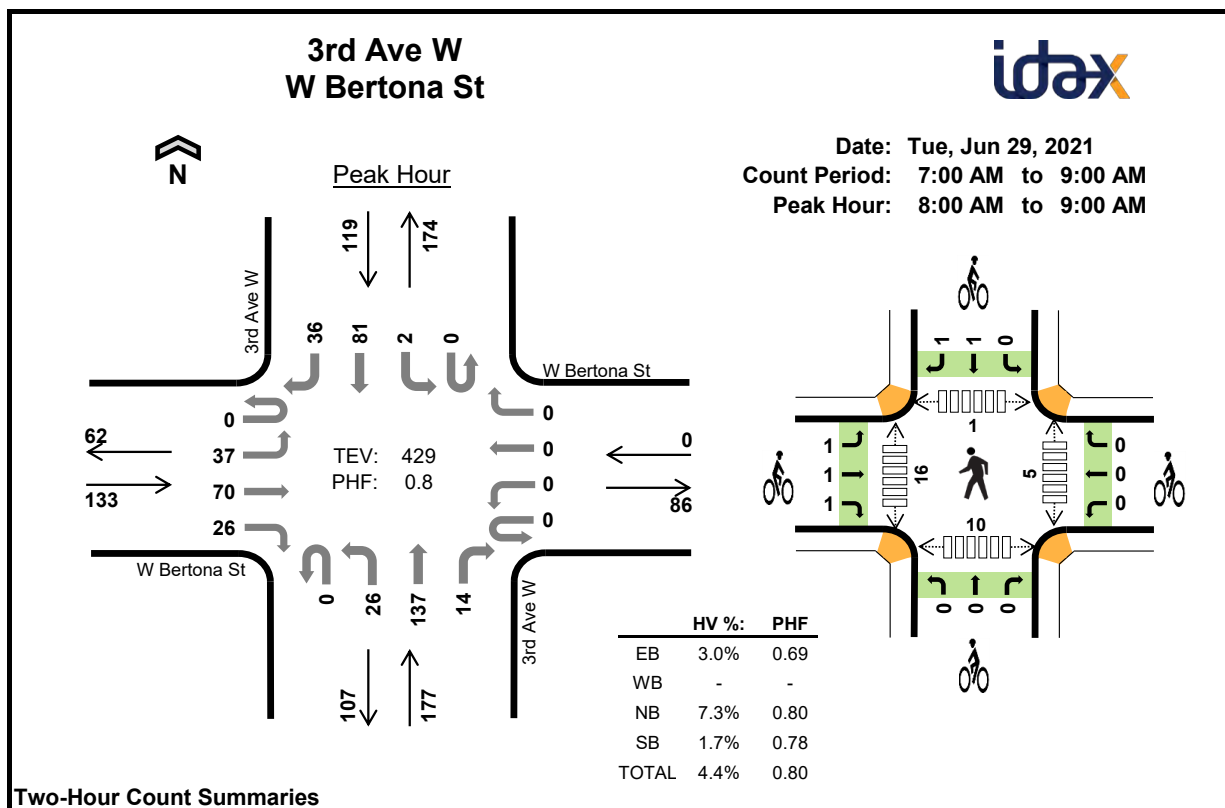
	HV %:	PHF
EB	1.1%	0.87
WB	1.1%	0.97
NB	5.7%	0.88
SB	0.0%	0.79
TOTAL	1.5%	0.93

Two-Hour Count Summaries

Interval Start	W NICKERSON ST			W NICKERSON ST			3RD AVE W			3RD AVE W			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	1	150	21	42	169	6	24	3	4	7	5	3	435	1,707
4:15 PM	0	127	26	37	174	0	24	0	6	10	3	1	408	
4:30 PM	0	131	24	42	167	6	29	1	8	8	8	2	426	
4:45 PM	4	149	25	45	152	3	41	2	2	5	9	1	438	
5:00 PM	3	155	23	47	187	9	34	4	3	10	7	3	485	1,757
5:15 PM	7	114	18	36	194	10	28	11	6	6	6	1	437	1,786
5:30 PM	6	123	26	34	168	12	36	10	4	8	6	6	439	1,799
5:45 PM	5	121	28	43	186	12	31	5	3	3	5	2	444	1,805
Count Total	26	1,070	191	326	1,397	58	247	36	36	57	49	19	3,512	
Peak Hr	21	513	95	160	735	43	129	30	16	27	24	12	1,805	

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	3	6	2	0	11	0	0	0	1	1	8	48	7	0	63
4:15 PM	5	6	4	0	15	0	0	1	2	3	27	69	16	3	115
4:30 PM	4	3	2	0	9	0	0	0	0	0	13	40	13	1	67
4:45 PM	2	5	1	0	8	0	3	0	1	4	22	35	17	7	81
5:00 PM	1	2	2	0	5	0	0	0	3	3	16	40	5	11	72
5:15 PM	1	2	4	0	7	0	1	0	3	4	15	40	10	4	69
5:30 PM	3	4	2	0	9	0	1	0	2	3	17	22	4	9	52
5:45 PM	2	2	2	0	6	0	1	3	2	6	35	58	9	26	128
Count Total	21	30	19	0	70	0	6	4	14	24	153	352	81	61	647
Peak Hr	7	10	10	0	27	0	3	3	10	16	83	160	28	50	321



Interval Start		W Bertona St				W Bertona St				3rd Ave W				3rd Ave W				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	2	5	0	0	0	0	0	0	4	10	0	0	2	8	6	37	0
7:15 AM		0	7	10	2	0	0	0	0	0	3	17	1	0	1	10	4	55	0
7:30 AM		0	7	11	4	0	0	0	0	0	2	27	1	0	0	11	3	66	0
7:45 AM		0	6	9	5	0	0	0	0	0	9	29	0	0	0	24	11	93	251
8:00 AM		0	6	12	6	0	0	0	0	0	5	32	1	0	0	17	6	85	299
8:15 AM		0	11	19	4	0	0	0	0	0	4	29	1	0	0	22	5	95	339
8:30 AM		0	4	17	6	0	0	0	0	0	5	39	6	0	0	22	16	115	388
8:45 AM		0	16	22	10	0	0	0	0	0	12	37	6	0	2	20	9	134	429
Count Total		0	59	105	37	0	0	0	0	0	44	220	16	0	5	134	60	680	0
Peak Hour	All	0	37	70	26	0	0	0	0	0	26	137	14	0	2	81	36	429	0
	HV	0	1	0	3	0	0	0	0	0	2	11	0	0	0	2	0	19	0
	HV%	-	3%	0%	12%	-	-	-	-	-	8%	8%	0%	-	0%	2%	0%	4%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	2	0	2	0	0	1	1	2	0	3	0	3	6
7:15 AM	0	0	2	1	3	0	0	0	2	2	1	2	1	0	4
7:30 AM	0	0	6	1	7	2	0	1	0	3	3	4	0	2	9
7:45 AM	1	0	3	0	4	0	0	1	0	1	1	4	0	3	8
8:00 AM	0	0	5	0	5	1	0	0	0	1	0	6	0	4	10
8:15 AM	0	0	2	1	3	0	0	0	0	0	1	2	0	1	4
8:30 AM	0	0	2	1	3	1	0	0	2	3	4	3	1	4	12
8:45 AM	4	0	4	0	8	1	0	0	0	1	0	5	0	1	6
Count Total	5	0	26	4	35	5	0	3	5	13	10	29	2	18	59
Peak Hour	4	0	13	2	19	3	0	0	2	5	5	16	1	10	32

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	W Bertona St				W Bertona St				3rd Ave W				3rd Ave W				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0
7:15 AM	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	3	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	1	7	0
7:45 AM	0	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	4	16
8:00 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	5	19
8:15 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3	19
8:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3	15
8:45 AM	0	1	0	3	0	0	0	0	0	2	2	0	0	0	0	0	8	19
Count Total	0	1	1	3	0	0	0	0	0	3	23	0	0	0	3	1	35	0
Peak Hour	0	1	0	3	0	0	0	0	0	2	11	0	0	0	2	0	19	0

Two-Hour Count Summaries - Bikes																	
Interval Start	W Bertona St			W Bertona St			3rd Ave W			3rd Ave W			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
7:00 AM	0	0	0	0	0	0	1	0	0	0	1	0	2	0			
7:15 AM	0	0	0	0	0	0	0	0	0	0	2	0	2	0			
7:30 AM	0	0	2	0	0	0	0	1	0	0	0	0	3	0			
7:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	8			
8:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	1	7			
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	5			
8:30 AM	0	1	0	0	0	0	0	0	0	0	1	1	3	5			
8:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	5			
Count Total	1	1	3	0	0	0	1	2	0	0	4	1	13	0			
Peak Hour	1	1	1	0	0	0	0	0	0	0	1	1	5	0			

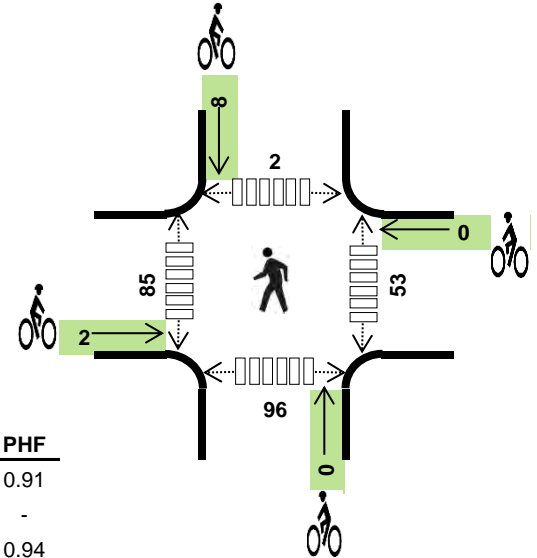
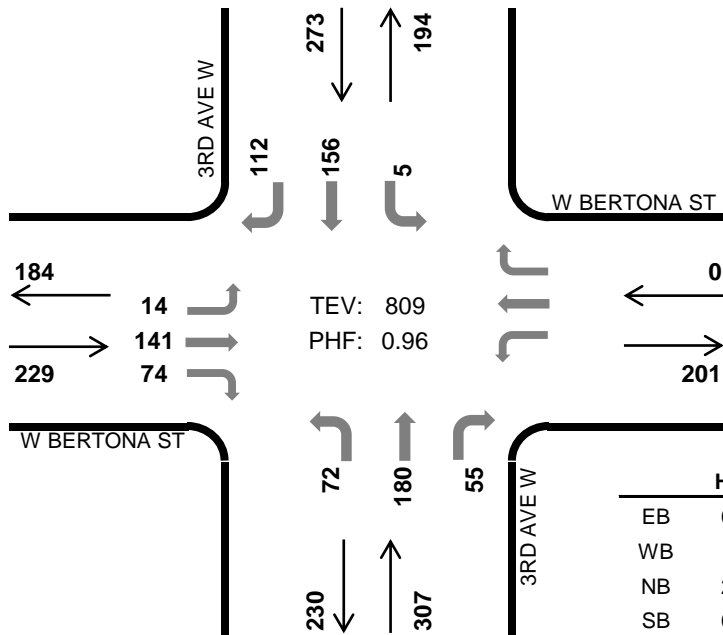
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

3RD AVE W W BERTONA ST



Peak Hour

Date: Wed, Apr 22, 2015
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM



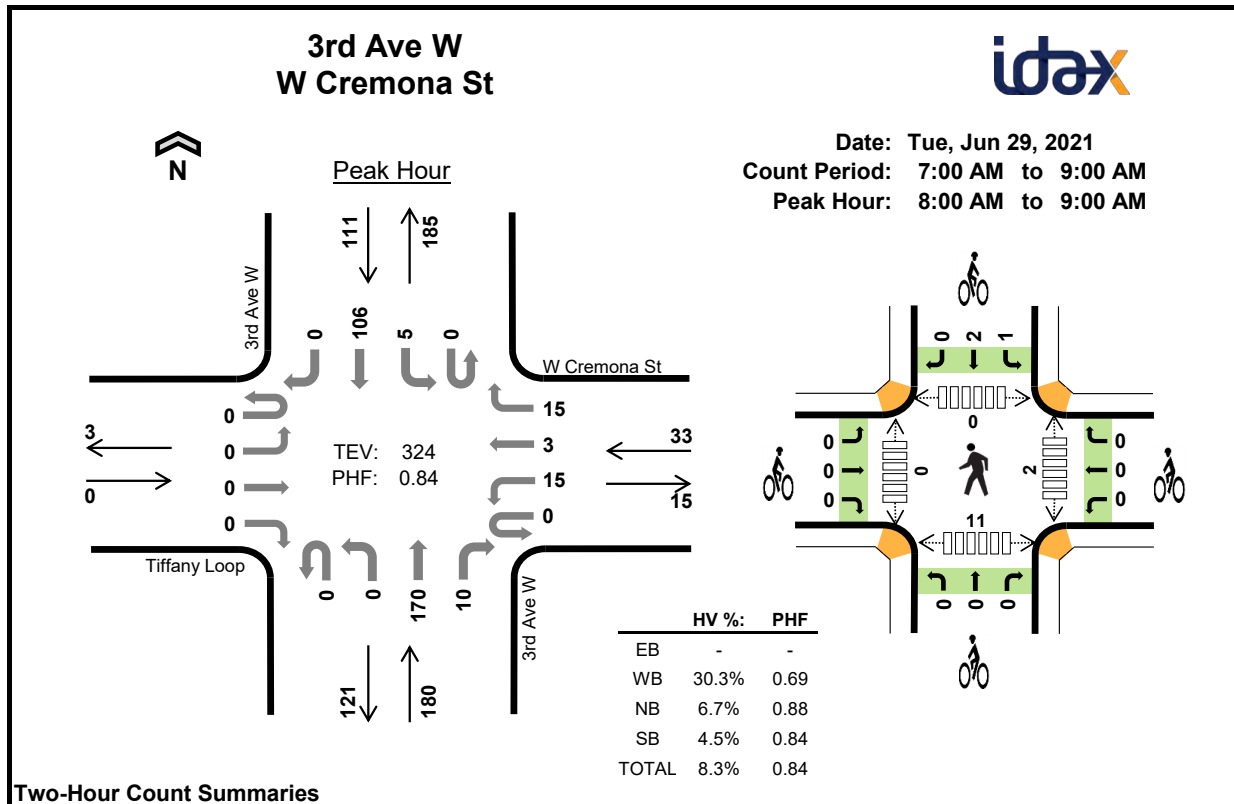
	HV %:	PHF
EB	0.4%	0.91
WB	-	-
NB	2.6%	0.94
SB	0.0%	0.90
TOTAL	1.1%	0.96

Two-Hour Count Summaries

Interval Start	W BERTONA ST			W BERTONA ST			3RD AVE W			3RD AVE W			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	2	21	20	0	0	0	17	32	9	0	45	23	169	697 739 786 809 784
4:15 PM	4	16	14	0	0	0	14	34	7	1	42	19	151	
4:30 PM	6	23	11	0	0	0	21	33	12	1	38	30	175	
4:45 PM	3	30	24	0	0	0	11	49	13	2	36	34	202	
5:00 PM	2	37	14	0	0	0	27	44	11	2	42	32	211	
5:15 PM	2	46	15	0	0	0	15	44	13	0	40	23	198	
5:30 PM	7	28	21	0	0	0	19	43	18	1	38	23	198	
5:45 PM	4	21	11	0	0	0	14	41	17	1	41	27	177	
Count Total	30	222	130	0	0	0	138	320	100	8	322	211	1,481	
Peak Hr	14	141	74	0	0	0	72	180	55	5	156	112	809	

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	3	3	6	1	0	1	3	5	7	15	1	6	29
4:15 PM	0	0	4	0	4	1	0	3	0	4	23	36	3	33	95
4:30 PM	0	0	3	0	3	0	0	2	0	2	12	20	2	31	65
4:45 PM	1	0	1	0	2	0	0	0	1	1	8	32	1	30	71
5:00 PM	0	0	1	0	1	0	0	0	3	3	14	27	0	26	67
5:15 PM	0	0	4	0	4	0	0	0	2	2	15	19	1	20	55
5:30 PM	0	0	2	0	2	2	0	0	2	4	16	7	0	20	43
5:45 PM	0	0	2	0	2	0	0	1	2	3	19	26	0	24	69
Count Total	1	0	20	3	24	4	0	7	13	24	114	182	8	190	494
Peak Hr	1	0	8	0	9	2	0	0	8	10	53	85	2	96	236

**Two-Hour Count Summaries**

Interval Start		Tiffany Loop				W Cremona St				3rd Ave W				3rd Ave W				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	0	0	0	3	0	0	0	0	15	0	0	0	8	0	26	0
7:15 AM		0	0	0	0	0	3	0	2	0	0	20	1	0	1	11	0	38	0
7:30 AM		0	0	0	0	0	5	0	2	0	0	27	0	0	2	11	0	47	0
7:45 AM		0	0	0	0	0	3	0	4	0	0	35	0	0	8	21	0	71	182
8:00 AM		0	0	0	0	0	3	0	3	0	0	37	5	0	2	24	0	74	230
8:15 AM		0	0	0	0	0	2	2	3	0	0	33	4	0	0	26	0	70	262
8:30 AM		0	0	0	0	0	5	0	3	0	0	49	1	0	0	26	0	84	299
8:45 AM		0	0	0	0	0	5	1	6	0	0	51	0	0	3	30	0	96	324
Count Total		0	0	0	0	0	29	3	23	0	0	267	11	0	16	157	0	506	0
Peak Hour	All	0	0	0	0	0	15	3	15	0	0	170	10	0	5	106	0	324	0
	HV	0	0	0	0	0	9	0	1	0	0	12	0	0	0	5	0	27	0
	HV%	-	-	-	-	-	60%	0%	7%	-	-	7%	0%	-	0%	5%	-	8%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	3	2	0	5	0	0	1	1	2	1	0	0	1	2
7:15 AM	0	3	1	1	5	0	0	0	1	1	1	0	0	1	2
7:30 AM	0	4	5	0	9	0	0	1	0	1	3	0	1	4	8
7:45 AM	0	2	4	0	6	0	0	0	0	0	2	0	0	1	3
8:00 AM	0	3	5	2	10	0	0	0	0	0	1	0	0	5	6
8:15 AM	0	2	2	1	5	0	0	0	0	0	0	0	0	3	3
8:30 AM	0	2	2	1	5	0	0	0	1	1	1	0	0	2	3
8:45 AM	0	3	3	1	7	0	0	0	2	2	0	0	0	1	1
Count Total	0	22	24	6	52	0	0	2	5	7	9	0	1	18	28
Peak Hour	0	10	12	5	27	0	0	0	3	3	2	0	0	11	13

Two-Hour Count Summaries - Heavy Vehicles																			
Interval Start	Tiffany Loop				W Cremona St				3rd Ave W				3rd Ave W				15-min Total	Rolling One Hour	
	Eastbound				Westbound				Northbound				Southbound						
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
7:00 AM	0	0	0	0	0	3	0	0	0	0	0	2	0	0	0	0	0	5	0
7:15 AM	0	0	0	0	0	2	0	1	0	0	0	1	0	0	0	1	0	5	0
7:30 AM	0	0	0	0	0	4	0	0	0	0	0	5	0	0	0	0	0	9	0
7:45 AM	0	0	0	0	0	2	0	0	0	0	0	4	0	0	0	0	0	6	25
8:00 AM	0	0	0	0	0	3	0	0	0	0	0	5	0	0	0	2	0	10	30
8:15 AM	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	1	0	5	30
8:30 AM	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	1	0	5	26
8:45 AM	0	0	0	0	0	2	0	1	0	0	0	3	0	0	0	1	0	7	27
Count Total	0	0	0	0	0	20	0	2	0	0	0	24	0	0	0	6	0	52	0
Peak Hour	0	0	0	0	0	9	0	1	0	0	0	12	0	0	0	5	0	27	0

Two-Hour Count Summaries - Bikes																	
Interval Start	Tiffany Loop			W Cremona St			3rd Ave W			3rd Ave W			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
7:00 AM	0	0	0	0	0	0	0	1	0	0	1	0	2	0			
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0			
7:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	0			
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	4			
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2			
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1			
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	1			
8:45 AM	0	0	0	0	0	0	0	0	0	1	1	0	2	3			
Count Total	0	0	0	0	0	0	0	2	0	1	4	0	7	0			
Peak Hour	0	0	0	0	0	0	0	0	0	1	2	0	3	0			

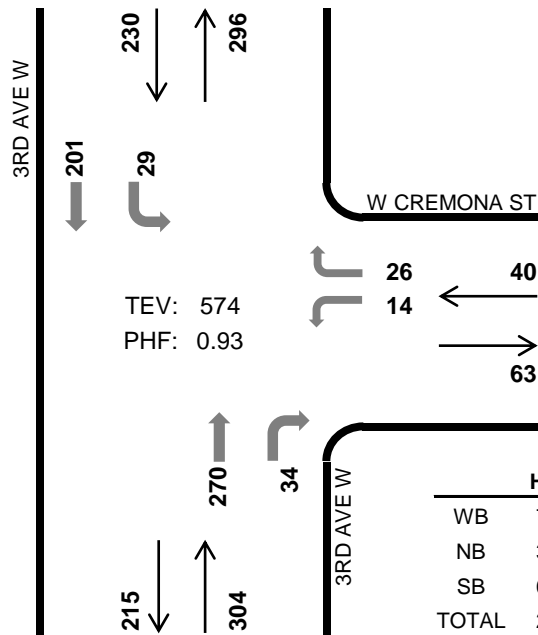
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

3RD AVE W W CREMONA ST

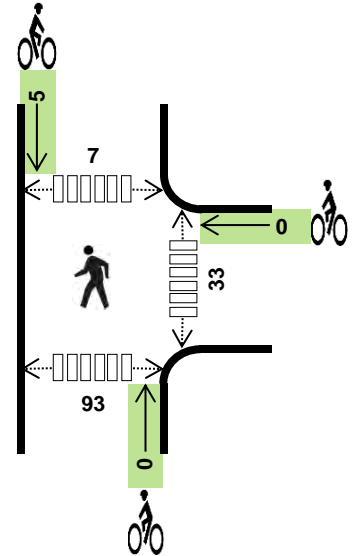


Peak Hour

Date: Wed, Apr 22, 2015
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM



	HV %:	PHF
WB	7.5%	0.83
NB	3.9%	0.87
SB	0.0%	0.94
TOTAL	2.6%	0.93



Two-Hour Count Summaries

Interval Start	W CREMONA ST			W CREMONA ST			3RD AVE W			3RD AVE W			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	2	0	8	0	51	4	11	51	0	127	
4:15 PM	0	0	0	4	0	6	0	49	5	6	49	0	119	
4:30 PM	0	0	0	7	0	7	0	52	4	3	50	0	123	
4:45 PM	0	0	0	1	0	5	0	82	5	5	56	0	154	
5:00 PM	0	0	0	5	0	5	0	56	6	9	48	0	129	523
5:15 PM	0	0	0	5	0	7	0	70	12	8	47	0	149	525
5:30 PM	0	0	0	3	0	9	0	62	11	7	50	0	142	555
5:45 PM	0	0	0	5	0	11	0	66	7	7	48	0	144	574
Count Total	0	0	0	32	0	58	0	488	54	56	399	0	1,087	564
Peak Hr	0	0	0	14	0	26	0	270	34	29	201	0	574	

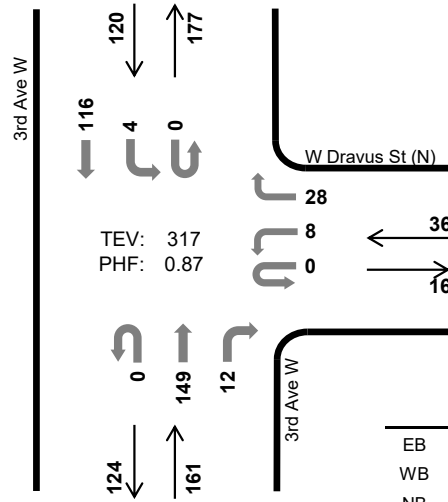
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	1	3	1	5	1	0	1	1	3	9	21	1	20	51
4:15 PM	0	2	4	0	6	0	0	1	2	3	23	25	5	47	100
4:30 PM	0	2	2	0	4	0	1	2	0	3	8	22	6	26	62
4:45 PM	0	0	2	0	2	0	0	0	0	0	8	25	2	26	61
5:00 PM	0	1	3	0	4	0	0	0	3	3	7	20	3	17	47
5:15 PM	0	2	4	0	6	0	0	0	2	2	6	23	2	19	50
5:30 PM	0	0	3	0	3	0	0	0	0	0	12	15	0	31	58
5:45 PM	0	1	3	0	4	0	0	0	2	2	16	20	5	19	60
Count Total	0	9	24	1	34	1	1	4	10	16	89	171	24	205	489
Peak Hr	0	3	12	0	15	0	0	0	5	5	33	83	7	93	216

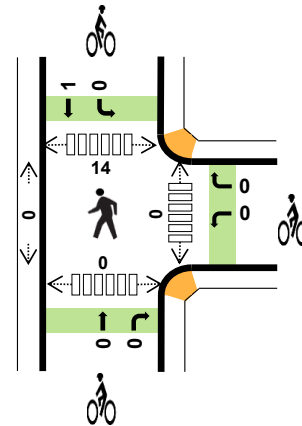
3rd Ave W W Dravus St (N)



Peak Hour



Date: Tue, Jun 29, 2021
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM



	HV %:	PHF
EB	-	-
WB	2.8%	0.75
NB	6.8%	0.91
SB	11.7%	0.86
TOTAL	8.2%	0.87

Two-Hour Count Summaries

Interval Start		0				W Dravus St (N)				3rd Ave W				3rd Ave W				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	0	0	0	0	0	1	0	0	12	1	0	0	11	0	25	0
7:15 AM		0	0	0	0	0	2	0	5	0	0	17	2	0	1	12	0	39	0
7:30 AM		0	0	0	0	0	1	0	6	0	0	19	7	0	0	16	0	49	0
7:45 AM		0	0	0	0	0	1	0	3	0	0	33	4	0	2	24	0	67	180
8:00 AM		0	0	0	0	0	3	0	6	0	0	36	4	0	1	25	0	75	230
8:15 AM		0	0	0	0	0	1	0	3	0	0	32	3	0	1	26	0	66	257
8:30 AM		0	0	0	0	0	3	0	9	0	0	41	3	0	2	33	0	91	299
8:45 AM		0	0	0	0	0	1	0	10	0	0	40	2	0	0	32	0	85	317
Count Total		0	0	0	0	0	12	0	43	0	0	230	26	0	7	179	0	497	0
Peak Hour	All	0	0	0	0	0	8	0	28	0	0	149	12	0	4	116	0	317	0
	HV	0	0	0	0	0	0	0	1	0	0	11	0	0	0	14	0	26	0
	HV%	-	-	-	-	-	0%	-	4%	-	-	7%	0%	-	0%	12%	-	8%	0

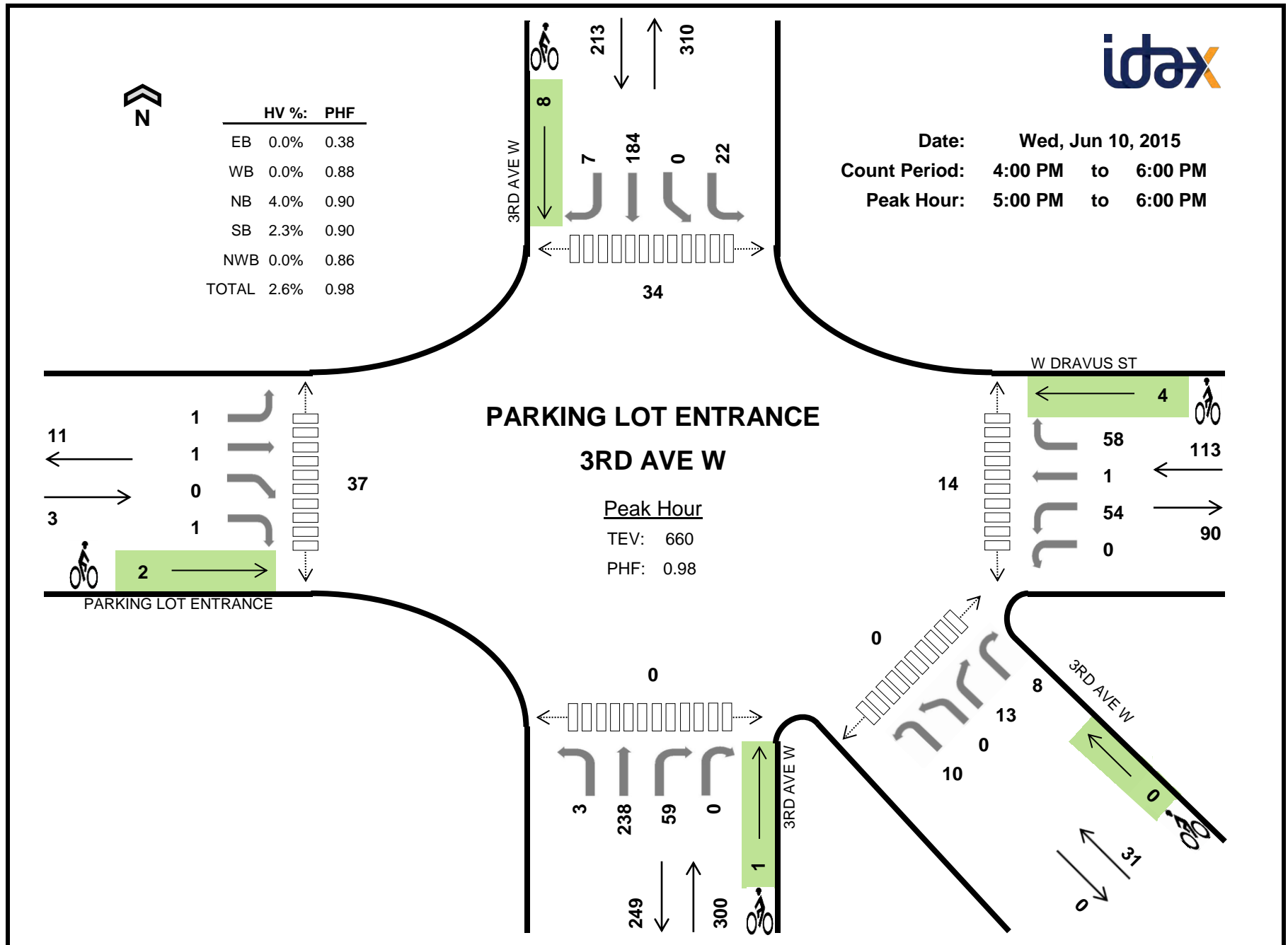
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	1	3	4	0	0	1	1	2	3	0	3	0	6
7:15 AM	0	0	2	3	5	0	0	0	1	1	0	0	0	0	0
7:30 AM	0	0	6	3	9	0	0	1	0	1	0	0	6	0	6
7:45 AM	0	0	3	3	6	0	0	0	0	0	0	0	6	0	6
8:00 AM	0	1	3	4	8	0	0	0	0	0	0	0	4	0	4
8:15 AM	0	0	3	2	5	0	0	0	0	0	0	0	3	0	3
8:30 AM	0	0	2	5	7	0	0	0	1	1	0	0	3	0	3
8:45 AM	0	0	3	3	6	0	0	0	0	0	0	0	4	0	4
Count Total	0	1	23	26	50	0	0	2	3	5	3	0	29	0	32
Peak Hr	0	1	11	14	26	0	0	0	1	1	0	0	14	0	14

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	0				W Dravus St (N)				3rd Ave W				3rd Ave W				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	4	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	5	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	3	0	9	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	6	24
8:00 AM	0	0	0	0	0	0	0	1	0	0	3	0	0	0	4	0	8	28
8:15 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	5	28
8:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	5	0	7	26
8:45 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	6	26
Count Total	0	0	0	0	0	0	0	1	0	0	23	0	0	0	26	0	50	0
Peak Hour	0	0	0	0	0	0	0	1	0	0	11	0	0	0	14	0	26	0

Two-Hour Count Summaries - Bikes																		
Interval Start	0			W Dravus St (N)			3rd Ave W			3rd Ave W			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
7:00 AM	0	0	0	0	0	0	0	1	0	0	1	0	2	0				
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0				
7:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	0				
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	4				
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2				
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1				
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	1				
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1				
Count Total	0	0	0	0	0	0	0	2	0	0	3	0	5	0				
Peak Hour	0	0	0	0	0	0	0	0	0	0	1	0	1	0				

Note: U-Turn volumes for bikes are included in Left-Turn, if any.



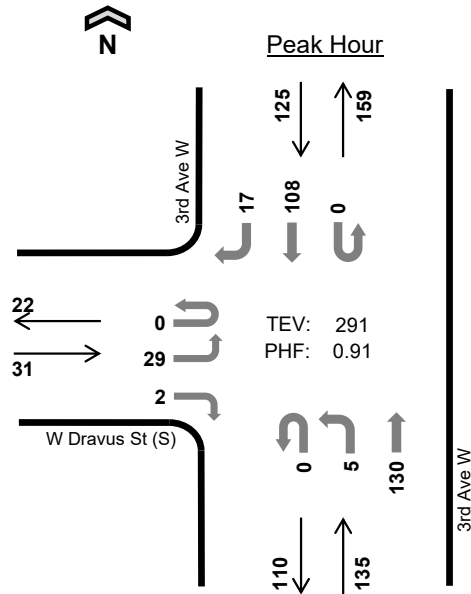
Two-Hour Count Summaries

Interval Start	PARKING LOT ENTRANCE Eastbound				W DRAVUS ST Westbound				3RD AVE W Northbound				3RD AVE W Southbound				3RD AVE W Northwestbound				15-min Total	Rolling One Hour
	LT	TH	BR	RT	HL	LT	TH	RT	LT	TH	RT	HR	LT	BL	TH	RT	HL	BL	BR	HR		
4:00 PM	0	0	0	0	0	10	1	7	0	55	9	0	4	0	51	0	2	0	2	2	143	535
4:15 PM	0	0	0	0	0	4	0	4	1	41	10	0	6	0	55	0	1	0	6	6	134	
4:30 PM	0	0	0	0	0	7	0	2	0	47	10	0	9	0	28	2	2	0	2	3	112	
4:45 PM	0	0	0	0	0	9	1	6	4	59	16	0	6	0	36	1	1	0	4	3	146	
5:00 PM	0	1	0	1	0	14	1	9	0	57	13	0	3	0	51	1	3	0	2	0	156	
5:15 PM	1	0	0	0	0	12	0	17	1	58	11	0	7	0	49	3	2	0	6	1	168	
5:30 PM	0	0	0	0	0	14	0	14	1	69	13	0	4	0	45	1	3	0	2	3	169	639
5:45 PM	0	0	0	0	0	14	0	18	1	54	22	0	8	0	39	2	2	0	3	4	167	660
Count Total	1	1	0	1	0	84	3	77	8	440	104	0	47	0	354	10	16	0	27	22	1,195	
Peak Hr	1	1	0	1	0	54	1	58	3	238	59	0	22	0	184	7	10	0	13	8	660	

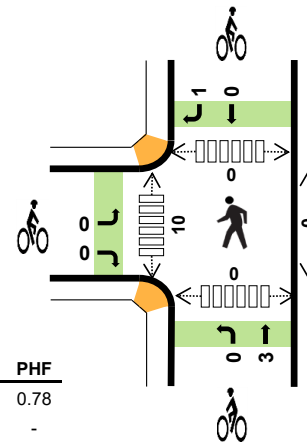
Note: Two-hour count summary volumes include heavy vehicles but excludes bicycles in overall count.

Interval Start	Heavy Vehicle Totals						Bicycles						Pedestrians (Crossing Leg)					
	EB	WB	NB	SB	NWB	Total	EB	WB	NB	SB	NWB	Total	East	West	North	South	SE	Total
4:00 PM	0	0	5	0	0	5	0	0	0	0	0	0	6	8	6	2	1	23
4:15 PM	0	0	1	4	0	5	0	0	1	2	0	3	4	10	9	0	0	23
4:30 PM	0	0	2	0	0	2	1	0	0	1	0	2	5	2	9	0	0	16
4:45 PM	0	0	3	2	1	6	0	0	0	1	0	1	3	6	7	0	0	16
5:00 PM	0	0	3	1	0	4	0	2	0	2	0	4	9	12	16	0	0	37
5:15 PM	0	0	2	1	0	3	2	0	0	3	0	5	1	7	4	0	0	12
5:30 PM	0	0	3	2	0	5	0	0	0	1	0	1	1	7	4	0	0	12
5:45 PM	0	0	4	1	0	5	0	2	1	2	0	5	3	11	10	0	0	24
Count Total	0	0	23	11	1	35	3	4	2	12	0	21	32	63	65	2	1	163
Peak Hr	0	0	12	5	0	17	2	4	1	8	0	15	14	37	34	0	0	85

3rd Ave W W Dravus St (S)



Date: Tue, Jun 29, 2021
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM



	HV %:	PHF
EB	0.0%	0.78
WB	-	-
NB	8.1%	0.89
SB	11.2%	0.89
TOTAL	8.6%	0.91

Two-Hour Count Summaries

Interval Start		W Dravus St (S)				0				3rd Ave W				3rd Ave W				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	2	0	2	0	0	0	0	0	2	13	0	0	0	11	0	30	0
7:15 AM		0	2	0	0	0	0	0	0	0	3	17	0	0	0	12	4	38	0
7:30 AM		0	3	0	0	0	0	0	0	0	0	24	0	0	0	16	2	45	0
7:45 AM		0	8	0	0	0	0	0	0	0	2	28	0	0	0	18	3	59	172
8:00 AM		0	8	0	0	0	0	0	0	0	0	31	0	0	0	21	8	68	210
8:15 AM		0	6	0	0	0	0	0	0	0	1	30	0	0	0	23	3	63	235
8:30 AM		0	9	0	1	0	0	0	0	0	1	34	0	0	0	33	2	80	270
8:45 AM		0	6	0	1	0	0	0	0	0	3	35	0	0	0	31	4	80	291
Count Total		0	44	0	4	0	0	0	0	0	12	212	0	0	0	165	26	463	0
Peak Hour	All	0	29	0	2	0	0	0	0	0	5	130	0	0	0	108	17	291	0
	HV	0	0	0	0	0	0	0	0	0	0	11	0	0	0	14	0	25	0
	HV%	-	0%	-	0%	-	-	-	-	-	0%	8%	-	-	-	13%	0%	9%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

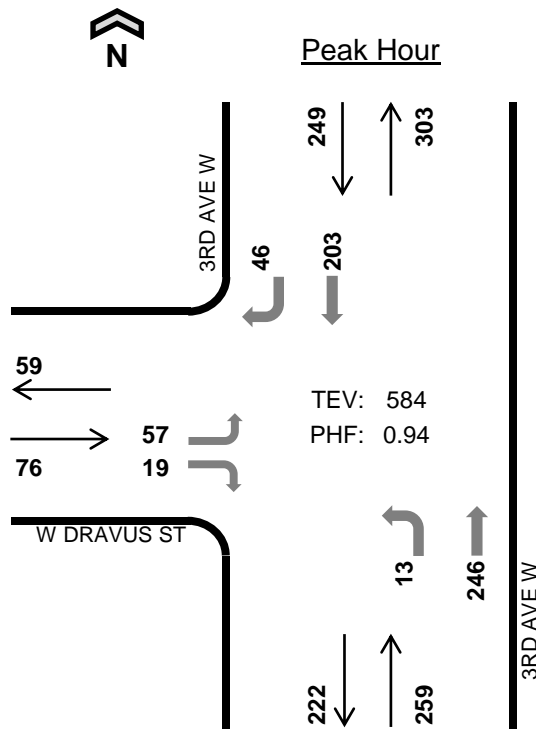
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	1	2	3	0	0	1	1	2	0	1	0	0	1
7:15 AM	0	0	1	3	4	0	0	0	1	1	0	1	0	0	1
7:30 AM	0	0	6	3	9	1	0	1	0	2	0	7	0	0	7
7:45 AM	0	0	4	4	8	0	0	0	0	0	0	2	0	0	2
8:00 AM	0	0	4	3	7	0	0	1	0	1	0	1	0	0	1
8:15 AM	0	0	2	2	4	0	0	2	0	2	0	2	0	0	2
8:30 AM	0	0	2	5	7	0	0	0	1	1	0	3	0	0	3
8:45 AM	0	0	3	4	7	0	0	0	0	0	0	4	0	0	4
Count Total	0	0	23	26	49	1	0	5	3	9	0	21	0	0	21
Peak Hr	0	0	11	14	25	0	0	3	1	4	0	10	0	0	10

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	W Dravus St (S)				0				3rd Ave W				3rd Ave W				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	3	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	4	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	3	0	9	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	8	24
8:00 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	3	0	7	28
8:15 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	4	28
8:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	5	0	7	26
8:45 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	7	25
Count Total	0	0	0	0	0	0	0	0	0	0	23	0	0	0	26	0	49	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	11	0	0	0	14	0	25	0

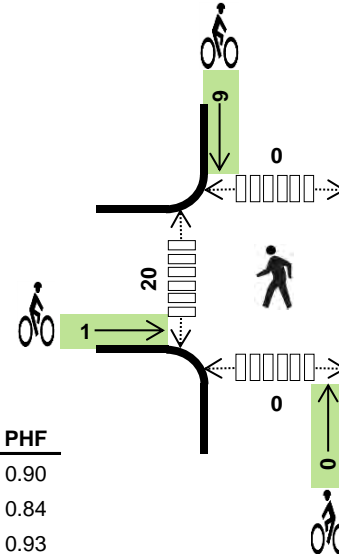
Two-Hour Count Summaries - Bikes																		
Interval Start	W Dravus St (S)			0			3rd Ave W			3rd Ave W			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
7:00 AM	0	0	0	0	0	0	0	1	0	0	1	0	2	0				
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0				
7:30 AM	1	0	0	0	0	0	0	1	0	0	0	0	2	0				
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	5				
8:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	4				
8:15 AM	0	0	0	0	0	0	0	2	0	0	0	0	2	5				
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	1	4				
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	4				
Count Total	1	0	0	0	0	0	0	5	0	0	2	1	9	0				
Peak Hour	0	0	0	0	0	0	0	3	0	0	0	1	4	0				

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

3RD AVE W W DRAVUS ST



Date: Wed, Jun 10, 2015
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM



	HV %:	PHF
EB	0.0%	0.90
NB	5.0%	0.84
SB	2.0%	0.93
TOTAL	3.1%	0.94

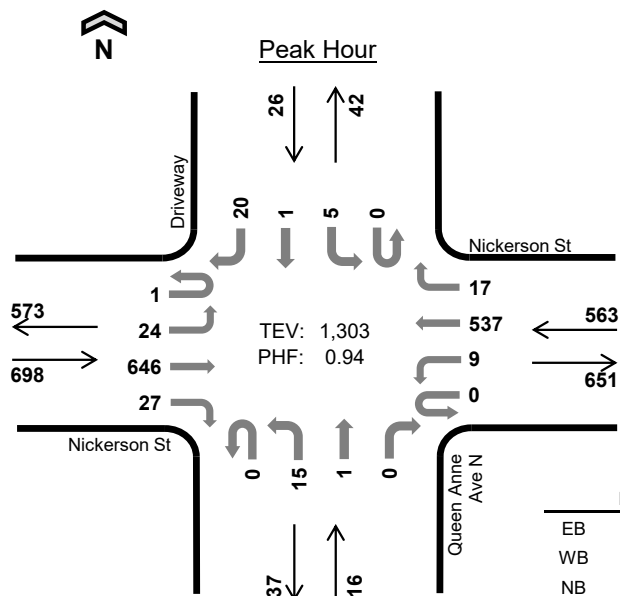
Two-Hour Count Summaries

Interval Start	W DRAVUS ST			W DRAVUS ST			3RD AVE W			3RD AVE W			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	13	0	6	0	0	0	6	51	0	0	45	16	137	485
4:15 PM	10	0	4	0	0	0	3	42	0	0	58	5	122	
4:30 PM	14	0	3	0	0	0	0	42	0	0	28	8	95	
4:45 PM	17	0	2	0	0	0	3	64	0	0	36	9	131	
5:00 PM	17	0	4	0	0	0	3	57	0	0	50	17	148	
5:15 PM	14	0	7	0	0	0	2	56	0	0	50	14	143	
5:30 PM	11	0	5	0	0	0	4	73	0	0	55	8	156	
5:45 PM	15	0	3	0	0	0	4	60	0	0	48	7	137	
Count Total	111	0	34	0	0	0	25	445	0	0	370	84	1,069	
Peak Hr	57	0	19	0	0	0	13	246	0	0	203	46	584	

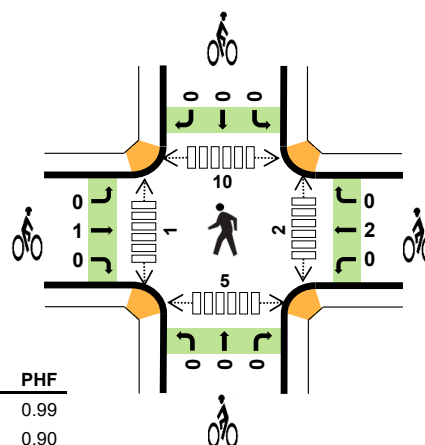
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	1	0	4	0	5	0	0	0	0	0	0	5	0	0	5
4:15 PM	0	0	1	2	3	0	0	0	0	0	0	6	0	0	6
4:30 PM	0	0	3	0	3	0	0	0	1	1	0	5	0	0	5
4:45 PM	0	0	3	2	5	0	0	0	2	2	0	2	0	0	2
5:00 PM	0	0	2	1	3	0	0	0	2	2	0	3	0	0	3
5:15 PM	0	0	3	1	4	0	0	0	3	3	0	5	0	0	5
5:30 PM	0	0	3	2	5	1	0	0	1	2	0	3	0	0	3
5:45 PM	0	0	5	1	6	0	0	0	3	3	0	9	0	0	9
Count Total	1	0	24	9	34	1	0	0	12	13	0	38	0	0	38
Peak Hr	0	0	13	5	18	1	0	0	9	10	0	20	0	0	20

Queen Anne Ave N Nickerson St



Date: Tue, Jun 29, 2021
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM



	HV %:	PHF
EB	6.0%	0.99
WB	5.5%	0.90
NB	18.8%	0.57
SB	0.0%	0.65
TOTAL	5.8%	0.94

Two-Hour Count Summaries

Interval Start		Nickerson St				Nickerson St				Queen Anne Ave N				Driveway				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	86	9	0	1	101	1	0	1	0	0	0	1	0	0	200	0
7:15 AM		0	0	134	4	0	7	101	6	0	2	0	0	0	0	0	0	254	0
7:30 AM		0	1	137	7	0	1	102	2	0	5	0	0	0	1	0	0	256	0
7:45 AM		0	3	134	6	0	4	133	5	0	6	0	0	0	0	0	0	291	1,001
8:00 AM		0	2	161	7	0	2	144	3	0	4	0	0	0	2	0	2	327	1,128
8:15 AM		0	8	159	8	0	2	114	3	0	0	0	0	0	0	0	7	301	1,175
8:30 AM		1	5	167	4	0	3	128	8	0	7	0	0	0	1	0	4	328	1,247
8:45 AM		0	9	159	8	0	2	151	3	0	4	1	0	0	2	1	7	347	1,303
Count Total		1	28	1,137	53	0	22	974	31	0	29	1	0	0	7	1	20	2,304	0
Peak Hour	All	1	24	646	27	0	9	537	17	0	15	1	0	0	5	1	20	1,303	0
	HV	0	0	30	12	0	1	30	0	0	3	0	0	0	0	0	0	76	0
	HV%	0%	0%	5%	44%	-	11%	6%	0%	-	20%	0%	-	-	0%	0%	0%	6%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	5	4	0	0	9	0	0	0	0	0	0	0	2	2	4
7:15 AM	8	8	0	0	16	0	1	0	0	1	0	0	1	3	4
7:30 AM	7	6	0	0	13	0	1	0	0	1	1	0	2	3	6
7:45 AM	7	7	0	0	14	1	0	0	0	1	0	0	2	1	3
8:00 AM	14	7	0	0	21	0	0	0	0	0	1	0	2	2	5
8:15 AM	10	8	0	0	18	0	0	0	0	0	0	0	2	0	2
8:30 AM	7	11	2	0	20	1	2	0	0	3	0	0	5	1	6
8:45 AM	11	5	1	0	17	0	0	0	0	0	1	1	1	2	5
Count Total	69	56	3	0	128	2	4	0	0	6	3	1	17	14	35
Peak Hour	42	31	3	0	76	1	2	0	0	3	2	1	10	5	18

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	Nickerson St				Nickerson St				Queen Anne Ave N				Driveway				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	2	3	0	0	4	0	0	0	0	0	0	0	0	0	9	0
7:15 AM	0	0	6	2	0	1	7	0	0	0	0	0	0	0	0	0	16	0
7:30 AM	0	0	3	4	0	0	6	0	0	0	0	0	0	0	0	0	13	0
7:45 AM	0	0	5	2	0	0	7	0	0	0	0	0	0	0	0	0	14	52
8:00 AM	0	0	11	3	0	0	7	0	0	0	0	0	0	0	0	0	21	64
8:15 AM	0	0	7	3	0	0	8	0	0	0	0	0	0	0	0	0	18	66
8:30 AM	0	0	5	2	0	1	10	0	0	2	0	0	0	0	0	0	20	73
8:45 AM	0	0	7	4	0	0	5	0	0	1	0	0	0	0	0	0	17	76
Count Total	0	0	46	23	0	2	54	0	0	3	0	0	0	0	0	0	128	0
Peak Hour	0	0	30	12	0	1	30	0	0	3	0	0	0	0	0	0	76	0

Two-Hour Count Summaries - Bikes																		
Interval Start	Nickerson St			Nickerson St			Queen Anne Ave N			Driveway			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
7:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	1	0				
7:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1	0				
7:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	3				
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3				
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2				
8:30 AM	0	1	0	0	2	0	0	0	0	0	0	0	3	4				
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3				
Count Total	0	2	0	0	4	0	0	0	0	0	0	0	6	0				
Peak Hour	0	1	0	0	2	0	0	0	0	0	0	0	3	0				

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

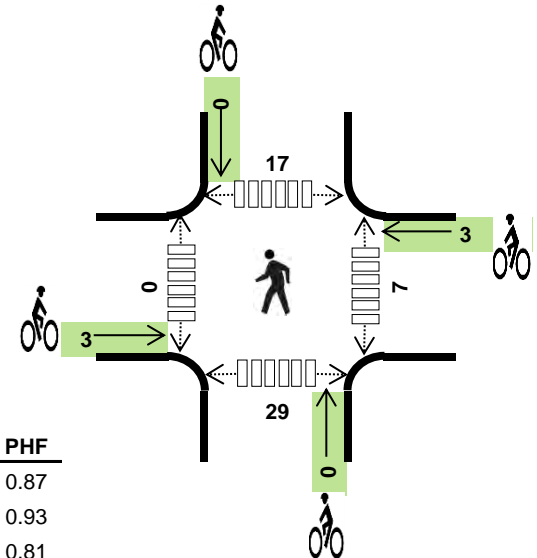
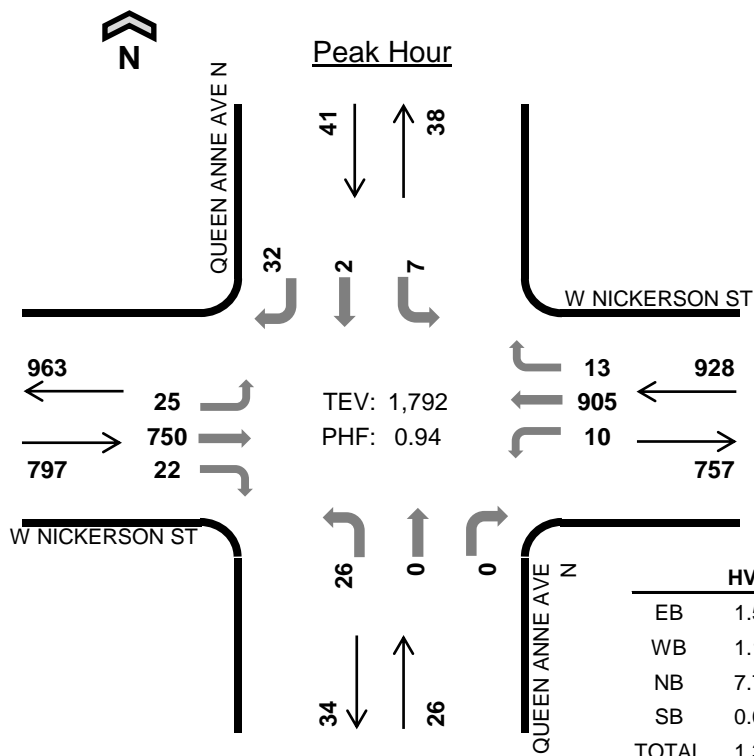
QUEEN ANNE AVE N W NICKERSON ST



Date: Wed, Apr 22, 2015

Count Period: 4:00 PM to 6:00 PM

Peak Hour: 5:00 PM to 6:00 PM



Two-Hour Count Summaries

Interval Start	W NICKERSON ST			W NICKERSON ST			QUEEN ANNE AVE N			QUEEN ANNE AVE N			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	4	185	5	2	207	3	4	0	0	3	1	1	415	1,648
4:15 PM	3	171	11	6	196	2	4	0	0	0	0	7	400	
4:30 PM	3	187	4	6	202	4	6	0	0	1	0	9	422	
4:45 PM	5	188	16	1	191	0	4	0	0	1	0	5	411	
5:00 PM	9	214	5	2	229	1	8	0	0	2	1	7	478	
5:15 PM	5	185	9	1	235	4	6	0	0	1	0	5	451	1,762
5:30 PM	6	187	2	3	199	5	5	0	0	1	1	10	419	1,759
5:45 PM	5	164	6	4	242	3	7	0	0	3	0	10	444	1,792
Count Total	40	1,481	58	25	1,701	22	44	0	0	12	3	54	3,440	
Peak Hr	25	750	22	10	905	13	26	0	0	7	2	32	1,792	

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	4	9	1	0	14	1	1	1	0	3	5	0	3	3	11
4:15 PM	6	4	0	0	10	0	0	0	0	0	6	0	0	5	11
4:30 PM	6	3	0	1	10	0	0	0	0	0	7	0	5	9	21
4:45 PM	2	5	0	0	7	1	2	0	0	3	1	1	3	8	13
5:00 PM	2	2	1	0	5	0	1	0	0	1	1	0	2	8	11
5:15 PM	3	2	0	0	5	0	0	0	0	0	1	0	2	10	13
5:30 PM	3	4	1	0	8	1	1	0	0	2	2	0	6	5	13
5:45 PM	4	2	0	0	6	2	1	0	0	3	3	0	7	6	16
Count Total	30	31	3	1	65	5	6	1	0	12	26	1	28	54	109
Peak Hr	12	10	2	0	24	3	3	0	0	6	7	0	17	29	53

Cremona St Nickerson St

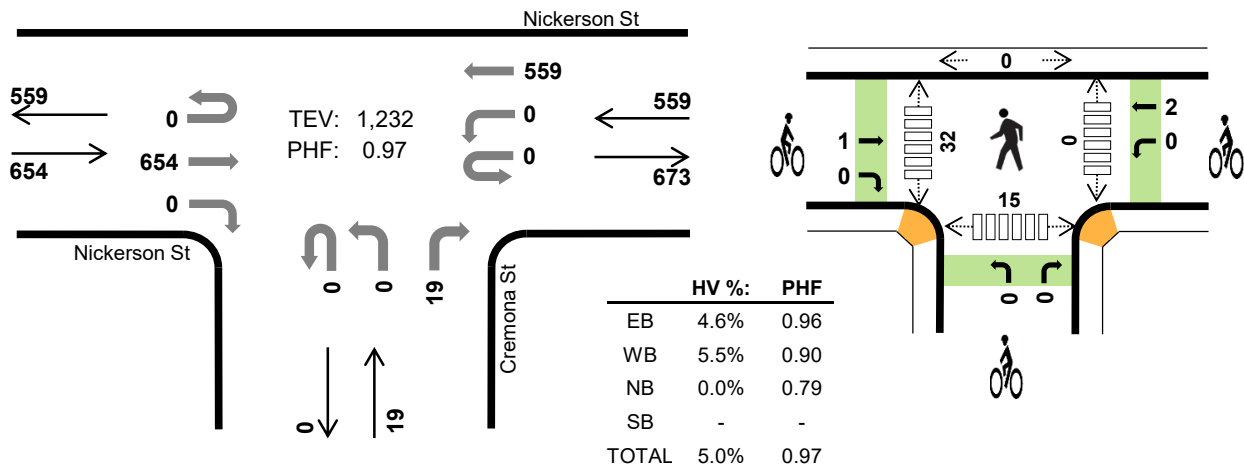


Peak Hour

Date: Tue, Jun 29, 2021

Count Period: 7:00 AM to 9:00 AM

Peak Hour: 8:00 AM to 9:00 AM



Two-Hour Count Summaries

Interval Start	Nickerson St Eastbound				Nickerson St Westbound				Cremona St Northbound				0 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	86	0	0	0	105	0	0	0	0	5	0	0	0	0	196	0
7:15 AM	0	0	135	0	0	0	112	0	0	0	0	6	0	0	0	0	253	0
7:30 AM	0	0	136	0	0	0	109	0	0	0	0	3	0	0	0	0	248	0
7:45 AM	0	0	133	0	0	0	142	0	0	0	0	5	0	0	0	0	280	977
8:00 AM	0	0	164	0	0	0	147	0	0	0	0	6	0	0	0	0	317	1,098
8:15 AM	0	0	159	0	0	0	119	0	0	0	0	6	0	0	0	0	284	1,129
8:30 AM	0	0	171	0	0	0	137	0	0	0	0	5	0	0	0	0	313	1,194
8:45 AM	0	0	160	0	0	0	156	0	0	0	0	2	0	0	0	0	318	1,232
Count Total	0	0	1,144	0	0	0	1,027	0	0	0	0	38	0	0	0	0	2,209	0
Peak Hour	All	0	0	654	0	0	0	559	0	0	0	19	0	0	0	0	1,232	0
	HV	0	0	30	0	0	0	31	0	0	0	0	0	0	0	0	61	0
	HV%	-	-	5%	-	-	-	6%	-	-	-	0%	-	-	-	-	5%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	2	7	1	0	10	1	0	0	0	1	0	4	0	2	6
7:15 AM	6	4	2	0	12	0	1	0	0	1	0	2	0	3	5
7:30 AM	3	7	0	0	10	0	1	0	0	1	0	3	0	3	6
7:45 AM	5	7	0	0	12	0	0	0	0	0	0	10	0	3	13
8:00 AM	11	7	0	0	18	0	0	0	0	0	0	9	0	7	16
8:15 AM	9	9	0	0	18	0	0	0	0	0	0	8	0	2	10
8:30 AM	5	10	0	0	15	0	2	0	0	2	0	5	0	2	7
8:45 AM	5	5	0	0	10	1	0	0	0	1	0	10	0	4	14
Count Total	46	56	3	0	105	2	4	0	0	6	0	51	0	26	77
Peak Hr	30	31	0	0	61	1	2	0	0	3	0	32	0	15	47

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Nickerson St				Nickerson St				Cremona St				0				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	2	0	0	0	7	0	0	0	0	1	0	0	0	0	10	0
7:15 AM	0	0	6	0	0	0	4	0	0	0	0	2	0	0	0	0	12	0
7:30 AM	0	0	3	0	0	0	7	0	0	0	0	0	0	0	0	0	10	0
7:45 AM	0	0	5	0	0	0	7	0	0	0	0	0	0	0	0	0	12	44
8:00 AM	0	0	11	0	0	0	7	0	0	0	0	0	0	0	0	0	18	52
8:15 AM	0	0	9	0	0	0	9	0	0	0	0	0	0	0	0	0	18	58
8:30 AM	0	0	5	0	0	0	10	0	0	0	0	0	0	0	0	0	15	63
8:45 AM	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	10	61
Count Total	0	0	46	0	0	0	56	0	0	0	0	3	0	0	0	0	105	0
Peak Hour	0	0	30	0	0	0	31	0	0	0	0	0	0	0	0	0	61	0

Two-Hour Count Summaries - Bikes

Interval Start	Nickerson St			Nickerson St			Cremona St			0			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	0
7:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	1	0
7:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	2	0	0	0	0	0	0	0	2	2
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	3
Count Total	0	2	0	0	4	0	0	0	0	0	0	0	6	0
Peak Hour	0	1	0	0	2	0	0	0	0	0	0	0	3	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

W CREMONA ST W NICKERSON ST

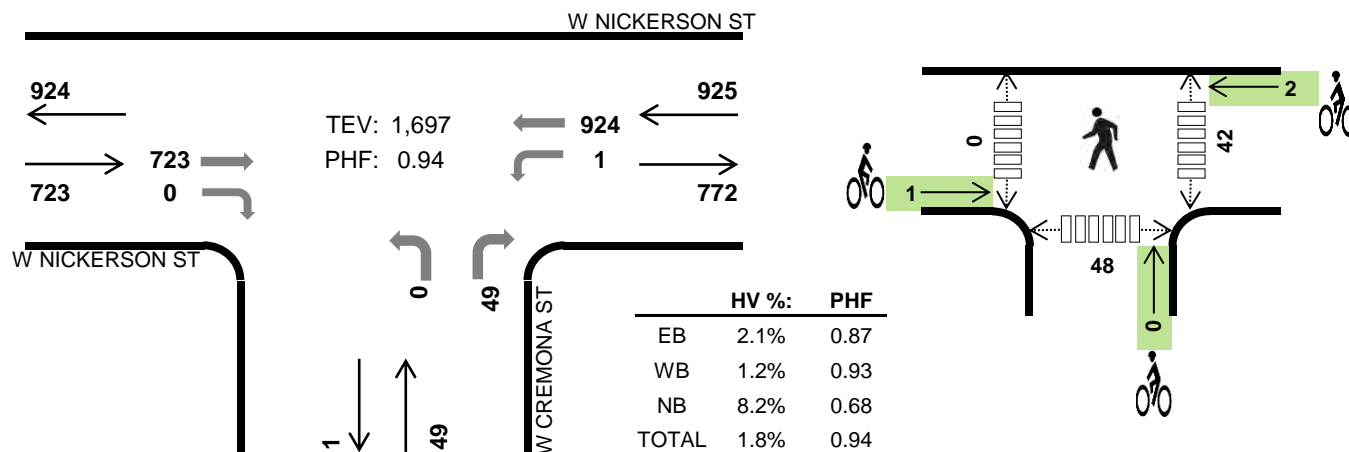


Peak Hour

Date: Wed, Apr 22, 2015

Count Period: 4:00 PM to 6:00 PM

Peak Hour: 5:00 PM to 6:00 PM



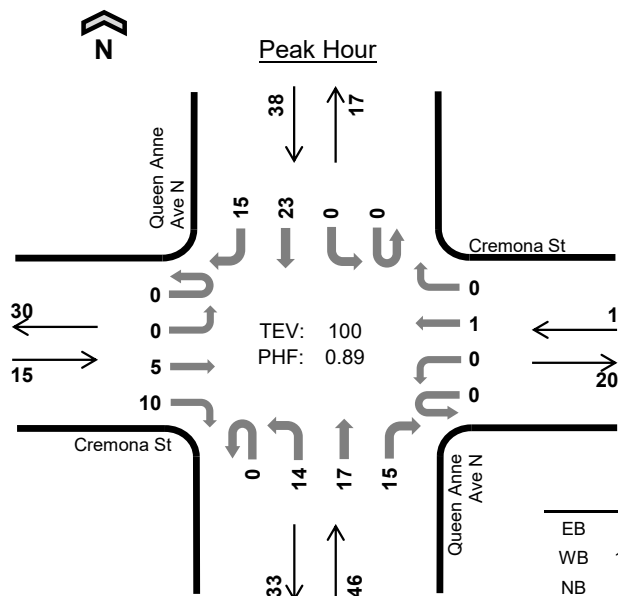
Two-Hour Count Summaries

Interval Start	W NICKERSON ST			W NICKERSON ST			W CREMONA ST			W CREMONA ST			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	188	0	0	214	0	0	0	7	0	0	0	409	1,605
4:15 PM	0	170	0	0	207	0	0	0	12	0	0	0	389	
4:30 PM	0	183	0	0	213	0	0	0	14	0	0	0	410	
4:45 PM	0	194	0	0	193	0	0	0	10	0	0	0	397	
5:00 PM	0	207	0	1	233	0	0	0	9	0	0	0	450	
5:15 PM	0	178	0	0	237	0	0	0	9	0	0	0	424	1,681
5:30 PM	0	181	0	0	206	0	0	0	18	0	0	0	405	1,676
5:45 PM	0	157	0	0	248	0	0	0	13	0	0	0	418	1,697
Count Total	0	1,458	0	1	1,751	0	0	0	92	0	0	0	3,302	
Peak Hr	0	723	0	1	924	0	0	0	49	0	0	0	1,697	

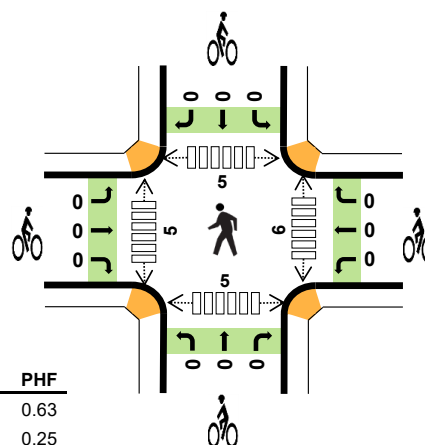
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	4	9	1	0	14	2	2	0	0	4	7	0	7	4	18
4:15 PM	4	5	0	0	9	0	0	0	0	0	7	0	0	1	8
4:30 PM	4	3	0	0	7	0	0	0	0	0	6	0	2	2	10
4:45 PM	2	5	0	0	7	1	3	0	0	4	3	0	2	3	8
5:00 PM	7	3	2	0	12	0	1	0	0	1	13	0	0	18	31
5:15 PM	2	2	1	0	5	0	0	0	0	0	13	0	0	15	28
5:30 PM	3	4	1	0	8	0	1	0	0	1	12	0	0	6	18
5:45 PM	3	2	0	0	5	1	0	0	0	1	4	0	0	9	13
Count Total	29	33	5	0	67	4	7	0	0	11	65	0	11	58	134
Peak Hr	15	11	4	0	30	1	2	0	0	3	42	0	0	48	90

Queen Anne Ave N Cremona St



Date: Tue, Jun 29, 2021
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM



	HV %:	PHF
EB	0.0%	0.63
WB	100.0%	0.25
NB	10.9%	0.96
SB	31.6%	0.86
TOTAL	18.0%	0.89

Two-Hour Count Summaries

Interval Start		Cremona St				Cremona St				Queen Anne Ave N				Queen Anne Ave N				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
	7:00 AM	0	0	0	0	0	0	0	0	0	1	1	5	0	0	7	3	17	0
	7:15 AM	0	0	0	1	0	0	0	0	0	3	2	6	0	0	7	4	23	0
	7:30 AM	0	0	0	3	0	0	1	0	0	4	5	3	0	0	3	5	24	0
	7:45 AM	0	0	2	4	0	0	0	0	0	3	6	3	0	0	7	3	28	92
	8:00 AM	0	0	3	2	0	0	0	0	0	4	4	3	0	0	6	3	25	100
	8:15 AM	0	0	4	0	0	0	1	0	0	2	0	2	0	0	8	2	19	96
	8:30 AM	0	0	3	0	0	0	0	0	0	2	7	2	0	0	6	2	22	94
	8:45 AM	0	0	1	2	0	0	0	0	0	3	5	0	0	1	5	4	21	87
Count Total		0	0	13	12	0	0	2	0	0	22	30	24	0	1	49	26	179	0
Peak Hour	All	0	0	5	10	0	0	1	0	0	14	17	15	0	0	23	15	100	0
	HV	0	0	0	0	0	0	1	0	0	3	0	2	0	0	3	9	18	0
	HV%	-	-	0%	0%	-	-	100%	-	-	21%	0%	13%	-	-	13%	60%	18%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	1	3	4	0	0	0	0	0	1	0	3	1	5
7:15 AM	0	0	3	3	6	0	0	0	0	0	2	1	2	0	5
7:30 AM	0	1	1	4	6	0	0	0	0	0	2	0	0	0	2
7:45 AM	0	0	0	2	2	0	0	0	0	0	1	2	1	3	7
8:00 AM	0	0	1	3	4	0	0	0	0	0	1	2	2	2	7
8:15 AM	0	0	0	3	3	1	0	0	0	1	0	2	0	1	3
8:30 AM	0	0	3	3	6	0	0	0	0	0	2	1	2	2	7
8:45 AM	0	0	1	4	5	0	0	0	0	0	3	0	3	0	6
Count Total	0	1	10	25	36	1	0	0	0	1	12	8	13	9	42
Peak Hour	0	1	5	12	18	0	0	0	0	0	6	5	5	5	21

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	Cremona St				Cremona St				Queen Anne Ave N				Queen Anne Ave N				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	4	0
7:15 AM	0	0	0	0	0	0	0	0	0	1	0	2	0	0	1	2	6	0
7:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	3	6	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	18
8:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2	4	18
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	15
8:30 AM	0	0	0	0	0	0	0	0	0	1	2	0	0	0	2	1	6	15
8:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	3	5	18
Count Total	0	0	0	0	0	0	1	0	0	4	3	3	0	0	8	17	36	0
Peak Hour	0	0	0	0	0	0	1	0	0	3	0	2	0	0	3	9	18	0

Two-Hour Count Summaries - Bikes																		
Interval Start	Cremona St			Cremona St			Queen Anne Ave N			Queen Anne Ave N			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
8:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	1				
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1				
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1				
Count Total	0	0	1	0	0	0	0	0	0	0	0	0	1	0				
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0				

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

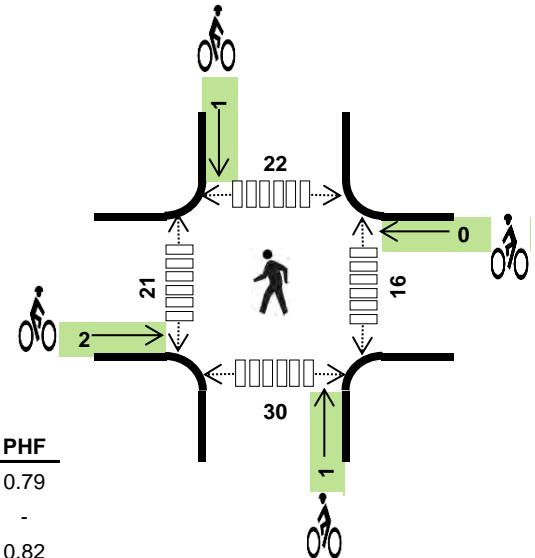
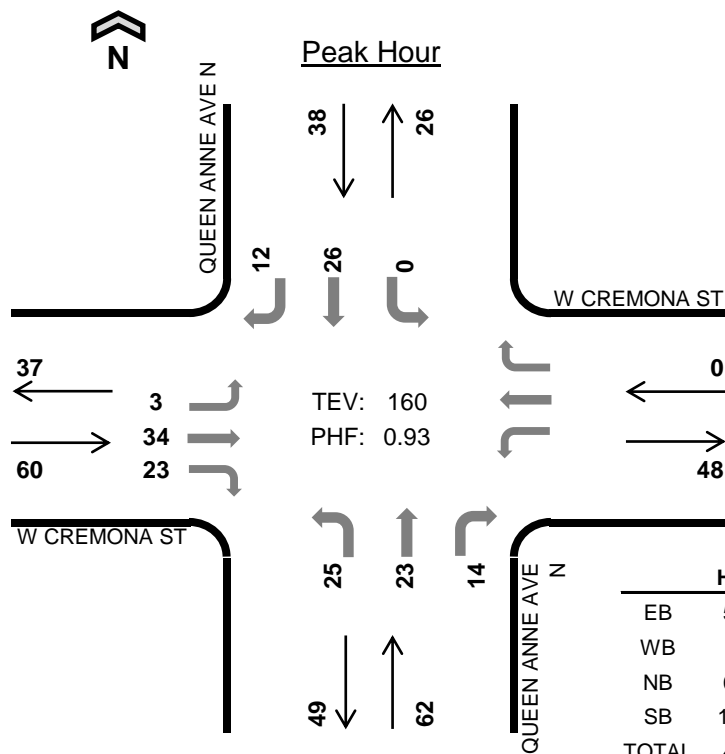
QUEEN ANNE AVE N W CREMONA ST



Date: Wed, Apr 22, 2015

Count Period: 4:00 PM to 6:00 PM

Peak Hour: 5:00 PM to 6:00 PM



Two-Hour Count Summaries

Interval Start	W CREMONA ST			W CREMONA ST			QUEEN ANNE AVE N			QUEEN ANNE AVE N			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	5	6	0	0	0	4	4	1	0	4	3	27	152
4:15 PM	0	8	8	0	0	0	6	4	1	1	11	6	45	
4:30 PM	0	9	0	0	0	0	10	7	3	3	5	3	40	
4:45 PM	1	7	5	0	0	0	6	2	3	1	12	3	40	
5:00 PM	2	7	4	0	0	0	4	6	1	0	8	2	34	
5:15 PM	1	6	7	0	0	0	5	5	4	0	8	4	40	154
5:30 PM	0	13	6	0	0	0	9	5	4	0	4	2	43	157
5:45 PM	0	8	6	0	0	0	7	7	5	0	6	4	43	160
Count Total	4	63	42	0	0	0	51	40	22	5	58	27	312	
Peak Hr	3	34	23	0	0	0	25	23	14	0	26	12	160	

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	1	0	1	1	3	1	0	0	1	2	0	1	2	5	8
4:15 PM	1	0	1	2	4	0	0	0	0	0	2	3	5	5	15
4:30 PM	0	0	0	2	2	0	0	1	0	1	1	3	2	7	13
4:45 PM	0	0	0	0	0	0	0	0	0	0	1	3	3	6	13
5:00 PM	2	0	0	1	3	0	0	1	0	1	2	3	2	8	15
5:15 PM	0	0	0	2	2	0	0	0	1	1	4	4	8	7	23
5:30 PM	1	0	0	0	1	0	0	0	0	0	4	8	4	9	25
5:45 PM	0	0	0	1	1	2	0	0	0	2	6	6	8	6	26
Count Total	5	0	2	9	16	3	0	2	2	7	20	31	34	53	138
Peak Hr	3	0	0	4	7	2	0	1	1	4	16	21	22	30	89

3rd Ave N
W Florentia St

	HV %:	PHF
EB	9.8%	0.80
WB	2.1%	0.74
NB	13.9%	0.64
SB	25.0%	1.00
NWB	6.1%	0.88
SEB	4.4%	0.95
TOTAL	5.2%	0.93

Two-Hour Count Summaries

Interval Start	W Florentia St						W Florentia St						3rd Ave N						3rd Ave N						Nickerson St						Nickerson St						15-min Total	Rolling One Hour
	Eastbound						Westbound						Northbound						Southbound						Northwestbound						Southeastbound							
	UT	HL	LT	TH	BR	RT	UT	HL	LT	TH	BR	RT	UT	LT	BL	TH	RT	HR	UT	LT	BL	TH	RT	HR	UT	HL	BL	TH	BR	HR	UT	HL	BL	TH	BR	HR		
7:00 AM	0	0	0	0	11	0	0	0	1	3	17	0	0	0	2	1	0	1	0	0	0	0	0	0	0	1	1	82	0	0	0	0	117	0	0	237	0	
7:15 AM	0	0	0	0	17	0	0	0	1	9	42	1	0	0	2	0	0	1	0	0	0	0	0	1	0	2	7	78	2	0	0	0	130	0	3	296	0	
7:30 AM	0	0	0	0	16	0	0	0	0	15	28	1	0	0	4	0	0	1	0	0	0	0	0	0	0	1	7	92	1	0	0	0	143	2	2	313	0	
7:45 AM	0	0	0	0	20	0	0	0	0	14	40	0	0	0	2	1	0	2	0	0	0	0	0	0	0	1	9	124	4	0	0	0	135	0	2	354	1,200	
8:00 AM	0	0	0	0	25	0	0	0	0	15	31	2	0	0	1	1	0	5	0	0	1	0	0	0	0	1	7	127	1	0	0	0	182	0	0	399	1,362	
8:15 AM	0	2	1	0	22	0	0	0	0	13	25	0	0	1	3	3	0	7	0	0	1	0	0	0	0	2	6	102	2	0	0	0	168	0	0	358	1,424	
8:30 AM	0	0	0	0	27	0	0	0	1	22	51	1	0	0	6	0	0	2	0	0	1	0	0	0	0	0	5	101	1	0	0	0	181	0	0	399	1,510	
8:45 AM	0	0	0	0	35	0	0	0	1	23	58	0	0	0	4	0	0	3	0	0	1	0	0	0	0	2	7	126	5	0	0	0	156	0	1	422	1,578	
Count Total	0	2	1	0	173	0	0	0	4	114	292	5	0	1	24	6	0	22	0	0	4	0	0	1	0	10	49	832	16	0	0	0	1,212	2	8	2,778	0	
Peak Hour	All HV	0	2	1	0	109	0	0	0	2	73	165	3	0	1	14	4	0	17	0	0	4	0	0	0	0	5	25	456	9	0	0	0	687	0	1	1,578	0
	HV%	0	0	0	0	11	0	0	0	0	1	4	0	0	1	2	0	0	2	0	0	1	0	0	0	0	0	3	27	0	0	0	0	30	0	0	82	0
		-	0%	0%	-	10%	-	-	-	0%	1%	2%	0%	-	100%	14%	0%	-	12%	-	-	25%	-	-	-	-	0%	12%	6%	0%	-	-	-	4%	-	0%	5%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

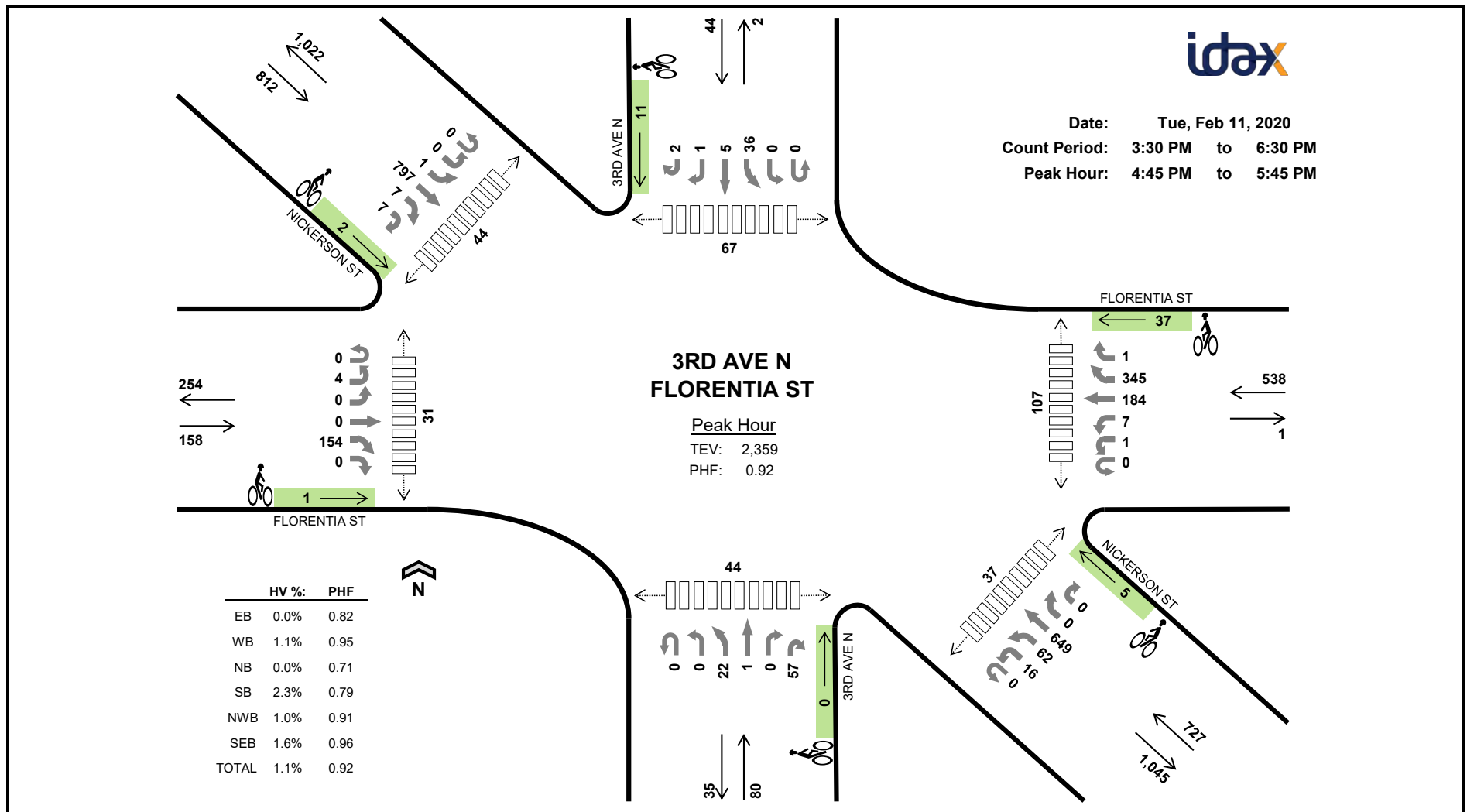
Interval Start	Heavy Vehicle Totals							Bicycles							Pedestrians (Crossing Leg)						
	EB	WB	NB	SB	NWB	SEB	Total	EB	WB	NB	SB	NWB	SEB	Total	East	West	North	South	NW	SE	Total
7:00 AM	0	1	0	0	5	4	10	0	1	0	0	0	1	2	0	2	3	3	4	0	12
7:15 AM	1	3	1	0	5	5	15	1	0	0	0	0	0	1	0	1	5	3	4	2	15
7:30 AM	0	2	0	0	4	5	11	0	2	0	0	0	1	3	0	2	2	6	2	3	15
7:45 AM	1	1	0	0	7	6	15	0	0	0	0	0	0	0	0	2	3	4	4	0	13
8:00 AM	0	0	1	0	5	9	15	1	0	0	0	1	0	2	0	2	7	4	11	2	26
8:15 AM	0	1	3	1	8	9	22	0	2	0	0	0	0	2	0	6	2	6	4	3	21
8:30 AM	1	2	1	0	11	6	21	0	6	0	0	0	0	6	0	1	5	3	3	7	19
8:45 AM	10	2	0	0	6	6	24	0	2	0	2	0	2	6	0	0	4	3	6	2	15
Count Total	13	12	6	1	51	50	133	2	13	0	2	1	4	22	0	16	31	32	38	19	136
Peak Hr	11	5	5	1	30	30	82	1	10	0	2	1	2	16	0	9	18	16	24	14	81

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	W Florentia St						W Florentia St						3rd Ave N						3rd Ave N						Nickerson St						Nickerson St						15-min Total	Rolling One Hour
	Eastbound						Westbound						Northbound						Southbound						Northwestbound						Southeastbound							
	UT	HL	LT	TH	BR	RT	UT	HL	LT	TH	BR	RT	UT	LT	BL	TH	RT	HR	UT	LT	BL	TH	RT	HR	UT	HL	BL	TH	BR	HR	UT	HL	BL	TH	BR	HR		
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	5	0	0	0	0	4	0	0	10	0
7:15 AM	0	0	0	0	0	1	0	0	0	0	0	3	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	5	0	0	0	0	5	0	0	15	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	5	0	0	11	0	
7:45 AM	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1	0	0	0	6	0	0	15	51	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	5	0	0	0	0	9	0	0	15	56	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1	0	0	1	0	0	0	0	2	6	0	0	0	0	9	0	0	22	63	
8:30 AM	0	0	0	0	1	1	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	10	0	0	0	6	0	0	21	73	
8:45 AM	0	0	0	0	10	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	6	0	0	24	82	
Count Total	0	0	0	0	13	0	0	0	0	2	10	0	0	1	2	0	0	3	0	0	1	0	0	0	0	0	3	47	1	0	0	0	50	0	0	133	0	
Peak Hour	0	0	0	0	11	0	0	0	0	1	4	0	0	1	2	0	0	2	0	0	1	0	0	0	0	0	3	27	0	0	0	0	30	0	0	82	0	

Two-Hour Count Summaries - Bikes

Interval Start	W Florentia St						W Florentia St						3rd Ave N						3rd Ave N						Nickerson St						Nickerson St						15-min Total	Rolling One Hour
	Eastbound						Westbound						Northbound						Southbound						Northwestbound						Southeastbound							
	UT	HL	LT	TH	BR	RT	UT	HL	LT	TH	BR	RT	UT	LT	BL	TH	RT	HR	UT	LT	BL	TH	RT	HR	UT	HL	BL	TH	BR	HR	UT	HL	BL	TH	BR	HR		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	
7:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	
7:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0		
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0
8:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	6	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	7
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	10
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	6	16	
Count Total	0	1	1	0	0	0	0	0	0	1	0	1	11	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	3	0	1	22	0	
Peak Hour	0	0	1	0	0	0	0	0	0	0	0	1	9	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	0	0	2	0	0	16	0	



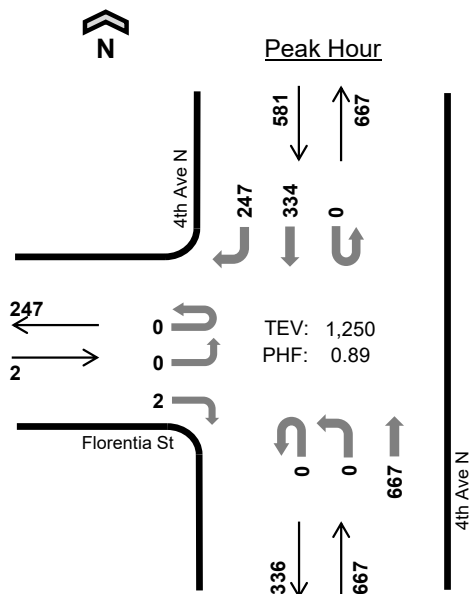
Three-Hour Count Summaries

Interval Start	FLORENTIA ST						FLORENTIA ST						3RD AVE N						3RD AVE N						NICKERSON ST						NICKERSON ST						15-min Total	Rolling One Hour	
	Eastbound						Westbound						Northbound						Southbound						Northwestbound						Southeastbound								
	UT	HL	LT	TH	BR	RT	UT	HL	LT	TH	BR	RT	UT	LT	BL	TH	RT	HR	UT	LT	BL	TH	RT	HR	UT	HL	BL	TH	BR	HR	UT	HL	BL	TH	BR	HR			
3:30 PM	0	1	0	0	34	0	0	0	2	29	60	0	0	0	3	0	0	6	0	0	6	0	0	2	0	3	13	119	1	0	0	0	1	0	173	3	0	456	0
3:45 PM	0	0	0	0	28	0	0	1	1	46	60	1	0	0	4	0	0	6	0	0	1	0	0	1	0	2	8	113	0	0	0	0	0	184	1	0	457	0	
4:00 PM	0	0	0	0	37	0	0	1	3	41	67	1	0	0	5	0	0	7	0	0	10	0	0	3	0	5	14	146	0	0	0	0	0	191	2	0	533	0	
4:15 PM	0	0	0	0	36	0	0	0	3	38	70	0	0	0	1	1	0	5	0	0	8	2	1	0	0	2	18	162	1	0	0	0	0	172	2	0	522	1,968	
4:30 PM	0	0	0	0	29	0	0	1	0	32	72	1	0	0	4	0	0	10	0	0	14	1	0	1	0	1	10	139	1	0	0	0	0	200	3	3	522	2,034	
4:45 PM	0	3	0	0	42	0	0	0	5	35	91	0	0	0	6	0	0	14	0	0	13	1	0	0	0	6	17	130	0	0	0	0	0	199	1	1	564	2,141	
5:00 PM	0	0	0	0	46	0	0	1	1	46	93	0	0	0	7	1	0	20	0	0	11	3	0	0	0	2	14	183	0	0	0	0	0	208	1	2	639	2,247	
5:15 PM	0	0	0	0	38	0	0	0	0	47	82	1	0	0	6	0	0	11	0	0	10	1	0	1	0	5	20	163	0	0	0	0	0	191	2	3	581	2,306	
5:30 PM	0	1	0	0	28	0	0	0	1	56	79	0	0	0	3	0	0	12	0	0	2	0	1	1	0	3	11	173	0	0	0	0	1	199	3	1	575	2,359	
5:45 PM	0	0	0	0	48	0	0	1	2	38	81	1	0	0	3	0	0	15	0	0	4	1	0	0	0	3	17	118	0	0	0	0	0	155	3	1	491	2,286	
6:00 PM	0	0	0	0	32	0	0	0	0	35	53	0	0	0	4	0	0	6	0	0	5	1	1	0	0	1	10	108	1	0	0	0	0	173	1	2	433	2,080	
6:15 PM	0	0	1	0	34	0	0	0	1	41	87	0	0	0	2	0	0	5	0	0	5	0	0	0	0	3	15	174	0	1	0	0	0	194	2	1	566	2,065	
Count Total	0	5	1	0	432	0	0	5	19	484	895	5	0	0	48	2	0	117	0	0	89	10	3	9	0	36	167	1,728	4	1	0	1	1	2,239	24	14	6,339	0	
Peak Hour	0	4	0	0	154	0	0	1	7	184	345	1	0	0	22	1	0	57	0	0	36	5	1	2	0	16	62	649	0	0	0	0	1	797	7	7	2,359	0	

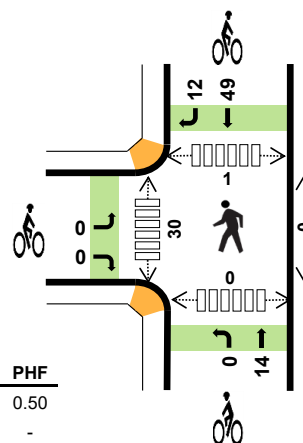
Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals							Bicycles							Pedestrians (Crossing Leg)						
	EB	WB	NB	SB	NWB	SEB	Total	EB	WB	NB	SB	NWB	SEB	Total	East	West	North	South	NW	SE	Total
3:30 PM	0	4	0	0	2	9	15	1	5	0	2	0	0	8	12	1	9	9	7	4	42
3:45 PM	0	2	1	0	2	10	15	0	3	0	4	0	0	7	17	6	14	11	4	3	55
4:00 PM	0	7	0	1	4	13	25	0	1	1	1	0	0	3	15	6	13	5	8	3	50
4:15 PM	0	2	0	1	5	9	17	0	6	0	4	0	0	10	20	3	15	9	11	7	65
4:30 PM	0	2	0	1	4	2	9	0	6	0	1	0	0	7	13	6	10	9	5	9	52
4:45 PM	0	1	0	1	2	4	8	1	6	0	5	0	1	13	34	3	21	2	9	5	74
5:00 PM	0	0	0	0	1	1	2	0	10	0	1	2	1	14	28	9	20	14	17	13	101
5:15 PM	0	3	0	0	3	3	9	0	12	0	4	1	0	17	28	12	18	19	10	10	97
5:30 PM	0	2	0	0	1	5	8	0	9	0	1	2	0	12	17	7	8	9	8	9	58
5:45 PM	0	3	1	0	1	3	8	0	11	0	5	0	0	16	20	6	18	19	10	12	85
6:00 PM	0	0	0	0	1	3	4	0	8	0	4	0	0	12	12	2	12	3	3	3	35
6:15 PM	0	1	0	0	0	3	4	0	4	0	1	0	0	5	15	4	14	22	10	9	74
Count Total	0	27	2	4	26	65	124	2	81	1	33	5	2	124	231	65	172	131	102	87	788
Peak Hr	0	6	0	1	7	13	27	1	37	0	11	5	2	56	107	31	67	44	44	37	330

4th Ave N Florentia St



Date: Tue, Jun 29, 2021
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM



	HV %:	PHF
EB	50.0%	0.50
WB	-	-
NB	6.0%	0.92
SB	7.1%	0.79
TOTAL	6.6%	0.89

Two-Hour Count Summaries

Interval Start		Florentia St				0				4th Ave N				4th Ave N				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	0	0	0	0	0	0	0	0	106	0	0	0	53	20	179	0
7:15 AM		0	0	0	0	0	0	0	0	0	0	126	0	0	0	60	55	241	0
7:30 AM		0	0	0	2	0	0	0	0	0	0	108	0	0	0	63	44	217	0
7:45 AM		0	1	0	0	0	0	0	0	0	0	137	0	0	0	103	57	298	935
8:00 AM		0	0	0	1	0	0	0	0	0	0	151	0	0	0	82	47	281	1,037
8:15 AM		0	0	0	0	0	0	0	0	0	0	166	0	0	0	73	51	290	1,086
8:30 AM		0	0	0	1	0	0	0	0	0	0	181	0	0	0	77	67	326	1,195
8:45 AM		0	0	0	0	0	0	0	0	0	0	169	0	0	0	102	82	353	1,250
Count Total		0	1	0	4	0	0	0	0	0	0	1,144	0	0	0	613	423	2,185	0
Peak Hour	All	0	0	0	2	0	0	0	0	0	0	667	0	0	0	334	247	1,250	0
	HV	0	0	0	1	0	0	0	0	0	0	40	0	0	0	36	5	82	0
	HV%	-	-	-	50%	-	-	-	-	-	-	6%	-	-	-	11%	2%	7%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	2	6	8	0	0	1	15	16	0	2	0	0	2
7:15 AM	0	0	8	8	16	0	0	3	16	19	0	5	0	0	5
7:30 AM	0	0	6	11	17	0	0	2	10	12	0	9	1	1	11
7:45 AM	0	0	11	7	18	0	0	2	6	8	0	1	0	0	1
8:00 AM	1	0	12	9	22	0	0	4	19	23	0	4	0	0	4
8:15 AM	0	0	9	11	20	0	0	3	10	13	0	12	0	0	12
8:30 AM	0	0	9	11	20	0	0	4	17	21	0	10	1	0	11
8:45 AM	0	0	10	10	20	0	0	3	15	18	0	4	0	0	4
Count Total	1	0	67	73	141	0	0	22	108	130	0	47	2	1	50
Peak Hr	1	0	40	41	82	0	0	14	61	75	0	30	1	0	31

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	Florentia St				0				4th Ave N				4th Ave N				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	5	1	8	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	8	0	0	0	5	3	16	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	9	2	17	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	6	1	18	59
8:00 AM	0	0	0	1	0	0	0	0	0	0	12	0	0	0	8	1	22	73
8:15 AM	0	0	0	0	0	0	0	0	0	0	9	0	0	0	10	1	20	77
8:30 AM	0	0	0	0	0	0	0	0	0	0	9	0	0	0	10	1	20	80
8:45 AM	0	0	0	0	0	0	0	0	0	0	10	0	0	0	8	2	20	82
Count Total	0	0	0	1	0	0	0	0	0	0	67	0	0	0	61	12	141	0
Peak Hour	0	0	0	1	0	0	0	0	0	0	40	0	0	0	36	5	82	0

Two-Hour Count Summaries - Bikes																		
Interval Start	Florentia St			0			4th Ave N			4th Ave N			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
7:00 AM	0	0	0	0	0	0	0	1	0	0	11	4	16	0				
7:15 AM	0	0	0	0	0	0	0	3	0	0	11	5	19	0				
7:30 AM	0	0	0	0	0	0	0	2	0	0	7	3	12	0				
7:45 AM	0	0	0	0	0	0	0	2	0	0	5	1	8	55				
8:00 AM	0	0	0	0	0	0	0	4	0	0	18	1	23	62				
8:15 AM	0	0	0	0	0	0	0	3	0	0	9	1	13	56				
8:30 AM	0	0	0	0	0	0	0	4	0	0	10	7	21	65				
8:45 AM	0	0	0	0	0	0	0	3	0	0	12	3	18	75				
Count Total	0	0	0	0	0	0	0	22	0	0	83	25	130	0				
Peak Hour	0	0	0	0	0	0	0	14	0	0	49	12	75	0				

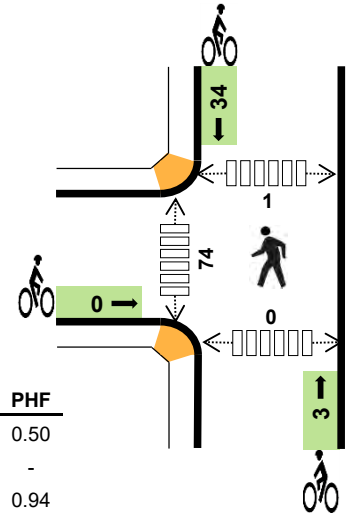
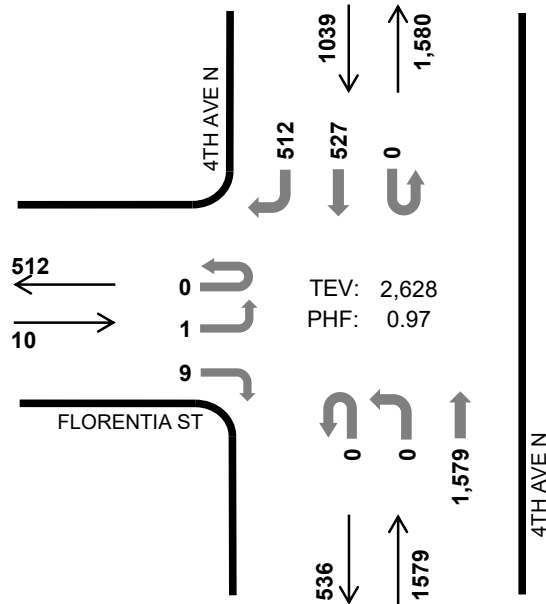
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

4TH AVE N FLORENTIA ST



Peak Hour

Date: Thu, Sep 07, 2017
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM



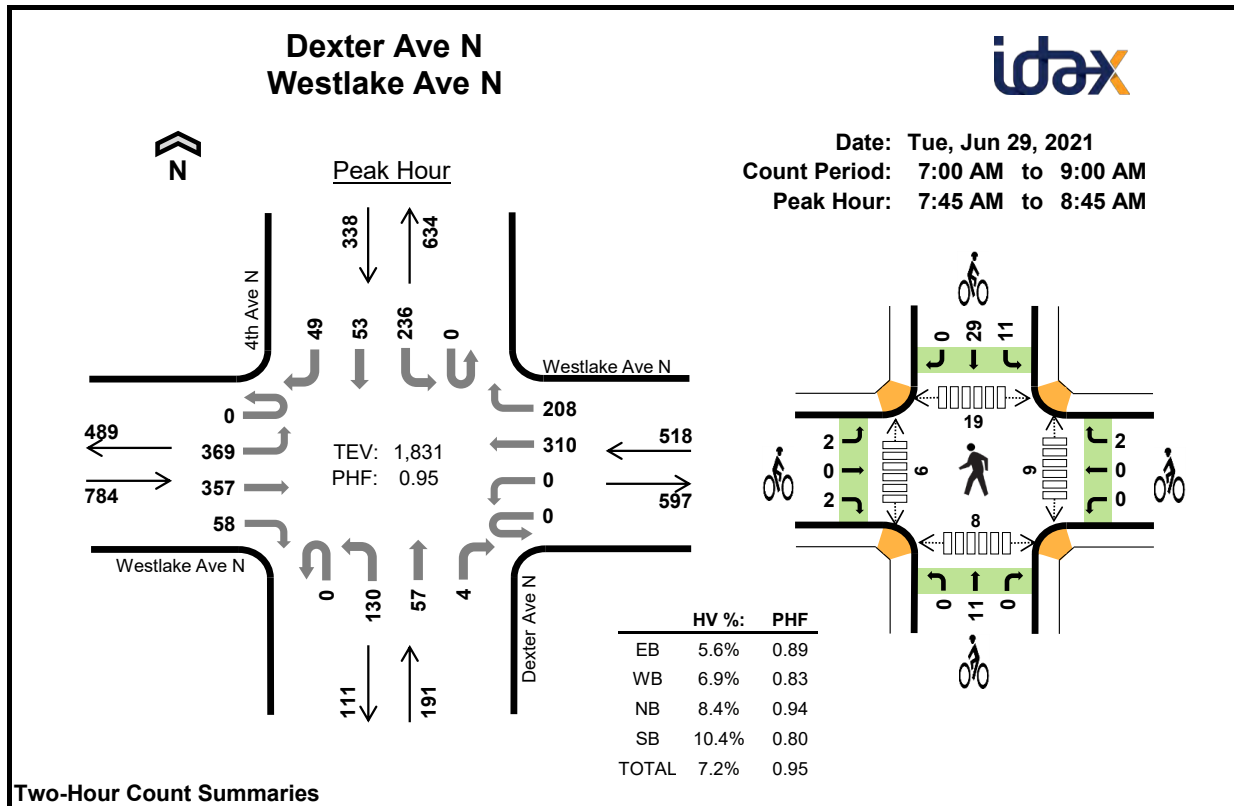
	HV %:	PHF
EB	0.0%	0.50
WB	-	-
NB	2.0%	0.94
SB	2.3%	0.97
TOTAL	2.1%	0.97

Two-Hour Count Summaries

Interval Start	FLORENTIA ST				0				4TH AVE N				4TH AVE N				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	4	0	0	0	0	0	0	319	0	0	0	138	126	587	0
4:15 PM	0	0	0	1	0	0	0	0	0	0	333	0	0	0	116	127	577	0
4:30 PM	0	0	0	4	0	0	0	0	0	0	384	0	0	0	110	127	625	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	378	0	0	0	106	118	602	2,391
5:00 PM	0	0	0	5	0	0	0	0	0	0	419	0	0	0	127	124	675	2,479
5:15 PM	0	0	0	2	0	0	0	0	0	0	384	0	0	0	134	124	644	2,546
5:30 PM	0	0	0	1	0	0	0	0	0	0	405	0	0	0	131	137	674	2,595
5:45 PM	0	1	0	1	0	0	0	0	0	0	371	0	0	0	135	127	635	2,628
Count Total	0	1	0	18	0	0	0	0	0	0	2,993	0	0	0	997	1,010	5,019	0
Peak Hour	0	1	0	9	0	0	0	0	0	0	1,579	0	0	0	527	512	2,628	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	16	11	27	0	0	0	12	12	0	9	0	0	9
4:15 PM	0	0	15	9	24	0	0	0	11	11	0	5	0	0	5
4:30 PM	0	0	8	8	16	2	0	2	6	10	0	11	0	0	11
4:45 PM	0	0	10	6	16	0	0	0	6	6	0	14	1	0	15
5:00 PM	0	0	6	8	14	0	0	1	4	5	0	22	0	0	22
5:15 PM	0	0	12	8	20	0	0	0	6	6	0	16	0	0	16
5:30 PM	0	0	7	3	10	0	0	1	14	15	0	19	0	0	19
5:45 PM	0	0	6	5	11	0	0	1	10	11	0	17	1	0	18
Count Total	0	0	80	58	138	2	0	5	69	76	0	113	2	0	115
Peak Hr	0	0	31	24	55	0	0	3	34	37	0	74	1	0	75

**Two-Hour Count Summaries**

Interval Start		Westlake Ave N				Westlake Ave N				Dexter Ave N				4th Ave N				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	43	65	15	0	0	54	51	0	20	13	1	0	40	9	7	318	0
7:15 AM		0	76	74	5	0	0	62	37	0	24	12	1	0	37	13	15	356	0
7:30 AM		0	57	92	14	0	0	58	31	0	34	17	0	0	33	13	16	365	0
7:45 AM		0	71	78	13	0	0	102	54	0	31	11	1	0	68	18	19	466	1,505
8:00 AM		0	90	107	23	0	0	73	50	0	38	13	0	0	61	14	14	483	1,670
8:15 AM		0	110	78	8	0	0	64	42	0	34	12	3	0	47	9	8	415	1,729
8:30 AM		0	98	94	14	0	0	71	62	0	27	21	0	0	60	12	8	467	1,831
8:45 AM		0	103	72	16	0	0	69	52	0	38	18	1	0	61	14	21	465	1,830
Count Total		0	648	660	108	0	0	553	379	0	246	117	7	0	407	102	108	3,335	0
Peak Hour	All	0	369	357	58	0	0	310	208	0	130	57	4	0	236	53	49	1,831	0
	HV	0	16	17	11	0	0	18	18	0	9	7	0	0	21	10	4	131	0
	HV%	-	4%	5%	19%	-	-	6%	9%	-	7%	12%	0%	-	9%	19%	8%	7%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

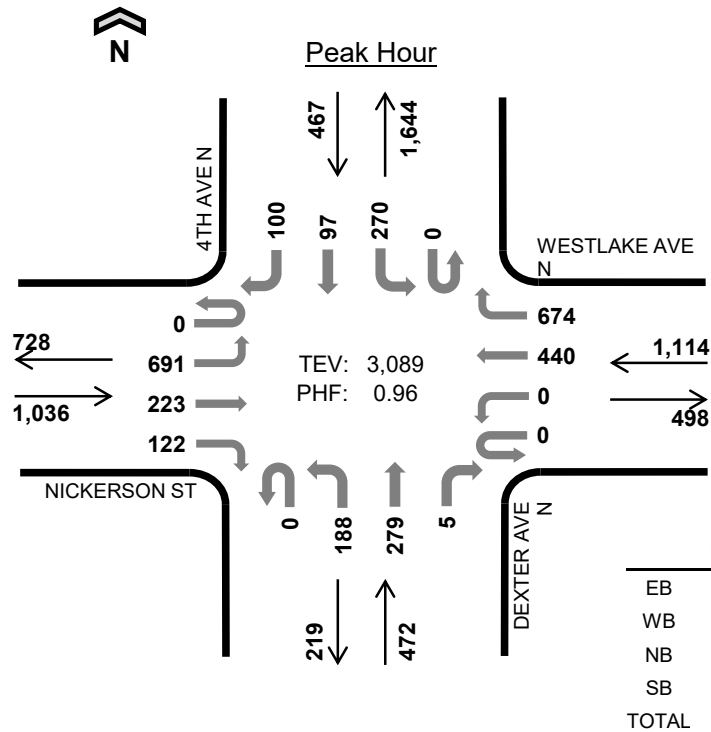
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	8	2	3	5	18	0	0	1	11	12	3	3	1	2	9
7:15 AM	5	8	1	5	19	0	1	2	11	14	5	4	3	0	12
7:30 AM	4	5	6	8	23	1	0	2	9	12	6	0	6	3	15
7:45 AM	6	13	5	7	31	0	1	2	5	8	2	0	2	4	8
8:00 AM	22	7	4	10	43	1	0	3	11	15	2	1	10	2	15
8:15 AM	10	6	2	10	28	1	0	3	15	19	4	2	2	1	9
8:30 AM	6	10	5	8	29	2	1	3	9	15	1	3	5	1	10
8:45 AM	6	8	4	9	27	3	0	1	11	15	3	1	3	1	8
Count Total	67	59	30	62	218	8	3	17	82	110	26	14	32	14	86
Peak Hour	44	36	16	35	131	4	2	11	40	57	9	6	19	8	42

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	Westlake Ave N				Westlake Ave N				Dexter Ave N				4th Ave N				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	8	0	0	0	2	0	0	2	1	0	0	3	2	0	18	0
7:15 AM	0	2	3	0	0	0	4	4	0	0	1	0	0	3	2	0	19	0
7:30 AM	0	2	2	0	0	0	3	2	0	3	3	0	0	5	3	0	23	0
7:45 AM	0	2	4	0	0	0	5	8	0	3	2	0	0	3	4	0	31	91
8:00 AM	0	6	6	10	0	0	4	3	0	2	2	0	0	8	2	0	43	116
8:15 AM	0	6	3	1	0	0	3	3	0	1	1	0	0	5	3	2	28	125
8:30 AM	0	2	4	0	0	0	6	4	0	3	2	0	0	5	1	2	29	131
8:45 AM	0	6	0	0	0	0	5	3	0	1	2	1	0	4	5	0	27	127
Count Total	0	26	30	11	0	0	32	27	0	15	14	1	0	36	22	4	218	0
Peak Hour	0	16	17	11	0	0	18	18	0	9	7	0	0	21	10	4	131	0

Two-Hour Count Summaries - Bikes																		
Interval Start	Westlake Ave N			Westlake Ave N			Dexter Ave N			4th Ave N			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
7:00 AM	0	0	0	0	0	0	0	1	0	8	3	0	12	0				
7:15 AM	0	0	0	0	0	1	0	2	0	7	4	0	14	0				
7:30 AM	0	0	1	0	0	0	0	2	0	3	6	0	12	0				
7:45 AM	0	0	0	0	0	1	0	2	0	3	2	0	8	46				
8:00 AM	1	0	0	0	0	0	0	3	0	3	8	0	15	49				
8:15 AM	0	0	1	0	0	0	0	3	0	3	12	0	19	54				
8:30 AM	1	0	1	0	0	1	0	3	0	2	7	0	15	57				
8:45 AM	1	0	2	0	0	0	0	1	0	4	7	0	15	64				
Count Total	3	0	5	0	0	3	0	17	0	33	49	0	110	0				
Peak Hour	2	0	2	0	0	2	0	11	0	11	29	0	57	0				

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

DEXTER AVE N NICKERSON ST



Date: Tue, Feb 11, 2020
Count Period: 3:30 PM to 6:30 PM
Peak Hour: 4:45 PM to 5:45 PM

Three-Hour Count Summaries

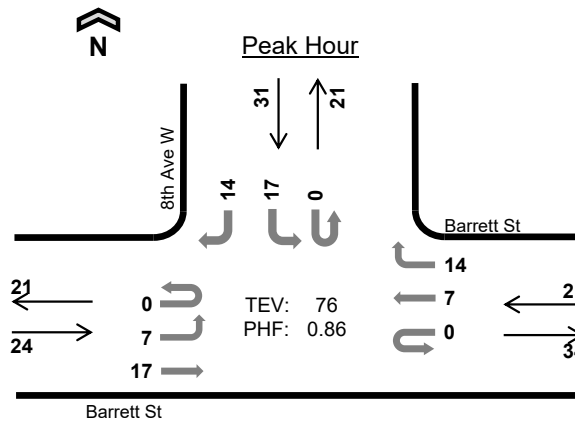
Interval Start	NICKERSON ST				WESTLAKE AVE N				DEXTER AVE N				4TH AVE N				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:45 PM	0	175	55	35	0	0	92	159	0	35	54	1	0	67	28	18	719	0
5:00 PM	0	191	67	37	0	0	128	158	0	46	57	2	0	63	20	25	794	0
5:15 PM	0	165	44	31	0	0	109	189	0	53	85	1	0	74	27	26	804	0
5:30 PM	0	160	57	19	0	0	111	168	0	54	83	1	0	66	22	31	772	3,089
Peak Hour	0	691	223	122	0	0	440	674	0	188	279	5	0	270	97	100	3,089	0

Note: For all three-hour count summary, see next page.

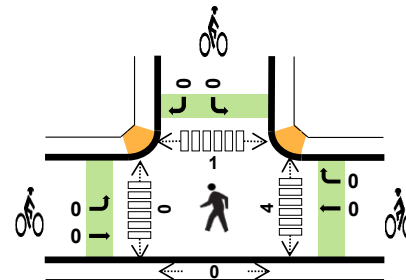
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:45 PM	4	1	2	5	12	0	74	34	11	119	11	3	5	7	26
5:00 PM	1	7	2	6	16	1	101	39	11	152	10	2	5	6	23
5:15 PM	2	5	3	3	13	1	100	40	16	157	13	9	5	7	34
5:30 PM	5	4	2	3	14	0	96	43	15	154	14	3	2	9	28
Peak Hour	12	17	9	17	55	2	371	156	53	582	48	17	17	29	111

Three-Hour Count Summaries																		
Interval Start	NICKERSON ST				WESTLAKE AVE N				DEXTER AVE N				4TH AVE N				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
3:30 PM	0	106	66	29	0	0	81	98	0	19	27	2	0	69	22	22	541	0
3:45 PM	0	140	68	29	0	1	103	116	0	22	25	1	0	89	23	16	633	0
4:00 PM	0	129	70	42	0	0	97	138	0	34	45	5	0	94	21	31	706	0
4:15 PM	0	120	63	38	0	0	106	130	0	34	46	1	0	75	35	34	682	2,562
4:30 PM	0	147	65	40	0	0	96	167	0	38	41	1	0	77	28	18	718	2,739
4:45 PM	0	175	55	35	0	0	92	159	0	35	54	1	0	67	28	18	719	2,825
5:00 PM	0	191	67	37	0	0	128	158	0	46	57	2	0	63	20	25	794	2,913
5:15 PM	0	165	44	31	0	0	109	189	0	53	85	1	0	74	27	26	804	3,035
5:30 PM	0	160	57	19	0	0	111	168	0	54	83	1	0	66	22	31	772	3,089
5:45 PM	0	165	44	12	0	0	87	154	0	38	44	1	0	55	23	20	643	3,013
6:00 PM	0	132	52	31	0	0	60	111	0	39	38	1	0	57	15	25	561	2,780
6:15 PM	0	162	57	28	0	0	106	149	0	47	43	2	0	78	21	24	717	2,693
Count Total	0	1,792	708	371	0	1	1,176	1,737	0	459	588	19	0	864	285	290	8,290	0
Peak Hour	0	691	223	122	0	0	440	674	0	188	279	5	0	270	97	100	3,089	0
Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.																		
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)					Total		
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total			
3:30 PM	7	2	2	2	13	1	15	4	11	31	3	9	1	5	18			
3:45 PM	9	7	2	4	22	0	30	3	10	43	3	3	2	11	19			
4:00 PM	14	6	2	7	29	1	31	9	6	47	4	4	3	4	15			
4:15 PM	9	8	1	4	22	0	47	8	6	61	9	3	3	7	22			
4:30 PM	2	9	4	4	19	1	63	18	7	89	10	5	11	5	31			
4:45 PM	4	1	2	5	12	0	74	34	11	119	11	3	5	7	26			
5:00 PM	1	7	2	6	16	1	101	39	11	152	10	2	5	6	23			
5:15 PM	2	5	3	3	13	1	100	40	16	157	13	9	5	7	34			
5:30 PM	5	4	2	3	14	0	96	43	15	154	14	3	2	9	28			
5:45 PM	3	7	4	5	19	1	72	41	11	125	13	5	10	11	39			
6:00 PM	2	5	2	5	14	0	76	32	13	121	5	9	3	8	25			
6:15 PM	3	6	5	5	19	0	43	23	12	78	20	8	15	18	61			
Count Total	61	67	31	53	212	6	748	294	129	1,177	115	63	65	98	341			
Peak Hour	12	17	9	17	55	2	371	156	53	582	48	17	17	29	111			

8th Ave W Barrett St



Date: 12/15/2022
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM



	HV %:	PHF
EB	0.0%	0.75
WB	0.0%	0.75
NB	-	-
SB	0.0%	0.78
TOTAL	0.0%	0.86

Two-Hour Count Summaries

Interval Start		Barrett St				Barrett St				0				8th Ave W				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	2	1	0	0	0	0	1	0	0	0	0	0	1	0	0	5	0
7:15 AM		0	0	1	0	0	0	0	1	0	0	0	0	0	5	0	0	7	0
7:30 AM		0	0	3	0	0	0	0	1	0	0	0	0	0	8	0	1	13	0
7:45 AM		0	1	5	0	0	0	1	6	0	0	0	0	0	8	0	1	22	47
8:00 AM		0	4	4	0	0	0	2	2	0	0	0	0	0	5	0	5	22	64
8:15 AM		0	1	5	0	0	0	2	2	0	0	0	0	0	2	0	5	17	74
8:30 AM		0	1	3	0	0	0	2	4	0	0	0	0	0	2	0	3	15	76
8:45 AM		0	3	1	0	0	0	4	1	0	0	0	0	0	0	0	2	11	65
Count Total		0	12	23	0	0	0	11	18	0	0	0	0	0	31	0	17	112	0
Peak Hour	All	0	7	17	0	0	0	7	14	0	0	0	0	0	17	0	14	76	0
	HV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	HV%	-	0%	0%	-	-	-	0%	0%	-	-	-	-	-	0%	-	0%	0%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	2	0	1	0	3
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	6	0	2	0	8
Peak Hr	0	0	0	0	0	0	0	0	0	0	4	0	1	0	5

Two-Hour Count Summaries - Heavy Vehicles

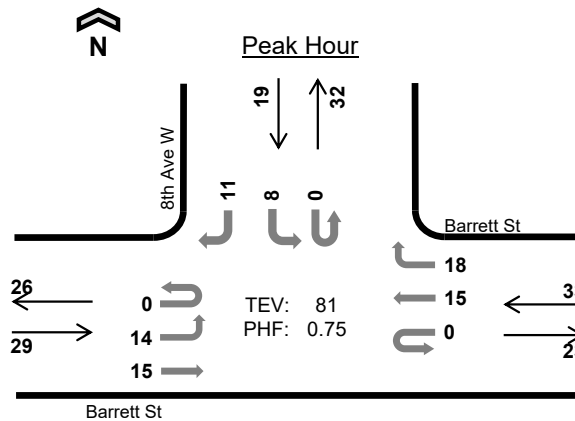
Interval Start	Barrett St				Barrett St				0				8th Ave W				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Two-Hour Count Summaries - Bikes

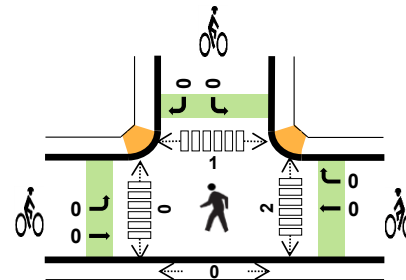
Interval Start	Barrett St			Barrett St			0			8th Ave W			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

8th Ave W Barrett St



Date: 12/15/2022
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM



	HV %:	PHF
EB	0.0%	0.73
WB	0.0%	0.83
NB	-	-
SB	0.0%	0.68
TOTAL	0.0%	0.75

Two-Hour Count Summaries

Interval Start	Barrett St Eastbound				Barrett St Westbound				0 Northbound				8th Ave W Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	2	4	0	0	0	6	4	0	0	0	0	0	0	0	0	16	0
4:15 PM	0	0	3	0	0	0	5	6	0	0	0	0	0	3	0	2	19	0
4:30 PM	0	4	5	0	0	0	5	4	0	0	0	0	0	1	0	3	22	0
4:45 PM	0	1	4	0	0	0	1	6	0	0	0	0	0	1	0	3	16	73
5:00 PM	0	5	0	0	0	0	2	5	0	0	0	0	0	2	0	2	16	73
5:15 PM	0	4	6	0	0	0	7	3	0	0	0	0	0	4	0	3	27	81
5:30 PM	0	2	5	0	0	0	1	2	0	0	0	0	0	2	0	5	17	76
5:45 PM	0	2	5	0	0	0	3	4	0	0	0	0	0	4	0	0	18	78
Count Total	0	20	32	0	0	0	30	34	0	0	0	0	0	17	0	18	151	0
Peak Hour	All	0	14	15	0	0	0	15	18	0	0	0	0	0	8	11	81	0
	HV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	HV%	-	0%	0%	-	-	-	0%	0%	-	-	-	-	-	0%	0%	0%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	1	0	3
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	3	0	1	0	4
Peak Hr	0	0	0	0	0	0	0	0	0	0	2	0	1	0	3

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Barrett St				Barrett St				0				8th Ave W				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Two-Hour Count Summaries - Bikes

Interval Start	Barrett St			Barrett St			0			8th Ave W			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

8th Ave W Barrett St

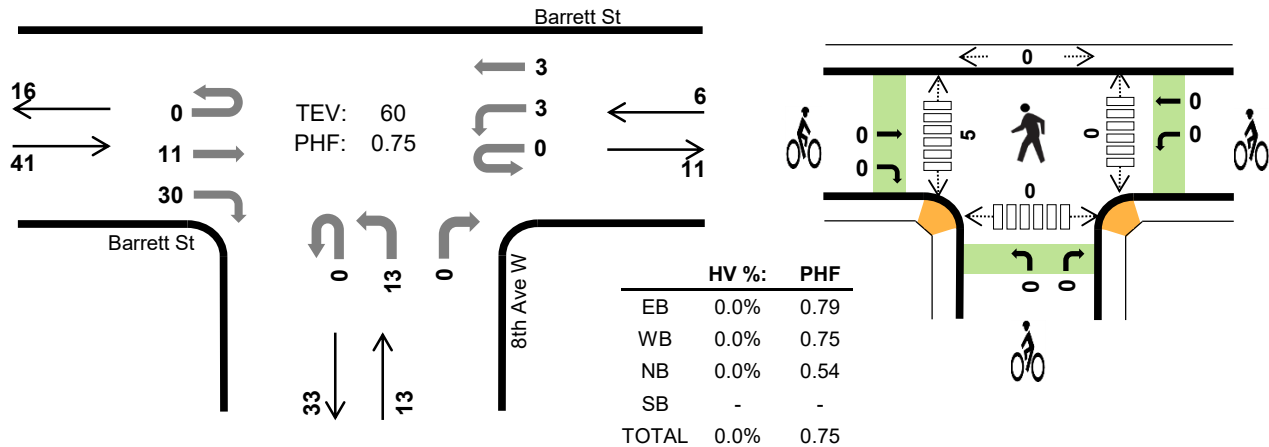


Peak Hour

Date: 12/15/2022

Count Period: 7:00 AM to 9:00 AM

Peak Hour: 7:30 AM to 8:30 AM



Two-Hour Count Summaries

Interval Start	Barrett St Eastbound				Barrett St Westbound				8th Ave W Northbound				0 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	3	0
7:15 AM	0	0	2	4	0	0	1	0	0	0	0	0	0	0	0	0	7	0
7:30 AM	0	0	1	10	0	1	0	0	0	1	0	0	0	0	0	0	13	0
7:45 AM	0	0	2	11	0	0	1	0	0	6	0	0	0	0	0	0	20	43
8:00 AM	0	0	5	5	0	2	0	0	0	4	0	0	0	0	0	0	16	56
8:15 AM	0	0	3	4	0	0	2	0	0	2	0	0	0	0	0	0	11	60
8:30 AM	0	0	2	3	0	0	1	0	0	5	0	0	0	0	0	0	11	58
8:45 AM	0	0	0	1	0	1	3	0	0	2	0	0	0	0	0	0	7	45
Count Total	0	0	16	39	0	4	9	0	0	20	0	0	0	0	0	0	88	0
Peak Hour	All	0	0	11	30	0	3	3	0	0	13	0	0	0	0	0	60	0
	HV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	HV%	-	-	0%	0%	-	0%	0%	-	-	0%	-	-	-	-	-	0%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7
Peak Hr	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Barrett St				Barrett St				8th Ave W				0				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Two-Hour Count Summaries - Bikes

Interval Start	Barrett St			Barrett St			8th Ave W			0			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

8th Ave W Barrett St

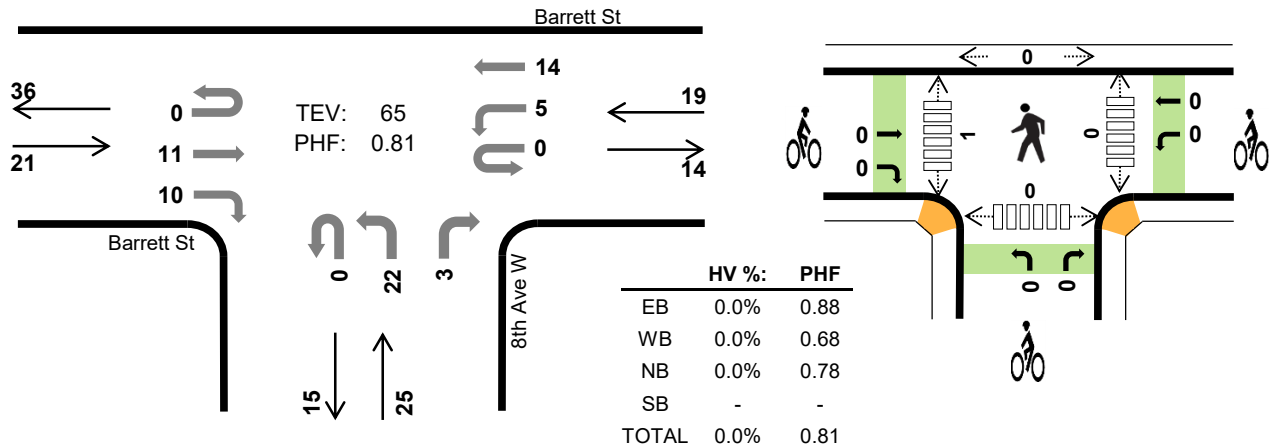


Peak Hour

Date: 12/15/2022

Count Period: 4:00 PM to 6:00 PM

Peak Hour: 4:00 PM to 5:00 PM



Two-Hour Count Summaries

Interval Start	Barrett St Eastbound				Barrett St Westbound				8th Ave W Northbound				8th Ave W Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	3	1	0	0	4	0	0	6	0	0	0	0	0	0	14	0
4:15 PM	0	0	2	4	0	2	5	0	0	5	0	1	0	0	0	0	19	0
4:30 PM	0	0	4	2	0	3	3	0	0	6	0	2	0	0	0	0	20	0
4:45 PM	0	0	2	3	0	0	2	0	0	5	0	0	0	0	0	0	12	65
5:00 PM	0	0	0	2	0	3	3	0	0	4	0	0	0	0	0	0	12	63
5:15 PM	0	0	5	4	0	0	4	0	0	6	0	0	0	0	0	0	19	63
5:30 PM	0	0	4	3	0	0	1	0	0	2	0	1	0	0	0	0	11	54
5:45 PM	0	0	3	5	0	0	2	0	0	5	0	1	0	0	0	0	16	58
Count Total	0	0	23	24	0	8	24	0	0	39	0	5	0	0	0	0	123	0
Peak Hour	All	0	0	11	10	0	5	14	0	0	22	0	3	0	0	0	65	0
	HV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	HV%	-	-	0%	0%	-	0%	0%	-	-	0%	-	0%	-	-	-	0%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	1	3
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	4	0	1	5
Peak Hr	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Barrett St				Barrett St				8th Ave W				0				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Two-Hour Count Summaries - Bikes

Interval Start	Barrett St			Barrett St			8th Ave W			0			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

8th Ave W Dravus St

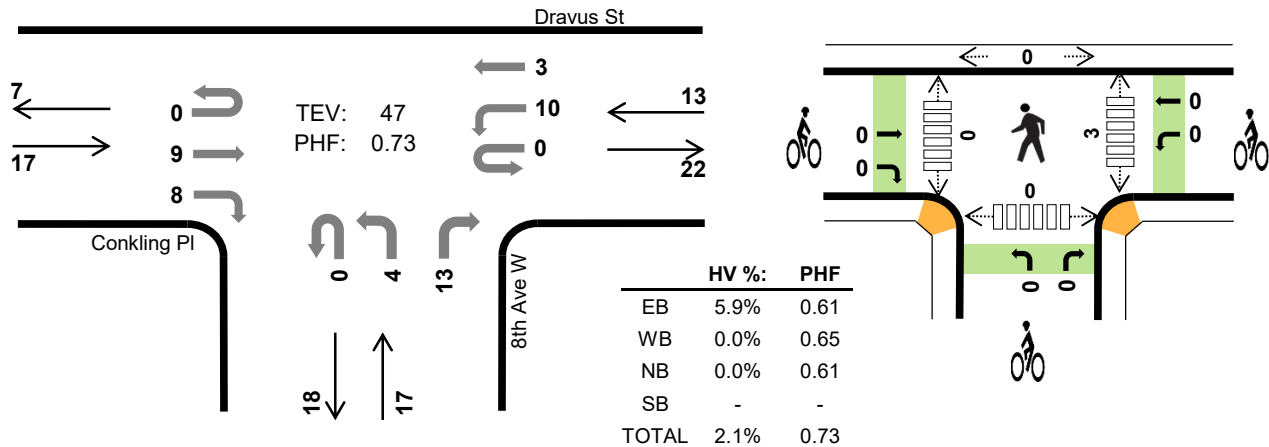


Peak Hour

Date: 12/15/2022

Count Period: 7:00 AM to 9:00 AM

Peak Hour: 7:30 AM to 8:30 AM



Two-Hour Count Summaries

Interval Start		Conkling Pl				Dravus St				8th Ave W				0				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	3	0
7:15 AM		0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0
7:30 AM		0	0	3	4	0	1	0	0	0	0	0	0	0	0	0	0	8	0
7:45 AM		0	0	3	3	0	2	1	0	0	2	0	5	0	0	0	0	16	29
8:00 AM		0	0	1	1	0	4	0	0	0	1	0	6	0	0	0	0	13	39
8:15 AM		0	0	2	0	0	3	2	0	0	1	0	2	0	0	0	0	10	47
8:30 AM		0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	4	43
8:45 AM		0	0	1	0	0	0	1	0	0	1	0	4	0	0	0	0	7	34
Count Total		0	0	12	8	0	13	4	0	0	5	0	21	0	0	0	0	63	0
Peak Hour	All	0	0	9	8	0	10	3	0	0	4	0	13	0	0	0	0	47	0
	HV	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	HV%	-	-	11%	0%	-	0%	0%	-	-	0%	-	0%	-	-	-	-	2%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	1	0	1	1	0	0	1	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	2	2	0	0	4
Count Total	1	0	0	0	1	0	0	1	0	1	7	2	0	1	10
Peak Hr	1	0	0	0	1	0	0	0	0	0	3	0	0	0	3

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Conkling PI				Dravus St				8th Ave W				0				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Count Total	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	
Peak Hour	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	

Two-Hour Count Summaries - Bikes

Interval Start	Conkling PI			Dravus St			8th Ave W			0			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	1	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

8th Ave W Dravus St

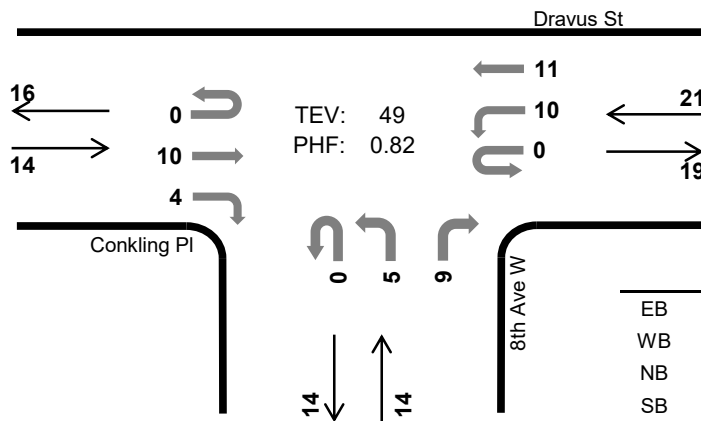


Peak Hour

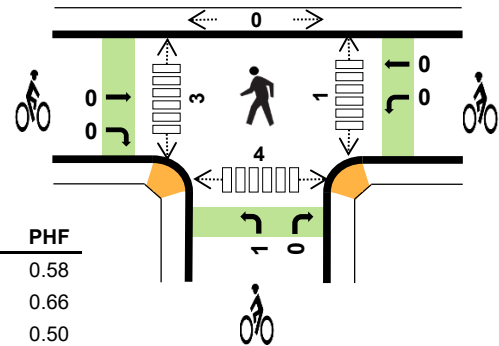
Date: 12/15/2022

Count Period: 4:00 PM to 6:00 PM

Peak Hour: 5:00 PM to 6:00 PM



	HV %:	PHF
EB	0.0%	0.58
WB	0.0%	0.66
NB	0.0%	0.50
SB	-	-
TOTAL	0.0%	0.82



Two-Hour Count Summaries

Interval Start		Conkling Pl				Dravus St				8th Ave W				0				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	0	0	0	0	1	5	0	0	2	0	6	0	0	0	0	14	0
4:15 PM		0	0	2	0	0	4	1	0	0	0	0	2	0	0	0	0	9	0
4:30 PM		0	0	0	2	0	1	3	0	0	1	0	4	0	0	0	0	11	0
4:45 PM		0	0	1	1	0	2	2	0	0	0	0	1	0	0	0	0	7	41
5:00 PM		0	0	2	0	0	2	4	0	0	2	0	5	0	0	0	0	15	42
5:15 PM		0	0	1	3	0	3	1	0	0	0	0	1	0	0	0	0	9	42
5:30 PM		0	0	1	1	0	3	5	0	0	2	0	2	0	0	0	0	14	45
5:45 PM		0	0	6	0	0	2	1	0	0	1	0	1	0	0	0	0	11	49
Count Total		0	0	13	7	0	18	22	0	0	8	0	22	0	0	0	0	90	0
Peak Hour	All	0	0	10	4	0	10	11	0	0	5	0	9	0	0	0	0	49	0
	HV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	HV%	-	-	0%	0%	-	0%	0%	-	-	0%	-	0%	-	-	-	-	0%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	3	1	0	0	4
4:30 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	3	0	1	5
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Count Total	0	0	0	0	0	1	0	1	0	2	7	5	0	4	16
Peak Hr	0	0	0	0	0	0	0	1	0	1	1	3	0	4	8

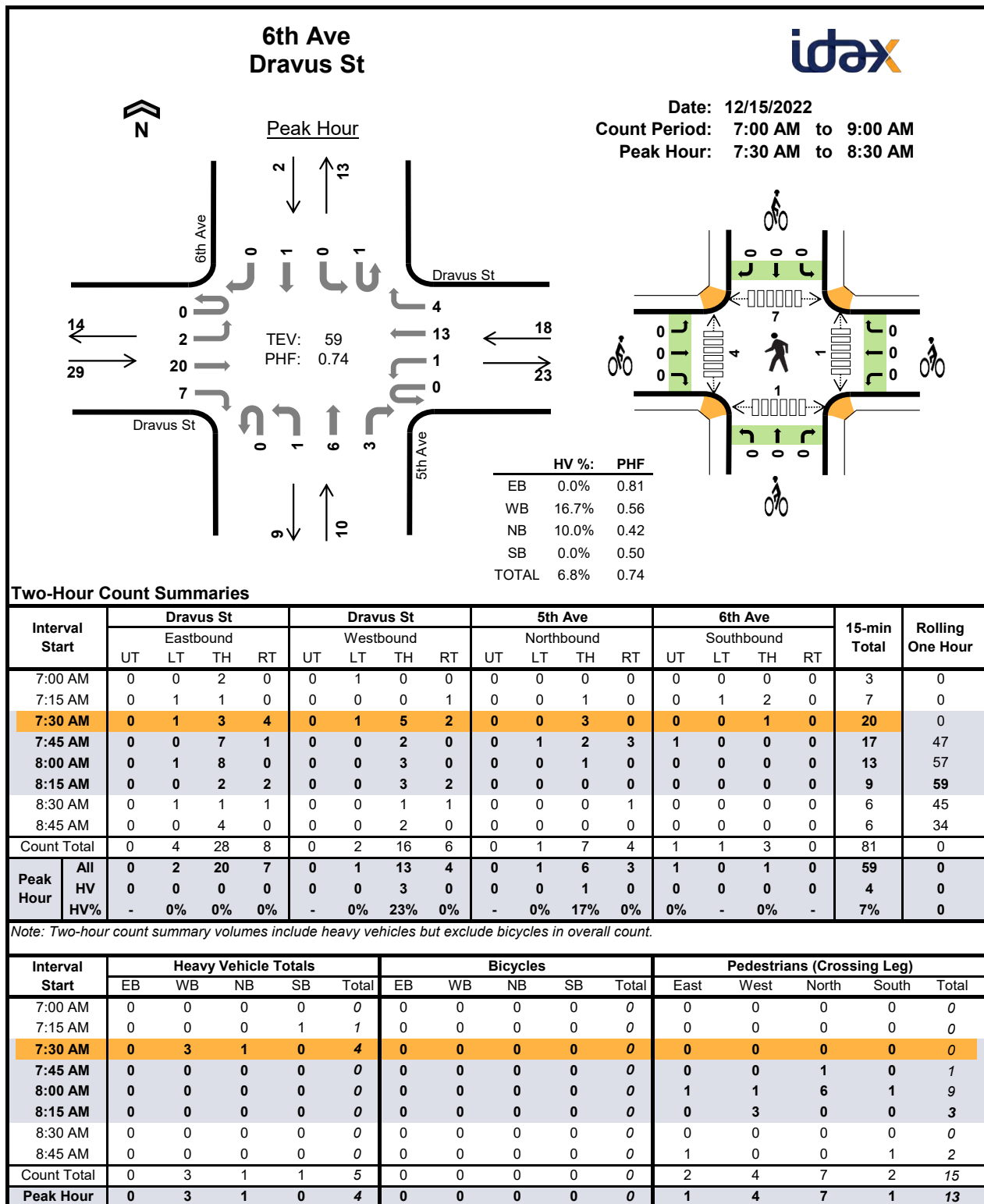
Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Conkling PI				Dravus St				8th Ave W				0				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Two-Hour Count Summaries - Bikes

Interval Start	Conkling PI			Dravus St			8th Ave W			0			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	1	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	1	0	0	0	0	1	0	0	0	0	0	2	0
Peak Hour	0	0	0	0	0	0	1	0	0	0	0	0	1	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.



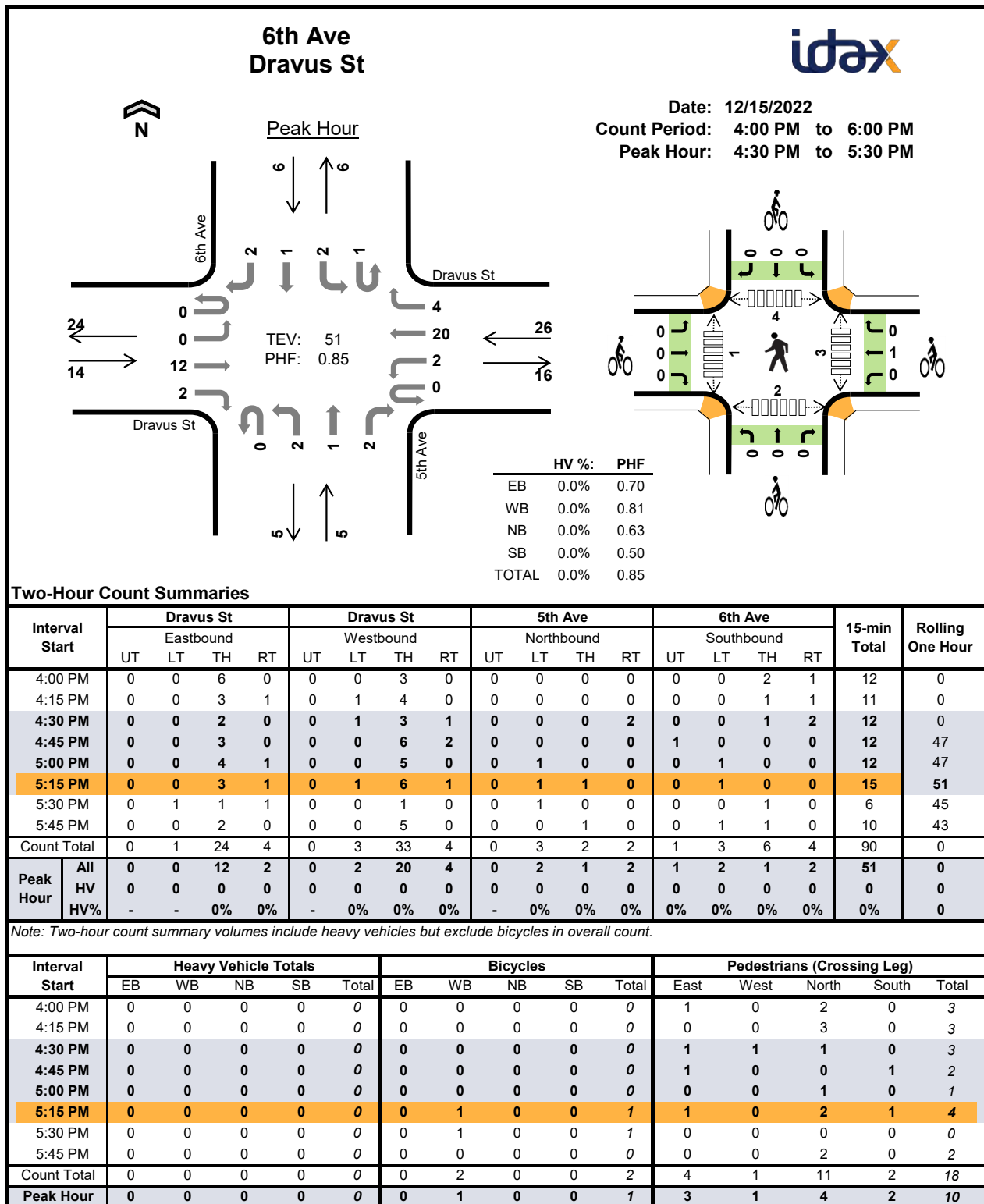
Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Dravus St				Dravus St				5th Ave				6th Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
7:30 AM	0	0	0	0	0	0	3	0	0	0	1	0	0	0	0	0	4	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	3	0	0	0	1	0	0	0	1	0	5	0
Peak Hour	0	0	0	0	0	0	3	0	0	0	1	0	0	0	0	0	4	0

Two-Hour Count Summaries - Bikes

Interval Start	Dravus St			Dravus St			5th Ave			6th Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.



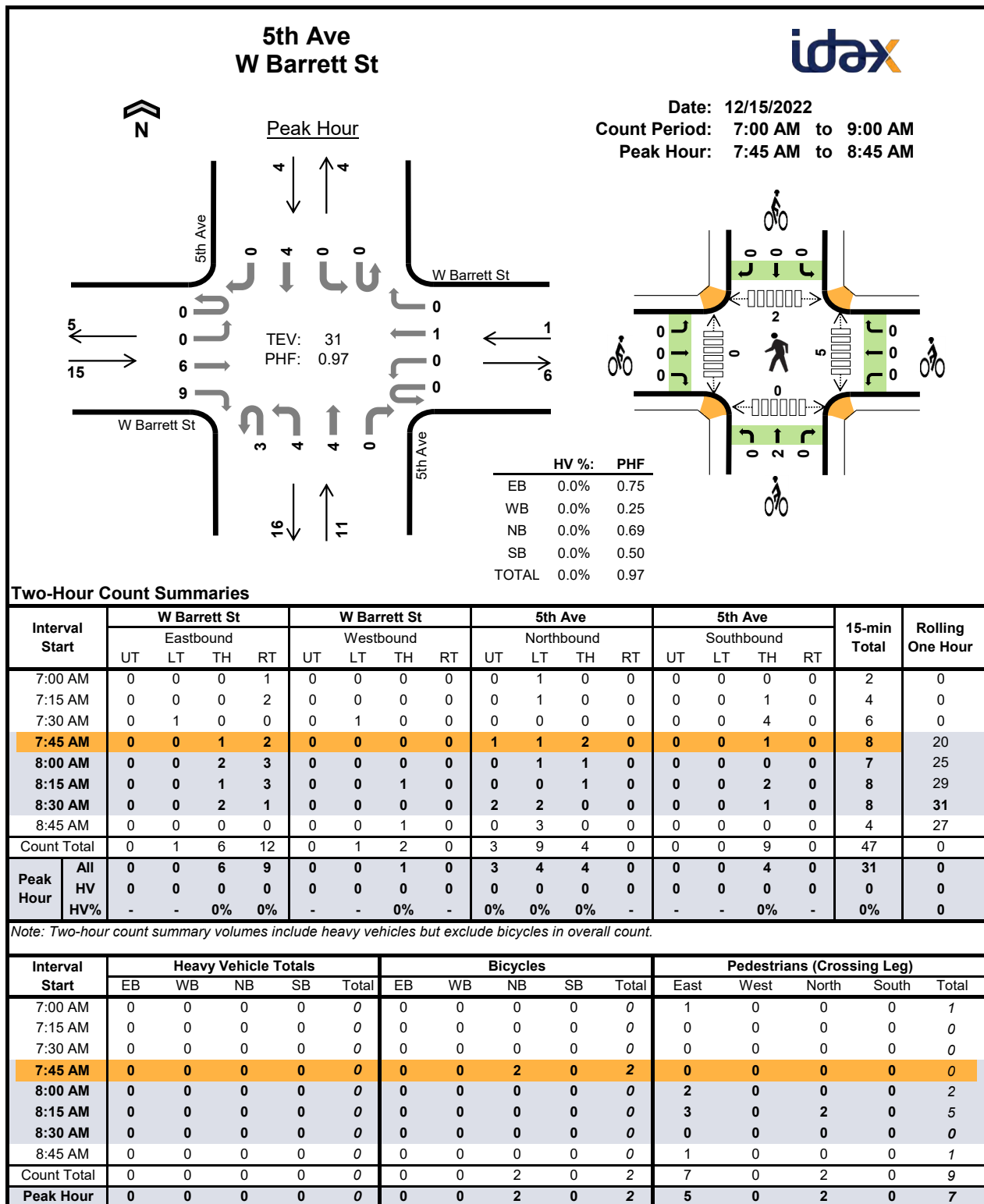
Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Dravus St				Dravus St				5th Ave				6th Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Two-Hour Count Summaries - Bikes

Interval Start	Dravus St			Dravus St			5th Ave			6th Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	1
5:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	1	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Count Total	0	0	0	1	1	0	0	0	0	0	0	0	2	0
Peak Hour	0	0	0	0	1	0	0	0	0	0	0	0	1	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.



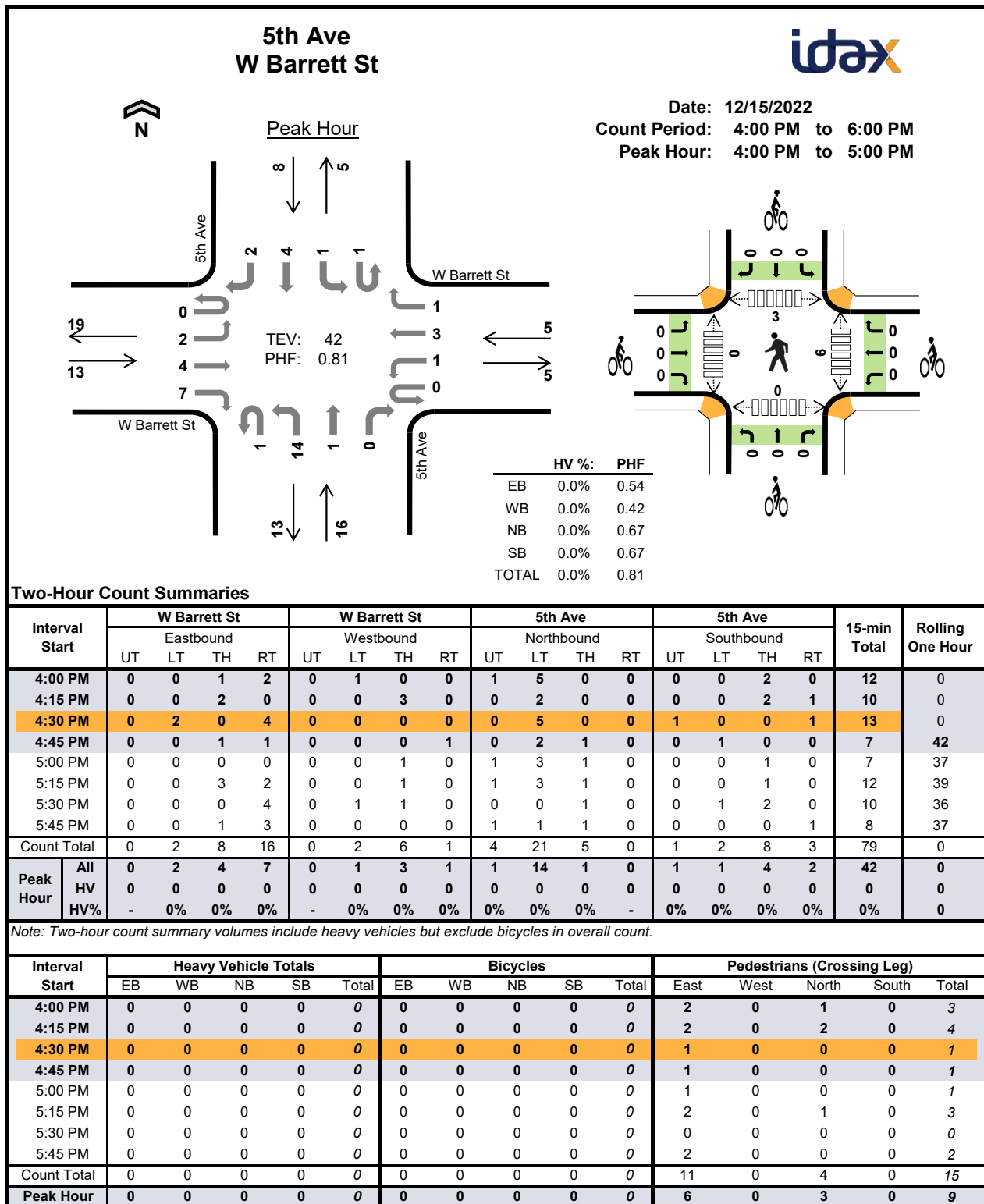
Two-Hour Count Summaries - Heavy Vehicles

Interval Start	W Barrett St				W Barrett St				5th Ave				5th Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Two-Hour Count Summaries - Bikes

Interval Start	W Barrett St			W Barrett St			5th Ave			5th Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	2	0	0	0	0	2	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	2	0	0	0	0	2	0
Peak Hour	0	0	0	0	0	0	0	2	0	0	0	0	2	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.



Two-Hour Count Summaries - Heavy Vehicles

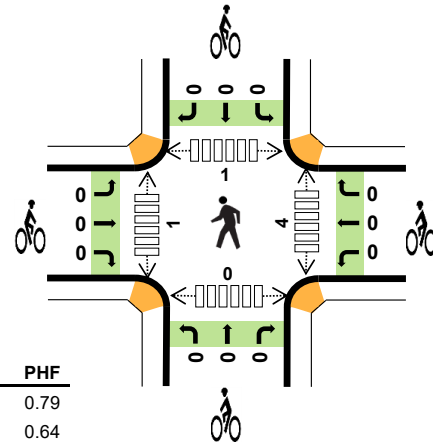
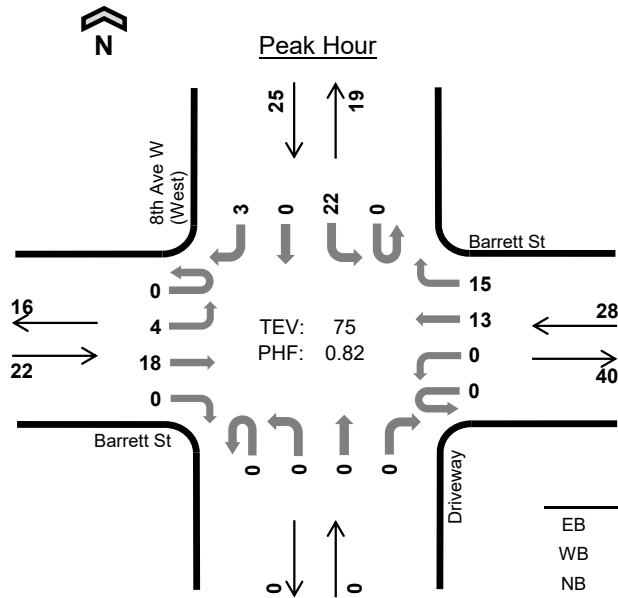
Interval Start	W Barrett St				W Barrett St				5th Ave				5th Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Two-Hour Count Summaries - Bikes

Interval Start	W Barrett St			W Barrett St			5th Ave			5th Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

8th Ave W (West) Barrett St



	HV %:	PHF
EB	0.0%	0.79
WB	0.0%	0.64
NB	-	-
SB	0.0%	0.69
TOTAL	0.0%	0.82

Two-Hour Count Summaries

Interval Start		Barrett St				Barrett St				Driveway				8th Ave W (West)				15-min Total	Rolling One Hour
		Eastbound		Westbound		Northbound		Southbound											
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	3	3	0	0	0	0	1	0	0	0	0	0	3	0	0	10	0
7:15 AM		0	1	2	0	0	0	0	1	0	0	0	0	0	3	0	0	7	0
7:30 AM		0	1	4	0	0	0	2	1	0	0	0	0	0	8	0	0	16	0
7:45 AM		0	1	6	0	0	0	3	4	0	0	0	0	0	8	0	1	23	56
8:00 AM		0	1	5	0	0	0	6	5	0	0	0	0	0	2	0	0	19	65
8:15 AM		0	1	3	0	0	0	2	5	0	0	0	0	0	4	0	2	17	75
8:30 AM		0	2	3	0	0	0	1	2	0	0	0	0	0	0	0	3	11	70
8:45 AM		0	0	0	0	0	0	3	2	0	0	0	0	0	6	0	2	13	60
Count Total		0	10	26	0	0	0	17	21	0	0	0	0	0	34	0	8	116	0
Peak Hour	All	0	4	18	0	0	0	13	15	0	0	0	0	0	22	0	3	75	0
	HV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	HV%	-	0%	0%	-	-	-	0%	0%	-	-	-	-	-	0%	-	0%	0%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

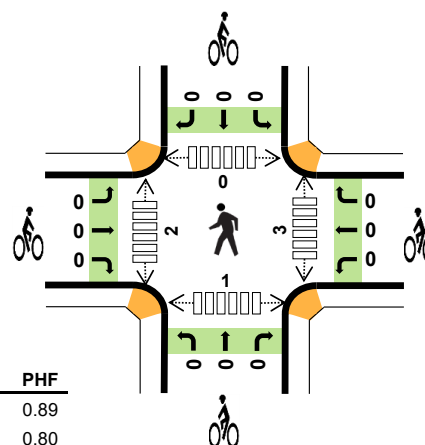
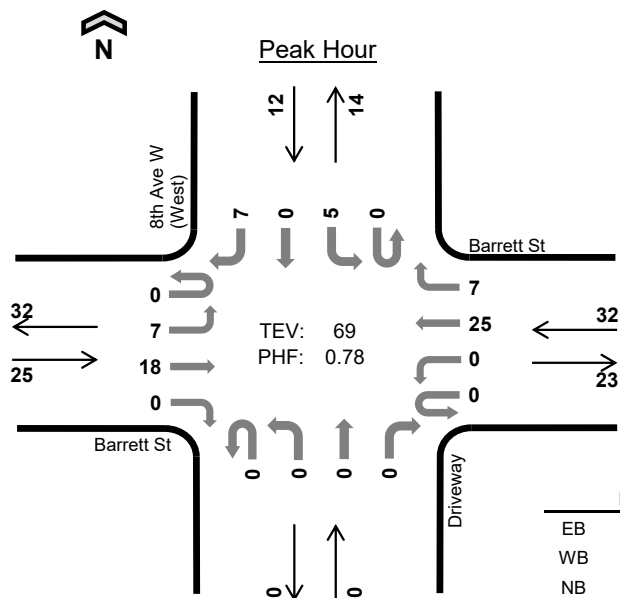
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	6	1	1	0	8
Peak Hour	0	0	0	0	0	0	0	0	0	0	4	1	1	0	6

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	Barrett St				Barrett St				Driveway				8th Ave W (West)				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Two-Hour Count Summaries - Bikes																	
Interval Start	Barrett St			Barrett St			Driveway			8th Ave W (West)			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

8th Ave W (West) Barrett St



	HV %:	PHF
EB	0.0%	0.89
WB	0.0%	0.80
NB	-	-
SB	0.0%	0.50
TOTAL	0.0%	0.78

Two-Hour Count Summaries

Interval Start	Barrett St Eastbound				Barrett St Westbound				Driveway Northbound				8th Ave W (West) Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	1	1	0	0	0	3	5	0	0	0	0	0	3	0	0	13	0
4:15 PM	0	1	5	0	0	0	0	4	0	0	0	0	0	0	0	3	13	0
4:30 PM	0	2	5	0	0	0	7	0	0	0	0	0	0	1	0	2	17	0
4:45 PM	0	1	4	0	0	0	6	0	0	0	0	0	0	1	0	1	13	56
5:00 PM	0	3	4	0	0	0	5	4	0	0	0	0	0	3	0	3	22	65
5:15 PM	0	1	5	0	0	0	7	3	0	0	0	0	0	0	0	1	17	69
5:30 PM	0	1	2	0	0	0	2	0	0	0	0	0	0	1	0	2	8	60
5:45 PM	0	4	4	0	0	0	2	3	0	0	0	0	0	2	0	0	15	62
Count Total	0	14	30	0	0	0	32	19	0	0	0	0	0	11	0	12	118	0
Peak Hour	All	0	7	18	0	0	0	25	7	0	0	0	0	0	5	7	69	0
	HV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	HV%	-	0%	0%	-	-	-	0%	0%	-	-	-	-	0%	-	0%	0%	0

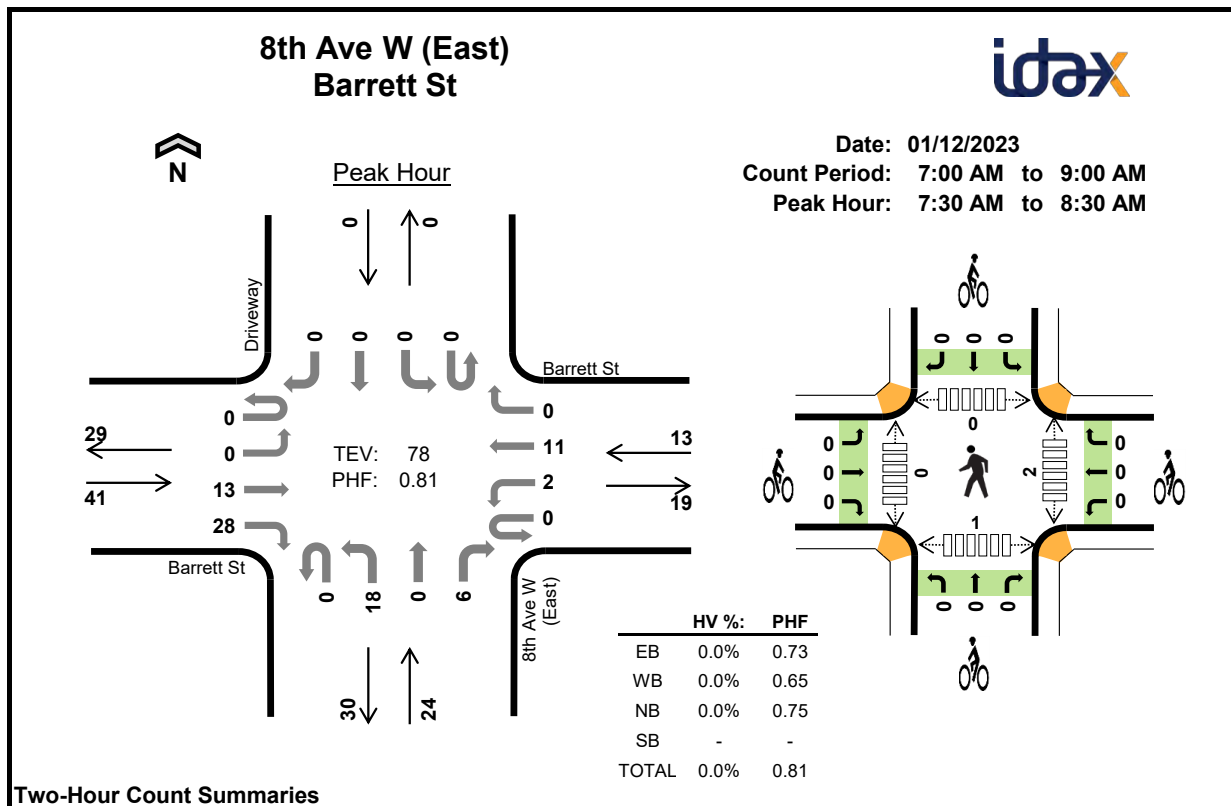
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	2	3
4:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	2	1	5
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	3	2	0	0	5
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	6	2	2	5	15
Peak Hour	0	0	0	0	0	0	0	0	0	0	3	2	0	1	6

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	Barrett St				Barrett St				Driveway				8th Ave W (West)				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Two-Hour Count Summaries - Bikes																	
Interval Start	Barrett St			Barrett St			Driveway			8th Ave W (West)			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

**Two-Hour Count Summaries**

Interval Start		Barrett St				Barrett St				8th Ave W (East)				Driveway				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	3	3	0	0	1	0	0	0	0	0	0	0	0	0	7	0
7:15 AM		0	0	2	3	0	1	1	0	0	0	0	0	0	0	0	0	7	0
7:30 AM		0	0	2	10	0	0	1	0	0	2	0	1	0	0	0	0	16	0
7:45 AM		0	0	5	9	0	1	2	0	0	5	0	2	0	0	0	0	24	54
8:00 AM		0	0	3	5	0	0	5	0	0	7	0	1	0	0	0	0	21	68
8:15 AM		0	0	3	4	0	1	3	0	0	4	0	2	0	0	0	0	17	78
8:30 AM		0	0	2	1	1	0	0	0	0	3	0	0	0	0	0	0	7	69
8:45 AM		0	0	0	6	0	1	4	0	0	1	0	1	0	0	0	0	13	58
Count Total		0	0	20	41	1	4	17	0	0	22	0	7	0	0	0	0	112	0
Peak Hour	All	0	0	13	28	0	2	11	0	0	18	0	6	0	0	0	0	78	0
	HV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	HV%	-	-	0%	0%	-	0%	0%	-	-	0%	-	0%	-	-	-	-	0%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

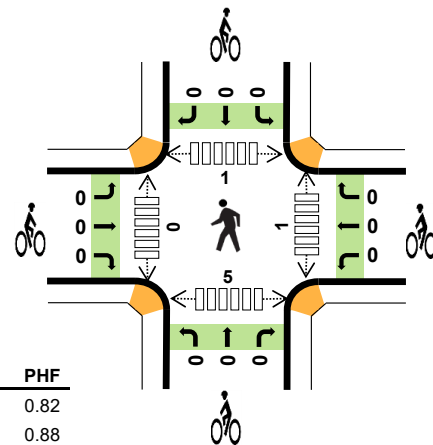
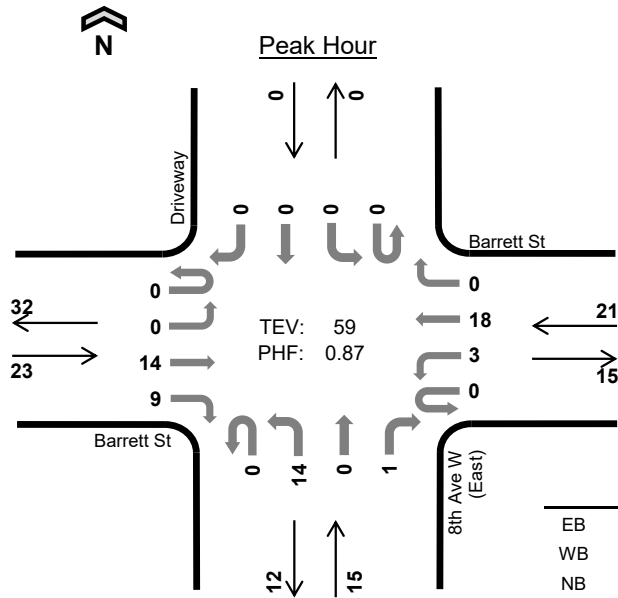
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	2	3	0	1	6
Peak Hour	0	0	0	0	0	0	0	0	0	0	2	0	0	1	3

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	Barrett St				Barrett St				8th Ave W (East)				Driveway				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Two-Hour Count Summaries - Bikes																	
Interval Start	Barrett St			Barrett St			8th Ave W (East)			Driveway			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

8th Ave W (East) Barrett St



	HV %:	PHF
EB	0.0%	0.82
WB	0.0%	0.88
NB	0.0%	0.63
SB	-	-
TOTAL	0.0%	0.87

Two-Hour Count Summaries

Interval Start	Barrett St Eastbound				Barrett St Westbound				8th Ave W (East) Northbound				Driveway Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	1	3	0	0	4	0	0	4	0	3	0	0	0	0	15	0
4:15 PM	0	0	4	0	0	3	0	0	0	4	0	2	0	0	0	0	13	0
4:30 PM	0	0	3	3	0	1	5	0	0	2	0	0	0	0	0	0	14	0
4:45 PM	0	0	3	2	0	0	4	0	0	2	0	0	0	0	0	0	11	53
5:00 PM	0	0	3	4	0	1	4	0	0	5	0	0	0	0	0	0	17	55
5:15 PM	0	0	5	0	0	1	5	0	0	5	0	1	0	0	0	0	17	59
5:30 PM	0	0	2	1	0	1	1	0	0	1	0	1	0	0	0	0	7	52
5:45 PM	0	0	4	2	0	0	3	0	0	2	0	1	0	0	0	0	12	53
Count Total	0	0	25	15	0	7	26	0	0	25	0	8	0	0	0	0	106	0
Peak Hour	All	0	0	14	9	0	3	18	0	0	14	0	1	0	0	0	59	0
	HV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	HV%	-	-	0%	0%	-	0%	0%	-	-	0%	-	0%	-	-	-	0%	0

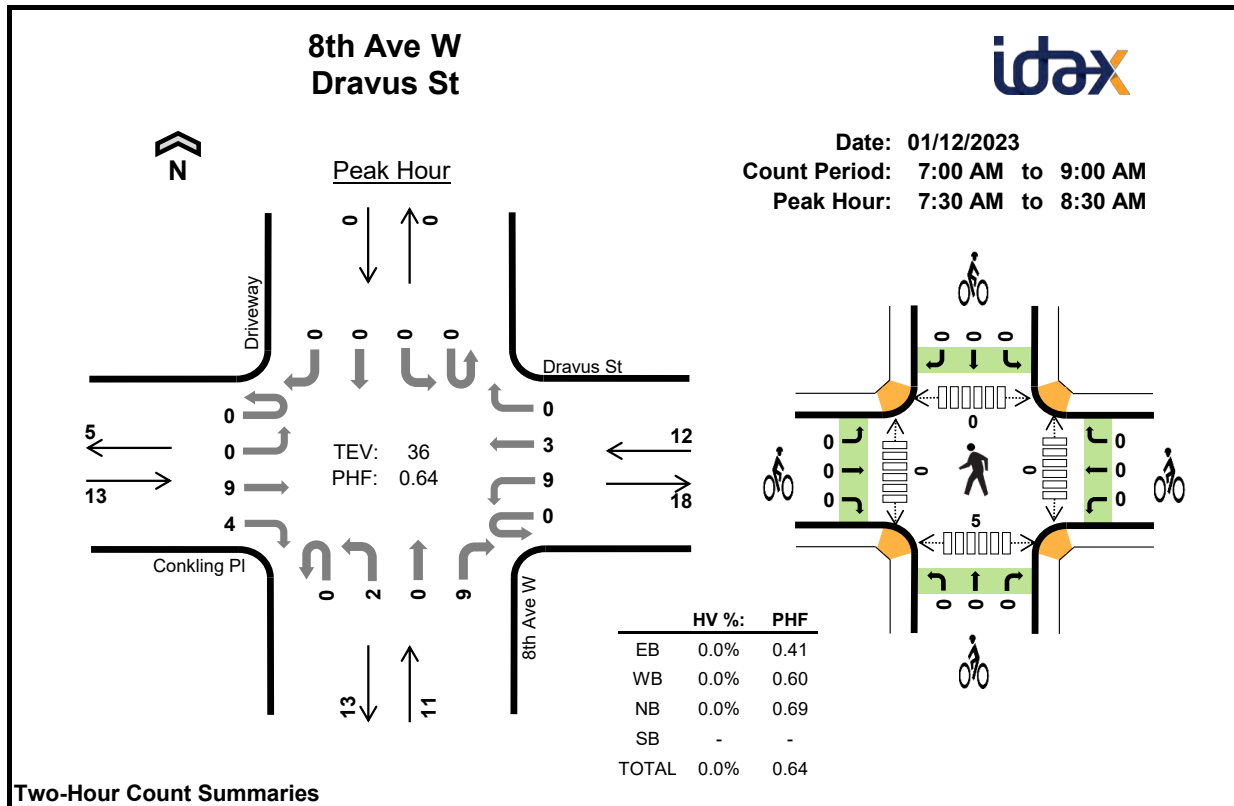
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	2	3
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	2	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	1	1	3	8	13
Peak Hour	0	0	0	0	0	0	0	0	0	0	1	0	1	5	7

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	Barrett St				Barrett St				8th Ave W (East)				Driveway				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Two-Hour Count Summaries - Bikes																	
Interval Start	Barrett St			Barrett St			8th Ave W (East)			Driveway			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

**Two-Hour Count Summaries**

Interval Start		Conkling Pl				Dravus St				8th Ave W				Driveway				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	0	1	0	0	1	0	0	0	0	2	0	0	0	0	4	0
7:15 AM		0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
7:30 AM		0	0	6	2	0	2	1	0	0	0	0	2	0	0	0	0	13	0
7:45 AM		0	0	3	2	0	4	1	0	0	1	0	3	0	0	0	0	14	34
8:00 AM		0	0	0	0	0	2	1	0	0	0	0	2	0	0	0	0	5	35
8:15 AM		0	0	0	0	0	1	0	0	0	1	0	2	0	0	0	0	4	36
8:30 AM		0	0	2	0	0	1	1	0	0	0	0	3	0	0	0	0	7	30
8:45 AM		0	0	2	2	0	1	0	0	0	0	0	1	0	0	0	0	6	22
Count Total		0	0	16	7	0	11	5	0	0	2	0	15	0	0	0	0	56	0
Peak Hour	All	0	0	9	4	0	9	3	0	0	2	0	9	0	0	0	0	36	0
	HV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	HV%	-	-	0%	0%	-	0%	0%	-	-	0%	-	0%	-	-	-	-	0%	0

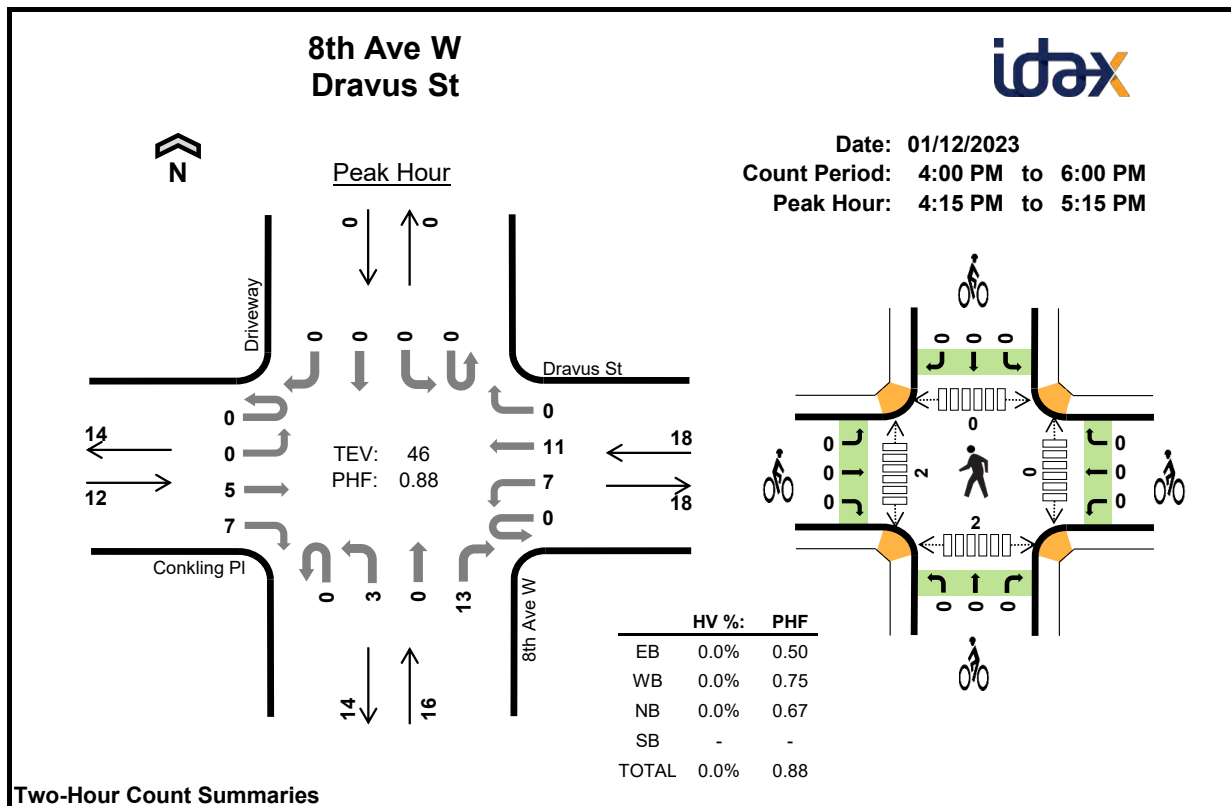
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	1	0	1	0	0	4	0	4
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
Count Total	0	0	0	0	0	0	0	1	0	1	0	0	4	9	13
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	Conkling PI				Dravus St				8th Ave W				Driveway				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Two-Hour Count Summaries - Bikes																	
Interval Start	Conkling PI			Dravus St			8th Ave W			Driveway			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	1	0			
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1			
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1			
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Count Total	0	0	0	0	0	0	0	0	1	0	0	0	1	0			
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

Note: U-Turn volumes for bikes are included in Left-Turn, if any.



Two-Hour Count Summaries

Interval Start		Conkling PI				Dravus St				8th Ave W				Driveway				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	0	2	1	0	2	3	0	0	0	0	2	0	0	0	0	10	0
4:15 PM		0	0	1	2	0	2	3	0	0	1	0	4	0	0	0	0	13	0
4:30 PM		0	0	3	3	0	1	2	0	0	0	0	2	0	0	0	0	11	0
4:45 PM		0	0	0	0	0	4	2	0	0	0	0	3	0	0	0	0	9	43
5:00 PM		0	0	1	2	0	0	4	0	0	2	0	4	0	0	0	0	13	46
5:15 PM		0	0	3	0	0	3	0	0	0	1	0	1	0	0	0	0	8	41
5:30 PM		0	0	3	1	0	3	2	0	0	0	0	1	0	0	0	0	10	40
5:45 PM		0	0	0	1	0	2	0	0	0	0	0	3	0	0	0	0	6	37
Count Total		0	0	13	10	0	17	16	0	0	4	0	20	0	0	0	0	80	0
Peak Hour	All	0	0	5	7	0	7	11	0	0	3	0	13	0	0	0	0	46	0
	HV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	HV%	-	-	0%	0%	-	0%	0%	-	-	0%	-	0%	-	-	-	-	0%	0

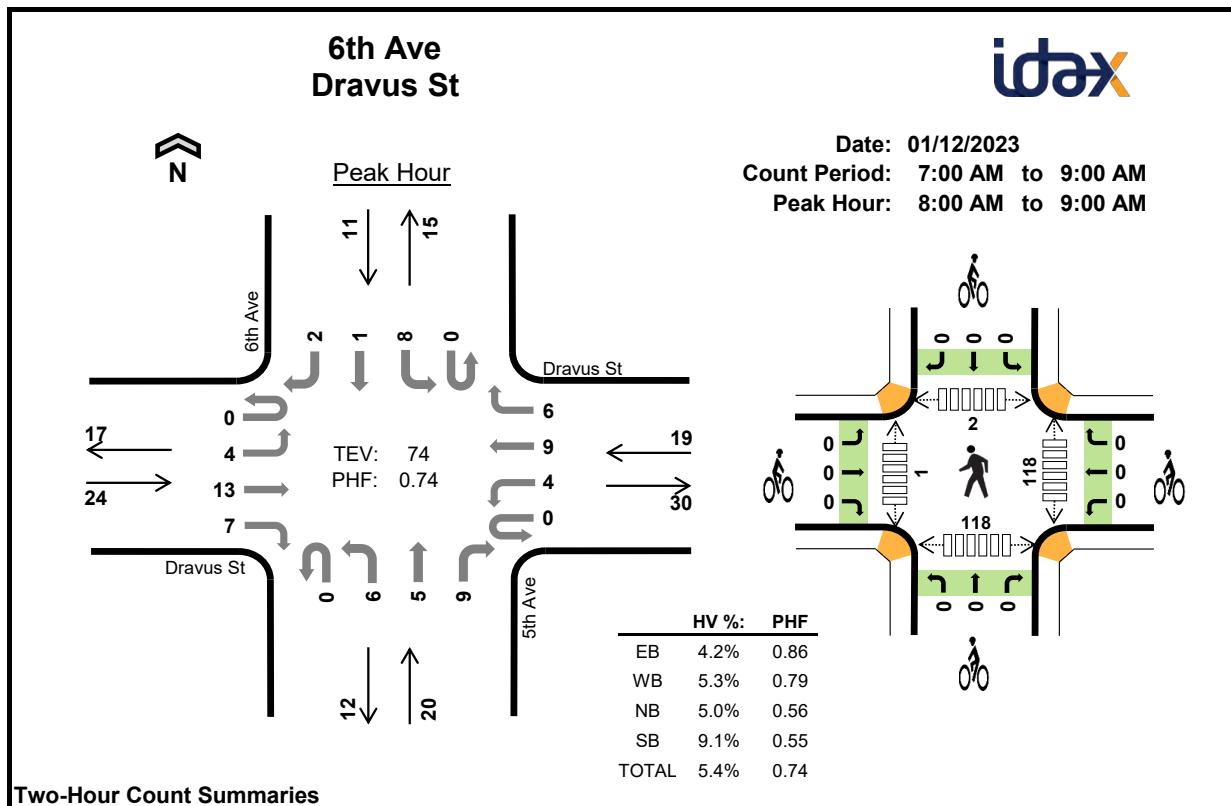
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	5	8
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	3	2	0	8	13
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	2	0	2	4

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	Conkling PI				Dravus St				8th Ave W				Driveway				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Two-Hour Count Summaries - Bikes																	
Interval Start	Conkling PI			Dravus St			8th Ave W			Driveway			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

**Two-Hour Count Summaries**

Interval Start		Dravus St				Dravus St				5th Ave				6th Ave				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	1	0	0	0	0	1	0	1	0	0	1	0	0	0	4	0
7:15 AM		0	1	5	0	0	0	1	1	0	0	0	0	0	1	2	1	12	0
7:30 AM		0	1	5	2	0	2	1	0	0	0	2	0	0	0	0	0	13	0
7:45 AM		0	1	6	2	0	0	5	1	0	0	0	1	1	0	1	0	18	47
8:00 AM		0	1	2	1	0	1	3	0	0	1	1	0	0	3	0	1	14	57
8:15 AM		0	1	2	3	0	0	3	1	0	1	0	1	0	0	0	0	12	57
8:30 AM		0	1	3	3	0	2	2	1	0	2	3	4	0	0	1	1	23	67
8:45 AM		0	1	6	0	0	1	1	4	0	2	1	4	0	5	0	0	25	74
Count Total		0	7	30	11	0	6	16	9	0	7	7	10	2	9	4	3	121	0
Peak Hour	All	0	4	13	7	0	4	9	6	0	6	5	9	0	8	1	2	74	0
	HV	0	0	0	1	0	0	1	0	0	0	1	0	0	1	0	0	4	0
	HV%	-	0%	0%	14%	-	0%	11%	0%	-	0%	20%	0%	-	13%	0%	0%	5%	0

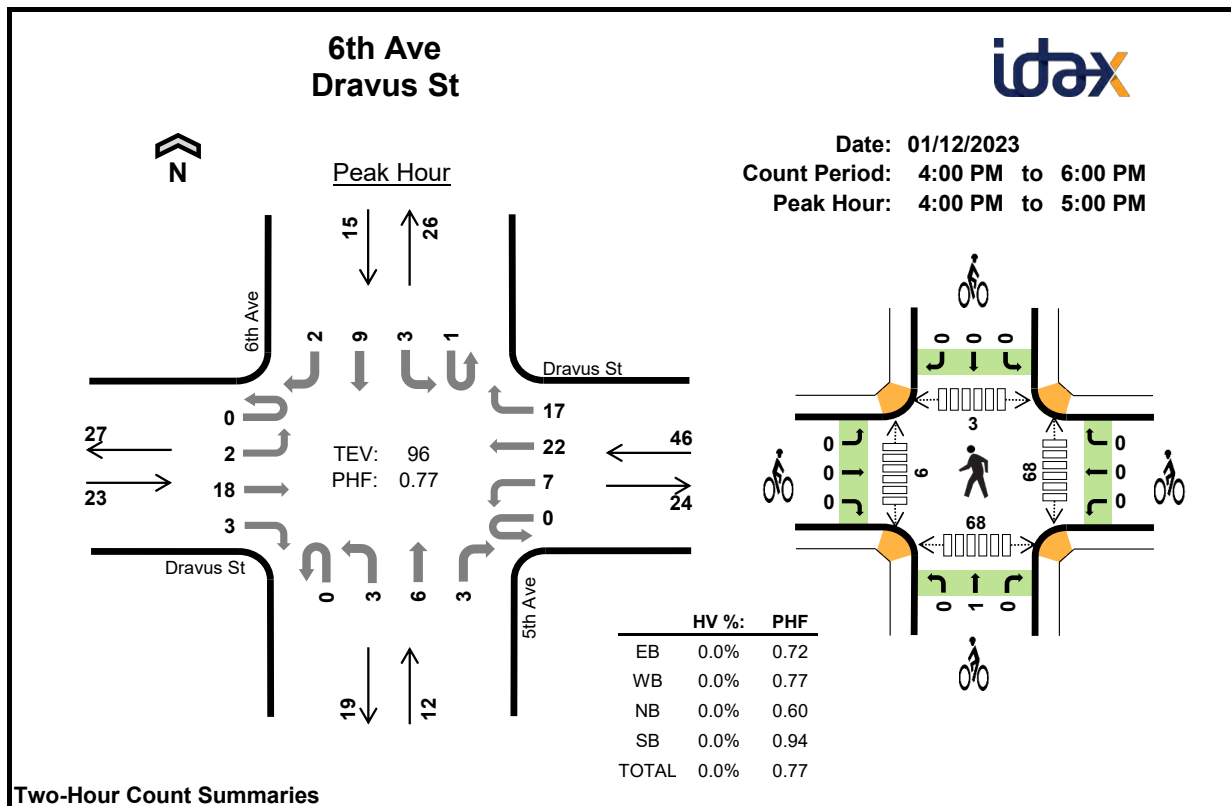
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	3	0	1	5
7:15 AM	0	0	0	1	1	0	0	0	0	0	2	0	1	2	5
7:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	2	4
7:45 AM	0	0	0	0	0	0	0	0	0	0	6	1	1	6	14
8:00 AM	0	0	0	1	1	0	0	0	0	0	10	0	0	10	20
8:15 AM	1	1	0	0	2	0	0	0	0	0	1	0	1	1	3
8:30 AM	0	0	1	0	1	0	0	0	0	0	39	0	1	39	79
8:45 AM	0	0	0	0	0	0	0	0	0	0	68	1	0	68	137
Count Total	1	1	1	2	5	0	0	0	0	0	129	5	4	129	267
Peak Hour	1	1	1	1	4	0	0	0	0	0	118	1	2	118	239

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	Dravus St				Dravus St				5th Ave				6th Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:15 AM	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	1	0	0	1	0	0	0	1	0	0	0	1	0	1	5
Peak Hour	0	0	0	1	0	0	1	0	0	0	1	0	0	0	1	0	0	4

Two-Hour Count Summaries - Bikes																	
Interval Start	Dravus St			Dravus St			5th Ave			6th Ave			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

**Two-Hour Count Summaries**

Interval Start		Dravus St				Dravus St				5th Ave				6th Ave				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	0	5	0	0	3	4	7	0	1	0	0	0	0	3	1	24	0
4:15 PM		0	2	5	1	0	2	9	4	0	2	2	1	1	0	2	0	31	0
4:30 PM		0	0	5	1	0	1	3	1	0	0	2	1	0	2	2	0	18	0
4:45 PM		0	0	3	1	0	1	6	5	0	0	2	1	0	1	2	1	23	96
5:00 PM		0	0	2	0	0	2	5	1	0	1	3	1	0	2	4	0	21	93
5:15 PM		0	1	3	1	0	0	5	0	0	0	1	0	1	1	4	1	18	80
5:30 PM		0	1	3	1	0	1	5	1	0	0	1	1	0	1	2	1	18	80
5:45 PM		0	3	4	0	1	2	7	1	0	1	3	2	0	1	3	0	28	85
Count Total		0	7	30	5	1	12	44	20	0	5	14	7	2	8	22	4	181	0
Peak Hour	All	0	2	18	3	0	7	22	17	0	3	6	3	1	3	9	2	96	0
	HV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	HV%	-	0%	0%	0%	-	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	0%	0%	0

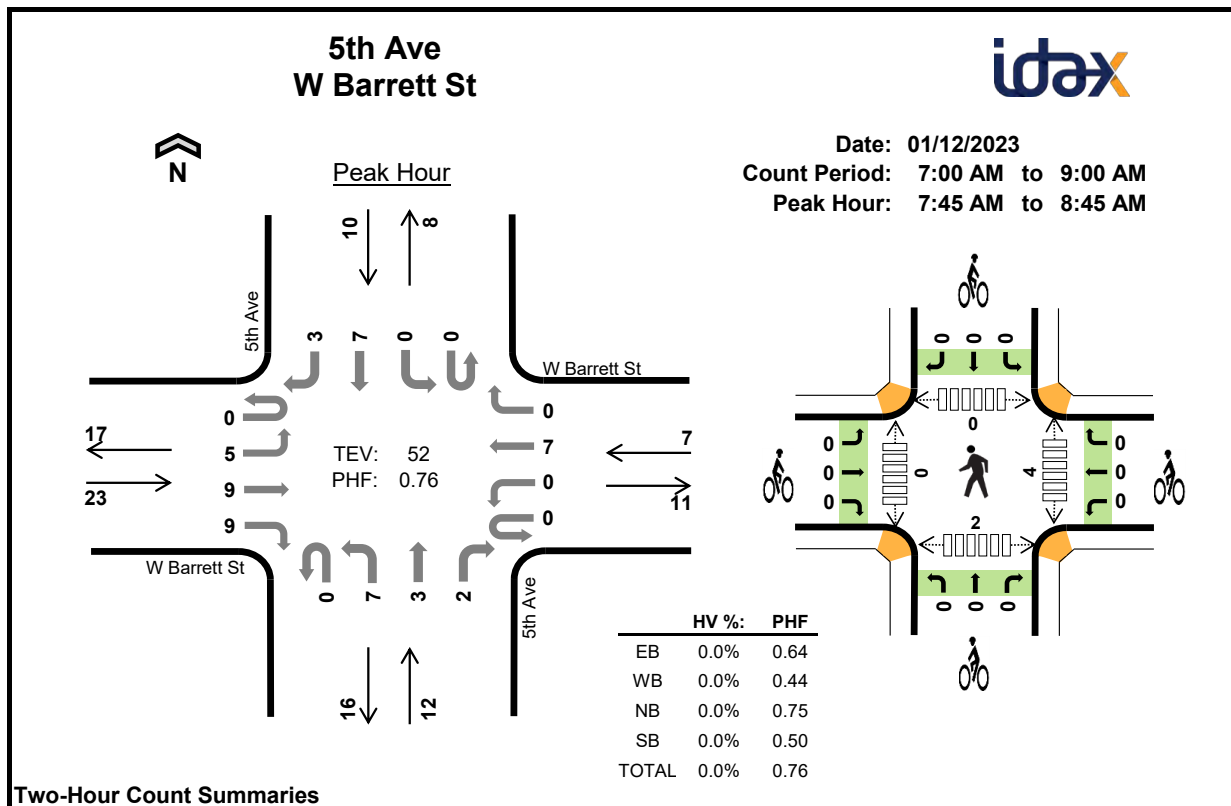
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	21	3	0	21	45
4:15 PM	0	0	0	0	0	0	0	1	0	1	14	1	1	14	30
4:30 PM	0	0	0	0	0	0	0	0	0	0	20	2	1	20	43
4:45 PM	0	0	0	0	0	0	0	0	0	0	13	0	1	13	27
5:00 PM	0	0	0	0	0	0	0	0	0	0	34	4	1	34	73
5:15 PM	0	0	0	0	0	0	0	0	0	0	15	1	1	15	32
5:30 PM	0	0	0	0	0	0	0	0	0	0	32	5	0	32	69
5:45 PM	0	0	0	0	0	0	0	0	0	0	34	1	0	34	69
Count Total	0	0	0	0	0	0	0	1	0	1	183	17	5	183	388
Peak Hour	0	0	0	0	0	0	0	1	0	1	68	6	3	68	145

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	Dravus St				Dravus St				5th Ave				6th Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Two-Hour Count Summaries - Bikes																	
Interval Start	Dravus St			Dravus St			5th Ave			6th Ave			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	0			
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1			
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1			
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Count Total	0	0	0	0	0	0	0	1	0	0	0	0	1	0			
Peak Hour	0	0	0	0	0	0	0	1	0	0	0	0	1	0			

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

**Two-Hour Count Summaries**

Interval Start		W Barrett St				W Barrett St				5th Ave				5th Ave				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
	7:00 AM	0	0	0	2	0	0	0	0	0	1	1	0	0	0	0	0	4	0
	7:15 AM	0	0	1	3	0	1	0	0	0	1	0	0	0	0	0	0	6	0
	7:30 AM	0	1	0	2	0	1	0	0	0	1	0	0	0	1	3	0	9	0
	7:45 AM	0	1	6	2	0	0	1	0	0	2	1	1	0	0	3	0	17	36
	8:00 AM	0	1	1	2	0	0	2	0	0	3	1	0	0	0	0	1	11	43
	8:15 AM	0	0	1	3	0	0	4	0	0	0	0	0	0	0	1	0	9	46
	8:30 AM	0	3	1	2	0	0	0	0	0	2	1	1	0	0	3	2	15	52
	8:45 AM	0	4	0	0	0	0	2	0	0	1	2	0	0	1	1	0	11	46
Count Total		0	10	10	16	0	2	9	0	0	11	6	2	0	2	11	3	82	0
Peak Hour	All	0	5	9	9	0	0	7	0	0	7	3	2	0	0	7	3	52	0
	HV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	HV%	-	0%	0%	0%	-	-	0%	-	-	0%	0%	0%	-	-	0%	0%	0%	0

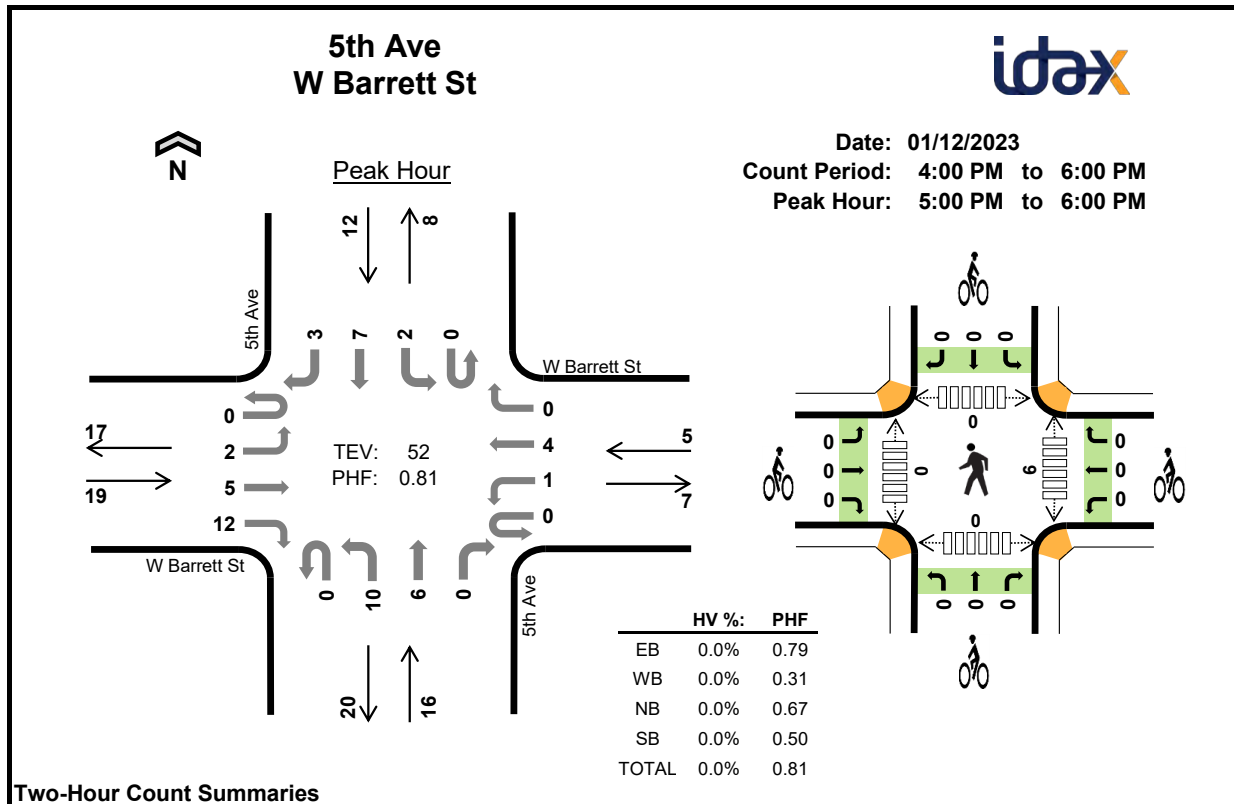
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	2	4
8:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Count Total	0	0	0	0	0	0	0	0	0	0	5	0	0	2	7
Peak Hour	0	0	0	0	0	0	0	0	0	0	4	0	0	2	6

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	W Barrett St				W Barrett St				5th Ave				5th Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Two-Hour Count Summaries - Bikes																	
Interval Start	W Barrett St			W Barrett St			5th Ave			5th Ave			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

**Two-Hour Count Summaries**

Interval Start		W Barrett St				W Barrett St				5th Ave				5th Ave				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	0	0	3	0	0	0	0	0	6	2	0	0	1	3	0	15	0
4:15 PM		0	0	2	2	0	0	0	0	0	1	1	0	0	0	3	1	10	0
4:30 PM		1	0	2	0	0	0	2	0	0	4	0	0	0	0	1	1	11	0
4:45 PM		0	0	1	1	0	2	1	0	0	2	0	1	0	0	0	0	8	44
5:00 PM		0	0	0	4	0	1	3	0	0	2	3	0	0	0	2	0	15	44
5:15 PM		0	0	3	3	0	0	0	0	0	3	1	0	0	0	4	2	16	50
5:30 PM		0	0	1	2	0	0	1	0	0	1	0	0	0	1	1	1	8	47
5:45 PM		0	2	1	3	0	0	0	0	0	4	2	0	0	1	0	0	13	52
Count Total		1	2	10	18	0	3	7	0	0	23	9	1	0	3	14	5	96	0
Peak Hour	All	0	2	5	12	0	1	4	0	0	10	6	0	0	2	7	3	52	0
	HV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	HV%	-	0%	0%	0%	-	0%	0%	-	-	0%	0%	-	-	0%	0%	0%	0%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	5
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	13	0	0	1	14
Peak Hour	0	0	0	0	0	0	0	0	0	0	6	0	0	0	6

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	W Barrett St				W Barrett St				5th Ave				5th Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Two-Hour Count Summaries - Bikes																	
Interval Start	W Barrett St			W Barrett St			5th Ave			5th Ave			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Appendix B Employee/Student Commute Survey Data

CTR Employer Survey Report

Thank you for completing your Commute Trip Reduction survey. This report contains the survey results.

Employer Id : E81844

Participation : CTR

Employer : Seattle Pacific University

Status : Affected

Worksite : Headquarters

Survey Type : Online

Street : 3307 3rd Ave W

Response Rate : 76%

Jurisdiction : City of Seattle

Survey Date : 11/9/2019

Non-Drive Alone & One-Way VMT Rates at this Worksite

Non-Drive Alone Rate : 49.3%

Drive Alone Rate : 50.7%

One-Way VMT per employee : 7.0

Average One-Way distance home to work : 12.7

Employees and Survey Response Information

Reported Total Employees at Worksite : 593

Surveys Distributed : 589

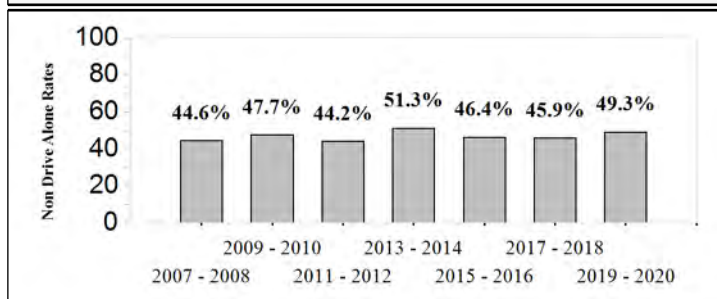
Surveys Returned : 446

Surveys Returned by CTR Affected* Employees : 393

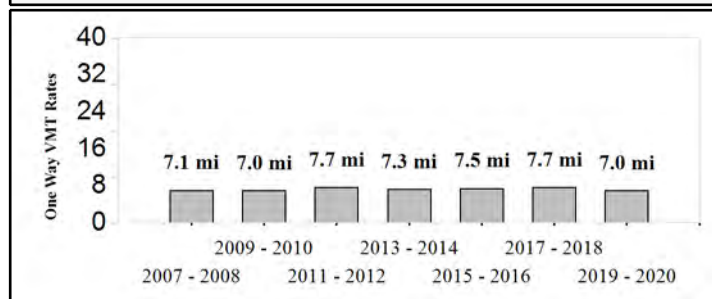
Total Estimated CTR Affected Employees at Worksite : 519

*CTR Affected employees filled out the survey as being full-time and commuting (typically) to work at least twice between 6a and 9a, Monday through Friday.

Non Drive Alone Rates - ALL Employees



One Way VMT per Employee - ALL Employees



Site History and Targets

Annual Metric Tons CO2e Pounds CO2e

Cycle	Non Drive Alone Rate - All	Non Drive Alone Rate - CTR Affected	Emissions for Surveyed Employees	Estimated Emissions for Total Employment	GHG per Employee's Roundtrip	VMT per Employee - All	VMT per Employee - CTR Affected
2007 - 2008	44.6%	47.5%	510	812	12.1	7.1	6.9
2009 - 2010	47.7%	48.9%	592	888	13.2	7.0	7.1
2011 - 2012	44.2%	48.0%	663	910	13.5	7.7	7.5
2013 - 2014	51.3%	53.7%	640	1206	17.9	7.3	7.2
2015 - 2016	46.4%	48.8%	667	992	14.8	7.5	7.4
2017 - 2018	45.9%	48.2%	764	1004	14.9	7.7	7.5
2019 - 2020	49.3%	50.5%	682	907	13.5	7.0	7.0
Target	51.0%				Target:	N/A	
% Point Change Target:	6.4				% Change Target:	N/A	
% Point Change from Baseline:	4.7				% Change from Baseline:	-1.4%	

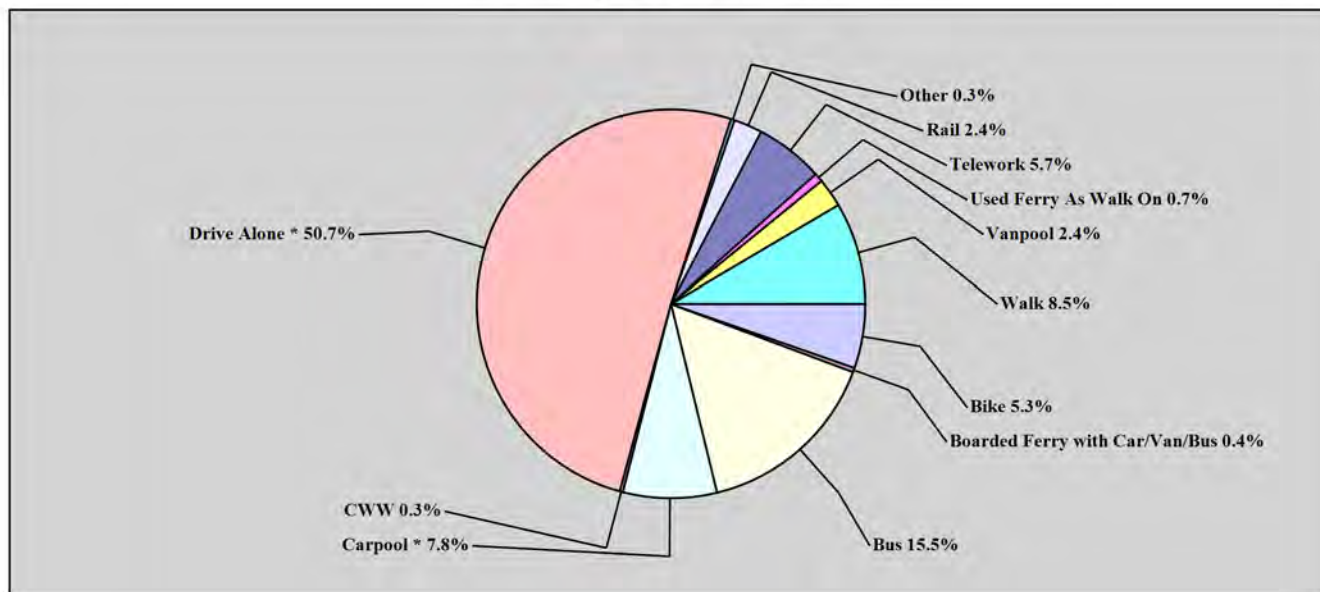
GHG calculations are based on VMT and estimated total round-trip commutes for all employees. Modes that contribute to GHG include driving alone, carpooling, vanpooling, and riding a motorcycle. The use of other modes (e.g., transit, rail, walking, ferry) do not increase a worksite's GHG calculation. For more information about how GHG is calculated, please contact your jurisdiction's representative.



Commute Trips By Mode - All Employees

Q.4: Last week, what type of transportation did you use each day to commute TO your usual work location? (Mode used for the longest distance.)

Mode Split - All Employees



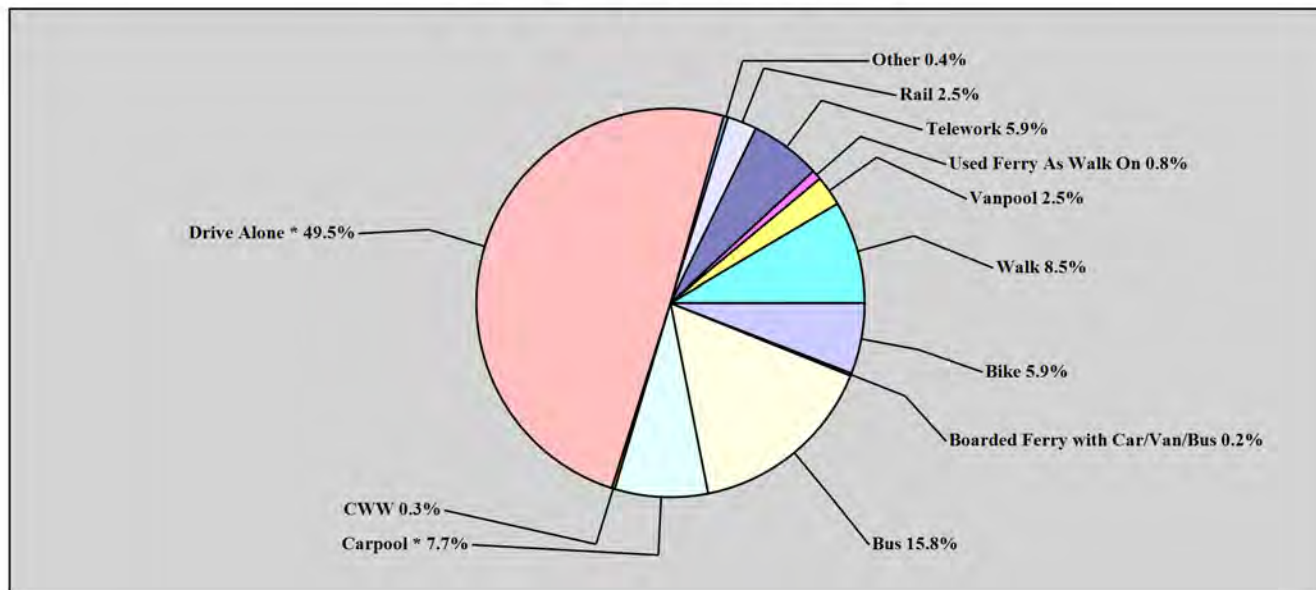
Mode	Trips During This Survey	% of Trips During This Survey	% of Trips During Previous Survey	Employees Who Used This Mode at Least Once During This Survey	% of Employees Who Used This Mode at Least Once During This Survey	% of Employees Who Used This Mode at Least Once During Previous Survey
Drive Alone *	1,113	50.7%	54.1%	306	68.6%	67.1%
Carpool *	171	7.8%	7.7%	58	13.0%	11.8%
Vanpool	53	2.4%	2.4%	14	3.1%	3.3%
Bus	340	15.5%	17.1%	107	24.0%	24.0%
Rail	52	2.4%	2.7%	14	3.1%	4.1%
Bike	117	5.3%	4.0%	37	8.3%	7.2%
Walk	186	8.5%	6.7%	46	10.3%	8.3%
Telework	125	5.7%	3.9%	70	15.7%	12.6%
CWW	6	0.3%	0.4%	6	1.3%	1.5%
Boarded Ferry with Car/Van/Bus	8	0.4%	0.0%	4	0.9%	0.0%
Used Ferry As Walk On	16	0.7%	0.5%	4	0.9%	0.9%
Other	7	0.3%	0.5%	3	0.7%	0.7%

* Motorcycle-1 is now included in Drive Alone and Motorcycle-2 is included in Carpool. Information about these trips is still available by request.

Commute Trips By Mode - Affected Employees

Q.4: Last week, what type of transportation did you use each day to commute TO your usual work location? (Mode used for the longest distance.)

Mode Split - CTR Affected Employees



Mode	Trips During This Survey	% of Trips During This Survey	% of Trips During Previous Survey	Employees Who Used This Mode at Least Once During This Survey	% of Employees Who Used This Mode at Least Once During This Survey	% of Employees Who Used This Mode at Least Once During Previous Survey
Drive Alone *	966	49.5%	51.8%	266	67.7%	65.5%
Carpool *	151	7.7%	8.1%	50	12.7%	12.1%
Vanpool	49	2.5%	2.6%	13	3.3%	3.4%
Bus	308	15.8%	18.3%	96	24.4%	25.6%
Rail	48	2.5%	3.0%	12	3.1%	4.4%
Bike	115	5.9%	4.5%	36	9.2%	7.9%
Walk	166	8.5%	6.5%	41	10.4%	8.1%
Telework	115	5.9%	4.1%	65	16.5%	12.8%
CWW	5	0.3%	0.4%	5	1.3%	1.7%
Boarded Ferry with Car/Van/Bus	4	0.2%	0.0%	3	0.8%	0.0%
Used Ferry As Walk On	16	0.8%	0.6%	4	1.0%	1.0%
Other	7	0.4%	0.3%	3	0.8%	0.5%

* Motorcycle-1 is now included in Drive Alone and Motorcycle-2 is included in Carpool. Information about these trips is still available by request.

Alternative Modes - Number of Employees Who Used a Non-Drive Alone Mode:

Non-Drive Alone Number Of Days	Exactly this # of Employees	Exactly this % of Employees	At least # of Employees	At least % of employees
0 Day	164	37%	446	100%
1 Days	30	7%	282	63%
2 Days	31	7%	252	57%
3 Days	41	9%	221	50%
4 Days	64	14%	180	40%
5 Days	99	22%	116	26%
6 or More Days	17	4%	17	4%

Count by Occupancy of Carpools and Vanpools

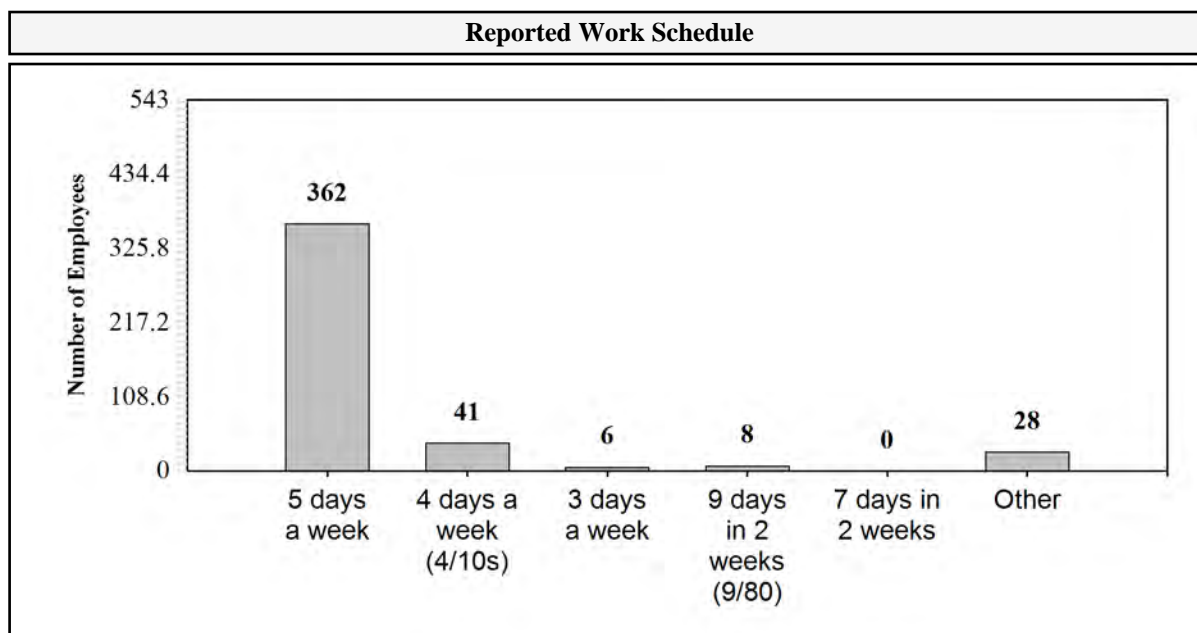
Q.5 If you used a carpool or vanpool as part of your commute, how many people (age 16 or older) are usually in the vehicle?

Ridesharing Occupancy	Mode	Response Count
2*	Carpool	165
3	Carpool	0
4	Carpool	0
5	Carpool	6
>5	Carpool	0
<5	Vanpool	15
5	Vanpool	34
6	Vanpool	4
7	Vanpool	0
8	Vanpool	0
9	Vanpool	0
10	Vanpool	0
11	Vanpool	0
12	Vanpool	0
13	Vanpool	0
14	Vanpool	0
>14	Vanpool	0

* Motorcycle-2 counted with Carpool-2 for this table.

Reported Work Schedule - All Employees

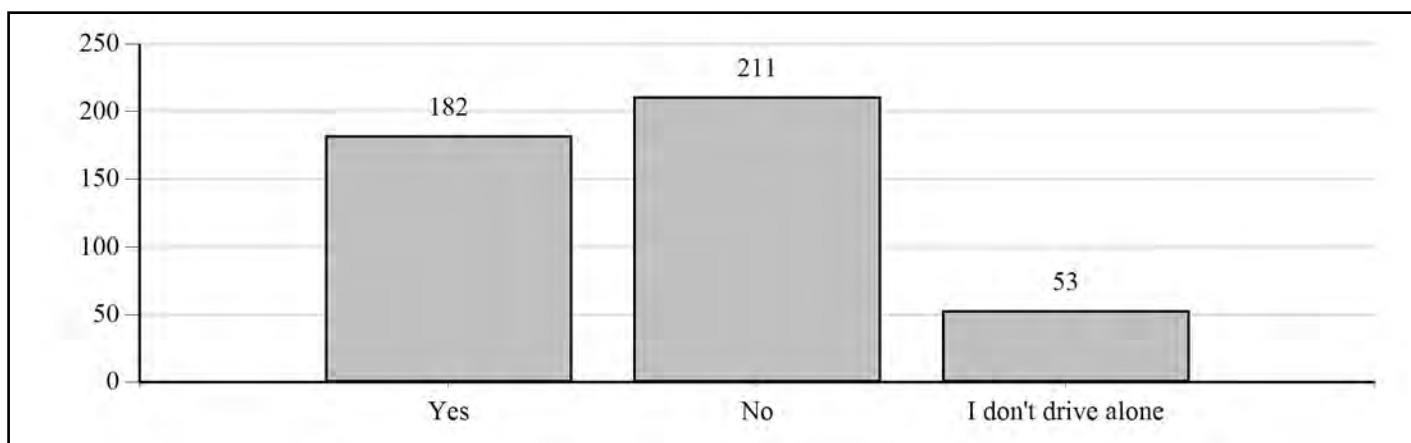
Q.8 Which of the following best describes your work schedule?



Reported Work Schedule	# Of Responses	% Of Employees
5 days a week	362	81.3%
4 days a week (4/10s)	41	9.2%
3 days a week	6	1.3%
9 days in 2 weeks (9/80)	8	1.8%
7 days in 2 weeks	0	0%
Other	28	6.3%

Parking and Telework

Q.9: On the most recent day that you drove alone to work, did you pay to park? (Mark "yes" if you paid that day, if you prepaid, if you are billed later, or if the cost of parking is deducted from your paycheck.)



Q.10: How many days do you typically telework?

Telework Frequency	# of Responses	% of Responses
No Answer/Blank	0	0.0%
I don't telework	195	43.7%
Occasionally, on an as-needed basis	121	27.1%
1-2 days/month	30	6.7%
1 day/week	70	15.7%
2 days/week	21	4.7%
3 days/week	9	2.0%

Reasons for driving alone to work/not driving alone to work
Q11. When you do not drive alone to work, what are the three most important reasons?

Question Text	# of Responses	% of Responses
Free or subsidized bus, train, vanpool pass or fare benefit	189	18.3%
To save money	133	12.9%
Environmental and community benefits	130	12.6%
Personal health or well-being	129	12.5%
I have the option of teleworking	106	10.2%
Cost of parking or lack of parking	89	8.6%
Other	66	6.4%
Financial incentives for carpooling, bicycling or walking.	62	6.0%
Driving myself is not an option	55	5.3%
To save time using the HOV lane	51	4.9%
Preferred/reserved carpool/vanpool parking is provided	11	1.1%
Emergency ride home is provided	9	0.9%
I receive a financial incentive for giving up my parking space	5	0.5%

Q12. When you drive alone to work, what are the three most important reasons?

Question Text	# of Responses	% of Responses
Riding the bus or train is inconvenient or takes too long	274	27.4%
I like the convenience of having my car	225	22.5%
Family care or similar obligations	196	19.6%
Other	112	11.2%
My job requires me to use my car for work	68	6.8%
My commute distance is too short	59	5.9%
Bicycling or walking isn't safe	50	5.0%
I need more information on alternative modes	10	1.0%
There isn't any secure or covered bicycle parking	5	0.5%

Commute Mode By ZipCode for All Employees

Q6. What is your home zip code?

Home Zip code	Total Employees	Employee Percentage	Weekly Count of Trips By Mode												
			Drive Alone	Carpool	Vanpool	Motorcycle	Bus	Train	Bike	Walk	Telework	CWW	Ferry (Car/Van/Bus)	Ferry (walk-on)	Other
98119	47	10.54%	47	7	0	0	38	0	1	143	6	0	0	0	0
98199	34	7.62%	93	7	0	0	41	0	14	12	2	2	0	0	0
98133	28	6.28%	100	0	0	0	16	0	12	0	9	0	0	0	3
98103	25	5.61%	72	0	0	0	12	3	27	5	1	0	4	0	0
98117	24	5.38%	66	18	0	0	13	0	20	0	4	0	0	0	0
98115	20	4.48%	53	8	0	0	26	0	8	0	2	0	0	0	0
98177	18	4.04%	58	18	0	0	4	0	0	0	3	0	0	0	0
98026	14	3.14%	31	13	3	0	9	0	0	0	6	0	0	0	1
98155	13	2.91%	37	12	0	0	7	0	2	0	5	1	0	0	0
98020	11	2.47%	50	2	0	0	0	0	0	0	1	0	0	0	0
98043	10	2.24%	14	10	12	0	8	0	0	0	0	0	0	0	0
98109	10	2.24%	13	0	0	4	23	0	1	9	0	0	0	0	0
98012	9	2.02%	18	6	5	0	3	0	3	0	12	1	0	0	0
98105	9	2.02%	18	0	0	0	16	0	9	0	1	0	0	0	0
98037	8	1.79%	15	14	9	0	2	0	0	0	0	0	0	0	0
98125	8	1.79%	24	1	0	0	9	0	2	0	5	0	1	0	0
98087	7	1.57%	3	9	13	0	9	0	0	0	1	0	0	0	0
98028	6	1.35%	23	0	0	0	5	0	0	0	0	0	0	0	0
98107	6	1.35%	20	0	0	0	7	0	0	0	1	0	0	0	0
98203	6	1.35%	21	2	0	0	8	0	0	0	0	0	0	0	0
98275	5	1.12%	14	0	1	0	8	0	0	0	2	0	0	0	0
98004	4	0.90%	3	0	4	0	7	0	3	0	0	0	0	0	0
98036	4	0.90%	10	4	0	0	5	0	0	0	1	0	0	0	0
98102	4	0.90%	8	0	0	0	7	0	5	0	1	0	0	0	0
98126	4	0.90%	21	0	0	0	0	0	0	0	0	0	0	0	0
98178	4	0.90%	11	10	0	0	0	0	0	0	0	0	0	0	0



Home Zip code	Total Employees	Employee Percentage	Weekly Count of Trips By Mode												
			Drive Alone	Carpool	Vanpool	Motorcycle	Bus	Train	Bike	Walk	Telework	CWW	Ferry (Car/Van/Bus)	Ferry (walk-on)	Other
98208	4	0.90%	17	0	0	0	2	0	0	0	1	0	0	0	0
98239	4	0.90%	5	0	0	0	0	8	0	3	2	1	0	0	0
98005	3	0.67%	13	0	0	0	0	0	0	0	2	0	2	0	0
98011	3	0.67%	13	0	0	0	0	0	0	0	3	0	0	0	0
98106	3	0.67%	12	4	0	0	0	0	0	0	0	0	0	0	0
98108	3	0.67%	11	0	0	0	0	0	0	0	0	0	0	0	0
98003	2	0.45%	4	0	0	0	7	0	0	0	0	0	0	0	0
98006	2	0.45%	9	0	0	0	0	0	0	0	1	0	0	0	0
98021	2	0.45%	2	7	0	0	0	0	0	0	0	0	0	0	0
98023	2	0.45%	8	0	0	0	0	0	0	0	2	0	0	0	0
98030	2	0.45%	1	0	0	0	0	8	0	0	0	0	0	0	0
98032	2	0.45%	7	1	0	0	0	0	0	0	2	0	0	0	0
98034	2	0.45%	1	0	0	0	5	0	3	0	0	0	0	0	0
98038	2	0.45%	7	0	0	0	1	0	0	0	2	0	0	0	0
98040	2	0.45%	7	0	0	0	0	0	0	0	2	0	0	0	0
98052	2	0.45%	6	0	0	0	0	0	0	0	0	0	0	0	0
98056	2	0.45%	7	0	0	0	0	0	0	0	3	0	0	0	0
98065	2	0.45%	4	0	0	0	4	0	0	0	1	0	0	0	0
98072	2	0.45%	7	0	0	0	0	0	0	0	3	0	0	0	0
98116	2	0.45%	11	0	0	0	0	0	0	0	0	0	0	0	0
98118	2	0.45%	2	0	0	0	0	3	4	0	0	0	0	0	0
98121	2	0.45%	3	0	0	0	7	0	0	0	0	0	0	0	0
98144	2	0.45%	5	0	0	0	3	0	0	0	2	0	0	0	0
98146	2	0.45%	10	0	0	0	0	0	0	0	0	0	0	0	0
98204	2	0.45%	8	0	0	0	2	0	0	0	0	0	0	0	0
98222	2	0.45%	0	0	0	0	0	0	0	14	0	0	0	0	0
98270	2	0.45%	1	5	0	0	4	0	0	0	0	0	0	0	0
98271	2	0.45%	1	0	0	0	9	0	0	0	0	0	0	0	0
98367	2	0.45%	0	0	0	0	0	0	0	0	1	0	0	9	0



Home Zip code	Total Employees	Employee Percentage	Weekly Count of Trips By Mode												
			Drive Alone	Carpool	Vanpool	Motorcycle	Bus	Train	Bike	Walk	Telework	CWW	Ferry (Car/Van/Bus)	Ferry (walk-on)	Other
98372	2	0.45%	2	0	0	0	0	7	0	0	1	0	0	0	0
98375	2	0.45%	0	0	0	0	0	9	0	0	1	0	0	0	0
98391	2	0.45%	3	0	0	0	0	4	0	0	0	0	0	0	0
98422	2	0.45%	5	3	0	0	0	0	0	0	2	0	0	0	0
98466	2	0.45%	2	1	0	0	3	0	0	0	2	0	0	0	0
98001	1	0.22%	5	0	0	0	0	0	0	0	0	0	0	0	0
98024	1	0.22%	5	1	0	0	0	0	0	0	0	1	0	0	0
98029	1	0.22%	5	0	0	0	0	0	0	0	0	0	0	0	0
98031	1	0.22%	6	0	0	0	0	0	0	0	0	0	0	0	0
98033	1	0.22%	1	0	4	0	0	0	0	0	0	0	0	0	0
98053	1	0.22%	3	0	0	0	0	0	0	0	0	0	0	0	0
98057	1	0.22%	5	0	0	0	0	0	0	0	0	0	0	0	0
98058	1	0.22%	2	3	0	0	0	0	0	0	0	0	0	0	0
98059	1	0.22%	5	0	0	0	0	0	0	0	0	0	0	0	0
98070	1	0.22%	0	0	0	0	4	0	0	0	0	0	0	0	0
98075	1	0.22%	1	0	2	0	2	0	0	0	0	0	0	0	0
98092	1	0.22%	0	0	0	0	0	4	0	0	0	0	0	0	0
98101	1	0.22%	4	0	0	1	0	0	0	0	0	0	0	0	0
98112	1	0.22%	5	0	0	0	0	0	0	0	0	0	0	0	0
98198	1	0.22%	4	0	0	0	0	0	0	0	0	0	0	0	0
98201	1	0.22%	2	0	0	0	0	0	0	0	0	0	0	0	3
98223	1	0.22%	0	0	0	0	4	0	0	0	0	0	0	0	0
98264	1	0.22%	1	0	0	0	0	0	0	0	4	0	0	0	0
98277	1	0.22%	4	0	0	0	0	0	0	0	0	0	0	0	0
98296	1	0.22%	0	5	0	0	0	0	0	0	0	0	0	0	0
98312	1	0.22%	0	0	0	0	0	0	0	0	1	0	0	4	0
98370	1	0.22%	0	0	0	0	0	0	3	0	2	0	0	0	0
98374	1	0.22%	3	0	0	0	0	0	0	0	0	0	0	0	0
98382	1	0.22%	0	0	0	0	0	0	0	0	4	0	1	0	0



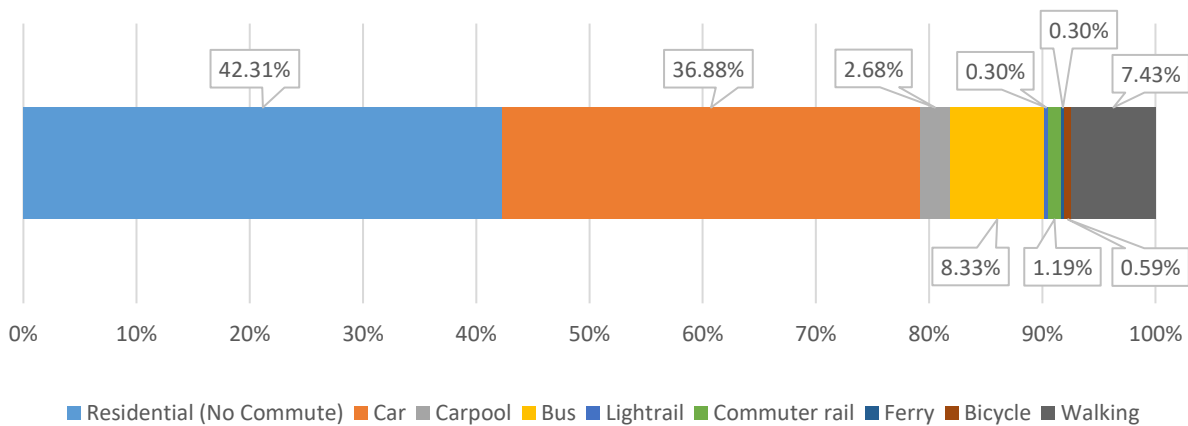
			Weekly Count of Trips By Mode												
Home Zip code	Total Employees	Employee Percentage	Drive Alone	Carpool	Vanpool	Motorcycle	Bus	Train	Bike	Walk	Telework	CWW	Ferry (Car/Van/Bus)	Ferry (walk-on)	Other
98383	1	0.22%	0	0	0	0	0	0	0	0	0	0	0	3	0
98404	1	0.22%	5	0	0	0	0	0	0	0	0	0	0	0	0
98405	1	0.22%	1	0	0	0	0	1	0	0	3	0	0	0	0
98516	1	0.22%	0	0	0	0	0	5	0	0	0	0	0	0	0
98802	1	0.22%	0	0	0	0	0	0	0	0	5	0	0	0	0
98816	1	0.22%	0	0	0	0	0	0	0	0	5	0	0	0	0
98826	1	0.22%	0	0	0	0	0	0	0	0	5	0	0	0	0
99133	1	0.22%	4	0	0	0	0	0	0	0	0	0	0	0	0



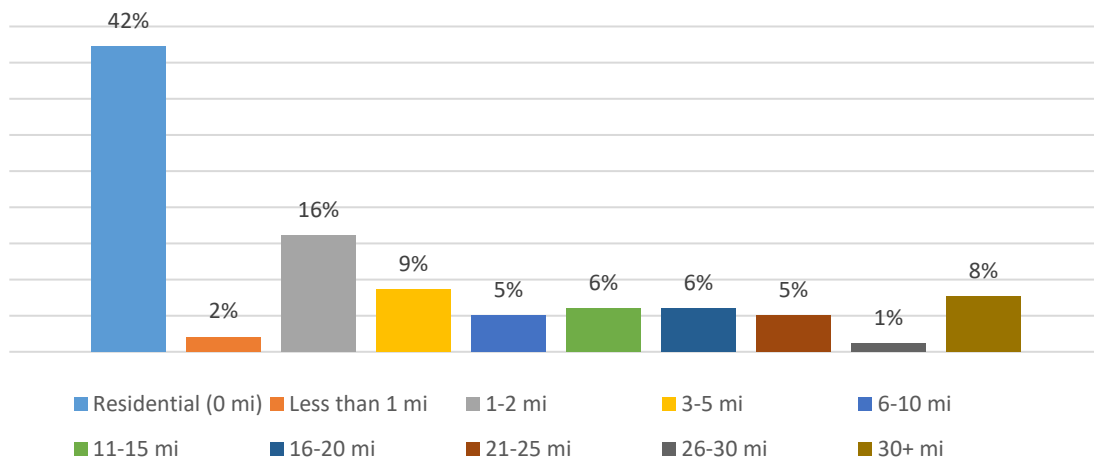
Office of Facility and Project Management
2019-2020 Student Commute Survey Summary
Data Collected Fall 2019

Commuter students	2036
Residential students	1493
Total student population	3529

Transportation Mode



Commute Distance





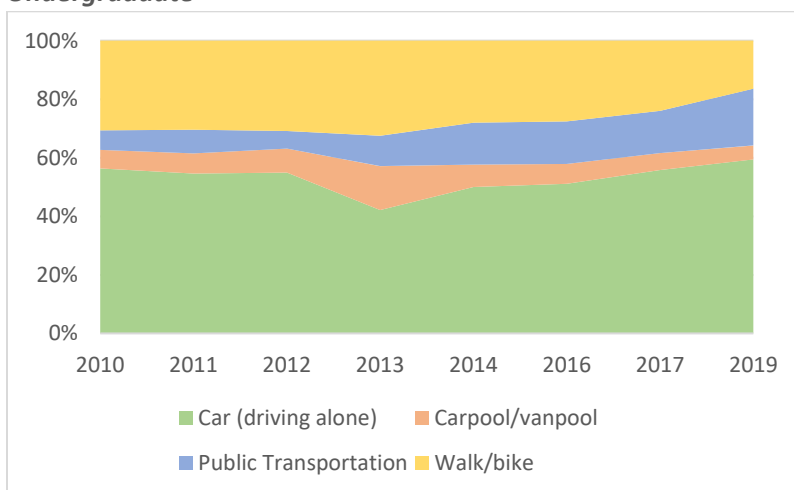
Office of Facility and Project Management
2019-2020 Student Commute Survey Summary
February 2020

	Undergraduate	Graduate	Total
Total student commuters	1224	812	2036
Number of respondents	367	227	594
Response rate	30%	28%	29%

With the exception of a filter question designed to exclude graduate students that do not regularly come to campus as part of their degree programs, the same questions were posed to undergraduate and graduate students.

I. What mode of transportation do you most commonly use in traveling to and from campus?

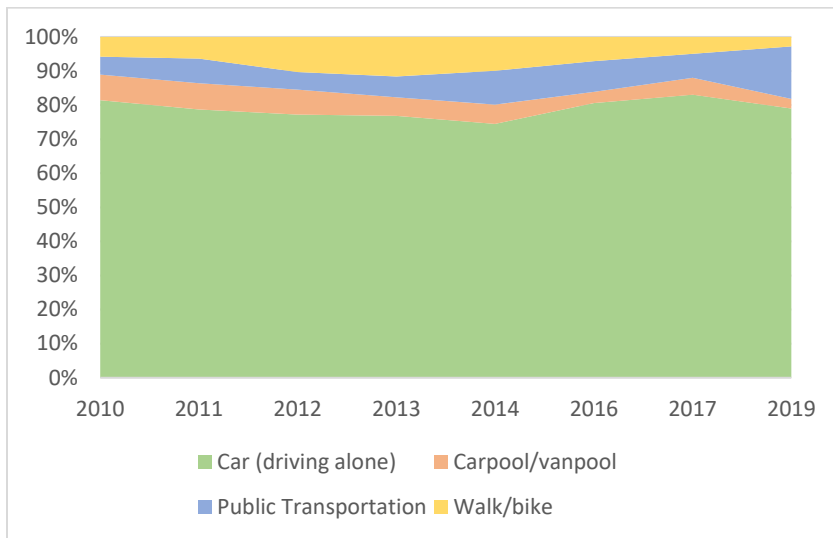
Undergraduate



59% of undergraduates drive alone, the **highest rate of drive alone responses** surveyed to date

Public transportation use has tripled since 2010

Graduate



9% decrease in walk/bike responses since 2013

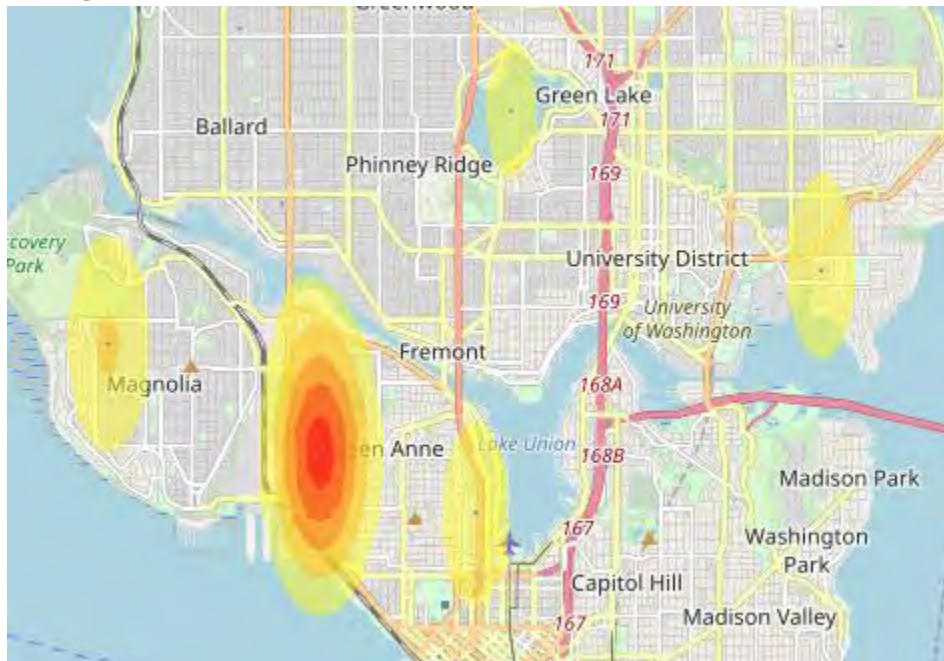
Over 10% increase in public transportation use since 2010

II. From what zip code do you commute?

This question was first included in the 2017 survey. Comparisons and trends will be able to be observed in future years.

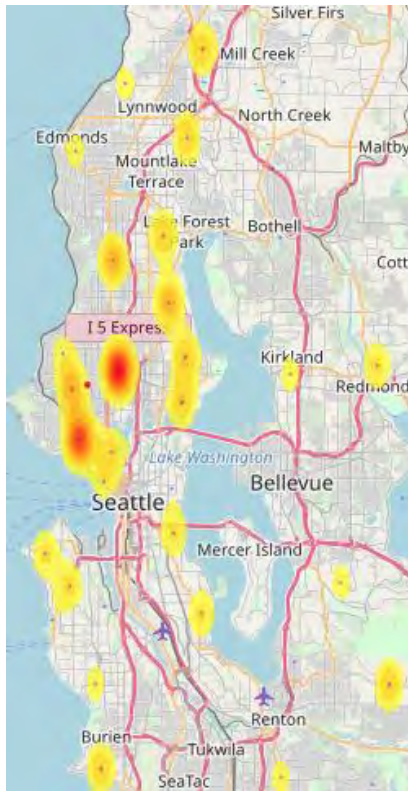
Map view 1 – Commuter student population density

Undergraduate

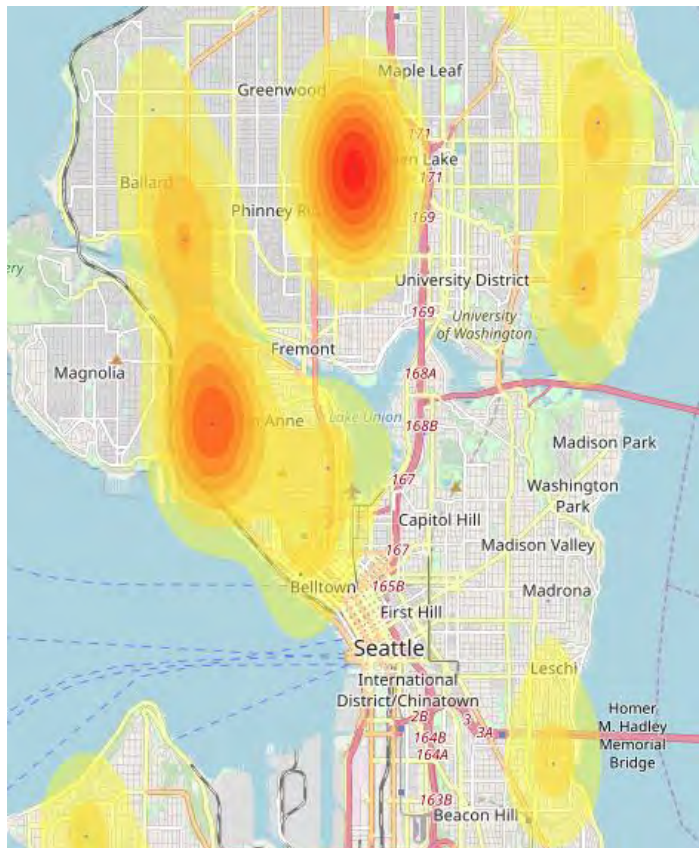


Heat map shows concentration near campus and smaller clusters in farther away areas (indicating longer commutes).

Graduate

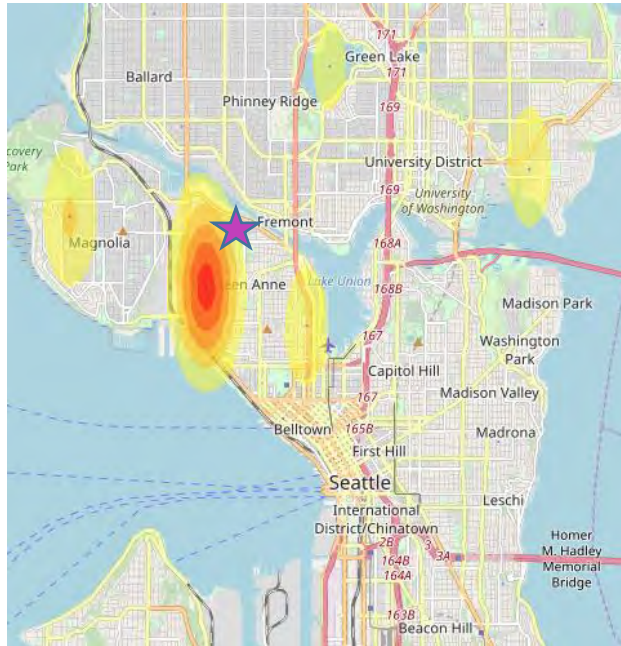


Whereas a majority of undergraduate commuters are concentrated in the 98119 zipcode, graduates commute from a much more diverse variety of locations.



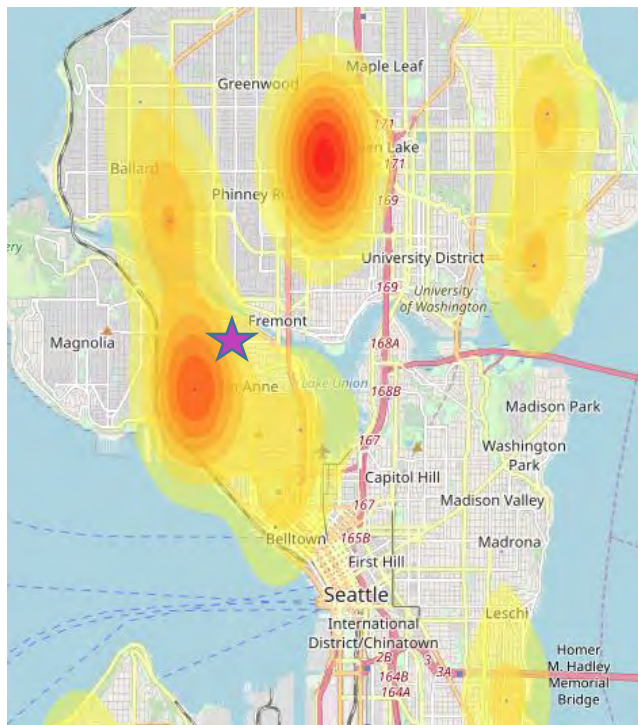
Map view 2 – Commuter student population density with transit overlay

Undergraduate



Heat map shows the four bus routes that stop directly at Seattle Pacific University: 3, 4, 13, 31/32. Some areas densely populated by SPU students, including Ballard, Northgate, and West Magnolia, do not have a direct bus route to SPU.

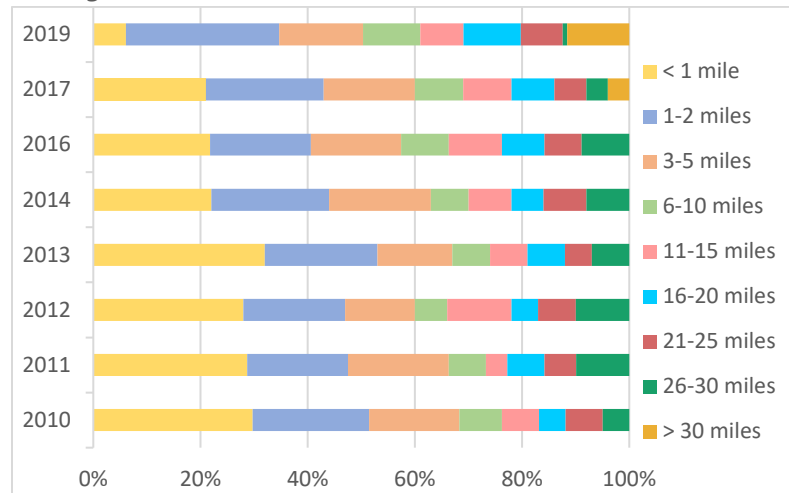
Graduate



III. Approximately how many miles is your one-way commute to campus? If more than 30 miles, please indicate the approximate distance

Due to an increase in student commute distance, this survey has included an option of >30 miles traveled since 2017.

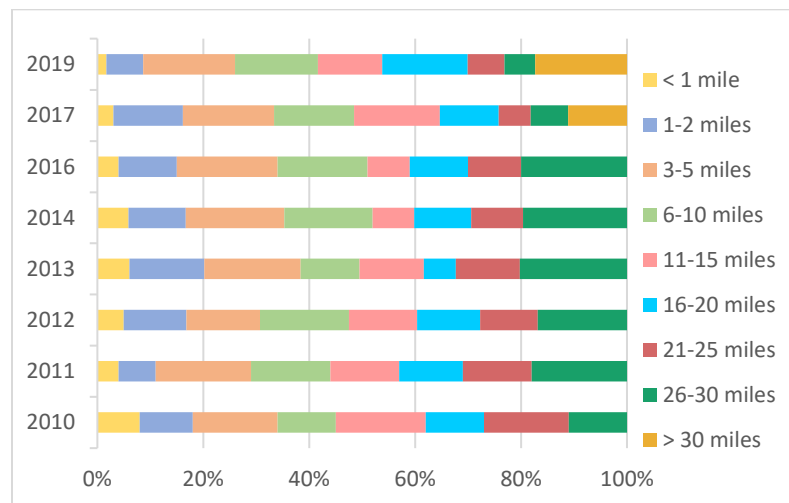
Undergraduate



The proportion of undergraduates less than one mile from campus has decreased by **15%** since 2017.

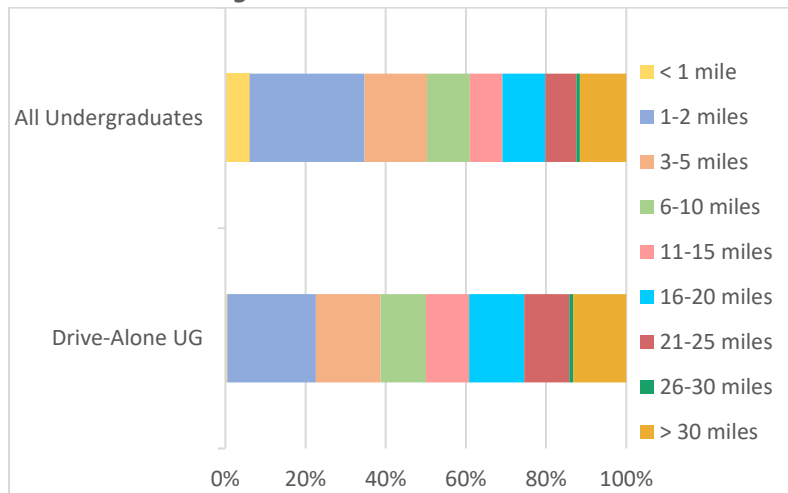
Nearly **70%** of undergraduates lived within five miles of campus in 2010 – now just **50%**

Graduate



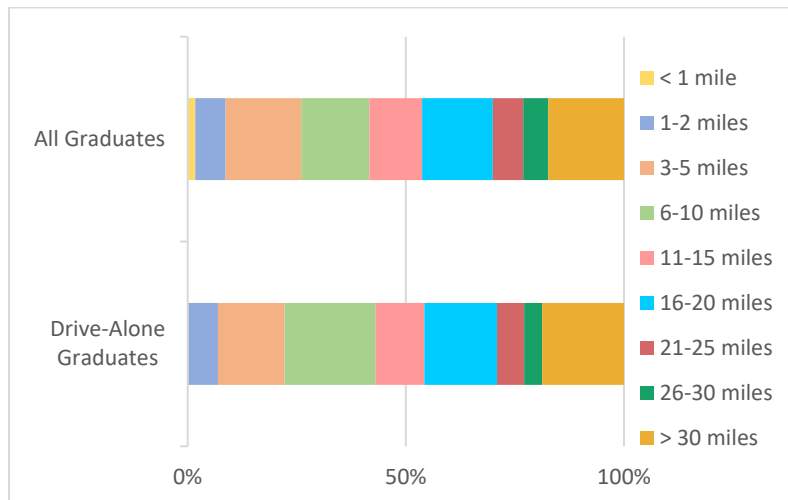
Overall **increase in average graduate distance from campus** since 2010.

Drive-Alone Undergraduates

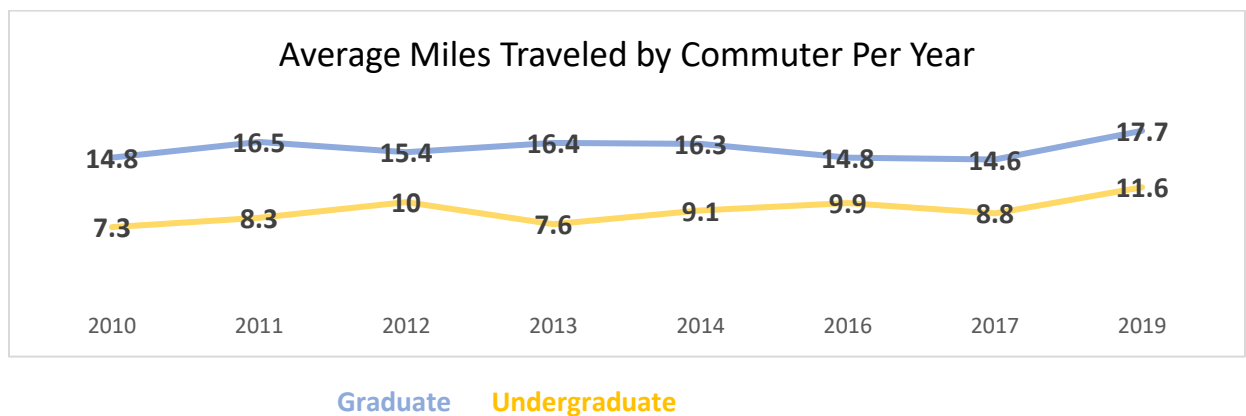


8% of undergraduates that live less than one mile from campus drive alone.

Drive-Alone Graduates

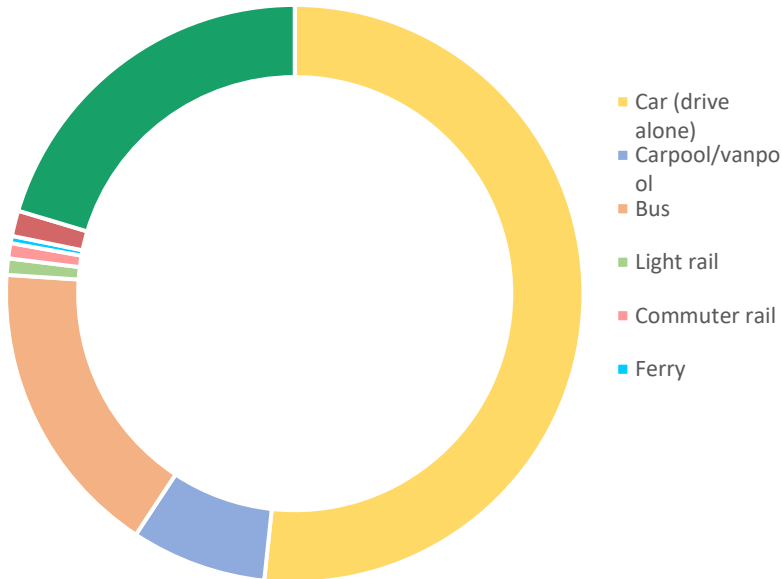


0% of graduates that live less than one mile from campus drive alone.



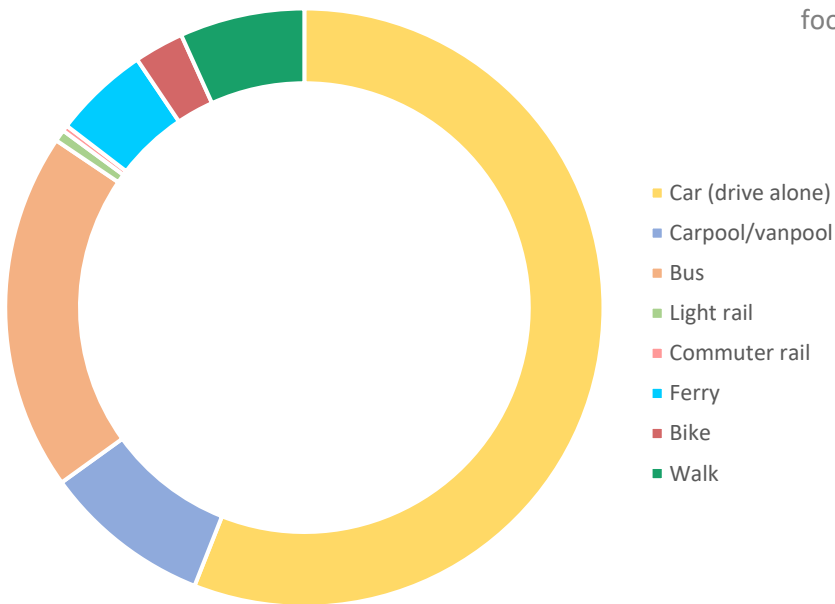
IV. Please list the number of one way trips (either to or from campus) that you generally make per week using each of the commute modes.

Undergraduate



Although this question is similar to the survey's initial question, it is important to note that Question 1 determines the commute mode split by person whereas this question determines it by number of trips taken to and from campus, enabling a much more accurate calculation of the University's student commute footprint.

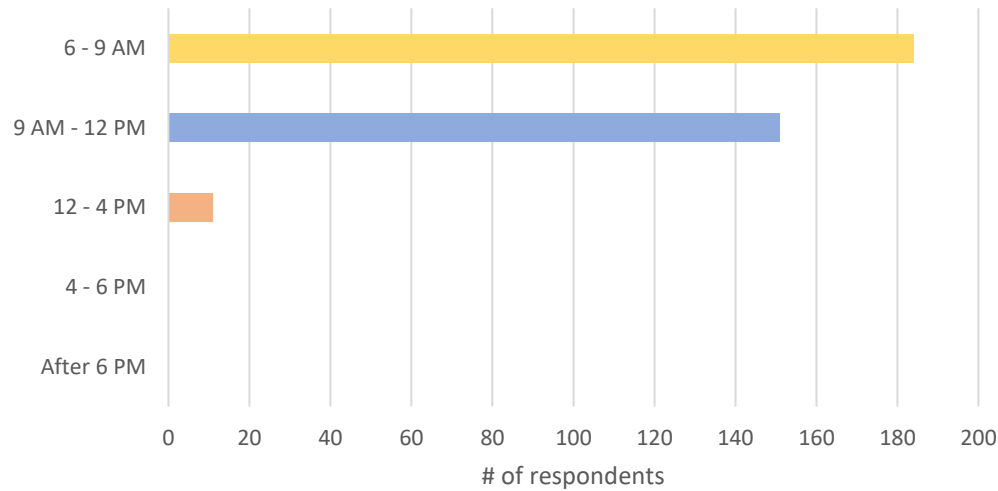
Graduate



V. What time of day do you usually get to campus?

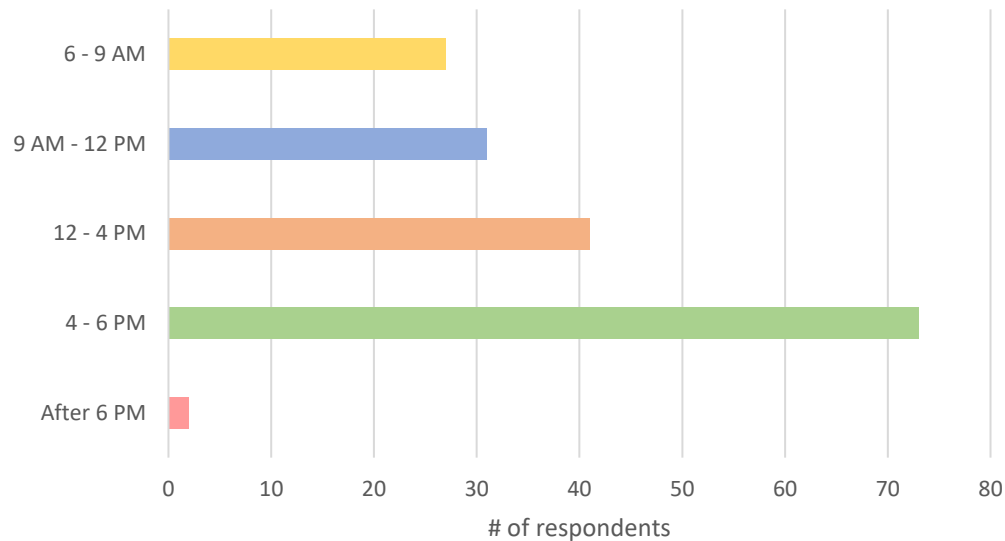
This question was added in 2017 to better understand SPU students' impact on local traffic patterns. Peak hour traffic is between 6 – 9 AM and 4 – 6 PM.

Undergraduate



53% of undergraduate commuters commute during **morning peak hours**, between 6 AM - 9 AM.

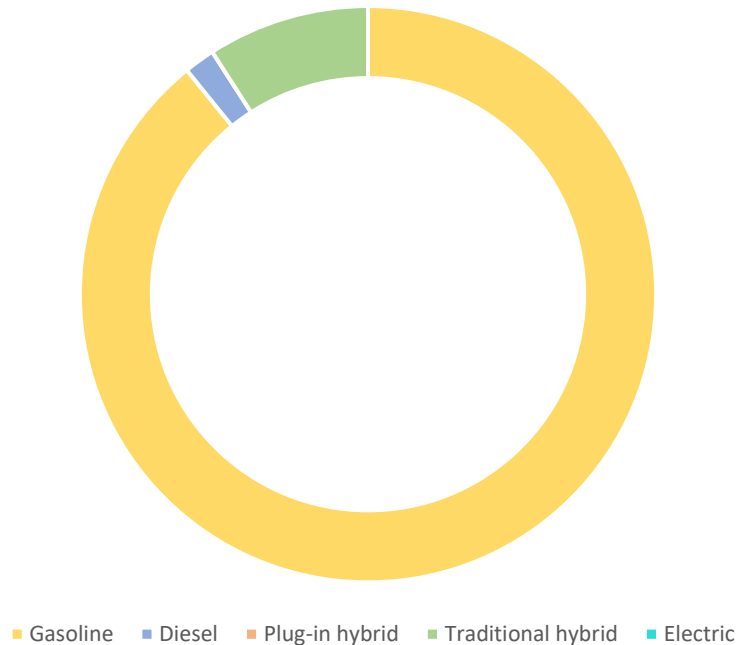
Graduate



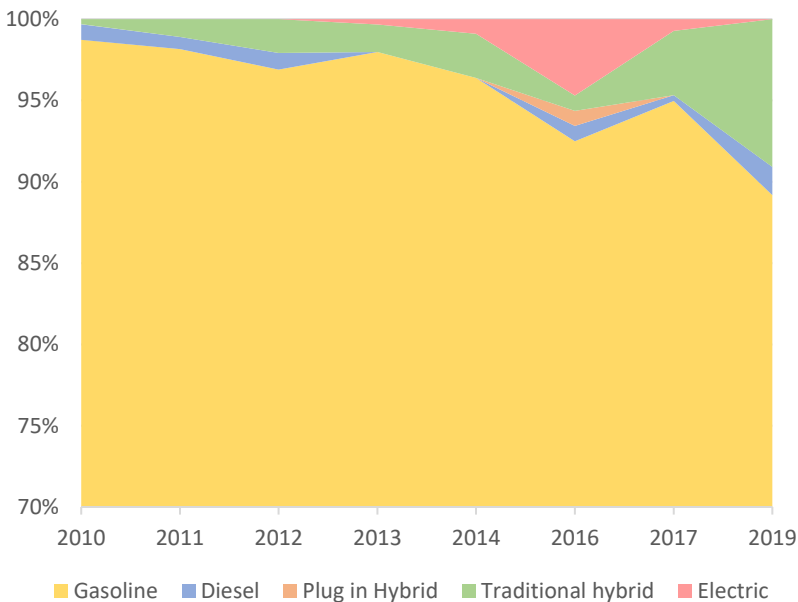
42% of graduate commuters commute during **afternoon peak hours**, between 4 PM and 6 PM.

VI. If you indicated that you drive to campus (either alone or as part of a carpool), please indicate your vehicle's fuel source.

Undergraduate

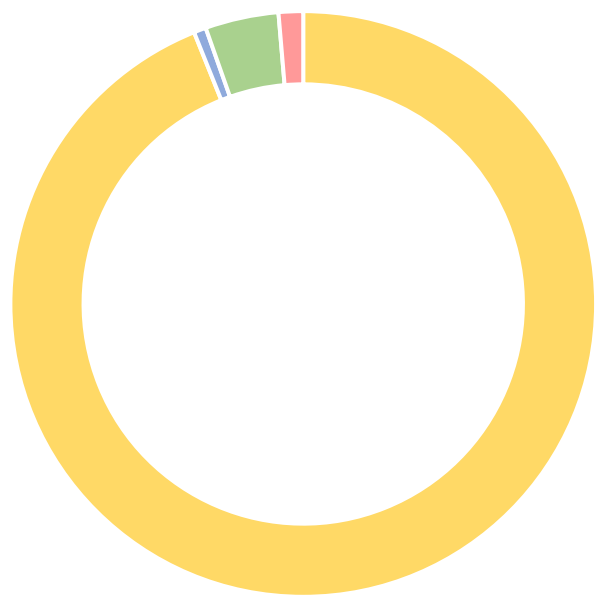


Undergraduate drivers of **traditional hybrid vehicles** comprise about **9% of respondents** who drive to campus, compared to 4% in 2017.



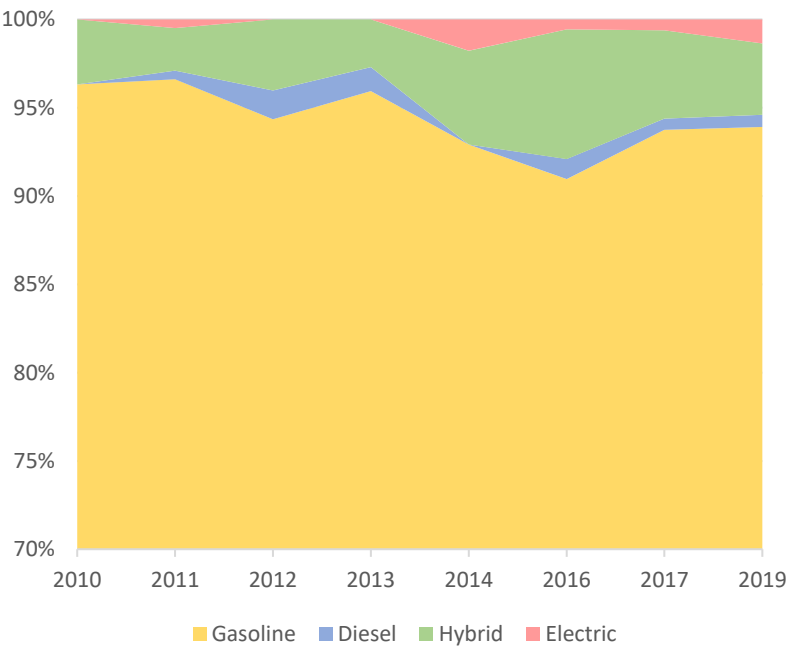
Undergraduate drivers of **gasoline vehicles** have decreased by **nearly 10%** since 2010.

Graduate



Gasoline Diesel Hybrid Electric

4% of graduate students who drive to campus drive a hybrid vehicle

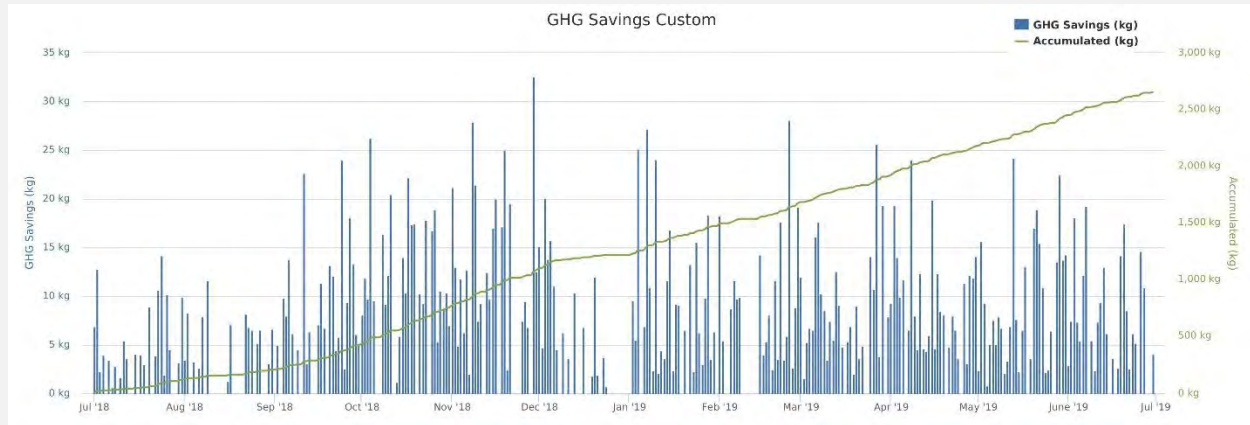


Gasoline Diesel Hybrid Electric

No significant trends observed.

EV's at SPU

Fiscal year 2019 was the fourth year SPU provided on-campus charging stations for drivers of electric vehicles. Campus electric vehicle charging now allows students, faculty, and staff to save more than 2,500 kg of greenhouse gas emissions per annually, compared to 1,176 kg in 2017.

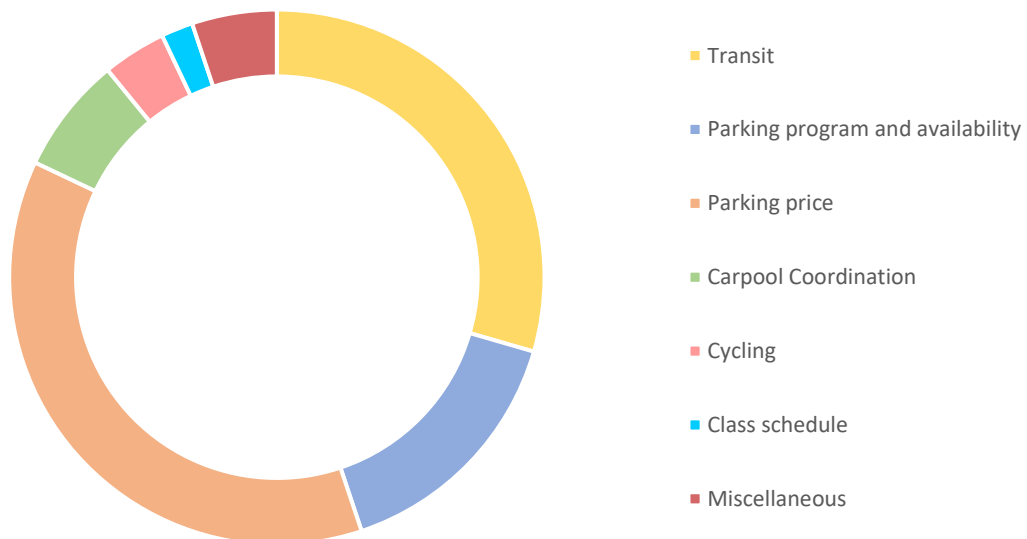


Graph courtesy of Chargepoint.

VII. Please share any comments or ideas you have about how to improve SPU's transportation options.

Undergraduate

One hundred forty-five undergraduate commuters elected to comment in the open format 'suggestion box.' The responses were grouped by theme; if one comment touched on several themes, it was split and listed under multiple themes. All of the comments are included as an appendix to this report (See Appendix A).

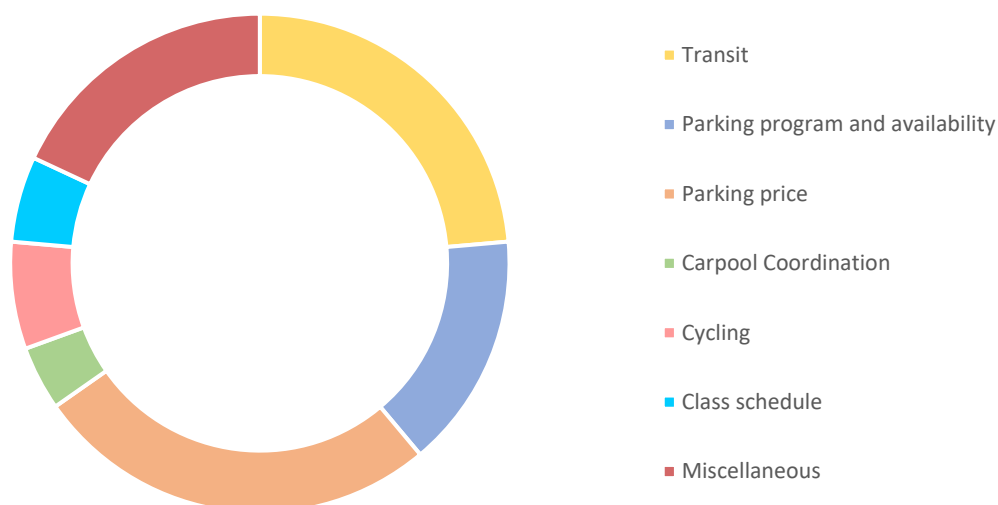


Undergraduate students were most vocal about changes to the parking program. Thirty-nine percent of responses suggested reduction in commuter parking fees, and fifteen percent of responses mentioned additional suggestions for parking, especially increased availability of parking spaces.

Students had lots of input specifically having access to discounted ORCA passes, and more ORCA passes for check out. Several students suggested increased education for commuters on public transportation options. Other common themes were creating a carpool matching system, sustainable commute incentives, more bike racks, and commuter-conscious class scheduling.

Many undergraduates stressed their desire for an increase in the number of bus lines near campus.

Graduate



Eighty graduate students provided comments (see Appendix B) in response to the question prompt. As with the undergraduate students, the highest emphasis was on the price of parking, especially because many graduate students do not commute to campus as often as undergraduates but pay the same quarterly rate. Increased availability of parking spaces was also stressed, as well as improved signage on where students can or cannot park.

Graduate students also hoped for discounted ORCA passes, improved information on commute options, more bike racks, and carpool coordination. Several comments voiced concerns about safety and street lighting at night.

Many graduates also stressed their desire for an increase in public transportation near campus.

Appendix A: Undergraduate Comments / Suggestions

Transit

I think it would be helpful for all students to have a free Orca card or way of using public transportation.

I really need a bus stop on the E line by the fremont troll right before the bridge, it would cut my commute in half

Give those you commute a free orca card because we also have to spend money on the card/gas for a car and takes a lot more time in the morning and afternoon to get to school so I believe it is something that should be provided to long-distance travelers (or gas stiped for those who commute more than 15 miles).

It would be incredibly helpful if there were more long-term orca card check outs available!

More bike racks, better ORCA discounts, cheaper parking permits

PugetPass (\$3.00 option for me; I have spent \$437 solely on public transportation in the past four months) is insanely expensive for a student, and the bus passes offered at SPU are not much better in price.

Nope! You guys actually have a really good amount of parking, I purchased a commuter parking pass (which is actually not too expensive) and I never struggle to park. I think it might be nice to provide off-campus students a free orca card for those who do not have access to a car.

This is a far-off goal, but the reality is that students must embrace the idea that mass transit is crucial to combatting the climate crisis. Our campus has excellent bus lines available. My hope is that administration would consider automatically applying a discounted regional Orca card to every student's account, similar to how the student IDs at UW function as a free Orca regional pass.

Cheaper bus passes. The University of Washington has embedded bus passes in their Student ID cards and it's around 60 dollars per quarter for unlimited use.

Commuters should have free ORCA cards..

Is it possible to offer an SPU "Uber/Lyft"-type service to commuter students who do not own a vehicle?

Though public transport is readily available around campus, commuting out of the Fremont/Queen Anne area takes up much time and is dependent on frequency of bus departures/transfers.

It would be great for long distance commuters to have one bus or link that they could utilize.

We need to petition King Country Transit becuae the bus system by spu is terrible. A drive that takes 12 minutes is a 45 min bus ride, i essentially have to ride till downtown and then transfer onto a bus that goes through queen anne to spu, i live in greenlake, its a little ridiculous and impacts my mental health

I would love to be more educated on the bus routes and public transportation we have here. I'm a fourth year and I still don't really know much about Seattle's public transportation and what is available. I would most likely use public transportation more often if I was more knowledgeable about it.

Have more lights and emergancy call buttons near campus bus stops.

Provide cheaper ORCA passes.

I wish y'all gave even more discounted orca cards. I don't get my orca card through the school, I get it from my work because it's waaaay cheaper

Discount parking and further discount orca

More discount for Orca card

More bus passes being available and being able to be checked out for longer would help justify spending the effort to find a way to use public transportation

Buses (3 and 4) should not have two destinations. It doesn't come as often as I would like to (like normal bus it's 15 minutes but these ones take for 30 minutes). There should be buses with only one destination (just to SPU). Also, it would be helpful if there is some kind of a pick-up bus operated by SPU, like some companies (ex. Microsoft) or community college (Shoreline) do.

Create more options to travel from King Street Station straight to campus. Invest in a light-rail or something similar straight to King Street like UW. There aren't enough options to travel to downtown Seattle.

If we can have more bus pass that would be great.

I think if the sounder came directly to SPU from the south, that I would take that mode of transportation

Lower discounted ORCA cards would be very helpful! As well as more places to safely stow bikes.

Offer weekly bus passes or incentive for not driving to campus (other than making parking so expensive please).

If there was a public transportation forum that could get me from Kent to SPU in an hour I would prefer to take that as opposed to drive myself. Possibly work with the city to get discounted or free good to go prices..

More access to bus lines. More free parking.

free bus passes

It would be really great to have orca cards for students that live further away- like they do with UW students. Even with the discounted fee, it's still a lot of money for me.

What if we had a shuttle that went to popular off campus places to live? I know a lot of SPU students live on 21st and 22nd st in Interbay and I'm sure many live in Queen Anne as well

Please make it less expensive to park here or get a discounted bus pass

I bought an SPU discounted Orca card for 250\$, that is viable in two zones, in total and that is way too much. In addition to this, when I take Sound Transit buses, it is so stupid that I still owe about 50 cents to 1\$ when I've already paid the 250\$ for this pass. I take the sound transit buses 511,510,512,402 and 410. SPU Campus Safety & Security needs to fix this issue of me still owing money on the orca card readers AFTER I HAVE ALREADY PAID the 250\$ for a discounted SPU Orca card that is SUPPOSED TO MAKE my rides unlimited.

Help link students to public transit options and encourage carpool I did not know they existed on campus until after I had bought my own pass

Bus tickets vs orca cards; have both! Or at least not just orca cards.

Free van pool or bus card for students who commute more tan 2 zones

<i>Cheaper bus passes.</i>
<i>Bus tickets vs orca cards; have both! Or at least not just orca cards.</i>
<i>Commuters should be given free bus passes.</i>
<i>Free Orca Cards to commuters</i>
<i>Better bus plans</i>
<i>I would suggest you work with Community Transit to work out a better deal that is cheaper for students. I assume cannot do much to help, but they had always valued my inputs.</i>
<i>more places to park a bike, and discounted/included ORCA cards</i>
<i>More discounted ORCA cards</i>

Parking Program and Availability

<i>Lower the price of parking, or improve the hours of visitor parking.</i>
<i>More hybrid/online class options and more convenient/cost effective parking for commuters.</i>
<i>Free or discounted commuter parking would be very nice</i>
<i>I truly believe parking should be free or should be cheaper than it is for commuters. We already spend 2+ hours on the road trying to get to campus, then we have to worry about finding street parking since commuter parking costs almost \$400.</i>
<i>Have more areas of open parking around campus, for students who can't afford parking passes, or have discounted commuter parking passes available for low-income students.</i>
<i>Is it possible to park past 7pm for commuters.</i>
<i>More parking options that don't cost the same amount as if you lived on campus</i>
<i>Having more parking options near Otto Miller Hall for students who only need to park for 30 min or so would be really convenient, but that would cut into paid parking spot availability.</i>
<i>I know it's a struggle, but finding more options for commuter students that aren't directly on main campus. I'm a commuter in SHS and its rare that I find parking near that area.</i>
<i>The Otto Miller Hall parking lot has very confined parking spaces; the lot can sometimes be a nightmare. Other than that, I have no issues!</i>
<i>More available parking</i>
<i>More 30 minute parking spots! Sometimes I just have to stop by to pick something up and I don't want to walk the distance both ways.</i>
<i>The ability of reserved parking for those who do not have an SPU parking permit.</i>
<i>Honestly, parking is SO hard to find if you cannot afford to pay for a permit. So having more space or lowering the price of the permit would be a lot more manageable. I personally barely make enough a month to make rent and such, i do not have 600+ to spare a year for it.</i>
<i>Reduce the cost of parking on campus to allow students to not have to drive around looking for street parking.</i>
<i>More access to bus lines. More free parking.</i>
<i>More parking options</i>

Reduced parking for those who carpool part of the time but drive themselves other times. For example on Monday, Wednesday, Friday I typically carpool with my roommates but on Tuesday and Thursday we have to drive our own cars.

Parking on campus is too expensive and there is not enough street parking, especially when large sections of the available street parking are blocked off for different reasons. I come to class about 30 minutes early every day to find street parking and I'm still sometimes late to class. But I can't afford to pay for a commuter pass every quarter. My housemates and I carpool when we can but we all also have cars/drive alone sometimes so we can't get a carpool spot. It's been a very frustrating experience for myself and others I've talked to.

why do commuters pay for parking... street parking is taken by people who live on campus who do not want to pay for parking and just leave their cars in the same spots EVERY DAY. Commuters are already left it as a community on spu and have to APPLY to have access to the collegium. SPU needs to do better and give commuters A BREAK. have carpool spots/passes

Parking Price

Make parking cheaper.

cheaper parking pass rates. not everyone can afford \$300+ for a parking pass every quarter

Lower the cost of parking lot

Price of parking

More bike racks, better ORCA discounts, cheaper parking permits

Make commuter parking affordable please

Provide car pool discount for students who travel > 15 miles away

Parking is great, it is just way too expensive for the spots/lots that we are really getting. It doesn't feel worth the price.

I know facilities doesn't handle this, but feel free to communicate to Safety and Security that parking is too expensive. If it was \$100 or even \$150 per quarter I think it would be feasible, but having to pay \$625 for three quarters altogether is too expensive. I carpool anyways because I drive my friends, but there aren't enough carpool passes, so I end up using street parking and having to walk farther. More people would buy permits on campus if it was just slightly cheaper, just a thought.

Lower the price of parking, or improve the hours of visitor parking.

I pay so much money in tuition to the point where I will be paying off my student loans for decades.

Why then, do I have to pay EXTRA to have a parking pass? Parking should be free, parking passes should be given upon application to ensure that it's SPU students parking in the lot but ultimately, they should be free.

More hybrid/online class options and more convenient/cost effective parking for commuters.

I truly believe parking should be free or should be cheaper than it is for commuters. We already spend 2+ hours on the road trying to get to campus, then we have to worry about finding street parking since commuter parking costs almost \$400.

	<i>On-Campus parking is much too expensive.</i>
	<i>Please make parking cheaper I can't afford it!</i>
	<i>The parking at SPU should be free for commuters. We pay \$56,000 a year to go to this school. I think it is SPU's duty to provide parking for its students.</i>
	<i>Cheaper parking</i>
	<i>I don't think it's fair that commenters have to pay about \$600 to be able to park on campus, and that's the same amount students in the dorm also pay (used to be a dorm student)</i>
	<i>Have more areas of open parking around campus, for students who can't afford parking passes, or have discounted commuter parking passes available for low-income students.</i>
	<i>Free Parking.</i>
	<i>I think the parking is very expensive and should decrease. Sometimes commuter stickers aren't possible with schedules so it is not fair.</i>
	<i>parking is crazy expensive!</i>
	<i>More parking options that don't cost the same amount as if you lived on campus</i>
	<i>Lower prices on parking passes</i>
	<i>Discount parking and further discount orca</i>
	<i>it would be great if each quarter only cost \$125 because we are students and please make the price make sense for students to afford.</i>
	<i>There should be free parking lots not just street parking</i>
	<i>Parking not be so expensive when we are already. paying for gas being in traffic for over 2 hours everyday wastes a lot of gas</i>
	<i>I love attending SPU, however, it is extremely taxing on my mental/physical wellness. For example, there have been 3 or 4 weeks during the last 3 quarters—that I have Had to sacrifice 5 days straight, “without any sleep,” due to my commute time and the requirements to meet/ fulfill the student academic curriculum. This was not due to poor time management habits, but merely because my commute was no less than 5-8 hours due to traffic, when ferry use was not an option, school work and required out of class participation, and homework/study demands. In addition to this challenge, My current employment status is = to that of a, “full time student,” as I am not available to work—including a part-time job, it is extremely difficult to cover expenses for my commute: example (WSDOT Ferry rate \$256 for 1 pass good for 20 trips w/drive on, parking on campus/fees, Mortgage payment + normal bills, “food,” and so on.) As I willingly accept these circumstances, on account of answering the call to fulfill my purpose, there is not an option for commuters to obtain subsidies that aid or provide some relief to the final burden—resulting from attending classes on the SPU campus. In my opinion, it would be advantageous to make available to SPU commuter students a substance allowance, “using a sliding scale rule,” to offset these sort of financial obligations—which have high potential to negatively effect academic and scholastic performance. In my opinion, school is stressful enough, there are students committed to achieving excellence, and also students who aspire to continue higher education through SPU's available/unmatched academic curricula. Furthermore, the majority of students attending SPU on campus classes—commute, this proposal would not only provide SPU students significant relief from overwhelming financial hardships, but will, “invest in higher</i>

graduation/completion rates/cultivating a higher success rate upon their launch from graduation & seeking employment success to better serve our communities. In closing, please consider the (pros) of this idea rather than the (cons). As the future of our community and overall health/wellbeing/spirituality/individual purposes—fulfilled, are critical to the state of being in our community/nation/across the globe. Sending graduates back out into the world in this manner = mission complete / mission success—in reference to the SPU mission statement. If SPU does not have the financial ability/reach to meet these needs, can and will it lobby for Government subsidies through financial aids contained within the Federal Funding umbrella? Thank you in advance!

free parking!

Possibly giving discounts are parking passes depending on the commuters distance.

I hope SPU parking fee gets cheaper.

Don't make parking so expensive. I'm already at a disadvantage having to commute. I already pay for classes and now I have to pay nearly \$700 a year to have my car sit in a spot while I'm in my classes.

Stop robbing your students.

Paying to park is ridiculous

Reduce parking permit cost

The parking is too expensive.

Offer weekly bus passes or incentive for not driving to campus (other than making parking so expensive please).

the parking pass is very expensive it should be less money honestly.

Honestly, parking is SO hard to find if you cannot afford to pay for a permit. So having more space or lowering the price of the permit would be a lot more manageable. I personally barely make enough a month to make rent and such, i do not have 600+ to spare a year for it.

Parking cost is expensive.

Reduce the cost of parking on campus to allow students to not have to drive around looking for street parking.

More access to bus lines. More free parking.

I already pay an arm and a leg for tuition, as well as the gas to get me to campus, so it would be nice if parking didn't cost \$600/year. Also, I would totally carpool with people if there were a list of people in my area who also wanted to carpool. I don't know anyone in my area who goes to school here, so if that information was provided, I would be able to help lessen out carbon footprint.

Make parking cheaper!!!!

Please make it less expensive to park here or get a discounted bus pass

Make commuter parking more affordable

Reduced parking for those who carpool part of the time but drive themselves other times. For example on Monday, Wednesday, Friday I typically carpool with my roommates but on Tuesday and Thursday we have to drive our own cars.

Parking on campus is too expensive and there is not enough street parking, especially when large sections of the available street parking are blocked off for different reasons. I come to class about 30

minutes early every day to find street parking and I'm still sometimes late to class. But I can't afford to pay for a commuter pass every quarter. My housemates and I carpool when we can but we all also have cars/drive alone sometimes so we can't get a carpool spot. It's been a very frustrating experience for myself and others I've talked to.

Make parking free

Parking should be cheaper

Lower parking rates there is always open spots

why do commuters pay for parking... street parking is taken by people who live on campus who do not want to pay for parking and just leave their cars in the same spots EVERY DAY. Commuters are already left it as a community on spu and have to APPLY to have access to the collegium. SPU needs to do better and give commuters A BREAK.

Charge less for parking and more people will use it and you'll make more money and have less empty spaces

Cheaper parking

Discounts on commuter parking would be really great!

Carpool Coordination

Provide car pool discount for students who travel > 15 miles away

It would be amazing to have a way to find other commuters near your area. People could maybe choose if they would like their zip code shared or something else, and other commuters could communicate with them about finding a carpool!

You could set up commuter groups by matching up people in an area that drive.

Seeing if commuter students are wanting to sign up for vanpools or pov pools with other commuter students in their areas in order to save money.

Connecting students better that may commute similar distances so that they may carpool.

Make it easy to find other students in my area that I could carpool with

I kind of wish there was a way to communicate with other students about possibly carpooling to school together.

Carpool parking in all lots

I already pay an arm and a leg for tuition, as well as the gas to get me to campus, so it would be nice if parking didn't cost \$600/year. Also, I would totally carpool with people if there were a list of people in my area who also wanted to carpool. I don't know anyone in my area who goes to school here, so if that information was provided, I would be able to help lessen out carbon footprint.

Have a way for commuter students to better connect for ride sharing or offer a shuttle route.

Help link students to public transit options and encourage carpool I did not know they existed on campus until after I had bought my own pass

Cycling Program

More bike racks, better ORCA discounts, cheaper parking permits

Encourage biking! Lots of people live within biking distance but still drive.

Lower discounted ORCA cards would be very helpful! As well as more places to safely stow bikes.

more places to park a bike, and discounted/included ORCA cards

Communications

I would love to be more educated on the bus routes and public transportation we have here. I'm a fourth year and I still don't really know much about Seattle's public transportation and what is available. I would most likely use public transportation more often if I was more knowledgeable about it.

Encourage biking! Lots of people live within biking distance but still drive.

Miscellaneous

I love the carpool spots for discount/free, but it would be cool to provide some incentive for walkers who live close to walk and not drive (ie letting them into the collegium, having meals or snacks occasionally, etc...). Thank you for all your hard work to make our campus safe and green!!

Honestly I wish the commuter lounge was more open. I feel as someone who commutes to spu every day via bike it would be super nice to have a space to hang out/do hw between classes and work.

We need to replace all of trash bags in bathrooms with compost bags.

No I think the commuter lounge is the best place ever

Overall, the transportation is rather easy.

I feel for most people there are plenty of options. It's just for me personally, driving is the only option due to my location.

Not really commute is okay.

I think we a lot of options for bus routes, I really appreciate the bus system around campus, and I am so thankful that we have it. I think that is one of the main reasons for coming to Seattle, because it is so easy to take the bus here.

Appendix B: Graduate Comments / Suggestions

Transit

I would like to use the bus but the connection points (no direct route) require walking between stops where I feel uncomfortable/unsafe.

Rail transportation would be awesome!

Cheaper ORCA card and more public cheaper parking spots

It would be nice if more busses went directly to SPU. From Northgate for example rather than just from downtown.

Discounted parking and discounted ORCA cards that are also available in the summer would be very helpful for graduate students. We are enrolled all year, and we all need to commute to campus since

graduate student housing is extremely limited and only available to first year students. Paying expensive transportation costs on top of full-price tuition makes being involved on campus challenging.

I like that there is a sort of commuter lounge area available, but it's disappointing that it's not available to grad students. Also, the discounted ORCA is a nice option, but I have no idea if or how it would work outside of the Metro system, because all your published info on it refers only to transit in King County. I spent the majority of my trip on Community Transit and/or Sound Transit buses, and only take Metro at the very end/beginning of my trips to actually get to the campus itself; plus, I also use Community Transit to commute to and from work every day, regardless of whether I have classes on campus or not. So since I don't even know if I would be able to use the discounted ORCA for anything other than 2 short weekly Metro trips (about 40 minutes total), or if I would have to pay extra or separately for my 15-16 hours of commute on Community/Sound Transit per week... I don't really know how much good the discounted pass would do me. I currently pay around \$90 per month for a regional monthly pass valued at \$2.50 fare, since that's the standard CT rate, plus an additional \$10 for upgraded fares on the commuter buses to get into and out of Seattle once a week for my classes, for a total of about \$100/month. If the SPU card includes and/or covers at least a \$2.50 fare per ride and works on all transit systems that use ORCA, this would definitely be a good deal for me. However, if not, it would probably be cheaper for me to just buy my own pass (which is disappointing, since the pass I have now only saves me 5-10% per month - about \$10 - in the first place). ...So, at the very least, more transparency about how the SPU ORCA deal interacts outside of just King County Metro system would be very much appreciated. Even better would be actually adding this coverage (if it's not currently covered), or if it is, of course even lower prices are always going to be appreciated as well, although I recognize that's not always doable. Thanks for taking the time to gather information to help better serve your commuters, we appreciate it - we work very hard to specifically come to your school/campus, despite often living much closer to other institutions, because we like you guys better. So it's nice that you are making an effort to do what you can to make it easier for us. :)

I wish there were more discounted ORCA cards available. Additionally, if there were more affordable parking passes for SPU. I usually end up parking a half mile away and walking in because I cannot afford a parking pass.

Yes, could you please think about providing an ORCA card for graduate students who are full-time, like it is offered to the staff.

I know this is a longshot, but it would be great to have some kind of connector shuttle from Seattle neighborhoods. I travel from the Portage Bay neighborhood and finding street parking is very difficult. However, driving is the most time-efficient means for me to use. It takes about 20 minutes to get her via car, and it would take over an hour to get here by transit (multiple transfers). There is no straight shot between my neighborhood and SPU via transit.

I typically bus to school (from work downtown) but take a ride share (Uber or Lyft) home because while I live less than a mile from campus the busses from campus don't go by my home so it would take me 2 busses to get home. This is especially difficult because I get out of class at 9pm so it's late and I am tired. When the ride share is typically only about \$3 it's worth my money.

My university in MN offered unlimited bus ride cards for \$100/semester. This would be better. Or at least get the orca lift cards (\$1.50 per ride), but even then my hybrid is more cost and time effective.

Free ORCA card included with student ID! :)

More variety of orca fare to purchase for two zone peak

Arriving by bus to SPU from east side is really complicated, it requires me more than half an hour to arrive. Easier, less routes would be helpful

I've looked at taking the bus from the Eastside, but unfortunately it is not a viable option as it's more than 2 times the time to drive (2 hours to class). Parking in the evening on the streets is difficult to find parking. If you could lower the commuter parking to be starting 5pm, that would be great b/c it's always so dark when leaving class. It doesn't feel safe walking to car on street when it's far away from class.

I wish you offered more discounted bus passes.

accessible connections to long-distance bus stations

Parking Program and Availability

Process and mail parking passes prior to the start of the quarter. I would have been happy to pay for this convenience.

Just to please keep letting graduate students park for free after 4 in the commuter lots.

Cheaper parking options for commuters, spend way too much time post- commute looking for parking.

yes, please let student have enough parking. parking get full easily. I am part time but still feel like I barely find parking.

We need more parking spaces

more parking, cheaper parking, easier access to parking lot

More access to parking or cheaper costs would be nice. Graduate students are often spending their day moving faculty research forward, they are essentially working (researching) while on campus and not in class, similar to a staff member.

I think more online classes should be an option. Also the school needs more parking.

Give more options for graduate students commuting, possibly coordinate with surrounding businesses near the school of health sciences to have more parking available.

Parking is terrible at SPU. It is hard to understand the signs and locations where students like me can park. I also have an electric car and I am not sure if I can use the charge points. If am a student do I have to pay for the charge point? It is all confusing. Do I need a parking pass for a low residency program?

I've looked at taking the bus from the Eastside, but unfortunately it is not a viable option as it's more than 2 times the time to drive (2 hours to class). Parking in the evening on the streets is difficult to find parking. If you could lower the commuter parking to be starting 5pm, that would be great b/c it's always so dark when leaving class. It doesn't feel safe walking to car on street when it's far away from class.

Parking Price

Cheaper ORCA card and more public cheaper parking spots

I appreciate how grad students get free parking since we come after 4pm on week days. It would be nice to lower the cost of parking. I would not have been able to afford a parking pass this year. The cost is too high.

Cheaper parking

Cheaper parking options for commuters, spend way too much time post- commute looking for parking.

Discounted parking rates for graduate students; our tuition is nearly double the undergrad rate and being charged parking fees on top of that feels often overwhelming. I and many peers commute a great distance to school so not driving is not an option.

Discounted parking and discounted ORCA cards that are also available in the summer would be very helpful for graduate students. We are enrolled all year, and we all need to commute to campus since graduate student housing is extremely limited and only available to first year students. Paying expensive transportation costs on top of full-price tuition makes being involved on campus challenging.

Discounted parking permits for grad students who are not on campus 5 days a week but still need car access due to other internships and things that require commuting from/to campus before/after.

I wish there were more discounted ORCA cards available. Additionally, if there were more affordable parking passes for SPU. I usually end up parking a half mile away and walking in because I cannot afford a parking pass.

Most Graduate students are only on campus for a couple of hours per week but still need to park when we are here. It seems ridiculous to buy the crazy expensive parking pass when I'm barely here.

Graduate student parking at a discounted cost due to the high price of the graduate program

Many of my graduate cohort choose to arrive on campus to meet with groups or study. Free parking in commuter areas is wonderful past 4pm, but would be more useful past 3pm.

more parking, cheaper parking, easier access to parking lot without terrifying incline/decline

More access to parking or cheaper costs would be nice. Graduate students are often spending their day moving faculty research forward, they are essentially working (researching) while on campus and not in class, similar to a staff member.

Cheaper parking passes for graduate students who come to campus less often and later in the day

The parking on campus is completely unaffordable for me.

Much cheaper parking fees, it's an exorbitant amount on top of the already high cost of tuition.

Parking for graduate students should be free. Many of use travel long distances. The commuter lots are nearly all open and not taken advantage of. At least charging less for permit would be nice. You would also make more money that way, honestly.

Open the parking lots for graduate students at 3, not 4. The parking lots are empty by 3 and we often have to be there early.

make parkign cheaper

Carpool Coordination

ride share / carpool: from those who are interested - enter a portal where you can contact other students from around your area with similar class times to see if they would be willing to carpool.

Vanpool/ car pool/ direct services

Carpool sign ups?

Cycling Program

I would really appreciate upgrades to make bicycle commuting more feasible. Most of all, this would include more secure bike parking.

Maybe some sort of Bike to school month?

Secure bike cages would be awesome.

More biking spaces

covered bike racks with ability to charge electric bikes

Class Schedule

I would schedule graduate classes to start after 5 pm. Such an early start in the evening does not accommodate for full-time employed staff. I would also recommend that free parking begin at 5 pm instead of 6 pm.

Convenient class times is the most important thing for me and makes my commute easier.

I think more online classes should be an option. Also the school needs more parking.

Getting to SPU by 5 pm for a graduate program that caters to working professionals has been really tough. I wish more classes started at 6 pm.

Miscellaneous

It would be really nice to have more lounge/study spaces for commuting students. There's currently only one commuter lounge and it does not allow graduate students to utilize it. Commuting is already such a large inconvenience, it's a bummer that finding space on campus is inconvenient, as well.

I like that there is a sort of commuter lounge area available, but it's disappointing that it's not available to grad students. Also, the discounted ORCA is a nice option, but I have no idea if or how it would work outside of the Metro system, because all your published info on it refers only to transit in King County. I spent the majority of my trip on Community Transit and/or Sound Transit buses, and only take Metro at the very end/beginning of my trips to actually get to the campus itself; plus, I also use Community Transit to commute to and from work every day, regardless of whether I have classes on campus or not. So since I don't even know if I would be able to use the discounted ORCA for anything other than 2 short weekly Metro trips (about 40 minutes total), or if I would have to pay extra or separately for my 15-16 hours of commute on Community/Sound Transit per week... I don't really know how much good the discounted pass would do me. I currently pay around \$90 per month for a regional monthly pass valued at \$2.50 fare, since that's the standard CT rate, plus an additional \$10 for upgraded fares on the commuter buses to get into and out of Seattle once a week for my classes, for a total of about \$100/month. If the SPU card includes and/or covers at least a \$2.50 fare

per ride and works on all transit systems that use ORCA, this would definitely be a good deal for me. However, if not, it would probably be cheaper for me to just buy my own pass (which is disappointing, since the pass I have now only saves me 5-10% per month - about \$10 - in the first place). ...So, at the very least, more transparency about how the SPU ORCA deal interacts outside of just King County Metro system would be very much appreciated. Even better would be actually adding this coverage (if it's not currently covered), or if it is, of course even lower prices are always going to be appreciated as well, although I recognize that's not always doable. Thanks for taking the time to gather information to help better serve your commuters, we appreciate it - we work very hard to specifically come to your school/campus, despite often living much closer to other institutions, because we like you guys better.

So it's nice that you are making an effort to do what you can to make it easier for us. :)

I go to campus at night, and parking lots need more light. In addition to the campus at night. Very dark.

Seeing campus safety pass by the bus stop at night (seminary classes get out at 8:35), makes me feel very safe. I always appreciate it!

I have really appreciated not needing to purchase a parking permit for after 4pm because all my graduate classes start after 4pm and this has helped with costs

The office of security should take a look at their staff and how they treat commuter students. Their job is to HELP students and keep them safe. I had a terrible experience working with them.

No but just a comment on the survey questions -- I'm not sure if you're getting great info from the average time we come/leave campus because for most students, class times are pretty variable. Esp as a grad student, classes are only 1x a week, but even the typical undergrad 2/3x a week, your M/W schedule is likely to differ a lot from T/Th, so if I have an 8am class M/W and a 5:30pm class T/Th it averages to around 1pm, which isn't the time I come at all...

I've been wondering if there are any forms of transportation for undergraduate students to local churches or places of worship for students who cannot drive. I've had several students ask about this.

Thank you

Thank you for allowing graduate students with street parking permits the opportunity to park in the lots after 4 at no cost. This has been extremely helpful.

I commute by bike and bus. There is great infrastructure for both options!

To get to SPU, I drive, ferry, walk, and take a bus. 25 miles but 2.5 hours one way.

I appreciate how SPU provides parking for graduate students for night classes. I never feel unsafe community at night

Appendix C Detailed Trip Generation

Existing TG

Campus Access Profile

Total employees593

Students

2019 Total SPU FTE3529
Number of On Campus Students1497

Number of off-campus (undergraduate)1220
Number of off-campus (graduate)812

Mode of Travel (2019 CTR)	Faculty/Staff		Undergraduate Students		Graduate Students		On-Campus Students		All Commute
	%	#	%	#	%	#	%	#	
Drive Alone/Motorcycle	50.0%	296	59.0%	720	79.0%	642	10.0%	149	1658
Carpool/Vanpool	10.0%	59	5.0%	61	3.0%	24	0.0%	0	144
Subtotal: Auto	60.0%	355	64.0%	781	82.0%	666	10.0%	149	1802
Multimodal (bus + bike, bike + rail, etc)				0		0		0	0
Bus	16.0%	95	20.0%	244	15.0%	122	10.0%	150	461
Rail	3.0%	18		0		0		0	18
Subtotal: Transit	19.0%	113	20.0%	244	15.0%	122	10.0%	150	479
Walk/Bike	14.0%	83	16.0%	195	3.0%	24	80.0%	1198	302
Telework	6.0%	36		0		0		0	36
Ferry (car/van/bus)	0.0%	0		0		0		0	0
Ferry (walk on)	1.0%	6		0		0		0	6
Other	0.0%	0		0		0		0	0
Subtotal: Non-Motorized (and Ferry)	21.0%	125	16.0%	195	3.0%	24	80.0%	1198	344
Total	100.0%	593	100.0%	1220	100.0%	812	100.0%	1497	2625

Vehicle Trips (1 direction)	All
Drive Alone Vehicle Trips*	1658
Carpool Vehicle Trips**	58
Vehicle Trips/Campus	1716

*including motorcycles

**Assumes 2.5 passengers per vehicle in "Carpools"

	Commuter				On-Campus			
	In	Out	Total	Trip/FTE	In	Out	Total	Trip/Bed
Daily	1,716	1,716	3,431	0.97	149	149	298	0.20
AM Peak Hour	270	59	329	0.09	5	6	11	0.01
PM Peak Hour	134	209	343	0.10	12	11	23	0.02

	% In	Total of Daily		% In	Total of Daily
AM	82%	9.6%		41%	3.6%
PM	39%	10.0%		50%	7.7%

Based on ITE data for off-campus student housing

Based on an average of 3 rates/studies (ITE, UW Bothell, SCC)

No Action

Campus Access Profile

Total employees616

Students

Number of On Campus Students4300
1700
1600
1000

Number of off-campus (undergraduate)1600
Number of off-campus (graduate)1000

Mode of Travel	Faculty/Staff		Undergraduate Students		Graduate Students		On-Campus Students		All Commute
	%	#	%	#	%	#	%	#	
Drive Alone	50.0%	308	59.0%	944	79.0%	790	10.0%	170	2042
Carpool	10.0%	62	5.0%	80	3.0%	30	0.0%	0	172
Subtotal: Auto	60.0%	370	64.0%	1024	82.0%	820	10.0%	170	2214
Multimodal (bus + bike, bike + rail, etc)				0		0		0	0
Bus	16.0%	99	20.0%	320	15.0%	150	10.0%	170	569
Rail	3.0%	18		0		0		0	18
Subtotal: Transit	19.0%	117	20.0%	320	15.0%	150	10.0%	170	587
Walk/Bike	14.0%	86	16.0%	256	3.0%	30	80.0%	1360	372
Telework	6.0%	37		0		0		0	37
Ferry (car/van/bus)	0.0%	0		0		0		0	0
Ferry (walk on)	1.0%	6		0		0		0	6
Other	0.0%	0		0		0		0	0
Subtotal: Non-Motorized (and Ferry)	21.0%	129	16.0%	256	3.0%	30	80.0%	1360	415
Total	100.0%	616	100.0%	1600	100.0%	1000	100.0%	1700	3216

Vehicle Trips (1 direction)	All
Drive Alone Vehicle Trips*	2042
Carpool Vehicle Trips**	69
Vehicle Trips/Campus	2111

*including motorcycles

**Assumes 2.5 passengers per vehicle in "Carpools"

	Commuter				On-Campus			
	In	Out	Total	Trip/FTE	In	Out	Total	Trip/Bed
Daily	2,111	2,111	4,222	0.98	170	170	340	0.20
AM Peak Hour	332	73	405	0.09	5	7	12	0.01
PM Peak Hour	165	257	422	0.10	13	13	26	0.02

	% In	Total of Daily		% In	Total of Daily
AM	82%	9.6%		41%	3.6%
PM	39%	10.0%		50%	7.7%

MIMP Forecast

Campus Access Profile

Total employees860

Students

Number of On Campus Students6000
3150
1350
1500

Number of off-campus (undergraduate)1350
Number of off-campus (graduate)1500

Mode of Travel	Faculty/Staff		Undergraduate Students		Graduate Student	On-Campus Students		All Commute
	%	#	%	#	%	#	%	#
Drive Alone	50.0%	430	59.0%	797	79.0%	1185	10.0%	315
Carpool	10.0%	86	5.0%	67	3.0%	45	0.0%	0
Subtotal: Auto	60.0%	516	64.0%	864	82.0%	1230	10.0%	315
Multimodal (bus + bike, bike + rail, etc)				0		0		0
Bus	16.0%	138	20.0%	270	15.0%	225	10.0%	315
Rail	3.0%	26		0		0		0
Subtotal: Transit	19.0%	164	20.0%	270	15.0%	225	10.0%	315
Walk/Bike	14.0%	120	16.0%	216	3.0%	45	80.0%	2520
Telework	6.0%	52		0		0		0
Ferry (car/van/bus)	0.0%	0		0		0		0
Ferry (walk on)	1.0%	9		0		0		0
Other	0.0%	0		0		0		0
Subtotal: Non-Motorized (and Ferry)	21.0%	181	16.0%	216	3.0%	45	80.0%	2520
Total	100.0%	861	100.0%	1350	#####	1500	100.0%	3150

Vehicle Trips (1 direction)	All
Drive Alone Vehicle Trips*	2412
Carpool Vehicle Trips**	79
Vehicle Trips/Campus	2491

*including motorcycles

**Assumes 2.5 passengers per vehicle in "Carpools"

	Commuter				On-Campus			
	In	Out	Total	Trip/FTE	In	Out	Total	Trip/FTE
Daily	2,491	2,491	4,982	0.83	315	315	630	0.20
AM Peak Hour	392	86	478	0.08	9	14	23	0.01
PM Peak Hour	194	304	498	0.08	25	24	49	0.02

	% In	Total of Daily		% In	Total of Daily
AM	82%	9.6%		41%	3.6%
PM	39%	10.0%		50%	7.7%

Trip Generation Summary

COMMUTER									ON CAMPUS									OTHER									
Person Trips					Vehicular Trip Rate per Student FTE	Vehicle Trips			Person Trips					Vehicular Trip Rate per Bed	Vehicle Trips				Person Trips					Vehicular Trip Rate per Student FTE	Vehicle Trips		
Time Period	Vehicular ¹	Transit	Non- Motorized	Total		In	Out	Total	Time Period	Vehicular ¹	Transit	Non- Motorized	Total		In	Out	Total	Time Period	Vehicular ¹	Transit	Non- Motorized	Total	In		Out	Total	
Existing (3,529 FTE)									Existing (3,529 FTE)									Existing (3,529 FTE)									
Daily	3,604	958	688	5,250	0.97	1,716	1,716	3,431	Daily	298	300	2,396	2,994	0.20	149	149	298	Daily	180	48	34	263	0.049	86	86	172	
AM Peak Hour	346	92	66	504	0.09	270	59	329	AM Peak Hour	11	11	86	108	0.01	5	6	11	AM Peak Hour	17	5	3	25	0.005	13	3	16	
PM Peak Hour	360	96	69	525	0.10	134	209	343	PM Peak Hour	23	23	184	231	0.02	12	11	23	PM Peak Hour	18	5	3	26	0.005	7	10	17	
No Action (4,300 FTE)									No Action (4,300 FTE)									No Action (4,300 FTE)									
Daily	4,428	1,174	830	6,432	0.98	2,111	2,111	4,222	Daily	340	340	2,720	3,400	0.200	170	170	340	Daily	221	59	42	322	0.049	106	106	212	
AM Peak Hour	425	113	80	617	0.09	332	73	405	AM Peak Hour	12	12	98	122	0.007	5	7	12	AM Peak Hour	21	6	4	31	0.005	17	4	20	
PM Peak Hour	443	117	83	643	0.10	165	257	422	PM Peak Hour	26	26	209	262	0.015	13	13	26	PM Peak Hour	22	6	4	32	0.005	8	13	21	
Action (6,000 FTE)									Action (6,000 FTE)									Action (6,000 FTE)									
Daily	5,220	1,318	884	7,422	0.83	2,491	2,491	4,982	Daily	630	630	5,040	6,300	0.20	315	315	630	Daily	261	66	44	371	0.042	125	125	250	
AM Peak Hour	501	127	87	715	0.08	392	86	478	AM Peak Hour	23	23	180	225	0.01	9	14	23	AM Peak Hour	25	6	4	36	0.004	20	4	24	
PM Peak Hour	522	132	88	742	0.08	194	304	498	PM Peak Hour	49	49	388	485	0.02	25	24	49	PM Peak Hour	26	7	4	37	0.004	10	15	25	
<i>(Action relative to No Action)</i>									<i>(Action relative to No Action)</i>									<i>(Action relative to No Action)</i>									
Daily	792	144	54	990		380	380	761	Daily	290	290	2,320	2,900		145	145	290	Daily	40	7	3	50		19	19	38	
AM Peak Hour	76	14	8	98		60	13	73	AM Peak Hour	10	10	82	103		4	7	11	AM Peak Hour	4	1	0	5		3	1	4	
PM Peak Hour	79	14	5	99		30	46	76	PM Peak Hour	22	22	179	223		12	11	23	PM Peak Hour	4	1	0	5		1	2	4	

TOTAL							
Time Period	Person Trips				Vehicle Trips		
	Vehicular ¹	Transit	Non-Motorized	Total	In	Out	Total
Existing (3,529 FTE)							
Daily	4,082	1,306	3,118	8,507	1,951	1,951	3,902
AM Peak Hour	374	107	156	637	288	68	356
PM Peak Hour	401	124	257	782	152	231	383
No Action (4,300 FTE)							
Daily	4,989	1,573	3,592	10,154	2,386	2,386	4,774
AM Peak Hour	459	131	182	771	354	84	437
PM Peak Hour	491	149	297	937	186	283	469
Action (6,000 FTE)							
Daily	6,111	2,014	5,968	14,093	2,931	2,931	5,862
AM Peak Hour	549	156	271	976	421	104	525
PM Peak Hour	597	187	481	1,264	229	343	572
(Action relative to No Action)							
Daily	1,122	441	2,376	3,939	544	544	1,088
AM Peak Hour	90	25	89	205	67	21	88
PM Peak Hour	106	38	184	327	43	60	103

Attachment C: Detailed Trip Generation - Mixed-Use Development Proposed MIMP

North of Nickerson Zone 1

Person Trip Calculation

son Trip Calculation					Trip Rate ¹					
Land Use	Setting	Size Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>										
General Office Building (LU 710)		101,250 sf								
Daily	Dense Multi-Use Urban		Rate	-	13.68	per ksf	person trips	50%	-	1385
AM Peak Hour	Dense Multi-Use Urban		Rate	-	0.84	per ksf	person trips	87%	-	85
PM Peak Hour	Dense Multi-Use Urban		Rate	-	0.87	per ksf	person trips	16%	-	88
Strip Retail Plaza (<40k) (LU 822)		48,150 sf								
Daily	General Urban/Suburban		Rate	-	54.45	per ksf	vehicle trips	50%	1.48	3880
AM Peak Hour	General Urban/Suburban		Rate	-	2.36	per ksf	vehicle trips	60%	1.48	168
PM Peak Hour	General Urban/Suburban		Rate	-	6.59	per ksf	vehicle trips	50%	1.48	470
<u>Existing Use</u>										
Mini-Warehouse (LU 151)		62,712 sf								
Daily	General Urban/Suburban		Rate	-	1.45	per ksf	vehicle trips	50%	1.11	101
AM Peak Hour	General Urban/Suburban		Rate	-	0.09	per ksf	vehicle trips	59%	1.11	6
PM Peak Hour	General Urban/Suburban		Rate	-	0.15	per ksf	vehicle trips	47%	1.11	10

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.

2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Proposed MIMP

North of Nickerson Zone 1

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
General Office Building (LU 710) ³								
Walk, Bike, Other Trips	20%	277	15	2	17	3	15	18
Transit Trips	15%	208	11	2	13	2	11	13
Person Trips by Vehicle	65%	900	48	7	55	9	48	57
Total	100%	1,385	74	11	85	14	74	88
Strip Retail Plaza (<40k) (LU 822) ⁴								
Walk, Bike, Other Trips	70%	2,716	71	47	118	165	164	329
Transit Trips	10%	388	10	7	17	24	23	47
Person Trips by Vehicle	20%	776	20	13	33	46	48	94
Total	100%	3,880	101	67	168	235	235	470
<u>Existing Use</u>								
Mini-Warehouse (LU 151) ³								
Walk, Bike, Other Trips	20%	20	1	0	1	1	1	2
Transit Trips	10%	10	1	0	1	0	1	1
Person Trips by Vehicle	70%	71	2	2	4	4	3	7
Total	100%	101	4	2	6	5	5	10
<u>Net New Project Person Trips</u>								
Walk, Bike, Other Trips		2,973	85	49	134	167	178	345
Transit Trips		586	20	9	29	26	33	59
Person Trips by Vehicle		1,605	66	18	84	51	92	143
Total		5,164	171	76	247	244	303	547

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

Land Use	AVU	Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
			In	Out	Total	In	Out	Total
Proposed Use								
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
General Office Building (LU 710) ³	1.11	610	43	7	50	6	43	51
Strip Retail Plaza (<40K) (LU 822) ⁴	1.48	324	14	8	22	31	32	63
Less Pass-By ⁵	34%	=	=	=	=	-11	-11	-22
Subtotal		1,334	57	15	72	28	64	92
Existing Use								
Mini-Warehouse (LU 151) ³	1.11	64	2	2	4	4	3	7
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
Less Pass-By ⁵	34%	=	=	=	=	0	0	0
Subtotal		64	2	2	4	4	3	7
Net New Trips		1,270	55	13	68	24	61	85

3. AVO consistent with NCHRP 365 data

4. AVO consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the *ITE Trip Generation Handbook*, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Proposed MIMP

South of Nickerson Zone 2

Person Trip Calculation

Son Trip Calculation					Trip Rate ¹					
Land Use	Setting	Size Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>										
General Office Building (LU 710)		0 sf								
Daily	Dense Multi-Use Urban		Rate	-	13.68	per ksf	person trips	50%	-	0
AM Peak Hour	Dense Multi-Use Urban		Rate	-	0.84	per ksf	person trips	87%	-	0
PM Peak Hour	Dense Multi-Use Urban		Rate	-	0.87	per ksf	person trips	16%	-	0
Strip Retail Plaza (<40k) (LU 822)		53,800 sf								
Daily	General Urban/Suburban		Rate	-	54.45	per ksf	vehicle trips	50%	1.48	4336
AM Peak Hour	General Urban/Suburban		Rate	-	2.36	per ksf	vehicle trips	60%	1.48	188
PM Peak Hour	General Urban/Suburban		Rate	-	6.59	per ksf	vehicle trips	50%	1.48	525
<u>Existing Use</u>										
Walk-In Bank (LU 911)		2,503 sf		No 11th Edition data - used 10th Edition instead						
Daily	General Urban/Suburban		Rate	-	216.20	per ksf	vehicle trips	50%	1.48	801
AM Peak Hour	General Urban/Suburban		Rate	-	22.54	per ksf	vehicle trips	52%	1.48	83
PM Peak Hour	General Urban/Suburban		Rate	-	12.13	per ksf	vehicle trips	44%	1.48	45
Strip Retail Plaza (<40k) (LU 822)		5,128 sf								
Daily	General Urban/Suburban		Rate	-	54.45	per ksf	vehicle trips	50%	1.48	413
AM Peak Hour	General Urban/Suburban		Rate	-	2.36	per ksf	vehicle trips	60%	1.48	18
PM Peak Hour	General Urban/Suburban		Rate	-	6.59	per ksf	vehicle trips	50%	1.48	50
Copy, Print and Express Ship Store (LU 920)		1,390 sf		No 11th Edition data - used 10th Edition instead						
Daily	General Urban/Suburban		Rate	-	123.00	per ksf	vehicle trips	50%	1.48	253
AM Peak Hour	General Urban/Suburban		Rate	-	2.78	per ksf	vehicle trips	75%	1.48	6
PM Peak Hour	General Urban/Suburban		Rate	-	7.42	per ksf	vehicle trips	44%	1.48	15

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.

2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Proposed MIMP

South of Nickerson Zone 2

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
General Office Building (LU 710) ³								
Walk, Bike, Other Trips	20%	0	0	0	0	0	0	0
Transit Trips	15%	0	0	0	0	0	0	0
Person Trips by Vehicle	65%	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	100%	0	0	0	0	0	0	0
Strip Retail Plaza (<40k) (LU 822) ⁴								
Walk, Bike, Other Trips	70%	3,035	79	53	132	184	183	367
Transit Trips	10%	434	11	8	19	26	26	52
Person Trips by Vehicle	<u>20%</u>	<u>867</u>	<u>23</u>	<u>14</u>	<u>37</u>	<u>52</u>	<u>54</u>	<u>106</u>
Total	100%	4,336	113	75	188	262	263	525
<u>Existing Use</u>								
Walk-In Bank (LU 911) ⁴								
Walk, Bike, Other Trips	70%	561	30	28	58	14	17	31
Transit Trips	10%	80	4	4	8	2	2	4
Person Trips by Vehicle	<u>20%</u>	<u>160</u>	<u>9</u>	<u>8</u>	<u>17</u>	<u>4</u>	<u>6</u>	<u>10</u>
Total	100%	801	43	40	83	20	25	45
Strip Retail Plaza (<40k) (LU 822) ⁴								
Walk, Bike, Other Trips	70%	289	8	5	13	18	17	35
Transit Trips	10%	41	1	1	2	3	2	5
Person Trips by Vehicle	<u>20%</u>	<u>83</u>	<u>2</u>	<u>1</u>	<u>3</u>	<u>4</u>	<u>6</u>	<u>10</u>
Total	100%	413	11	7	18	25	25	50
Copy, Print and Express Ship Store (LU 920) ⁴								
Walk, Bike, Other Trips	70%	177	3	1	4	5	6	11
Transit Trips	10%	25	1	0	1	1	1	2
Person Trips by Vehicle	<u>20%</u>	<u>51</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>2</u>
Total	100%	253	4	2	6	7	8	15
<u>Net New Project Person Trips</u>								
Walk, Bike, Other Trips		2,008	38	19	57	147	143	290
Transit Trips		288	5	3	8	20	21	41
Person Trips by Vehicle		572	12	4	16	43	41	84
Total		3,070	59	27	86	216	212	428

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

		Daily Vehicle	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
Land Use	AVU	Trips	In	Out	Total	In	Out	Total
Proposed Use								
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
Strip Retail Plaza (<40K) (LU 822) ⁴	1.48	<u>289</u>	<u>10</u>	<u>5</u>	<u>25</u>	<u>22</u>	<u>20</u>	<u>41</u>
Less Pass-By	34%	=	=	=	=	<u>-14</u>	<u>-14</u>	<u>-24</u>
Subtotal		588	16	9	25	23	24	47
Existing Use								
Walk-In Bank (LU 911) ⁴	1.48	108	6	5	11	3	4	7
Walk-In Bank Pass-By	35%	-	-	-	-	-	-	-
Strip Retail Plaza (<40k) (LU 822) ⁴	1.48	56	1	1	2	3	4	7
Retail Pass-By	34%	-	-	-	-	-	-	-
Copy, Print and Express Ship Store (LU 920) ⁴	1.48	<u>34</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>2</u>
Total Less Pass-By		=	=	=	=	<u>-2</u>	<u>-2</u>	<u>-4</u>
Subtotal		198	7	7	14	5	7	12
Net New Trips		388	9	2	11	18	17	35

3. AVU consistent with NCHRP 365 data

4. AVU consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the ITE Trip Generation Handbook, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Proposed MIMP

South of Nickerson Zone 3

Person Trip Calculation

son Trip Calculation					Trip Rate ¹					
Land Use	Setting	Size Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>										
General Office Building (LU 710)		22,600 sf								
Daily	Dense Multi-Use Urban		Rate	-	13.68	per ksf	person trips	50%	-	309
AM Peak Hour	Dense Multi-Use Urban		Rate	-	0.84	per ksf	person trips	87%	-	19
PM Peak Hour	Dense Multi-Use Urban		Rate	-	0.87	per ksf	person trips	16%	-	20
Supermarket (LU 850)		11,300 sf								
Daily	General Urban/Suburban		Rate	-	93.84	per ksf	vehicle trips	50%	1.48	1569
AM Peak Hour	General Urban/Suburban		Rate	-	2.86	per ksf	vehicle trips	59%	1.48	48
PM Peak Hour	General Urban/Suburban		Rate	-	3.32	per ksf	vehicle trips	50%	1.48	56
<u>Existing Use</u>										
Convenience Store (LU 851)		2,024 sf								
Daily	General Urban/Suburban		Rate	-	762.28	per ksf	vehicle trips	50%	1.48	2283
AM Peak Hour	General Urban/Suburban		Rate	-	62.54	per ksf	vehicle trips	50%	1.48	187
PM Peak Hour	General Urban/Suburban		Rate	-	49.11	per ksf	vehicle trips	51%	1.48	147
Strip Retail Plaza (<40k) (LU 822)		8,023 sf								
Daily	General Urban/Suburban		Rate	-	54.45	per ksf	vehicle trips	50%	1.48	647
AM Peak Hour	General Urban/Suburban		Rate	-	2.36	per ksf	vehicle trips	60%	1.48	28
PM Peak Hour	General Urban/Suburban		Rate	-	6.59	per ksf	vehicle trips	50%	1.48	78
Fast Casual Restaurant (LU 930)		4,080 sf	Much more limited data available in 11th Edition							
Daily	General Urban/Suburban		Rate	-	97.14	per ksf	vehicle trips	50%	1.48	587
AM Peak Hour	General Urban/Suburban		Rate	-	1.43	per ksf	vehicle trips	50%	1.48	9
PM Peak Hour	General Urban/Suburban		Rate	-	12.55	per ksf	vehicle trips	55%	1.48	76
Mini-Warehouse (LU 151)		6,470 sf								
Daily	General Urban/Suburban		Rate	-	1.45	per ksf	vehicle trips	50%	1.11	10
AM Peak Hour	General Urban/Suburban		Rate	-	0.09	per ksf	vehicle trips	59%	1.11	1
PM Peak Hour	General Urban/Suburban		Rate	-	0.15	per ksf	vehicle trips	47%	1.11	1

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.

2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Proposed MIMP

South of Nickerson Zone 3

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
General Office Building (LU 710) ³								
Walk, Bike, Other Trips	20%	62	3	1	4	1	3	4
Transit Trips	15%	46	3	0	3	0	3	3
Person Trips by Vehicle	65%	201	11	1	12	2	11	13
Total	100%	309	17	2	19	3	17	20
Supermarket (LU 850) ⁴								
Walk, Bike, Other Trips	20%	314	6	4	10	6	5	11
Transit Trips	5%	78	1	1	2	2	1	3
Person Trips by Vehicle	75%	1,177	21	15	36	20	22	42
Total	100%	1,569	28	20	48	28	28	56
<u>Existing Use</u>								
Convenience Store (LU 851) ⁴								
Walk, Bike, Other Trips	70%	1,598	66	65	131	53	50	103
Transit Trips	10%	228	10	9	19	8	7	15
Person Trips by Vehicle	20%	457	18	19	37	14	15	29
Total	100%	2,283	94	93	187	75	72	147
Strip Retail Plaza (<40k) (LU 822) ⁴								
Walk, Bike, Other Trips	70%	453	12	8	20	28	27	55
Transit Trips	10%	65	2	1	3	4	4	8
Person Trips by Vehicle	20%	129	3	2	5	7	8	15
Total	100%	647	17	11	28	39	39	78
Fast Casual Restaurant (LU 930) ⁴								
Walk, Bike, Other Trips	70%	411	3	3	6	29	24	53
Transit Trips	10%	59	1	0	1	4	4	8
Person Trips by Vehicle	20%	117	0	2	2	9	6	15
Total	100%	587	4	5	9	42	34	76
Mini-Warehouse (LU 151) ³								
Walk, Bike, Other Trips	20%	2	0	0	0	0	0	0
Transit Trips	10%	1	0	0	0	0	0	0
Person Trips by Vehicle	70%	7	0	1	1	1	0	1
Total	100%	10	0	1	1	1	0	1
<u>Net New Project Person Trips</u>								
Walk, Bike, Other Trips		-2,088	-72	-71	-143	-103	-93	-196
Transit Trips		-229	-9	-9	-18	-14	-11	-25
Person Trips by Vehicle		669	11	-8	3	-9	3	-6
Total		-1,178	-66	-85	-151	-93	-73	-166

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

	AVU	Daily Vehicle	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
Land Use		Trips	In		Total	In		Total
Proposed Use								
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
General Office Building (LU 710)*	1.11	182	10	1	11	2	9	11
Supermarket (LU 850)*	1.40	<u>130</u>	<u>14</u>	<u>10</u>	<u>24</u>	<u>14</u>	<u>14</u>	<u>28</u>
LESS Pass-By	34%	=	=	=	=	-2	-2	-10
Subtotal		978	24	11	35	11	18	29
Existing Use								
Convenience Store (LU 851)*	1.48	309	12	13	25	10	10	20
Conv. Store Without Gas Pass-By	51%							
Strip Retail Plaza (<40k) (LU 822)*	1.48	87	2	1	3	4	6	10
Retail Pass-By	34%							
Mini-Warehouse (LU 151)*	1.11	<u>7</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>1</u>
Fast Casual Restaurant (LU 930)*	1.48	<u>79</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>6</u>	<u>4</u>	<u>10</u>
Fast Casual Restaurant Pass-By	43%							
Total Pass-By		=	=	=	=	-9	-9	-18
Subtotal		482	14	16	30	12	11	23
Net New Trips		496	10	-5	5	-1	7	6

3. AVO consistent with NCHRP 365 data

4. AVO consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the ITE Trip Generation Handbook, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Proposed MIMP

South of Nickerson Zone 4

Person Trip Calculation					Trip Rate ¹		Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
Land Use	Setting	Size Units	Model	Equation	Rate	Units				
<u>Proposed Use</u>										
<u>Existing Use</u>										
Fast-Food Restaurant without Drive-Thru Window (LU 933)		1,600 sf								
Daily	General Urban/Suburban		Rate	-	450.49	per ksf	vehicle trips	50%	1.48	1067
AM Peak Hour	General Urban/Suburban		Rate	-	43.18	per ksf	vehicle trips	58%	1.48	102
PM Peak Hour	General Urban/Suburban		Rate	-	33.21	per ksf	vehicle trips	50%	1.48	79

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.
2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Proposed MIMP

South of Nickerson Zone 4

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
<u>Existing Use</u>								
Fast-Food Restaurant without Drive-Thru Window (LU 933) ⁴								
Walk, Bike, Other Trips	70%	747	42	30	72	28	27	55
Transit Trips	10%	107	6	4	10	4	4	8
Person Trips by Vehicle	20%	213	11	9	20	7	9	16
Total	100%	1,067	59	43	102	39	40	79
<u>Net New Project Person Trips</u>								
Walk, Bike, Other Trips		-747	-42	-30	-72	-28	-27	-55
Transit Trips		-107	-6	-4	-10	-4	-4	-8
Person Trips by Vehicle		-213	-11	-9	-20	-7	-9	-16
Total		-1,067	-59	-43	-102	-39	-40	-79

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

Land Use	AVO	Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
General Office Building (LU 100) ³	1.11	0	0	0	0	0	0	0
Strip Retail Plaza (<40K) (LU 822) ³	1.48	0	0	0	0	0	0	0
Less Pass-By ⁵	34%	0	0	0	0	0	0	0
Subtotal		0	0	0	0	0	0	0
<u>Existing Use</u>								
Fast-Food Restaurant without Drive-Thru Window (LU 933) ⁴	1.48	144	7	7	14	5	6	11
	1.48	0	0	0	0	0	0	0
	1.11	0	0	0	0	0	0	0
	1.48	0	0	0	0	0	0	0
Less Pass-By ⁵	34%	0	0	0	0	-2	-2	-4
Subtotal		144	7	7	14	3	4	7
Net New Trips		-144	-7	-7	-14	-3	-4	-7

3. AVO consistent with NCHRP 365 data

4. AVO consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the ITE Trip Generation Handbook, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Proposed MIMP

South of Nickerson Zone 5

Person Trip Calculation					Trip Rate ¹					
Land Use	Setting	Size Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>										
<u>Existing Use</u>										
Convenience Store/Gas Station (LU 945)		4 stations								
Daily	General Urban/Suburban		Rate	-	265.12	per station	vehicle trips	50%	1.48	1570
AM Peak Hour	General Urban/Suburban		Rate	-	16.06	per station	vehicle trips	50%	1.48	95
PM Peak Hour	General Urban/Suburban		Rate	-	18.42	per station	vehicle trips	50%	1.48	109

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.
2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Proposed MIMP

South of Nickerson Zone 5

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
Total	100%	0	0	0	0	0	0	0
<u>Existing Use</u>								
Convenience Store/Gas Station (LU 945) ⁴								
Walk, Bike, Other Trips	20%	314	10	9	19	11	11	22
Transit Trips	10%	157	5	5	10	6	5	11
Person Trips by Vehicle	70%	1,099	33	33	66	38	38	76
Total	100%	1,570	48	47	95	55	54	109
<u>Net New Project Person Trips</u>								
Walk, Bike, Other Trips		-314	-10	-9	-19	-11	-11	-22
Transit Trips		-157	-5	-5	-10	-6	-5	-11
Person Trips by Vehicle		-1,099	-33	-33	-66	-38	-38	-76
Total		-1,570	-48	-47	-95	-55	-54	-109

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

Land Use	AVO	Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
General Office Building (LU 110) ³	1.11	0	0	0	0	0	0	0
Strip Retail Plaza (~40K) (LU 022) ³	1.40	0	0	0	0	0	0	0
Less Pass-By ⁵	34%	0	0	0	0	0	0	0
Subtotal		0	0	0	0	0	0	0
<u>Existing Use</u>								
Convenience Store/Gas Station (LU 945) ⁴	1.48	742	22	23	45	25	26	51
	1.48	0	0	0	0	0	0	0
	1.11	0	0	0	0	0	0	0
	1.48	0	0	0	0	0	0	0
Less Pass-By ⁵	56%	0	0	0	0	-14	-14	-28
Subtotal		742	22	23	45	11	12	23
Net New Trips		-742	-22	-23	-45	-11	-12	-23

3. AVO consistent with NCHRP 365 data

4. AVO consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the *ITE Trip Generation Handbook*, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 2

North of Nickerson Zone 1

Person Trip Calculation

son Trip Calculation					Trip Rate ¹					
Land Use	Setting	Size Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>										
General Office Building (LU 710)		15,050 sf								
Daily	Dense Multi-Use Urban		Rate	-	13.68	per ksf	person trips	50%	-	206
AM Peak Hour	Dense Multi-Use Urban		Rate	-	0.84	per ksf	person trips	87%	-	13
PM Peak Hour	Dense Multi-Use Urban		Rate	-	0.87	per ksf	person trips	16%	-	13
Strip Retail Plaza (<40k) (LU 822)		15,050 sf								
Daily	General Urban/Suburban		Rate	-	54.45	per ksf	vehicle trips	50%	1.48	1213
AM Peak Hour	General Urban/Suburban		Rate	-	2.36	per ksf	vehicle trips	60%	1.48	53
PM Peak Hour	General Urban/Suburban		Rate	-	6.59	per ksf	vehicle trips	50%	1.48	147
<u>Existing Use</u>										
Mini-Warehouse (LU 151)		47,552 sf								
Daily	General Urban/Suburban		Rate	-	1.45	per ksf	vehicle trips	50%	1.11	77
AM Peak Hour	General Urban/Suburban		Rate	-	0.09	per ksf	vehicle trips	59%	1.11	5
PM Peak Hour	General Urban/Suburban		Rate	-	0.15	per ksf	vehicle trips	47%	1.11	8

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.

2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 2

North of Nickerson Zone 1

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
General Office Building (LU 710) ³								
Walk, Bike, Other Trips	20%	41	3	0	3	0	3	3
Transit Trips	15%	31	2	0	2	0	2	2
Person Trips by Vehicle	65%	134	6	2	8	2	6	8
Total	100%	206	11	2	13	2	11	13
Strip Retail Plaza (<40k) (LU 822) ⁴								
Walk, Bike, Other Trips	70%	849	22	15	37	52	51	103
Transit Trips	10%	121	3	2	5	8	7	15
Person Trips by Vehicle	20%	243	7	4	11	13	16	29
Total	100%	1,213	32	21	53	73	74	147
<u>Existing Use</u>								
Mini-Warehouse (LU 151) ³								
Walk, Bike, Other Trips	20%	15	1	0	1	1	1	2
Transit Trips	10%	8	0	0	0	0	1	1
Person Trips by Vehicle	70%	54	2	2	4	3	2	5
Total	100%	77	3	2	5	4	4	8
<u>Net New Project Person Trips</u>								
Walk, Bike, Other Trips		875	24	15	39	51	53	104
Transit Trips		144	5	2	7	8	8	16
Person Trips by Vehicle		323	11	4	15	12	20	32
Total		1,342	40	20	60	71	81	152

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

Land Use	AVU	Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
General Office Building (LU 710) ³	1.11	120	5	2	7	2	5	7
Strip Retail Plaza (<40k) (LU 822)	1.48	164	5	2	7	5	10	15
Less Pass-By ⁵	34%	-	-	-	-	-3	-3	-6
Subtotal		284	10	4	14	8	12	20
<u>Existing Use</u>								
Mini-Warehouse (LU 151) ³	1.11	48	2	2	4	2	2	4
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
Less Pass-By ⁵	34%	-	-	-	-	0	0	0
Subtotal		48	2	2	4	2	2	4
Net New Trips		236	8	2	10	6	10	16

3. AVO consistent with NCHRP 365 data

4. AVO consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the *ITE Trip Generation Handbook*, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 2

South of Nickerson Zone 2

Person Trip Calculation

son Trip Calculation					Trip Rate ¹					
Land Use	Setting	Size Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>										
General Office Building (LU 710)		0 sf								
Daily	Dense Multi-Use Urban		Rate	-	13.68	per ksf	person trips	50%	-	0
AM Peak Hour	Dense Multi-Use Urban		Rate	-	0.84	per ksf	person trips	87%	-	0
PM Peak Hour	Dense Multi-Use Urban		Rate	-	0.87	per ksf	person trips	16%	-	0
Shopping Plaza (40-150k) (LU 821)		53,800 sf								
Daily	General Urban/Suburban		Rate	-	67.52	per ksf	vehicle trips	50%	1.48	5376
AM Peak Hour	General Urban/Suburban		Rate	-	1.73	per ksf	vehicle trips	62%	1.48	138
PM Peak Hour	General Urban/Suburban		Rate	-	5.19	per ksf	vehicle trips	49%	1.48	413
<u>Existing Use</u>										
Walk-In Bank (LU 911)		2,503 sf	No 11th Edition data - used 10th Edition instead							
Daily	General Urban/Suburban		Rate	-	216.20	per ksf	vehicle trips	50%	1.48	801
AM Peak Hour	General Urban/Suburban		Rate	-	22.54	per ksf	vehicle trips	52%	1.48	83
PM Peak Hour	General Urban/Suburban		Rate	-	12.13	per ksf	vehicle trips	44%	1.48	45
Strip Retail Plaza (<40k) (LU 822)		5,128 sf								
Daily	General Urban/Suburban		Rate	-	54.45	per ksf	vehicle trips	50%	1.48	413
AM Peak Hour	General Urban/Suburban		Rate	-	2.36	per ksf	vehicle trips	60%	1.48	18
PM Peak Hour	General Urban/Suburban		Rate	-	6.59	per ksf	vehicle trips	50%	1.48	50
Copy, Print and Express Ship Store (LU 920)		1,390 sf	No 11th Edition data - used 10th Edition instead							
Daily	General Urban/Suburban		Rate	-	123.00	per ksf	vehicle trips	50%	1.48	253
AM Peak Hour	General Urban/Suburban		Rate	-	2.78	per ksf	vehicle trips	75%	1.48	6
PM Peak Hour	General Urban/Suburban		Rate	-	7.42	per ksf	vehicle trips	44%	1.48	15

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.
2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 2

South of Nickerson Zone 2

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
General Office Building (LU 710) ³								
Walk, Bike, Other Trips	20%	0	0	0	0	0	0	0
Transit Trips	15%	0	0	0	0	0	0	0
Person Trips by Vehicle	65%	0	0	0	0	0	0	0
Total	100%	0	0	0	0	0	0	0
Shopping Plaza (40-150k) (LU 821) ⁴								
Walk, Bike, Other Trips	70%	3,763	60	36	96	142	147	289
Transit Trips	10%	538	9	5	14	20	21	41
Person Trips by Vehicle	20%	1,075	16	12	28	40	43	83
Total	100%	5,376	85	53	138	202	211	413
<u>Existing Use</u>								
Walk-In Bank (LU 911) ⁴								
Walk, Bike, Other Trips	70%	561	30	28	58	14	17	31
Transit Trips	10%	80	4	4	8	2	2	4
Person Trips by Vehicle	20%	160	9	8	17	4	6	10
Total	100%	801	43	40	83	20	25	45
Strip Retail Plaza (<40k) (LU 822) ⁴								
Walk, Bike, Other Trips	70%	289	8	5	13	18	17	35
Transit Trips	10%	41	1	1	2	3	2	5
Person Trips by Vehicle	20%	83	2	1	3	4	6	10
Total	100%	413	11	7	18	25	25	50
Copy, Print and Express Ship Store (LU 920) ⁴								
Walk, Bike, Other Trips	70%	177	3	1	4	5	6	11
Transit Trips	10%	25	1	0	1	1	1	2
Person Trips by Vehicle	20%	51	0	1	1	1	1	2
Total	100%	253	4	2	6	7	8	15
<u>Net New Project Person Trips</u>								
Walk, Bike, Other Trips		2,736	19	2	21	105	107	212
Transit Trips		392	3	0	3	14	16	30
Person Trips by Vehicle		781	5	2	7	31	30	61
Total		4,111	31	4	35	156	160	316

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

	AVO	Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
Land Use			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
Shopping Plaza (40-150K) (LU 821)*	1.48	<u>726</u>	<u>11</u>	<u>8</u>	<u>19</u>	<u>27</u>	<u>29</u>	<u>56</u>
Less Pass-By ⁵	34%	-	-	-	-	<u>-10</u>	<u>-10</u>	<u>-20</u>
Subtotal		726	11	8	19	17	19	36
<u>Existing Use</u>								
Walk-In Bank (LU 911)*	1.48	108	6	5	11	3	4	7
Walk-In Bank Pass-By	35%	-	-	-	-	-	-	-
Strip Retail Plaza (<40k) (LU 822)*	1.48	56	1	1	2	3	4	7
Retail Pass-By	34%	-	-	-	-	-	-	-
Copy, Print and Express Ship Store (LU 920)*	1.48	<u>34</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>2</u>
Total Less Pass-By		-	-	-	-	<u>-2</u>	<u>-2</u>	<u>-4</u>
Subtotal		198	7	7	14	5	7	12
Net New Trips		528	4	1	5	12	12	24

3. AVO consistent with NCHRP 365 data

4. AVO consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the *ITE Trip Generation Handbook*, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 2

South of Nickerson Zone 4

Person Trip Calculation						Trip Rate ¹		Person or	Inbound %	AVO Rate ²	Person Trips
Land Use	Setting	Size	Units	Model	Equation	Rate	Units	Vehicle Trips?			
<u>Proposed Use</u>											
<u>Existing Use</u>											
Fast-Food Restaurant without Drive-Thru Window (LU 933)		1,600	sf								
Daily	General Urban/Suburban			Rate	-	450.49	per ksf	vehicle trips	50%	1.48	1067
AM Peak Hour	General Urban/Suburban			Rate	-	43.18	per ksf	vehicle trips	58%	1.48	102
PM Peak Hour	General Urban/Suburban			Rate	-	33.21	per ksf	vehicle trips	50%	1.48	79

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.
2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 2

South of Nickerson Zone 4

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
Total	100%	0	0	0	0	0	0	0
<u>Existing Use</u>								
Fast-Food Restaurant without Drive-Thru Window (LU 933) ⁴								
Walk, Bike, Other Trips	70%	747	42	30	72	28	27	55
Transit Trips	10%	107	6	4	10	4	4	8
Person Trips by Vehicle	20%	213	11	9	20	7	9	16
Total	100%	1,067	59	43	102	39	40	79
<u>Net New Project Person Trips</u>								
Walk, Bike, Other Trips		-747	-42	-30	-72	-28	-27	-55
Transit Trips		-107	-6	-4	-10	-4	-4	-8
Person Trips by Vehicle		-213	-11	-9	-20	-7	-9	-16
Total		-1,067	-59	-43	-102	-39	-40	-79

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

Land Use	AVO	Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
General Office Building (LU 110) ³	1.11	0	0	0	0	0	0	0
Strip Retail Plaza (40K) (LU 844) ⁴	1.48	0	0	0	0	0	0	0
Less Pass-By ⁵	34%	=	=	=	=	0	0	0
Subtotal		0	0	0	0	0	0	0
<u>Existing Use</u>								
Fast-Food Restaurant without Drive-Thru Window (LU 933) ⁴	1.48	144	7	7	14	5	6	11
	1.48	0	0	0	0	0	0	0
	1.11	0	0	0	0	0	0	0
	1.48	0	0	0	0	0	0	0
Less Pass-By ⁵	34%	=	=	=	=	-2	-2	-4
Subtotal		144	7	7	14	3	4	7
Net New Trips		-144	-7	-7	-14	-3	-4	-7

3. AVO consistent with NCHRP 365 data

4. AVO consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the ITE Trip Generation Handbook, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 2

South of Nickerson Zone 5

Person Trip Calculation

son Trip Calculation					Trip Rate ¹					
Land Use	Setting	Size Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>										
<u>Existing Use</u>										
Convenience Store/Gas Station (LU 945)		4 stations								
Daily	General Urban/Suburban		Rate	-	265.12	per station	vehicle trips	50%	1.48	1570
AM Peak Hour	General Urban/Suburban		Rate	-	16.06	per station	vehicle trips	50%	1.48	95
PM Peak Hour	General Urban/Suburban		Rate	-	18.42	per station	vehicle trips	50%	1.48	109

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.
2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 2

South of Nickerson Zone 5

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
<u>Existing Use</u>								
Convenience Store/Gas Station (LU 945) ⁴								
Walk, Bike, Other Trips	20%	314	10	9	19	11	11	22
Transit Trips	10%	157	5	5	10	6	5	11
Person Trips by Vehicle	70%	1,099	33	33	66	38	38	76
Total	100%	1,570	48	47	95	55	54	109
<u>Net New Project Person Trips</u>								
Walk, Bike, Other Trips		-314	-10	-9	-19	-11	-11	-22
Transit Trips		-157	-5	-5	-10	-6	-5	-11
Person Trips by Vehicle		-1,099	-33	-33	-66	-38	-38	-76
Total		-1,570	-48	-47	-95	-55	-54	-109

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

Land Use	AVO	Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
General Office Building (LU 710) ³	1.11	0	0	0	0	0	0	0
Strip Retail Plaza (<40K) (LU 822) ⁴	1.48	0	0	0	0	0	0	0
Less Pass-By ⁵	34%	0	0	0	0	0	0	0
Subtotal		0	0	0	0	0	0	0
<u>Existing Use</u>								
Convenience Store/Gas Station (LU 945) ⁴	1.48	742	22	23	45	25	26	51
	1.48	0	0	0	0	0	0	0
	1.11	0	0	0	0	0	0	0
	1.48	0	0	0	0	0	0	0
Less Pass-By ⁵	56%	0	0	0	0	-14	-14	-28
Subtotal		742	22	23	45	11	12	23
Net New Trips		-742	-22	-23	-45	-11	-12	-23

3. AVO consistent with NCHRP 365 data

4. AVO consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the *ITE Trip Generation Handbook*, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 2

Cremona Access Zone

Person Trip Calculation

son Trip Calculation					Trip Rate ¹					
Land Use	Setting	Size Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>										
General Office Building (LU 710)		53,600 sf								
Daily	Dense Multi-Use Urban		Rate	-	13.68	per ksf	person trips	50%	-	733
AM Peak Hour	Dense Multi-Use Urban		Rate	-	0.84	per ksf	person trips	87%	-	45
PM Peak Hour	Dense Multi-Use Urban		Rate	-	0.87	per ksf	person trips	16%	-	47
Strip Retail Plaza (<40k) (LU 822)		13,400 sf								
Daily	General Urban/Suburban		Rate	-	54.45	per ksf	vehicle trips	50%	1.48	1080
AM Peak Hour	General Urban/Suburban		Rate	-	2.36	per ksf	vehicle trips	60%	1.48	47
PM Peak Hour	General Urban/Suburban		Rate	-	6.59	per ksf	vehicle trips	50%	1.48	131
Supermarket (LU 850)		13,400 sf								
Daily	General Urban/Suburban		Rate	-	93.84	per ksf	vehicle trips	50%	1.48	1861
AM Peak Hour	General Urban/Suburban		Rate	-	2.86	per ksf	vehicle trips	59%	1.48	57
PM Peak Hour	General Urban/Suburban		Rate	-	3.32	per ksf	vehicle trips	50%	1.48	66

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.

2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 2

Cremona Access Zone

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
General Office Building (LU 710) ³								
Walk, Bike, Other Trips	20%	147	8	1	9	1	8	9
Transit Trips	15%	110	6	1	7	1	6	7
Person Trips by Vehicle	65%	476	25	4	29	5	26	31
Total	100%	733	39	6	45	7	40	47
Strip Retail Plaza (<40k) (LU 822) ⁴								
Walk, Bike, Other Trips	70%	756	20	13	33	46	45	91
Transit Trips	10%	108	3	2	5	7	6	13
Person Trips by Vehicle	20%	216	5	4	9	12	15	27
Total	100%	1,080	28	19	47	65	66	131
Supermarket (LU 850) ⁴								
Walk, Bike, Other Trips	20%	372	6	5	11	7	6	13
Transit Trips	5%	93	2	1	3	2	1	3
Person Trips by Vehicle	75%	1,396	25	18	43	24	26	50
Total	100%	1,861	33	24	57	33	33	66
<u>Net New Project Person Trips</u>								
Walk, Bike, Other Trips		1,275	34	19	53	54	59	113
Transit Trips		311	11	4	15	10	13	23
Person Trips by Vehicle		2,088	55	26	81	41	66	107
Total		3,674	100	49	149	105	138	243

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

Land Use	AVO	Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
			In	Out	Total	In	Out	Total
Proposed Use								
General Office Building (LU 710)*	1.11	430	22	4	26	4	24	28
Strip Retail Plaza (<40K) (LU 822)*	1.48	146	4	2	6	8	10	18
Supermarket (LU 850)*	1.48	544	17	12	29	16	18	34
Retail and Supermarket Pass-By ⁵	34%	-	-	-	-	-9	-9	-18
Subtotal		1,520	43	18	61	19	43	62
Net New Trips		1,520	43	18	61	19	43	62

3. AVO consistent with NCHRP 365 data

4. AVO consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the *ITE Trip Generation Handbook*, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 2

3rd Avenue Zone

Person Trip Calculation

son Trip Calculation					Trip Rate ¹					
Land Use	Setting	Size Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>										
General Office Building (LU 710)		54,600 sf								
Daily	Dense Multi-Use Urban		Rate	-	13.68	per ksf	person trips	50%	-	747
AM Peak Hour	Dense Multi-Use Urban		Rate	-	0.84	per ksf	person trips	87%	-	46
PM Peak Hour	Dense Multi-Use Urban		Rate	-	0.87	per ksf	person trips	16%	-	48
Strip Retail Plaza (<40k) (LU 822)		18,200 sf								
Daily	General Urban/Suburban		Rate	-	54.45	per ksf	vehicle trips	50%	1.48	1467
AM Peak Hour	General Urban/Suburban		Rate	-	2.36	per ksf	vehicle trips	60%	1.48	64
PM Peak Hour	General Urban/Suburban		Rate	-	6.59	per ksf	vehicle trips	50%	1.48	178

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.

2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 2

3rd Avenue Zone

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Proposed Use								
General Office Building (LU 710) ³								
Walk, Bike, Other Trips	20%	149	8	1	9	2	8	10
Transit Trips	15%	112	6	1	7	1	6	7
Person Trips by Vehicle	65%	486	26	4	30	5	26	31
Total	100%	747	40	6	46	8	40	48
Strip Retail Plaza (<40k) (LU 822) ⁴								
Walk, Bike, Other Trips	70%	1,027	26	18	44	62	62	124
Transit Trips	10%	147	4	2	6	9	9	18
Person Trips by Vehicle	20%	293	8	6	14	18	18	36
Total	100%	1,467	38	26	64	89	89	178
Net New Project Person Trips								
Walk, Bike, Other Trips		1,176	34	19	53	64	70	134
Transit Trips		259	10	3	13	10	15	25
Person Trips by Vehicle		779	34	10	44	23	43	66
Total		2,214	78	31	109	97	128	225

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

		AVO	Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
Land Use	In			Out	Total	In	Out	Total	
	Proposed Use								
General Office Building (LU 710)*	1.11	438	24	4	28	4	24	28	
Strip Retail Plaza (<40K) (LU 822)*	1.48	198	9	4	13	12	12	24	
Supermarket (LU 850)*	1.48	9	9	9	9	9	9	9	
Retail Pass-By ⁵	34%	-	-	-	-	-4	-4	-8	
Subtotal		636	30	8	38	12	32	44	
Net New Trips			636	30	8	38	12	32	44

3. AVO consistent with NCHRP 365 data

4. AVO consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the *ITE Trip Generation Handbook*, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 3

North of Nickerson Zone 1

Person Trip Calculation

son Trip Calculation					Trip Rate ¹					
Land Use	Setting	Size Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>										
General Office Building (LU 710)		117,200 sf								
Daily	Dense Multi-Use Urban		Rate	-	13.68	per ksf	person trips	50%	-	1603
AM Peak Hour	Dense Multi-Use Urban		Rate	-	0.84	per ksf	person trips	87%	-	98
PM Peak Hour	Dense Multi-Use Urban		Rate	-	0.87	per ksf	person trips	16%	-	102
Shopping Plaza (40-150k) (LU 821)		58,500 sf								
Daily	General Urban/Suburban		Rate	-	67.52	per ksf	vehicle trips	50%	1.48	5846
AM Peak Hour	General Urban/Suburban		Rate	-	1.73	per ksf	vehicle trips	62%	1.48	150
PM Peak Hour	General Urban/Suburban		Rate	-	5.19	per ksf	vehicle trips	49%	1.48	449
<u>Existing Use</u>										
Mini-Warehouse (LU 151)		62,712 sf								
Daily	General Urban/Suburban		Rate	-	1.45	per ksf	vehicle trips	50%	1.11	101
AM Peak Hour	General Urban/Suburban		Rate	-	0.09	per ksf	vehicle trips	59%	1.11	6
PM Peak Hour	General Urban/Suburban		Rate	-	0.15	per ksf	vehicle trips	47%	1.11	10

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.
2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 3

North of Nickerson Zone 1

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
General Office Building (LU 710) ³								
Walk, Bike, Other Trips	20%	321	17	3	20	3	17	20
Transit Trips	15%	240	13	2	15	2	13	15
Person Trips by Vehicle	65%	1,042	56	7	63	11	56	67
Total	100%	1,603	86	12	98	16	86	102
Shopping Plaza (40-150k) (LU 821) ⁴								
Walk, Bike, Other Trips	70%	4,092	65	40	105	154	161	315
Transit Trips	10%	585	9	6	15	22	23	45
Person Trips by Vehicle	20%	1,169	19	11	30	44	45	89
Total	100%	5,846	93	57	150	220	229	449
<u>Existing Use</u>								
Mini-Warehouse (LU 151) ³								
Walk, Bike, Other Trips	20%	20	1	0	1	1	1	2
Transit Trips	10%	10	1	0	1	0	1	1
Person Trips by Vehicle	70%	71	2	2	4	4	3	7
Total	100%	101	4	2	6	5	5	10
<u>Net New Project Person Trips</u>								
Walk, Bike, Other Trips		4,393	81	43	124	156	177	333
Transit Trips		815	21	8	29	24	35	59
Person Trips by Vehicle		2,140	73	16	89	51	98	149
Total		7,348	175	67	242	231	310	541

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

Land Use	AVU	Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
			In	Out	Total	In	Out	Total
Proposed Use								
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
General Office Building (LU 710) ³	1.11	940	50	7	57	10	50	60
Shopping Plaza (40-150K) (LU 821) ⁴	1.48	790	13	7	20	30	30	60
Less Pass-By ⁵	34%	-	-	-	-	-10	-10	-20
Subtotal		1,730	63	14	77	30	70	100
Existing Use								
Mini-Warehouse (LU 151) ³	1.11	64	2	2	4	4	3	7
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
Less Pass-By ⁵	34%	-	-	-	-	0	0	0
Subtotal		64	2	2	4	4	3	7
Net New Trips		1,666	61	12	73	26	67	93

3. AVU consistent with NCHRP 365 data

4. AVU consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the *ITE Trip Generation Handbook*, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 3

South of Nickerson Zone 2

Person Trip Calculation

Person Trip Calculation						Trip Rate ¹					
Land Use	Setting	Size	Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>											
General Office Building (LU 710)		22,600	sf								
Daily	Dense Multi-Use Urban			Rate	-	13.68	per ksf	person trips	50%	-	309
AM Peak Hour	Dense Multi-Use Urban			Rate	-	0.84	per ksf	person trips	87%	-	19
PM Peak Hour	Dense Multi-Use Urban			Rate	-	0.87	per ksf	person trips	16%	-	20
Strip Retail Plaza (<40k) (LU 822)		11,300	sf								
Daily	General Urban/Suburban			Rate	-	54.45	per ksf	vehicle trips	50%	1.48	911
AM Peak Hour	General Urban/Suburban			Rate	-	2.36	per ksf	vehicle trips	60%	1.48	39
PM Peak Hour	General Urban/Suburban			Rate	-	6.59	per ksf	vehicle trips	50%	1.48	110
<u>Existing Use</u>											
Walk-In Bank (LU 911)		2,503	sf		No 11th Edition data - used 10th Edition instead						
Daily	General Urban/Suburban			Rate	-	216.20	per ksf	vehicle trips	50%	1.48	801
AM Peak Hour	General Urban/Suburban			Rate	-	22.54	per ksf	vehicle trips	52%	1.48	83
PM Peak Hour	General Urban/Suburban			Rate	-	12.13	per ksf	vehicle trips	44%	1.48	45
Strip Retail Plaza (<40k) (LU 822)		5,128	sf								
Daily	General Urban/Suburban			Rate	-	54.45	per ksf	vehicle trips	50%	1.48	413
AM Peak Hour	General Urban/Suburban			Rate	-	2.36	per ksf	vehicle trips	60%	1.48	18
PM Peak Hour	General Urban/Suburban			Rate	-	6.59	per ksf	vehicle trips	50%	1.48	50
Copy, Print and Express Ship Store (LU 920)		1,390	sf		No 11th Edition data - used 10th Edition instead						
Daily	General Urban/Suburban			Rate	-	123.00	per ksf	vehicle trips	50%	1.48	253
AM Peak Hour	General Urban/Suburban			Rate	-	2.78	per ksf	vehicle trips	75%	1.48	6
PM Peak Hour	General Urban/Suburban			Rate	-	7.42	per ksf	vehicle trips	44%	1.48	15

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.
2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 3

South of Nickerson Zone 2

Person Trips by Mode of Travel

	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
Trip Generation Summary			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
General Office Building (LU 710) ³								
Walk, Bike, Other Trips	20%	62	3	1	4	1	3	4
Transit Trips	15%	46	3	0	3	0	3	3
Person Trips by Vehicle	65%	<u>201</u>	<u>11</u>	<u>1</u>	<u>12</u>	<u>2</u>	<u>11</u>	<u>13</u>
Total	100%	309	17	2	19	3	17	20
Strip Retail Plaza (<40k) (LU 822) ⁴								
Walk, Bike, Other Trips	70%	637	17	11	28	39	38	77
Transit Trips	10%	91	2	2	4	6	5	11
Person Trips by Vehicle	<u>20%</u>	<u>183</u>	<u>5</u>	<u>2</u>	<u>7</u>	<u>10</u>	<u>12</u>	<u>22</u>
Total	100%	911	24	15	39	55	55	110
<u>Existing Use</u>								
Walk-In Bank (LU 911) ⁴								
Walk, Bike, Other Trips	70%	561	30	28	58	14	17	31
Transit Trips	10%	80	4	4	8	2	2	4
Person Trips by Vehicle	<u>20%</u>	<u>160</u>	<u>9</u>	<u>8</u>	<u>17</u>	<u>4</u>	<u>6</u>	<u>10</u>
Total	100%	801	43	40	83	20	25	45
Strip Retail Plaza (<40k) (LU 822) ⁴								
Walk, Bike, Other Trips	70%	289	8	5	13	18	17	35
Transit Trips	10%	41	1	1	2	3	2	5
Person Trips by Vehicle	<u>20%</u>	<u>83</u>	<u>2</u>	<u>1</u>	<u>3</u>	<u>4</u>	<u>6</u>	<u>10</u>
Total	100%	413	11	7	18	25	25	50
Copy, Print and Express Ship Store (LU 920) ⁴								
Walk, Bike, Other Trips	70%	177	3	1	4	5	6	11
Transit Trips	10%	25	1	0	1	1	1	2
Person Trips by Vehicle	<u>20%</u>	<u>51</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>2</u>
Total	100%	253	4	2	6	7	8	15
<u>Net New Project Person Trips</u>								
Walk, Bike, Other Trips		-328	-21	-22	-43	3	1	4
Transit Trips		-9	-1	-3	-4	0	3	3
Person Trips by Vehicle		90	5	-7	-2	3	10	13
Total		-45	-13	-31	-44	12	21	33

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

		Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
Land Use	AVO		In	Out	Total	In	Out	Total
Proposed Use								
General Office Building (LU 710)*	1.00	0	0	0	0	0	0	0
Strip Retail Plaza (<40k) (LU 822)*	1.11	201	11	1	12	2	9	11
Less Pass-By*	1.48	124	3	2	5	1	8	10
	34%	-	-	-	-	-3	-3	-6
Subtotal		325	14	3	17	6	14	20
Existing Use								
Walk-In Bank (LU 911)*	1.48	108	6	5	11	3	4	7
Walk-In Bank Pass-By	35%	-	-	-	-	-	-	-
Strip Retail Plaza (<40k) (LU 822)*	1.48	56	1	1	2	3	4	7
Retail Pass-By	34%	-	-	-	-	-	-	-
Copy, Print and Express Ship Store (LU 920)*	1.48	34	0	1	1	1	1	2
Total Less Pass-By		-	-	-	-	-2	-2	-4
Subtotal		198	7	7	14	5	7	12
Net New Trips		127	7	-4	3	1	7	8

3. AVO consistent with NCHRP 365 data

4. AVO consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the *ITE Trip Generation Handbook*, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 3

South of Nickerson Zone 3

Person Trip Calculation

son Trip Calculation					Trip Rate ¹					
Land Use	Setting	Size Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>										
General Office Building (LU 710)		0 sf								
Daily	Dense Multi-Use Urban		Rate	-	13.68	per ksf	person trips	50%	-	0
AM Peak Hour	Dense Multi-Use Urban		Rate	-	0.84	per ksf	person trips	87%	-	0
PM Peak Hour	Dense Multi-Use Urban		Rate	-	0.87	per ksf	person trips	16%	-	0
Supermarket (LU 850)		0 sf								
Daily	General Urban/Suburban		Rate	-	93.84	per ksf	vehicle trips	50%	1.48	0
AM Peak Hour	General Urban/Suburban		Rate	-	2.86	per ksf	vehicle trips	59%	1.48	0
PM Peak Hour	General Urban/Suburban		Rate	-	3.32	per ksf	vehicle trips	50%	1.48	0
<u>Existing Use</u>										
Convenience Store (LU 851)		2,024 sf								
Daily	General Urban/Suburban		Rate	-	762.28	per ksf	vehicle trips	50%	1.48	2283
AM Peak Hour	General Urban/Suburban		Rate	-	62.54	per ksf	vehicle trips	50%	1.48	187
PM Peak Hour	General Urban/Suburban		Rate	-	49.11	per ksf	vehicle trips	51%	1.48	147
Strip Retail Plaza (<40k) (LU 822)		8,023 sf								
Daily	General Urban/Suburban		Rate	-	54.45	per ksf	vehicle trips	50%	1.48	647
AM Peak Hour	General Urban/Suburban		Rate	-	2.36	per ksf	vehicle trips	60%	1.48	28
PM Peak Hour	General Urban/Suburban		Rate	-	6.59	per ksf	vehicle trips	50%	1.48	78
Fast Casual Restaurant (LU 930)		4,080 sf								
Daily	General Urban/Suburban		Rate	-	97.14	per ksf	vehicle trips	50%	1.48	587
AM Peak Hour	General Urban/Suburban		Rate	-	1.43	per ksf	vehicle trips	50%	1.48	9
PM Peak Hour	General Urban/Suburban		Rate	-	12.55	per ksf	vehicle trips	55%	1.48	76
Mini-Warehouse (LU 151)		6,470 sf								
Daily	General Urban/Suburban		Rate	-	1.45	per ksf	vehicle trips	50%	1.11	10
AM Peak Hour	General Urban/Suburban		Rate	-	0.09	per ksf	vehicle trips	50%	1.11	1
PM Peak Hour	General Urban/Suburban		Rate	-	0.15	per ksf	vehicle trips	50%	1.11	1

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.

2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 3

South of Nickerson Zone 3

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
General Office Building (LU 710) ³								
Walk, Bike, Other Trips	20%	0	0	0	0	0	0	0
Transit Trips	15%	0	0	0	0	0	0	0
Person Trips by Vehicle	65%	0	0	0	0	0	0	0
Total	100%	0	0	0	0	0	0	0
Supermarket (LU 850) ⁴								
Walk, Bike, Other Trips	20%	0	0	0	0	0	0	0
Transit Trips	5%	0	0	0	0	0	0	0
Person Trips by Vehicle	75%	0	0	0	0	0	0	0
Total	100%	0	0	0	0	0	0	0
<u>Existing Use</u>								
Convenience Store (LU 851) ⁴								
Walk, Bike, Other Trips	70%	1,598	66	65	131	53	50	103
Transit Trips	10%	228	10	9	19	8	7	15
Person Trips by Vehicle	20%	457	18	19	37	14	15	29
Total	100%	2,283	94	93	187	75	72	147
Strip Retail Plaza (<40k) (LU 822) ⁴								
Walk, Bike, Other Trips	70%	453	12	8	20	28	27	55
Transit Trips	10%	65	2	1	3	4	4	8
Person Trips by Vehicle	20%	129	3	2	5	7	8	15
Total	100%	647	17	11	28	39	39	78
Fast Casual Restaurant (LU 930) ⁴								
Walk, Bike, Other Trips	70%	411	3	3	6	29	24	53
Transit Trips	10%	59	1	0	1	4	4	8
Person Trips by Vehicle	20%	117	0	2	2	9	6	15
Total	100%	587	4	5	9	42	34	76
Mini-Warehouse (LU 151) ³								
Walk, Bike, Other Trips	20%	2	0	0	0	0	0	0
Transit Trips	10%	1	0	0	0	0	0	0
Person Trips by Vehicle	70%	7	0	1	1	1	0	1
Total	100%	10	0	1	1	1	0	1
<u>Net New Project Person Trips</u>								
Walk, Bike, Other Trips		-2,464	-81	-76	-157	-110	-101	-211
Transit Trips		-353	-13	-10	-23	-16	-15	-31
Person Trips by Vehicle		-710	-21	-24	-45	-31	-29	-60
Total		-3,057	-111	-107	-218	-124	-117	-241

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

Land Use	AVO	Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
			In	Out	Total	In	Out	Total
Proposed Use								
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
General Office Building (LU 710)*	1.11	0	0	0	0	0	0	0
Supermarket (LU 850)*	1.48	0	0	0	0	0	0	0
Less Pass-By ⁵	34%	-	-	-	-	0	0	0
Subtotal		0	0	0	0	0	0	0
Existing Use								
Convenience Store (LU 851)*	1.48	309	12	13	25	10	10	20
Conv. Store Without Gas Pass-By	51%							
Strip Retail Plaza (<40k) (LU 822)*	1.48	87	2	1	3	4	6	10
Retail Pass-By	34%							
Mini-Warehouse (LU 151)*	1.11	7	0	1	1	1	0	1
Fast Casual Restaurant (LU 930)*	1.48	79	0	1	1	6	4	10
Fast Casual Restaurant Pass-By	43%							
Total Pass-By		-	-	-	-	-9	-9	-18
Subtotal		482	14	16	30	12	11	23
Net New Trips		-482	-14	-16	-30	-12	-11	-23

3. AVO consistent with NCHRP 365 data

4. AVO consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the ITE Trip Generation Handbook, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 3

South of Nickerson Zone 4

Person Trip Calculation

son Trip Calculation						Trip Rate ¹					
Land Use	Setting	Size	Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>											
General Office Building (LU 710)		0	sf								
Daily	Dense Multi-Use Urban			Rate	-	13.68	per ksf	person trips	50%	-	0
AM Peak Hour	Dense Multi-Use Urban			Rate	-	0.84	per ksf	person trips	87%	-	0
PM Peak Hour	Dense Multi-Use Urban			Rate	-	0.87	per ksf	person trips	16%	-	0
Strip Retail Plaza (<40k) (LU 822)		0	sf								
Daily	General Urban/Suburban			Rate	-	54.45	per ksf	vehicle trips	50%	1.48	0
AM Peak Hour	General Urban/Suburban			Rate	-	2.36	per ksf	vehicle trips	60%	1.48	0
PM Peak Hour	General Urban/Suburban			Rate	-	6.59	per ksf	vehicle trips	50%	1.48	0
<u>Existing Use</u>											
Fast-Food Restaurant without Drive-Thru Window (LU 933)		1,600	sf								
Daily	General Urban/Suburban			Rate	-	450.49	per ksf	vehicle trips	50%	1.48	1067
AM Peak Hour	General Urban/Suburban			Rate	-	43.18	per ksf	vehicle trips	58%	1.48	102
PM Peak Hour	General Urban/Suburban			Rate	-	33.21	per ksf	vehicle trips	50%	1.48	79

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.
2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 3

South of Nickerson Zone 4

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
General Office Building (LU 710) ³								
Walk, Bike, Other Trips	20%	0	0	0	0	0	0	0
Transit Trips	15%	0	0	0	0	0	0	0
Person Trips by Vehicle	65%	0	0	0	0	0	0	0
Total	100%	0	0	0	0	0	0	0
Strip Retail Plaza (<40k) (LU 822) ⁴								
Walk, Bike, Other Trips	70%	0	0	0	0	0	0	0
Transit Trips	10%	0	0	0	0	0	0	0
Person Trips by Vehicle	20%	0	0	0	0	0	0	0
Total	100%	0	0	0	0	0	0	0
<u>Existing Use</u>								
Fast-Food Restaurant without Drive-Thru Window (LU 933) ⁴								
Walk, Bike, Other Trips	70%	747	42	30	72	28	27	55
Transit Trips	10%	107	6	4	10	4	4	8
Person Trips by Vehicle	20%	213	11	9	20	7	9	16
Total	100%	1,067	59	43	102	39	40	79
<u>Net New Project Person Trips</u>								
Walk, Bike, Other Trips		-747	-42	-30	-72	-28	-27	-55
Transit Trips		-107	-6	-4	-10	-4	-4	-8
Person Trips by Vehicle		-213	-11	-9	-20	-7	-9	-16
Total		-1,067	-59	-43	-102	-39	-40	-79

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

Land Use	AVO	Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
General Office Building (LU 710)*	1.11	0	0	0	0	0	0	0
Strip Retail Plaza (<40K) (LU 822)*	1.48	0	0	0	0	0	0	0
Less Pass-By ⁵	34%	0	0	0	0	0	0	0
Subtotal		0	0	0	0	0	0	0
<u>Existing Use</u>								
Fast-Food Restaurant without Drive-Thru	1.48	144	7	7	14	5	6	11
	1.48	0	0	0	0	0	0	0
	1.11	0	0	0	0	0	0	0
	1.48	0	0	0	0	0	0	0
Less Pass-By ⁵	34%	0	0	0	0	-2	-2	-4
Subtotal		144	7	7	14	3	4	7
Net New Trips		-144	-7	-7	-14	-3	-4	-7

3. AVO consistent with NCHRP 365 data

4. AVO consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the ITE Trip Generation Handbook, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 3

South of Nickerson Zone 5

Person Trip Calculation

son Trip Calculation					Trip Rate ¹					
Land Use	Setting	Size Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>										
General Office Building (LU 710)		0 sf								
Daily	Dense Multi-Use Urban		Rate	-	13.68	per ksf	person trips	50%	-	0
AM Peak Hour	Dense Multi-Use Urban		Rate	-	0.84	per ksf	person trips	87%	-	0
PM Peak Hour	Dense Multi-Use Urban		Rate	-	0.87	per ksf	person trips	16%	-	0
Strip Retail Plaza (<40k) (LU 822)		0 sf								
Daily	General Urban/Suburban		Rate	-	54.45	per ksf	vehicle trips	50%	1.48	0
AM Peak Hour	General Urban/Suburban		Rate	-	2.36	per ksf	vehicle trips	60%	1.48	0
PM Peak Hour	General Urban/Suburban		Rate	-	6.59	per ksf	vehicle trips	50%	1.48	0
<u>Existing Use</u>										
Convenience Store/Gas Station (LU 945)		4 stations								
Daily	General Urban/Suburban		Rate	-	265.12	per station	vehicle trips	50%	1.48	1570
AM Peak Hour	General Urban/Suburban		Rate	-	16.06	per station	vehicle trips	50%	1.48	95
PM Peak Hour	General Urban/Suburban		Rate	-	18.42	per station	vehicle trips	50%	1.48	109

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.
2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 3

South of Nickerson Zone 5

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
General Office Building (LU 710) ³								
Walk, Bike, Other Trips	20%	0	0	0	0	0	0	0
Transit Trips	15%	0	0	0	0	0	0	0
Person Trips by Vehicle	65%	0	0	0	0	0	0	0
Total	100%	0	0	0	0	0	0	0
Strip Retail Plaza (<40k) (LU 822) ⁴								
Walk, Bike, Other Trips	70%	0	0	0	0	0	0	0
Transit Trips	10%	0	0	0	0	0	0	0
Person Trips by Vehicle	20%	0	0	0	0	0	0	0
Total	100%	0	0	0	0	0	0	0
<u>Existing Use</u>								
Convenience Store/Gas Station (LU 945) ⁴								
Walk, Bike, Other Trips	20%	314	10	9	19	11	11	22
Transit Trips	10%	157	5	5	10	6	5	11
Person Trips by Vehicle	70%	1,099	33	33	66	38	38	76
Total	100%	1,570	48	47	95	55	54	109
<u>Net New Project Person Trips</u>								
Walk, Bike, Other Trips		-314	-10	-9	-19	-11	-11	-22
Transit Trips		-157	-5	-5	-10	-6	-5	-11
Person Trips by Vehicle		-1,099	-33	-33	-66	-38	-38	-76
Total		-1,570	-48	-47	-95	-55	-54	-109

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

		AVO	Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
Land Use				In	Out	Total	In	Out	Total
<u>Proposed Use</u>									
		1.00	0	0	0	0	0	0	
		1.00	0	0	0	0	0	0	
General Office Building (LU 710)*		1.11	0	0	0	0	0	0	
Strip Retail Plaza (<40K) (LU 822)*		1.48	0	0	0	0	0	0	
	Less Pass-By ³	34%	=	=	=	0	0	0	
Subtotal			0	0	0	0	0	0	
<u>Existing Use</u>									
Convenience Store/Gas Station (LU 945)*		1.48	742	22	23	45	25	26	51
		1.48	0	0	0	0	0	0	0
		1.11	0	0	0	0	0	0	0
		1.48	0	0	0	0	0	0	0
	Less Pass-By ⁵	56%	=	=	=	-14	-14	-28	
Subtotal			742	22	23	45	11	12	23
Net New Trips			-742	-22	-23	-45	-11	-12	-23

3. AVO consistent with NCHRP 365 data

4. AVO consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the *ITE Trip Generation Handbook*, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 3

Cremona Access Zone

Person Trip Calculation

son Trip Calculation					Trip Rate ¹					
Land Use	Setting	Size Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>										
General Office Building (LU 710)		0 sf								
Daily	Dense Multi-Use Urban		Rate	-	13.68	per ksf	person trips	50%	-	0
AM Peak Hour	Dense Multi-Use Urban		Rate	-	0.84	per ksf	person trips	87%	-	0
PM Peak Hour	Dense Multi-Use Urban		Rate	-	0.87	per ksf	person trips	16%	-	0
Strip Retail Plaza (<40k) (LU 822)		14,100 sf								
Daily	General Urban/Suburban		Rate	-	54.45	per ksf	vehicle trips	50%	1.48	1136
AM Peak Hour	General Urban/Suburban		Rate	-	2.36	per ksf	vehicle trips	60%	1.48	49
PM Peak Hour	General Urban/Suburban		Rate	-	6.59	per ksf	vehicle trips	50%	1.48	138
Supermarket (LU 850)		13,400 sf								
Daily	General Urban/Suburban		Rate	-	93.84	per ksf	vehicle trips	50%	1.48	1861
AM Peak Hour	General Urban/Suburban		Rate	-	2.86	per ksf	vehicle trips	59%	1.48	57
PM Peak Hour	General Urban/Suburban		Rate	-	3.32	per ksf	vehicle trips	50%	1.48	66

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.

2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 3

Cremona Access Zone

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Proposed Use								
General Office Building (LU 710) ³								
Walk, Bike, Other Trips	20%	0	0	0	0	0	0	0
Transit Trips	15%	0	0	0	0	0	0	0
Person Trips by Vehicle	65%	0	0	0	0	0	0	0
Total	100%	0	0	0	0	0	0	0
Strip Retail Plaza (<40k) (LU 822) ⁴								
Walk, Bike, Other Trips	70%	795	20	14	34	48	48	96
Transit Trips	10%	114	3	2	5	7	7	14
Person Trips by Vehicle	20%	227	7	3	10	14	14	28
Total	100%	1,136	30	19	49	69	69	138
Supermarket (LU 850) ⁴								
Walk, Bike, Other Trips	20%	372	6	5	11	7	6	13
Transit Trips	5%	93	2	1	3	2	1	3
Person Trips by Vehicle	75%	1,396	25	18	43	24	26	50
Total	100%	1,861	33	24	57	33	33	66
Net New Project Person Trips								
Walk, Bike, Other Trips		1,167	26	19	45	55	54	109
Transit Trips		207	5	3	8	9	8	17
Person Trips by Vehicle		1,623	32	21	53	38	39	77
Total		2,997	63	43	106	102	101	203

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

Land Use	AVO	Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
			In	Out	Total	In	Out	Total
Proposed Use								
General Office Building (LU 710)~	1.11	0	0	0	0	0	0	0
Strip Retail Plaza (<40K) (LU 822)~	1.48	<u>154</u>	<u>4</u>	<u>2</u>	<u>6</u>	<u>10</u>	<u>8</u>	<u>18</u>
Supermarket (LU 850)~	1.48	<u>944</u>	<u>17</u>	<u>12</u>	<u>29</u>	<u>16</u>	<u>18</u>	<u>34</u>
Less Pass-By~	34%	=	=	=	=	=9	=9	=18
Subtotal		1,098	21	14	35	17	17	34
Net New Trips		1,098	21	14	35	17	17	34

3. AVO consistent with NCHRP 365 data

4. AVO consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the *ITE Trip Generation Handbook*, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 4

North of Nickerson Zone 1

Person Trip Calculation

son Trip Calculation					Trip Rate ¹					
Land Use	Setting	Size Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>										
General Office Building (LU 710)		27,600 sf								
Daily	Dense Multi-Use Urban		Rate	-	13.68	per ksf	person trips	50%	-	378
AM Peak Hour	Dense Multi-Use Urban		Rate	-	0.84	per ksf	person trips	87%	-	23
PM Peak Hour	Dense Multi-Use Urban		Rate	-	0.87	per ksf	person trips	16%	-	24
Strip Retail Plaza (<40k) (LU 822)		27,500 sf								
Daily	General Urban/Suburban		Rate	-	54.45	per ksf	vehicle trips	50%	1.48	2216
AM Peak Hour	General Urban/Suburban		Rate	-	2.36	per ksf	vehicle trips	60%	1.48	96
PM Peak Hour	General Urban/Suburban		Rate	-	6.59	per ksf	vehicle trips	50%	1.48	268
<u>Existing Use</u>										
Mini-Warehouse (LU 151)		47,552 sf								
Daily	General Urban/Suburban		Rate	-	1.45	per ksf	vehicle trips	50%	1.11	77
AM Peak Hour	General Urban/Suburban		Rate	-	0.09	per ksf	vehicle trips	59%	1.11	5
PM Peak Hour	General Urban/Suburban		Rate	-	0.15	per ksf	vehicle trips	47%	1.11	8

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.

2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 4

North of Nickerson Zone 1

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
General Office Building (LU 710) ³								
Walk, Bike, Other Trips	20%	76	4	1	5	1	4	5
Transit Trips	15%	57	3	0	3	1	3	4
Person Trips by Vehicle	65%	245	13	2	15	2	13	15
Total	100%	378	20	3	23	4	20	24
Strip Retail Plaza (<40k) (LU 822) ⁴								
Walk, Bike, Other Trips	70%	1,551	40	27	67	94	94	188
Transit Trips	10%	222	6	4	10	14	13	27
Person Trips by Vehicle	20%	443	12	7	19	26	27	53
Total	100%	2,216	58	38	96	134	134	268
<u>Existing Use</u>								
Mini-Warehouse (LU 151) ³								
Walk, Bike, Other Trips	20%	15	1	0	1	1	1	2
Transit Trips	10%	8	0	0	0	0	1	1
Person Trips by Vehicle	70%	54	2	2	4	3	2	5
Total	100%	77	3	2	5	4	4	8
<u>Net New Project Person Trips</u>								
Walk, Bike, Other Trips		1,612	43	28	71	94	97	191
Transit Trips		271	9	4	13	15	15	30
Person Trips by Vehicle		634	23	7	30	25	38	63
Total		2,517	75	39	114	134	150	284

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

Land Use	AVU	Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
			In	Out	Total	In	Out	Total
Proposed Use								
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
General Office Building (LU 710) ³	1.11	220	12	2	14	2	12	14
Strip Retail Plaza (<40k) (LU 822)	1.48	300	8	5	13	18	18	36
Less Pass-By ⁵	34%	-	-	-	-	-6	-6	-12
Subtotal		520	20	7	27	14	24	38
Existing Use								
Mini-Warehouse (LU 151) ³	1.11	48	2	2	4	2	2	4
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
Less Pass-By ⁵	34%	-	-	-	-	0	0	0
Subtotal		48	2	2	4	2	2	4
Net New Trips		472	18	5	23	12	22	34

3. AVU consistent with NCHRP 365 data

4. AVU consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the *ITE Trip Generation Handbook*, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 4

South of Nickerson Zone 2

Person Trip Calculation

Person Trip Calculation					Trip Rate ¹					
Land Use	Setting	Size Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>										
General Office Building (LU 710)		0 sf								
Daily	Dense Multi-Use Urban		Rate	-	13.68	per ksf	person trips	50%	-	0
AM Peak Hour	Dense Multi-Use Urban		Rate	-	0.84	per ksf	person trips	87%	-	0
PM Peak Hour	Dense Multi-Use Urban		Rate	-	0.87	per ksf	person trips	16%	-	0
Shopping Plaza (40-150k) (LU 821)		53,800 sf								
Daily	General Urban/Suburban		Rate	-	67.52	per ksf	vehicle trips	50%	1.48	5376
AM Peak Hour	General Urban/Suburban		Rate	-	1.73	per ksf	vehicle trips	62%	1.48	138
PM Peak Hour	General Urban/Suburban		Rate	-	5.19	per ksf	vehicle trips	49%	1.48	413
<u>Existing Use</u>										
Walk-In Bank (LU 911)		2,503 sf	No 11th Edition data - used 10th Edition instead							
Daily	General Urban/Suburban		Rate	-	216.20	per ksf	vehicle trips	50%	1.48	801
AM Peak Hour	General Urban/Suburban		Rate	-	22.54	per ksf	vehicle trips	52%	1.48	83
PM Peak Hour	General Urban/Suburban		Rate	-	12.13	per ksf	vehicle trips	44%	1.48	45
Strip Retail Plaza (<40k) (LU 822)		5,128 sf								
Daily	General Urban/Suburban		Rate	-	54.45	per ksf	vehicle trips	50%	1.48	413
AM Peak Hour	General Urban/Suburban		Rate	-	2.36	per ksf	vehicle trips	60%	1.48	18
PM Peak Hour	General Urban/Suburban		Rate	-	6.59	per ksf	vehicle trips	50%	1.48	50
Copy, Print and Express Ship Store (LU 920)		1,390 sf	No 11th Edition data - used 10th Edition instead							
Daily	General Urban/Suburban		Rate	-	123.00	per ksf	vehicle trips	50%	1.48	253
AM Peak Hour	General Urban/Suburban		Rate	-	2.78	per ksf	vehicle trips	75%	1.48	6
PM Peak Hour	General Urban/Suburban		Rate	-	7.42	per ksf	vehicle trips	44%	1.48	15

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.
2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 4

South of Nickerson Zone 2

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
General Office Building (LU 710) ³								
Walk, Bike, Other Trips	20%	0	0	0	0	0	0	0
Transit Trips	15%	0	0	0	0	0	0	0
Person Trips by Vehicle	65%	0	0	0	0	0	0	0
Total	100%	0	0	0	0	0	0	0
Shopping Plaza (40-150k) (LU 821) ⁴								
Walk, Bike, Other Trips	70%	3,763	60	36	96	142	147	289
Transit Trips	10%	538	9	5	14	20	21	41
Person Trips by Vehicle	20%	1,075	16	12	28	40	43	83
Total	100%	5,376	85	53	138	202	211	413
<u>Existing Use</u>								
Walk-In Bank (LU 911) ⁴								
Walk, Bike, Other Trips	70%	561	30	28	58	14	17	31
Transit Trips	10%	80	4	4	8	2	2	4
Person Trips by Vehicle	20%	160	9	8	17	4	6	10
Total	100%	801	43	40	83	20	25	45
Strip Retail Plaza (<40k) (LU 822) ⁴								
Walk, Bike, Other Trips	70%	289	8	5	13	18	17	35
Transit Trips	10%	41	1	1	2	3	2	5
Person Trips by Vehicle	20%	83	2	1	3	4	6	10
Total	100%	413	11	7	18	25	25	50
Copy, Print and Express Ship Store (LU 920) ⁴								
Walk, Bike, Other Trips	70%	177	3	1	4	5	6	11
Transit Trips	10%	25	1	0	1	1	1	2
Person Trips by Vehicle	20%	51	0	1	1	1	1	2
Total	100%	253	4	2	6	7	8	15
<u>Net New Project Person Trips</u>								
Walk, Bike, Other Trips		2,736	19	2	21	105	107	212
Transit Trips		392	3	0	3	14	16	30
Person Trips by Vehicle		781	5	2	7	31	30	61
Total		4,111	31	4	35	156	160	316

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

	AVO	Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
Land Use			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
Shopping Plaza (40-150K) (LU 821)*	1.48	<u>726</u>	<u>11</u>	<u>8</u>	<u>19</u>	<u>27</u>	<u>29</u>	<u>56</u>
Less Pass-By ⁵	34%	-	-	-	-	<u>-10</u>	<u>-10</u>	<u>-20</u>
Subtotal		726	11	8	19	17	19	36
<u>Existing Use</u>								
Walk-In Bank (LU 911)*	1.48	108	6	5	11	3	4	7
Walk-In Bank Pass-By	35%	-	-	-	-	-	-	-
Strip Retail Plaza (<40k) (LU 822)*	1.48	56	1	1	2	3	4	7
Retail Pass-By	34%	-	-	-	-	-	-	-
Copy, Print and Express Ship Store (LU 920)*	1.48	<u>34</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>2</u>
Total Less Pass-By		-	-	-	-	<u>-2</u>	<u>-2</u>	<u>-4</u>
Subtotal		198	7	7	14	5	7	12
Net New Trips		528	4	1	5	12	12	24

3. AVO consistent with NCHRP 365 data

4. AVO consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the *ITE Trip Generation Handbook*, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 4

South of Nickerson Zone 4

Person Trip Calculation

son Trip Calculation						Trip Rate ¹					
Land Use	Setting	Size	Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>											
General Office Building (LU 710)		0	sf								
Daily	Dense Multi-Use Urban			Rate	-	13.68	per ksf	person trips	50%	-	0
AM Peak Hour	Dense Multi-Use Urban			Rate	-	0.84	per ksf	person trips	87%	-	0
PM Peak Hour	Dense Multi-Use Urban			Rate	-	0.87	per ksf	person trips	16%	-	0
Strip Retail Plaza (<40k) (LU 822)		0	sf								
Daily	General Urban/Suburban			Rate	-	54.45	per ksf	vehicle trips	50%	1.48	0
AM Peak Hour	General Urban/Suburban			Rate	-	2.36	per ksf	vehicle trips	60%	1.48	0
PM Peak Hour	General Urban/Suburban			Rate	-	6.59	per ksf	vehicle trips	50%	1.48	0
<u>Existing Use</u>											
Fast-Food Restaurant without Drive-Thru Window (LU 933)		1,600	sf								
Daily	General Urban/Suburban			Rate	-	450.49	per ksf	vehicle trips	50%	1.48	1067
AM Peak Hour	General Urban/Suburban			Rate	-	43.18	per ksf	vehicle trips	58%	1.48	102
PM Peak Hour	General Urban/Suburban			Rate	-	33.21	per ksf	vehicle trips	50%	1.48	79

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.
2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 4

South of Nickerson Zone 4

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
General Office Building (LU 710) ³								
Walk, Bike, Other Trips	20%	0	0	0	0	0	0	0
Transit Trips	15%	0	0	0	0	0	0	0
Person Trips by Vehicle	65%	0	0	0	0	0	0	0
Total	100%	0	0	0	0	0	0	0
Strip Retail Plaza (<40k) (LU 822) ⁴								
Walk, Bike, Other Trips	70%	0	0	0	0	0	0	0
Transit Trips	10%	0	0	0	0	0	0	0
Person Trips by Vehicle	20%	0	0	0	0	0	0	0
Total	100%	0	0	0	0	0	0	0
<u>Existing Use</u>								
Fast-Food Restaurant without Drive-Thru Window (LU 933) ⁴								
Walk, Bike, Other Trips	70%	747	42	30	72	28	27	55
Transit Trips	10%	107	6	4	10	4	4	8
Person Trips by Vehicle	20%	213	11	9	20	7	9	16
Total	100%	1,067	59	43	102	39	40	79
<u>Net New Project Person Trips</u>								
Walk, Bike, Other Trips		-747	-42	-30	-72	-28	-27	-55
Transit Trips		-107	-6	-4	-10	-4	-4	-8
Person Trips by Vehicle		-213	-11	-9	-20	-7	-9	-16
Total		-1,067	-59	-43	-102	-39	-40	-79

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

Land Use	AVO	Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
General Office Building (LU 710)*	1.11	0	0	0	0	0	0	0
Strip Retail Plaza (<40K) (LU 822)*	1.48	0	0	0	0	0	0	0
Less Pass-By ³	34%	-	-	-	-	0	0	0
Subtotal		0	0	0	0	0	0	0
<u>Existing Use</u>								
Fast-Food Restaurant without Drive-Thru	1.48	144	7	7	14	5	6	11
	1.48	0	0	0	0	0	0	0
	1.11	0	0	0	0	0	0	0
	1.48	0	0	0	0	0	0	0
Less Pass-By ⁵	34%	-	-	-	-	-2	-2	-4
Subtotal		144	7	7	14	3	4	7
Net New Trips		-144	-7	-7	-14	-3	-4	-7

3. AVO consistent with NCHRP 365 data

4. AVO consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the *ITE Trip Generation Handbook*, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 4

South of Nickerson Zone 5

Person Trip Calculation

son Trip Calculation					Trip Rate ¹					
Land Use	Setting	Size Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>										
General Office Building (LU 710)		0 sf								
Daily	Dense Multi-Use Urban		Rate	-	13.68	per ksf	person trips	50%	-	0
AM Peak Hour	Dense Multi-Use Urban		Rate	-	0.84	per ksf	person trips	87%	-	0
PM Peak Hour	Dense Multi-Use Urban		Rate	-	0.87	per ksf	person trips	16%	-	0
Strip Retail Plaza (<40k) (LU 822)		0 sf								
Daily	General Urban/Suburban		Rate	-	54.45	per ksf	vehicle trips	50%	1.48	0
AM Peak Hour	General Urban/Suburban		Rate	-	2.36	per ksf	vehicle trips	60%	1.48	0
PM Peak Hour	General Urban/Suburban		Rate	-	6.59	per ksf	vehicle trips	50%	1.48	0
<u>Existing Use</u>										
Convenience Store/Gas Station		4 stations								
Daily	General Urban/Suburban		Rate	-	265.12	per station	vehicle trips	50%	1.48	1570
AM Peak Hour	General Urban/Suburban		Rate	-	16.06	per station	vehicle trips	50%	1.48	95
PM Peak Hour	General Urban/Suburban		Rate	-	18.42	per station	vehicle trips	50%	1.48	109

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.
2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 4

South of Nickerson Zone 5

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
General Office Building (LU 710) ³								
Walk, Bike, Other Trips	20%	0	0	0	0	0	0	0
Transit Trips	15%	0	0	0	0	0	0	0
Person Trips by Vehicle	65%	0	0	0	0	0	0	0
Total	100%	0	0	0	0	0	0	0
Strip Retail Plaza (<40k) (LU 822) ⁴								
Walk, Bike, Other Trips	70%	0	0	0	0	0	0	0
Transit Trips	10%	0	0	0	0	0	0	0
Person Trips by Vehicle	20%	0	0	0	0	0	0	0
Total	100%	0	0	0	0	0	0	0
<u>Existing Use</u>								
Convenience Store/Gas Station ⁴								
Walk, Bike, Other Trips	20%	314	10	9	19	11	11	22
Transit Trips	10%	157	5	5	10	6	5	11
Person Trips by Vehicle	70%	1,099	33	33	66	38	38	76
Total	100%	1,570	48	47	95	55	54	109
<u>Net New Project Person Trips</u>								
Walk, Bike, Other Trips		-314	-10	-9	-19	-11	-11	-22
Transit Trips		-157	-5	-5	-10	-6	-5	-11
Person Trips by Vehicle		-1,099	-33	-33	-66	-38	-38	-76
Total		-1,570	-48	-47	-95	-55	-54	-109

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

		Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
Land Use	AVO		In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
General Office Building (LU 710)*	1.11	0	0	0	0	0	0	0
Strip Retail Plaza (<40K) (LU 822)*	1.48	0	0	0	0	0	0	0
Less Pass-By ³	34%	=	=	=	=	0	0	0
Subtotal		0	0	0	0	0	0	0
<u>Existing Use</u>								
Convenience Store/Gas Station ⁴	1.48	742	22	23	45	25	26	51
	1.48	0	0	0	0	0	0	0
	1.11	0	0	0	0	0	0	0
	1.48	0	0	0	0	0	0	0
Less Pass-By ⁵	56%	=	=	=	=	-14	-14	-28
Subtotal		742	22	23	45	11	12	23
Net New Trips		-742	-22	-23	-45	-11	-12	-23

3. AVO consistent with NCHRP 365 data

4. AVO consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the *ITE Trip Generation Handbook*, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 4

Cremona Access Zone

Person Trip Calculation

son Trip Calculation					Trip Rate ¹					
Land Use	Setting	Size Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>										
General Office Building (LU 710)		102,600 sf								
Daily	Dense Multi-Use Urban		Rate	-	13.68	per ksf	person trips	50%	-	1404
AM Peak Hour	Dense Multi-Use Urban		Rate	-	0.84	per ksf	person trips	87%	-	86
PM Peak Hour	Dense Multi-Use Urban		Rate	-	0.87	per ksf	person trips	16%	-	89
Strip Retail Plaza (<40k) (LU 822)		12,200 sf								
Daily	General Urban/Suburban		Rate	-	54.45	per ksf	vehicle trips	50%	1.48	983
AM Peak Hour	General Urban/Suburban		Rate	-	2.36	per ksf	vehicle trips	60%	1.48	43
PM Peak Hour	General Urban/Suburban		Rate	-	6.59	per ksf	vehicle trips	50%	1.48	119
Supermarket (LU 850)		13,400 sf								
Daily	General Urban/Suburban		Rate	-	93.84	per ksf	vehicle trips	50%	1.48	1861
AM Peak Hour	General Urban/Suburban		Rate	-	2.86	per ksf	vehicle trips	59%	1.48	57
PM Peak Hour	General Urban/Suburban		Rate	-	3.32	per ksf	vehicle trips	50%	1.48	66

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.

2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 4

Cremona Access Zone

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Proposed Use								
General Office Building (LU 710) ³								
Walk, Bike, Other Trips	20%	281	15	2	17	3	15	18
Transit Trips	15%	211	11	2	13	2	11	13
Person Trips by Vehicle	65%	<u>912</u>	<u>49</u>	<u>7</u>	<u>56</u>	<u>9</u>	<u>49</u>	<u>58</u>
Total	100%	1,404	75	11	86	14	75	89
Strip Retail Plaza (<40k) (LU 822) ⁴								
Walk, Bike, Other Trips	70%	688	18	12	30	42	41	83
Transit Trips	10%	98	2	2	4	6	6	12
Person Trips by Vehicle	20%	<u>197</u>	<u>6</u>	<u>3</u>	<u>9</u>	<u>11</u>	<u>13</u>	<u>24</u>
Total	100%	983	26	17	43	59	60	119
Supermarket (LU 850) ⁴								
Walk, Bike, Other Trips	20%	372	6	5	11	7	6	13
Transit Trips	5%	93	2	1	3	2	1	3
Person Trips by Vehicle	75%	<u>1,396</u>	<u>25</u>	<u>18</u>	<u>43</u>	<u>24</u>	<u>26</u>	<u>50</u>
Total	100%	1,861	33	24	57	33	33	66
Net New Project Person Trips								
Walk, Bike, Other Trips		1,341	39	19	58	52	62	114
Transit Trips		402	15	5	20	10	18	28
Person Trips by Vehicle		2,505	80	28	108	44	88	132
Total		4,248	134	52	186	106	168	274

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

Land Use	AVO	Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
			In	Out	Total	In	Out	Total
Proposed Use								
General Office Building (LU 710)*	1.11	822	44	6	50	8	44	52
Strip Retail Plaza (<40K) (LU 822)*	1.48	134	4	2	6	8	8	16
Supermarket (LU 850)*	1.48	944	17	12	29	16	18	34
Less Pass-By*	34%	=	=	=	=	-9	-9	-18
Subtotal		1,900	65	20	85	23	61	84
Net New Trips		1,900	65	20	85	23	61	84

3. AVO consistent with NCHRP 365 data

4. AVO consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the *ITE Trip Generation Handbook*, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 5

North of Nickerson Zone 1

Person Trip Calculation

son Trip Calculation					Trip Rate ¹					
Land Use	Setting	Size Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>										
General Office Building (LU 710)		82,600 sf								
Daily	Dense Multi-Use Urban		Rate	-	13.68	per ksf	person trips	50%	-	1130
AM Peak Hour	Dense Multi-Use Urban		Rate	-	0.84	per ksf	person trips	87%	-	69
PM Peak Hour	Dense Multi-Use Urban		Rate	-	0.87	per ksf	person trips	16%	-	72
Strip Retail Plaza (<40k) (LU 822)		27,600 sf								
Daily	General Urban/Suburban		Rate	-	54.45	per ksf	vehicle trips	50%	1.48	2224
AM Peak Hour	General Urban/Suburban		Rate	-	2.36	per ksf	vehicle trips	60%	1.48	96
PM Peak Hour	General Urban/Suburban		Rate	-	6.59	per ksf	vehicle trips	50%	1.48	269
<u>Existing Use</u>										
Mini-Warehouse (LU 151)		62,712 sf								
Daily	General Urban/Suburban		Rate	-	1.45	per ksf	vehicle trips	50%	1.11	101
AM Peak Hour	General Urban/Suburban		Rate	-	0.09	per ksf	vehicle trips	59%	1.11	6
PM Peak Hour	General Urban/Suburban		Rate	-	0.15	per ksf	vehicle trips	47%	1.11	10

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.

2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 5

North of Nickerson Zone 1

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
General Office Building (LU 710) ³								
Walk, Bike, Other Trips	20%	226	12	2	14	2	12	14
Transit Trips	15%	169	9	1	10	2	9	11
Person Trips by Vehicle	65%	735	39	6	45	7	40	47
Total	100%	1,130	60	9	69	11	61	72
Strip Retail Plaza (<40k) (LU 822) ⁴								
Walk, Bike, Other Trips	70%	1,557	40	27	67	94	94	188
Transit Trips	10%	222	6	4	10	14	13	27
Person Trips by Vehicle	20%	445	12	7	19	27	27	54
Total	100%	2,224	58	38	96	135	134	269
<u>Existing Use</u>								
Mini-Warehouse (LU 151) ³								
Walk, Bike, Other Trips	20%	20	1	0	1	1	1	2
Transit Trips	10%	10	1	0	1	0	1	1
Person Trips by Vehicle	70%	71	2	2	4	4	3	7
Total	100%	101	4	2	6	5	5	10
<u>Net New Project Person Trips</u>								
Walk, Bike, Other Trips		1,763	51	29	80	95	105	200
Transit Trips		381	14	5	19	16	21	37
Person Trips by Vehicle		1,109	49	11	60	30	64	94
Total		3,253	114	46	160	141	190	331

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

Land Use	AVU	Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
General Office Building (LU 710) ³	1.11	662	35	6	41	6	36	42
Strip Retail Plaza (<40k) (LU 822)	1.48	300	8	5	13	18	19	37
Less Pass-By ⁵	34%	-	-	-	-	-6	-6	-12
Subtotal		962	43	11	54	18	49	67
<u>Existing Use</u>								
Mini-Warehouse (LU 151) ³	1.11	64	2	2	4	4	3	7
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
Less Pass-By ⁵	34%	-	-	-	-	0	0	0
Subtotal		64	2	2	4	4	3	7
Net New Trips		898	41	9	50	14	46	60

3. AVU consistent with NCHRP 365 data

4. AVU consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the *ITE Trip Generation Handbook*, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 5

South of Nickerson Zone 2

Person Trip Calculation

Person Trip Calculation					Trip Rate ¹					
Land Use	Setting	Size Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>										
General Office Building (LU 710)		0 sf								
Daily	Dense Multi-Use Urban		Rate	-	13.68	per ksf	person trips	50%	-	0
AM Peak Hour	Dense Multi-Use Urban		Rate	-	0.84	per ksf	person trips	87%	-	0
PM Peak Hour	Dense Multi-Use Urban		Rate	-	0.87	per ksf	person trips	16%	-	0
Shopping Plaza (40-150k) (LU 821)		53,800 sf								
Daily	General Urban/Suburban		Rate	-	67.52	per ksf	vehicle trips	50%	1.48	5376
AM Peak Hour	General Urban/Suburban		Rate	-	1.73	per ksf	vehicle trips	62%	1.48	138
PM Peak Hour	General Urban/Suburban		Rate	-	5.19	per ksf	vehicle trips	49%	1.48	413
<u>Existing Use</u>										
Walk-In Bank (LU 911)		2,503 sf	No 11th Edition data - used 10th Edition instead							
Daily	General Urban/Suburban		Rate	-	216.20	per ksf	vehicle trips	50%	1.48	801
AM Peak Hour	General Urban/Suburban		Rate	-	22.54	per ksf	vehicle trips	52%	1.48	83
PM Peak Hour	General Urban/Suburban		Rate	-	12.13	per ksf	vehicle trips	44%	1.48	45
Strip Retail Plaza (<40k) (LU 822)		5,128 sf								
Daily	General Urban/Suburban		Rate	-	54.45	per ksf	vehicle trips	50%	1.48	413
AM Peak Hour	General Urban/Suburban		Rate	-	2.36	per ksf	vehicle trips	60%	1.48	18
PM Peak Hour	General Urban/Suburban		Rate	-	6.59	per ksf	vehicle trips	50%	1.48	50
Copy, Print and Express Ship Store (LU 920)		1,390 sf	No 11th Edition data - used 10th Edition instead							
Daily	General Urban/Suburban		Rate	-	123.00	per ksf	vehicle trips	50%	1.48	253
AM Peak Hour	General Urban/Suburban		Rate	-	2.78	per ksf	vehicle trips	75%	1.48	6
PM Peak Hour	General Urban/Suburban		Rate	-	7.42	per ksf	vehicle trips	44%	1.48	15

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.
2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 5

South of Nickerson Zone 2

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<i>Proposed Use</i>								
General Office Building (LU 710) ³								
Walk, Bike, Other Trips	20%	0	0	0	0	0	0	0
Transit Trips	15%	0	0	0	0	0	0	0
Person Trips by Vehicle	65%	0	0	0	0	0	0	0
Total	100%	0	0	0	0	0	0	0
Shopping Plaza (40-150k) (LU 821) ⁴								
Walk, Bike, Other Trips	70%	3,763	60	36	96	142	147	289
Transit Trips	10%	538	9	5	14	20	21	41
Person Trips by Vehicle	20%	1,075	16	12	28	40	43	83
Total	100%	5,376	85	53	138	202	211	413
<i>Existing Use</i>								
Walk-In Bank (LU 911) ⁴								
Walk, Bike, Other Trips	70%	561	30	28	58	14	17	31
Transit Trips	10%	80	4	4	8	2	2	4
Person Trips by Vehicle	20%	160	9	8	17	4	6	10
Total	100%	801	43	40	83	20	25	45
Strip Retail Plaza (<40k) (LU 822) ⁴								
Walk, Bike, Other Trips	70%	289	8	5	13	18	17	35
Transit Trips	10%	41	1	1	2	3	2	5
Person Trips by Vehicle	20%	83	2	1	3	4	6	10
Total	100%	413	11	7	18	25	25	50
Copy, Print and Express Ship Store (LU 920) ⁴								
Walk, Bike, Other Trips	70%	177	3	1	4	5	6	11
Transit Trips	10%	25	1	0	1	1	1	2
Person Trips by Vehicle	20%	51	0	1	1	1	1	2
Total	100%	253	4	2	6	7	8	15
<i>Net New Project Person Trips</i>								
Walk, Bike, Other Trips		2,736	19	2	21	105	107	212
Transit Trips		392	3	0	3	14	16	30
Person Trips by Vehicle		781	5	2	7	31	30	61
Total		4,111	31	4	35	156	160	316

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

	AVO	Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
Land Use			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
Shopping Plaza (40-150K) (LU 821)*	1.48	<u>726</u>	<u>11</u>	<u>8</u>	<u>19</u>	<u>27</u>	<u>29</u>	<u>56</u>
Less Pass-By ⁵	34%	-	-	-	-	<u>-10</u>	<u>-10</u>	<u>-20</u>
Subtotal		726	11	8	19	17	19	36
<u>Existing Use</u>								
Walk-In Bank (LU 911)*	1.48	108	6	5	11	3	4	7
Walk-In Bank Pass-By	35%	-	-	-	-	-	-	-
Strip Retail Plaza (<40k) (LU 822)*	1.48	56	1	1	2	3	4	7
Retail Pass-By	34%	-	-	-	-	-	-	-
Copy, Print and Express Ship Store (LU 920)*	1.48	<u>34</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>2</u>
Total Less Pass-By		-	-	-	-	<u>-2</u>	<u>-2</u>	<u>-4</u>
Subtotal		198	7	7	14	5	7	12
Net New Trips		528	4	1	5	12	12	24

3. AVO consistent with NCHRP 365 data

4. AVO consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the *ITE Trip Generation Handbook*, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 5

South of Nickerson Zone 3

Person Trip Calculation

Person Trip Calculation					Trip Rate ¹					
Land Use	Setting	Size Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>										
General Office Building (LU 710)		22,600	sf							
Daily	Dense Multi-Use Urban		Rate	-	13.68	per ksf	person trips	50%	-	309
AM Peak Hour	Dense Multi-Use Urban		Rate	-	0.84	per ksf	person trips	87%	-	19
PM Peak Hour	Dense Multi-Use Urban		Rate	-	0.87	per ksf	person trips	16%	-	20
Supermarket (LU 850)		11,300	sf							
Daily	General Urban/Suburban		Rate	-	93.84	per ksf	vehicle trips	50%	1.48	1569
AM Peak Hour	General Urban/Suburban		Rate	-	2.86	per ksf	vehicle trips	59%	1.48	48
PM Peak Hour	General Urban/Suburban		Rate	-	3.32	per ksf	vehicle trips	50%	1.48	56
<u>Existing Use</u>										
Convenience Store (LU 851)		2,024	sf							
Daily	General Urban/Suburban		Rate	-	762.28	per ksf	vehicle trips	50%	1.48	2283
AM Peak Hour	General Urban/Suburban		Rate	-	62.54	per ksf	vehicle trips	50%	1.48	187
PM Peak Hour	General Urban/Suburban		Rate	-	49.11	per ksf	vehicle trips	51%	1.48	147
Strip Retail Plaza (<40k) (LU 822)		8,023	sf							
Daily	General Urban/Suburban		Rate	-	54.45	per ksf	vehicle trips	50%	1.48	647
AM Peak Hour	General Urban/Suburban		Rate	-	2.36	per ksf	vehicle trips	60%	1.48	28
PM Peak Hour	General Urban/Suburban		Rate	-	6.59	per ksf	vehicle trips	50%	1.48	78
Fast Casual Restaurant (LU 930)		4,080	sf							
Daily	General Urban/Suburban		Rate	-	97.14	per ksf	vehicle trips	50%	1.48	587
AM Peak Hour	General Urban/Suburban		Rate	-	1.43	per ksf	vehicle trips	50%	1.48	9
PM Peak Hour	General Urban/Suburban		Rate	-	12.55	per ksf	vehicle trips	55%	1.48	76
Mini-Warehouse (LU 151)		6,470	sf							
Daily	General Urban/Suburban		Rate	-	1.45	per ksf	vehicle trips	50%	1.11	10
AM Peak Hour	General Urban/Suburban		Rate	-	0.09	per ksf	vehicle trips	59%	1.11	1
PM Peak Hour	General Urban/Suburban		Rate	-	0.15	per ksf	vehicle trips	47%	1.11	1

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.
2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 5

South of Nickerson Zone 3

Person Trips by Mode of Travel

	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
Trip Generation Summary			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
General Office Building (LU 710) ³								
Walk, Bike, Other Trips	20%	62	3	1	4	1	3	4
Transit Trips	15%	46	3	0	3	0	3	3
Person Trips by Vehicle	65%	201	11	1	12	2	11	13
Total	100%	309	17	2	19	3	17	20
Supermarket (LU 850) ⁴								
Walk, Bike, Other Trips	20%	314	6	4	10	6	5	11
Transit Trips	5%	78	1	1	2	2	1	3
Person Trips by Vehicle	75%	1,177	21	15	36	20	22	42
Total	100%	1,569	28	20	48	28	28	56
<u>Existing Use</u>								
Convenience Store (LU 851) ⁴								
Walk, Bike, Other Trips	70%	1,598	66	65	131	53	50	103
Transit Trips	10%	228	10	9	19	8	7	15
Person Trips by Vehicle	20%	457	18	19	37	14	15	29
Total	100%	2,283	94	93	187	75	72	147
Strip Retail Plaza (<40k) (LU 822) ⁴								
Walk, Bike, Other Trips	70%	453	12	8	20	28	27	55
Transit Trips	10%	65	2	1	3	4	4	8
Person Trips by Vehicle	20%	129	3	2	5	7	8	15
Total	100%	647	17	11	28	39	39	78
Fast Casual Restaurant (LU 930) ⁴								
Walk, Bike, Other Trips	70%	411	3	3	6	29	24	53
Transit Trips	10%	59	1	0	1	4	4	8
Person Trips by Vehicle	20%	117	0	2	2	9	6	15
Total	100%	587	4	5	9	42	34	76
Mini-Warehouse (LU 151) ³								
Walk, Bike, Other Trips	20%	2	0	0	0	0	0	0
Transit Trips	10%	1	0	0	0	0	0	0
Person Trips by Vehicle	70%	7	0	1	1	1	0	1
Total	100%	10	0	1	1	1	0	1
<u>Net New Project Person Trips</u>								
Walk, Bike, Other Trips		-2,088	-72	-71	-143	-103	-93	-196
Transit Trips		-229	-9	-9	-18	-14	-11	-25
Person Trips by Vehicle		669	11	-8	3	-9	3	-6
Total		-1,178	-66	-85	-151	-93	-73	-166

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

	AVO	Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
Land Use			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
General Office Building (LU 710)*	1.11	182	10	1	11	2	9	11
Supermarket (LU 850)*	1.48	<u>196</u>	<u>14</u>	<u>10</u>	<u>24</u>	<u>14</u>	<u>14</u>	<u>28</u>
Less Pass-By ⁵	34%	-	-	-	-	-9	-9	-18
Subtotal		978	24	11	35	11	18	29
<u>Existing Use</u>								
Convenience Store (LU 851)*	1.48	309	12	13	25	10	10	20
Conv. Store Without Gas Pass-By	51%							
Strip Retail Plaza (<40k) (LU 822)*	1.48	87	2	1	3	4	6	10
Retail Pass-By	34%							
Mini-Warehouse (LU 151)*	1.11	<u>7</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>1</u>
Fast Casual Restaurant (LU 930)*	1.48	<u>79</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>6</u>	<u>4</u>	<u>10</u>
Fast Casual Restaurant Pass-By	43%							
Total Pass-By		-	-	-	-	-9	-9	-18
Subtotal		482	14	16	30	12	11	23
Net New Trips		496	10	-5	5	-1	7	6

3. AVO consistent with NCHRP 365 data

4. AVO consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the ITE Trip Generation Handbook, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 5

South of Nickerson Zone 4

Person Trip Calculation

son Trip Calculation						Trip Rate ¹					
Land Use	Setting	Size	Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>											
General Office Building (LU 710)		0	sf								
Daily	Dense Multi-Use Urban			Rate	-	13.68	per ksf	person trips	50%	-	0
AM Peak Hour	Dense Multi-Use Urban			Rate	-	0.84	per ksf	person trips	87%	-	0
PM Peak Hour	Dense Multi-Use Urban			Rate	-	0.87	per ksf	person trips	16%	-	0
Strip Retail Plaza (<40k) (LU 822)		0	sf								
Daily	General Urban/Suburban			Rate	-	54.45	per ksf	vehicle trips	50%	1.48	0
AM Peak Hour	General Urban/Suburban			Rate	-	2.36	per ksf	vehicle trips	60%	1.48	0
PM Peak Hour	General Urban/Suburban			Rate	-	6.59	per ksf	vehicle trips	50%	1.48	0
<u>Existing Use</u>											
Fast-Food Restaurant without Drive-Thru Window (LU 933)		1,600	sf								
Daily	General Urban/Suburban			Rate	-	450.49	per ksf	vehicle trips	50%	1.48	1067
AM Peak Hour	General Urban/Suburban			Rate	-	43.18	per ksf	vehicle trips	58%	1.48	102
PM Peak Hour	General Urban/Suburban			Rate	-	33.21	per ksf	vehicle trips	42%	1.48	79

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.
2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 5

South of Nickerson Zone 4

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
General Office Building (LU 710) ³								
Walk, Bike, Other Trips	20%	0	0	0	0	0	0	0
Transit Trips	15%	0	0	0	0	0	0	0
Person Trips by Vehicle	65%	0	0	0	0	0	0	0
Total	100%	0	0	0	0	0	0	0
Strip Retail Plaza (<40k) (LU 822) ⁴								
Walk, Bike, Other Trips	70%	0	0	0	0	0	0	0
Transit Trips	10%	0	0	0	0	0	0	0
Person Trips by Vehicle	20%	0	0	0	0	0	0	0
Total	100%	0	0	0	0	0	0	0
<u>Existing Use</u>								
Fast-Food Restaurant without Drive-Thru Window (LU 933) ⁴								
Walk, Bike, Other Trips	70%	747	42	30	72	23	32	55
Transit Trips	10%	107	6	4	10	3	5	8
Person Trips by Vehicle	20%	213	11	9	20	7	9	16
Total	100%	1,067	59	43	102	33	46	79
<u>Net New Project Person Trips</u>								
Walk, Bike, Other Trips		-747	-42	-30	-72	-23	-32	-55
Transit Trips		-107	-6	-4	-10	-3	-5	-8
Person Trips by Vehicle		-213	-11	-9	-20	-7	-9	-16
Total		-1,067	-59	-43	-102	-33	-46	-79

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

Land Use	AVO	Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
General Office Building (LU 710)*	1.11	0	0	0	0	0	0	0
Strip Retail Plaza (<40K) (LU 822)*	1.48	0	0	0	0	0	0	0
Less Pass-By ³	34%	-	-	-	-	0	0	0
Subtotal		0	0	0	0	0	0	0
<u>Existing Use</u>								
Fast-Food Restaurant without Drive-Thru	1.48	144	7	7	14	5	6	11
	1.48	0	0	0	0	0	0	0
	1.11	0	0	0	0	0	0	0
	1.48	0	0	0	0	0	0	0
Less Pass-By ⁵	34%	-	-	-	-	-2	-2	-4
Subtotal		144	7	7	14	3	4	7
Net New Trips		-144	-7	-7	-14	-3	-4	-7

3. AVO consistent with NCHRP 365 data

4. AVO consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the *ITE Trip Generation Handbook*, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 5

South of Nickerson Zone 5

Person Trip Calculation

son Trip Calculation					Trip Rate ¹					
Land Use	Setting	Size Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>										
General Office Building (LU 710)		0 sf								
Daily	Dense Multi-Use Urban		Rate	-	13.68	per ksf	person trips	50%	-	0
AM Peak Hour	Dense Multi-Use Urban		Rate	-	0.84	per ksf	person trips	87%	-	0
PM Peak Hour	Dense Multi-Use Urban		Rate	-	0.87	per ksf	person trips	16%	-	0
Strip Retail Plaza (<40k) (LU 822)		0 sf								
Daily	General Urban/Suburban		Rate	-	54.45	per ksf	vehicle trips	50%	1.48	0
AM Peak Hour	General Urban/Suburban		Rate	-	2.36	per ksf	vehicle trips	60%	1.48	0
PM Peak Hour	General Urban/Suburban		Rate	-	6.59	per ksf	vehicle trips	50%	1.48	0
<u>Existing Use</u>										
Convenience Store/Gas Station (LU 945)		4 stations								
Daily	General Urban/Suburban		Rate	-	265.12	per station	vehicle trips	50%	1.48	1570
AM Peak Hour	General Urban/Suburban		Rate	-	16.06	per station	vehicle trips	50%	1.48	95
PM Peak Hour	General Urban/Suburban		Rate	-	18.42	per station	vehicle trips	50%	1.48	109

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.
2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 5

South of Nickerson Zone 5

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
General Office Building (LU 710) ³								
Walk, Bike, Other Trips	20%	0	0	0	0	0	0	0
Transit Trips	15%	0	0	0	0	0	0	0
Person Trips by Vehicle	65%	0	0	0	0	0	0	0
Total	100%	0	0	0	0	0	0	0
Strip Retail Plaza (<40k) (LU 822) ⁴								
Walk, Bike, Other Trips	70%	0	0	0	0	0	0	0
Transit Trips	10%	0	0	0	0	0	0	0
Person Trips by Vehicle	20%	0	0	0	0	0	0	0
Total	100%	0	0	0	0	0	0	0
<u>Existing Use</u>								
Convenience Store/Gas Station (LU 945) ⁴								
Walk, Bike, Other Trips	20%	314	10	9	19	11	11	22
Transit Trips	10%	157	5	5	10	6	5	11
Person Trips by Vehicle	70%	1,099	33	33	66	38	38	76
Total	100%	1,570	48	47	95	55	54	109
<u>Net New Project Person Trips</u>								
Walk, Bike, Other Trips		-314	-10	-9	-19	-11	-11	-22
Transit Trips		-157	-5	-5	-10	-6	-5	-11
Person Trips by Vehicle		-1,099	-33	-33	-66	-38	-38	-76
Total		-1,570	-48	-47	-95	-55	-54	-109

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

		Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
Land Use	AVO		In	Out	Total	In	Out	Total
<u>Proposed Use</u>								
	1.00	0	0	0	0	0	0	0
	1.00	0	0	0	0	0	0	0
General Office Building (LU 710)*	1.11	0	0	0	0	0	0	0
Strip Retail Plaza (<40K) (LU 822)*	1.48	0	0	0	0	0	0	0
Less Pass-By ³	34%	=	=	=	=	0	0	0
Subtotal		0	0	0	0	0	0	0
<u>Existing Use</u>								
Convenience Store/Gas Station (LU 945)*	1.48	742	22	23	45	25	26	51
	1.48	0	0	0	0	0	0	0
	1.11	0	0	0	0	0	0	0
	1.48	0	0	0	0	0	0	0
Less Pass-By ³	56%	=	=	=	=	-14	-14	-28
Subtotal		742	22	23	45	11	12	23
Net New Trips		-742	-22	-23	-45	-11	-12	-23

3. AVO consistent with NCHRP 365 data

4. AVO consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the *ITE Trip Generation Handbook*, 3rd edition

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 5

Cremona Access Zone

Person Trip Calculation

son Trip Calculation					Trip Rate ¹					
Land Use	Setting	Size Units	Model	Equation	Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate ²	Person Trips
<u>Proposed Use</u>										
General Office Building (LU 710)		26,100 sf								
Daily	Dense Multi-Use Urban		Rate	-	13.68	per ksf	person trips	50%	-	357
AM Peak Hour	Dense Multi-Use Urban		Rate	-	0.84	per ksf	person trips	87%	-	22
PM Peak Hour	Dense Multi-Use Urban		Rate	-	0.87	per ksf	person trips	16%	-	23
Strip Retail Plaza (<40k) (LU 822)		0 sf								
Daily	General Urban/Suburban		Rate	-	54.45	per ksf	vehicle trips	50%	1.48	0
AM Peak Hour	General Urban/Suburban		Rate	-	2.36	per ksf	vehicle trips	60%	1.48	0
PM Peak Hour	General Urban/Suburban		Rate	-	6.59	per ksf	vehicle trips	50%	1.48	0
Supermarket (LU 850)		13,100 sf								
Daily	General Urban/Suburban		Rate	-	93.84	per ksf	vehicle trips	50%	1.48	1819
AM Peak Hour	General Urban/Suburban		Rate	-	2.86	per ksf	vehicle trips	59%	1.48	55
PM Peak Hour	General Urban/Suburban		Rate	-	3.32	per ksf	vehicle trips	50%	1.48	64

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.

2. AVO = average vehicle occupancy. Retail and Office AVO based on NCHRP 365 for urban areas with populations over 1 million people. No AVO rate if trips calculated based on person trip rate

Attachment C: Detailed Trip Generation - Mixed-Use Development Action Alternative 5

Cremona Access Zone

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Proposed Use								
General Office Building (LU 710) ³								
Walk, Bike, Other Trips	20%	71	3	1	4	1	4	5
Transit Trips	15%	54	3	0	3	0	3	3
Person Trips by Vehicle	65%	<u>232</u>	<u>13</u>	<u>2</u>	<u>15</u>	<u>3</u>	<u>12</u>	<u>15</u>
Total	100%	357	19	3	22	4	19	23
Strip Retail Plaza (<40k) (LU 822) ⁴								
Walk, Bike, Other Trips	70%	0	0	0	0	0	0	0
Transit Trips	10%	0	0	0	0	0	0	0
Person Trips by Vehicle	20%	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	100%	0	0	0	0	0	0	0
Supermarket (LU 850) ⁴								
Walk, Bike, Other Trips	20%	364	6	5	11	7	6	13
Transit Trips	5%	91	2	1	3	2	1	3
Person Trips by Vehicle	75%	<u>1,364</u>	<u>25</u>	<u>16</u>	<u>41</u>	<u>23</u>	<u>25</u>	<u>48</u>
Total	100%	1,819	33	22	55	32	32	64
Net New Project Person Trips								
Walk, Bike, Other Trips		435	9	6	15	8	10	18
Transit Trips		145	5	1	6	2	4	6
Person Trips by Vehicle		1,596	38	18	56	26	37	63
Total		2,176	52	25	77	36	51	87

3. Office trip mode splits are based on the 2017 Seattle Commuter Trip Mode Survey and studies for nearby developments

4. Retail mode split consistent with other projects approved within the vicinity of the project and reflects that the retail spaces are anticipated to serve the immediate vicinity via walk/bike trips

Vehicle Trip Generation

Land Use	AVO	Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
			In	Out	Total	In	Out	Total
Proposed Use								
General Office Building (LU 710)*	1.11	210	12	2	14	2	12	14
Strip Retail Plaza (<40K) (LU 822)*	1.48	0	0	0	0	0	0	0
Supermarket (LU 850)*	1.48	922	17	11	28	10	17	27
Less Pass-By*	34%	=	=	=	=	-6	-6	-12
Subtotal		1,132	29	13	42	12	23	35
Net New Trips		1,132	29	13	42	12	23	35

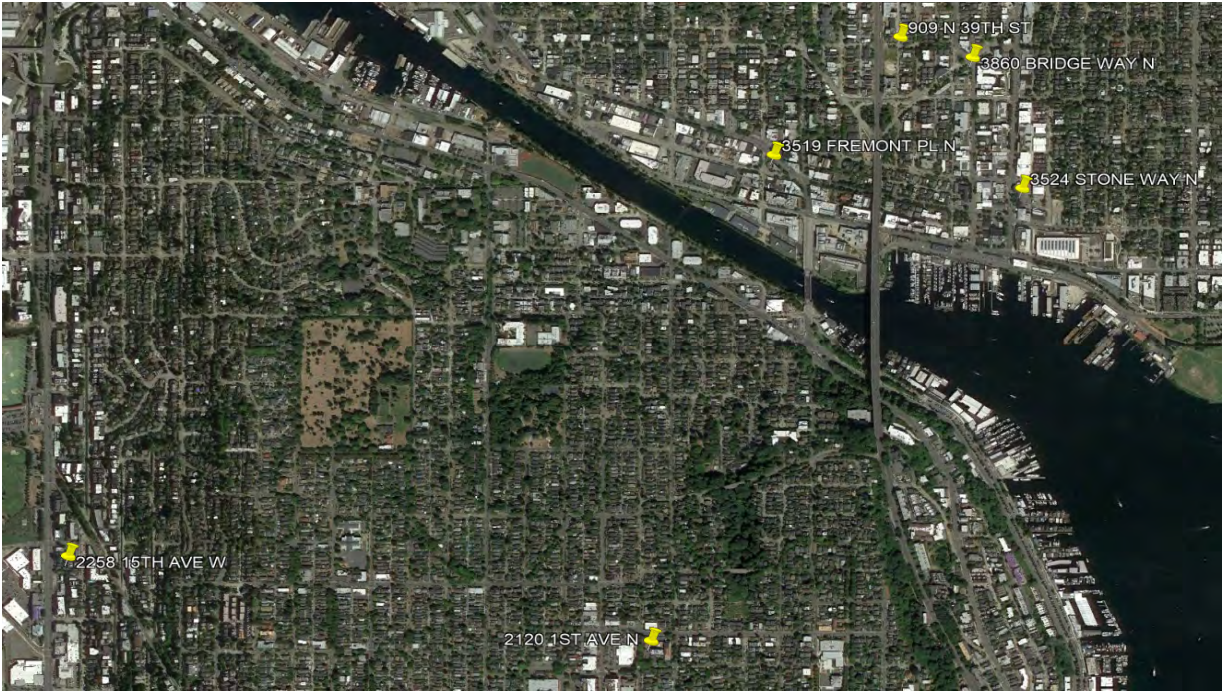
3. AVO consistent with NCHRP 365 data

4. AVO consistent with NCHRP 365 data

5. A pass by rate of 34% was utilized for the PM peak hour based on the *ITE Trip Generation Handbook*, 3rd edition

Appendix D Pipeline Projects

Location	Permit Num	Description
2258 15TH AVE W	3034132-LU	Land Use Application to allow a 6-story apartment building with 30 apartment units and 20 small efficiency dwelling units (50 units total) with retail. Parking for 20 vehicles proposed. Existing buildings to be demolished. Design Review conducted under 3025828-EG.
2120 1ST AVE N	3030028-LU	Land Use Application to allow a 4-story apartment building with 48 small efficiency dwelling units and 4 apartments (52 units total). Parking for 16 vehicles proposed. Existing building to remain. Early Design Guidance conducted under 3032830-EG.
3519 FREMONT PL N	3018992-LU	Land Use Application to allow a 6-story apartment building with 47 small efficiency dwelling units above 2,579 sq. ft. of retail space. Existing residential structure to be demolished.
3524 STONE WAY N	3029128-LU	Land Use Application to allow a 5-story office building with general sales and service and restaurant. Parking for 148 vehicles proposed. Existing buildings to be demolished. Early Design Guidance done under 3032146-EG.
909 N 39TH ST	3023900-LU	Land Use Application for a 4-story, 142-unit apartment building with 8 live-work units and retail. Parking for 58 vehicles proposed. Existing structure to be demolished.
3860 BRIDGE WAY N	3018230-LU	Land Use Application to allow a 5-story, 19 unit apartment building with retail at street level. Existing structure to be demolished.



Appendix E Transit Analysis

Table 1: Transit Demand, Capacity and Utilization for Existing Conditions

Screenline No.	Direction	Peak Period	Route Number	Stop ID	No. of Bus Traversals during Peak Period	Sum of Passenger Loads aboard All Buses During Peak Period	Average Bus Seating Capacity	Total Bus Capacity during Peak Period (No. of Buses * Average No. of Seats)	Utilization (Sum of Passenger Loads / Total Capacity)
1	E	AM	31	18210	6	89	38	289	31%
1	E	AM	32	18210	6	92	38	289	32%
1	E	PM	31	18210	4	25	46	228	11%
1	E	PM	32	18210	7	88	43	375	23%
1	W	AM	31	18640	4	19	40	201	9%
1	W	AM	32	18640	5	59	35	219	27%
1	W	PM	31	18640	6	74	46	341	22%
1	W	PM	32	18640	6	92	41	305	30%
2	E	AM	31	18230	6	98	38	289	34%
2	E	AM	32	18230	6	107	38	289	37%
2	E	PM	31	18230	4	33	46	228	15%
2	E	PM	32	18230	7	105	43	375	28%
2	W	AM	31	18620	4	28	40	201	14%
2	W	AM	32	18620	4	58	35	175	33%
2	W	PM	31	18620	6	95	46	341	28%
2	W	PM	32	18620	6	119	41	305	39%
3	N	AM	3	41370	8	23	34	340	7%
3	N	AM	4	41370	6	18	34	255	7%
3	N	AM	13	41370	7	29	34	298	10%
3	N	PM	3	41370	6	19	34	255	7%
3	N	PM	4	41370	4	16	34	170	9%
3	N	PM	13	41370	9	46	34	382	12%
3	S	AM	3	41280	8	48	34	340	14%
3	S	AM	4	41280	6	29	34	255	11%
3	S	AM	13	41280	7	36	34	298	12%
3	S	PM	3	41280	5	29	34	212	14%
3	S	PM	4	41280	7	43	34	298	15%
3	S	PM	13	41280	8	57	34	340	17%
4	N	AM	1	2520	8	6	34	340	2%
4	N	PM	1	2520	8	8	34	340	2%
4	S	AM	1	2010	8	31	34	340	9%
4	S	PM	1	2010	8	10	34	340	3%
5	N	AM	2	2840	4	3	34	170	2%
5	N	PM	2	2840	4	8	34	170	5%

Table 2: Transit Demand, Capacity and Utilization for No Action 2031

Screenline No.	Direction	Peak Period	Route Number	Stop ID	No. of Bus Traversals during Peak Period	Sum of Passenger Loads aboard All Buses During Peak Period	Average Bus Seating Capacity	Total Bus Capacity during Peak Period (No. of Buses * Average No. of Seats)	Utilization (Sum of Passenger Loads / Total Capacity)
1	E	AM	31	18210	6	103	38	289	35%
1	E	AM	32	18210	6	105	38	289	36%
1	E	PM	31	18210	4	29	46	228	12%
1	E	PM	32	18210	7	99	43	375	26%
1	W	AM	31	18640	4	21	40	201	10%
1	W	AM	32	18640	5	66	35	219	30%
1	W	PM	31	18640	6	86	46	341	24%
1	W	PM	32	18640	6	105	41	305	34%
2	E	AM	31	18230	6	110	38	289	38%
2	E	AM	32	18230	6	121	38	289	41%
2	E	PM	31	18230	4	41	46	228	16%
2	E	PM	32	18230	7	121	43	375	31%
2	W	AM	31	18620	4	35	40	201	15%
2	W	AM	32	18620	4	70	35	175	37%
2	W	PM	31	18620	6	109	46	341	31%
2	W	PM	32	18620	6	136	41	305	43%
3	N	AM	3	41370	8	26	34	340	7%
3	N	AM	4	41370	6	21	34	255	8%
3	N	AM	13	41370	7	35	34	298	11%
3	N	PM	3	41370	6	22	34	255	8%
3	N	PM	4	41370	4	18	34	170	10%
3	N	PM	13	41370	9	52	34	382	13%
3	S	AM	3	41280	8	54	34	340	16%
3	S	AM	4	41280	6	32	34	255	13%
3	S	AM	13	41280	7	40	34	298	13%
3	S	PM	3	41280	5	33	34	212	15%
3	S	PM	4	41280	7	49	34	298	16%
3	S	PM	13	41280	8	65	34	340	19%
4	N	AM	1	2520	8	7	34	340	2%
4	N	PM	1	2520	8	9	34	340	3%
4	S	AM	1	2010	8	34	34	340	10%
4	S	PM	1	2010	8	11	34	340	3%
5	N	AM	2	2840	4	4	34	170	2%
5	N	PM	2	2840	4	9	34	170	5%

Table 3: Transit Demand, Capacity and Utilization for No Action 2035

Screenline No.	Direction	Peak Period	Route Number	Stop ID	No. of Bus Traversals during Peak Period	Sum of Passenger Loads aboard All Buses During Peak Period	Average Bus Seating Capacity	Total Bus Capacity during Peak Period (No. of Buses * Average No. of Seats)	Utilization (Sum of Passenger Loads / Total Capacity)
1	E	AM	31	18210	6	107	38	289	36%
1	E	AM	32	18210	6	109	38	289	37%
1	E	PM	31	18210	4	30	46	228	13%
1	E	PM	32	18210	7	103	43	375	27%
1	W	AM	31	18640	4	22	40	201	11%
1	W	AM	32	18640	5	69	35	219	31%
1	W	PM	31	18640	6	89	46	341	25%
1	W	PM	32	18640	6	109	41	305	35%
2	E	AM	31	18230	6	114	38	289	39%
2	E	AM	32	18230	6	126	38	289	43%
2	E	PM	31	18230	4	42	46	228	17%
2	E	PM	32	18230	7	126	43	375	32%
2	W	AM	31	18620	4	36	40	201	16%
2	W	AM	32	18620	4	73	35	175	39%
2	W	PM	31	18620	6	113	46	341	32%
2	W	PM	32	18620	6	141	41	305	45%
3	N	AM	3	41370	8	27	34	340	8%
3	N	AM	4	41370	6	21	34	255	8%
3	N	AM	13	41370	7	36	34	298	11%
3	N	PM	3	41370	6	23	34	255	9%
3	N	PM	4	41370	4	18	34	170	11%
3	N	PM	13	41370	9	54	34	382	14%
3	S	AM	3	41280	8	56	34	340	16%
3	S	AM	4	41280	6	33	34	255	13%
3	S	AM	13	41280	7	42	34	298	14%
3	S	PM	3	41280	5	35	34	212	16%
3	S	PM	4	41280	7	51	34	298	17%
3	S	PM	13	41280	8	67	34	340	19%
4	N	AM	1	2520	8	7	34	340	2%
4	N	PM	1	2520	8	9	34	340	3%
4	S	AM	1	2010	8	36	34	340	10%
4	S	PM	1	2010	8	11	34	340	3%
5	N	AM	2	2840	4	4	34	170	2%
5	N	PM	2	2840	4	9	34	170	5%

Table 4: Transit Demand, Capacity and Utilization for Action 2035

Screenline No.	Direction	Peak Period	Route Number	Stop ID	No. of Bus Traversals during Peak Period	Sum of Passenger Loads aboard All Buses During Peak Period	Average Bus Seating Capacity	Total Bus Capacity during Peak Period (No. of Buses * Average No. of Seats)	Utilization (Sum of Passenger Loads / Total Capacity)
1	E	AM	31	18210	6	109	38	289	36%
1	E	AM	32	18210	6	112	38	289	37%
1	E	PM	31	18210	4	33	46	228	13%
1	E	PM	32	18210	7	106	43	375	27%
1	W	AM	31	18640	4	24	40	201	11%
1	W	AM	32	18640	5	70	35	219	31%
1	W	PM	31	18640	6	91	46	341	25%
1	W	PM	32	18640	6	112	41	305	35%
2	E	AM	31	18230	6	117	38	289	39%
2	E	AM	32	18230	6	127	38	289	43%
2	E	PM	31	18230	4	48	46	228	17%
2	E	PM	32	18230	7	131	43	375	32%
2	W	AM	31	18620	4	41	40	201	16%
2	W	AM	32	18620	4	77	35	175	39%
2	W	PM	31	18620	6	118	46	341	32%
2	W	PM	32	18620	6	145	41	305	45%
3	N	AM	3	41370	8	28	34	340	8%
3	N	AM	4	41370	6	22	34	255	8%
3	N	AM	13	41370	7	36	34	298	11%
3	N	PM	3	41370	6	24	34	255	9%
3	N	PM	4	41370	4	19	34	170	11%
3	N	PM	13	41370	9	55	34	382	14%
3	S	AM	3	41280	8	56	34	340	16%
3	S	AM	4	41280	6	34	34	255	13%
3	S	AM	13	41280	7	42	34	298	14%
3	S	PM	3	41280	5	36	34	212	16%
3	S	PM	4	41280	7	53	34	298	17%
3	S	PM	13	41280	8	68	34	340	19%
4	N	AM	1	2520	8	7	34	340	2%
4	N	PM	1	2520	8	9	34	340	3%
4	S	AM	1	2010	8	36	34	340	10%
4	S	PM	1	2010	8	11	34	340	3%
5	N	AM	2	2840	4	4	34	170	2%
5	N	PM	2	2840	4	9	34	170	5%

Appendix F LOS Definitions

Highway Capacity Manual 2010/6th Edition

Signalized intersection level of service (LOS) is defined in terms of a weighted average control delay for the entire intersection. Control delay quantifies the increase in travel time that a vehicle experiences due to the traffic signal control as well as provides a surrogate measure for driver discomfort and fuel consumption. Signalized intersection LOS is stated in terms of average control delay per vehicle (in seconds) during a specified time period (e.g., weekday PM peak hour). Control delay is a complex measure based on many variables, including signal phasing and coordination (i.e., progression of movements through the intersection and along the corridor), signal cycle length, and traffic volumes with respect to intersection capacity and resulting queues. Table 1 summarizes the LOS criteria for signalized intersections, as described in the *Highway Capacity Manual 2010* and 6th Edition (Transportation Research Board, 2010 and 2016, respectively).

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)	General Description
A	≤10	Free Flow
B	>10 – 20	Stable Flow (slight delays)
C	>20 – 35	Stable flow (acceptable delays)
D	>35 – 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 – 80	Unstable flow (intolerable delay)
F ¹	>80	Forced flow (congested and queues fail to clear)

Source: *Highway Capacity Manual 2010 and 6th Edition*, Transportation Research Board, 2010 and 2016, respectively.

1. If the volume-to-capacity (v/c) ratio for a lane group exceeds 1.0 LOS F is assigned to the individual lane group. LOS for overall approach or intersection is determined solely by the control delay.

Unsignalized intersection LOS criteria can be further reduced into two intersection types: all-way stop and two-way stop control. All-way stop control intersection LOS is expressed in terms of the weighted average control delay of the overall intersection or by approach. Two-way stop-controlled intersection LOS is defined in terms of the average control delay for each minor-street movement (or shared movement) as well as major-street left-turns. This approach is because major-street through vehicles are assumed to experience zero delay, a weighted average of all movements results in very low overall average delay, and this calculated low delay could mask deficiencies of minor movements. Table 2 shows LOS criteria for unsignalized intersections.

Table 2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)
A	0 – 10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F ¹	>50

Source: *Highway Capacity Manual 2010 and 6th Edition*, Transportation Research Board, 2010 and 2016, respectively.

1. If the volume-to-capacity (v/c) ratio exceeds 1.0, LOS F is assigned an individual lane group for all unsignalized intersections, or minor street approach at two-way stop-controlled intersections. Overall intersection LOS is determined solely by control delay.

Highway Capacity Manual 2010

Signalized intersection level of service (LOS) is defined in terms of a weighted average control delay for the entire intersection. Control delay quantifies the increase in travel time that a vehicle experiences due to the traffic signal control as well as provides a surrogate measure for driver discomfort and fuel consumption. Signalized intersection LOS is stated in terms of average control delay per vehicle (in seconds) during a specified time period (e.g., weekday PM peak hour). Control delay is a complex measure based on many variables, including signal phasing and coordination (i.e., progression of movements through the intersection and along the corridor), signal cycle length, and traffic volumes with respect to intersection capacity and resulting queues. Table 1 summarizes the LOS criteria for signalized intersections, as described in the *Highway Capacity Manual 2010* (Transportation Research Board, 2010).

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)	General Description
A	≤10	Free Flow
B	>10 – 20	Stable Flow (slight delays)
C	>20 – 35	Stable flow (acceptable delays)
D	>35 – 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 – 80	Unstable flow (intolerable delay)
F ¹	>80	Forced flow (congested and queues fail to clear)

Source: *Highway Capacity Manual 2010*, Transportation Research Board, 2010.

1. If the volume-to-capacity (v/c) ratio for a lane group exceeds 1.0 LOS F is assigned to the individual lane group. LOS for overall approach or intersection is determined solely by the control delay.

Unsignalized intersection LOS criteria can be further reduced into two intersection types: all-way stop and two-way stop control. All-way stop control intersection LOS is expressed in terms of the weighted average control delay of the overall intersection or by approach. Two-way stop-controlled intersection LOS is defined in terms of the average control delay for each minor-street movement (or shared movement) as well as major-street left-turns. This approach is because major-street through vehicles are assumed to experience zero delay, a weighted average of all movements results in very low overall average delay, and this calculated low delay could mask deficiencies of minor movements. Table 2 shows LOS criteria for unsignalized intersections.

Table 2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)
A	0 – 10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F ¹	>50

Source: *Highway Capacity Manual 2010*, Transportation Research Board, 2010.

1. If the volume-to-capacity (v/c) ratio exceeds 1.0, LOS F is assigned an individual lane group for all unsignalized intersections, or minor street approach at two-way stop-controlled intersections. Overall intersection LOS is determined solely by control delay.

Highway Capacity Manual, 2000

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

Table 1. Level of Service Criteria for Signalized Intersections

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

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

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







Table 2. Level of Service Criteria for Unsignalized Intersections

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

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

Appendix G LOS Worksheets

Existing AM

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	750	45	15	515	10	15	5	40	10	0	10
Future Vol, veh/h	15	750	45	15	515	10	15	5	40	10	0	10
Conflicting Peds, #/hr	6	0	12	14	0	8	12	0	14	8	0	6
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	4	4	4	3	3	3	2	2	2	32	32	32
Mvmt Flow	16	781	47	16	536	10	16	5	42	10	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	554	0	0	842	0	0	1441	1437	833	1455	1455	561
Stage 1	-	-	-	-	-	-	851	851	-	581	581	-
Stage 2	-	-	-	-	-	-	590	586	-	874	874	-
Critical Hdwy	4.14	-	-	4.13	-	-	7.12	6.52	6.22	7.42	6.82	6.52
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.42	5.82	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.42	5.82	-
Follow-up Hdwy	2.236	-	-	2.227	-	-	3.518	4.018	3.318	3.788	4.288	3.588
Pot Cap-1 Maneuver	1006	-	-	789	-	-	110	133	369	93	112	474
Stage 1	-	-	-	-	-	-	355	376	-	451	455	-
Stage 2	-	-	-	-	-	-	494	497	-	306	329	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	998	-	-	778	-	-	102	125	359	76	106	465
Mov Cap-2 Maneuver	-	-	-	-	-	-	102	125	-	76	106	-
Stage 1	-	-	-	-	-	-	345	365	-	440	442	-
Stage 2	-	-	-	-	-	-	468	483	-	259	319	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.3			30.8			37.6		
HCM LOS							D			E		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	201	998	-	-	778	-	-	131
HCM Lane V/C Ratio	0.311	0.016	-	-	0.02	-	-	0.159
HCM Control Delay (s)	30.8	8.7	-	-	9.7	-	-	37.6
HCM Lane LOS	D	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	1.3	0	-	-	0.1	-	-	0.5

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	5	5	5	5	5	5	10	0	5	25	10
Future Vol, veh/h	25	5	5	5	5	5	5	10	0	5	25	10
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	0	0	0	9	9	9	0	0	0	0	0	0
Mvmt Flow	32	6	6	6	6	6	6	13	0	6	32	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.3	7.2	7.2	7.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	33%	71%	33%	12%
Vol Thru, %	67%	14%	33%	62%
Vol Right, %	0%	14%	33%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	15	35	15	40
LT Vol	5	25	5	5
Through Vol	10	5	5	25
RT Vol	0	5	5	10
Lane Flow Rate	19	44	19	51
Geometry Grp	1	1	1	1
Degree of Util (X)	0.022	0.05	0.021	0.055
Departure Headway (Hd)	4.115	4.093	4.074	3.899
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	867	873	876	916
Service Time	2.153	2.126	2.113	1.932
HCM Lane V/C Ratio	0.022	0.05	0.022	0.056
HCM Control Delay	7.2	7.3	7.2	7.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.1	0.2




Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	220	0	10	80	5	5	5	5	10	5	20
Future Vol, veh/h	5	220	0	10	80	5	5	5	5	10	5	20
Conflicting Peds, #/hr	2	0	8	13	0	8	8	0	13	8	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	2	2	2	0	0	0	5	5	5
Mvmt Flow	7	293	0	13	107	7	7	7	7	13	7	27
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	122	0	0	306	0	0	482	468	319	472	465	127
Stage 1	-	-	-	-	-	-	320	320	-	145	145	-
Stage 2	-	-	-	-	-	-	162	148	-	327	320	-
Critical Hdwy	4.13	-	-	4.12	-	-	7.1	6.5	6.2	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Follow-up Hdwy	2.227	-	-	2.218	-	-	3.5	4	3.3	3.545	4.045	3.345
Pot Cap-1 Maneuver	1459	-	-	1255	-	-	498	496	726	497	490	915
Stage 1	-	-	-	-	-	-	696	656	-	851	771	-
Stage 2	-	-	-	-	-	-	845	779	-	679	647	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1448	-	-	1239	-	-	463	478	708	471	472	901
Mov Cap-2 Maneuver	-	-	-	-	-	-	463	478	-	471	472	-
Stage 1	-	-	-	-	-	-	683	644	-	839	756	-
Stage 2	-	-	-	-	-	-	798	764	-	653	635	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.8			12.1			11		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	530	1448	-	-	1239	-	-	648				
HCM Lane V/C Ratio	0.038	0.005	-	-	0.011	-	-	0.072				
HCM Control Delay (s)	12.1	7.5	0	-	7.9	0	-	11				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2				

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	20	5	5	10	5	0	5	0	5	5	0
Future Vol, veh/h	5	20	5	5	10	5	0	5	0	5	5	0
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	33	33	33
Mvmt Flow	7	30	7	7	15	7	0	7	0	7	7	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0





















Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.1	7	7.1	7.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	17%	25%	50%
Vol Thru, %	100%	67%	50%	50%
Vol Right, %	0%	17%	25%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	5	30	20	10
LT Vol	0	5	5	5
Through Vol	5	20	10	5
RT Vol	0	5	5	0
Lane Flow Rate	7	45	30	15
Geometry Grp	1	1	1	1
Degree of Util (X)	0.008	0.048	0.032	0.019
Departure Headway (Hd)	4.042	3.895	3.873	4.698
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	884	921	925	762
Service Time	2.072	1.913	1.893	2.725
HCM Lane V/C Ratio	0.008	0.049	0.032	0.02
HCM Control Delay	7.1	7.1	7	7.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0.2	0.1	0.1




Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	235	95	15	10	0
Future Vol, veh/h	0	235	95	15	10	0
Conflicting Peds, #/hr	4	0	0	19	19	4
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	79	79	79	79	79	79
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	0	297	120	19	13	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	158	0	-	0	465	153
Stage 1	-	-	-	-	149	-
Stage 2	-	-	-	-	316	-
Critical Hdwy	4.13	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.227	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1416	-	-	-	559	898
Stage 1	-	-	-	-	884	-
Stage 2	-	-	-	-	744	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1390	-	-	-	539	878
Mov Cap-2 Maneuver	-	-	-	-	539	-
Stage 1	-	-	-	-	868	-
Stage 2	-	-	-	-	731	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		11.8		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1390	-	-	-	539	
HCM Lane V/C Ratio	-	-	-	-	0.023	
HCM Control Delay (s)	0	-	-	-	11.8	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

HCM 6th Signalized Intersection Summary
6: 3rd Ave W & W Nickerson St




2020 SPU MIMP EIS
Existing (2021) AM Peak Hour







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	710	65	65	500	30	105	10	90	10	10	0
Future Volume (veh/h)	5	710	65	65	500	30	105	10	90	10	10	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	0.98		0.96	0.99		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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1811	1811	1811	1796	1796	1796	1707	1707	1707
Adj Flow Rate, veh/h	5	740	68	68	521	31	109	10	94	10	10	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, %	5	5	5	6	6	6	7	7	7	13	13	13
Cap, veh/h	439	935	783	325	1018	836	219	35	129	211	177	0
Arrive On Green	0.01	0.51	0.51	0.06	0.56	0.56	0.20	0.20	0.20	0.20	0.20	0.00
Sat Flow, veh/h	1739	1826	1529	1725	1811	1487	626	170	629	588	864	0
Grp Volume(v), veh/h	5	740	68	68	521	31	213	0	0	20	0	0
Grp Sat Flow(s),veh/h/ln	1739	1826	1529	1725	1811	1487	1425	0	0	1452	0	0
Q Serve(g_s), s	0.1	19.8	1.4	1.0	10.5	0.6	6.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	19.8	1.4	1.0	10.5	0.6	8.2	0.0	0.0	0.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.51		0.44	0.50		0.00
Lane Grp Cap(c), veh/h	439	935	783	325	1018	836	383	0	0	388	0	0
V/C Ratio(X)	0.01	0.79	0.09	0.21	0.51	0.04	0.56	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	734	935	783	531	1018	836	695	0	0	697	0	0
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.5	11.9	7.4	9.8	8.0	5.8	22.0	0.0	0.0	19.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	6.8	0.2	0.1	1.8	0.1	0.5	0.0	0.0	0.0	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	0.0	8.2	0.4	0.3	3.9	0.2	2.7	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.5	18.7	7.6	9.9	9.9	5.9	22.5	0.0	0.0	19.1	0.0	0.0
LnGrp LOS	A	B	A	A	A	A	C	A	A	B	A	A
Approach Vol, veh/h	813			620			213			20		
Approach Delay, s/veh	17.7			9.7			22.5			19.1		
Approach LOS	B			A			C			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.9	35.0		16.7	4.9	38.0		16.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	10.5	30.5		25.5	10.5	30.5		25.5				
Max Q Clear Time (g_c+I1), s	3.0	22.8		2.6	2.1	13.5		10.2				
Green Ext Time (p_c), s	0.0	0.7		0.0	0.0	0.6		0.8				
Intersection Summary												
HCM 6th Ctrl Delay	15.4											
HCM 6th LOS	B											

Intersection												
Int Delay, s/veh	6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	45	95	35	0	0	0	40	160	15	5	90	45
Future Vol, veh/h	45	95	35	0	0	0	40	160	15	5	90	45
Conflicting Peds, #/hr	32	0	42	22	0	11	42	0	22	11	0	32
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	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	0	0	0	7	7	7	2	2	2
Mvmt Flow	56	119	44	0	0	0	50	200	19	6	113	56
Major/Minor	Minor2						Major1		Major2			
Conflicting Flow All	537	536	225				211	0	0	241	0	0
Stage 1	195	195	-				-	-	-	-	-	-
Stage 2	342	341	-				-	-	-	-	-	-
Critical Hdwy	6.43	6.53	6.23				4.17	-	-	4.12	-	-
Critical Hdwy Stg 1	5.43	5.53	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.43	5.53	-				-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327				2.263	-	-	2.218	-	-
Pot Cap-1 Maneuver	503	450	812				1330	-	-	1326	-	-
Stage 1	836	737	-				-	-	-	-	-	-
Stage 2	717	637	-				-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	441	0	748				1277	-	-	1326	-	-
Mov Cap-2 Maneuver	441	0	-				-	-	-	-	-	-
Stage 1	767	0	-				-	-	-	-	-	-
Stage 2	685	0	-				-	-	-	-	-	-
Approach	EB						NB		SB			
HCM Control Delay, s	16.2						1.5		0.3			
HCM LOS	C											
Minor Lane/Major Mvmt		NBL	NBT	NBR	EBLn1	SBL	SBT	SBR				
Capacity (veh/h)		1277	-	-	538	1326	-	-				
HCM Lane V/C Ratio		0.039	-	-	0.407	0.005	-	-				
HCM Control Delay (s)		7.9	0	-	16.2	7.7	0	-				
HCM Lane LOS		A	A	-	C	A	A	-				
HCM 95th %tile Q(veh)		0.1	-	-	2	0	-	-				

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	20	195	15	5	120
Future Vol, veh/h	25	20	195	15	5	120
Conflicting Peds, #/hr	16	3	0	16	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	84	84	84	84	84	84
Heavy Vehicles, %	30	30	7	7	5	5
Mvmt Flow	30	24	232	18	6	143
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	428	260	0	0	266	0
Stage 1	257	-	-	-	-	-
Stage 2	171	-	-	-	-	-
Critical Hdwy	6.7	6.5	-	-	4.15	-
Critical Hdwy Stg 1	5.7	-	-	-	-	-
Critical Hdwy Stg 2	5.7	-	-	-	-	-
Follow-up Hdwy	3.77	3.57	-	-	2.245	-
Pot Cap-1 Maneuver	534	715	-	-	1281	-
Stage 1	725	-	-	-	-	-
Stage 2	796	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	515	702	-	-	1261	-
Mov Cap-2 Maneuver	515	-	-	-	-	-
Stage 1	714	-	-	-	-	-
Stage 2	780	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	11.8	0		0.3		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	584	1261	-	
HCM Lane V/C Ratio	-	-	0.092	0.005	-	
HCM Control Delay (s)	-	-	11.8	7.9	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.3	0	-	

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					<div>↕</div>			<div>↕</div>			<div>↕</div>	
Traffic Vol, veh/h	0	0	0	10	0	35	0	175	15	5	140	0
Future Vol, veh/h	0	0	0	10	0	35	0	175	15	5	140	0
Conflicting Peds, #/hr	17	0	0	0	0	17	0	0	0	17	0	17
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	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	3	3	3	7	7	7	12	12	12
Mvmt Flow	0	0	0	11	0	40	0	201	17	6	161	0
Major/Minor				Minor1		Major1			Major2			
Conflicting Flow All				400	417	244	178	0	0	235	0	0
Stage 1				227	227	-	-	-	-	-	-	-
Stage 2				173	190	-	-	-	-	-	-	-
Critical Hdwy				6.43	6.53	6.23	4.17	-	-	4.22	-	-
Critical Hdwy Stg 1				5.43	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.43	5.53	-	-	-	-	-	-	-
Follow-up Hdwy				3.527	4.027	3.327	2.263	-	-	2.308	-	-
Pot Cap-1 Maneuver				604	525	792	1368	-	-	1276	-	-
Stage 1				808	714	-	-	-	-	-	-	-
Stage 2				855	741	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver				591	0	767	1368	-	-	1255	-	-
Mov Cap-2 Maneuver				591	0	-	-	-	-	-	-	-
Stage 1				795	0	-	-	-	-	-	-	-
Stage 2				851	0	-	-	-	-	-	-	-
Approach				WB		NB			SB			
HCM Control Delay, s				10.4		0			0.3			
HCM LOS				B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1368	-	-	719	1255	-	-					
HCM Lane V/C Ratio	-	-	-	0.072	0.005	-	-					
HCM Control Delay (s)	0	-	-	10.4	7.9	0	-					
HCM Lane LOS	A	-	-	B	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	0.2	0	-	-					

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	5	5	155	130	20
Future Vol, veh/h	35	5	5	155	130	20
Conflicting Peds, #/hr	15	15	15	0	0	15
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, %	0	0	8	8	11	11
Mvmt Flow	38	5	5	170	143	22
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	364	184	180	0	-	0
Stage 1	169	-	-	-	-	-
Stage 2	195	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.18	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.272	-	-	-
Pot Cap-1 Maneuver	639	864	1360	-	-	-
Stage 1	866	-	-	-	-	-
Stage 2	843	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	619	839	1341	-	-	-
Mov Cap-2 Maneuver	619	-	-	-	-	-
Stage 1	850	-	-	-	-	-
Stage 2	831	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	11	0.2		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1341	-	640	-	-	
HCM Lane V/C Ratio	0.004	-	0.069	-	-	
HCM Control Delay (s)	7.7	0	11	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

Intersection												
Int Delay, s/veh	3.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	850	45	10	570	20	25	5	0	5	5	30
Future Vol, veh/h	30	850	45	10	570	20	25	5	0	5	5	30
Conflicting Peds, #/hr	16	0	9	10	0	17	9	0	10	17	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	6	6	6	6	6	6	19	19	19	0	0	0
Mvmt Flow	32	904	48	11	606	21	27	5	0	5	5	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	644	0	0	962	0	0	1675	1668	955	1668	1682	650
Stage 1	-	-	-	-	-	-	1002	1002	-	656	656	-
Stage 2	-	-	-	-	-	-	673	666	-	1012	1026	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.29	6.69	6.39	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.29	5.69	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.29	5.69	-	6.1	5.5	-
Follow-up Hdwy	2.254	-	-	2.254	-	-	3.671	4.171	3.471	3.5	4	3.3
Pot Cap-1 Maneuver	922	-	-	700	-	-	69	88	291	77	95	473
Stage 1	-	-	-	-	-	-	272	299	-	458	465	-
Stage 2	-	-	-	-	-	-	418	432	-	291	315	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	907	-	-	693	-	-	57	81	284	68	88	458
Mov Cap-2 Maneuver	-	-	-	-	-	-	57	81	-	68	88	-
Stage 1	-	-	-	-	-	-	260	286	-	435	450	-
Stage 2	-	-	-	-	-	-	372	418	-	271	301	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.2			119.2			27.2		
HCM LOS							F			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	60	907	-	-	693	-	-	204
HCM Lane V/C Ratio	0.532	0.035	-	-	0.015	-	-	0.209
HCM Control Delay (s)	119.2	9.1	-	-	10.3	-	-	27.2
HCM Lane LOS	F	A	-	-	B	-	-	D
HCM 95th %tile Q(veh)	2.1	0.1	-	-	0	-	-	0.8

















Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑		↓	↑		↗
Traffic Vol, veh/h	855	0	0	600	0	25
Future Vol, veh/h	855	0	0	600	0	25
Conflicting Peds, #/hr	0	61	23	0	61	23
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	5	5	6	6	0	0
Mvmt Flow	881	0	0	619	0	26
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	904	0	-	927
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.16	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.254	-	-	3.3
Pot Cap-1 Maneuver	-	0	736	-	0	328
Stage 1	-	0	-	-	0	-
Stage 2	-	0	-	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	720	-	-	314
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		17.5	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	WBL	WBT		
Capacity (veh/h)	314	-	720	-		
HCM Lane V/C Ratio	0.082	-	-	-		
HCM Control Delay (s)	17.5	-	0	-		
HCM Lane LOS	C	-	A	-		
HCM 95th %tile Q(veh)	0.3	-	0	-		

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	0	5	15	0	0	0	20	30	25	0	35	25
Future Vol, veh/h	0	5	15	0	0	0	20	30	25	0	35	25
Conflicting Peds, #/hr	15	0	15	17	0	17	15	0	17	17	0	15
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	11	11	11	32	32	32
Mvmt Flow	0	6	17	0	0	0	22	34	28	0	39	28
Major/Minor	Minor2						Major1		Major2			
Conflicting Flow All	175	191	83				82	0	0	79	0	0
Stage 1	68	68	-				-	-	-	-	-	-
Stage 2	107	123	-				-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2				4.21	-	-	4.42	-	-
Critical Hdwy Stg 1	5.4	5.5	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-				-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3				2.299	-	-	2.488	-	-
Pot Cap-1 Maneuver	819	708	982				1460	-	-	1349	-	-
Stage 1	960	842	-				-	-	-	-	-	-
Stage 2	922	798	-				-	-	-	-	-	-
Platoon blocked, %							-	-		-	-	
Mov Cap-1 Maneuver	784	0	954				1439	-	-	1349	-	-
Mov Cap-2 Maneuver	784	0	-				-	-	-	-	-	-
Stage 1	931	0	-				-	-	-	-	-	-
Stage 2	909	0	-				-	-	-	-	-	-
Approach	EB						NB		SB			
HCM Control Delay, s	8.9						2		0			
HCM LOS	A											
Minor Lane/Major Mvmt		NBL	NBT	NBR	EBLn1	SBL	SBT	SBR				
Capacity (veh/h)		1439	-	-	954	1349	-	-				
HCM Lane V/C Ratio		0.016	-	-	0.024	-	-	-				
HCM Control Delay (s)		7.5	0	-	8.9	0	-	-				
HCM Lane LOS		A	A	-	A	A	-	-				
HCM 95th %tile Q(veh)		0	-	-	0.1	0	-	-				

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St
















2020 SPU MIMP EIS
Existing (2021) AM Peak Hour

												
Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR2
Lane Configurations												
Traffic Volume (vph)	5	5	0	255	5	100	160	5	5	25	0	45
Future Volume (vph)	5	5	0	255	5	100	160	5	5	25	0	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.5			6.5	6.5				9.5	
Lane Util. Factor			1.00			0.95	0.95				1.00	
Frbp, ped/bikes			0.97			0.98	0.84				0.98	
Flpb, ped/bikes			1.00			1.00	1.00				0.98	
Frt			0.87			0.96	0.85				0.92	
Flt Protected			1.00			1.00	1.00				0.98	
Satd. Flow (prot)			1561			1668	1270				1574	
Flt Permitted			0.99			0.99	1.00				0.86	
Satd. Flow (perm)			1542			1649	1270				1381	
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	5	0	271	5	106	170	5	5	27	0	48
RTOR Reduction (vph)	0	0	0	0	0	0	104	0	0	0	70	0
Lane Group Flow (vph)	0	0	281	0	0	152	30	0	0	0	10	0
Confl. Peds. (#/hr)	24	18		14	16		24	18	9	24		14
Confl. Bikes (#/hr)				1			10	10				
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%
Turn Type	Perm	Perm	NA		Perm	NA	Perm		Perm	Perm	NA	
Protected Phases			3			3					4	
Permitted Phases	3	3			3		3		4	4		
Actuated Green, G (s)			26.1			26.1	26.1				19.0	
Effective Green, g (s)			26.1			26.1	26.1				16.0	
Actuated g/C Ratio			0.20			0.20	0.20				0.12	
Clearance Time (s)			6.5			6.5	6.5				6.5	
Vehicle Extension (s)			2.0			2.0	2.0				2.0	
Lane Grp Cap (vph)			309			331	254				169	
v/s Ratio Prot												
v/s Ratio Perm			c0.18			0.09	0.02				c0.01	
v/c Ratio			0.91			0.46	0.12				0.06	
Uniform Delay, d1			50.8			45.7	42.5				50.3	
Progression Factor			1.00			1.00	1.00				1.00	
Incremental Delay, d2			28.3			0.4	0.1				0.1	
Delay (s)			79.1			46.1	42.6				50.4	
Level of Service			E			D	D				D	
Approach Delay (s)			79.1			44.5					50.4	
Approach LOS			E			D					D	
Intersection Summary												
HCM 2000 Control Delay			37.9			HCM 2000 Level of Service					D	
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			31.0			
Intersection Capacity Utilization			108.5%			ICU Level of Service					G	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Existing (2021) AM Peak Hour





















												
Movement	SBL2	SBL	SBT	SBR2	SET	SER	SER2	NWL2	NWL	NWT	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	10	5	0	5	850	5	5	20	55	510	15	5
Future Volume (vph)	10	5	0	5	850	5	5	20	55	510	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			9.5		9.0					9.0		
Lane Util. Factor			1.00		0.95					0.95		
Frpb, ped/bikes			0.99		1.00					1.00		
Flpb, ped/bikes			0.98		1.00					1.00		
Frt			0.97		1.00					1.00		
Flt Protected			0.96		1.00					0.99		
Satd. Flow (prot)			1145		3495					3353		
Flt Permitted			0.74		1.00					0.62		
Satd. Flow (perm)			879		3495					2085		
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	5	0	5	904	5	5	21	59	543	16	5
RTOR Reduction (vph)	0	0	18	0	0	0	0	0	0	1	0	0
Lane Group Flow (vph)	0	0	3	0	914	0	0	0	0	643	0	0
Confl. Peds. (#/hr)		14		24		16	9	16	9		18	
Confl. Bikes (#/hr)				2		2	2				1	1
Heavy Vehicles (%)	50%	50%	50%	50%	3%	3%	3%	6%	6%	6%	6%	6%
Turn Type	Perm	Perm	NA		NA			custom	custom	NA		
Protected Phases			4		2					6		
Permitted Phases	4	4						16	16			
Actuated Green, G (s)			19.0		65.9					65.9		
Effective Green, g (s)			16.0		62.9					62.9		
Actuated g/C Ratio			0.12		0.48					0.48		
Clearance Time (s)			6.5		6.0					6.0		
Vehicle Extension (s)			2.0		3.0					2.0		
Lane Grp Cap (vph)			108		1691					1008		
v/s Ratio Prot					0.26							
v/s Ratio Perm			0.00							c0.31		
v/c Ratio			0.02		0.54					0.64		
Uniform Delay, d1			50.1		23.4					25.1		
Progression Factor			1.00		1.00					1.26		
Incremental Delay, d2			0.0		1.2					2.5		
Delay (s)			50.2		24.7					33.9		
Level of Service			D		C					C		
Approach Delay (s)			50.2		24.7					33.9		
Approach LOS			D		C					C		
Intersection Summary												

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	15	0	870	1140	270
Future Vol, veh/h	0	15	0	870	1140	270
Conflicting Peds, #/hr	31	30	30	0	0	31
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	89	89	89	89	89	89
Heavy Vehicles, %	50	50	6	6	7	7
Mvmt Flow	0	17	0	978	1281	303
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	-	853	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.8	-	-	-	-
Pot Cap-1 Maneuver	0	221	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	208	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	23.8	0	0			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	208	-	-		
HCM Lane V/C Ratio	-	0.081	-	-		
HCM Control Delay (s)	-	23.8	-	-		
HCM Lane LOS	-	C	-	-		
HCM 95th %tile Q(veh)	-	0.3	-	-		









HCM Signalized Intersection Capacity Analysis

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS
Existing (2021) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	540	535	80	0	215	225	200	105	10	800	165	190
Future Volume (vph)	540	535	80	0	215	225	200	105	10	800	165	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.94	1.00	1.00		1.00	0.88	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98			1.00	0.85	1.00	0.99		1.00	0.92	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3400	1793			3374	2486	1656	3257		3367	1485	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3400	1793			3374	2486	1656	3257		3367	1485	
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)	562	557	83	0	224	234	208	109	10	833	172	198
RTOR Reduction (vph)	0	4	0	0	0	122	0	6	0	0	32	0
Lane Group Flow (vph)	563	636	0	0	224	113	208	113	0	833	338	0
Confl. Peds. (#/hr)	19		37	37		19	33		12	12		33
Confl. Bikes (#/hr)			12			33			16			155
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	9%	9%	9%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	26.7	63.7			30.5	62.5	22.3	22.3		26.5	26.5	
Effective Green, g (s)	26.7	57.2			30.5	62.5	22.3	22.3		26.5	26.5	
Actuated g/C Ratio	0.21	0.44			0.23	0.48	0.17	0.17		0.20	0.20	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	698	788			791	1195	284	558		686	302	
v/s Ratio Prot	0.17	c0.35			0.07		c0.13	0.03		c0.25	0.23	
v/s Ratio Perm						0.05						
v/c Ratio	0.81	0.81			0.28	0.09	0.73	0.20		1.21	1.12	
Uniform Delay, d1	49.2	31.6			40.8	18.4	51.0	46.2		51.8	51.8	
Progression Factor	0.74	0.88			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.6	5.0			0.9	0.2	8.1	0.1		109.5	88.0	
Delay (s)	41.9	32.7			41.7	18.5	59.1	46.3		161.3	139.7	
Level of Service	D	C			D	B	E	D		F	F	
Approach Delay (s)		37.0			29.8			54.5			154.7	
Approach LOS		D			C			D			F	
Intersection Summary												
HCM 2000 Control Delay			82.1				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			94.5%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

Existing PM

Intersection													
Int Delay, s/veh	2.5												
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	5	585	10	5	20	830	5	25	5	20	5	5	15
Future Vol, veh/h	5	585	10	5	20	830	5	25	5	20	5	5	15
Conflicting Peds, #/hr	16	0	21	0	12	0	7	21	0	12	7	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	4	4	2	2	2	2	0	0	0	4	4	4
Mvmt Flow	5	616	11	5	21	874	5	26	5	21	5	5	16

Major/Minor	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	895	0	0	-	648	0	0	1603	1600	655	1592	1603	914
Stage 1	-	-	-	-	-	-	-	653	653	-	935	945	-
Stage 2	-	-	-	-	-	-	-	950	947	-	657	658	-
Critical Hdwy	4.14	-	-	-	4.12	-	-	7.1	6.5	6.2	7.14	6.54	6.24
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.1	5.5	-	6.14	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.1	5.5	-	6.14	5.54	-
Follow-up Hdwy	2.236	-	-	-	2.218	-	-	3.5	4	3.3	3.536	4.036	3.336
Pot Cap-1 Maneuver	750	-	-	-	938	-	-	86	107	470	86	104	328
Stage 1	-	-	-	-	-	-	-	460	467	-	316	338	-
Stage 2	-	-	-	-	-	-	-	315	342	-	451	458	-
Platoon blocked, %		-	-			-	-						
Mov Cap-1 Maneuver	739	-	-	~ -5	~ -5	-	-	75	103	455	76	100	317
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	75	103	-	76	100	-
Stage 1	-	-	-	-	-	-	-	448	454	-	309	333	-
Stage 2	-	-	-	-	-	-	-	289	337	-	417	446	-

Approach	EB	WB			NB			SB					
HCM Control Delay, s	0.1				58.8			33.4					
HCM LOS					F			D					

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	117	739	-	-	+	-	-	153
HCM Lane V/C Ratio	0.45	0.007	-	-	-	-	-	0.172
HCM Control Delay (s)	58.8	9.9	-	-	-	-	-	33.4
HCM Lane LOS	F	A	-	-	-	-	-	D
HCM 95th %tile Q(veh)	2	0	-	-	-	-	-	0.6

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

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	20	5	10	15	15	5	40	5	5	30	10
Future Vol, veh/h	10	20	5	10	15	15	5	40	5	5	30	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	3	3	3
Mvmt Flow	11	22	6	11	17	17	6	44	6	6	33	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.3	7.2	7.4	7.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	10%	29%	25%	11%
Vol Thru, %	80%	57%	38%	67%
Vol Right, %	10%	14%	38%	22%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	35	40	45
LT Vol	5	10	10	5
Through Vol	40	20	15	30
RT Vol	5	5	15	10
Lane Flow Rate	56	39	44	50
Geometry Grp	1	1	1	1
Degree of Util (X)	0.062	0.044	0.049	0.056
Departure Headway (Hd)	4.044	4.087	3.936	4.028
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	881	869	903	884
Service Time	2.09	2.144	1.992	2.075
HCM Lane V/C Ratio	0.064	0.045	0.049	0.057
HCM Control Delay	7.4	7.3	7.2	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.1	0.2	0.2




Intersection												
Int Delay, s/veh	3.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	180	5	15	145	5	5	20	35	10	15	20
Future Vol, veh/h	25	180	5	15	145	5	5	20	35	10	15	20
Conflicting Peds, #/hr	13	0	49	60	0	24	49	0	60	24	0	13
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	0	0	0	0	0	0	2	2	2
Mvmt Flow	26	186	5	15	149	5	5	21	36	10	15	21
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	178	0	0	251	0	0	550	509	309	535	509	225
Stage 1	-	-	-	-	-	-	301	301	-	206	206	-
Stage 2	-	-	-	-	-	-	249	208	-	329	303	-
Critical Hdwy	4.11	-	-	4.1	-	-	7.1	6.5	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Follow-up Hdwy	2.209	-	-	2.2	-	-	3.5	4	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1404	-	-	1326	-	-	449	470	736	456	467	814
Stage 1	-	-	-	-	-	-	712	669	-	796	731	-
Stage 2	-	-	-	-	-	-	759	734	-	684	664	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1372	-	-	1250	-	-	372	418	654	372	416	758
Mov Cap-2 Maneuver	-	-	-	-	-	-	372	418	-	372	416	-
Stage 1	-	-	-	-	-	-	657	617	-	762	705	-
Stage 2	-	-	-	-	-	-	680	708	-	577	613	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.9			0.7			12.8			12.9		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	523	1372	-	-	1250	-	-	504				
HCM Lane V/C Ratio	0.118	0.019	-	-	0.012	-	-	0.092				
HCM Control Delay (s)	12.8	7.7	0	-	7.9	0	-	12.9				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0	-	-	0.3				

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	30	10	5	45	15	5	5	0	10	5	5
Future Vol, veh/h	10	30	10	5	45	15	5	5	0	10	5	5
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	11	34	11	6	51	17	6	6	0	11	6	6
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0






















Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	7.2	7.4	7.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	20%	8%	50%
Vol Thru, %	50%	60%	69%	25%
Vol Right, %	0%	20%	23%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	50	65	20
LT Vol	5	10	5	10
Through Vol	5	30	45	5
RT Vol	0	10	15	5
Lane Flow Rate	11	57	74	23
Geometry Grp	1	1	1	1
Degree of Util (X)	0.013	0.062	0.08	0.026
Departure Headway (Hd)	4.245	3.934	3.879	4.086
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	838	909	923	871
Service Time	2.299	1.964	1.906	2.136
HCM Lane V/C Ratio	0.013	0.063	0.08	0.026
HCM Control Delay	7.4	7.2	7.2	7.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0.2	0.3	0.1




Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	220	160	35	25	5
Future Vol, veh/h	5	220	160	35	25	5
Conflicting Peds, #/hr	6	0	0	235	235	6
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	95	95	95	95	95	95
Heavy Vehicles, %	1	1	0	0	0	0
Mvmt Flow	5	232	168	37	26	5
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	440	0	-	0	899	428
Stage 1	-	-	-	-	422	-
Stage 2	-	-	-	-	477	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1125	-	-	-	312	631
Stage 1	-	-	-	-	666	-
Stage 2	-	-	-	-	629	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	873	-	-	-	187	487
Mov Cap-2 Maneuver	-	-	-	-	187	-
Stage 1	-	-	-	-	513	-
Stage 2	-	-	-	-	488	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		25.4		
HCM LOS				D		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	873	-	-	-	208	
HCM Lane V/C Ratio	0.006	-	-	-	0.152	
HCM Control Delay (s)	9.1	0	-	-	25.4	
HCM Lane LOS	A	A	-	-	D	
HCM 95th %tile Q(veh)	0	-	-	-	0.5	

HCM 6th Signalized Intersection Summary
6: 3rd Ave W & W Nickerson St




2020 SPU MIMP EIS
Existing (2021) PM Peak Hour







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	510	100	175	760	45	140	35	15	30	25	15
Future Volume (veh/h)	25	510	100	175	760	45	140	35	15	30	25	15
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	0.99		0.93	0.85		0.82	0.88		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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1811	1811	1811	1900	1900	1900
Adj Flow Rate, veh/h	27	548	108	188	817	48	151	38	16	32	27	16
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	6	6	6	0	0	0
Cap, veh/h	221	827	661	412	925	728	343	80	28	232	186	93
Arrive On Green	0.03	0.44	0.44	0.08	0.49	0.49	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1795	1885	1507	1795	1885	1482	884	281	99	552	650	326
Grp Volume(v), veh/h	27	548	108	188	817	48	205	0	0	75	0	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1507	1795	1885	1482	1264	0	0	1527	0	0
Q Serve(g_s), s	0.6	16.0	3.0	3.8	27.1	1.2	6.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.6	16.0	3.0	3.8	27.1	1.2	9.2	0.0	0.0	2.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.74		0.08	0.43		0.21
Lane Grp Cap(c), veh/h	221	827	661	412	925	728	451	0	0	510	0	0
V/C Ratio(X)	0.12	0.66	0.16	0.46	0.88	0.07	0.45	0.00	0.00	0.15	0.00	0.00
Avail Cap(c_a), veh/h	440	827	661	537	925	728	550	0	0	625	0	0
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.1	15.4	11.8	11.1	15.9	9.3	20.8	0.0	0.0	18.5	0.0	0.0
Incr Delay (d2), s/veh	0.1	4.2	0.5	0.3	12.0	0.2	0.3	0.0	0.0	0.0	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	0.2	7.3	1.0	1.3	13.4	0.4	2.7	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.2	19.6	12.3	11.4	27.9	9.5	21.1	0.0	0.0	18.6	0.0	0.0
LnGrp LOS	B	B	B	B	C	A	C	A	A	B	A	A
Approach Vol, veh/h		683			1053			205			75	
Approach Delay, s/veh		18.2			24.1			21.1			18.6	
Approach LOS		B			C			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.2	35.0		24.4	6.5	38.6		24.4				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	10.5	30.5		25.5	10.5	30.5		25.5				
Max Q Clear Time (g_c+I1), s	5.8	18.0		4.2	2.6	29.1		11.2				
Green Ext Time (p_c), s	0.0	0.6		0.2	0.0	0.3		0.8				
Intersection Summary												
HCM 6th Ctrl Delay				21.6								
HCM 6th LOS				C								

Intersection												
Int Delay, s/veh	18.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	15	155	80	0	0	0	80	175	60	5	175	120
Future Vol, veh/h	15	155	80	0	0	0	80	175	60	5	175	120
Conflicting Peds, #/hr	87	0	181	149	0	55	181	0	149	55	0	87
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	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	0	0	0
Mvmt Flow	16	161	83	0	0	0	83	182	63	5	182	125
Major/Minor	Minor2						Major1		Major2			
Conflicting Flow All	903	996	607				488	0	0	394	0	0
Stage 1	436	436	-				-	-	-	-	-	-
Stage 2	467	560	-				-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2				4.13	-	-	4.1	-	-
Critical Hdwy Stg 1	5.4	5.5	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-				-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3				2.227	-	-	2.2	-	-
Pot Cap-1 Maneuver	310	246	500				1070	-	-	1176	-	-
Stage 1	656	583	-				-	-	-	-	-	-
Stage 2	635	514	-				-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	188	0	342				886	-	-	1176	-	-
Mov Cap-2 Maneuver	188	0	-				-	-	-	-	-	-
Stage 1	484	0	-				-	-	-	-	-	-
Stage 2	523	0	-				-	-	-	-	-	-
Approach	EB						NB		SB			
HCM Control Delay, s	60.1						2.4		0.1			
HCM LOS	F											
Minor Lane/Major Mvmt		NBL	NBT	NBR	EBLn1	SBL	SBT	SBR				
Capacity (veh/h)		886	-	-	303	1176	-	-				
HCM Lane V/C Ratio		0.094	-	-	0.859	0.004	-	-				
HCM Control Delay (s)		9.5	0	-	60.1	8.1	0	-				
HCM Lane LOS		A	A	-	F	A	A	-				
HCM 95th %tile Q(veh)		0.3	-	-	7.6	0	-	-				

Intersection						
Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	30	285	35	30	225
Future Vol, veh/h	10	30	285	35	30	225
Conflicting Peds, #/hr	126	40	0	126	40	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	93	93	93	93	93	93
Heavy Vehicles, %	8	8	4	4	0	0
Mvmt Flow	11	32	306	38	32	242
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	883	491	0	0	470	0
Stage 1	451	-	-	-	-	-
Stage 2	432	-	-	-	-	-
Critical Hdwy	6.48	6.28	-	-	4.1	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.2	-
Pot Cap-1 Maneuver	309	566	-	-	1102	-
Stage 1	629	-	-	-	-	-
Stage 2	642	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	230	479	-	-	970	-
Mov Cap-2 Maneuver	230	-	-	-	-	-
Stage 1	554	-	-	-	-	-
Stage 2	544	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	15.8		0		1	
HCM LOS	C					
Minor Lane/Major Mvmt		NBT	NBRWBLn1		SBL	SBT
Capacity (veh/h)		-	-	377	970	-
HCM Lane V/C Ratio		-	-	0.114	0.033	-
HCM Control Delay (s)		-	-	15.8	8.8	0
HCM Lane LOS		-	-	C	A	A
HCM 95th %tile Q(veh)		-	-	0.4	0.1	-

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	70	5	75	5	245	75	25	200	10
Future Vol, veh/h	0	0	0	70	5	75	5	245	75	25	200	10
Conflicting Peds, #/hr	71	0	37	14	0	48	37	0	14	48	0	71
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	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	4	4	4	2	2	2
Mvmt Flow	0	0	0	71	5	77	5	250	77	26	204	10
Major/Minor				Minor1		Major1			Major2			
Conflicting Flow All				622	684	385	285	0	0	375	0	0
Stage 1				347	347	-	-	-	-	-	-	-
Stage 2				275	337	-	-	-	-	-	-	-
Critical Hdwy				6.4	6.5	6.2	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1				5.4	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.4	5.5	-	-	-	-	-	-	-
Follow-up Hdwy				3.5	4	3.3	2.236	-	-	2.218	-	-
Pot Cap-1 Maneuver				454	374	667	1266	-	-	1183	-	-
Stage 1				720	638	-	-	-	-	-	-	-
Stage 2				776	645	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver				415	0	607	1266	-	-	1129	-	-
Mov Cap-2 Maneuver				415	0	-	-	-	-	-	-	-
Stage 1				683	0	-	-	-	-	-	-	-
Stage 2				746	0	-	-	-	-	-	-	-
Approach				WB		NB			SB			
HCM Control Delay, s				15.5		0.1			0.9			
HCM LOS				C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1266	-	-	496	1129	-	-					
HCM Lane V/C Ratio	0.004	-	-	0.309	0.023	-	-					
HCM Control Delay (s)	7.9	0	-	15.5	8.3	0	-					
HCM Lane LOS	A	A	-	C	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	1.3	0.1	-	-					

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	60	20	15	265	220	50
Future Vol, veh/h	60	20	15	265	220	50
Conflicting Peds, #/hr	20	20	20	0	0	20
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	94	94	94	94	94	94
Heavy Vehicles, %	0	0	5	5	2	2
Mvmt Flow	64	21	16	282	234	53
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	615	301	307	0	-	0
Stage 1	281	-	-	-	-	-
Stage 2	334	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.15	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.245	-	-	-
Pot Cap-1 Maneuver	458	743	1237	-	-	-
Stage 1	771	-	-	-	-	-
Stage 2	730	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	434	715	1213	-	-	-
Mov Cap-2 Maneuver	434	-	-	-	-	-
Stage 1	744	-	-	-	-	-
Stage 2	716	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	14.1	0.4		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1213	-	481	-	-	
HCM Lane V/C Ratio	0.013	-	0.177	-	-	
HCM Control Delay (s)	8	0	14.1	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.6	-	-	

Intersection												
Int Delay, s/veh	7.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	725	25	10	940	15	30	0	0	10	5	35
Future Vol, veh/h	25	725	25	10	940	15	30	0	0	10	5	35
Conflicting Peds, #/hr	17	0	29	36	0	24	29	0	36	24	0	17
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	1	1	1	8	8	8	0	0	0
Mvmt Flow	27	771	27	11	1000	16	32	0	0	11	5	37
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1040	0	0	834	0	0	1955	1937	857	1929	1942	1061
Stage 1	-	-	-	-	-	-	875	875	-	1054	1054	-
Stage 2	-	-	-	-	-	-	1080	1062	-	875	888	-
Critical Hdwy	4.12	-	-	4.11	-	-	7.18	6.58	6.28	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.18	5.58	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.18	5.58	-	6.1	5.5	-
Follow-up Hdwy	2.218	-	-	2.209	-	-	3.572	4.072	3.372	3.5	4	3.3
Pot Cap-1 Maneuver	669	-	-	804	-	-	46	63	348	51	66	274
Stage 1	-	-	-	-	-	-	336	359	-	276	305	-
Stage 2	-	-	-	-	-	-	257	293	-	347	365	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	654	-	-	776	-	-	33	56	325	46	59	260
Mov Cap-2 Maneuver	-	-	-	-	-	-	33	56	-	46	59	-
Stage 1	-	-	-	-	-	-	311	332	-	259	294	-
Stage 2	-	-	-	-	-	-	207	282	-	321	338	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.1			\$ 324.7			61.6		
HCM LOS							F			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	33	654	-	-	776	-	-	114				
HCM Lane V/C Ratio	0.967	0.041	-	-	0.014	-	-	0.467				
HCM Control Delay (s)	\$ 324.7	10.7	-	-	9.7	-	-	61.6				
HCM Lane LOS	F	B	-	-	A	-	-	F				
HCM 95th %tile Q(veh)	3.4	0.1	-	-	0	-	-	2.1				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑		↓	↑		↗
Traffic Vol, veh/h	735	0	0	965	0	50
Future Vol, veh/h	735	0	0	965	0	50
Conflicting Peds, #/hr	0	48	90	0	48	90
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	1	1	8	8
Mvmt Flow	782	0	0	1027	0	53
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	872	0	-	962
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.11	-	-	6.28
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.209	-	-	3.372
Pot Cap-1 Maneuver	-	0	778	-	0	302
Stage 1	-	0	-	-	0	-
Stage 2	-	0	-	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	711	-	-	252
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		23.1	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	WBL	WBT		
Capacity (veh/h)	252	-	711	-		
HCM Lane V/C Ratio	0.211	-	-	-		
HCM Control Delay (s)	23.1	-	0	-		
HCM Lane LOS	C	-	A	-		
HCM 95th %tile Q(veh)	0.8	-	0	-		

















Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	5	35	25	0	0	0	25	25	15	0	25	15
Future Vol, veh/h	5	35	25	0	0	0	25	25	15	0	25	15
Conflicting Peds, #/hr	43	0	51	46	0	38	51	0	46	38	0	43
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	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	5	5	5	0	0	0	0	0	0	11	11	11
Mvmt Flow	5	38	27	0	0	0	27	27	16	0	27	16
Major/Minor	Minor2						Major1		Major2			
Conflicting Flow All	218	229	137				94	0	0	89	0	0
Stage 1	86	86	-				-	-	-	-	-	-
Stage 2	132	143	-				-	-	-	-	-	-
Critical Hdwy	6.45	6.55	6.25				4.1	-	-	4.21	-	-
Critical Hdwy Stg 1	5.45	5.55	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.45	5.55	-				-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345				2.2	-	-	2.299	-	-
Pot Cap-1 Maneuver	764	665	904				1513	-	-	1452	-	-
Stage 1	930	818	-				-	-	-	-	-	-
Stage 2	887	773	-				-	-	-	-	-	-
Platoon blocked, %							-	-		-	-	
Mov Cap-1 Maneuver	678	0	818				1440	-	-	1452	-	-
Mov Cap-2 Maneuver	678	0	-				-	-	-	-	-	-
Stage 1	868	0	-				-	-	-	-	-	-
Stage 2	844	0	-				-	-	-	-	-	-
Approach	EB						NB		SB			
HCM Control Delay, s	10						2.9		0			
HCM LOS	B											
Minor Lane/Major Mvmt		NBL	NBT	NBR	EBLn1	SBL	SBT	SBR				
Capacity (veh/h)		1440	-	-	791	1452	-	-				
HCM Lane V/C Ratio		0.019	-	-	0.088	-	-	-				
HCM Control Delay (s)		7.5	0	-	10	0	-	-				
HCM Lane LOS		A	A	-	B	A	-	-				
HCM 95th %tile Q(veh)		0.1	-	-	0.3	0	-	-				

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	5	0	1670	470	545
Future Vol, veh/h	0	5	0	1670	470	545
Conflicting Peds, #/hr	75	74	74	0	0	75
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	97	97	97	97	97	97
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	0	5	0	1722	485	562
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	673	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	402	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	347	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	15.5	0		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT EBLn1		SBT	SBR		
Capacity (veh/h)	- 347		-	-		
HCM Lane V/C Ratio	- 0.015		-	-		
HCM Control Delay (s)	- 15.5		-	-		
HCM Lane LOS	- C		-	-		
HCM 95th %tile Q(veh)	- 0		-	-		

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Existing (2021) PM Peak Hour

												
Movement	EBL2	EBT	EBR	WBL2	WBL	WBT	WBR	WBR2	NBL	NBT	NBR2	SBL
Lane Configurations												
Traffic Volume (vph)	5	0	155	5	5	185	350	5	20	5	60	35
Future Volume (vph)	5	0	155	5	5	185	350	5	20	5	60	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5				6.5	6.5			9.5		
Lane Util. Factor		1.00				0.95	0.95			1.00		
Frpb, ped/bikes		0.94				0.96	0.63			0.94		
Flpb, ped/bikes		1.00				1.00	1.00			0.98		
Frt		0.87				0.95	0.85			0.90		
Flt Protected		1.00				1.00	1.00			0.99		
Satd. Flow (prot)		1544				1630	953			1571		
Flt Permitted		0.89				0.99	1.00			0.90		
Satd. Flow (perm)		1371				1613	953			1439		
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)	5	0	168	5	5	201	380	5	22	5	65	38
RTOR Reduction (vph)	0	0	0	0	0	0	95	0	0	80	0	0
Lane Group Flow (vph)	0	173	0	0	0	314	187	0	0	12	0	0
Confl. Peds. (#/hr)	44		37	37	44		44	67	44		37	37
Confl. Bikes (#/hr)			1				37	37				
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	0%	0%	0%	2%
Turn Type	Perm	NA		Perm	Perm	NA	Perm		Perm	NA		Perm
Protected Phases		3				3				4		
Permitted Phases	3			3	3		3		4			4
Actuated Green, G (s)		29.6				29.6	29.6			22.0		
Effective Green, g (s)		29.6				29.6	29.6			19.0		
Actuated g/C Ratio		0.21				0.21	0.21			0.14		
Clearance Time (s)		6.5				6.5	6.5			6.5		
Vehicle Extension (s)		2.0				2.0	2.0			2.0		
Lane Grp Cap (vph)		289				341	201			195		
v/s Ratio Prot												
v/s Ratio Perm		0.13				0.19	0.20			0.01		
v/c Ratio		0.60				0.92	0.93			0.06		
Uniform Delay, d1		49.8				54.1	54.2			52.7		
Progression Factor		1.00				1.00	1.00			1.00		
Incremental Delay, d2		2.2				29.0	42.7			0.1		
Delay (s)		52.1				83.0	96.9			52.8		
Level of Service		D				F	F			D		
Approach Delay (s)		52.1				89.6				52.8		
Approach LOS		D				F				D		
Intersection Summary												
HCM 2000 Control Delay		44.3				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)				31.0		
Intersection Capacity Utilization		112.6%				ICU Level of Service				H		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St






















2020 SPU MIMP EIS
Existing (2021) PM Peak Hour

	↓	↙	↘	↗	↖	↘	↙	↗	↖	↗
Movement	SBT	SBR	SBR2	SEL	SET	SER	SER2	NWL2	NWL	NWT
Lane Configurations	↕				↕					↕
Traffic Volume (vph)	5	5	5	5	795	5	5	15	65	655
Future Volume (vph)	5	5	5	5	795	5	5	15	65	655
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.5				9.0					9.0
Lane Util. Factor	1.00				0.95					0.95
Frpb, ped/bikes	0.97				1.00					1.00
Flpb, ped/bikes	0.96				1.00					1.00
Frt	0.97				1.00					1.00
Flt Protected	0.97				1.00					0.99
Satd. Flow (prot)	1620				3516					3555
Flt Permitted	0.76				0.95					0.62
Satd. Flow (perm)	1282				3342					2229
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	5	5	5	864	5	5	16	71	712
RTOR Reduction (vph)	3	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	50	0	0	0	879	0	0	0	0	799
Confl. Peds. (#/hr)		31	44	107		44	31	44	31	
Confl. Bikes (#/hr)		11	11			2	2			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	NA			Perm	NA			custom	custom	NA
Protected Phases	4				2					6
Permitted Phases				2				1 6	1 6	
Actuated Green, G (s)	22.0				69.4					69.4
Effective Green, g (s)	19.0				66.4					66.4
Actuated g/C Ratio	0.14				0.47					0.47
Clearance Time (s)	6.5				6.0					6.0
Vehicle Extension (s)	2.0				3.0					2.0
Lane Grp Cap (vph)	173				1585					1057
v/s Ratio Prot										
v/s Ratio Perm	c0.04				0.26					c0.36
v/c Ratio	0.29				0.55					0.76
Uniform Delay, d1	54.4				26.3					30.2
Progression Factor	1.00				1.00					0.70
Incremental Delay, d2	0.3				1.4					4.4
Delay (s)	54.8				27.7					25.5
Level of Service	D				C					C
Approach Delay (s)	54.8				27.7					25.5
Approach LOS	D				C					C
Intersection Summary										







HCM Signalized Intersection Capacity Analysis

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS
Existing (2021) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	700	225	125	0	445	685	190	285	5	275	100	100
Future Volume (vph)	700	225	125	0	445	685	190	285	5	275	100	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.98			1.00	0.64	1.00	1.00		1.00	0.94	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.95			1.00	0.85	1.00	1.00		1.00	0.93	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3467	1746			3539	1790	1770	3516		3367	1590	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3467	1746			3539	1790	1770	3516		3367	1590	
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)	729	234	130	0	464	714	198	297	5	286	104	104
RTOR Reduction (vph)	0	13	0	0	0	62	0	1	0	0	27	0
Lane Group Flow (vph)	729	351	0	0	464	652	198	301	0	286	181	0
Confl. Peds. (#/hr)	17		29	29		17	17		48	48		17
Confl. Bikes (#/hr)			2			371			156			53
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	35.6	75.9			33.8	59.3	26.6	26.6		20.0	20.0	
Effective Green, g (s)	35.6	69.4			33.8	59.3	26.6	26.6		20.0	20.0	
Actuated g/C Ratio	0.25	0.50			0.24	0.42	0.19	0.19		0.14	0.14	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	881	865			854	758	336	668		481	227	
v/s Ratio Prot	c0.21	0.20			0.13		c0.11	0.09		0.08	0.11	
v/s Ratio Perm						c0.36						
v/c Ratio	0.83	0.41			0.54	0.86	0.59	0.45		0.59	0.80	
Uniform Delay, d1	49.3	22.3			46.4	36.6	51.7	50.2		56.2	58.0	
Progression Factor	0.97	2.10			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.6	0.3			2.5	9.5	1.7	0.2		1.3	16.3	
Delay (s)	53.5	47.0			48.8	46.1	53.4	50.4		57.5	74.3	
Level of Service	D	D			D	D	D	D		E	E	
Approach Delay (s)		51.4			47.2			51.6			64.6	
Approach LOS		D			D			D			E	
Intersection Summary												
HCM 2000 Control Delay			51.9				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			93.6%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

2031 No Action AM

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	840	55	15	575	10	20	5	45	10	0	10
Future Vol, veh/h	15	840	55	15	575	10	20	5	45	10	0	10
Conflicting Peds, #/hr	6	0	12	14	0	8	12	0	14	8	0	6
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	4	4	4	3	3	3	2	2	2	32	32	32
Mvmt Flow	16	875	57	16	599	10	21	5	47	10	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	617	0	0	946	0	0	1603	1599	932	1620	1622	624
Stage 1	-	-	-	-	-	-	950	950	-	644	644	-
Stage 2	-	-	-	-	-	-	653	649	-	976	978	-
Critical Hdwy	4.14	-	-	4.13	-	-	7.12	6.52	6.22	7.42	6.82	6.52
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.42	5.82	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.42	5.82	-
Follow-up Hdwy	2.236	-	-	2.227	-	-	3.518	4.018	3.318	3.788	4.288	3.588
Pot Cap-1 Maneuver	953	-	-	721	-	-	85	106	323	70	88	435
Stage 1	-	-	-	-	-	-	312	339	-	415	424	-
Stage 2	-	-	-	-	-	-	456	466	-	267	292	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	946	-	-	711	-	-	78	100	314	54	83	427
Mov Cap-2 Maneuver	-	-	-	-	-	-	78	100	-	54	83	-
Stage 1	-	-	-	-	-	-	303	329	-	405	411	-
Stage 2	-	-	-	-	-	-	430	452	-	217	283	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.3			46.9			52.6		
HCM LOS							E			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	156	946	-	-	711	-	-	96
HCM Lane V/C Ratio	0.467	0.017	-	-	0.022	-	-	0.217
HCM Control Delay (s)	46.9	8.9	-	-	10.2	-	-	52.6
HCM Lane LOS	E	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	2.2	0.1	-	-	0.1	-	-	0.8

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	5	5	5	5	5	5	10	0	5	30	10
Future Vol, veh/h	30	5	5	5	5	5	5	10	0	5	30	10
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	0	0	0	9	9	9	0	0	0	0	0	0
Mvmt Flow	38	6	6	6	6	6	6	13	0	6	38	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.4	7.2	7.3	7.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	33%	75%	33%	11%
Vol Thru, %	67%	12%	33%	67%
Vol Right, %	0%	12%	33%	22%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	15	40	15	45
LT Vol	5	30	5	5
Through Vol	10	5	5	30
RT Vol	0	5	5	10
Lane Flow Rate	19	51	19	57
Geometry Grp	1	1	1	1
Degree of Util (X)	0.022	0.058	0.022	0.062
Departure Headway (Hd)	4.132	4.122	4.091	3.924
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	862	866	871	909
Service Time	2.177	2.158	2.134	1.964
HCM Lane V/C Ratio	0.022	0.059	0.022	0.063
HCM Control Delay	7.3	7.4	7.2	7.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.1	0.2

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	245	0	10	90	5	5	5	5	10	10	20
Future Vol, veh/h	5	245	0	10	90	5	5	5	5	10	10	20
Conflicting Peds, #/hr	2	0	8	13	0	8	8	0	13	8	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	2	2	2	0	0	0	5	5	5
Mvmt Flow	7	327	0	13	120	7	7	7	7	13	13	27
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	135	0	0	340	0	0	532	515	353	519	512	140
Stage 1	-	-	-	-	-	-	354	354	-	158	158	-
Stage 2	-	-	-	-	-	-	178	161	-	361	354	-
Critical Hdwy	4.13	-	-	4.12	-	-	7.1	6.5	6.2	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Follow-up Hdwy	2.227	-	-	2.218	-	-	3.5	4	3.3	3.545	4.045	3.345
Pot Cap-1 Maneuver	1443	-	-	1219	-	-	461	466	695	463	461	900
Stage 1	-	-	-	-	-	-	667	634	-	837	761	-
Stage 2	-	-	-	-	-	-	828	769	-	651	625	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1432	-	-	1204	-	-	422	449	678	438	444	886
Mov Cap-2 Maneuver	-	-	-	-	-	-	422	449	-	438	444	-
Stage 1	-	-	-	-	-	-	655	623	-	825	746	-
Stage 2	-	-	-	-	-	-	773	754	-	626	614	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.8			12.6			11.7		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	494	1432	-	-	1204	-	-	589				
HCM Lane V/C Ratio	0.04	0.005	-	-	0.011	-	-	0.091				
HCM Control Delay (s)	12.6	7.5	0	-	8	0	-	11.7				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.3				




Intersection

Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	20	5	5	10	5	0	5	0	10	5	0
Future Vol, veh/h	5	20	5	5	10	5	0	5	0	10	5	0
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	33	33	33
Mvmt Flow	7	30	7	7	15	7	0	7	0	15	7	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0






















Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.1	7	7.1	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	17%	25%	67%
Vol Thru, %	100%	67%	50%	33%
Vol Right, %	0%	17%	25%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	5	30	20	15
LT Vol	0	5	5	10
Through Vol	5	20	10	5
RT Vol	0	5	5	0
Lane Flow Rate	7	45	30	22
Geometry Grp	1	1	1	1
Degree of Util (X)	0.008	0.049	0.032	0.029
Departure Headway (Hd)	4.048	3.909	3.887	4.732
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	882	916	920	757
Service Time	2.083	1.933	1.914	2.76
HCM Lane V/C Ratio	0.008	0.049	0.033	0.029
HCM Control Delay	7.1	7.1	7	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0.2	0.1	0.1

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	260	105	15	10	0
Future Vol, veh/h	0	260	105	15	10	0
Conflicting Peds, #/hr	4	0	0	19	19	4
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	79	79	79	79	79	79
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	0	329	133	19	13	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	171	0	-	0	510	166
Stage 1	-	-	-	-	162	-
Stage 2	-	-	-	-	348	-
Critical Hdwy	4.13	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.227	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1400	-	-	-	527	884
Stage 1	-	-	-	-	872	-
Stage 2	-	-	-	-	719	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1375	-	-	-	508	865
Mov Cap-2 Maneuver	-	-	-	-	508	-
Stage 1	-	-	-	-	856	-
Stage 2	-	-	-	-	706	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		12.3		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1375	-	-	-	508	
HCM Lane V/C Ratio	-	-	-	-	0.025	
HCM Control Delay (s)	0	-	-	-	12.3	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

HCM 6th Signalized Intersection Summary
6: 3rd Ave W & W Nickerson St

2020 SPU MIMP EIS
No-Action (2035) AM Peak Hour




												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	790	70	70	555	35	115	10	100	10	10	0
Future Volume (veh/h)	10	790	70	70	555	35	115	10	100	10	10	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	0.98		0.96	0.99		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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1811	1811	1811	1796	1796	1796	1707	1707	1707
Adj Flow Rate, veh/h	10	823	73	73	578	36	120	10	104	10	10	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, %	5	5	5	6	6	6	7	7	7	13	13	13
Cap, veh/h	403	914	765	273	989	812	229	34	139	216	183	0
Arrive On Green	0.01	0.50	0.50	0.06	0.55	0.55	0.22	0.22	0.22	0.22	0.22	0.00
Sat Flow, veh/h	1739	1826	1529	1725	1811	1487	637	154	633	581	834	0
Grp Volume(v), veh/h	10	823	73	73	578	36	234	0	0	20	0	0
Grp Sat Flow(s),veh/h/ln	1739	1826	1529	1725	1811	1487	1424	0	0	1415	0	0
Q Serve(g_s), s	0.2	25.0	1.5	1.2	13.0	0.7	7.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.2	25.0	1.5	1.2	13.0	0.7	9.3	0.0	0.0	0.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.51		0.44	0.50		0.00
Lane Grp Cap(c), veh/h	403	914	765	273	989	812	402	0	0	400	0	0
V/C Ratio(X)	0.02	0.90	0.10	0.27	0.58	0.04	0.58	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	680	914	765	470	989	812	680	0	0	673	0	0
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.1	13.8	8.0	12.0	9.2	6.4	22.1	0.0	0.0	18.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	13.7	0.2	0.2	2.5	0.1	0.5	0.0	0.0	0.0	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	0.1	12.2	0.5	0.4	4.9	0.2	3.0	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.1	27.5	8.2	12.2	11.8	6.5	22.6	0.0	0.0	18.8	0.0	0.0
LnGrp LOS	A	C	A	B	B	A	C	A	A	B	A	A
Approach Vol, veh/h		906			687			234			20	
Approach Delay, s/veh		25.7			11.5			22.6			18.8	
Approach LOS		C			B			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.0	35.0		17.9	5.3	37.8		17.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	10.5	30.5		25.5	10.5	30.5		25.5				
Max Q Clear Time (g_c+I1), s	3.2	27.0		2.6	2.2	15.0		11.3				
Green Ext Time (p_c), s	0.0	0.6		0.0	0.0	0.7		0.8				
Intersection Summary												
HCM 6th Ctrl Delay				20.0								
HCM 6th LOS				B								

Intersection												
Int Delay, s/veh	6.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	50	105	40	0	0	0	50	180	15	5	100	50
Future Vol, veh/h	50	105	40	0	0	0	50	180	15	5	100	50
Conflicting Peds, #/hr	32	0	42	22	0	11	42	0	22	11	0	32
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	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	0	0	0	7	7	7	2	2	2
Mvmt Flow	63	131	50	0	0	0	63	225	19	6	125	63




Major/Minor	Minor2			Major1	Major2				
Conflicting Flow All	604	603	241	230	0	0	266	0	0
Stage 1	211	211	-	-	-	-	-	-	-
Stage 2	393	392	-	-	-	-	-	-	-
Critical Hdwy	6.43	6.53	6.23	4.17	-	-	4.12	-	-
Critical Hdwy Stg 1	5.43	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.43	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	2.263	-	-	2.218	-	-
Pot Cap-1 Maneuver	460	412	795	1309	-	-	1298	-	-
Stage 1	822	726	-	-	-	-	-	-	-
Stage 2	680	605	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	397	0	733	1257	-	-	1298	-	-
Mov Cap-2 Maneuver	397	0	-	-	-	-	-	-	-
Stage 1	743	0	-	-	-	-	-	-	-
Stage 2	649	0	-	-	-	-	-	-	-







Approach	EB	NB	SB
HCM Control Delay, s	18.9	1.6	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1257	-	-	499	1298	-	-
HCM Lane V/C Ratio	0.05	-	-	0.488	0.005	-	-
HCM Control Delay (s)	8	0	-	18.9	7.8	0	-
HCM Lane LOS	A	A	-	C	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	2.6	0	-	-

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	20	240	15	5	135
Future Vol, veh/h	30	20	240	15	5	135
Conflicting Peds, #/hr	16	3	0	16	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	84	84	84	84	84	84
Heavy Vehicles, %	30	30	7	7	5	5
Mvmt Flow	36	24	286	18	6	161
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	500	314	0	0	320	0
Stage 1	311	-	-	-	-	-
Stage 2	189	-	-	-	-	-
Critical Hdwy	6.7	6.5	-	-	4.15	-
Critical Hdwy Stg 1	5.7	-	-	-	-	-
Critical Hdwy Stg 2	5.7	-	-	-	-	-
Follow-up Hdwy	3.77	3.57	-	-	2.245	-
Pot Cap-1 Maneuver	484	666	-	-	1223	-
Stage 1	684	-	-	-	-	-
Stage 2	780	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	467	654	-	-	1204	-
Mov Cap-2 Maneuver	467	-	-	-	-	-
Stage 1	674	-	-	-	-	-
Stage 2	764	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	12.7	0	0.3			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	527	1204	-	
HCM Lane V/C Ratio	-	-	0.113	0.005	-	
HCM Control Delay (s)	-	-	12.7	8	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.4	0	-	

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	20	0	40	0	215	20	5	160	0
Future Vol, veh/h	0	0	0	20	0	40	0	215	20	5	160	0
Conflicting Peds, #/hr	17	0	0	0	0	17	0	0	0	17	0	17
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	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	3	3	3	7	7	7	12	12	12
Mvmt Flow	0	0	0	23	0	46	0	247	23	6	184	0
Major/Minor				Minor1		Major1		Major2				
Conflicting Flow All				472	489	293	201	0	0	287	0	0
Stage 1				276	276	-	-	-	-	-	-	-
Stage 2				196	213	-	-	-	-	-	-	-
Critical Hdwy				6.43	6.53	6.23	4.17	-	-	4.22	-	-
Critical Hdwy Stg 1				5.43	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.43	5.53	-	-	-	-	-	-	-
Follow-up Hdwy				3.527	4.027	3.327	2.263	-	-	2.308	-	-
Pot Cap-1 Maneuver				549	478	744	1342	-	-	1220	-	-
Stage 1				768	680	-	-	-	-	-	-	-
Stage 2				835	724	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver				537	0	720	1342	-	-	1200	-	-
Mov Cap-2 Maneuver				537	0	-	-	-	-	-	-	-
Stage 1				756	0	-	-	-	-	-	-	-
Stage 2				830	0	-	-	-	-	-	-	-
Approach				WB		NB		SB				
HCM Control Delay, s				11.2		0		0.2				
HCM LOS				B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1342	-	-	647	1200	-	-					
HCM Lane V/C Ratio	-	-	-	0.107	0.005	-	-					
HCM Control Delay (s)	0	-	-	11.2	8	0	-					
HCM Lane LOS	A	-	-	B	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	0.4	0	-	-					

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	40	10	20	200	145	30
Future Vol, veh/h	40	10	20	200	145	30
Conflicting Peds, #/hr	15	15	15	0	0	15
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, %	0	0	8	8	11	11
Mvmt Flow	44	11	22	220	159	33
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	470	206	207	0	-	0
Stage 1	191	-	-	-	-	-
Stage 2	279	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.18	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.272	-	-	-
Pot Cap-1 Maneuver	556	840	1329	-	-	-
Stage 1	846	-	-	-	-	-
Stage 2	773	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	530	816	1310	-	-	-
Mov Cap-2 Maneuver	530	-	-	-	-	-
Stage 1	818	-	-	-	-	-
Stage 2	762	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	12	0.7		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1310	-	570	-	-	
HCM Lane V/C Ratio	0.017	-	0.096	-	-	
HCM Control Delay (s)	7.8	0	12	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-	

Intersection												
Int Delay, s/veh	6.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	950	50	10	635	20	30	5	0	5	5	35
Future Vol, veh/h	35	950	50	10	635	20	30	5	0	5	5	35
Conflicting Peds, #/hr	16	0	9	10	0	17	9	0	10	17	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	6	6	6	6	6	6	19	19	19	0	0	0
Mvmt Flow	37	1011	53	11	676	21	32	5	0	5	5	37

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	714	0	0	1074	0	0	1868	1858	1065	1857	1874	720
Stage 1	-	-	-	-	-	-	1122	1122	-	726	726	-
Stage 2	-	-	-	-	-	-	746	736	-	1131	1148	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.29	6.69	6.39	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.29	5.69	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.29	5.69	-	6.1	5.5	-
Follow-up Hdwy	2.254	-	-	2.254	-	-	3.671	4.171	3.471	3.5	4	3.3
Pot Cap-1 Maneuver	868	-	-	634	-	-	50	67	251	57	73	431
Stage 1	-	-	-	-	-	-	232	262	-	419	433	-
Stage 2	-	-	-	-	-	-	380	401	-	249	276	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	854	-	-	628	-	-	40	61	245	49	67	418
Mov Cap-2 Maneuver	-	-	-	-	-	-	40	61	-	49	67	-
Stage 1	-	-	-	-	-	-	220	248	-	394	418	-
Stage 2	-	-	-	-	-	-	331	387	-	229	261	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.2			251.9			33.6		
HCM LOS							F			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	42	854	-	-	628	-	-	173
HCM Lane V/C Ratio	0.887	0.044	-	-	0.017	-	-	0.277
HCM Control Delay (s)	251.9	9.4	-	-	10.8	-	-	33.6
HCM Lane LOS	F	A	-	-	B	-	-	D
HCM 95th %tile Q(veh)	3.5	0.1	-	-	0.1	-	-	1.1

















Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑		↓	↑		↑
Traffic Vol, veh/h	955	0	0	670	0	30
Future Vol, veh/h	955	0	0	670	0	30
Conflicting Peds, #/hr	0	61	23	0	61	23
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	5	5	6	6	0	0
Mvmt Flow	985	0	0	691	0	31
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	1008	0	-	1031
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.16	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.254	-	-	3.3
Pot Cap-1 Maneuver	-	0	672	-	0	286
Stage 1	-	0	-	-	0	-
Stage 2	-	0	-	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	657	-	-	274
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		19.8	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	WBL	WBT		
Capacity (veh/h)	274	-	657	-		
HCM Lane V/C Ratio	0.113	-	-	-		
HCM Control Delay (s)	19.8	-	0	-		
HCM Lane LOS	C	-	A	-		
HCM 95th %tile Q(veh)	0.4	-	0	-		

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	0	5	15	0	0	0	20	35	30	0	40	30
Future Vol, veh/h	0	5	15	0	0	0	20	35	30	0	40	30
Conflicting Peds, #/hr	15	0	15	17	0	17	15	0	17	17	0	15
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	11	11	11	32	32	32
Mvmt Flow	0	6	17	0	0	0	22	39	34	0	45	34
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	192	211	92				94	0	0	90	0	0
Stage 1	77	77	-				-	-	-	-	-	-
Stage 2	115	134	-				-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2				4.21	-	-	4.42	-	-
Critical Hdwy Stg 1	5.4	5.5	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-				-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3				2.299	-	-	2.488	-	-
Pot Cap-1 Maneuver	801	690	971				1445	-	-	1336	-	-
Stage 1	951	835	-				-	-	-	-	-	-
Stage 2	915	789	-				-	-	-	-	-	-
Platoon blocked, %							-	-		-	-	
Mov Cap-1 Maneuver	767	0	943				1424	-	-	1336	-	-
Mov Cap-2 Maneuver	767	0	-				-	-	-	-	-	-
Stage 1	922	0	-				-	-	-	-	-	-
Stage 2	902	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	8.9						1.8			0		
HCM LOS	A											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1424	-	-	943	1336	-	-					
HCM Lane V/C Ratio	0.016	-	-	0.024	-	-	-					
HCM Control Delay (s)	7.6	0	-	8.9	0	-	-					
HCM Lane LOS	A	A	-	A	A	-	-					
HCM 95th %tile Q(veh)	0	-	-	0.1	0	-	-					

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & W Nickerson St & Florentia St
















2020 SPU MIMP EIS
No-Action (2035) AM Peak Hour

												
Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR2
Lane Configurations												
Traffic Volume (vph)	5	5	0	280	5	110	185	5	5	30	0	50
Future Volume (vph)	5	5	0	280	5	110	185	5	5	30	0	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.5			6.5	6.5				9.5	
Lane Util. Factor			1.00			0.95	0.95				1.00	
Frpb, ped/bikes			0.97			0.98	0.85				0.98	
Flpb, ped/bikes			1.00			1.00	1.00				0.98	
Frt			0.87			0.96	0.85				0.92	
Flt Protected			1.00			1.00	1.00				0.98	
Satd. Flow (prot)			1561			1663	1273				1575	
Flt Permitted			0.99			0.99	1.00				0.86	
Satd. Flow (perm)			1544			1641	1273				1377	
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	5	0	298	5	117	197	5	5	32	0	53
RTOR Reduction (vph)	0	0	0	0	0	0	104	0	0	0	79	0
Lane Group Flow (vph)	0	0	308	0	0	171	50	0	0	0	11	0
Confl. Peds. (#/hr)	24	18		14	16		24	18	9	24		14
Confl. Bikes (#/hr)				1			10	10				
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%
Turn Type	Perm	Perm	NA		Perm	NA	Perm		Perm	Perm	NA	
Protected Phases			3			3					4	
Permitted Phases	3	3			3		3		4	4		
Actuated Green, G (s)			26.5			26.5	26.5				19.0	
Effective Green, g (s)			26.5			26.5	26.5				16.0	
Actuated g/C Ratio			0.20			0.20	0.20				0.12	
Clearance Time (s)			6.5			6.5	6.5				6.5	
Vehicle Extension (s)			2.0			2.0	2.0				2.0	
Lane Grp Cap (vph)			314			334	259				169	
v/s Ratio Prot												
v/s Ratio Perm			c0.20			0.10	0.04				c0.01	
v/c Ratio			0.98			0.51	0.19				0.07	
Uniform Delay, d1			51.5			46.0	42.9				50.4	
Progression Factor			1.00			1.00	1.00				1.00	
Incremental Delay, d2			45.3			0.6	0.1				0.1	
Delay (s)			96.8			46.6	43.0				50.5	
Level of Service			F			D	D				D	
Approach Delay (s)			96.8			44.9					50.5	
Approach LOS			F			D					D	
Intersection Summary												
HCM 2000 Control Delay			42.4			HCM 2000 Level of Service					D	
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				31.0		
Intersection Capacity Utilization			114.5%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & W Nickerson St & Florentia St

2020 SPU MIMP EIS
No-Action (2035) AM Peak Hour























												
Movement	SBL2	SBL	SBT	SBR2	SET	SER	SER2	NWL2	NWL	NWT	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	10	5	0	5	950	5	5	20	60	565	15	5
Future Volume (vph)	10	5	0	5	950	5	5	20	60	565	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			9.5		9.0					9.0		
Lane Util. Factor			1.00		0.95					0.95		
Frpb, ped/bikes			0.99		1.00					1.00		
Flpb, ped/bikes			0.98		1.00					1.00		
Frt			0.97		1.00					1.00		
Flt Protected			0.96		1.00					0.99		
Satd. Flow (prot)			1146		3496					3361		
Flt Permitted			0.76		1.00					0.58		
Satd. Flow (perm)			909		3496					1946		
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	5	0	5	1011	5	5	21	64	601	16	5
RTOR Reduction (vph)	0	0	18	0	0	0	0	0	0	1	0	0
Lane Group Flow (vph)	0	0	3	0	1021	0	0	0	0	706	0	0
Confl. Peds. (#/hr)		14		24		16	9	16	9		18	
Confl. Bikes (#/hr)				2		2	2				1	1
Heavy Vehicles (%)	50%	50%	50%	50%	3%	3%	3%	6%	6%	6%	6%	6%
Turn Type	Perm	Perm	NA		NA			custom	custom	NA		
Protected Phases			4		2					6		
Permitted Phases	4	4						16	16			
Actuated Green, G (s)			19.0		65.5					65.5		
Effective Green, g (s)			16.0		62.5					62.5		
Actuated g/C Ratio			0.12		0.48					0.48		
Clearance Time (s)			6.5		6.0					6.0		
Vehicle Extension (s)			2.0		3.0					2.0		
Lane Grp Cap (vph)			111		1680					935		
v/s Ratio Prot					0.29							
v/s Ratio Perm			0.00							c0.36		
v/c Ratio			0.02		0.61					0.76		
Uniform Delay, d1			50.1		24.8					27.5		
Progression Factor			1.00		1.00					1.28		
Incremental Delay, d2			0.0		1.6					4.4		
Delay (s)			50.2		26.4					39.6		
Level of Service			D		C					D		
Approach Delay (s)			50.2		26.4					39.6		
Approach LOS			D		C					D		
Intersection Summary												

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	15	0	970	1265	305
Future Vol, veh/h	0	15	0	970	1265	305
Conflicting Peds, #/hr	31	30	30	0	0	31
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	89	89	89	89	89	89
Heavy Vehicles, %	50	50	6	6	7	7
Mvmt Flow	0	17	0	1090	1421	343
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	-	943	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.8	-	-	-	-
Pot Cap-1 Maneuver	0	189	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	178	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	27.3	0	0			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	178	-	-		
HCM Lane V/C Ratio	-	0.095	-	-		
HCM Control Delay (s)	-	27.3	-	-		
HCM Lane LOS	-	D	-	-		
HCM 95th %tile Q(veh)	-	0.3	-	-		

HCM Signalized Intersection Capacity Analysis









16: Dexter Ave N/4th Ave N & W Nickerson St/Westlake Ave N

2020 SPU MIMP EIS
No-Action (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	605	590	90	0	240	250	220	115	10	885	180	215
Future Volume (vph)	605	590	90	0	240	250	220	115	10	885	180	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.94	1.00	1.00		1.00	0.90	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98			1.00	0.85	1.00	0.99		1.00	0.92	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3400	1793			3374	2494	1656	3262		3367	1504	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3400	1793			3374	2494	1656	3262		3367	1504	
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)	630	615	94	0	250	260	229	120	10	922	188	224
RTOR Reduction (vph)	0	4	0	0	0	125	0	5	0	0	33	0
Lane Group Flow (vph)	630	705	0	0	250	135	229	125	0	922	379	0
Confl. Peds. (#/hr)	19		37	37		19	33		12	12		33
Confl. Bikes (#/hr)			12			33			16			155
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	9%	9%	9%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	20.7	58.7			31.5	67.5	23.3	23.3		30.5	30.5	
Effective Green, g (s)	20.7	52.2			31.5	67.5	23.3	23.3		30.5	30.5	
Actuated g/C Ratio	0.16	0.40			0.24	0.52	0.18	0.18		0.23	0.23	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	541	719			817	1294	296	584		789	352	
v/s Ratio Prot	c0.19	c0.39			0.07		c0.14	0.04		c0.27	0.25	
v/s Ratio Perm						0.05						
v/c Ratio	1.16	0.98			0.31	0.10	0.77	0.21		1.17	1.08	
Uniform Delay, d1	54.6	38.4			40.3	15.9	50.8	45.5		49.8	49.8	
Progression Factor	0.75	0.91			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	88.4	23.9			1.0	0.2	10.9	0.1		89.3	70.0	
Delay (s)	129.3	58.8			41.3	16.0	61.7	45.6		139.0	119.8	
Level of Service	F	E			D	B	E	D		F	F	
Approach Delay (s)		91.9			28.4			55.9			133.1	
Approach LOS		F			C			E			F	
Intersection Summary												
HCM 2000 Control Delay			94.6				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.02									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			100.5%				ICU Level of Service			G		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
6: 3rd Ave W & W Nickerson St

2020 SPU MIMP EIS
No-Action (2035) AM Peak Hour

								
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	10	823	73	73	578	36	234	20
v/c Ratio	0.02	0.84	0.09	0.26	0.53	0.04	0.70	0.07
Control Delay	6.2	26.6	3.3	8.1	11.9	0.6	28.3	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.2	26.6	3.3	8.1	11.9	0.6	28.3	20.0
Queue Length 50th (ft)	1	264	0	8	93	0	63	7
Queue Length 95th (ft)	8	#640	20	31	333	3	131	21
Internal Link Dist (ft)		79			214		74	171
Turn Bay Length (ft)	100			135		215		
Base Capacity (vph)	602	981	833	410	1087	925	604	624
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.84	0.09	0.18	0.53	0.04	0.39	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
14: 3rd Ave N & W Nickerson St & Florentia St

2020 SPU MIMP EIS
No-Action (2035) AM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT	SET	NWT
Lane Group Flow (vph)	308	171	153	90	21	1021	707
v/c Ratio	0.98	0.51	0.42	0.32	0.09	0.61	0.76
Control Delay	97.7	52.2	14.4	5.5	0.8	27.5	41.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.5	0.7
Total Delay	97.7	52.2	14.4	5.6	0.8	27.9	42.6
Queue Length 50th (ft)	261	135	16	0	0	340	334
Queue Length 95th (ft)	#450	215	84	19	0	413	m372
Internal Link Dist (ft)	413	299		354	158	814	375
Turn Bay Length (ft)							
Base Capacity (vph)	314	334	362	317	246	1681	935
Starvation Cap Reductn	0	0	0	0	0	0	59
Spillback Cap Reductn	0	0	0	9	0	259	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.51	0.42	0.29	0.09	0.72	0.81

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

16: Dexter Ave N/4th Ave N & W Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

No-Action (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	630	709	250	260	229	130	922	412
v/c Ratio	1.16	0.87	0.31	0.18	0.77	0.22	1.17	1.07
Control Delay	126.5	40.5	41.6	2.1	67.5	42.6	133.1	108.0
Queue Delay	0.0	48.7	0.0	0.0	0.9	0.0	0.0	2.0
Total Delay	126.5	89.3	41.6	2.1	68.3	42.6	133.1	110.1
Queue Length 50th (ft)	~316	588	91	0	188	47	~475	~355
Queue Length 95th (ft)	m#500	m#806	131	23	262	72	#606	#563
Internal Link Dist (ft)		375	150			693		176
Turn Bay Length (ft)				200				
Base Capacity (vph)	542	813	817	1419	388	769	789	385
Starvation Cap Reductn	0	178	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	37	0	0	2
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.16	1.12	0.31	0.18	0.65	0.17	1.17	1.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.







Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

2031 No Action PM





Intersection												
Int Delay, s/veh	4.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	660	15	20	925	5	30	5	20	5	5	15
Future Vol, veh/h	5	660	15	20	925	5	30	5	20	5	5	15
Conflicting Peds, #/hr	16	0	21	12	0	7	21	0	12	7	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	4	4	2	2	2	0	0	0	4	4	4
Mvmt Flow	5	695	16	21	974	5	32	5	21	5	5	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	995	0	0	732	0	0	1784	1771	736	1773	1777	1014
Stage 1	-	-	-	-	-	-	734	734	-	1035	1035	-
Stage 2	-	-	-	-	-	-	1050	1037	-	738	742	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.1	6.5	6.2	7.14	6.54	6.24
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.14	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.14	5.54	-
Follow-up Hdwy	2.236	-	-	2.218	-	-	3.5	4	3.3	3.536	4.036	3.336
Pot Cap-1 Maneuver	687	-	-	873	-	-	64	84	422	64	82	287
Stage 1	-	-	-	-	-	-	415	429	-	278	307	-
Stage 2	-	-	-	-	-	-	277	311	-	407	419	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	677	-	-	856	-	-	54	79	409	55	77	277
Mov Cap-2 Maneuver	-	-	-	-	-	-	54	79	-	55	77	-
Stage 1	-	-	-	-	-	-	404	417	-	272	295	-
Stage 2	-	-	-	-	-	-	245	299	-	374	408	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.2			118.1			43.6		
HCM LOS							F			E		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	82	677	-	-	856	-	-	119
HCM Lane V/C Ratio	0.706	0.008	-	-	0.025	-	-	0.221
HCM Control Delay (s)	118.1	10.4	-	-	9.3	-	-	43.6
HCM Lane LOS	F	B	-	-	A	-	-	E
HCM 95th %tile Q(veh)	3.4	0	-	-	0.1	-	-	0.8

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	20	5	10	15	15	5	45	5	5	35	10
Future Vol, veh/h	10	20	5	10	15	15	5	45	5	5	35	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	3	3	3
Mvmt Flow	11	22	6	11	17	17	6	50	6	6	39	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.4	7.2	7.4	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	9%	29%	25%	10%
Vol Thru, %	82%	57%	38%	70%
Vol Right, %	9%	14%	38%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	55	35	40	50
LT Vol	5	10	10	5
Through Vol	45	20	15	35
RT Vol	5	5	15	10
Lane Flow Rate	61	39	44	56
Geometry Grp	1	1	1	1
Degree of Util (X)	0.069	0.044	0.049	0.062
Departure Headway (Hd)	4.052	4.107	3.955	4.044
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	879	864	896	881
Service Time	2.099	2.169	2.018	2.092
HCM Lane V/C Ratio	0.069	0.045	0.049	0.064
HCM Control Delay	7.4	7.4	7.2	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.1	0.2	0.2




Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	200	5	15	160	5	5	25	40	10	20	20
Future Vol, veh/h	30	200	5	15	160	5	5	25	40	10	20	20
Conflicting Peds, #/hr	13	0	49	60	0	24	49	0	60	24	0	13
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	0	0	0	0	0	0	2	2	2
Mvmt Flow	31	206	5	15	165	5	5	26	41	10	21	21
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	194	0	0	271	0	0	599	555	329	586	555	241
Stage 1	-	-	-	-	-	-	331	331	-	222	222	-
Stage 2	-	-	-	-	-	-	268	224	-	364	333	-
Critical Hdwy	4.11	-	-	4.1	-	-	7.1	6.5	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Follow-up Hdwy	2.209	-	-	2.2	-	-	3.5	4	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1385	-	-	1304	-	-	416	443	717	422	440	798
Stage 1	-	-	-	-	-	-	687	649	-	780	720	-
Stage 2	-	-	-	-	-	-	742	722	-	655	644	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1353	-	-	1229	-	-	339	392	637	335	390	743
Mov Cap-2 Maneuver	-	-	-	-	-	-	339	392	-	335	390	-
Stage 1	-	-	-	-	-	-	631	596	-	743	694	-
Stage 2	-	-	-	-	-	-	659	696	-	538	591	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.7			13.5			13.7		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	495	1353	-	-	1229	-	-	463				
HCM Lane V/C Ratio	0.146	0.023	-	-	0.013	-	-	0.111				
HCM Control Delay (s)	13.5	7.7	0	-	8	0	-	13.7				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-	-	0.4				

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	35	10	5	50	20	5	5	0	10	5	5
Future Vol, veh/h	10	35	10	5	50	20	5	5	0	10	5	5
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	11	40	11	6	57	23	6	6	0	11	6	6
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0






















Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.3	7.3	7.4	7.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	18%	7%	50%
Vol Thru, %	50%	64%	67%	25%
Vol Right, %	0%	18%	27%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	55	75	20
LT Vol	5	10	5	10
Through Vol	5	35	50	5
RT Vol	0	10	20	5
Lane Flow Rate	11	62	85	23
Geometry Grp	1	1	1	1
Degree of Util (X)	0.013	0.069	0.091	0.026
Departure Headway (Hd)	4.274	3.95	3.859	4.115
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	831	905	927	863
Service Time	2.333	1.981	1.888	2.171
HCM Lane V/C Ratio	0.013	0.069	0.092	0.027
HCM Control Delay	7.4	7.3	7.3	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0.2	0.3	0.1




Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	245	175	40	30	5
Future Vol, veh/h	5	245	175	40	30	5
Conflicting Peds, #/hr	6	0	0	235	235	6
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	95	95	95	95	95	95
Heavy Vehicles, %	1	1	0	0	0	0
Mvmt Flow	5	258	184	42	32	5
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	461	0	-	0	943	446
Stage 1	-	-	-	-	440	-
Stage 2	-	-	-	-	503	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1105	-	-	-	294	617
Stage 1	-	-	-	-	653	-
Stage 2	-	-	-	-	612	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	858	-	-	-	176	476
Mov Cap-2 Maneuver	-	-	-	-	176	-
Stage 1	-	-	-	-	503	-
Stage 2	-	-	-	-	475	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		28		
HCM LOS				D		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	858	-	-	-	193	
HCM Lane V/C Ratio	0.006	-	-	-	0.191	
HCM Control Delay (s)	9.2	0	-	-	28	
HCM Lane LOS	A	A	-	-	D	
HCM 95th %tile Q(veh)	0	-	-	-	0.7	

HCM 6th Signalized Intersection Summary
6: 3rd Ave W & Nickerson St




2020 SPU MIMP EIS
No-Action (2035) PM Peak Hour







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	575	110	195	840	50	155	40	15	35	30	20
Future Volume (veh/h)	30	575	110	195	840	50	155	40	15	35	30	20
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	0.86		0.83	0.89		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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1811	1811	1811	1900	1900	1900
Adj Flow Rate, veh/h	32	618	118	210	903	54	167	43	16	38	32	22
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	6	6	6	0	0	0
Cap, veh/h	165	806	643	368	911	716	352	84	27	229	185	108
Arrive On Green	0.03	0.43	0.43	0.09	0.48	0.48	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1795	1885	1504	1795	1885	1481	897	286	90	536	627	366
Grp Volume(v), veh/h	32	618	118	210	903	54	226	0	0	92	0	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1504	1795	1885	1481	1273	0	0	1528	0	0
Q Serve(g_s), s	0.7	19.9	3.5	4.4	33.9	1.4	7.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.7	19.9	3.5	4.4	33.9	1.4	10.3	0.0	0.0	2.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.74		0.07	0.41		0.24
Lane Grp Cap(c), veh/h	165	806	643	368	911	716	463	0	0	522	0	0
V/C Ratio(X)	0.19	0.77	0.18	0.57	0.99	0.08	0.49	0.00	0.00	0.18	0.00	0.00
Avail Cap(c_a), veh/h	370	806	643	473	911	716	540	0	0	611	0	0
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.1	17.4	12.7	13.2	18.3	9.9	21.1	0.0	0.0	18.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	6.9	0.6	0.5	27.8	0.2	0.3	0.0	0.0	0.1	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	0.3	9.5	1.2	1.6	20.2	0.5	3.1	0.0	0.0	1.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.3	24.3	13.3	13.7	46.1	10.1	21.4	0.0	0.0	18.8	0.0	0.0
LnGrp LOS	B	C	B	B	D	B	C	A	A	B	A	A
Approach Vol, veh/h		768			1167			226			92	
Approach Delay, s/veh		22.3			38.6			21.4			18.8	
Approach LOS		C			D			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	35.0		25.5	6.8	39.0		25.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	10.5	30.5		25.5	10.5	30.5		25.5				
Max Q Clear Time (g_c+I1), s	6.4	21.9		4.8	2.7	35.9		12.3				
Green Ext Time (p_c), s	0.0	0.7		0.3	0.0	0.0		0.8				
Intersection Summary												
HCM 6th Ctrl Delay				30.5								
HCM 6th LOS				C								

Intersection												
Int Delay, s/veh	27.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	15	170	95	0	0	0	90	195	65	5	195	135
Future Vol, veh/h	15	170	95	0	0	0	90	195	65	5	195	135
Conflicting Peds, #/hr	87	0	181	149	0	55	181	0	149	55	0	87
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	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	0	0	0
Mvmt Flow	16	177	99	0	0	0	94	203	68	5	203	141
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	977	1073	636				525	0	0	420	0	0
Stage 1	465	465	-				-	-	-	-	-	-
Stage 2	512	608	-				-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2				4.13	-	-	4.1	-	-
Critical Hdwy Stg 1	5.4	5.5	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-				-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3				2.227	-	-	2.2	-	-
Pot Cap-1 Maneuver	281	222	481				1037	-	-	1150	-	-
Stage 1	636	566	-				-	-	-	-	-	-
Stage 2	606	489	-				-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	167	0	329				858	-	-	1150	-	-
Mov Cap-2 Maneuver	167	0	-				-	-	-	-	-	-
Stage 1	458	0	-				-	-	-	-	-	-
Stage 2	499	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	92.6						2.5			0.1		
HCM LOS	F											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR					
Capacity (veh/h)	858	-	-	291	1150	-	-					
HCM Lane V/C Ratio	0.109	-	-	1.002	0.005	-	-					
HCM Control Delay (s)	9.7	0	-	92.6	8.1	0	-					
HCM Lane LOS	A	A	-	F	A	A	-					
HCM 95th %tile Q(veh)	0.4	-	-	10.5	0	-	-					

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	35	330	40	35	260
Future Vol, veh/h	10	35	330	40	35	260
Conflicting Peds, #/hr	126	40	0	126	40	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	93	93	93	93	93	93
Heavy Vehicles, %	8	8	4	4	0	0
Mvmt Flow	11	38	355	43	38	280
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	985	543	0	0	524	0
Stage 1	503	-	-	-	-	-
Stage 2	482	-	-	-	-	-
Critical Hdwy	6.48	6.28	-	-	4.1	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.2	-
Pot Cap-1 Maneuver	268	528	-	-	1053	-
Stage 1	595	-	-	-	-	-
Stage 2	609	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	197	447	-	-	927	-
Mov Cap-2 Maneuver	197	-	-	-	-	-
Stage 1	524	-	-	-	-	-
Stage 2	510	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	17	0		1.1		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	349	927	-	
HCM Lane V/C Ratio	-	-	0.139	0.041	-	
HCM Control Delay (s)	-	-	17	9	0	
HCM Lane LOS	-	-	C	A	A	
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-	

Intersection												
Int Delay, s/veh	4.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	80	5	85	10	285	90	30	235	10
Future Vol, veh/h	0	0	0	80	5	85	10	285	90	30	235	10
Conflicting Peds, #/hr	71	0	37	14	0	48	37	0	14	48	0	71
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	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	4	4	4	2	2	2
Mvmt Flow	0	0	0	82	5	87	10	291	92	31	240	10
Major/Minor												
	Minor1			Major1			Major2					
Conflicting Flow All				726	788	433	321	0	0	431	0	0
Stage 1				405	405	-	-	-	-	-	-	-
Stage 2				321	383	-	-	-	-	-	-	-
Critical Hdwy				6.4	6.5	6.2	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1				5.4	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.4	5.5	-	-	-	-	-	-	-
Follow-up Hdwy				3.5	4	3.3	2.236	-	-	2.218	-	-
Pot Cap-1 Maneuver				394	326	627	1228	-	-	1129	-	-
Stage 1				678	602	-	-	-	-	-	-	-
Stage 2				740	616	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver				355	0	571	1228	-	-	1077	-	-
Mov Cap-2 Maneuver				355	0	-	-	-	-	-	-	-
Stage 1				640	0	-	-	-	-	-	-	-
Stage 2				706	0	-	-	-	-	-	-	-
Approach												
	WB			NB			SB					
HCM Control Delay, s				18.4			0.2			0.9		
HCM LOS				C								
Minor Lane/Major Mvmt												
	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1228	-	-	441	1077	-	-					
HCM Lane V/C Ratio	0.008	-	-	0.393	0.028	-	-					
HCM Control Delay (s)	8	0	-	18.4	8.4	0	-					
HCM Lane LOS	A	A	-	C	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	1.8	0.1	-	-					

Intersection						
Int Delay, s/veh	2.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	70	35	25	310	255	60
Future Vol, veh/h	70	35	25	310	255	60
Conflicting Peds, #/hr	20	20	20	0	0	20
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	94	94	94	94	94	94
Heavy Vehicles, %	0	0	5	5	2	2
Mvmt Flow	74	37	27	330	271	64
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	727	343	355	0	-	0
Stage 1	323	-	-	-	-	-
Stage 2	404	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.15	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.245	-	-	-
Pot Cap-1 Maneuver	394	704	1187	-	-	-
Stage 1	738	-	-	-	-	-
Stage 2	679	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	368	677	1164	-	-	-
Mov Cap-2 Maneuver	368	-	-	-	-	-
Stage 1	704	-	-	-	-	-
Stage 2	666	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	16.1	0.6		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1164	-	434	-	-	
HCM Lane V/C Ratio	0.023	-	0.257	-	-	
HCM Control Delay (s)	8.2	0	16.1	-	-	
HCM Lane LOS	A	A	C	-	-	
HCM 95th %tile Q(veh)	0.1	-	1	-	-	

Intersection												
Int Delay, s/veh	17											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	815	30	10	1040	15	35	0	5	10	5	40
Future Vol, veh/h	30	815	30	10	1040	15	35	0	5	10	5	40
Conflicting Peds, #/hr	17	0	29	36	0	24	29	0	36	24	0	17
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	1	1	1	8	8	8	0	0	0
Mvmt Flow	32	867	32	11	1106	16	37	0	5	11	5	43




Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1146	0	0	935	0	0	2172	2151	955	2146	2159	1167
Stage 1	-	-	-	-	-	-	983	983	-	1160	1160	-
Stage 2	-	-	-	-	-	-	1189	1168	-	986	999	-
Critical Hdwy	4.12	-	-	4.11	-	-	7.18	6.58	6.28	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.18	5.58	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.18	5.58	-	6.1	5.5	-
Follow-up Hdwy	2.218	-	-	2.209	-	-	3.572	4.072	3.372	3.5	4	3.3
Pot Cap-1 Maneuver	610	-	-	736	-	-	~ 32	46	305	36	48	238
Stage 1	-	-	-	-	-	-	292	319	-	240	272	-
Stage 2	-	-	-	-	-	-	223	261	-	301	324	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	596	-	-	711	-	-	~ 21	40	284	32	42	226
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 21	40	-	32	42	-
Stage 1	-	-	-	-	-	-	267	292	-	222	262	-
Stage 2	-	-	-	-	-	-	170	251	-	270	296	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.1	\$ 716.2	100.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	24	596	-	-	711	-	-	90
HCM Lane V/C Ratio	1.773	0.054	-	-	0.015	-	-	0.65
HCM Control Delay (s)	\$ 716.2	11.4	-	-	10.1	-	-	100.1
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	5.3	0.2	-	-	0	-	-	3.1

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

















Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑		↓	↑		↓
Traffic Vol, veh/h	820	0	0	1065	0	55
Future Vol, veh/h	820	0	0	1065	0	55
Conflicting Peds, #/hr	0	48	90	0	48	90
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	1	1	8	8
Mvmt Flow	872	0	0	1133	0	59
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	-	962	0	-	1052
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.11	-	-	6.28
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.209	-	-	3.372
Pot Cap-1 Maneuver	-	0	719	-	0	268
Stage 1	-	0	-	-	0	-
Stage 2	-	0	-	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	657	-	-	224
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0		26.7		
HCM LOS	D					
Minor Lane/Major Mvmt	NBLn1	EBT	WBL	WBT		
Capacity (veh/h)	224	-	657	-		
HCM Lane V/C Ratio	0.261	-	-	-		
HCM Control Delay (s)	26.7	-	0	-		
HCM Lane LOS	D	-	A	-		
HCM 95th %tile Q(veh)	1	-	0	-		

Intersection													
Int Delay, s/veh	5.4												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Vol, veh/h	15	40	30	0	0	0	30	30	15	0	30	15	
Future Vol, veh/h	15	40	30	0	0	0	30	30	15	0	30	15	
Conflicting Peds, #/hr	43	0	51	46	0	38	51	0	46	38	0	43	
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	93	93	93	93	93	93	93	93	93	93	93	93	
Heavy Vehicles, %	5	5	5	0	0	0	0	0	0	11	11	11	
Mvmt Flow	16	43	32	0	0	0	32	32	16	0	32	16	
Major/Minor	Minor2						Major1		Major2				
Conflicting Flow All	238	249	142				99	0	0	94	0	0	
Stage 1	91	91	-				-	-	-	-	-	-	
Stage 2	147	158	-				-	-	-	-	-	-	
Critical Hdwy	6.45	6.55	6.25				4.1	-	-	4.21	-	-	
Critical Hdwy Stg 1	5.45	5.55	-				-	-	-	-	-	-	
Critical Hdwy Stg 2	5.45	5.55	-				-	-	-	-	-	-	
Follow-up Hdwy	3.545	4.045	3.345				2.2	-	-	2.299	-	-	
Pot Cap-1 Maneuver	744	649	898				1507	-	-	1445	-	-	
Stage 1	925	814	-				-	-	-	-	-	-	
Stage 2	873	761	-				-	-	-	-	-	-	
Platoon blocked, %							-	-					-
Mov Cap-1 Maneuver	658	0	813				1434	-	-	1445	-	-	
Mov Cap-2 Maneuver	658	0	-				-	-	-	-	-	-	
Stage 1	859	0	-				-	-	-	-	-	-	
Stage 2	830	0	-				-	-	-	-	-	-	
Approach	EB						NB		SB				
HCM Control Delay, s	10.4						3		0				
HCM LOS	B												
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR						
Capacity (veh/h)	1434	-	-	754	1445	-	-						
HCM Lane V/C Ratio	0.022	-	-	0.121	-	-	-						
HCM Control Delay (s)	7.6	0	-	10.4	0	-	-						
HCM Lane LOS	A	A	-	B	A	-	-						
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0	-	-						

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
No-Action (2035) PM Peak Hour

												
Movement	EBL2	EBT	EBR	WBL2	WBL	WBT	WBR	WBR2	NBL	NBT	NBR2	SBL
Lane Configurations												
Traffic Volume (vph)	5	0	170	5	5	205	390	5	20	5	65	40
Future Volume (vph)	5	0	170	5	5	205	390	5	20	5	65	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5				6.5	6.5			9.5		
Lane Util. Factor		1.00				0.95	0.95			1.00		
Frpb, ped/bikes		0.94				0.97	0.64			0.94		
Flpb, ped/bikes		1.00				1.00	1.00			0.98		
Frt		0.87				0.95	0.85			0.90		
Flt Protected		1.00				1.00	1.00			0.99		
Satd. Flow (prot)		1546				1632	967			1568		
Flt Permitted		0.81				0.99	1.00			0.91		
Satd. Flow (perm)		1260				1616	967			1441		
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)	5	0	185	5	5	223	424	5	22	5	71	43
RTOR Reduction (vph)	0	0	0	0	0	0	95	0	0	85	0	0
Lane Group Flow (vph)	0	190	0	0	0	347	220	0	0	13	0	0
Confl. Peds. (#/hr)	44		37	37	44		44	67	44		37	37
Confl. Bikes (#/hr)			1				37	37				
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	0%	0%	0%	2%
Turn Type	Perm	NA		Perm	Perm	NA	Perm		Perm	NA		Perm
Protected Phases		3				3				4		
Permitted Phases	3			3	3		3		4			4
Actuated Green, G (s)		30.5				30.5	30.5			22.0		
Effective Green, g (s)		30.5				30.5	30.5			19.0		
Actuated g/C Ratio		0.22				0.22	0.22			0.14		
Clearance Time (s)		6.5				6.5	6.5			6.5		
Vehicle Extension (s)		2.0				2.0	2.0			2.0		
Lane Grp Cap (vph)		274				352	210			195		
v/s Ratio Prot												
v/s Ratio Perm		0.15				0.21	0.23			0.01		
v/c Ratio		0.69				0.99	1.05			0.07		
Uniform Delay, d1		50.4				54.5	54.8			52.8		
Progression Factor		1.00				1.00	1.00			1.00		
Incremental Delay, d2		6.0				43.7	75.7			0.1		
Delay (s)		56.5				98.2	130.4			52.8		
Level of Service		E				F	F			D		
Approach Delay (s)		56.5				113.5				52.8		
Approach LOS		E				F				D		
Intersection Summary												
HCM 2000 Control Delay		57.6				HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio		0.89										
Actuated Cycle Length (s)		140.0				Sum of lost time (s)				31.0		
Intersection Capacity Utilization		119.6%				ICU Level of Service				H		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
No-Action (2035) PM Peak Hour

	↓	↙	↘	↗	↖	↘	↙	↗	↖	↗
Movement	SBT	SBR	SBR2	SEL	SET	SER	SER2	NWL2	NWL	NWT
Lane Configurations	↕				↕					↕
Traffic Volume (vph)	5	5	5	5	900	5	5	15	70	725
Future Volume (vph)	5	5	5	5	900	5	5	15	70	725
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.5				9.0					9.0
Lane Util. Factor	1.00				0.95					0.95
Frpb, ped/bikes	0.97				1.00					1.00
Flpb, ped/bikes	0.96				1.00					1.00
Frt	0.98				1.00					1.00
Flt Protected	0.96				1.00					0.99
Satd. Flow (prot)	1626				3521					3556
Flt Permitted	0.74				0.95					0.59
Satd. Flow (perm)	1255				3347					2092
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	5	5	5	978	5	5	16	76	788
RTOR Reduction (vph)	3	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	55	0	0	0	993	0	0	0	0	880
Confl. Peds. (#/hr)		31	44	107		44	31	44	31	
Confl. Bikes (#/hr)		11	11			2	2			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	NA			Perm	NA			custom	custom	NA
Protected Phases	4				2					6
Permitted Phases				2				1 6	1 6	
Actuated Green, G (s)	22.0				68.5					68.5
Effective Green, g (s)	19.0				65.5					65.5
Actuated g/C Ratio	0.14				0.47					0.47
Clearance Time (s)	6.5				6.0					6.0
Vehicle Extension (s)	2.0				3.0					2.0
Lane Grp Cap (vph)	170				1565					978
v/s Ratio Prot										
v/s Ratio Perm	c0.04				0.30					c0.42
v/c Ratio	0.33				0.63					0.90
Uniform Delay, d1	54.7				28.2					34.2
Progression Factor	1.00				1.00					1.08
Incremental Delay, d2	0.4				2.0					10.7
Delay (s)	55.1				30.2					47.6
Level of Service	E				C					D
Approach Delay (s)	55.1				30.2					47.6
Approach LOS	E				C					D
Intersection Summary										

Intersection

Int Delay, s/veh 0

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	5	0	1860	520	605
Future Vol, veh/h	0	5	0	1860	520	605
Conflicting Peds, #/hr	75	74	74	0	0	75
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	97	97	97	97	97	97
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	0	5	0	1918	536	624

Major/Minor Minor2 Major1 Major2

Conflicting Flow All	-	729	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	370	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	319	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach EB NB SB

HCM Control Delay, s	16.5	0	0
HCM LOS	C		





















Minor Lane/Major Mvmt NBT EBLn1 SBT SBR

Capacity (veh/h)	-	319	-	-
HCM Lane V/C Ratio	-	0.016	-	-
HCM Control Delay (s)	-	16.5	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	0	-	-

HCM Signalized Intersection Capacity Analysis









16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS
No-Action (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	785	250	145	0	495	760	210	315	5	305	110	110
Future Volume (vph)	785	250	145	0	495	760	210	315	5	305	110	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.98			1.00	0.68	1.00	1.00		1.00	0.96	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.94			1.00	0.85	1.00	1.00		1.00	0.93	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3467	1744			3539	1903	1770	3519		3367	1616	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3467	1744			3539	1903	1770	3519		3367	1616	
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)	818	260	151	0	516	792	219	328	5	318	115	115
RTOR Reduction (vph)	0	16	0	0	0	42	0	1	0	0	26	0
Lane Group Flow (vph)	818	395	0	0	516	750	219	332	0	318	204	0
Confl. Peds. (#/hr)	17		29	29		17	17		48	48		17
Confl. Bikes (#/hr)			2			371			156			53
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	27.1	65.1			31.5	67.5	26.9	26.9		30.5	30.5	
Effective Green, g (s)	27.1	58.6			31.5	67.5	26.9	26.9		30.5	30.5	
Actuated g/C Ratio	0.19	0.42			0.22	0.48	0.19	0.19		0.22	0.22	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	671	729			796	917	340	676		733	352	
v/s Ratio Prot	c0.24	0.23			0.15		c0.12	0.09		0.09	0.13	
v/s Ratio Perm						c0.39						
v/c Ratio	1.22	0.54			0.65	0.82	0.64	0.49		0.43	0.58	
Uniform Delay, d1	56.5	30.6			49.2	31.0	52.1	50.4		47.3	49.0	
Progression Factor	0.98	1.92			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	109.2	0.7			4.1	8.0	3.1	0.2		1.9	6.8	
Delay (s)	164.3	59.6			53.3	39.0	55.3	50.7		49.2	55.8	
Level of Service	F	E			D	D	E	D		D	E	
Approach Delay (s)		129.3			44.6			52.5			52.0	
Approach LOS		F			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			75.5				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			104.9%				ICU Level of Service			G		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
No-Action (2035) PM Peak Hour

								
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	32	618	118	210	903	54	226	92
v/c Ratio	0.15	0.81	0.19	0.64	0.92	0.07	0.60	0.20
Control Delay	9.6	31.2	4.2	18.2	35.9	1.7	30.0	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.6	31.2	4.2	18.2	35.9	1.7	30.0	17.0
Queue Length 50th (ft)	6	245	0	43	315	0	86	24
Queue Length 95th (ft)	18	#469	31	90	#729	11	166	59
Internal Link Dist (ft)		79			214		74	171
Turn Bay Length (ft)	100			135		215		
Base Capacity (vph)	340	761	634	379	978	801	406	502
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.81	0.19	0.55	0.92	0.07	0.56	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
No-Action (2035) PM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT	SET	NWT
Lane Group Flow (vph)	190	347	315	98	58	993	880
v/c Ratio	0.69	0.99	1.03	0.33	0.34	0.64	0.90
Control Delay	65.0	98.7	92.9	7.7	58.0	30.5	48.1
Queue Delay	1.8	0.0	0.0	0.0	0.0	0.0	27.5
Total Delay	66.8	98.7	92.9	7.7	58.0	30.5	75.7
Queue Length 50th (ft)	161	334	~226	0	46	353	428
Queue Length 95th (ft)	#253	#548	#432	35	94	427	#525
Internal Link Dist (ft)	413	299		354	158	814	375
Turn Bay Length (ft)							
Base Capacity (vph)	274	352	305	304	177	1563	978
Starvation Cap Reductn	0	0	0	0	0	0	140
Spillback Cap Reductn	21	0	0	3	0	23	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.99	1.03	0.33	0.33	0.64	1.05

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

No-Action (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	818	411	516	792	219	333	318	230
v/c Ratio	1.22	0.50	0.65	0.83	0.64	0.49	0.43	0.61
Control Delay	155.2	51.0	53.6	36.5	60.6	52.1	49.5	49.8
Queue Delay	0.0	4.4	0.8	0.0	0.0	0.0	0.0	70.1
Total Delay	155.2	55.5	54.4	36.5	60.6	52.1	49.5	120.0
Queue Length 50th (ft)	~520	346	226	315	181	139	130	164
Queue Length 95th (ft)	#654	442	290	426	268	188	177	257
Internal Link Dist (ft)		375	150			693		176
Turn Bay Length (ft)				200				
Base Capacity (vph)	670	825	796	959	385	767	733	377
Starvation Cap Reductn	0	331	0	0	0	0	0	0
Spillback Cap Reductn	0	0	90	0	0	0	0	242
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.22	0.83	0.73	0.83	0.57	0.43	0.43	1.70

Intersection Summary







~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

2035 No Action AM

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	875	55	15	595	10	20	5	45	10	0	10
Future Vol, veh/h	15	875	55	15	595	10	20	5	45	10	0	10
Conflicting Peds, #/hr	6	0	12	14	0	8	12	0	14	8	0	6
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	4	4	4	3	3	3	2	2	2	32	32	32
Mvmt Flow	16	911	57	16	620	10	21	5	47	10	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	638	0	0	982	0	0	1660	1656	968	1677	1679	645
Stage 1	-	-	-	-	-	-	986	986	-	665	665	-
Stage 2	-	-	-	-	-	-	674	670	-	1012	1014	-
Critical Hdwy	4.14	-	-	4.13	-	-	7.12	6.52	6.22	7.42	6.82	6.52
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.42	5.82	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.42	5.82	-
Follow-up Hdwy	2.236	-	-	2.227	-	-	3.518	4.018	3.318	3.788	4.288	3.588
Pot Cap-1 Maneuver	936	-	-	699	-	-	78	98	308	64	81	423
Stage 1	-	-	-	-	-	-	298	326	-	404	415	-
Stage 2	-	-	-	-	-	-	444	455	-	254	281	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	929	-	-	690	-	-	72	92	300	49	76	415
Mov Cap-2 Maneuver	-	-	-	-	-	-	72	92	-	49	76	-
Stage 1	-	-	-	-	-	-	289	316	-	394	402	-
Stage 2	-	-	-	-	-	-	418	441	-	204	273	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.3			52.6			58.2		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	145	929	-	-	690	-	-	88
HCM Lane V/C Ratio	0.503	0.017	-	-	0.023	-	-	0.237
HCM Control Delay (s)	52.6	8.9	-	-	10.3	-	-	58.2
HCM Lane LOS	F	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	2.4	0.1	-	-	0.1	-	-	0.8

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	5	5	5	5	5	5	10	0	5	30	10
Future Vol, veh/h	30	5	5	5	5	5	5	10	0	5	30	10
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	0	0	0	9	9	9	0	0	0	0	0	0
Mvmt Flow	38	6	6	6	6	6	6	13	0	6	38	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.4	7.2	7.3	7.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	33%	75%	33%	11%
Vol Thru, %	67%	12%	33%	67%
Vol Right, %	0%	12%	33%	22%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	15	40	15	45
LT Vol	5	30	5	5
Through Vol	10	5	5	30
RT Vol	0	5	5	10
Lane Flow Rate	19	51	19	57
Geometry Grp	1	1	1	1
Degree of Util (X)	0.022	0.058	0.022	0.062
Departure Headway (Hd)	4.132	4.122	4.091	3.924
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	862	866	871	909
Service Time	2.177	2.158	2.134	1.964
HCM Lane V/C Ratio	0.022	0.059	0.022	0.063
HCM Control Delay	7.3	7.4	7.2	7.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.1	0.2

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	255	0	10	90	5	5	5	5	10	10	25
Future Vol, veh/h	5	255	0	10	90	5	5	5	5	10	10	25
Conflicting Peds, #/hr	2	0	8	13	0	8	8	0	13	8	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	2	2	2	0	0	0	5	5	5
Mvmt Flow	7	340	0	13	120	7	7	7	7	13	13	33
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	135	0	0	353	0	0	548	528	366	532	525	140
Stage 1	-	-	-	-	-	-	367	367	-	158	158	-
Stage 2	-	-	-	-	-	-	181	161	-	374	367	-
Critical Hdwy	4.13	-	-	4.12	-	-	7.1	6.5	6.2	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Follow-up Hdwy	2.227	-	-	2.218	-	-	3.5	4	3.3	3.545	4.045	3.345
Pot Cap-1 Maneuver	1443	-	-	1206	-	-	450	459	684	454	453	900
Stage 1	-	-	-	-	-	-	657	626	-	837	761	-
Stage 2	-	-	-	-	-	-	825	769	-	641	617	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1432	-	-	1191	-	-	409	442	667	429	436	886
Mov Cap-2 Maneuver	-	-	-	-	-	-	409	442	-	429	436	-
Stage 1	-	-	-	-	-	-	645	615	-	825	746	-
Stage 2	-	-	-	-	-	-	765	754	-	616	606	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.8			12.8			11.6		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	483	1432	-	-	1191	-	-	604				
HCM Lane V/C Ratio	0.041	0.005	-	-	0.011	-	-	0.099				
HCM Control Delay (s)	12.8	7.5	0	-	8.1	0	-	11.6				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.3				




Intersection

Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	25	5	5	10	5	0	5	0	10	5	0
Future Vol, veh/h	5	25	5	5	10	5	0	5	0	10	5	0
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	33	33	33
Mvmt Flow	7	37	7	7	15	7	0	7	0	15	7	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0






















Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	7.1	7.1	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	14%	25%	67%
Vol Thru, %	100%	71%	50%	33%
Vol Right, %	0%	14%	25%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	5	35	20	15
LT Vol	0	5	5	10
Through Vol	5	25	10	5
RT Vol	0	5	5	0
Lane Flow Rate	7	52	30	22
Geometry Grp	1	1	1	1
Degree of Util (X)	0.008	0.057	0.032	0.03
Departure Headway (Hd)	4.06	3.918	3.892	4.744
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	878	914	918	754
Service Time	2.099	1.944	1.923	2.776
HCM Lane V/C Ratio	0.008	0.057	0.033	0.029
HCM Control Delay	7.1	7.2	7.1	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0.2	0.1	0.1




Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	270	110	15	10	0
Future Vol, veh/h	0	270	110	15	10	0
Conflicting Peds, #/hr	4	0	0	19	19	4
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	79	79	79	79	79	79
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	0	342	139	19	13	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	177	0	-	0	529	172
Stage 1	-	-	-	-	168	-
Stage 2	-	-	-	-	361	-
Critical Hdwy	4.13	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.227	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1393	-	-	-	514	877
Stage 1	-	-	-	-	867	-
Stage 2	-	-	-	-	710	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1368	-	-	-	495	858
Mov Cap-2 Maneuver	-	-	-	-	495	-
Stage 1	-	-	-	-	851	-
Stage 2	-	-	-	-	697	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		12.5		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1368	-	-	-	495	
HCM Lane V/C Ratio	-	-	-	-	0.026	
HCM Control Delay (s)	0	-	-	-	12.5	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

HCM 6th Signalized Intersection Summary
6: 3rd Ave W & W Nickerson St




2020 SPU MIMP EIS
No-Action (2035) AM Peak Hour







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	825	75	75	580	35	120	10	105	10	10	0
Future Volume (veh/h)	10	825	75	75	580	35	120	10	105	10	10	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	0.98		0.96	0.99		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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1811	1811	1811	1796	1796	1796	1707	1707	1707
Adj Flow Rate, veh/h	10	859	78	78	604	36	125	10	109	10	10	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, %	5	5	5	6	6	6	7	7	7	13	13	13
Cap, veh/h	380	904	757	247	982	806	233	33	144	218	185	0
Arrive On Green	0.01	0.50	0.50	0.06	0.54	0.54	0.23	0.23	0.23	0.23	0.23	0.00
Sat Flow, veh/h	1739	1826	1529	1725	1811	1486	640	147	636	578	821	0
Grp Volume(v), veh/h	10	859	78	78	604	36	244	0	0	20	0	0
Grp Sat Flow(s),veh/h/ln	1739	1826	1529	1725	1811	1486	1423	0	0	1399	0	0
Q Serve(g_s), s	0.2	27.6	1.7	1.3	14.1	0.7	8.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.2	27.6	1.7	1.3	14.1	0.7	9.8	0.0	0.0	0.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.51		0.45	0.50		0.00
Lane Grp Cap(c), veh/h	380	904	757	247	982	806	410	0	0	404	0	0
V/C Ratio(X)	0.03	0.95	0.10	0.32	0.62	0.04	0.60	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	654	904	757	438	982	806	673	0	0	662	0	0
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.5	14.8	8.3	13.5	9.7	6.6	22.1	0.0	0.0	18.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	20.0	0.3	0.3	2.9	0.1	0.5	0.0	0.0	0.0	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	0.1	14.7	0.5	0.5	5.5	0.2	3.2	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.5	34.8	8.5	13.7	12.6	6.7	22.7	0.0	0.0	18.7	0.0	0.0
LnGrp LOS	A	C	A	B	B	A	C	A	A	B	A	A
Approach Vol, veh/h		947			718			244			20	
Approach Delay, s/veh		32.4			12.4			22.7			18.7	
Approach LOS		C			B			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	35.0		18.4	5.3	37.9		18.4				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	10.5	30.5		25.5	10.5	30.5		25.5				
Max Q Clear Time (g_c+I1), s	3.3	29.6		2.6	2.2	16.1		11.8				
Green Ext Time (p_c), s	0.0	0.2		0.0	0.0	0.7		0.9				
Intersection Summary												
HCM 6th Ctrl Delay				23.6								
HCM 6th LOS				C								

Intersection												
Int Delay, s/veh	7.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	50	110	40	0	0	0	55	185	15	5	105	50
Future Vol, veh/h	50	110	40	0	0	0	55	185	15	5	105	50
Conflicting Peds, #/hr	32	0	42	22	0	11	42	0	22	11	0	32
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	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	0	0	0	7	7	7	2	2	2
Mvmt Flow	63	138	50	0	0	0	69	231	19	6	131	63
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	628	627	247				236	0	0	272	0	0
Stage 1	217	217	-				-	-	-	-	-	-
Stage 2	411	410	-				-	-	-	-	-	-
Critical Hdwy	6.43	6.53	6.23				4.17	-	-	4.12	-	-
Critical Hdwy Stg 1	5.43	5.53	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.43	5.53	-				-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327				2.263	-	-	2.218	-	-
Pot Cap-1 Maneuver	445	399	789				1302	-	-	1291	-	-
Stage 1	817	721	-				-	-	-	-	-	-
Stage 2	667	594	-				-	-	-	-	-	-
Platoon blocked, %							-	-		-	-	
Mov Cap-1 Maneuver	382	0	727				1250	-	-	1291	-	-
Mov Cap-2 Maneuver	382	0	-				-	-	-	-	-	-
Stage 1	734	0	-				-	-	-	-	-	-
Stage 2	637	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	20.1						1.7			0.2		
HCM LOS	C											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1250	-	-	484	1291	-	-					
HCM Lane V/C Ratio	0.055	-	-	0.517	0.005	-	-					
HCM Control Delay (s)	8	0	-	20.1	7.8	0	-					
HCM Lane LOS	A	A	-	C	A	A	-					
HCM 95th %tile Q(veh)	0.2	-	-	2.9	0	-	-					

Intersection						
Int Delay, s/veh	1.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	25	245	15	5	140
Future Vol, veh/h	30	25	245	15	5	140
Conflicting Peds, #/hr	16	3	0	16	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	84	84	84	84	84	84
Heavy Vehicles, %	30	30	7	7	5	5
Mvmt Flow	36	30	292	18	6	167
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	512	320	0	0	326	0
Stage 1	317	-	-	-	-	-
Stage 2	195	-	-	-	-	-
Critical Hdwy	6.7	6.5	-	-	4.15	-
Critical Hdwy Stg 1	5.7	-	-	-	-	-
Critical Hdwy Stg 2	5.7	-	-	-	-	-
Follow-up Hdwy	3.77	3.57	-	-	2.245	-
Pot Cap-1 Maneuver	476	660	-	-	1217	-
Stage 1	679	-	-	-	-	-
Stage 2	775	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	459	648	-	-	1198	-
Mov Cap-2 Maneuver	459	-	-	-	-	-
Stage 1	669	-	-	-	-	-
Stage 2	759	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	12.8	0	0.3			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	529	1198	-	
HCM Lane V/C Ratio	-	-	0.124	0.005	-	
HCM Control Delay (s)	-	-	12.8	8	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.4	0	-	

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	20	0	40	0	225	20	5	165	0
Future Vol, veh/h	0	0	0	20	0	40	0	225	20	5	165	0
Conflicting Peds, #/hr	17	0	0	0	0	17	0	0	0	17	0	17
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	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	3	3	3	7	7	7	12	12	12
Mvmt Flow	0	0	0	23	0	46	0	259	23	6	190	0
Major/Minor				Minor1		Major1		Major2				
Conflicting Flow All				490	507	305	207	0	0	299	0	0
Stage 1				288	288	-	-	-	-	-	-	-
Stage 2				202	219	-	-	-	-	-	-	-
Critical Hdwy				6.43	6.53	6.23	4.17	-	-	4.22	-	-
Critical Hdwy Stg 1				5.43	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.43	5.53	-	-	-	-	-	-	-
Follow-up Hdwy				3.527	4.027	3.327	2.263	-	-	2.308	-	-
Pot Cap-1 Maneuver				536	467	732	1335	-	-	1207	-	-
Stage 1				759	672	-	-	-	-	-	-	-
Stage 2				830	720	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver				524	0	708	1335	-	-	1187	-	-
Mov Cap-2 Maneuver				524	0	-	-	-	-	-	-	-
Stage 1				747	0	-	-	-	-	-	-	-
Stage 2				825	0	-	-	-	-	-	-	-
Approach				WB		NB		SB				
HCM Control Delay, s				11.4		0		0.2				
HCM LOS				B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1335	-	-	634	1187	-	-					
HCM Lane V/C Ratio	-	-	-	0.109	0.005	-	-					
HCM Control Delay (s)	0	-	-	11.4	8	0	-					
HCM Lane LOS	A	-	-	B	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	0.4	0	-	-					

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	40	10	20	210	150	30
Future Vol, veh/h	40	10	20	210	150	30
Conflicting Peds, #/hr	15	15	15	0	0	15
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, %	0	0	8	8	11	11
Mvmt Flow	44	11	22	231	165	33
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	487	212	213	0	-	0
Stage 1	197	-	-	-	-	-
Stage 2	290	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.18	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.272	-	-	-
Pot Cap-1 Maneuver	543	833	1322	-	-	-
Stage 1	841	-	-	-	-	-
Stage 2	764	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	518	809	1303	-	-	-
Mov Cap-2 Maneuver	518	-	-	-	-	-
Stage 1	813	-	-	-	-	-
Stage 2	753	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	12.2	0.7		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1303	-	558	-	-	
HCM Lane V/C Ratio	0.017	-	0.098	-	-	
HCM Control Delay (s)	7.8	0	12.2	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-	

Intersection												
Int Delay, s/veh	7.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	985	50	10	660	25	30	5	0	5	5	35
Future Vol, veh/h	35	985	50	10	660	25	30	5	0	5	5	35
Conflicting Peds, #/hr	16	0	9	10	0	17	9	0	10	17	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	6	6	6	6	6	6	19	19	19	0	0	0
Mvmt Flow	37	1048	53	11	702	27	32	5	0	5	5	37

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	746	0	0	1111	0	0	1934	1927	1102	1923	1940	749
Stage 1	-	-	-	-	-	-	1159	1159	-	755	755	-
Stage 2	-	-	-	-	-	-	775	768	-	1168	1185	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.29	6.69	6.39	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.29	5.69	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.29	5.69	-	6.1	5.5	-
Follow-up Hdwy	2.254	-	-	2.254	-	-	3.671	4.171	3.471	3.5	4	3.3
Pot Cap-1 Maneuver	844	-	-	614	-	-	45	60	238	51	66	415
Stage 1	-	-	-	-	-	-	221	251	-	404	420	-
Stage 2	-	-	-	-	-	-	366	387	-	238	265	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	830	-	-	608	-	-	35	55	232	44	60	402
Mov Cap-2 Maneuver	-	-	-	-	-	-	35	55	-	44	60	-
Stage 1	-	-	-	-	-	-	209	237	-	380	406	-
Stage 2	-	-	-	-	-	-	317	374	-	219	250	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.2	\$ 313.6	37.4
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	37	830	-	-	608	-	-	158
HCM Lane V/C Ratio	1.006	0.045	-	-	0.017	-	-	0.303
HCM Control Delay (s)	\$ 313.6	9.5	-	-	11	-	-	37.4
HCM Lane LOS	F	A	-	-	B	-	-	E
HCM 95th %tile Q(veh)	3.8	0.1	-	-	0.1	-	-	1.2

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

















Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑		↓	↑		↑
Traffic Vol, veh/h	995	0	0	695	0	30
Future Vol, veh/h	995	0	0	695	0	30
Conflicting Peds, #/hr	0	61	23	0	61	23
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	5	5	6	6	0	0
Mvmt Flow	1026	0	0	716	0	31
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	1049	0	-	1072
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.16	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.254	-	-	3.3
Pot Cap-1 Maneuver	-	0	648	-	0	270
Stage 1	-	0	-	-	0	-
Stage 2	-	0	-	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	634	-	-	258
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		20.8	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	WBL	WBT		
Capacity (veh/h)	258	-	634	-		
HCM Lane V/C Ratio	0.12	-	-	-		
HCM Control Delay (s)	20.8	-	0	-		
HCM Lane LOS	C	-	A	-		
HCM 95th %tile Q(veh)	0.4	-	0	-		

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	0	5	15	0	0	0	25	35	30	0	40	30
Future Vol, veh/h	0	5	15	0	0	0	25	35	30	0	40	30
Conflicting Peds, #/hr	15	0	15	17	0	17	15	0	17	17	0	15
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	11	11	11	32	32	32
Mvmt Flow	0	6	17	0	0	0	28	39	34	0	45	34
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	204	223	92				94	0	0	90	0	0
Stage 1	77	77	-				-	-	-	-	-	-
Stage 2	127	146	-				-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2				4.21	-	-	4.42	-	-
Critical Hdwy Stg 1	5.4	5.5	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-				-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3				2.299	-	-	2.488	-	-
Pot Cap-1 Maneuver	789	679	971				1445	-	-	1336	-	-
Stage 1	951	835	-				-	-	-	-	-	-
Stage 2	904	780	-				-	-	-	-	-	-
Platoon blocked, %							-	-		-	-	
Mov Cap-1 Maneuver	751	0	943				1424	-	-	1336	-	-
Mov Cap-2 Maneuver	751	0	-				-	-	-	-	-	-
Stage 1	918	0	-				-	-	-	-	-	-
Stage 2	891	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	8.9						2.1			0		
HCM LOS	A											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1424	-	-	943	1336	-	-					
HCM Lane V/C Ratio	0.02	-	-	0.024	-	-	-					
HCM Control Delay (s)	7.6	0	-	8.9	0	-	-					
HCM Lane LOS	A	A	-	A	A	-	-					
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0	-	-					

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & W Nickerson St & Florentia St
















2020 SPU MIMP EIS
No-Action (2035) AM Peak Hour

												
Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR2
Lane Configurations												
Traffic Volume (vph)	5	5	0	295	5	115	190	5	5	30	0	50
Future Volume (vph)	5	5	0	295	5	115	190	5	5	30	0	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.5			6.5	6.5				9.5	
Lane Util. Factor			1.00			0.95	0.95				1.00	
Frpb, ped/bikes			0.97			0.98	0.85				0.98	
Flpb, ped/bikes			1.00			1.00	1.00				0.98	
Frt			0.87			0.96	0.85				0.92	
Flt Protected			1.00			1.00	1.00				0.98	
Satd. Flow (prot)			1562			1668	1280				1575	
Flt Permitted			0.99			0.99	1.00				0.86	
Satd. Flow (perm)			1546			1647	1280				1377	
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	5	0	314	5	122	202	5	5	32	0	53
RTOR Reduction (vph)	0	0	0	0	0	0	103	0	0	0	79	0
Lane Group Flow (vph)	0	0	324	0	0	175	57	0	0	0	11	0
Confl. Peds. (#/hr)	24	18		14	16		24	18	9	24		14
Confl. Bikes (#/hr)				1			10	10				
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%
Turn Type	Perm	Perm	NA		Perm	NA	Perm		Perm	Perm	NA	
Protected Phases			3			3					4	
Permitted Phases	3	3			3		3		4	4		
Actuated Green, G (s)			27.5			27.5	27.5				19.0	
Effective Green, g (s)			27.5			27.5	27.5				16.0	
Actuated g/C Ratio			0.21			0.21	0.21				0.12	
Clearance Time (s)			6.5			6.5	6.5				6.5	
Vehicle Extension (s)			2.0			2.0	2.0				2.0	
Lane Grp Cap (vph)			327			348	270				169	
v/s Ratio Prot												
v/s Ratio Perm			c0.21			0.11	0.04				c0.01	
v/c Ratio			0.99			0.50	0.21				0.07	
Uniform Delay, d1			51.1			45.2	42.3				50.4	
Progression Factor			1.00			1.00	1.00				1.00	
Incremental Delay, d2			47.1			0.4	0.1				0.1	
Delay (s)			98.2			45.6	42.4				50.5	
Level of Service			F			D	D				D	
Approach Delay (s)			98.2			44.1					50.5	
Approach LOS			F			D					D	
Intersection Summary												
HCM 2000 Control Delay			44.4			HCM 2000 Level of Service					D	
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				31.0		
Intersection Capacity Utilization			117.4%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & W Nickerson St & Florentia St

2020 SPU MIMP EIS
No-Action (2035) AM Peak Hour


























												
Movement	SBL2	SBL	SBT	SBR2	SET	SER	SER2	NWL2	NWL	NWT	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	10	5	0	5	985	5	5	25	65	590	15	5
Future Volume (vph)	10	5	0	5	985	5	5	25	65	590	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			9.5		9.0					9.0		
Lane Util. Factor			1.00		0.95					0.95		
Frpb, ped/bikes			0.99		1.00					1.00		
Flpb, ped/bikes			0.98		1.00					1.00		
Frt			0.97		1.00					1.00		
Flt Protected			0.96		1.00					0.99		
Satd. Flow (prot)			1146		3496					3361		
Flt Permitted			0.76		1.00					0.56		
Satd. Flow (perm)			909		3496					1879		
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	5	0	5	1048	5	5	27	69	628	16	5
RTOR Reduction (vph)	0	0	18	0	0	0	0	0	0	1	0	0
Lane Group Flow (vph)	0	0	3	0	1058	0	0	0	0	744	0	0
Confl. Peds. (#/hr)		14		24		16	9	16	9		18	
Confl. Bikes (#/hr)				2		2	2				1	1
Heavy Vehicles (%)	50%	50%	50%	50%	3%	3%	3%	6%	6%	6%	6%	6%
Turn Type	Perm	Perm	NA		NA			custom	custom	NA		
Protected Phases			4		2					6		
Permitted Phases	4	4						16	16			
Actuated Green, G (s)			19.0		64.5					64.5		
Effective Green, g (s)			16.0		61.5					61.5		
Actuated g/C Ratio			0.12		0.47					0.47		
Clearance Time (s)			6.5		6.0					6.0		
Vehicle Extension (s)			2.0		3.0					2.0		
Lane Grp Cap (vph)			111		1653					888		
v/s Ratio Prot					0.30							
v/s Ratio Perm			0.00							c0.40		
v/c Ratio			0.02		0.64					0.84		
Uniform Delay, d1			50.1		25.9					29.9		
Progression Factor			1.00		1.00					1.22		
Incremental Delay, d2			0.0		1.9					7.3		
Delay (s)			50.2		27.8					43.9		
Level of Service			D		C					D		
Approach Delay (s)			50.2		27.8					43.9		
Approach LOS			D		C					D		
Intersection Summary												

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	15	0	1010	1315	315
Future Vol, veh/h	0	15	0	1010	1315	315
Conflicting Peds, #/hr	31	30	30	0	0	31
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	89	89	89	89	89	89
Heavy Vehicles, %	50	50	6	6	7	7
Mvmt Flow	0	17	0	1135	1478	354
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	977	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.8	-	-	-	-
Pot Cap-1 Maneuver	0	178	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	168	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	28.8	0		0		
HCM LOS	D					
Minor Lane/Major Mvmt	NBT EBLn1		SBT	SBR		
Capacity (veh/h)	- 168		-	-		
HCM Lane V/C Ratio	- 0.1		-	-		
HCM Control Delay (s)	- 28.8		-	-		
HCM Lane LOS	- D		-	-		
HCM 95th %tile Q(veh)	- 0.3		-	-		

HCM Signalized Intersection Capacity Analysis









16: Dexter Ave N/4th Ave N & W Nickerson St/Westlake Ave N

2020 SPU MIMP EIS
No-Action (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 				 	 		 		 		
Traffic Volume (vph)	630	615	95	0	250	260	230	120	10	920	190	220
Future Volume (vph)	630	615	95	0	250	260	230	120	10	920	190	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.94	1.00	1.00		1.00	0.90	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98			1.00	0.85	1.00	0.99		1.00	0.92	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3400	1792			3374	2496	1656	3264		3367	1512	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3400	1792			3374	2496	1656	3264		3367	1512	
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)	656	641	99	0	260	271	240	125	10	958	198	229
RTOR Reduction (vph)	0	4	0	0	0	128	0	5	0	0	32	0
Lane Group Flow (vph)	656	736	0	0	260	143	240	130	0	958	395	0
Confl. Peds. (#/hr)	19		37	37		19	33		12	12		33
Confl. Bikes (#/hr)			12			33			16			155
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	9%	9%	9%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	19.3	57.3			31.5	68.5	23.7	23.7		31.5	31.5	
Effective Green, g (s)	19.3	50.8			31.5	68.5	23.7	23.7		31.5	31.5	
Actuated g/C Ratio	0.15	0.39			0.24	0.53	0.18	0.18		0.24	0.24	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	504	700			817	1315	301	595		815	366	
v/s Ratio Prot	c0.19	c0.41			0.08		c0.14	0.04		c0.28	0.26	
v/s Ratio Perm						0.06						
v/c Ratio	1.30	1.05			0.32	0.11	0.80	0.22		1.18	1.08	
Uniform Delay, d1	55.4	39.6			40.4	15.4	50.9	45.3		49.2	49.2	
Progression Factor	0.75	0.90			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	145.8	42.8			1.0	0.2	12.8	0.1		91.7	70.0	
Delay (s)	187.3	78.3			41.5	15.6	63.6	45.3		140.9	119.3	
Level of Service	F	E			D	B	E	D		F	F	
Approach Delay (s)		129.5			28.3			57.1			134.3	
Approach LOS		F			C			E			F	
Intersection Summary												
HCM 2000 Control Delay			109.4				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.08									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			102.2%				ICU Level of Service			G		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
6: 3rd Ave W & W Nickerson St

2020 SPU MIMP EIS
No-Action (2035) AM Peak Hour

								
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	10	859	78	78	604	36	244	20
v/c Ratio	0.02	0.92	0.10	0.32	0.55	0.04	0.73	0.07
Control Delay	6.3	35.3	3.6	9.3	12.5	0.5	31.0	20.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.3	35.3	3.6	9.3	12.5	0.5	31.0	20.1
Queue Length 50th (ft)	1	293	0	9	103	0	67	7
Queue Length 95th (ft)	8	#680	22	32	#367	3	139	21
Internal Link Dist (ft)		79			214		74	171
Turn Bay Length (ft)	100			135		215		
Base Capacity (vph)	593	936	798	373	1100	935	583	598
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.92	0.10	0.21	0.55	0.04	0.42	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
14: 3rd Ave N & W Nickerson St & Florentia St

2020 SPU MIMP EIS
No-Action (2035) AM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT	SET	NWT
Lane Group Flow (vph)	324	175	159	90	21	1058	745
v/c Ratio	0.99	0.50	0.43	0.32	0.09	0.64	0.84
Control Delay	98.6	51.0	14.9	5.5	0.8	28.9	45.7
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.7	0.4
Total Delay	98.6	51.0	14.9	5.6	0.8	29.6	46.1
Queue Length 50th (ft)	275	137	21	0	0	363	352
Queue Length 95th (ft)	#470	218	89	19	0	441	m390
Internal Link Dist (ft)	413	299		354	158	814	375
Turn Bay Length (ft)							
Base Capacity (vph)	327	348	373	317	246	1654	890
Starvation Cap Reductn	0	0	0	0	0	0	16
Spillback Cap Reductn	0	0	0	10	0	275	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.50	0.43	0.29	0.09	0.77	0.85

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

16: Dexter Ave N/4th Ave N & W Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

No-Action (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	656	740	260	271	240	135	958	427
v/c Ratio	1.30	0.93	0.32	0.19	0.79	0.23	1.18	1.07
Control Delay	181.7	47.2	41.7	2.0	69.1	42.5	134.9	108.0
Queue Delay	0.0	45.7	0.0	0.0	1.5	0.0	0.0	2.0
Total Delay	181.7	92.9	41.7	2.0	70.6	42.5	134.9	110.0
Queue Length 50th (ft)	~361	619	95	0	197	49	~496	~371
Queue Length 95th (ft)	m#534	m#872	136	23	275	75	#627	#581
Internal Link Dist (ft)		375	150			693		176
Turn Bay Length (ft)				200				
Base Capacity (vph)	504	793	817	1443	388	770	815	398
Starvation Cap Reductn	0	185	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	48	0	0	2
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.30	1.22	0.32	0.19	0.71	0.18	1.18	1.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.







Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

2035 No Action PM





Intersection												
Int Delay, s/veh	7.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	685	15	25	960	5	35	5	25	5	5	15
Future Vol, veh/h	5	685	15	25	960	5	35	5	25	5	5	15
Conflicting Peds, #/hr	16	0	21	12	0	7	21	0	12	7	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	4	4	2	2	2	0	0	0	4	4	4
Mvmt Flow	5	721	16	26	1011	5	37	5	26	5	5	16
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1032	0	0	758	0	0	1857	1844	762	1849	1850	1051
Stage 1	-	-	-	-	-	-	760	760	-	1082	1082	-
Stage 2	-	-	-	-	-	-	1097	1084	-	767	768	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.1	6.5	6.2	7.14	6.54	6.24
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.14	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.14	5.54	-
Follow-up Hdwy	2.236	-	-	2.218	-	-	3.5	4	3.3	3.536	4.036	3.336
Pot Cap-1 Maneuver	666	-	-	853	-	-	57	76	408	56	73	273
Stage 1	-	-	-	-	-	-	401	417	-	261	291	-
Stage 2	-	-	-	-	-	-	261	296	-	392	408	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	656	-	-	836	-	-	47	71	395	47	68	263
Mov Cap-2 Maneuver	-	-	-	-	-	-	47	71	-	47	68	-
Stage 1	-	-	-	-	-	-	390	405	-	255	278	-
Stage 2	-	-	-	-	-	-	229	282	-	354	397	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.2			180			49.8		
HCM LOS							F			E		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	74	656	-	-	836	-	-	106				
HCM Lane V/C Ratio	0.925	0.008	-	-	0.031	-	-	0.248				
HCM Control Delay (s)	180	10.5	-	-	9.4	-	-	49.8				
HCM Lane LOS	F	B	-	-	A	-	-	E				
HCM 95th %tile Q(veh)	4.7	0	-	-	0.1	-	-	0.9				

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	25	5	10	15	15	5	50	5	5	35	10
Future Vol, veh/h	10	25	5	10	15	15	5	50	5	5	35	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	3	3	3
Mvmt Flow	11	28	6	11	17	17	6	56	6	6	39	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.4	7.2	7.4	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	25%	25%	10%
Vol Thru, %	83%	62%	38%	70%
Vol Right, %	8%	12%	38%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	60	40	40	50
LT Vol	5	10	10	5
Through Vol	50	25	15	35
RT Vol	5	5	15	10
Lane Flow Rate	67	44	44	56
Geometry Grp	1	1	1	1
Degree of Util (X)	0.075	0.051	0.049	0.063
Departure Headway (Hd)	4.065	4.12	3.97	4.058
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	875	861	892	877
Service Time	2.116	2.186	2.037	2.111
HCM Lane V/C Ratio	0.077	0.051	0.049	0.064
HCM Control Delay	7.4	7.4	7.2	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.2	0.2	0.2




Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	205	5	15	165	5	5	25	40	10	20	25
Future Vol, veh/h	30	205	5	15	165	5	5	25	40	10	20	25
Conflicting Peds, #/hr	13	0	49	60	0	24	49	0	60	24	0	13
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	0	0	0	0	0	0	2	2	2
Mvmt Flow	31	211	5	15	170	5	5	26	41	10	21	26
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	199	0	0	276	0	0	611	565	334	596	565	246
Stage 1	-	-	-	-	-	-	336	336	-	227	227	-
Stage 2	-	-	-	-	-	-	275	229	-	369	338	-
Critical Hdwy	4.11	-	-	4.1	-	-	7.1	6.5	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Follow-up Hdwy	2.209	-	-	2.2	-	-	3.5	4	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1379	-	-	1299	-	-	409	437	712	415	434	793
Stage 1	-	-	-	-	-	-	682	645	-	776	716	-
Stage 2	-	-	-	-	-	-	736	718	-	651	641	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1347	-	-	1225	-	-	330	387	633	329	384	739
Mov Cap-2 Maneuver	-	-	-	-	-	-	330	387	-	329	384	-
Stage 1	-	-	-	-	-	-	626	592	-	739	690	-
Stage 2	-	-	-	-	-	-	648	691	-	535	588	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.6			13.6			13.6		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	490	1347	-	-	1225	-	-	473				
HCM Lane V/C Ratio	0.147	0.023	-	-	0.013	-	-	0.12				
HCM Control Delay (s)	13.6	7.7	0	-	8	0	-	13.6				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-	-	0.4				

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	35	10	5	50	20	5	5	0	10	5	5
Future Vol, veh/h	10	35	10	5	50	20	5	5	0	10	5	5
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	11	40	11	6	57	23	6	6	0	11	6	6
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0






















Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.3	7.3	7.4	7.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	18%	7%	50%
Vol Thru, %	50%	64%	67%	25%
Vol Right, %	0%	18%	27%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	55	75	20
LT Vol	5	10	5	10
Through Vol	5	35	50	5
RT Vol	0	10	20	5
Lane Flow Rate	11	62	85	23
Geometry Grp	1	1	1	1
Degree of Util (X)	0.013	0.069	0.091	0.026
Departure Headway (Hd)	4.274	3.95	3.859	4.115
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	831	905	927	863
Service Time	2.333	1.981	1.888	2.171
HCM Lane V/C Ratio	0.013	0.069	0.092	0.027
HCM Control Delay	7.4	7.3	7.3	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0.2	0.3	0.1




Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	255	185	40	30	5
Future Vol, veh/h	5	255	185	40	30	5
Conflicting Peds, #/hr	6	0	0	235	235	6
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	95	95	95	95	95	95
Heavy Vehicles, %	1	1	0	0	0	0
Mvmt Flow	5	268	195	42	32	5
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	472	0	-	0	964	457
Stage 1	-	-	-	-	451	-
Stage 2	-	-	-	-	513	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1095	-	-	-	286	608
Stage 1	-	-	-	-	646	-
Stage 2	-	-	-	-	605	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	850	-	-	-	171	469
Mov Cap-2 Maneuver	-	-	-	-	171	-
Stage 1	-	-	-	-	498	-
Stage 2	-	-	-	-	469	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		28.8		
HCM LOS				D		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	850	-	-	-	188	
HCM Lane V/C Ratio	0.006	-	-	-	0.196	
HCM Control Delay (s)	9.3	0	-	-	28.8	
HCM Lane LOS	A	A	-	-	D	
HCM 95th %tile Q(veh)	0	-	-	-	0.7	

HCM 6th Signalized Intersection Summary
6: 3rd Ave W & Nickerson St




2020 SPU MIMP EIS
No-Action (2035) PM Peak Hour







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	595	115	200	875	55	165	40	15	35	30	20
Future Volume (veh/h)	30	595	115	200	875	55	165	40	15	35	30	20
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	0.86		0.83	0.89		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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1811	1811	1811	1900	1900	1900
Adj Flow Rate, veh/h	32	640	124	215	941	59	177	43	16	38	32	22
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	6	6	6	0	0	0
Cap, veh/h	160	803	640	355	911	715	357	81	25	230	186	108
Arrive On Green	0.03	0.43	0.43	0.09	0.48	0.48	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1795	1885	1504	1795	1885	1481	910	273	86	539	629	367
Grp Volume(v), veh/h	32	640	124	215	941	59	236	0	0	92	0	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1504	1795	1885	1481	1269	0	0	1535	0	0
Q Serve(g_s), s	0.7	21.1	3.7	4.5	34.6	1.5	8.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.7	21.1	3.7	4.5	34.6	1.5	11.0	0.0	0.0	2.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.75		0.07	0.41		0.24
Lane Grp Cap(c), veh/h	160	803	640	355	911	715	463	0	0	525	0	0
V/C Ratio(X)	0.20	0.80	0.19	0.61	1.03	0.08	0.51	0.00	0.00	0.18	0.00	0.00
Avail Cap(c_a), veh/h	364	803	640	456	911	715	537	0	0	610	0	0
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.2	17.9	12.9	13.9	18.5	10.0	21.4	0.0	0.0	18.8	0.0	0.0
Incr Delay (d2), s/veh	0.2	8.1	0.7	0.6	38.8	0.2	0.3	0.0	0.0	0.1	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	0.3	10.3	1.3	1.6	23.2	0.5	3.3	0.0	0.0	1.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.4	26.0	13.5	14.5	57.3	10.2	21.7	0.0	0.0	18.8	0.0	0.0
LnGrp LOS	B	C	B	B	F	B	C	A	A	B	A	A
Approach Vol, veh/h		796			1215			236			92	
Approach Delay, s/veh		23.7			47.4			21.7			18.8	
Approach LOS		C			D			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	35.0		25.7	6.9	39.1		25.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	10.5	30.5		25.5	10.5	30.5		25.5				
Max Q Clear Time (g_c+I1), s	6.5	23.1		4.8	2.7	36.6		13.0				
Green Ext Time (p_c), s	0.0	0.7		0.3	0.0	0.0		0.9				
Intersection Summary												
HCM 6th Ctrl Delay				35.6								
HCM 6th LOS				D								

Intersection												
Int Delay, s/veh	34.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	15	180	100	0	0	0	95	205	70	5	205	140
Future Vol, veh/h	15	180	100	0	0	0	95	205	70	5	205	140
Conflicting Peds, #/hr	87	0	181	149	0	55	181	0	149	55	0	87
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	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	0	0	0
Mvmt Flow	16	188	104	0	0	0	99	214	73	5	214	146
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	1014	1112	649				541	0	0	436	0	0
Stage 1	478	478	-				-	-	-	-	-	-
Stage 2	536	634	-				-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2				4.13	-	-	4.1	-	-
Critical Hdwy Stg 1	5.4	5.5	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-				-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3				2.227	-	-	2.2	-	-
Pot Cap-1 Maneuver	267	211	473				1023	-	-	1134	-	-
Stage 1	628	559	-				-	-	-	-	-	-
Stage 2	591	476	-				-	-	-	-	-	-
Platoon blocked, %							-	-				
Mov Cap-1 Maneuver	156	0	324				847	-	-	1134	-	-
Mov Cap-2 Maneuver	156	0	-				-	-	-	-	-	-
Stage 1	447	0	-				-	-	-	-	-	-
Stage 2	486	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	116.8						2.5			0.1		
HCM LOS	F											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR					
Capacity (veh/h)	847	-	-	284	1134	-	-					
HCM Lane V/C Ratio	0.117	-	-	1.082	0.005	-	-					
HCM Control Delay (s)	9.8	0	-	116.8	8.2	0	-					
HCM Lane LOS	A	A	-	F	A	A	-					
HCM 95th %tile Q(veh)	0.4	-	-	12.3	0	-	-					

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	35	340	40	35	270
Future Vol, veh/h	10	35	340	40	35	270
Conflicting Peds, #/hr	126	40	0	126	40	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	93	93	93	93	93	93
Heavy Vehicles, %	8	8	4	4	0	0
Mvmt Flow	11	38	366	43	38	290
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1006	554	0	0	535	0
Stage 1	514	-	-	-	-	-
Stage 2	492	-	-	-	-	-
Critical Hdwy	6.48	6.28	-	-	4.1	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.2	-
Pot Cap-1 Maneuver	261	521	-	-	1043	-
Stage 1	588	-	-	-	-	-
Stage 2	602	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	192	441	-	-	918	-
Mov Cap-2 Maneuver	192	-	-	-	-	-
Stage 1	517	-	-	-	-	-
Stage 2	504	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	17.3	0	1			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	342	918	-	
HCM Lane V/C Ratio	-	-	0.141	0.041	-	
HCM Control Delay (s)	-	-	17.3	9.1	0	
HCM Lane LOS	-	-	C	A	A	
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-	

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	85	5	85	10	295	90	30	240	10
Future Vol, veh/h	0	0	0	85	5	85	10	295	90	30	240	10
Conflicting Peds, #/hr	71	0	37	14	0	48	37	0	14	48	0	71
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	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	4	4	4	2	2	2
Mvmt Flow	0	0	0	87	5	87	10	301	92	31	245	10
Major/Minor												
	Minor1			Major1			Major2					
Conflicting Flow All				741	803	443	326	0	0	441	0	0
Stage 1				415	415	-	-	-	-	-	-	-
Stage 2				326	388	-	-	-	-	-	-	-
Critical Hdwy				6.4	6.5	6.2	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1				5.4	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.4	5.5	-	-	-	-	-	-	-
Follow-up Hdwy				3.5	4	3.3	2.236	-	-	2.218	-	-
Pot Cap-1 Maneuver				387	319	619	1222	-	-	1119	-	-
Stage 1				671	596	-	-	-	-	-	-	-
Stage 2				736	612	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver				348	0	564	1222	-	-	1068	-	-
Mov Cap-2 Maneuver				348	0	-	-	-	-	-	-	-
Stage 1				633	0	-	-	-	-	-	-	-
Stage 2				701	0	-	-	-	-	-	-	-
Approach												
	WB			NB			SB					
HCM Control Delay, s				19.2			0.2			0.9		
HCM LOS				C								
Minor Lane/Major Mvmt												
	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1222	-	-	430	1068	-	-					
HCM Lane V/C Ratio	0.008	-	-	0.415	0.029	-	-					
HCM Control Delay (s)	8	0	-	19.2	8.5	0	-					
HCM Lane LOS	A	A	-	C	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	2	0.1	-	-					

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	75	35	25	320	265	60
Future Vol, veh/h	75	35	25	320	265	60
Conflicting Peds, #/hr	20	20	20	0	0	20
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	94	94	94	94	94	94
Heavy Vehicles, %	0	0	5	5	2	2
Mvmt Flow	80	37	27	340	282	64
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	748	354	366	0	-	0
Stage 1	334	-	-	-	-	-
Stage 2	414	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.15	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.245	-	-	-
Pot Cap-1 Maneuver	383	694	1176	-	-	-
Stage 1	730	-	-	-	-	-
Stage 2	671	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	358	668	1154	-	-	-
Mov Cap-2 Maneuver	358	-	-	-	-	-
Stage 1	696	-	-	-	-	-
Stage 2	658	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	16.8	0.6		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1154	-	420	-	-	
HCM Lane V/C Ratio	0.023	-	0.279	-	-	
HCM Control Delay (s)	8.2	0	16.8	-	-	
HCM Lane LOS	A	A	C	-	-	
HCM 95th %tile Q(veh)	0.1	-	1.1	-	-	

Intersection												
Int Delay, s/veh	21											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	845	30	10	1085	15	35	0	5	10	5	40
Future Vol, veh/h	30	845	30	10	1085	15	35	0	5	10	5	40
Conflicting Peds, #/hr	17	0	29	36	0	24	29	0	36	24	0	17
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	1	1	1	8	8	8	0	0	0
Mvmt Flow	32	899	32	11	1154	16	37	0	5	11	5	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1194	0	0	967	0	0	2252	2231	987	2226	2239	1215
Stage 1	-	-	-	-	-	-	1015	1015	-	1208	1208	-
Stage 2	-	-	-	-	-	-	1237	1216	-	1018	1031	-
Critical Hdwy	4.12	-	-	4.11	-	-	7.18	6.58	6.28	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.18	5.58	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.18	5.58	-	6.1	5.5	-
Follow-up Hdwy	2.218	-	-	2.209	-	-	3.572	4.072	3.372	3.5	4	3.3
Pot Cap-1 Maneuver	585	-	-	716	-	-	~ 28	41	292	31	43	223
Stage 1	-	-	-	-	-	-	280	308	-	226	258	-
Stage 2	-	-	-	-	-	-	209	247	-	289	313	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	572	-	-	691	-	-	~ 18	36	272	27	38	212
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 18	36	-	27	38	-
Stage 1	-	-	-	-	-	-	255	281	-	208	248	-
Stage 2	-	-	-	-	-	-	156	237	-	258	285	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.1	\$ 925.3	125.4
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	20	572	-	-	691	-	-	80
HCM Lane V/C Ratio	2.128	0.056	-	-	0.015	-	-	0.731
HCM Control Delay (s)	\$ 925.3	11.7	-	-	10.3	-	-	125.4
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	5.6	0.2	-	-	0	-	-	3.5

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

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑		↱	↑		↗
Traffic Vol, veh/h	855	0	0	1110	0	55
Future Vol, veh/h	855	0	0	1110	0	55
Conflicting Peds, #/hr	0	48	90	0	48	90
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	1	1	8	8
Mvmt Flow	910	0	0	1181	0	59
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	1000	0	-	1090
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.11	-	-	6.28
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.209	-	-	3.372
Pot Cap-1 Maneuver	-	0	696	-	0	254
Stage 1	-	0	-	-	0	-
Stage 2	-	0	-	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	636	-	-	212
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		28.3	
HCM LOS	D					
Minor Lane/Major Mvmt	NBLn1	EBT	WBL	WBT		
Capacity (veh/h)	212	-	636	-		
HCM Lane V/C Ratio	0.276	-	-	-		
HCM Control Delay (s)	28.3	-	0	-		
HCM Lane LOS	D	-	A	-		
HCM 95th %tile Q(veh)	1.1	-	0	-		

Intersection												
Int Delay, s/veh	5.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	15	40	30	0	0	0	30	30	15	0	30	15
Future Vol, veh/h	15	40	30	0	0	0	30	30	15	0	30	15
Conflicting Peds, #/hr	43	0	51	46	0	38	51	0	46	38	0	43
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	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	5	5	5	0	0	0	0	0	0	11	11	11
Mvmt Flow	16	43	32	0	0	0	32	32	16	0	32	16

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	238	249	142		99	0	0	94	0
Stage 1	91	91	-		-	-	-	-	-
Stage 2	147	158	-		-	-	-	-	-
Critical Hdwy	6.45	6.55	6.25		4.1	-	-	4.21	-
Critical Hdwy Stg 1	5.45	5.55	-		-	-	-	-	-
Critical Hdwy Stg 2	5.45	5.55	-		-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345		2.2	-	-	2.299	-
Pot Cap-1 Maneuver	744	649	898		1507	-	-	1445	-
Stage 1	925	814	-		-	-	-	-	-
Stage 2	873	761	-		-	-	-	-	-
Platoon blocked, %						-	-	-	-
Mov Cap-1 Maneuver	658	0	813		1434	-	-	1445	-
Mov Cap-2 Maneuver	658	0	-		-	-	-	-	-
Stage 1	859	0	-		-	-	-	-	-
Stage 2	830	0	-		-	-	-	-	-

















Approach	EB	NB	SB
HCM Control Delay, s	10.4	3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1434	-	-	754	1445	-	-
HCM Lane V/C Ratio	0.022	-	-	0.121	-	-	-
HCM Control Delay (s)	7.6	0	-	10.4	0	-	-
HCM Lane LOS	A	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0	-	-

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St














2020 SPU MIMP EIS
No-Action (2035) PM Peak Hour

												
Movement	EBL2	EBT	EBR	WBL2	WBL	WBT	WBR	WBR2	NBL	NBT	NBR2	SBL
Lane Configurations												
Traffic Volume (vph)	5	0	180	5	5	215	405	5	25	5	70	40
Future Volume (vph)	5	0	180	5	5	215	405	5	25	5	70	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5				6.5	6.5			9.5		
Lane Util. Factor		1.00				0.95	0.95			1.00		
Frpb, ped/bikes		0.94				0.96	0.63			0.94		
Flpb, ped/bikes		1.00				1.00	1.00			0.98		
Frt		0.87				0.95	0.85			0.91		
Flt Protected		1.00				1.00	1.00			0.99		
Satd. Flow (prot)		1543				1631	951			1570		
Flt Permitted		0.72				0.99	1.00			0.90		
Satd. Flow (perm)		1114				1615	951			1425		
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)	5	0	196	5	5	234	440	5	27	5	76	43
RTOR Reduction (vph)	0	0	0	0	0	0	96	0	0	93	0	0
Lane Group Flow (vph)	0	201	0	0	0	363	230	0	0	15	0	0
Confl. Peds. (#/hr)	44		37	37	44		44	67	44		37	37
Confl. Bikes (#/hr)			1				37	37				
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	0%	0%	0%	2%
Turn Type	Perm	NA		Perm	Perm	NA	Perm		Perm	NA		Perm
Protected Phases		3				3				4		
Permitted Phases	3			3	3		3		4			4
Actuated Green, G (s)		29.5				29.5	29.5			22.0		
Effective Green, g (s)		29.5				29.5	29.5			19.0		
Actuated g/C Ratio		0.21				0.21	0.21			0.14		
Clearance Time (s)		6.5				6.5	6.5			6.5		
Vehicle Extension (s)		2.0				2.0	2.0			2.0		
Lane Grp Cap (vph)		234				340	200			193		
v/s Ratio Prot												
v/s Ratio Perm		0.18				0.22	0.24			0.01		
v/c Ratio		0.86				1.07	1.15			0.08		
Uniform Delay, d1		53.2				55.2	55.2			52.8		
Progression Factor		1.00				1.00	1.00			1.00		
Incremental Delay, d2		24.6				67.9	110.8			0.1		
Delay (s)		77.9				123.2	166.0			52.9		
Level of Service		E				F	F			D		
Approach Delay (s)		77.9				143.4				52.9		
Approach LOS		E				F				D		
Intersection Summary												
HCM 2000 Control Delay		67.1				HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio		0.94										
Actuated Cycle Length (s)		140.0				Sum of lost time (s)				31.0		
Intersection Capacity Utilization		122.5%				ICU Level of Service				H		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
No-Action (2035) PM Peak Hour





















										
Movement	SBT	SBR	SBR2	SEL	SET	SER	SER2	NWL2	NWL	NWT
Lane Configurations										
Traffic Volume (vph)	5	5	5	5	935	5	5	15	75	755
Future Volume (vph)	5	5	5	5	935	5	5	15	75	755
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.5				9.0					9.0
Lane Util. Factor	1.00				0.95					0.95
Frpb, ped/bikes	0.97				1.00					1.00
Flpb, ped/bikes	0.96				1.00					1.00
Frt	0.98				1.00					1.00
Flt Protected	0.96				1.00					0.99
Satd. Flow (prot)	1629				3521					3555
Flt Permitted	0.72				0.95					0.57
Satd. Flow (perm)	1214				3347					2053
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	5	5	5	1016	5	5	16	82	821
RTOR Reduction (vph)	3	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	55	0	0	0	1031	0	0	0	0	919
Confl. Peds. (#/hr)		31	44	107		44	31	44	31	
Confl. Bikes (#/hr)		11	11			2	2			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	NA			Perm	NA			custom	custom	NA
Protected Phases	4				2					6
Permitted Phases				2				1 6	1 6	
Actuated Green, G (s)	22.0				69.5					69.5
Effective Green, g (s)	19.0				66.5					66.5
Actuated g/C Ratio	0.14				0.48					0.48
Clearance Time (s)	6.5				6.0					6.0
Vehicle Extension (s)	2.0				3.0					2.0
Lane Grp Cap (vph)	164				1589					975
v/s Ratio Prot										
v/s Ratio Perm	c0.05				0.31					c0.45
v/c Ratio	0.34				0.65					0.94
Uniform Delay, d1	54.8				27.9					34.9
Progression Factor	1.00				1.00					1.05
Incremental Delay, d2	0.4				2.1					15.0
Delay (s)	55.2				30.0					51.7
Level of Service	E				C					D
Approach Delay (s)	55.2				30.0					51.7
Approach LOS	E				C					D
Intersection Summary										

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	5	0	1935	540	630
Future Vol, veh/h	0	5	0	1935	540	630
Conflicting Peds, #/hr	75	74	74	0	0	75
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	97	97	97	97	97	97
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	0	5	0	1995	557	649
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	752	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	357	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	308	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	16.9	0		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT EBLn1		SBT	SBR		
Capacity (veh/h)	- 308		-	-		
HCM Lane V/C Ratio	- 0.017		-	-		
HCM Control Delay (s)	- 16.9		-	-		
HCM Lane LOS	- C		-	-		
HCM 95th %tile Q(veh)	- 0.1		-	-		

HCM Signalized Intersection Capacity Analysis









16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS
No-Action (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	820	260	150	0	515	790	220	330	5	320	115	115
Future Volume (vph)	820	260	150	0	515	790	220	330	5	320	115	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.98			1.00	0.68	1.00	1.00		1.00	0.96	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.95			1.00	0.85	1.00	1.00		1.00	0.93	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3467	1745			3539	1903	1770	3520		3367	1616	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3467	1745			3539	1903	1770	3520		3367	1616	
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)	854	271	156	0	536	823	229	344	5	333	120	120
RTOR Reduction (vph)	0	15	0	0	0	40	0	1	0	0	26	0
Lane Group Flow (vph)	854	412	0	0	536	783	229	348	0	333	214	0
Confl. Peds. (#/hr)	17		29	29		17	17		48	48		17
Confl. Bikes (#/hr)			2			371			156			53
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	26.9	64.9			31.5	67.5	27.1	27.1		30.5	30.5	
Effective Green, g (s)	26.9	58.4			31.5	67.5	27.1	27.1		30.5	30.5	
Actuated g/C Ratio	0.19	0.42			0.22	0.48	0.19	0.19		0.22	0.22	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	666	727			796	917	342	681		733	352	
v/s Ratio Prot	c0.25	0.24			0.15		c0.13	0.10		0.10	0.13	
v/s Ratio Perm						c0.41						
v/c Ratio	1.28	0.57			0.67	0.85	0.67	0.51		0.45	0.61	
Uniform Delay, d1	56.5	31.1			49.6	31.9	52.3	50.5		47.5	49.4	
Progression Factor	0.98	1.88			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	135.7	0.8			4.5	9.9	3.8	0.3		2.0	7.6	
Delay (s)	190.9	59.3			54.1	41.8	56.1	50.8		49.6	57.0	
Level of Service	F	E			D	D	E	D		D	E	
Approach Delay (s)		147.1			46.7			52.9			52.7	
Approach LOS		F			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			82.4				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			106.4%				ICU Level of Service			G		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
No-Action (2035) PM Peak Hour

								
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	32	640	124	215	941	59	236	92
v/c Ratio	0.15	0.84	0.19	0.68	0.96	0.07	0.64	0.20
Control Delay	9.6	33.6	4.2	21.4	41.8	2.1	31.4	17.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.6	33.6	4.2	21.4	41.8	2.1	31.4	17.1
Queue Length 50th (ft)	6	259	0	44	340	0	92	24
Queue Length 95th (ft)	18	#495	32	104	#771	13	175	59
Internal Link Dist (ft)		79			214		74	171
Turn Bay Length (ft)	100			135		215		
Base Capacity (vph)	339	759	636	364	980	802	402	503
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.84	0.19	0.59	0.96	0.07	0.59	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
No-Action (2035) PM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT	SET	NWT
Lane Group Flow (vph)	201	363	326	108	58	1031	919
v/c Ratio	0.86	1.07	1.11	0.36	0.35	0.65	0.94
Control Delay	85.0	119.5	115.2	10.5	58.5	30.3	52.2
Queue Delay	20.4	0.0	0.0	0.0	0.0	0.1	39.0
Total Delay	105.5	119.5	115.2	10.5	58.5	30.3	91.1
Queue Length 50th (ft)	178	~383	~256	0	46	367	443
Queue Length 95th (ft)	#321	#595	#465	46	94	443	#562
Internal Link Dist (ft)	413	299		354	158	814	375
Turn Bay Length (ft)							
Base Capacity (vph)	234	340	295	302	171	1589	974
Starvation Cap Reductn	0	0	0	0	0	0	129
Spillback Cap Reductn	31	0	0	5	0	33	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	1.07	1.11	0.36	0.34	0.66	1.09

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

No-Action (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	854	427	536	823	229	349	333	240
v/c Ratio	1.28	0.52	0.67	0.86	0.67	0.51	0.45	0.64
Control Delay	178.6	50.9	54.4	39.5	61.8	52.5	49.9	51.3
Queue Delay	0.0	5.6	1.0	0.0	0.0	0.0	0.0	76.7
Total Delay	178.6	56.5	55.4	39.5	61.8	52.5	49.9	127.9
Queue Length 50th (ft)	~548	380	236	341	190	146	137	173
Queue Length 95th (ft)	#690	m457	301	459	281	197	186	269
Internal Link Dist (ft)		375	150			693		176
Turn Bay Length (ft)				200				
Base Capacity (vph)	667	822	796	957	385	767	733	377
Starvation Cap Reductn	0	328	0	0	0	0	0	0
Spillback Cap Reductn	0	0	90	0	0	0	0	278
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.28	0.86	0.76	0.86	0.59	0.46	0.45	2.42

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.







Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

2035 Proposed MIMP AM





Intersection												
Int Delay, s/veh	5.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	893	52	20	599	51	17	8	48	20	2	13
Future Vol, veh/h	27	893	52	20	599	51	17	8	48	20	2	13
Conflicting Peds, #/hr	6	0	12	14	0	8	12	0	14	8	0	6
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	4	4	4	3	3	3	2	2	2	32	32	32
Mvmt Flow	28	930	54	21	624	53	18	8	50	21	2	14
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	685	0	0	998	0	0	1740	1754	985	1757	1755	671
Stage 1	-	-	-	-	-	-	1027	1027	-	701	701	-
Stage 2	-	-	-	-	-	-	713	727	-	1056	1054	-
Critical Hdwy	4.14	-	-	4.13	-	-	7.12	6.52	6.22	7.42	6.82	6.52
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.42	5.82	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.42	5.82	-
Follow-up Hdwy	2.236	-	-	2.227	-	-	3.518	4.018	3.318	3.788	4.288	3.588
Pot Cap-1 Maneuver	899	-	-	689	-	-	68	85	301	56	72	408
Stage 1	-	-	-	-	-	-	283	312	-	385	399	-
Stage 2	-	-	-	-	-	-	423	429	-	239	268	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	892	-	-	680	-	-	60	78	293	40	66	400
Mov Cap-2 Maneuver	-	-	-	-	-	-	60	78	-	40	66	-
Stage 1	-	-	-	-	-	-	271	298	-	370	383	-
Stage 2	-	-	-	-	-	-	389	412	-	184	256	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.3			63.2			125.2		
HCM LOS							F			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	133	892	-	-	680	-	-	62				
HCM Lane V/C Ratio	0.572	0.032	-	-	0.031	-	-	0.588				
HCM Control Delay (s)	63.2	9.2	-	-	10.5	-	-	125.2				
HCM Lane LOS	F	A	-	-	B	-	-	F				
HCM 95th %tile Q(veh)	2.9	0.1	-	-	0.1	-	-	2.4				

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	0	5	0	0	0	5	20	0	0	36	10
Future Vol, veh/h	30	0	5	0	0	0	5	20	0	0	36	10
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	0	0	0	9	9	9	0	0	0	0	0	0
Mvmt Flow	38	0	6	0	0	0	6	25	0	0	46	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.4	0	7.2	7.2
HCM LOS	A	-	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	86%	0%	0%
Vol Thru, %	80%	0%	100%	78%
Vol Right, %	0%	14%	0%	22%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	25	35	0	46
LT Vol	5	30	0	0
Through Vol	20	0	0	36
RT Vol	0	5	0	10
Lane Flow Rate	32	44	0	58
Geometry Grp	1	1	1	1
Degree of Util (X)	0.036	0.051	0	0.063
Departure Headway (Hd)	4.061	4.141	4.243	3.87
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	880	862	0	923
Service Time	2.094	2.178	2.291	1.901
HCM Lane V/C Ratio	0.036	0.051	0	0.063
HCM Control Delay	7.2	7.4	7.3	7.2
HCM Lane LOS	A	A	N	A
HCM 95th-tile Q	0.1	0.2	0	0.2




Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	256	0	10	95	13	0	1	5	17	5	24
Future Vol, veh/h	11	256	0	10	95	13	0	1	5	17	5	24
Conflicting Peds, #/hr	2	0	8	13	0	8	8	0	13	8	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	2	2	2	0	0	0	5	5	5
Mvmt Flow	15	341	0	13	127	17	0	1	7	23	7	32
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	152	0	0	354	0	0	573	562	367	558	554	152
Stage 1	-	-	-	-	-	-	384	384	-	170	170	-
Stage 2	-	-	-	-	-	-	189	178	-	388	384	-
Critical Hdwy	4.13	-	-	4.12	-	-	7.1	6.5	6.2	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Follow-up Hdwy	2.227	-	-	2.218	-	-	3.5	4	3.3	3.545	4.045	3.345
Pot Cap-1 Maneuver	1423	-	-	1205	-	-	433	439	683	436	436	886
Stage 1	-	-	-	-	-	-	643	615	-	825	752	-
Stage 2	-	-	-	-	-	-	817	756	-	630	606	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1412	-	-	1190	-	-	396	420	666	414	417	873
Mov Cap-2 Maneuver	-	-	-	-	-	-	396	420	-	414	417	-
Stage 1	-	-	-	-	-	-	627	600	-	808	737	-
Stage 2	-	-	-	-	-	-	765	741	-	607	591	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.7			11			12.1		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	607	1412	-	-	1190	-	-	571				
HCM Lane V/C Ratio	0.013	0.01	-	-	0.011	-	-	0.107				
HCM Control Delay (s)	11	7.6	0	-	8.1	0	-	12.1				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.4				

Intersection	
Intersection Delay, s/veh	7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	28	10	6	13	0	0	0	1	0	0	0
Future Vol, veh/h	0	28	10	6	13	0	0	0	1	0	0	0
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	33	33	33
Mvmt Flow	0	42	15	9	19	0	0	0	1	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0






















Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7	7.1	6.5	0
HCM LOS	A	A	A	-

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	32%	0%
Vol Thru, %	0%	74%	68%	100%
Vol Right, %	100%	26%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	1	38	19	0
LT Vol	0	0	6	0
Through Vol	0	28	13	0
RT Vol	1	10	0	0
Lane Flow Rate	1	57	28	0
Geometry Grp	1	1	1	1
Degree of Util (X)	0.001	0.059	0.032	0
Departure Headway (Hd)	3.445	3.765	4.007	4.609
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	1036	956	897	0
Service Time	1.476	1.771	2.014	2.64
HCM Lane V/C Ratio	0.001	0.06	0.031	0
HCM Control Delay	6.5	7	7.1	7.6
HCM Lane LOS	A	A	A	N
HCM 95th-tile Q	0	0.2	0.1	0

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	278	123	0	0	0
Future Vol, veh/h	0	278	123	0	0	0
Conflicting Peds, #/hr	4	0	0	19	19	4
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	79	79	79	79	79	79
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	0	352	156	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	175	0	-	0	546	179
Stage 1	-	-	-	-	175	-
Stage 2	-	-	-	-	371	-
Critical Hdwy	4.13	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.227	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1395	-	-	-	502	869
Stage 1	-	-	-	-	860	-
Stage 2	-	-	-	-	702	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1370	-	-	-	484	850
Mov Cap-2 Maneuver	-	-	-	-	484	-
Stage 1	-	-	-	-	845	-
Stage 2	-	-	-	-	689	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1370	-	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	-	-	0	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	-	

HCM 6th Signalized Intersection Summary 6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour




												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	831	102	75	603	35	138	10	105	10	10	0
Future Volume (veh/h)	10	831	102	75	603	35	138	10	105	10	10	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	0.98		0.97	0.99		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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1811	1811	1811	1796	1796	1796	1707	1707	1707
Adj Flow Rate, veh/h	10	866	106	78	628	36	144	10	109	10	10	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, %	5	5	5	6	6	6	7	7	7	13	13	13
Cap, veh/h	352	889	744	231	966	793	256	30	140	224	192	0
Arrive On Green	0.01	0.49	0.49	0.06	0.53	0.53	0.24	0.24	0.24	0.24	0.24	0.00
Sat Flow, veh/h	1739	1826	1528	1725	1811	1486	700	128	586	580	807	0
Grp Volume(v), veh/h	10	866	106	78	628	36	263	0	0	20	0	0
Grp Sat Flow(s),veh/h/ln	1739	1826	1528	1725	1811	1486	1414	0	0	1387	0	0
Q Serve(g_s), s	0.2	29.0	2.4	1.3	15.5	0.7	9.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.2	29.0	2.4	1.3	15.5	0.7	10.8	0.0	0.0	0.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.55		0.41	0.50		0.00
Lane Grp Cap(c), veh/h	352	889	744	231	966	793	426	0	0	417	0	0
V/C Ratio(X)	0.03	0.97	0.14	0.34	0.65	0.05	0.62	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	622	889	744	418	966	793	661	0	0	649	0	0
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.2	15.7	8.9	14.1	10.4	7.0	22.2	0.0	0.0	18.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	24.5	0.4	0.3	3.4	0.1	0.5	0.0	0.0	0.0	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	0.1	16.4	0.8	0.5	6.2	0.2	3.5	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.2	40.2	9.3	14.4	13.8	7.1	22.8	0.0	0.0	18.4	0.0	0.0
LnGrp LOS	A	D	A	B	B	A	C	A	A	B	A	A
Approach Vol, veh/h		982			742			263			20	
Approach Delay, s/veh		36.5			13.5			22.8			18.4	
Approach LOS		D			B			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	35.0		19.4	5.3	37.9		19.4				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	10.5	30.5		25.5	10.5	30.5		25.5				
Max Q Clear Time (g_c+I1), s	3.3	31.0		2.6	2.2	17.5		12.8				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.8		0.9				
Intersection Summary												
HCM 6th Ctrl Delay			26.0									
HCM 6th LOS			C									

Intersection												
Int Delay, s/veh	6.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔						↔			↔	
Traffic Vol, veh/h	49	108	39	0	0	0	41	200	15	5	129	49
Future Vol, veh/h	49	108	39	0	0	0	41	200	15	5	129	49
Conflicting Peds, #/hr	32	0	42	22	0	11	42	0	22	11	0	32
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	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	0	0	0	7	7	7	2	2	2
Mvmt Flow	61	135	49	0	0	0	51	250	19	6	161	61

Major/Minor	Minor2			Major1			Major2			
Conflicting Flow All	640	639	276		264	0	0	291	0	0
Stage 1	246	246	-		-	-	-	-	-	-
Stage 2	394	393	-		-	-	-	-	-	-
Critical Hdwy	6.43	6.53	6.23		4.17	-	-	4.12	-	-
Critical Hdwy Stg 1	5.43	5.53	-		-	-	-	-	-	-
Critical Hdwy Stg 2	5.43	5.53	-		-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327		2.263	-	-	2.218	-	-
Pot Cap-1 Maneuver	438	393	760		1272	-	-	1271	-	-
Stage 1	793	701	-		-	-	-	-	-	-
Stage 2	679	604	-		-	-	-	-	-	-
Platoon blocked, %						-	-		-	-
Mov Cap-1 Maneuver	382	0	700		1221	-	-	1271	-	-
Mov Cap-2 Maneuver	382	0	-		-	-	-	-	-	-
Stage 1	724	0	-		-	-	-	-	-	-
Stage 2	648	0	-		-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.2	1.3	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1221	-	-	478	1271	-	-
HCM Lane V/C Ratio	0.042	-	-	0.513	0.005	-	-
HCM Control Delay (s)	8.1	0	-	20.2	7.8	0	-
HCM Lane LOS	A	A	-	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.9	0	-	-

Intersection						
Int Delay, s/veh	1.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	19	250	30	14	154
Future Vol, veh/h	20	19	250	30	14	154
Conflicting Peds, #/hr	16	3	0	16	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	84	84	84	84	84	84
Heavy Vehicles, %	30	30	7	7	5	5
Mvmt Flow	24	23	298	36	17	183
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	565	335	0	0	350	0
Stage 1	332	-	-	-	-	-
Stage 2	233	-	-	-	-	-
Critical Hdwy	6.7	6.5	-	-	4.15	-
Critical Hdwy Stg 1	5.7	-	-	-	-	-
Critical Hdwy Stg 2	5.7	-	-	-	-	-
Follow-up Hdwy	3.77	3.57	-	-	2.245	-
Pot Cap-1 Maneuver	442	647	-	-	1192	-
Stage 1	668	-	-	-	-	-
Stage 2	744	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	422	635	-	-	1174	-
Mov Cap-2 Maneuver	422	-	-	-	-	-
Stage 1	658	-	-	-	-	-
Stage 2	721	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	12.9	0		0.7		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	504	1174	-	
HCM Lane V/C Ratio	-	-	0.092	0.014	-	
HCM Control Delay (s)	-	-	12.9	8.1	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.3	0	-	

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	0	0	0	25	0	40	0	244	28	6	168	0
Future Vol, veh/h	0	0	0	25	0	40	0	244	28	6	168	0
Conflicting Peds, #/hr	17	0	0	0	0	17	0	0	0	17	0	17
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	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	3	3	3	7	7	7	12	12	12
Mvmt Flow	0	0	0	29	0	46	0	280	32	7	193	0
Major/Minor												
	Minor1			Major1			Major2					
Conflicting Flow All				520	537	330	210	0	0	329	0	0
Stage 1				313	313	-	-	-	-	-	-	-
Stage 2				207	224	-	-	-	-	-	-	-
Critical Hdwy				6.43	6.53	6.23	4.17	-	-	4.22	-	-
Critical Hdwy Stg 1				5.43	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.43	5.53	-	-	-	-	-	-	-
Follow-up Hdwy				3.527	4.027	3.327	2.263	-	-	2.308	-	-
Pot Cap-1 Maneuver				515	449	709	1331	-	-	1176	-	-
Stage 1				739	655	-	-	-	-	-	-	-
Stage 2				825	716	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver				503	0	686	1331	-	-	1157	-	-
Mov Cap-2 Maneuver				503	0	-	-	-	-	-	-	-
Stage 1				727	0	-	-	-	-	-	-	-
Stage 2				819	0	-	-	-	-	-	-	-
Approach												
	WB			NB			SB					
HCM Control Delay, s				11.8			0			0.3		
HCM LOS				B								
Minor Lane/Major Mvmt												
	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1331	-	-	602	1157	-	-					
HCM Lane V/C Ratio	-	-	-	0.124	0.006	-	-					
HCM Control Delay (s)	0	-	-	11.8	8.1	0	-					
HCM Lane LOS	A	-	-	B	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	0.4	0	-	-					

Intersection

Int Delay, s/veh 1.8

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 43 3 39 233 153 35

Future Vol, veh/h 43 3 39 233 153 35

Conflicting Peds, #/hr 15 15 15 0 0 15

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, % 0 0 8 8 11 11

Mvmt Flow 47 3 43 256 168 38

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 559 217 221 0 - 0

Stage 1 202 - - - - -

Stage 2 357 - - - - -

Critical Hdwy 6.4 6.2 4.18 - - -

Critical Hdwy Stg 1 5.4 - - - - -

Critical Hdwy Stg 2 5.4 - - - - -

Follow-up Hdwy 3.5 3.3 2.272 - - -

Pot Cap-1 Maneuver 494 828 1313 - - -

Stage 1 837 - - - - -

Stage 2 713 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 461 805 1294 - - -

Mov Cap-2 Maneuver 461 - - - - -

Stage 1 793 - - - - -

Stage 2 703 - - - - -

Approach EB NB SB

HCM Control Delay, s 13.5 1.1 0

HCM LOS B

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR







Capacity (veh/h) 1294 - 474 - -

HCM Lane V/C Ratio 0.033 - 0.107 - -

HCM Control Delay (s) 7.9 0 13.5 - -

HCM Lane LOS A A B - -

HCM 95th %tile Q(veh) 0.1 - 0.4 - -

Intersection												
Int Delay, s/veh	12.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	982	53	24	677	25	29	5	34	5	5	35
Future Vol, veh/h	35	982	53	24	677	25	29	5	34	5	5	35
Conflicting Peds, #/hr	16	0	9	10	0	17	9	0	10	17	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	6	6	6	6	6	6	19	19	19	0	0	0
Mvmt Flow	37	1045	56	26	720	27	31	5	36	5	5	37

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	764	0	0	1111	0	0	1980	1973	1100	1988	1988	767
Stage 1	-	-	-	-	-	-	1157	1157	-	803	803	-
Stage 2	-	-	-	-	-	-	823	816	-	1185	1185	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.29	6.69	6.39	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.29	5.69	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.29	5.69	-	6.1	5.5	-
Follow-up Hdwy	2.254	-	-	2.254	-	-	3.671	4.171	3.471	3.5	4	3.3
Pot Cap-1 Maneuver	831	-	-	614	-	-	41	56	239	46	62	405
Stage 1	-	-	-	-	-	-	221	252	-	380	399	-
Stage 2	-	-	-	-	-	-	344	367	-	233	265	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	818	-	-	608	-	-	31	50	233	32	55	392
Mov Cap-2 Maneuver	-	-	-	-	-	-	31	50	-	32	55	-
Stage 1	-	-	-	-	-	-	209	238	-	357	376	-
Stage 2	-	-	-	-	-	-	289	346	-	181	250	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.4	\$ 317.5	46.1
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	58	818	-	-	608	-	-	134
HCM Lane V/C Ratio	1.247	0.046	-	-	0.042	-	-	0.357
HCM Control Delay (s)	\$ 317.5	9.6	-	-	11.2	-	-	46.1
HCM Lane LOS	F	A	-	-	B	-	-	E
HCM 95th %tile Q(veh)	6.2	0.1	-	-	0.1	-	-	1.5

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

Intersection

Int Delay, s/veh 5

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 8 16 24 65 43 44

Future Vol, veh/h 8 16 24 65 43 44

Conflicting Peds, #/hr 15 15 15 0 0 15

Sign Control Free Free Stop Stop Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 1 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 89 89 89 89 89 89

Heavy Vehicles, % 0 0 11 11 32 32

Mvmt Flow 9 18 27 73 48 49

Major/Minor Minor2 Major2

Conflicting Flow All 103 88 - 0

Stage 1 88 88 - -

Stage 2 15 0 - -

Critical Hdwy 6.51 6.61 - -

Critical Hdwy Stg 1 5.51 5.61 - -

Critical Hdwy Stg 2 - - - -

Follow-up Hdwy 3.599 4.099 - -

Pot Cap-1 Maneuver 874 785 - -

Stage 1 913 805 - -

Stage 2 - - - -

Platoon blocked, % - -

Mov Cap-1 Maneuver 850 0 - -

Mov Cap-2 Maneuver 850 0 - -

Stage 1 900 0 - -

Stage 2 - 0 - -

Approach NB SB

HCM Control Delay, s 9.8 0

HCM LOS A

Minor Lane/Major Mvmt NBLn1 SBT SBR

Capacity (veh/h) 850 - -

HCM Lane V/C Ratio 0.118 - -

HCM Control Delay (s) 9.8 - -

















HCM Lane LOS A - -

HCM 95th %tile Q(veh) 0.4 - -

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St
















2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR2
Lane Configurations												
Traffic Volume (vph)	5	5	0	295	5	115	214	5	5	30	0	50
Future Volume (vph)	5	5	0	295	5	115	214	5	5	30	0	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.5			6.5	6.5				9.5	
Lane Util. Factor			1.00			0.95	0.95				1.00	
Frpb, ped/bikes			0.97			0.98	0.85				0.98	
Flpb, ped/bikes			1.00			1.00	1.00				0.98	
Frt			0.87			0.95	0.85				0.92	
Flt Protected			1.00			1.00	1.00				0.98	
Satd. Flow (prot)			1561			1648	1273				1575	
Flt Permitted			0.99			0.98	1.00				0.86	
Satd. Flow (perm)			1543			1624	1273				1377	
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	5	0	314	5	122	228	5	5	32	0	53
RTOR Reduction (vph)	0	0	0	0	0	0	104	0	0	0	79	0
Lane Group Flow (vph)	0	0	324	0	0	189	68	0	0	0	11	0
Confl. Peds. (#/hr)	24	18		14	16		24	18	9	24		14
Confl. Bikes (#/hr)				1			10	10				
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%
Turn Type	Perm	Perm	NA		Perm	NA	Perm		Perm	Perm	NA	
Protected Phases			3			3					4	
Permitted Phases	3	3			3		3		4	4		
Actuated Green, G (s)			26.5			26.5	26.5				19.0	
Effective Green, g (s)			26.5			26.5	26.5				16.0	
Actuated g/C Ratio			0.20			0.20	0.20				0.12	
Clearance Time (s)			6.5			6.5	6.5				6.5	
Vehicle Extension (s)			2.0			2.0	2.0				2.0	
Lane Grp Cap (vph)			314			331	259				169	
v/s Ratio Prot												
v/s Ratio Perm			c0.21			0.12	0.05				c0.01	
v/c Ratio			1.03			0.57	0.26				0.07	
Uniform Delay, d1			51.8			46.6	43.5				50.4	
Progression Factor			1.00			1.00	1.00				1.00	
Incremental Delay, d2			59.3			1.5	0.2				0.1	
Delay (s)			111.0			48.1	43.7				50.5	
Level of Service			F			D	D				D	
Approach Delay (s)			111.0			46.0					50.5	
Approach LOS			F			D					D	
Intersection Summary												
HCM 2000 Control Delay			45.9			HCM 2000 Level of Service					D	
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				31.0		
Intersection Capacity Utilization			117.7%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour










												
Movement	SBL2	SBL	SBT	SBR2	SET	SER	SER2	NWL2	NWL	NWT	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	10	5	0	5	988	5	5	25	65	600	15	5
Future Volume (vph)	10	5	0	5	988	5	5	25	65	600	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			9.5		9.0					9.0		
Lane Util. Factor			1.00		0.95					0.95		
Frpb, ped/bikes			0.99		1.00					1.00		
Flpb, ped/bikes			0.98		1.00					1.00		
Frt			0.97		1.00					1.00		
Flt Protected			0.96		1.00					0.99		
Satd. Flow (prot)			1146		3496					3361		
Flt Permitted			0.76		1.00					0.56		
Satd. Flow (perm)			909		3496					1888		
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	5	0	5	1051	5	5	27	69	638	16	5
RTOR Reduction (vph)	0	0	18	0	0	0	0	0	0	1	0	0
Lane Group Flow (vph)	0	0	3	0	1061	0	0	0	0	754	0	0
Confl. Peds. (#/hr)		14		24		16	9	16	9		18	
Confl. Bikes (#/hr)				2		2	2				1	1
Heavy Vehicles (%)	50%	50%	50%	50%	3%	3%	3%	6%	6%	6%	6%	6%
Turn Type	Perm	Perm	NA		NA			custom	custom	NA		
Protected Phases			4		2					6		
Permitted Phases	4	4						16	16			
Actuated Green, G (s)			19.0		65.5					65.5		
Effective Green, g (s)			16.0		62.5					62.5		
Actuated g/C Ratio			0.12		0.48					0.48		
Clearance Time (s)			6.5		6.0					6.0		
Vehicle Extension (s)			2.0		3.0					2.0		
Lane Grp Cap (vph)			111		1680					907		
v/s Ratio Prot					0.30							
v/s Ratio Perm			0.00							c0.40		
v/c Ratio			0.02		0.63					0.83		
Uniform Delay, d1			50.1		25.2					29.2		
Progression Factor			1.00		1.00					1.27		
Incremental Delay, d2			0.0		1.8					6.9		
Delay (s)			50.2		27.0					43.8		
Level of Service			D		C					D		
Approach Delay (s)			50.2		27.0					43.8		
Approach LOS			D		C					D		
Intersection Summary												

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	15	0	1013	1315	339
Future Vol, veh/h	0	15	0	1013	1315	339
Conflicting Peds, #/hr	31	30	30	0	0	31
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	89	89	89	89	89	89
Heavy Vehicles, %	50	50	6	6	7	7
Mvmt Flow	0	17	0	1138	1478	381
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	991	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.8	-	-	-	-
Pot Cap-1 Maneuver	0	174	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	164	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	29.5	0		0		
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	164	-	-		
HCM Lane V/C Ratio	-	0.103	-	-		
HCM Control Delay (s)	-	29.5	-	-		
HCM Lane LOS	-	D	-	-		
HCM 95th %tile Q(veh)	-	0.3	-	-		

HCM Signalized Intersection Capacity Analysis

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	633	617	95	0	258	260	232	120	10	920	190	220
Future Volume (vph)	633	617	95	0	258	260	232	120	10	920	190	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.94	1.00	1.00		1.00	0.90	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98			1.00	0.85	1.00	0.99		1.00	0.92	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3400	1792			3374	2496	1656	3264		3367	1512	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3400	1792			3374	2496	1656	3264		3367	1512	
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)	659	643	99	0	269	271	242	125	10	958	198	229
RTOR Reduction (vph)	0	4	0	0	0	128	0	5	0	0	32	0
Lane Group Flow (vph)	659	738	0	0	269	143	242	130	0	958	395	0
Confl. Peds. (#/hr)	19		37	37		19	33		12	12		33
Confl. Bikes (#/hr)			12			33			16			155
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	9%	9%	9%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	19.2	57.2			31.5	68.5	23.8	23.8		31.5	31.5	
Effective Green, g (s)	19.2	50.7			31.5	68.5	23.8	23.8		31.5	31.5	
Actuated g/C Ratio	0.15	0.39			0.24	0.53	0.18	0.18		0.24	0.24	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	502	698			817	1315	303	597		815	366	
v/s Ratio Prot	c0.19	c0.41			0.08		c0.15	0.04		c0.28	0.26	
v/s Ratio Perm						0.06						
v/c Ratio	1.31	1.06			0.33	0.11	0.80	0.22		1.18	1.08	
Uniform Delay, d1	55.4	39.6			40.6	15.4	50.8	45.2		49.2	49.2	
Progression Factor	0.76	0.92			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	150.5	44.7			0.1	0.2	12.8	0.1		91.7	70.0	
Delay (s)	192.5	81.0			40.6	15.6	63.6	45.2		140.9	119.3	
Level of Service	F	F			D	B	E	D		F	F	
Approach Delay (s)		133.5			28.1			57.0			134.3	
Approach LOS		F			C			E			F	
Intersection Summary												
HCM 2000 Control Delay			110.6				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.08									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			92.4%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	10	866	106	78	628	36	263	20
v/c Ratio	0.02	0.95	0.13	0.32	0.58	0.04	0.75	0.07
Control Delay	6.9	41.1	4.3	9.9	14.0	0.5	32.8	19.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.9	41.1	4.3	9.9	14.0	0.5	32.8	19.9
Queue Length 50th (ft)	1	~316	2	10	120	0	78	7
Queue Length 95th (ft)	8	#710	30	34	#435	3	155	21
Internal Link Dist (ft)		79			214		74	171
Turn Bay Length (ft)	100			135		215		
Base Capacity (vph)	560	912	788	368	1074	915	571	593
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.95	0.13	0.21	0.58	0.04	0.46	0.03

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT	SET	NWT
Lane Group Flow (vph)	324	189	171	90	21	1061	755
v/c Ratio	1.03	0.57	0.47	0.32	0.09	0.63	0.83
Control Delay	109.6	54.4	17.6	5.5	0.8	28.1	45.8
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.6	0.8
Total Delay	109.6	54.4	17.6	5.6	0.8	28.7	46.6
Queue Length 50th (ft)	~292	152	30	0	0	359	356
Queue Length 95th (ft)	#481	237	105	19	0	435	m396
Internal Link Dist (ft)	413	299		354	158	814	375
Turn Bay Length (ft)							
Base Capacity (vph)	314	331	362	317	246	1681	908
Starvation Cap Reductn	0	0	0	0	0	0	32
Spillback Cap Reductn	0	0	0	10	0	280	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.03	0.57	0.47	0.29	0.09	0.76	0.86

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	659	742	269	271	242	135	958	427
v/c Ratio	1.32	0.94	0.33	0.19	0.80	0.22	1.18	1.07
Control Delay	187.1	48.5	41.9	2.0	69.3	42.4	134.9	108.0
Queue Delay	0.0	45.3	0.0	0.0	1.7	0.0	0.0	2.0
Total Delay	187.1	93.7	41.9	2.0	71.1	42.4	134.9	110.0
Queue Length 50th (ft)	~368	625	98	0	198	49	~496	~371
Queue Length 95th (ft)	m#532	m#865	140	23	277	75	#627	#581
Internal Link Dist (ft)		375	150			693		176
Turn Bay Length (ft)				200				
Base Capacity (vph)	501	792	817	1443	388	770	815	398
Starvation Cap Reductn	0	177	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	52	0	0	2
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.32	1.21	0.33	0.19	0.72	0.18	1.18	1.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.







Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

2035 Proposed MIMP PM

Intersection												
Int Delay, s/veh	35.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	696	11	35	982	27	26	8	32	54	8	33
Future Vol, veh/h	13	696	11	35	982	27	26	8	32	54	8	33
Conflicting Peds, #/hr	16	0	21	12	0	7	21	0	12	7	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	4	4	2	2	2	0	0	0	4	4	4
Mvmt Flow	14	733	12	37	1034	28	27	8	34	57	8	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1078	0	0	766	0	0	1953	1940	772	1938	1932	1085
Stage 1	-	-	-	-	-	-	788	788	-	1138	1138	-
Stage 2	-	-	-	-	-	-	1165	1152	-	800	794	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.1	6.5	6.2	7.14	6.54	6.24
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.14	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.14	5.54	-
Follow-up Hdwy	2.236	-	-	2.218	-	-	3.5	4	3.3	3.536	4.036	3.336
Pot Cap-1 Maneuver	639	-	-	847	-	-	49	66	403	~ 49	65	261
Stage 1	-	-	-	-	-	-	387	405	-	243	274	-
Stage 2	-	-	-	-	-	-	239	275	-	376	397	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	629	-	-	830	-	-	34	60	390	~ 37	59	252
Mov Cap-2 Maneuver	-	-	-	-	-	-	34	60	-	~ 37	59	-
Stage 1	-	-	-	-	-	-	371	388	-	234	258	-
Stage 2	-	-	-	-	-	-	187	259	-	325	380	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.3	225.6	\$ 550.3
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	67	629	-	-	830	-	-	55
HCM Lane V/C Ratio	1.037	0.022	-	-	0.044	-	-	1.818
HCM Control Delay (s)	225.6	10.9	-	-	9.5	-	-	\$ 550.3
HCM Lane LOS	F	B	-	-	A	-	-	F
HCM 95th %tile Q(veh)	5.3	0.1	-	-	0.1	-	-	9.6





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

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	0	5	0	0	0	25	63	0	0	47	10
Future Vol, veh/h	10	0	5	0	0	0	25	63	0	0	47	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	3	3	3
Mvmt Flow	11	0	6	0	0	0	28	70	0	0	52	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.3	0	7.6	7.3
HCM LOS	A	-	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	28%	67%	0%	0%
Vol Thru, %	72%	0%	100%	82%
Vol Right, %	0%	33%	0%	18%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	88	15	0	57
LT Vol	25	10	0	0
Through Vol	63	0	0	47
RT Vol	0	5	0	10
Lane Flow Rate	98	17	0	63
Geometry Grp	1	1	1	1
Degree of Util (X)	0.11	0.019	0	0.069
Departure Headway (Hd)	4.033	4.109	4.19	3.948
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	890	862	0	906
Service Time	2.052	2.178	2.263	1.976
HCM Lane V/C Ratio	0.11	0.02	0	0.07
HCM Control Delay	7.6	7.3	7.3	7.3
HCM Lane LOS	A	A	N	A
HCM 95th-tile Q	0.4	0.1	0	0.2






















Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	43	232	0	15	167	40	0	6	35	15	14	28
Future Vol, veh/h	43	232	0	15	167	40	0	6	35	15	14	28
Conflicting Peds, #/hr	13	0	49	60	0	24	49	0	60	24	0	13
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	0	0	0	0	0	0	2	2	2
Mvmt Flow	44	239	0	15	172	41	0	6	36	15	14	29
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	237	0	0	299	0	0	680	654	359	655	634	266
Stage 1	-	-	-	-	-	-	387	387	-	247	247	-
Stage 2	-	-	-	-	-	-	293	267	-	408	387	-
Critical Hdwy	4.11	-	-	4.1	-	-	7.1	6.5	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Follow-up Hdwy	2.209	-	-	2.2	-	-	3.5	4	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1336	-	-	1274	-	-	368	389	690	379	397	773
Stage 1	-	-	-	-	-	-	641	613	-	757	702	-
Stage 2	-	-	-	-	-	-	719	692	-	620	610	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1305	-	-	1201	-	-	295	340	613	311	347	720
Mov Cap-2 Maneuver	-	-	-	-	-	-	295	340	-	311	347	-
Stage 1	-	-	-	-	-	-	581	555	-	711	676	-
Stage 2	-	-	-	-	-	-	635	666	-	523	553	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.2			0.5			12.1			14.3		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	549	1305	-	-	1201	-	-	447				
HCM Lane V/C Ratio	0.077	0.034	-	-	0.013	-	-	0.131				
HCM Control Delay (s)	12.1	7.9	0	-	8	0	-	14.3				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.5				

Intersection												
Intersection Delay, s/veh	7.3											
Intersection LOS	A											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	38	16	7	60	0	11	0	2	0	0	0
Future Vol, veh/h	0	38	16	7	60	0	11	0	2	0	0	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	43	18	8	68	0	13	0	2	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB		WB		NB		SB					
Opposing Approach	WB		EB		SB		NB					
Opposing Lanes	1		1		1		1					
Conflicting Approach Left	SB		NB		EB		WB					
Conflicting Lanes Left	1		1		1		1					
Conflicting Approach Right	NB		SB		WB		EB					
Conflicting Lanes Right	1		1		1		1					
HCM Control Delay	7.1		7.4		7.3		0					
HCM LOS	A		A		A		-					
Lane	NBLn1	EBLn1	WBLn1	SBLn1								
Vol Left, %	85%	0%	10%	0%								
Vol Thru, %	0%	70%	90%	100%								
Vol Right, %	15%	30%	0%	0%								
Sign Control	Stop	Stop	Stop	Stop								
Traffic Vol by Lane	13	54	67	0								
LT Vol	11	0	7	0								
Through Vol	0	38	60	0								
RT Vol	2	16	0	0								
Lane Flow Rate	15	61	76	0								
Geometry Grp	1	1	1	1								
Degree of Util (X)	0.017	0.065	0.084	0								
Departure Headway (Hd)	4.215	3.805	3.993	4.15								
Convergence, Y/N	Yes	Yes	Yes	Yes								
Cap	845	942	899	0								
Service Time	2.264	1.826	2.009	2.204								
HCM Lane V/C Ratio	0.018	0.065	0.085	0								
HCM Control Delay	7.3	7.1	7.4	7.2								
HCM Lane LOS	A	A	A	N								
HCM 95th-tile Q	0.1	0.2	0.3	0								




Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	287	227	0	0	0
Future Vol, veh/h	0	287	227	0	0	0
Conflicting Peds, #/hr	6	0	0	235	235	6
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	95	95	95	95	95	95
Heavy Vehicles, %	1	1	0	0	0	0
Mvmt Flow	0	302	239	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	474	0	-	0	1011	480
Stage 1	-	-	-	-	474	-
Stage 2	-	-	-	-	537	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1093	-	-	-	268	590
Stage 1	-	-	-	-	630	-
Stage 2	-	-	-	-	590	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	848	-	-	-	161	455
Mov Cap-2 Maneuver	-	-	-	-	161	-
Stage 1	-	-	-	-	489	-
Stage 2	-	-	-	-	458	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	848	-	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	-	-	0	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	-	

HCM 6th Signalized Intersection Summary
6: 3rd Ave W & Nickerson St




2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	629	145	200	889	55	206	40	15	35	30	20
Future Volume (veh/h)	30	629	145	200	889	55	206	40	15	35	30	20
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	0.86		0.83	0.90		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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1811	1811	1811	1900	1900	1900
Adj Flow Rate, veh/h	32	676	156	215	956	59	222	43	16	38	32	22
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	6	6	6	0	0	0
Cap, veh/h	158	794	633	327	903	709	380	66	22	239	193	114
Arrive On Green	0.03	0.42	0.42	0.09	0.48	0.48	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1795	1885	1503	1795	1885	1480	964	218	71	558	640	377
Grp Volume(v), veh/h	32	676	156	215	956	59	281	0	0	92	0	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1503	1795	1885	1480	1253	0	0	1575	0	0
Q Serve(g_s), s	0.7	23.4	4.9	4.6	34.7	1.6	11.4	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.7	23.4	4.9	4.6	34.7	1.6	14.2	0.0	0.0	2.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.79		0.06	0.41		0.24
Lane Grp Cap(c), veh/h	158	794	633	327	903	709	467	0	0	546	0	0
V/C Ratio(X)	0.20	0.85	0.25	0.66	1.06	0.08	0.60	0.00	0.00	0.17	0.00	0.00
Avail Cap(c_a), veh/h	360	794	633	425	903	709	528	0	0	618	0	0
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.4	18.9	13.5	15.0	18.9	10.2	22.3	0.0	0.0	18.6	0.0	0.0
Incr Delay (d2), s/veh	0.2	11.1	0.9	1.0	46.8	0.2	0.8	0.0	0.0	0.1	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	0.3	11.9	1.7	1.7	25.3	0.5	4.2	0.0	0.0	1.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.6	30.0	14.5	15.9	65.7	10.5	23.1	0.0	0.0	18.7	0.0	0.0
LnGrp LOS	B	C	B	B	F	B	C	A	A	B	A	A
Approach Vol, veh/h		864			1230			281			92	
Approach Delay, s/veh		26.7			54.4			23.1			18.7	
Approach LOS		C			D			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	35.0		26.4	6.9	39.2		26.4				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	10.5	30.5		25.5	10.5	30.5		25.5				
Max Q Clear Time (g_c+I1), s	6.6	25.4		4.9	2.7	36.7		16.2				
Green Ext Time (p_c), s	0.0	0.6		0.3	0.0	0.0		0.9				
Intersection Summary												
HCM 6th Ctrl Delay				39.8								
HCM 6th LOS				D								

Intersection												
Int Delay, s/veh	35.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	14	179	96	0	0	0	93	244	70	5	232	139
Future Vol, veh/h	14	179	96	0	0	0	93	244	70	5	232	139
Conflicting Peds, #/hr	87	0	181	149	0	55	181	0	149	55	0	87
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	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	0	0	0
Mvmt Flow	15	186	100	0	0	0	97	254	73	5	242	145
Major/Minor	Minor2						Major1		Major2			
Conflicting Flow All	1078	1176	677				568	0	0	476	0	0
Stage 1	506	506	-				-	-	-	-	-	-
Stage 2	572	670	-				-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2				4.13	-	-	4.1	-	-
Critical Hdwy Stg 1	5.4	5.5	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-				-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3				2.227	-	-	2.2	-	-
Pot Cap-1 Maneuver	244	193	456				999	-	-	1097	-	-
Stage 1	610	543	-				-	-	-	-	-	-
Stage 2	569	459	-				-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	142	0	312				827	-	-	1097	-	-
Mov Cap-2 Maneuver	142	0	-				-	-	-	-	-	-
Stage 1	432	0	-				-	-	-	-	-	-
Stage 2	468	0	-				-	-	-	-	-	-
Approach	EB						NB		SB			
HCM Control Delay, s	128.4						2.3		0.1			
HCM LOS	F											
Minor Lane/Major Mvmt		NBL	NBT	NBR	EBLn1	SBL	SBT	SBR				
Capacity (veh/h)		827	-	-	271	1097	-	-				
HCM Lane V/C Ratio		0.117	-	-	1.111	0.005	-	-				
HCM Control Delay (s)		9.9	0	-	128.4	8.3	0	-				
HCM Lane LOS		A	A	-	F	A	A	-				
HCM 95th %tile Q(veh)		0.4	-	-	12.7	0	-	-				

Intersection						
Int Delay, s/veh	2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	34	378	40	41	289
Future Vol, veh/h	21	34	378	40	41	289
Conflicting Peds, #/hr	126	40	0	126	40	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	93	93	93	93	93	93
Heavy Vehicles, %	8	8	4	4	0	0
Mvmt Flow	23	37	406	43	44	311
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1079	594	0	0	575	0
Stage 1	554	-	-	-	-	-
Stage 2	525	-	-	-	-	-
Critical Hdwy	6.48	6.28	-	-	4.1	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.2	-
Pot Cap-1 Maneuver	235	494	-	-	1008	-
Stage 1	564	-	-	-	-	-
Stage 2	581	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	171	418	-	-	887	-
Mov Cap-2 Maneuver	171	-	-	-	-	-
Stage 1	496	-	-	-	-	-
Stage 2	480	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	22.1	0	1.2			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	269	887	-	
HCM Lane V/C Ratio	-	-	0.22	0.05	-	
HCM Control Delay (s)	-	-	22.1	9.3	0	
HCM Lane LOS	-	-	C	A	A	
HCM 95th %tile Q(veh)	-	-	0.8	0.2	-	

Intersection												
Int Delay, s/veh	4.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	94	5	85	10	333	103	30	269	10
Future Vol, veh/h	0	0	0	94	5	85	10	333	103	30	269	10
Conflicting Peds, #/hr	71	0	37	14	0	48	37	0	14	48	0	71
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	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	4	4	4	2	2	2
Mvmt Flow	0	0	0	96	5	87	10	340	105	31	274	10
Major/Minor				Minor1		Major1		Major2				
Conflicting Flow All				816	878	489	355	0	0	493	0	0
Stage 1				461	461	-	-	-	-	-	-	-
Stage 2				355	417	-	-	-	-	-	-	-
Critical Hdwy				6.4	6.5	6.2	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1				5.4	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.4	5.5	-	-	-	-	-	-	-
Follow-up Hdwy				3.5	4	3.3	2.236	-	-	2.218	-	-
Pot Cap-1 Maneuver				349	289	583	1193	-	-	1071	-	-
Stage 1				639	569	-	-	-	-	-	-	-
Stage 2				714	595	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver				313	0	531	1193	-	-	1022	-	-
Mov Cap-2 Maneuver				313	0	-	-	-	-	-	-	-
Stage 1				603	0	-	-	-	-	-	-	-
Stage 2				679	0	-	-	-	-	-	-	-
Approach				WB		NB		SB				
HCM Control Delay, s				22.6		0.2		0.8				
HCM LOS				C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1193	-	-	389	1022	-	-					
HCM Lane V/C Ratio	0.009	-	-	0.483	0.03	-	-					
HCM Control Delay (s)	8	0	-	22.6	8.6	0	-					
HCM Lane LOS	A	A	-	C	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	2.5	0.1	-	-					

Intersection						
Int Delay, s/veh	3.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	90	35	26	358	297	67
Future Vol, veh/h	90	35	26	358	297	67
Conflicting Peds, #/hr	20	20	20	0	0	20
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	94	94	94	94	94	94
Heavy Vehicles, %	0	0	5	5	2	2
Mvmt Flow	96	37	28	381	316	71
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	829	392	407	0	-	0
Stage 1	372	-	-	-	-	-
Stage 2	457	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.15	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.245	-	-	-
Pot Cap-1 Maneuver	343	661	1136	-	-	-
Stage 1	702	-	-	-	-	-
Stage 2	642	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	320	636	1114	-	-	-
Mov Cap-2 Maneuver	320	-	-	-	-	-
Stage 1	667	-	-	-	-	-
Stage 2	630	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	20	0.6		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1114	-	372	-	-	
HCM Lane V/C Ratio	0.025	-	0.357	-	-	
HCM Control Delay (s)	8.3	0	20	-	-	
HCM Lane LOS	A	A	C	-	-	
HCM 95th %tile Q(veh)	0.1	-	1.6	-	-	




Intersection												
Int Delay, s/veh	55.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	870	32	16	1094	15	37	0	73	10	5	40
Future Vol, veh/h	30	870	32	16	1094	15	37	0	73	10	5	40
Conflicting Peds, #/hr	17	0	29	36	0	24	29	0	36	24	0	17
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	1	1	1	8	8	8	0	0	0
Mvmt Flow	32	926	34	17	1164	16	39	0	78	11	5	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1204	0	0	996	0	0	2302	2281	1015	2312	2290	1225
Stage 1	-	-	-	-	-	-	1043	1043	-	1230	1230	-
Stage 2	-	-	-	-	-	-	1259	1238	-	1082	1060	-
Critical Hdwy	4.12	-	-	4.11	-	-	7.18	6.58	6.28	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.18	5.58	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.18	5.58	-	6.1	5.5	-
Follow-up Hdwy	2.218	-	-	2.209	-	-	3.572	4.072	3.372	3.5	4	3.3
Pot Cap-1 Maneuver	580	-	-	699	-	-	~ 26	38	282	27	40	220
Stage 1	-	-	-	-	-	-	270	299	-	219	252	-
Stage 2	-	-	-	-	-	-	203	241	-	266	303	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	567	-	-	675	-	-	~ 16	33	263	17	35	209
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 16	33	-	17	35	-
Stage 1	-	-	-	-	-	-	246	273	-	202	240	-
Stage 2	-	-	-	-	-	-	150	230	-	171	276	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.1	\$ 1011.3	221.8
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	42	567	-	-	675	-	-	60
HCM Lane V/C Ratio	2.786	0.056	-	-	0.025	-	-	0.975
HCM Control Delay (s)	\$ 1011.3	11.7	-	-	10.5	-	-	221.8
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	12.8	0.2	-	-	0.1	-	-	4.6

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

Intersection						
Int Delay, s/veh	5.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	67	30	30	48	32	21
Future Vol, veh/h	67	30	30	48	32	21
Conflicting Peds, #/hr	0	51	51	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	5	5	0	0	0	0
Mvmt Flow	72	32	32	52	34	23

Major/Minor	Minor2	Major2		
Conflicting Flow All	97	46	-	0
Stage 1	46	46	-	-
Stage 2	51	0	-	-
Critical Hdwy	6.4	6.5	-	-
Critical Hdwy Stg 1	5.4	5.5	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.5	4	-	-
Pot Cap-1 Maneuver	907	850	-	-
Stage 1	982	861	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	907	0	-	-
Mov Cap-2 Maneuver	907	0	-	-
Stage 1	982	0	-	-
Stage 2	-	0	-	-

















Approach	NB	SB
HCM Control Delay, s	9.4	0
HCM LOS	A	

Minor Lane/Major Mvmt	NBLn1	SBT	SBR
Capacity (veh/h)	907	-	-
HCM Lane V/C Ratio	0.092	-	-
HCM Control Delay (s)	9.4	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL2	EBT	EBR	WBL2	WBL	WBT	WBR	WBR2	NBL	NBT	NBR2	SBL
Lane Configurations												
Traffic Volume (vph)	5	0	180	5	5	215	422	5	25	5	70	40
Future Volume (vph)	5	0	180	5	5	215	422	5	25	5	70	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5				6.5	6.5			9.5		
Lane Util. Factor		1.00				0.95	0.95			1.00		
Frpb, ped/bikes		0.94				0.96	0.64			0.94		
Flpb, ped/bikes		1.00				1.00	1.00			0.98		
Frt		0.87				0.95	0.85			0.91		
Flt Protected		1.00				1.00	1.00			0.99		
Satd. Flow (prot)		1546				1626	967			1570		
Flt Permitted		0.73				0.99	1.00			0.90		
Satd. Flow (perm)		1128				1610	967			1425		
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)	5	0	196	5	5	234	459	5	27	5	76	43
RTOR Reduction (vph)	0	0	0	0	0	0	95	0	0	93	0	0
Lane Group Flow (vph)	0	201	0	0	0	373	240	0	0	15	0	0
Confl. Peds. (#/hr)	44		37	37	44		44	67	44		37	37
Confl. Bikes (#/hr)			1				37	37				
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	0%	0%	0%	2%
Turn Type	Perm	NA		Perm	Perm	NA	Perm		Perm	NA		Perm
Protected Phases		3				3				4		
Permitted Phases	3			3	3		3		4			4
Actuated Green, G (s)		30.5				30.5	30.5			22.0		
Effective Green, g (s)		30.5				30.5	30.5			19.0		
Actuated g/C Ratio		0.22				0.22	0.22			0.14		
Clearance Time (s)		6.5				6.5	6.5			6.5		
Vehicle Extension (s)		2.0				2.0	2.0			2.0		
Lane Grp Cap (vph)		245				350	210			193		
v/s Ratio Prot												
v/s Ratio Perm		0.18				0.23	0.25			0.01		
v/c Ratio		0.82				1.07	1.14			0.08		
Uniform Delay, d1		52.1				54.8	54.8			52.8		
Progression Factor		1.00				1.00	1.00			1.00		
Incremental Delay, d2		18.5				66.6	106.5			0.1		
Delay (s)		70.6				121.4	161.3			52.9		
Level of Service		E				F	F			D		
Approach Delay (s)		70.6				140.2				52.9		
Approach LOS		E				F				D		
Intersection Summary												
HCM 2000 Control Delay		70.6				HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio		0.98										
Actuated Cycle Length (s)		140.0				Sum of lost time (s)				31.0		
Intersection Capacity Utilization		124.5%				ICU Level of Service				H		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

	↓	↙	↘	↗	↖	↘	↙	↗	↖	↘
Movement	SBT	SBR	SBR2	SEL	SET	SER	SER2	NWL2	NWL	NWT
Lane Configurations	↕				↕					↕
Traffic Volume (vph)	5	5	5	5	989	5	5	15	75	760
Future Volume (vph)	5	5	5	5	989	5	5	15	75	760
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.5				9.0					9.0
Lane Util. Factor	1.00				0.95					0.95
Frpb, ped/bikes	0.97				1.00					1.00
Flpb, ped/bikes	0.96				1.00					1.00
Frt	0.98				1.00					1.00
Flt Protected	0.96				1.00					0.99
Satd. Flow (prot)	1629				3522					3555
Flt Permitted	0.72				0.95					0.55
Satd. Flow (perm)	1214				3349					1981
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	5	5	5	1075	5	5	16	82	826
RTOR Reduction (vph)	3	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	55	0	0	0	1090	0	0	0	0	924
Confl. Peds. (#/hr)		31	44	107		44	31	44	31	
Confl. Bikes (#/hr)		11	11			2	2			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	NA			Perm	NA			custom	custom	NA
Protected Phases	4				2					6
Permitted Phases				2				1 6	1 6	
Actuated Green, G (s)	22.0				68.5					68.5
Effective Green, g (s)	19.0				65.5					65.5
Actuated g/C Ratio	0.14				0.47					0.47
Clearance Time (s)	6.5				6.0					6.0
Vehicle Extension (s)	2.0				3.0					2.0
Lane Grp Cap (vph)	164				1566					926
v/s Ratio Prot										
v/s Ratio Perm	c0.05				0.33					c0.47
v/c Ratio	0.34				0.70					1.00
Uniform Delay, d1	54.8				29.4					37.2
Progression Factor	1.00				1.00					1.08
Incremental Delay, d2	0.4				2.6					25.6
Delay (s)	55.2				32.0					65.7
Level of Service	E				C					E
Approach Delay (s)	55.2				32.0					65.7
Approach LOS	E				C					E
Intersection Summary										

Intersection

Int Delay, s/veh 0

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 7 7 7 7 7 7

Traffic Vol, veh/h 0 5 0 1969 540 647

Future Vol, veh/h 0 5 0 1969 540 647

Conflicting Peds, #/hr 75 74 74 0 0 75

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 97 97 97 97 97 97

Heavy Vehicles, % 0 0 2 2 2 2

Mvmt Flow 0 5 0 2030 557 667

Major/Minor Minor2 Major1 Major2

Conflicting Flow All - 761 - 0 - 0

Stage 1 - - - - - -

Stage 2 - - - - - -

Critical Hdwy - 6.9 - - - -

Critical Hdwy Stg 1 - - - - - -

Critical Hdwy Stg 2 - - - - - -

Follow-up Hdwy - 3.3 - - - -

Pot Cap-1 Maneuver 0 352 0 - - -

Stage 1 0 - 0 - - -

Stage 2 0 - 0 - - -

Platoon blocked, % - - - - - -

Mov Cap-1 Maneuver - 304 - - - -

Mov Cap-2 Maneuver - - - - - -

Stage 1 - - - - - -

Stage 2 - - - - - -

Approach EB NB SB

HCM Control Delay, s 17 0 0

HCM LOS C

Minor Lane/Major Mvmt NBT EBLn1 SBT SBR

Capacity (veh/h) - 304 - -

HCM Lane V/C Ratio - 0.017 - -

HCM Control Delay (s) - 17 - -

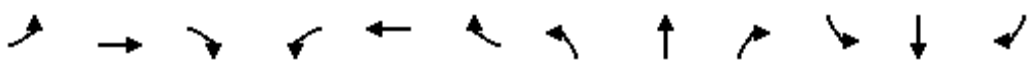
HCM Lane LOS - C - -

HCM 95th %tile Q(veh) - 0.1 - -

HCM Signalized Intersection Capacity Analysis









16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	🔴🔴	🔴			🔴🔴	🔴🔴	🔴	🔴🔴		🔴🔴	🔴	
Traffic Volume (vph)	854	267	162	0	517	790	223	330	5	320	115	115
Future Volume (vph)	854	267	162	0	517	790	223	330	5	320	115	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.98			1.00	0.68	1.00	1.00		1.00	0.96	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.94			1.00	0.85	1.00	1.00		1.00	0.93	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3467	1740			3539	1903	1770	3520		3367	1616	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3467	1740			3539	1903	1770	3520		3367	1616	
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)	890	278	169	0	539	823	232	344	5	333	120	120
RTOR Reduction (vph)	0	16	0	0	0	40	0	1	0	0	26	0
Lane Group Flow (vph)	890	431	0	0	539	783	232	348	0	333	214	0
Confl. Peds. (#/hr)	17		29	29		17	17		48	48		17
Confl. Bikes (#/hr)			2			371			156			53
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	26.9	64.9			31.5	67.5	27.1	27.1		30.5	30.5	
Effective Green, g (s)	26.9	58.4			31.5	67.5	27.1	27.1		30.5	30.5	
Actuated g/C Ratio	0.19	0.42			0.22	0.48	0.19	0.19		0.22	0.22	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	666	725			796	917	342	681		733	352	
v/s Ratio Prot	c0.26	0.25			0.15		c0.13	0.10		0.10	0.13	
v/s Ratio Perm						c0.41						
v/c Ratio	1.34	0.59			0.68	0.85	0.68	0.51		0.45	0.61	
Uniform Delay, d1	56.5	31.6			49.6	31.9	52.4	50.5		47.5	49.4	
Progression Factor	0.97	1.89			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	158.8	1.0			4.6	9.9	4.2	0.3		2.0	7.6	
Delay (s)	213.7	60.7			54.2	41.8	56.6	50.8		49.6	57.0	
Level of Service	F	E			D	D	E	D		D	E	
Approach Delay (s)		162.5			46.7			53.1			52.7	
Approach LOS		F			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			88.8				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			107.6%				ICU Level of Service			G		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

								
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	32	676	156	215	956	59	281	92
v/c Ratio	0.15	0.90	0.24	0.75	0.98	0.07	0.76	0.20
Control Delay	9.9	39.6	4.1	30.0	46.1	2.1	39.3	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	39.6	4.1	30.0	46.1	2.1	39.3	17.0
Queue Length 50th (ft)	6	283	0	46	351	0	117	24
Queue Length 95th (ft)	18	#537	36	#136	#787	13	#245	59
Internal Link Dist (ft)		79			214		74	171
Turn Bay Length (ft)	100			135		215		
Base Capacity (vph)	336	754	651	336	976	799	392	497
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.90	0.24	0.64	0.98	0.07	0.72	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT	SET	NWT
Lane Group Flow (vph)	201	373	335	108	58	1090	924
v/c Ratio	0.82	1.07	1.10	0.36	0.35	0.70	1.00
Control Delay	78.3	117.9	112.6	10.5	58.5	32.3	65.4
Queue Delay	13.4	0.0	0.0	0.0	0.0	0.1	35.6
Total Delay	91.7	117.9	112.6	10.5	58.5	32.4	101.0
Queue Length 50th (ft)	176	~392	~266	0	46	404	~455
Queue Length 95th (ft)	#310	#608	#476	46	94	485	#596
Internal Link Dist (ft)	413	299		354	158	814	375
Turn Bay Length (ft)							
Base Capacity (vph)	245	350	305	302	171	1567	926
Starvation Cap Reductn	0	0	0	0	0	0	104
Spillback Cap Reductn	32	0	0	5	0	46	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	1.07	1.10	0.36	0.34	0.72	1.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	890	447	539	823	232	349	333	240
v/c Ratio	1.34	0.54	0.68	0.86	0.68	0.51	0.45	0.64
Control Delay	200.2	51.9	54.6	39.5	62.2	52.5	49.9	51.3
Queue Delay	0.0	7.7	1.3	0.0	0.0	0.0	0.0	92.1
Total Delay	200.2	59.7	55.8	39.5	62.2	52.5	49.9	143.4
Queue Length 50th (ft)	~585	380	237	341	193	146	137	173
Queue Length 95th (ft)	#728	m486	303	459	284	197	186	269
Internal Link Dist (ft)		375	150			693		176
Turn Bay Length (ft)				200				
Base Capacity (vph)	666	821	796	957	385	767	733	377
Starvation Cap Reductn	0	326	0	0	0	0	0	0
Spillback Cap Reductn	0	0	105	0	0	0	0	320
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.34	0.90	0.78	0.86	0.60	0.46	0.45	4.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.



















m Volume for 95th percentile queue is metered by upstream signal.

2035 Proposed MIMP AM (with Mitigation Measures)

HCM 6th Signalized Intersection Summary

1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	893	52	20	599	51	17	8	174	20	2	13
Future Volume (veh/h)	27	893	52	20	599	51	17	8	174	20	2	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.98		0.96	0.98		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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1856	1856	1856	1870	1870	1870	1426	1426	1426
Adj Flow Rate, veh/h	28	930	54	21	624	53	18	8	181	21	2	14
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, %	4	4	4	3	3	3	2	2	2	32	32	32
Cap, veh/h	461	1108	64	260	1072	91	56	22	237	137	21	58
Arrive On Green	0.04	0.64	0.64	0.03	0.64	0.64	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1753	1719	100	1767	1682	143	70	123	1344	423	119	330
Grp Volume(v), veh/h	28	0	984	21	0	677	207	0	0	37	0	0
Grp Sat Flow(s),veh/h/ln	1753	0	1819	1767	0	1824	1537	0	0	873	0	0
Q Serve(g_s), s	0.5	0.0	37.7	0.4	0.0	19.3	4.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	0.0	37.7	0.4	0.0	19.3	11.5	0.0	0.0	2.6	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.08	0.09		0.87	0.57		0.38
Lane Grp Cap(c), veh/h	461	0	1172	260	0	1163	314	0	0	217	0	0
V/C Ratio(X)	0.06	0.00	0.84	0.08	0.00	0.58	0.66	0.00	0.00	0.17	0.00	0.00
Avail Cap(c_a), veh/h	524	0	1172	335	0	1163	409	0	0	280	0	0
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	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	7.0	0.0	12.4	13.0	0.0	9.4	35.2	0.0	0.0	31.5	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	7.3	0.1	0.0	2.1	2.4	0.0	0.0	0.4	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	15.8	0.2	0.0	7.6	4.5	0.0	0.0	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.1	0.0	19.7	13.1	0.0	11.5	37.7	0.0	0.0	31.8	0.0	0.0
LnGrp LOS	A	A	B	B	A	B	D	A	A	C	A	A
Approach Vol, veh/h	1012			698			207			37		
Approach Delay, s/veh	19.4			11.6			37.7			31.8		
Approach LOS	B			B			D			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	62.5		20.4	7.8	61.9		20.4				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	48.5		21.5	6.5	48.5		21.5				
Max Q Clear Time (g_c+I1), s	2.4	39.7		4.6	2.5	21.3		13.5				
Green Ext Time (p_c), s	0.0	5.0		0.1	0.0	5.6		0.8				
Intersection Summary												
HCM 6th Ctrl Delay	18.8											
HCM 6th LOS	B											

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	0	5	0	0	0	5	146	0	0	36	10
Future Vol, veh/h	30	0	5	0	0	0	5	146	0	0	36	10
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	0	0	0	9	9	9	0	0	0	0	0	0
Mvmt Flow	38	0	6	0	0	0	6	185	0	0	46	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	7.8			0			8.2			7.3		
HCM LOS	A			-			A			A		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	86%	0%	0%
Vol Thru, %	97%	0%	100%	78%
Vol Right, %	0%	14%	0%	22%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	151	35	0	46
LT Vol	5	30	0	0
Through Vol	146	0	0	36
RT Vol	0	5	0	10
Lane Flow Rate	191	44	0	58
Geometry Grp	1	1	1	1
Degree of Util (X)	0.214	0.056	0	0.065
Departure Headway (Hd)	4.028	4.522	4.643	3.991
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	887	797	0	887
Service Time	2.073	2.522	2.645	2.063
HCM Lane V/C Ratio	0.215	0.055	0	0.065
HCM Control Delay	8.2	7.8	7.6	7.3
HCM Lane LOS	A	A	N	A
HCM 95th-tile Q	0.8	0.2	0	0.2




Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		<div>↕</div>			<div>↕</div>			<div>↕</div>			<div>↕</div>	
Traffic Vol, veh/h	137	130	0	10	95	13	0	1	5	17	5	24
Future Vol, veh/h	137	130	0	10	95	13	0	1	5	17	5	24
Conflicting Peds, #/hr	2	0	8	13	0	8	8	0	13	8	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	2	2	2	0	0	0	5	5	5
Mvmt Flow	183	173	0	13	127	17	0	1	7	23	7	32
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	152	0	0	186	0	0	741	730	199	726	722	152
Stage 1	-	-	-	-	-	-	552	552	-	170	170	-
Stage 2	-	-	-	-	-	-	189	178	-	556	552	-
Critical Hdwy	4.13	-	-	4.12	-	-	7.1	6.5	6.2	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Follow-up Hdwy	2.227	-	-	2.218	-	-	3.5	4	3.3	3.545	4.045	3.345
Pot Cap-1 Maneuver	1423	-	-	1388	-	-	335	352	847	336	349	886
Stage 1	-	-	-	-	-	-	522	518	-	825	752	-
Stage 2	-	-	-	-	-	-	817	756	-	510	510	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1412	-	-	1371	-	-	275	293	826	288	290	873
Mov Cap-2 Maneuver	-	-	-	-	-	-	275	293	-	288	290	-
Stage 1	-	-	-	-	-	-	442	439	-	701	738	-
Stage 2	-	-	-	-	-	-	766	742	-	427	432	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	4.1			0.6			10.8			14.4		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	634	1412	-	-	1371	-	-	443				
HCM Lane V/C Ratio	0.013	0.129	-	-	0.01	-	-	0.138				
HCM Control Delay (s)	10.8	7.9	0	-	7.7	0	-	14.4				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0	0.4	-	-	0	-	-	0.5				

Intersection	
Intersection Delay, s/veh	7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	28	10	6	13	0	0	0	1	0	0	0
Future Vol, veh/h	0	28	10	6	13	0	0	0	1	0	0	0
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	33	33	33
Mvmt Flow	0	42	15	9	19	0	0	0	1	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0






















Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7	7.1	6.5	0
HCM LOS	A	A	A	-




Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	32%	0%
Vol Thru, %	0%	74%	68%	100%
Vol Right, %	100%	26%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	1	38	19	0
LT Vol	0	0	6	0
Through Vol	0	28	13	0
RT Vol	1	10	0	0
Lane Flow Rate	1	57	28	0
Geometry Grp	1	1	1	1
Degree of Util (X)	0.001	0.059	0.032	0
Departure Headway (Hd)	3.445	3.765	4.007	4.609
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	1036	956	897	0
Service Time	1.476	1.771	2.014	2.64
HCM Lane V/C Ratio	0.001	0.06	0.031	0
HCM Control Delay	6.5	7	7.1	7.6
HCM Lane LOS	A	A	A	N
HCM 95th-tile Q	0	0.2	0.1	0




Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	152	123	0	0	0
Future Vol, veh/h	0	152	123	0	0	0
Conflicting Peds, #/hr	4	0	0	19	19	4
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	79	79	79	79	79	79
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	0	192	156	0	0	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	175	0	-	0	386	179
Stage 1	-	-	-	-	175	-
Stage 2	-	-	-	-	211	-
Critical Hdwy	4.13	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.227	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1395	-	-	-	621	869
Stage 1	-	-	-	-	860	-
Stage 2	-	-	-	-	829	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1370	-	-	-	599	850
Mov Cap-2 Maneuver	-	-	-	-	599	-
Stage 1	-	-	-	-	845	-
Stage 2	-	-	-	-	814	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1370	-	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	-	-	0	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	-	

HCM 6th Signalized Intersection Summary
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	957	102	75	603	35	138	10	56	10	10	0
Future Volume (veh/h)	10	957	102	75	603	35	138	10	56	10	10	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	0.96		0.95	0.97		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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1811	1811	1811	1796	1796	1796	1707	1707	1707
Adj Flow Rate, veh/h	10	997	106	78	628	36	144	10	58	10	10	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, %	5	5	5	6	6	6	7	7	7	13	13	13
Cap, veh/h	485	1147	963	277	1221	1005	255	28	161	126	96	0
Arrive On Green	0.02	0.63	0.63	0.06	0.67	0.67	0.13	0.13	0.16	0.16	0.13	0.00
Sat Flow, veh/h	1739	1826	1533	1725	1811	1490	1302	220	1275	521	757	0
Grp Volume(v), veh/h	10	997	106	78	628	36	144	0	68	20	0	0
Grp Sat Flow(s),veh/h/ln	1739	1826	1533	1725	1811	1490	1302	0	1494	1279	0	0
Q Serve(g_s), s	0.2	40.2	2.5	1.2	15.6	0.7	6.3	0.0	3.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.2	40.2	2.5	1.2	15.6	0.7	9.0	0.0	3.7	3.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.85	0.50		0.00
Lane Grp Cap(c), veh/h	485	1147	963	277	1221	1005	255	0	189	264	0	0
V/C Ratio(X)	0.02	0.87	0.11	0.28	0.51	0.04	0.56	0.00	0.36	0.08	0.00	0.00
Avail Cap(c_a), veh/h	583	1147	963	294	1221	1005	387	0	340	406	0	0
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.5	13.7	6.7	15.6	7.3	4.9	38.0	0.0	34.8	34.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	9.0	0.2	0.2	1.5	0.1	0.7	0.0	0.4	0.0	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	0.1	17.4	0.8	0.8	5.8	0.2	3.1	0.0	1.3	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.5	22.7	6.9	15.8	8.9	5.0	38.8	0.0	35.2	34.1	0.0	0.0
LnGrp LOS	A	C	A	B	A	A	D	A	D	C	A	A
Approach Vol, veh/h		1113			742			212			20	
Approach Delay, s/veh		21.1			9.4			37.6			34.1	
Approach LOS		C			A			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.1	61.0		18.9	5.9	65.2		18.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	46.5		23.5	6.5	46.5		23.5				
Max Q Clear Time (g_c+I1), s	3.2	42.2		5.7	2.2	17.6		12.0				
Green Ext Time (p_c), s	0.0	0.9		0.0	0.0	0.8		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				18.7								
HCM 6th LOS				B								

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	70	0	0	0	41	200	15	5	129	49
Future Vol, veh/h	0	0	70	0	0	0	41	200	15	5	129	49
Conflicting Peds, #/hr	32	0	42	22	0	11	42	0	22	11	0	32
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	0	0	0	7	7	7	2	2	2
Mvmt Flow	0	0	88	0	0	0	51	250	19	6	161	61
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	-	-	276				264	0	0	291	0	0
Stage 1	-	-	-				-	-	-	-	-	-
Stage 2	-	-	-				-	-	-	-	-	-
Critical Hdwy	-	-	6.23				4.17	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-				-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-				-	-	-	-	-	-
Follow-up Hdwy	-	-	3.327				2.263	-	-	2.218	-	-
Pot Cap-1 Maneuver	0	0	760				1272	-	-	1271	-	-
Stage 1	0	0	-				-	-	-	-	-	-
Stage 2	0	0	-				-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	0	700				1221	-	-	1271	-	-
Mov Cap-2 Maneuver	-	0	-				-	-	-	-	-	-
Stage 1	-	0	-				-	-	-	-	-	-
Stage 2	-	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	10.9						1.3			0.2		
HCM LOS	B											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1221	-	-	700	1271	-	-					
HCM Lane V/C Ratio	0.042	-	-	0.125	0.005	-	-					
HCM Control Delay (s)	8.1	0	-	10.9	7.8	0	-					
HCM Lane LOS	A	A	-	B	A	A	-					
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0	-	-					

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	19	250	30	30	170
Future Vol, veh/h	20	19	250	30	30	170
Conflicting Peds, #/hr	16	3	0	16	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	84	84	84	84	84	84
Heavy Vehicles, %	30	30	7	7	5	5
Mvmt Flow	24	23	298	36	36	202
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	622	335	0	0	350	0
Stage 1	332	-	-	-	-	-
Stage 2	290	-	-	-	-	-
Critical Hdwy	6.7	6.5	-	-	4.15	-
Critical Hdwy Stg 1	5.7	-	-	-	-	-
Critical Hdwy Stg 2	5.7	-	-	-	-	-
Follow-up Hdwy	3.77	3.57	-	-	2.245	-
Pot Cap-1 Maneuver	408	647	-	-	1192	-
Stage 1	668	-	-	-	-	-
Stage 2	700	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	382	635	-	-	1174	-
Mov Cap-2 Maneuver	382	-	-	-	-	-
Stage 1	658	-	-	-	-	-
Stage 2	665	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	13.4	0		1.2		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	474	1174	-	
HCM Lane V/C Ratio	-	-	0.098	0.03	-	
HCM Control Delay (s)	-	-	13.4	8.2	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-	

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					<div></div>			<div></div>			<div></div>	
Traffic Vol, veh/h	0	0	0	25	0	40	0	244	28	22	168	0
Future Vol, veh/h	0	0	0	25	0	40	0	244	28	22	168	0
Conflicting Peds, #/hr	17	0	0	0	0	17	0	0	0	17	0	17
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	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	3	3	3	7	7	7	12	12	12
Mvmt Flow	0	0	0	29	0	46	0	280	32	25	193	0
Major/Minor				Minor1		Major1		Major2				
Conflicting Flow All				556	573	330	210	0	0	329	0	0
Stage 1				313	313	-	-	-	-	-	-	-
Stage 2				243	260	-	-	-	-	-	-	-
Critical Hdwy				6.43	6.53	6.23	4.17	-	-	4.22	-	-
Critical Hdwy Stg 1				5.43	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.43	5.53	-	-	-	-	-	-	-
Follow-up Hdwy				3.527	4.027	3.327	2.263	-	-	2.308	-	-
Pot Cap-1 Maneuver				490	428	709	1331	-	-	1176	-	-
Stage 1				739	655	-	-	-	-	-	-	-
Stage 2				795	691	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver				470	0	686	1331	-	-	1157	-	-
Mov Cap-2 Maneuver				470	0	-	-	-	-	-	-	-
Stage 1				727	0	-	-	-	-	-	-	-
Stage 2				776	0	-	-	-	-	-	-	-
Approach				WB		NB		SB				
HCM Control Delay, s				12.1		0		0.9				
HCM LOS				B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1331	-	-	583	1157	-	-					
HCM Lane V/C Ratio	-	-	-	0.128	0.022	-	-					
HCM Control Delay (s)	0	-	-	12.1	8.2	0	-					
HCM Lane LOS	A	-	-	B	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	0.4	0.1	-	-					

Intersection

Int Delay, s/veh 1.8

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 43 3 39 233 153 35

Future Vol, veh/h 43 3 39 233 153 35

Conflicting Peds, #/hr 15 15 15 0 0 15

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, % 0 0 8 8 11 11

Mvmt Flow 47 3 43 256 168 38

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 559 217 221 0 - 0

Stage 1 202 - - - - -

Stage 2 357 - - - - -

Critical Hdwy 6.4 6.2 4.18 - - -

Critical Hdwy Stg 1 5.4 - - - - -

Critical Hdwy Stg 2 5.4 - - - - -

Follow-up Hdwy 3.5 3.3 2.272 - - -

Pot Cap-1 Maneuver 494 828 1313 - - -

Stage 1 837 - - - - -

Stage 2 713 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 461 805 1294 - - -

Mov Cap-2 Maneuver 461 - - - - -

Stage 1 793 - - - - -

Stage 2 703 - - - - -

Approach EB NB SB

HCM Control Delay, s 13.5 1.1 0

HCM LOS B

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h) 1294 - 474 - -

HCM Lane V/C Ratio 0.033 - 0.107 - -

HCM Control Delay (s) 7.9 0 13.5 - -



















HCM Lane LOS A A B - -

HCM 95th %tile Q(veh) 0.1 - 0.4 - -

HCM Signalized Intersection Capacity Analysis

11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	951	53	24	677	25	29	5	50	5	5	35
Future Volume (vph)	35	951	53	24	677	25	29	5	50	5	5	35
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	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.97			0.96	
Flpb, ped/bikes	0.99	1.00		1.00	1.00			0.99			1.00	
Frt	1.00	0.99		1.00	0.99			0.92			0.89	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1679	1774		1703	1778			1398			1610	
Flt Permitted	0.34	1.00		0.21	1.00			0.90			0.97	
Satd. Flow (perm)	609	1774		371	1778			1282			1570	
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	1012	56	26	720	27	31	5	53	5	5	37
RTOR Reduction (vph)	0	1	0	0	1	0	0	49	0	0	34	0
Lane Group Flow (vph)	37	1067	0	26	746	0	0	40	0	0	13	0
Confl. Peds. (#/hr)	16		9	10		17	9		10	17		16
Confl. Bikes (#/hr)			1			2						
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	19%	19%	19%	0%	0%	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)	73.5	73.5		73.5	73.5			7.5			7.5	
Effective Green, g (s)	73.5	73.5		73.5	73.5			7.5			7.5	
Actuated g/C Ratio	0.82	0.82		0.82	0.82			0.08			0.08	
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)	497	1448		302	1452			106			130	
v/s Ratio Prot		c0.60			0.42							
v/s Ratio Perm	0.06			0.07				c0.03			0.01	
v/c Ratio	0.07	0.74		0.09	0.51			0.38			0.10	
Uniform Delay, d1	1.6	3.8		1.6	2.6			39.1			38.1	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.3	3.4		0.6	1.3			2.3			0.3	
Delay (s)	1.9	7.2		2.2	3.9			41.3			38.5	
Level of Service	A	A		A	A			D			D	
Approach Delay (s)		7.0			3.9			41.3			38.5	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			8.0			HCM 2000 Level of Service				A		
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			74.1%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Int Delay, s/veh 5

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 24 16 24 65 43 44

Future Vol, veh/h 24 16 24 65 43 44

Conflicting Peds, #/hr 15 15 15 0 0 15

Sign Control Free Free Stop Stop Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 1 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 89 89 89 89 89 89

Heavy Vehicles, % 0 0 11 11 32 32

Mvmt Flow 27 18 27 73 48 49

Major/Minor Minor2 Major2

Conflicting Flow All 103 88 - 0

Stage 1 88 88 - -

Stage 2 15 0 - -

Critical Hdwy 6.51 6.61 - -

Critical Hdwy Stg 1 5.51 5.61 - -

Critical Hdwy Stg 2 - - - -

Follow-up Hdwy 3.599 4.099 - -

Pot Cap-1 Maneuver 874 785 - -

Stage 1 913 805 - -

Stage 2 - - - -

Platoon blocked, % - -

Mov Cap-1 Maneuver 850 0 - -

Mov Cap-2 Maneuver 850 0 - -

Stage 1 900 0 - -

Stage 2 - 0 - -

Approach NB SB

HCM Control Delay, s 9.8 0

HCM LOS A

Minor Lane/Major Mvmt NBLn1 SBT SBR

Capacity (veh/h) 850 - -

HCM Lane V/C Ratio 0.118 - -

HCM Control Delay (s) 9.8 - -

















HCM Lane LOS A - -

HCM 95th %tile Q(veh) 0.4 - -

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St
















2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR2
Lane Configurations												
Traffic Volume (vph)	5	5	0	295	5	115	214	5	5	30	0	50
Future Volume (vph)	5	5	0	295	5	115	214	5	5	30	0	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.5			6.5	6.5				9.5	
Lane Util. Factor			1.00			0.95	0.95				1.00	
Frpb, ped/bikes			0.97			0.98	0.85				0.98	
Flpb, ped/bikes			1.00			1.00	1.00				0.98	
Frt			0.87			0.95	0.85				0.92	
Flt Protected			1.00			1.00	1.00				0.98	
Satd. Flow (prot)			1561			1648	1273				1575	
Flt Permitted			0.99			0.98	1.00				0.86	
Satd. Flow (perm)			1543			1624	1273				1377	
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	5	0	314	5	122	228	5	5	32	0	53
RTOR Reduction (vph)	0	0	0	0	0	0	104	0	0	0	79	0
Lane Group Flow (vph)	0	0	324	0	0	189	68	0	0	0	11	0
Confl. Peds. (#/hr)	24	18		14	16		24	18	9	24		14
Confl. Bikes (#/hr)				1			10	10				
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%
Turn Type	Perm	Perm	NA		Perm	NA	Perm		Perm	Perm	NA	
Protected Phases			3			3					4	
Permitted Phases	3	3			3		3		4	4		
Actuated Green, G (s)			26.5			26.5	26.5				19.0	
Effective Green, g (s)			26.5			26.5	26.5				16.0	
Actuated g/C Ratio			0.20			0.20	0.20				0.12	
Clearance Time (s)			6.5			6.5	6.5				6.5	
Vehicle Extension (s)			2.0			2.0	2.0				2.0	
Lane Grp Cap (vph)			314			331	259				169	
v/s Ratio Prot												
v/s Ratio Perm			c0.21			0.12	0.05				c0.01	
v/c Ratio			1.03			0.57	0.26				0.07	
Uniform Delay, d1			51.8			46.6	43.5				50.4	
Progression Factor			1.00			1.00	1.00				1.00	
Incremental Delay, d2			59.3			1.5	0.2				0.1	
Delay (s)			111.0			48.1	43.7				50.5	
Level of Service			F			D	D				D	
Approach Delay (s)			111.0			46.0					50.5	
Approach LOS			F			D					D	
Intersection Summary												
HCM 2000 Control Delay			45.9			HCM 2000 Level of Service					D	
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				31.0		
Intersection Capacity Utilization			117.7%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour


												
Movement	SBL2	SBL	SBT	SBR2	SET	SER	SER2	NWL2	NWL	NWT	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	10	5	0	5	988	5	5	25	65	600	15	5
Future Volume (vph)	10	5	0	5	988	5	5	25	65	600	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			9.5		9.0					9.0		
Lane Util. Factor			1.00		0.95					0.95		
Frpb, ped/bikes			0.99		1.00					1.00		
Flpb, ped/bikes			0.98		1.00					1.00		
Frt			0.97		1.00					1.00		
Flt Protected			0.96		1.00					0.99		
Satd. Flow (prot)			1146		3496					3361		
Flt Permitted			0.76		1.00					0.56		
Satd. Flow (perm)			909		3496					1888		
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	5	0	5	1051	5	5	27	69	638	16	5
RTOR Reduction (vph)	0	0	18	0	0	0	0	0	0	1	0	0
Lane Group Flow (vph)	0	0	3	0	1061	0	0	0	0	754	0	0
Confl. Peds. (#/hr)		14		24		16	9	16	9		18	
Confl. Bikes (#/hr)				2		2	2				1	1
Heavy Vehicles (%)	50%	50%	50%	50%	3%	3%	3%	6%	6%	6%	6%	6%
Turn Type	Perm	Perm	NA		NA			custom	custom	NA		
Protected Phases			4		2					6		
Permitted Phases	4	4						16	16			
Actuated Green, G (s)			19.0		65.5					65.5		
Effective Green, g (s)			16.0		62.5					62.5		
Actuated g/C Ratio			0.12		0.48					0.48		
Clearance Time (s)			6.5		6.0					6.0		
Vehicle Extension (s)			2.0		3.0					2.0		
Lane Grp Cap (vph)			111		1680					907		
v/s Ratio Prot					0.30							
v/s Ratio Perm			0.00							c0.40		
v/c Ratio			0.02		0.63					0.83		
Uniform Delay, d1			50.1		25.2					29.2		
Progression Factor			1.00		1.00					1.27		
Incremental Delay, d2			0.0		1.8					6.9		
Delay (s)			50.2		27.0					43.8		
Level of Service			D		C					D		
Approach Delay (s)			50.2		27.0					43.8		
Approach LOS			D		C					D		
Intersection Summary												

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	15	0	1013	1315	339
Future Vol, veh/h	0	15	0	1013	1315	339
Conflicting Peds, #/hr	31	30	30	0	0	31
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	89	89	89	89	89	89
Heavy Vehicles, %	50	50	6	6	7	7
Mvmt Flow	0	17	0	1138	1478	381
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	991	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.8	-	-	-	-
Pot Cap-1 Maneuver	0	174	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	164	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	29.5	0		0		
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	164	-	-		
HCM Lane V/C Ratio	-	0.103	-	-		
HCM Control Delay (s)	-	29.5	-	-		
HCM Lane LOS	-	D	-	-		
HCM 95th %tile Q(veh)	-	0.3	-	-		

HCM Signalized Intersection Capacity Analysis

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↱	↱			↰↱	↰↱	↰	↰↱		↰↱	↱	
Traffic Volume (vph)	633	617	95	0	258	260	232	120	10	920	190	220
Future Volume (vph)	633	617	95	0	258	260	232	120	10	920	190	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.94	1.00	1.00		1.00	0.90	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98			1.00	0.85	1.00	0.99		1.00	0.92	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3400	1792			3374	2496	1656	3264		3367	1512	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3400	1792			3374	2496	1656	3264		3367	1512	
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)	659	643	99	0	269	271	242	125	10	958	198	229
RTOR Reduction (vph)	0	4	0	0	0	128	0	5	0	0	32	0
Lane Group Flow (vph)	659	738	0	0	269	143	242	130	0	958	395	0
Confl. Peds. (#/hr)	19		37	37		19	33		12	12		33
Confl. Bikes (#/hr)			12			33			16			155
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	9%	9%	9%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	19.2	57.2			31.5	68.5	23.8	23.8		31.5	31.5	
Effective Green, g (s)	19.2	50.7			31.5	68.5	23.8	23.8		31.5	31.5	
Actuated g/C Ratio	0.15	0.39			0.24	0.53	0.18	0.18		0.24	0.24	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	502	698			817	1315	303	597		815	366	
v/s Ratio Prot	c0.19	c0.41			0.08		c0.15	0.04		c0.28	0.26	
v/s Ratio Perm						0.06						
v/c Ratio	1.31	1.06			0.33	0.11	0.80	0.22		1.18	1.08	
Uniform Delay, d1	55.4	39.6			40.6	15.4	50.8	45.2		49.2	49.2	
Progression Factor	0.76	0.92			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	150.5	44.7			0.1	0.2	12.8	0.1		91.7	70.0	
Delay (s)	192.5	81.0			40.6	15.6	63.6	45.2		140.9	119.3	
Level of Service	F	F			D	B	E	D		F	F	
Approach Delay (s)		133.5			28.1			57.0			134.3	
Approach LOS		F			C			E			F	
Intersection Summary												
HCM 2000 Control Delay			110.6				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.08									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			92.4%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	28	984	21	677	207	37
v/c Ratio	0.05	0.73	0.06	0.50	0.65	0.51
Control Delay	2.7	13.2	1.9	5.1	18.5	50.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.7	13.2	1.9	5.1	18.5	50.0
Queue Length 50th (ft)	2	152	1	99	14	13
Queue Length 95th (ft)	10	#747	m3	99	76	42
Internal Link Dist (ft)		549		657	226	272
Turn Bay Length (ft)	30		30			
Base Capacity (vph)	563	1352	365	1361	500	151
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.73	0.06	0.50	0.41	0.25

Intersection Summary










95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

									
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	10	997	106	78	628	36	144	68	20
v/c Ratio	0.02	0.88	0.11	0.35	0.50	0.03	0.77	0.25	0.11
Control Delay	8.1	29.2	6.4	12.8	16.0	4.1	62.1	12.9	31.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.1	29.2	6.4	12.8	16.0	4.1	62.1	12.9	31.0
Queue Length 50th (ft)	1	340	1	16	178	0	82	5	10
Queue Length 95th (ft)	m4	#862	m35	51	487	m8	132	38	28
Internal Link Dist (ft)		79			214			74	171
Turn Bay Length (ft)	100			135		215			
Base Capacity (vph)	526	1129	948	222	1251	1048	294	389	327
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.88	0.11	0.35	0.50	0.03	0.49	0.17	0.06

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	37	1068	26	747	89	47
v/c Ratio	0.07	0.72	0.08	0.50	0.52	0.26
Control Delay	0.4	5.8	3.2	4.5	30.3	19.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.4	5.8	3.2	4.5	30.3	19.0
Queue Length 50th (ft)	0	9	2	98	20	5
Queue Length 95th (ft)	m1	m142	10	221	63	35
Internal Link Dist (ft)		379		803	22	101
Turn Bay Length (ft)	30		30			
Base Capacity (vph)	516	1484	310	1488	332	386
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.72	0.08	0.50	0.27	0.12

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT	SET	NWT
Lane Group Flow (vph)	324	189	171	90	21	1061	755
v/c Ratio	1.03	0.57	0.47	0.32	0.09	0.63	0.83
Control Delay	109.6	54.4	17.6	5.5	0.8	28.1	45.8
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.6	0.8
Total Delay	109.6	54.4	17.6	5.6	0.8	28.7	46.6
Queue Length 50th (ft)	~292	152	30	0	0	359	356
Queue Length 95th (ft)	#481	237	105	19	0	435	m396
Internal Link Dist (ft)	413	299		354	158	814	375
Turn Bay Length (ft)							
Base Capacity (vph)	314	331	362	317	246	1681	908
Starvation Cap Reductn	0	0	0	0	0	0	32
Spillback Cap Reductn	0	0	0	10	0	280	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.03	0.57	0.47	0.29	0.09	0.76	0.86

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	659	742	269	271	242	135	958	427
v/c Ratio	1.32	0.94	0.33	0.19	0.80	0.22	1.18	1.07
Control Delay	187.1	48.5	41.9	2.0	69.3	42.4	134.9	108.0
Queue Delay	0.0	45.3	0.0	0.0	1.7	0.0	0.0	2.0
Total Delay	187.1	93.7	41.9	2.0	71.1	42.4	134.9	110.0
Queue Length 50th (ft)	~368	625	98	0	198	49	~496	~371
Queue Length 95th (ft)	m#532	m#865	140	23	277	75	#627	#581
Internal Link Dist (ft)		375	150			693		176
Turn Bay Length (ft)				200				
Base Capacity (vph)	501	792	817	1443	388	770	815	398
Starvation Cap Reductn	0	177	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	52	0	0	2
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.32	1.21	0.33	0.19	0.72	0.18	1.18	1.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.




















m Volume for 95th percentile queue is metered by upstream signal.

2035 Proposed MIMP PM (with Mitigation Measures)

HCM 6th Signalized Intersection Summary

1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	696	11	35	982	27	26	8	186	54	8	33
Future Volume (veh/h)	13	696	11	35	982	27	26	8	186	54	8	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	0.97		0.95	0.97		0.94
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1870	1870	1870	1900	1900	1900	1841	1841	1841
Adj Flow Rate, veh/h	14	733	12	37	1034	28	27	8	196	57	8	35
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	2	2	2	0	0	0	4	4	4
Cap, veh/h	194	1105	18	406	1148	31	66	25	255	166	33	73
Arrive On Green	0.02	0.61	0.61	0.04	0.63	0.63	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1753	1805	30	1781	1811	49	108	126	1312	531	169	377
Grp Volume(v), veh/h	14	0	745	37	0	1062	231	0	0	100	0	0
Grp Sat Flow(s),veh/h/ln	1753	0	1835	1781	0	1860	1546	0	0	1078	0	0
Q Serve(g_s), s	0.3	0.0	23.9	0.7	0.0	43.8	5.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	0.0	23.9	0.7	0.0	43.8	12.6	0.0	0.0	7.5	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.03	0.12		0.85	0.57		0.35
Lane Grp Cap(c), veh/h	194	0	1123	406	0	1179	345	0	0	272	0	0
V/C Ratio(X)	0.07	0.00	0.66	0.09	0.00	0.90	0.67	0.00	0.00	0.37	0.00	0.00
Avail Cap(c_a), veh/h	284	0	1123	457	0	1179	412	0	0	329	0	0
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	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	16.1	0.0	11.4	8.8	0.0	14.0	34.2	0.0	0.0	31.8	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	3.1	0.1	0.0	11.1	3.2	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	0.1	0.0	9.8	0.2	0.0	19.7	5.0	0.0	0.0	2.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.2	0.0	14.5	8.9	0.0	25.1	37.4	0.0	0.0	32.7	0.0	0.0
LnGrp LOS	B	A	B	A	A	C	D	A	A	C	A	A
Approach Vol, veh/h	759			1099			231			100		
Approach Delay, s/veh	14.5			24.6			37.4			32.7		
Approach LOS	B			C			D			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	59.6		22.0	6.4	61.6		22.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	48.5		21.5	6.5	48.5		21.5				
Max Q Clear Time (g_c+I1), s	2.7	25.9		9.5	2.3	45.8		14.6				
Green Ext Time (p_c), s	0.0	6.0		0.4	0.0	1.9		0.8				
Intersection Summary												
HCM 6th Ctrl Delay	22.8											
HCM 6th LOS	C											

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	0	5	0	0	0	25	217	0	0	47	10
Future Vol, veh/h	10	0	5	0	0	0	25	217	0	0	47	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	3	3	3
Mvmt Flow	11	0	6	0	0	0	28	241	0	0	52	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.6	0	8.7	7.5
HCM LOS	A	-	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	10%	67%	0%	0%
Vol Thru, %	90%	0%	100%	82%
Vol Right, %	0%	33%	0%	18%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	242	15	0	57
LT Vol	25	10	0	0
Through Vol	217	0	0	47
RT Vol	0	5	0	10
Lane Flow Rate	269	17	0	63
Geometry Grp	1	1	1	1
Degree of Util (X)	0.299	0.021	0	0.072
Departure Headway (Hd)	3.997	4.543	4.633	4.076
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	898	793	0	871
Service Time	2.023	2.543	2.634	2.139
HCM Lane V/C Ratio	0.3	0.021	0	0.072
HCM Control Delay	8.7	7.6	7.6	7.5
HCM Lane LOS	A	A	N	A
HCM 95th-tile Q	1.3	0.1	0	0.2




Intersection												
Int Delay, s/veh	5.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	197	78	0	15	167	40	0	6	35	15	14	28
Future Vol, veh/h	197	78	0	15	167	40	0	6	35	15	14	28
Conflicting Peds, #/hr	13	0	49	60	0	24	49	0	60	24	0	13
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	0	0	0	0	0	0	2	2	2
Mvmt Flow	203	80	0	15	172	41	0	6	36	15	14	29
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	237	0	0	140	0	0	839	813	200	814	793	266
Stage 1	-	-	-	-	-	-	546	546	-	247	247	-
Stage 2	-	-	-	-	-	-	293	267	-	567	546	-
Critical Hdwy	4.11	-	-	4.1	-	-	7.1	6.5	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Follow-up Hdwy	2.209	-	-	2.2	-	-	3.5	4	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1336	-	-	1456	-	-	288	315	846	297	321	773
Stage 1	-	-	-	-	-	-	526	521	-	757	702	-
Stage 2	-	-	-	-	-	-	719	692	-	508	518	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1305	-	-	1373	-	-	206	240	752	222	245	720
Mov Cap-2 Maneuver	-	-	-	-	-	-	206	240	-	222	245	-
Stage 1	-	-	-	-	-	-	415	411	-	619	677	-
Stage 2	-	-	-	-	-	-	636	668	-	376	409	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	5.9			0.5			11.8			17.4		
HCM LOS							B			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	573	1305	-	-	1373	-	-	348				
HCM Lane V/C Ratio	0.074	0.156	-	-	0.011	-	-	0.169				
HCM Control Delay (s)	11.8	8.3	0	-	7.7	0	-	17.4				
HCM Lane LOS	B	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	0.2	0.6	-	-	0	-	-	0.6				

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	38	16	7	60	0	11	0	2	0	0	0
Future Vol, veh/h	0	38	16	7	60	0	11	0	2	0	0	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	43	18	8	68	0	13	0	2	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0























Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.1	7.4	7.3	0
HCM LOS	A	A	A	-

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	85%	0%	10%	0%
Vol Thru, %	0%	70%	90%	100%
Vol Right, %	15%	30%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	54	67	0
LT Vol	11	0	7	0
Through Vol	0	38	60	0
RT Vol	2	16	0	0
Lane Flow Rate	15	61	76	0
Geometry Grp	1	1	1	1
Degree of Util (X)	0.017	0.065	0.084	0
Departure Headway (Hd)	4.215	3.805	3.993	4.15
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	845	942	899	0
Service Time	2.264	1.826	2.009	2.204
HCM Lane V/C Ratio	0.018	0.065	0.085	0
HCM Control Delay	7.3	7.1	7.4	7.2
HCM Lane LOS	A	A	A	N
HCM 95th-tile Q	0.1	0.2	0.3	0

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	133	227	0	0	0
Future Vol, veh/h	0	133	227	0	0	0
Conflicting Peds, #/hr	6	0	0	235	235	6
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	95	95	95	95	95	95
Heavy Vehicles, %	1	1	0	0	0	0
Mvmt Flow	0	140	239	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	474	0	-	0	849	480
Stage 1	-	-	-	-	474	-
Stage 2	-	-	-	-	375	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1093	-	-	-	334	590
Stage 1	-	-	-	-	630	-
Stage 2	-	-	-	-	699	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	848	-	-	-	201	455
Mov Cap-2 Maneuver	-	-	-	-	201	-
Stage 1	-	-	-	-	489	-
Stage 2	-	-	-	-	542	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	848	-	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	-	-	0	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	-	

HCM 6th Signalized Intersection Summary 6: 3rd Ave W & Nickerson St




2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	783	145	200	889	55	206	40	1	35	30	20
Future Volume (veh/h)	30	783	145	200	889	55	206	40	1	35	30	20
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		0.93	0.81		0.80	0.83		0.80
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1811	1811	1811	1900	1900	1900
Adj Flow Rate, veh/h	32	842	156	215	956	59	222	43	1	38	32	22
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	6	6	6	0	0	0
Cap, veh/h	210	991	800	291	1052	833	324	383	9	165	127	74
Arrive On Green	0.04	0.53	0.53	0.07	0.56	0.56	0.22	0.22	0.25	0.25	0.22	0.25
Sat Flow, veh/h	1795	1885	1522	1795	1885	1493	1062	1751	41	495	579	337
Grp Volume(v), veh/h	32	842	156	215	956	59	222	0	44	92	0	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1522	1795	1885	1493	1062	0	1792	1411	0	0
Q Serve(g_s), s	0.7	34.4	4.9	4.9	40.9	1.6	14.1	0.0	1.8	1.3	0.0	0.0
Cycle Q Clear(g_c), s	0.7	34.4	4.9	4.9	40.9	1.6	17.3	0.0	1.8	4.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.02	0.41		0.24
Lane Grp Cap(c), veh/h	210	991	800	291	1052	833	324	0	392	412	0	0
V/C Ratio(X)	0.15	0.85	0.19	0.74	0.91	0.07	0.68	0.00	0.11	0.22	0.00	0.00
Avail Cap(c_a), veh/h	268	991	800	291	1052	833	334	0	408	425	0	0
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.1	18.3	11.3	18.3	17.8	9.1	33.9	0.0	28.1	28.2	0.0	0.0
Incr Delay (d2), s/veh	0.1	9.0	0.5	8.5	12.9	0.2	4.5	0.0	0.0	0.1	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	0.3	16.5	1.7	3.0	20.0	0.6	5.1	0.0	0.8	1.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.3	27.3	11.8	26.8	30.7	9.3	38.3	0.0	28.2	28.3	0.0	0.0
LnGrp LOS	B	C	B	C	C	A	D	A	C	C	A	A
Approach Vol, veh/h		1030			1230			266			92	
Approach Delay, s/veh		24.7			29.0			36.7			28.3	
Approach LOS		C			C			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	51.8		27.2	8.1	54.7		27.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	46.5		23.5	6.5	46.5		23.5				
Max Q Clear Time (g_c+I1), s	6.9	36.4		6.2	2.7	42.9		20.3				
Green Ext Time (p_c), s	0.0	1.1		0.3	0.0	0.8		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			28.1									
HCM 6th LOS			C									

Intersection												
Int Delay, s/veh	4.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	0	0	135	0	0	0	93	244	70	5	232	139
Future Vol, veh/h	0	0	135	0	0	0	93	244	70	5	232	139
Conflicting Peds, #/hr	87	0	181	149	0	55	181	0	149	55	0	87
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	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	0	0	0
Mvmt Flow	0	0	141	0	0	0	97	254	73	5	242	145
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	1078	1176	677				568	0	0	476	0	0
Stage 1	506	506	-				-	-	-	-	-	-
Stage 2	572	670	-				-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2				4.13	-	-	4.1	-	-
Critical Hdwy Stg 1	5.4	5.5	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-				-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3				2.227	-	-	2.2	-	-
Pot Cap-1 Maneuver	244	193	456				999	-	-	1097	-	-
Stage 1	610	543	-				-	-	-	-	-	-
Stage 2	569	459	-				-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	142	0	312				827	-	-	1097	-	-
Mov Cap-2 Maneuver	142	0	-				-	-	-	-	-	-
Stage 1	432	0	-				-	-	-	-	-	-
Stage 2	468	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	25.7						2.3			0.1		
HCM LOS	D											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR					
Capacity (veh/h)	827	-	-	312	1097	-	-					
HCM Lane V/C Ratio	0.117	-	-	0.451	0.005	-	-					
HCM Control Delay (s)	9.9	0	-	25.7	8.3	0	-					
HCM Lane LOS	A	A	-	D	A	A	-					
HCM 95th %tile Q(veh)	0.4	-	-	2.2	0	-	-					

Intersection

Int Delay, s/veh 2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	34	378	40	60	308
Future Vol, veh/h	21	34	378	40	60	308
Conflicting Peds, #/hr	126	40	0	126	40	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	93	93	93	93	93	93
Heavy Vehicles, %	8	8	4	4	0	0
Mvmt Flow	23	37	406	43	65	331

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1141	594	0
Stage 1	554	-	-
Stage 2	587	-	-
Critical Hdwy	6.48	6.28	-
Critical Hdwy Stg 1	5.48	-	-
Critical Hdwy Stg 2	5.48	-	-
Follow-up Hdwy	3.572	3.372	-
Pot Cap-1 Maneuver	216	494	-
Stage 1	564	-	-
Stage 2	544	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	152	418	-
Mov Cap-2 Maneuver	152	-	-
Stage 1	496	-	-
Stage 2	436	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.7	0	1.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	251	887
HCM Lane V/C Ratio	-	-	0.236	0.073
HCM Control Delay (s)	-	-	23.7	9.4
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.9	0.2

Intersection												
Int Delay, s/veh	5.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	94	5	85	10	333	103	49	269	10
Future Vol, veh/h	0	0	0	94	5	85	10	333	103	49	269	10
Conflicting Peds, #/hr	71	0	37	14	0	48	37	0	14	48	0	71
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	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	4	4	4	2	2	2
Mvmt Flow	0	0	0	96	5	87	10	340	105	50	274	10
Major/Minor				Minor1		Major1			Major2			
Conflicting Flow All				854	916	489	355	0	0	493	0	0
Stage 1				461	461	-	-	-	-	-	-	-
Stage 2				393	455	-	-	-	-	-	-	-
Critical Hdwy				6.4	6.5	6.2	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1				5.4	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.4	5.5	-	-	-	-	-	-	-
Follow-up Hdwy				3.5	4	3.3	2.236	-	-	2.218	-	-
Pot Cap-1 Maneuver				332	274	583	1193	-	-	1071	-	-
Stage 1				639	569	-	-	-	-	-	-	-
Stage 2				686	572	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver				291	0	531	1193	-	-	1022	-	-
Mov Cap-2 Maneuver				291	0	-	-	-	-	-	-	-
Stage 1				603	0	-	-	-	-	-	-	-
Stage 2				637	0	-	-	-	-	-	-	-
Approach				WB		NB			SB			
HCM Control Delay, s				24.2		0.2			1.3			
HCM LOS				C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1193	-	-	371	1022	-	-					
HCM Lane V/C Ratio	0.009	-	-	0.506	0.049	-	-					
HCM Control Delay (s)	8	0	-	24.2	8.7	0	-					
HCM Lane LOS	A	A	-	C	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	2.7	0.2	-	-					

Intersection

Int Delay, s/veh 3.1

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 90 35 26 358 297 67

Future Vol, veh/h 90 35 26 358 297 67

Conflicting Peds, #/hr 20 20 20 0 0 20

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 94 94 94 94 94 94

Heavy Vehicles, % 0 0 5 5 2 2

Mvmt Flow 96 37 28 381 316 71

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 829 392 407 0 - 0

Stage 1 372 - - - - -

Stage 2 457 - - - - -

Critical Hdwy 6.4 6.2 4.15 - - -

Critical Hdwy Stg 1 5.4 - - - - -

Critical Hdwy Stg 2 5.4 - - - - -

Follow-up Hdwy 3.5 3.3 2.245 - - -

Pot Cap-1 Maneuver 343 661 1136 - - -

Stage 1 702 - - - - -

Stage 2 642 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 320 636 1114 - - -

Mov Cap-2 Maneuver 320 - - - - -

Stage 1 667 - - - - -

Stage 2 630 - - - - -

Approach EB NB SB

HCM Control Delay, s 20 0.6 0

HCM LOS C

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h) 1114 - 372 - -

HCM Lane V/C Ratio 0.025 - 0.357 - -

HCM Control Delay (s) 8.3 0 20 - -



















HCM Lane LOS A A C - -

HCM 95th %tile Q(veh) 0.1 - 1.6 - -

HCM Signalized Intersection Capacity Analysis

11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	831	32	16	1094	15	37	0	92	10	5	40
Future Volume (vph)	30	831	32	16	1094	15	37	0	92	10	5	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			4.5			4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.93			0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.98			0.99	
Frt	1.00	0.99		1.00	1.00			0.90			0.90	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1844		1787	1875			1432			1615	
Flt Permitted	0.14	1.00		0.26	1.00			0.91			0.90	
Satd. Flow (perm)	267	1844		484	1875			1325			1472	
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)	32	884	34	17	1164	16	39	0	98	11	5	43
RTOR Reduction (vph)	0	1	0	0	0	0	0	87	0	0	38	0
Lane Group Flow (vph)	32	917	0	17	1180	0	0	50	0	0	21	0
Confl. Peds. (#/hr)	17		29	36		24	29		36	24		17
Confl. Bikes (#/hr)			3			3						
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	8%	8%	8%	0%	0%	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)	71.3	71.3		71.3	71.3			9.7			9.7	
Effective Green, g (s)	71.3	71.3		71.3	71.3			9.7			9.7	
Actuated g/C Ratio	0.79	0.79		0.79	0.79			0.11			0.11	
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)	211	1460		383	1485			142			158	
v/s Ratio Prot		0.50			c0.63							
v/s Ratio Perm	0.12			0.04				c0.04			0.01	
v/c Ratio	0.15	0.63		0.04	0.79			0.35			0.13	
Uniform Delay, d1	2.2	3.9		2.0	5.2			37.2			36.3	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	1.5	2.1		0.2	4.5			1.5			0.4	
Delay (s)	3.7	5.9		2.2	9.7			38.7			36.7	
Level of Service	A	A		A	A			D			D	
Approach Delay (s)		5.8			9.6			38.7			36.7	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			10.5			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			82.1%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Int Delay, s/veh 5.6

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 86 30 30 48 32 21

Future Vol, veh/h 86 30 30 48 32 21

Conflicting Peds, #/hr 0 51 51 0 0 0

Sign Control Free Free Stop Stop Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 1 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 93 93 93 93 93 93

Heavy Vehicles, % 5 5 0 0 0 0

Mvmt Flow 92 32 32 52 34 23

Major/Minor Minor2 Major2

Conflicting Flow All 97 46 - 0

Stage 1 46 46 - -

Stage 2 51 0 - -

Critical Hdwy 6.4 6.5 - -

Critical Hdwy Stg 1 5.4 5.5 - -

Critical Hdwy Stg 2 - - - -

Follow-up Hdwy 3.5 4 - -

Pot Cap-1 Maneuver 907 850 - -

Stage 1 982 861 - -

Stage 2 - - - -

Platoon blocked, % - -

Mov Cap-1 Maneuver 907 0 - -

Mov Cap-2 Maneuver 907 0 - -

Stage 1 982 0 - -

Stage 2 - 0 - -

Approach NB SB

HCM Control Delay, s 9.4 0

HCM LOS A

Minor Lane/Major Mvmt NBLn1 SBT SBR

Capacity (veh/h) 907 - -

HCM Lane V/C Ratio 0.092 - -

HCM Control Delay (s) 9.4 - -

















HCM Lane LOS A - -

HCM 95th %tile Q(veh) 0.3 - -

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL2	EBT	EBR	WBL2	WBL	WBT	WBR	WBR2	NBL	NBT	NBR2	SBL
Lane Configurations												
Traffic Volume (vph)	5	0	180	5	5	215	422	5	25	5	70	40
Future Volume (vph)	5	0	180	5	5	215	422	5	25	5	70	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5				6.5	6.5			9.5		
Lane Util. Factor		1.00				0.95	0.95			1.00		
Frpb, ped/bikes		0.94				0.96	0.64			0.94		
Flpb, ped/bikes		1.00				1.00	1.00			0.98		
Frt		0.87				0.95	0.85			0.91		
Flt Protected		1.00				1.00	1.00			0.99		
Satd. Flow (prot)		1546				1626	967			1570		
Flt Permitted		0.73				0.99	1.00			0.90		
Satd. Flow (perm)		1128				1610	967			1425		
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)	5	0	196	5	5	234	459	5	27	5	76	43
RTOR Reduction (vph)	0	0	0	0	0	0	95	0	0	93	0	0
Lane Group Flow (vph)	0	201	0	0	0	373	240	0	0	15	0	0
Confl. Peds. (#/hr)	44		37	37	44		44	67	44		37	37
Confl. Bikes (#/hr)			1				37	37				
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	0%	0%	0%	2%
Turn Type	Perm	NA		Perm	Perm	NA	Perm		Perm	NA		Perm
Protected Phases		3				3				4		
Permitted Phases	3			3	3		3		4			4
Actuated Green, G (s)		30.5				30.5	30.5			22.0		
Effective Green, g (s)		30.5				30.5	30.5			19.0		
Actuated g/C Ratio		0.22				0.22	0.22			0.14		
Clearance Time (s)		6.5				6.5	6.5			6.5		
Vehicle Extension (s)		2.0				2.0	2.0			2.0		
Lane Grp Cap (vph)		245				350	210			193		
v/s Ratio Prot												
v/s Ratio Perm		0.18				0.23	0.25			0.01		
v/c Ratio		0.82				1.07	1.14			0.08		
Uniform Delay, d1		52.1				54.8	54.8			52.8		
Progression Factor		1.00				1.00	1.00			1.00		
Incremental Delay, d2		18.5				66.6	106.5			0.1		
Delay (s)		70.6				121.4	161.3			52.9		
Level of Service		E				F	F			D		
Approach Delay (s)		70.6				140.2				52.9		
Approach LOS		E				F				D		
Intersection Summary												
HCM 2000 Control Delay		70.6				HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio		0.98										
Actuated Cycle Length (s)		140.0				Sum of lost time (s)				31.0		
Intersection Capacity Utilization		124.5%				ICU Level of Service				H		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

	↓	↙	↘	↗	↖	↗	↖	↘	↙	↗
Movement	SBT	SBR	SBR2	SEL	SET	SER	SER2	NWL2	NWL	NWT
Lane Configurations	↕				↕					↕
Traffic Volume (vph)	5	5	5	5	989	5	5	15	75	760
Future Volume (vph)	5	5	5	5	989	5	5	15	75	760
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.5				9.0					9.0
Lane Util. Factor	1.00				0.95					0.95
Frpb, ped/bikes	0.97				1.00					1.00
Flpb, ped/bikes	0.96				1.00					1.00
Frt	0.98				1.00					1.00
Flt Protected	0.96				1.00					0.99
Satd. Flow (prot)	1629				3522					3555
Flt Permitted	0.72				0.95					0.55
Satd. Flow (perm)	1214				3349					1981
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	5	5	5	1075	5	5	16	82	826
RTOR Reduction (vph)	3	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	55	0	0	0	1090	0	0	0	0	924
Confl. Peds. (#/hr)		31	44	107		44	31	44	31	
Confl. Bikes (#/hr)		11	11			2	2			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	NA			Perm	NA			custom	custom	NA
Protected Phases	4				2					6
Permitted Phases				2				1 6	1 6	
Actuated Green, G (s)	22.0				68.5					68.5
Effective Green, g (s)	19.0				65.5					65.5
Actuated g/C Ratio	0.14				0.47					0.47
Clearance Time (s)	6.5				6.0					6.0
Vehicle Extension (s)	2.0				3.0					2.0
Lane Grp Cap (vph)	164				1566					926
v/s Ratio Prot										
v/s Ratio Perm	c0.05				0.33					c0.47
v/c Ratio	0.34				0.70					1.00
Uniform Delay, d1	54.8				29.4					37.2
Progression Factor	1.00				1.00					1.08
Incremental Delay, d2	0.4				2.6					25.6
Delay (s)	55.2				32.0					65.7
Level of Service	E				C					E
Approach Delay (s)	55.2				32.0					65.7
Approach LOS	E				C					E
Intersection Summary										

Intersection

Int Delay, s/veh 0

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	5	0	1969	540	647
Future Vol, veh/h	0	5	0	1969	540	647
Conflicting Peds, #/hr	75	74	74	0	0	75
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	97	97	97	97	97	97
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	0	5	0	2030	557	667

Major/Minor Minor2 Major1 Major2

Conflicting Flow All	-	761	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	352	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	304	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach EB NB SB

HCM Control Delay, s	17	0	0
HCM LOS	C		























Minor Lane/Major Mvmt NBT EBLn1 SBT SBR

Capacity (veh/h)	-	304	-	-
HCM Lane V/C Ratio	-	0.017	-	-
HCM Control Delay (s)	-	17	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

HCM Signalized Intersection Capacity Analysis

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	854	267	162	0	517	790	223	330	5	320	115	115
Future Volume (vph)	854	267	162	0	517	790	223	330	5	320	115	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.98			1.00	0.68	1.00	1.00		1.00	0.96	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.94			1.00	0.85	1.00	1.00		1.00	0.93	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3467	1740			3539	1903	1770	3520		3367	1616	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3467	1740			3539	1903	1770	3520		3367	1616	
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)	890	278	169	0	539	823	232	344	5	333	120	120
RTOR Reduction (vph)	0	16	0	0	0	40	0	1	0	0	26	0
Lane Group Flow (vph)	890	431	0	0	539	783	232	348	0	333	214	0
Confl. Peds. (#/hr)	17		29	29		17	17		48	48		17
Confl. Bikes (#/hr)			2			371			156			53
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	26.9	64.9			31.5	67.5	27.1	27.1		30.5	30.5	
Effective Green, g (s)	26.9	58.4			31.5	67.5	27.1	27.1		30.5	30.5	
Actuated g/C Ratio	0.19	0.42			0.22	0.48	0.19	0.19		0.22	0.22	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	666	725			796	917	342	681		733	352	
v/s Ratio Prot	c0.26	0.25			0.15		c0.13	0.10		0.10	0.13	
v/s Ratio Perm						c0.41						
v/c Ratio	1.34	0.59			0.68	0.85	0.68	0.51		0.45	0.61	
Uniform Delay, d1	56.5	31.6			49.6	31.9	52.4	50.5		47.5	49.4	
Progression Factor	0.97	1.87			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	158.6	0.9			4.6	9.9	4.2	0.3		2.0	7.6	
Delay (s)	213.7	60.0			54.2	41.8	56.6	50.8		49.6	57.0	
Level of Service	F	E			D	D	E	D		D	E	
Approach Delay (s)		162.3			46.7			53.1			52.7	
Approach LOS		F			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			88.7				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			107.6%				ICU Level of Service			G		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour












Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	14	745	37	1062	231	100
v/c Ratio	0.05	0.59	0.08	0.77	0.63	1.01
Control Delay	3.8	11.6	4.3	11.7	15.9	125.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.8	11.6	4.3	11.7	15.9	125.2
Queue Length 50th (ft)	1	220	5	256	18	~47
Queue Length 95th (ft)	7	417	m7	m#748	81	#126
Internal Link Dist (ft)		549		657	226	272
Turn Bay Length (ft)	30		30			
Base Capacity (vph)	296	1268	475	1383	517	159
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.59	0.08	0.77	0.45	0.63

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

									
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	32	842	156	215	956	59	222	44	92
v/c Ratio	0.15	0.87	0.20	0.97	0.90	0.07	0.94	0.11	0.27
Control Delay	9.3	28.7	4.6	62.6	31.2	4.9	82.2	28.0	26.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.3	28.7	4.6	62.6	31.2	4.9	82.2	28.0	26.1
Queue Length 50th (ft)	6	263	0	77	410	1	124	19	35
Queue Length 95th (ft)	m17	#640	m47	m#142	#790	m7	#263	47	78
Internal Link Dist (ft)		79			214			74	171
Turn Bay Length (ft)	100			135		215			
Base Capacity (vph)	212	971	783	222	1065	855	237	406	344
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.87	0.20	0.97	0.90	0.07	0.94	0.11	0.27

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	32	918	17	1180	137	59
v/c Ratio	0.15	0.63	0.04	0.79	0.60	0.30
Control Delay	1.8	3.0	3.1	11.6	24.8	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.8	3.0	3.1	11.6	24.8	19.5
Queue Length 50th (ft)	1	25	1	248	21	9
Queue Length 95th (ft)	m2	m38	8	#685	m68	42
Internal Link Dist (ft)		409		773	14	101
Turn Bay Length (ft)	30		30			
Base Capacity (vph)	210	1461	382	1486	377	368
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.63	0.04	0.79	0.36	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT	SET	NWT
Lane Group Flow (vph)	201	373	335	108	58	1090	924
v/c Ratio	0.82	1.07	1.10	0.36	0.35	0.70	1.00
Control Delay	78.3	117.9	112.6	10.5	58.5	32.3	65.4
Queue Delay	13.4	0.0	0.0	0.0	0.0	0.1	35.6
Total Delay	91.7	117.9	112.6	10.5	58.5	32.4	101.0
Queue Length 50th (ft)	176	~392	~266	0	46	404	~455
Queue Length 95th (ft)	#310	#608	#476	46	94	485	#596
Internal Link Dist (ft)	413	299		354	158	814	375
Turn Bay Length (ft)							
Base Capacity (vph)	245	350	305	302	171	1567	926
Starvation Cap Reductn	0	0	0	0	0	0	104
Spillback Cap Reductn	32	0	0	5	0	46	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	1.07	1.10	0.36	0.34	0.72	1.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	890	447	539	823	232	349	333	240
v/c Ratio	1.34	0.54	0.68	0.86	0.68	0.51	0.45	0.64
Control Delay	200.2	51.3	54.6	39.5	62.2	52.5	49.9	51.3
Queue Delay	0.0	7.7	1.0	0.0	0.0	0.0	0.0	78.4
Total Delay	200.2	59.0	55.5	39.5	62.2	52.5	49.9	129.7
Queue Length 50th (ft)	~586	374	237	341	193	146	137	173
Queue Length 95th (ft)	m#708	m475	303	459	284	197	186	269
Internal Link Dist (ft)		375	150			693		176
Turn Bay Length (ft)				200				
Base Capacity (vph)	666	821	796	957	385	767	733	377
Starvation Cap Reductn	0	326	0	0	0	0	0	0
Spillback Cap Reductn	0	0	87	0	0	0	0	285
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.34	0.90	0.76	0.86	0.60	0.46	0.45	2.61

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.







Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

2035 Alternative 2 AM

Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	905	51	18	603	17	17	6	47	12	0	11
Future Vol, veh/h	17	905	51	18	603	17	17	6	47	12	0	11
Conflicting Peds, #/hr	6	0	12	14	0	8	12	0	14	8	0	6
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	4	4	4	3	3	3	2	2	2	32	32	32
Mvmt Flow	18	943	53	19	628	18	18	6	49	13	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	654	0	0	1010	0	0	1713	1712	998	1730	1729	657
Stage 1	-	-	-	-	-	-	1020	1020	-	683	683	-
Stage 2	-	-	-	-	-	-	693	692	-	1047	1046	-
Critical Hdwy	4.14	-	-	4.13	-	-	7.12	6.52	6.22	7.42	6.82	6.52
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.42	5.82	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.42	5.82	-
Follow-up Hdwy	2.236	-	-	2.227	-	-	3.518	4.018	3.318	3.788	4.288	3.588
Pot Cap-1 Maneuver	923	-	-	682	-	-	71	90	296	58	75	416
Stage 1	-	-	-	-	-	-	285	314	-	394	407	-
Stage 2	-	-	-	-	-	-	434	445	-	242	271	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	916	-	-	673	-	-	65	84	288	43	70	408
Mov Cap-2 Maneuver	-	-	-	-	-	-	65	84	-	43	70	-
Stage 1	-	-	-	-	-	-	276	304	-	383	392	-
Stage 2	-	-	-	-	-	-	405	429	-	190	262	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.3			55.1			74.1		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	141	916	-	-	673	-	-	75
HCM Lane V/C Ratio	0.517	0.019	-	-	0.028	-	-	0.319
HCM Control Delay (s)	55.1	9	-	-	10.5	-	-	74.1
HCM Lane LOS	F	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	2.5	0.1	-	-	0.1	-	-	1.2

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	0	5	0	0	0	5	16	0	0	33	10
Future Vol, veh/h	30	0	5	0	0	0	5	16	0	0	33	10
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	0	0	0	9	9	9	0	0	0	0	0	0
Mvmt Flow	38	0	6	0	0	0	6	20	0	0	42	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.4	0	7.2	7.1
HCM LOS	A	-	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	24%	86%	0%	0%
Vol Thru, %	76%	0%	100%	77%
Vol Right, %	0%	14%	0%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	21	35	0	43
LT Vol	5	30	0	0
Through Vol	16	0	0	33
RT Vol	0	5	0	10
Lane Flow Rate	27	44	0	54
Geometry Grp	1	1	1	1
Degree of Util (X)	0.03	0.051	0	0.058
Departure Headway (Hd)	4.065	4.126	4.227	3.858
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	879	867	0	927
Service Time	2.098	2.157	2.269	1.886
HCM Lane V/C Ratio	0.031	0.051	0	0.058
HCM Control Delay	7.2	7.4	7.3	7.1
HCM Lane LOS	A	A	N	A
HCM 95th-tile Q	0.1	0.2	0	0.2




Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	8	261	0	10	97	12	0	1	5	17	5	22
Future Vol, veh/h	8	261	0	10	97	12	0	1	5	17	5	22
Conflicting Peds, #/hr	2	0	8	13	0	8	8	0	13	8	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	2	2	2	0	0	0	5	5	5
Mvmt Flow	11	348	0	13	129	16	0	1	7	23	7	29
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	153	0	0	361	0	0	572	562	374	558	554	153
Stage 1	-	-	-	-	-	-	383	383	-	171	171	-
Stage 2	-	-	-	-	-	-	189	179	-	387	383	-
Critical Hdwy	4.13	-	-	4.12	-	-	7.1	6.5	6.2	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Follow-up Hdwy	2.227	-	-	2.218	-	-	3.5	4	3.3	3.545	4.045	3.345
Pot Cap-1 Maneuver	1421	-	-	1198	-	-	434	439	677	436	436	885
Stage 1	-	-	-	-	-	-	644	616	-	824	752	-
Stage 2	-	-	-	-	-	-	817	755	-	631	607	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1410	-	-	1183	-	-	399	421	660	415	418	872
Mov Cap-2 Maneuver	-	-	-	-	-	-	399	421	-	415	418	-
Stage 1	-	-	-	-	-	-	630	602	-	809	737	-
Stage 2	-	-	-	-	-	-	767	740	-	609	594	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.7			11.1			12.1		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	603	1410	-	-	1183	-	-	563				
HCM Lane V/C Ratio	0.013	0.008	-	-	0.011	-	-	0.104				
HCM Control Delay (s)	11.1	7.6	0	-	8.1	0	-	12.1				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.3				

Intersection	
Intersection Delay, s/veh	7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	28	10	6	14	0	0	0	1	0	0	0
Future Vol, veh/h	0	28	10	6	14	0	0	0	1	0	0	0
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	33	33	33
Mvmt Flow	0	42	15	9	21	0	0	0	1	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0



















Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7	7.1	6.5	0
HCM LOS	A	A	A	-

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	30%	0%
Vol Thru, %	0%	74%	70%	100%
Vol Right, %	100%	26%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	1	38	20	0
LT Vol	0	0	6	0
Through Vol	0	28	14	0
RT Vol	1	10	0	0
Lane Flow Rate	1	57	30	0
Geometry Grp	1	1	1	1
Degree of Util (X)	0.001	0.059	0.033	0
Departure Headway (Hd)	3.449	3.767	4.004	4.613
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	1035	955	898	0
Service Time	1.477	1.772	2.011	2.642
HCM Lane V/C Ratio	0.001	0.06	0.033	0
HCM Control Delay	6.5	7	7.1	7.6
HCM Lane LOS	A	A	A	N
HCM 95th-tile Q	0	0.2	0.1	0

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	283	124	0	0	0
Future Vol, veh/h	0	283	124	0	0	0
Conflicting Peds, #/hr	4	0	0	19	19	4
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	79	79	79	79	79	79
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	0	358	157	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	176	0	-	0	553	180
Stage 1	-	-	-	-	176	-
Stage 2	-	-	-	-	377	-
Critical Hdwy	4.13	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.227	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1394	-	-	-	498	868
Stage 1	-	-	-	-	859	-
Stage 2	-	-	-	-	698	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1369	-	-	-	480	849
Mov Cap-2 Maneuver	-	-	-	-	480	-
Stage 1	-	-	-	-	844	-
Stage 2	-	-	-	-	685	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1369	-	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	-	-	0	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	-	

Timings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	10	822	114	75	575	35	134	10	10	10
Future Volume (vph)	10	822	114	75	575	35	134	10	10	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	27.0	27.0	11.0	27.5	27.5	28.0	28.0	27.5	27.5
Total Split (s)	15.0	35.0	35.0	15.0	35.0	35.0	30.0	30.0	30.0	30.0
Total Split (%)	18.8%	43.8%	43.8%	18.8%	43.8%	43.8%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effect Green (s)	36.3	32.4	32.4	39.7	38.5	38.5		14.6		12.1
Actuated g/C Ratio	0.57	0.51	0.51	0.62	0.60	0.60		0.23		0.19
v/c Ratio	0.02	0.93	0.15	0.32	0.55	0.04		0.75		0.07
Control Delay	6.7	38.3	4.0	9.7	13.1	0.5		32.6		20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	6.7	38.3	4.0	9.7	13.1	0.5		32.6		20.0
LOS	A	D	A	A	B	A		C		B
Approach Delay		33.8			12.1			32.6		20.0
Approach LOS		C			B			C		B

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 63.9

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 25.7

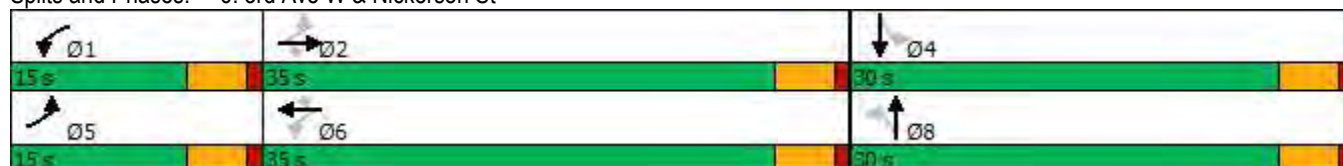
Intersection LOS: C

Intersection Capacity Utilization 77.7%

ICU Level of Service D











Analysis Period (min) 15

Splits and Phases: 6: 3rd Ave W & Nickerson St



Phasings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	27.0	27.0	11.0	27.5	27.5	28.0	28.0	27.5	27.5
Total Split (s)	15.0	35.0	35.0	15.0	35.0	35.0	30.0	30.0	30.0	30.0
Total Split (%)	18.8%	43.8%	43.8%	18.8%	43.8%	43.8%	37.5%	37.5%	37.5%	37.5%
Maximum Green (s)	10.5	30.5	30.5	10.5	30.5	30.5	25.5	25.5	25.5	25.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	1.0	0.2	0.2	1.0	0.2	0.2	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)		12	12		6	6	12	12	17	17
90th %ile Green (s)	5.0	30.5	30.5	6.9	32.4	32.4	24.1	24.1	24.1	24.1
90th %ile Term Code	Min	MaxR	MaxR	Gap	Hold	Hold	Gap	Gap	Hold	Hold
70th %ile Green (s)	0.0	30.5	30.5	5.4	40.4	40.4	18.1	18.1	18.1	18.1
70th %ile Term Code	Skip	MaxR	MaxR	Gap	Hold	Hold	Gap	Gap	Hold	Hold
50th %ile Green (s)	0.0	30.5	30.5	5.0	40.0	40.0	14.5	14.5	0.0	0.0
50th %ile Term Code	Skip	MaxR	MaxR	Min	Hold	Hold	Gap	Gap	Skip	Skip
30th %ile Green (s)	0.0	30.5	30.5	5.0	40.0	40.0	11.4	11.4	0.0	0.0
30th %ile Term Code	Skip	MaxR	MaxR	Min	Hold	Hold	Gap	Gap	Skip	Skip
10th %ile Green (s)	0.0	36.6	36.6	0.0	36.6	36.6	7.3	7.3	0.0	0.0
10th %ile Term Code	Skip	Dwell	Dwell	Skip	Dwell	Dwell	Gap	Gap	Skip	Skip

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 63.9

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 75

70th %ile Actuated Cycle: 67.5









50th %ile Actuated Cycle: 63.5

30th %ile Actuated Cycle: 60.4

10th %ile Actuated Cycle: 52.9

Queues
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour






















								
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	10	856	119	78	599	36	259	20
v/c Ratio	0.02	0.93	0.15	0.32	0.55	0.04	0.75	0.07
Control Delay	6.7	38.3	4.0	9.7	13.1	0.5	32.6	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	38.3	4.0	9.7	13.1	0.5	32.6	20.0
Queue Length 50th (ft)	1	305	2	10	109	0	76	7
Queue Length 95th (ft)	8	#693	31	34	#372	3	152	21
Internal Link Dist (ft)		79			214		74	171
Turn Bay Length (ft)	100			135		215		
Base Capacity (vph)	582	917	798	369	1080	919	573	594
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.93	0.15	0.21	0.55	0.04	0.45	0.03




Intersection Summary




95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
6: 3rd Ave W & Nickerson St




2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	822	114	75	575	35	134	10	105	10	10	0
Future Volume (veh/h)	10	822	114	75	575	35	134	10	105	10	10	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	0.98		0.96	0.99		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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1811	1811	1811	1796	1796	1796	1707	1707	1707
Adj Flow Rate, veh/h	10	856	119	78	599	36	140	10	109	10	10	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, %	5	5	5	6	6	6	7	7	7	13	13	13
Cap, veh/h	374	892	747	239	970	796	251	31	140	223	191	0
Arrive On Green	0.01	0.49	0.49	0.06	0.54	0.54	0.24	0.24	0.24	0.24	0.24	0.00
Sat Flow, veh/h	1739	1826	1528	1725	1811	1486	688	132	596	579	810	0
Grp Volume(v), veh/h	10	856	119	78	599	36	259	0	0	20	0	0
Grp Sat Flow(s),veh/h/ln	1739	1826	1528	1725	1811	1486	1416	0	0	1389	0	0
Q Serve(g_s), s	0.2	28.2	2.7	1.3	14.3	0.7	9.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.2	28.2	2.7	1.3	14.3	0.7	10.6	0.0	0.0	0.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.54		0.42	0.50		0.00
Lane Grp Cap(c), veh/h	374	892	747	239	970	796	422	0	0	414	0	0
V/C Ratio(X)	0.03	0.96	0.16	0.33	0.62	0.05	0.61	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	644	892	747	426	970	796	664	0	0	651	0	0
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.9	15.4	8.8	13.8	10.1	6.9	22.2	0.0	0.0	18.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	21.7	0.5	0.3	3.0	0.1	0.5	0.0	0.0	0.0	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	0.1	15.4	0.9	0.5	5.6	0.2	3.4	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.9	37.1	9.3	14.1	13.0	7.0	22.7	0.0	0.0	18.5	0.0	0.0
LnGrp LOS	A	D	A	B	B	A	C	A	A	B	A	A
Approach Vol, veh/h		985			713			259			20	
Approach Delay, s/veh		33.5			12.8			22.7			18.5	
Approach LOS		C			B			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	35.0		19.2	5.3	37.9		19.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	10.5	30.5		25.5	10.5	30.5		25.5				
Max Q Clear Time (g_c+I1), s	3.3	30.2		2.6	2.2	16.3		12.6				
Green Ext Time (p_c), s	0.0	0.1		0.0	0.0	0.7		0.9				
Intersection Summary												
HCM 6th Ctrl Delay			24.5									
HCM 6th LOS			C									

Intersection												
Int Delay, s/veh	7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	49	108	43	0	0	0	44	196	15	5	141	49
Future Vol, veh/h	49	108	43	0	0	0	44	196	15	5	141	49
Conflicting Peds, #/hr	32	0	42	22	0	11	42	0	22	11	0	32
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	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	0	0	0	7	7	7	2	2	2
Mvmt Flow	61	135	54	0	0	0	55	245	19	6	176	61
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	658	657	291				279	0	0	286	0	0
Stage 1	261	261	-				-	-	-	-	-	-
Stage 2	397	396	-				-	-	-	-	-	-
Critical Hdwy	6.43	6.53	6.23				4.17	-	-	4.12	-	-
Critical Hdwy Stg 1	5.43	5.53	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.43	5.53	-				-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327				2.263	-	-	2.218	-	-
Pot Cap-1 Maneuver	428	383	746				1255	-	-	1276	-	-
Stage 1	780	690	-				-	-	-	-	-	-
Stage 2	677	602	-				-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	371	0	688				1205	-	-	1276	-	-
Mov Cap-2 Maneuver	371	0	-				-	-	-	-	-	-
Stage 1	708	0	-				-	-	-	-	-	-
Stage 2	647	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	20.8						1.4			0.2		
HCM LOS	C											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1205	-	-	473	1276	-	-					
HCM Lane V/C Ratio	0.046	-	-	0.529	0.005	-	-					
HCM Control Delay (s)	8.1	0	-	20.8	7.8	0	-					
HCM Lane LOS	A	A	-	C	A	A	-					
HCM 95th %tile Q(veh)	0.1	-	-	3	0	-	-					

Intersection						
Int Delay, s/veh	1.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	25	241	40	26	150
Future Vol, veh/h	26	25	241	40	26	150
Conflicting Peds, #/hr	16	3	0	16	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	84	84	84	84	84	84
Heavy Vehicles, %	30	30	7	7	5	5
Mvmt Flow	31	30	287	48	31	179
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	584	330	0	0	351	0
Stage 1	327	-	-	-	-	-
Stage 2	257	-	-	-	-	-
Critical Hdwy	6.7	6.5	-	-	4.15	-
Critical Hdwy Stg 1	5.7	-	-	-	-	-
Critical Hdwy Stg 2	5.7	-	-	-	-	-
Follow-up Hdwy	3.77	3.57	-	-	2.245	-
Pot Cap-1 Maneuver	431	652	-	-	1191	-
Stage 1	672	-	-	-	-	-
Stage 2	725	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	406	640	-	-	1173	-
Mov Cap-2 Maneuver	406	-	-	-	-	-
Stage 1	662	-	-	-	-	-
Stage 2	693	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	13.3	0	1.2			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	495	1173	-	
HCM Lane V/C Ratio	-	-	0.123	0.026	-	
HCM Control Delay (s)	-	-	13.3	8.2	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.4	0.1	-	







Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	28	0	40	0	249	27	6	172	0
Future Vol, veh/h	0	0	0	28	0	40	0	249	27	6	172	0
Conflicting Peds, #/hr	17	0	0	0	0	17	0	0	0	17	0	17
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	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	3	3	3	7	7	7	12	12	12
Mvmt Flow	0	0	0	32	0	46	0	286	31	7	198	0
Major/Minor												
	Minor1			Major1			Major2					
Conflicting Flow All				531	548	336	215	0	0	334	0	0
Stage 1				319	319	-	-	-	-	-	-	-
Stage 2				212	229	-	-	-	-	-	-	-
Critical Hdwy				6.43	6.53	6.23	4.17	-	-	4.22	-	-
Critical Hdwy Stg 1				5.43	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.43	5.53	-	-	-	-	-	-	-
Follow-up Hdwy				3.527	4.027	3.327	2.263	-	-	2.308	-	-
Pot Cap-1 Maneuver				507	443	704	1326	-	-	1171	-	-
Stage 1				735	651	-	-	-	-	-	-	-
Stage 2				821	713	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver				495	0	681	1326	-	-	1152	-	-
Mov Cap-2 Maneuver				495	0	-	-	-	-	-	-	-
Stage 1				723	0	-	-	-	-	-	-	-
Stage 2				815	0	-	-	-	-	-	-	-
Approach												
	WB			NB			SB					
HCM Control Delay, s				12			0			0.3		
HCM LOS				B								
Minor Lane/Major Mvmt												
	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1326	-	-	590	1152	-	-					
HCM Lane V/C Ratio	-	-	-	0.132	0.006	-	-					
HCM Control Delay (s)	0	-	-	12	8.1	0	-					
HCM Lane LOS	A	-	-	B	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	0.5	0	-	-					

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	43	3	39	237	159	36
Future Vol, veh/h	43	3	39	237	159	36
Conflicting Peds, #/hr	15	15	15	0	0	15
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, %	0	0	8	8	11	11
Mvmt Flow	47	3	43	260	175	40

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	571	225	230	0	-	0
Stage 1	210	-	-	-	-	-
Stage 2	361	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.18	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.272	-	-	-
Pot Cap-1 Maneuver	486	819	1303	-	-	-
Stage 1	830	-	-	-	-	-
Stage 2	710	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	454	796	1284	-	-	-
Mov Cap-2 Maneuver	454	-	-	-	-	-
Stage 1	787	-	-	-	-	-
Stage 2	700	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.6	1.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1284	-	467	-	-
HCM Lane V/C Ratio	0.033	-	0.108	-	-
HCM Control Delay (s)	7.9	0	13.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Intersection												
Int Delay, s/veh	18.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	977	50	62	648	25	30	5	45	5	5	35
Future Vol, veh/h	35	977	50	62	648	25	30	5	45	5	5	35
Conflicting Peds, #/hr	16	0	9	10	0	17	9	0	10	17	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	6	6	6	6	6	6	19	19	19	0	0	0
Mvmt Flow	37	1039	53	66	689	27	32	5	48	5	5	37

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	733	0	0	1102	0	0	2022	2015	1093	2035	2028	736
Stage 1	-	-	-	-	-	-	1150	1150	-	852	852	-
Stage 2	-	-	-	-	-	-	872	865	-	1183	1176	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.29	6.69	6.39	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.29	5.69	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.29	5.69	-	6.1	5.5	-
Follow-up Hdwy	2.254	-	-	2.254	-	-	3.671	4.171	3.471	3.5	4	3.3
Pot Cap-1 Maneuver	854	-	-	619	-	-	39	53	241	43	58	422
Stage 1	-	-	-	-	-	-	223	254	-	357	379	-
Stage 2	-	-	-	-	-	-	323	348	-	233	267	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	840	-	-	613	-	-	~ 28	44	235	27	48	409
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 28	44	-	27	48	-
Stage 1	-	-	-	-	-	-	211	240	-	336	333	-
Stage 2	-	-	-	-	-	-	254	306	-	171	253	-




Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	1	\$ 400.4	53.6
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	58	840	-	-	613	-	-	120
HCM Lane V/C Ratio	1.467	0.044	-	-	0.108	-	-	0.399
HCM Control Delay (s)	\$ 400.4	9.5	-	-	11.6	-	-	53.6
HCM Lane LOS	F	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	7.6	0.1	-	-	0.4	-	-	1.7

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

Intersection

Int Delay, s/veh 4.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	19	16	25	66	40	82
Future Vol, veh/h	19	16	25	66	40	82
Conflicting Peds, #/hr	15	15	15	0	0	15
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	11	11	32	32
Mvmt Flow	21	18	28	74	45	92


















Major/Minor	Minor2	Major2		
Conflicting Flow All	121	106	-	0
Stage 1	106	106	-	-
Stage 2	15	0	-	-
Critical Hdwy	6.51	6.61	-	-
Critical Hdwy Stg 1	5.51	5.61	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.599	4.099	-	-
Pot Cap-1 Maneuver	853	767	-	-
Stage 1	896	790	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	829	0	-	-
Mov Cap-2 Maneuver	829	0	-	-
Stage 1	883	0	-	-
Stage 2	-	0	-	-

Approach	NB	SB
HCM Control Delay, s	10	0
HCM LOS	B	

Minor Lane/Major Mvmt	NBLn1	SBT	SBR
Capacity (veh/h)	829	-	-
HCM Lane V/C Ratio	0.123	-	-
HCM Control Delay (s)	10	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.4	-	-

Timings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Lane Group	EBL2	EBL	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	SBL2	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	5	0	5	115	215	5	30	0	10	5	0
Future Volume (vph)	5	5	0	5	115	215	5	30	0	10	5	0
Turn Type	Perm	Perm	NA	Perm	NA	Perm	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			3		3				4			4
Permitted Phases	3	3		3		3	4	4		4	4	
Detector Phase	3	3	3	3	3	3	4	4	4	4	4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	28.5	28.5
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	26.2%	26.2%	26.2%	26.2%	26.2%	26.2%	22.3%	22.3%	22.3%	22.3%	22.3%	22.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)			0.0		0.0	0.0			3.0			3.0
Total Lost Time (s)			6.5		6.5	6.5			9.5			9.5
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effect Green (s)			27.5		27.5	27.5			16.0			16.0
Actuated g/C Ratio			0.21		0.21	0.21			0.12			0.12
v/c Ratio			0.99		0.55	0.46			0.32			0.09
Control Delay			99.5		52.6	17.2			5.5			0.8
Queue Delay			0.0		0.0	0.0			0.0			0.0
Total Delay			99.5		52.6	17.2			5.6			0.8
LOS			F		D	B			A			A
Approach Delay			99.5		35.8				5.6			0.8
Approach LOS			F		D				A			A

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 76 (58%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 43.2

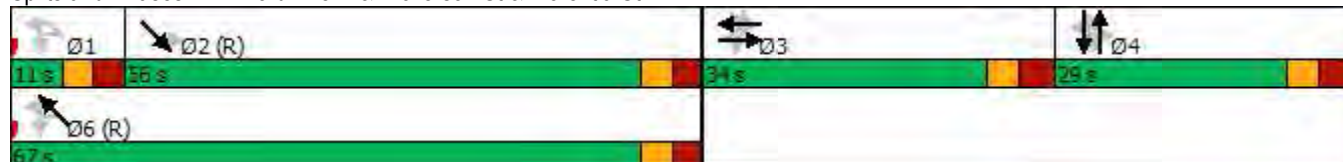
Intersection LOS: D

Intersection Capacity Utilization 117.9%

ICU Level of Service H

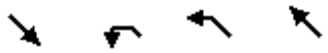
Analysis Period (min) 15

Splits and Phases: 14: 3rd Ave N & Nickerson St & Florentia St



Timings
14: 3rd Ave N & Nickerson St & Florentia St













2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	SET	NWL2	NWL	NWT	Ø1
Lane Configurations	↕↕			↕↕	
Traffic Volume (vph)	994	25	65	602	
Future Volume (vph)	994	25	65	602	
Turn Type	NA	custom	custom	NA	
Protected Phases	2			6	1
Permitted Phases		1 6	1 6		
Detector Phase	2	1 6	1 6	6	
Switch Phase					
Minimum Initial (s)	7.0			7.0	5.0
Minimum Split (s)	22.0			24.0	11.0
Total Split (s)	56.0			67.0	11.0
Total Split (%)	43.1%			51.5%	8%
Yellow Time (s)	3.0			3.0	3.0
All-Red Time (s)	3.0			3.0	3.0
Lost Time Adjust (s)	3.0			3.0	
Total Lost Time (s)	9.0			9.0	
Lead/Lag	Lag				Lead
Lead-Lag Optimize?	Yes				Yes
Recall Mode	C-Max			C-Max	None
Act Effect Green (s)	61.5			61.5	
Actuated g/C Ratio	0.47			0.47	
v/c Ratio	0.66			0.83	
Control Delay	29.7			45.4	
Queue Delay	0.9			0.9	
Total Delay	30.5			46.3	
LOS	C			D	
Approach Delay	30.5			46.3	
Approach LOS	C			D	
Intersection Summary					

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Lane Group	EBL2	EBL	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	SBL2	SBL	SBT
Protected Phases			3		3				4			4
Permitted Phases	3	3		3		3	4	4		4	4	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	28.5	28.5
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	26.2%	26.2%	26.2%	26.2%	26.2%	26.2%	22.3%	22.3%	22.3%	22.3%	22.3%	22.3%
Maximum Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.5	22.5	22.5	22.5	22.5	22.5
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (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
Time To Reduce (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
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Walk Time (s)							8.0	8.0	8.0	8.0	8.0	8.0
Flash Dont Walk (s)							14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)							69	69	69	69	69	69
90th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
70th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
70th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
50th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
50th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
30th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
30th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
10th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	7.0	7.0	7.0	7.0	7.0	7.0
10th %ile Term Code	Max	Max	Max	Max	Max	Max	Min	Min	Min	Min	Min	Min

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 76 (58%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Control Type: Actuated-Coordinated

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	SET	NWL2	NWL	NWT	Ø1
Protected Phases	2			6	1
Permitted Phases		1 6	1 6		
Minimum Initial (s)	7.0			7.0	5.0
Minimum Split (s)	22.0			24.0	11.0
Total Split (s)	56.0			67.0	11.0
Total Split (%)	43.1%			51.5%	8%
Maximum Green (s)	50.0			61.0	5.0
Yellow Time (s)	3.0			3.0	3.0
All-Red Time (s)	3.0			3.0	3.0
Lead/Lag	Lag				Lead
Lead-Lag Optimize?	Yes				Yes
Vehicle Extension (s)	3.0			2.0	2.0
Minimum Gap (s)	0.2			0.2	0.2
Time Before Reduce (s)	0.0			0.0	0.0
Time To Reduce (s)	0.0			0.0	0.0
Recall Mode	C-Max			C-Max	None
Walk Time (s)	7.0			7.0	
Flash Dont Walk (s)	9.0			9.0	
Pedestrian Calls (#/hr)	120			126	
90th %ile Green (s)	61.5			61.5	0.0
90th %ile Term Code	Coord			Coord	Skip
70th %ile Green (s)	61.5			61.5	0.0
70th %ile Term Code	Coord			Coord	Skip
50th %ile Green (s)	61.5			61.5	0.0
50th %ile Term Code	Coord			Coord	Skip
30th %ile Green (s)	61.5			61.5	0.0
30th %ile Term Code	Coord			Coord	Skip
10th %ile Green (s)	76.5			76.5	0.0
10th %ile Term Code	Coord			Coord	Skip
Intersection Summary					

Queues

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT	SET	NWT
Lane Group Flow (vph)	324	189	172	90	21	1067	757
v/c Ratio	0.99	0.55	0.46	0.32	0.09	0.66	0.83
Control Delay	99.5	52.6	17.2	5.5	0.8	29.7	45.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.9	0.9
Total Delay	99.5	52.6	17.2	5.6	0.8	30.5	46.3
Queue Length 50th (ft)	275	150	30	0	0	372	357
Queue Length 95th (ft)	#470	235	105	19	0	452	m397
Internal Link Dist (ft)	413	299		354	158	814	375
Turn Bay Length (ft)							
Base Capacity (vph)	326	344	373	317	246	1607	913
Starvation Cap Reductn	0	0	0	0	0	0	36
Spillback Cap Reductn	0	0	0	9	0	262	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.55	0.46	0.29	0.09	0.79	0.86

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St
















2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR2
Lane Configurations												
Traffic Volume (vph)	5	5	0	295	5	115	215	5	5	30	0	50
Future Volume (vph)	5	5	0	295	5	115	215	5	5	30	0	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.5			6.5	6.5				9.5	
Lane Util. Factor			1.00			0.95	0.95				1.00	
Frpb, ped/bikes			0.97			0.98	0.85				0.98	
Flpb, ped/bikes			1.00			1.00	1.00				0.98	
Frt			0.87			0.95	0.85				0.92	
Flt Protected			1.00			1.00	1.00				0.98	
Satd. Flow (prot)			1562			1649	1280				1575	
Flt Permitted			0.99			0.99	1.00				0.86	
Satd. Flow (perm)			1545			1630	1280				1377	
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	5	0	314	5	122	229	5	5	32	0	53
RTOR Reduction (vph)	0	0	0	0	0	0	103	0	0	0	79	0
Lane Group Flow (vph)	0	0	324	0	0	189	70	0	0	0	11	0
Confl. Peds. (#/hr)	24	18		14	16		24	18	9	24		14
Confl. Bikes (#/hr)				1			10	10				
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%
Turn Type	Perm	Perm	NA		Perm	NA	Perm		Perm	Perm	NA	
Protected Phases			3			3					4	
Permitted Phases	3	3			3		3		4	4		
Actuated Green, G (s)			27.5			27.5	27.5				19.0	
Effective Green, g (s)			27.5			27.5	27.5				16.0	
Actuated g/C Ratio			0.21			0.21	0.21				0.12	
Clearance Time (s)			6.5			6.5	6.5				6.5	
Vehicle Extension (s)			2.0			2.0	2.0				2.0	
Lane Grp Cap (vph)			326			344	270				169	
v/s Ratio Prot												
v/s Ratio Perm			c0.21			0.12	0.05				c0.01	
v/c Ratio			0.99			0.55	0.26				0.07	
Uniform Delay, d1			51.2			45.7	42.7				50.4	
Progression Factor			1.00			1.00	1.00				1.00	
Incremental Delay, d2			47.9			1.0	0.2				0.1	
Delay (s)			99.0			46.7	42.9				50.5	
Level of Service			F			D	D				D	
Approach Delay (s)			99.0			44.9					50.5	
Approach LOS			F			D					D	
Intersection Summary												
HCM 2000 Control Delay			44.7			HCM 2000 Level of Service					D	
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				31.0		
Intersection Capacity Utilization			117.9%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	SBL2	SBL	SBT	SBR2	SET	SER	SER2	NWL2	NWL	NWT	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	10	5	0	5	994	5	5	25	65	602	15	5
Future Volume (vph)	10	5	0	5	994	5	5	25	65	602	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			9.5		9.0					9.0		
Lane Util. Factor			1.00		0.95					0.95		
Frpb, ped/bikes			0.99		1.00					1.00		
Flpb, ped/bikes			0.98		1.00					1.00		
Frt			0.97		1.00					1.00		
Flt Protected			0.96		1.00					0.99		
Satd. Flow (prot)			1146		3397					3459		
Flt Permitted			0.76		1.00					0.55		
Satd. Flow (perm)			909		3397					1929		
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	5	0	5	1057	5	5	27	69	640	16	5
RTOR Reduction (vph)	0	0	18	0	0	0	0	0	0	1	0	0
Lane Group Flow (vph)	0	0	3	0	1067	0	0	0	0	756	0	0
Confl. Peds. (#/hr)		14		24		16	9	16	9		18	
Confl. Bikes (#/hr)				2		2	2				1	1
Heavy Vehicles (%)	50%	50%	50%	50%	6%	6%	6%	3%	3%	3%	3%	3%
Turn Type	Perm	Perm	NA		NA			custom	custom	NA		
Protected Phases			4		2					6		
Permitted Phases	4	4						16	16			
Actuated Green, G (s)			19.0		64.5					64.5		
Effective Green, g (s)			16.0		61.5					61.5		
Actuated g/C Ratio			0.12		0.47					0.47		
Clearance Time (s)			6.5		6.0					6.0		
Vehicle Extension (s)			2.0		3.0					2.0		
Lane Grp Cap (vph)			111		1607					912		
v/s Ratio Prot					0.31							
v/s Ratio Perm			0.00							c0.39		
v/c Ratio			0.02		0.66					0.83		
Uniform Delay, d1			50.1		26.3					29.7		
Progression Factor			1.00		1.00					1.24		
Incremental Delay, d2			0.0		2.2					6.7		
Delay (s)			50.2		28.5					43.5		
Level of Service			D		C					D		
Approach Delay (s)			50.2		28.5					43.5		
Approach LOS			D		C					D		
Intersection Summary												

Intersection

Int Delay, s/veh 0.2

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	15	0	1016	1315	340
Future Vol, veh/h	0	15	0	1016	1315	340
Conflicting Peds, #/hr	31	30	30	0	0	31
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	89	89	89	89	89	89
Heavy Vehicles, %	50	50	6	6	7	7
Mvmt Flow	0	17	0	1142	1478	382

Major/Minor Minor2 Major1 Major2

Conflicting Flow All	-	991	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.8	-	-	-	-
Pot Cap-1 Maneuver	0	174	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	164	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach EB NB SB

HCM Control Delay, s	29.5	0	0
HCM LOS	D		

Minor Lane/Major Mvmt NBT EBLn1 SBT SBR

Capacity (veh/h)	-	164	-	-
HCM Lane V/C Ratio	-	0.103	-	-
HCM Control Delay (s)	-	29.5	-	-
HCM Lane LOS	-	D	-	-
HCM 95th %tile Q(veh)	-	0.3	-	-

Timings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	←←	→	←←	←←	←	←→	←←	→
Traffic Volume (vph)	635	617	260	260	231	120	920	190
Future Volume (vph)	635	617	260	260	231	120	920	190
Turn Type	Prot	NA	NA	custom	Split	NA	Split	NA
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Detector Phase	4	1 4	1	5	3	3	2	2
Switch Phase								
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	19.0		37.0	74.0	37.0	37.0	37.0	37.0
Total Split (%)	14.6%		28.5%	56.9%	28.5%	28.5%	28.5%	28.5%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		5.5	5.5	6.5	6.5	5.5	5.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Recall Mode	None		Min	C-Max	None	None	C-Max	C-Max
Act Effct Green (s)	19.2	57.2	31.5	68.5	23.8	23.8	31.5	31.5
Actuated g/C Ratio	0.15	0.44	0.24	0.53	0.18	0.18	0.24	0.24
v/c Ratio	1.32	0.94	0.33	0.19	0.80	0.22	1.18	1.07
Control Delay	187.3	47.1	41.9	2.0	69.2	42.5	134.9	108.0
Queue Delay	0.0	45.4	0.0	0.0	1.8	0.0	0.0	2.0
Total Delay	187.3	92.5	41.9	2.0	71.0	42.5	134.9	110.0
LOS	F	F	D	A	E	D	F	F
Approach Delay		137.1	22.0			60.7		127.2
Approach LOS		F	C			E		F

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 2 (2%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.32

Intersection Signal Delay: 108.8

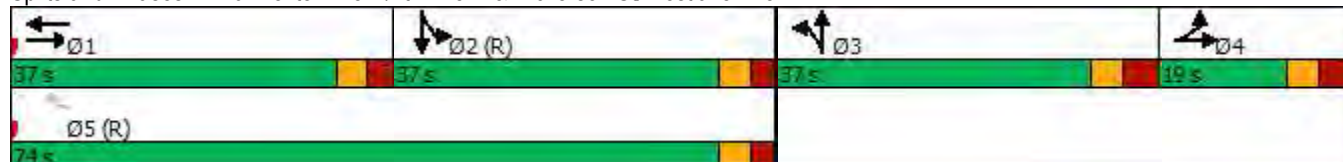
Intersection LOS: F

Intersection Capacity Utilization 92.4%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N



Phasings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	19.0		37.0	74.0	37.0	37.0	37.0	37.0
Total Split (%)	14.6%		28.5%	56.9%	28.5%	28.5%	28.5%	28.5%
Maximum Green (s)	12.5		31.5	68.5	30.5	30.5	31.5	31.5
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2		0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None		Min	C-Max	None	None	C-Max	C-Max
Walk Time (s)			9.0		8.0	8.0	8.0	8.0
Flash Dont Walk (s)			22.0		22.0	22.0	22.0	22.0
Pedestrian Calls (#/hr)			56		12	12	33	33
90th %ile Green (s)	12.5		31.5	68.5	30.5	30.5	31.5	31.5
90th %ile Term Code	Max		Max	Coord	Max	Max	Coord	Coord
70th %ile Green (s)	13.0		31.5	68.5	30.0	30.0	31.5	31.5
70th %ile Term Code	Max		Max	Coord	Ped	Ped	Coord	Coord
50th %ile Green (s)	19.7		31.5	68.5	23.3	23.3	31.5	31.5
50th %ile Term Code	Max		Max	Coord	Gap	Gap	Coord	Coord
30th %ile Green (s)	23.0		31.5	68.5	20.0	20.0	31.5	31.5
30th %ile Term Code	Max		Max	Coord	Gap	Gap	Coord	Coord
10th %ile Green (s)	27.9		31.5	68.5	15.1	15.1	31.5	31.5
10th %ile Term Code	Max		Max	Coord	Gap	Gap	Coord	Coord

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 2 (2%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Control Type: Actuated-Coordinated

Queues

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	661	742	271	271	241	135	958	427
v/c Ratio	1.32	0.94	0.33	0.19	0.80	0.22	1.18	1.07
Control Delay	187.3	47.1	41.9	2.0	69.2	42.5	134.9	108.0
Queue Delay	0.0	45.4	0.0	0.0	1.8	0.0	0.0	2.0
Total Delay	187.3	92.5	41.9	2.0	71.0	42.5	134.9	110.0
Queue Length 50th (ft)	~369	621	99	0	197	49	~496	~371
Queue Length 95th (ft)	m#542	m#879	142	23	276	75	#627	#581
Internal Link Dist (ft)		375	150			693		176
Turn Bay Length (ft)				200				
Base Capacity (vph)	502	792	817	1443	388	770	815	398
Starvation Cap Reductn	0	186	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	53	0	0	2
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.32	1.22	0.33	0.19	0.72	0.18	1.18	1.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.


Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.







HCM Signalized Intersection Capacity Analysis

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←←	→	→		↑↑	↑↑	←	↑↑		←←	→	→
Traffic Volume (vph)	635	617	95	0	260	260	231	120	10	920	190	220
Future Volume (vph)	635	617	95	0	260	260	231	120	10	920	190	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.94	1.00	1.00		1.00	0.90	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98			1.00	0.85	1.00	0.99		1.00	0.92	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3400	1792			3374	2496	1656	3264		3367	1512	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3400	1792			3374	2496	1656	3264		3367	1512	
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)	661	643	99	0	271	271	241	125	10	958	198	229
RTOR Reduction (vph)	0	4	0	0	0	128	0	5	0	0	32	0
Lane Group Flow (vph)	661	738	0	0	271	143	241	130	0	958	395	0
Confl. Peds. (#/hr)	19		37	37		19	33		12	12		33
Confl. Bikes (#/hr)			12			33			16			155
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	9%	9%	9%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	19.2	57.2			31.5	68.5	23.8	23.8		31.5	31.5	
Effective Green, g (s)	19.2	50.7			31.5	68.5	23.8	23.8		31.5	31.5	
Actuated g/C Ratio	0.15	0.39			0.24	0.53	0.18	0.18		0.24	0.24	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	502	698			817	1315	303	597		815	366	
v/s Ratio Prot	c0.19	c0.41			0.08		c0.15	0.04		c0.28	0.26	
v/s Ratio Perm						0.06						
v/c Ratio	1.32	1.06			0.33	0.11	0.80	0.22		1.18	1.08	
Uniform Delay, d1	55.4	39.6			40.6	15.4	50.8	45.2		49.2	49.2	
Progression Factor	0.75	0.89			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	152.0	44.4			0.1	0.2	12.6	0.1		91.7	70.0	
Delay (s)	193.7	79.5			40.7	15.6	63.4	45.2		140.9	119.3	
Level of Service	F	E			D	B	E	D		F	F	
Approach Delay (s)		133.3			28.1			56.9			134.3	
Approach LOS		F			C			E			F	
Intersection Summary												
HCM 2000 Control Delay			110.5				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.08									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			92.4%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

2035 Alternative 2 PM

Intersection												
Int Delay, s/veh	9.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	700	11	33	995	15	26	6	31	17	6	22
Future Vol, veh/h	11	700	11	33	995	15	26	6	31	17	6	22
Conflicting Peds, #/hr	16	0	21	12	0	7	21	0	12	7	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	4	4	2	2	2	0	0	0	4	4	4
Mvmt Flow	12	737	12	35	1047	16	27	6	33	18	6	23
Major/Minor	Major1		Major2			Minor1			Minor2			
Conflicting Flow All	1079	0	0	770	0	0	1949	1937	776	1940	1935	1092
Stage 1	-	-	-	-	-	-	788	788	-	1141	1141	-
Stage 2	-	-	-	-	-	-	1161	1149	-	799	794	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.1	6.5	6.2	7.14	6.54	6.24
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.14	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.14	5.54	-
Follow-up Hdwy	2.236	-	-	2.218	-	-	3.5	4	3.3	3.536	4.036	3.336
Pot Cap-1 Maneuver	639	-	-	844	-	-	49	66	401	49	65	258
Stage 1	-	-	-	-	-	-	387	405	-	242	273	-
Stage 2	-	-	-	-	-	-	240	275	-	376	397	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	629	-	-	827	-	-	37	60	388	38	59	249
Mov Cap-2 Maneuver	-	-	-	-	-	-	37	60	-	38	59	-
Stage 1	-	-	-	-	-	-	372	389	-	234	258	-
Stage 2	-	-	-	-	-	-	199	260	-	329	382	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	0.2		0.3			187.6			125.1			
HCM LOS						F			F			
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	71	629	-	-	827	-	-	71				
HCM Lane V/C Ratio	0.934	0.018	-	-	0.042	-	-	0.667				
HCM Control Delay (s)	187.6	10.8	-	-	9.5	-	-	125.1				
HCM Lane LOS	F	B	-	-	A	-	-	F				
HCM 95th %tile Q(veh)	4.7	0.1	-	-	0.1	-	-	3				

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	0	5	0	0	0	25	59	0	0	43	10
Future Vol, veh/h	10	0	5	0	0	0	25	59	0	0	43	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	3	3	3
Mvmt Flow	11	0	6	0	0	0	28	66	0	0	48	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	0	7.5	7.2
HCM LOS	A	-	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	30%	67%	0%	0%
Vol Thru, %	70%	0%	100%	81%
Vol Right, %	0%	33%	0%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	84	15	0	53
LT Vol	25	10	0	0
Through Vol	59	0	0	43
RT Vol	0	5	0	10
Lane Flow Rate	93	17	0	59
Geometry Grp	1	1	1	1
Degree of Util (X)	0.105	0.019	0	0.064
Departure Headway (Hd)	4.033	4.094	4.175	3.937
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	890	866	0	909
Service Time	2.051	2.159	2.244	1.963
HCM Lane V/C Ratio	0.104	0.02	0	0.065
HCM Control Delay	7.5	7.2	7.2	7.2
HCM Lane LOS	A	A	N	A
HCM 95th-tile Q	0.4	0.1	0	0.2




Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	39	237	0	15	173	38	0	6	35	14	14	25
Future Vol, veh/h	39	237	0	15	173	38	0	6	35	14	14	25
Conflicting Peds, #/hr	13	0	49	60	0	24	49	0	60	24	0	13
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	0	0	0	0	0	0	2	2	2
Mvmt Flow	40	244	0	15	178	39	0	6	36	14	14	26
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	241	0	0	304	0	0	681	655	364	657	636	271
Stage 1	-	-	-	-	-	-	384	384	-	252	252	-
Stage 2	-	-	-	-	-	-	297	271	-	405	384	-
Critical Hdwy	4.11	-	-	4.1	-	-	7.1	6.5	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Follow-up Hdwy	2.209	-	-	2.2	-	-	3.5	4	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1331	-	-	1268	-	-	367	388	685	378	395	768
Stage 1	-	-	-	-	-	-	643	615	-	752	698	-
Stage 2	-	-	-	-	-	-	716	689	-	622	611	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1301	-	-	1196	-	-	296	340	609	311	346	715
Mov Cap-2 Maneuver	-	-	-	-	-	-	296	340	-	311	346	-
Stage 1	-	-	-	-	-	-	584	559	-	708	672	-
Stage 2	-	-	-	-	-	-	635	664	-	526	555	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.1			0.5			12.1			14.3		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	546	1301	-	-	1196	-	-	440				
HCM Lane V/C Ratio	0.077	0.031	-	-	0.013	-	-	0.124				
HCM Control Delay (s)	12.1	7.9	0	-	8	0	-	14.3				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.4				

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	38	16	7	60	0	11	0	2	0	0	0
Future Vol, veh/h	0	38	16	7	60	0	11	0	2	0	0	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	43	18	8	68	0	13	0	2	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0



















Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.1	7.4	7.3	0
HCM LOS	A	A	A	-

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	85%	0%	10%	0%
Vol Thru, %	0%	70%	90%	100%
Vol Right, %	15%	30%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	54	67	0
LT Vol	11	0	7	0
Through Vol	0	38	60	0
RT Vol	2	16	0	0
Lane Flow Rate	15	61	76	0
Geometry Grp	1	1	1	1
Degree of Util (X)	0.017	0.065	0.084	0
Departure Headway (Hd)	4.215	3.805	3.993	4.15
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	845	942	899	0
Service Time	2.264	1.826	2.009	2.204
HCM Lane V/C Ratio	0.018	0.065	0.085	0
HCM Control Delay	7.3	7.1	7.4	7.2
HCM Lane LOS	A	A	A	N
HCM 95th-tile Q	0.1	0.2	0.3	0

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	291	231	0	0	0
Future Vol, veh/h	0	291	231	0	0	0
Conflicting Peds, #/hr	6	0	0	235	235	6
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	95	95	95	95	95	95
Heavy Vehicles, %	1	1	0	0	0	0
Mvmt Flow	0	306	243	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	478	0	-	0	1019	484
Stage 1	-	-	-	-	478	-
Stage 2	-	-	-	-	541	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1090	-	-	-	265	587
Stage 1	-	-	-	-	628	-
Stage 2	-	-	-	-	588	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	846	-	-	-	160	453
Mov Cap-2 Maneuver	-	-	-	-	160	-
Stage 1	-	-	-	-	487	-
Stage 2	-	-	-	-	456	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	846	-	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	-	-	0	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	-	

Timings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	30	598	142	200	877	55	215	40	35	30
Future Volume (vph)	30	598	142	200	877	55	215	40	35	30
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	27.0	27.0	11.0	27.0	27.0	27.5	27.5	27.5	27.5
Total Split (s)	15.0	35.0	35.0	15.0	35.0	35.0	30.0	30.0	30.0	30.0
Total Split (%)	18.8%	43.8%	43.8%	18.8%	43.8%	43.8%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effect Green (s)	35.6	30.5	30.5	43.2	39.6	39.6		24.2		24.2
Actuated g/C Ratio	0.47	0.40	0.40	0.57	0.52	0.52		0.32		0.32
v/c Ratio	0.15	0.86	0.24	0.70	0.97	0.07		0.78		0.20
Control Delay	10.0	35.3	4.1	23.0	44.0	2.1		41.0		16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	10.0	35.3	4.1	23.0	44.0	2.1		41.0		16.9
LOS	A	D	A	C	D	A		D		B
Approach Delay		28.6			38.3			41.0		16.9
Approach LOS		C			D			D		B

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 76.4

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 34.5

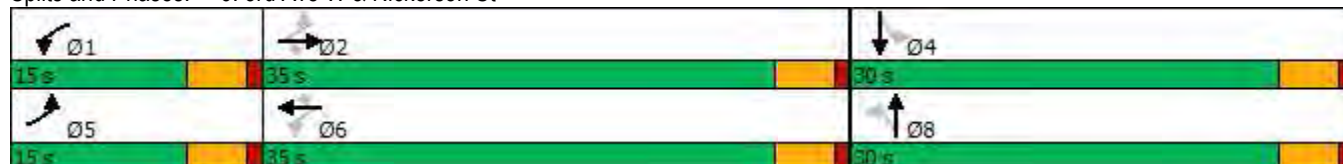
Intersection LOS: C

Intersection Capacity Utilization 83.5%

ICU Level of Service E

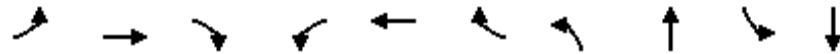
Analysis Period (min) 15

Splits and Phases: 6: 3rd Ave W & Nickerson St



Phasings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	27.0	27.0	11.0	27.0	27.0	27.5	27.5	27.5	27.5
Total Split (s)	15.0	35.0	35.0	15.0	35.0	35.0	30.0	30.0	30.0	30.0
Total Split (%)	18.8%	43.8%	43.8%	18.8%	43.8%	43.8%	37.5%	37.5%	37.5%	37.5%
Maximum Green (s)	10.5	30.5	30.5	10.5	30.5	30.5	25.5	25.5	25.5	25.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	1.0	0.2	0.2	1.0	0.2	0.2	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)		50	50		28	28	83	83	160	160
90th %ile Green (s)	5.1	30.5	30.5	10.5	35.9	35.9	25.5	25.5	25.5	25.5
90th %ile Term Code	Gap	MaxR	MaxR	Max	Hold	Hold	Max	Max	Hold	Hold
70th %ile Green (s)	5.0	30.5	30.5	10.4	35.9	35.9	25.5	25.5	25.5	25.5
70th %ile Term Code	Min	MaxR	MaxR	Gap	Hold	Hold	Max	Max	Hold	Hold
50th %ile Green (s)	0.0	30.5	30.5	8.2	43.2	43.2	24.0	24.0	24.0	24.0
50th %ile Term Code	Skip	MaxR	MaxR	Gap	Hold	Hold	Gap	Gap	Hold	Hold
30th %ile Green (s)	0.0	30.5	30.5	6.8	41.8	41.8	23.0	23.0	23.0	23.0
30th %ile Term Code	Skip	MaxR	MaxR	Gap	Hold	Hold	Ped	Ped	Ped	Ped
10th %ile Green (s)	0.0	30.5	30.5	5.3	40.3	40.3	23.0	23.0	23.0	23.0
10th %ile Term Code	Skip	MaxR	MaxR	Gap	Hold	Hold	Hold	Hold	Ped	Ped

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 76.4

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 80

70th %ile Actuated Cycle: 79.9









50th %ile Actuated Cycle: 76.2

30th %ile Actuated Cycle: 73.8

10th %ile Actuated Cycle: 72.3

Queues
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour






















								
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	32	643	153	215	943	59	290	92
v/c Ratio	0.15	0.86	0.24	0.70	0.97	0.07	0.78	0.20
Control Delay	10.0	35.3	4.1	23.0	44.0	2.1	41.0	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.0	35.3	4.1	23.0	44.0	2.1	41.0	16.9
Queue Length 50th (ft)	6	270	0	46	355	0	122	24
Queue Length 95th (ft)	18	#499	35	107	#773	13	#257	59
Internal Link Dist (ft)		79			214		74	171
Turn Bay Length (ft)	100			135		215		
Base Capacity (vph)	335	751	648	356	974	798	391	494
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.86	0.24	0.60	0.97	0.07	0.74	0.19

Intersection Summary




95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
6: 3rd Ave W & Nickerson St




2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour








												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	598	142	200	877	55	215	40	15	35	30	20
Future Volume (veh/h)	30	598	142	200	877	55	215	40	15	35	30	20
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	0.86		0.83	0.90		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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1811	1811	1811	1900	1900	1900
Adj Flow Rate, veh/h	32	643	153	215	943	59	231	43	16	38	32	22
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	6	6	6	0	0	0
Cap, veh/h	158	793	632	344	901	708	385	62	21	241	195	115
Arrive On Green	0.03	0.42	0.42	0.09	0.48	0.48	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1795	1885	1503	1795	1885	1480	977	204	69	563	643	379
Grp Volume(v), veh/h	32	643	153	215	943	59	290	0	0	92	0	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1503	1795	1885	1480	1250	0	0	1585	0	0
Q Serve(g_s), s	0.7	21.8	4.8	4.6	34.7	1.6	12.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.7	21.8	4.8	4.6	34.7	1.6	14.9	0.0	0.0	2.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.80		0.06	0.41		0.24
Lane Grp Cap(c), veh/h	158	793	632	344	901	708	468	0	0	551	0	0
V/C Ratio(X)	0.20	0.81	0.24	0.62	1.05	0.08	0.62	0.00	0.00	0.17	0.00	0.00
Avail Cap(c_a), veh/h	359	793	632	442	901	708	526	0	0	620	0	0
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.5	18.5	13.6	14.4	18.9	10.3	22.5	0.0	0.0	18.6	0.0	0.0
Incr Delay (d2), s/veh	0.2	8.8	0.9	0.7	42.9	0.2	1.1	0.0	0.0	0.1	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	0.3	10.8	1.7	1.7	24.3	0.5	4.4	0.0	0.0	1.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.7	27.3	14.5	15.1	61.8	10.5	23.6	0.0	0.0	18.7	0.0	0.0
LnGrp LOS	B	C	B	B	F	B	C	A	A	B	A	A
Approach Vol, veh/h		828			1217			290			92	
Approach Delay, s/veh		24.6			51.1			23.6			18.7	
Approach LOS		C			D			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.1	35.0		26.5	6.9	39.2		26.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	10.5	30.5		25.5	10.5	30.5		25.5				
Max Q Clear Time (g_c+I1), s	6.6	23.8		4.9	2.7	36.7		16.9				
Green Ext Time (p_c), s	0.0	0.6		0.3	0.0	0.0		0.9				
Intersection Summary												
HCM 6th Ctrl Delay				37.5								
HCM 6th LOS				D								

Intersection												
Int Delay, s/veh	36.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	14	179	99	0	0	0	97	253	70	5	229	139
Future Vol, veh/h	14	179	99	0	0	0	97	253	70	5	229	139
Conflicting Peds, #/hr	87	0	181	149	0	55	181	0	149	55	0	87
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	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	0	0	0
Mvmt Flow	15	186	103	0	0	0	101	264	73	5	239	145
Major/Minor	Minor2						Major1		Major2			
Conflicting Flow All	1093	1191	674				565	0	0	486	0	0
Stage 1	503	503	-				-	-	-	-	-	-
Stage 2	590	688	-				-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2				4.13	-	-	4.1	-	-
Critical Hdwy Stg 1	5.4	5.5	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-				-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3				2.227	-	-	2.2	-	-
Pot Cap-1 Maneuver	239	189	458				1002	-	-	1087	-	-
Stage 1	612	545	-				-	-	-	-	-	-
Stage 2	558	450	-				-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	138	0	314				829	-	-	1087	-	-
Mov Cap-2 Maneuver	138	0	-				-	-	-	-	-	-
Stage 1	430	0	-				-	-	-	-	-	-
Stage 2	459	0	-				-	-	-	-	-	-
Approach	EB						NB		SB			
HCM Control Delay, s	132.2						2.3		0.1			
HCM LOS	F											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR					
Capacity (veh/h)	829	-	-	271	1087	-	-					
HCM Lane V/C Ratio	0.122	-	-	1.122	0.005	-	-					
HCM Control Delay (s)	9.9	0	-	132.2	8.3	0	-					
HCM Lane LOS	A	A	-	F	A	A	-					
HCM 95th %tile Q(veh)	0.4	-	-	13	0	-	-					

Intersection						
Int Delay, s/veh	3.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	38	54	360	54	54	271
Future Vol, veh/h	38	54	360	54	54	271
Conflicting Peds, #/hr	126	40	0	126	40	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	93	93	93	93	93	93
Heavy Vehicles, %	8	8	4	4	0	0
Mvmt Flow	41	58	387	58	58	291
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1075	582	0	0	571	0
Stage 1	542	-	-	-	-	-
Stage 2	533	-	-	-	-	-
Critical Hdwy	6.48	6.28	-	-	4.1	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.2	-
Pot Cap-1 Maneuver	237	502	-	-	1012	-
Stage 1	571	-	-	-	-	-
Stage 2	577	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	169	425	-	-	891	-
Mov Cap-2 Maneuver	169	-	-	-	-	-
Stage 1	502	-	-	-	-	-
Stage 2	468	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	27	0	1.5			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	261	891	-	
HCM Lane V/C Ratio	-	-	0.379	0.065	-	
HCM Control Delay (s)	-	-	27	9.3	0	
HCM Lane LOS	-	-	D	A	A	
HCM 95th %tile Q(veh)	-	-	1.7	0.2	-	

Intersection												
Int Delay, s/veh	4.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	94	5	85	10	334	104	30	274	10
Future Vol, veh/h	0	0	0	94	5	85	10	334	104	30	274	10
Conflicting Peds, #/hr	71	0	37	14	0	48	37	0	14	48	0	71
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	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	4	4	4	2	2	2
Mvmt Flow	0	0	0	96	5	87	10	341	106	31	280	10
Major/Minor				Minor1		Major1		Major2				
Conflicting Flow All				823	885	490	361	0	0	495	0	0
Stage 1				462	462	-	-	-	-	-	-	-
Stage 2				361	423	-	-	-	-	-	-	-
Critical Hdwy				6.4	6.5	6.2	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1				5.4	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.4	5.5	-	-	-	-	-	-	-
Follow-up Hdwy				3.5	4	3.3	2.236	-	-	2.218	-	-
Pot Cap-1 Maneuver				346	286	582	1187	-	-	1069	-	-
Stage 1				638	568	-	-	-	-	-	-	-
Stage 2				710	591	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver				311	0	530	1187	-	-	1020	-	-
Mov Cap-2 Maneuver				311	0	-	-	-	-	-	-	-
Stage 1				602	0	-	-	-	-	-	-	-
Stage 2				675	0	-	-	-	-	-	-	-
Approach				WB		NB		SB				
HCM Control Delay, s				22.8		0.2		0.8				
HCM LOS				C								
Minor Lane/Major Mvmt		NBL	NBT	NBRWBLn1		SBL	SBT	SBR				
Capacity (veh/h)		1187	-	-	387	1020	-	-				
HCM Lane V/C Ratio		0.009	-	-	0.485	0.03	-	-				
HCM Control Delay (s)		8.1	0	-	22.8	8.6	0	-				
HCM Lane LOS		A	A	-	C	A	A	-				
HCM 95th %tile Q(veh)		0	-	-	2.6	0.1	-	-				

Intersection						
Int Delay, s/veh	3.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	90	35	26	360	301	67
Future Vol, veh/h	90	35	26	360	301	67
Conflicting Peds, #/hr	20	20	20	0	0	20
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	94	94	94	94	94	94
Heavy Vehicles, %	0	0	5	5	2	2
Mvmt Flow	96	37	28	383	320	71
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	835	396	411	0	-	0
Stage 1	376	-	-	-	-	-
Stage 2	459	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.15	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.245	-	-	-
Pot Cap-1 Maneuver	340	658	1132	-	-	-
Stage 1	699	-	-	-	-	-
Stage 2	641	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	317	633	1110	-	-	-
Mov Cap-2 Maneuver	317	-	-	-	-	-
Stage 1	664	-	-	-	-	-
Stage 2	629	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	20.2	0.6		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1110	-	369	-	-	
HCM Lane V/C Ratio	0.025	-	0.36	-	-	
HCM Control Delay (s)	8.3	0	20.2	-	-	
HCM Lane LOS	A	A	C	-	-	
HCM 95th %tile Q(veh)	0.1	-	1.6	-	-	

Intersection												
Int Delay, s/veh	70.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	844	31	29	1084	15	35	0	113	10	5	40
Future Vol, veh/h	30	844	31	29	1084	15	35	0	113	10	5	40
Conflicting Peds, #/hr	17	0	29	36	0	24	29	0	36	24	0	17
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	1	1	1	8	8	8	0	0	0
Mvmt Flow	32	898	33	31	1153	16	37	0	120	11	5	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1193	0	0	967	0	0	2291	2270	987	2322	2278	1214
Stage 1	-	-	-	-	-	-	1015	1015	-	1247	1247	-
Stage 2	-	-	-	-	-	-	1276	1255	-	1075	1031	-
Critical Hdwy	4.12	-	-	4.11	-	-	7.18	6.58	6.28	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.18	5.58	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.18	5.58	-	6.1	5.5	-
Follow-up Hdwy	2.218	-	-	2.209	-	-	3.572	4.072	3.372	3.5	4	3.3
Pot Cap-1 Maneuver	585	-	-	716	-	-	~ 26	39	292	27	40	223
Stage 1	-	-	-	-	-	-	280	308	-	215	247	-
Stage 2	-	-	-	-	-	-	199	237	-	268	313	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	572	-	-	691	-	-	~ 16	33	272	13	34	212
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 16	33	-	13	34	-
Stage 1	-	-	-	-	-	-	255	281	-	198	230	-
Stage 2	-	-	-	-	-	-	144	221	-	136	285	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.3	\$ 950.2	\$ 313.7
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	57	572	-	-	691	-	-	50
HCM Lane V/C Ratio	2.762	0.056	-	-	0.045	-	-	1.17
HCM Control Delay (s)	\$ 950.2	11.7	-	-	10.5	-	-	\$ 313.7
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	16.2	0.2	-	-	0.1	-	-	5.2

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

Intersection

Int Delay, s/veh 5.4

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 107 30 30 46 31 34

Future Vol, veh/h 107 30 30 46 31 34

Conflicting Peds, #/hr 43 51 51 0 0 43

Sign Control Free Free Stop Stop Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 1 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 93 93 93 93 93 93

Heavy Vehicles, % 5 5 0 0 11 11

Mvmt Flow 115 32 32 49 33 37

Major/Minor Minor2 Major2

Conflicting Flow All 146 95 - 0

Stage 1 95 95 - -

Stage 2 51 0 - -

Critical Hdwy 6.4 6.5 - -

Critical Hdwy Stg 1 5.4 5.5 - -

Critical Hdwy Stg 2 - - - -

Follow-up Hdwy 3.5 4 - -

Pot Cap-1 Maneuver 851 799 - -

Stage 1 934 820 - -

Stage 2 - - - -

Platoon blocked, % - -

Mov Cap-1 Maneuver 783 0 - -

Mov Cap-2 Maneuver 783 0 - -

Stage 1 896 0 - -

Stage 2 - 0 - -

Approach NB SB

HCM Control Delay, s 10.1 0

HCM LOS B

Minor Lane/Major Mvmt NBLn1 SBT SBR

Capacity (veh/h) 783 - -

HCM Lane V/C Ratio 0.104 - -

HCM Control Delay (s) 10.1 - -

HCM Lane LOS B - -



















HCM 95th %tile Q(veh) 0.3 - -

Timings

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour

												
Lane Group	EBL2	EBT	WBL2	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SEL	SET
Lane Configurations												
Traffic Volume (vph)	5	0	5	5	215	423	25	5	40	5	5	987
Future Volume (vph)	5	0	5	5	215	423	25	5	40	5	5	987
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases		3			3			4		4		2
Permitted Phases	3		3	3		3	4		4		2	
Detector Phase	3	3	3	3	3	3	4	4	4	4	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	22.0	22.0
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	29.0	29.0	29.0	29.0	63.0	63.0
Total Split (%)	26.4%	26.4%	26.4%	26.4%	26.4%	26.4%	20.7%	20.7%	20.7%	20.7%	45.0%	45.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.0
Lost Time Adjust (s)		0.0			0.0	0.0		3.0		3.0		3.0
Total Lost Time (s)		6.5			6.5	6.5		9.5		9.5		9.0
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	C-Max	C-Max
Act Effect Green (s)		30.5			30.5	30.5		19.0		19.0		65.5
Actuated g/C Ratio		0.22			0.22	0.22		0.14		0.14		0.47
v/c Ratio		0.82			1.07	1.10		0.36		0.35		0.69
Control Delay		78.3			117.9	113.7		10.5		58.5		32.3
Queue Delay		29.8			0.0	0.0		0.1		0.0		0.1
Total Delay		108.1			117.9	113.7		10.5		58.5		32.4
LOS		F			F	F		B		E		C
Approach Delay		108.1			115.9			10.5		58.5		32.4
Approach LOS		F			F			B		E		C

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 112 (80%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 76.8

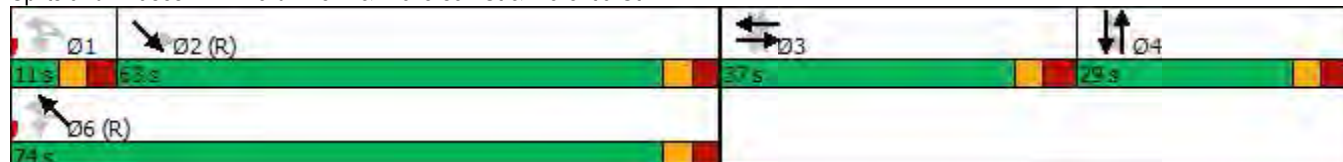
Intersection LOS: E

Intersection Capacity Utilization 124.6%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 14: 3rd Ave N & Nickerson St & Florentia St



Timings
14: 3rd Ave N & Nickerson St & Florentia St













2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	NWL2	NWL	NWT	Ø1
Lane Configurations				
Traffic Volume (vph)	15	75	763	
Future Volume (vph)	15	75	763	
Turn Type	custom	custom	NA	
Protected Phases			6	1
Permitted Phases	1 6	1 6		
Detector Phase	1 6	1 6	6	
Switch Phase				
Minimum Initial (s)			7.0	5.0
Minimum Split (s)			24.0	11.0
Total Split (s)			74.0	11.0
Total Split (%)			52.9%	8%
Yellow Time (s)			3.0	3.0
All-Red Time (s)			3.0	3.0
Lost Time Adjust (s)			3.0	
Total Lost Time (s)			9.0	
Lead/Lag				Lead
Lead-Lag Optimize?				Yes
Recall Mode			C-Max	None
Act Effct Green (s)			65.5	
Actuated g/C Ratio			0.47	
v/c Ratio			1.00	
Control Delay			65.7	
Queue Delay			35.4	
Total Delay			101.1	
LOS			F	
Approach Delay			101.1	
Approach LOS			F	
Intersection Summary				

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Lane Group	EBL2	EBT	WBL2	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SEL	SET
Protected Phases	3			3			4			4		2
Permitted Phases	3		3	3	3	3	4		4		2	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	22.0	22.0
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	29.0	29.0	29.0	29.0	63.0	63.0
Total Split (%)	26.4%	26.4%	26.4%	26.4%	26.4%	26.4%	20.7%	20.7%	20.7%	20.7%	45.0%	45.0%
Maximum Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.5	22.5	22.5	22.5	57.0	57.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.0
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (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
Time To Reduce (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
Recall Mode	None	None	None	None	None	None	None	None	None	None	C-Max	C-Max
Walk Time (s)							8.0	8.0	8.0	8.0	7.0	7.0
Flash Dont Walk (s)							14.0	14.0	14.0	14.0	9.0	9.0
Pedestrian Calls (#/hr)							81	81	81	81	75	75
90th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
70th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
70th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
50th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
50th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
30th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
30th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
10th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
10th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 112 (80%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Control Type: Actuated-Coordinated

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	NWL2	NWL	NWT	Ø1
Protected Phases			6	1
Permitted Phases	1 6	1 6		
Minimum Initial (s)			7.0	5.0
Minimum Split (s)			24.0	11.0
Total Split (s)			74.0	11.0
Total Split (%)			52.9%	8%
Maximum Green (s)			68.0	5.0
Yellow Time (s)			3.0	3.0
All-Red Time (s)			3.0	3.0
Lead/Lag				Lead
Lead-Lag Optimize?				Yes
Vehicle Extension (s)			2.0	2.0
Minimum Gap (s)			0.2	0.2
Time Before Reduce (s)			0.0	0.0
Time To Reduce (s)			0.0	0.0
Recall Mode			C-Max	None
Walk Time (s)			7.0	
Flash Dont Walk (s)			9.0	
Pedestrian Calls (#/hr)			174	
90th %ile Green (s)			68.5	0.0
90th %ile Term Code			Coord	Skip
70th %ile Green (s)			68.5	0.0
70th %ile Term Code			Coord	Skip
50th %ile Green (s)			68.5	0.0
50th %ile Term Code			Coord	Skip
30th %ile Green (s)			68.5	0.0
30th %ile Term Code			Coord	Skip
10th %ile Green (s)			68.5	0.0
10th %ile Term Code			Coord	Skip
Intersection Summary				

Queues

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT	SET	NWT
Lane Group Flow (vph)	201	373	336	108	58	1088	927
v/c Ratio	0.82	1.07	1.10	0.36	0.35	0.69	1.00
Control Delay	78.3	117.9	113.7	10.5	58.5	32.3	65.7
Queue Delay	29.8	0.0	0.0	0.1	0.0	0.1	35.4
Total Delay	108.1	117.9	113.7	10.5	58.5	32.4	101.1
Queue Length 50th (ft)	176	~392	~268	0	46	403	~457
Queue Length 95th (ft)	#310	#608	#478	46	94	485	#598
Internal Link Dist (ft)	413	299		354	158	814	375
Turn Bay Length (ft)							
Base Capacity (vph)	245	350	305	302	171	1567	928
Starvation Cap Reductn	0	0	0	0	0	0	105
Spillback Cap Reductn	47	0	0	7	0	47	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.02	1.07	1.10	0.37	0.34	0.72	1.13

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

















95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL2	EBT	EBR	WBL2	WBL	WBT	WBR	WBR2	NBL	NBT	NBR2	SBL
Lane Configurations												
Traffic Volume (vph)	5	0	180	5	5	215	423	5	25	5	70	40
Future Volume (vph)	5	0	180	5	5	215	423	5	25	5	70	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5				6.5	6.5			9.5		
Lane Util. Factor		1.00				0.95	0.95			1.00		
Frpb, ped/bikes		0.94				0.96	0.64			0.94		
Flpb, ped/bikes		1.00				1.00	1.00			0.98		
Frt		0.87				0.95	0.85			0.91		
Flt Protected		1.00				1.00	1.00			0.99		
Satd. Flow (prot)		1546				1626	967			1570		
Flt Permitted		0.73				0.99	1.00			0.90		
Satd. Flow (perm)		1128				1610	967			1425		
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)	5	0	196	5	5	234	460	5	27	5	76	43
RTOR Reduction (vph)	0	0	0	0	0	0	95	0	0	93	0	0
Lane Group Flow (vph)	0	201	0	0	0	373	241	0	0	15	0	0
Confl. Peds. (#/hr)	44		37	37	44		44	67	44		37	37
Confl. Bikes (#/hr)			1				37	37				
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	0%	0%	0%	2%
Turn Type	Perm	NA		Perm	Perm	NA	Perm		Perm	NA		Perm
Protected Phases		3				3				4		
Permitted Phases	3			3	3		3		4			4
Actuated Green, G (s)		30.5				30.5	30.5			22.0		
Effective Green, g (s)		30.5				30.5	30.5			19.0		
Actuated g/C Ratio		0.22				0.22	0.22			0.14		
Clearance Time (s)		6.5				6.5	6.5			6.5		
Vehicle Extension (s)		2.0				2.0	2.0			2.0		
Lane Grp Cap (vph)		245				350	210			193		
v/s Ratio Prot												
v/s Ratio Perm		0.18				0.23	0.25			0.01		
v/c Ratio		0.82				1.07	1.15			0.08		
Uniform Delay, d1		52.1				54.8	54.8			52.8		
Progression Factor		1.00				1.00	1.00			1.00		
Incremental Delay, d2		18.5				66.6	108.2			0.1		
Delay (s)		70.6				121.4	162.9			52.9		
Level of Service		E				F	F			D		
Approach Delay (s)		70.6				141.1				52.9		
Approach LOS		E				F				D		
Intersection Summary												
HCM 2000 Control Delay		70.9				HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio		0.98										
Actuated Cycle Length (s)		140.0				Sum of lost time (s)				31.0		
Intersection Capacity Utilization		124.6%				ICU Level of Service				H		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

	↓	↙	↘	↗	↖	↗	↖	↘	↙	↗
Movement	SBT	SBR	SBR2	SEL	SET	SER	SER2	NWL2	NWL	NWT
Lane Configurations	↕				↕					↕
Traffic Volume (vph)	5	5	5	5	987	5	5	15	75	763
Future Volume (vph)	5	5	5	5	987	5	5	15	75	763
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.5				9.0					9.0
Lane Util. Factor	1.00				0.95					0.95
Frpb, ped/bikes	0.97				1.00					1.00
Flpb, ped/bikes	0.96				1.00					1.00
Frt	0.98				1.00					1.00
Flt Protected	0.96				1.00					0.99
Satd. Flow (prot)	1629				3522					3555
Flt Permitted	0.72				0.95					0.56
Satd. Flow (perm)	1214				3349					1984
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	5	5	5	1073	5	5	16	82	829
RTOR Reduction (vph)	3	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	55	0	0	0	1088	0	0	0	0	927
Confl. Peds. (#/hr)		31	44	107		44	31	44	31	
Confl. Bikes (#/hr)		11	11			2	2			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	NA			Perm	NA			custom	custom	NA
Protected Phases	4				2					6
Permitted Phases				2				1 6	1 6	
Actuated Green, G (s)	22.0				68.5					68.5
Effective Green, g (s)	19.0				65.5					65.5
Actuated g/C Ratio	0.14				0.47					0.47
Clearance Time (s)	6.5				6.0					6.0
Vehicle Extension (s)	2.0				3.0					2.0
Lane Grp Cap (vph)	164				1566					928
v/s Ratio Prot										
v/s Ratio Perm	c0.05				0.32					c0.47
v/c Ratio	0.34				0.69					1.00
Uniform Delay, d1	54.8				29.4					37.2
Progression Factor	1.00				1.00					1.08
Incremental Delay, d2	0.4				2.6					25.8
Delay (s)	55.2				31.9					66.0
Level of Service	E				C					E
Approach Delay (s)	55.2				31.9					66.0
Approach LOS	E				C					E
Intersection Summary										

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	5	0	1965	540	648
Future Vol, veh/h	0	5	0	1965	540	648
Conflicting Peds, #/hr	75	74	74	0	0	75
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	97	97	97	97	97	97
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	0	5	0	2026	557	668
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	762	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	352	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	304	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	17	0		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT EBLn1		SBT	SBR		
Capacity (veh/h)	- 304		-	-		
HCM Lane V/C Ratio	- 0.017		-	-		
HCM Control Delay (s)	- 17		-	-		
HCM Lane LOS	- C		-	-		
HCM 95th %tile Q(veh)	- 0.1		-	-		

Timings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	←←	→	←←	→	←	→	←←	→
Traffic Volume (vph)	849	269	517	790	223	330	320	115
Future Volume (vph)	849	269	517	790	223	330	320	115
Turn Type	Prot	NA	NA	custom	Split	NA	Split	NA
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Detector Phase	4	1 4	1	5	3	3	2	2
Switch Phase								
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	30.0		37.0	73.0	37.0	37.0	36.0	36.0
Total Split (%)	21.4%		26.4%	52.1%	26.4%	26.4%	25.7%	25.7%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		5.5	5.5	6.5	6.5	5.5	5.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Recall Mode	None		Max	C-Max	None	None	C-Max	C-Max
Act Effct Green (s)	26.9	64.9	31.5	67.5	27.1	27.1	30.5	30.5
Actuated g/C Ratio	0.19	0.46	0.22	0.48	0.19	0.19	0.22	0.22
v/c Ratio	1.33	0.55	0.68	0.86	0.68	0.51	0.45	0.64
Control Delay	196.5	52.0	54.6	39.5	62.2	52.5	49.9	51.3
Queue Delay	0.0	8.0	1.5	0.0	0.0	0.0	0.0	91.5
Total Delay	196.5	60.0	56.0	39.5	62.2	52.5	49.9	142.8
LOS	F	E	E	D	E	D	D	F
Approach Delay		150.6	46.0			56.4		88.8
Approach LOS		F	D			E		F

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 89 (64%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.33

Intersection Signal Delay: 90.2

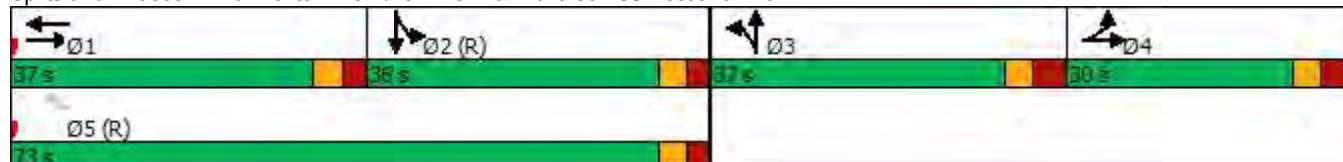
Intersection LOS: F

Intersection Capacity Utilization 107.4%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N



Phasings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	30.0		37.0	73.0	37.0	37.0	36.0	36.0
Total Split (%)	21.4%		26.4%	52.1%	26.4%	26.4%	25.7%	25.7%
Maximum Green (s)	23.5		31.5	67.5	30.5	30.5	30.5	30.5
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2		0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None		Max	C-Max	None	None	C-Max	C-Max
Walk Time (s)			9.0		8.0	8.0	8.0	8.0
Flash Dont Walk (s)			22.0		22.0	22.0	22.0	22.0
Pedestrian Calls (#/hr)			46		48	48	17	17
90th %ile Green (s)	23.5		31.5	67.5	30.5	30.5	30.5	30.5
90th %ile Term Code	Max		MaxR	Coord	Max	Max	Coord	Coord
70th %ile Green (s)	24.0		31.5	67.5	30.0	30.0	30.5	30.5
70th %ile Term Code	Max		MaxR	Coord	Ped	Ped	Coord	Coord
50th %ile Green (s)	24.0		31.5	67.5	30.0	30.0	30.5	30.5
50th %ile Term Code	Max		MaxR	Coord	Ped	Ped	Coord	Coord
30th %ile Green (s)	24.0		31.5	67.5	30.0	30.0	30.5	30.5
30th %ile Term Code	Max		MaxR	Coord	Ped	Ped	Coord	Coord
10th %ile Green (s)	39.1		31.5	67.5	14.9	14.9	30.5	30.5
10th %ile Term Code	Max		MaxR	Coord	Gap	Gap	Coord	Coord

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 89 (64%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Control Type: Actuated-Coordinated

Queues

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	884	449	539	823	232	349	333	240
v/c Ratio	1.33	0.55	0.68	0.86	0.68	0.51	0.45	0.64
Control Delay	196.5	52.0	54.6	39.5	62.2	52.5	49.9	51.3
Queue Delay	0.0	8.0	1.5	0.0	0.0	0.0	0.0	91.5
Total Delay	196.5	60.0	56.0	39.5	62.2	52.5	49.9	142.8
Queue Length 50th (ft)	~578	402	237	341	193	146	137	173
Queue Length 95th (ft)	#720	m487	303	459	284	197	186	269
Internal Link Dist (ft)		375	150			693		176
Turn Bay Length (ft)				200				
Base Capacity (vph)	666	822	796	957	385	767	733	377
Starvation Cap Reductn	0	327	0	0	0	0	0	0
Spillback Cap Reductn	0	0	114	0	0	0	0	319
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.33	0.91	0.79	0.86	0.60	0.46	0.45	4.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.


Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N















2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	🔴🔴	🔴			🔴🔴	🔴🔴	🔴	🔴🔴		🔴🔴	🔴	
Traffic Volume (vph)	849	269	162	0	517	790	223	330	5	320	115	115
Future Volume (vph)	849	269	162	0	517	790	223	330	5	320	115	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.98			1.00	0.68	1.00	1.00		1.00	0.96	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.94			1.00	0.85	1.00	1.00		1.00	0.93	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3467	1741			3539	1903	1770	3520		3367	1616	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3467	1741			3539	1903	1770	3520		3367	1616	
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)	884	280	169	0	539	823	232	344	5	333	120	120
RTOR Reduction (vph)	0	16	0	0	0	40	0	1	0	0	26	0
Lane Group Flow (vph)	884	433	0	0	539	783	232	348	0	333	214	0
Confl. Peds. (#/hr)	17		29	29		17	17		48	48		17
Confl. Bikes (#/hr)			2			371			156			53
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	26.9	64.9			31.5	67.5	27.1	27.1		30.5	30.5	
Effective Green, g (s)	26.9	58.4			31.5	67.5	27.1	27.1		30.5	30.5	
Actuated g/C Ratio	0.19	0.42			0.22	0.48	0.19	0.19		0.22	0.22	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	666	726			796	917	342	681		733	352	
v/s Ratio Prot	c0.25	0.25			0.15		c0.13	0.10		0.10	0.13	
v/s Ratio Perm						c0.41						
v/c Ratio	1.33	0.60			0.68	0.85	0.68	0.51		0.45	0.61	
Uniform Delay, d1	56.5	31.6			49.6	31.9	52.4	50.5		47.5	49.4	
Progression Factor	0.97	1.89			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	154.8	1.0			4.6	9.9	4.2	0.3		2.0	7.6	
Delay (s)	209.8	60.7			54.2	41.8	56.6	50.8		49.6	57.0	
Level of Service	F	E			D	D	E	D		D	E	
Approach Delay (s)		159.5			46.7			53.1			52.7	
Approach LOS		F			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			87.6				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			107.4%				ICU Level of Service			G		
Analysis Period (min)			15									
c Critical Lane Group												

2035 Alternative 2 AM (with Mitigation Measures)

Timings
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	17	905	18	603	17	6	12	0
Future Volume (vph)	17	905	18	603	17	6	12	0
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	6.5	7.0	6.5	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	22.5	11.0	23.5	25.5	25.5	23.5	23.5
Total Split (s)	11.0	53.0	11.0	53.0	26.0	26.0	26.0	26.0
Total Split (%)	12.2%	58.9%	12.2%	58.9%	28.9%	28.9%	28.9%	28.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
Act Effect Green (s)	70.1	67.5	70.1	67.5		9.1		9.1
Actuated g/C Ratio	0.78	0.75	0.78	0.75		0.10		0.10
v/c Ratio	0.03	0.74	0.05	0.47		0.65		0.18
Control Delay	2.7	13.4	2.3	5.3		18.3		2.8
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	2.7	13.4	2.3	5.3		18.3		2.8
LOS	A	B	A	A		B		A
Approach Delay		13.2		5.2		18.3		2.8
Approach LOS		B		A		B		A

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 20 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 10.8

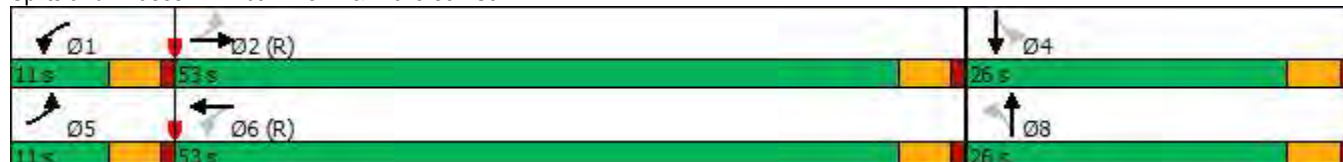
Intersection LOS: B

Intersection Capacity Utilization 73.1%

ICU Level of Service D

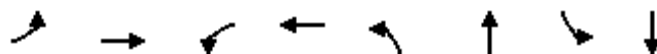
Analysis Period (min) 15

Splits and Phases: 1: 6th Ave W & Nickerson St



Phasings
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Minimum Initial (s)	6.5	7.0	6.5	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	22.5	11.0	23.5	25.5	25.5	23.5	23.5
Total Split (s)	11.0	53.0	11.0	53.0	26.0	26.0	26.0	26.0
Total Split (%)	12.2%	58.9%	12.2%	58.9%	28.9%	28.9%	28.9%	28.9%
Maximum Green (s)	6.5	48.5	6.5	48.5	21.5	21.5	21.5	21.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
Walk Time (s)		7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		5.0		12.0	14.0	14.0	12.0	12.0
Pedestrian Calls (#/hr)		0		0	0	0	0	0
90th %ile Green (s)	6.5	55.4	6.5	55.4	14.6	14.6	14.6	14.6
90th %ile Term Code	Min	Coord	Min	Coord	Gap	Gap	Hold	Hold
70th %ile Green (s)	6.5	59.9	6.5	59.9	10.1	10.1	10.1	10.1
70th %ile Term Code	Min	Coord	Min	Coord	Gap	Gap	Hold	Hold
50th %ile Green (s)	0.0	74.0	0.0	74.0	7.0	7.0	7.0	7.0
50th %ile Term Code	Skip	Coord	Skip	Coord	Min	Min	Hold	Hold
30th %ile Green (s)	0.0	74.0	0.0	74.0	7.0	7.0	7.0	7.0
30th %ile Term Code	Skip	Coord	Skip	Coord	Min	Min	Hold	Hold
10th %ile Green (s)	0.0	74.0	0.0	74.0	7.0	7.0	7.0	7.0
10th %ile Term Code	Skip	Coord	Skip	Coord	Min	Min	Hold	Hold

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 20 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Control Type: Actuated-Coordinated

Queues
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	18	996	19	646	204	24
v/c Ratio	0.03	0.74	0.05	0.47	0.65	0.18
Control Delay	2.7	13.4	2.3	5.3	18.3	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.7	13.4	2.3	5.3	18.3	2.8
Queue Length 50th (ft)	1	154	0	92	13	0
Queue Length 95th (ft)	7	#760	m0	112	75	0
Internal Link Dist (ft)		549		657	226	272
Turn Bay Length (ft)	30		30			
Base Capacity (vph)	584	1354	358	1376	499	222
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.74	0.05	0.47	0.41	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.



















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: 6th Ave W & Nickerson St





2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	905	51	18	603	17	17	6	173	12	0	11
Future Volume (veh/h)	17	905	51	18	603	17	17	6	173	12	0	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.98		0.96	0.98		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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1856	1856	1856	1870	1870	1870	1426	1426	1426
Adj Flow Rate, veh/h	18	943	53	19	628	18	18	6	180	12	0	11
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, %	4	4	4	3	3	3	2	2	2	32	32	32
Cap, veh/h	481	1116	63	253	1164	33	56	19	237	131	14	77
Arrive On Green	0.03	0.65	0.65	0.03	0.65	0.65	0.17	0.17	0.17	0.17	0.00	0.17
Sat Flow, veh/h	1753	1723	97	1767	1793	51	71	109	1354	400	79	439
Grp Volume(v), veh/h	18	0	996	19	0	646	204	0	0	23	0	0
Grp Sat Flow(s),veh/h/ln	1753	0	1820	1767	0	1844	1534	0	0	917	0	0
Q Serve(g_s), s	0.3	0.0	38.3	0.3	0.0	17.0	4.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	0.0	38.3	0.3	0.0	17.0	11.3	0.0	0.0	1.3	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.03	0.09		0.88	0.52		0.48
Lane Grp Cap(c), veh/h	481	0	1179	253	0	1197	312	0	0	221	0	0
V/C Ratio(X)	0.04	0.00	0.84	0.08	0.00	0.54	0.65	0.00	0.00	0.10	0.00	0.00
Avail Cap(c_a), veh/h	561	0	1179	332	0	1197	409	0	0	286	0	0
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	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	6.5	0.0	12.3	13.2	0.0	8.5	35.3	0.0	0.0	31.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	7.5	0.1	0.0	1.7	2.3	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	0.1	0.0	16.0	0.2	0.0	6.6	4.4	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.5	0.0	19.8	13.4	0.0	10.3	37.6	0.0	0.0	31.4	0.0	0.0
LnGrp LOS	A	A	B	B	A	B	D	A	A	C	A	A
Approach Vol, veh/h	1014			665			204			23		
Approach Delay, s/veh	19.6			10.4			37.6			31.4		
Approach LOS	B			B			D			C		
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	7.0	62.8	20.2		6.9	62.9	20.2					
Change Period (Y+Rc), s	4.5	4.5	4.5		4.5	4.5	4.5					
Max Green Setting (Gmax), s	6.5	48.5	21.5		6.5	48.5	21.5					
Max Q Clear Time (g_c+I1), s	2.3	40.3	3.3		2.3	19.0	13.3					
Green Ext Time (p_c), s	0.0	4.8	0.1		0.0	5.3	0.8					
Intersection Summary												
HCM 6th Ctrl Delay	18.4											
HCM 6th LOS	B											

Intersection





Intersection Delay, s/veh 7.9

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	0	5	0	0	0	5	142	0	0	33	10
Future Vol, veh/h	30	0	5	0	0	0	5	142	0	0	33	10
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	0	0	0	9	9	9	0	0	0	0	0	0
Mvmt Flow	38	0	6	0	0	0	6	180	0	0	42	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.8	0	8.1	7.3
HCM LOS	A	-	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	86%	0%	0%
Vol Thru, %	97%	0%	100%	77%
Vol Right, %	0%	14%	0%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	147	35	0	43
LT Vol	5	30	0	0
Through Vol	142	0	0	33
RT Vol	0	5	0	10
Lane Flow Rate	186	44	0	54
Geometry Grp	1	1	1	1
Degree of Util (X)	0.208	0.055	0	0.06
Departure Headway (Hd)	4.024	4.501	4.622	3.977
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	888	801	0	890
Service Time	2.067	2.501	2.623	2.047
HCM Lane V/C Ratio	0.209	0.055	0	0.061
HCM Control Delay	8.1	7.8	7.6	7.3
HCM Lane LOS	A	A	N	A
HCM 95th-tile Q	0.8	0.2	0	0.2




Intersection												
Int Delay, s/veh	4.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	134	135	0	10	97	12	0	1	5	17	5	22
Future Vol, veh/h	134	135	0	10	97	12	0	1	5	17	5	22
Conflicting Peds, #/hr	2	0	8	13	0	8	8	0	13	8	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	2	2	2	0	0	0	5	5	5
Mvmt Flow	179	180	0	13	129	16	0	1	7	23	7	29
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	153	0	0	193	0	0	740	730	206	726	722	153
Stage 1	-	-	-	-	-	-	551	551	-	171	171	-
Stage 2	-	-	-	-	-	-	189	179	-	555	551	-
Critical Hdwy	4.13	-	-	4.12	-	-	7.1	6.5	6.2	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Follow-up Hdwy	2.227	-	-	2.218	-	-	3.5	4	3.3	3.545	4.045	3.345
Pot Cap-1 Maneuver	1421	-	-	1380	-	-	335	352	840	336	349	885
Stage 1	-	-	-	-	-	-	522	519	-	824	752	-
Stage 2	-	-	-	-	-	-	817	755	-	511	510	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1410	-	-	1363	-	-	276	293	819	288	291	872
Mov Cap-2 Maneuver	-	-	-	-	-	-	276	293	-	288	291	-
Stage 1	-	-	-	-	-	-	443	441	-	702	738	-
Stage 2	-	-	-	-	-	-	769	741	-	429	433	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	3.9			0.6			10.8			14.6		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	630	1410	-	-	1363	-	-	434				
HCM Lane V/C Ratio	0.013	0.127	-	-	0.01	-	-	0.135				
HCM Control Delay (s)	10.8	7.9	0	-	7.7	0	-	14.6				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0	0.4	-	-	0	-	-	0.5				

Intersection	
Intersection Delay, s/veh	7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	28	10	6	14	0	0	0	1	0	0	0
Future Vol, veh/h	0	28	10	6	14	0	0	0	1	0	0	0
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	33	33	33
Mvmt Flow	0	42	15	9	21	0	0	0	1	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0





















Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7	7.1	6.5	0
HCM LOS	A	A	A	-

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	30%	0%
Vol Thru, %	0%	74%	70%	100%
Vol Right, %	100%	26%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	1	38	20	0
LT Vol	0	0	6	0
Through Vol	0	28	14	0
RT Vol	1	10	0	0
Lane Flow Rate	1	57	30	0
Geometry Grp	1	1	1	1
Degree of Util (X)	0.001	0.059	0.033	0
Departure Headway (Hd)	3.449	3.767	4.004	4.613
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	1035	955	898	0
Service Time	1.477	1.772	2.011	2.642
HCM Lane V/C Ratio	0.001	0.06	0.033	0
HCM Control Delay	6.5	7	7.1	7.6
HCM Lane LOS	A	A	A	N
HCM 95th-tile Q	0	0.2	0.1	0

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	157	124	0	0	0
Future Vol, veh/h	0	157	124	0	0	0
Conflicting Peds, #/hr	4	0	0	19	19	4
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	79	79	79	79	79	79
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	0	199	157	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	176	0	-	0	394	180
Stage 1	-	-	-	-	176	-
Stage 2	-	-	-	-	218	-
Critical Hdwy	4.13	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.227	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1394	-	-	-	615	868
Stage 1	-	-	-	-	859	-
Stage 2	-	-	-	-	823	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1369	-	-	-	593	849
Mov Cap-2 Maneuver	-	-	-	-	593	-
Stage 1	-	-	-	-	844	-
Stage 2	-	-	-	-	808	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1369	-	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	-	-	0	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	-	

Timings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	10	948	114	75	575	35	134	10	10	10
Future Volume (vph)	10	948	114	75	575	35	134	10	10	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	6.5	7.0	7.0	6.5	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	25.0	25.0	11.0	25.0	25.0	27.5	27.5	27.5	27.5
Total Split (s)	11.0	51.0	51.0	11.0	51.0	51.0	28.0	28.0	28.0	28.0
Total Split (%)	12.2%	56.7%	56.7%	12.2%	56.7%	56.7%	31.1%	31.1%	31.1%	31.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0		3.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	7.5	7.5		7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	61.5	56.3	56.3	64.4	63.0	63.0	12.8	12.8		11.8
Actuated g/C Ratio	0.68	0.63	0.63	0.72	0.70	0.70	0.14	0.14		0.13
v/c Ratio	0.02	0.87	0.12	0.34	0.48	0.03	0.77	0.26		0.11
Control Delay	8.1	28.4	6.3	14.1	19.8	5.2	61.0	12.9		31.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	8.1	28.4	6.3	14.1	19.8	5.2	61.0	12.9		31.1
LOS	A	C	A	B	B	A	E	B		C
Approach Delay		25.9			18.4			45.3		31.1
Approach LOS		C			B			D		C

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 25.3

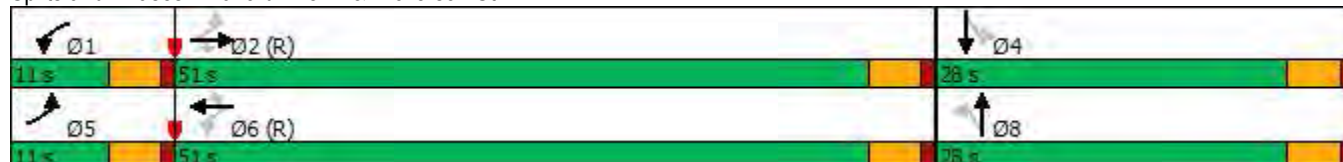
Intersection LOS: C

Intersection Capacity Utilization 84.2%

ICU Level of Service E











Analysis Period (min) 15

Splits and Phases: 6: 3rd Ave W & Nickerson St



Phasings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Minimum Initial (s)	6.5	7.0	7.0	6.5	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	25.0	25.0	11.0	25.0	25.0	27.5	27.5	27.5	27.5
Total Split (s)	11.0	51.0	51.0	11.0	51.0	51.0	28.0	28.0	28.0	28.0
Total Split (%)	12.2%	56.7%	56.7%	12.2%	56.7%	56.7%	31.1%	31.1%	31.1%	31.1%
Maximum Green (s)	6.5	46.5	46.5	6.5	46.5	46.5	23.5	23.5	23.5	23.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	1.0	0.2	0.2	1.0	0.2	0.2	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)		12	12		6	6	12	12	17	17
90th %ile Green (s)	6.5	46.5	46.5	7.0	47.0	47.0	23.0	23.0	23.0	23.0
90th %ile Term Code	Min	Coord	Coord	Max	Coord	Coord	Ped	Ped	Ped	Ped
70th %ile Green (s)	0.0	47.0	47.0	6.5	58.0	58.0	23.0	23.0	23.0	23.0
70th %ile Term Code	Skip	Coord	Coord	Min	Coord	Coord	Hold	Hold	Ped	Ped
50th %ile Green (s)	0.0	55.9	55.9	6.5	66.9	66.9	14.1	14.1	14.1	14.1
50th %ile Term Code	Skip	Coord	Coord	Min	Coord	Coord	Gap	Gap	Hold	Hold
30th %ile Green (s)	0.0	58.6	58.6	6.5	69.6	69.6	11.4	11.4	0.0	0.0
30th %ile Term Code	Skip	Coord	Coord	Min	Coord	Coord	Gap	Gap	Skip	Skip
10th %ile Green (s)	0.0	73.5	73.5	0.0	73.5	73.5	7.5	7.5	0.0	0.0
10th %ile Term Code	Skip	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Skip	Skip

Intersection Summary

Cycle Length: 90










Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Control Type: Actuated-Coordinated

Queues
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

									
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	10	988	119	78	599	36	140	68	20
v/c Ratio	0.02	0.87	0.12	0.34	0.48	0.03	0.77	0.26	0.11
Control Delay	8.1	28.4	6.3	14.1	19.8	5.2	61.0	12.9	31.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.1	28.4	6.3	14.1	19.8	5.2	61.0	12.9	31.1
Queue Length 50th (ft)	1	333	1	23	252	1	79	5	10
Queue Length 95th (ft)	m4	#854	m39	m49	457	m7	129	38	28
Internal Link Dist (ft)		79			214			74	171
Turn Bay Length (ft)	100			135		215			
Base Capacity (vph)	548	1132	955	229	1254	1050	294	389	327
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.87	0.12	0.34	0.48	0.03	0.48	0.17	0.06

Intersection Summary






















95th percentile volume exceeds capacity, queue may be longer.




Queue shown is maximum after two cycles.




m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary 6: 3rd Ave W & Nickerson St




2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	948	114	75	575	35	134	10	56	10	10	0
Future Volume (veh/h)	10	948	114	75	575	35	134	10	56	10	10	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	0.96		0.95	0.97		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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1811	1811	1811	1796	1796	1796	1707	1707	1707
Adj Flow Rate, veh/h	10	988	119	78	599	36	140	10	58	10	10	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, %	5	5	5	6	6	6	7	7	7	13	13	13
Cap, veh/h	507	1152	967	283	1226	1008	252	27	158	124	94	0
Arrive On Green	0.02	0.63	0.63	0.06	0.68	0.68	0.12	0.12	0.16	0.16	0.12	0.00
Sat Flow, veh/h	1739	1826	1533	1725	1811	1490	1301	220	1274	518	757	0
Grp Volume(v), veh/h	10	988	119	78	599	36	140	0	68	20	0	0
Grp Sat Flow(s),veh/h/ln	1739	1826	1533	1725	1811	1490	1301	0	1494	1275	0	0
Q Serve(g_s), s	0.2	39.2	2.8	1.2	14.4	0.7	6.0	0.0	3.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.2	39.2	2.8	1.2	14.4	0.7	8.7	0.0	3.7	3.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.85	0.50		0.00
Lane Grp Cap(c), veh/h	507	1152	967	283	1226	1008	252	0	185	261	0	0
V/C Ratio(X)	0.02	0.86	0.12	0.28	0.49	0.04	0.56	0.00	0.37	0.08	0.00	0.00
Avail Cap(c_a), veh/h	605	1152	967	301	1226	1008	387	0	340	406	0	0
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.2	13.4	6.7	15.2	7.0	4.8	38.1	0.0	35.0	34.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	8.3	0.3	0.2	1.4	0.1	0.7	0.0	0.5	0.0	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	0.1	16.8	0.9	0.8	5.3	0.2	3.0	0.0	1.3	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.2	21.7	6.9	15.4	8.4	4.9	38.8	0.0	35.4	34.3	0.0	0.0
LnGrp LOS	A	C	A	B	A	A	D	A	D	C	A	A
Approach Vol, veh/h		1117			713			208			20	
Approach Delay, s/veh		20.0			9.0			37.7			34.3	
Approach LOS		B			A			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.1	61.3		18.7	5.9	65.4		18.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	46.5		23.5	6.5	46.5		23.5				
Max Q Clear Time (g_c+I1), s	4.2	42.2		5.7	3.2	17.4		11.7				
Green Ext Time (p_c), s	0.0	0.9		0.0	0.0	0.8		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			18.1									
HCM 6th LOS			B									

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	74	0	0	0	44	196	15	5	141	49
Future Vol, veh/h	0	0	74	0	0	0	44	196	15	5	141	49
Conflicting Peds, #/hr	32	0	42	22	0	11	42	0	22	11	0	32
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	0	0	0	7	7	7	2	2	2
Mvmt Flow	0	0	93	0	0	0	55	245	19	6	176	61
Major/Minor	Minor2						Major1		Major2			
Conflicting Flow All	-	-	291				279	0	0	286	0	0
Stage 1	-	-	-				-	-	-	-	-	-
Stage 2	-	-	-				-	-	-	-	-	-
Critical Hdwy	-	-	6.23				4.17	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-				-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-				-	-	-	-	-	-
Follow-up Hdwy	-	-	3.327				2.263	-	-	2.218	-	-
Pot Cap-1 Maneuver	0	0	746				1255	-	-	1276	-	-
Stage 1	0	0	-				-	-	-	-	-	-
Stage 2	0	0	-				-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	0	688				1205	-	-	1276	-	-
Mov Cap-2 Maneuver	-	0	-				-	-	-	-	-	-
Stage 1	-	0	-				-	-	-	-	-	-
Stage 2	-	0	-				-	-	-	-	-	-
Approach	EB						NB		SB			
HCM Control Delay, s	11						1.4		0.2			
HCM LOS	B											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1205	-	-	688	1276	-	-					
HCM Lane V/C Ratio	0.046	-	-	0.134	0.005	-	-					
HCM Control Delay (s)	8.1	0	-	11	7.8	0	-					
HCM Lane LOS	A	A	-	B	A	A	-					
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0	-	-					















Intersection						
Int Delay, s/veh	1.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	25	241	40	41	166
Future Vol, veh/h	26	25	241	40	41	166
Conflicting Peds, #/hr	16	3	0	16	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	84	84	84	84	84	84
Heavy Vehicles, %	30	30	7	7	5	5
Mvmt Flow	31	30	287	48	49	198
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	639	330	0	0	351	0
Stage 1	327	-	-	-	-	-
Stage 2	312	-	-	-	-	-
Critical Hdwy	6.7	6.5	-	-	4.15	-
Critical Hdwy Stg 1	5.7	-	-	-	-	-
Critical Hdwy Stg 2	5.7	-	-	-	-	-
Follow-up Hdwy	3.77	3.57	-	-	2.245	-
Pot Cap-1 Maneuver	399	652	-	-	1191	-
Stage 1	672	-	-	-	-	-
Stage 2	683	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	369	640	-	-	1173	-
Mov Cap-2 Maneuver	369	-	-	-	-	-
Stage 1	662	-	-	-	-	-
Stage 2	641	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	13.9	0	1.6			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	466	1173	-	
HCM Lane V/C Ratio	-	-	0.13	0.042	-	
HCM Control Delay (s)	-	-	13.9	8.2	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.4	0.1	-	

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	28	0	40	0	249	27	22	172	0
Future Vol, veh/h	0	0	0	28	0	40	0	249	27	22	172	0
Conflicting Peds, #/hr	17	0	0	0	0	17	0	0	0	17	0	17
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	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	3	3	3	7	7	7	12	12	12
Mvmt Flow	0	0	0	32	0	46	0	286	31	25	198	0
Major/Minor				Minor1		Major1		Major2				
Conflicting Flow All				567	584	336	215	0	0	334	0	0
Stage 1				319	319	-	-	-	-	-	-	-
Stage 2				248	265	-	-	-	-	-	-	-
Critical Hdwy				6.43	6.53	6.23	4.17	-	-	4.22	-	-
Critical Hdwy Stg 1				5.43	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.43	5.53	-	-	-	-	-	-	-
Follow-up Hdwy				3.527	4.027	3.327	2.263	-	-	2.308	-	-
Pot Cap-1 Maneuver				483	422	704	1326	-	-	1171	-	-
Stage 1				735	651	-	-	-	-	-	-	-
Stage 2				791	688	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver				464	0	681	1326	-	-	1152	-	-
Mov Cap-2 Maneuver				464	0	-	-	-	-	-	-	-
Stage 1				723	0	-	-	-	-	-	-	-
Stage 2				772	0	-	-	-	-	-	-	-
Approach				WB		NB		SB				
HCM Control Delay, s				12.3		0		0.9				
HCM LOS				B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1326	-	-	571	1152	-	-					
HCM Lane V/C Ratio	-	-	-	0.137	0.022	-	-					
HCM Control Delay (s)	0	-	-	12.3	8.2	0	-					
HCM Lane LOS	A	-	-	B	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	0.5	0.1	-	-					

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	43	3	39	237	159	36
Future Vol, veh/h	43	3	39	237	159	36
Conflicting Peds, #/hr	15	15	15	0	0	15
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, %	0	0	8	8	11	11
Mvmt Flow	47	3	43	260	175	40
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	571	225	230	0	-	0
Stage 1	210	-	-	-	-	-
Stage 2	361	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.18	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.272	-	-	-
Pot Cap-1 Maneuver	486	819	1303	-	-	-
Stage 1	830	-	-	-	-	-
Stage 2	710	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	454	796	1284	-	-	-
Mov Cap-2 Maneuver	454	-	-	-	-	-
Stage 1	787	-	-	-	-	-
Stage 2	700	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	13.6	1.1		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1284	-	467	-	-	
HCM Lane V/C Ratio	0.033	-	0.108	-	-	
HCM Control Delay (s)	7.9	0	13.6	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-	

Timings
11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

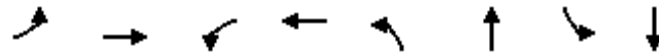
								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	35	946	62	648	30	5	5	5
Future Volume (vph)	35	946	62	648	30	5	5	5
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Detector Phase	2	2	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	17.5	17.5	17.5	17.5	24.5	24.5	24.5	24.5
Total Split (s)	65.0	65.0	65.0	65.0	25.0	25.0	25.0	25.0
Total Split (%)	72.2%	72.2%	72.2%	72.2%	27.8%	27.8%	27.8%	27.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
Act Effct Green (s)	60.5	60.5	60.5	60.5		20.5		20.5
Actuated g/C Ratio	0.67	0.67	0.67	0.67		0.23		0.23
v/c Ratio	0.10	0.89	0.51	0.60		0.30		0.12
Control Delay	1.0	14.3	24.4	10.6		16.3		13.0
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	1.0	14.3	24.4	10.6		16.3		13.0
LOS	A	B	C	B		B		B
Approach Delay		13.8		11.8		16.3		13.0
Approach LOS		B		B		B		B
Intersection Summary								
Cycle Length: 90								
Actuated Cycle Length: 90								
Offset: 20 (22%), Referenced to phase 2:EBWB, Start of 1st Green								
Natural Cycle: 80								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.89								
Intersection Signal Delay: 13.1					Intersection LOS: B			
Intersection Capacity Utilization 77.0%					ICU Level of Service D			
Analysis Period (min) 15								

Splits and Phases: 11: W Cremona St & Nickerson St



Phasings
11: W Cremona St & Nickerson St

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	17.5	17.5	17.5	17.5	24.5	24.5	24.5	24.5
Total Split (s)	65.0	65.0	65.0	65.0	25.0	25.0	25.0	25.0
Total Split (%)	72.2%	72.2%	72.2%	72.2%	27.8%	27.8%	27.8%	27.8%
Maximum Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	6.0	6.0	6.0	6.0	13.0	13.0	13.0	13.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0
90th %ile Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
90th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	MaxR	MaxR
70th %ile Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
70th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	MaxR	MaxR
50th %ile Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
50th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	MaxR	MaxR
30th %ile Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
30th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	MaxR	MaxR
10th %ile Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
10th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	MaxR	MaxR

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 20 (22%), Referenced to phase 2:EBWB, Start of 1st Green

Control Type: Actuated-Coordinated

Queues
11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	37	1059	66	716	101	47
v/c Ratio	0.10	0.89	0.51	0.60	0.30	0.12
Control Delay	1.0	14.3	24.4	10.6	16.3	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.0	14.3	24.4	10.6	16.3	13.0
Queue Length 50th (ft)	1	386	16	194	17	4
Queue Length 95th (ft)	m1	m#168	#85	293	61	32
Internal Link Dist (ft)		379		803	22	101
Turn Bay Length (ft)	30		30			
Base Capacity (vph)	356	1194	130	1195	341	388
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.89	0.51	0.60	0.30	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.



















Queue shown is maximum after two cycles.




m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	946	50	62	648	25	30	5	60	5	5	35
Future Volume (vph)	35	946	50	62	648	25	30	5	60	5	5	35
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	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.97			0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99			1.00	
Frt	1.00	0.99		1.00	0.99			0.91			0.89	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1703	1774		1703	1777			1391			1610	
Flt Permitted	0.30	1.00		0.11	1.00			0.91			0.98	
Satd. Flow (perm)	530	1774		193	1777			1282			1582	
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	1006	53	66	689	27	32	5	64	5	5	37
RTOR Reduction (vph)	0	2	0	0	2	0	0	49	0	0	29	0
Lane Group Flow (vph)	37	1057	0	66	714	0	0	52	0	0	18	0
Confl. Peds. (#/hr)	16		9	10		17	9		10	17		16
Confl. Bikes (#/hr)			1			2						
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	19%	19%	19%	0%	0%	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)	60.5	60.5		60.5	60.5			20.5			20.5	
Effective Green, g (s)	60.5	60.5		60.5	60.5			20.5			20.5	
Actuated g/C Ratio	0.67	0.67		0.67	0.67			0.23			0.23	
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)	356	1192		129	1194			292			360	
v/s Ratio Prot		c0.60			0.40							
v/s Ratio Perm	0.07			0.34				c0.04			0.01	
v/c Ratio	0.10	0.89		0.51	0.60			0.18			0.05	
Uniform Delay, d1	5.2	12.0		7.4	8.1			28.0			27.2	
Progression Factor	0.12	0.54		1.00	1.00			1.07			1.00	
Incremental Delay, d2	0.4	6.4		13.8	2.2			1.3			0.3	
Delay (s)	1.0	12.8		21.1	10.3			31.3			27.4	
Level of Service	A	B		C	B			C			C	
Approach Delay (s)		12.4			11.2			31.3			27.4	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			13.2			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			77.0%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

Intersection						
Int Delay, s/veh	4.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	34	16	25	66	40	82
Future Vol, veh/h	34	16	25	66	40	82
Conflicting Peds, #/hr	15	15	15	0	0	15
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	11	11	32	32
Mvmt Flow	38	18	28	74	45	92


















Major/Minor	Minor2	Major2		
Conflicting Flow All	121	106	-	0
Stage 1	106	106	-	-
Stage 2	15	0	-	-
Critical Hdwy	6.51	6.61	-	-
Critical Hdwy Stg 1	5.51	5.61	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.599	4.099	-	-
Pot Cap-1 Maneuver	853	767	-	-
Stage 1	896	790	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	829	0	-	-
Mov Cap-2 Maneuver	829	0	-	-
Stage 1	883	0	-	-
Stage 2	-	0	-	-

Approach	NB	SB
HCM Control Delay, s	10	0
HCM LOS	B	

Minor Lane/Major Mvmt	NBLn1	SBT	SBR
Capacity (veh/h)	829	-	-
HCM Lane V/C Ratio	0.123	-	-
HCM Control Delay (s)	10	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.4	-	-

Timings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Lane Group	EBL2	EBL	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	SBL2	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	5	0	5	115	215	5	30	0	10	5	0
Future Volume (vph)	5	5	0	5	115	215	5	30	0	10	5	0
Turn Type	Perm	Perm	NA	Perm	NA	Perm	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			3		3				4			4
Permitted Phases	3	3		3		3	4	4		4	4	
Detector Phase	3	3	3	3	3	3	4	4	4	4	4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	28.5	28.5
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	26.2%	26.2%	26.2%	26.2%	26.2%	26.2%	22.3%	22.3%	22.3%	22.3%	22.3%	22.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)			0.0		0.0	0.0			3.0			3.0
Total Lost Time (s)			6.5		6.5	6.5			9.5			9.5
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effect Green (s)			27.5		27.5	27.5			16.0			16.0
Actuated g/C Ratio			0.21		0.21	0.21			0.12			0.12
v/c Ratio			0.99		0.55	0.46			0.32			0.09
Control Delay			99.5		52.6	17.2			5.5			0.8
Queue Delay			0.0		0.0	0.0			0.0			0.0
Total Delay			99.5		52.6	17.2			5.6			0.8
LOS			F		D	B			A			A
Approach Delay			99.5		35.8				5.6			0.8
Approach LOS			F		D				A			A

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 76 (58%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 43.2

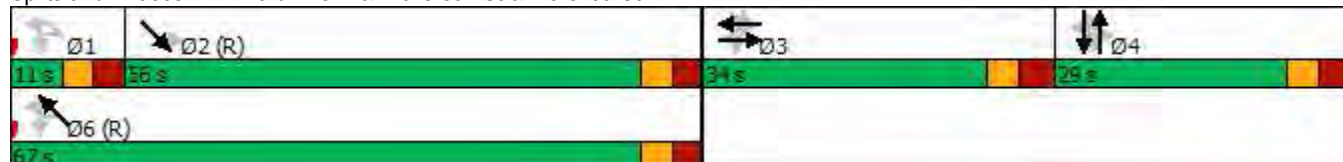
Intersection LOS: D

Intersection Capacity Utilization 117.9%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 14: 3rd Ave N & Nickerson St & Florentia St



Timings
14: 3rd Ave N & Nickerson St & Florentia St













2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	SET	NWL2	NWL	NWT	Ø1
Lane Configurations	↔↔			↔↔	
Traffic Volume (vph)	994	25	65	602	
Future Volume (vph)	994	25	65	602	
Turn Type	NA	custom	custom	NA	
Protected Phases	2			6	1
Permitted Phases		1 6	1 6		
Detector Phase	2	1 6	1 6	6	
Switch Phase					
Minimum Initial (s)	7.0			7.0	5.0
Minimum Split (s)	22.0			24.0	11.0
Total Split (s)	56.0			67.0	11.0
Total Split (%)	43.1%			51.5%	8%
Yellow Time (s)	3.0			3.0	3.0
All-Red Time (s)	3.0			3.0	3.0
Lost Time Adjust (s)	3.0			3.0	
Total Lost Time (s)	9.0			9.0	
Lead/Lag	Lag				Lead
Lead-Lag Optimize?	Yes				Yes
Recall Mode	C-Max			C-Max	None
Act Effect Green (s)	61.5			61.5	
Actuated g/C Ratio	0.47			0.47	
v/c Ratio	0.66			0.83	
Control Delay	29.7			45.2	
Queue Delay	0.9			0.9	
Total Delay	30.5			46.1	
LOS	C			D	
Approach Delay	30.5			46.1	
Approach LOS	C			D	
Intersection Summary					

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Lane Group	EBL2	EBL	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	SBL2	SBL	SBT
Protected Phases			3		3				4			4
Permitted Phases	3	3		3		3	4	4		4	4	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	28.5	28.5
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	26.2%	26.2%	26.2%	26.2%	26.2%	26.2%	22.3%	22.3%	22.3%	22.3%	22.3%	22.3%
Maximum Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.5	22.5	22.5	22.5	22.5	22.5
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (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
Time To Reduce (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
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Walk Time (s)							8.0	8.0	8.0	8.0	8.0	8.0
Flash Dont Walk (s)							14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)							69	69	69	69	69	69
90th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
70th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
70th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
50th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
50th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
30th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
30th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
10th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	7.0	7.0	7.0	7.0	7.0	7.0
10th %ile Term Code	Max	Max	Max	Max	Max	Max	Min	Min	Min	Min	Min	Min

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 76 (58%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Control Type: Actuated-Coordinated

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	SET	NWL2	NWL	NWT	Ø1
Protected Phases	2			6	1
Permitted Phases		1 6	1 6		
Minimum Initial (s)	7.0			7.0	5.0
Minimum Split (s)	22.0			24.0	11.0
Total Split (s)	56.0			67.0	11.0
Total Split (%)	43.1%			51.5%	8%
Maximum Green (s)	50.0			61.0	5.0
Yellow Time (s)	3.0			3.0	3.0
All-Red Time (s)	3.0			3.0	3.0
Lead/Lag	Lag				Lead
Lead-Lag Optimize?	Yes				Yes
Vehicle Extension (s)	3.0			2.0	2.0
Minimum Gap (s)	0.2			0.2	0.2
Time Before Reduce (s)	0.0			0.0	0.0
Time To Reduce (s)	0.0			0.0	0.0
Recall Mode	C-Max			C-Max	None
Walk Time (s)	7.0			7.0	
Flash Dont Walk (s)	9.0			9.0	
Pedestrian Calls (#/hr)	120			126	
90th %ile Green (s)	61.5			61.5	0.0
90th %ile Term Code	Coord			Coord	Skip
70th %ile Green (s)	61.5			61.5	0.0
70th %ile Term Code	Coord			Coord	Skip
50th %ile Green (s)	61.5			61.5	0.0
50th %ile Term Code	Coord			Coord	Skip
30th %ile Green (s)	61.5			61.5	0.0
30th %ile Term Code	Coord			Coord	Skip
10th %ile Green (s)	76.5			76.5	0.0
10th %ile Term Code	Coord			Coord	Skip
Intersection Summary					

Queues

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT	SET	NWT
Lane Group Flow (vph)	324	189	172	90	21	1067	757
v/c Ratio	0.99	0.55	0.46	0.32	0.09	0.66	0.83
Control Delay	99.5	52.6	17.2	5.5	0.8	29.7	45.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.9	0.9
Total Delay	99.5	52.6	17.2	5.6	0.8	30.5	46.1
Queue Length 50th (ft)	275	150	30	0	0	372	357
Queue Length 95th (ft)	#470	235	105	19	0	452	m397
Internal Link Dist (ft)	413	299		354	158	814	375
Turn Bay Length (ft)							
Base Capacity (vph)	326	344	373	317	246	1607	913
Starvation Cap Reductn	0	0	0	0	0	0	36
Spillback Cap Reductn	0	0	0	9	0	263	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.55	0.46	0.29	0.09	0.79	0.86

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St
















2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR2
Lane Configurations												
Traffic Volume (vph)	5	5	0	295	5	115	215	5	5	30	0	50
Future Volume (vph)	5	5	0	295	5	115	215	5	5	30	0	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.5			6.5	6.5				9.5	
Lane Util. Factor			1.00			0.95	0.95				1.00	
Frpb, ped/bikes			0.97			0.98	0.85				0.98	
Flpb, ped/bikes			1.00			1.00	1.00				0.98	
Frt			0.87			0.95	0.85				0.92	
Flt Protected			1.00			1.00	1.00				0.98	
Satd. Flow (prot)			1562			1649	1280				1575	
Flt Permitted			0.99			0.99	1.00				0.86	
Satd. Flow (perm)			1545			1630	1280				1377	
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	5	0	314	5	122	229	5	5	32	0	53
RTOR Reduction (vph)	0	0	0	0	0	0	103	0	0	0	79	0
Lane Group Flow (vph)	0	0	324	0	0	189	70	0	0	0	11	0
Confl. Peds. (#/hr)	24	18		14	16		24	18	9	24		14
Confl. Bikes (#/hr)				1			10	10				
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%
Turn Type	Perm	Perm	NA		Perm	NA	Perm		Perm	Perm	NA	
Protected Phases			3			3					4	
Permitted Phases	3	3			3		3		4	4		
Actuated Green, G (s)			27.5			27.5	27.5				19.0	
Effective Green, g (s)			27.5			27.5	27.5				16.0	
Actuated g/C Ratio			0.21			0.21	0.21				0.12	
Clearance Time (s)			6.5			6.5	6.5				6.5	
Vehicle Extension (s)			2.0			2.0	2.0				2.0	
Lane Grp Cap (vph)			326			344	270				169	
v/s Ratio Prot												
v/s Ratio Perm			c0.21			0.12	0.05				c0.01	
v/c Ratio			0.99			0.55	0.26				0.07	
Uniform Delay, d1			51.2			45.7	42.7				50.4	
Progression Factor			1.00			1.00	1.00				1.00	
Incremental Delay, d2			47.9			1.0	0.2				0.1	
Delay (s)			99.0			46.7	42.9				50.5	
Level of Service			F			D	D				D	
Approach Delay (s)			99.0			44.9					50.5	
Approach LOS			F			D					D	
Intersection Summary												
HCM 2000 Control Delay			44.7			HCM 2000 Level of Service					D	
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				31.0		
Intersection Capacity Utilization			117.9%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	SBL2	SBL	SBT	SBR2	SET	SER	SER2	NWL2	NWL	NWT	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	10	5	0	5	994	5	5	25	65	602	15	5
Future Volume (vph)	10	5	0	5	994	5	5	25	65	602	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			9.5		9.0					9.0		
Lane Util. Factor			1.00		0.95					0.95		
Frpb, ped/bikes			0.99		1.00					1.00		
Flpb, ped/bikes			0.98		1.00					1.00		
Frt			0.97		1.00					1.00		
Flt Protected			0.96		1.00					0.99		
Satd. Flow (prot)			1146		3397					3459		
Flt Permitted			0.76		1.00					0.55		
Satd. Flow (perm)			909		3397					1929		
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	5	0	5	1057	5	5	27	69	640	16	5
RTOR Reduction (vph)	0	0	18	0	0	0	0	0	0	1	0	0
Lane Group Flow (vph)	0	0	3	0	1067	0	0	0	0	756	0	0
Confl. Peds. (#/hr)		14		24		16	9	16	9		18	
Confl. Bikes (#/hr)				2		2	2				1	1
Heavy Vehicles (%)	50%	50%	50%	50%	6%	6%	6%	3%	3%	3%	3%	3%
Turn Type	Perm	Perm	NA		NA			custom	custom	NA		
Protected Phases			4		2					6		
Permitted Phases	4	4						16	16			
Actuated Green, G (s)			19.0		64.5					64.5		
Effective Green, g (s)			16.0		61.5					61.5		
Actuated g/C Ratio			0.12		0.47					0.47		
Clearance Time (s)			6.5		6.0					6.0		
Vehicle Extension (s)			2.0		3.0					2.0		
Lane Grp Cap (vph)			111		1607					912		
v/s Ratio Prot					0.31							
v/s Ratio Perm			0.00							c0.39		
v/c Ratio			0.02		0.66					0.83		
Uniform Delay, d1			50.1		26.3					29.7		
Progression Factor			1.00		1.00					1.23		
Incremental Delay, d2			0.0		2.2					6.7		
Delay (s)			50.2		28.5					43.3		
Level of Service			D		C					D		
Approach Delay (s)			50.2		28.5					43.3		
Approach LOS			D		C					D		
Intersection Summary												

Intersection

Int Delay, s/veh 0.2

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	15	0	1016	1315	340
Future Vol, veh/h	0	15	0	1016	1315	340
Conflicting Peds, #/hr	31	30	30	0	0	31
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	89	89	89	89	89	89
Heavy Vehicles, %	50	50	6	6	7	7
Mvmt Flow	0	17	0	1142	1478	382

Major/Minor Minor2 Major1 Major2

Conflicting Flow All	-	991	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.8	-	-	-	-
Pot Cap-1 Maneuver	0	174	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	164	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach EB NB SB

HCM Control Delay, s	29.5	0	0
HCM LOS	D		

Minor Lane/Major Mvmt NBT EBLn1 SBT SBR

Capacity (veh/h)	-	164	-	-
HCM Lane V/C Ratio	-	0.103	-	-
HCM Control Delay (s)	-	29.5	-	-
HCM Lane LOS	-	D	-	-
HCM 95th %tile Q(veh)	-	0.3	-	-

Timings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	←←	→	←←	←←	←	←→	←←	→
Traffic Volume (vph)	636	616	258	260	233	120	920	190
Future Volume (vph)	636	616	258	260	233	120	920	190
Turn Type	Prot	NA	NA	custom	Split	NA	Split	NA
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Detector Phase	4	1 4	1	5	3	3	2	2
Switch Phase								
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	19.0		37.0	74.0	37.0	37.0	37.0	37.0
Total Split (%)	14.6%		28.5%	56.9%	28.5%	28.5%	28.5%	28.5%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		5.5	5.5	6.5	6.5	5.5	5.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Recall Mode	None		Min	C-Max	None	None	C-Max	C-Max
Act Effct Green (s)	19.1	57.1	31.5	68.5	23.9	23.9	31.5	31.5
Actuated g/C Ratio	0.15	0.44	0.24	0.53	0.18	0.18	0.24	0.24
v/c Ratio	1.33	0.94	0.33	0.19	0.80	0.22	1.18	1.07
Control Delay	191.8	47.4	41.9	2.0	69.4	42.4	134.9	108.0
Queue Delay	0.0	45.3	0.0	0.0	1.8	0.0	0.0	2.0
Total Delay	191.8	92.7	41.9	2.0	71.2	42.4	134.9	110.0
LOS	F	F	D	A	E	D	F	F
Approach Delay		139.4	21.9			60.9		127.2
Approach LOS		F	C			E		F

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 2 (2%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.33

Intersection Signal Delay: 109.8

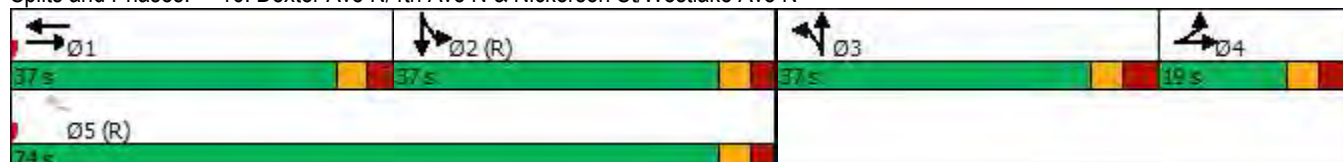
Intersection LOS: F

Intersection Capacity Utilization 92.4%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N



Phasings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	19.0		37.0	74.0	37.0	37.0	37.0	37.0
Total Split (%)	14.6%		28.5%	56.9%	28.5%	28.5%	28.5%	28.5%
Maximum Green (s)	12.5		31.5	68.5	30.5	30.5	31.5	31.5
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2		0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None		Min	C-Max	None	None	C-Max	C-Max
Walk Time (s)			9.0		8.0	8.0	8.0	8.0
Flash Dont Walk (s)			22.0		22.0	22.0	22.0	22.0
Pedestrian Calls (#/hr)			56		12	12	33	33
90th %ile Green (s)	12.5		31.5	68.5	30.5	30.5	31.5	31.5
90th %ile Term Code	Max		Max	Coord	Max	Max	Coord	Coord
70th %ile Green (s)	13.0		31.5	68.5	30.0	30.0	31.5	31.5
70th %ile Term Code	Max		Max	Coord	Ped	Ped	Coord	Coord
50th %ile Green (s)	19.5		31.5	68.5	23.5	23.5	31.5	31.5
50th %ile Term Code	Max		Max	Coord	Gap	Gap	Coord	Coord
30th %ile Green (s)	22.9		31.5	68.5	20.1	20.1	31.5	31.5
30th %ile Term Code	Max		Max	Coord	Gap	Gap	Coord	Coord
10th %ile Green (s)	27.7		31.5	68.5	15.3	15.3	31.5	31.5
10th %ile Term Code	Max		Max	Coord	Gap	Gap	Coord	Coord

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 2 (2%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Control Type: Actuated-Coordinated

Queues

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	663	742	269	271	243	135	958	427
v/c Ratio	1.33	0.94	0.33	0.19	0.80	0.22	1.18	1.07
Control Delay	191.8	47.4	41.9	2.0	69.4	42.4	134.9	108.0
Queue Delay	0.0	45.3	0.0	0.0	1.8	0.0	0.0	2.0
Total Delay	191.8	92.7	41.9	2.0	71.2	42.4	134.9	110.0
Queue Length 50th (ft)	~373	621	98	0	199	49	~496	~371
Queue Length 95th (ft)	m#543	m#879	140	23	278	75	#627	#581
Internal Link Dist (ft)		375	150			693		176
Turn Bay Length (ft)				200				
Base Capacity (vph)	500	791	817	1443	388	770	815	398
Starvation Cap Reductn	0	186	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	53	0	0	2
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.33	1.23	0.33	0.19	0.73	0.18	1.18	1.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.





















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N















2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	636	616	96	0	258	260	233	120	10	920	190	220
Future Volume (vph)	636	616	96	0	258	260	233	120	10	920	190	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.94	1.00	1.00		1.00	0.90	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98			1.00	0.85	1.00	0.99		1.00	0.92	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3400	1792			3374	2496	1656	3264		3367	1512	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3400	1792			3374	2496	1656	3264		3367	1512	
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)	662	642	100	0	269	271	243	125	10	958	198	229
RTOR Reduction (vph)	0	4	0	0	0	128	0	5	0	0	32	0
Lane Group Flow (vph)	663	738	0	0	269	143	243	130	0	958	395	0
Confl. Peds. (#/hr)	19		37	37		19	33		12	12		33
Confl. Bikes (#/hr)			12			33			16			155
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	9%	9%	9%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	19.1	57.1			31.5	68.5	23.9	23.9		31.5	31.5	
Effective Green, g (s)	19.1	50.6			31.5	68.5	23.9	23.9		31.5	31.5	
Actuated g/C Ratio	0.15	0.39			0.24	0.53	0.18	0.18		0.24	0.24	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	499	697			817	1315	304	600		815	366	
v/s Ratio Prot	c0.20	c0.41			0.08		c0.15	0.04		c0.28	0.26	
v/s Ratio Perm						0.06						
v/c Ratio	1.33	1.06			0.33	0.11	0.80	0.22		1.18	1.08	
Uniform Delay, d1	55.5	39.7			40.6	15.4	50.8	45.1		49.2	49.2	
Progression Factor	0.75	0.89			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	157.2	44.9			0.1	0.2	12.8	0.1		91.7	70.0	
Delay (s)	199.0	80.1			40.6	15.6	63.6	45.2		140.9	119.3	
Level of Service	F	F			D	B	E	D		F	F	
Approach Delay (s)		136.2			28.1			57.0			134.3	
Approach LOS		F			C			E			F	
Intersection Summary												
HCM 2000 Control Delay			111.6				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.08									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			92.4%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

2035 Alternative 2 PM (with Mitigation Measures)

Timings
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	11	700	33	995	26	6	17	6
Future Volume (vph)	11	700	33	995	26	6	17	6
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	6.5	7.0	6.5	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	16.5	11.0	23.5	25.5	25.5	23.5	23.5
Total Split (s)	11.0	53.0	11.0	53.0	26.0	26.0	26.0	26.0
Total Split (%)	12.2%	58.9%	12.2%	58.9%	28.9%	28.9%	28.9%	28.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
Act Effect Green (s)	68.7	64.8	70.6	69.2		9.6		9.6
Actuated g/C Ratio	0.76	0.72	0.78	0.77		0.11		0.11
v/c Ratio	0.04	0.57	0.07	0.74		0.68		0.39
Control Delay	3.1	10.0	3.4	9.4		19.0		31.2
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	3.1	10.0	3.4	9.4		19.0		31.2
LOS	A	B	A	A		B		C
Approach Delay		9.9		9.2		19.0		31.2
Approach LOS		A		A		B		C

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 10 (11%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 11.0

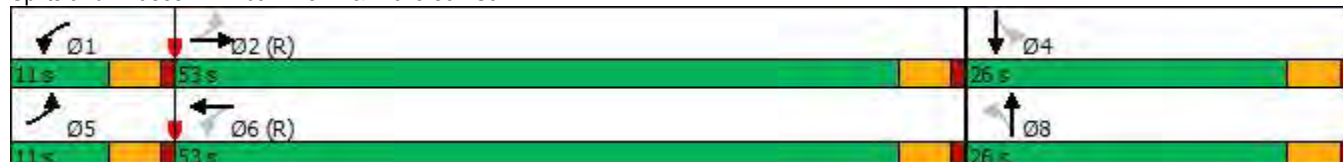
Intersection LOS: B

Intersection Capacity Utilization 76.5%

ICU Level of Service D

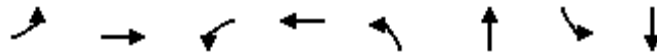
Analysis Period (min) 15

Splits and Phases: 1: 6th Ave W & Nickerson St



Phasings
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Minimum Initial (s)	6.5	7.0	6.5	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	16.5	11.0	23.5	25.5	25.5	23.5	23.5
Total Split (s)	11.0	53.0	11.0	53.0	26.0	26.0	26.0	26.0
Total Split (%)	12.2%	58.9%	12.2%	58.9%	28.9%	28.9%	28.9%	28.9%
Maximum Green (s)	6.5	48.5	6.5	48.5	21.5	21.5	21.5	21.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
Walk Time (s)		7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		5.0		12.0	14.0	14.0	12.0	12.0
Pedestrian Calls (#/hr)		0		0	0	0	0	0
90th %ile Green (s)	6.5	54.3	6.7	54.5	15.5	15.5	15.5	15.5
90th %ile Term Code	Min	Coord	Gap	Coord	Gap	Gap	Hold	Hold
70th %ile Green (s)	0.0	59.2	6.5	70.2	10.8	10.8	10.8	10.8
70th %ile Term Code	Skip	Coord	Min	Coord	Gap	Gap	Hold	Hold
50th %ile Green (s)	0.0	62.4	6.5	73.4	7.6	7.6	7.6	7.6
50th %ile Term Code	Skip	Coord	Min	Coord	Gap	Gap	Hold	Hold
30th %ile Green (s)	0.0	74.0	0.0	74.0	7.0	7.0	7.0	7.0
30th %ile Term Code	Skip	Coord	Skip	Coord	Min	Min	Hold	Hold
10th %ile Green (s)	0.0	74.0	0.0	74.0	7.0	7.0	7.0	7.0
10th %ile Term Code	Skip	Coord	Skip	Coord	Min	Min	Hold	Hold

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 10 (11%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Control Type: Actuated-Coordinated

Queues
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	12	749	35	1063	228	47
v/c Ratio	0.04	0.57	0.07	0.74	0.68	0.39
Control Delay	3.1	10.0	3.4	9.4	19.0	31.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.1	10.0	3.4	9.4	19.0	31.2
Queue Length 50th (ft)	1	190	4	195	18	13
Queue Length 95th (ft)	6	393	m6	m#725	83	43
Internal Link Dist (ft)		549		657	226	272
Turn Bay Length (ft)	30		30			
Base Capacity (vph)	323	1310	499	1429	514	244
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.57	0.07	0.74	0.44	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.



















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	700	11	33	995	15	26	6	185	17	6	22
Future Volume (veh/h)	11	700	11	33	995	15	26	6	185	17	6	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	0.96		0.95	0.97		0.94
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1870	1870	1870	1900	1900	1900	1841	1841	1841
Adj Flow Rate, veh/h	12	737	12	35	1047	16	27	6	195	18	6	23
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	2	2	2	0	0	0	4	4	4
Cap, veh/h	194	1108	18	403	1170	18	66	22	254	131	55	125
Arrive On Green	0.02	0.61	0.61	0.04	0.64	0.64	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1753	1805	29	1781	1836	28	108	114	1310	389	281	643
Grp Volume(v), veh/h	12	0	749	35	0	1063	228	0	0	47	0	0
Grp Sat Flow(s),veh/h/ln	1753	0	1835	1781	0	1864	1532	0	0	1313	0	0
Q Serve(g_s), s	0.2	0.0	24.0	0.6	0.0	43.3	5.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.2	0.0	24.0	0.6	0.0	43.3	12.6	0.0	0.0	2.1	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.02	0.12		0.86	0.38		0.49
Lane Grp Cap(c), veh/h	194	0	1126	403	0	1188	342	0	0	310	0	0
V/C Ratio(X)	0.06	0.00	0.67	0.09	0.00	0.89	0.67	0.00	0.00	0.15	0.00	0.00
Avail Cap(c_a), veh/h	288	0	1126	456	0	1188	410	0	0	371	0	0
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	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	15.8	0.0	11.3	8.8	0.0	13.8	34.2	0.0	0.0	30.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	3.1	0.1	0.0	10.6	3.1	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	0.1	0.0	9.8	0.2	0.0	19.3	5.0	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.9	0.0	14.5	8.9	0.0	24.3	37.4	0.0	0.0	30.3	0.0	0.0
LnGrp LOS	B	A	B	A	A	C	D	A	A	C	A	A
Approach Vol, veh/h	761			1098			228			47		
Approach Delay, s/veh	14.5			23.9			37.4			30.3		
Approach LOS	B			C			D			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.3	59.7		22.0	6.2	61.8		22.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	48.5		21.5	6.5	48.5		21.5				
Max Q Clear Time (g_c+I1), s	2.6	26.0		4.1	2.2	45.3		14.6				
Green Ext Time (p_c), s	0.0	6.0		0.2	0.0	2.3		0.8				
Intersection Summary												
HCM 6th Ctrl Delay	22.1											
HCM 6th LOS	C											

Intersection





Intersection Delay, s/veh 8.4

Intersection LOS A





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	10	0	5	0	0	0	25	213	0	0	43	10
Future Vol, veh/h	10	0	5	0	0	0	25	213	0	0	43	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	3	3	3
Mvmt Flow	11	0	6	0	0	0	28	237	0	0	48	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.6	0	8.7	7.4
HCM LOS	A	-	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	67%	0%	0%
Vol Thru, %	89%	0%	100%	81%
Vol Right, %	0%	33%	0%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	238	15	0	53
LT Vol	25	10	0	0
Through Vol	213	0	0	43
RT Vol	0	5	0	10
Lane Flow Rate	264	17	0	59
Geometry Grp	1	1	1	1
Degree of Util (X)	0.293	0.021	0	0.066
Departure Headway (Hd)	3.994	4.521	4.61	4.064
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	899	796	0	873
Service Time	2.018	2.521	2.611	2.126
HCM Lane V/C Ratio	0.294	0.021	0	0.068
HCM Control Delay	8.7	7.6	7.6	7.4
HCM Lane LOS	A	A	N	A
HCM 95th-tile Q	1.2	0.1	0	0.2




Intersection												
Int Delay, s/veh	5.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	193	83	0	15	173	38	0	6	35	14	14	25
Future Vol, veh/h	193	83	0	15	173	38	0	6	35	14	14	25
Conflicting Peds, #/hr	13	0	49	60	0	24	49	0	60	24	0	13
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	0	0	0	0	0	0	2	2	2
Mvmt Flow	199	86	0	15	178	39	0	6	36	14	14	26
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	241	0	0	146	0	0	841	815	206	817	796	271
Stage 1	-	-	-	-	-	-	544	544	-	252	252	-
Stage 2	-	-	-	-	-	-	297	271	-	565	544	-
Critical Hdwy	4.11	-	-	4.1	-	-	7.1	6.5	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Follow-up Hdwy	2.209	-	-	2.2	-	-	3.5	4	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1331	-	-	1448	-	-	287	314	840	295	320	768
Stage 1	-	-	-	-	-	-	527	522	-	752	698	-
Stage 2	-	-	-	-	-	-	716	689	-	510	519	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1301	-	-	1365	-	-	206	240	747	220	244	715
Mov Cap-2 Maneuver	-	-	-	-	-	-	206	240	-	220	244	-
Stage 1	-	-	-	-	-	-	417	413	-	617	673	-
Stage 2	-	-	-	-	-	-	636	664	-	378	411	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	5.8			0.5			11.8			17.6		
HCM LOS							B			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	571	1301	-	-	1365	-	-	340				
HCM Lane V/C Ratio	0.074	0.153	-	-	0.011	-	-	0.161				
HCM Control Delay (s)	11.8	8.3	0	-	7.7	0	-	17.6				
HCM Lane LOS	B	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	0.2	0.5	-	-	0	-	-	0.6				

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	38	16	7	60	0	11	0	2	0	0	0
Future Vol, veh/h	0	38	16	7	60	0	11	0	2	0	0	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	43	18	8	68	0	13	0	2	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0





















Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.1	7.4	7.3	0
HCM LOS	A	A	A	-

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	85%	0%	10%	0%
Vol Thru, %	0%	70%	90%	100%
Vol Right, %	15%	30%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	54	67	0
LT Vol	11	0	7	0
Through Vol	0	38	60	0
RT Vol	2	16	0	0
Lane Flow Rate	15	61	76	0
Geometry Grp	1	1	1	1
Degree of Util (X)	0.017	0.065	0.084	0
Departure Headway (Hd)	4.215	3.805	3.993	4.15
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	845	942	899	0
Service Time	2.264	1.826	2.009	2.204
HCM Lane V/C Ratio	0.018	0.065	0.085	0
HCM Control Delay	7.3	7.1	7.4	7.2
HCM Lane LOS	A	A	A	N
HCM 95th-tile Q	0.1	0.2	0.3	0

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	137	231	0	0	0
Future Vol, veh/h	0	137	231	0	0	0
Conflicting Peds, #/hr	6	0	0	235	235	6
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	95	95	95	95	95	95
Heavy Vehicles, %	1	1	0	0	0	0
Mvmt Flow	0	144	243	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	478	0	-	0	857	484
Stage 1	-	-	-	-	478	-
Stage 2	-	-	-	-	379	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1090	-	-	-	330	587
Stage 1	-	-	-	-	628	-
Stage 2	-	-	-	-	696	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	846	-	-	-	199	453
Mov Cap-2 Maneuver	-	-	-	-	199	-
Stage 1	-	-	-	-	487	-
Stage 2	-	-	-	-	540	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	846	-	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	-	-	0	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	-	

Timings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	30	752	142	200	877	55	215	40	35	30
Future Volume (vph)	30	752	142	200	877	55	215	40	35	30
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	6.5	7.0	7.0	6.5	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	25.0	25.0	11.0	25.0	25.0	27.5	27.5	27.5	27.5
Total Split (s)	11.0	51.0	51.0	11.0	51.0	51.0	28.0	28.0	28.0	28.0
Total Split (%)	12.2%	56.7%	56.7%	12.2%	56.7%	56.7%	31.1%	31.1%	31.1%	31.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0		3.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	7.5	7.5		7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	53.0	46.5	46.5	54.9	51.0	51.0	20.4	20.4		20.4
Actuated g/C Ratio	0.59	0.52	0.52	0.61	0.57	0.57	0.23	0.23		0.23
v/c Ratio	0.15	0.83	0.20	0.88	0.89	0.07	0.98	0.11		0.27
Control Delay	9.1	25.7	4.2	39.1	35.8	6.3	91.0	28.0		26.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	9.1	25.7	4.2	39.1	35.8	6.3	91.0	28.0		26.1
LOS	A	C	A	D	D	A	F	C		C
Approach Delay		21.8			34.9			80.9		26.1
Approach LOS		C			C			F		C

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 34.5

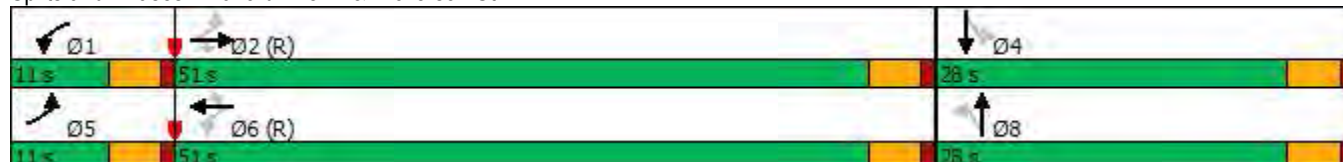
Intersection LOS: C

Intersection Capacity Utilization 84.5%

ICU Level of Service E











Analysis Period (min) 15

Splits and Phases: 6: 3rd Ave W & Nickerson St












Phasings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Minimum Initial (s)	6.5	7.0	7.0	6.5	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	25.0	25.0	11.0	25.0	25.0	27.5	27.5	27.5	27.5
Total Split (s)	11.0	51.0	51.0	11.0	51.0	51.0	28.0	28.0	28.0	28.0
Total Split (%)	12.2%	56.7%	56.7%	12.2%	56.7%	56.7%	31.1%	31.1%	31.1%	31.1%
Maximum Green (s)	6.5	46.5	46.5	6.5	46.5	46.5	23.5	23.5	23.5	23.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	1.0	0.2	0.2	1.0	0.2	0.2	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)		50	50		28	28	83	83	160	160
90th %ile Green (s)	6.5	46.5	46.5	6.5	46.5	46.5	23.5	23.5	23.5	23.5
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Max	Hold	Hold
70th %ile Green (s)	6.5	46.5	46.5	6.5	46.5	46.5	23.5	23.5	23.5	23.5
70th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Max	Hold	Hold
50th %ile Green (s)	6.5	46.5	46.5	6.5	46.5	46.5	23.5	23.5	23.5	23.5
50th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Max	Hold	Hold
30th %ile Green (s)	0.0	46.5	46.5	6.5	57.5	57.5	23.5	23.5	23.5	23.5
30th %ile Term Code	Skip	Coord	Coord	Max	Coord	Coord	Max	Max	Hold	Hold
10th %ile Green (s)	0.0	46.5	46.5	7.0	58.0	58.0	23.0	23.0	23.0	23.0
10th %ile Term Code	Skip	Coord	Coord	Max	Coord	Coord	Hold	Hold	Ped	Ped
Intersection Summary										
Cycle Length: 90										
Actuated Cycle Length: 90										
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green										
Control Type: Actuated-Coordinated										

Queues
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

									
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	32	809	153	215	943	59	231	44	92
v/c Ratio	0.15	0.83	0.20	0.88	0.89	0.07	0.98	0.11	0.27
Control Delay	9.1	25.7	4.2	39.1	35.8	6.3	91.0	28.0	26.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.1	25.7	4.2	39.1	35.8	6.3	91.0	28.0	26.1
Queue Length 50th (ft)	6	241	0	82	526	5	131	19	35
Queue Length 95th (ft)	m17	#444	44	m#84	m#634	m6	#276	47	78
Internal Link Dist (ft)		79			214			74	171
Turn Bay Length (ft)	100			135		215			
Base Capacity (vph)	212	971	782	245	1065	855	237	406	344
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.83	0.20	0.88	0.89	0.07	0.97	0.11	0.27

Intersection Summary






















95th percentile volume exceeds capacity, queue may be longer.




Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary 6: 3rd Ave W & Nickerson St




2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	752	142	200	877	55	215	40	1	35	30	20
Future Volume (veh/h)	30	752	142	200	877	55	215	40	1	35	30	20
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		0.93	0.81		0.80	0.83		0.80
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1811	1811	1811	1900	1900	1900
Adj Flow Rate, veh/h	32	809	153	215	943	59	231	43	1	38	32	22
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	6	6	6	0	0	0
Cap, veh/h	216	989	798	308	1050	831	326	385	9	165	127	74
Arrive On Green	0.04	0.52	0.52	0.07	0.56	0.56	0.22	0.22	0.25	0.25	0.22	0.25
Sat Flow, veh/h	1795	1885	1521	1795	1885	1492	1064	1751	41	496	579	338
Grp Volume(v), veh/h	32	809	153	215	943	59	231	0	44	92	0	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1521	1795	1885	1492	1064	0	1792	1412	0	0
Q Serve(g_s), s	0.7	32.2	4.8	4.7	39.9	1.6	15.0	0.0	1.8	1.3	0.0	0.0
Cycle Q Clear(g_c), s	0.7	32.2	4.8	4.7	39.9	1.6	18.2	0.0	1.8	4.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.02	0.41		0.24
Lane Grp Cap(c), veh/h	216	989	798	308	1050	831	326	0	394	414	0	0
V/C Ratio(X)	0.15	0.82	0.19	0.70	0.90	0.07	0.71	0.00	0.11	0.22	0.00	0.00
Avail Cap(c_a), veh/h	274	989	798	308	1050	831	334	0	408	425	0	0
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.7	17.8	11.3	17.4	17.7	9.2	34.1	0.0	28.1	28.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	7.5	0.5	5.8	12.0	0.2	5.6	0.0	0.0	0.1	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	0.3	15.1	1.7	2.7	19.4	0.6	5.4	0.0	0.8	1.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.9	25.3	11.8	23.1	29.6	9.4	39.7	0.0	28.1	28.2	0.0	0.0
LnGrp LOS	B	C	B	C	C	A	D	A	C	C	A	A
Approach Vol, veh/h	994				1217				275		92	
Approach Delay, s/veh	23.0				27.5				37.8		28.2	
Approach LOS	C				C				D		C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	51.7		27.3	8.1	54.6		27.3				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	46.5		23.5	6.5	46.5		23.5				
Max Q Clear Time (g_c+I1), s	7.7	35.2		6.2	3.7	42.9		21.2				
Green Ext Time (p_c), s	0.0	1.0		0.3	0.0	0.8		0.2				
Intersection Summary												
HCM 6th Ctrl Delay	26.9											
HCM 6th LOS	C											

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	138	0	0	0	97	253	70	5	229	139
Future Vol, veh/h	0	0	138	0	0	0	97	253	70	5	229	139
Conflicting Peds, #/hr	87	0	181	149	0	55	181	0	149	55	0	87
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	0	0	0
Mvmt Flow	0	0	144	0	0	0	101	264	73	5	239	145
Major/Minor	Minor2						Major1		Major2			
Conflicting Flow All	-	-	674				565	0	0	486	0	0
Stage 1	-	-	-				-	-	-	-	-	-
Stage 2	-	-	-				-	-	-	-	-	-
Critical Hdwy	-	-	6.2				4.13	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-				-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-				-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3				2.227	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	458				1002	-	-	1087	-	-
Stage 1	0	0	-				-	-	-	-	-	-
Stage 2	0	0	-				-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	0	314				829	-	-	1087	-	-
Mov Cap-2 Maneuver	-	0	-				-	-	-	-	-	-
Stage 1	-	0	-				-	-	-	-	-	-
Stage 2	-	0	-				-	-	-	-	-	-
Approach	EB						NB		SB			
HCM Control Delay, s	25.8						2.3		0.1			
HCM LOS	D											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR					
Capacity (veh/h)	829	-	-	314	1087	-	-					
HCM Lane V/C Ratio	0.122	-	-	0.458	0.005	-	-					
HCM Control Delay (s)	9.9	0	-	25.8	8.3	0	-					
HCM Lane LOS	A	A	-	D	A	A	-					
HCM 95th %tile Q(veh)	0.4	-	-	2.3	0	-	-					

Intersection

Int Delay, s/veh 4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	38	54	360	54	74	290
Future Vol, veh/h	38	54	360	54	74	290
Conflicting Peds, #/hr	126	40	0	126	40	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	93	93	93	93	93	93
Heavy Vehicles, %	8	8	4	4	0	0
Mvmt Flow	41	58	387	58	80	312

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1140	582	0
Stage 1	542	-	-
Stage 2	598	-	-
Critical Hdwy	6.48	6.28	-
Critical Hdwy Stg 1	5.48	-	-
Critical Hdwy Stg 2	5.48	-	-
Follow-up Hdwy	3.572	3.372	-
Pot Cap-1 Maneuver	216	502	-
Stage 1	571	-	-
Stage 2	538	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	149	425	-
Mov Cap-2 Maneuver	149	-	-
Stage 1	502	-	-
Stage 2	422	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30	0	1.9
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	241	891
HCM Lane V/C Ratio	-	-	0.41	0.089
HCM Control Delay (s)	-	-	30	9.4
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	1.9	0.3

Intersection												
Int Delay, s/veh	5.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	94	5	85	10	334	104	49	274	10
Future Vol, veh/h	0	0	0	94	5	85	10	334	104	49	274	10
Conflicting Peds, #/hr	71	0	37	14	0	48	37	0	14	48	0	71
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	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	4	4	4	2	2	2
Mvmt Flow	0	0	0	96	5	87	10	341	106	50	280	10
Major/Minor												
Minor1				Major1				Major2				
Conflicting Flow All	861	923	490	361	0	0	495	0	0			
Stage 1	462	462	-	-	-	-	-	-	-	-	-	-
Stage 2	399	461	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2	4.14	-	-	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.4	5.5	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	2.236	-	-	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	329	272	582	1187	-	-	1069	-	-	-	-	-
Stage 1	638	568	-	-	-	-	-	-	-	-	-	-
Stage 2	682	569	-	-	-	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	288	0	530	1187	-	-	1020	-	-	-	-	-
Mov Cap-2 Maneuver	288	0	-	-	-	-	-	-	-	-	-	-
Stage 1	602	0	-	-	-	-	-	-	-	-	-	-
Stage 2	633	0	-	-	-	-	-	-	-	-	-	-
Approach												
WB				NB				SB				
HCM Control Delay, s	24.5			0.2				1.3				
HCM LOS	C											
Minor Lane/Major Mvmt												
NBL				NBT				NBRWBLn1				
Capacity (veh/h)	1187	-	-	368	1020	-	-					
HCM Lane V/C Ratio	0.009	-	-	0.51	0.049	-	-					
HCM Control Delay (s)	8.1	0	-	24.5	8.7	0	-					
HCM Lane LOS	A	A	-	C	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	2.8	0.2	-	-					

Intersection

Int Delay, s/veh 3.1

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 90 35 26 360 301 67

Future Vol, veh/h 90 35 26 360 301 67

Conflicting Peds, #/hr 20 20 20 0 0 20

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 94 94 94 94 94 94

Heavy Vehicles, % 0 0 5 5 2 2

Mvmt Flow 96 37 28 383 320 71

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 835 396 411 0 - 0

Stage 1 376 - - - - -

Stage 2 459 - - - - -

Critical Hdwy 6.4 6.2 4.15 - - -

Critical Hdwy Stg 1 5.4 - - - - -

Critical Hdwy Stg 2 5.4 - - - - -

Follow-up Hdwy 3.5 3.3 2.245 - - -

Pot Cap-1 Maneuver 340 658 1132 - - -

Stage 1 699 - - - - -

Stage 2 641 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 317 633 1110 - - -

Mov Cap-2 Maneuver 317 - - - - -

Stage 1 664 - - - - -

Stage 2 629 - - - - -

Approach EB NB SB

HCM Control Delay, s 20.2 0.6 0

HCM LOS C

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h) 1110 - 369 - -

HCM Lane V/C Ratio 0.025 - 0.36 - -















HCM Control Delay (s) 8.3 0 20.2 - -

HCM Lane LOS A A C - -

HCM 95th %tile Q(veh) 0.1 - 1.6 - -

Timings
11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

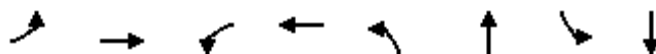
								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	805	29	1084	35	0	10	5
Future Volume (vph)	30	805	29	1084	35	0	10	5
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Detector Phase	2	2	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	22.5	22.5	24.5	24.5	24.5	24.5
Total Split (s)	65.0	65.0	65.0	65.0	25.0	25.0	25.0	25.0
Total Split (%)	72.2%	72.2%	72.2%	72.2%	27.8%	27.8%	27.8%	27.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
Act Effct Green (s)	60.5	60.5	60.5	60.5		20.5		20.5
Actuated g/C Ratio	0.67	0.67	0.67	0.67		0.23		0.23
v/c Ratio	0.39	0.72	0.12	0.93		0.43		0.15
Control Delay	12.3	4.4	6.7	27.4		13.1		13.6
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	12.3	4.4	6.7	27.4		13.1		13.6
LOS	B	A	A	C		B		B
Approach Delay		4.7		26.9		13.1		13.6
Approach LOS		A		C		B		B
Intersection Summary								
Cycle Length: 90								
Actuated Cycle Length: 90								
Offset: 15 (17%), Referenced to phase 2:EBWB, Start of 1st Green								
Natural Cycle: 90								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.93								
Intersection Signal Delay: 16.8					Intersection LOS: B			
Intersection Capacity Utilization 82.2%					ICU Level of Service E			
Analysis Period (min) 15								

Splits and Phases: 11: W Cremona St & Nickerson St



Phasings
11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	22.5	22.5	24.5	24.5	24.5	24.5
Total Split (s)	65.0	65.0	65.0	65.0	25.0	25.0	25.0	25.0
Total Split (%)	72.2%	72.2%	72.2%	72.2%	27.8%	27.8%	27.8%	27.8%
Maximum Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	6.0	6.0	6.0	6.0	13.0	13.0	13.0	13.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0
90th %ile Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
90th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	MaxR	MaxR
70th %ile Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
70th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	MaxR	MaxR
50th %ile Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
50th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	MaxR	MaxR
30th %ile Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
30th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	MaxR	MaxR
10th %ile Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
10th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	MaxR	MaxR

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 15 (17%), Referenced to phase 2:EBWB, Start of 1st Green

Control Type: Actuated-Coordinated

Queues
11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	32	889	31	1169	178	59
v/c Ratio	0.39	0.72	0.12	0.93	0.43	0.15
Control Delay	12.3	4.4	6.7	27.4	13.1	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.3	4.4	6.7	27.4	13.1	13.6
Queue Length 50th (ft)	1	34	6	507	19	7
Queue Length 95th (ft)	m2	m44	17	#890	m72	38
Internal Link Dist (ft)		409		773	14	101
Turn Bay Length (ft)	30		30			
Base Capacity (vph)	82	1240	252	1261	412	382
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.72	0.12	0.93	0.43	0.15

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.



















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	805	31	29	1084	15	35	0	133	10	5	40
Future Volume (vph)	30	805	31	29	1084	15	35	0	133	10	5	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			4.5			4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.92			0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99			0.99	
Frt	1.00	0.99		1.00	1.00			0.89			0.90	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1844		1787	1875			1415			1616	
Flt Permitted	0.07	1.00		0.20	1.00			0.93			0.94	
Satd. Flow (perm)	123	1844		376	1875			1332			1535	
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)	32	856	33	31	1153	16	37	0	141	11	5	43
RTOR Reduction (vph)	0	2	0	0	1	0	0	109	0	0	33	0
Lane Group Flow (vph)	32	887	0	31	1168	0	0	69	0	0	26	0
Confl. Peds. (#/hr)	17		29	36		24	29		36	24		17
Confl. Bikes (#/hr)			3			3						
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	8%	8%	8%	0%	0%	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)	60.5	60.5		60.5	60.5			20.5			20.5	
Effective Green, g (s)	60.5	60.5		60.5	60.5			20.5			20.5	
Actuated g/C Ratio	0.67	0.67		0.67	0.67			0.23			0.23	
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)	82	1239		252	1260			303			349	
v/s Ratio Prot		0.48			c0.62							
v/s Ratio Perm	0.26			0.08				c0.05			0.02	
v/c Ratio	0.39	0.72		0.12	0.93			0.23			0.07	
Uniform Delay, d1	6.6	9.3		5.3	12.8			28.3			27.3	
Progression Factor	0.33	0.20		1.00	1.00			1.12			1.00	
Incremental Delay, d2	9.0	2.4		1.0	13.0			1.7			0.4	
Delay (s)	11.2	4.3		6.3	25.9			33.5			27.7	
Level of Service	B	A		A	C			C			C	
Approach Delay (s)		4.5			25.4			33.5			27.7	
Approach LOS		A			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			17.9			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			82.2%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Int Delay, s/veh 5.4

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 127 30 30 46 31 34

Future Vol, veh/h 127 30 30 46 31 34

Conflicting Peds, #/hr 43 51 51 0 0 43

Sign Control Free Free Stop Stop Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 1 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 93 93 93 93 93 93

Heavy Vehicles, % 5 5 0 0 11 11

Mvmt Flow 137 32 32 49 33 37

Major/Minor Minor2 Major2

Conflicting Flow All 146 95 - 0

Stage 1 95 95 - -

Stage 2 51 0 - -

Critical Hdwy 6.4 6.5 - -

Critical Hdwy Stg 1 5.4 5.5 - -

Critical Hdwy Stg 2 - - - -

Follow-up Hdwy 3.5 4 - -

Pot Cap-1 Maneuver 851 799 - -

Stage 1 934 820 - -

Stage 2 - - - -

Platoon blocked, % - -

Mov Cap-1 Maneuver 783 0 - -

Mov Cap-2 Maneuver 783 0 - -

Stage 1 896 0 - -

Stage 2 - 0 - -

Approach NB SB

HCM Control Delay, s 10.1 0

HCM LOS B

Minor Lane/Major Mvmt NBLn1 SBT SBR

Capacity (veh/h) 783 - -

HCM Lane V/C Ratio 0.104 - -

HCM Control Delay (s) 10.1 - -

HCM Lane LOS B - -



















HCM 95th %tile Q(veh) 0.3 - -

Timings

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour

												
Lane Group	EBL2	EBT	WBL2	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SEL	SET
Lane Configurations												
Traffic Volume (vph)	5	0	5	5	215	423	25	5	40	5	5	987
Future Volume (vph)	5	0	5	5	215	423	25	5	40	5	5	987
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases		3			3			4		4		2
Permitted Phases	3		3	3		3	4		4		2	
Detector Phase	3	3	3	3	3	3	4	4	4	4	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	22.0	22.0
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	29.0	29.0	29.0	29.0	63.0	63.0
Total Split (%)	26.4%	26.4%	26.4%	26.4%	26.4%	26.4%	20.7%	20.7%	20.7%	20.7%	45.0%	45.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.0
Lost Time Adjust (s)		0.0			0.0	0.0		3.0		3.0		3.0
Total Lost Time (s)		6.5			6.5	6.5		9.5		9.5		9.0
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	C-Max	C-Max
Act Effect Green (s)		30.5			30.5	30.5		19.0		19.0		65.5
Actuated g/C Ratio		0.22			0.22	0.22		0.14		0.14		0.47
v/c Ratio		0.82			1.07	1.10		0.36		0.35		0.69
Control Delay		78.3			117.9	113.7		10.5		58.5		32.3
Queue Delay		29.8			0.0	0.0		0.1		0.0		0.1
Total Delay		108.1			117.9	113.7		10.5		58.5		32.4
LOS		F			F	F		B		E		C
Approach Delay		108.1			115.9			10.5		58.5		32.4
Approach LOS		F			F			B		E		C

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 112 (80%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 76.8

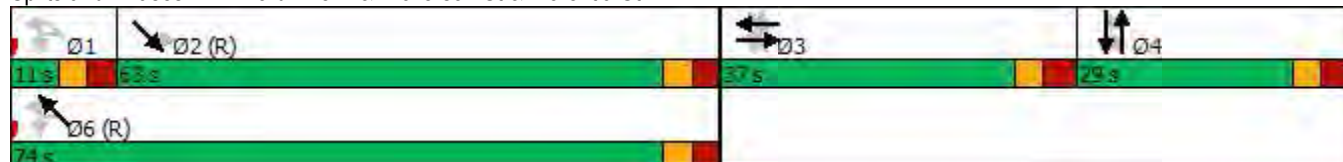
Intersection LOS: E

Intersection Capacity Utilization 124.6%

ICU Level of Service H


Analysis Period (min) 15

Splits and Phases: 14: 3rd Ave N & Nickerson St & Florentia St



Timings
14: 3rd Ave N & Nickerson St & Florentia St













2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	NWL2	NWL	NWT	Ø1
Lane Configurations				
Traffic Volume (vph)	15	75	763	
Future Volume (vph)	15	75	763	
Turn Type	custom	custom	NA	
Protected Phases			6	1
Permitted Phases	1 6	1 6		
Detector Phase	1 6	1 6	6	
Switch Phase				
Minimum Initial (s)			7.0	5.0
Minimum Split (s)			24.0	11.0
Total Split (s)			74.0	11.0
Total Split (%)			52.9%	8%
Yellow Time (s)			3.0	3.0
All-Red Time (s)			3.0	3.0
Lost Time Adjust (s)			3.0	
Total Lost Time (s)			9.0	
Lead/Lag				Lead
Lead-Lag Optimize?				Yes
Recall Mode			C-Max	None
Act Effct Green (s)			65.5	
Actuated g/C Ratio			0.47	
v/c Ratio			1.00	
Control Delay			65.8	
Queue Delay			35.4	
Total Delay			101.2	
LOS			F	
Approach Delay			101.2	
Approach LOS			F	
Intersection Summary				

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Lane Group	EBL2	EBT	WBL2	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SEL	SET
Protected Phases	3			3			4			4		2
Permitted Phases	3		3	3	3	3	4		4		2	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	22.0	22.0
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	29.0	29.0	29.0	29.0	63.0	63.0
Total Split (%)	26.4%	26.4%	26.4%	26.4%	26.4%	26.4%	20.7%	20.7%	20.7%	20.7%	45.0%	45.0%
Maximum Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.5	22.5	22.5	22.5	57.0	57.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.0
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (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
Time To Reduce (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
Recall Mode	None	None	None	None	None	None	None	None	None	None	C-Max	C-Max
Walk Time (s)							8.0	8.0	8.0	8.0	7.0	7.0
Flash Dont Walk (s)							14.0	14.0	14.0	14.0	9.0	9.0
Pedestrian Calls (#/hr)							81	81	81	81	75	75
90th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
70th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
70th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
50th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
50th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
30th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
30th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
10th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
10th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 112 (80%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Control Type: Actuated-Coordinated

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	NWL2	NWL	NWT	Ø1
Protected Phases			6	1
Permitted Phases	1 6	1 6		
Minimum Initial (s)			7.0	5.0
Minimum Split (s)			24.0	11.0
Total Split (s)			74.0	11.0
Total Split (%)			52.9%	8%
Maximum Green (s)			68.0	5.0
Yellow Time (s)			3.0	3.0
All-Red Time (s)			3.0	3.0
Lead/Lag				Lead
Lead-Lag Optimize?				Yes
Vehicle Extension (s)			2.0	2.0
Minimum Gap (s)			0.2	0.2
Time Before Reduce (s)			0.0	0.0
Time To Reduce (s)			0.0	0.0
Recall Mode			C-Max	None
Walk Time (s)			7.0	
Flash Dont Walk (s)			9.0	
Pedestrian Calls (#/hr)			174	
90th %ile Green (s)			68.5	0.0
90th %ile Term Code			Coord	Skip
70th %ile Green (s)			68.5	0.0
70th %ile Term Code			Coord	Skip
50th %ile Green (s)			68.5	0.0
50th %ile Term Code			Coord	Skip
30th %ile Green (s)			68.5	0.0
30th %ile Term Code			Coord	Skip
10th %ile Green (s)			68.5	0.0
10th %ile Term Code			Coord	Skip
Intersection Summary				

Queues

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT	SET	NWT
Lane Group Flow (vph)	201	373	336	108	58	1088	927
v/c Ratio	0.82	1.07	1.10	0.36	0.35	0.69	1.00
Control Delay	78.3	117.9	113.7	10.5	58.5	32.3	65.8
Queue Delay	29.8	0.0	0.0	0.1	0.0	0.1	35.4
Total Delay	108.1	117.9	113.7	10.5	58.5	32.4	101.2
Queue Length 50th (ft)	176	~392	~268	0	46	403	~456
Queue Length 95th (ft)	#310	#608	#478	46	94	485	#598
Internal Link Dist (ft)	413	299		354	158	814	375
Turn Bay Length (ft)							
Base Capacity (vph)	245	350	305	302	171	1567	928
Starvation Cap Reductn	0	0	0	0	0	0	106
Spillback Cap Reductn	47	0	0	7	0	47	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.02	1.07	1.10	0.37	0.34	0.72	1.13

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

















95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL2	EBT	EBR	WBL2	WBL	WBT	WBR	WBR2	NBL	NBT	NBR2	SBL
Lane Configurations												
Traffic Volume (vph)	5	0	180	5	5	215	423	5	25	5	70	40
Future Volume (vph)	5	0	180	5	5	215	423	5	25	5	70	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5				6.5	6.5			9.5		
Lane Util. Factor		1.00				0.95	0.95			1.00		
Frpb, ped/bikes		0.94				0.96	0.64			0.94		
Flpb, ped/bikes		1.00				1.00	1.00			0.98		
Frt		0.87				0.95	0.85			0.91		
Flt Protected		1.00				1.00	1.00			0.99		
Satd. Flow (prot)		1546				1626	967			1570		
Flt Permitted		0.73				0.99	1.00			0.90		
Satd. Flow (perm)		1128				1610	967			1425		
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)	5	0	196	5	5	234	460	5	27	5	76	43
RTOR Reduction (vph)	0	0	0	0	0	0	95	0	0	93	0	0
Lane Group Flow (vph)	0	201	0	0	0	373	241	0	0	15	0	0
Confl. Peds. (#/hr)	44		37	37	44		44	67	44		37	37
Confl. Bikes (#/hr)			1				37	37				
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	0%	0%	0%	2%
Turn Type	Perm	NA		Perm	Perm	NA	Perm		Perm	NA		Perm
Protected Phases		3				3				4		
Permitted Phases	3			3	3		3		4			4
Actuated Green, G (s)		30.5				30.5	30.5			22.0		
Effective Green, g (s)		30.5				30.5	30.5			19.0		
Actuated g/C Ratio		0.22				0.22	0.22			0.14		
Clearance Time (s)		6.5				6.5	6.5			6.5		
Vehicle Extension (s)		2.0				2.0	2.0			2.0		
Lane Grp Cap (vph)		245				350	210			193		
v/s Ratio Prot												
v/s Ratio Perm		0.18				0.23	0.25			0.01		
v/c Ratio		0.82				1.07	1.15			0.08		
Uniform Delay, d1		52.1				54.8	54.8			52.8		
Progression Factor		1.00				1.00	1.00			1.00		
Incremental Delay, d2		18.5				66.6	108.2			0.1		
Delay (s)		70.6				121.4	162.9			52.9		
Level of Service		E				F	F			D		
Approach Delay (s)		70.6				141.1				52.9		
Approach LOS		E				F				D		
Intersection Summary												
HCM 2000 Control Delay		70.9				HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio		0.98										
Actuated Cycle Length (s)		140.0				Sum of lost time (s)				31.0		
Intersection Capacity Utilization		124.6%				ICU Level of Service				H		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

	↓	↙	↘	↗	↖	↗	↖	↘	↙	↗
Movement	SBT	SBR	SBR2	SEL	SET	SER	SER2	NWL2	NWL	NWT
Lane Configurations	↕				↕					↕
Traffic Volume (vph)	5	5	5	5	987	5	5	15	75	763
Future Volume (vph)	5	5	5	5	987	5	5	15	75	763
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.5				9.0					9.0
Lane Util. Factor	1.00				0.95					0.95
Frpb, ped/bikes	0.97				1.00					1.00
Flpb, ped/bikes	0.96				1.00					1.00
Frt	0.98				1.00					1.00
Flt Protected	0.96				1.00					0.99
Satd. Flow (prot)	1629				3522					3555
Flt Permitted	0.72				0.95					0.56
Satd. Flow (perm)	1214				3349					1984
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	5	5	5	1073	5	5	16	82	829
RTOR Reduction (vph)	3	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	55	0	0	0	1088	0	0	0	0	927
Confl. Peds. (#/hr)		31	44	107		44	31	44	31	
Confl. Bikes (#/hr)		11	11			2	2			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	NA			Perm	NA			custom	custom	NA
Protected Phases	4				2					6
Permitted Phases				2				1 6	1 6	
Actuated Green, G (s)	22.0				68.5					68.5
Effective Green, g (s)	19.0				65.5					65.5
Actuated g/C Ratio	0.14				0.47					0.47
Clearance Time (s)	6.5				6.0					6.0
Vehicle Extension (s)	2.0				3.0					2.0
Lane Grp Cap (vph)	164				1566					928
v/s Ratio Prot										
v/s Ratio Perm	c0.05				0.32					c0.47
v/c Ratio	0.34				0.69					1.00
Uniform Delay, d1	54.8				29.4					37.2
Progression Factor	1.00				1.00					1.08
Incremental Delay, d2	0.4				2.6					25.8
Delay (s)	55.2				31.9					66.1
Level of Service	E				C					E
Approach Delay (s)	55.2				31.9					66.1
Approach LOS	E				C					E
Intersection Summary										

Intersection

Int Delay, s/veh 0

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	5	0	1965	540	648
Future Vol, veh/h	0	5	0	1965	540	648
Conflicting Peds, #/hr	75	74	74	0	0	75
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	97	97	97	97	97	97
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	0	5	0	2026	557	668

Major/Minor Minor2 Major1 Major2

Conflicting Flow All	-	762	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	352	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	304	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach EB NB SB

HCM Control Delay, s	17	0	0
HCM LOS	C		

Minor Lane/Major Mvmt NBT EBLn1 SBT SBR

Capacity (veh/h)	-	304	-	-
HCM Lane V/C Ratio	-	0.017	-	-
HCM Control Delay (s)	-	17	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

Timings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	←←	→	↑↑	↑↑	←	↑↑	←←	→
Traffic Volume (vph)	850	267	516	790	225	330	320	115
Future Volume (vph)	850	267	516	790	225	330	320	115
Turn Type	Prot	NA	NA	custom	Split	NA	Split	NA
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Detector Phase	4	1 4	1	5	3	3	2	2
Switch Phase								
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	30.0		37.0	73.0	37.0	37.0	36.0	36.0
Total Split (%)	21.4%		26.4%	52.1%	26.4%	26.4%	25.7%	25.7%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		5.5	5.5	6.5	6.5	5.5	5.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Recall Mode	None		Max	C-Max	None	None	C-Max	C-Max
Act Effct Green (s)	26.9	64.9	31.5	67.5	27.1	27.1	30.5	30.5
Actuated g/C Ratio	0.19	0.46	0.22	0.48	0.19	0.19	0.22	0.22
v/c Ratio	1.33	0.55	0.68	0.86	0.68	0.51	0.45	0.64
Control Delay	198.0	52.1	54.5	39.5	62.5	52.5	49.9	51.3
Queue Delay	0.0	8.2	1.4	0.0	0.0	0.0	0.0	91.5
Total Delay	198.0	60.2	55.9	39.5	62.5	52.5	49.9	142.8
LOS	F	E	E	D	E	D	D	F
Approach Delay		151.6	46.0			56.5		88.8
Approach LOS		F	D			E		F

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 89 (64%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.33

Intersection Signal Delay: 90.5

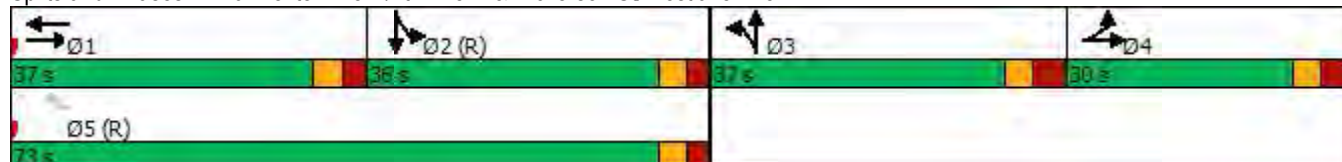
Intersection LOS: F

Intersection Capacity Utilization 107.5%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N



Phasings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	30.0		37.0	73.0	37.0	37.0	36.0	36.0
Total Split (%)	21.4%		26.4%	52.1%	26.4%	26.4%	25.7%	25.7%
Maximum Green (s)	23.5		31.5	67.5	30.5	30.5	30.5	30.5
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2		0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None		Max	C-Max	None	None	C-Max	C-Max
Walk Time (s)			9.0		8.0	8.0	8.0	8.0
Flash Dont Walk (s)			22.0		22.0	22.0	22.0	22.0
Pedestrian Calls (#/hr)			46		48	48	17	17
90th %ile Green (s)	23.5		31.5	67.5	30.5	30.5	30.5	30.5
90th %ile Term Code	Max		MaxR	Coord	Max	Max	Coord	Coord
70th %ile Green (s)	24.0		31.5	67.5	30.0	30.0	30.5	30.5
70th %ile Term Code	Max		MaxR	Coord	Ped	Ped	Coord	Coord
50th %ile Green (s)	24.0		31.5	67.5	30.0	30.0	30.5	30.5
50th %ile Term Code	Max		MaxR	Coord	Ped	Ped	Coord	Coord
30th %ile Green (s)	24.0		31.5	67.5	30.0	30.0	30.5	30.5
30th %ile Term Code	Max		MaxR	Coord	Ped	Ped	Coord	Coord
10th %ile Green (s)	38.9		31.5	67.5	15.1	15.1	30.5	30.5
10th %ile Term Code	Max		MaxR	Coord	Gap	Gap	Coord	Coord

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 89 (64%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Control Type: Actuated-Coordinated

Queues

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	885	449	538	823	234	349	333	240
v/c Ratio	1.33	0.55	0.68	0.86	0.68	0.51	0.45	0.64
Control Delay	198.0	52.1	54.5	39.5	62.5	52.5	49.9	51.3
Queue Delay	0.0	8.2	1.4	0.0	0.0	0.0	0.0	91.5
Total Delay	198.0	60.2	55.9	39.5	62.5	52.5	49.9	142.8
Queue Length 50th (ft)	~579	402	237	341	195	146	137	173
Queue Length 95th (ft)	#724	m488	302	459	287	197	186	269
Internal Link Dist (ft)		375	150			693		176
Turn Bay Length (ft)				200				
Base Capacity (vph)	665	820	796	957	385	767	733	377
Starvation Cap Reductn	0	326	0	0	0	0	0	0
Spillback Cap Reductn	0	0	112	0	0	0	0	319
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.33	0.91	0.79	0.86	0.61	0.46	0.45	4.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.


Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.







HCM Signalized Intersection Capacity Analysis

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	🔴🔴	🔴			🔴🔴	🔴🔴	🔴	🔴🔴		🔴🔴	🔴	
Traffic Volume (vph)	850	267	164	0	516	790	225	330	5	320	115	115
Future Volume (vph)	850	267	164	0	516	790	225	330	5	320	115	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.98			1.00	0.68	1.00	1.00		1.00	0.96	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.94			1.00	0.85	1.00	1.00		1.00	0.93	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3467	1739			3539	1903	1770	3520		3367	1616	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3467	1739			3539	1903	1770	3520		3367	1616	
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)	885	278	171	0	538	823	234	344	5	333	120	120
RTOR Reduction (vph)	0	16	0	0	0	40	0	1	0	0	26	0
Lane Group Flow (vph)	885	433	0	0	538	783	234	348	0	333	214	0
Confl. Peds. (#/hr)	17		29	29		17	17		48	48		17
Confl. Bikes (#/hr)			2			371			156			53
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	26.9	64.9			31.5	67.5	27.1	27.1		30.5	30.5	
Effective Green, g (s)	26.9	58.4			31.5	67.5	27.1	27.1		30.5	30.5	
Actuated g/C Ratio	0.19	0.42			0.22	0.48	0.19	0.19		0.22	0.22	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	666	725			796	917	342	681		733	352	
v/s Ratio Prot	c0.26	0.25			0.15		c0.13	0.10		0.10	0.13	
v/s Ratio Perm						c0.41						
v/c Ratio	1.33	0.60			0.68	0.85	0.68	0.51		0.45	0.61	
Uniform Delay, d1	56.5	31.7			49.6	31.9	52.5	50.5		47.5	49.4	
Progression Factor	0.97	1.89			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	155.5	1.0			4.6	9.9	4.5	0.3		2.0	7.6	
Delay (s)	210.4	60.7			54.2	41.8	56.9	50.8		49.6	57.0	
Level of Service	F	E			D	D	E	D		D	E	
Approach Delay (s)		160.0			46.7			53.3			52.7	
Approach LOS		F			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			87.8				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			107.5%				ICU Level of Service			G		
Analysis Period (min)			15									
c Critical Lane Group												

2035 Alternative 3 AM

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	891	53	23	599	56	16	8	47	19	0	13
Future Vol, veh/h	29	891	53	23	599	56	16	8	47	19	0	13
Conflicting Peds, #/hr	6	0	12	14	0	8	12	0	14	8	0	6
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	4	4	4	3	3	3	2	2	2	32	32	32
Mvmt Flow	30	928	55	24	624	58	17	8	49	20	0	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	690	0	0	997	0	0	1750	1768	984	1767	1766	673
Stage 1	-	-	-	-	-	-	1030	1030	-	709	709	-
Stage 2	-	-	-	-	-	-	720	738	-	1058	1057	-
Critical Hdwy	4.14	-	-	4.13	-	-	7.12	6.52	6.22	7.42	6.82	6.52
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.42	5.82	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.42	5.82	-
Follow-up Hdwy	2.236	-	-	2.227	-	-	3.518	4.018	3.318	3.788	4.288	3.588
Pot Cap-1 Maneuver	895	-	-	690	-	-	67	84	301	55	71	407
Stage 1	-	-	-	-	-	-	282	311	-	381	395	-
Stage 2	-	-	-	-	-	-	419	424	-	239	267	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	888	-	-	681	-	-	60	77	293	39	65	399
Mov Cap-2 Maneuver	-	-	-	-	-	-	60	77	-	39	65	-
Stage 1	-	-	-	-	-	-	269	296	-	365	378	-
Stage 2	-	-	-	-	-	-	386	406	-	184	254	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.4			60.8			116.7		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	134	888	-	-	681	-	-	62
HCM Lane V/C Ratio	0.552	0.034	-	-	0.035	-	-	0.538
HCM Control Delay (s)	60.8	9.2	-	-	10.5	-	-	116.7
HCM Lane LOS	F	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	2.7	0.1	-	-	0.1	-	-	2.2

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	0	5	0	0	0	5	16	0	0	32	10
Future Vol, veh/h	30	0	5	0	0	0	5	16	0	0	32	10
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	0	0	0	9	9	9	0	0	0	0	0	0
Mvmt Flow	38	0	6	0	0	0	6	20	0	0	41	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.4	0	7.2	7.1
HCM LOS	A	-	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	24%	86%	0%	0%
Vol Thru, %	76%	0%	100%	76%
Vol Right, %	0%	14%	0%	24%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	21	35	0	42
LT Vol	5	30	0	0
Through Vol	16	0	0	32
RT Vol	0	5	0	10
Lane Flow Rate	27	44	0	53
Geometry Grp	1	1	1	1
Degree of Util (X)	0.03	0.051	0	0.057
Departure Headway (Hd)	4.064	4.124	4.225	3.854
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	879	867	0	928
Service Time	2.097	2.155	2.267	1.883
HCM Lane V/C Ratio	0.031	0.051	0	0.057
HCM Control Delay	7.2	7.4	7.3	7.1
HCM Lane LOS	A	A	N	A
HCM 95th-tile Q	0.1	0.2	0	0.2




Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	259	0	10	94	12	0	1	5	15	5	21
Future Vol, veh/h	9	259	0	10	94	12	0	1	5	15	5	21
Conflicting Peds, #/hr	2	0	8	13	0	8	8	0	13	8	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	2	2	2	0	0	0	5	5	5
Mvmt Flow	12	345	0	13	125	16	0	1	7	20	7	28
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	149	0	0	358	0	0	567	557	371	553	549	149
Stage 1	-	-	-	-	-	-	382	382	-	167	167	-
Stage 2	-	-	-	-	-	-	185	175	-	386	382	-
Critical Hdwy	4.13	-	-	4.12	-	-	7.1	6.5	6.2	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Follow-up Hdwy	2.227	-	-	2.218	-	-	3.5	4	3.3	3.545	4.045	3.345
Pot Cap-1 Maneuver	1426	-	-	1201	-	-	437	442	679	439	439	890
Stage 1	-	-	-	-	-	-	645	616	-	828	755	-
Stage 2	-	-	-	-	-	-	821	758	-	631	607	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1415	-	-	1186	-	-	403	424	662	418	421	876
Mov Cap-2 Maneuver	-	-	-	-	-	-	403	424	-	418	421	-
Stage 1	-	-	-	-	-	-	631	602	-	813	740	-
Stage 2	-	-	-	-	-	-	772	743	-	609	594	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.7			11			12		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	605	1415	-	-	1186	-	-	572				
HCM Lane V/C Ratio	0.013	0.008	-	-	0.011	-	-	0.096				
HCM Control Delay (s)	11	7.6	0	-	8.1	0	-	12				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.3				

Intersection	
Intersection Delay, s/veh	7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	27	10	6	12	0	0	0	1	0	0	0
Future Vol, veh/h	0	27	10	6	12	0	0	0	1	0	0	0
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	33	33	33
Mvmt Flow	0	40	15	9	18	0	0	0	1	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0



















Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7	7.1	6.5	0
HCM LOS	A	A	A	-

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	33%	0%
Vol Thru, %	0%	73%	67%	100%
Vol Right, %	100%	27%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	1	37	18	0
LT Vol	0	0	6	0
Through Vol	0	27	12	0
RT Vol	1	10	0	0
Lane Flow Rate	1	55	27	0
Geometry Grp	1	1	1	1
Degree of Util (X)	0.001	0.058	0.03	0
Departure Headway (Hd)	3.441	3.76	4.009	4.605
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	1037	957	897	0
Service Time	1.47	1.765	2.017	2.634
HCM Lane V/C Ratio	0.001	0.057	0.03	0
HCM Control Delay	6.5	7	7.1	7.6
HCM Lane LOS	A	A	A	N
HCM 95th-tile Q	0	0.2	0.1	0

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	279	121	0	0	0
Future Vol, veh/h	0	279	121	0	0	0
Conflicting Peds, #/hr	4	0	0	19	19	4
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	79	79	79	79	79	79
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	0	353	153	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	172	0	-	0	544	176
Stage 1	-	-	-	-	172	-
Stage 2	-	-	-	-	372	-
Critical Hdwy	4.13	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.227	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1399	-	-	-	504	872
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	702	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1374	-	-	-	486	853
Mov Cap-2 Maneuver	-	-	-	-	486	-
Stage 1	-	-	-	-	847	-
Stage 2	-	-	-	-	689	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1374	-	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	-	-	0	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	-	

Timings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	10	826	104	75	610	35	139	10	10	10
Future Volume (vph)	10	826	104	75	610	35	139	10	10	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	27.0	27.0	11.0	27.0	27.0	27.5	27.5	27.5	27.5
Total Split (s)	15.0	35.0	35.0	15.0	35.0	35.0	30.0	30.0	30.0	30.0
Total Split (%)	18.8%	43.8%	43.8%	18.8%	43.8%	43.8%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effect Green (s)	36.2	32.3	32.3	39.6	38.4	38.4		15.0		12.3
Actuated g/C Ratio	0.56	0.50	0.50	0.62	0.60	0.60		0.23		0.19
v/c Ratio	0.02	0.94	0.14	0.32	0.59	0.04		0.76		0.07
Control Delay	6.9	40.3	4.3	9.9	14.3	0.5		33.0		19.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	6.9	40.3	4.3	9.9	14.3	0.5		33.0		19.9
LOS	A	D	A	A	B	A		C		B
Approach Delay		35.9			13.2			33.0		19.9
Approach LOS		D			B			C		B

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 64.2

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 26.9

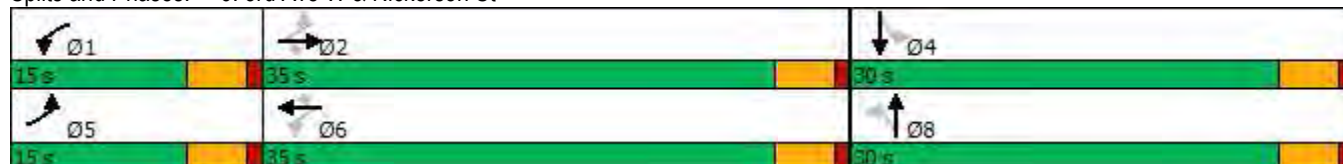
Intersection LOS: C

Intersection Capacity Utilization 78.4%

ICU Level of Service D











Analysis Period (min) 15

Splits and Phases: 6: 3rd Ave W & Nickerson St



Phasings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	27.0	27.0	11.0	27.0	27.0	27.5	27.5	27.5	27.5
Total Split (s)	15.0	35.0	35.0	15.0	35.0	35.0	30.0	30.0	30.0	30.0
Total Split (%)	18.8%	43.8%	43.8%	18.8%	43.8%	43.8%	37.5%	37.5%	37.5%	37.5%
Maximum Green (s)	10.5	30.5	30.5	10.5	30.5	30.5	25.5	25.5	25.5	25.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	1.0	0.2	0.2	1.0	0.2	0.2	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)		12	12		6	6	12	12	17	17
90th %ile Green (s)	5.0	30.5	30.5	6.9	32.4	32.4	24.8	24.8	24.8	24.8
90th %ile Term Code	Min	MaxR	MaxR	Gap	Hold	Hold	Gap	Gap	Hold	Hold
70th %ile Green (s)	0.0	30.5	30.5	5.4	40.4	40.4	18.5	18.5	18.5	18.5
70th %ile Term Code	Skip	MaxR	MaxR	Gap	Hold	Hold	Gap	Gap	Hold	Hold
50th %ile Green (s)	0.0	30.5	30.5	5.0	40.0	40.0	14.9	14.9	0.0	0.0
50th %ile Term Code	Skip	MaxR	MaxR	Min	Hold	Hold	Gap	Gap	Skip	Skip
30th %ile Green (s)	0.0	30.5	30.5	5.0	40.0	40.0	11.7	11.7	0.0	0.0
30th %ile Term Code	Skip	MaxR	MaxR	Min	Hold	Hold	Gap	Gap	Skip	Skip
10th %ile Green (s)	0.0	36.1	36.1	0.0	36.1	36.1	7.5	7.5	0.0	0.0
10th %ile Term Code	Skip	Dwell	Dwell	Skip	Dwell	Dwell	Gap	Gap	Skip	Skip

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 64.2

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 75.7

70th %ile Actuated Cycle: 67.9









50th %ile Actuated Cycle: 63.9

30th %ile Actuated Cycle: 60.7

10th %ile Actuated Cycle: 52.6

Queues
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour





















								
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	10	860	108	78	635	36	264	20
v/c Ratio	0.02	0.94	0.14	0.32	0.59	0.04	0.76	0.07
Control Delay	6.9	40.3	4.3	9.9	14.3	0.5	33.0	19.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.9	40.3	4.3	9.9	14.3	0.5	33.0	19.9
Queue Length 50th (ft)	1	312	2	10	122	0	79	7
Queue Length 95th (ft)	8	#707	30	34	#444	3	157	21
Internal Link Dist (ft)		79			214		74	171
Turn Bay Length (ft)	100			135		215		
Base Capacity (vph)	555	911	788	367	1072	914	569	592
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.94	0.14	0.21	0.59	0.04	0.46	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	826	104	75	610	35	139	10	105	10	10	0
Future Volume (veh/h)	10	826	104	75	610	35	139	10	105	10	10	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	0.98		0.97	0.99		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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1811	1811	1811	1796	1796	1796	1707	1707	1707
Adj Flow Rate, veh/h	10	860	108	78	635	36	145	10	109	10	10	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, %	5	5	5	6	6	6	7	7	7	13	13	13
Cap, veh/h	347	888	744	234	965	792	257	30	139	225	193	0
Arrive On Green	0.01	0.49	0.49	0.06	0.53	0.53	0.24	0.24	0.24	0.24	0.24	0.00
Sat Flow, veh/h	1739	1826	1528	1725	1811	1486	703	127	584	580	807	0
Grp Volume(v), veh/h	10	860	108	78	635	36	264	0	0	20	0	0
Grp Sat Flow(s),veh/h/ln	1739	1826	1528	1725	1811	1486	1414	0	0	1387	0	0
Q Serve(g_s), s	0.2	28.7	2.4	1.3	15.8	0.7	9.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.2	28.7	2.4	1.3	15.8	0.7	10.9	0.0	0.0	0.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.55		0.41	0.50		0.00
Lane Grp Cap(c), veh/h	347	888	744	234	965	792	427	0	0	417	0	0
V/C Ratio(X)	0.03	0.97	0.15	0.33	0.66	0.05	0.62	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	616	888	744	420	965	792	661	0	0	648	0	0
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.2	15.6	8.9	14.0	10.5	7.0	22.2	0.0	0.0	18.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	23.4	0.4	0.3	3.5	0.1	0.5	0.0	0.0	0.0	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	0.1	16.0	0.8	0.5	6.3	0.2	3.5	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.3	39.0	9.3	14.3	14.0	7.1	22.8	0.0	0.0	18.4	0.0	0.0
LnGrp LOS	A	D	A	B	B	A	C	A	A	B	A	A
Approach Vol, veh/h		978			749			264			20	
Approach Delay, s/veh		35.4			13.7			22.8			18.4	
Approach LOS		D			B			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	35.0		19.5	5.3	37.9		19.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	10.5	30.5		25.5	10.5	30.5		25.5				
Max Q Clear Time (g_c+I1), s	3.3	30.7		2.6	2.2	17.8		12.9				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.8		0.9				
Intersection Summary												
HCM 6th Ctrl Delay				25.5								
HCM 6th LOS				C								

Intersection												
Int Delay, s/veh	6.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	49	108	39	0	0	0	39	201	15	5	131	49
Future Vol, veh/h	49	108	39	0	0	0	39	201	15	5	131	49
Conflicting Peds, #/hr	32	0	42	22	0	11	42	0	22	11	0	32
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	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	0	0	0	7	7	7	2	2	2
Mvmt Flow	61	135	49	0	0	0	49	251	19	6	164	61




Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	640	639	279		267	0	0	292	0
Stage 1	249	249	-		-	-	-	-	-
Stage 2	391	390	-		-	-	-	-	-
Critical Hdwy	6.43	6.53	6.23		4.17	-	-	4.12	-
Critical Hdwy Stg 1	5.43	5.53	-		-	-	-	-	-
Critical Hdwy Stg 2	5.43	5.53	-		-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327		2.263	-	-	2.218	-
Pot Cap-1 Maneuver	438	393	757		1268	-	-	1270	-
Stage 1	790	699	-		-	-	-	-	-
Stage 2	681	606	-		-	-	-	-	-
Platoon blocked, %						-	-	-	-
Mov Cap-1 Maneuver	383	0	698		1217	-	-	1270	-
Mov Cap-2 Maneuver	383	0	-		-	-	-	-	-
Stage 1	723	0	-		-	-	-	-	-
Stage 2	650	0	-		-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.1	1.2	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1217	-	-	479	1270	-	-
HCM Lane V/C Ratio	0.04	-	-	0.511	0.005	-	-
HCM Control Delay (s)	8.1	0	-	20.1	7.8	0	-
HCM Lane LOS	A	A	-	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.9	0	-	-

Intersection

Int Delay, s/veh 1.6




Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	22	246	38	19	151
Future Vol, veh/h	26	22	246	38	19	151
Conflicting Peds, #/hr	16	3	0	16	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	84	84	84	84	84	84
Heavy Vehicles, %	30	30	7	7	5	5
Mvmt Flow	31	26	293	45	23	180







Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	574	335	0
Stage 1	332	-	-
Stage 2	242	-	-
Critical Hdwy	6.7	6.5	-
Critical Hdwy Stg 1	5.7	-	-
Critical Hdwy Stg 2	5.7	-	-
Follow-up Hdwy	3.77	3.57	-
Pot Cap-1 Maneuver	437	647	-
Stage 1	668	-	-
Stage 2	737	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	415	635	-
Mov Cap-2 Maneuver	415	-	-
Stage 1	658	-	-
Stage 2	710	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.3	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	493	1170
HCM Lane V/C Ratio	-	-	0.116	0.019
HCM Control Delay (s)	-	-	13.3	8.1
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	20	0	40	0	248	20	6	171	0
Future Vol, veh/h	0	0	0	20	0	40	0	248	20	6	171	0
Conflicting Peds, #/hr	17	0	0	0	0	17	0	0	0	17	0	17
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	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	3	3	3	7	7	7	12	12	12
Mvmt Flow	0	0	0	23	0	46	0	285	23	7	197	0
Major/Minor												
	Minor1			Major1			Major2					
Conflicting Flow All				525	542	331	214	0	0	325	0	0
Stage 1				314	314	-	-	-	-	-	-	-
Stage 2				211	228	-	-	-	-	-	-	-
Critical Hdwy				6.43	6.53	6.23	4.17	-	-	4.22	-	-
Critical Hdwy Stg 1				5.43	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.43	5.53	-	-	-	-	-	-	-
Follow-up Hdwy				3.527	4.027	3.327	2.263	-	-	2.308	-	-
Pot Cap-1 Maneuver				511	446	708	1327	-	-	1181	-	-
Stage 1				738	654	-	-	-	-	-	-	-
Stage 2				822	714	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver				499	0	685	1327	-	-	1162	-	-
Mov Cap-2 Maneuver				499	0	-	-	-	-	-	-	-
Stage 1				726	0	-	-	-	-	-	-	-
Stage 2				816	0	-	-	-	-	-	-	-
Approach												
	WB			NB			SB					
HCM Control Delay, s				11.7			0			0.3		
HCM LOS				B								
Minor Lane/Major Mvmt												
	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1327	-	-	609	1162	-	-					
HCM Lane V/C Ratio	-	-	-	0.113	0.006	-	-					
HCM Control Delay (s)	0	-	-	11.7	8.1	0	-					
HCM Lane LOS	A	-	-	B	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	0.4	0	-	-					

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	42	3	39	230	152	34
Future Vol, veh/h	42	3	39	230	152	34
Conflicting Peds, #/hr	15	15	15	0	0	15
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, %	0	0	8	8	11	11
Mvmt Flow	46	3	43	253	167	37
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	555	216	219	0	-	0
Stage 1	201	-	-	-	-	-
Stage 2	354	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.18	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.272	-	-	-
Pot Cap-1 Maneuver	496	829	1316	-	-	-
Stage 1	838	-	-	-	-	-
Stage 2	715	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	463	805	1297	-	-	-
Mov Cap-2 Maneuver	463	-	-	-	-	-
Stage 1	794	-	-	-	-	-
Stage 2	705	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	13.4	1.1		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1297	-	476	-	-	
HCM Lane V/C Ratio	0.033	-	0.104	-	-	
HCM Control Delay (s)	7.9	0	13.4	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-	

Intersection												
Int Delay, s/veh	13.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	981	49	30	685	25	28	5	38	5	5	35
Future Vol, veh/h	35	981	49	30	685	25	28	5	38	5	5	35
Conflicting Peds, #/hr	16	0	9	10	0	17	9	0	10	17	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	6	6	6	6	6	6	19	19	19	0	0	0
Mvmt Flow	37	1044	52	32	729	27	30	5	40	5	5	37
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	773	0	0	1106	0	0	1998	1991	1097	2008	2004	776
Stage 1	-	-	-	-	-	-	1154	1154	-	824	824	-
Stage 2	-	-	-	-	-	-	844	837	-	1184	1180	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.29	6.69	6.39	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.29	5.69	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.29	5.69	-	6.1	5.5	-
Follow-up Hdwy	2.254	-	-	2.254	-	-	3.671	4.171	3.471	3.5	4	3.3
Pot Cap-1 Maneuver	825	-	-	617	-	-	40	55	240	45	60	401
Stage 1	-	-	-	-	-	-	222	253	-	370	390	-
Stage 2	-	-	-	-	-	-	335	359	-	233	266	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	812	-	-	611	-	-	30	48	234	31	53	388
Mov Cap-2 Maneuver	-	-	-	-	-	-	30	48	-	31	53	-
Stage 1	-	-	-	-	-	-	210	239	-	347	364	-
Stage 2	-	-	-	-	-	-	278	335	-	177	251	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	0.3		0.5			\$ 326.9			48			
HCM LOS						F			E			
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	59	812	-	-	611	-	-	130				
HCM Lane V/C Ratio	1.28	0.046	-	-	0.052	-	-	0.368				
HCM Control Delay (s)	\$ 326.9	9.6	-	-	11.2	-	-	48				
HCM Lane LOS	F	A	-	-	B	-	-	E				
HCM 95th %tile Q(veh)	6.5	0.1	-	-	0.2	-	-	1.5				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection

Int Delay, s/veh 4.8

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 12 15 23 64 39 50

Future Vol, veh/h 12 15 23 64 39 50

Conflicting Peds, #/hr 15 15 15 0 0 15

Sign Control Free Free Stop Stop Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 1 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 89 89 89 89 89 89

Heavy Vehicles, % 0 0 11 11 32 32

Mvmt Flow 13 17 26 72 44 56

Major/Minor Minor2 Major2

Conflicting Flow All 102 87 - 0

Stage 1 87 87 - -

Stage 2 15 0 - -

Critical Hdwy 6.51 6.61 - -

Critical Hdwy Stg 1 5.51 5.61 - -

Critical Hdwy Stg 2 - - - -

Follow-up Hdwy 3.599 4.099 - -

Pot Cap-1 Maneuver 875 786 - -

Stage 1 914 806 - -

Stage 2 - - - -

Platoon blocked, % - -

Mov Cap-1 Maneuver 851 0 - -

Mov Cap-2 Maneuver 851 0 - -

Stage 1 901 0 - -

Stage 2 - 0 - -

Approach NB SB

HCM Control Delay, s 9.8 0

HCM LOS A

Minor Lane/Major Mvmt NBLn1 SBT SBR

Capacity (veh/h) 851 - -

HCM Lane V/C Ratio 0.115 - -


















HCM Control Delay (s) 9.8 - -

HCM Lane LOS A - -

HCM 95th %tile Q(veh) 0.4 - -

Timings 14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Lane Group	EBL2	EBL	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	SBL2	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	5	0	5	115	215	5	30	0	10	5	0
Future Volume (vph)	5	5	0	5	115	215	5	30	0	10	5	0
Turn Type	Perm	Perm	NA	Perm	NA	Perm	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			3		3				4			4
Permitted Phases	3	3		3		3	4	4		4	4	
Detector Phase	3	3	3	3	3	3	4	4	4	4	4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	28.5	28.5
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	26.2%	26.2%	26.2%	26.2%	26.2%	26.2%	22.3%	22.3%	22.3%	22.3%	22.3%	22.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)			0.0		0.0	0.0			3.0			3.0
Total Lost Time (s)			6.5		6.5	6.5			9.5			9.5
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effect Green (s)			27.5		27.5	27.5			16.0			16.0
Actuated g/C Ratio			0.21		0.21	0.21			0.12			0.12
v/c Ratio			0.99		0.55	0.46			0.32			0.09
Control Delay			99.5		52.6	17.2			5.5			0.8
Queue Delay			0.0		0.0	0.0			0.0			0.0
Total Delay			99.5		52.6	17.2			5.6			0.8
LOS			F		D	B			A			A
Approach Delay			99.5		35.8				5.6			0.8
Approach LOS			F		D				A			A

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 76 (58%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 43.1

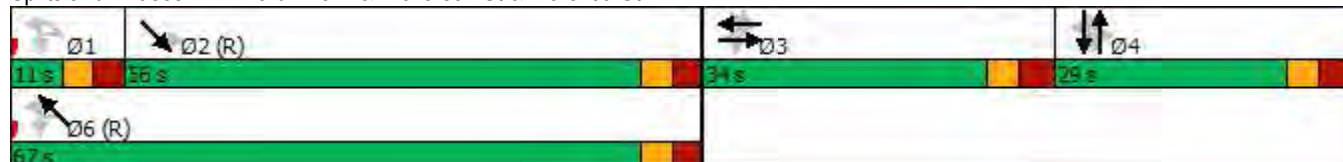
Intersection LOS: D

Intersection Capacity Utilization 117.7%

ICU Level of Service H

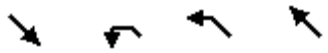
Analysis Period (min) 15

Splits and Phases: 14: 3rd Ave N & Nickerson St & Florentia St



Timings
14: 3rd Ave N & Nickerson St & Florentia St













2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	SET	NWL2	NWL	NWT	Ø1
Lane Configurations	↕↕			↕↕	
Traffic Volume (vph)	987	25	65	601	
Future Volume (vph)	987	25	65	601	
Turn Type	NA	custom	custom	NA	
Protected Phases	2			6	1
Permitted Phases		1 6	1 6		
Detector Phase	2	1 6	1 6	6	
Switch Phase					
Minimum Initial (s)	7.0			7.0	5.0
Minimum Split (s)	22.0			24.0	11.0
Total Split (s)	56.0			67.0	11.0
Total Split (%)	43.1%			51.5%	8%
Yellow Time (s)	3.0			3.0	3.0
All-Red Time (s)	3.0			3.0	3.0
Lost Time Adjust (s)	3.0			3.0	
Total Lost Time (s)	9.0			9.0	
Lead/Lag	Lag				Lead
Lead-Lag Optimize?	Yes				Yes
Recall Mode	C-Max			C-Max	None
Act Effect Green (s)	61.5			61.5	
Actuated g/C Ratio	0.47			0.47	
v/c Ratio	0.66			0.83	
Control Delay	29.5			45.1	
Queue Delay	0.8			0.9	
Total Delay	30.4			46.1	
LOS	C			D	
Approach Delay	30.4			46.1	
Approach LOS	C			D	
Intersection Summary					

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Lane Group	EBL2	EBL	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	SBL2	SBL	SBT
Protected Phases			3		3				4			4
Permitted Phases	3	3		3		3	4	4		4	4	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	28.5	28.5
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	26.2%	26.2%	26.2%	26.2%	26.2%	26.2%	22.3%	22.3%	22.3%	22.3%	22.3%	22.3%
Maximum Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.5	22.5	22.5	22.5	22.5	22.5
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (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
Time To Reduce (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
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Walk Time (s)							8.0	8.0	8.0	8.0	8.0	8.0
Flash Dont Walk (s)							14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)							69	69	69	69	69	69
90th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
70th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
70th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
50th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
50th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
30th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
30th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
10th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	7.0	7.0	7.0	7.0	7.0	7.0
10th %ile Term Code	Max	Max	Max	Max	Max	Max	Min	Min	Min	Min	Min	Min

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 76 (58%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Control Type: Actuated-Coordinated

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	SET	NWL2	NWL	NWT	Ø1
Protected Phases	2			6	1
Permitted Phases		1 6	1 6		
Minimum Initial (s)	7.0			7.0	5.0
Minimum Split (s)	22.0			24.0	11.0
Total Split (s)	56.0			67.0	11.0
Total Split (%)	43.1%			51.5%	8%
Maximum Green (s)	50.0			61.0	5.0
Yellow Time (s)	3.0			3.0	3.0
All-Red Time (s)	3.0			3.0	3.0
Lead/Lag	Lag				Lead
Lead-Lag Optimize?	Yes				Yes
Vehicle Extension (s)	3.0			2.0	2.0
Minimum Gap (s)	0.2			0.2	0.2
Time Before Reduce (s)	0.0			0.0	0.0
Time To Reduce (s)	0.0			0.0	0.0
Recall Mode	C-Max			C-Max	None
Walk Time (s)	7.0			7.0	
Flash Dont Walk (s)	9.0			9.0	
Pedestrian Calls (#/hr)	120			126	
90th %ile Green (s)	61.5			61.5	0.0
90th %ile Term Code	Coord			Coord	Skip
70th %ile Green (s)	61.5			61.5	0.0
70th %ile Term Code	Coord			Coord	Skip
50th %ile Green (s)	61.5			61.5	0.0
50th %ile Term Code	Coord			Coord	Skip
30th %ile Green (s)	61.5			61.5	0.0
30th %ile Term Code	Coord			Coord	Skip
10th %ile Green (s)	76.5			76.5	0.0
10th %ile Term Code	Coord			Coord	Skip
Intersection Summary					

Queues

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT	SET	NWT
Lane Group Flow (vph)	324	189	172	90	21	1060	756
v/c Ratio	0.99	0.55	0.46	0.32	0.09	0.66	0.83
Control Delay	99.5	52.6	17.2	5.5	0.8	29.5	45.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.8	0.9
Total Delay	99.5	52.6	17.2	5.6	0.8	30.4	46.1
Queue Length 50th (ft)	275	150	30	0	0	368	357
Queue Length 95th (ft)	#470	235	105	19	0	448	m396
Internal Link Dist (ft)	413	299		354	158	814	375
Turn Bay Length (ft)							
Base Capacity (vph)	326	344	373	317	246	1607	916
Starvation Cap Reductn	0	0	0	0	0	0	39
Spillback Cap Reductn	0	0	0	9	0	263	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.55	0.46	0.29	0.09	0.79	0.86

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St
















2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR2
Lane Configurations												
Traffic Volume (vph)	5	5	0	295	5	115	215	5	5	30	0	50
Future Volume (vph)	5	5	0	295	5	115	215	5	5	30	0	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.5			6.5	6.5				9.5	
Lane Util. Factor			1.00			0.95	0.95				1.00	
Frpb, ped/bikes			0.97			0.98	0.85				0.98	
Flpb, ped/bikes			1.00			1.00	1.00				0.98	
Frt			0.87			0.95	0.85				0.92	
Flt Protected			1.00			1.00	1.00				0.98	
Satd. Flow (prot)			1562			1649	1280				1575	
Flt Permitted			0.99			0.99	1.00				0.86	
Satd. Flow (perm)			1545			1630	1280				1377	
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	5	0	314	5	122	229	5	5	32	0	53
RTOR Reduction (vph)	0	0	0	0	0	0	103	0	0	0	79	0
Lane Group Flow (vph)	0	0	324	0	0	189	70	0	0	0	11	0
Confl. Peds. (#/hr)	24	18		14	16		24	18	9	24		14
Confl. Bikes (#/hr)				1			10	10				
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%
Turn Type	Perm	Perm	NA		Perm	NA	Perm		Perm	Perm	NA	
Protected Phases			3			3					4	
Permitted Phases	3	3			3		3		4	4		
Actuated Green, G (s)			27.5			27.5	27.5				19.0	
Effective Green, g (s)			27.5			27.5	27.5				16.0	
Actuated g/C Ratio			0.21			0.21	0.21				0.12	
Clearance Time (s)			6.5			6.5	6.5				6.5	
Vehicle Extension (s)			2.0			2.0	2.0				2.0	
Lane Grp Cap (vph)			326			344	270				169	
v/s Ratio Prot												
v/s Ratio Perm			c0.21			0.12	0.05				c0.01	
v/c Ratio			0.99			0.55	0.26				0.07	
Uniform Delay, d1			51.2			45.7	42.7				50.4	
Progression Factor			1.00			1.00	1.00				1.00	
Incremental Delay, d2			47.9			1.0	0.2				0.1	
Delay (s)			99.0			46.7	42.9				50.5	
Level of Service			F			D	D				D	
Approach Delay (s)			99.0			44.9					50.5	
Approach LOS			F			D					D	
Intersection Summary												
HCM 2000 Control Delay			44.6			HCM 2000 Level of Service					D	
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				31.0		
Intersection Capacity Utilization			117.7%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	SBL2	SBL	SBT	SBR2	SET	SER	SER2	NWL2	NWL	NWT	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	10	5	0	5	987	5	5	25	65	601	15	5
Future Volume (vph)	10	5	0	5	987	5	5	25	65	601	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			9.5		9.0					9.0		
Lane Util. Factor			1.00		0.95					0.95		
Frpb, ped/bikes			0.99		1.00					1.00		
Flpb, ped/bikes			0.98		1.00					1.00		
Frt			0.97		1.00					1.00		
Flt Protected			0.96		1.00					0.99		
Satd. Flow (prot)			1146		3397					3459		
Flt Permitted			0.76		1.00					0.56		
Satd. Flow (perm)			909		3397					1936		
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	5	0	5	1050	5	5	27	69	639	16	5
RTOR Reduction (vph)	0	0	18	0	0	0	0	0	0	1	0	0
Lane Group Flow (vph)	0	0	3	0	1060	0	0	0	0	755	0	0
Confl. Peds. (#/hr)		14		24		16	9	16	9		18	
Confl. Bikes (#/hr)				2		2	2				1	1
Heavy Vehicles (%)	50%	50%	50%	50%	6%	6%	6%	3%	3%	3%	3%	3%
Turn Type	Perm	Perm	NA		NA			custom	custom	NA		
Protected Phases			4		2					6		
Permitted Phases	4	4						16	16			
Actuated Green, G (s)			19.0		64.5					64.5		
Effective Green, g (s)			16.0		61.5					61.5		
Actuated g/C Ratio			0.12		0.47					0.47		
Clearance Time (s)			6.5		6.0					6.0		
Vehicle Extension (s)			2.0		3.0					2.0		
Lane Grp Cap (vph)			111		1607					915		
v/s Ratio Prot					0.31							
v/s Ratio Perm			0.00							c0.39		
v/c Ratio			0.02		0.66					0.83		
Uniform Delay, d1			50.1		26.2					29.6		
Progression Factor			1.00		1.00					1.24		
Incremental Delay, d2			0.0		2.1					6.5		
Delay (s)			50.2		28.4					43.2		
Level of Service			D		C					D		
Approach Delay (s)			50.2		28.4					43.2		
Approach LOS			D		C					D		
Intersection Summary												

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	15	0	1011	1315	340
Future Vol, veh/h	0	15	0	1011	1315	340
Conflicting Peds, #/hr	31	30	30	0	0	31
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	89	89	89	89	89	89
Heavy Vehicles, %	50	50	6	6	7	7
Mvmt Flow	0	17	0	1136	1478	382
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	991	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.8	-	-	-	-
Pot Cap-1 Maneuver	0	174	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	164	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	29.5	0		0		
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	164	-	-		
HCM Lane V/C Ratio	-	0.103	-	-		
HCM Control Delay (s)	-	29.5	-	-		
HCM Lane LOS	-	D	-	-		
HCM 95th %tile Q(veh)	-	0.3	-	-		

Timings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	630	617	261	260	232	120	920	190
Future Volume (vph)	630	617	261	260	232	120	920	190
Turn Type	Prot	NA	NA	custom	Split	NA	Split	NA
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Detector Phase	4	1 4	1	5	3	3	2	2
Switch Phase								
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	19.0		37.0	74.0	37.0	37.0	37.0	37.0
Total Split (%)	14.6%		28.5%	56.9%	28.5%	28.5%	28.5%	28.5%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		5.5	5.5	6.5	6.5	5.5	5.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Recall Mode	None		Min	C-Max	None	None	C-Max	C-Max
Act Effect Green (s)	19.2	57.2	31.5	68.5	23.8	23.8	31.5	31.5
Actuated g/C Ratio	0.15	0.44	0.24	0.53	0.18	0.18	0.24	0.24
v/c Ratio	1.31	0.93	0.33	0.19	0.80	0.22	1.18	1.07
Control Delay	184.4	47.0	42.0	2.0	69.3	42.4	134.9	108.0
Queue Delay	0.0	45.6	0.0	0.0	1.7	0.0	0.0	2.0
Total Delay	184.4	92.6	42.0	2.0	71.1	42.4	134.9	110.0
LOS	F	F	D	A	E	D	F	F
Approach Delay		135.7	22.0			60.8		127.2
Approach LOS		F	C			E		F

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 2 (2%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.31

Intersection Signal Delay: 108.2

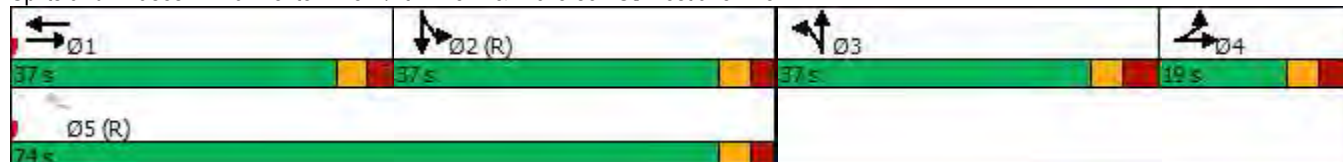
Intersection LOS: F

Intersection Capacity Utilization 92.3%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N



Phasings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	19.0		37.0	74.0	37.0	37.0	37.0	37.0
Total Split (%)	14.6%		28.5%	56.9%	28.5%	28.5%	28.5%	28.5%
Maximum Green (s)	12.5		31.5	68.5	30.5	30.5	31.5	31.5
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2		0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None		Min	C-Max	None	None	C-Max	C-Max
Walk Time (s)			9.0		8.0	8.0	8.0	8.0
Flash Dont Walk (s)			22.0		22.0	22.0	22.0	22.0
Pedestrian Calls (#/hr)			56		12	12	33	33
90th %ile Green (s)	12.5		31.5	68.5	30.5	30.5	31.5	31.5
90th %ile Term Code	Max		Max	Coord	Max	Max	Coord	Coord
70th %ile Green (s)	13.0		31.5	68.5	30.0	30.0	31.5	31.5
70th %ile Term Code	Max		Max	Coord	Ped	Ped	Coord	Coord
50th %ile Green (s)	19.6		31.5	68.5	23.4	23.4	31.5	31.5
50th %ile Term Code	Max		Max	Coord	Gap	Gap	Coord	Coord
30th %ile Green (s)	23.0		31.5	68.5	20.0	20.0	31.5	31.5
30th %ile Term Code	Max		Max	Coord	Gap	Gap	Coord	Coord
10th %ile Green (s)	27.8		31.5	68.5	15.2	15.2	31.5	31.5
10th %ile Term Code	Max		Max	Coord	Gap	Gap	Coord	Coord

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 2 (2%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Control Type: Actuated-Coordinated

Queues

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	656	740	272	271	242	135	958	427
v/c Ratio	1.31	0.93	0.33	0.19	0.80	0.22	1.18	1.07
Control Delay	184.4	47.0	42.0	2.0	69.3	42.4	134.9	108.0
Queue Delay	0.0	45.6	0.0	0.0	1.7	0.0	0.0	2.0
Total Delay	184.4	92.6	42.0	2.0	71.1	42.4	134.9	110.0
Queue Length 50th (ft)	~364	619	100	0	198	49	~496	~371
Queue Length 95th (ft)	m#535	m#874	142	23	277	75	#627	#581
Internal Link Dist (ft)		375	150			693		176
Turn Bay Length (ft)				200				
Base Capacity (vph)	501	792	817	1443	388	770	815	398
Starvation Cap Reductn	0	185	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	52	0	0	2
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.31	1.22	0.33	0.19	0.72	0.18	1.18	1.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.


Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.







HCM Signalized Intersection Capacity Analysis

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↱	↱			↰↱	↰↱	↰	↰↱		↰↱	↱	
Traffic Volume (vph)	630	617	93	0	261	260	232	120	10	920	190	220
Future Volume (vph)	630	617	93	0	261	260	232	120	10	920	190	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.94	1.00	1.00		1.00	0.90	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98			1.00	0.85	1.00	0.99		1.00	0.92	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3400	1793			3374	2496	1656	3264		3367	1512	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3400	1793			3374	2496	1656	3264		3367	1512	
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)	656	643	97	0	272	271	242	125	10	958	198	229
RTOR Reduction (vph)	0	4	0	0	0	128	0	5	0	0	32	0
Lane Group Flow (vph)	656	736	0	0	272	143	242	130	0	958	395	0
Confl. Peds. (#/hr)	19		37	37		19	33		12	12		33
Confl. Bikes (#/hr)			12			33			16			155
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	9%	9%	9%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	19.2	57.2			31.5	68.5	23.8	23.8		31.5	31.5	
Effective Green, g (s)	19.2	50.7			31.5	68.5	23.8	23.8		31.5	31.5	
Actuated g/C Ratio	0.15	0.39			0.24	0.53	0.18	0.18		0.24	0.24	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	502	699			817	1315	303	597		815	366	
v/s Ratio Prot	c0.19	c0.41			0.08		c0.15	0.04		c0.28	0.26	
v/s Ratio Perm						0.06						
v/c Ratio	1.31	1.05			0.33	0.11	0.80	0.22		1.18	1.08	
Uniform Delay, d1	55.4	39.6			40.6	15.4	50.8	45.2		49.2	49.2	
Progression Factor	0.75	0.89			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	147.8	43.0			0.1	0.2	12.8	0.1		91.7	70.0	
Delay (s)	189.5	78.2			40.7	15.6	63.6	45.2		140.9	119.3	
Level of Service	F	E			D	B	E	D		F	F	
Approach Delay (s)		130.5			28.2			57.0			134.3	
Approach LOS		F			C			E			F	
Intersection Summary												
HCM 2000 Control Delay			109.4				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.08									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			92.3%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

2035 Alternative 3 PM

Intersection												
Int Delay, s/veh	41.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	696	10	30	981	29	28	8	34	59	8	35
Future Vol, veh/h	14	696	10	30	981	29	28	8	34	59	8	35
Conflicting Peds, #/hr	16	0	21	12	0	7	21	0	12	7	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	4	4	2	2	2	0	0	0	4	4	4
Mvmt Flow	15	733	11	32	1033	31	29	8	36	62	8	37

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1080	0	0	765	0	0	1946	1934	772	1932	1924	1086
Stage 1	-	-	-	-	-	-	790	790	-	1129	1129	-
Stage 2	-	-	-	-	-	-	1156	1144	-	803	795	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.1	6.5	6.2	7.14	6.54	6.24
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.14	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.14	5.54	-
Follow-up Hdwy	2.236	-	-	2.218	-	-	3.5	4	3.3	3.536	4.036	3.336
Pot Cap-1 Maneuver	638	-	-	848	-	-	49	67	403	~ 49	66	261
Stage 1	-	-	-	-	-	-	386	404	-	246	277	-
Stage 2	-	-	-	-	-	-	242	277	-	374	397	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	628	-	-	831	-	-	34	61	390	~ 37	60	252
Mov Cap-2 Maneuver	-	-	-	-	-	-	34	61	-	~ 37	60	-
Stage 1	-	-	-	-	-	-	369	386	-	236	262	-
Stage 2	-	-	-	-	-	-	188	262	-	321	380	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.3			245.8			\$ 606.2		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	67	628	-	-	831	-	-	55
HCM Lane V/C Ratio	1.1	0.023	-	-	0.038	-	-	1.952
HCM Control Delay (s)	245.8	10.9	-	-	9.5	-	-	\$ 606.2
HCM Lane LOS	F	B	-	-	A	-	-	F
HCM 95th %tile Q(veh)	5.7	0.1	-	-	0.1	-	-	10.4





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

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	0	5	0	0	0	25	56	0	0	40	10
Future Vol, veh/h	10	0	5	0	0	0	25	56	0	0	40	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	3	3	3
Mvmt Flow	11	0	6	0	0	0	28	62	0	0	44	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	0	7.5	7.2
HCM LOS	A	-	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	67%	0%	0%
Vol Thru, %	69%	0%	100%	80%
Vol Right, %	0%	33%	0%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	81	15	0	50
LT Vol	25	10	0	0
Through Vol	56	0	0	40
RT Vol	0	5	0	10
Lane Flow Rate	90	17	0	56
Geometry Grp	1	1	1	1
Degree of Util (X)	0.101	0.019	0	0.061
Departure Headway (Hd)	4.032	4.082	4.164	3.928
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	890	869	0	912
Service Time	2.051	2.145	2.231	1.953
HCM Lane V/C Ratio	0.101	0.02	0	0.061
HCM Control Delay	7.5	7.2	7.2	7.2
HCM Lane LOS	A	A	N	A
HCM 95th-tile Q	0.3	0.1	0	0.2



















Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	39	234	0	15	169	36	0	6	35	12	14	24
Future Vol, veh/h	39	234	0	15	169	36	0	6	35	12	14	24
Conflicting Peds, #/hr	13	0	49	60	0	24	49	0	60	24	0	13
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	0	0	0	0	0	0	2	2	2
Mvmt Flow	40	241	0	15	174	37	0	6	36	12	14	25
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	235	0	0	301	0	0	672	646	361	649	628	266
Stage 1	-	-	-	-	-	-	381	381	-	247	247	-
Stage 2	-	-	-	-	-	-	291	265	-	402	381	-
Critical Hdwy	4.11	-	-	4.1	-	-	7.1	6.5	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Follow-up Hdwy	2.209	-	-	2.2	-	-	3.5	4	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1338	-	-	1272	-	-	372	393	688	383	400	773
Stage 1	-	-	-	-	-	-	645	617	-	757	702	-
Stage 2	-	-	-	-	-	-	721	693	-	625	613	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1307	-	-	1199	-	-	301	345	612	316	351	720
Mov Cap-2 Maneuver	-	-	-	-	-	-	301	345	-	316	351	-
Stage 1	-	-	-	-	-	-	587	561	-	714	676	-
Stage 2	-	-	-	-	-	-	640	667	-	529	558	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.1			0.5			12.1			14		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	550	1307	-	-	1199	-	-	450				
HCM Lane V/C Ratio	0.077	0.031	-	-	0.013	-	-	0.115				
HCM Control Delay (s)	12.1	7.8	0	-	8	0	-	14				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.4				

Intersection												
Intersection Delay, s/veh	7.3											
Intersection LOS	A											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		<div></div>			<div></div>			<div></div>			<div></div>	
Traffic Vol, veh/h	0	37	16	7	59	0	11	0	2	0	0	0
Future Vol, veh/h	0	37	16	7	59	0	11	0	2	0	0	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	42	18	8	67	0	13	0	2	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB		WB		NB		SB					
Opposing Approach	WB		EB		SB		NB					
Opposing Lanes	1		1		1		1					
Conflicting Approach Left	SB		NB		EB		WB					
Conflicting Lanes Left	1		1		1		1					
Conflicting Approach Right	NB		SB		WB		EB					
Conflicting Lanes Right	1		1		1		1					
HCM Control Delay	7.1		7.4		7.3		0					
HCM LOS	A		A		A		-					
Lane	NBLn1	EBLn1	WBLn1	SBLn1								
Vol Left, %	85%	0%	11%	0%								
Vol Thru, %	0%	70%	89%	100%								
Vol Right, %	15%	30%	0%	0%								
Sign Control	Stop	Stop	Stop	Stop								
Traffic Vol by Lane	13	53	66	0								
LT Vol	11	0	7	0								
Through Vol	0	37	59	0								
RT Vol	2	16	0	0								
Lane Flow Rate	15	60	75	0								
Geometry Grp	1	1	1	1								
Degree of Util (X)	0.017	0.064	0.083	0								
Departure Headway (Hd)	4.211	3.8	3.992	4.146								
Convergence, Y/N	Yes	Yes	Yes	Yes								
Cap	845	943	899	0								
Service Time	2.261	1.822	2.008	2.2								
HCM Lane V/C Ratio	0.018	0.064	0.083	0								
HCM Control Delay	7.3	7.1	7.4	7.2								
HCM Lane LOS	A	A	A	N								
HCM 95th-tile Q	0.1	0.2	0.3	0								

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	286	225	0	0	0
Future Vol, veh/h	0	286	225	0	0	0
Conflicting Peds, #/hr	6	0	0	235	235	6
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	95	95	95	95	95	95
Heavy Vehicles, %	1	1	0	0	0	0
Mvmt Flow	0	301	237	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	472	0	-	0	1008	478
Stage 1	-	-	-	-	472	-
Stage 2	-	-	-	-	536	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1095	-	-	-	269	591
Stage 1	-	-	-	-	632	-
Stage 2	-	-	-	-	591	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	850	-	-	-	162	456
Mov Cap-2 Maneuver	-	-	-	-	162	-
Stage 1	-	-	-	-	490	-
Stage 2	-	-	-	-	459	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	850	-	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	-	-	0	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	-	

Timings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	30	634	148	200	883	55	208	40	35	30
Future Volume (vph)	30	634	148	200	883	55	208	40	35	30
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	27.0	27.0	11.0	27.0	27.0	27.5	27.5	27.5	27.5
Total Split (s)	15.0	35.0	35.0	15.0	35.0	35.0	30.0	30.0	30.0	30.0
Total Split (%)	18.8%	43.8%	43.8%	18.8%	43.8%	43.8%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effect Green (s)	35.6	30.6	30.6	43.2	39.6	39.6		24.0		24.0
Actuated g/C Ratio	0.47	0.40	0.40	0.57	0.52	0.52		0.31		0.31
v/c Ratio	0.15	0.91	0.24	0.76	0.97	0.07		0.77		0.20
Control Delay	9.9	40.7	4.1	32.0	44.8	2.1		39.7		17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	9.9	40.7	4.1	32.0	44.8	2.1		39.7		17.0
LOS	A	D	A	C	D	A		D		B
Approach Delay		32.9			40.5			39.7		17.0
Approach LOS		C			D			D		B

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 76.3

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 36.8

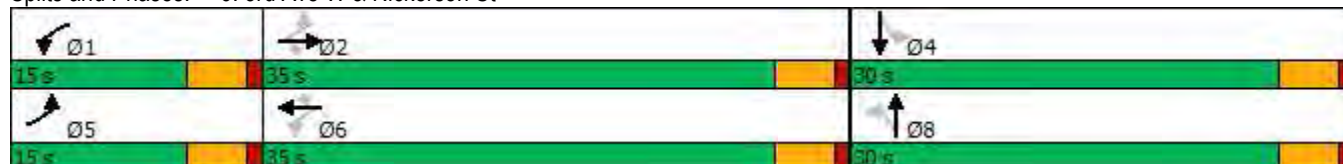
Intersection LOS: D

Intersection Capacity Utilization 83.4%

ICU Level of Service E

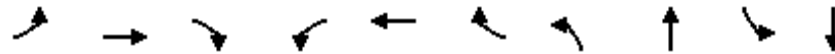
Analysis Period (min) 15

Splits and Phases: 6: 3rd Ave W & Nickerson St



Phasings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	27.0	27.0	11.0	27.0	27.0	27.5	27.5	27.5	27.5
Total Split (s)	15.0	35.0	35.0	15.0	35.0	35.0	30.0	30.0	30.0	30.0
Total Split (%)	18.8%	43.8%	43.8%	18.8%	43.8%	43.8%	37.5%	37.5%	37.5%	37.5%
Maximum Green (s)	10.5	30.5	30.5	10.5	30.5	30.5	25.5	25.5	25.5	25.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	1.0	0.2	0.2	1.0	0.2	0.2	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)		50	50		28	28	83	83	160	160
90th %ile Green (s)	5.1	30.5	30.5	10.5	35.9	35.9	25.5	25.5	25.5	25.5
90th %ile Term Code	Gap	MaxR	MaxR	Max	Hold	Hold	Max	Max	Hold	Hold
70th %ile Green (s)	5.0	30.5	30.5	10.4	35.9	35.9	25.5	25.5	25.5	25.5
70th %ile Term Code	Min	MaxR	MaxR	Gap	Hold	Hold	Max	Max	Hold	Hold
50th %ile Green (s)	0.0	30.5	30.5	8.1	43.1	43.1	23.2	23.2	23.2	23.2
50th %ile Term Code	Skip	MaxR	MaxR	Gap	Hold	Hold	Gap	Gap	Hold	Hold
30th %ile Green (s)	0.0	30.5	30.5	6.8	41.8	41.8	23.0	23.0	23.0	23.0
30th %ile Term Code	Skip	MaxR	MaxR	Gap	Hold	Hold	Ped	Ped	Ped	Ped
10th %ile Green (s)	0.0	30.5	30.5	5.3	40.3	40.3	23.0	23.0	23.0	23.0
10th %ile Term Code	Skip	MaxR	MaxR	Gap	Hold	Hold	Hold	Hold	Ped	Ped

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 76.3

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 80

70th %ile Actuated Cycle: 79.9









50th %ile Actuated Cycle: 75.3

30th %ile Actuated Cycle: 73.8

10th %ile Actuated Cycle: 72.3

Queues
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour





















								
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	32	682	159	215	949	59	283	92
v/c Ratio	0.15	0.91	0.24	0.76	0.97	0.07	0.77	0.20
Control Delay	9.9	40.7	4.1	32.0	44.8	2.1	39.7	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	40.7	4.1	32.0	44.8	2.1	39.7	17.0
Queue Length 50th (ft)	6	288	0	49	348	0	118	24
Queue Length 95th (ft)	18	#543	36	#140	#780	13	#248	59
Internal Link Dist (ft)		79			214		74	171
Turn Bay Length (ft)	100			135		215		
Base Capacity (vph)	336	753	653	331	976	799	392	496
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.91	0.24	0.65	0.97	0.07	0.72	0.19

Intersection Summary




95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary 6: 3rd Ave W & Nickerson St




2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	634	148	200	883	55	208	40	15	35	30	20
Future Volume (veh/h)	30	634	148	200	883	55	208	40	15	35	30	20
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	0.86		0.83	0.90		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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1811	1811	1811	1900	1900	1900
Adj Flow Rate, veh/h	32	682	159	215	949	59	224	43	16	38	32	22
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	6	6	6	0	0	0
Cap, veh/h	158	794	633	323	902	709	381	65	21	239	194	114
Arrive On Green	0.03	0.42	0.42	0.09	0.48	0.48	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1795	1885	1503	1795	1885	1480	967	215	71	559	641	377
Grp Volume(v), veh/h	32	682	159	215	949	59	283	0	0	92	0	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1503	1795	1885	1480	1252	0	0	1577	0	0
Q Serve(g_s), s	0.7	23.8	5.0	4.6	34.7	1.6	11.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.7	23.8	5.0	4.6	34.7	1.6	14.4	0.0	0.0	2.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.79		0.06	0.41		0.24
Lane Grp Cap(c), veh/h	158	794	633	323	902	709	467	0	0	547	0	0
V/C Ratio(X)	0.20	0.86	0.25	0.67	1.05	0.08	0.61	0.00	0.00	0.17	0.00	0.00
Avail Cap(c_a), veh/h	360	794	633	421	902	709	528	0	0	618	0	0
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.4	19.0	13.6	15.1	18.9	10.3	22.4	0.0	0.0	18.6	0.0	0.0
Incr Delay (d2), s/veh	0.2	11.7	1.0	1.1	44.5	0.2	0.9	0.0	0.0	0.1	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	0.3	12.2	1.8	1.7	24.7	0.5	4.2	0.0	0.0	1.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.6	30.7	14.5	16.2	63.4	10.5	23.2	0.0	0.0	18.7	0.0	0.0
LnGrp LOS	B	C	B	B	F	B	C	A	A	B	A	A
Approach Vol, veh/h	873			1223			283			92		
Approach Delay, s/veh	27.3			52.5			23.2			18.7		
Approach LOS	C			D			C			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	35.0		26.4	6.9	39.2		26.4				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	10.5	30.5		25.5	10.5	30.5		25.5				
Max Q Clear Time (g_c+I1), s	6.6	25.8		4.9	2.7	36.7		16.4				
Green Ext Time (p_c), s	0.0	0.6		0.3	0.0	0.0		0.9				
Intersection Summary												
HCM 6th Ctrl Delay	39.0											
HCM 6th LOS	D											

Intersection												
Int Delay, s/veh	34.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	14	179	91	0	0	0	88	246	70	5	235	139
Future Vol, veh/h	14	179	91	0	0	0	88	246	70	5	235	139
Conflicting Peds, #/hr	87	0	181	149	0	55	181	0	149	55	0	87
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	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	0	0	0
Mvmt Flow	15	186	95	0	0	0	92	256	73	5	245	145
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	1073	1171	680				571	0	0	478	0	0
Stage 1	509	509	-				-	-	-	-	-	-
Stage 2	564	662	-				-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2				4.13	-	-	4.1	-	-
Critical Hdwy Stg 1	5.4	5.5	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-				-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3				2.227	-	-	2.2	-	-
Pot Cap-1 Maneuver	246	194	454				997	-	-	1095	-	-
Stage 1	608	541	-				-	-	-	-	-	-
Stage 2	573	462	-				-	-	-	-	-	-
Platoon blocked, %							-	-		-	-	
Mov Cap-1 Maneuver	144	0	311				825	-	-	1095	-	-
Mov Cap-2 Maneuver	144	0	-				-	-	-	-	-	-
Stage 1	434	0	-				-	-	-	-	-	-
Stage 2	472	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	125.2						2.2			0.1		
HCM LOS	F											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR					
Capacity (veh/h)	825	-	-	269	1095	-	-					
HCM Lane V/C Ratio	0.111	-	-	1.1	0.005	-	-					
HCM Control Delay (s)	9.9	0	-	125.2	8.3	0	-					
HCM Lane LOS	A	A	-	F	A	A	-					
HCM 95th %tile Q(veh)	0.4	-	-	12.3	0	-	-					

Intersection						
Int Delay, s/veh	3.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	46	361	55	52	275
Future Vol, veh/h	35	46	361	55	52	275
Conflicting Peds, #/hr	126	40	0	126	40	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	93	93	93	93	93	93
Heavy Vehicles, %	8	8	4	4	0	0
Mvmt Flow	38	49	388	59	56	296
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1078	584	0	0	573	0
Stage 1	544	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Critical Hdwy	6.48	6.28	-	-	4.1	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.2	-
Pot Cap-1 Maneuver	236	500	-	-	1010	-
Stage 1	570	-	-	-	-	-
Stage 2	576	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	169	423	-	-	889	-
Mov Cap-2 Maneuver	169	-	-	-	-	-
Stage 1	502	-	-	-	-	-
Stage 2	469	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	26.1	0	1.5			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	256	889	-	
HCM Lane V/C Ratio	-	-	0.34	0.063	-	
HCM Control Delay (s)	-	-	26.1	9.3	0	
HCM Lane LOS	-	-	D	A	A	
HCM 95th %tile Q(veh)	-	-	1.4	0.2	-	

Intersection												
Int Delay, s/veh	4.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	88	5	85	10	333	98	30	270	10
Future Vol, veh/h	0	0	0	88	5	85	10	333	98	30	270	10
Conflicting Peds, #/hr	71	0	37	14	0	48	37	0	14	48	0	71
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	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	4	4	4	2	2	2
Mvmt Flow	0	0	0	90	5	87	10	340	100	31	276	10
Major/Minor				Minor1		Major1		Major2				
Conflicting Flow All				815	877	486	357	0	0	488	0	0
Stage 1				458	458	-	-	-	-	-	-	-
Stage 2				357	419	-	-	-	-	-	-	-
Critical Hdwy				6.4	6.5	6.2	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1				5.4	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.4	5.5	-	-	-	-	-	-	-
Follow-up Hdwy				3.5	4	3.3	2.236	-	-	2.218	-	-
Pot Cap-1 Maneuver				350	289	585	1191	-	-	1075	-	-
Stage 1				641	570	-	-	-	-	-	-	-
Stage 2				713	593	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver				314	0	533	1191	-	-	1026	-	-
Mov Cap-2 Maneuver				314	0	-	-	-	-	-	-	-
Stage 1				605	0	-	-	-	-	-	-	-
Stage 2				678	0	-	-	-	-	-	-	-
Approach				WB		NB		SB				
HCM Control Delay, s				21.8		0.2		0.8				
HCM LOS				C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1191	-	-	393	1026	-	-					
HCM Lane V/C Ratio	0.009	-	-	0.462	0.03	-	-					
HCM Control Delay (s)	8	0	-	21.8	8.6	0	-					
HCM Lane LOS	A	A	-	C	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	2.4	0.1	-	-					

Intersection						
Int Delay, s/veh	3.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	89	35	26	354	293	66
Future Vol, veh/h	89	35	26	354	293	66
Conflicting Peds, #/hr	20	20	20	0	0	20
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	94	94	94	94	94	94
Heavy Vehicles, %	0	0	5	5	2	2
Mvmt Flow	95	37	28	377	312	70
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	820	387	402	0	-	0
Stage 1	367	-	-	-	-	-
Stage 2	453	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.15	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.245	-	-	-
Pot Cap-1 Maneuver	347	665	1141	-	-	-
Stage 1	705	-	-	-	-	-
Stage 2	645	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	323	640	1119	-	-	-
Mov Cap-2 Maneuver	323	-	-	-	-	-
Stage 1	670	-	-	-	-	-
Stage 2	633	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	19.7	0.6		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1119	-	375	-	-	
HCM Lane V/C Ratio	0.025	-	0.352	-	-	
HCM Control Delay (s)	8.3	0	19.7	-	-	
HCM Lane LOS	A	A	C	-	-	
HCM 95th %tile Q(veh)	0.1	-	1.5	-	-	

Intersection												
Int Delay, s/veh	55											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	876	30	21	1091	15	34	0	78	10	5	40
Future Vol, veh/h	30	876	30	21	1091	15	34	0	78	10	5	40
Conflicting Peds, #/hr	17	0	29	36	0	24	29	0	36	24	0	17
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	1	1	1	8	8	8	0	0	0
Mvmt Flow	32	932	32	22	1161	16	36	0	83	11	5	43
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1201	0	0	1000	0	0	2314	2293	1020	2327	2301	1222
Stage 1	-	-	-	-	-	-	1048	1048	-	1237	1237	-
Stage 2	-	-	-	-	-	-	1266	1245	-	1090	1064	-
Critical Hdwy	4.12	-	-	4.11	-	-	7.18	6.58	6.28	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.18	5.58	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.18	5.58	-	6.1	5.5	-
Follow-up Hdwy	2.218	-	-	2.209	-	-	3.572	4.072	3.372	3.5	4	3.3
Pot Cap-1 Maneuver	581	-	-	696	-	-	~ 25	37	280	26	39	221
Stage 1	-	-	-	-	-	-	268	297	-	217	250	-
Stage 2	-	-	-	-	-	-	201	239	-	263	302	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	568	-	-	672	-	-	~ 15	32	261	16	34	210
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 15	32	-	16	34	-
Stage 1	-	-	-	-	-	-	244	271	-	200	236	-
Stage 2	-	-	-	-	-	-	147	226	-	163	275	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.2			\$ 968.5			245		
HCM LOS							F			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	44	568	-	-	672	-	-	57				
HCM Lane V/C Ratio	2.708	0.056	-	-	0.033	-	-	1.027				
HCM Control Delay (s)	\$ 968.5	11.7	-	-	10.5	-	-	245				
HCM Lane LOS	F	B	-	-	B	-	-	F				
HCM 95th %tile Q(veh)	12.9	0.2	-	-	0.1	-	-	4.8				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s				+: Computation Not Defined				*: All major volume in platoon		

Intersection

Int Delay, s/veh 5.7

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 72 29 29 45 30 26

Future Vol, veh/h 72 29 29 45 30 26

Conflicting Peds, #/hr 43 51 51 0 0 43

Sign Control Free Free Stop Stop Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 1 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 93 93 93 93 93 93

Heavy Vehicles, % 5 5 0 0 11 11

Mvmt Flow 77 31 31 48 32 28

Major/Minor Minor2 Major2

Conflicting Flow All 140 89 - 0

Stage 1 89 89 - -

Stage 2 51 0 - -

Critical Hdwy 6.4 6.5 - -

Critical Hdwy Stg 1 5.4 5.5 - -

Critical Hdwy Stg 2 - - - -

Follow-up Hdwy 3.5 4 - -

Pot Cap-1 Maneuver 858 805 - -

Stage 1 940 825 - -

Stage 2 - - - -

Platoon blocked, % - -

Mov Cap-1 Maneuver 789 0 - -

Mov Cap-2 Maneuver 789 0 - -

Stage 1 901 0 - -

Stage 2 - 0 - -

Approach NB SB

HCM Control Delay, s 10.1 0

HCM LOS B

Minor Lane/Major Mvmt NBLn1 SBT SBR

Capacity (veh/h) 789 - -

HCM Lane V/C Ratio 0.101 - -

HCM Control Delay (s) 10.1 - -

HCM Lane LOS B - -



















HCM 95th %tile Q(veh) 0.3 - -

Timings

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour

												
Lane Group	EBL2	EBT	WBL2	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SEL	SET
Lane Configurations												
Traffic Volume (vph)	5	0	5	5	215	420	25	5	40	5	5	990
Future Volume (vph)	5	0	5	5	215	420	25	5	40	5	5	990
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases		3			3			4		4		2
Permitted Phases	3		3	3		3	4		4		2	
Detector Phase	3	3	3	3	3	3	4	4	4	4	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	22.0	22.0
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	29.0	29.0	29.0	29.0	63.0	63.0
Total Split (%)	26.4%	26.4%	26.4%	26.4%	26.4%	26.4%	20.7%	20.7%	20.7%	20.7%	45.0%	45.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.0
Lost Time Adjust (s)		0.0			0.0	0.0		3.0		3.0		3.0
Total Lost Time (s)		6.5			6.5	6.5		9.5		9.5		9.0
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	C-Max	C-Max
Act Effect Green (s)		30.5			30.5	30.5		19.0		19.0		65.5
Actuated g/C Ratio		0.22			0.22	0.22		0.14		0.14		0.47
v/c Ratio		0.82			1.06	1.10		0.36		0.35		0.70
Control Delay		77.8			117.1	111.5		10.5		58.5		32.4
Queue Delay		14.4			0.0	0.0		0.0		0.0		0.1
Total Delay		92.2			117.1	111.5		10.5		58.5		32.5
LOS		F			F	F		B		E		C
Approach Delay		92.2			114.5			10.5		58.5		32.5
Approach LOS		F			F			B		E		C

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 112 (80%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 75.3

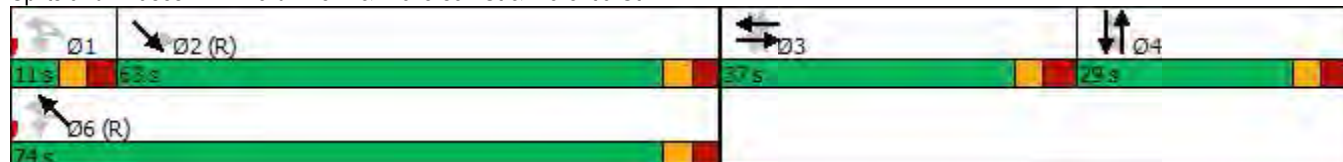
Intersection LOS: E

Intersection Capacity Utilization 124.5%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 14: 3rd Ave N & Nickerson St & Florentia St



Timings
14: 3rd Ave N & Nickerson St & Florentia St













2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	NWL2	NWL	NWT	Ø1
Lane Configurations				
Traffic Volume (vph)	15	75	760	
Future Volume (vph)	15	75	760	
Turn Type	custom	custom	NA	
Protected Phases			6	1
Permitted Phases	1 6	1 6		
Detector Phase	1 6	1 6	6	
Switch Phase				
Minimum Initial (s)			7.0	5.0
Minimum Split (s)			24.0	11.0
Total Split (s)			74.0	11.0
Total Split (%)			52.9%	8%
Yellow Time (s)			3.0	3.0
All-Red Time (s)			3.0	3.0
Lost Time Adjust (s)			3.0	
Total Lost Time (s)			9.0	
Lead/Lag				Lead
Lead-Lag Optimize?				Yes
Recall Mode			C-Max	None
Act Effct Green (s)			65.5	
Actuated g/C Ratio			0.47	
v/c Ratio			1.00	
Control Delay			65.3	
Queue Delay			35.6	
Total Delay			100.9	
LOS			F	
Approach Delay			100.9	
Approach LOS			F	
Intersection Summary				

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Lane Group	EBL2	EBT	WBL2	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SEL	SET
Protected Phases	3			3			4			4		2
Permitted Phases	3		3	3	3	3	4		4		2	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	22.0	22.0
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	29.0	29.0	29.0	29.0	63.0	63.0
Total Split (%)	26.4%	26.4%	26.4%	26.4%	26.4%	26.4%	20.7%	20.7%	20.7%	20.7%	45.0%	45.0%
Maximum Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.5	22.5	22.5	22.5	57.0	57.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.0
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (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
Time To Reduce (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
Recall Mode	None	None	None	None	None	None	None	None	None	None	C-Max	C-Max
Walk Time (s)							8.0	8.0	8.0	8.0	7.0	7.0
Flash Dont Walk (s)							14.0	14.0	14.0	14.0	9.0	9.0
Pedestrian Calls (#/hr)							81	81	81	81	75	75
90th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
70th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
70th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
50th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
50th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
30th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
30th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
10th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
10th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 112 (80%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Control Type: Actuated-Coordinated

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	NWL2	NWL	NWT	Ø1
Protected Phases			6	1
Permitted Phases	1 6	1 6		
Minimum Initial (s)			7.0	5.0
Minimum Split (s)			24.0	11.0
Total Split (s)			74.0	11.0
Total Split (%)			52.9%	8%
Maximum Green (s)			68.0	5.0
Yellow Time (s)			3.0	3.0
All-Red Time (s)			3.0	3.0
Lead/Lag				Lead
Lead-Lag Optimize?				Yes
Vehicle Extension (s)			2.0	2.0
Minimum Gap (s)			0.2	0.2
Time Before Reduce (s)			0.0	0.0
Time To Reduce (s)			0.0	0.0
Recall Mode			C-Max	None
Walk Time (s)			7.0	
Flash Dont Walk (s)			9.0	
Pedestrian Calls (#/hr)			174	
90th %ile Green (s)			68.5	0.0
90th %ile Term Code			Coord	Skip
70th %ile Green (s)			68.5	0.0
70th %ile Term Code			Coord	Skip
50th %ile Green (s)			68.5	0.0
50th %ile Term Code			Coord	Skip
30th %ile Green (s)			68.5	0.0
30th %ile Term Code			Coord	Skip
10th %ile Green (s)			68.5	0.0
10th %ile Term Code			Coord	Skip
Intersection Summary				

Queues

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT	SET	NWT
Lane Group Flow (vph)	201	372	334	108	58	1091	924
v/c Ratio	0.82	1.06	1.10	0.36	0.35	0.70	1.00
Control Delay	77.8	117.1	111.5	10.5	58.5	32.4	65.3
Queue Delay	14.4	0.0	0.0	0.0	0.0	0.1	35.6
Total Delay	92.2	117.1	111.5	10.5	58.5	32.5	100.9
Queue Length 50th (ft)	176	~391	~265	0	46	404	454
Queue Length 95th (ft)	#309	#606	#472	46	94	486	#597
Internal Link Dist (ft)	413	299		354	158	814	375
Turn Bay Length (ft)							
Base Capacity (vph)	246	350	305	302	171	1567	926
Starvation Cap Reductn	0	0	0	0	0	0	104
Spillback Cap Reductn	34	0	0	5	0	47	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	1.06	1.10	0.36	0.34	0.72	1.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

















95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St














2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL2	EBT	EBR	WBL2	WBL	WBT	WBR	WBR2	NBL	NBT	NBR2	SBL
Lane Configurations												
Traffic Volume (vph)	5	0	180	5	5	215	420	5	25	5	70	40
Future Volume (vph)	5	0	180	5	5	215	420	5	25	5	70	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5				6.5	6.5			9.5		
Lane Util. Factor		1.00				0.95	0.95			1.00		
Frpb, ped/bikes		0.94				0.96	0.64			0.94		
Flpb, ped/bikes		1.00				1.00	1.00			0.98		
Frt		0.87				0.95	0.85			0.91		
Flt Protected		1.00				1.00	1.00			0.99		
Satd. Flow (prot)		1546				1626	967			1570		
Flt Permitted		0.73				0.99	1.00			0.90		
Satd. Flow (perm)		1133				1611	967			1425		
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)	5	0	196	5	5	234	457	5	27	5	76	43
RTOR Reduction (vph)	0	0	0	0	0	0	95	0	0	93	0	0
Lane Group Flow (vph)	0	201	0	0	0	372	239	0	0	15	0	0
Confl. Peds. (#/hr)	44		37	37	44		44	67	44		37	37
Confl. Bikes (#/hr)			1				37	37				
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	0%	0%	0%	2%
Turn Type	Perm	NA		Perm	Perm	NA	Perm		Perm	NA		Perm
Protected Phases		3				3				4		
Permitted Phases	3			3	3		3		4			4
Actuated Green, G (s)		30.5				30.5	30.5			22.0		
Effective Green, g (s)		30.5				30.5	30.5			19.0		
Actuated g/C Ratio		0.22				0.22	0.22			0.14		
Clearance Time (s)		6.5				6.5	6.5			6.5		
Vehicle Extension (s)		2.0				2.0	2.0			2.0		
Lane Grp Cap (vph)		246				350	210			193		
v/s Ratio Prot												
v/s Ratio Perm		0.18				0.23	0.25			0.01		
v/c Ratio		0.82				1.06	1.14			0.08		
Uniform Delay, d1		52.1				54.8	54.8			52.8		
Progression Factor		1.00				1.00	1.00			1.00		
Incremental Delay, d2		17.7				65.7	104.8			0.1		
Delay (s)		69.8				120.5	159.6			52.9		
Level of Service		E				F	F			D		
Approach Delay (s)		69.8				139.0				52.9		
Approach LOS		E				F				D		
Intersection Summary												
HCM 2000 Control Delay			70.1			HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				31.0		
Intersection Capacity Utilization			124.5%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

										
Movement	SBT	SBR	SBR2	SEL	SET	SER	SER2	NWL2	NWL	NWT
Lane Configurations										
Traffic Volume (vph)	5	5	5	5	990	5	5	15	75	760
Future Volume (vph)	5	5	5	5	990	5	5	15	75	760
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.5				9.0					9.0
Lane Util. Factor	1.00				0.95					0.95
Frpb, ped/bikes	0.97				1.00					1.00
Flpb, ped/bikes	0.96				1.00					1.00
Frt	0.98				1.00					1.00
Flt Protected	0.96				1.00					0.99
Satd. Flow (prot)	1629				3522					3555
Flt Permitted	0.72				0.95					0.55
Satd. Flow (perm)	1214				3349					1980
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	5	5	5	1076	5	5	16	82	826
RTOR Reduction (vph)	3	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	55	0	0	0	1091	0	0	0	0	924
Confl. Peds. (#/hr)		31	44	107		44	31	44	31	
Confl. Bikes (#/hr)		11	11			2	2			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	NA			Perm	NA			custom	custom	NA
Protected Phases	4				2					6
Permitted Phases				2				1 6	1 6	
Actuated Green, G (s)	22.0				68.5					68.5
Effective Green, g (s)	19.0				65.5					65.5
Actuated g/C Ratio	0.14				0.47					0.47
Clearance Time (s)	6.5				6.0					6.0
Vehicle Extension (s)	2.0				3.0					2.0
Lane Grp Cap (vph)	164				1566					926
v/s Ratio Prot										
v/s Ratio Perm	c0.05				0.33					c0.47
v/c Ratio	0.34				0.70					1.00
Uniform Delay, d1	54.8				29.4					37.2
Progression Factor	1.00				1.00					1.08
Incremental Delay, d2	0.4				2.6					25.6
Delay (s)	55.2				32.0					65.6
Level of Service	E				C					E
Approach Delay (s)	55.2				32.0					65.6
Approach LOS	E				C					E
Intersection Summary										

Intersection

Int Delay, s/veh 0

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	5	0	1970	540	645
Future Vol, veh/h	0	5	0	1970	540	645
Conflicting Peds, #/hr	75	74	74	0	0	75
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	97	97	97	97	97	97
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	0	5	0	2031	557	665

Major/Minor Minor2 Major1 Major2

Conflicting Flow All	-	760	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	353	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	305	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach EB NB SB

HCM Control Delay, s	17	0	0
HCM LOS	C		

Minor Lane/Major Mvmt NBT EBLn1 SBT SBR

Capacity (veh/h)	-	305	-	-
HCM Lane V/C Ratio	-	0.017	-	-
HCM Control Delay (s)	-	17	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

Timings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	←←	→	←←	←←	←	←→	←←	→
Traffic Volume (vph)	855	270	518	790	221	330	320	115
Future Volume (vph)	855	270	518	790	221	330	320	115
Turn Type	Prot	NA	NA	custom	Split	NA	Split	NA
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Detector Phase	4	1 4	1	5	3	3	2	2
Switch Phase								
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	30.0		37.0	73.0	37.0	37.0	36.0	36.0
Total Split (%)	21.4%		26.4%	52.1%	26.4%	26.4%	25.7%	25.7%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		5.5	5.5	6.5	6.5	5.5	5.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Recall Mode	None		Max	C-Max	None	None	C-Max	C-Max
Act Effect Green (s)	26.9	64.9	31.5	67.5	27.1	27.1	30.5	30.5
Actuated g/C Ratio	0.19	0.46	0.22	0.48	0.19	0.19	0.22	0.22
v/c Ratio	1.34	0.55	0.68	0.86	0.67	0.51	0.45	0.64
Control Delay	200.4	52.0	54.6	39.5	62.0	52.5	49.9	51.3
Queue Delay	0.0	8.2	1.2	0.0	0.0	0.0	0.0	92.1
Total Delay	200.4	60.2	55.8	39.5	62.0	52.5	49.9	143.4
LOS	F	E	E	D	E	D	D	F
Approach Delay		153.4	46.0			56.3		89.0
Approach LOS		F	D			E		F

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 89 (64%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.34

Intersection Signal Delay: 91.3

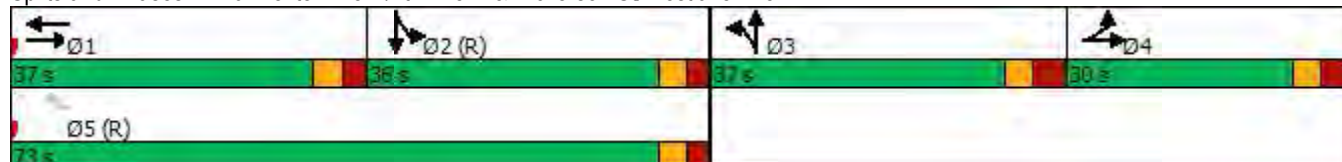
Intersection LOS: F

Intersection Capacity Utilization 107.5%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N



Phasings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	30.0		37.0	73.0	37.0	37.0	36.0	36.0
Total Split (%)	21.4%		26.4%	52.1%	26.4%	26.4%	25.7%	25.7%
Maximum Green (s)	23.5		31.5	67.5	30.5	30.5	30.5	30.5
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2		0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None		Max	C-Max	None	None	C-Max	C-Max
Walk Time (s)			9.0		8.0	8.0	8.0	8.0
Flash Dont Walk (s)			22.0		22.0	22.0	22.0	22.0
Pedestrian Calls (#/hr)			46		48	48	17	17
90th %ile Green (s)	23.5		31.5	67.5	30.5	30.5	30.5	30.5
90th %ile Term Code	Max		MaxR	Coord	Max	Max	Coord	Coord
70th %ile Green (s)	24.0		31.5	67.5	30.0	30.0	30.5	30.5
70th %ile Term Code	Max		MaxR	Coord	Ped	Ped	Coord	Coord
50th %ile Green (s)	24.0		31.5	67.5	30.0	30.0	30.5	30.5
50th %ile Term Code	Max		MaxR	Coord	Ped	Ped	Coord	Coord
30th %ile Green (s)	24.0		31.5	67.5	30.0	30.0	30.5	30.5
30th %ile Term Code	Max		MaxR	Coord	Ped	Ped	Coord	Coord
10th %ile Green (s)	39.2		31.5	67.5	14.8	14.8	30.5	30.5
10th %ile Term Code	Max		MaxR	Coord	Gap	Gap	Coord	Coord

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 89 (64%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Control Type: Actuated-Coordinated

Queues

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	891	450	540	823	230	349	333	240
v/c Ratio	1.34	0.55	0.68	0.86	0.67	0.51	0.45	0.64
Control Delay	200.4	52.0	54.6	39.5	62.0	52.5	49.9	51.3
Queue Delay	0.0	8.2	1.2	0.0	0.0	0.0	0.0	92.1
Total Delay	200.4	60.2	55.8	39.5	62.0	52.5	49.9	143.4
Queue Length 50th (ft)	~586	383	238	341	191	146	137	173
Queue Length 95th (ft)	#729	m490	304	459	282	197	186	269
Internal Link Dist (ft)		375	150			693		176
Turn Bay Length (ft)				200				
Base Capacity (vph)	667	822	796	957	385	767	733	377
Starvation Cap Reductn	0	327	0	0	0	0	0	0
Spillback Cap Reductn	0	0	99	0	0	0	0	320
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.34	0.91	0.77	0.86	0.60	0.46	0.45	4.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.























Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N















2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	855	270	162	0	518	790	221	330	5	320	115	115
Future Volume (vph)	855	270	162	0	518	790	221	330	5	320	115	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.98			1.00	0.68	1.00	1.00		1.00	0.96	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.94			1.00	0.85	1.00	1.00		1.00	0.93	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3467	1741			3539	1903	1770	3520		3367	1616	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3467	1741			3539	1903	1770	3520		3367	1616	
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)	891	281	169	0	540	823	230	344	5	333	120	120
RTOR Reduction (vph)	0	16	0	0	0	40	0	1	0	0	26	0
Lane Group Flow (vph)	891	434	0	0	540	783	230	348	0	333	214	0
Confl. Peds. (#/hr)	17		29	29		17	17		48	48		17
Confl. Bikes (#/hr)			2			371			156			53
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	26.9	64.9			31.5	67.5	27.1	27.1		30.5	30.5	
Effective Green, g (s)	26.9	58.4			31.5	67.5	27.1	27.1		30.5	30.5	
Actuated g/C Ratio	0.19	0.42			0.22	0.48	0.19	0.19		0.22	0.22	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	666	726			796	917	342	681		733	352	
v/s Ratio Prot	c0.26	0.25			0.15		c0.13	0.10		0.10	0.13	
v/s Ratio Perm						c0.41						
v/c Ratio	1.34	0.60			0.68	0.85	0.67	0.51		0.45	0.61	
Uniform Delay, d1	56.5	31.7			49.6	31.9	52.3	50.5		47.5	49.4	
Progression Factor	0.97	1.89			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	159.4	1.0			4.6	9.9	4.1	0.3		2.0	7.6	
Delay (s)	214.3	60.8			54.2	41.8	56.4	50.8		49.6	57.0	
Level of Service	F	E			D	D	E	D		D	E	
Approach Delay (s)		162.8			46.7			53.0			52.7	
Approach LOS		F			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			88.9				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			107.5%				ICU Level of Service			G		
Analysis Period (min)			15									
c Critical Lane Group												

2035 Alternative 3 AM (with Mitigation Measures)

Timings
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	29	891	23	599	16	8	19	0
Future Volume (vph)	29	891	23	599	16	8	19	0
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	6.5	7.0	6.5	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	22.5	11.0	23.5	25.5	25.5	23.5	23.5
Total Split (s)	11.0	53.0	11.0	53.0	26.0	26.0	26.0	26.0
Total Split (%)	12.2%	58.9%	12.2%	58.9%	28.9%	28.9%	28.9%	28.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
Act Effect Green (s)	70.0	67.4	69.1	65.2		9.2		9.2
Actuated g/C Ratio	0.78	0.75	0.77	0.72		0.10		0.10
v/c Ratio	0.06	0.73	0.07	0.52		0.65		0.27
Control Delay	2.7	13.1	2.3	6.9		18.3		6.7
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	2.7	13.1	2.3	6.9		18.3		6.7
LOS	A	B	A	A		B		A
Approach Delay		12.8		6.8		18.3		6.7
Approach LOS		B		A		B		A

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 20 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 11.1

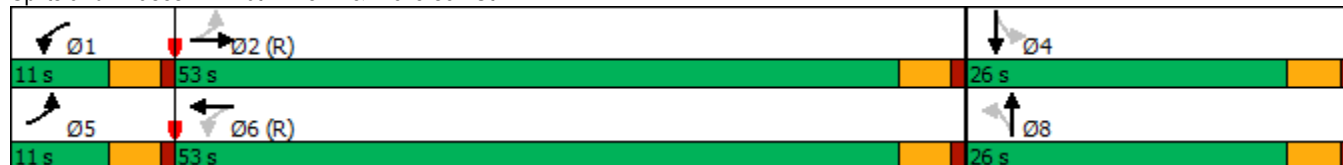
Intersection LOS: B

Intersection Capacity Utilization 72.4%

ICU Level of Service C

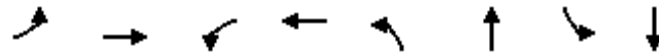
Analysis Period (min) 15

Splits and Phases: 1: 6th Ave W & Nickerson St



Phasings
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Minimum Initial (s)	6.5	7.0	6.5	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	22.5	11.0	23.5	25.5	25.5	23.5	23.5
Total Split (s)	11.0	53.0	11.0	53.0	26.0	26.0	26.0	26.0
Total Split (%)	12.2%	58.9%	12.2%	58.9%	28.9%	28.9%	28.9%	28.9%
Maximum Green (s)	6.5	48.5	6.5	48.5	21.5	21.5	21.5	21.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
Walk Time (s)		7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		5.0		12.0	14.0	14.0	12.0	12.0
Pedestrian Calls (#/hr)		0		0	0	0	0	0
90th %ile Green (s)	6.5	55.4	6.5	55.4	14.6	14.6	14.6	14.6
90th %ile Term Code	Min	Coord	Min	Coord	Gap	Gap	Hold	Hold
70th %ile Green (s)	6.5	59.8	6.5	59.8	10.2	10.2	10.2	10.2
70th %ile Term Code	Min	Coord	Min	Coord	Gap	Gap	Hold	Hold
50th %ile Green (s)	6.5	73.9	0.0	62.9	7.1	7.1	7.1	7.1
50th %ile Term Code	Min	Coord	Skip	Coord	Gap	Gap	Hold	Hold
30th %ile Green (s)	0.0	74.0	0.0	74.0	7.0	7.0	7.0	7.0
30th %ile Term Code	Skip	Coord	Skip	Coord	Min	Min	Hold	Hold
10th %ile Green (s)	0.0	74.0	0.0	74.0	7.0	7.0	7.0	7.0
10th %ile Term Code	Skip	Coord	Skip	Coord	Min	Min	Hold	Hold

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 20 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Control Type: Actuated-Coordinated

Queues
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	30	983	24	682	205	34
v/c Ratio	0.06	0.73	0.07	0.52	0.65	0.27
Control Delay	2.7	13.1	2.3	6.9	18.3	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.7	13.1	2.3	6.9	18.3	6.7
Queue Length 50th (ft)	2	151	0	323	14	0
Queue Length 95th (ft)	10	#743	m0	114	75	6
Internal Link Dist (ft)		549		657	226	272
Turn Bay Length (ft)	30		30			
Base Capacity (vph)	543	1353	366	1317	499	195
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.73	0.07	0.52	0.41	0.17

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.



















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	891	53	23	599	56	16	8	173	19	0	13
Future Volume (veh/h)	29	891	53	23	599	56	16	8	173	19	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.98		0.96	0.98		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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1856	1856	1856	1870	1870	1870	1426	1426	1426
Adj Flow Rate, veh/h	30	928	55	24	624	58	17	8	180	20	0	14
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, %	4	4	4	3	3	3	2	2	2	32	32	32
Cap, veh/h	460	1102	65	263	1061	99	55	21	237	140	12	62
Arrive On Green	0.04	0.64	0.64	0.03	0.64	0.64	0.18	0.18	0.18	0.18	0.00	0.18
Sat Flow, veh/h	1753	1717	102	1767	1667	155	66	122	1350	435	69	352
Grp Volume(v), veh/h	30	0	983	24	0	682	205	0	0	34	0	0
Grp Sat Flow(s),veh/h/ln	1753	0	1819	1767	0	1822	1537	0	0	855	0	0
Q Serve(g_s), s	0.5	0.0	37.9	0.4	0.0	19.6	3.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	0.0	37.9	0.4	0.0	19.6	11.4	0.0	0.0	2.5	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.09	0.08		0.88	0.59		0.41
Lane Grp Cap(c), veh/h	460	0	1168	263	0	1160	313	0	0	213	0	0
V/C Ratio(X)	0.07	0.00	0.84	0.09	0.00	0.59	0.66	0.00	0.00	0.16	0.00	0.00
Avail Cap(c_a), veh/h	520	0	1168	333	0	1160	409	0	0	277	0	0
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	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	7.1	0.0	12.5	13.1	0.0	9.5	35.3	0.0	0.0	31.5	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	7.4	0.1	0.0	2.2	2.3	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	0.2	0.0	15.9	0.2	0.0	7.7	4.4	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.1	0.0	20.0	13.2	0.0	11.7	37.6	0.0	0.0	31.8	0.0	0.0
LnGrp LOS	A	A	B	B	A	B	D	A	A	C	A	A
Approach Vol, veh/h	1013			706			205			34		
Approach Delay, s/veh	19.6			11.7			37.6			31.8		
Approach LOS	B			B			D			C		
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	7.4	62.3	20.3		7.9	61.8	20.3					
Change Period (Y+Rc), s	4.5	4.5	4.5		4.5	4.5	4.5					
Max Green Setting (Gmax), s	6.5	48.5	21.5		6.5	48.5	21.5					
Max Q Clear Time (g_c+I1), s	2.4	39.9	4.5		2.5	21.6	13.4					
Green Ext Time (p_c), s	0.0	4.9	0.1		0.0	5.6	0.8					
Intersection Summary												
HCM 6th Ctrl Delay	18.9											
HCM 6th LOS	B											

Intersection

Intersection Delay, s/veh 7.9

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	30	0	5	0	0	0	5	142	0	0	32	10
Future Vol, veh/h	30	0	5	0	0	0	5	142	0	0	32	10
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	0	0	0	9	9	9	0	0	0	0	0	0
Mvmt Flow	38	0	6	0	0	0	6	180	0	0	41	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.8	0	8.1	7.3
HCM LOS	A	-	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	86%	0%	0%
Vol Thru, %	97%	0%	100%	76%
Vol Right, %	0%	14%	0%	24%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	147	35	0	42
LT Vol	5	30	0	0
Through Vol	142	0	0	32
RT Vol	0	5	0	10
Lane Flow Rate	186	44	0	53
Geometry Grp	1	1	1	1
Degree of Util (X)	0.208	0.055	0	0.059
Departure Headway (Hd)	4.024	4.499	4.62	3.974
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	888	801	0	891
Service Time	2.066	2.499	2.621	2.043
HCM Lane V/C Ratio	0.209	0.055	0	0.059
HCM Control Delay	8.1	7.8	7.6	7.3
HCM Lane LOS	A	A	N	A
HCM 95th-tile Q	0.8	0.2	0	0.2

Intersection												
Int Delay, s/veh	4.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	135	133	0	10	94	12	0	1	5	15	5	21
Future Vol, veh/h	135	133	0	10	94	12	0	1	5	15	5	21
Conflicting Peds, #/hr	2	0	8	13	0	8	8	0	13	8	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	2	2	2	0	0	0	5	5	5
Mvmt Flow	180	177	0	13	125	16	0	1	7	20	7	28
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	149	0	0	190	0	0	735	725	203	721	717	149
Stage 1	-	-	-	-	-	-	550	550	-	167	167	-
Stage 2	-	-	-	-	-	-	185	175	-	554	550	-
Critical Hdwy	4.13	-	-	4.12	-	-	7.1	6.5	6.2	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Follow-up Hdwy	2.227	-	-	2.218	-	-	3.5	4	3.3	3.545	4.045	3.345
Pot Cap-1 Maneuver	1426	-	-	1384	-	-	338	354	843	339	352	890
Stage 1	-	-	-	-	-	-	523	519	-	828	755	-
Stage 2	-	-	-	-	-	-	821	758	-	511	511	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1415	-	-	1367	-	-	279	295	822	291	293	876
Mov Cap-2 Maneuver	-	-	-	-	-	-	279	295	-	291	293	-
Stage 1	-	-	-	-	-	-	444	441	-	705	741	-
Stage 2	-	-	-	-	-	-	774	744	-	429	434	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	4			0.7			10.8			14.3		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	633	1415	-	-	1367	-	-	443				
HCM Lane V/C Ratio	0.013	0.127	-	-	0.01	-	-	0.123				
HCM Control Delay (s)	10.8	7.9	0	-	7.7	0	-	14.3				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0	0.4	-	-	0	-	-	0.4				

Intersection	
Intersection Delay, s/veh	7
Intersection LOS	A




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	27	10	6	12	0	0	0	1	0	0	0
Future Vol, veh/h	0	27	10	6	12	0	0	0	1	0	0	0
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	33	33	33
Mvmt Flow	0	40	15	9	18	0	0	0	1	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7	7.1	6.5	0
HCM LOS	A	A	A	-

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	33%	0%
Vol Thru, %	0%	73%	67%	100%
Vol Right, %	100%	27%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	1	37	18	0
LT Vol	0	0	6	0
Through Vol	0	27	12	0
RT Vol	1	10	0	0
Lane Flow Rate	1	55	27	0
Geometry Grp	1	1	1	1
Degree of Util (X)	0.001	0.058	0.03	0
Departure Headway (Hd)	3.441	3.76	4.009	4.605
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	1037	957	897	0
Service Time	1.47	1.765	2.017	2.634
HCM Lane V/C Ratio	0.001	0.057	0.03	0
HCM Control Delay	6.5	7	7.1	7.6
HCM Lane LOS	A	A	A	N
HCM 95th-tile Q	0	0.2	0.1	0

Intersection

Int Delay, s/veh 0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	153	121	0	0	0
Future Vol, veh/h	0	153	121	0	0	0
Conflicting Peds, #/hr	4	0	0	19	19	4
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	79	79	79	79	79	79
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	0	194	153	0	0	0





















Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	172	0	0 385 176
Stage 1	-	-	- 172 -
Stage 2	-	-	- 213 -
Critical Hdwy	4.13	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.227	-	- 3.5 3.3
Pot Cap-1 Maneuver	1399	-	- 622 872
Stage 1	-	-	- 863 -
Stage 2	-	-	- 827 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1374	-	- 600 853
Mov Cap-2 Maneuver	-	-	- 600 -
Stage 1	-	-	- 847 -
Stage 2	-	-	- 812 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1374	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Timings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	10	952	104	75	610	35	139	10	10	10
Future Volume (vph)	10	952	104	75	610	35	139	10	10	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	6.5	7.0	7.0	6.5	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	25.0	25.0	11.0	25.0	25.0	27.5	27.5	27.5	27.5
Total Split (s)	11.0	51.0	51.0	11.0	51.0	51.0	28.0	28.0	28.0	28.0
Total Split (%)	12.2%	56.7%	56.7%	12.2%	56.7%	56.7%	31.1%	31.1%	31.1%	31.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0		3.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	7.5	7.5		7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	61.3	56.1	56.1	64.2	62.8	62.8	13.0	13.0		11.9
Actuated g/C Ratio	0.68	0.62	0.62	0.71	0.70	0.70	0.14	0.14		0.13
v/c Ratio	0.02	0.88	0.11	0.35	0.51	0.03	0.78	0.25		0.11
Control Delay	8.0	29.0	6.5	14.0	20.5	5.0	62.5	12.8		31.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	8.0	29.0	6.5	14.0	20.5	5.0	62.5	12.8		31.0
LOS	A	C	A	B	C	A	E	B		C
Approach Delay		26.6			19.1			46.6		31.0
Approach LOS		C			B			D		C

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 26.0

Intersection LOS: C

Intersection Capacity Utilization 84.7%

ICU Level of Service E











Analysis Period (min) 15

Splits and Phases: 6: 3rd Ave W & Nickerson St



Phasings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Minimum Initial (s)	6.5	7.0	7.0	6.5	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	25.0	25.0	11.0	25.0	25.0	27.5	27.5	27.5	27.5
Total Split (s)	11.0	51.0	51.0	11.0	51.0	51.0	28.0	28.0	28.0	28.0
Total Split (%)	12.2%	56.7%	56.7%	12.2%	56.7%	56.7%	31.1%	31.1%	31.1%	31.1%
Maximum Green (s)	6.5	46.5	46.5	6.5	46.5	46.5	23.5	23.5	23.5	23.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	1.0	0.2	0.2	1.0	0.2	0.2	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)		12	12		6	6	12	12	17	17
90th %ile Green (s)	6.5	46.5	46.5	7.0	47.0	47.0	23.0	23.0	23.0	23.0
90th %ile Term Code	Min	Coord	Coord	Max	Coord	Coord	Ped	Ped	Ped	Ped
70th %ile Green (s)	0.0	47.0	47.0	6.5	58.0	58.0	23.0	23.0	23.0	23.0
70th %ile Term Code	Skip	Coord	Coord	Min	Coord	Coord	Hold	Hold	Ped	Ped
50th %ile Green (s)	0.0	55.6	55.6	6.5	66.6	66.6	14.4	14.4	14.4	14.4
50th %ile Term Code	Skip	Coord	Coord	Min	Coord	Coord	Gap	Gap	Hold	Hold
30th %ile Green (s)	0.0	58.3	58.3	6.5	69.3	69.3	11.7	11.7	0.0	0.0
30th %ile Term Code	Skip	Coord	Coord	Min	Coord	Coord	Gap	Gap	Skip	Skip
10th %ile Green (s)	0.0	73.3	73.3	0.0	73.3	73.3	7.7	7.7	0.0	0.0
10th %ile Term Code	Skip	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Skip	Skip

Intersection Summary

Cycle Length: 90










Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Control Type: Actuated-Coordinated

Queues
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

									
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	10	992	108	78	635	36	145	68	20
v/c Ratio	0.02	0.88	0.11	0.35	0.51	0.03	0.78	0.25	0.11
Control Delay	8.0	29.0	6.5	14.0	20.5	5.0	62.5	12.8	31.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.0	29.0	6.5	14.0	20.5	5.0	62.5	12.8	31.0
Queue Length 50th (ft)	1	335	1	23	280	1	82	5	10
Queue Length 95th (ft)	m4	#854	m36	m45	482	m5	133	38	28
Internal Link Dist (ft)		79			214			74	171
Turn Bay Length (ft)	100			135		215			
Base Capacity (vph)	520	1129	949	224	1251	1048	294	389	327
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.88	0.11	0.35	0.51	0.03	0.49	0.17	0.06

Intersection Summary






















95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary 6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	952	104	75	610	35	139	10	56	10	10	0
Future Volume (veh/h)	10	952	104	75	610	35	139	10	56	10	10	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	0.97		0.95	0.97		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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1811	1811	1811	1796	1796	1796	1707	1707	1707
Adj Flow Rate, veh/h	10	992	108	78	635	36	145	10	58	10	10	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, %	5	5	5	6	6	6	7	7	7	13	13	13
Cap, veh/h	480	1146	962	279	1220	1004	256	28	162	126	96	0
Arrive On Green	0.02	0.63	0.63	0.06	0.67	0.67	0.13	0.13	0.16	0.16	0.13	0.00
Sat Flow, veh/h	1739	1826	1533	1725	1811	1490	1302	220	1275	522	757	0
Grp Volume(v), veh/h	10	992	108	78	635	36	145	0	68	20	0	0
Grp Sat Flow(s),veh/h/ln	1739	1826	1533	1725	1811	1490	1302	0	1495	1280	0	0
Q Serve(g_s), s	0.2	39.9	2.5	1.2	15.9	0.7	6.4	0.0	3.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.2	39.9	2.5	1.2	15.9	0.7	9.0	0.0	3.7	3.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.85	0.50		0.00
Lane Grp Cap(c), veh/h	480	1146	962	279	1220	1004	256	0	190	265	0	0
V/C Ratio(X)	0.02	0.87	0.11	0.28	0.52	0.04	0.57	0.00	0.36	0.08	0.00	0.00
Avail Cap(c_a), veh/h	577	1146	962	296	1220	1004	387	0	340	406	0	0
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.5	13.7	6.7	15.4	7.4	4.9	38.0	0.0	34.7	34.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	8.8	0.2	0.2	1.6	0.1	0.7	0.0	0.4	0.0	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	0.1	17.3	0.8	0.8	5.9	0.2	3.1	0.0	1.3	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.5	22.5	6.9	15.6	9.0	5.0	38.7	0.0	35.1	34.1	0.0	0.0
LnGrp LOS	A	C	A	B	A	A	D	A	D	C	A	A
Approach Vol, veh/h	1110			749			213			20		
Approach Delay, s/veh	20.8			9.5			37.6			34.1		
Approach LOS	C			A			D			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.1	61.0		18.9	5.9	65.1		18.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	46.5		23.5	6.5	46.5		23.5				
Max Q Clear Time (g_c+I1), s	3.2	41.9		5.7	2.2	17.9		12.0				
Green Ext Time (p_c), s	0.0	1.0		0.0	0.0	0.8		0.4				
Intersection Summary												
HCM 6th Ctrl Delay	18.6											
HCM 6th LOS	B											

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	0	0	70	0	0	0	39	201	15	5	131	49
Future Vol, veh/h	0	0	70	0	0	0	39	201	15	5	131	49
Conflicting Peds, #/hr	32	0	42	22	0	11	42	0	22	11	0	32
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	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	0	0	0	7	7	7	2	2	2
Mvmt Flow	0	0	88	0	0	0	49	251	19	6	164	61




Major/Minor	Minor2			Major1		Major2			
Conflicting Flow All	640	639	279	267	0	0	292	0	0
Stage 1	249	249	-	-	-	-	-	-	-
Stage 2	391	390	-	-	-	-	-	-	-
Critical Hdwy	6.43	6.53	6.23	4.17	-	-	4.12	-	-
Critical Hdwy Stg 1	5.43	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.43	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	2.263	-	-	2.218	-	-
Pot Cap-1 Maneuver	438	393	757	1268	-	-	1270	-	-
Stage 1	790	699	-	-	-	-	-	-	-
Stage 2	681	606	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	383	0	698	1217	-	-	1270	-	-
Mov Cap-2 Maneuver	383	0	-	-	-	-	-	-	-
Stage 1	723	0	-	-	-	-	-	-	-
Stage 2	650	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.9	1.2	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1217	-	-	698	1270	-	-
HCM Lane V/C Ratio	0.04	-	-	0.125	0.005	-	-
HCM Control Delay (s)	8.1	0	-	10.9	7.8	0	-
HCM Lane LOS	A	A	-	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0	-	-

Intersection

Int Delay, s/veh 1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	22	246	38	34	167
Future Vol, veh/h	26	22	246	38	34	167
Conflicting Peds, #/hr	16	3	0	16	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	84	84	84	84	84	84
Heavy Vehicles, %	30	30	7	7	5	5
Mvmt Flow	31	26	293	45	40	199

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	627	335	0
Stage 1	332	-	-
Stage 2	295	-	-
Critical Hdwy	6.7	6.5	-
Critical Hdwy Stg 1	5.7	-	-
Critical Hdwy Stg 2	5.7	-	-
Follow-up Hdwy	3.77	3.57	-
Pot Cap-1 Maneuver	405	647	-
Stage 1	668	-	-
Stage 2	696	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	378	635	-
Mov Cap-2 Maneuver	378	-	-
Stage 1	658	-	-
Stage 2	659	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.8	0	1.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	464	1170
HCM Lane V/C Ratio	-	-	0.123	0.035
HCM Control Delay (s)	-	-	13.8	8.2
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	20	0	40	0	248	20	22	171	0
Future Vol, veh/h	0	0	0	20	0	40	0	248	20	22	171	0
Conflicting Peds, #/hr	17	0	0	0	0	17	0	0	0	17	0	17
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	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	3	3	3	7	7	7	12	12	12
Mvmt Flow	0	0	0	23	0	46	0	285	23	25	197	0
Major/Minor												
	Minor1			Major1			Major2					
Conflicting Flow All				561	578	331	214	0	0	325	0	0
Stage 1				314	314	-	-	-	-	-	-	-
Stage 2				247	264	-	-	-	-	-	-	-
Critical Hdwy				6.43	6.53	6.23	4.17	-	-	4.22	-	-
Critical Hdwy Stg 1				5.43	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.43	5.53	-	-	-	-	-	-	-
Follow-up Hdwy				3.527	4.027	3.327	2.263	-	-	2.308	-	-
Pot Cap-1 Maneuver				487	425	708	1327	-	-	1181	-	-
Stage 1				738	654	-	-	-	-	-	-	-
Stage 2				792	688	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver				468	0	685	1327	-	-	1162	-	-
Mov Cap-2 Maneuver				468	0	-	-	-	-	-	-	-
Stage 1				726	0	-	-	-	-	-	-	-
Stage 2				773	0	-	-	-	-	-	-	-
Approach												
	WB			NB			SB					
HCM Control Delay, s				11.9			0			0.9		
HCM LOS				B								
Minor Lane/Major Mvmt												
	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1327	-	-	593	1162	-	-					
HCM Lane V/C Ratio	-	-	-	0.116	0.022	-	-					
HCM Control Delay (s)	0	-	-	11.9	8.2	0	-					
HCM Lane LOS	A	-	-	B	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	0.4	0.1	-	-					

Intersection

Int Delay, s/veh 1.8

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 42 3 39 230 152 34

Future Vol, veh/h 42 3 39 230 152 34

Conflicting Peds, #/hr 15 15 15 0 0 15

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, % 0 0 8 8 11 11

Mvmt Flow 46 3 43 253 167 37

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 555 216 219 0 - 0

Stage 1 201 - - - - -

Stage 2 354 - - - - -

Critical Hdwy 6.4 6.2 4.18 - - -

Critical Hdwy Stg 1 5.4 - - - - -

Critical Hdwy Stg 2 5.4 - - - - -

Follow-up Hdwy 3.5 3.3 2.272 - - -

Pot Cap-1 Maneuver 496 829 1316 - - -

Stage 1 838 - - - - -

Stage 2 715 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 463 805 1297 - - -

Mov Cap-2 Maneuver 463 - - - - -

Stage 1 794 - - - - -

Stage 2 705 - - - - -

Approach EB NB SB

HCM Control Delay, s 13.4 1.1 0

HCM LOS B

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h) 1297 - 476 - -

HCM Lane V/C Ratio 0.033 - 0.104 - -















HCM Control Delay (s) 7.9 0 13.4 - -

HCM Lane LOS A A B - -

HCM 95th %tile Q(veh) 0.1 - 0.3 - -

Timings
11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

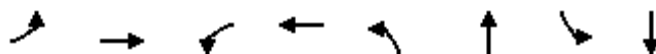
								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	35	950	30	685	28	5	5	5
Future Volume (vph)	35	950	30	685	28	5	5	5
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Detector Phase	2	2	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	22.5	22.5	24.5	24.5	24.5	24.5
Total Split (s)	65.0	65.0	65.0	65.0	25.0	25.0	25.0	25.0
Total Split (%)	72.2%	72.2%	72.2%	72.2%	27.8%	27.8%	27.8%	27.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
Act Effct Green (s)	60.5	60.5	60.5	60.5		20.5		20.5
Actuated g/C Ratio	0.67	0.67	0.67	0.67		0.23		0.23
v/c Ratio	0.11	0.89	0.25	0.63		0.27		0.12
Control Delay	1.1	14.4	11.9	11.3		16.6		13.0
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	1.1	14.4	11.9	11.3		16.6		13.0
LOS	A	B	B	B		B		B
Approach Delay		13.9		11.3		16.6		13.0
Approach LOS		B		B		B		B
Intersection Summary								
Cycle Length: 90								
Actuated Cycle Length: 90								
Offset: 20 (22%), Referenced to phase 2:EBWB, Start of 1st Green								
Natural Cycle: 90								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.89								
Intersection Signal Delay: 13.0					Intersection LOS: B			
Intersection Capacity Utilization 77.2%					ICU Level of Service D			
Analysis Period (min) 15								

Splits and Phases: 11: W Cremona St & Nickerson St



Phasings
11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	22.5	22.5	24.5	24.5	24.5	24.5
Total Split (s)	65.0	65.0	65.0	65.0	25.0	25.0	25.0	25.0
Total Split (%)	72.2%	72.2%	72.2%	72.2%	27.8%	27.8%	27.8%	27.8%
Maximum Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	6.0	6.0	6.0	6.0	13.0	13.0	13.0	13.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0
90th %ile Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
90th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	MaxR	MaxR
70th %ile Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
70th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	MaxR	MaxR
50th %ile Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
50th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	MaxR	MaxR
30th %ile Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
30th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	MaxR	MaxR
10th %ile Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
10th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	MaxR	MaxR

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 20 (22%), Referenced to phase 2:EBWB, Start of 1st Green

Control Type: Actuated-Coordinated

Queues
11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	37	1063	32	756	91	47
v/c Ratio	0.11	0.89	0.25	0.63	0.27	0.12
Control Delay	1.1	14.4	11.9	11.3	16.6	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.1	14.4	11.9	11.3	16.6	13.0
Queue Length 50th (ft)	1	416	6	213	16	4
Queue Length 95th (ft)	m1	m#163	24	322	57	32
Internal Link Dist (ft)		379		803	22	101
Turn Bay Length (ft)	30		30			
Base Capacity (vph)	328	1195	126	1196	335	389
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.89	0.25	0.63	0.27	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.



















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	950	49	30	685	25	28	5	53	5	5	35
Future Volume (vph)	35	950	49	30	685	25	28	5	53	5	5	35
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	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.97			0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99			1.00	
Frt	1.00	0.99		1.00	0.99			0.92			0.89	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1703	1775		1703	1778			1394			1610	
Flt Permitted	0.27	1.00		0.11	1.00			0.91			0.98	
Satd. Flow (perm)	490	1775		189	1778			1284			1583	
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	1011	52	32	729	27	30	5	56	5	5	37
RTOR Reduction (vph)	0	2	0	0	2	0	0	43	0	0	29	0
Lane Group Flow (vph)	37	1061	0	32	754	0	0	48	0	0	18	0
Confl. Peds. (#/hr)	16		9	10		17	9		10	17		16
Confl. Bikes (#/hr)			1			2						
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	19%	19%	19%	0%	0%	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)	60.5	60.5		60.5	60.5			20.5			20.5	
Effective Green, g (s)	60.5	60.5		60.5	60.5			20.5			20.5	
Actuated g/C Ratio	0.67	0.67		0.67	0.67			0.23			0.23	
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)	329	1193		127	1195			292			360	
v/s Ratio Prot		c0.60			0.42							
v/s Ratio Perm	0.08			0.17				c0.04			0.01	
v/c Ratio	0.11	0.89		0.25	0.63			0.16			0.05	
Uniform Delay, d1	5.2	12.0		5.8	8.4			27.9			27.2	
Progression Factor	0.12	0.54		1.00	1.00			1.06			1.00	
Incremental Delay, d2	0.4	6.4		4.7	2.5			1.2			0.3	
Delay (s)	1.1	12.9		10.5	10.9			30.8			27.4	
Level of Service	A	B		B	B			C			C	
Approach Delay (s)		12.5			10.9			30.8			27.4	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			13.1			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			77.2%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Int Delay, s/veh 4.8

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 27 15 23 64 39 50

Future Vol, veh/h 27 15 23 64 39 50

Conflicting Peds, #/hr 15 15 15 0 0 15

Sign Control Free Free Stop Stop Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 1 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 89 89 89 89 89 89

Heavy Vehicles, % 0 0 11 11 32 32

Mvmt Flow 30 17 26 72 44 56

Major/Minor Minor2 Major2

Conflicting Flow All 102 87 - 0

Stage 1 87 87 - -

Stage 2 15 0 - -

Critical Hdwy 6.51 6.61 - -

Critical Hdwy Stg 1 5.51 5.61 - -

Critical Hdwy Stg 2 - - - -

Follow-up Hdwy 3.599 4.099 - -

Pot Cap-1 Maneuver 875 786 - -

Stage 1 914 806 - -

Stage 2 - - - -

Platoon blocked, % - -

Mov Cap-1 Maneuver 851 0 - -

Mov Cap-2 Maneuver 851 0 - -

Stage 1 901 0 - -

Stage 2 - 0 - -

Approach NB SB

HCM Control Delay, s 9.8 0

HCM LOS A

Minor Lane/Major Mvmt NBLn1 SBT SBR

Capacity (veh/h) 851 - -

HCM Lane V/C Ratio 0.115 - -


















HCM Control Delay (s) 9.8 - -

HCM Lane LOS A - -

HCM 95th %tile Q(veh) 0.4 - -

Timings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Lane Group	EBL2	EBL	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	SBL2	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	5	0	5	115	215	5	30	0	10	5	0
Future Volume (vph)	5	5	0	5	115	215	5	30	0	10	5	0
Turn Type	Perm	Perm	NA	Perm	NA	Perm	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			3		3				4			4
Permitted Phases	3	3		3		3	4	4		4	4	
Detector Phase	3	3	3	3	3	3	4	4	4	4	4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	28.5	28.5
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	26.2%	26.2%	26.2%	26.2%	26.2%	26.2%	22.3%	22.3%	22.3%	22.3%	22.3%	22.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)			0.0		0.0	0.0			3.0			3.0
Total Lost Time (s)			6.5		6.5	6.5			9.5			9.5
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effect Green (s)			27.5		27.5	27.5			16.0			16.0
Actuated g/C Ratio			0.21		0.21	0.21			0.12			0.12
v/c Ratio			0.99		0.55	0.46			0.32			0.09
Control Delay			99.5		52.6	17.2			5.5			0.8
Queue Delay			0.0		0.0	0.0			0.0			0.0
Total Delay			99.5		52.6	17.2			5.6			0.8
LOS			F		D	B			A			A
Approach Delay			99.5		35.8				5.6			0.8
Approach LOS			F		D				A			A

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 76 (58%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 43.1

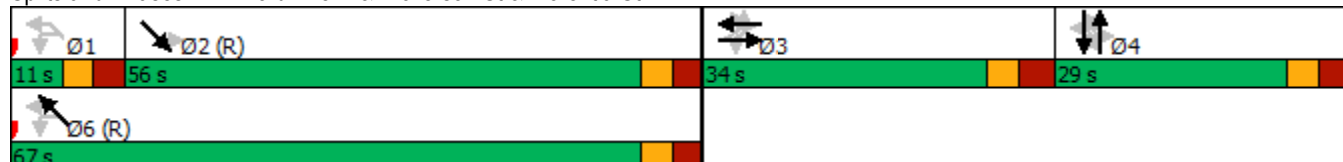
Intersection LOS: D

Intersection Capacity Utilization 117.7%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 14: 3rd Ave N & Nickerson St & Florentia St



Timings
14: 3rd Ave N & Nickerson St & Florentia St













2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	SET	NWL2	NWL	NWT	Ø1
Lane Configurations	↕↕			↕↕	
Traffic Volume (vph)	987	25	65	601	
Future Volume (vph)	987	25	65	601	
Turn Type	NA	custom	custom	NA	
Protected Phases	2			6	1
Permitted Phases		1 6	1 6		
Detector Phase	2	1 6	1 6	6	
Switch Phase					
Minimum Initial (s)	7.0			7.0	5.0
Minimum Split (s)	22.0			24.0	11.0
Total Split (s)	56.0			67.0	11.0
Total Split (%)	43.1%			51.5%	8%
Yellow Time (s)	3.0			3.0	3.0
All-Red Time (s)	3.0			3.0	3.0
Lost Time Adjust (s)	3.0			3.0	
Total Lost Time (s)	9.0			9.0	
Lead/Lag	Lag				Lead
Lead-Lag Optimize?	Yes				Yes
Recall Mode	C-Max			C-Max	None
Act Effect Green (s)	61.5			61.5	
Actuated g/C Ratio	0.47			0.47	
v/c Ratio	0.66			0.83	
Control Delay	29.5			45.0	
Queue Delay	0.8			0.9	
Total Delay	30.4			46.0	
LOS	C			D	
Approach Delay	30.4			46.0	
Approach LOS	C			D	
Intersection Summary					

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Lane Group	EBL2	EBL	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	SBL2	SBL	SBT
Protected Phases			3		3				4			4
Permitted Phases	3	3		3		3	4	4		4	4	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	28.5	28.5
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	26.2%	26.2%	26.2%	26.2%	26.2%	26.2%	22.3%	22.3%	22.3%	22.3%	22.3%	22.3%
Maximum Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.5	22.5	22.5	22.5	22.5	22.5
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (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
Time To Reduce (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
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Walk Time (s)							8.0	8.0	8.0	8.0	8.0	8.0
Flash Dont Walk (s)							14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)							69	69	69	69	69	69
90th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
70th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
70th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
50th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
50th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
30th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
30th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
10th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	7.0	7.0	7.0	7.0	7.0	7.0
10th %ile Term Code	Max	Max	Max	Max	Max	Max	Min	Min	Min	Min	Min	Min

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 76 (58%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Control Type: Actuated-Coordinated

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	SET	NWL2	NWL	NWT	Ø1
Protected Phases	2			6	1
Permitted Phases		1 6	1 6		
Minimum Initial (s)	7.0			7.0	5.0
Minimum Split (s)	22.0			24.0	11.0
Total Split (s)	56.0			67.0	11.0
Total Split (%)	43.1%			51.5%	8%
Maximum Green (s)	50.0			61.0	5.0
Yellow Time (s)	3.0			3.0	3.0
All-Red Time (s)	3.0			3.0	3.0
Lead/Lag	Lag				Lead
Lead-Lag Optimize?	Yes				Yes
Vehicle Extension (s)	3.0			2.0	2.0
Minimum Gap (s)	0.2			0.2	0.2
Time Before Reduce (s)	0.0			0.0	0.0
Time To Reduce (s)	0.0			0.0	0.0
Recall Mode	C-Max			C-Max	None
Walk Time (s)	7.0			7.0	
Flash Dont Walk (s)	9.0			9.0	
Pedestrian Calls (#/hr)	120			126	
90th %ile Green (s)	61.5			61.5	0.0
90th %ile Term Code	Coord			Coord	Skip
70th %ile Green (s)	61.5			61.5	0.0
70th %ile Term Code	Coord			Coord	Skip
50th %ile Green (s)	61.5			61.5	0.0
50th %ile Term Code	Coord			Coord	Skip
30th %ile Green (s)	61.5			61.5	0.0
30th %ile Term Code	Coord			Coord	Skip
10th %ile Green (s)	76.5			76.5	0.0
10th %ile Term Code	Coord			Coord	Skip
Intersection Summary					

Queues

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT	SET	NWT
Lane Group Flow (vph)	324	189	172	90	21	1060	756
v/c Ratio	0.99	0.55	0.46	0.32	0.09	0.66	0.83
Control Delay	99.5	52.6	17.2	5.5	0.8	29.5	45.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.8	0.9
Total Delay	99.5	52.6	17.2	5.6	0.8	30.4	46.0
Queue Length 50th (ft)	275	150	30	0	0	368	357
Queue Length 95th (ft)	#470	235	105	19	0	448	m396
Internal Link Dist (ft)	413	299		354	158	814	375
Turn Bay Length (ft)							
Base Capacity (vph)	326	344	373	317	246	1607	916
Starvation Cap Reductn	0	0	0	0	0	0	39
Spillback Cap Reductn	0	0	0	9	0	263	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.55	0.46	0.29	0.09	0.79	0.86

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St
















2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR2
Lane Configurations												
Traffic Volume (vph)	5	5	0	295	5	115	215	5	5	30	0	50
Future Volume (vph)	5	5	0	295	5	115	215	5	5	30	0	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.5			6.5	6.5				9.5	
Lane Util. Factor			1.00			0.95	0.95				1.00	
Frpb, ped/bikes			0.97			0.98	0.85				0.98	
Flpb, ped/bikes			1.00			1.00	1.00				0.98	
Frt			0.87			0.95	0.85				0.92	
Flt Protected			1.00			1.00	1.00				0.98	
Satd. Flow (prot)			1562			1649	1280				1575	
Flt Permitted			0.99			0.99	1.00				0.86	
Satd. Flow (perm)			1545			1630	1280				1377	
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	5	0	314	5	122	229	5	5	32	0	53
RTOR Reduction (vph)	0	0	0	0	0	0	103	0	0	0	79	0
Lane Group Flow (vph)	0	0	324	0	0	189	70	0	0	0	11	0
Confl. Peds. (#/hr)	24	18		14	16		24	18	9	24		14
Confl. Bikes (#/hr)				1			10	10				
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%
Turn Type	Perm	Perm	NA		Perm	NA	Perm		Perm	Perm	NA	
Protected Phases			3			3					4	
Permitted Phases	3	3			3		3		4	4		
Actuated Green, G (s)			27.5			27.5	27.5				19.0	
Effective Green, g (s)			27.5			27.5	27.5				16.0	
Actuated g/C Ratio			0.21			0.21	0.21				0.12	
Clearance Time (s)			6.5			6.5	6.5				6.5	
Vehicle Extension (s)			2.0			2.0	2.0				2.0	
Lane Grp Cap (vph)			326			344	270				169	
v/s Ratio Prot												
v/s Ratio Perm			c0.21			0.12	0.05				c0.01	
v/c Ratio			0.99			0.55	0.26				0.07	
Uniform Delay, d1			51.2			45.7	42.7				50.4	
Progression Factor			1.00			1.00	1.00				1.00	
Incremental Delay, d2			47.9			1.0	0.2				0.1	
Delay (s)			99.0			46.7	42.9				50.5	
Level of Service			F			D	D				D	
Approach Delay (s)			99.0			44.9					50.5	
Approach LOS			F			D					D	
Intersection Summary												
HCM 2000 Control Delay			44.6			HCM 2000 Level of Service					D	
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				31.0		
Intersection Capacity Utilization			117.7%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	SBL2	SBL	SBT	SBR2	SET	SER	SER2	NWL2	NWL	NWT	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	10	5	0	5	987	5	5	25	65	601	15	5
Future Volume (vph)	10	5	0	5	987	5	5	25	65	601	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			9.5		9.0					9.0		
Lane Util. Factor			1.00		0.95					0.95		
Frpb, ped/bikes			0.99		1.00					1.00		
Flpb, ped/bikes			0.98		1.00					1.00		
Frt			0.97		1.00					1.00		
Flt Protected			0.96		1.00					0.99		
Satd. Flow (prot)			1146		3397					3459		
Flt Permitted			0.76		1.00					0.56		
Satd. Flow (perm)			909		3397					1936		
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	5	0	5	1050	5	5	27	69	639	16	5
RTOR Reduction (vph)	0	0	18	0	0	0	0	0	0	1	0	0
Lane Group Flow (vph)	0	0	3	0	1060	0	0	0	0	755	0	0
Confl. Peds. (#/hr)		14		24		16	9	16	9		18	
Confl. Bikes (#/hr)				2		2	2				1	1
Heavy Vehicles (%)	50%	50%	50%	50%	6%	6%	6%	3%	3%	3%	3%	3%
Turn Type	Perm	Perm	NA		NA			custom	custom	NA		
Protected Phases			4		2					6		
Permitted Phases	4	4						16	16			
Actuated Green, G (s)			19.0		64.5					64.5		
Effective Green, g (s)			16.0		61.5					61.5		
Actuated g/C Ratio			0.12		0.47					0.47		
Clearance Time (s)			6.5		6.0					6.0		
Vehicle Extension (s)			2.0		3.0					2.0		
Lane Grp Cap (vph)			111		1607					915		
v/s Ratio Prot					0.31							
v/s Ratio Perm			0.00							c0.39		
v/c Ratio			0.02		0.66					0.83		
Uniform Delay, d1			50.1		26.2					29.6		
Progression Factor			1.00		1.00					1.23		
Incremental Delay, d2			0.0		2.1					6.6		
Delay (s)			50.2		28.4					43.1		
Level of Service			D		C					D		
Approach Delay (s)			50.2		28.4					43.1		
Approach LOS			D		C					D		
Intersection Summary												

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	15	0	1011	1315	340
Future Vol, veh/h	0	15	0	1011	1315	340
Conflicting Peds, #/hr	31	30	30	0	0	31
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	89	89	89	89	89	89
Heavy Vehicles, %	50	50	6	6	7	7
Mvmt Flow	0	17	0	1136	1478	382
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	991	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.8	-	-	-	-
Pot Cap-1 Maneuver	0	174	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	164	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	29.5	0		0		
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	164	-	-		
HCM Lane V/C Ratio	-	0.103	-	-		
HCM Control Delay (s)	-	29.5	-	-		
HCM Lane LOS	-	D	-	-		
HCM 95th %tile Q(veh)	-	0.3	-	-		

Timings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	←←	→	←←	←←	←	←	←←	→
Traffic Volume (vph)	631	617	259	260	232	120	920	190
Future Volume (vph)	631	617	259	260	232	120	920	190
Turn Type	Prot	NA	NA	custom	Split	NA	Split	NA
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Detector Phase	4	1 4	1	5	3	3	2	2
Switch Phase								
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	19.0		37.0	74.0	37.0	37.0	37.0	37.0
Total Split (%)	14.6%		28.5%	56.9%	28.5%	28.5%	28.5%	28.5%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		5.5	5.5	6.5	6.5	5.5	5.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Recall Mode	None		Min	C-Max	None	None	C-Max	C-Max
Act Effct Green (s)	19.2	57.2	31.5	68.5	23.8	23.8	31.5	31.5
Actuated g/C Ratio	0.15	0.44	0.24	0.53	0.18	0.18	0.24	0.24
v/c Ratio	1.31	0.94	0.33	0.19	0.80	0.22	1.18	1.07
Control Delay	185.2	47.2	41.9	2.0	69.3	42.4	134.9	108.0
Queue Delay	0.0	45.5	0.0	0.0	1.7	0.0	0.0	2.0
Total Delay	185.2	92.7	41.9	2.0	71.1	42.4	134.9	110.0
LOS	F	F	D	A	E	D	F	F
Approach Delay		136.2	21.9			60.8		127.2
Approach LOS		F	C			E		F

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 2 (2%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.31

Intersection Signal Delay: 108.4

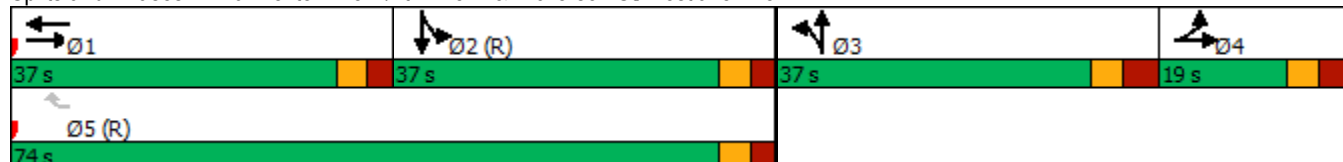
Intersection LOS: F

Intersection Capacity Utilization 92.3%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N



Phasings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	19.0		37.0	74.0	37.0	37.0	37.0	37.0
Total Split (%)	14.6%		28.5%	56.9%	28.5%	28.5%	28.5%	28.5%
Maximum Green (s)	12.5		31.5	68.5	30.5	30.5	31.5	31.5
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2		0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None		Min	C-Max	None	None	C-Max	C-Max
Walk Time (s)			9.0		8.0	8.0	8.0	8.0
Flash Dont Walk (s)			22.0		22.0	22.0	22.0	22.0
Pedestrian Calls (#/hr)			56		12	12	33	33
90th %ile Green (s)	12.5		31.5	68.5	30.5	30.5	31.5	31.5
90th %ile Term Code	Max		Max	Coord	Max	Max	Coord	Coord
70th %ile Green (s)	13.0		31.5	68.5	30.0	30.0	31.5	31.5
70th %ile Term Code	Max		Max	Coord	Ped	Ped	Coord	Coord
50th %ile Green (s)	19.6		31.5	68.5	23.4	23.4	31.5	31.5
50th %ile Term Code	Max		Max	Coord	Gap	Gap	Coord	Coord
30th %ile Green (s)	23.0		31.5	68.5	20.0	20.0	31.5	31.5
30th %ile Term Code	Max		Max	Coord	Gap	Gap	Coord	Coord
10th %ile Green (s)	27.8		31.5	68.5	15.2	15.2	31.5	31.5
10th %ile Term Code	Max		Max	Coord	Gap	Gap	Coord	Coord

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 2 (2%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Control Type: Actuated-Coordinated

Queues

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	657	741	270	271	242	135	958	427
v/c Ratio	1.31	0.94	0.33	0.19	0.80	0.22	1.18	1.07
Control Delay	185.2	47.2	41.9	2.0	69.3	42.4	134.9	108.0
Queue Delay	0.0	45.5	0.0	0.0	1.7	0.0	0.0	2.0
Total Delay	185.2	92.7	41.9	2.0	71.1	42.4	134.9	110.0
Queue Length 50th (ft)	~366	620	99	0	198	49	~496	~371
Queue Length 95th (ft)	m#537	m#875	141	23	277	75	#627	#581
Internal Link Dist (ft)		375	150			693		176
Turn Bay Length (ft)				200				
Base Capacity (vph)	501	792	817	1443	388	770	815	398
Starvation Cap Reductn	0	185	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	52	0	0	2
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.31	1.22	0.33	0.19	0.72	0.18	1.18	1.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.


Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N















2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↱	↱			↰↱	↰↱	↰	↰↱		↰↱	↱	
Traffic Volume (vph)	631	617	94	0	259	260	232	120	10	920	190	220
Future Volume (vph)	631	617	94	0	259	260	232	120	10	920	190	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.94	1.00	1.00		1.00	0.90	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98			1.00	0.85	1.00	0.99		1.00	0.92	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3400	1793			3374	2496	1656	3264		3367	1512	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3400	1793			3374	2496	1656	3264		3367	1512	
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)	657	643	98	0	270	271	242	125	10	958	198	229
RTOR Reduction (vph)	0	4	0	0	0	128	0	5	0	0	32	0
Lane Group Flow (vph)	657	737	0	0	270	143	242	130	0	958	395	0
Confl. Peds. (#/hr)	19		37	37		19	33		12	12		33
Confl. Bikes (#/hr)			12			33			16			155
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	9%	9%	9%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	19.2	57.2			31.5	68.5	23.8	23.8		31.5	31.5	
Effective Green, g (s)	19.2	50.7			31.5	68.5	23.8	23.8		31.5	31.5	
Actuated g/C Ratio	0.15	0.39			0.24	0.53	0.18	0.18		0.24	0.24	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	502	699			817	1315	303	597		815	366	
v/s Ratio Prot	c0.19	c0.41			0.08		c0.15	0.04		c0.28	0.26	
v/s Ratio Perm						0.06						
v/c Ratio	1.31	1.05			0.33	0.11	0.80	0.22		1.18	1.08	
Uniform Delay, d1	55.4	39.6			40.6	15.4	50.8	45.2		49.2	49.2	
Progression Factor	0.75	0.89			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	148.6	43.5			0.1	0.2	12.8	0.1		91.7	70.0	
Delay (s)	190.4	78.7			40.7	15.6	63.6	45.2		140.9	119.3	
Level of Service	F	E			D	B	E	D		F	F	
Approach Delay (s)		131.2			28.1			57.0			134.3	
Approach LOS		F			C			E			F	
Intersection Summary												
HCM 2000 Control Delay			109.7				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.08									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			92.3%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

2035 Alternative 3 PM (with Mitigation Measures)

Timings
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	14	696	30	981	28	8	59	8
Future Volume (vph)	14	696	30	981	28	8	59	8
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	6.5	7.0	6.5	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	22.5	11.0	23.5	25.5	25.5	23.5	23.5
Total Split (s)	11.0	53.0	11.0	53.0	26.0	26.0	26.0	26.0
Total Split (%)	12.2%	58.9%	12.2%	58.9%	28.9%	28.9%	28.9%	28.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
Act Effect Green (s)	65.9	62.0	67.8	66.5		12.3		12.3
Actuated g/C Ratio	0.73	0.69	0.75	0.74		0.14		0.14
v/c Ratio	0.05	0.59	0.07	0.78		0.62		1.01
Control Delay	4.1	12.2	3.1	9.6		15.3		121.0
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	4.1	12.2	3.1	9.6		15.3		121.0
LOS	A	B	A	A		B		F
Approach Delay		12.0		9.4		15.3		121.0
Approach LOS		B		A		B		F

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 19 (21%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 16.4

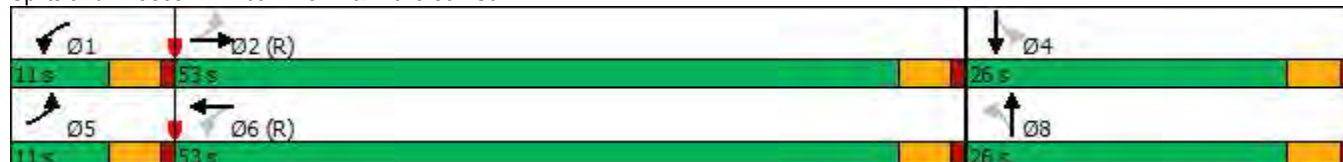
Intersection LOS: B

Intersection Capacity Utilization 80.3%

ICU Level of Service D

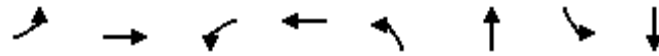
Analysis Period (min) 15

Splits and Phases: 1: 6th Ave W & Nickerson St



Phasings
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Minimum Initial (s)	6.5	7.0	6.5	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	22.5	11.0	23.5	25.5	25.5	23.5	23.5
Total Split (s)	11.0	53.0	11.0	53.0	26.0	26.0	26.0	26.0
Total Split (%)	12.2%	58.9%	12.2%	58.9%	28.9%	28.9%	28.9%	28.9%
Maximum Green (s)	6.5	48.5	6.5	48.5	21.5	21.5	21.5	21.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
Walk Time (s)		7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		5.0		12.0	14.0	14.0	12.0	12.0
Pedestrian Calls (#/hr)		0		0	0	0	0	0
90th %ile Green (s)	6.5	51.0	6.7	51.2	18.8	18.8	18.8	18.8
90th %ile Term Code	Min	Coord	Gap	Coord	Hold	Hold	Gap	Gap
70th %ile Green (s)	0.0	55.2	6.5	66.2	14.8	14.8	14.8	14.8
70th %ile Term Code	Skip	Coord	Min	Coord	Hold	Hold	Gap	Gap
50th %ile Green (s)	0.0	58.0	6.5	69.0	12.0	12.0	12.0	12.0
50th %ile Term Code	Skip	Coord	Min	Coord	Hold	Hold	Gap	Gap
30th %ile Green (s)	0.0	71.9	0.0	71.9	9.1	9.1	9.1	9.1
30th %ile Term Code	Skip	Coord	Skip	Coord	Hold	Hold	Gap	Gap
10th %ile Green (s)	0.0	74.0	0.0	74.0	7.0	7.0	7.0	7.0
10th %ile Term Code	Skip	Coord	Skip	Coord	Min	Min	Hold	Hold

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 19 (21%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Control Type: Actuated-Coordinated

Queues
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	15	744	32	1064	235	107
v/c Ratio	0.05	0.59	0.07	0.78	0.62	1.01
Control Delay	4.1	12.2	3.1	9.6	15.3	121.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.1	12.2	3.1	9.6	15.3	121.0
Queue Length 50th (ft)	2	227	3	166	19	~49
Queue Length 95th (ft)	8	431	m5	m#276	82	#131
Internal Link Dist (ft)		549		657	226	272
Turn Bay Length (ft)	30		30			
Base Capacity (vph)	285	1255	466	1369	517	164
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.59	0.07	0.78	0.45	0.65



















Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	696	10	30	981	29	28	8	188	59	8	35
Future Volume (veh/h)	14	696	10	30	981	29	28	8	188	59	8	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	0.97		0.95	0.97		0.94
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1870	1870	1870	1900	1900	1900	1841	1841	1841
Adj Flow Rate, veh/h	15	733	11	32	1033	31	29	8	198	62	8	37
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	2	2	2	0	0	0	4	4	4
Cap, veh/h	194	1114	17	404	1142	34	68	25	257	168	31	72
Arrive On Green	0.02	0.62	0.62	0.04	0.63	0.63	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1753	1808	27	1781	1804	54	119	127	1320	540	161	371
Grp Volume(v), veh/h	15	0	744	32	0	1064	235	0	0	107	0	0
Grp Sat Flow(s),veh/h/ln	1753	0	1835	1781	0	1859	1567	0	0	1072	0	0
Q Serve(g_s), s	0.3	0.0	23.6	0.6	0.0	44.2	4.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	0.0	23.6	0.6	0.0	44.2	12.6	0.0	0.0	8.3	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.03	0.12		0.84	0.58		0.35
Lane Grp Cap(c), veh/h	194	0	1130	404	0	1177	350	0	0	271	0	0
V/C Ratio(X)	0.08	0.00	0.66	0.08	0.00	0.90	0.67	0.00	0.00	0.39	0.00	0.00
Avail Cap(c_a), veh/h	281	0	1130	462	0	1177	417	0	0	328	0	0
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	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	16.4	0.0	11.2	8.7	0.0	14.2	34.2	0.0	0.0	32.1	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	3.0	0.1	0.0	11.4	3.3	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	0.2	0.0	9.6	0.2	0.0	20.0	5.1	0.0	0.0	2.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.5	0.0	14.2	8.7	0.0	25.6	37.5	0.0	0.0	33.1	0.0	0.0
LnGrp LOS	B	A	B	A	A	C	D	A	A	C	A	A
Approach Vol, veh/h	759			1096			235			107		
Approach Delay, s/veh	14.2			25.1			37.5			33.1		
Approach LOS	B			C			D			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.1	59.9		22.0	6.5	61.5		22.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	48.5		21.5	6.5	48.5		21.5				
Max Q Clear Time (g_c+I1), s	2.6	25.6		10.3	2.3	46.2		14.6				
Green Ext Time (p_c), s	0.0	6.0		0.4	0.0	1.7		0.8				
Intersection Summary												
HCM 6th Ctrl Delay	23.1											
HCM 6th LOS	C											

Intersection

Intersection Delay, s/veh 8.4





Intersection LOS A




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	10	0	5	0	0	0	25	210	0	0	40	10
Future Vol, veh/h	10	0	5	0	0	0	25	210	0	0	40	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	3	3	3
Mvmt Flow	11	0	6	0	0	0	28	233	0	0	44	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.6	0	8.6	7.4
HCM LOS	A	-	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	67%	0%	0%
Vol Thru, %	89%	0%	100%	80%
Vol Right, %	0%	33%	0%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	235	15	0	50
LT Vol	25	10	0	0
Through Vol	210	0	0	40
RT Vol	0	5	0	10
Lane Flow Rate	261	17	0	56
Geometry Grp	1	1	1	1
Degree of Util (X)	0.29	0.021	0	0.063
Departure Headway (Hd)	3.992	4.51	4.599	4.055
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	901	798	0	876
Service Time	2.016	2.51	2.6	2.116
HCM Lane V/C Ratio	0.29	0.021	0	0.064
HCM Control Delay	8.6	7.6	7.6	7.4
HCM Lane LOS	A	A	N	A
HCM 95th-tile Q	1.2	0.1	0	0.2





















Intersection												
Int Delay, s/veh	5.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	193	80	0	15	169	36	0	6	35	12	14	24
Future Vol, veh/h	193	80	0	15	169	36	0	6	35	12	14	24
Conflicting Peds, #/hr	13	0	49	60	0	24	49	0	60	24	0	13
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	0	0	0	0	0	0	2	2	2
Mvmt Flow	199	82	0	15	174	37	0	6	36	12	14	25
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	235	0	0	142	0	0	831	805	202	808	787	266
Stage 1	-	-	-	-	-	-	540	540	-	247	247	-
Stage 2	-	-	-	-	-	-	291	265	-	561	540	-
Critical Hdwy	4.11	-	-	4.1	-	-	7.1	6.5	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Follow-up Hdwy	2.209	-	-	2.2	-	-	3.5	4	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1338	-	-	1453	-	-	291	318	844	299	324	773
Stage 1	-	-	-	-	-	-	530	524	-	757	702	-
Stage 2	-	-	-	-	-	-	721	693	-	512	521	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1307	-	-	1370	-	-	210	243	750	224	248	720
Mov Cap-2 Maneuver	-	-	-	-	-	-	210	243	-	224	248	-
Stage 1	-	-	-	-	-	-	420	415	-	621	677	-
Stage 2	-	-	-	-	-	-	642	669	-	380	413	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	5.8			0.5			11.8			17.1		
HCM LOS							B			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	575	1307	-	-	1370	-	-	349				
HCM Lane V/C Ratio	0.074	0.152	-	-	0.011	-	-	0.148				
HCM Control Delay (s)	11.8	8.2	0	-	7.7	0	-	17.1				
HCM Lane LOS	B	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	0.2	0.5	-	-	0	-	-	0.5				

Intersection												
Intersection Delay, s/veh	7.3											
Intersection LOS	A											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	37	16	7	59	0	11	0	2	0	0	0
Future Vol, veh/h	0	37	16	7	59	0	11	0	2	0	0	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	42	18	8	67	0	13	0	2	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB		WB		NB		SB					
Opposing Approach	WB		EB		SB		NB					
Opposing Lanes	1		1		1		1					
Conflicting Approach Left	SB		NB		EB		WB					
Conflicting Lanes Left	1		1		1		1					
Conflicting Approach Right	NB		SB		WB		EB					
Conflicting Lanes Right	1		1		1		1					
HCM Control Delay	7.1		7.4		7.3		0					
HCM LOS	A		A		A		-					
Lane	NBLn1	EBLn1	WBLn1	SBLn1								
Vol Left, %	85%	0%	11%	0%								
Vol Thru, %	0%	70%	89%	100%								
Vol Right, %	15%	30%	0%	0%								
Sign Control	Stop	Stop	Stop	Stop								
Traffic Vol by Lane	13	53	66	0								
LT Vol	11	0	7	0								
Through Vol	0	37	59	0								
RT Vol	2	16	0	0								
Lane Flow Rate	15	60	75	0								
Geometry Grp	1	1	1	1								
Degree of Util (X)	0.017	0.064	0.083	0								
Departure Headway (Hd)	4.211	3.8	3.992	4.146								
Convergence, Y/N	Yes	Yes	Yes	Yes								
Cap	845	943	899	0								
Service Time	2.261	1.822	2.008	2.2								
HCM Lane V/C Ratio	0.018	0.064	0.083	0								
HCM Control Delay	7.3	7.1	7.4	7.2								
HCM Lane LOS	A	A	A	N								
HCM 95th-tile Q	0.1	0.2	0.3	0								

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	132	225	0	0	0
Future Vol, veh/h	0	132	225	0	0	0
Conflicting Peds, #/hr	6	0	0	235	235	6
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	95	95	95	95	95	95
Heavy Vehicles, %	1	1	0	0	0	0
Mvmt Flow	0	139	237	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	472	0	-	0	846	478
Stage 1	-	-	-	-	472	-
Stage 2	-	-	-	-	374	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1095	-	-	-	335	591
Stage 1	-	-	-	-	632	-
Stage 2	-	-	-	-	700	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	850	-	-	-	202	456
Mov Cap-2 Maneuver	-	-	-	-	202	-
Stage 1	-	-	-	-	490	-
Stage 2	-	-	-	-	543	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	850	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	-	0
HCM Lane LOS	A	-	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-	-

Timings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	30	788	148	200	883	55	208	40	35	30
Future Volume (vph)	30	788	148	200	883	55	208	40	35	30
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	6.5	7.0	7.0	6.5	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	25.0	25.0	11.0	25.0	25.0	27.5	27.5	27.5	27.5
Total Split (s)	11.0	50.0	50.0	12.0	51.0	51.0	28.0	28.0	28.0	28.0
Total Split (%)	12.2%	55.6%	55.6%	13.3%	56.7%	56.7%	31.1%	31.1%	31.1%	31.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0		3.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	7.5	7.5		7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effect Green (s)	52.0	45.5	45.5	55.5	51.0	51.0	20.4	20.4		20.4
Actuated g/C Ratio	0.58	0.51	0.51	0.62	0.57	0.57	0.23	0.23		0.23
v/c Ratio	0.15	0.89	0.21	0.93	0.89	0.07	0.95	0.11		0.27
Control Delay	10.7	35.9	6.9	48.4	33.0	6.2	84.0	28.0		26.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	10.7	35.9	6.9	48.4	33.0	6.2	84.0	28.0		26.1
LOS	B	D	A	D	C	A	F	C		C
Approach Delay		30.7			34.4			74.8		26.1
Approach LOS		C			C			E		C

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 36.8

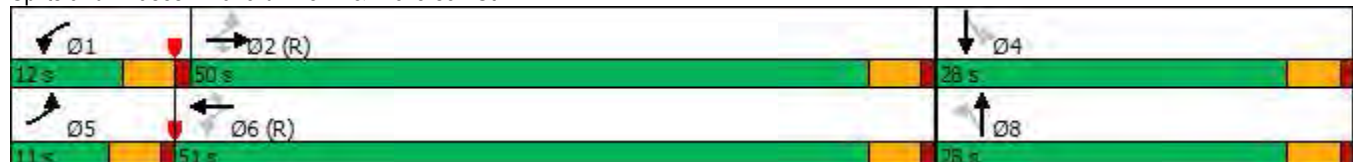
Intersection LOS: D

Intersection Capacity Utilization 85.4%

ICU Level of Service E











Analysis Period (min) 15

Splits and Phases: 6: 3rd Ave W & Nickerson St



Phasings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Minimum Initial (s)	6.5	7.0	7.0	6.5	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	25.0	25.0	11.0	25.0	25.0	27.5	27.5	27.5	27.5
Total Split (s)	11.0	50.0	50.0	12.0	51.0	51.0	28.0	28.0	28.0	28.0
Total Split (%)	12.2%	55.6%	55.6%	13.3%	56.7%	56.7%	31.1%	31.1%	31.1%	31.1%
Maximum Green (s)	6.5	45.5	45.5	7.5	46.5	46.5	23.5	23.5	23.5	23.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	1.0	0.2	0.2	1.0	0.2	0.2	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)		50	50		28	28	83	83	160	160
90th %ile Green (s)	6.5	45.5	45.5	7.5	46.5	46.5	23.5	23.5	23.5	23.5
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Max	Hold	Hold
70th %ile Green (s)	6.5	45.5	45.5	7.5	46.5	46.5	23.5	23.5	23.5	23.5
70th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Max	Hold	Hold
50th %ile Green (s)	6.5	45.5	45.5	7.5	46.5	46.5	23.5	23.5	23.5	23.5
50th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Max	Hold	Hold
30th %ile Green (s)	0.0	45.5	45.5	7.5	57.5	57.5	23.5	23.5	23.5	23.5
30th %ile Term Code	Skip	Coord	Coord	Max	Coord	Coord	Max	Max	Hold	Hold
10th %ile Green (s)	0.0	45.5	45.5	8.0	58.0	58.0	23.0	23.0	23.0	23.0
10th %ile Term Code	Skip	Coord	Coord	Max	Coord	Coord	Hold	Hold	Ped	Ped

Intersection Summary

Cycle Length: 90










Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Control Type: Actuated-Coordinated

Queues
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

									
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	32	847	159	215	949	59	224	44	92
v/c Ratio	0.15	0.89	0.21	0.93	0.89	0.07	0.95	0.11	0.27
Control Delay	10.7	35.9	6.9	48.4	33.0	6.2	84.0	28.0	26.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.7	35.9	6.9	48.4	33.0	6.2	84.0	28.0	26.1
Queue Length 50th (ft)	8	372	4	95	459	4	126	19	35
Queue Length 95th (ft)	m17	#659	m65	m#104	m#635	m6	#267	47	78
Internal Link Dist (ft)		79			214			74	171
Turn Bay Length (ft)	100			135		215			
Base Capacity (vph)	212	950	771	231	1065	855	237	406	344
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.89	0.21	0.93	0.89	0.07	0.95	0.11	0.27

Intersection Summary
























95th percentile volume exceeds capacity, queue may be longer.




Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary 6: 3rd Ave W & Nickerson St




2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	788	148	200	883	55	208	40	1	35	30	20
Future Volume (veh/h)	30	788	148	200	883	55	208	40	1	35	30	20
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		0.93	0.81		0.80	0.83		0.80
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1811	1811	1811	1900	1900	1900
Adj Flow Rate, veh/h	32	847	159	215	949	59	224	43	1	38	32	22
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	6	6	6	0	0	0
Cap, veh/h	213	984	794	290	1052	833	325	383	9	165	127	74
Arrive On Green	0.04	0.52	0.52	0.08	0.56	0.56	0.22	0.22	0.25	0.25	0.22	0.25
Sat Flow, veh/h	1795	1885	1521	1795	1885	1492	1063	1751	41	495	579	337
Grp Volume(v), veh/h	32	847	159	215	949	59	224	0	44	92	0	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1521	1795	1885	1492	1063	0	1792	1411	0	0
Q Serve(g_s), s	0.7	35.1	5.0	4.8	40.3	1.6	14.3	0.0	1.8	1.3	0.0	0.0
Cycle Q Clear(g_c), s	0.7	35.1	5.0	4.8	40.3	1.6	17.5	0.0	1.8	4.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.02	0.41		0.24
Lane Grp Cap(c), veh/h	213	984	794	290	1052	833	325	0	392	412	0	0
V/C Ratio(X)	0.15	0.86	0.20	0.74	0.90	0.07	0.69	0.00	0.11	0.22	0.00	0.00
Avail Cap(c_a), veh/h	272	984	794	304	1052	833	334	0	408	425	0	0
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.9	18.7	11.5	18.5	17.7	9.2	33.9	0.0	28.1	28.2	0.0	0.0
Incr Delay (d2), s/veh	0.1	9.8	0.6	7.6	12.3	0.2	4.7	0.0	0.0	0.1	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	0.3	17.0	1.8	2.9	19.6	0.6	5.1	0.0	0.8	1.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.0	28.4	12.0	26.2	30.0	9.3	38.6	0.0	28.2	28.3	0.0	0.0
LnGrp LOS	B	C	B	C	C	A	D	A	C	C	A	A
Approach Vol, veh/h	1038			1223			268			92		
Approach Delay, s/veh	25.6			28.3			36.9			28.3		
Approach LOS	C			C			D			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.3	51.5		27.2	8.1	54.7		27.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	7.5	45.5		23.5	6.5	46.5		23.5				
Max Q Clear Time (g_c+I1), s	6.8	37.1		6.2	2.7	42.3		20.5				
Green Ext Time (p_c), s	0.0	1.0		0.3	0.0	0.8		0.2				
Intersection Summary												
HCM 6th Ctrl Delay	28.1											
HCM 6th LOS	C											

Intersection												
Int Delay, s/veh	4.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	130	0	0	0	88	246	70	5	235	139
Future Vol, veh/h	0	0	130	0	0	0	88	246	70	5	235	139
Conflicting Peds, #/hr	87	0	181	149	0	55	181	0	149	55	0	87
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	0	0	0
Mvmt Flow	0	0	135	0	0	0	92	256	73	5	245	145
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	-	-	680				571	0	0	478	0	0
Stage 1	-	-	-				-	-	-	-	-	-
Stage 2	-	-	-				-	-	-	-	-	-
Critical Hdwy	-	-	6.2				4.13	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-				-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-				-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3				2.227	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	454				997	-	-	1095	-	-
Stage 1	0	0	-				-	-	-	-	-	-
Stage 2	0	0	-				-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	0	311				825	-	-	1095	-	-
Mov Cap-2 Maneuver	-	0	-				-	-	-	-	-	-
Stage 1	-	0	-				-	-	-	-	-	-
Stage 2	-	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	25.2						2.2			0.1		
HCM LOS	D											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR					
Capacity (veh/h)	825	-	-	311	1095	-	-					
HCM Lane V/C Ratio	0.111	-	-	0.435	0.005	-	-					
HCM Control Delay (s)	9.9	0	-	25.2	8.3	0	-					
HCM Lane LOS	A	A	-	D	A	A	-					
HCM 95th %tile Q(veh)	0.4	-	-	2.1	0	-	-					

Intersection

Int Delay, s/veh 3.5




Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	46	361	55	72	294
Future Vol, veh/h	35	46	361	55	72	294
Conflicting Peds, #/hr	126	40	0	126	40	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	93	93	93	93	93	93
Heavy Vehicles, %	8	8	4	4	0	0
Mvmt Flow	38	49	388	59	77	316

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1140	584	0
Stage 1	544	-	-
Stage 2	596	-	-
Critical Hdwy	6.48	6.28	-
Critical Hdwy Stg 1	5.48	-	-
Critical Hdwy Stg 2	5.48	-	-
Follow-up Hdwy	3.572	3.372	-
Pot Cap-1 Maneuver	216	500	-
Stage 1	570	-	-
Stage 2	539	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	150	423	-
Mov Cap-2 Maneuver	150	-	-
Stage 1	502	-	-
Stage 2	425	-	-

Approach	WB	NB	SB
HCM Control Delay, s	28.8	0	1.9
HCM LOS	D		















Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	237	889
HCM Lane V/C Ratio	-	-	0.367	0.087
HCM Control Delay (s)	-	-	28.8	9.4
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	1.6	0.3

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	88	5	85	10	333	98	49	270	10
Future Vol, veh/h	0	0	0	88	5	85	10	333	98	49	270	10
Conflicting Peds, #/hr	71	0	37	14	0	48	37	0	14	48	0	71
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	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	4	4	4	2	2	2
Mvmt Flow	0	0	0	90	5	87	10	340	100	50	276	10
Major/Minor				Minor1		Major1		Major2				
Conflicting Flow All				853	915	486	357	0	0	488	0	0
Stage 1				458	458	-	-	-	-	-	-	-
Stage 2				395	457	-	-	-	-	-	-	-
Critical Hdwy				6.4	6.5	6.2	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1				5.4	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.4	5.5	-	-	-	-	-	-	-
Follow-up Hdwy				3.5	4	3.3	2.236	-	-	2.218	-	-
Pot Cap-1 Maneuver				332	275	585	1191	-	-	1075	-	-
Stage 1				641	570	-	-	-	-	-	-	-
Stage 2				685	571	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver				291	0	533	1191	-	-	1026	-	-
Mov Cap-2 Maneuver				291	0	-	-	-	-	-	-	-
Stage 1				605	0	-	-	-	-	-	-	-
Stage 2				636	0	-	-	-	-	-	-	-
Approach				WB		NB		SB				
HCM Control Delay, s				23.3		0.2		1.3				
HCM LOS				C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1191	-	-	375	1026	-	-					
HCM Lane V/C Ratio	0.009	-	-	0.484	0.049	-	-					
HCM Control Delay (s)	8	0	-	23.3	8.7	0	-					
HCM Lane LOS	A	A	-	C	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	2.5	0.2	-	-					

Intersection						
Int Delay, s/veh	3.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	89	35	26	354	293	66
Future Vol, veh/h	89	35	26	354	293	66
Conflicting Peds, #/hr	20	20	20	0	0	20
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	94	94	94	94	94	94
Heavy Vehicles, %	0	0	5	5	2	2
Mvmt Flow	95	37	28	377	312	70
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	820	387	402	0	-	0
Stage 1	367	-	-	-	-	-
Stage 2	453	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.15	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.245	-	-	-
Pot Cap-1 Maneuver	347	665	1141	-	-	-
Stage 1	705	-	-	-	-	-
Stage 2	645	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	323	640	1119	-	-	-
Mov Cap-2 Maneuver	323	-	-	-	-	-
Stage 1	670	-	-	-	-	-
Stage 2	633	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	19.7	0.6		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1119	-	375	-	-	
HCM Lane V/C Ratio	0.025	-	0.352	-	-	
HCM Control Delay (s)	8.3	0	19.7	-	-	
HCM Lane LOS	A	A	C	-	-	
HCM 95th %tile Q(veh)	0.1	-	1.5	-	-	

Timings
11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

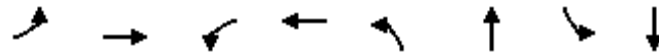
								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	837	21	1091	34	0	10	5
Future Volume (vph)	30	837	21	1091	34	0	10	5
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Detector Phase	2	2	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	22.5	22.5	24.5	24.5	24.5	24.5
Total Split (s)	65.0	65.0	65.0	65.0	25.0	25.0	25.0	25.0
Total Split (%)	72.2%	72.2%	72.2%	72.2%	27.8%	27.8%	27.8%	27.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
Act Effct Green (s)	60.5	60.5	60.5	60.5		20.5		20.5
Actuated g/C Ratio	0.67	0.67	0.67	0.67		0.23		0.23
v/c Ratio	0.39	0.74	0.10	0.93		0.37		0.15
Control Delay	14.3	7.2	6.4	28.3		13.9		13.6
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	14.3	7.2	6.4	28.3		13.9		13.6
LOS	B	A	A	C		B		B
Approach Delay		7.4		27.9		13.9		13.6
Approach LOS		A		C		B		B
Intersection Summary								
Cycle Length: 90								
Actuated Cycle Length: 90								
Offset: 8 (9%), Referenced to phase 2:EBWB, Start of 1st Green								
Natural Cycle: 90								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.93								
Intersection Signal Delay: 18.4					Intersection LOS: B			
Intersection Capacity Utilization 82.5%					ICU Level of Service E			
Analysis Period (min) 15								

Splits and Phases: 11: W Cremona St & Nickerson St



Phasings
11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	22.5	22.5	24.5	24.5	24.5	24.5
Total Split (s)	65.0	65.0	65.0	65.0	25.0	25.0	25.0	25.0
Total Split (%)	72.2%	72.2%	72.2%	72.2%	27.8%	27.8%	27.8%	27.8%
Maximum Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	6.0	6.0	6.0	6.0	13.0	13.0	13.0	13.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0
90th %ile Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
90th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	MaxR	MaxR
70th %ile Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
70th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	MaxR	MaxR
50th %ile Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
50th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	MaxR	MaxR
30th %ile Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
30th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	MaxR	MaxR
10th %ile Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
10th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	MaxR	MaxR

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 8 (9%), Referenced to phase 2:EBWB, Start of 1st Green

Control Type: Actuated-Coordinated

Queues
11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	32	922	22	1177	140	59
v/c Ratio	0.39	0.74	0.10	0.93	0.37	0.15
Control Delay	14.3	7.2	6.4	28.3	13.9	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.3	7.2	6.4	28.3	13.9	13.6
Queue Length 50th (ft)	2	73	4	516	16	7
Queue Length 95th (ft)	m3	m103	13	#900	m62	38
Internal Link Dist (ft)		409		773	14	101
Turn Bay Length (ft)	30		30			
Base Capacity (vph)	82	1242	229	1261	382	384
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.74	0.10	0.93	0.37	0.15

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.



















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	837	30	21	1091	15	34	0	98	10	5	40
Future Volume (vph)	30	837	30	21	1091	15	34	0	98	10	5	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			4.5			4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.93			0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.98			0.99	
Frt	1.00	0.99		1.00	1.00			0.90			0.90	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1845		1787	1875			1425			1614	
Flt Permitted	0.07	1.00		0.18	1.00			0.92			0.95	
Satd. Flow (perm)	123	1845		343	1875			1325			1542	
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)	32	890	32	22	1161	16	36	0	104	11	5	43
RTOR Reduction (vph)	0	1	0	0	1	0	0	80	0	0	33	0
Lane Group Flow (vph)	32	921	0	22	1176	0	0	60	0	0	26	0
Confl. Peds. (#/hr)	17		29	36		24	29		36	24		17
Confl. Bikes (#/hr)			3			3						
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	8%	8%	8%	0%	0%	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)	60.5	60.5		60.5	60.5			20.5			20.5	
Effective Green, g (s)	60.5	60.5		60.5	60.5			20.5			20.5	
Actuated g/C Ratio	0.67	0.67		0.67	0.67			0.23			0.23	
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)	82	1240		230	1260			301			351	
v/s Ratio Prot		0.50			c0.63							
v/s Ratio Perm	0.26			0.06				c0.05			0.02	
v/c Ratio	0.39	0.74		0.10	0.93			0.20			0.07	
Uniform Delay, d1	6.6	9.7		5.2	13.0			28.1			27.3	
Progression Factor	0.63	0.46		1.00	1.00			1.11			1.00	
Incremental Delay, d2	8.0	2.4		0.8	13.8			1.5			0.4	
Delay (s)	12.2	6.9		6.0	26.7			32.6			27.7	
Level of Service	B	A		A	C			C			C	
Approach Delay (s)		7.1			26.4			32.6			27.7	
Approach LOS		A			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			18.9			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			82.5%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Int Delay, s/veh 5.7

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 92 29 29 45 30 26

Future Vol, veh/h 92 29 29 45 30 26

Conflicting Peds, #/hr 43 51 51 0 0 43

Sign Control Free Free Stop Stop Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 1 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 93 93 93 93 93 93

Heavy Vehicles, % 5 5 0 0 11 11

Mvmt Flow 99 31 31 48 32 28

Major/Minor Minor2 Major2

Conflicting Flow All 140 89 - 0

Stage 1 89 89 - -

Stage 2 51 0 - -

Critical Hdwy 6.4 6.5 - -

Critical Hdwy Stg 1 5.4 5.5 - -

Critical Hdwy Stg 2 - - - -

Follow-up Hdwy 3.5 4 - -

Pot Cap-1 Maneuver 858 805 - -

Stage 1 940 825 - -

Stage 2 - - - -

Platoon blocked, % - -

Mov Cap-1 Maneuver 789 0 - -

Mov Cap-2 Maneuver 789 0 - -

Stage 1 901 0 - -

Stage 2 - 0 - -

Approach NB SB

HCM Control Delay, s 10.1 0

HCM LOS B

Minor Lane/Major Mvmt NBLn1 SBT SBR

Capacity (veh/h) 789 - -

HCM Lane V/C Ratio 0.101 - -

HCM Control Delay (s) 10.1 - -

HCM Lane LOS B - -



















HCM 95th %tile Q(veh) 0.3 - -

Timings

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour

												
Lane Group	EBL2	EBT	WBL2	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SEL	SET
Lane Configurations												
Traffic Volume (vph)	5	0	5	5	215	420	25	5	40	5	5	990
Future Volume (vph)	5	0	5	5	215	420	25	5	40	5	5	990
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases		3			3			4		4		2
Permitted Phases	3		3	3		3	4		4		2	
Detector Phase	3	3	3	3	3	3	4	4	4	4	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	22.0	22.0
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	29.0	29.0	29.0	29.0	63.0	63.0
Total Split (%)	26.4%	26.4%	26.4%	26.4%	26.4%	26.4%	20.7%	20.7%	20.7%	20.7%	45.0%	45.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.0
Lost Time Adjust (s)		0.0			0.0	0.0		3.0		3.0		3.0
Total Lost Time (s)		6.5			6.5	6.5		9.5		9.5		9.0
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	C-Max	C-Max
Act Effect Green (s)		30.5			30.5	30.5		19.0		19.0		65.5
Actuated g/C Ratio		0.22			0.22	0.22		0.14		0.14		0.47
v/c Ratio		0.82			1.06	1.10		0.36		0.35		0.70
Control Delay		77.8			117.1	111.5		10.5		58.5		32.4
Queue Delay		14.4			0.0	0.0		0.0		0.0		0.1
Total Delay		92.2			117.1	111.5		10.5		58.5		32.5
LOS		F			F	F		B		E		C
Approach Delay		92.2			114.5			10.5		58.5		32.5
Approach LOS		F			F			B		E		C

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 112 (80%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 75.3

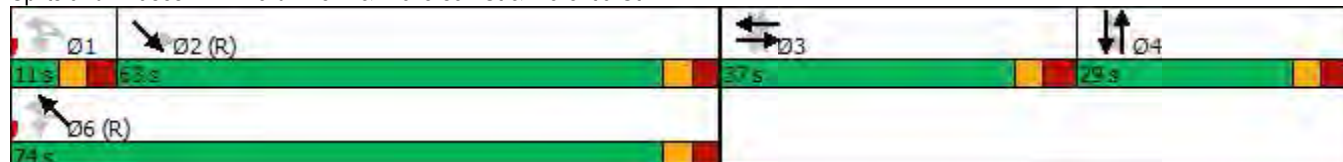
Intersection LOS: E

Intersection Capacity Utilization 124.5%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 14: 3rd Ave N & Nickerson St & Florentia St



Timings
14: 3rd Ave N & Nickerson St & Florentia St













2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	NWL2	NWL	NWT	Ø1
Lane Configurations				
Traffic Volume (vph)	15	75	760	
Future Volume (vph)	15	75	760	
Turn Type	custom	custom	NA	
Protected Phases			6	1
Permitted Phases	1 6	1 6		
Detector Phase	1 6	1 6	6	
Switch Phase				
Minimum Initial (s)			7.0	5.0
Minimum Split (s)			24.0	11.0
Total Split (s)			74.0	11.0
Total Split (%)			52.9%	8%
Yellow Time (s)			3.0	3.0
All-Red Time (s)			3.0	3.0
Lost Time Adjust (s)			3.0	
Total Lost Time (s)			9.0	
Lead/Lag				Lead
Lead-Lag Optimize?				Yes
Recall Mode			C-Max	None
Act Effct Green (s)			65.5	
Actuated g/C Ratio			0.47	
v/c Ratio			1.00	
Control Delay			65.4	
Queue Delay			35.6	
Total Delay			101.0	
LOS			F	
Approach Delay			101.0	
Approach LOS			F	
Intersection Summary				

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Lane Group	EBL2	EBT	WBL2	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SEL	SET
Protected Phases	3			3			4			4		2
Permitted Phases	3		3	3	3	3	4		4		2	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	22.0	22.0
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	29.0	29.0	29.0	29.0	63.0	63.0
Total Split (%)	26.4%	26.4%	26.4%	26.4%	26.4%	26.4%	20.7%	20.7%	20.7%	20.7%	45.0%	45.0%
Maximum Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.5	22.5	22.5	22.5	57.0	57.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.0
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (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
Time To Reduce (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
Recall Mode	None	None	None	None	None	None	None	None	None	None	C-Max	C-Max
Walk Time (s)							8.0	8.0	8.0	8.0	7.0	7.0
Flash Dont Walk (s)							14.0	14.0	14.0	14.0	9.0	9.0
Pedestrian Calls (#/hr)							81	81	81	81	75	75
90th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
70th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
70th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
50th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
50th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
30th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
30th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
10th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
10th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 112 (80%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Control Type: Actuated-Coordinated

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	NWL2	NWL	NWT	Ø1
Protected Phases			6	1
Permitted Phases	1 6	1 6		
Minimum Initial (s)			7.0	5.0
Minimum Split (s)			24.0	11.0
Total Split (s)			74.0	11.0
Total Split (%)			52.9%	8%
Maximum Green (s)			68.0	5.0
Yellow Time (s)			3.0	3.0
All-Red Time (s)			3.0	3.0
Lead/Lag				Lead
Lead-Lag Optimize?				Yes
Vehicle Extension (s)			2.0	2.0
Minimum Gap (s)			0.2	0.2
Time Before Reduce (s)			0.0	0.0
Time To Reduce (s)			0.0	0.0
Recall Mode			C-Max	None
Walk Time (s)			7.0	
Flash Dont Walk (s)			9.0	
Pedestrian Calls (#/hr)			174	
90th %ile Green (s)			68.5	0.0
90th %ile Term Code			Coord	Skip
70th %ile Green (s)			68.5	0.0
70th %ile Term Code			Coord	Skip
50th %ile Green (s)			68.5	0.0
50th %ile Term Code			Coord	Skip
30th %ile Green (s)			68.5	0.0
30th %ile Term Code			Coord	Skip
10th %ile Green (s)			68.5	0.0
10th %ile Term Code			Coord	Skip
Intersection Summary				

Queues

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT	SET	NWT
Lane Group Flow (vph)	201	372	334	108	58	1091	924
v/c Ratio	0.82	1.06	1.10	0.36	0.35	0.70	1.00
Control Delay	77.8	117.1	111.5	10.5	58.5	32.4	65.4
Queue Delay	14.4	0.0	0.0	0.0	0.0	0.1	35.6
Total Delay	92.2	117.1	111.5	10.5	58.5	32.5	101.0
Queue Length 50th (ft)	176	~391	~265	0	46	404	~455
Queue Length 95th (ft)	#309	#606	#472	46	94	486	#596
Internal Link Dist (ft)	413	299		354	158	814	375
Turn Bay Length (ft)							
Base Capacity (vph)	246	350	305	302	171	1567	926
Starvation Cap Reductn	0	0	0	0	0	0	104
Spillback Cap Reductn	34	0	0	5	0	47	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	1.06	1.10	0.36	0.34	0.72	1.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

















95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL2	EBT	EBR	WBL2	WBL	WBT	WBR	WBR2	NBL	NBT	NBR2	SBL
Lane Configurations												
Traffic Volume (vph)	5	0	180	5	5	215	420	5	25	5	70	40
Future Volume (vph)	5	0	180	5	5	215	420	5	25	5	70	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5				6.5	6.5			9.5		
Lane Util. Factor		1.00				0.95	0.95			1.00		
Frpb, ped/bikes		0.94				0.96	0.64			0.94		
Flpb, ped/bikes		1.00				1.00	1.00			0.98		
Frt		0.87				0.95	0.85			0.91		
Flt Protected		1.00				1.00	1.00			0.99		
Satd. Flow (prot)		1546				1626	967			1570		
Flt Permitted		0.73				0.99	1.00			0.90		
Satd. Flow (perm)		1133				1611	967			1425		
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)	5	0	196	5	5	234	457	5	27	5	76	43
RTOR Reduction (vph)	0	0	0	0	0	0	95	0	0	93	0	0
Lane Group Flow (vph)	0	201	0	0	0	372	239	0	0	15	0	0
Confl. Peds. (#/hr)	44		37	37	44		44	67	44		37	37
Confl. Bikes (#/hr)			1				37	37				
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	0%	0%	0%	2%
Turn Type	Perm	NA		Perm	Perm	NA	Perm		Perm	NA		Perm
Protected Phases		3				3				4		
Permitted Phases	3			3	3		3		4			4
Actuated Green, G (s)		30.5				30.5	30.5			22.0		
Effective Green, g (s)		30.5				30.5	30.5			19.0		
Actuated g/C Ratio		0.22				0.22	0.22			0.14		
Clearance Time (s)		6.5				6.5	6.5			6.5		
Vehicle Extension (s)		2.0				2.0	2.0			2.0		
Lane Grp Cap (vph)		246				350	210			193		
v/s Ratio Prot												
v/s Ratio Perm		0.18				0.23	0.25			0.01		
v/c Ratio		0.82				1.06	1.14			0.08		
Uniform Delay, d1		52.1				54.8	54.8			52.8		
Progression Factor		1.00				1.00	1.00			1.00		
Incremental Delay, d2		17.7				65.7	104.8			0.1		
Delay (s)		69.8				120.5	159.6			52.9		
Level of Service		E				F	F			D		
Approach Delay (s)		69.8				139.0				52.9		
Approach LOS		E				F				D		
Intersection Summary												
HCM 2000 Control Delay			70.2			HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				31.0		
Intersection Capacity Utilization			124.5%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

	↓	↙	↘	↗	↖	↗	↖	↘	↙	↗
Movement	SBT	SBR	SBR2	SEL	SET	SER	SER2	NWL2	NWL	NWT
Lane Configurations	↕				↕					↕
Traffic Volume (vph)	5	5	5	5	990	5	5	15	75	760
Future Volume (vph)	5	5	5	5	990	5	5	15	75	760
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.5				9.0					9.0
Lane Util. Factor	1.00				0.95					0.95
Frpb, ped/bikes	0.97				1.00					1.00
Flpb, ped/bikes	0.96				1.00					1.00
Frt	0.98				1.00					1.00
Flt Protected	0.96				1.00					0.99
Satd. Flow (prot)	1629				3522					3555
Flt Permitted	0.72				0.95					0.55
Satd. Flow (perm)	1214				3349					1980
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	5	5	5	1076	5	5	16	82	826
RTOR Reduction (vph)	3	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	55	0	0	0	1091	0	0	0	0	924
Confl. Peds. (#/hr)		31	44	107		44	31	44	31	
Confl. Bikes (#/hr)		11	11			2	2			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	NA			Perm	NA			custom	custom	NA
Protected Phases	4				2					6
Permitted Phases				2				1 6	1 6	
Actuated Green, G (s)	22.0				68.5					68.5
Effective Green, g (s)	19.0				65.5					65.5
Actuated g/C Ratio	0.14				0.47					0.47
Clearance Time (s)	6.5				6.0					6.0
Vehicle Extension (s)	2.0				3.0					2.0
Lane Grp Cap (vph)	164				1566					926
v/s Ratio Prot										
v/s Ratio Perm	c0.05				0.33					c0.47
v/c Ratio	0.34				0.70					1.00
Uniform Delay, d1	54.8				29.4					37.2
Progression Factor	1.00				1.00					1.08
Incremental Delay, d2	0.4				2.6					25.6
Delay (s)	55.2				32.0					65.7
Level of Service	E				C					E
Approach Delay (s)	55.2				32.0					65.7
Approach LOS	E				C					E
Intersection Summary										

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	5	0	1970	540	645
Future Vol, veh/h	0	5	0	1970	540	645
Conflicting Peds, #/hr	75	74	74	0	0	75
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	97	97	97	97	97	97
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	0	5	0	2031	557	665
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	760	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	353	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	305	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	17	0		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	305	-	-		
HCM Lane V/C Ratio	-	0.017	-	-		
HCM Control Delay (s)	-	17	-	-		
HCM Lane LOS	-	C	-	-		
HCM 95th %tile Q(veh)	-	0.1	-	-		

Timings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	←←	→	←←	←←	←	←→	←←	→
Traffic Volume (vph)	855	268	517	790	223	330	320	115
Future Volume (vph)	855	268	517	790	223	330	320	115
Turn Type	Prot	NA	NA	custom	Split	NA	Split	NA
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Detector Phase	4	1 4	1	5	3	3	2	2
Switch Phase								
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	30.0		37.0	73.0	37.0	37.0	36.0	36.0
Total Split (%)	21.4%		26.4%	52.1%	26.4%	26.4%	25.7%	25.7%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		5.5	5.5	6.5	6.5	5.5	5.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Recall Mode	None		Max	C-Max	None	None	C-Max	C-Max
Act Effect Green (s)	26.9	64.9	31.5	67.5	27.1	27.1	30.5	30.5
Actuated g/C Ratio	0.19	0.46	0.22	0.48	0.19	0.19	0.22	0.22
v/c Ratio	1.34	0.55	0.68	0.86	0.68	0.51	0.45	0.64
Control Delay	200.8	52.1	54.6	39.5	62.2	52.5	49.9	51.3
Queue Delay	0.0	8.2	1.3	0.0	0.0	0.0	0.0	92.1
Total Delay	200.8	60.2	55.8	39.5	62.2	52.5	49.9	143.4
LOS	F	E	E	D	E	D	D	F
Approach Delay		153.6	46.0			56.4		89.0
Approach LOS		F	D			E		F

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 89 (64%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.34

Intersection Signal Delay: 91.4

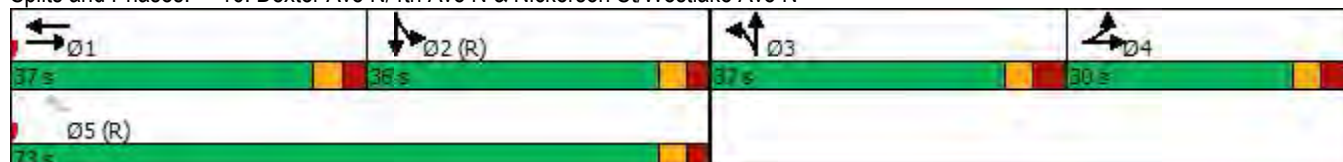
Intersection LOS: F

Intersection Capacity Utilization 107.6%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N



Phasings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	30.0		37.0	73.0	37.0	37.0	36.0	36.0
Total Split (%)	21.4%		26.4%	52.1%	26.4%	26.4%	25.7%	25.7%
Maximum Green (s)	23.5		31.5	67.5	30.5	30.5	30.5	30.5
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2		0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None		Max	C-Max	None	None	C-Max	C-Max
Walk Time (s)			9.0		8.0	8.0	8.0	8.0
Flash Dont Walk (s)			22.0		22.0	22.0	22.0	22.0
Pedestrian Calls (#/hr)			46		48	48	17	17
90th %ile Green (s)	23.5		31.5	67.5	30.5	30.5	30.5	30.5
90th %ile Term Code	Max		MaxR	Coord	Max	Max	Coord	Coord
70th %ile Green (s)	24.0		31.5	67.5	30.0	30.0	30.5	30.5
70th %ile Term Code	Max		MaxR	Coord	Ped	Ped	Coord	Coord
50th %ile Green (s)	24.0		31.5	67.5	30.0	30.0	30.5	30.5
50th %ile Term Code	Max		MaxR	Coord	Ped	Ped	Coord	Coord
30th %ile Green (s)	24.0		31.5	67.5	30.0	30.0	30.5	30.5
30th %ile Term Code	Max		MaxR	Coord	Ped	Ped	Coord	Coord
10th %ile Green (s)	39.1		31.5	67.5	14.9	14.9	30.5	30.5
10th %ile Term Code	Max		MaxR	Coord	Gap	Gap	Coord	Coord

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 89 (64%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Control Type: Actuated-Coordinated

Queues

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	891	450	539	823	232	349	333	240
v/c Ratio	1.34	0.55	0.68	0.86	0.68	0.51	0.45	0.64
Control Delay	200.8	52.1	54.6	39.5	62.2	52.5	49.9	51.3
Queue Delay	0.0	8.2	1.3	0.0	0.0	0.0	0.0	92.1
Total Delay	200.8	60.2	55.8	39.5	62.2	52.5	49.9	143.4
Queue Length 50th (ft)	~586	383	237	341	193	146	137	173
Queue Length 95th (ft)	#729	m490	303	459	284	197	186	269
Internal Link Dist (ft)		375	150			693		176
Turn Bay Length (ft)				200				
Base Capacity (vph)	666	821	796	957	385	767	733	377
Starvation Cap Reductn	0	326	0	0	0	0	0	0
Spillback Cap Reductn	0	0	105	0	0	0	0	320
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.34	0.91	0.78	0.86	0.60	0.46	0.45	4.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.























Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.







HCM Signalized Intersection Capacity Analysis

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	855	268	164	0	517	790	223	330	5	320	115	115
Future Volume (vph)	855	268	164	0	517	790	223	330	5	320	115	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.98			1.00	0.68	1.00	1.00		1.00	0.96	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.94			1.00	0.85	1.00	1.00		1.00	0.93	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3467	1739			3539	1903	1770	3520		3367	1616	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3467	1739			3539	1903	1770	3520		3367	1616	
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)	891	279	171	0	539	823	232	344	5	333	120	120
RTOR Reduction (vph)	0	16	0	0	0	40	0	1	0	0	26	0
Lane Group Flow (vph)	891	434	0	0	539	783	232	348	0	333	214	0
Confl. Peds. (#/hr)	17		29	29		17	17		48	48		17
Confl. Bikes (#/hr)			2			371			156			53
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	26.9	64.9			31.5	67.5	27.1	27.1		30.5	30.5	
Effective Green, g (s)	26.9	58.4			31.5	67.5	27.1	27.1		30.5	30.5	
Actuated g/C Ratio	0.19	0.42			0.22	0.48	0.19	0.19		0.22	0.22	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	666	725			796	917	342	681		733	352	
v/s Ratio Prot	c0.26	0.25			0.15		c0.13	0.10		0.10	0.13	
v/s Ratio Perm						c0.41						
v/c Ratio	1.34	0.60			0.68	0.85	0.68	0.51		0.45	0.61	
Uniform Delay, d1	56.5	31.7			49.6	31.9	52.4	50.5		47.5	49.4	
Progression Factor	0.97	1.89			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	159.4	1.0			4.6	9.9	4.2	0.3		2.0	7.6	
Delay (s)	214.3	60.8			54.2	41.8	56.6	50.8		49.6	57.0	
Level of Service	F	E			D	D	E	D		D	E	
Approach Delay (s)		162.8			46.7			53.1			52.7	
Approach LOS		F			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			88.9				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			107.6%				ICU Level of Service			G		
Analysis Period (min)			15									
c Critical Lane Group												

2035 Alternative 4 AM

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	903	51	18	603	24	17	7	47	15	0	12
Future Vol, veh/h	19	903	51	18	603	24	17	7	47	15	0	12
Conflicting Peds, #/hr	6	0	12	14	0	8	12	0	14	8	0	6
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	4	4	4	3	3	3	2	2	2	32	32	32
Mvmt Flow	20	941	53	19	628	25	18	7	49	16	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	661	0	0	1008	0	0	1719	1721	996	1737	1735	661
Stage 1	-	-	-	-	-	-	1022	1022	-	687	687	-
Stage 2	-	-	-	-	-	-	697	699	-	1050	1048	-
Critical Hdwy	4.14	-	-	4.13	-	-	7.12	6.52	6.22	7.42	6.82	6.52
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.42	5.82	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.42	5.82	-
Follow-up Hdwy	2.236	-	-	2.227	-	-	3.518	4.018	3.318	3.788	4.288	3.588
Pot Cap-1 Maneuver	918	-	-	684	-	-	71	89	297	58	74	414
Stage 1	-	-	-	-	-	-	285	313	-	392	405	-
Stage 2	-	-	-	-	-	-	431	442	-	241	270	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	911	-	-	675	-	-	65	83	289	42	69	406
Mov Cap-2 Maneuver	-	-	-	-	-	-	65	83	-	42	69	-
Stage 1	-	-	-	-	-	-	275	302	-	381	390	-
Stage 2	-	-	-	-	-	-	401	426	-	189	261	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.3			56.4			87.4		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	140	911	-	-	675	-	-	70
HCM Lane V/C Ratio	0.528	0.022	-	-	0.028	-	-	0.402
HCM Control Delay (s)	56.4	9	-	-	10.5	-	-	87.4
HCM Lane LOS	F	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	2.6	0.1	-	-	0.1	-	-	1.6

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	0	5	0	0	0	5	17	0	0	34	10
Future Vol, veh/h	30	0	5	0	0	0	5	17	0	0	34	10
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	0	0	0	9	9	9	0	0	0	0	0	0
Mvmt Flow	38	0	6	0	0	0	6	22	0	0	43	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.4	0	7.2	7.1
HCM LOS	A	-	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	23%	86%	0%	0%
Vol Thru, %	77%	0%	100%	77%
Vol Right, %	0%	14%	0%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	22	35	0	44
LT Vol	5	30	0	0
Through Vol	17	0	0	34
RT Vol	0	5	0	10
Lane Flow Rate	28	44	0	56
Geometry Grp	1	1	1	1
Degree of Util (X)	0.031	0.051	0	0.06
Departure Headway (Hd)	4.065	4.131	4.233	3.862
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	879	866	0	926
Service Time	2.097	2.162	2.275	1.891
HCM Lane V/C Ratio	0.032	0.051	0	0.06
HCM Control Delay	7.2	7.4	7.3	7.1
HCM Lane LOS	A	A	N	A
HCM 95th-tile Q	0.1	0.2	0	0.2




Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	260	0	10	96	12	0	1	5	17	5	23
Future Vol, veh/h	9	260	0	10	96	12	0	1	5	17	5	23
Conflicting Peds, #/hr	2	0	8	13	0	8	8	0	13	8	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	2	2	2	0	0	0	5	5	5
Mvmt Flow	12	347	0	13	128	16	0	1	7	23	7	31
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	152	0	0	360	0	0	573	562	373	558	554	152
Stage 1	-	-	-	-	-	-	384	384	-	170	170	-
Stage 2	-	-	-	-	-	-	189	178	-	388	384	-
Critical Hdwy	4.13	-	-	4.12	-	-	7.1	6.5	6.2	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Follow-up Hdwy	2.227	-	-	2.218	-	-	3.5	4	3.3	3.545	4.045	3.345
Pot Cap-1 Maneuver	1423	-	-	1199	-	-	433	439	678	436	436	886
Stage 1	-	-	-	-	-	-	643	615	-	825	752	-
Stage 2	-	-	-	-	-	-	817	756	-	630	606	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1412	-	-	1184	-	-	397	421	661	415	418	873
Mov Cap-2 Maneuver	-	-	-	-	-	-	397	421	-	415	418	-
Stage 1	-	-	-	-	-	-	628	601	-	809	737	-
Stage 2	-	-	-	-	-	-	766	741	-	608	592	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.7			11			12.1		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	604	1412	-	-	1184	-	-	568				
HCM Lane V/C Ratio	0.013	0.008	-	-	0.011	-	-	0.106				
HCM Control Delay (s)	11	7.6	0	-	8.1	0	-	12.1				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.4				

Intersection	
Intersection Delay, s/veh	7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	28	10	6	14	0	0	0	1	0	0	0
Future Vol, veh/h	0	28	10	6	14	0	0	0	1	0	0	0
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	33	33	33
Mvmt Flow	0	42	15	9	21	0	0	0	1	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0



















Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7	7.1	6.5	0
HCM LOS	A	A	A	-

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	30%	0%
Vol Thru, %	0%	74%	70%	100%
Vol Right, %	100%	26%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	1	38	20	0
LT Vol	0	0	6	0
Through Vol	0	28	14	0
RT Vol	1	10	0	0
Lane Flow Rate	1	57	30	0
Geometry Grp	1	1	1	1
Degree of Util (X)	0.001	0.059	0.033	0
Departure Headway (Hd)	3.449	3.767	4.004	4.613
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	1035	955	898	0
Service Time	1.477	1.772	2.011	2.642
HCM Lane V/C Ratio	0.001	0.06	0.033	0
HCM Control Delay	6.5	7	7.1	7.6
HCM Lane LOS	A	A	A	N
HCM 95th-tile Q	0	0.2	0.1	0

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	282	123	0	0	0
Future Vol, veh/h	0	282	123	0	0	0
Conflicting Peds, #/hr	4	0	0	19	19	4
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	79	79	79	79	79	79
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	0	357	156	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	175	0	-	0	551	179
Stage 1	-	-	-	-	175	-
Stage 2	-	-	-	-	376	-
Critical Hdwy	4.13	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.227	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1395	-	-	-	499	869
Stage 1	-	-	-	-	860	-
Stage 2	-	-	-	-	699	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1370	-	-	-	481	850
Mov Cap-2 Maneuver	-	-	-	-	481	-
Stage 1	-	-	-	-	845	-
Stage 2	-	-	-	-	686	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1370	-	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	-	-	0	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	-	

Timings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	10	823	113	75	580	35	135	10	10	10
Future Volume (vph)	10	823	113	75	580	35	135	10	10	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	27.0	27.0	11.0	27.0	27.0	28.0	28.0	28.0	28.0
Total Split (s)	15.0	35.0	35.0	15.0	35.0	35.0	30.0	30.0	30.0	30.0
Total Split (%)	18.8%	43.8%	43.8%	18.8%	43.8%	43.8%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effect Green (s)	36.3	32.4	32.4	39.7	38.5	38.5		14.6		12.1
Actuated g/C Ratio	0.57	0.51	0.51	0.62	0.60	0.60		0.23		0.19
v/c Ratio	0.02	0.93	0.15	0.32	0.56	0.04		0.75		0.07
Control Delay	6.7	38.5	4.1	9.7	13.2	0.5		32.8		20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	6.7	38.5	4.1	9.7	13.2	0.5		32.8		20.0
LOS	A	D	A	A	B	A		C		B
Approach Delay		34.0			12.2			32.8		20.0
Approach LOS		C			B			C		B

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 63.9

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 25.8

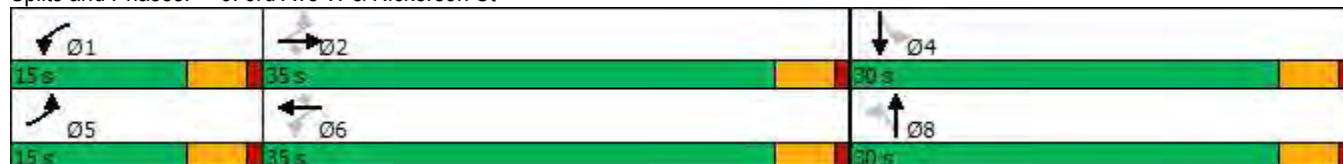
Intersection LOS: C

Intersection Capacity Utilization 77.8%

ICU Level of Service D











Analysis Period (min) 15

Splits and Phases: 6: 3rd Ave W & Nickerson St



Phasings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	27.0	27.0	11.0	27.0	27.0	28.0	28.0	28.0	28.0
Total Split (s)	15.0	35.0	35.0	15.0	35.0	35.0	30.0	30.0	30.0	30.0
Total Split (%)	18.8%	43.8%	43.8%	18.8%	43.8%	43.8%	37.5%	37.5%	37.5%	37.5%
Maximum Green (s)	10.5	30.5	30.5	10.5	30.5	30.5	25.5	25.5	25.5	25.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	1.0	0.2	0.2	1.0	0.2	0.2	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)		12	12		6	6	12	12	17	17
90th %ile Green (s)	5.0	30.5	30.5	6.9	32.4	32.4	24.2	24.2	24.2	24.2
90th %ile Term Code	Min	MaxR	MaxR	Gap	Hold	Hold	Gap	Gap	Hold	Hold
70th %ile Green (s)	0.0	30.5	30.5	5.4	40.4	40.4	18.1	18.1	18.1	18.1
70th %ile Term Code	Skip	MaxR	MaxR	Gap	Hold	Hold	Gap	Gap	Hold	Hold
50th %ile Green (s)	0.0	30.5	30.5	5.0	40.0	40.0	14.5	14.5	0.0	0.0
50th %ile Term Code	Skip	MaxR	MaxR	Min	Hold	Hold	Gap	Gap	Skip	Skip
30th %ile Green (s)	0.0	30.5	30.5	5.0	40.0	40.0	11.4	11.4	0.0	0.0
30th %ile Term Code	Skip	MaxR	MaxR	Min	Hold	Hold	Gap	Gap	Skip	Skip
10th %ile Green (s)	0.0	36.6	36.6	0.0	36.6	36.6	7.3	7.3	0.0	0.0
10th %ile Term Code	Skip	Dwell	Dwell	Skip	Dwell	Dwell	Gap	Gap	Skip	Skip

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 63.9

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 75.1

70th %ile Actuated Cycle: 67.5









50th %ile Actuated Cycle: 63.5

30th %ile Actuated Cycle: 60.4

10th %ile Actuated Cycle: 52.9

Queues
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour





















								
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	10	857	118	78	604	36	260	20
v/c Ratio	0.02	0.93	0.15	0.32	0.56	0.04	0.75	0.07
Control Delay	6.7	38.5	4.1	9.7	13.2	0.5	32.8	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	38.5	4.1	9.7	13.2	0.5	32.8	20.0
Queue Length 50th (ft)	1	306	2	10	111	0	76	7
Queue Length 95th (ft)	8	#695	31	34	#405	3	153	21
Internal Link Dist (ft)		79			214		74	171
Turn Bay Length (ft)	100			135		215		
Base Capacity (vph)	578	917	798	369	1080	919	573	593
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.93	0.15	0.21	0.56	0.04	0.45	0.03

Intersection Summary




95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary 6: 3rd Ave W & Nickerson St




2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	823	113	75	580	35	135	10	105	10	10	0
Future Volume (veh/h)	10	823	113	75	580	35	135	10	105	10	10	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	0.98		0.97	0.99		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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1811	1811	1811	1796	1796	1796	1707	1707	1707
Adj Flow Rate, veh/h	10	857	118	78	604	36	141	10	109	10	10	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, %	5	5	5	6	6	6	7	7	7	13	13	13
Cap, veh/h	370	892	746	238	969	795	252	31	140	223	191	0
Arrive On Green	0.01	0.49	0.49	0.06	0.53	0.53	0.24	0.24	0.24	0.24	0.24	0.00
Sat Flow, veh/h	1739	1826	1528	1725	1811	1486	691	131	593	579	809	0
Grp Volume(v), veh/h	10	857	118	78	604	36	260	0	0	20	0	0
Grp Sat Flow(s),veh/h/ln	1739	1826	1528	1725	1811	1486	1415	0	0	1388	0	0
Q Serve(g_s), s	0.2	28.3	2.7	1.3	14.5	0.7	9.4	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.2	28.3	2.7	1.3	14.5	0.7	10.7	0.0	0.0	0.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.54		0.42	0.50		0.00
Lane Grp Cap(c), veh/h	370	892	746	238	969	795	423	0	0	414	0	0
V/C Ratio(X)	0.03	0.96	0.16	0.33	0.62	0.05	0.61	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	640	892	746	425	969	795	663	0	0	651	0	0
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.9	15.4	8.9	13.9	10.1	6.9	22.2	0.0	0.0	18.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	22.1	0.5	0.3	3.0	0.1	0.5	0.0	0.0	0.0	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	0.1	15.5	0.9	0.5	5.7	0.2	3.4	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.9	37.5	9.3	14.2	13.2	7.0	22.7	0.0	0.0	18.5	0.0	0.0
LnGrp LOS	A	D	A	B	B	A	C	A	A	B	A	A
Approach Vol, veh/h	985				718			260			20	
Approach Delay, s/veh	33.8				13.0			22.7			18.5	
Approach LOS	C				B			C			B	
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	8.2	35.0	19.3		5.3	37.9	19.3					
Change Period (Y+Rc), s	4.5	4.5	4.5		4.5	4.5	4.5					
Max Green Setting (Gmax), s	10.5	30.5	25.5		10.5	30.5	25.5					
Max Q Clear Time (g_c+I1), s	3.3	30.3	2.6		2.2	16.5	12.7					
Green Ext Time (p_c), s	0.0	0.1	0.0		0.0	0.7	0.9					
Intersection Summary												
HCM 6th Ctrl Delay	24.7											
HCM 6th LOS	C											

Intersection												
Int Delay, s/veh	7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	49	108	42	0	0	0	43	197	15	5	140	49
Future Vol, veh/h	49	108	42	0	0	0	43	197	15	5	140	49
Conflicting Peds, #/hr	32	0	42	22	0	11	42	0	22	11	0	32
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	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	0	0	0	7	7	7	2	2	2
Mvmt Flow	61	135	53	0	0	0	54	246	19	6	175	61
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	656	655	290				278	0	0	287	0	0
Stage 1	260	260	-				-	-	-	-	-	-
Stage 2	396	395	-				-	-	-	-	-	-
Critical Hdwy	6.43	6.53	6.23				4.17	-	-	4.12	-	-
Critical Hdwy Stg 1	5.43	5.53	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.43	5.53	-				-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327				2.263	-	-	2.218	-	-
Pot Cap-1 Maneuver	429	384	747				1257	-	-	1275	-	-
Stage 1	781	691	-				-	-	-	-	-	-
Stage 2	678	603	-				-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	372	0	688				1207	-	-	1275	-	-
Mov Cap-2 Maneuver	372	0	-				-	-	-	-	-	-
Stage 1	710	0	-				-	-	-	-	-	-
Stage 2	647	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	20.8						1.4			0.2		
HCM LOS	C											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1207	-	-	472	1275	-	-					
HCM Lane V/C Ratio	0.045	-	-	0.527	0.005	-	-					
HCM Control Delay (s)	8.1	0	-	20.8	7.8	0	-					
HCM Lane LOS	A	A	-	C	A	A	-					
HCM 95th %tile Q(veh)	0.1	-	-	3	0	-	-					

Intersection						
Int Delay, s/veh	1.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	26	242	42	31	151
Future Vol, veh/h	27	26	242	42	31	151
Conflicting Peds, #/hr	16	3	0	16	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	84	84	84	84	84	84
Heavy Vehicles, %	30	30	7	7	5	5
Mvmt Flow	32	31	288	50	37	180
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	599	332	0	0	354	0
Stage 1	329	-	-	-	-	-
Stage 2	270	-	-	-	-	-
Critical Hdwy	6.7	6.5	-	-	4.15	-
Critical Hdwy Stg 1	5.7	-	-	-	-	-
Critical Hdwy Stg 2	5.7	-	-	-	-	-
Follow-up Hdwy	3.77	3.57	-	-	2.245	-
Pot Cap-1 Maneuver	422	650	-	-	1188	-
Stage 1	671	-	-	-	-	-
Stage 2	715	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	395	638	-	-	1170	-
Mov Cap-2 Maneuver	395	-	-	-	-	-
Stage 1	661	-	-	-	-	-
Stage 2	679	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	13.5	0		1.4		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	486	1170	-	
HCM Lane V/C Ratio	-	-	0.13	0.032	-	
HCM Control Delay (s)	-	-	13.5	8.2	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.4	0.1	-	

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					<div>↕</div>			<div>↕</div>			<div>↕</div>	
Traffic Vol, veh/h	0	0	0	28	0	40	0	248	27	6	172	0
Future Vol, veh/h	0	0	0	28	0	40	0	248	27	6	172	0
Conflicting Peds, #/hr	17	0	0	0	0	17	0	0	0	17	0	17
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	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	3	3	3	7	7	7	12	12	12
Mvmt Flow	0	0	0	32	0	46	0	285	31	7	198	0
Major/Minor				Minor1		Major1		Major2				
Conflicting Flow All				530	547	335	215	0	0	333	0	0
Stage 1				318	318	-	-	-	-	-	-	-
Stage 2				212	229	-	-	-	-	-	-	-
Critical Hdwy				6.43	6.53	6.23	4.17	-	-	4.22	-	-
Critical Hdwy Stg 1				5.43	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.43	5.53	-	-	-	-	-	-	-
Follow-up Hdwy				3.527	4.027	3.327	2.263	-	-	2.308	-	-
Pot Cap-1 Maneuver				508	443	705	1326	-	-	1172	-	-
Stage 1				735	652	-	-	-	-	-	-	-
Stage 2				821	713	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver				496	0	682	1326	-	-	1153	-	-
Mov Cap-2 Maneuver				496	0	-	-	-	-	-	-	-
Stage 1				723	0	-	-	-	-	-	-	-
Stage 2				815	0	-	-	-	-	-	-	-
Approach				WB		NB		SB				
HCM Control Delay, s				12		0		0.3				
HCM LOS				B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1326	-	-	591	1153	-	-					
HCM Lane V/C Ratio	-	-	-	0.132	0.006	-	-					
HCM Control Delay (s)	0	-	-	12	8.1	0	-					
HCM Lane LOS	A	-	-	B	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	0.5	0	-	-					

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	43	3	39	236	159	36
Future Vol, veh/h	43	3	39	236	159	36
Conflicting Peds, #/hr	15	15	15	0	0	15
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, %	0	0	8	8	11	11
Mvmt Flow	47	3	43	259	175	40
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	570	225	230	0	-	0
Stage 1	210	-	-	-	-	-
Stage 2	360	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.18	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.272	-	-	-
Pot Cap-1 Maneuver	486	819	1303	-	-	-
Stage 1	830	-	-	-	-	-
Stage 2	710	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	454	796	1284	-	-	-
Mov Cap-2 Maneuver	454	-	-	-	-	-
Stage 1	787	-	-	-	-	-
Stage 2	700	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	13.6	1.1		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1284	-	467	-	-	
HCM Lane V/C Ratio	0.033	-	0.108	-	-	
HCM Control Delay (s)	7.9	0	13.6	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-	




Intersection												
Int Delay, s/veh	18											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	978	50	59	653	25	30	5	42	5	5	35
Future Vol, veh/h	35	978	50	59	653	25	30	5	42	5	5	35
Conflicting Peds, #/hr	16	0	9	10	0	17	9	0	10	17	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	6	6	6	6	6	6	19	19	19	0	0	0
Mvmt Flow	37	1040	53	63	695	27	32	5	45	5	5	37

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	739	0	0	1103	0	0	2023	2016	1094	2035	2029	742
Stage 1	-	-	-	-	-	-	1151	1151	-	852	852	-
Stage 2	-	-	-	-	-	-	872	865	-	1183	1177	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.29	6.69	6.39	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.29	5.69	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.29	5.69	-	6.1	5.5	-
Follow-up Hdwy	2.254	-	-	2.254	-	-	3.671	4.171	3.471	3.5	4	3.3
Pot Cap-1 Maneuver	849	-	-	618	-	-	39	53	241	43	58	419
Stage 1	-	-	-	-	-	-	223	253	-	357	379	-
Stage 2	-	-	-	-	-	-	323	348	-	233	267	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	835	-	-	612	-	-	~ 28	44	235	27	48	406
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 28	44	-	27	48	-
Stage 1	-	-	-	-	-	-	211	239	-	336	335	-
Stage 2	-	-	-	-	-	-	255	307	-	173	253	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.9	\$ 404	53.6
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	56	835	-	-	612	-	-	120
HCM Lane V/C Ratio	1.463	0.045	-	-	0.103	-	-	0.399
HCM Control Delay (s)	\$ 404	9.5	-	-	11.6	-	-	53.6
HCM Lane LOS	F	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	7.4	0.1	-	-	0.3	-	-	1.7

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

Intersection						
Int Delay, s/veh	4.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	16	25	66	40	79
Future Vol, veh/h	16	16	25	66	40	79
Conflicting Peds, #/hr	15	15	15	0	0	15
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	11	11	32	32
Mvmt Flow	18	18	28	74	45	89


















Major/Minor	Minor2	Major2		
Conflicting Flow All	120	105	-	0
Stage 1	105	105	-	-
Stage 2	15	0	-	-
Critical Hdwy	6.51	6.61	-	-
Critical Hdwy Stg 1	5.51	5.61	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.599	4.099	-	-
Pot Cap-1 Maneuver	854	768	-	-
Stage 1	897	791	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	830	0	-	-
Mov Cap-2 Maneuver	830	0	-	-
Stage 1	884	0	-	-
Stage 2	-	0	-	-

Approach	NB	SB
HCM Control Delay, s	9.9	0
HCM LOS	A	

Minor Lane/Major Mvmt	NBLn1	SBT	SBR
Capacity (veh/h)	830	-	-
HCM Lane V/C Ratio	0.123	-	-
HCM Control Delay (s)	9.9	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-

Timings 14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Lane Group	EBL2	EBL	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	SBL2	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	5	0	5	115	216	5	30	0	10	5	0
Future Volume (vph)	5	5	0	5	115	216	5	30	0	10	5	0
Turn Type	Perm	Perm	NA	Perm	NA	Perm	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			3		3				4			4
Permitted Phases	3	3		3		3	4	4		4	4	
Detector Phase	3	3	3	3	3	3	4	4	4	4	4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	28.5	28.5
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	26.2%	26.2%	26.2%	26.2%	26.2%	26.2%	22.3%	22.3%	22.3%	22.3%	22.3%	22.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)			0.0		0.0	0.0			3.0			3.0
Total Lost Time (s)			6.5		6.5	6.5			9.5			9.5
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effect Green (s)			27.5		27.5	27.5			16.0			16.0
Actuated g/C Ratio			0.21		0.21	0.21			0.12			0.12
v/c Ratio			0.99		0.56	0.46			0.32			0.09
Control Delay			99.5		52.9	17.0			5.5			0.8
Queue Delay			0.0		0.0	0.0			0.0			0.0
Total Delay			99.5		52.9	17.0			5.6			0.8
LOS			F		D	B			A			A
Approach Delay			99.5		35.9				5.6			0.8
Approach LOS			F		D				A			A

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 76 (58%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 43.2

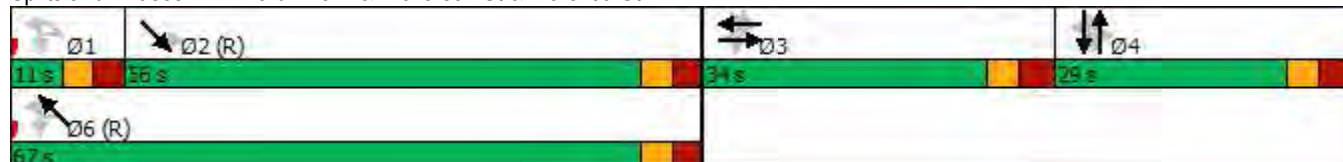
Intersection LOS: D

Intersection Capacity Utilization 117.9%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 14: 3rd Ave N & Nickerson St & Florentia St



Timings
14: 3rd Ave N & Nickerson St & Florentia St













2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	SET	NWL2	NWL	NWT	Ø1
Lane Configurations	↔↔			↔↔	
Traffic Volume (vph)	992	25	65	602	
Future Volume (vph)	992	25	65	602	
Turn Type	NA	custom	custom	NA	
Protected Phases	2			6	1
Permitted Phases		1 6	1 6		
Detector Phase	2	1 6	1 6	6	
Switch Phase					
Minimum Initial (s)	7.0			7.0	5.0
Minimum Split (s)	22.0			24.0	11.0
Total Split (s)	56.0			67.0	11.0
Total Split (%)	43.1%			51.5%	8%
Yellow Time (s)	3.0			3.0	3.0
All-Red Time (s)	3.0			3.0	3.0
Lost Time Adjust (s)	3.0			3.0	
Total Lost Time (s)	9.0			9.0	
Lead/Lag	Lag				Lead
Lead-Lag Optimize?	Yes				Yes
Recall Mode	C-Max			C-Max	None
Act Effect Green (s)	61.5			61.5	
Actuated g/C Ratio	0.47			0.47	
v/c Ratio	0.66			0.83	
Control Delay	29.6			45.1	
Queue Delay	0.9			0.9	
Total Delay	30.5			46.1	
LOS	C			D	
Approach Delay	30.5			46.1	
Approach LOS	C			D	
Intersection Summary					

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Lane Group	EBL2	EBL	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	SBL2	SBL	SBT
Protected Phases			3		3				4			4
Permitted Phases	3	3		3		3	4	4		4	4	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	28.5	28.5
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	26.2%	26.2%	26.2%	26.2%	26.2%	26.2%	22.3%	22.3%	22.3%	22.3%	22.3%	22.3%
Maximum Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.5	22.5	22.5	22.5	22.5	22.5
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (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
Time To Reduce (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
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Walk Time (s)							8.0	8.0	8.0	8.0	8.0	8.0
Flash Dont Walk (s)							14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)							69	69	69	69	69	69
90th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
70th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
70th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
50th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
50th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
30th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
30th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
10th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	7.0	7.0	7.0	7.0	7.0	7.0
10th %ile Term Code	Max	Max	Max	Max	Max	Max	Min	Min	Min	Min	Min	Min

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 76 (58%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Control Type: Actuated-Coordinated

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	SET	NWL2	NWL	NWT	Ø1
Protected Phases	2			6	1
Permitted Phases		1 6	1 6		
Minimum Initial (s)	7.0			7.0	5.0
Minimum Split (s)	22.0			24.0	11.0
Total Split (s)	56.0			67.0	11.0
Total Split (%)	43.1%			51.5%	8%
Maximum Green (s)	50.0			61.0	5.0
Yellow Time (s)	3.0			3.0	3.0
All-Red Time (s)	3.0			3.0	3.0
Lead/Lag	Lag				Lead
Lead-Lag Optimize?	Yes				Yes
Vehicle Extension (s)	3.0			2.0	2.0
Minimum Gap (s)	0.2			0.2	0.2
Time Before Reduce (s)	0.0			0.0	0.0
Time To Reduce (s)	0.0			0.0	0.0
Recall Mode	C-Max			C-Max	None
Walk Time (s)	7.0			7.0	
Flash Dont Walk (s)	9.0			9.0	
Pedestrian Calls (#/hr)	120			126	
90th %ile Green (s)	61.5			61.5	0.0
90th %ile Term Code	Coord			Coord	Skip
70th %ile Green (s)	61.5			61.5	0.0
70th %ile Term Code	Coord			Coord	Skip
50th %ile Green (s)	61.5			61.5	0.0
50th %ile Term Code	Coord			Coord	Skip
30th %ile Green (s)	61.5			61.5	0.0
30th %ile Term Code	Coord			Coord	Skip
10th %ile Green (s)	76.5			76.5	0.0
10th %ile Term Code	Coord			Coord	Skip
Intersection Summary					

Queues

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT	SET	NWT
Lane Group Flow (vph)	324	191	171	90	21	1065	757
v/c Ratio	0.99	0.56	0.46	0.32	0.09	0.66	0.83
Control Delay	99.5	52.9	17.0	5.5	0.8	29.6	45.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.9	0.9
Total Delay	99.5	52.9	17.0	5.6	0.8	30.5	46.1
Queue Length 50th (ft)	275	152	29	0	0	371	357
Queue Length 95th (ft)	#470	238	104	19	0	451	m397
Internal Link Dist (ft)	413	299		354	158	814	375
Turn Bay Length (ft)							
Base Capacity (vph)	326	344	373	317	246	1607	914
Starvation Cap Reductn	0	0	0	0	0	0	38
Spillback Cap Reductn	0	0	0	9	0	264	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.56	0.46	0.29	0.09	0.79	0.86

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St
















2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR2
Lane Configurations												
Traffic Volume (vph)	5	5	0	295	5	115	216	5	5	30	0	50
Future Volume (vph)	5	5	0	295	5	115	216	5	5	30	0	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.5			6.5	6.5				9.5	
Lane Util. Factor			1.00			0.95	0.95				1.00	
Frpb, ped/bikes			0.97			0.98	0.85				0.98	
Flpb, ped/bikes			1.00			1.00	1.00				0.98	
Frt			0.87			0.95	0.85				0.92	
Flt Protected			1.00			1.00	1.00				0.98	
Satd. Flow (prot)			1562			1647	1280				1575	
Flt Permitted			0.99			0.99	1.00				0.86	
Satd. Flow (perm)			1545			1628	1280				1377	
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	5	0	314	5	122	230	5	5	32	0	53
RTOR Reduction (vph)	0	0	0	0	0	0	103	0	0	0	79	0
Lane Group Flow (vph)	0	0	324	0	0	191	69	0	0	0	11	0
Confl. Peds. (#/hr)	24	18		14	16		24	18	9	24		14
Confl. Bikes (#/hr)				1			10	10				
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%
Turn Type	Perm	Perm	NA		Perm	NA	Perm		Perm	Perm	NA	
Protected Phases			3			3					4	
Permitted Phases	3	3			3		3		4	4		
Actuated Green, G (s)			27.5			27.5	27.5				19.0	
Effective Green, g (s)			27.5			27.5	27.5				16.0	
Actuated g/C Ratio			0.21			0.21	0.21				0.12	
Clearance Time (s)			6.5			6.5	6.5				6.5	
Vehicle Extension (s)			2.0			2.0	2.0				2.0	
Lane Grp Cap (vph)			326			344	270				169	
v/s Ratio Prot												
v/s Ratio Perm			c0.21			0.12	0.05				c0.01	
v/c Ratio			0.99			0.56	0.25				0.07	
Uniform Delay, d1			51.2			45.8	42.7				50.4	
Progression Factor			1.00			1.00	1.00				1.00	
Incremental Delay, d2			47.9			1.1	0.2				0.1	
Delay (s)			99.0			46.9	42.9				50.5	
Level of Service			F			D	D				D	
Approach Delay (s)			99.0			45.0					50.5	
Approach LOS			F			D					D	
Intersection Summary												
HCM 2000 Control Delay			44.7			HCM 2000 Level of Service					D	
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				31.0		
Intersection Capacity Utilization			117.9%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	SBL2	SBL	SBT	SBR2	SET	SER	SER2	NWL2	NWL	NWT	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	10	5	0	5	992	5	5	25	65	602	15	5
Future Volume (vph)	10	5	0	5	992	5	5	25	65	602	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			9.5		9.0					9.0		
Lane Util. Factor			1.00		0.95					0.95		
Frpb, ped/bikes			0.99		1.00					1.00		
Flpb, ped/bikes			0.98		1.00					1.00		
Frt			0.97		1.00					1.00		
Flt Protected			0.96		1.00					0.99		
Satd. Flow (prot)			1146		3397					3459		
Flt Permitted			0.76		1.00					0.55		
Satd. Flow (perm)			909		3397					1931		
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	5	0	5	1055	5	5	27	69	640	16	5
RTOR Reduction (vph)	0	0	18	0	0	0	0	0	0	1	0	0
Lane Group Flow (vph)	0	0	3	0	1065	0	0	0	0	756	0	0
Confl. Peds. (#/hr)		14		24		16	9	16	9		18	
Confl. Bikes (#/hr)				2		2	2				1	1
Heavy Vehicles (%)	50%	50%	50%	50%	6%	6%	6%	3%	3%	3%	3%	3%
Turn Type	Perm	Perm	NA		NA			custom	custom	NA		
Protected Phases			4		2					6		
Permitted Phases	4	4						16	16			
Actuated Green, G (s)			19.0		64.5					64.5		
Effective Green, g (s)			16.0		61.5					61.5		
Actuated g/C Ratio			0.12		0.47					0.47		
Clearance Time (s)			6.5		6.0					6.0		
Vehicle Extension (s)			2.0		3.0					2.0		
Lane Grp Cap (vph)			111		1607					913		
v/s Ratio Prot					0.31							
v/s Ratio Perm			0.00							c0.39		
v/c Ratio			0.02		0.66					0.83		
Uniform Delay, d1			50.1		26.3					29.7		
Progression Factor			1.00		1.00					1.23		
Incremental Delay, d2			0.0		2.2					6.7		
Delay (s)			50.2		28.5					43.2		
Level of Service			D		C					D		
Approach Delay (s)			50.2		28.5					43.2		
Approach LOS			D		C					D		
Intersection Summary												

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	15	0	1016	1315	341
Future Vol, veh/h	0	15	0	1016	1315	341
Conflicting Peds, #/hr	31	30	30	0	0	31
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	89	89	89	89	89	89
Heavy Vehicles, %	50	50	6	6	7	7
Mvmt Flow	0	17	0	1142	1478	383
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	-	992	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.8	-	-	-	-
Pot Cap-1 Maneuver	0	173	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	163	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	29.6	0	0			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	163	-	-		
HCM Lane V/C Ratio	-	0.103	-	-		
HCM Control Delay (s)	-	29.6	-	-		
HCM Lane LOS	-	D	-	-		
HCM 95th %tile Q(veh)	-	0.3	-	-		

Timings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	←←	→	←←	←←	←	→	←←	→
Traffic Volume (vph)	635	616	258	260	233	120	920	190
Future Volume (vph)	635	616	258	260	233	120	920	190
Turn Type	Prot	NA	NA	custom	Split	NA	Split	NA
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Detector Phase	4	1 4	1	5	3	3	2	2
Switch Phase								
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	19.0		37.0	74.0	37.0	37.0	37.0	37.0
Total Split (%)	14.6%		28.5%	56.9%	28.5%	28.5%	28.5%	28.5%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		5.5	5.5	6.5	6.5	5.5	5.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Recall Mode	None		Min	C-Max	None	None	C-Max	C-Max
Act Effct Green (s)	19.1	57.1	31.5	68.5	23.9	23.9	31.5	31.5
Actuated g/C Ratio	0.15	0.44	0.24	0.53	0.18	0.18	0.24	0.24
v/c Ratio	1.32	0.94	0.33	0.19	0.80	0.22	1.18	1.07
Control Delay	190.2	47.6	41.9	2.0	69.4	42.4	134.9	108.0
Queue Delay	0.0	45.2	0.0	0.0	1.8	0.0	0.0	2.0
Total Delay	190.2	92.8	41.9	2.0	71.2	42.4	134.9	110.0
LOS	F	F	D	A	E	D	F	F
Approach Delay		138.6	21.9			60.9		127.2
Approach LOS		F	C			E		F

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 2 (2%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.32

Intersection Signal Delay: 109.4

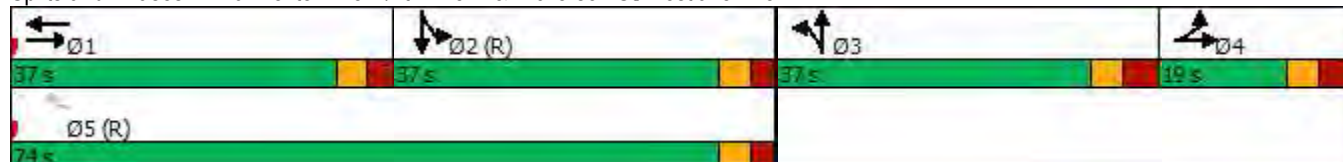
Intersection LOS: F

Intersection Capacity Utilization 92.4%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N



Phasings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	19.0		37.0	74.0	37.0	37.0	37.0	37.0
Total Split (%)	14.6%		28.5%	56.9%	28.5%	28.5%	28.5%	28.5%
Maximum Green (s)	12.5		31.5	68.5	30.5	30.5	31.5	31.5
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2		0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None		Min	C-Max	None	None	C-Max	C-Max
Walk Time (s)			9.0		8.0	8.0	8.0	8.0
Flash Dont Walk (s)			22.0		22.0	22.0	22.0	22.0
Pedestrian Calls (#/hr)			56		12	12	33	33
90th %ile Green (s)	12.5		31.5	68.5	30.5	30.5	31.5	31.5
90th %ile Term Code	Max		Max	Coord	Max	Max	Coord	Coord
70th %ile Green (s)	13.0		31.5	68.5	30.0	30.0	31.5	31.5
70th %ile Term Code	Max		Max	Coord	Ped	Ped	Coord	Coord
50th %ile Green (s)	19.5		31.5	68.5	23.5	23.5	31.5	31.5
50th %ile Term Code	Max		Max	Coord	Gap	Gap	Coord	Coord
30th %ile Green (s)	22.9		31.5	68.5	20.1	20.1	31.5	31.5
30th %ile Term Code	Max		Max	Coord	Gap	Gap	Coord	Coord
10th %ile Green (s)	27.7		31.5	68.5	15.3	15.3	31.5	31.5
10th %ile Term Code	Max		Max	Coord	Gap	Gap	Coord	Coord

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 2 (2%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Control Type: Actuated-Coordinated

Queues

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	661	743	269	271	243	135	958	427
v/c Ratio	1.32	0.94	0.33	0.19	0.80	0.22	1.18	1.07
Control Delay	190.2	47.6	41.9	2.0	69.4	42.4	134.9	108.0
Queue Delay	0.0	45.2	0.0	0.0	1.8	0.0	0.0	2.0
Total Delay	190.2	92.8	41.9	2.0	71.2	42.4	134.9	110.0
Queue Length 50th (ft)	~371	621	98	0	199	49	~496	~371
Queue Length 95th (ft)	m#541	m#878	140	23	278	75	#627	#581
Internal Link Dist (ft)		375	150			693		176
Turn Bay Length (ft)				200				
Base Capacity (vph)	500	791	817	1443	388	770	815	398
Starvation Cap Reductn	0	186	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	53	0	0	2
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.32	1.23	0.33	0.19	0.73	0.18	1.18	1.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

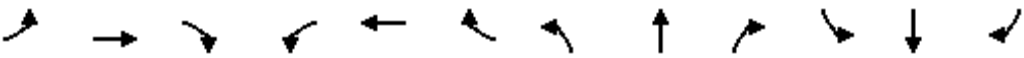
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.







HCM Signalized Intersection Capacity Analysis

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↱	↱			↰↱	↰↱	↰	↰↱		↰↱	↱	
Traffic Volume (vph)	635	616	97	0	258	260	233	120	10	920	190	220
Future Volume (vph)	635	616	97	0	258	260	233	120	10	920	190	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.94	1.00	1.00		1.00	0.90	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98			1.00	0.85	1.00	0.99		1.00	0.92	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3400	1791			3374	2496	1656	3264		3367	1512	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3400	1791			3374	2496	1656	3264		3367	1512	
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)	661	642	101	0	269	271	243	125	10	958	198	229
RTOR Reduction (vph)	0	4	0	0	0	128	0	5	0	0	32	0
Lane Group Flow (vph)	661	739	0	0	269	143	243	130	0	958	395	0
Confl. Peds. (#/hr)	19		37	37		19	33		12	12		33
Confl. Bikes (#/hr)			12			33			16			155
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	9%	9%	9%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	19.1	57.1			31.5	68.5	23.9	23.9		31.5	31.5	
Effective Green, g (s)	19.1	50.6			31.5	68.5	23.9	23.9		31.5	31.5	
Actuated g/C Ratio	0.15	0.39			0.24	0.53	0.18	0.18		0.24	0.24	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	499	697			817	1315	304	600		815	366	
v/s Ratio Prot	c0.19	c0.41			0.08		c0.15	0.04		c0.28	0.26	
v/s Ratio Perm						0.06						
v/c Ratio	1.32	1.06			0.33	0.11	0.80	0.22		1.18	1.08	
Uniform Delay, d1	55.5	39.7			40.6	15.4	50.8	45.1		49.2	49.2	
Progression Factor	0.75	0.89			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	155.5	45.4			0.1	0.2	12.8	0.1		91.7	70.0	
Delay (s)	197.3	80.6			40.6	15.6	63.6	45.2		140.9	119.3	
Level of Service	F	F			D	B	E	D		F	F	
Approach Delay (s)		135.5			28.1			57.0			134.3	
Approach LOS		F			C			E			F	
Intersection Summary												
HCM 2000 Control Delay			111.4				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.08									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			92.4%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

2035 Alternative 4 PM

Intersection												
Int Delay, s/veh	12.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	699	11	33	993	19	26	7	31	25	7	24
Future Vol, veh/h	11	699	11	33	993	19	26	7	31	25	7	24
Conflicting Peds, #/hr	16	0	21	12	0	7	21	0	12	7	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	4	4	2	2	2	0	0	0	4	4	4
Mvmt Flow	12	736	12	35	1045	20	27	7	33	26	7	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1081	0	0	769	0	0	1949	1938	775	1939	1934	1092
Stage 1	-	-	-	-	-	-	787	787	-	1141	1141	-
Stage 2	-	-	-	-	-	-	1162	1151	-	798	793	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.1	6.5	6.2	7.14	6.54	6.24
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.14	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.14	5.54	-
Follow-up Hdwy	2.236	-	-	2.218	-	-	3.5	4	3.3	3.536	4.036	3.336
Pot Cap-1 Maneuver	638	-	-	845	-	-	49	66	401	49	65	258
Stage 1	-	-	-	-	-	-	388	406	-	242	273	-
Stage 2	-	-	-	-	-	-	240	275	-	377	397	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	628	-	-	828	-	-	37	60	388	38	59	249
Mov Cap-2 Maneuver	-	-	-	-	-	-	37	60	-	38	59	-
Stage 1	-	-	-	-	-	-	373	390	-	234	258	-
Stage 2	-	-	-	-	-	-	197	260	-	328	382	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.3			191.8			197.2		
HCM LOS							F			F		





Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	71	628	-	-	828	-	-	64
HCM Lane V/C Ratio	0.949	0.018	-	-	0.042	-	-	0.921
HCM Control Delay (s)	191.8	10.8	-	-	9.5	-	-	197.2
HCM Lane LOS	F	B	-	-	A	-	-	F
HCM 95th %tile Q(veh)	4.8	0.1	-	-	0.1	-	-	4.4

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	0	5	0	0	0	25	60	0	0	44	10
Future Vol, veh/h	10	0	5	0	0	0	25	60	0	0	44	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	3	3	3
Mvmt Flow	11	0	6	0	0	0	28	67	0	0	49	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	0	7.5	7.2
HCM LOS	A	-	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	29%	67%	0%	0%
Vol Thru, %	71%	0%	100%	81%
Vol Right, %	0%	33%	0%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	85	15	0	54
LT Vol	25	10	0	0
Through Vol	60	0	0	44
RT Vol	0	5	0	10
Lane Flow Rate	94	17	0	60
Geometry Grp	1	1	1	1
Degree of Util (X)	0.106	0.019	0	0.066
Departure Headway (Hd)	4.033	4.098	4.179	3.94
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	890	865	0	908
Service Time	2.052	2.164	2.25	1.966
HCM Lane V/C Ratio	0.106	0.02	0	0.066
HCM Control Delay	7.5	7.2	7.3	7.2
HCM Lane LOS	A	A	N	A
HCM 95th-tile Q	0.4	0.1	0	0.2




Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	235	0	15	170	38	0	6	35	14	14	26
Future Vol, veh/h	40	235	0	15	170	38	0	6	35	14	14	26
Conflicting Peds, #/hr	13	0	49	60	0	24	49	0	60	24	0	13
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	0	0	0	0	0	0	2	2	2
Mvmt Flow	41	242	0	15	175	39	0	6	36	14	14	27
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	238	0	0	302	0	0	678	652	362	654	633	268
Stage 1	-	-	-	-	-	-	384	384	-	249	249	-
Stage 2	-	-	-	-	-	-	294	268	-	405	384	-
Critical Hdwy	4.11	-	-	4.1	-	-	7.1	6.5	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Follow-up Hdwy	2.209	-	-	2.2	-	-	3.5	4	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1335	-	-	1270	-	-	369	390	687	380	397	771
Stage 1	-	-	-	-	-	-	643	615	-	755	701	-
Stage 2	-	-	-	-	-	-	719	691	-	622	611	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1304	-	-	1197	-	-	297	342	611	313	348	718
Mov Cap-2 Maneuver	-	-	-	-	-	-	297	342	-	313	348	-
Stage 1	-	-	-	-	-	-	584	559	-	711	675	-
Stage 2	-	-	-	-	-	-	637	665	-	526	555	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.1			0.5			12.1			14.2		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	548	1304	-	-	1197	-	-	446				
HCM Lane V/C Ratio	0.077	0.032	-	-	0.013	-	-	0.125				
HCM Control Delay (s)	12.1	7.9	0	-	8	0	-	14.2				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.4				

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	38	16	7	60	0	11	0	2	0	0	0
Future Vol, veh/h	0	38	16	7	60	0	11	0	2	0	0	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	43	18	8	68	0	13	0	2	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0



















Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.1	7.4	7.3	0
HCM LOS	A	A	A	-

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	85%	0%	10%	0%
Vol Thru, %	0%	70%	90%	100%
Vol Right, %	15%	30%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	54	67	0
LT Vol	11	0	7	0
Through Vol	0	38	60	0
RT Vol	2	16	0	0
Lane Flow Rate	15	61	76	0
Geometry Grp	1	1	1	1
Degree of Util (X)	0.017	0.065	0.084	0
Departure Headway (Hd)	4.215	3.805	3.993	4.15
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	845	942	899	0
Service Time	2.264	1.826	2.009	2.204
HCM Lane V/C Ratio	0.018	0.065	0.085	0
HCM Control Delay	7.3	7.1	7.4	7.2
HCM Lane LOS	A	A	A	N
HCM 95th-tile Q	0.1	0.2	0.3	0

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	289	228	0	0	0
Future Vol, veh/h	0	289	228	0	0	0
Conflicting Peds, #/hr	6	0	0	235	235	6
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	95	95	95	95	95	95
Heavy Vehicles, %	1	1	0	0	0	0
Mvmt Flow	0	304	240	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	475	0	-	0	1014	481
Stage 1	-	-	-	-	475	-
Stage 2	-	-	-	-	539	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1092	-	-	-	267	589
Stage 1	-	-	-	-	630	-
Stage 2	-	-	-	-	589	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	848	-	-	-	161	455
Mov Cap-2 Maneuver	-	-	-	-	161	-
Stage 1	-	-	-	-	489	-
Stage 2	-	-	-	-	457	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	848	-	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	-	-	0	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	-	

Timings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	30	605	143	200	879	55	216	40	35	30
Future Volume (vph)	30	605	143	200	879	55	216	40	35	30
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	27.0	27.0	11.0	27.0	27.0	28.0	28.0	28.0	28.0
Total Split (s)	15.0	35.0	35.0	15.0	35.0	35.0	30.0	30.0	30.0	30.0
Total Split (%)	18.8%	43.8%	43.8%	18.8%	43.8%	43.8%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effect Green (s)	35.6	30.6	30.6	43.2	39.6	39.6		24.2		24.2
Actuated g/C Ratio	0.47	0.40	0.40	0.56	0.52	0.52		0.32		0.32
v/c Ratio	0.15	0.87	0.24	0.71	0.97	0.07		0.79		0.20
Control Delay	10.0	36.4	4.1	24.7	44.5	2.1		41.2		16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	10.0	36.4	4.1	24.7	44.5	2.1		41.2		16.9
LOS	A	D	A	C	D	A		D		B
Approach Delay		29.4			39.0			41.2		16.9
Approach LOS		C			D			D		B

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 76.5

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 35.1

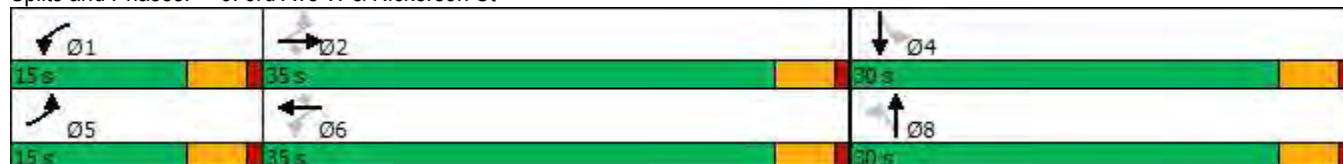
Intersection LOS: D

Intersection Capacity Utilization 83.6%

ICU Level of Service E

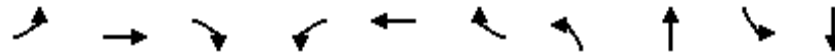
Analysis Period (min) 15

Splits and Phases: 6: 3rd Ave W & Nickerson St



Phasings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	27.0	27.0	11.0	27.0	27.0	28.0	28.0	28.0	28.0
Total Split (s)	15.0	35.0	35.0	15.0	35.0	35.0	30.0	30.0	30.0	30.0
Total Split (%)	18.8%	43.8%	43.8%	18.8%	43.8%	43.8%	37.5%	37.5%	37.5%	37.5%
Maximum Green (s)	10.5	30.5	30.5	10.5	30.5	30.5	25.5	25.5	25.5	25.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	1.0	0.2	0.2	1.0	0.2	0.2	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)		50	50		28	28	83	83	160	160
90th %ile Green (s)	5.1	30.5	30.5	10.5	35.9	35.9	25.5	25.5	25.5	25.5
90th %ile Term Code	Gap	MaxR	MaxR	Max	Hold	Hold	Max	Max	Hold	Hold
70th %ile Green (s)	5.0	30.5	30.5	10.4	35.9	35.9	25.5	25.5	25.5	25.5
70th %ile Term Code	Min	MaxR	MaxR	Gap	Hold	Hold	Max	Max	Hold	Hold
50th %ile Green (s)	0.0	30.5	30.5	8.2	43.2	43.2	24.2	24.2	24.2	24.2
50th %ile Term Code	Skip	MaxR	MaxR	Gap	Hold	Hold	Gap	Gap	Hold	Hold
30th %ile Green (s)	0.0	30.5	30.5	6.8	41.8	41.8	23.0	23.0	23.0	23.0
30th %ile Term Code	Skip	MaxR	MaxR	Gap	Hold	Hold	Ped	Ped	Ped	Ped
10th %ile Green (s)	0.0	30.5	30.5	5.3	40.3	40.3	23.0	23.0	23.0	23.0
10th %ile Term Code	Skip	MaxR	MaxR	Gap	Hold	Hold	Hold	Hold	Ped	Ped

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 76.5

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 80

70th %ile Actuated Cycle: 79.9









50th %ile Actuated Cycle: 76.4

30th %ile Actuated Cycle: 73.8

10th %ile Actuated Cycle: 72.3

Queues
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour






















								
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	32	651	154	215	945	59	291	92
v/c Ratio	0.15	0.87	0.24	0.71	0.97	0.07	0.79	0.20
Control Delay	10.0	36.4	4.1	24.7	44.5	2.1	41.2	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.0	36.4	4.1	24.7	44.5	2.1	41.2	16.9
Queue Length 50th (ft)	6	276	0	46	359	0	123	24
Queue Length 95th (ft)	18	#509	35	111	#775	13	#258	59
Internal Link Dist (ft)		79			214		74	171
Turn Bay Length (ft)	100			135		215		
Base Capacity (vph)	335	751	648	350	973	797	390	494
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.87	0.24	0.61	0.97	0.07	0.75	0.19

Intersection Summary




95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary 6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	605	143	200	879	55	216	40	15	35	30	20
Future Volume (veh/h)	30	605	143	200	879	55	216	40	15	35	30	20
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	0.86		0.83	0.90		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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1811	1811	1811	1900	1900	1900
Adj Flow Rate, veh/h	32	651	154	215	945	59	232	43	16	38	32	22
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	6	6	6	0	0	0
Cap, veh/h	158	792	632	340	901	707	386	61	21	241	195	115
Arrive On Green	0.03	0.42	0.42	0.09	0.48	0.48	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1795	1885	1503	1795	1885	1480	978	202	69	563	643	379
Grp Volume(v), veh/h	32	651	154	215	945	59	291	0	0	92	0	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1503	1795	1885	1480	1249	0	0	1586	0	0
Q Serve(g_s), s	0.7	22.2	4.8	4.6	34.7	1.6	12.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.7	22.2	4.8	4.6	34.7	1.6	15.0	0.0	0.0	2.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.80		0.05	0.41		0.24
Lane Grp Cap(c), veh/h	158	792	632	340	901	707	468	0	0	551	0	0
V/C Ratio(X)	0.20	0.82	0.24	0.63	1.05	0.08	0.62	0.00	0.00	0.17	0.00	0.00
Avail Cap(c_a), veh/h	359	792	632	437	901	707	526	0	0	620	0	0
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.5	18.6	13.6	14.6	18.9	10.3	22.5	0.0	0.0	18.6	0.0	0.0
Incr Delay (d2), s/veh	0.2	9.4	0.9	0.7	43.6	0.2	1.1	0.0	0.0	0.1	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	0.3	11.0	1.7	1.7	24.5	0.5	4.4	0.0	0.0	1.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.7	28.0	14.5	15.3	62.6	10.5	23.7	0.0	0.0	18.7	0.0	0.0
LnGrp LOS	B	C	B	B	F	B	C	A	A	B	A	A
Approach Vol, veh/h	837			1219			291			92		
Approach Delay, s/veh	25.1			51.7			23.7			18.7		
Approach LOS	C			D			C			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.1	35.0		26.5	6.9	39.2		26.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	10.5	30.5		25.5	10.5	30.5		25.5				
Max Q Clear Time (g_c+l1), s	6.6	24.2		4.9	2.7	36.7		17.0				
Green Ext Time (p_c), s	0.0	0.6		0.3	0.0	0.0		0.9				
Intersection Summary												
HCM 6th Ctrl Delay	38.0											
HCM 6th LOS	D											

Intersection												
Int Delay, s/veh	35.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	14	179	97	0	0	0	94	254	70	5	230	139
Future Vol, veh/h	14	179	97	0	0	0	94	254	70	5	230	139
Conflicting Peds, #/hr	87	0	181	149	0	55	181	0	149	55	0	87
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	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	0	0	0
Mvmt Flow	15	186	101	0	0	0	98	265	73	5	240	145
Major/Minor	Minor2						Major1		Major2			
Conflicting Flow All	1089	1187	675				566	0	0	487	0	0
Stage 1	504	504	-				-	-	-	-	-	-
Stage 2	585	683	-				-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2				4.13	-	-	4.1	-	-
Critical Hdwy Stg 1	5.4	5.5	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-				-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3				2.227	-	-	2.2	-	-
Pot Cap-1 Maneuver	241	190	457				1001	-	-	1086	-	-
Stage 1	611	544	-				-	-	-	-	-	-
Stage 2	561	452	-				-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	140	0	313				828	-	-	1086	-	-
Mov Cap-2 Maneuver	140	0	-				-	-	-	-	-	-
Stage 1	431	0	-				-	-	-	-	-	-
Stage 2	462	0	-				-	-	-	-	-	-
Approach	EB						NB		SB			
HCM Control Delay, s	129.7						2.2		0.1			
HCM LOS	F											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR					
Capacity (veh/h)	828	-	-	271	1086	-	-					
HCM Lane V/C Ratio	0.118	-	-	1.115	0.005	-	-					
HCM Control Delay (s)	9.9	0	-	129.7	8.3	0	-					
HCM Lane LOS	A	A	-	F	A	A	-					
HCM 95th %tile Q(veh)	0.4	-	-	12.8	0	-	-					

Intersection						
Int Delay, s/veh	3.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	39	58	363	55	55	273
Future Vol, veh/h	39	58	363	55	55	273
Conflicting Peds, #/hr	126	40	0	126	40	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	93	93	93	93	93	93
Heavy Vehicles, %	8	8	4	4	0	0
Mvmt Flow	42	62	390	59	59	294
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1084	586	0	0	575	0
Stage 1	546	-	-	-	-	-
Stage 2	538	-	-	-	-	-
Critical Hdwy	6.48	6.28	-	-	4.1	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.2	-
Pot Cap-1 Maneuver	234	499	-	-	1008	-
Stage 1	569	-	-	-	-	-
Stage 2	573	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	167	422	-	-	887	-
Mov Cap-2 Maneuver	167	-	-	-	-	-
Stage 1	501	-	-	-	-	-
Stage 2	464	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	27.7	0	1.6			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	261	887	-	
HCM Lane V/C Ratio	-	-	0.4	0.067	-	
HCM Control Delay (s)	-	-	27.7	9.3	0	
HCM Lane LOS	-	-	D	A	A	
HCM 95th %tile Q(veh)	-	-	1.8	0.2	-	

Intersection												
Int Delay, s/veh	4.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	94	5	85	10	335	104	30	272	10
Future Vol, veh/h	0	0	0	94	5	85	10	335	104	30	272	10
Conflicting Peds, #/hr	71	0	37	14	0	48	37	0	14	48	0	71
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	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	4	4	4	2	2	2
Mvmt Flow	0	0	0	96	5	87	10	342	106	31	278	10
Major/Minor												
Minor1				Major1				Major2				
Conflicting Flow All	822	884	491	359	0	0	496	0	0			
Stage 1	463	463	-	-	-	-	-	-	-	-	-	-
Stage 2	359	421	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2	4.14	-	-	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.4	5.5	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	2.236	-	-	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	346	286	582	1189	-	-	1068	-	-	-	-	-
Stage 1	638	568	-	-	-	-	-	-	-	-	-	-
Stage 2	711	592	-	-	-	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	311	0	530	1189	-	-	1019	-	-	-	-	-
Mov Cap-2 Maneuver	311	0	-	-	-	-	-	-	-	-	-	-
Stage 1	602	0	-	-	-	-	-	-	-	-	-	-
Stage 2	676	0	-	-	-	-	-	-	-	-	-	-
Approach												
WB				NB				SB				
HCM Control Delay, s	22.8			0.2				0.8				
HCM LOS	C											
Minor Lane/Major Mvmt	NBL	NBT	NBRWBLn1	SBL	SBT	SBR						
Capacity (veh/h)	1189	-	-	387	1019	-	-					
HCM Lane V/C Ratio	0.009	-	-	0.485	0.03	-	-					
HCM Control Delay (s)	8.1	0	-	22.8	8.6	0	-					
HCM Lane LOS	A	A	-	C	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	2.6	0.1	-	-					

Intersection

Int Delay, s/veh 3.1

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 90 35 26 361 299 67

Future Vol, veh/h 90 35 26 361 299 67

Conflicting Peds, #/hr 20 20 20 0 0 20

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 94 94 94 94 94 94

Heavy Vehicles, % 0 0 5 5 2 2

Mvmt Flow 96 37 28 384 318 71

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 834 394 409 0 - 0

Stage 1 374 - - - - -

Stage 2 460 - - - - -

Critical Hdwy 6.4 6.2 4.15 - - -

Critical Hdwy Stg 1 5.4 - - - - -

Critical Hdwy Stg 2 5.4 - - - - -

Follow-up Hdwy 3.5 3.3 2.245 - - -

Pot Cap-1 Maneuver 341 659 1134 - - -

Stage 1 700 - - - - -

Stage 2 640 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 318 634 1112 - - -

Mov Cap-2 Maneuver 318 - - - - -

Stage 1 665 - - - - -

Stage 2 628 - - - - -

Approach EB NB SB

HCM Control Delay, s 20.1 0.6 0

HCM LOS C

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR








Capacity (veh/h) 1112 - 370 - -

HCM Lane V/C Ratio 0.025 - 0.359 - -

HCM Control Delay (s) 8.3 0 20.1 - -

HCM Lane LOS A A C - -

HCM 95th %tile Q(veh) 0.1 - 1.6 - -




Intersection												
Int Delay, s/veh	67.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	850	31	26	1086	15	35	0	107	10	5	40
Future Vol, veh/h	30	850	31	26	1086	15	35	0	107	10	5	40
Conflicting Peds, #/hr	17	0	29	36	0	24	29	0	36	24	0	17
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	1	1	1	8	8	8	0	0	0
Mvmt Flow	32	904	33	28	1155	16	37	0	114	11	5	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1195	0	0	973	0	0	2293	2272	993	2321	2280	1216
Stage 1	-	-	-	-	-	-	1021	1021	-	1243	1243	-
Stage 2	-	-	-	-	-	-	1272	1251	-	1078	1037	-
Critical Hdwy	4.12	-	-	4.11	-	-	7.18	6.58	6.28	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.18	5.58	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.18	5.58	-	6.1	5.5	-
Follow-up Hdwy	2.218	-	-	2.209	-	-	3.572	4.072	3.372	3.5	4	3.3
Pot Cap-1 Maneuver	584	-	-	713	-	-	~ 26	39	290	27	40	223
Stage 1	-	-	-	-	-	-	278	306	-	216	249	-
Stage 2	-	-	-	-	-	-	200	238	-	267	311	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	571	-	-	689	-	-	~ 16	33	270	14	34	212
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 16	33	-	14	34	-
Stage 1	-	-	-	-	-	-	254	279	-	199	233	-
Stage 2	-	-	-	-	-	-	146	223	-	141	284	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.2	\$ 948.6	291.7
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	55	571	-	-	689	-	-	52
HCM Lane V/C Ratio	2.747	0.056	-	-	0.04	-	-	1.125
HCM Control Delay (s)	\$ 948.6	11.7	-	-	10.4	-	-	291.7
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	15.6	0.2	-	-	0.1	-	-	5.1

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

Intersection						
Int Delay, s/veh	5.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	101	30	30	46	31	31
Future Vol, veh/h	101	30	30	46	31	31
Conflicting Peds, #/hr	43	51	51	0	0	43
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	5	5	0	0	11	11
Mvmt Flow	109	32	32	49	33	33



















Major/Minor	Minor2	Major2		
Conflicting Flow All	144	93	-	0
Stage 1	93	93	-	-
Stage 2	51	0	-	-
Critical Hdwy	6.4	6.5	-	-
Critical Hdwy Stg 1	5.4	5.5	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.5	4	-	-
Pot Cap-1 Maneuver	853	801	-	-
Stage 1	936	822	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	785	0	-	-
Mov Cap-2 Maneuver	785	0	-	-
Stage 1	898	0	-	-
Stage 2	-	0	-	-

Approach	NB	SB
HCM Control Delay, s	10.1	0
HCM LOS	B	

Minor Lane/Major Mvmt	NBLn1	SBT	SBR
Capacity (veh/h)	785	-	-
HCM Lane V/C Ratio	0.104	-	-
HCM Control Delay (s)	10.1	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.3	-	-

Timings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Lane Group	EBL2	EBT	WBL2	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SEL	SET
Lane Configurations												
Traffic Volume (vph)	5	0	5	5	215	422	25	5	40	5	5	988
Future Volume (vph)	5	0	5	5	215	422	25	5	40	5	5	988
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases		3			3			4		4		2
Permitted Phases	3		3	3		3	4		4		2	
Detector Phase	3	3	3	3	3	3	4	4	4	4	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	22.0	22.0
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	29.0	29.0	29.0	29.0	63.0	63.0
Total Split (%)	26.4%	26.4%	26.4%	26.4%	26.4%	26.4%	20.7%	20.7%	20.7%	20.7%	45.0%	45.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.0
Lost Time Adjust (s)		0.0			0.0	0.0		3.0		3.0		3.0
Total Lost Time (s)		6.5			6.5	6.5		9.5		9.5		9.0
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	C-Max	C-Max
Act Effct Green (s)		30.5			30.5	30.5		19.0		19.0		65.5
Actuated g/C Ratio		0.22			0.22	0.22		0.14		0.14		0.47
v/c Ratio		0.82			1.07	1.10		0.36		0.35		0.69
Control Delay		78.3			117.9	112.6		10.5		58.5		32.3
Queue Delay		14.2			0.0	0.0		0.1		0.0		0.1
Total Delay		92.5			117.9	112.6		10.5		58.5		32.4
LOS		F			F	F		B		E		C
Approach Delay		92.5			115.4			10.5		58.5		32.4
Approach LOS		F			F			B		E		C

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 112 (80%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 75.6

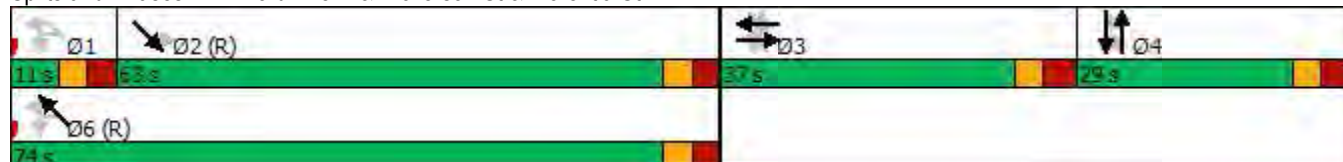
Intersection LOS: E

Intersection Capacity Utilization 124.5%

ICU Level of Service H


Analysis Period (min) 15

Splits and Phases: 14: 3rd Ave N & Nickerson St & Florentia St



Timings
14: 3rd Ave N & Nickerson St & Florentia St













2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	NWL2	NWL	NWT	Ø1
Lane Configurations				
Traffic Volume (vph)	15	75	761	
Future Volume (vph)	15	75	761	
Turn Type	custom	custom	NA	
Protected Phases			6	1
Permitted Phases	1 6	1 6		
Detector Phase	1 6	1 6	6	
Switch Phase				
Minimum Initial (s)			7.0	5.0
Minimum Split (s)			24.0	11.0
Total Split (s)			74.0	11.0
Total Split (%)			52.9%	8%
Yellow Time (s)			3.0	3.0
All-Red Time (s)			3.0	3.0
Lost Time Adjust (s)			3.0	
Total Lost Time (s)			9.0	
Lead/Lag				Lead
Lead-Lag Optimize?				Yes
Recall Mode			C-Max	None
Act Effct Green (s)			65.5	
Actuated g/C Ratio			0.47	
v/c Ratio			1.00	
Control Delay			65.1	
Queue Delay			35.9	
Total Delay			101.0	
LOS			F	
Approach Delay			101.0	
Approach LOS			F	
Intersection Summary				

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Lane Group	EBL2	EBT	WBL2	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SEL	SET
Protected Phases	3			3			4			4		2
Permitted Phases	3		3	3	3	3	4		4		2	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	22.0	22.0
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	29.0	29.0	29.0	29.0	63.0	63.0
Total Split (%)	26.4%	26.4%	26.4%	26.4%	26.4%	26.4%	20.7%	20.7%	20.7%	20.7%	45.0%	45.0%
Maximum Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.5	22.5	22.5	22.5	57.0	57.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.0
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (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
Time To Reduce (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
Recall Mode	None	None	None	None	None	None	None	None	None	None	C-Max	C-Max
Walk Time (s)							8.0	8.0	8.0	8.0	7.0	7.0
Flash Dont Walk (s)							14.0	14.0	14.0	14.0	9.0	9.0
Pedestrian Calls (#/hr)							81	81	81	81	75	75
90th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
70th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
70th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
50th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
50th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
30th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
30th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
10th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
10th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 112 (80%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Control Type: Actuated-Coordinated

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	NWL2	NWL	NWT	Ø1
Protected Phases			6	1
Permitted Phases	1 6	1 6		
Minimum Initial (s)			7.0	5.0
Minimum Split (s)			24.0	11.0
Total Split (s)			74.0	11.0
Total Split (%)			52.9%	8%
Maximum Green (s)			68.0	5.0
Yellow Time (s)			3.0	3.0
All-Red Time (s)			3.0	3.0
Lead/Lag				Lead
Lead-Lag Optimize?				Yes
Vehicle Extension (s)			2.0	2.0
Minimum Gap (s)			0.2	0.2
Time Before Reduce (s)			0.0	0.0
Time To Reduce (s)			0.0	0.0
Recall Mode			C-Max	None
Walk Time (s)			7.0	
Flash Dont Walk (s)			9.0	
Pedestrian Calls (#/hr)			174	
90th %ile Green (s)			68.5	0.0
90th %ile Term Code			Coord	Skip
70th %ile Green (s)			68.5	0.0
70th %ile Term Code			Coord	Skip
50th %ile Green (s)			68.5	0.0
50th %ile Term Code			Coord	Skip
30th %ile Green (s)			68.5	0.0
30th %ile Term Code			Coord	Skip
10th %ile Green (s)			68.5	0.0
10th %ile Term Code			Coord	Skip
Intersection Summary				

Queues

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT	SET	NWT
Lane Group Flow (vph)	201	373	335	108	58	1089	925
v/c Ratio	0.82	1.07	1.10	0.36	0.35	0.69	1.00
Control Delay	78.3	117.9	112.6	10.5	58.5	32.3	65.1
Queue Delay	14.2	0.0	0.0	0.1	0.0	0.1	35.9
Total Delay	92.5	117.9	112.6	10.5	58.5	32.4	101.0
Queue Length 50th (ft)	176	~392	~266	0	46	403	455
Queue Length 95th (ft)	#310	#608	#476	46	94	485	#596
Internal Link Dist (ft)	413	299		354	158	814	375
Turn Bay Length (ft)							
Base Capacity (vph)	245	350	305	302	171	1567	928
Starvation Cap Reductn	0	0	0	0	0	0	106
Spillback Cap Reductn	33	0	0	6	0	47	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	1.07	1.10	0.36	0.34	0.72	1.13

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

















95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL2	EBT	EBR	WBL2	WBL	WBT	WBR	WBR2	NBL	NBT	NBR2	SBL
Lane Configurations												
Traffic Volume (vph)	5	0	180	5	5	215	422	5	25	5	70	40
Future Volume (vph)	5	0	180	5	5	215	422	5	25	5	70	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5				6.5	6.5			9.5		
Lane Util. Factor		1.00				0.95	0.95			1.00		
Frpb, ped/bikes		0.94				0.96	0.64			0.94		
Flpb, ped/bikes		1.00				1.00	1.00			0.98		
Frt		0.87				0.95	0.85			0.91		
Flt Protected		1.00				1.00	1.00			0.99		
Satd. Flow (prot)		1546				1626	967			1570		
Flt Permitted		0.73				0.99	1.00			0.90		
Satd. Flow (perm)		1128				1610	967			1425		
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)	5	0	196	5	5	234	459	5	27	5	76	43
RTOR Reduction (vph)	0	0	0	0	0	0	95	0	0	93	0	0
Lane Group Flow (vph)	0	201	0	0	0	373	240	0	0	15	0	0
Confl. Peds. (#/hr)	44		37	37	44		44	67	44		37	37
Confl. Bikes (#/hr)			1				37	37				
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	0%	0%	0%	2%
Turn Type	Perm	NA		Perm	Perm	NA	Perm		Perm	NA		Perm
Protected Phases		3				3				4		
Permitted Phases	3			3	3		3		4			4
Actuated Green, G (s)		30.5				30.5	30.5			22.0		
Effective Green, g (s)		30.5				30.5	30.5			19.0		
Actuated g/C Ratio		0.22				0.22	0.22			0.14		
Clearance Time (s)		6.5				6.5	6.5			6.5		
Vehicle Extension (s)		2.0				2.0	2.0			2.0		
Lane Grp Cap (vph)		245				350	210			193		
v/s Ratio Prot												
v/s Ratio Perm		0.18				0.23	0.25			0.01		
v/c Ratio		0.82				1.07	1.14			0.08		
Uniform Delay, d1		52.1				54.8	54.8			52.8		
Progression Factor		1.00				1.00	1.00			1.00		
Incremental Delay, d2		18.5				66.6	106.5			0.1		
Delay (s)		70.6				121.4	161.3			52.9		
Level of Service		E				F	F			D		
Approach Delay (s)		70.6				140.2				52.9		
Approach LOS		E				F				D		
Intersection Summary												
HCM 2000 Control Delay		70.6				HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio		0.98										
Actuated Cycle Length (s)		140.0				Sum of lost time (s)				31.0		
Intersection Capacity Utilization		124.5%				ICU Level of Service				H		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

	↓	↙	↘	↗	↖	↗	↖	↘	↙	↗
Movement	SBT	SBR	SBR2	SEL	SET	SER	SER2	NWL2	NWL	NWT
Lane Configurations	↕				↕					↕
Traffic Volume (vph)	5	5	5	5	988	5	5	15	75	761
Future Volume (vph)	5	5	5	5	988	5	5	15	75	761
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.5				9.0					9.0
Lane Util. Factor	1.00				0.95					0.95
Frpb, ped/bikes	0.97				1.00					1.00
Flpb, ped/bikes	0.96				1.00					1.00
Frt	0.98				1.00					1.00
Flt Protected	0.96				1.00					0.99
Satd. Flow (prot)	1629				3522					3555
Flt Permitted	0.72				0.95					0.55
Satd. Flow (perm)	1214				3349					1983
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	5	5	5	1074	5	5	16	82	827
RTOR Reduction (vph)	3	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	55	0	0	0	1089	0	0	0	0	925
Confl. Peds. (#/hr)		31	44	107		44	31	44	31	
Confl. Bikes (#/hr)		11	11			2	2			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	NA			Perm	NA			custom	custom	NA
Protected Phases	4				2					6
Permitted Phases				2				1 6	1 6	
Actuated Green, G (s)	22.0				68.5					68.5
Effective Green, g (s)	19.0				65.5					65.5
Actuated g/C Ratio	0.14				0.47					0.47
Clearance Time (s)	6.5				6.0					6.0
Vehicle Extension (s)	2.0				3.0					2.0
Lane Grp Cap (vph)	164				1566					927
v/s Ratio Prot										
v/s Ratio Perm	c0.05				0.33					c0.47
v/c Ratio	0.34				0.70					1.00
Uniform Delay, d1	54.8				29.4					37.2
Progression Factor	1.00				1.00					1.08
Incremental Delay, d2	0.4				2.6					25.5
Delay (s)	55.2				32.0					65.8
Level of Service	E				C					E
Approach Delay (s)	55.2				32.0					65.8
Approach LOS	E				C					E
Intersection Summary										

Intersection

Int Delay, s/veh 0

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 7 7 7 7 7 7

Traffic Vol, veh/h 0 5 0 1965 540 647

Future Vol, veh/h 0 5 0 1965 540 647

Conflicting Peds, #/hr 75 74 74 0 0 75

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 97 97 97 97 97 97

Heavy Vehicles, % 0 0 2 2 2 2

Mvmt Flow 0 5 0 2026 557 667

Major/Minor Minor2 Major1 Major2

Conflicting Flow All - 761 - 0 - 0

Stage 1 - - - - - -

Stage 2 - - - - - -

Critical Hdwy - 6.9 - - - -

Critical Hdwy Stg 1 - - - - - -

Critical Hdwy Stg 2 - - - - - -

Follow-up Hdwy - 3.3 - - - -

Pot Cap-1 Maneuver 0 352 0 - - -

Stage 1 0 - 0 - - -

Stage 2 0 - 0 - - -

Platoon blocked, % - - - - - -

Mov Cap-1 Maneuver - 304 - - - -

Mov Cap-2 Maneuver - - - - - -

Stage 1 - - - - - -

Stage 2 - - - - - -

Approach EB NB SB

HCM Control Delay, s 17 0 0

HCM LOS C

Minor Lane/Major Mvmt NBT EBLn1 SBT SBR

Capacity (veh/h) - 304 - -

HCM Lane V/C Ratio - 0.017 - -

HCM Control Delay (s) - 17 - -

HCM Lane LOS - C - -

HCM 95th %tile Q(veh) - 0.1 - -

Timings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↔↔	↔	↔↔	↔↔	↔	↔↔	↔↔	↔
Traffic Volume (vph)	850	267	517	790	224	330	320	115
Future Volume (vph)	850	267	517	790	224	330	320	115
Turn Type	Prot	NA	NA	custom	Split	NA	Split	NA
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Detector Phase	4	1 4	1	5	3	3	2	2
Switch Phase								
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	30.0		37.0	73.0	37.0	37.0	36.0	36.0
Total Split (%)	21.4%		26.4%	52.1%	26.4%	26.4%	25.7%	25.7%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		5.5	5.5	6.5	6.5	5.5	5.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Recall Mode	None		Max	C-Max	None	None	C-Max	C-Max
Act Effect Green (s)	26.9	64.9	31.5	67.5	27.1	27.1	30.5	30.5
Actuated g/C Ratio	0.19	0.46	0.22	0.48	0.19	0.19	0.22	0.22
v/c Ratio	1.33	0.55	0.68	0.86	0.68	0.51	0.45	0.64
Control Delay	197.6	52.0	54.6	39.5	62.4	52.5	49.9	51.3
Queue Delay	0.0	8.0	1.3	0.0	0.0	0.0	0.0	91.5
Total Delay	197.6	60.0	55.9	39.5	62.4	52.5	49.9	142.8
LOS	F	E	E	D	E	D	D	F
Approach Delay		151.3	46.0			56.4		88.8
Approach LOS		F	D			E		F

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 89 (64%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.33

Intersection Signal Delay: 90.4

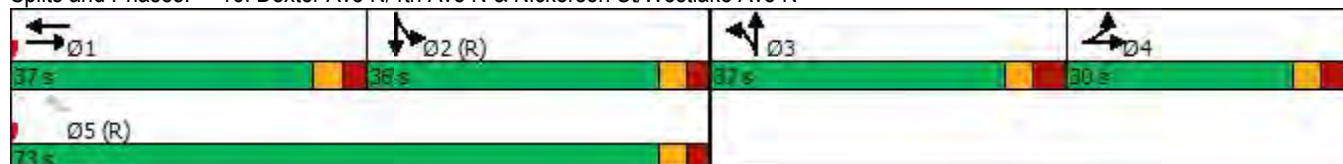
Intersection LOS: F

Intersection Capacity Utilization 107.5%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N



Phasings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	30.0		37.0	73.0	37.0	37.0	36.0	36.0
Total Split (%)	21.4%		26.4%	52.1%	26.4%	26.4%	25.7%	25.7%
Maximum Green (s)	23.5		31.5	67.5	30.5	30.5	30.5	30.5
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2		0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None		Max	C-Max	None	None	C-Max	C-Max
Walk Time (s)			9.0		8.0	8.0	8.0	8.0
Flash Dont Walk (s)			22.0		22.0	22.0	22.0	22.0
Pedestrian Calls (#/hr)			46		48	48	17	17
90th %ile Green (s)	23.5		31.5	67.5	30.5	30.5	30.5	30.5
90th %ile Term Code	Max		MaxR	Coord	Max	Max	Coord	Coord
70th %ile Green (s)	24.0		31.5	67.5	30.0	30.0	30.5	30.5
70th %ile Term Code	Max		MaxR	Coord	Ped	Ped	Coord	Coord
50th %ile Green (s)	24.0		31.5	67.5	30.0	30.0	30.5	30.5
50th %ile Term Code	Max		MaxR	Coord	Ped	Ped	Coord	Coord
30th %ile Green (s)	24.0		31.5	67.5	30.0	30.0	30.5	30.5
30th %ile Term Code	Max		MaxR	Coord	Ped	Ped	Coord	Coord
10th %ile Green (s)	39.0		31.5	67.5	15.0	15.0	30.5	30.5
10th %ile Term Code	Max		MaxR	Coord	Gap	Gap	Coord	Coord

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 89 (64%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Control Type: Actuated-Coordinated

Queues

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	885	449	539	823	233	349	333	240
v/c Ratio	1.33	0.55	0.68	0.86	0.68	0.51	0.45	0.64
Control Delay	197.6	52.0	54.6	39.5	62.4	52.5	49.9	51.3
Queue Delay	0.0	8.0	1.3	0.0	0.0	0.0	0.0	91.5
Total Delay	197.6	60.0	55.9	39.5	62.4	52.5	49.9	142.8
Queue Length 50th (ft)	~579	382	237	341	194	146	137	173
Queue Length 95th (ft)	#722	m488	303	459	285	197	186	269
Internal Link Dist (ft)		375	150			693		176
Turn Bay Length (ft)				200				
Base Capacity (vph)	666	821	796	957	385	767	733	377
Starvation Cap Reductn	0	326	0	0	0	0	0	0
Spillback Cap Reductn	0	0	107	0	0	0	0	319
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.33	0.91	0.78	0.86	0.61	0.46	0.45	4.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.























Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N















2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	850	267	164	0	517	790	224	330	5	320	115	115
Future Volume (vph)	850	267	164	0	517	790	224	330	5	320	115	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.98			1.00	0.68	1.00	1.00		1.00	0.96	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.94			1.00	0.85	1.00	1.00		1.00	0.93	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3467	1739			3539	1903	1770	3520		3367	1616	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3467	1739			3539	1903	1770	3520		3367	1616	
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)	885	278	171	0	539	823	233	344	5	333	120	120
RTOR Reduction (vph)	0	16	0	0	0	40	0	1	0	0	26	0
Lane Group Flow (vph)	885	433	0	0	539	783	233	348	0	333	214	0
Confl. Peds. (#/hr)	17		29	29		17	17		48	48		17
Confl. Bikes (#/hr)			2			371			156			53
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	26.9	64.9			31.5	67.5	27.1	27.1		30.5	30.5	
Effective Green, g (s)	26.9	58.4			31.5	67.5	27.1	27.1		30.5	30.5	
Actuated g/C Ratio	0.19	0.42			0.22	0.48	0.19	0.19		0.22	0.22	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	666	725			796	917	342	681		733	352	
v/s Ratio Prot	c0.26	0.25			0.15		c0.13	0.10		0.10	0.13	
v/s Ratio Perm						c0.41						
v/c Ratio	1.33	0.60			0.68	0.85	0.68	0.51		0.45	0.61	
Uniform Delay, d1	56.5	31.7			49.6	31.9	52.4	50.5		47.5	49.4	
Progression Factor	0.97	1.89			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	155.5	1.0			4.6	9.9	4.4	0.3		2.0	7.6	
Delay (s)	210.4	60.7			54.2	41.8	56.8	50.8		49.6	57.0	
Level of Service	F	E			D	D	E	D		D	E	
Approach Delay (s)		160.0			46.7			53.2			52.7	
Approach LOS		F			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			87.8				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			107.5%				ICU Level of Service			G		
Analysis Period (min)			15									
c Critical Lane Group												

2035 Alternative 4 AM (with Mitigation Measures)

Timings
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	19	903	18	603	17	7	15	0
Future Volume (vph)	19	903	18	603	17	7	15	0
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	6.5	7.0	6.5	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	22.5	11.0	23.5	25.5	25.5	23.5	23.5
Total Split (s)	11.0	53.0	11.0	53.0	26.0	26.0	26.0	26.0
Total Split (%)	12.2%	58.9%	12.2%	58.9%	28.9%	28.9%	28.9%	28.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
Act Effect Green (s)	70.0	67.4	70.0	67.4		9.2		9.2
Actuated g/C Ratio	0.78	0.75	0.78	0.75		0.10		0.10
v/c Ratio	0.03	0.73	0.05	0.48		0.65		0.22
Control Delay	2.7	13.4	2.0	5.0		18.4		3.8
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	2.7	13.4	2.0	5.0		18.4		3.8
LOS	A	B	A	A		B		A
Approach Delay		13.2		4.9		18.4		3.8
Approach LOS		B		A		B		A

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 20 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 10.7

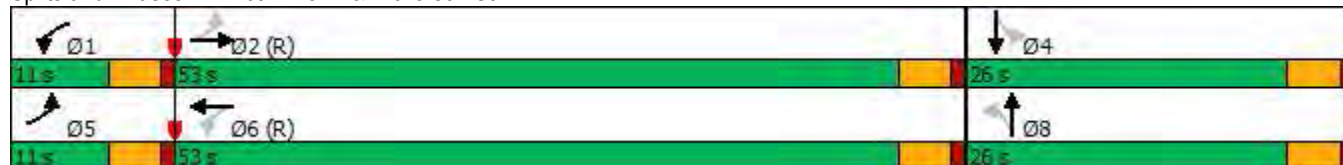
Intersection LOS: B

Intersection Capacity Utilization 73.0%

ICU Level of Service C

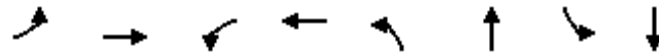
Analysis Period (min) 15

Splits and Phases: 1: 6th Ave W & Nickerson St



Phasings
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Minimum Initial (s)	6.5	7.0	6.5	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	22.5	11.0	23.5	25.5	25.5	23.5	23.5
Total Split (s)	11.0	53.0	11.0	53.0	26.0	26.0	26.0	26.0
Total Split (%)	12.2%	58.9%	12.2%	58.9%	28.9%	28.9%	28.9%	28.9%
Maximum Green (s)	6.5	48.5	6.5	48.5	21.5	21.5	21.5	21.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
Walk Time (s)		7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		5.0		12.0	14.0	14.0	12.0	12.0
Pedestrian Calls (#/hr)		0		0	0	0	0	0
90th %ile Green (s)	6.5	55.4	6.5	55.4	14.6	14.6	14.6	14.6
90th %ile Term Code	Min	Coord	Min	Coord	Gap	Gap	Hold	Hold
70th %ile Green (s)	6.5	59.8	6.5	59.8	10.2	10.2	10.2	10.2
70th %ile Term Code	Min	Coord	Min	Coord	Gap	Gap	Hold	Hold
50th %ile Green (s)	0.0	73.9	0.0	73.9	7.1	7.1	7.1	7.1
50th %ile Term Code	Skip	Coord	Skip	Coord	Gap	Gap	Hold	Hold
30th %ile Green (s)	0.0	74.0	0.0	74.0	7.0	7.0	7.0	7.0
30th %ile Term Code	Skip	Coord	Skip	Coord	Min	Min	Hold	Hold
10th %ile Green (s)	0.0	74.0	0.0	74.0	7.0	7.0	7.0	7.0
10th %ile Term Code	Skip	Coord	Skip	Coord	Min	Min	Hold	Hold

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 20 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Control Type: Actuated-Coordinated

Queues
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	20	994	19	653	205	29
v/c Ratio	0.03	0.73	0.05	0.48	0.65	0.22
Control Delay	2.7	13.4	2.0	5.0	18.4	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.7	13.4	2.0	5.0	18.4	3.8
Queue Length 50th (ft)	1	154	1	97	14	0
Queue Length 95th (ft)	8	#758	m3	98	75	2
Internal Link Dist (ft)		549		657	226	272
Turn Bay Length (ft)	30		30			
Base Capacity (vph)	580	1353	358	1372	499	211
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.73	0.05	0.48	0.41	0.14

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.



















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: 6th Ave W & Nickerson St





2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	903	51	18	603	24	17	7	173	15	0	12
Future Volume (veh/h)	19	903	51	18	603	24	17	7	173	15	0	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.98		0.96	0.98		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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1856	1856	1856	1870	1870	1870	1426	1426	1426
Adj Flow Rate, veh/h	20	941	53	19	628	25	18	7	180	16	0	12
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, %	4	4	4	3	3	3	2	2	2	32	32	32
Cap, veh/h	476	1115	63	254	1144	46	56	20	236	138	12	65
Arrive On Green	0.03	0.65	0.65	0.03	0.65	0.65	0.18	0.18	0.18	0.18	0.00	0.18
Sat Flow, veh/h	1753	1723	97	1767	1770	70	71	116	1348	426	71	373
Grp Volume(v), veh/h	20	0	994	19	0	653	205	0	0	28	0	0
Grp Sat Flow(s),veh/h/ln	1753	0	1820	1767	0	1840	1536	0	0	871	0	0
Q Serve(g_s), s	0.3	0.0	38.2	0.3	0.0	17.5	4.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	0.0	38.2	0.3	0.0	17.5	11.4	0.0	0.0	1.7	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.04	0.09		0.88	0.57		0.43
Lane Grp Cap(c), veh/h	476	0	1178	254	0	1189	313	0	0	215	0	0
V/C Ratio(X)	0.04	0.00	0.84	0.07	0.00	0.55	0.66	0.00	0.00	0.13	0.00	0.00
Avail Cap(c_a), veh/h	553	0	1178	333	0	1189	409	0	0	279	0	0
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	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	6.6	0.0	12.3	13.2	0.0	8.7	35.3	0.0	0.0	31.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	7.5	0.1	0.0	1.8	2.3	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	0.1	0.0	15.9	0.2	0.0	6.9	4.4	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.6	0.0	19.8	13.3	0.0	10.6	37.6	0.0	0.0	31.5	0.0	0.0
LnGrp LOS	A	A	B	B	A	B	D	A	A	C	A	A
Approach Vol, veh/h	1014				672				205			
Approach Delay, s/veh	19.5				10.6				37.6			
Approach LOS	B				B				D			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	62.8		20.3	7.1	62.7		20.3				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	48.5		21.5	6.5	48.5		21.5				
Max Q Clear Time (g_c+I1), s	2.3	40.2		3.7	2.3	19.5		13.4				
Green Ext Time (p_c), s	0.0	4.9		0.1	0.0	5.3		0.8				
Intersection Summary												
HCM 6th Ctrl Delay	18.5											
HCM 6th LOS	B											

Intersection

Intersection Delay, s/veh 7.9

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	0	5	0	0	0	5	143	0	0	34	10
Future Vol, veh/h	30	0	5	0	0	0	5	143	0	0	34	10
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	0	0	0	9	9	9	0	0	0	0	0	0
Mvmt Flow	38	0	6	0	0	0	6	181	0	0	43	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.8	0	8.1	7.3
HCM LOS	A	-	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	86%	0%	0%
Vol Thru, %	97%	0%	100%	77%
Vol Right, %	0%	14%	0%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	148	35	0	44
LT Vol	5	30	0	0
Through Vol	143	0	0	34
RT Vol	0	5	0	10
Lane Flow Rate	187	44	0	56
Geometry Grp	1	1	1	1
Degree of Util (X)	0.21	0.055	0	0.062
Departure Headway (Hd)	4.026	4.508	4.63	3.982
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	888	799	0	889
Service Time	2.068	2.508	2.631	2.051
HCM Lane V/C Ratio	0.211	0.055	0	0.063
HCM Control Delay	8.1	7.8	7.6	7.3
HCM Lane LOS	A	A	N	A
HCM 95th-tile Q	0.8	0.2	0	0.2




Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	135	134	0	10	96	12	0	1	5	17	5	23
Future Vol, veh/h	135	134	0	10	96	12	0	1	5	17	5	23
Conflicting Peds, #/hr	2	0	8	13	0	8	8	0	13	8	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	2	2	2	0	0	0	5	5	5
Mvmt Flow	180	179	0	13	128	16	0	1	7	23	7	31
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	152	0	0	192	0	0	741	730	205	726	722	152
Stage 1	-	-	-	-	-	-	552	552	-	170	170	-
Stage 2	-	-	-	-	-	-	189	178	-	556	552	-
Critical Hdwy	4.13	-	-	4.12	-	-	7.1	6.5	6.2	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Follow-up Hdwy	2.227	-	-	2.218	-	-	3.5	4	3.3	3.545	4.045	3.345
Pot Cap-1 Maneuver	1423	-	-	1381	-	-	335	352	841	336	349	886
Stage 1	-	-	-	-	-	-	522	518	-	825	752	-
Stage 2	-	-	-	-	-	-	817	756	-	510	510	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1412	-	-	1364	-	-	275	293	820	288	291	873
Mov Cap-2 Maneuver	-	-	-	-	-	-	275	293	-	288	291	-
Stage 1	-	-	-	-	-	-	442	439	-	702	738	-
Stage 2	-	-	-	-	-	-	767	742	-	427	432	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	4			0.6			10.8			14.5		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	631	1412	-	-	1364	-	-	439				
HCM Lane V/C Ratio	0.013	0.127	-	-	0.01	-	-	0.137				
HCM Control Delay (s)	10.8	7.9	0	-	7.7	0	-	14.5				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0	0.4	-	-	0	-	-	0.5				

Intersection	
Intersection Delay, s/veh	7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	28	10	6	14	0	0	0	1	0	0	0
Future Vol, veh/h	0	28	10	6	14	0	0	0	1	0	0	0
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	33	33	33
Mvmt Flow	0	42	15	9	21	0	0	0	1	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0





















Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7	7.1	6.5	0
HCM LOS	A	A	A	-

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	30%	0%
Vol Thru, %	0%	74%	70%	100%
Vol Right, %	100%	26%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	1	38	20	0
LT Vol	0	0	6	0
Through Vol	0	28	14	0
RT Vol	1	10	0	0
Lane Flow Rate	1	57	30	0
Geometry Grp	1	1	1	1
Degree of Util (X)	0.001	0.059	0.033	0
Departure Headway (Hd)	3.449	3.767	4.004	4.613
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	1035	955	898	0
Service Time	1.477	1.772	2.011	2.642
HCM Lane V/C Ratio	0.001	0.06	0.033	0
HCM Control Delay	6.5	7	7.1	7.6
HCM Lane LOS	A	A	A	N
HCM 95th-tile Q	0	0.2	0.1	0

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	156	123	0	0	0
Future Vol, veh/h	0	156	123	0	0	0
Conflicting Peds, #/hr	4	0	0	19	19	4
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	79	79	79	79	79	79
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	0	197	156	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	175	0	-	0	391	179
Stage 1	-	-	-	-	175	-
Stage 2	-	-	-	-	216	-
Critical Hdwy	4.13	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.227	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1395	-	-	-	617	869
Stage 1	-	-	-	-	860	-
Stage 2	-	-	-	-	825	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1370	-	-	-	595	850
Mov Cap-2 Maneuver	-	-	-	-	595	-
Stage 1	-	-	-	-	845	-
Stage 2	-	-	-	-	810	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1370	-	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	-	-	0	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	-	

Timings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	10	949	113	75	580	35	135	10	10	10
Future Volume (vph)	10	949	113	75	580	35	135	10	10	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	6.5	7.0	7.0	6.5	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	22.5	22.5	11.0	22.5	22.5	27.5	27.5	27.5	27.5
Total Split (s)	11.0	51.0	51.0	11.0	51.0	51.0	28.0	28.0	28.0	28.0
Total Split (%)	12.2%	56.7%	56.7%	12.2%	56.7%	56.7%	31.1%	31.1%	31.1%	31.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0		3.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	7.5	7.5		7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	61.5	56.3	56.3	64.4	63.0	63.0	12.8	12.8		11.8
Actuated g/C Ratio	0.68	0.63	0.63	0.72	0.70	0.70	0.14	0.14		0.13
v/c Ratio	0.02	0.87	0.12	0.34	0.48	0.03	0.77	0.26		0.11
Control Delay	8.0	28.6	6.3	12.5	15.8	4.1	61.1	12.9		31.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	8.0	28.6	6.3	12.5	15.8	4.1	61.1	12.9		31.0
LOS	A	C	A	B	B	A	E	B		C
Approach Delay		26.0			14.8			45.4		31.0
Approach LOS		C			B			D		C

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 24.1

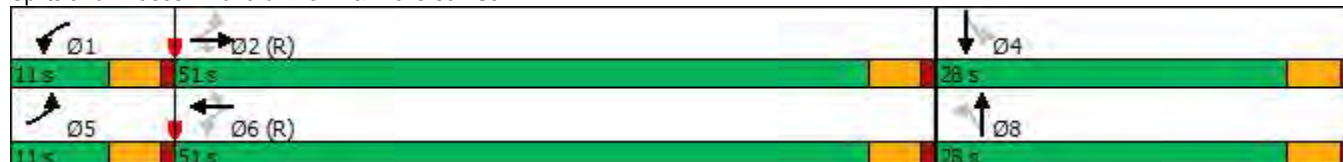
Intersection LOS: C

Intersection Capacity Utilization 84.3%

ICU Level of Service E











Analysis Period (min) 15

Splits and Phases: 6: 3rd Ave W & Nickerson St












Phasings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Minimum Initial (s)	6.5	7.0	7.0	6.5	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	22.5	22.5	11.0	22.5	22.5	27.5	27.5	27.5	27.5
Total Split (s)	11.0	51.0	51.0	11.0	51.0	51.0	28.0	28.0	28.0	28.0
Total Split (%)	12.2%	56.7%	56.7%	12.2%	56.7%	56.7%	31.1%	31.1%	31.1%	31.1%
Maximum Green (s)	6.5	46.5	46.5	6.5	46.5	46.5	23.5	23.5	23.5	23.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	1.0	0.2	0.2	1.0	0.2	0.2	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)		12	12		6	6	12	12	17	17
90th %ile Green (s)	6.5	46.5	46.5	7.0	47.0	47.0	23.0	23.0	23.0	23.0
90th %ile Term Code	Min	Coord	Coord	Max	Coord	Coord	Ped	Ped	Ped	Ped
70th %ile Green (s)	0.0	47.0	47.0	6.5	58.0	58.0	23.0	23.0	23.0	23.0
70th %ile Term Code	Skip	Coord	Coord	Min	Coord	Coord	Hold	Hold	Ped	Ped
50th %ile Green (s)	0.0	55.8	55.8	6.5	66.8	66.8	14.2	14.2	14.2	14.2
50th %ile Term Code	Skip	Coord	Coord	Min	Coord	Coord	Gap	Gap	Hold	Hold
30th %ile Green (s)	0.0	58.5	58.5	6.5	69.5	69.5	11.5	11.5	0.0	0.0
30th %ile Term Code	Skip	Coord	Coord	Min	Coord	Coord	Gap	Gap	Skip	Skip
10th %ile Green (s)	0.0	73.5	73.5	0.0	73.5	73.5	7.5	7.5	0.0	0.0
10th %ile Term Code	Skip	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Skip	Skip
Intersection Summary										
Cycle Length: 90										
Actuated Cycle Length: 90										
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green										
Control Type: Actuated-Coordinated										

Queues
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

									
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	10	989	118	78	604	36	141	68	20
v/c Ratio	0.02	0.87	0.12	0.34	0.48	0.03	0.77	0.26	0.11
Control Delay	8.0	28.6	6.3	12.5	15.8	4.1	61.1	12.9	31.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.0	28.6	6.3	12.5	15.8	4.1	61.1	12.9	31.0
Queue Length 50th (ft)	1	333	2	16	166	1	80	5	10
Queue Length 95th (ft)	m4	#850	m39	51	455	m8	130	38	28
Internal Link Dist (ft)		79			214			74	171
Turn Bay Length (ft)	100			135		215			
Base Capacity (vph)	543	1131	954	229	1253	1050	294	389	327
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.87	0.12	0.34	0.48	0.03	0.48	0.17	0.06

Intersection Summary






















95th percentile volume exceeds capacity, queue may be longer.




Queue shown is maximum after two cycles.




m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	949	113	75	580	35	135	10	56	10	10	0
Future Volume (veh/h)	10	949	113	75	580	35	135	10	56	10	10	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	0.96		0.95	0.97		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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1811	1811	1811	1796	1796	1796	1707	1707	1707
Adj Flow Rate, veh/h	10	989	118	78	604	36	141	10	58	10	10	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, %	5	5	5	6	6	6	7	7	7	13	13	13
Cap, veh/h	503	1151	966	282	1225	1007	253	27	159	125	94	0
Arrive On Green	0.02	0.63	0.63	0.06	0.68	0.68	0.12	0.12	0.16	0.16	0.12	0.00
Sat Flow, veh/h	1739	1826	1533	1725	1811	1490	1301	220	1274	519	757	0
Grp Volume(v), veh/h	10	989	118	78	604	36	141	0	68	20	0	0
Grp Sat Flow(s),veh/h/ln	1739	1826	1533	1725	1811	1490	1301	0	1494	1276	0	0
Q Serve(g_s), s	0.2	39.3	2.8	1.2	14.6	0.7	6.1	0.0	3.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.2	39.3	2.8	1.2	14.6	0.7	8.8	0.0	3.7	3.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.85	0.50		0.00
Lane Grp Cap(c), veh/h	503	1151	966	282	1225	1007	253	0	186	261	0	0
V/C Ratio(X)	0.02	0.86	0.12	0.28	0.49	0.04	0.56	0.00	0.37	0.08	0.00	0.00
Avail Cap(c_a), veh/h	601	1151	966	300	1225	1007	387	0	340	406	0	0
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.3	13.4	6.7	15.0	7.1	4.8	38.1	0.0	34.9	34.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	8.4	0.3	0.2	1.4	0.1	0.7	0.0	0.4	0.0	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	0.1	16.9	0.9	0.8	5.4	0.2	3.1	0.0	1.3	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.3	21.9	6.9	15.2	8.5	4.9	38.8	0.0	35.4	34.3	0.0	0.0
LnGrp LOS	A	C	A	B	A	A	D	A	D	C	A	A
Approach Vol, veh/h		1117			718			209			20	
Approach Delay, s/veh		20.2			9.1			37.7			34.3	
Approach LOS		C			A			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.1	61.2		18.7	5.9	65.4		18.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	46.5		23.5	6.5	46.5		23.5				
Max Q Clear Time (g_c+I1), s	3.2	41.3		5.7	2.2	16.6		11.8				
Green Ext Time (p_c), s	0.0	1.0		0.0	0.0	0.8		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			18.2									
HCM 6th LOS			B									

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	73	0	0	0	43	197	15	5	140	49
Future Vol, veh/h	0	0	73	0	0	0	43	197	15	5	140	49
Conflicting Peds, #/hr	32	0	42	22	0	11	42	0	22	11	0	32
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	0	0	0	7	7	7	2	2	2
Mvmt Flow	0	0	91	0	0	0	54	246	19	6	175	61
Major/Minor	Minor2						Major1		Major2			
Conflicting Flow All	-	-	290				278	0	0	287	0	0
Stage 1	-	-	-				-	-	-	-	-	-
Stage 2	-	-	-				-	-	-	-	-	-
Critical Hdwy	-	-	6.23				4.17	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-				-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-				-	-	-	-	-	-
Follow-up Hdwy	-	-	3.327				2.263	-	-	2.218	-	-
Pot Cap-1 Maneuver	0	0	747				1257	-	-	1275	-	-
Stage 1	0	0	-				-	-	-	-	-	-
Stage 2	0	0	-				-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	0	688				1207	-	-	1275	-	-
Mov Cap-2 Maneuver	-	0	-				-	-	-	-	-	-
Stage 1	-	0	-				-	-	-	-	-	-
Stage 2	-	0	-				-	-	-	-	-	-
Approach	EB						NB		SB			
HCM Control Delay, s	11						1.4		0.2			
HCM LOS	B											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1207	-	-	688	1275	-	-					
HCM Lane V/C Ratio	0.045	-	-	0.133	0.005	-	-					
HCM Control Delay (s)	8.1	0	-	11	7.8	0	-					
HCM Lane LOS	A	A	-	B	A	A	-					
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0	-	-					

Intersection						
Int Delay, s/veh	2.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	26	242	42	46	167
Future Vol, veh/h	27	26	242	42	46	167
Conflicting Peds, #/hr	16	3	0	16	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	84	84	84	84	84	84
Heavy Vehicles, %	30	30	7	7	5	5
Mvmt Flow	32	31	288	50	55	199
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	654	332	0	0	354	0
Stage 1	329	-	-	-	-	-
Stage 2	325	-	-	-	-	-
Critical Hdwy	6.7	6.5	-	-	4.15	-
Critical Hdwy Stg 1	5.7	-	-	-	-	-
Critical Hdwy Stg 2	5.7	-	-	-	-	-
Follow-up Hdwy	3.77	3.57	-	-	2.245	-
Pot Cap-1 Maneuver	390	650	-	-	1188	-
Stage 1	671	-	-	-	-	-
Stage 2	673	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	358	638	-	-	1170	-
Mov Cap-2 Maneuver	358	-	-	-	-	-
Stage 1	661	-	-	-	-	-
Stage 2	628	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	14.2	0	1.8			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	456	1170	-	
HCM Lane V/C Ratio	-	-	0.138	0.047	-	
HCM Control Delay (s)	-	-	14.2	8.2	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-	

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	28	0	40	0	248	27	22	172	0
Future Vol, veh/h	0	0	0	28	0	40	0	248	27	22	172	0
Conflicting Peds, #/hr	17	0	0	0	0	17	0	0	0	17	0	17
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	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	3	3	3	7	7	7	12	12	12
Mvmt Flow	0	0	0	32	0	46	0	285	31	25	198	0
Major/Minor												
	Minor1			Major1			Major2					
Conflicting Flow All				566	583	335	215	0	0	333	0	0
Stage 1				318	318	-	-	-	-	-	-	-
Stage 2				248	265	-	-	-	-	-	-	-
Critical Hdwy				6.43	6.53	6.23	4.17	-	-	4.22	-	-
Critical Hdwy Stg 1				5.43	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.43	5.53	-	-	-	-	-	-	-
Follow-up Hdwy				3.527	4.027	3.327	2.263	-	-	2.308	-	-
Pot Cap-1 Maneuver				484	423	705	1326	-	-	1172	-	-
Stage 1				735	652	-	-	-	-	-	-	-
Stage 2				791	688	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver				465	0	682	1326	-	-	1153	-	-
Mov Cap-2 Maneuver				465	0	-	-	-	-	-	-	-
Stage 1				723	0	-	-	-	-	-	-	-
Stage 2				772	0	-	-	-	-	-	-	-
Approach												
	WB			NB			SB					
HCM Control Delay, s				12.3			0			0.9		
HCM LOS				B								
Minor Lane/Major Mvmt												
	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1326	-	-	572	1153	-	-					
HCM Lane V/C Ratio	-	-	-	0.137	0.022	-	-					
HCM Control Delay (s)	0	-	-	12.3	8.2	0	-					
HCM Lane LOS	A	-	-	B	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	0.5	0.1	-	-					

Intersection

Int Delay, s/veh 1.8

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 43 3 39 236 159 36

Future Vol, veh/h 43 3 39 236 159 36

Conflicting Peds, #/hr 15 15 15 0 0 15

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, % 0 0 8 8 11 11

Mvmt Flow 47 3 43 259 175 40

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 570 225 230 0 - 0

Stage 1 210 - - - - -

Stage 2 360 - - - - -

Critical Hdwy 6.4 6.2 4.18 - - -

Critical Hdwy Stg 1 5.4 - - - - -

Critical Hdwy Stg 2 5.4 - - - - -

Follow-up Hdwy 3.5 3.3 2.272 - - -

Pot Cap-1 Maneuver 486 819 1303 - - -

Stage 1 830 - - - - -

Stage 2 710 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 454 796 1284 - - -

Mov Cap-2 Maneuver 454 - - - - -

Stage 1 787 - - - - -

Stage 2 700 - - - - -

Approach EB NB SB

HCM Control Delay, s 13.6 1.1 0

HCM LOS B

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h) 1284 - 467 - -

HCM Lane V/C Ratio 0.033 - 0.108 - -















HCM Control Delay (s) 7.9 0 13.6 - -

HCM Lane LOS A A B - -

HCM 95th %tile Q(veh) 0.1 - 0.4 - -

Timings
11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

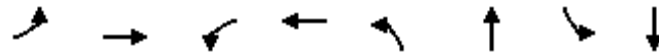
								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	35	947	59	653	30	5	5	5
Future Volume (vph)	35	947	59	653	30	5	5	5
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Detector Phase	2	2	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	22.5	22.5	24.5	24.5	24.5	24.5
Total Split (s)	65.0	65.0	65.0	65.0	25.0	25.0	25.0	25.0
Total Split (%)	72.2%	72.2%	72.2%	72.2%	27.8%	27.8%	27.8%	27.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	74.9	74.9	74.9	74.9		9.3		9.3
Actuated g/C Ratio	0.83	0.83	0.83	0.83		0.10		0.10
v/c Ratio	0.07	0.72	0.20	0.49		0.53		0.24
Control Delay	0.4	6.0	4.6	4.5		28.4		18.4
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	0.4	6.0	4.6	4.5		28.4		18.4
LOS	A	A	A	A		C		B
Approach Delay		5.8		4.5		28.4		18.4
Approach LOS		A		A		C		B
Intersection Summary								
Cycle Length: 90								
Actuated Cycle Length: 90								
Offset: 30 (33%), Referenced to phase 2:EBWB, Start of 1st Green								
Natural Cycle: 80								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.72								
Intersection Signal Delay: 6.7					Intersection LOS: A			
Intersection Capacity Utilization 74.2%					ICU Level of Service D			
Analysis Period (min) 15								

Splits and Phases: 11: W Cremona St & Nickerson St



Phasings
11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	22.5	22.5	24.5	24.5	24.5	24.5
Total Split (s)	65.0	65.0	65.0	65.0	25.0	25.0	25.0	25.0
Total Split (%)	72.2%	72.2%	72.2%	72.2%	27.8%	27.8%	27.8%	27.8%
Maximum Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	6.0	6.0	6.0	6.0	13.0	13.0	13.0	13.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0
90th %ile Green (s)	67.1	67.1	67.1	67.1	13.9	13.9	13.9	13.9
90th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Gap	Gap
70th %ile Green (s)	70.5	70.5	70.5	70.5	10.5	10.5	10.5	10.5
70th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Gap	Gap
50th %ile Green (s)	72.9	72.9	72.9	72.9	8.1	8.1	8.1	8.1
50th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Gap	Gap
30th %ile Green (s)	74.0	74.0	74.0	74.0	7.0	7.0	7.0	7.0
30th %ile Term Code	Coord	Coord	Coord	Coord	Min	Min	Min	Min
10th %ile Green (s)	85.5	85.5	85.5	85.5	0.0	0.0	0.0	0.0
10th %ile Term Code	Coord	Coord	Coord	Coord	Skip	Skip	Skip	Skip

Intersection Summary

Cycle Length: 90







Actuated Cycle Length: 90

Offset: 30 (33%), Referenced to phase 2:EBWB, Start of 1st Green

Control Type: Actuated-Coordinated

Queues
11: W Cremona St & Nickerson St



















2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

						
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	37	1060	63	722	98	47
v/c Ratio	0.07	0.72	0.20	0.49	0.53	0.24
Control Delay	0.4	6.0	4.6	4.5	28.4	18.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.4	6.0	4.6	4.5	28.4	18.4
Queue Length 50th (ft)	0	10	6	93	20	5
Queue Length 95th (ft)	m1	m736	24	214	66	35
Internal Link Dist (ft)		379		803	22	101
Turn Bay Length (ft)	30		30			
Base Capacity (vph)	528	1477	310	1479	338	385
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.72	0.20	0.49	0.29	0.12
Intersection Summary						
m Volume for 95th percentile queue is metered by upstream signal.						

HCM Signalized Intersection Capacity Analysis

11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	947	50	59	653	25	30	5	57	5	5	35
Future Volume (vph)	35	947	50	59	653	25	30	5	57	5	5	35
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	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.97			0.96	
Flpb, ped/bikes	0.99	1.00		1.00	1.00			0.99			1.00	
Frt	1.00	0.99		1.00	0.99			0.92			0.89	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1677	1774		1703	1777			1393			1610	
Flt Permitted	0.35	1.00		0.21	1.00			0.90			0.97	
Satd. Flow (perm)	626	1774		373	1777			1279			1568	
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	1007	53	63	695	27	32	5	61	5	5	37
RTOR Reduction (vph)	0	1	0	0	1	0	0	56	0	0	34	0
Lane Group Flow (vph)	37	1059	0	63	721	0	0	42	0	0	13	0
Confl. Peds. (#/hr)	16		9	10		17	9		10	17		16
Confl. Bikes (#/hr)			1			2						
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	19%	19%	19%	0%	0%	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)	73.1	73.1		73.1	73.1			7.9			7.9	
Effective Green, g (s)	73.1	73.1		73.1	73.1			7.9			7.9	
Actuated g/C Ratio	0.81	0.81		0.81	0.81			0.09			0.09	
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)	508	1440		302	1443			112			137	
v/s Ratio Prot		c0.60			0.41							
v/s Ratio Perm	0.06			0.17				c0.03			0.01	
v/c Ratio	0.07	0.74		0.21	0.50			0.38			0.10	
Uniform Delay, d1	1.7	3.9		1.9	2.7			38.7			37.8	
Progression Factor	0.11	0.75		1.00	1.00			1.07			1.00	
Incremental Delay, d2	0.2	2.1		1.6	1.2			2.1			0.3	
Delay (s)	0.4	5.0		3.5	3.9			43.5			38.1	
Level of Service	A	A		A	A			D			D	
Approach Delay (s)		4.8			3.9			43.5			38.1	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			7.1			HCM 2000 Level of Service				A		
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			74.2%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Int Delay, s/veh 4.3

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 31 16 25 66 40 79

Future Vol, veh/h 31 16 25 66 40 79

Conflicting Peds, #/hr 15 15 15 0 0 15

Sign Control Free Free Stop Stop Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 1 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 89 89 89 89 89 89

Heavy Vehicles, % 0 0 11 11 32 32

Mvmt Flow 35 18 28 74 45 89

Major/Minor Minor2 Major2

Conflicting Flow All 120 105 - 0

Stage 1 105 105 - -

Stage 2 15 0 - -

Critical Hdwy 6.51 6.61 - -

Critical Hdwy Stg 1 5.51 5.61 - -

Critical Hdwy Stg 2 - - - -

Follow-up Hdwy 3.599 4.099 - -

Pot Cap-1 Maneuver 854 768 - -

Stage 1 897 791 - -

Stage 2 - - - -

Platoon blocked, % - -

Mov Cap-1 Maneuver 830 0 - -

Mov Cap-2 Maneuver 830 0 - -

Stage 1 884 0 - -

Stage 2 - 0 - -

Approach NB SB

HCM Control Delay, s 9.9 0

HCM LOS A

Minor Lane/Major Mvmt NBLn1 SBT SBR

Capacity (veh/h) 830 - -

HCM Lane V/C Ratio 0.123 - -


















HCM Control Delay (s) 9.9 - -

HCM Lane LOS A - -

HCM 95th %tile Q(veh) 0.4 - -

Timings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Lane Group	EBL2	EBL	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	SBL2	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	5	0	5	115	216	5	30	0	10	5	0
Future Volume (vph)	5	5	0	5	115	216	5	30	0	10	5	0
Turn Type	Perm	Perm	NA	Perm	NA	Perm	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			3		3				4			4
Permitted Phases	3	3		3		3	4	4		4	4	
Detector Phase	3	3	3	3	3	3	4	4	4	4	4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	28.5	28.5
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	26.2%	26.2%	26.2%	26.2%	26.2%	26.2%	22.3%	22.3%	22.3%	22.3%	22.3%	22.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)			0.0		0.0	0.0			3.0			3.0
Total Lost Time (s)			6.5		6.5	6.5			9.5			9.5
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effect Green (s)			27.5		27.5	27.5			16.0			16.0
Actuated g/C Ratio			0.21		0.21	0.21			0.12			0.12
v/c Ratio			0.99		0.56	0.46			0.32			0.09
Control Delay			99.5		52.9	17.0			5.5			0.8
Queue Delay			0.0		0.0	0.0			0.0			0.0
Total Delay			99.5		52.9	17.0			5.6			0.8
LOS			F		D	B			A			A
Approach Delay			99.5		35.9				5.6			0.8
Approach LOS			F		D				A			A

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 76 (58%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 43.2

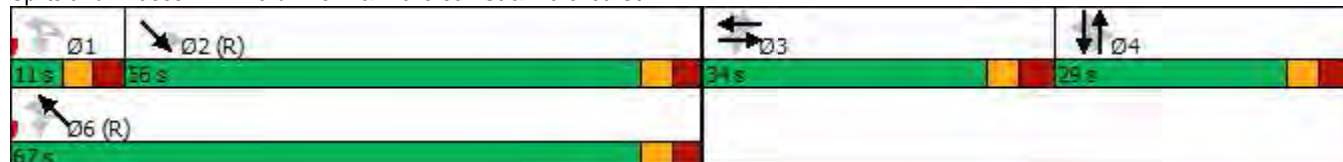
Intersection LOS: D

Intersection Capacity Utilization 117.9%

ICU Level of Service H

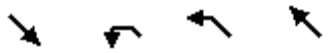
Analysis Period (min) 15

Splits and Phases: 14: 3rd Ave N & Nickerson St & Florentia St



Timings
14: 3rd Ave N & Nickerson St & Florentia St













2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	SET	NWL2	NWL	NWT	Ø1
Lane Configurations	↕↕			↕↕	
Traffic Volume (vph)	992	25	65	602	
Future Volume (vph)	992	25	65	602	
Turn Type	NA	custom	custom	NA	
Protected Phases	2			6	1
Permitted Phases		1 6	1 6		
Detector Phase	2	1 6	1 6	6	
Switch Phase					
Minimum Initial (s)	7.0			7.0	5.0
Minimum Split (s)	22.0			24.0	11.0
Total Split (s)	56.0			67.0	11.0
Total Split (%)	43.1%			51.5%	8%
Yellow Time (s)	3.0			3.0	3.0
All-Red Time (s)	3.0			3.0	3.0
Lost Time Adjust (s)	3.0			3.0	
Total Lost Time (s)	9.0			9.0	
Lead/Lag	Lag				Lead
Lead-Lag Optimize?	Yes				Yes
Recall Mode	C-Max			C-Max	None
Act Effect Green (s)	61.5			61.5	
Actuated g/C Ratio	0.47			0.47	
v/c Ratio	0.66			0.83	
Control Delay	29.6			45.1	
Queue Delay	0.9			0.9	
Total Delay	30.5			46.1	
LOS	C			D	
Approach Delay	30.5			46.1	
Approach LOS	C			D	
Intersection Summary					

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Lane Group	EBL2	EBL	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	SBL2	SBL	SBT
Protected Phases			3		3				4			4
Permitted Phases	3	3		3		3	4	4		4	4	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	28.5	28.5
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	26.2%	26.2%	26.2%	26.2%	26.2%	26.2%	22.3%	22.3%	22.3%	22.3%	22.3%	22.3%
Maximum Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.5	22.5	22.5	22.5	22.5	22.5
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (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
Time To Reduce (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
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Walk Time (s)							8.0	8.0	8.0	8.0	8.0	8.0
Flash Dont Walk (s)							14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)							69	69	69	69	69	69
90th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
70th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
70th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
50th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
50th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
30th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
30th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
10th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	7.0	7.0	7.0	7.0	7.0	7.0
10th %ile Term Code	Max	Max	Max	Max	Max	Max	Min	Min	Min	Min	Min	Min

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 76 (58%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Control Type: Actuated-Coordinated

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	SET	NWL2	NWL	NWT	Ø1
Protected Phases	2			6	1
Permitted Phases		1 6	1 6		
Minimum Initial (s)	7.0			7.0	5.0
Minimum Split (s)	22.0			24.0	11.0
Total Split (s)	56.0			67.0	11.0
Total Split (%)	43.1%			51.5%	8%
Maximum Green (s)	50.0			61.0	5.0
Yellow Time (s)	3.0			3.0	3.0
All-Red Time (s)	3.0			3.0	3.0
Lead/Lag	Lag				Lead
Lead-Lag Optimize?	Yes				Yes
Vehicle Extension (s)	3.0			2.0	2.0
Minimum Gap (s)	0.2			0.2	0.2
Time Before Reduce (s)	0.0			0.0	0.0
Time To Reduce (s)	0.0			0.0	0.0
Recall Mode	C-Max			C-Max	None
Walk Time (s)	7.0			7.0	
Flash Dont Walk (s)	9.0			9.0	
Pedestrian Calls (#/hr)	120			126	
90th %ile Green (s)	61.5			61.5	0.0
90th %ile Term Code	Coord			Coord	Skip
70th %ile Green (s)	61.5			61.5	0.0
70th %ile Term Code	Coord			Coord	Skip
50th %ile Green (s)	61.5			61.5	0.0
50th %ile Term Code	Coord			Coord	Skip
30th %ile Green (s)	61.5			61.5	0.0
30th %ile Term Code	Coord			Coord	Skip
10th %ile Green (s)	76.5			76.5	0.0
10th %ile Term Code	Coord			Coord	Skip
Intersection Summary					

Queues

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT	SET	NWT
Lane Group Flow (vph)	324	191	171	90	21	1065	757
v/c Ratio	0.99	0.56	0.46	0.32	0.09	0.66	0.83
Control Delay	99.5	52.9	17.0	5.5	0.8	29.6	45.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.9	0.9
Total Delay	99.5	52.9	17.0	5.6	0.8	30.5	46.1
Queue Length 50th (ft)	275	152	29	0	0	371	357
Queue Length 95th (ft)	#470	238	104	19	0	451	m397
Internal Link Dist (ft)	413	299		354	158	814	375
Turn Bay Length (ft)							
Base Capacity (vph)	326	344	373	317	246	1607	914
Starvation Cap Reductn	0	0	0	0	0	0	38
Spillback Cap Reductn	0	0	0	9	0	264	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.56	0.46	0.29	0.09	0.79	0.86

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St
















2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR2
Lane Configurations												
Traffic Volume (vph)	5	5	0	295	5	115	216	5	5	30	0	50
Future Volume (vph)	5	5	0	295	5	115	216	5	5	30	0	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.5			6.5	6.5				9.5	
Lane Util. Factor			1.00			0.95	0.95				1.00	
Frpb, ped/bikes			0.97			0.98	0.85				0.98	
Flpb, ped/bikes			1.00			1.00	1.00				0.98	
Frt			0.87			0.95	0.85				0.92	
Flt Protected			1.00			1.00	1.00				0.98	
Satd. Flow (prot)			1562			1647	1280				1575	
Flt Permitted			0.99			0.99	1.00				0.86	
Satd. Flow (perm)			1545			1628	1280				1377	
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	5	0	314	5	122	230	5	5	32	0	53
RTOR Reduction (vph)	0	0	0	0	0	0	103	0	0	0	79	0
Lane Group Flow (vph)	0	0	324	0	0	191	69	0	0	0	11	0
Confl. Peds. (#/hr)	24	18		14	16		24	18	9	24		14
Confl. Bikes (#/hr)				1			10	10				
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%
Turn Type	Perm	Perm	NA		Perm	NA	Perm		Perm	Perm	NA	
Protected Phases			3			3					4	
Permitted Phases	3	3			3		3		4	4		
Actuated Green, G (s)			27.5			27.5	27.5				19.0	
Effective Green, g (s)			27.5			27.5	27.5				16.0	
Actuated g/C Ratio			0.21			0.21	0.21				0.12	
Clearance Time (s)			6.5			6.5	6.5				6.5	
Vehicle Extension (s)			2.0			2.0	2.0				2.0	
Lane Grp Cap (vph)			326			344	270				169	
v/s Ratio Prot												
v/s Ratio Perm			c0.21			0.12	0.05				c0.01	
v/c Ratio			0.99			0.56	0.25				0.07	
Uniform Delay, d1			51.2			45.8	42.7				50.4	
Progression Factor			1.00			1.00	1.00				1.00	
Incremental Delay, d2			47.9			1.1	0.2				0.1	
Delay (s)			99.0			46.9	42.9				50.5	
Level of Service			F			D	D				D	
Approach Delay (s)			99.0			45.0					50.5	
Approach LOS			F			D					D	
Intersection Summary												
HCM 2000 Control Delay			44.7			HCM 2000 Level of Service					D	
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				31.0		
Intersection Capacity Utilization			117.9%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	SBL2	SBL	SBT	SBR2	SET	SER	SER2	NWL2	NWL	NWT	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	10	5	0	5	992	5	5	25	65	602	15	5
Future Volume (vph)	10	5	0	5	992	5	5	25	65	602	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			9.5		9.0					9.0		
Lane Util. Factor			1.00		0.95					0.95		
Frpb, ped/bikes			0.99		1.00					1.00		
Flpb, ped/bikes			0.98		1.00					1.00		
Frt			0.97		1.00					1.00		
Flt Protected			0.96		1.00					0.99		
Satd. Flow (prot)			1146		3397					3459		
Flt Permitted			0.76		1.00					0.55		
Satd. Flow (perm)			909		3397					1931		
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	5	0	5	1055	5	5	27	69	640	16	5
RTOR Reduction (vph)	0	0	18	0	0	0	0	0	0	1	0	0
Lane Group Flow (vph)	0	0	3	0	1065	0	0	0	0	756	0	0
Confl. Peds. (#/hr)		14		24		16	9	16	9		18	
Confl. Bikes (#/hr)				2		2	2				1	1
Heavy Vehicles (%)	50%	50%	50%	50%	6%	6%	6%	3%	3%	3%	3%	3%
Turn Type	Perm	Perm	NA		NA			custom	custom	NA		
Protected Phases			4		2					6		
Permitted Phases	4	4						16	16			
Actuated Green, G (s)			19.0		64.5					64.5		
Effective Green, g (s)			16.0		61.5					61.5		
Actuated g/C Ratio			0.12		0.47					0.47		
Clearance Time (s)			6.5		6.0					6.0		
Vehicle Extension (s)			2.0		3.0					2.0		
Lane Grp Cap (vph)			111		1607					913		
v/s Ratio Prot					0.31							
v/s Ratio Perm			0.00							c0.39		
v/c Ratio			0.02		0.66					0.83		
Uniform Delay, d1			50.1		26.3					29.7		
Progression Factor			1.00		1.00					1.23		
Incremental Delay, d2			0.0		2.2					6.7		
Delay (s)			50.2		28.5					43.2		
Level of Service			D		C					D		
Approach Delay (s)			50.2		28.5					43.2		
Approach LOS			D		C					D		
Intersection Summary												

Intersection

Int Delay, s/veh 0.2

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	15	0	1016	1315	341
Future Vol, veh/h	0	15	0	1016	1315	341
Conflicting Peds, #/hr	31	30	30	0	0	31
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	89	89	89	89	89	89
Heavy Vehicles, %	50	50	6	6	7	7
Mvmt Flow	0	17	0	1142	1478	383

Major/Minor Minor2 Major1 Major2

Conflicting Flow All	-	992	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.8	-	-	-	-
Pot Cap-1 Maneuver	0	173	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	163	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach EB NB SB

HCM Control Delay, s	29.6	0	0
HCM LOS	D		

Minor Lane/Major Mvmt NBT EBLn1 SBT SBR

Capacity (veh/h)	-	163	-	-
HCM Lane V/C Ratio	-	0.103	-	-
HCM Control Delay (s)	-	29.6	-	-
HCM Lane LOS	-	D	-	-
HCM 95th %tile Q(veh)	-	0.3	-	-

Timings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	←←	→	←←	←←	←	→	←←	→
Traffic Volume (vph)	636	617	258	260	233	120	920	190
Future Volume (vph)	636	617	258	260	233	120	920	190
Turn Type	Prot	NA	NA	custom	Split	NA	Split	NA
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Detector Phase	4	1 4	1	5	3	3	2	2
Switch Phase								
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	19.0		37.0	74.0	37.0	37.0	37.0	37.0
Total Split (%)	14.6%		28.5%	56.9%	28.5%	28.5%	28.5%	28.5%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		5.5	5.5	6.5	6.5	5.5	5.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Recall Mode	None		Min	C-Max	None	None	C-Max	C-Max
Act Effect Green (s)	19.1	57.1	31.5	68.5	23.9	23.9	31.5	31.5
Actuated g/C Ratio	0.15	0.44	0.24	0.53	0.18	0.18	0.24	0.24
v/c Ratio	1.33	0.94	0.33	0.19	0.80	0.22	1.18	1.07
Control Delay	191.8	47.6	41.9	2.0	69.4	42.4	134.9	108.0
Queue Delay	0.0	45.2	0.0	0.0	1.8	0.0	0.0	2.0
Total Delay	191.8	92.8	41.9	2.0	71.2	42.4	134.9	110.0
LOS	F	F	D	A	E	D	F	F
Approach Delay		139.5	21.9			60.9		127.2
Approach LOS		F	C			E		F

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 2 (2%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.33

Intersection Signal Delay: 109.8

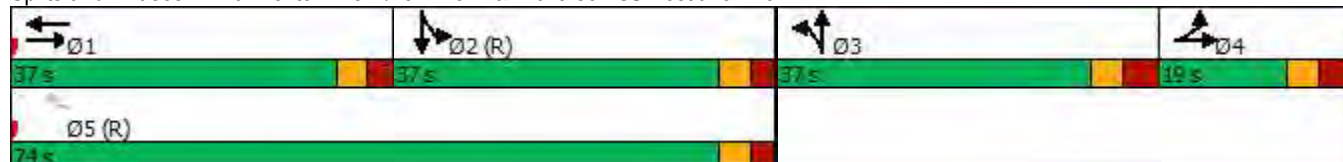
Intersection LOS: F

Intersection Capacity Utilization 92.4%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N



Phasings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	19.0		37.0	74.0	37.0	37.0	37.0	37.0
Total Split (%)	14.6%		28.5%	56.9%	28.5%	28.5%	28.5%	28.5%
Maximum Green (s)	12.5		31.5	68.5	30.5	30.5	31.5	31.5
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2		0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None		Min	C-Max	None	None	C-Max	C-Max
Walk Time (s)			9.0		8.0	8.0	8.0	8.0
Flash Dont Walk (s)			22.0		22.0	22.0	22.0	22.0
Pedestrian Calls (#/hr)			56		12	12	33	33
90th %ile Green (s)	12.5		31.5	68.5	30.5	30.5	31.5	31.5
90th %ile Term Code	Max		Max	Coord	Max	Max	Coord	Coord
70th %ile Green (s)	13.0		31.5	68.5	30.0	30.0	31.5	31.5
70th %ile Term Code	Max		Max	Coord	Ped	Ped	Coord	Coord
50th %ile Green (s)	19.5		31.5	68.5	23.5	23.5	31.5	31.5
50th %ile Term Code	Max		Max	Coord	Gap	Gap	Coord	Coord
30th %ile Green (s)	22.9		31.5	68.5	20.1	20.1	31.5	31.5
30th %ile Term Code	Max		Max	Coord	Gap	Gap	Coord	Coord
10th %ile Green (s)	27.7		31.5	68.5	15.3	15.3	31.5	31.5
10th %ile Term Code	Max		Max	Coord	Gap	Gap	Coord	Coord

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 2 (2%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Control Type: Actuated-Coordinated

Queues

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	663	743	269	271	243	135	958	427
v/c Ratio	1.33	0.94	0.33	0.19	0.80	0.22	1.18	1.07
Control Delay	191.8	47.6	41.9	2.0	69.4	42.4	134.9	108.0
Queue Delay	0.0	45.2	0.0	0.0	1.8	0.0	0.0	2.0
Total Delay	191.8	92.8	41.9	2.0	71.2	42.4	134.9	110.0
Queue Length 50th (ft)	~372	621	98	0	199	49	~496	~371
Queue Length 95th (ft)	m#542	m#878	140	23	278	75	#627	#581
Internal Link Dist (ft)		375	150			693		176
Turn Bay Length (ft)				200				
Base Capacity (vph)	500	791	817	1443	388	770	815	398
Starvation Cap Reductn	0	186	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	53	0	0	2
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.33	1.23	0.33	0.19	0.73	0.18	1.18	1.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.


Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N















2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↱	↱			↰↱	↰↱	↰	↰↱		↰↱	↱	
Traffic Volume (vph)	636	617	96	0	258	260	233	120	10	920	190	220
Future Volume (vph)	636	617	96	0	258	260	233	120	10	920	190	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.94	1.00	1.00		1.00	0.90	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98			1.00	0.85	1.00	0.99		1.00	0.92	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3400	1792			3374	2496	1656	3264		3367	1512	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3400	1792			3374	2496	1656	3264		3367	1512	
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)	662	643	100	0	269	271	243	125	10	958	198	229
RTOR Reduction (vph)	0	4	0	0	0	128	0	5	0	0	32	0
Lane Group Flow (vph)	663	739	0	0	269	143	243	130	0	958	395	0
Confl. Peds. (#/hr)	19		37	37		19	33		12	12		33
Confl. Bikes (#/hr)			12			33			16			155
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	9%	9%	9%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	19.1	57.1			31.5	68.5	23.9	23.9		31.5	31.5	
Effective Green, g (s)	19.1	50.6			31.5	68.5	23.9	23.9		31.5	31.5	
Actuated g/C Ratio	0.15	0.39			0.24	0.53	0.18	0.18		0.24	0.24	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	499	697			817	1315	304	600		815	366	
v/s Ratio Prot	c0.20	c0.41			0.08		c0.15	0.04		c0.28	0.26	
v/s Ratio Perm						0.06						
v/c Ratio	1.33	1.06			0.33	0.11	0.80	0.22		1.18	1.08	
Uniform Delay, d1	55.5	39.7			40.6	15.4	50.8	45.1		49.2	49.2	
Progression Factor	0.75	0.89			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	157.2	45.4			0.1	0.2	12.8	0.1		91.7	70.0	
Delay (s)	199.0	80.6			40.6	15.6	63.6	45.2		140.9	119.3	
Level of Service	F	F			D	B	E	D		F	F	
Approach Delay (s)		136.4			28.1			57.0			134.3	
Approach LOS		F			C			E			F	
Intersection Summary												
HCM 2000 Control Delay			111.8				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.08									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			92.4%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

2035 Alternative 4 PM (with Mitigation Measures)

Timings
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	11	699	33	993	26	7	25	7
Future Volume (vph)	11	699	33	993	26	7	25	7
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	6.5	7.0	6.5	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	22.5	11.0	23.5	25.5	25.5	23.5	23.5
Total Split (s)	11.0	53.0	11.0	53.0	26.0	26.0	26.0	26.0
Total Split (%)	12.2%	58.9%	12.2%	58.9%	28.9%	28.9%	28.9%	28.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
Act Effect Green (s)	68.6	64.7	70.5	69.2		9.6		9.6
Actuated g/C Ratio	0.76	0.72	0.78	0.77		0.11		0.11
v/c Ratio	0.04	0.57	0.07	0.75		0.68		0.54
Control Delay	3.1	10.1	3.5	10.2		18.9		42.2
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	3.1	10.1	3.5	10.2		18.9		42.2
LOS	A	B	A	B		B		D
Approach Delay		10.0		10.0		18.9		42.2
Approach LOS		A		B		B		D

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 10 (11%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 11.8

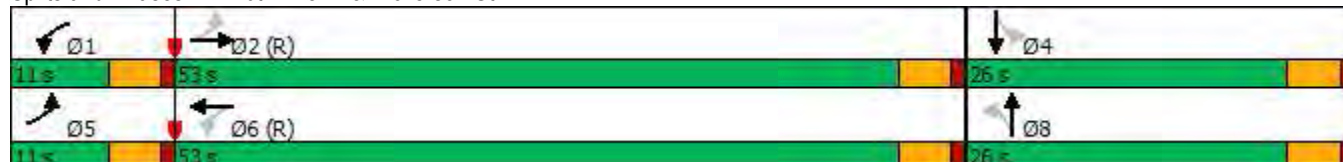
Intersection LOS: B

Intersection Capacity Utilization 76.5%

ICU Level of Service D

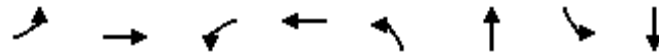
Analysis Period (min) 15

Splits and Phases: 1: 6th Ave W & Nickerson St



Phasings
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Minimum Initial (s)	6.5	7.0	6.5	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	22.5	11.0	23.5	25.5	25.5	23.5	23.5
Total Split (s)	11.0	53.0	11.0	53.0	26.0	26.0	26.0	26.0
Total Split (%)	12.2%	58.9%	12.2%	58.9%	28.9%	28.9%	28.9%	28.9%
Maximum Green (s)	6.5	48.5	6.5	48.5	21.5	21.5	21.5	21.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
Walk Time (s)		7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		5.0		12.0	14.0	14.0	12.0	12.0
Pedestrian Calls (#/hr)		0		0	0	0	0	0
90th %ile Green (s)	6.5	54.2	6.7	54.4	15.6	15.6	15.6	15.6
90th %ile Term Code	Min	Coord	Gap	Coord	Gap	Gap	Hold	Hold
70th %ile Green (s)	0.0	59.1	6.5	70.1	10.9	10.9	10.9	10.9
70th %ile Term Code	Skip	Coord	Min	Coord	Gap	Gap	Hold	Hold
50th %ile Green (s)	0.0	62.4	6.5	73.4	7.6	7.6	7.6	7.6
50th %ile Term Code	Skip	Coord	Min	Coord	Gap	Gap	Hold	Hold
30th %ile Green (s)	0.0	74.0	0.0	74.0	7.0	7.0	7.0	7.0
30th %ile Term Code	Skip	Coord	Skip	Coord	Min	Min	Min	Min
10th %ile Green (s)	0.0	74.0	0.0	74.0	7.0	7.0	7.0	7.0
10th %ile Term Code	Skip	Coord	Skip	Coord	Min	Min	Hold	Hold

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 10 (11%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Control Type: Actuated-Coordinated

Queues
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	12	748	35	1065	229	58
v/c Ratio	0.04	0.57	0.07	0.75	0.68	0.54
Control Delay	3.1	10.1	3.5	10.2	18.9	42.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.1	10.1	3.5	10.2	18.9	42.2
Queue Length 50th (ft)	1	191	4	196	18	18
Queue Length 95th (ft)	6	393	m6	m#726	83	54
Internal Link Dist (ft)		549		657	226	272
Turn Bay Length (ft)	30		30			
Base Capacity (vph)	322	1309	500	1427	517	210
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.57	0.07	0.75	0.44	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.




















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	699	11	33	993	19	26	7	185	25	7	24
Future Volume (veh/h)	11	699	11	33	993	19	26	7	185	25	7	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	0.96		0.95	0.97		0.94
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1870	1870	1870	1900	1900	1900	1841	1841	1841
Adj Flow Rate, veh/h	12	736	12	35	1045	20	27	7	195	26	7	25
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	2	2	2	0	0	0	4	4	4
Cap, veh/h	192	1107	18	403	1164	22	66	23	254	144	49	103
Arrive On Green	0.02	0.61	0.61	0.04	0.64	0.64	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1753	1805	29	1781	1828	35	107	120	1306	444	251	527
Grp Volume(v), veh/h	12	0	748	35	0	1065	229	0	0	58	0	0
Grp Sat Flow(s),veh/h/ln	1753	0	1835	1781	0	1863	1533	0	0	1223	0	0
Q Serve(g_s), s	0.2	0.0	24.0	0.6	0.0	43.6	5.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.2	0.0	24.0	0.6	0.0	43.6	12.6	0.0	0.0	2.7	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.02	0.12		0.85	0.45		0.43
Lane Grp Cap(c), veh/h	192	0	1125	403	0	1186	343	0	0	296	0	0
V/C Ratio(X)	0.06	0.00	0.66	0.09	0.00	0.90	0.67	0.00	0.00	0.20	0.00	0.00
Avail Cap(c_a), veh/h	286	0	1125	456	0	1186	410	0	0	354	0	0
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	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	15.9	0.0	11.4	8.8	0.0	13.9	34.2	0.0	0.0	30.3	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	3.1	0.1	0.0	10.8	3.2	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	0.1	0.0	9.8	0.2	0.0	19.5	5.0	0.0	0.0	1.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.1	0.0	14.5	8.9	0.0	24.7	37.4	0.0	0.0	30.6	0.0	0.0
LnGrp LOS	B	A	B	A	A	C	D	A	A	C	A	A
Approach Vol, veh/h	760		1100			229			58			
Approach Delay, s/veh	14.5		24.2			37.4			30.6			
Approach LOS	B		C			D			C			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.3	59.7		22.0	6.2	61.8		22.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	48.5		21.5	6.5	48.5		21.5				
Max Q Clear Time (g_c+I1), s	2.6	26.0		4.7	2.2	45.6		14.6				
Green Ext Time (p_c), s	0.0	6.0		0.2	0.0	2.1		0.8				
Intersection Summary												
HCM 6th Ctrl Delay	22.3											
HCM 6th LOS	C											
Notes												

Intersection

Intersection Delay, s/veh 8.4

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	10	0	5	0	0	0	25	214	0	0	44	10
Future Vol, veh/h	10	0	5	0	0	0	25	214	0	0	44	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	3	3	3
Mvmt Flow	11	0	6	0	0	0	28	238	0	0	49	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.6	0	8.7	7.4
HCM LOS	A	-	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	10%	67%	0%	0%
Vol Thru, %	90%	0%	100%	81%
Vol Right, %	0%	33%	0%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	239	15	0	54
LT Vol	25	10	0	0
Through Vol	214	0	0	44
RT Vol	0	5	0	10
Lane Flow Rate	266	17	0	60
Geometry Grp	1	1	1	1
Degree of Util (X)	0.295	0.021	0	0.068
Departure Headway (Hd)	3.995	4.528	4.618	4.067
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	900	795	0	873
Service Time	2.02	2.528	2.619	2.129
HCM Lane V/C Ratio	0.296	0.021	0	0.069
HCM Control Delay	8.7	7.6	7.6	7.4
HCM Lane LOS	A	A	N	A
HCM 95th-tile Q	1.2	0.1	0	0.2




Intersection												
Int Delay, s/veh	5.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	194	81	0	15	170	38	0	6	35	14	14	26
Future Vol, veh/h	194	81	0	15	170	38	0	6	35	14	14	26
Conflicting Peds, #/hr	13	0	49	60	0	24	49	0	60	24	0	13
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	0	0	0	0	0	0	2	2	2
Mvmt Flow	200	84	0	15	175	39	0	6	36	14	14	27
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	238	0	0	144	0	0	838	812	204	814	793	268
Stage 1	-	-	-	-	-	-	544	544	-	249	249	-
Stage 2	-	-	-	-	-	-	294	268	-	565	544	-
Critical Hdwy	4.11	-	-	4.1	-	-	7.1	6.5	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Follow-up Hdwy	2.209	-	-	2.2	-	-	3.5	4	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1335	-	-	1451	-	-	288	315	842	297	321	771
Stage 1	-	-	-	-	-	-	527	522	-	755	701	-
Stage 2	-	-	-	-	-	-	719	691	-	510	519	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1304	-	-	1368	-	-	207	240	749	222	245	718
Mov Cap-2 Maneuver	-	-	-	-	-	-	207	240	-	222	245	-
Stage 1	-	-	-	-	-	-	417	413	-	619	676	-
Stage 2	-	-	-	-	-	-	637	666	-	378	411	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	5.8			0.5			11.8			17.4		
HCM LOS							B			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	572	1304	-	-	1368	-	-	345				
HCM Lane V/C Ratio	0.074	0.153	-	-	0.011	-	-	0.161				
HCM Control Delay (s)	11.8	8.3	0	-	7.7	0	-	17.4				
HCM Lane LOS	B	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	0.2	0.5	-	-	0	-	-	0.6				

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	38	16	7	60	0	11	0	2	0	0	0
Future Vol, veh/h	0	38	16	7	60	0	11	0	2	0	0	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	43	18	8	68	0	13	0	2	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0





















Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.1	7.4	7.3	0
HCM LOS	A	A	A	-

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	85%	0%	10%	0%
Vol Thru, %	0%	70%	90%	100%
Vol Right, %	15%	30%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	54	67	0
LT Vol	11	0	7	0
Through Vol	0	38	60	0
RT Vol	2	16	0	0
Lane Flow Rate	15	61	76	0
Geometry Grp	1	1	1	1
Degree of Util (X)	0.017	0.065	0.084	0
Departure Headway (Hd)	4.215	3.805	3.993	4.15
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	845	942	899	0
Service Time	2.264	1.826	2.009	2.204
HCM Lane V/C Ratio	0.018	0.065	0.085	0
HCM Control Delay	7.3	7.1	7.4	7.2
HCM Lane LOS	A	A	A	N
HCM 95th-tile Q	0.1	0.2	0.3	0

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	135	228	0	0	0
Future Vol, veh/h	0	135	228	0	0	0
Conflicting Peds, #/hr	6	0	0	235	235	6
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	95	95	95	95	95	95
Heavy Vehicles, %	1	1	0	0	0	0
Mvmt Flow	0	142	240	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	475	0	-	0	852	481
Stage 1	-	-	-	-	475	-
Stage 2	-	-	-	-	377	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1092	-	-	-	333	589
Stage 1	-	-	-	-	630	-
Stage 2	-	-	-	-	698	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	848	-	-	-	200	455
Mov Cap-2 Maneuver	-	-	-	-	200	-
Stage 1	-	-	-	-	489	-
Stage 2	-	-	-	-	542	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	848	-	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	-	-	0	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	-	

Timings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	30	759	143	200	879	55	216	40	35	30
Future Volume (vph)	30	759	143	200	879	55	216	40	35	30
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	6.5	7.0	7.0	6.5	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	25.0	25.0	11.0	25.0	25.0	27.5	27.5	27.5	27.5
Total Split (s)	11.0	50.0	50.0	12.0	51.0	51.0	28.0	28.0	28.0	28.0
Total Split (%)	12.2%	55.6%	55.6%	13.3%	56.7%	56.7%	31.1%	31.1%	31.1%	31.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0		3.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	7.5	7.5		7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	52.2	45.7	45.7	55.5	51.0	51.0	20.4	20.4		20.4
Actuated g/C Ratio	0.58	0.51	0.51	0.62	0.57	0.57	0.23	0.23		0.23
v/c Ratio	0.15	0.86	0.20	0.88	0.89	0.07	0.98	0.11		0.27
Control Delay	9.2	27.8	4.3	43.0	30.4	5.1	92.1	28.0		26.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	9.2	27.8	4.3	43.0	30.4	5.1	92.1	28.0		26.1
LOS	A	C	A	D	C	A	F	C		C
Approach Delay		23.6			31.4			81.9		26.1
Approach LOS		C			C			F		C

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 33.6

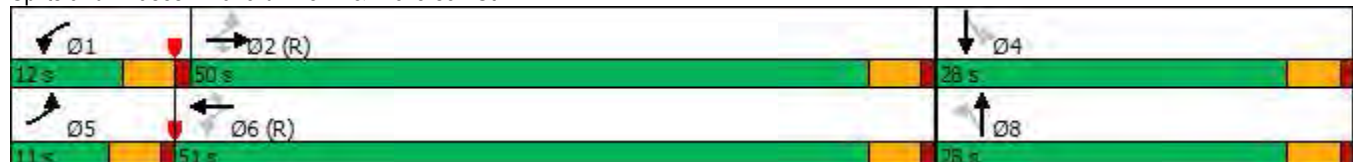
Intersection LOS: C

Intersection Capacity Utilization 84.6%

ICU Level of Service E











Analysis Period (min) 15

Splits and Phases: 6: 3rd Ave W & Nickerson St



Phasings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Minimum Initial (s)	6.5	7.0	7.0	6.5	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	25.0	25.0	11.0	25.0	25.0	27.5	27.5	27.5	27.5
Total Split (s)	11.0	50.0	50.0	12.0	51.0	51.0	28.0	28.0	28.0	28.0
Total Split (%)	12.2%	55.6%	55.6%	13.3%	56.7%	56.7%	31.1%	31.1%	31.1%	31.1%
Maximum Green (s)	6.5	45.5	45.5	7.5	46.5	46.5	23.5	23.5	23.5	23.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	1.0	0.2	0.2	1.0	0.2	0.2	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)		50	50		28	28	83	83	160	160
90th %ile Green (s)	6.5	45.5	45.5	7.5	46.5	46.5	23.5	23.5	23.5	23.5
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Max	Hold	Hold
70th %ile Green (s)	6.5	45.5	45.5	7.5	46.5	46.5	23.5	23.5	23.5	23.5
70th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Max	Hold	Hold
50th %ile Green (s)	6.5	45.5	45.5	7.5	46.5	46.5	23.5	23.5	23.5	23.5
50th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Max	Hold	Hold
30th %ile Green (s)	0.0	45.5	45.5	7.5	57.5	57.5	23.5	23.5	23.5	23.5
30th %ile Term Code	Skip	Coord	Coord	Max	Coord	Coord	Max	Max	Hold	Hold
10th %ile Green (s)	0.0	46.3	46.3	7.2	58.0	58.0	23.0	23.0	23.0	23.0
10th %ile Term Code	Skip	Coord	Coord	Gap	Coord	Coord	Hold	Hold	Ped	Ped

Intersection Summary

Cycle Length: 90










Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Control Type: Actuated-Coordinated

Queues
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

									
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	32	816	154	215	945	59	232	44	92
v/c Ratio	0.15	0.86	0.20	0.88	0.89	0.07	0.98	0.11	0.27
Control Delay	9.2	27.8	4.3	43.0	30.4	5.1	92.1	28.0	26.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.2	27.8	4.3	43.0	30.4	5.1	92.1	28.0	26.1
Queue Length 50th (ft)	6	247	0	75	403	1	132	19	35
Queue Length 95th (ft)	m17	#617	44	m#123	#776	m8	#278	47	78
Internal Link Dist (ft)		79			214			74	171
Turn Bay Length (ft)	100			135		215			
Base Capacity (vph)	212	953	771	246	1065	855	237	406	344
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.86	0.20	0.87	0.89	0.07	0.98	0.11	0.27

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.























Queue shown is maximum after two cycles.




m Volume for 95th percentile queue is metered by upstream signal.




HCM 6th Signalized Intersection Summary

6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	759	143	200	879	55	216	40	1	35	30	20
Future Volume (veh/h)	30	759	143	200	879	55	216	40	1	35	30	20
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		0.93	0.81		0.80	0.83		0.80
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1811	1811	1811	1900	1900	1900
Adj Flow Rate, veh/h	32	816	154	215	945	59	232	43	1	38	32	22
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	6	6	6	0	0	0
Cap, veh/h	214	982	792	307	1050	831	326	385	9	166	127	74
Arrive On Green	0.04	0.52	0.52	0.08	0.56	0.56	0.22	0.22	0.25	0.25	0.22	0.25
Sat Flow, veh/h	1795	1885	1521	1795	1885	1492	1064	1751	41	496	579	338
Grp Volume(v), veh/h	32	816	154	215	945	59	232	0	44	92	0	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1521	1795	1885	1492	1064	0	1792	1412	0	0
Q Serve(g_s), s	0.7	32.9	4.9	4.8	40.1	1.6	15.1	0.0	1.8	1.3	0.0	0.0
Cycle Q Clear(g_c), s	0.7	32.9	4.9	4.8	40.1	1.6	18.3	0.0	1.8	4.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.02	0.41		0.24
Lane Grp Cap(c), veh/h	214	982	792	307	1050	831	326	0	394	414	0	0
V/C Ratio(X)	0.15	0.83	0.19	0.70	0.90	0.07	0.71	0.00	0.11	0.22	0.00	0.00
Avail Cap(c_a), veh/h	273	982	792	320	1050	831	334	0	408	425	0	0
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.8	18.2	11.5	17.6	17.7	9.2	34.1	0.0	28.0	28.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	8.1	0.5	5.2	12.2	0.2	5.7	0.0	0.0	0.1	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	0.3	15.6	1.7	2.7	19.5	0.6	5.4	0.0	0.8	1.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.0	26.3	12.0	22.9	29.9	9.4	39.8	0.0	28.1	28.2	0.0	0.0
LnGrp LOS	B	C	B	C	C	A	D	A	C	C	A	A
Approach Vol, veh/h	1002				1219				276		92	
Approach Delay, s/veh	23.8				27.6				38.0		28.2	
Approach LOS	C				C				D		C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.3	51.4		27.3	8.1	54.6		27.3				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	7.5	45.5		23.5	6.5	46.5		23.5				
Max Q Clear Time (g_c+I1), s	6.8	34.9		6.2	2.7	42.1		21.3				
Green Ext Time (p_c), s	0.0	1.0		0.3	0.0	0.9		0.2				
Intersection Summary												
HCM 6th Ctrl Delay	27.3											
HCM 6th LOS	C											

Intersection												
Int Delay, s/veh	4.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	136	0	0	0	94	254	70	5	230	139
Future Vol, veh/h	0	0	136	0	0	0	94	254	70	5	230	139
Conflicting Peds, #/hr	87	0	181	149	0	55	181	0	149	55	0	87
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	0	0	0
Mvmt Flow	0	0	142	0	0	0	98	265	73	5	240	145
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	-	-	675				566	0	0	487	0	0
Stage 1	-	-	-				-	-	-	-	-	-
Stage 2	-	-	-				-	-	-	-	-	-
Critical Hdwy	-	-	6.2				4.13	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-				-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-				-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3				2.227	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	457				1001	-	-	1086	-	-
Stage 1	0	0	-				-	-	-	-	-	-
Stage 2	0	0	-				-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	0	313				828	-	-	1086	-	-
Mov Cap-2 Maneuver	-	0	-				-	-	-	-	-	-
Stage 1	-	0	-				-	-	-	-	-	-
Stage 2	-	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	25.7						2.2			0.1		
HCM LOS	D											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR					
Capacity (veh/h)	828	-	-	313	1086	-	-					
HCM Lane V/C Ratio	0.118	-	-	0.453	0.005	-	-					
HCM Control Delay (s)	9.9	0	-	25.7	8.3	0	-					
HCM Lane LOS	A	A	-	D	A	A	-					
HCM 95th %tile Q(veh)	0.4	-	-	2.2	0	-	-					

Intersection						
Int Delay, s/veh	4.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	39	58	363	55	75	292
Future Vol, veh/h	39	58	363	55	75	292
Conflicting Peds, #/hr	126	40	0	126	40	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	93	93	93	93	93	93
Heavy Vehicles, %	8	8	4	4	0	0
Mvmt Flow	42	62	390	59	81	314
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1148	586	0	0	575	0
Stage 1	546	-	-	-	-	-
Stage 2	602	-	-	-	-	-
Critical Hdwy	6.48	6.28	-	-	4.1	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.2	-
Pot Cap-1 Maneuver	214	499	-	-	1008	-
Stage 1	569	-	-	-	-	-
Stage 2	535	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	147	422	-	-	887	-
Mov Cap-2 Maneuver	147	-	-	-	-	-
Stage 1	501	-	-	-	-	-
Stage 2	418	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	30.9	0	1.9			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	241	887	-	
HCM Lane V/C Ratio	-	-	0.433	0.091	-	
HCM Control Delay (s)	-	-	30.9	9.5	0	
HCM Lane LOS	-	-	D	A	A	
HCM 95th %tile Q(veh)	-	-	2	0.3	-	

Intersection												
Int Delay, s/veh	5.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	94	5	85	10	335	104	49	272	10
Future Vol, veh/h	0	0	0	94	5	85	10	335	104	49	272	10
Conflicting Peds, #/hr	71	0	37	14	0	48	37	0	14	48	0	71
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	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	4	4	4	2	2	2
Mvmt Flow	0	0	0	96	5	87	10	342	106	50	278	10
Major/Minor				Minor1		Major1		Major2				
Conflicting Flow All				860	922	491	359	0	0	496	0	0
Stage 1				463	463	-	-	-	-	-	-	-
Stage 2				397	459	-	-	-	-	-	-	-
Critical Hdwy				6.4	6.5	6.2	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1				5.4	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.4	5.5	-	-	-	-	-	-	-
Follow-up Hdwy				3.5	4	3.3	2.236	-	-	2.218	-	-
Pot Cap-1 Maneuver				329	272	582	1189	-	-	1068	-	-
Stage 1				638	568	-	-	-	-	-	-	-
Stage 2				683	570	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver				289	0	530	1189	-	-	1019	-	-
Mov Cap-2 Maneuver				289	0	-	-	-	-	-	-	-
Stage 1				602	0	-	-	-	-	-	-	-
Stage 2				635	0	-	-	-	-	-	-	-
Approach				WB		NB		SB				
HCM Control Delay, s				24.4		0.2		1.3				
HCM LOS				C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1189	-	-	369	1019	-	-					
HCM Lane V/C Ratio	0.009	-	-	0.509	0.049	-	-					
HCM Control Delay (s)	8.1	0	-	24.4	8.7	0	-					
HCM Lane LOS	A	A	-	C	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	2.8	0.2	-	-					

Intersection

Int Delay, s/veh 3.1

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 90 35 26 361 299 67

Future Vol, veh/h 90 35 26 361 299 67

Conflicting Peds, #/hr 20 20 20 0 0 20

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 94 94 94 94 94 94

Heavy Vehicles, % 0 0 5 5 2 2

Mvmt Flow 96 37 28 384 318 71

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 834 394 409 0 - 0

Stage 1 374 - - - - -

Stage 2 460 - - - - -

Critical Hdwy 6.4 6.2 4.15 - - -

Critical Hdwy Stg 1 5.4 - - - - -

Critical Hdwy Stg 2 5.4 - - - - -

Follow-up Hdwy 3.5 3.3 2.245 - - -

Pot Cap-1 Maneuver 341 659 1134 - - -

Stage 1 700 - - - - -

Stage 2 640 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 318 634 1112 - - -

Mov Cap-2 Maneuver 318 - - - - -

Stage 1 665 - - - - -

Stage 2 628 - - - - -

Approach EB NB SB

HCM Control Delay, s 20.1 0.6 0

HCM LOS C

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h) 1112 - 370 - -

HCM Lane V/C Ratio 0.025 - 0.359 - -















HCM Control Delay (s) 8.3 0 20.1 - -

HCM Lane LOS A A C - -

HCM 95th %tile Q(veh) 0.1 - 1.6 - -

Timings
11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

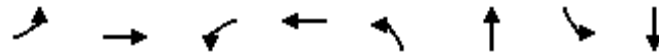
								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	811	26	1086	35	0	10	5
Future Volume (vph)	30	811	26	1086	35	0	10	5
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Detector Phase	2	2	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	22.5	22.5	24.5	24.5	24.5	24.5
Total Split (s)	65.0	65.0	65.0	65.0	25.0	25.0	25.0	25.0
Total Split (%)	72.2%	72.2%	72.2%	72.2%	27.8%	27.8%	27.8%	27.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	71.1	71.1	71.1	71.1		9.9		9.9
Actuated g/C Ratio	0.79	0.79	0.79	0.79		0.11		0.11
v/c Ratio	0.15	0.62	0.07	0.79		0.64		0.31
Control Delay	1.8	3.0	3.3	11.7		22.8		19.7
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	1.8	3.0	3.3	11.7		22.8		19.7
LOS	A	A	A	B		C		B
Approach Delay		2.9		11.5		22.8		19.7
Approach LOS		A		B		C		B
Intersection Summary								
Cycle Length: 90								
Actuated Cycle Length: 90								
Offset: 15 (17%), Referenced to phase 2:EBWB, Start of 1st Green								
Natural Cycle: 90								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.79								
Intersection Signal Delay: 9.2					Intersection LOS: A			
Intersection Capacity Utilization 82.2%					ICU Level of Service E			
Analysis Period (min) 15								

Splits and Phases: 11: W Cremona St & Nickerson St



Phasings
11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	22.5	22.5	24.5	24.5	24.5	24.5
Total Split (s)	65.0	65.0	65.0	65.0	25.0	25.0	25.0	25.0
Total Split (%)	72.2%	72.2%	72.2%	72.2%	27.8%	27.8%	27.8%	27.8%
Maximum Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	6.0	6.0	6.0	6.0	13.0	13.0	13.0	13.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0
90th %ile Green (s)	65.0	65.0	65.0	65.0	16.0	16.0	16.0	16.0
90th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Gap	Gap
70th %ile Green (s)	69.6	69.6	69.6	69.6	11.4	11.4	11.4	11.4
70th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Gap	Gap
50th %ile Green (s)	72.8	72.8	72.8	72.8	8.2	8.2	8.2	8.2
50th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Gap	Gap
30th %ile Green (s)	74.0	74.0	74.0	74.0	7.0	7.0	7.0	7.0
30th %ile Term Code	Coord	Coord	Coord	Coord	Min	Min	Min	Min
10th %ile Green (s)	74.0	74.0	74.0	74.0	7.0	7.0	7.0	7.0
10th %ile Term Code	Coord	Coord	Coord	Coord	Min	Min	Min	Min

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 15 (17%), Referenced to phase 2:EBWB, Start of 1st Green

Control Type: Actuated-Coordinated

Queues
11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	32	896	28	1171	172	59
v/c Ratio	0.15	0.62	0.07	0.79	0.64	0.31
Control Delay	1.8	3.0	3.3	11.7	22.8	19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.8	3.0	3.3	11.7	22.8	19.7
Queue Length 50th (ft)	1	25	2	243	21	9
Queue Length 95th (ft)	m2	m40	12	#725	m73	41
Internal Link Dist (ft)		409		773	14	101
Turn Bay Length (ft)	30		30			
Base Capacity (vph)	214	1456	395	1481	407	345
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.62	0.07	0.79	0.42	0.17

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.



















Queue shown is maximum after two cycles.




m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	811	31	26	1086	15	35	0	127	10	5	40
Future Volume (vph)	30	811	31	26	1086	15	35	0	127	10	5	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			4.5			4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.92			0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99			0.99	
Frt	1.00	0.99		1.00	1.00			0.89			0.90	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1844		1787	1875			1417			1616	
Flt Permitted	0.15	1.00		0.27	1.00			0.93			0.84	
Satd. Flow (perm)	271	1844		500	1875			1333			1372	
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)	32	863	33	28	1155	16	37	0	135	11	5	43
RTOR Reduction (vph)	0	1	0	0	0	0	0	120	0	0	38	0
Lane Group Flow (vph)	32	895	0	28	1171	0	0	52	0	0	21	0
Confl. Peds. (#/hr)	17		29	36		24	29		36	24		17
Confl. Bikes (#/hr)			3			3						
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	8%	8%	8%	0%	0%	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)	71.1	71.1		71.1	71.1			9.9			9.9	
Effective Green, g (s)	71.1	71.1		71.1	71.1			9.9			9.9	
Actuated g/C Ratio	0.79	0.79		0.79	0.79			0.11			0.11	
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)	214	1456		395	1481			146			150	
v/s Ratio Prot		0.49			c0.62							
v/s Ratio Perm	0.12			0.06				c0.04			0.02	
v/c Ratio	0.15	0.61		0.07	0.79			0.36			0.14	
Uniform Delay, d1	2.3	3.9		2.1	5.3			37.1			36.2	
Progression Factor	0.26	0.36		1.00	1.00			1.05			1.00	
Incremental Delay, d2	1.0	1.3		0.3	4.4			1.5			0.4	
Delay (s)	1.5	2.6		2.4	9.7			40.4			36.6	
Level of Service	A	A		A	A			D			D	
Approach Delay (s)		2.6			9.5			40.4			36.6	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			9.7			HCM 2000 Level of Service				A		
HCM 2000 Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			82.2%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

Intersection						
Int Delay, s/veh	5.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	121	30	30	46	31	31
Future Vol, veh/h	121	30	30	46	31	31
Conflicting Peds, #/hr	43	51	51	0	0	43
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	5	5	0	0	11	11
Mvmt Flow	130	32	32	49	33	33

Major/Minor	Minor2	Major2		
Conflicting Flow All	144	93	-	0
Stage 1	93	93	-	-
Stage 2	51	0	-	-
Critical Hdwy	6.4	6.5	-	-
Critical Hdwy Stg 1	5.4	5.5	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.5	4	-	-
Pot Cap-1 Maneuver	853	801	-	-
Stage 1	936	822	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	785	0	-	-
Mov Cap-2 Maneuver	785	0	-	-
Stage 1	898	0	-	-
Stage 2	-	0	-	-

Approach	NB	SB
HCM Control Delay, s	10.1	0
HCM LOS	B	



















Minor Lane/Major Mvmt	NBLn1	SBT	SBR
Capacity (veh/h)	785	-	-
HCM Lane V/C Ratio	0.104	-	-
HCM Control Delay (s)	10.1	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.3	-	-

Timings

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour

												
Lane Group	EBL2	EBT	WBL2	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SEL	SET
Lane Configurations												
Traffic Volume (vph)	5	0	5	5	215	422	25	5	40	5	5	988
Future Volume (vph)	5	0	5	5	215	422	25	5	40	5	5	988
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases		3			3			4		4		2
Permitted Phases	3		3	3		3	4		4		2	
Detector Phase	3	3	3	3	3	3	4	4	4	4	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	22.0	22.0
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	29.0	29.0	29.0	29.0	63.0	63.0
Total Split (%)	26.4%	26.4%	26.4%	26.4%	26.4%	26.4%	20.7%	20.7%	20.7%	20.7%	45.0%	45.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.0
Lost Time Adjust (s)		0.0			0.0	0.0		3.0		3.0		3.0
Total Lost Time (s)		6.5			6.5	6.5		9.5		9.5		9.0
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	C-Max	C-Max
Act Effect Green (s)		30.5			30.5	30.5		19.0		19.0		65.5
Actuated g/C Ratio		0.22			0.22	0.22		0.14		0.14		0.47
v/c Ratio		0.82			1.07	1.10		0.36		0.35		0.69
Control Delay		78.3			117.9	112.6		10.5		58.5		32.3
Queue Delay		14.2			0.0	0.0		0.1		0.0		0.1
Total Delay		92.5			117.9	112.6		10.5		58.5		32.4
LOS		F			F	F		B		E		C
Approach Delay		92.5			115.4			10.5		58.5		32.4
Approach LOS		F			F			B		E		C

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 112 (80%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 75.6

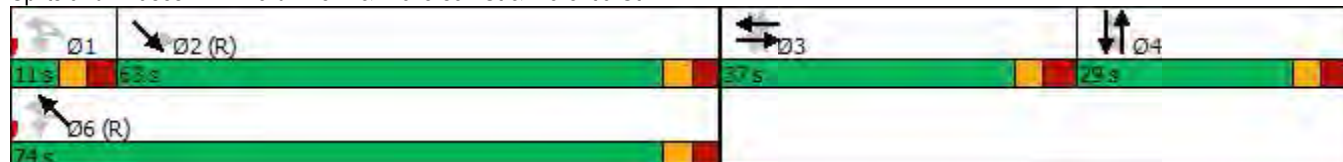
Intersection LOS: E

Intersection Capacity Utilization 124.5%

ICU Level of Service H


Analysis Period (min) 15

Splits and Phases: 14: 3rd Ave N & Nickerson St & Florentia St



Timings
14: 3rd Ave N & Nickerson St & Florentia St













2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	NWL2	NWL	NWT	Ø1
Lane Configurations				
Traffic Volume (vph)	15	75	761	
Future Volume (vph)	15	75	761	
Turn Type	custom	custom	NA	
Protected Phases			6	1
Permitted Phases	1 6	1 6		
Detector Phase	1 6	1 6	6	
Switch Phase				
Minimum Initial (s)			7.0	5.0
Minimum Split (s)			24.0	11.0
Total Split (s)			74.0	11.0
Total Split (%)			52.9%	8%
Yellow Time (s)			3.0	3.0
All-Red Time (s)			3.0	3.0
Lost Time Adjust (s)			3.0	
Total Lost Time (s)			9.0	
Lead/Lag				Lead
Lead-Lag Optimize?				Yes
Recall Mode			C-Max	None
Act Effct Green (s)			65.5	
Actuated g/C Ratio			0.47	
v/c Ratio			1.00	
Control Delay			65.1	
Queue Delay			35.9	
Total Delay			101.0	
LOS			F	
Approach Delay			101.0	
Approach LOS			F	
Intersection Summary				

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Lane Group	EBL2	EBT	WBL2	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SEL	SET
Protected Phases	3			3			4			4		2
Permitted Phases	3		3	3	3	3	4		4		2	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	22.0	22.0
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	29.0	29.0	29.0	29.0	63.0	63.0
Total Split (%)	26.4%	26.4%	26.4%	26.4%	26.4%	26.4%	20.7%	20.7%	20.7%	20.7%	45.0%	45.0%
Maximum Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.5	22.5	22.5	22.5	57.0	57.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.0
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (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
Time To Reduce (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
Recall Mode	None	None	None	None	None	None	None	None	None	None	C-Max	C-Max
Walk Time (s)							8.0	8.0	8.0	8.0	7.0	7.0
Flash Dont Walk (s)							14.0	14.0	14.0	14.0	9.0	9.0
Pedestrian Calls (#/hr)							81	81	81	81	75	75
90th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
70th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
70th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
50th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
50th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
30th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
30th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
10th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
10th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 112 (80%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Control Type: Actuated-Coordinated

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	NWL2	NWL	NWT	Ø1
Protected Phases			6	1
Permitted Phases	1 6	1 6		
Minimum Initial (s)			7.0	5.0
Minimum Split (s)			24.0	11.0
Total Split (s)			74.0	11.0
Total Split (%)			52.9%	8%
Maximum Green (s)			68.0	5.0
Yellow Time (s)			3.0	3.0
All-Red Time (s)			3.0	3.0
Lead/Lag				Lead
Lead-Lag Optimize?				Yes
Vehicle Extension (s)			2.0	2.0
Minimum Gap (s)			0.2	0.2
Time Before Reduce (s)			0.0	0.0
Time To Reduce (s)			0.0	0.0
Recall Mode			C-Max	None
Walk Time (s)			7.0	
Flash Dont Walk (s)			9.0	
Pedestrian Calls (#/hr)			174	
90th %ile Green (s)			68.5	0.0
90th %ile Term Code			Coord	Skip
70th %ile Green (s)			68.5	0.0
70th %ile Term Code			Coord	Skip
50th %ile Green (s)			68.5	0.0
50th %ile Term Code			Coord	Skip
30th %ile Green (s)			68.5	0.0
30th %ile Term Code			Coord	Skip
10th %ile Green (s)			68.5	0.0
10th %ile Term Code			Coord	Skip
Intersection Summary				

Queues

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT	SET	NWT
Lane Group Flow (vph)	201	373	335	108	58	1089	925
v/c Ratio	0.82	1.07	1.10	0.36	0.35	0.69	1.00
Control Delay	78.3	117.9	112.6	10.5	58.5	32.3	65.1
Queue Delay	14.2	0.0	0.0	0.1	0.0	0.1	35.9
Total Delay	92.5	117.9	112.6	10.5	58.5	32.4	101.0
Queue Length 50th (ft)	176	~392	~266	0	46	403	455
Queue Length 95th (ft)	#310	#608	#476	46	94	485	#596
Internal Link Dist (ft)	413	299		354	158	814	375
Turn Bay Length (ft)							
Base Capacity (vph)	245	350	305	302	171	1567	928
Starvation Cap Reductn	0	0	0	0	0	0	106
Spillback Cap Reductn	33	0	0	6	0	47	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	1.07	1.10	0.36	0.34	0.72	1.13

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

















95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St















2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL2	EBT	EBR	WBL2	WBL	WBT	WBR	WBR2	NBL	NBT	NBR2	SBL
Lane Configurations												
Traffic Volume (vph)	5	0	180	5	5	215	422	5	25	5	70	40
Future Volume (vph)	5	0	180	5	5	215	422	5	25	5	70	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5				6.5	6.5			9.5		
Lane Util. Factor		1.00				0.95	0.95			1.00		
Frpb, ped/bikes		0.94				0.96	0.64			0.94		
Flpb, ped/bikes		1.00				1.00	1.00			0.98		
Frt		0.87				0.95	0.85			0.91		
Flt Protected		1.00				1.00	1.00			0.99		
Satd. Flow (prot)		1546				1626	967			1570		
Flt Permitted		0.73				0.99	1.00			0.90		
Satd. Flow (perm)		1128				1610	967			1425		
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)	5	0	196	5	5	234	459	5	27	5	76	43
RTOR Reduction (vph)	0	0	0	0	0	0	95	0	0	93	0	0
Lane Group Flow (vph)	0	201	0	0	0	373	240	0	0	15	0	0
Confl. Peds. (#/hr)	44		37	37	44		44	67	44		37	37
Confl. Bikes (#/hr)			1				37	37				
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	0%	0%	0%	2%
Turn Type	Perm	NA		Perm	Perm	NA	Perm		Perm	NA		Perm
Protected Phases		3				3				4		
Permitted Phases	3			3	3		3		4			4
Actuated Green, G (s)		30.5				30.5	30.5			22.0		
Effective Green, g (s)		30.5				30.5	30.5			19.0		
Actuated g/C Ratio		0.22				0.22	0.22			0.14		
Clearance Time (s)		6.5				6.5	6.5			6.5		
Vehicle Extension (s)		2.0				2.0	2.0			2.0		
Lane Grp Cap (vph)		245				350	210			193		
v/s Ratio Prot												
v/s Ratio Perm		0.18				0.23	0.25			0.01		
v/c Ratio		0.82				1.07	1.14			0.08		
Uniform Delay, d1		52.1				54.8	54.8			52.8		
Progression Factor		1.00				1.00	1.00			1.00		
Incremental Delay, d2		18.5				66.6	106.5			0.1		
Delay (s)		70.6				121.4	161.3			52.9		
Level of Service		E				F	F			D		
Approach Delay (s)		70.6				140.2				52.9		
Approach LOS		E				F				D		
Intersection Summary												
HCM 2000 Control Delay		70.6				HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio		0.98										
Actuated Cycle Length (s)		140.0				Sum of lost time (s)				31.0		
Intersection Capacity Utilization		124.5%				ICU Level of Service				H		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

											
Movement	SBT	SBR	SBR2	SEL	SET	SER	SER2	NWL2	NWL	NWT	
Lane Configurations											
Traffic Volume (vph)	5	5	5	5	988	5	5	15	75	761	
Future Volume (vph)	5	5	5	5	988	5	5	15	75	761	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	9.5				9.0					9.0	
Lane Util. Factor	1.00				0.95					0.95	
Frpb, ped/bikes	0.97				1.00					1.00	
Flpb, ped/bikes	0.96				1.00					1.00	
Frt	0.98				1.00					1.00	
Flt Protected	0.96				1.00					0.99	
Satd. Flow (prot)	1629				3522					3555	
Flt Permitted	0.72				0.95					0.55	
Satd. Flow (perm)	1214				3349					1983	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	5	5	5	5	1074	5	5	16	82	827	
RTOR Reduction (vph)	3	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	55	0	0	0	1089	0	0	0	0	925	
Confl. Peds. (#/hr)		31	44	107		44	31	44	31		
Confl. Bikes (#/hr)		11	11			2	2				
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	
Turn Type	NA			Perm	NA			custom	custom	NA	
Protected Phases	4				2					6	
Permitted Phases				2				1 6	1 6		
Actuated Green, G (s)	22.0				68.5					68.5	
Effective Green, g (s)	19.0				65.5					65.5	
Actuated g/C Ratio	0.14				0.47					0.47	
Clearance Time (s)	6.5				6.0					6.0	
Vehicle Extension (s)	2.0				3.0					2.0	
Lane Grp Cap (vph)	164				1566					927	
v/s Ratio Prot											
v/s Ratio Perm	c0.05				0.33					c0.47	
v/c Ratio	0.34				0.70					1.00	
Uniform Delay, d1	54.8				29.4					37.2	
Progression Factor	1.00				1.00					1.08	
Incremental Delay, d2	0.4				2.6					25.5	
Delay (s)	55.2				32.0					65.8	
Level of Service	E				C					E	
Approach Delay (s)	55.2				32.0					65.8	
Approach LOS	E				C					E	
Intersection Summary											

Intersection

Int Delay, s/veh 0

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	5	0	1965	540	647
Future Vol, veh/h	0	5	0	1965	540	647
Conflicting Peds, #/hr	75	74	74	0	0	75
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	97	97	97	97	97	97
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	0	5	0	2026	557	667

Major/Minor Minor2 Major1 Major2

Conflicting Flow All	-	761	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	352	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	304	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach EB NB SB

HCM Control Delay, s	17	0	0
HCM LOS	C		

Minor Lane/Major Mvmt NBT EBLn1 SBT SBR

Capacity (veh/h)	-	304	-	-
HCM Lane V/C Ratio	-	0.017	-	-
HCM Control Delay (s)	-	17	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

Timings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	←←	→	←←	←←	←	←→	←←	→
Traffic Volume (vph)	850	267	517	790	224	330	320	115
Future Volume (vph)	850	267	517	790	224	330	320	115
Turn Type	Prot	NA	NA	custom	Split	NA	Split	NA
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Detector Phase	4	1 4	1	5	3	3	2	2
Switch Phase								
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	30.0		37.0	73.0	37.0	37.0	36.0	36.0
Total Split (%)	21.4%		26.4%	52.1%	26.4%	26.4%	25.7%	25.7%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		5.5	5.5	6.5	6.5	5.5	5.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Recall Mode	None		Max	C-Max	None	None	C-Max	C-Max
Act Effect Green (s)	26.9	64.9	31.5	67.5	27.1	27.1	30.5	30.5
Actuated g/C Ratio	0.19	0.46	0.22	0.48	0.19	0.19	0.22	0.22
v/c Ratio	1.33	0.55	0.68	0.86	0.68	0.51	0.45	0.64
Control Delay	197.6	52.0	54.6	39.5	62.4	52.5	49.9	51.3
Queue Delay	0.0	8.0	1.3	0.0	0.0	0.0	0.0	91.5
Total Delay	197.6	60.0	55.9	39.5	62.4	52.5	49.9	142.8
LOS	F	E	E	D	E	D	D	F
Approach Delay		151.3	46.0			56.4		88.8
Approach LOS		F	D			E		F

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 89 (64%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.33

Intersection Signal Delay: 90.4

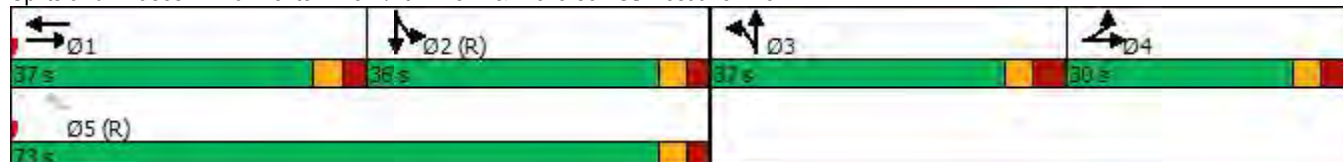
Intersection LOS: F

Intersection Capacity Utilization 107.5%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N



Phasings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	30.0		37.0	73.0	37.0	37.0	36.0	36.0
Total Split (%)	21.4%		26.4%	52.1%	26.4%	26.4%	25.7%	25.7%
Maximum Green (s)	23.5		31.5	67.5	30.5	30.5	30.5	30.5
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2		0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None		Max	C-Max	None	None	C-Max	C-Max
Walk Time (s)			9.0		8.0	8.0	8.0	8.0
Flash Dont Walk (s)			22.0		22.0	22.0	22.0	22.0
Pedestrian Calls (#/hr)			46		48	48	17	17
90th %ile Green (s)	23.5		31.5	67.5	30.5	30.5	30.5	30.5
90th %ile Term Code	Max		MaxR	Coord	Max	Max	Coord	Coord
70th %ile Green (s)	24.0		31.5	67.5	30.0	30.0	30.5	30.5
70th %ile Term Code	Max		MaxR	Coord	Ped	Ped	Coord	Coord
50th %ile Green (s)	24.0		31.5	67.5	30.0	30.0	30.5	30.5
50th %ile Term Code	Max		MaxR	Coord	Ped	Ped	Coord	Coord
30th %ile Green (s)	24.0		31.5	67.5	30.0	30.0	30.5	30.5
30th %ile Term Code	Max		MaxR	Coord	Ped	Ped	Coord	Coord
10th %ile Green (s)	39.0		31.5	67.5	15.0	15.0	30.5	30.5
10th %ile Term Code	Max		MaxR	Coord	Gap	Gap	Coord	Coord

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 89 (64%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Control Type: Actuated-Coordinated

Queues

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	885	449	539	823	233	349	333	240
v/c Ratio	1.33	0.55	0.68	0.86	0.68	0.51	0.45	0.64
Control Delay	197.6	52.0	54.6	39.5	62.4	52.5	49.9	51.3
Queue Delay	0.0	8.0	1.3	0.0	0.0	0.0	0.0	91.5
Total Delay	197.6	60.0	55.9	39.5	62.4	52.5	49.9	142.8
Queue Length 50th (ft)	~579	382	237	341	194	146	137	173
Queue Length 95th (ft)	#722	m488	303	459	285	197	186	269
Internal Link Dist (ft)		375	150			693		176
Turn Bay Length (ft)				200				
Base Capacity (vph)	666	821	796	957	385	767	733	377
Starvation Cap Reductn	0	326	0	0	0	0	0	0
Spillback Cap Reductn	0	0	107	0	0	0	0	319
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.33	0.91	0.78	0.86	0.61	0.46	0.45	4.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.























Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.







HCM Signalized Intersection Capacity Analysis

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	850	267	164	0	517	790	224	330	5	320	115	115
Future Volume (vph)	850	267	164	0	517	790	224	330	5	320	115	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.98			1.00	0.68	1.00	1.00		1.00	0.96	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.94			1.00	0.85	1.00	1.00		1.00	0.93	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3467	1739			3539	1903	1770	3520		3367	1616	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3467	1739			3539	1903	1770	3520		3367	1616	
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)	885	278	171	0	539	823	233	344	5	333	120	120
RTOR Reduction (vph)	0	16	0	0	0	40	0	1	0	0	26	0
Lane Group Flow (vph)	885	433	0	0	539	783	233	348	0	333	214	0
Confl. Peds. (#/hr)	17		29	29		17	17		48	48		17
Confl. Bikes (#/hr)			2			371			156			53
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	26.9	64.9			31.5	67.5	27.1	27.1		30.5	30.5	
Effective Green, g (s)	26.9	58.4			31.5	67.5	27.1	27.1		30.5	30.5	
Actuated g/C Ratio	0.19	0.42			0.22	0.48	0.19	0.19		0.22	0.22	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	666	725			796	917	342	681		733	352	
v/s Ratio Prot	c0.26	0.25			0.15		c0.13	0.10		0.10	0.13	
v/s Ratio Perm						c0.41						
v/c Ratio	1.33	0.60			0.68	0.85	0.68	0.51		0.45	0.61	
Uniform Delay, d1	56.5	31.7			49.6	31.9	52.4	50.5		47.5	49.4	
Progression Factor	0.97	1.89			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	155.5	1.0			4.6	9.9	4.4	0.3		2.0	7.6	
Delay (s)	210.4	60.7			54.2	41.8	56.8	50.8		49.6	57.0	
Level of Service	F	E			D	D	E	D		D	E	
Approach Delay (s)		160.0			46.7			53.2			52.7	
Approach LOS		F			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			87.8				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			107.5%				ICU Level of Service			G		
Analysis Period (min)			15									
c Critical Lane Group												

2035 Alternative 5 AM

Intersection												
Int Delay, s/veh	5.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	888	61	18	596	41	23	7	47	18	0	13
Future Vol, veh/h	25	888	61	18	596	41	23	7	47	18	0	13
Conflicting Peds, #/hr	6	0	12	14	0	8	12	0	14	8	0	6
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	4	4	4	3	3	3	2	2	2	32	32	32
Mvmt Flow	26	925	64	19	621	43	24	7	49	19	0	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	672	0	0	1003	0	0	1723	1733	985	1740	1744	663
Stage 1	-	-	-	-	-	-	1023	1023	-	689	689	-
Stage 2	-	-	-	-	-	-	700	710	-	1051	1055	-
Critical Hdwy	4.14	-	-	4.13	-	-	7.12	6.52	6.22	7.42	6.82	6.52
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.42	5.82	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.42	5.82	-
Follow-up Hdwy	2.236	-	-	2.227	-	-	3.518	4.018	3.318	3.788	4.288	3.588
Pot Cap-1 Maneuver	909	-	-	687	-	-	70	88	301	57	73	413
Stage 1	-	-	-	-	-	-	284	313	-	391	404	-
Stage 2	-	-	-	-	-	-	430	437	-	241	268	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	902	-	-	678	-	-	63	81	293	41	67	405
Mov Cap-2 Maneuver	-	-	-	-	-	-	63	81	-	41	67	-
Stage 1	-	-	-	-	-	-	272	300	-	377	389	-
Stage 2	-	-	-	-	-	-	399	421	-	188	257	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.3			73.7			103.4		
HCM LOS							F			F		





Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	126	902	-	-	678	-	-	66
HCM Lane V/C Ratio	0.637	0.029	-	-	0.028	-	-	0.489
HCM Control Delay (s)	73.7	9.1	-	-	10.5	-	-	103.4
HCM Lane LOS	F	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	3.3	0.1	-	-	0.1	-	-	2

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	5	5	5	5	5	5	18	0	5	39	10
Future Vol, veh/h	30	5	5	5	5	5	5	18	0	5	39	10
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	0	0	0	9	9	9	0	0	0	0	0	0
Mvmt Flow	38	6	6	6	6	6	6	23	0	6	49	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.5	7.3	7.3	7.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	22%	75%	33%	9%
Vol Thru, %	78%	12%	33%	72%
Vol Right, %	0%	12%	33%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	23	40	15	54
LT Vol	5	30	5	5
Through Vol	18	5	5	39
RT Vol	0	5	5	10
Lane Flow Rate	29	51	19	68
Geometry Grp	1	1	1	1
Degree of Util (X)	0.033	0.058	0.022	0.075
Departure Headway (Hd)	4.117	4.159	4.128	3.951
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	865	857	861	903
Service Time	2.165	2.205	2.181	1.992
HCM Lane V/C Ratio	0.034	0.06	0.022	0.075
HCM Control Delay	7.3	7.5	7.3	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.1	0.2




Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	254	0	10	85	7	5	7	5	12	15	28
Future Vol, veh/h	9	254	0	10	85	7	5	7	5	12	15	28
Conflicting Peds, #/hr	2	0	8	13	0	8	8	0	13	8	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	2	2	2	0	0	0	5	5	5
Mvmt Flow	12	339	0	13	113	9	7	9	7	16	20	37
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	130	0	0	352	0	0	556	532	365	536	528	134
Stage 1	-	-	-	-	-	-	376	376	-	152	152	-
Stage 2	-	-	-	-	-	-	180	156	-	384	376	-
Critical Hdwy	4.13	-	-	4.12	-	-	7.1	6.5	6.2	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Follow-up Hdwy	2.227	-	-	2.218	-	-	3.5	4	3.3	3.545	4.045	3.345
Pot Cap-1 Maneuver	1449	-	-	1207	-	-	445	456	685	451	451	907
Stage 1	-	-	-	-	-	-	649	620	-	843	766	-
Stage 2	-	-	-	-	-	-	826	772	-	633	611	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1438	-	-	1192	-	-	396	437	668	423	433	893
Mov Cap-2 Maneuver	-	-	-	-	-	-	396	437	-	423	433	-
Stage 1	-	-	-	-	-	-	635	606	-	828	751	-
Stage 2	-	-	-	-	-	-	755	757	-	603	598	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.8			13			12.1		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	471	1438	-	-	1192	-	-	583				
HCM Lane V/C Ratio	0.048	0.008	-	-	0.011	-	-	0.126				
HCM Control Delay (s)	13	7.5	0	-	8.1	0	-	12.1				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.4				

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	23	5	6	7	6	0	5	1	15	5	0
Future Vol, veh/h	5	23	5	6	7	6	0	5	1	15	5	0
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	33	33	33
Mvmt Flow	7	34	7	9	10	9	0	7	1	22	7	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0



















Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	7	7	8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	15%	32%	75%
Vol Thru, %	83%	70%	37%	25%
Vol Right, %	17%	15%	32%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	6	33	19	20
LT Vol	0	5	6	15
Through Vol	5	23	7	5
RT Vol	1	5	6	0
Lane Flow Rate	9	49	28	30
Geometry Grp	1	1	1	1
Degree of Util (X)	0.01	0.054	0.031	0.039
Departure Headway (Hd)	3.958	3.929	3.879	4.753
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	900	909	920	753
Service Time	1.999	1.962	1.915	2.786
HCM Lane V/C Ratio	0.01	0.054	0.03	0.04
HCM Control Delay	7	7.2	7	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0.2	0.1	0.1

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	268	107	15	10	0
Future Vol, veh/h	0	268	107	15	10	0
Conflicting Peds, #/hr	4	0	0	19	19	4
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	79	79	79	79	79	79
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	0	339	135	19	13	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	173	0	-	0	522	168
Stage 1	-	-	-	-	164	-
Stage 2	-	-	-	-	358	-
Critical Hdwy	4.13	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.227	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1398	-	-	-	519	881
Stage 1	-	-	-	-	870	-
Stage 2	-	-	-	-	712	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1373	-	-	-	500	862
Mov Cap-2 Maneuver	-	-	-	-	500	-
Stage 1	-	-	-	-	854	-
Stage 2	-	-	-	-	699	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		12.4		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1373	-	-	-	500	
HCM Lane V/C Ratio	-	-	-	-	0.025	
HCM Control Delay (s)	0	-	-	-	12.4	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Timings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	10	829	96	75	594	35	132	10	10	10
Future Volume (vph)	10	829	96	75	594	35	132	10	10	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	27.0	27.0	11.0	27.0	27.0	28.0	28.0	28.0	28.0
Total Split (s)	15.0	35.0	35.0	15.0	35.0	35.0	30.0	30.0	30.0	30.0
Total Split (%)	18.8%	43.8%	43.8%	18.8%	43.8%	43.8%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effect Green (s)	36.3	32.4	32.4	39.7	38.5	38.5		14.4		12.0
Actuated g/C Ratio	0.57	0.51	0.51	0.62	0.60	0.60		0.23		0.19
v/c Ratio	0.02	0.94	0.13	0.32	0.57	0.04		0.75		0.07
Control Delay	6.7	39.0	4.2	9.6	13.4	0.5		32.5		20.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	6.7	39.0	4.2	9.6	13.4	0.5		32.5		20.1
LOS	A	D	A	A	B	A		C		C
Approach Delay		35.1			12.4			32.5		20.1
Approach LOS		D			B			C		C

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 63.7

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 26.2

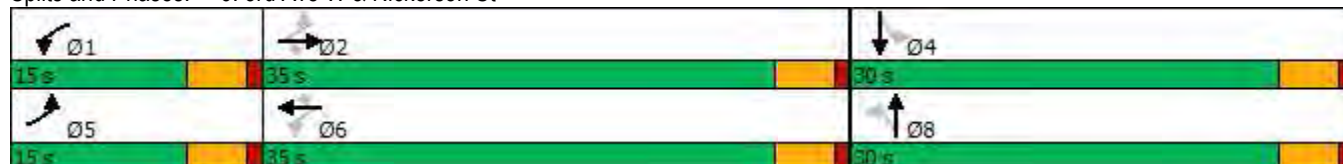
Intersection LOS: C

Intersection Capacity Utilization 78.0%

ICU Level of Service D











Analysis Period (min) 15

Splits and Phases: 6: 3rd Ave W & Nickerson St



Phasings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	27.0	27.0	11.0	27.0	27.0	28.0	28.0	28.0	28.0
Total Split (s)	15.0	35.0	35.0	15.0	35.0	35.0	30.0	30.0	30.0	30.0
Total Split (%)	18.8%	43.8%	43.8%	18.8%	43.8%	43.8%	37.5%	37.5%	37.5%	37.5%
Maximum Green (s)	10.5	30.5	30.5	10.5	30.5	30.5	25.5	25.5	25.5	25.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	1.0	0.2	0.2	1.0	0.2	0.2	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)		12	12		6	6	12	12	17	17
90th %ile Green (s)	5.0	30.5	30.5	6.9	32.4	32.4	23.9	23.9	23.9	23.9
90th %ile Term Code	Min	MaxR	MaxR	Gap	Hold	Hold	Gap	Gap	Hold	Hold
70th %ile Green (s)	0.0	30.5	30.5	5.4	40.4	40.4	17.8	17.8	17.8	17.8
70th %ile Term Code	Skip	MaxR	MaxR	Gap	Hold	Hold	Gap	Gap	Hold	Hold
50th %ile Green (s)	0.0	30.5	30.5	5.0	40.0	40.0	14.3	14.3	0.0	0.0
50th %ile Term Code	Skip	MaxR	MaxR	Min	Hold	Hold	Gap	Gap	Skip	Skip
30th %ile Green (s)	0.0	30.5	30.5	5.0	40.0	40.0	11.3	11.3	0.0	0.0
30th %ile Term Code	Skip	MaxR	MaxR	Min	Hold	Hold	Gap	Gap	Skip	Skip
10th %ile Green (s)	0.0	36.9	36.9	0.0	36.9	36.9	7.2	7.2	0.0	0.0
10th %ile Term Code	Skip	Dwell	Dwell	Skip	Dwell	Dwell	Gap	Gap	Skip	Skip

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 63.7

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 74.8

70th %ile Actuated Cycle: 67.2









50th %ile Actuated Cycle: 63.3

30th %ile Actuated Cycle: 60.3

10th %ile Actuated Cycle: 53.1

Queues
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour





















								
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	10	864	100	78	619	36	257	20
v/c Ratio	0.02	0.94	0.13	0.32	0.57	0.04	0.75	0.07
Control Delay	6.7	39.0	4.2	9.6	13.4	0.5	32.5	20.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	39.0	4.2	9.6	13.4	0.5	32.5	20.1
Queue Length 50th (ft)	1	308	1	10	114	0	74	7
Queue Length 95th (ft)	8	#699	29	33	#418	3	150	21
Internal Link Dist (ft)		79			214		74	171
Turn Bay Length (ft)	100			135		215		
Base Capacity (vph)	572	921	792	370	1084	922	574	594
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.94	0.13	0.21	0.57	0.04	0.45	0.03




Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary 6: 3rd Ave W & Nickerson St




2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	829	96	75	594	35	132	10	105	10	10	0
Future Volume (veh/h)	10	829	96	75	594	35	132	10	105	10	10	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	0.98		0.96	0.99		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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1811	1811	1811	1796	1796	1796	1707	1707	1707
Adj Flow Rate, veh/h	10	864	100	78	619	36	138	10	109	10	10	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, %	5	5	5	6	6	6	7	7	7	13	13	13
Cap, veh/h	362	894	748	236	971	797	249	31	141	222	190	0
Arrive On Green	0.01	0.49	0.49	0.06	0.54	0.54	0.23	0.23	0.23	0.23	0.23	0.00
Sat Flow, veh/h	1739	1826	1528	1725	1811	1486	682	134	601	579	811	0
Grp Volume(v), veh/h	10	864	100	78	619	36	257	0	0	20	0	0
Grp Sat Flow(s),veh/h/ln	1739	1826	1528	1725	1811	1486	1417	0	0	1390	0	0
Q Serve(g_s), s	0.2	28.6	2.2	1.3	15.0	0.7	9.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.2	28.6	2.2	1.3	15.0	0.7	10.5	0.0	0.0	0.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.54		0.42	0.50		0.00
Lane Grp Cap(c), veh/h	362	894	748	236	971	797	421	0	0	412	0	0
V/C Ratio(X)	0.03	0.97	0.13	0.33	0.64	0.05	0.61	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	633	894	748	424	971	797	665	0	0	653	0	0
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.9	15.4	8.7	13.9	10.2	6.9	22.2	0.0	0.0	18.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	23.0	0.4	0.3	3.2	0.1	0.5	0.0	0.0	0.0	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	0.1	15.9	0.7	0.5	5.9	0.2	3.4	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.0	38.4	9.1	14.2	13.4	7.0	22.7	0.0	0.0	18.5	0.0	0.0
LnGrp LOS	A	D	A	B	B	A	C	A	A	B	A	A
Approach Vol, veh/h	974				733			257			20	
Approach Delay, s/veh	35.1				13.1			22.7			18.5	
Approach LOS	D				B			C			B	
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	8.2	35.0	19.1		5.3	37.9	19.1					
Change Period (Y+Rc), s	4.5	4.5	4.5		4.5	4.5	4.5					
Max Green Setting (Gmax), s	10.5	30.5	25.5		10.5	30.5	25.5					
Max Q Clear Time (g_c+I1), s	3.3	30.6	2.6		2.2	17.0	12.5					
Green Ext Time (p_c), s	0.0	0.0	0.0		0.0	0.8	0.9					
Intersection Summary												
HCM 6th Ctrl Delay	25.2											
HCM 6th LOS	C											

Intersection												
Int Delay, s/veh	6.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	49	108	41	0	0	0	41	194	15	5	123	49
Future Vol, veh/h	49	108	41	0	0	0	41	194	15	5	123	49
Conflicting Peds, #/hr	32	0	42	22	0	11	42	0	22	11	0	32
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	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	0	0	0	7	7	7	2	2	2
Mvmt Flow	61	135	51	0	0	0	51	243	19	6	154	61
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	626	625	269				257	0	0	284	0	0
Stage 1	239	239	-				-	-	-	-	-	-
Stage 2	387	386	-				-	-	-	-	-	-
Critical Hdwy	6.43	6.53	6.23				4.17	-	-	4.12	-	-
Critical Hdwy Stg 1	5.43	5.53	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.43	5.53	-				-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327				2.263	-	-	2.218	-	-
Pot Cap-1 Maneuver	446	400	767				1279	-	-	1278	-	-
Stage 1	798	706	-				-	-	-	-	-	-
Stage 2	684	608	-				-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	389	0	707				1228	-	-	1278	-	-
Mov Cap-2 Maneuver	389	0	-				-	-	-	-	-	-
Stage 1	729	0	-				-	-	-	-	-	-
Stage 2	653	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	19.7						1.3			0.2		
HCM LOS	C											
Minor Lane/Major Mvmt		NBL	NBT	NBR	EBLn1	SBL	SBT	SBR				
Capacity (veh/h)		1228	-	-	489	1278	-	-				
HCM Lane V/C Ratio		0.042	-	-	0.506	0.005	-	-				
HCM Control Delay (s)		8.1	0	-	19.7	7.8	0	-				
HCM Lane LOS		A	A	-	C	A	A	-				
HCM 95th %tile Q(veh)		0.1	-	-	2.8	0	-	-				

Intersection

Int Delay, s/veh 1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	24	23	240	38	22	142
Future Vol, veh/h	24	23	240	38	22	142
Conflicting Peds, #/hr	16	3	0	16	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	84	84	84	84	84	84
Heavy Vehicles, %	30	30	7	7	5	5
Mvmt Flow	29	27	286	45	26	169

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	562	328	0
Stage 1	325	-	-
Stage 2	237	-	-
Critical Hdwy	6.7	6.5	-
Critical Hdwy Stg 1	5.7	-	-
Critical Hdwy Stg 2	5.7	-	-
Follow-up Hdwy	3.77	3.57	-
Pot Cap-1 Maneuver	444	653	-
Stage 1	673	-	-
Stage 2	741	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	420	641	-
Mov Cap-2 Maneuver	420	-	-
Stage 1	663	-	-
Stage 2	712	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13	0	1.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	505	1177
HCM Lane V/C Ratio	-	-	0.111	0.022
HCM Control Delay (s)	-	-	13	8.1
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					<div></div>			<div></div>			<div></div>	
Traffic Vol, veh/h	0	0	0	25	0	40	0	242	28	6	160	0
Future Vol, veh/h	0	0	0	25	0	40	0	242	28	6	160	0
Conflicting Peds, #/hr	17	0	0	0	0	17	0	0	0	17	0	17
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	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	3	3	3	7	7	7	12	12	12
Mvmt Flow	0	0	0	29	0	46	0	278	32	7	184	0
Major/Minor				Minor1		Major1		Major2				
Conflicting Flow All				509	526	328	201	0	0	327	0	0
Stage 1				311	311	-	-	-	-	-	-	-
Stage 2				198	215	-	-	-	-	-	-	-
Critical Hdwy				6.43	6.53	6.23	4.17	-	-	4.22	-	-
Critical Hdwy Stg 1				5.43	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.43	5.53	-	-	-	-	-	-	-
Follow-up Hdwy				3.527	4.027	3.327	2.263	-	-	2.308	-	-
Pot Cap-1 Maneuver				522	455	711	1342	-	-	1178	-	-
Stage 1				741	656	-	-	-	-	-	-	-
Stage 2				833	723	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver				510	0	688	1342	-	-	1159	-	-
Mov Cap-2 Maneuver				510	0	-	-	-	-	-	-	-
Stage 1				729	0	-	-	-	-	-	-	-
Stage 2				827	0	-	-	-	-	-	-	-
Approach				WB		NB		SB				
HCM Control Delay, s				11.8		0		0.3				
HCM LOS				B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1342	-	-	607	1159	-	-					
HCM Lane V/C Ratio	-	-	-	0.123	0.006	-	-					
HCM Control Delay (s)	0	-	-	11.8	8.1	0	-					
HCM Lane LOS	A	-	-	B	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	0.4	0	-	-					

Intersection

Int Delay, s/veh 2

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 43 13 39 231 145 35

Future Vol, veh/h 43 13 39 231 145 35

Conflicting Peds, #/hr 15 15 15 0 0 15

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, % 0 0 8 8 11 11

Mvmt Flow 47 14 43 254 159 38

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 548 208 212 0 - 0

Stage 1 193 - - - - -

Stage 2 355 - - - - -

Critical Hdwy 6.4 6.2 4.18 - - -

Critical Hdwy Stg 1 5.4 - - - - -

Critical Hdwy Stg 2 5.4 - - - - -

Follow-up Hdwy 3.5 3.3 2.272 - - -

Pot Cap-1 Maneuver 501 837 1323 - - -

Stage 1 845 - - - - -

Stage 2 714 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 468 813 1304 - - -

Mov Cap-2 Maneuver 468 - - - - -

Stage 1 802 - - - - -

Stage 2 704 - - - - -

Approach EB NB SB

HCM Control Delay, s 12.9 1.1 0

HCM LOS B

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR







Capacity (veh/h) 1304 - 519 - -

HCM Lane V/C Ratio 0.033 - 0.119 - -

HCM Control Delay (s) 7.9 0 12.9 - -

HCM Lane LOS A A B - -

HCM 95th %tile Q(veh) 0.1 - 0.4 - -




Intersection												
Int Delay, s/veh	13.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	980	53	35	668	25	29	5	38	5	5	35
Future Vol, veh/h	35	980	53	35	668	25	29	5	38	5	5	35
Conflicting Peds, #/hr	16	0	9	10	0	17	9	0	10	17	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	6	6	6	6	6	6	19	19	19	0	0	0
Mvmt Flow	37	1043	56	37	711	27	31	5	40	5	5	37

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	755	0	0	1109	0	0	1991	1984	1098	2001	1999	758
Stage 1	-	-	-	-	-	-	1155	1155	-	816	816	-
Stage 2	-	-	-	-	-	-	836	829	-	1185	1183	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.29	6.69	6.39	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.29	5.69	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.29	5.69	-	6.1	5.5	-
Follow-up Hdwy	2.254	-	-	2.254	-	-	3.671	4.171	3.471	3.5	4	3.3
Pot Cap-1 Maneuver	838	-	-	615	-	-	41	55	239	45	61	410
Stage 1	-	-	-	-	-	-	222	252	-	374	393	-
Stage 2	-	-	-	-	-	-	338	362	-	233	265	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	824	-	-	609	-	-	31	48	233	30	53	397
Mov Cap-2 Maneuver	-	-	-	-	-	-	31	48	-	30	53	-
Stage 1	-	-	-	-	-	-	210	238	-	352	363	-
Stage 2	-	-	-	-	-	-	279	334	-	177	250	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.5	\$ 323	48.5
HCM LOS			F	E


















Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	60	824	-	-	609	-	-	129
HCM Lane V/C Ratio	1.277	0.045	-	-	0.061	-	-	0.371
HCM Control Delay (s)	\$ 323	9.6	-	-	11.3	-	-	48.5
HCM Lane LOS	F	A	-	-	B	-	-	E
HCM 95th %tile Q(veh)	6.5	0.1	-	-	0.2	-	-	1.5

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

Intersection						
Int Delay, s/veh	4.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	16	24	65	43	55
Future Vol, veh/h	12	16	24	65	43	55
Conflicting Peds, #/hr	15	15	15	0	0	15
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	11	11	32	32
Mvmt Flow	13	18	27	73	48	62
Major/Minor		Minor2		Major2		
Conflicting Flow All		109	94	-	-	0
Stage 1		94	94	-	-	-
Stage 2		15	0	-	-	-
Critical Hdwy		6.51	6.61	-	-	-
Critical Hdwy Stg 1		5.51	5.61	-	-	-
Critical Hdwy Stg 2		-	-	-	-	-
Follow-up Hdwy		3.599	4.099	-	-	-
Pot Cap-1 Maneuver		867	779	-	-	-
Stage 1		908	800	-	-	-
Stage 2		-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver		843	0	-	-	-
Mov Cap-2 Maneuver		843	0	-	-	-
Stage 1		895	0	-	-	-
Stage 2		-	0	-	-	-
Approach		NB		SB		
HCM Control Delay, s		9.8		0		
HCM LOS		A				
Minor Lane/Major Mvmt	NBLn1	SBT	SBR			
Capacity (veh/h)	843	-	-			
HCM Lane V/C Ratio	0.119	-	-			
HCM Control Delay (s)	9.8	-	-			
HCM Lane LOS	A	-	-			
HCM 95th %tile Q(veh)	0.4	-	-			

Timings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Lane Group	EBL2	EBL	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	SBL2	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	5	0	5	115	216	5	30	0	10	5	0
Future Volume (vph)	5	5	0	5	115	216	5	30	0	10	5	0
Turn Type	Perm	Perm	NA	Perm	NA	Perm	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			3		3				4			4
Permitted Phases	3	3		3		3	4	4		4	4	
Detector Phase	3	3	3	3	3	3	4	4	4	4	4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	28.5	28.5
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	26.2%	26.2%	26.2%	26.2%	26.2%	26.2%	22.3%	22.3%	22.3%	22.3%	22.3%	22.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)			0.0		0.0	0.0			3.0			3.0
Total Lost Time (s)			6.5		6.5	6.5			9.5			9.5
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effect Green (s)			27.5		27.5	27.5			16.0			16.0
Actuated g/C Ratio			0.21		0.21	0.21			0.12			0.12
v/c Ratio			0.99		0.56	0.46			0.32			0.09
Control Delay			99.5		52.9	17.0			5.5			0.8
Queue Delay			0.0		0.0	0.0			0.0			0.0
Total Delay			99.5		52.9	17.0			5.6			0.8
LOS			F		D	B			A			A
Approach Delay			99.5		35.9				5.6			0.8
Approach LOS			F		D				A			A

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 76 (58%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 43.2

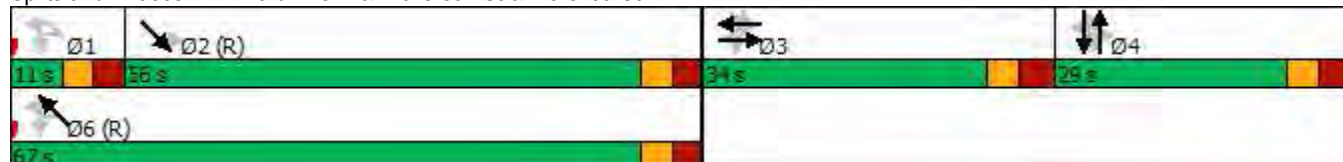
Intersection LOS: D

Intersection Capacity Utilization 117.8%

ICU Level of Service H

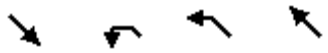
Analysis Period (min) 15

Splits and Phases: 14: 3rd Ave N & Nickerson St & Florentia St



Timings
14: 3rd Ave N & Nickerson St & Florentia St













2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	SET	NWL2	NWL	NWT	Ø1
Lane Configurations	↕↕			↕↕	
Traffic Volume (vph)	990	25	65	602	
Future Volume (vph)	990	25	65	602	
Turn Type	NA	custom	custom	NA	
Protected Phases	2			6	1
Permitted Phases		1 6	1 6		
Detector Phase	2	1 6	1 6	6	
Switch Phase					
Minimum Initial (s)	7.0			7.0	5.0
Minimum Split (s)	22.0			24.0	11.0
Total Split (s)	56.0			67.0	11.0
Total Split (%)	43.1%			51.5%	8%
Yellow Time (s)	3.0			3.0	3.0
All-Red Time (s)	3.0			3.0	3.0
Lost Time Adjust (s)	3.0			3.0	
Total Lost Time (s)	9.0			9.0	
Lead/Lag	Lag				Lead
Lead-Lag Optimize?	Yes				Yes
Recall Mode	C-Max			C-Max	None
Act Effect Green (s)	61.5			61.5	
Actuated g/C Ratio	0.47			0.47	
v/c Ratio	0.66			0.83	
Control Delay	29.6			45.1	
Queue Delay	0.8			0.9	
Total Delay	30.4			46.0	
LOS	C			D	
Approach Delay	30.4			46.0	
Approach LOS	C			D	
Intersection Summary					

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Lane Group	EBL2	EBL	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	SBL2	SBL	SBT
Protected Phases			3		3				4			4
Permitted Phases	3	3		3		3	4	4		4	4	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	28.5	28.5
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	26.2%	26.2%	26.2%	26.2%	26.2%	26.2%	22.3%	22.3%	22.3%	22.3%	22.3%	22.3%
Maximum Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.5	22.5	22.5	22.5	22.5	22.5
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (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
Time To Reduce (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
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Walk Time (s)							8.0	8.0	8.0	8.0	8.0	8.0
Flash Dont Walk (s)							14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)							69	69	69	69	69	69
90th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
70th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
70th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
50th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
50th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
30th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
30th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
10th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	7.0	7.0	7.0	7.0	7.0	7.0
10th %ile Term Code	Max	Max	Max	Max	Max	Max	Min	Min	Min	Min	Min	Min

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 76 (58%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Control Type: Actuated-Coordinated

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	SET	NWL2	NWL	NWT	Ø1
Protected Phases	2			6	1
Permitted Phases		1 6	1 6		
Minimum Initial (s)	7.0			7.0	5.0
Minimum Split (s)	22.0			24.0	11.0
Total Split (s)	56.0			67.0	11.0
Total Split (%)	43.1%			51.5%	8%
Maximum Green (s)	50.0			61.0	5.0
Yellow Time (s)	3.0			3.0	3.0
All-Red Time (s)	3.0			3.0	3.0
Lead/Lag	Lag				Lead
Lead-Lag Optimize?	Yes				Yes
Vehicle Extension (s)	3.0			2.0	2.0
Minimum Gap (s)	0.2			0.2	0.2
Time Before Reduce (s)	0.0			0.0	0.0
Time To Reduce (s)	0.0			0.0	0.0
Recall Mode	C-Max			C-Max	None
Walk Time (s)	7.0			7.0	
Flash Dont Walk (s)	9.0			9.0	
Pedestrian Calls (#/hr)	120			126	
90th %ile Green (s)	61.5			61.5	0.0
90th %ile Term Code	Coord			Coord	Skip
70th %ile Green (s)	61.5			61.5	0.0
70th %ile Term Code	Coord			Coord	Skip
50th %ile Green (s)	61.5			61.5	0.0
50th %ile Term Code	Coord			Coord	Skip
30th %ile Green (s)	61.5			61.5	0.0
30th %ile Term Code	Coord			Coord	Skip
10th %ile Green (s)	76.5			76.5	0.0
10th %ile Term Code	Coord			Coord	Skip
Intersection Summary					

Queues

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT	SET	NWT
Lane Group Flow (vph)	324	191	171	90	21	1063	757
v/c Ratio	0.99	0.56	0.46	0.32	0.09	0.66	0.83
Control Delay	99.5	52.9	17.0	5.5	0.8	29.6	45.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.8	0.9
Total Delay	99.5	52.9	17.0	5.6	0.8	30.4	46.0
Queue Length 50th (ft)	275	152	29	0	0	370	358
Queue Length 95th (ft)	#470	238	104	19	0	450	m397
Internal Link Dist (ft)	413	299		354	158	814	375
Turn Bay Length (ft)							
Base Capacity (vph)	326	344	373	317	246	1607	914
Starvation Cap Reductn	0	0	0	0	0	0	38
Spillback Cap Reductn	0	0	0	9	0	264	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.56	0.46	0.29	0.09	0.79	0.86

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St
















2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR2
Lane Configurations												
Traffic Volume (vph)	5	5	0	295	5	115	216	5	5	30	0	50
Future Volume (vph)	5	5	0	295	5	115	216	5	5	30	0	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.5			6.5	6.5				9.5	
Lane Util. Factor			1.00			0.95	0.95				1.00	
Frpb, ped/bikes			0.97			0.98	0.85				0.98	
Flpb, ped/bikes			1.00			1.00	1.00				0.98	
Frt			0.87			0.95	0.85				0.92	
Flt Protected			1.00			1.00	1.00				0.98	
Satd. Flow (prot)			1562			1647	1280				1575	
Flt Permitted			0.99			0.99	1.00				0.86	
Satd. Flow (perm)			1545			1628	1280				1377	
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	5	0	314	5	122	230	5	5	32	0	53
RTOR Reduction (vph)	0	0	0	0	0	0	103	0	0	0	79	0
Lane Group Flow (vph)	0	0	324	0	0	191	69	0	0	0	11	0
Confl. Peds. (#/hr)	24	18		14	16		24	18	9	24		14
Confl. Bikes (#/hr)				1			10	10				
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%
Turn Type	Perm	Perm	NA		Perm	NA	Perm		Perm	Perm	NA	
Protected Phases			3			3					4	
Permitted Phases	3	3			3		3		4	4		
Actuated Green, G (s)			27.5			27.5	27.5				19.0	
Effective Green, g (s)			27.5			27.5	27.5				16.0	
Actuated g/C Ratio			0.21			0.21	0.21				0.12	
Clearance Time (s)			6.5			6.5	6.5				6.5	
Vehicle Extension (s)			2.0			2.0	2.0				2.0	
Lane Grp Cap (vph)			326			344	270				169	
v/s Ratio Prot												
v/s Ratio Perm			c0.21			0.12	0.05				c0.01	
v/c Ratio			0.99			0.56	0.25				0.07	
Uniform Delay, d1			51.2			45.8	42.7				50.4	
Progression Factor			1.00			1.00	1.00				1.00	
Incremental Delay, d2			47.9			1.1	0.2				0.1	
Delay (s)			99.0			46.9	42.9				50.5	
Level of Service			F			D	D				D	
Approach Delay (s)			99.0			45.0					50.5	
Approach LOS			F			D					D	
Intersection Summary												
HCM 2000 Control Delay			44.6			HCM 2000 Level of Service					D	
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				31.0		
Intersection Capacity Utilization			117.8%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	SBL2	SBL	SBT	SBR2	SET	SER	SER2	NWL2	NWL	NWT	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	10	5	0	5	990	5	5	25	65	602	15	5
Future Volume (vph)	10	5	0	5	990	5	5	25	65	602	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			9.5		9.0					9.0		
Lane Util. Factor			1.00		0.95					0.95		
Frpb, ped/bikes			0.99		1.00					1.00		
Flpb, ped/bikes			0.98		1.00					1.00		
Frt			0.97		1.00					1.00		
Flt Protected			0.96		1.00					0.99		
Satd. Flow (prot)			1146		3397					3459		
Flt Permitted			0.76		1.00					0.56		
Satd. Flow (perm)			909		3397					1933		
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	5	0	5	1053	5	5	27	69	640	16	5
RTOR Reduction (vph)	0	0	18	0	0	0	0	0	0	1	0	0
Lane Group Flow (vph)	0	0	3	0	1063	0	0	0	0	756	0	0
Confl. Peds. (#/hr)		14		24		16	9	16	9		18	
Confl. Bikes (#/hr)				2		2	2				1	1
Heavy Vehicles (%)	50%	50%	50%	50%	6%	6%	6%	3%	3%	3%	3%	3%
Turn Type	Perm	Perm	NA		NA			custom	custom	NA		
Protected Phases			4		2					6		
Permitted Phases	4	4						16	16			
Actuated Green, G (s)			19.0		64.5					64.5		
Effective Green, g (s)			16.0		61.5					61.5		
Actuated g/C Ratio			0.12		0.47					0.47		
Clearance Time (s)			6.5		6.0					6.0		
Vehicle Extension (s)			2.0		3.0					2.0		
Lane Grp Cap (vph)			111		1607					914		
v/s Ratio Prot					0.31							
v/s Ratio Perm			0.00							c0.39		
v/c Ratio			0.02		0.66					0.83		
Uniform Delay, d1			50.1		26.3					29.7		
Progression Factor			1.00		1.00					1.23		
Incremental Delay, d2			0.0		2.2					6.6		
Delay (s)			50.2		28.4					43.1		
Level of Service			D		C					D		
Approach Delay (s)			50.2		28.4					43.1		
Approach LOS			D		C					D		
Intersection Summary												

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	15	0	1014	1315	341
Future Vol, veh/h	0	15	0	1014	1315	341
Conflicting Peds, #/hr	31	30	30	0	0	31
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	89	89	89	89	89	89
Heavy Vehicles, %	50	50	6	6	7	7
Mvmt Flow	0	17	0	1139	1478	383
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	-	992	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.8	-	-	-	-
Pot Cap-1 Maneuver	0	173	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	163	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	29.6	0	0			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	163	-	-		
HCM Lane V/C Ratio	-	0.103	-	-		
HCM Control Delay (s)	-	29.6	-	-		
HCM Lane LOS	-	D	-	-		
HCM 95th %tile Q(veh)	-	0.3	-	-		

Timings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	←←	→	↑↑	↑↑	←	↑↑	←←	→
Traffic Volume (vph)	634	617	259	260	234	120	920	190
Future Volume (vph)	634	617	259	260	234	120	920	190
Turn Type	Prot	NA	NA	custom	Split	NA	Split	NA
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Detector Phase	4	1 4	1	5	3	3	2	2
Switch Phase								
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	19.0		37.0	74.0	37.0	37.0	37.0	37.0
Total Split (%)	14.6%		28.5%	56.9%	28.5%	28.5%	28.5%	28.5%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		5.5	5.5	6.5	6.5	5.5	5.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Recall Mode	None		Min	C-Max	None	None	C-Max	C-Max
Act Effct Green (s)	19.1	57.1	31.5	68.5	23.9	23.9	31.5	31.5
Actuated g/C Ratio	0.15	0.44	0.24	0.53	0.18	0.18	0.24	0.24
v/c Ratio	1.32	0.94	0.33	0.19	0.80	0.22	1.18	1.07
Control Delay	189.8	47.8	41.9	2.0	69.7	42.4	134.9	108.0
Queue Delay	0.0	45.1	0.0	0.0	1.8	0.0	0.0	2.0
Total Delay	189.8	92.9	41.9	2.0	71.5	42.4	134.9	110.0
LOS	F	F	D	A	E	D	F	F
Approach Delay		138.5	21.9			61.1		127.2
Approach LOS		F	C			E		F

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 2 (2%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.32

Intersection Signal Delay: 109.4

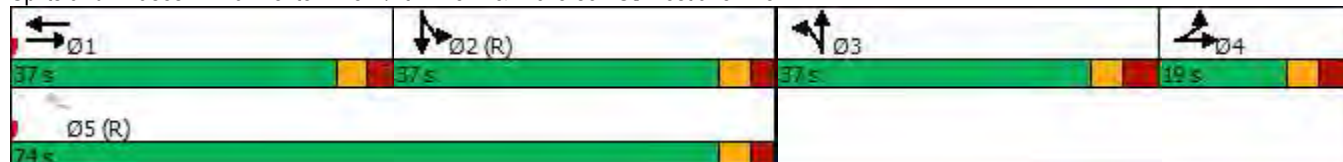
Intersection LOS: F

Intersection Capacity Utilization 92.4%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N



Phasings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	19.0		37.0	74.0	37.0	37.0	37.0	37.0
Total Split (%)	14.6%		28.5%	56.9%	28.5%	28.5%	28.5%	28.5%
Maximum Green (s)	12.5		31.5	68.5	30.5	30.5	31.5	31.5
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2		0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None		Min	C-Max	None	None	C-Max	C-Max
Walk Time (s)			9.0		8.0	8.0	8.0	8.0
Flash Dont Walk (s)			22.0		22.0	22.0	22.0	22.0
Pedestrian Calls (#/hr)			56		12	12	33	33
90th %ile Green (s)	12.5		31.5	68.5	30.5	30.5	31.5	31.5
90th %ile Term Code	Max		Max	Coord	Max	Max	Coord	Coord
70th %ile Green (s)	13.0		31.5	68.5	30.0	30.0	31.5	31.5
70th %ile Term Code	Max		Max	Coord	Ped	Ped	Coord	Coord
50th %ile Green (s)	19.5		31.5	68.5	23.5	23.5	31.5	31.5
50th %ile Term Code	Max		Max	Coord	Gap	Gap	Coord	Coord
30th %ile Green (s)	22.8		31.5	68.5	20.2	20.2	31.5	31.5
30th %ile Term Code	Max		Max	Coord	Gap	Gap	Coord	Coord
10th %ile Green (s)	27.7		31.5	68.5	15.3	15.3	31.5	31.5
10th %ile Term Code	Max		Max	Coord	Gap	Gap	Coord	Coord

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 2 (2%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Control Type: Actuated-Coordinated

Queues

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	660	743	270	271	244	135	958	427
v/c Ratio	1.32	0.94	0.33	0.19	0.80	0.22	1.18	1.07
Control Delay	189.8	47.8	41.9	2.0	69.7	42.4	134.9	108.0
Queue Delay	0.0	45.1	0.0	0.0	1.8	0.0	0.0	2.0
Total Delay	189.8	92.9	41.9	2.0	71.5	42.4	134.9	110.0
Queue Length 50th (ft)	~370	622	99	0	200	49	~496	~371
Queue Length 95th (ft)	m#540	m#879	141	23	279	75	#627	#581
Internal Link Dist (ft)		375	150			693		176
Turn Bay Length (ft)				200				
Base Capacity (vph)	499	791	817	1443	388	770	815	398
Starvation Cap Reductn	0	185	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	52	0	0	2
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.32	1.23	0.33	0.19	0.73	0.18	1.18	1.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.


Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.







HCM Signalized Intersection Capacity Analysis

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↱	↱			↰↱	↰↱	↰	↰↱		↰↱	↱	
Traffic Volume (vph)	634	617	96	0	259	260	234	120	10	920	190	220
Future Volume (vph)	634	617	96	0	259	260	234	120	10	920	190	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.94	1.00	1.00		1.00	0.90	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98			1.00	0.85	1.00	0.99		1.00	0.92	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3400	1792			3374	2496	1656	3264		3367	1512	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3400	1792			3374	2496	1656	3264		3367	1512	
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)	660	643	100	0	270	271	244	125	10	958	198	229
RTOR Reduction (vph)	0	4	0	0	0	128	0	5	0	0	32	0
Lane Group Flow (vph)	660	739	0	0	270	143	244	130	0	958	395	0
Confl. Peds. (#/hr)	19		37	37		19	33		12	12		33
Confl. Bikes (#/hr)			12			33			16			155
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	9%	9%	9%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	19.1	57.1			31.5	68.5	23.9	23.9		31.5	31.5	
Effective Green, g (s)	19.1	50.6			31.5	68.5	23.9	23.9		31.5	31.5	
Actuated g/C Ratio	0.15	0.39			0.24	0.53	0.18	0.18		0.24	0.24	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	499	697			817	1315	304	600		815	366	
v/s Ratio Prot	c0.19	c0.41			0.08		c0.15	0.04		c0.28	0.26	
v/s Ratio Perm						0.06						
v/c Ratio	1.32	1.06			0.33	0.11	0.80	0.22		1.18	1.08	
Uniform Delay, d1	55.5	39.7			40.6	15.4	50.8	45.1		49.2	49.2	
Progression Factor	0.75	0.89			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	154.6	45.4			0.1	0.2	13.4	0.1		91.7	70.0	
Delay (s)	196.4	80.7			40.7	15.6	64.2	45.2		140.9	119.3	
Level of Service	F	F			D	B	E	D		F	F	
Approach Delay (s)		135.1			28.1			57.4			134.3	
Approach LOS		F			C			E			F	
Intersection Summary												
HCM 2000 Control Delay			111.2				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.08									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			92.4%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

2035 Alternative 5 PM

Intersection												
Int Delay, s/veh	32.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	688	22	33	966	20	46	6	31	43	7	30
Future Vol, veh/h	12	688	22	33	966	20	46	6	31	43	7	30
Conflicting Peds, #/hr	16	0	21	12	0	7	21	0	12	7	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	4	4	2	2	2	0	0	0	4	4	4
Mvmt Flow	13	724	23	35	1017	21	48	6	33	45	7	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1054	0	0	768	0	0	1921	1907	769	1907	1908	1065
Stage 1	-	-	-	-	-	-	783	783	-	1114	1114	-
Stage 2	-	-	-	-	-	-	1138	1124	-	793	794	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.1	6.5	6.2	7.14	6.54	6.24
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.14	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.14	5.54	-
Follow-up Hdwy	2.236	-	-	2.218	-	-	3.5	4	3.3	3.536	4.036	3.336
Pot Cap-1 Maneuver	653	-	-	846	-	-	51	69	404	51	68	268
Stage 1	-	-	-	-	-	-	390	407	-	250	281	-
Stage 2	-	-	-	-	-	-	247	283	-	379	397	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	643	-	-	829	-	-	~ 37	63	391	~ 40	62	259
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 37	63	-	~ 40	62	-
Stage 1	-	-	-	-	-	-	374	391	-	241	265	-
Stage 2	-	-	-	-	-	-	198	267	-	331	381	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.3	\$ 403	\$ 359.4
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	59	643	-	-	829	-	-	61
HCM Lane V/C Ratio	1.481	0.02	-	-	0.042	-	-	1.381
HCM Control Delay (s)	\$ 403	10.7	-	-	9.5	-	-	\$ 359.4
HCM Lane LOS	F	B	-	-	A	-	-	F
HCM 95th %tile Q(veh)	7.8	0.1	-	-	0.1	-	-	7.3

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

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	25	5	10	15	15	5	64	5	5	50	10
Future Vol, veh/h	10	25	5	10	15	15	5	64	5	5	50	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	3	3	3
Mvmt Flow	11	28	6	11	17	17	6	71	6	6	56	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.5	7.3	7.6	7.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	25%	25%	8%
Vol Thru, %	86%	62%	38%	77%
Vol Right, %	7%	12%	38%	15%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	74	40	40	65
LT Vol	5	10	10	5
Through Vol	64	25	15	50
RT Vol	5	5	15	10
Lane Flow Rate	82	44	44	72
Geometry Grp	1	1	1	1
Degree of Util (X)	0.093	0.052	0.05	0.082
Departure Headway (Hd)	4.084	4.176	4.026	4.093
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	870	846	876	867
Service Time	2.143	2.258	2.11	2.154
HCM Lane V/C Ratio	0.094	0.052	0.05	0.083
HCM Control Delay	7.6	7.5	7.3	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.2	0.2	0.3




Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	34	204	5	15	164	8	5	31	40	14	25	31
Future Vol, veh/h	34	204	5	15	164	8	5	31	40	14	25	31
Conflicting Peds, #/hr	13	0	49	60	0	24	49	0	60	24	0	13
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	0	0	0	0	0	0	2	2	2
Mvmt Flow	35	210	5	15	169	8	5	32	41	14	26	32
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	201	0	0	275	0	0	624	574	333	606	572	246
Stage 1	-	-	-	-	-	-	343	343	-	227	227	-
Stage 2	-	-	-	-	-	-	281	231	-	379	345	-
Critical Hdwy	4.11	-	-	4.1	-	-	7.1	6.5	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Follow-up Hdwy	2.209	-	-	2.2	-	-	3.5	4	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1377	-	-	1300	-	-	401	432	713	409	430	793
Stage 1	-	-	-	-	-	-	676	641	-	776	716	-
Stage 2	-	-	-	-	-	-	730	717	-	643	636	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1346	-	-	1226	-	-	316	381	634	319	379	739
Mov Cap-2 Maneuver	-	-	-	-	-	-	316	381	-	319	379	-
Stage 1	-	-	-	-	-	-	619	587	-	736	690	-
Stage 2	-	-	-	-	-	-	632	690	-	520	582	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.1			0.6			14.1			14.3		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	474	1346	-	-	1226	-	-	461				
HCM Lane V/C Ratio	0.165	0.026	-	-	0.013	-	-	0.157				
HCM Control Delay (s)	14.1	7.7	0	-	8	0	-	14.3				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0	-	-	0.6				

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	34	10	7	49	26	5	6	2	14	6	5
Future Vol, veh/h	10	34	10	7	49	26	5	6	2	14	6	5
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	11	39	11	8	56	30	6	7	2	16	7	6
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0



















Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.3	7.3	7.3	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	38%	19%	9%	56%
Vol Thru, %	46%	63%	60%	24%
Vol Right, %	15%	19%	32%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	54	82	25
LT Vol	5	10	7	14
Through Vol	6	34	49	6
RT Vol	2	10	26	5
Lane Flow Rate	15	61	93	28
Geometry Grp	1	1	1	1
Degree of Util (X)	0.017	0.068	0.1	0.033
Departure Headway (Hd)	4.174	3.971	3.848	4.171
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	849	899	929	851
Service Time	2.239	2.009	1.882	2.232
HCM Lane V/C Ratio	0.018	0.068	0.1	0.033
HCM Control Delay	7.3	7.3	7.3	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.3	0.1

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	258	187	40	30	5
Future Vol, veh/h	5	258	187	40	30	5
Conflicting Peds, #/hr	6	0	0	235	235	6
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	95	95	95	95	95	95
Heavy Vehicles, %	1	1	0	0	0	0
Mvmt Flow	5	272	197	42	32	5
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	474	0	-	0	970	459
Stage 1	-	-	-	-	453	-
Stage 2	-	-	-	-	517	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1093	-	-	-	283	606
Stage 1	-	-	-	-	645	-
Stage 2	-	-	-	-	603	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	848	-	-	-	169	468
Mov Cap-2 Maneuver	-	-	-	-	169	-
Stage 1	-	-	-	-	497	-
Stage 2	-	-	-	-	468	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		29.1		
HCM LOS				D		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	848	-	-	-	186	
HCM Lane V/C Ratio	0.006	-	-	-	0.198	
HCM Control Delay (s)	9.3	0	-	-	29.1	
HCM Lane LOS	A	A	-	-	D	
HCM 95th %tile Q(veh)	0	-	-	-	0.7	

Timings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	30	621	133	200	884	55	187	40	35	30
Future Volume (vph)	30	621	133	200	884	55	187	40	35	30
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	27.0	27.0	11.0	27.0	27.0	28.0	28.0	28.0	28.0
Total Split (s)	15.0	35.0	35.0	15.0	35.0	35.0	30.0	30.0	30.0	30.0
Total Split (%)	18.8%	43.8%	43.8%	18.8%	43.8%	43.8%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effect Green (s)	35.6	30.6	30.6	43.2	39.6	39.6		24.0		24.0
Actuated g/C Ratio	0.47	0.40	0.40	0.57	0.52	0.52		0.31		0.31
v/c Ratio	0.15	0.89	0.22	0.73	0.97	0.07		0.70		0.20
Control Delay	9.9	38.3	4.2	27.6	45.1	2.1		34.9		16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	9.9	38.3	4.2	27.6	45.1	2.1		34.9		16.9
LOS	A	D	A	C	D	A		C		B
Approach Delay		31.4			39.9			34.9		16.9
Approach LOS		C			D			C		B

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 76.2

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 35.6

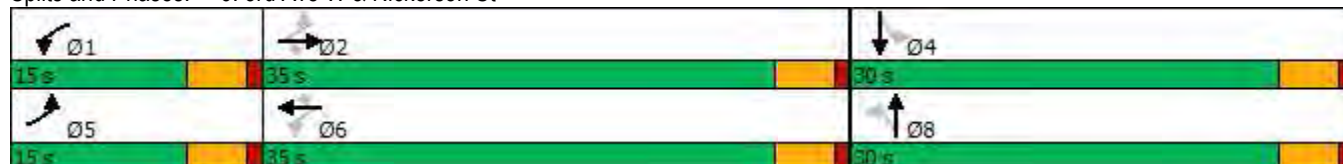
Intersection LOS: D

Intersection Capacity Utilization 82.3%

ICU Level of Service E

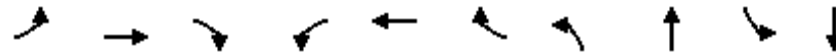
Analysis Period (min) 15

Splits and Phases: 6: 3rd Ave W & Nickerson St



Phasings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	27.0	27.0	11.0	27.0	27.0	28.0	28.0	28.0	28.0
Total Split (s)	15.0	35.0	35.0	15.0	35.0	35.0	30.0	30.0	30.0	30.0
Total Split (%)	18.8%	43.8%	43.8%	18.8%	43.8%	43.8%	37.5%	37.5%	37.5%	37.5%
Maximum Green (s)	10.5	30.5	30.5	10.5	30.5	30.5	25.5	25.5	25.5	25.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	1.0	0.2	0.2	1.0	0.2	0.2	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)		50	50		28	28	83	83	160	160
90th %ile Green (s)	5.1	30.5	30.5	10.5	35.9	35.9	25.5	25.5	25.5	25.5
90th %ile Term Code	Gap	MaxR	MaxR	Max	Hold	Hold	Max	Max	Hold	Hold
70th %ile Green (s)	5.0	30.5	30.5	10.4	35.9	35.9	25.5	25.5	25.5	25.5
70th %ile Term Code	Min	MaxR	MaxR	Gap	Hold	Hold	Max	Max	Hold	Hold
50th %ile Green (s)	0.0	30.5	30.5	8.0	43.0	43.0	23.0	23.0	23.0	23.0
50th %ile Term Code	Skip	MaxR	MaxR	Gap	Hold	Hold	Ped	Ped	Ped	Ped
30th %ile Green (s)	0.0	30.5	30.5	6.8	41.8	41.8	23.0	23.0	23.0	23.0
30th %ile Term Code	Skip	MaxR	MaxR	Gap	Hold	Hold	Ped	Ped	Ped	Ped
10th %ile Green (s)	0.0	30.5	30.5	5.3	40.3	40.3	23.0	23.0	23.0	23.0
10th %ile Term Code	Skip	MaxR	MaxR	Gap	Hold	Hold	Hold	Hold	Ped	Ped

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 76.2

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 80

70th %ile Actuated Cycle: 79.9









50th %ile Actuated Cycle: 75

30th %ile Actuated Cycle: 73.8

10th %ile Actuated Cycle: 72.3

Queues
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour






















								
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	32	668	143	215	951	59	260	92
v/c Ratio	0.15	0.89	0.22	0.73	0.97	0.07	0.70	0.20
Control Delay	9.9	38.3	4.2	27.6	45.1	2.1	34.9	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	38.3	4.2	27.6	45.1	2.1	34.9	16.9
Queue Length 50th (ft)	6	277	0	44	348	0	105	24
Queue Length 95th (ft)	18	#528	34	#122	#782	13	#216	59
Internal Link Dist (ft)		79			214		74	171
Turn Bay Length (ft)	100			135		215		
Base Capacity (vph)	336	754	644	342	976	799	395	498
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.89	0.22	0.63	0.97	0.07	0.66	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
6: 3rd Ave W & Nickerson St




2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	621	133	200	884	55	187	40	15	35	30	20
Future Volume (veh/h)	30	621	133	200	884	55	187	40	15	35	30	20
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	0.86		0.83	0.90		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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1811	1811	1811	1900	1900	1900
Adj Flow Rate, veh/h	32	668	143	215	951	59	201	43	16	38	32	22
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	6	6	6	0	0	0
Cap, veh/h	159	798	637	334	906	712	369	73	23	235	190	111
Arrive On Green	0.03	0.42	0.42	0.09	0.48	0.48	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1795	1885	1503	1795	1885	1481	937	246	78	548	634	372
Grp Volume(v), veh/h	32	668	143	215	951	59	260	0	0	92	0	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1503	1795	1885	1481	1260	0	0	1554	0	0
Q Serve(g_s), s	0.7	22.8	4.4	4.5	34.6	1.6	9.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.7	22.8	4.4	4.5	34.6	1.6	12.7	0.0	0.0	2.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.77		0.06	0.41		0.24
Lane Grp Cap(c), veh/h	159	798	637	334	906	712	465	0	0	535	0	0
V/C Ratio(X)	0.20	0.84	0.22	0.64	1.05	0.08	0.56	0.00	0.00	0.17	0.00	0.00
Avail Cap(c_a), veh/h	362	798	637	434	906	712	532	0	0	614	0	0
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.3	18.5	13.2	14.7	18.7	10.1	21.8	0.0	0.0	18.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	10.2	0.8	0.8	43.6	0.2	0.4	0.0	0.0	0.1	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	0.3	11.4	1.5	1.7	24.5	0.5	3.7	0.0	0.0	1.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.5	28.7	14.1	15.4	62.3	10.3	22.2	0.0	0.0	18.8	0.0	0.0
LnGrp LOS	B	C	B	B	F	B	C	A	A	B	A	A
Approach Vol, veh/h		843			1225			260			92	
Approach Delay, s/veh		25.8			51.6			22.2			18.8	
Approach LOS		C			D			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	35.0		26.0	6.9	39.1		26.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	10.5	30.5		25.5	10.5	30.5		25.5				
Max Q Clear Time (g_c+I1), s	6.5	24.8		4.8	2.7	36.6		14.7				
Green Ext Time (p_c), s	0.0	0.6		0.3	0.0	0.0		0.9				
Intersection Summary												
HCM 6th Ctrl Delay				38.2								
HCM 6th LOS				D								

Intersection												
Int Delay, s/veh	33.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	14	179	96	0	0	0	93	225	70	5	220	139
Future Vol, veh/h	14	179	96	0	0	0	93	225	70	5	220	139
Conflicting Peds, #/hr	87	0	181	149	0	55	181	0	149	55	0	87
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	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	0	0	0
Mvmt Flow	15	186	100	0	0	0	97	234	73	5	229	145
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	1045	1143	664				555	0	0	456	0	0
Stage 1	493	493	-				-	-	-	-	-	-
Stage 2	552	650	-				-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2				4.13	-	-	4.1	-	-
Critical Hdwy Stg 1	5.4	5.5	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-				-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3				2.227	-	-	2.2	-	-
Pot Cap-1 Maneuver	256	202	464				1010	-	-	1115	-	-
Stage 1	618	550	-				-	-	-	-	-	-
Stage 2	581	468	-				-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	150	0	318				836	-	-	1115	-	-
Mov Cap-2 Maneuver	150	0	-				-	-	-	-	-	-
Stage 1	439	0	-				-	-	-	-	-	-
Stage 2	478	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	118.2						2.4			0.1		
HCM LOS	F											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR					
Capacity (veh/h)	836	-	-	278	1115	-	-					
HCM Lane V/C Ratio	0.116	-	-	1.083	0.005	-	-					
HCM Control Delay (s)	9.9	0	-	118.2	8.2	0	-					
HCM Lane LOS	A	A	-	F	A	A	-					
HCM 95th %tile Q(veh)	0.4	-	-	12.2	0	-	-					

Intersection

Int Delay, s/veh 3.1




Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	48	343	52	52	265
Future Vol, veh/h	33	48	343	52	52	265
Conflicting Peds, #/hr	126	40	0	126	40	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	93	93	93	93	93	93
Heavy Vehicles, %	8	8	4	4	0	0
Mvmt Flow	35	52	369	56	56	285







Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1046	563	0
Stage 1	523	-	-
Stage 2	523	-	-
Critical Hdwy	6.48	6.28	-
Critical Hdwy Stg 1	5.48	-	-
Critical Hdwy Stg 2	5.48	-	-
Follow-up Hdwy	3.572	3.372	-
Pot Cap-1 Maneuver	246	514	-
Stage 1	583	-	-
Stage 2	583	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	177	435	-
Mov Cap-2 Maneuver	177	-	-
Stage 1	513	-	-
Stage 2	476	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.2	0	1.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	273	906
HCM Lane V/C Ratio	-	-	0.319	0.062
HCM Control Delay (s)	-	-	24.2	9.2
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	1.3	0.2

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	94	5	85	10	312	103	30	259	10
Future Vol, veh/h	0	0	0	94	5	85	10	312	103	30	259	10
Conflicting Peds, #/hr	71	0	37	14	0	48	37	0	14	48	0	71
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	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	4	4	4	2	2	2
Mvmt Flow	0	0	0	96	5	87	10	318	105	31	264	10
Major/Minor				Minor1		Major1		Major2				
Conflicting Flow All				784	846	467	345	0	0	471	0	0
Stage 1				439	439	-	-	-	-	-	-	-
Stage 2				345	407	-	-	-	-	-	-	-
Critical Hdwy				6.4	6.5	6.2	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1				5.4	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.4	5.5	-	-	-	-	-	-	-
Follow-up Hdwy				3.5	4	3.3	2.236	-	-	2.218	-	-
Pot Cap-1 Maneuver				365	301	600	1203	-	-	1091	-	-
Stage 1				654	582	-	-	-	-	-	-	-
Stage 2				722	601	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver				328	0	546	1203	-	-	1041	-	-
Mov Cap-2 Maneuver				328	0	-	-	-	-	-	-	-
Stage 1				617	0	-	-	-	-	-	-	-
Stage 2				687	0	-	-	-	-	-	-	-
Approach				WB		NB		SB				
HCM Control Delay, s				21.3		0.2		0.9				
HCM LOS				C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1203	-	-	405	1041	-	-					
HCM Lane V/C Ratio	0.008	-	-	0.464	0.029	-	-					
HCM Control Delay (s)	8	0	-	21.3	8.6	0	-					
HCM Lane LOS	A	A	-	C	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	2.4	0.1	-	-					

Intersection						
Int Delay, s/veh	3.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	90	45	36	337	287	67
Future Vol, veh/h	90	45	36	337	287	67
Conflicting Peds, #/hr	20	20	20	0	0	20
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	94	94	94	94	94	94
Heavy Vehicles, %	0	0	5	5	2	2
Mvmt Flow	96	48	38	359	305	71
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	816	381	396	0	-	0
Stage 1	361	-	-	-	-	-
Stage 2	455	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.15	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.245	-	-	-
Pot Cap-1 Maneuver	349	671	1146	-	-	-
Stage 1	710	-	-	-	-	-
Stage 2	643	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	322	646	1124	-	-	-
Mov Cap-2 Maneuver	322	-	-	-	-	-
Stage 1	667	-	-	-	-	-
Stage 2	631	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	19.7	0.8		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1124	-	387	-	-	
HCM Lane V/C Ratio	0.034	-	0.371	-	-	
HCM Control Delay (s)	8.3	0	19.7	-	-	
HCM Lane LOS	A	A	C	-	-	
HCM 95th %tile Q(veh)	0.1	-	1.7	-	-	

Intersection												
Int Delay, s/veh	60.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	863	32	19	1089	15	37	0	84	10	5	40
Future Vol, veh/h	30	863	32	19	1089	15	37	0	84	10	5	40
Conflicting Peds, #/hr	17	0	29	36	0	24	29	0	36	24	0	17
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	30	-	-	30	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	1	1	1	8	8	8	0	0	0
Mvmt Flow	32	918	34	20	1159	16	39	0	89	11	5	43
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1199	0	0	988	0	0	2295	2274	1007	2311	2283	1220
Stage 1	-	-	-	-	-	-	1035	1035	-	1231	1231	-
Stage 2	-	-	-	-	-	-	1260	1239	-	1080	1052	-
Critical Hdwy	4.12	-	-	4.11	-	-	7.18	6.58	6.28	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.18	5.58	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.18	5.58	-	6.1	5.5	-
Follow-up Hdwy	2.218	-	-	2.209	-	-	3.572	4.072	3.372	3.5	4	3.3
Pot Cap-1 Maneuver	582	-	-	703	-	-	~ 26	39	285	27	40	222
Stage 1	-	-	-	-	-	-	273	302	-	219	252	-
Stage 2	-	-	-	-	-	-	203	241	-	267	306	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	569	-	-	679	-	-	~ 16	34	266	16	35	211
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 16	34	-	16	35	-
Stage 1	-	-	-	-	-	-	249	275	-	202	239	-
Stage 2	-	-	-	-	-	-	150	229	-	162	279	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.2			\$ 1000			245		
HCM LOS							F			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	46	569	-	-	679	-	-	57				
HCM Lane V/C Ratio	2.798	0.056	-	-	0.03	-	-	1.027				
HCM Control Delay (s)	\$ 1000	11.7	-	-	10.5	-	-	245				
HCM Lane LOS	F	B	-	-	B	-	-	F				
HCM 95th %tile Q(veh)	13.8	0.2	-	-	0.1	-	-	4.8				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s				+: Computation Not Defined				*: All major volume in platoon		

Intersection

Int Delay, s/veh 5.9

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 78 30 30 48 32 24

Future Vol, veh/h 78 30 30 48 32 24

Conflicting Peds, #/hr 43 51 51 0 0 43

Sign Control Free Free Stop Stop Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 1 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 93 93 93 93 93 93

Heavy Vehicles, % 5 5 0 0 11 11

Mvmt Flow 84 32 32 52 34 26

Major/Minor Minor2 Major2

Conflicting Flow All 141 90 - 0

Stage 1 90 90 - -

Stage 2 51 0 - -

Critical Hdwy 6.4 6.5 - -

Critical Hdwy Stg 1 5.4 5.5 - -

Critical Hdwy Stg 2 - - - -

Follow-up Hdwy 3.5 4 - -

Pot Cap-1 Maneuver 857 804 - -

Stage 1 939 824 - -

Stage 2 - - - -

Platoon blocked, % - -

Mov Cap-1 Maneuver 788 0 - -

Mov Cap-2 Maneuver 788 0 - -

Stage 1 901 0 - -

Stage 2 - 0 - -

Approach NB SB

HCM Control Delay, s 10.1 0

HCM LOS B

Minor Lane/Major Mvmt NBLn1 SBT SBR

Capacity (veh/h) 788 - -

HCM Lane V/C Ratio 0.106 - -

HCM Control Delay (s) 10.1 - -

HCM Lane LOS B - -



















HCM 95th %tile Q(veh) 0.4 - -

Timings

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour

												
Lane Group	EBL2	EBT	WBL2	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SEL	SET
Lane Configurations												
Traffic Volume (vph)	5	0	5	5	215	421	25	5	40	5	5	990
Future Volume (vph)	5	0	5	5	215	421	25	5	40	5	5	990
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases		3			3			4		4		2
Permitted Phases	3		3	3		3	4		4		2	
Detector Phase	3	3	3	3	3	3	4	4	4	4	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	22.0	22.0
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	29.0	29.0	29.0	29.0	63.0	63.0
Total Split (%)	26.4%	26.4%	26.4%	26.4%	26.4%	26.4%	20.7%	20.7%	20.7%	20.7%	45.0%	45.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.0
Lost Time Adjust (s)		0.0			0.0	0.0		3.0		3.0		3.0
Total Lost Time (s)		6.5			6.5	6.5		9.5		9.5		9.0
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	C-Max	C-Max
Act Effect Green (s)		30.5			30.5	30.5		19.0		19.0		65.5
Actuated g/C Ratio		0.22			0.22	0.22		0.14		0.14		0.47
v/c Ratio		0.82			1.06	1.10		0.36		0.35		0.70
Control Delay		77.8			117.1	112.6		10.5		58.5		32.4
Queue Delay		31.5			0.0	0.0		0.1		0.0		0.1
Total Delay		109.3			117.1	112.6		10.5		58.5		32.5
LOS		F			F	F		B		E		C
Approach Delay		109.3			115.0			10.5		58.5		32.5
Approach LOS		F			F			B		E		C

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 112 (80%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 76.6

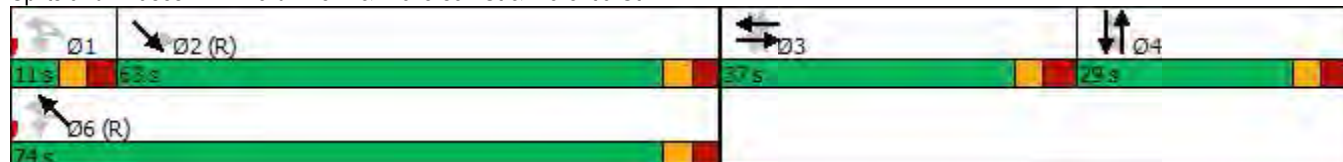
Intersection LOS: E

Intersection Capacity Utilization 124.5%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 14: 3rd Ave N & Nickerson St & Florentia St



Timings
14: 3rd Ave N & Nickerson St & Florentia St













2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	NWL2	NWL	NWT	Ø1
Lane Configurations				
Traffic Volume (vph)	15	75	760	
Future Volume (vph)	15	75	760	
Turn Type	custom	custom	NA	
Protected Phases			6	1
Permitted Phases	1 6	1 6		
Detector Phase	1 6	1 6	6	
Switch Phase				
Minimum Initial (s)			7.0	5.0
Minimum Split (s)			24.0	11.0
Total Split (s)			74.0	11.0
Total Split (%)			52.9%	8%
Yellow Time (s)			3.0	3.0
All-Red Time (s)			3.0	3.0
Lost Time Adjust (s)			3.0	
Total Lost Time (s)			9.0	
Lead/Lag				Lead
Lead-Lag Optimize?				Yes
Recall Mode			C-Max	None
Act Effct Green (s)			65.5	
Actuated g/C Ratio			0.47	
v/c Ratio			1.00	
Control Delay			65.4	
Queue Delay			35.6	
Total Delay			101.0	
LOS			F	
Approach Delay			101.0	
Approach LOS			F	
Intersection Summary				

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Lane Group	EBL2	EBT	WBL2	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SEL	SET
Protected Phases	3			3			4			4		
Permitted Phases	3		3	3		3	4		4		2	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	22.0	22.0
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	29.0	29.0	29.0	29.0	63.0	63.0
Total Split (%)	26.4%	26.4%	26.4%	26.4%	26.4%	26.4%	20.7%	20.7%	20.7%	20.7%	45.0%	45.0%
Maximum Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.5	22.5	22.5	22.5	57.0	57.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.0
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (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
Time To Reduce (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
Recall Mode	None	None	None	None	None	None	None	None	None	None	C-Max	C-Max
Walk Time (s)							8.0	8.0	8.0	8.0	7.0	7.0
Flash Dont Walk (s)							14.0	14.0	14.0	14.0	9.0	9.0
Pedestrian Calls (#/hr)							81	81	81	81	75	75
90th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
70th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
70th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
50th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
50th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
30th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
30th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
10th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
10th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 112 (80%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Control Type: Actuated-Coordinated

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	NWL2	NWL	NWT	Ø1
Protected Phases			6	1
Permitted Phases	1 6	1 6		
Minimum Initial (s)			7.0	5.0
Minimum Split (s)			24.0	11.0
Total Split (s)			74.0	11.0
Total Split (%)			52.9%	8%
Maximum Green (s)			68.0	5.0
Yellow Time (s)			3.0	3.0
All-Red Time (s)			3.0	3.0
Lead/Lag				Lead
Lead-Lag Optimize?				Yes
Vehicle Extension (s)			2.0	2.0
Minimum Gap (s)			0.2	0.2
Time Before Reduce (s)			0.0	0.0
Time To Reduce (s)			0.0	0.0
Recall Mode			C-Max	None
Walk Time (s)			7.0	
Flash Dont Walk (s)			9.0	
Pedestrian Calls (#/hr)			174	
90th %ile Green (s)			68.5	0.0
90th %ile Term Code			Coord	Skip
70th %ile Green (s)			68.5	0.0
70th %ile Term Code			Coord	Skip
50th %ile Green (s)			68.5	0.0
50th %ile Term Code			Coord	Skip
30th %ile Green (s)			68.5	0.0
30th %ile Term Code			Coord	Skip
10th %ile Green (s)			68.5	0.0
10th %ile Term Code			Coord	Skip
Intersection Summary				

Queues

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT	SET	NWT
Lane Group Flow (vph)	201	372	335	108	58	1091	924
v/c Ratio	0.82	1.06	1.10	0.36	0.35	0.70	1.00
Control Delay	77.8	117.1	112.6	10.5	58.5	32.4	65.4
Queue Delay	31.5	0.0	0.0	0.1	0.0	0.1	35.6
Total Delay	109.3	117.1	112.6	10.5	58.5	32.5	101.0
Queue Length 50th (ft)	176	~391	~266	0	46	404	~455
Queue Length 95th (ft)	#309	#606	#476	46	94	486	#596
Internal Link Dist (ft)	413	299		354	158	814	375
Turn Bay Length (ft)							
Base Capacity (vph)	246	350	305	302	171	1567	926
Starvation Cap Reductn	0	0	0	0	0	0	104
Spillback Cap Reductn	49	0	0	7	0	47	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.02	1.06	1.10	0.37	0.34	0.72	1.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

















95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL2	EBT	EBR	WBL2	WBL	WBT	WBR	WBR2	NBL	NBT	NBR2	SBL
Lane Configurations												
Traffic Volume (vph)	5	0	180	5	5	215	421	5	25	5	70	40
Future Volume (vph)	5	0	180	5	5	215	421	5	25	5	70	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5				6.5	6.5			9.5		
Lane Util. Factor		1.00				0.95	0.95			1.00		
Frpb, ped/bikes		0.94				0.96	0.64			0.94		
Flpb, ped/bikes		1.00				1.00	1.00			0.98		
Frt		0.87				0.95	0.85			0.91		
Flt Protected		1.00				1.00	1.00			0.99		
Satd. Flow (prot)		1546				1626	967			1570		
Flt Permitted		0.73				0.99	1.00			0.90		
Satd. Flow (perm)		1133				1611	967			1425		
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)	5	0	196	5	5	234	458	5	27	5	76	43
RTOR Reduction (vph)	0	0	0	0	0	0	95	0	0	93	0	0
Lane Group Flow (vph)	0	201	0	0	0	372	240	0	0	15	0	0
Confl. Peds. (#/hr)	44		37	37	44		44	67	44		37	37
Confl. Bikes (#/hr)			1				37	37				
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	0%	0%	0%	2%
Turn Type	Perm	NA		Perm	Perm	NA	Perm		Perm	NA		Perm
Protected Phases		3				3				4		
Permitted Phases	3			3	3		3		4			4
Actuated Green, G (s)		30.5				30.5	30.5			22.0		
Effective Green, g (s)		30.5				30.5	30.5			19.0		
Actuated g/C Ratio		0.22				0.22	0.22			0.14		
Clearance Time (s)		6.5				6.5	6.5			6.5		
Vehicle Extension (s)		2.0				2.0	2.0			2.0		
Lane Grp Cap (vph)		246				350	210			193		
v/s Ratio Prot												
v/s Ratio Perm		0.18				0.23	0.25			0.01		
v/c Ratio		0.82				1.06	1.14			0.08		
Uniform Delay, d1		52.1				54.8	54.8			52.8		
Progression Factor		1.00				1.00	1.00			1.00		
Incremental Delay, d2		17.7				65.7	106.5			0.1		
Delay (s)		69.8				120.5	161.3			52.9		
Level of Service		E				F	F			D		
Approach Delay (s)		69.8				139.8				52.9		
Approach LOS		E				F				D		
Intersection Summary												
HCM 2000 Control Delay			70.4			HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			31.0			
Intersection Capacity Utilization			124.5%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

	↓	↙	↘	↗	↖	↗	↖	↘	↙	↗
Movement	SBT	SBR	SBR2	SEL	SET	SER	SER2	NWL2	NWL	NWT
Lane Configurations	↕				↕					↕
Traffic Volume (vph)	5	5	5	5	990	5	5	15	75	760
Future Volume (vph)	5	5	5	5	990	5	5	15	75	760
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.5				9.0					9.0
Lane Util. Factor	1.00				0.95					0.95
Frpb, ped/bikes	0.97				1.00					1.00
Flpb, ped/bikes	0.96				1.00					1.00
Frt	0.98				1.00					1.00
Flt Protected	0.96				1.00					0.99
Satd. Flow (prot)	1629				3522					3555
Flt Permitted	0.72				0.95					0.55
Satd. Flow (perm)	1214				3349					1980
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	5	5	5	1076	5	5	16	82	826
RTOR Reduction (vph)	3	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	55	0	0	0	1091	0	0	0	0	924
Confl. Peds. (#/hr)		31	44	107		44	31	44	31	
Confl. Bikes (#/hr)		11	11			2	2			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	NA			Perm	NA			custom	custom	NA
Protected Phases	4				2					6
Permitted Phases				2				1 6	1 6	
Actuated Green, G (s)	22.0				68.5					68.5
Effective Green, g (s)	19.0				65.5					65.5
Actuated g/C Ratio	0.14				0.47					0.47
Clearance Time (s)	6.5				6.0					6.0
Vehicle Extension (s)	2.0				3.0					2.0
Lane Grp Cap (vph)	164				1566					926
v/s Ratio Prot										
v/s Ratio Perm	c0.05				0.33					c0.47
v/c Ratio	0.34				0.70					1.00
Uniform Delay, d1	54.8				29.4					37.2
Progression Factor	1.00				1.00					1.08
Incremental Delay, d2	0.4				2.6					25.6
Delay (s)	55.2				32.0					65.7
Level of Service	E				C					E
Approach Delay (s)	55.2				32.0					65.7
Approach LOS	E				C					E
Intersection Summary										

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	5	0	1968	540	646
Future Vol, veh/h	0	5	0	1968	540	646
Conflicting Peds, #/hr	75	74	74	0	0	75
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	97	97	97	97	97	97
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	0	5	0	2029	557	666
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	761	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	352	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	304	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	17	0		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT EBLn1		SBT	SBR		
Capacity (veh/h)	- 304		-	-		
HCM Lane V/C Ratio	- 0.017		-	-		
HCM Control Delay (s)	- 17		-	-		
HCM Lane LOS	- C		-	-		
HCM 95th %tile Q(veh)	- 0.1		-	-		

Timings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↔↔	↔	↔↔	↔↔	↔	↔↔	↔↔	↔
Traffic Volume (vph)	853	269	517	790	223	330	320	115
Future Volume (vph)	853	269	517	790	223	330	320	115
Turn Type	Prot	NA	NA	custom	Split	NA	Split	NA
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Detector Phase	4	1 4	1	5	3	3	2	2
Switch Phase								
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	30.0		37.0	73.0	37.0	37.0	36.0	36.0
Total Split (%)	21.4%		26.4%	52.1%	26.4%	26.4%	25.7%	25.7%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		5.5	5.5	6.5	6.5	5.5	5.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Recall Mode	None		Max	C-Max	None	None	C-Max	C-Max
Act Effct Green (s)	26.9	64.9	31.5	67.5	27.1	27.1	30.5	30.5
Actuated g/C Ratio	0.19	0.46	0.22	0.48	0.19	0.19	0.22	0.22
v/c Ratio	1.33	0.55	0.68	0.86	0.68	0.51	0.45	0.64
Control Delay	199.6	52.1	54.6	39.5	62.2	52.5	49.9	51.3
Queue Delay	0.0	8.3	1.3	0.0	0.0	0.0	0.0	92.1
Total Delay	199.6	60.4	55.8	39.5	62.2	52.5	49.9	143.4
LOS	F	E	E	D	E	D	D	F
Approach Delay		152.7	46.0			56.4		89.0
Approach LOS		F	D			E		F

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 89 (64%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.33

Intersection Signal Delay: 91.0

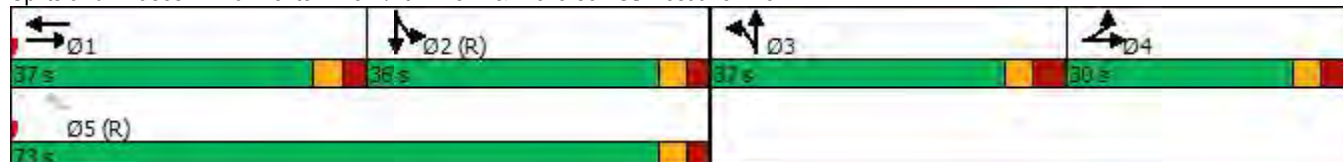
Intersection LOS: F

Intersection Capacity Utilization 107.5%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N



Phasings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	30.0		37.0	73.0	37.0	37.0	36.0	36.0
Total Split (%)	21.4%		26.4%	52.1%	26.4%	26.4%	25.7%	25.7%
Maximum Green (s)	23.5		31.5	67.5	30.5	30.5	30.5	30.5
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2		0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None		Max	C-Max	None	None	C-Max	C-Max
Walk Time (s)			9.0		8.0	8.0	8.0	8.0
Flash Dont Walk (s)			22.0		22.0	22.0	22.0	22.0
Pedestrian Calls (#/hr)			46		48	48	17	17
90th %ile Green (s)	23.5		31.5	67.5	30.5	30.5	30.5	30.5
90th %ile Term Code	Max		MaxR	Coord	Max	Max	Coord	Coord
70th %ile Green (s)	24.0		31.5	67.5	30.0	30.0	30.5	30.5
70th %ile Term Code	Max		MaxR	Coord	Ped	Ped	Coord	Coord
50th %ile Green (s)	24.0		31.5	67.5	30.0	30.0	30.5	30.5
50th %ile Term Code	Max		MaxR	Coord	Ped	Ped	Coord	Coord
30th %ile Green (s)	24.0		31.5	67.5	30.0	30.0	30.5	30.5
30th %ile Term Code	Max		MaxR	Coord	Ped	Ped	Coord	Coord
10th %ile Green (s)	39.1		31.5	67.5	14.9	14.9	30.5	30.5
10th %ile Term Code	Max		MaxR	Coord	Gap	Gap	Coord	Coord

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 89 (64%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Control Type: Actuated-Coordinated

Queues

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	889	451	539	823	232	349	333	240
v/c Ratio	1.33	0.55	0.68	0.86	0.68	0.51	0.45	0.64
Control Delay	199.6	52.1	54.6	39.5	62.2	52.5	49.9	51.3
Queue Delay	0.0	8.3	1.3	0.0	0.0	0.0	0.0	92.1
Total Delay	199.6	60.4	55.8	39.5	62.2	52.5	49.9	143.4
Queue Length 50th (ft)	~583	404	237	341	193	146	137	173
Queue Length 95th (ft)	#727	m491	303	459	284	197	186	269
Internal Link Dist (ft)		375	150			693		176
Turn Bay Length (ft)				200				
Base Capacity (vph)	666	821	796	957	385	767	733	377
Starvation Cap Reductn	0	326	0	0	0	0	0	0
Spillback Cap Reductn	0	0	105	0	0	0	0	320
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.33	0.91	0.78	0.86	0.60	0.46	0.45	4.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.


Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N















2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↱	↱			↰↱	↰↱	↰	↰↱		↰↱	↱	
Traffic Volume (vph)	853	269	164	0	517	790	223	330	5	320	115	115
Future Volume (vph)	853	269	164	0	517	790	223	330	5	320	115	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.98			1.00	0.68	1.00	1.00		1.00	0.96	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.94			1.00	0.85	1.00	1.00		1.00	0.93	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3467	1740			3539	1903	1770	3520		3367	1616	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3467	1740			3539	1903	1770	3520		3367	1616	
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)	889	280	171	0	539	823	232	344	5	333	120	120
RTOR Reduction (vph)	0	16	0	0	0	40	0	1	0	0	26	0
Lane Group Flow (vph)	889	435	0	0	539	783	232	348	0	333	214	0
Confl. Peds. (#/hr)	17		29	29		17	17		48	48		17
Confl. Bikes (#/hr)			2			371			156			53
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	26.9	64.9			31.5	67.5	27.1	27.1		30.5	30.5	
Effective Green, g (s)	26.9	58.4			31.5	67.5	27.1	27.1		30.5	30.5	
Actuated g/C Ratio	0.19	0.42			0.22	0.48	0.19	0.19		0.22	0.22	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	666	725			796	917	342	681		733	352	
v/s Ratio Prot	c0.26	0.25			0.15		c0.13	0.10		0.10	0.13	
v/s Ratio Perm						c0.41						
v/c Ratio	1.33	0.60			0.68	0.85	0.68	0.51		0.45	0.61	
Uniform Delay, d1	56.5	31.7			49.6	31.9	52.4	50.5		47.5	49.4	
Progression Factor	0.97	1.89			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	158.1	1.0			4.6	9.9	4.2	0.3		2.0	7.6	
Delay (s)	213.0	60.8			54.2	41.8	56.6	50.8		49.6	57.0	
Level of Service	F	E			D	D	E	D		D	E	
Approach Delay (s)		161.8			46.7			53.1			52.7	
Approach LOS		F			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			88.5				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			107.5%				ICU Level of Service			G		
Analysis Period (min)			15									
c Critical Lane Group												

2035 Alternative 5 AM (with Mitigation Measures)

Timings
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	25	888	18	596	23	7	18	0
Future Volume (vph)	25	888	18	596	23	7	18	0
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	6.5	7.0	6.5	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	16.5	11.0	23.5	25.5	25.5	23.5	23.5
Total Split (s)	11.0	53.0	11.0	53.0	26.0	26.0	26.0	26.0
Total Split (%)	12.2%	58.9%	12.2%	58.9%	28.9%	28.9%	28.9%	28.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
Act Effect Green (s)	69.7	67.1	69.7	67.1		9.5		9.5
Actuated g/C Ratio	0.77	0.75	0.77	0.75		0.11		0.11
v/c Ratio	0.05	0.74	0.05	0.49		0.66		0.25
Control Delay	2.8	13.7	2.1	5.1		19.2		5.8
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	2.8	13.7	2.1	5.1		19.2		5.8
LOS	A	B	A	A		B		A
Approach Delay		13.4		5.0		19.2		5.8
Approach LOS		B		A		B		A

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 20 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 10.9

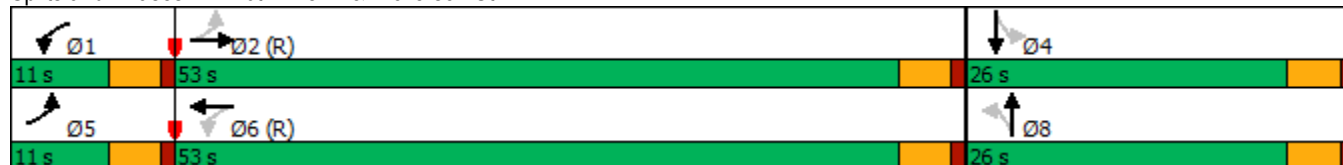
Intersection LOS: B

Intersection Capacity Utilization 73.0%

ICU Level of Service C

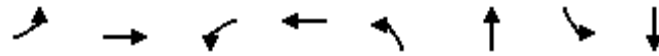
Analysis Period (min) 15

Splits and Phases: 1: 6th Ave W & Nickerson St



Phasings
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Minimum Initial (s)	6.5	7.0	6.5	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	16.5	11.0	23.5	25.5	25.5	23.5	23.5
Total Split (s)	11.0	53.0	11.0	53.0	26.0	26.0	26.0	26.0
Total Split (%)	12.2%	58.9%	12.2%	58.9%	28.9%	28.9%	28.9%	28.9%
Maximum Green (s)	6.5	48.5	6.5	48.5	21.5	21.5	21.5	21.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
Walk Time (s)		7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		5.0		12.0	14.0	14.0	12.0	12.0
Pedestrian Calls (#/hr)		0		0	0	0	0	0
90th %ile Green (s)	6.5	54.8	6.5	54.8	15.2	15.2	15.2	15.2
90th %ile Term Code	Min	Coord	Min	Coord	Gap	Gap	Hold	Hold
70th %ile Green (s)	6.5	59.4	6.5	59.4	10.6	10.6	10.6	10.6
70th %ile Term Code	Min	Coord	Min	Coord	Gap	Gap	Hold	Hold
50th %ile Green (s)	0.0	73.5	0.0	73.5	7.5	7.5	7.5	7.5
50th %ile Term Code	Skip	Coord	Skip	Coord	Gap	Gap	Hold	Hold
30th %ile Green (s)	0.0	74.0	0.0	74.0	7.0	7.0	7.0	7.0
30th %ile Term Code	Skip	Coord	Skip	Coord	Min	Min	Hold	Hold
10th %ile Green (s)	0.0	74.0	0.0	74.0	7.0	7.0	7.0	7.0
10th %ile Term Code	Skip	Coord	Skip	Coord	Min	Min	Hold	Hold

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 20 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Control Type: Actuated-Coordinated

Queues
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	26	989	19	664	211	33
v/c Ratio	0.05	0.74	0.05	0.49	0.66	0.25
Control Delay	2.8	13.7	2.1	5.1	19.2	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.8	13.7	2.1	5.1	19.2	5.8
Queue Length 50th (ft)	2	159	1	96	17	0
Queue Length 95th (ft)	9	#759	m3	95	80	5
Internal Link Dist (ft)		549		657	226	272
Turn Bay Length (ft)	30		30			
Base Capacity (vph)	567	1344	357	1360	496	206
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.74	0.05	0.49	0.43	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.



















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	888	61	18	596	41	23	7	173	18	0	13
Future Volume (veh/h)	25	888	61	18	596	41	23	7	173	18	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.98		0.96	0.98		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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1856	1856	1856	1870	1870	1870	1426	1426	1426
Adj Flow Rate, veh/h	26	925	64	19	621	43	24	7	180	19	0	14
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, %	4	4	4	3	3	3	2	2	2	32	32	32
Cap, veh/h	467	1094	76	252	1090	75	63	22	233	139	12	65
Arrive On Green	0.03	0.64	0.64	0.03	0.64	0.64	0.18	0.18	0.18	0.18	0.00	0.18
Sat Flow, veh/h	1753	1698	117	1767	1711	118	101	124	1309	427	69	366
Grp Volume(v), veh/h	26	0	989	19	0	664	211	0	0	33	0	0
Grp Sat Flow(s),veh/h/ln	1753	0	1815	1767	0	1830	1535	0	0	862	0	0
Q Serve(g_s), s	0.4	0.0	38.3	0.3	0.0	18.6	5.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	0.0	38.3	0.3	0.0	18.6	11.7	0.0	0.0	2.3	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.06	0.11		0.85	0.58		0.42
Lane Grp Cap(c), veh/h	467	0	1170	252	0	1166	318	0	0	217	0	0
V/C Ratio(X)	0.06	0.00	0.85	0.08	0.00	0.57	0.66	0.00	0.00	0.15	0.00	0.00
Avail Cap(c_a), veh/h	533	0	1170	331	0	1166	410	0	0	277	0	0
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	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	6.9	0.0	12.5	13.3	0.0	9.3	35.2	0.0	0.0	31.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	7.6	0.1	0.0	2.0	2.6	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	0.2	0.0	16.0	0.2	0.0	7.3	4.6	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.0	0.0	20.1	13.4	0.0	11.3	37.8	0.0	0.0	31.5	0.0	0.0
LnGrp LOS	A	A	C	B	A	B	D	A	A	C	A	A
Approach Vol, veh/h	1015				683				211			
Approach Delay, s/veh	19.8				11.4				37.8			
Approach LOS	B				B				D			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	62.5		20.5	7.6	61.8		20.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	48.5		21.5	6.5	48.5		21.5				
Max Q Clear Time (g_c+I1), s	2.3	40.3		4.3	2.4	20.6		13.7				
Green Ext Time (p_c), s	0.0	4.8		0.1	0.0	5.4		0.8				
Intersection Summary												
HCM 6th Ctrl Delay	19.0											
HCM 6th LOS	B											





Intersection

Intersection Delay, s/veh 8
Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	5	5	5	5	5	5	144	0	5	39	10
Future Vol, veh/h	30	5	5	5	5	5	5	144	0	5	39	10
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	0	0	0	9	9	9	0	0	0	0	0	0
Mvmt Flow	38	6	6	6	6	6	6	182	0	6	49	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.9	7.7	8.3	7.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	75%	33%	9%
Vol Thru, %	97%	12%	33%	72%
Vol Right, %	0%	12%	33%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	149	40	15	54
LT Vol	5	30	5	5
Through Vol	144	5	5	39
RT Vol	0	5	5	10
Lane Flow Rate	189	51	19	68
Geometry Grp	1	1	1	1
Degree of Util (X)	0.214	0.064	0.024	0.077
Departure Headway (Hd)	4.08	4.557	4.539	4.073
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	871	790	793	865
Service Time	2.145	2.558	2.541	2.165
HCM Lane V/C Ratio	0.217	0.065	0.024	0.079
HCM Control Delay	8.3	7.9	7.7	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.8	0.2	0.1	0.2




Intersection												
Int Delay, s/veh	5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	135	128	0	10	85	7	5	7	5	12	15	28
Future Vol, veh/h	135	128	0	10	85	7	5	7	5	12	15	28
Conflicting Peds, #/hr	2	0	8	13	0	8	8	0	13	8	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	2	2	2	0	0	0	5	5	5
Mvmt Flow	180	171	0	13	113	9	7	9	7	16	20	37
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	130	0	0	184	0	0	724	700	197	704	696	134
Stage 1	-	-	-	-	-	-	544	544	-	152	152	-
Stage 2	-	-	-	-	-	-	180	156	-	552	544	-
Critical Hdwy	4.13	-	-	4.12	-	-	7.1	6.5	6.2	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Follow-up Hdwy	2.227	-	-	2.218	-	-	3.5	4	3.3	3.545	4.045	3.345
Pot Cap-1 Maneuver	1449	-	-	1391	-	-	344	366	849	348	362	907
Stage 1	-	-	-	-	-	-	527	522	-	843	766	-
Stage 2	-	-	-	-	-	-	826	772	-	513	514	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1438	-	-	1374	-	-	272	306	828	293	303	893
Mov Cap-2 Maneuver	-	-	-	-	-	-	272	306	-	293	303	-
Stage 1	-	-	-	-	-	-	448	445	-	721	752	-
Stage 2	-	-	-	-	-	-	757	758	-	424	438	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	4			0.7			15.7			14.5		
HCM LOS							C			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	359	1438	-	-	1374	-	-	452				
HCM Lane V/C Ratio	0.063	0.125	-	-	0.01	-	-	0.162				
HCM Control Delay (s)	15.7	7.9	0	-	7.6	0	-	14.5				
HCM Lane LOS	C	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.2	0.4	-	-	0	-	-	0.6				

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	23	5	6	7	6	0	5	1	15	5	0
Future Vol, veh/h	5	23	5	6	7	6	0	5	1	15	5	0
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	33	33	33
Mvmt Flow	7	34	7	9	10	9	0	7	1	22	7	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0





















Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	7	7	8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	15%	32%	75%
Vol Thru, %	83%	70%	37%	25%
Vol Right, %	17%	15%	32%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	6	33	19	20
LT Vol	0	5	6	15
Through Vol	5	23	7	5
RT Vol	1	5	6	0
Lane Flow Rate	9	49	28	30
Geometry Grp	1	1	1	1
Degree of Util (X)	0.01	0.054	0.031	0.039
Departure Headway (Hd)	3.958	3.929	3.879	4.753
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	900	909	920	753
Service Time	1.999	1.962	1.915	2.786
HCM Lane V/C Ratio	0.01	0.054	0.03	0.04
HCM Control Delay	7	7.2	7	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0.2	0.1	0.1

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	142	107	15	10	0
Future Vol, veh/h	0	142	107	15	10	0
Conflicting Peds, #/hr	4	0	0	19	19	4
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	79	79	79	79	79	79
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	0	180	135	19	13	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	173	0	-	0	363	168
Stage 1	-	-	-	-	164	-
Stage 2	-	-	-	-	199	-
Critical Hdwy	4.13	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.227	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1398	-	-	-	640	881
Stage 1	-	-	-	-	870	-
Stage 2	-	-	-	-	839	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1373	-	-	-	617	862
Mov Cap-2 Maneuver	-	-	-	-	617	-
Stage 1	-	-	-	-	854	-
Stage 2	-	-	-	-	824	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		11		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1373	-	-	-	617	
HCM Lane V/C Ratio	-	-	-	-	0.021	
HCM Control Delay (s)	0	-	-	-	11	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Timings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	10	955	96	75	594	35	132	10	10	10
Future Volume (vph)	10	955	96	75	594	35	132	10	10	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	6.5	7.0	7.0	6.5	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	25.0	25.0	11.0	25.0	25.0	28.0	28.0	28.0	28.0
Total Split (s)	11.0	51.0	51.0	11.0	51.0	51.0	28.0	28.0	28.0	28.0
Total Split (%)	12.2%	56.7%	56.7%	12.2%	56.7%	56.7%	31.1%	31.1%	31.1%	31.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0		3.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	7.5	7.5		7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	61.6	56.4	56.4	64.5	63.1	63.1	12.7	12.7		11.8
Actuated g/C Ratio	0.68	0.63	0.63	0.72	0.70	0.70	0.14	0.14		0.13
v/c Ratio	0.02	0.88	0.11	0.35	0.49	0.03	0.75	0.26		0.11
Control Delay	8.1	28.9	6.6	12.6	16.0	4.1	60.2	12.9		31.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	8.1	28.9	6.6	12.6	16.0	4.1	60.2	12.9		31.1
LOS	A	C	A	B	B	A	E	B		C
Approach Delay		26.7			15.0			44.6		31.1
Approach LOS		C			B			D		C

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 24.4

Intersection LOS: C

Intersection Capacity Utilization 84.4%

ICU Level of Service E











Analysis Period (min) 15

Splits and Phases: 6: 3rd Ave W & Nickerson St



Phasings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Minimum Initial (s)	6.5	7.0	7.0	6.5	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	25.0	25.0	11.0	25.0	25.0	28.0	28.0	28.0	28.0
Total Split (s)	11.0	51.0	51.0	11.0	51.0	51.0	28.0	28.0	28.0	28.0
Total Split (%)	12.2%	56.7%	56.7%	12.2%	56.7%	56.7%	31.1%	31.1%	31.1%	31.1%
Maximum Green (s)	6.5	46.5	46.5	6.5	46.5	46.5	23.5	23.5	23.5	23.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	1.0	0.2	0.2	1.0	0.2	0.2	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)		12	12		6	6	12	12	17	17
90th %ile Green (s)	6.5	46.5	46.5	7.0	47.0	47.0	23.0	23.0	23.0	23.0
90th %ile Term Code	Min	Coord	Coord	Max	Coord	Coord	Ped	Ped	Ped	Ped
70th %ile Green (s)	0.0	47.0	47.0	6.5	58.0	58.0	23.0	23.0	23.0	23.0
70th %ile Term Code	Skip	Coord	Coord	Min	Coord	Coord	Hold	Hold	Ped	Ped
50th %ile Green (s)	0.0	56.0	56.0	6.5	67.0	67.0	14.0	14.0	14.0	14.0
50th %ile Term Code	Skip	Coord	Coord	Min	Coord	Coord	Gap	Gap	Hold	Hold
30th %ile Green (s)	0.0	58.7	58.7	6.5	69.7	69.7	11.3	11.3	0.0	0.0
30th %ile Term Code	Skip	Coord	Coord	Min	Coord	Coord	Gap	Gap	Skip	Skip
10th %ile Green (s)	0.0	73.6	73.6	0.0	73.6	73.6	7.4	7.4	0.0	0.0
10th %ile Term Code	Skip	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Skip	Skip

Intersection Summary

Cycle Length: 90










Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Control Type: Actuated-Coordinated

Queues
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

									
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	10	995	100	78	619	36	138	68	20
v/c Ratio	0.02	0.88	0.11	0.35	0.49	0.03	0.75	0.26	0.11
Control Delay	8.1	28.9	6.6	12.6	16.0	4.1	60.2	12.9	31.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.1	28.9	6.6	12.6	16.0	4.1	60.2	12.9	31.1
Queue Length 50th (ft)	1	337	1	16	171	0	78	5	10
Queue Length 95th (ft)	m4	#859	m34	51	474	m8	127	38	28
Internal Link Dist (ft)		79			214			74	171
Turn Bay Length (ft)	100			135		215			
Base Capacity (vph)	535	1133	949	226	1255	1051	294	389	326
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.88	0.11	0.35	0.49	0.03	0.47	0.17	0.06

Intersection Summary






















95th percentile volume exceeds capacity, queue may be longer.




Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour




												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	955	96	75	594	35	132	10	56	10	10	0
Future Volume (veh/h)	10	955	96	75	594	35	132	10	56	10	10	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	0.96		0.95	0.97		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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1811	1811	1811	1796	1796	1796	1707	1707	1707
Adj Flow Rate, veh/h	10	995	100	78	619	36	138	10	58	10	10	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, %	5	5	5	6	6	6	7	7	7	13	13	13
Cap, veh/h	495	1154	969	282	1228	1010	250	27	156	123	93	0
Arrive On Green	0.02	0.63	0.63	0.06	0.68	0.68	0.12	0.12	0.16	0.16	0.12	0.00
Sat Flow, veh/h	1739	1826	1533	1725	1811	1490	1301	220	1274	516	757	0
Grp Volume(v), veh/h	10	995	100	78	619	36	138	0	68	20	0	0
Grp Sat Flow(s),veh/h/ln	1739	1826	1533	1725	1811	1490	1301	0	1493	1273	0	0
Q Serve(g_s), s	0.2	39.7	2.3	1.2	15.0	0.7	5.9	0.0	3.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.2	39.7	2.3	1.2	15.0	0.7	8.6	0.0	3.7	3.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.85	0.50		0.00
Lane Grp Cap(c), veh/h	495	1154	969	282	1228	1010	250	0	183	259	0	0
V/C Ratio(X)	0.02	0.86	0.10	0.28	0.50	0.04	0.55	0.00	0.37	0.08	0.00	0.00
Avail Cap(c_a), veh/h	593	1154	969	300	1228	1010	387	0	340	406	0	0
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.3	13.4	6.5	15.1	7.1	4.8	38.2	0.0	35.1	34.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	8.6	0.2	0.2	1.5	0.1	0.7	0.0	0.5	0.0	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	0.1	17.1	0.8	0.8	5.6	0.2	3.0	0.0	1.3	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.3	22.0	6.7	15.3	8.6	4.8	38.9	0.0	35.5	34.4	0.0	0.0
LnGrp LOS	A	C	A	B	A	A	D	A	D	C	A	A
Approach Vol, veh/h		1105			733			206			20	
Approach Delay, s/veh		20.4			9.1			37.8			34.4	
Approach LOS		C			A			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.1	61.4		18.5	5.9	65.5		18.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	46.5		23.5	6.5	46.5		23.5				
Max Q Clear Time (g_c+I1), s	3.2	41.7		5.7	2.2	17.0		11.6				
Green Ext Time (p_c), s	0.0	1.0		0.0	0.0	0.8		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			18.3									
HCM 6th LOS			B									

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	72	0	0	0	41	194	15	5	123	49
Future Vol, veh/h	0	0	72	0	0	0	41	194	15	5	123	49
Conflicting Peds, #/hr	32	0	42	22	0	11	42	0	22	11	0	32
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	0	0	0	7	7	7	2	2	2
Mvmt Flow	0	0	90	0	0	0	51	243	19	6	154	61




Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	-	-	269		257	0	0	284	0
Stage 1	-	-	-		-	-	-	-	-
Stage 2	-	-	-		-	-	-	-	-
Critical Hdwy	-	-	6.23		4.17	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-		-	-	-	-	-
Critical Hdwy Stg 2	-	-	-		-	-	-	-	-
Follow-up Hdwy	-	-	3.327		2.263	-	-	2.218	-
Pot Cap-1 Maneuver	0	0	767		1279	-	-	1278	-
Stage 1	0	0	-		-	-	-	-	-
Stage 2	0	0	-		-	-	-	-	-
Platoon blocked, %						-	-	-	-
Mov Cap-1 Maneuver	-	0	707		1228	-	-	1278	-
Mov Cap-2 Maneuver	-	0	-		-	-	-	-	-
Stage 1	-	0	-		-	-	-	-	-
Stage 2	-	0	-		-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.8	1.3	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1228	-	-	707	1278	-	-
HCM Lane V/C Ratio	0.042	-	-	0.127	0.005	-	-
HCM Control Delay (s)	8.1	0	-	10.8	7.8	0	-
HCM Lane LOS	A	A	-	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0	-	-















Intersection						
Int Delay, s/veh	1.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	24	23	240	38	37	158
Future Vol, veh/h	24	23	240	38	37	158
Conflicting Peds, #/hr	16	3	0	16	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	84	84	84	84	84	84
Heavy Vehicles, %	30	30	7	7	5	5
Mvmt Flow	29	27	286	45	44	188
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	617	328	0	0	347	0
Stage 1	325	-	-	-	-	-
Stage 2	292	-	-	-	-	-
Critical Hdwy	6.7	6.5	-	-	4.15	-
Critical Hdwy Stg 1	5.7	-	-	-	-	-
Critical Hdwy Stg 2	5.7	-	-	-	-	-
Follow-up Hdwy	3.77	3.57	-	-	2.245	-
Pot Cap-1 Maneuver	411	653	-	-	1195	-
Stage 1	673	-	-	-	-	-
Stage 2	698	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	382	641	-	-	1177	-
Mov Cap-2 Maneuver	382	-	-	-	-	-
Stage 1	663	-	-	-	-	-
Stage 2	658	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	13.6	0	1.6			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	476	1177	-	
HCM Lane V/C Ratio	-	-	0.118	0.037	-	
HCM Control Delay (s)	-	-	13.6	8.2	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.4	0.1	-	

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	25	0	40	0	242	28	22	160	0
Future Vol, veh/h	0	0	0	25	0	40	0	242	28	22	160	0
Conflicting Peds, #/hr	17	0	0	0	0	17	0	0	0	17	0	17
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	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	3	3	3	7	7	7	12	12	12
Mvmt Flow	0	0	0	29	0	46	0	278	32	25	184	0
Major/Minor												
	Minor1			Major1			Major2					
Conflicting Flow All		545	562	328	201	0	0	327	0	0		
Stage 1		311	311	-	-	-	-	-	-	-		
Stage 2		234	251	-	-	-	-	-	-	-		
Critical Hdwy		6.43	6.53	6.23	4.17	-	-	4.22	-	-		
Critical Hdwy Stg 1		5.43	5.53	-	-	-	-	-	-	-		
Critical Hdwy Stg 2		5.43	5.53	-	-	-	-	-	-	-		
Follow-up Hdwy		3.527	4.027	3.327	2.263	-	-	2.308	-	-		
Pot Cap-1 Maneuver		498	434	711	1342	-	-	1178	-	-		
Stage 1		741	656	-	-	-	-	-	-	-		
Stage 2		802	697	-	-	-	-	-	-	-		
Platoon blocked, %							-	-				
Mov Cap-1 Maneuver		478	0	688	1342	-	-	1159	-	-		
Mov Cap-2 Maneuver		478	0	-	-	-	-	-	-	-		
Stage 1		729	0	-	-	-	-	-	-	-		
Stage 2		783	0	-	-	-	-	-	-	-		
Approach												
	WB			NB			SB					
HCM Control Delay, s		12			0			1				
HCM LOS		B										
Minor Lane/Major Mvmt												
	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1342	-	-	589	1159	-	-					
HCM Lane V/C Ratio	-	-	-	0.127	0.022	-	-					
HCM Control Delay (s)	0	-	-	12	8.2	0	-					
HCM Lane LOS	A	-	-	B	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	0.4	0.1	-	-					

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	43	13	39	231	145	35
Future Vol, veh/h	43	13	39	231	145	35
Conflicting Peds, #/hr	15	15	15	0	0	15
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, %	0	0	8	8	11	11
Mvmt Flow	47	14	43	254	159	38
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	548	208	212	0	-	0
Stage 1	193	-	-	-	-	-
Stage 2	355	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.18	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.272	-	-	-
Pot Cap-1 Maneuver	501	837	1323	-	-	-
Stage 1	845	-	-	-	-	-
Stage 2	714	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	468	813	1304	-	-	-
Mov Cap-2 Maneuver	468	-	-	-	-	-
Stage 1	802	-	-	-	-	-
Stage 2	704	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	12.9	1.1		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1304	-	519	-	-	
HCM Lane V/C Ratio	0.033	-	0.119	-	-	
HCM Control Delay (s)	7.9	0	12.9	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-	

Timings
11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

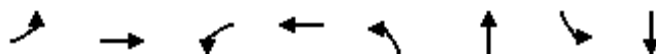
								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	35	949	35	668	29	5	5	5
Future Volume (vph)	35	949	35	668	29	5	5	5
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Detector Phase	2	2	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	22.5	22.5	24.5	24.5	24.5	24.5
Total Split (s)	65.0	65.0	65.0	65.0	25.0	25.0	25.0	25.0
Total Split (%)	72.2%	72.2%	72.2%	72.2%	27.8%	27.8%	27.8%	27.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	75.0	75.0	75.0	75.0		9.2		9.2
Actuated g/C Ratio	0.83	0.83	0.83	0.83		0.10		0.10
v/c Ratio	0.07	0.72	0.12	0.50		0.51		0.24
Control Delay	0.4	6.0	3.6	4.6		28.7		18.5
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	0.4	6.0	3.6	4.6		28.7		18.5
LOS	A	A	A	A		C		B
Approach Delay		5.8		4.5		28.7		18.5
Approach LOS		A		A		C		B
Intersection Summary								
Cycle Length: 90								
Actuated Cycle Length: 90								
Offset: 30 (33%), Referenced to phase 2:EBWB, Start of 1st Green								
Natural Cycle: 90								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.72								
Intersection Signal Delay: 6.7					Intersection LOS: A			
Intersection Capacity Utilization 74.1%					ICU Level of Service D			
Analysis Period (min) 15								

Splits and Phases: 11: W Cremona St & Nickerson St



Phasings
11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	22.5	22.5	24.5	24.5	24.5	24.5
Total Split (s)	65.0	65.0	65.0	65.0	25.0	25.0	25.0	25.0
Total Split (%)	72.2%	72.2%	72.2%	72.2%	27.8%	27.8%	27.8%	27.8%
Maximum Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	6.0	6.0	6.0	6.0	13.0	13.0	13.0	13.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0
90th %ile Green (s)	67.4	67.4	67.4	67.4	13.6	13.6	13.6	13.6
90th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Gap	Gap
70th %ile Green (s)	70.7	70.7	70.7	70.7	10.3	10.3	10.3	10.3
70th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Gap	Gap
50th %ile Green (s)	73.0	73.0	73.0	73.0	8.0	8.0	8.0	8.0
50th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Gap	Gap
30th %ile Green (s)	74.0	74.0	74.0	74.0	7.0	7.0	7.0	7.0
30th %ile Term Code	Coord	Coord	Coord	Coord	Min	Min	Min	Min
10th %ile Green (s)	85.5	85.5	85.5	85.5	0.0	0.0	0.0	0.0
10th %ile Term Code	Coord	Coord	Coord	Coord	Skip	Skip	Skip	Skip

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 30 (33%), Referenced to phase 2:EBWB, Start of 1st Green

Control Type: Actuated-Coordinated

Queues
11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	37	1066	37	738	92	47
v/c Ratio	0.07	0.72	0.12	0.50	0.51	0.24
Control Delay	0.4	6.0	3.6	4.6	28.7	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.4	6.0	3.6	4.6	28.7	18.5
Queue Length 50th (ft)	0	9	3	96	20	5
Queue Length 95th (ft)	m1	m736	14	218	64	35
Internal Link Dist (ft)		379		803	22	101
Turn Bay Length (ft)	30		30			
Base Capacity (vph)	518	1479	307	1482	334	386
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.72	0.12	0.50	0.28	0.12



















Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	949	53	35	668	25	29	5	53	5	5	35
Future Volume (vph)	35	949	53	35	668	25	29	5	53	5	5	35
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	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.97			0.96	
Flpb, ped/bikes	0.99	1.00		1.00	1.00			0.99			1.00	
Frt	1.00	0.99		1.00	0.99			0.92			0.89	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1678	1774		1703	1777			1395			1610	
Flt Permitted	0.35	1.00		0.21	1.00			0.90			0.97	
Satd. Flow (perm)	614	1774		369	1777			1280			1572	
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	1010	56	37	711	27	31	5	56	5	5	37
RTOR Reduction (vph)	0	1	0	0	1	0	0	51	0	0	34	0
Lane Group Flow (vph)	37	1065	0	37	737	0	0	41	0	0	13	0
Confl. Peds. (#/hr)	16		9	10		17	9		10	17		16
Confl. Bikes (#/hr)			1			2						
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	19%	19%	19%	0%	0%	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)	73.2	73.2		73.2	73.2			7.8			7.8	
Effective Green, g (s)	73.2	73.2		73.2	73.2			7.8			7.8	
Actuated g/C Ratio	0.81	0.81		0.81	0.81			0.09			0.09	
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)	499	1442		300	1445			110			136	
v/s Ratio Prot		c0.60			0.41							
v/s Ratio Perm	0.06			0.10				c0.03			0.01	
v/c Ratio	0.07	0.74		0.12	0.51			0.37			0.10	
Uniform Delay, d1	1.7	3.9		1.7	2.7			38.8			37.9	
Progression Factor	0.11	0.76		1.00	1.00			1.06			1.00	
Incremental Delay, d2	0.2	2.1		0.8	1.3			2.1			0.3	
Delay (s)	0.4	5.0		2.6	4.0			43.3			38.2	
Level of Service	A	A		A	A			D			D	
Approach Delay (s)		4.9			3.9			43.3			38.2	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			7.0			HCM 2000 Level of Service				A		
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			74.1%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Int Delay, s/veh 4.7

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 27 16 24 65 43 55

Future Vol, veh/h 27 16 24 65 43 55

Conflicting Peds, #/hr 15 15 15 0 0 15

Sign Control Free Free Stop Stop Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 1 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 89 89 89 89 89 89

Heavy Vehicles, % 0 0 11 11 32 32

Mvmt Flow 30 18 27 73 48 62

Major/Minor Minor2 Major2

Conflicting Flow All 109 94 - 0

Stage 1 94 94 - -

Stage 2 15 0 - -

Critical Hdwy 6.51 6.61 - -

Critical Hdwy Stg 1 5.51 5.61 - -

Critical Hdwy Stg 2 - - - -

Follow-up Hdwy 3.599 4.099 - -

Pot Cap-1 Maneuver 867 779 - -

Stage 1 908 800 - -

Stage 2 - - - -

Platoon blocked, % - -

Mov Cap-1 Maneuver 843 0 - -

Mov Cap-2 Maneuver 843 0 - -

Stage 1 895 0 - -

Stage 2 - 0 - -

Approach NB SB

HCM Control Delay, s 9.8 0

HCM LOS A

Minor Lane/Major Mvmt NBLn1 SBT SBR

Capacity (veh/h) 843 - -

HCM Lane V/C Ratio 0.119 - -

HCM Control Delay (s) 9.8 - -

HCM Lane LOS A - -


















HCM 95th %tile Q(veh) 0.4 - -

Timings

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour

												
Lane Group	EBL2	EBL	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	SBL2	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	5	0	5	115	216	5	30	0	10	5	0
Future Volume (vph)	5	5	0	5	115	216	5	30	0	10	5	0
Turn Type	Perm	Perm	NA	Perm	NA	Perm	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			3		3				4			4
Permitted Phases	3	3		3		3	4	4		4	4	
Detector Phase	3	3	3	3	3	3	4	4	4	4	4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	28.5	28.5
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	26.2%	26.2%	26.2%	26.2%	26.2%	26.2%	22.3%	22.3%	22.3%	22.3%	22.3%	22.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)			0.0		0.0	0.0			3.0			3.0
Total Lost Time (s)			6.5		6.5	6.5			9.5			9.5
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effect Green (s)			27.5		27.5	27.5			16.0			16.0
Actuated g/C Ratio			0.21		0.21	0.21			0.12			0.12
v/c Ratio			0.99		0.56	0.46			0.32			0.09
Control Delay			99.5		52.9	17.0			5.5			0.8
Queue Delay			0.0		0.0	0.0			0.1			0.0
Total Delay			99.5		52.9	17.0			5.6			0.8
LOS			F		D	B			A			A
Approach Delay			99.5		35.9				5.6			0.8
Approach LOS			F		D				A			A

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 76 (58%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 43.3

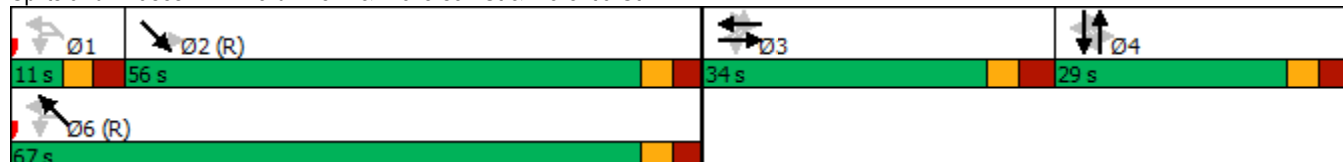
Intersection LOS: D

Intersection Capacity Utilization 117.8%

ICU Level of Service H

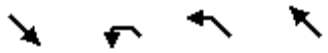
Analysis Period (min) 15

Splits and Phases: 14: 3rd Ave N & Nickerson St & Florentia St



Timings
14: 3rd Ave N & Nickerson St & Florentia St













2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	SET	NWL2	NWL	NWT	Ø1
Lane Configurations	↕↕			↕↕	
Traffic Volume (vph)	990	25	65	602	
Future Volume (vph)	990	25	65	602	
Turn Type	NA	custom	custom	NA	
Protected Phases	2			6	1
Permitted Phases		1 6	1 6		
Detector Phase	2	1 6	1 6	6	
Switch Phase					
Minimum Initial (s)	7.0			7.0	5.0
Minimum Split (s)	22.0			24.0	11.0
Total Split (s)	56.0			67.0	11.0
Total Split (%)	43.1%			51.5%	8%
Yellow Time (s)	3.0			3.0	3.0
All-Red Time (s)	3.0			3.0	3.0
Lost Time Adjust (s)	3.0			3.0	
Total Lost Time (s)	9.0			9.0	
Lead/Lag	Lag				Lead
Lead-Lag Optimize?	Yes				Yes
Recall Mode	C-Max			C-Max	None
Act Effect Green (s)	61.5			61.5	
Actuated g/C Ratio	0.47			0.47	
v/c Ratio	0.64			0.85	
Control Delay	29.0			47.0	
Queue Delay	0.7			0.4	
Total Delay	29.7			47.4	
LOS	C			D	
Approach Delay	29.7			47.4	
Approach LOS	C			D	
Intersection Summary					

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Lane Group	EBL2	EBL	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	SBL2	SBL	SBT
Protected Phases			3		3				4			4
Permitted Phases	3	3		3		3	4	4		4	4	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	28.5	28.5
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	26.2%	26.2%	26.2%	26.2%	26.2%	26.2%	22.3%	22.3%	22.3%	22.3%	22.3%	22.3%
Maximum Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.5	22.5	22.5	22.5	22.5	22.5
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (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
Time To Reduce (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
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Walk Time (s)							8.0	8.0	8.0	8.0	8.0	8.0
Flash Dont Walk (s)							14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)							69	69	69	69	69	69
90th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
70th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
70th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
50th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
50th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
30th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	22.0	22.0	22.0	22.0	22.0	22.0
30th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Ped	Ped
10th %ile Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	7.0	7.0	7.0	7.0	7.0	7.0
10th %ile Term Code	Max	Max	Max	Max	Max	Max	Min	Min	Min	Min	Min	Min

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 76 (58%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Control Type: Actuated-Coordinated

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour



Lane Group	SET	NWL2	NWL	NWT	Ø1
Protected Phases	2			6	1
Permitted Phases		1 6	1 6		
Minimum Initial (s)	7.0			7.0	5.0
Minimum Split (s)	22.0			24.0	11.0
Total Split (s)	56.0			67.0	11.0
Total Split (%)	43.1%			51.5%	8%
Maximum Green (s)	50.0			61.0	5.0
Yellow Time (s)	3.0			3.0	3.0
All-Red Time (s)	3.0			3.0	3.0
Lead/Lag	Lag				Lead
Lead-Lag Optimize?	Yes				Yes
Vehicle Extension (s)	3.0			2.0	2.0
Minimum Gap (s)	0.2			0.2	0.2
Time Before Reduce (s)	0.0			0.0	0.0
Time To Reduce (s)	0.0			0.0	0.0
Recall Mode	C-Max			C-Max	None
Walk Time (s)	7.0			7.0	
Flash Dont Walk (s)	9.0			9.0	
Pedestrian Calls (#/hr)	120			126	
90th %ile Green (s)	61.5			61.5	0.0
90th %ile Term Code	Coord			Coord	Skip
70th %ile Green (s)	61.5			61.5	0.0
70th %ile Term Code	Coord			Coord	Skip
50th %ile Green (s)	61.5			61.5	0.0
50th %ile Term Code	Coord			Coord	Skip
30th %ile Green (s)	61.5			61.5	0.0
30th %ile Term Code	Coord			Coord	Skip
10th %ile Green (s)	76.5			76.5	0.0
10th %ile Term Code	Coord			Coord	Skip
Intersection Summary					

Queues

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT	SET	NWT
Lane Group Flow (vph)	324	191	171	90	21	1063	757
v/c Ratio	0.99	0.56	0.46	0.32	0.09	0.64	0.85
Control Delay	99.5	52.9	17.0	5.5	0.8	29.0	47.0
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.7	0.4
Total Delay	99.5	52.9	17.0	5.6	0.8	29.7	47.4
Queue Length 50th (ft)	275	152	29	0	0	365	358
Queue Length 95th (ft)	#470	238	104	19	0	443	m398
Internal Link Dist (ft)	413	299		354	158	814	375
Turn Bay Length (ft)							
Base Capacity (vph)	326	344	373	317	246	1654	888
Starvation Cap Reductn	0	0	0	0	0	0	14
Spillback Cap Reductn	0	0	0	10	0	277	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.56	0.46	0.29	0.09	0.77	0.87

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St
















2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR2
Lane Configurations												
Traffic Volume (vph)	5	5	0	295	5	115	216	5	5	30	0	50
Future Volume (vph)	5	5	0	295	5	115	216	5	5	30	0	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.5			6.5	6.5				9.5	
Lane Util. Factor			1.00			0.95	0.95				1.00	
Frpb, ped/bikes			0.97			0.98	0.85				0.98	
Flpb, ped/bikes			1.00			1.00	1.00				0.98	
Frt			0.87			0.95	0.85				0.92	
Flt Protected			1.00			1.00	1.00				0.98	
Satd. Flow (prot)			1562			1647	1280				1575	
Flt Permitted			0.99			0.99	1.00				0.86	
Satd. Flow (perm)			1545			1628	1280				1377	
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	5	0	314	5	122	230	5	5	32	0	53
RTOR Reduction (vph)	0	0	0	0	0	0	103	0	0	0	79	0
Lane Group Flow (vph)	0	0	324	0	0	191	69	0	0	0	11	0
Confl. Peds. (#/hr)	24	18		14	16		24	18	9	24		14
Confl. Bikes (#/hr)				1			10	10				
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%
Turn Type	Perm	Perm	NA		Perm	NA	Perm		Perm	Perm	NA	
Protected Phases			3			3					4	
Permitted Phases	3	3			3		3		4	4		
Actuated Green, G (s)			27.5			27.5	27.5				19.0	
Effective Green, g (s)			27.5			27.5	27.5				16.0	
Actuated g/C Ratio			0.21			0.21	0.21				0.12	
Clearance Time (s)			6.5			6.5	6.5				6.5	
Vehicle Extension (s)			2.0			2.0	2.0				2.0	
Lane Grp Cap (vph)			326			344	270				169	
v/s Ratio Prot												
v/s Ratio Perm			c0.21			0.12	0.05				c0.01	
v/c Ratio			0.99			0.56	0.25				0.07	
Uniform Delay, d1			51.2			45.8	42.7				50.4	
Progression Factor			1.00			1.00	1.00				1.00	
Incremental Delay, d2			47.9			1.1	0.2				0.1	
Delay (s)			99.0			46.9	42.9				50.5	
Level of Service			F			D	D				D	
Approach Delay (s)			99.0			45.0					50.5	
Approach LOS			F			D					D	
Intersection Summary												
HCM 2000 Control Delay			45.0			HCM 2000 Level of Service					D	
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				31.0		
Intersection Capacity Utilization			117.8%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	SBL2	SBL	SBT	SBR2	SET	SER	SER2	NWL2	NWL	NWT	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	10	5	0	5	990	5	5	25	65	602	15	5
Future Volume (vph)	10	5	0	5	990	5	5	25	65	602	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			9.5		9.0					9.0		
Lane Util. Factor			1.00		0.95					0.95		
Frpb, ped/bikes			0.99		1.00					1.00		
Flpb, ped/bikes			0.98		1.00					1.00		
Frt			0.97		1.00					1.00		
Flt Protected			0.96		1.00					0.99		
Satd. Flow (prot)			1146		3496					3361		
Flt Permitted			0.76		1.00					0.56		
Satd. Flow (perm)			909		3496					1878		
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	5	0	5	1053	5	5	27	69	640	16	5
RTOR Reduction (vph)	0	0	18	0	0	0	0	0	0	1	0	0
Lane Group Flow (vph)	0	0	3	0	1063	0	0	0	0	756	0	0
Confl. Peds. (#/hr)		14		24		16	9	16	9		18	
Confl. Bikes (#/hr)				2		2	2				1	1
Heavy Vehicles (%)	50%	50%	50%	50%	3%	3%	3%	6%	6%	6%	6%	6%
Turn Type	Perm	Perm	NA		NA			custom	custom	NA		
Protected Phases			4		2					6		
Permitted Phases	4	4						16	16			
Actuated Green, G (s)			19.0		64.5					64.5		
Effective Green, g (s)			16.0		61.5					61.5		
Actuated g/C Ratio			0.12		0.47					0.47		
Clearance Time (s)			6.5		6.0					6.0		
Vehicle Extension (s)			2.0		3.0					2.0		
Lane Grp Cap (vph)			111		1653					888		
v/s Ratio Prot					0.30							
v/s Ratio Perm			0.00							c0.40		
v/c Ratio			0.02		0.64					0.85		
Uniform Delay, d1			50.1		25.9					30.2		
Progression Factor			1.00		1.00					1.23		
Incremental Delay, d2			0.0		1.9					7.9		
Delay (s)			50.2		27.9					45.1		
Level of Service			D		C					D		
Approach Delay (s)			50.2		27.9					45.1		
Approach LOS			D		C					D		
Intersection Summary												

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	15	0	1014	1315	341
Future Vol, veh/h	0	15	0	1014	1315	341
Conflicting Peds, #/hr	31	30	30	0	0	31
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	89	89	89	89	89	89
Heavy Vehicles, %	50	50	6	6	7	7
Mvmt Flow	0	17	0	1139	1478	383
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	-	992	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.8	-	-	-	-
Pot Cap-1 Maneuver	0	173	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	163	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	29.6	0	0			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	163	-	-		
HCM Lane V/C Ratio	-	0.103	-	-		
HCM Control Delay (s)	-	29.6	-	-		
HCM Lane LOS	-	D	-	-		
HCM 95th %tile Q(veh)	-	0.3	-	-		

Timings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	←←	→	←←	→	←	→	←←	→
Traffic Volume (vph)	634	617	259	260	234	120	920	190
Future Volume (vph)	634	617	259	260	234	120	920	190
Turn Type	Prot	NA	NA	custom	Split	NA	Split	NA
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Detector Phase	4	1 4	1	5	3	3	2	2
Switch Phase								
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	19.0		37.0	74.0	37.0	37.0	37.0	37.0
Total Split (%)	14.6%		28.5%	56.9%	28.5%	28.5%	28.5%	28.5%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		5.5	5.5	6.5	6.5	5.5	5.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Recall Mode	None		Min	C-Max	None	None	C-Max	C-Max
Act Effct Green (s)	19.1	57.1	31.5	68.5	23.9	23.9	31.5	31.5
Actuated g/C Ratio	0.15	0.44	0.24	0.53	0.18	0.18	0.24	0.24
v/c Ratio	1.32	0.94	0.33	0.19	0.80	0.22	1.18	1.07
Control Delay	190.0	48.3	41.9	2.0	69.7	42.4	134.9	108.0
Queue Delay	0.0	45.1	0.0	0.0	1.8	0.0	0.0	2.0
Total Delay	190.0	93.4	41.9	2.0	71.5	42.4	134.9	110.0
LOS	F	F	D	A	E	D	F	F
Approach Delay		138.9	21.9			61.1		127.2
Approach LOS		F	C			E		F

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 2 (2%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.32

Intersection Signal Delay: 109.5

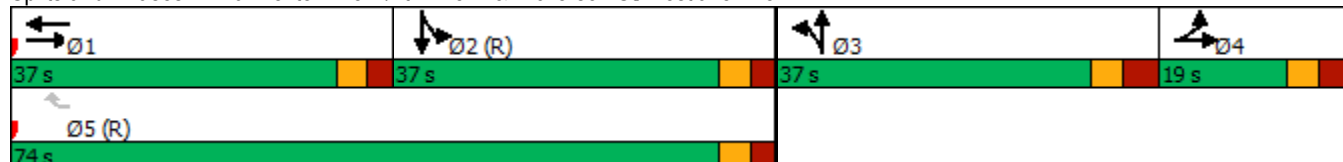
Intersection LOS: F

Intersection Capacity Utilization 92.4%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N



Phasings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	19.0		37.0	74.0	37.0	37.0	37.0	37.0
Total Split (%)	14.6%		28.5%	56.9%	28.5%	28.5%	28.5%	28.5%
Maximum Green (s)	12.5		31.5	68.5	30.5	30.5	31.5	31.5
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2		0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None		Min	C-Max	None	None	C-Max	C-Max
Walk Time (s)			9.0		8.0	8.0	8.0	8.0
Flash Dont Walk (s)			22.0		22.0	22.0	22.0	22.0
Pedestrian Calls (#/hr)			56		12	12	33	33
90th %ile Green (s)	12.5		31.5	68.5	30.5	30.5	31.5	31.5
90th %ile Term Code	Max		Max	Coord	Max	Max	Coord	Coord
70th %ile Green (s)	13.0		31.5	68.5	30.0	30.0	31.5	31.5
70th %ile Term Code	Max		Max	Coord	Ped	Ped	Coord	Coord
50th %ile Green (s)	19.5		31.5	68.5	23.5	23.5	31.5	31.5
50th %ile Term Code	Max		Max	Coord	Gap	Gap	Coord	Coord
30th %ile Green (s)	22.8		31.5	68.5	20.2	20.2	31.5	31.5
30th %ile Term Code	Max		Max	Coord	Gap	Gap	Coord	Coord
10th %ile Green (s)	27.7		31.5	68.5	15.3	15.3	31.5	31.5
10th %ile Term Code	Max		Max	Coord	Gap	Gap	Coord	Coord

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 2 (2%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Control Type: Actuated-Coordinated

Queues

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	660	743	270	271	244	135	958	427
v/c Ratio	1.32	0.94	0.33	0.19	0.80	0.22	1.18	1.07
Control Delay	190.0	48.3	41.9	2.0	69.7	42.4	134.9	108.0
Queue Delay	0.0	45.1	0.0	0.0	1.8	0.0	0.0	2.0
Total Delay	190.0	93.4	41.9	2.0	71.5	42.4	134.9	110.0
Queue Length 50th (ft)	~370	622	99	0	200	49	~496	~371
Queue Length 95th (ft)	m#540	m#878	141	23	279	75	#627	#581
Internal Link Dist (ft)		375	150			693		176
Turn Bay Length (ft)				200				
Base Capacity (vph)	499	791	817	1443	388	770	815	398
Starvation Cap Reductn	0	185	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	52	0	0	2
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.32	1.23	0.33	0.19	0.73	0.18	1.18	1.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.










Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N















2020 SPU MIMP EIS
Proposed MIMP (2035) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	634	617	96	0	259	260	234	120	10	920	190	220
Future Volume (vph)	634	617	96	0	259	260	234	120	10	920	190	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.94	1.00	1.00		1.00	0.90	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98			1.00	0.85	1.00	0.99		1.00	0.92	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3400	1792			3374	2496	1656	3264		3367	1512	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3400	1792			3374	2496	1656	3264		3367	1512	
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)	660	643	100	0	270	271	244	125	10	958	198	229
RTOR Reduction (vph)	0	4	0	0	0	128	0	5	0	0	32	0
Lane Group Flow (vph)	660	739	0	0	270	143	244	130	0	958	395	0
Confl. Peds. (#/hr)	19		37	37		19	33		12	12		33
Confl. Bikes (#/hr)			12			33			16			155
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	9%	9%	9%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	19.1	57.1			31.5	68.5	23.9	23.9		31.5	31.5	
Effective Green, g (s)	19.1	50.6			31.5	68.5	23.9	23.9		31.5	31.5	
Actuated g/C Ratio	0.15	0.39			0.24	0.53	0.18	0.18		0.24	0.24	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	499	697			817	1315	304	600		815	366	
v/s Ratio Prot	c0.19	c0.41			0.08		c0.15	0.04		c0.28	0.26	
v/s Ratio Perm						0.06						
v/c Ratio	1.32	1.06			0.33	0.11	0.80	0.22		1.18	1.08	
Uniform Delay, d1	55.5	39.7			40.6	15.4	50.8	45.1		49.2	49.2	
Progression Factor	0.75	0.90			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	154.9	45.7			0.1	0.2	13.4	0.1		91.7	70.0	
Delay (s)	196.6	81.3			40.7	15.6	64.2	45.2		140.9	119.3	
Level of Service	F	F			D	B	E	D		F	F	
Approach Delay (s)		135.5			28.1			57.4			134.3	
Approach LOS		F			C			E			F	
Intersection Summary												
HCM 2000 Control Delay			111.4				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.08									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			92.4%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

2035 Alternative 5 PM (with Mitigation Measures)

Timings
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	12	688	33	966	46	6	43	7
Future Volume (vph)	12	688	33	966	46	6	43	7
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	3.5	7.0	6.5	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	8.0	16.5	11.0	23.5	25.5	25.5	23.5	23.5
Total Split (s)	8.0	53.0	11.0	56.0	26.0	26.0	26.0	26.0
Total Split (%)	8.9%	58.9%	12.2%	62.2%	28.9%	28.9%	28.9%	28.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
Act Effect Green (s)	67.0	63.5	69.4	68.0		10.9		10.9
Actuated g/C Ratio	0.74	0.71	0.77	0.76		0.12		0.12
v/c Ratio	0.04	0.58	0.07	0.74		0.72		0.74
Control Delay	3.8	11.2	3.8	9.9		22.3		60.0
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	3.8	11.2	3.8	9.9		22.3		60.0
LOS	A	B	A	A		C		E
Approach Delay		11.1		9.7		22.3		60.0
Approach LOS		B		A		C		E

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 10 (11%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 13.6

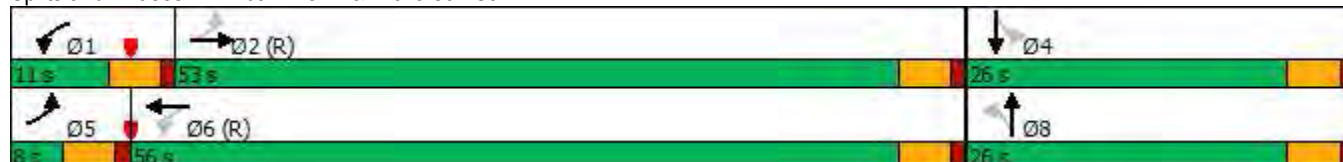
Intersection LOS: B

Intersection Capacity Utilization 75.8%

ICU Level of Service D

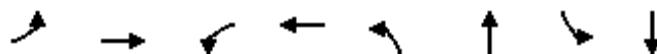
Analysis Period (min) 15

Splits and Phases: 1: 6th Ave W & Nickerson St



Phasings
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Minimum Initial (s)	3.5	7.0	6.5	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	8.0	16.5	11.0	23.5	25.5	25.5	23.5	23.5
Total Split (s)	8.0	53.0	11.0	56.0	26.0	26.0	26.0	26.0
Total Split (%)	8.9%	58.9%	12.2%	62.2%	28.9%	28.9%	28.9%	28.9%
Maximum Green (s)	3.5	48.5	6.5	51.5	21.5	21.5	21.5	21.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
Walk Time (s)		7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		5.0		12.0	14.0	14.0	12.0	12.0
Pedestrian Calls (#/hr)		0		0	0	0	0	0
90th %ile Green (s)	6.1	51.8	6.8	52.5	17.9	17.9	17.9	17.9
90th %ile Term Code	Gap	Coord	Gap	Coord	Gap	Gap	Hold	Hold
70th %ile Green (s)	0.0	57.1	6.5	68.1	12.9	12.9	12.9	12.9
70th %ile Term Code	Skip	Coord	Min	Coord	Gap	Gap	Hold	Hold
50th %ile Green (s)	0.0	60.6	6.5	71.6	9.4	9.4	9.4	9.4
50th %ile Term Code	Skip	Coord	Min	Coord	Gap	Gap	Gap	Gap
30th %ile Green (s)	0.0	73.9	0.0	73.9	7.1	7.1	7.1	7.1
30th %ile Term Code	Skip	Coord	Skip	Coord	Hold	Hold	Gap	Gap
10th %ile Green (s)	0.0	74.0	0.0	74.0	7.0	7.0	7.0	7.0
10th %ile Term Code	Skip	Coord	Skip	Coord	Min	Min	Hold	Hold

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 10 (11%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Control Type: Actuated-Coordinated

Queues
1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	13	747	35	1038	249	84
v/c Ratio	0.04	0.58	0.07	0.74	0.72	0.74
Control Delay	3.8	11.2	3.8	9.9	22.3	60.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.8	11.2	3.8	9.9	22.3	60.0
Queue Length 50th (ft)	1	206	3	194	32	29
Queue Length 95th (ft)	7	424	m6	m#746	101	75
Internal Link Dist (ft)		549		657	226	272
Turn Bay Length (ft)	30		30			
Base Capacity (vph)	309	1279	482	1403	502	193
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.58	0.07	0.74	0.50	0.44

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.




















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: 6th Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	688	22	33	966	20	46	6	185	43	7	30
Future Volume (veh/h)	12	688	22	33	966	20	46	6	185	43	7	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	0.97		0.95	0.98		0.94
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1870	1870	1870	1900	1900	1900	1841	1841	1841
Adj Flow Rate, veh/h	13	724	23	35	1017	21	48	6	195	45	7	32
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	2	2	2	0	0	0	4	4	4
Cap, veh/h	195	1074	34	393	1162	24	91	24	243	164	36	85
Arrive On Green	0.01	0.61	0.61	0.04	0.64	0.64	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	1753	1773	56	1781	1824	38	212	120	1201	507	178	421
Grp Volume(v), veh/h	13	0	747	35	0	1038	249	0	0	84	0	0
Grp Sat Flow(s),veh/h/ln	1753	0	1829	1781	0	1862	1533	0	0	1106	0	0
Q Serve(g_s), s	0.3	0.0	24.5	0.6	0.0	41.2	8.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	0.0	24.5	0.6	0.0	41.2	13.8	0.0	0.0	5.5	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.02	0.19		0.78	0.54		0.38
Lane Grp Cap(c), veh/h	195	0	1108	393	0	1186	358	0	0	285	0	0
V/C Ratio(X)	0.07	0.00	0.67	0.09	0.00	0.88	0.70	0.00	0.00	0.29	0.00	0.00
Avail Cap(c_a), veh/h	244	0	1108	447	0	1186	413	0	0	332	0	0
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	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	15.0	0.0	11.8	9.2	0.0	13.4	34.0	0.0	0.0	30.5	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	3.3	0.1	0.0	9.2	4.2	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	0.1	0.0	10.1	0.2	0.0	18.0	5.5	0.0	0.0	1.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.2	0.0	15.1	9.3	0.0	22.6	38.2	0.0	0.0	31.1	0.0	0.0
LnGrp LOS	B	A	B	A	A	C	D	A	A	C	A	A
Approach Vol, veh/h	760			1073			249			84		
Approach Delay, s/veh	15.1			22.1			38.2			31.1		
Approach LOS	B			C			D			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.3	59.0		22.7	5.5	61.8		22.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	48.5		21.5	3.5	51.5		21.5				
Max Q Clear Time (g_c+I1), s	2.6	26.5		7.5	2.3	43.2		15.8				
Green Ext Time (p_c), s	0.0	6.0		0.3	0.0	5.1		0.7				
Intersection Summary												
HCM 6th Ctrl Delay	21.9											
HCM 6th LOS	C											





Notes

User approved ignoring U-Turning movement.

Intersection

Intersection Delay, s/veh 8.5

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	25	5	10	15	15	5	218	5	5	50	10
Future Vol, veh/h	10	25	5	10	15	15	5	218	5	5	50	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	3	3	3
Mvmt Flow	11	28	6	11	17	17	6	242	6	6	56	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.9	7.8	8.9	7.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	25%	25%	8%
Vol Thru, %	96%	62%	38%	77%
Vol Right, %	2%	12%	38%	15%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	228	40	40	65
LT Vol	5	10	10	5
Through Vol	218	25	15	50
RT Vol	5	5	15	10
Lane Flow Rate	253	44	44	72
Geometry Grp	1	1	1	1
Degree of Util (X)	0.289	0.057	0.056	0.087
Departure Headway (Hd)	4.103	4.645	4.496	4.339
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	864	775	800	829
Service Time	2.187	2.652	2.502	2.349
HCM Lane V/C Ratio	0.293	0.057	0.055	0.087
HCM Control Delay	8.9	7.9	7.8	7.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.2	0.2	0.2	0.3




Intersection												
Int Delay, s/veh	7.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	188	50	5	15	164	8	5	31	40	14	25	31
Future Vol, veh/h	188	50	5	15	164	8	5	31	40	14	25	31
Conflicting Peds, #/hr	13	0	49	60	0	24	49	0	60	24	0	13
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	0	0	0	0	0	0	2	2	2
Mvmt Flow	194	52	5	15	169	8	5	32	41	14	26	32
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	201	0	0	117	0	0	784	734	175	766	732	246
Stage 1	-	-	-	-	-	-	503	503	-	227	227	-
Stage 2	-	-	-	-	-	-	281	231	-	539	505	-
Critical Hdwy	4.11	-	-	4.1	-	-	7.1	6.5	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Follow-up Hdwy	2.209	-	-	2.2	-	-	3.5	4	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1377	-	-	1484	-	-	313	350	874	320	348	793
Stage 1	-	-	-	-	-	-	555	545	-	776	716	-
Stage 2	-	-	-	-	-	-	730	717	-	527	540	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1346	-	-	1399	-	-	219	271	777	223	270	739
Mov Cap-2 Maneuver	-	-	-	-	-	-	219	271	-	223	270	-
Stage 1	-	-	-	-	-	-	445	437	-	646	691	-
Stage 2	-	-	-	-	-	-	633	692	-	371	433	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	6.3			0.6			16.1			17.7		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	403	1346	-	-	1399	-	-	355				
HCM Lane V/C Ratio	0.194	0.144	-	-	0.011	-	-	0.203				
HCM Control Delay (s)	16.1	8.1	0	-	7.6	0	-	17.7				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	0.7	0.5	-	-	0	-	-	0.8				

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	34	10	7	49	26	5	6	2	14	6	5
Future Vol, veh/h	10	34	10	7	49	26	5	6	2	14	6	5
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	11	39	11	8	56	30	6	7	2	16	7	6
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0





















Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.3	7.3	7.3	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	38%	19%	9%	56%
Vol Thru, %	46%	63%	60%	24%
Vol Right, %	15%	19%	32%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	54	82	25
LT Vol	5	10	7	14
Through Vol	6	34	49	6
RT Vol	2	10	26	5
Lane Flow Rate	15	61	93	28
Geometry Grp	1	1	1	1
Degree of Util (X)	0.017	0.068	0.1	0.033
Departure Headway (Hd)	4.174	3.971	3.848	4.171
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	849	899	929	851
Service Time	2.239	2.009	1.882	2.232
HCM Lane V/C Ratio	0.018	0.068	0.1	0.033
HCM Control Delay	7.3	7.3	7.3	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.3	0.1

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	104	187	40	30	5
Future Vol, veh/h	5	104	187	40	30	5
Conflicting Peds, #/hr	6	0	0	235	235	6
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	95	95	95	95	95	95
Heavy Vehicles, %	1	1	0	0	0	0
Mvmt Flow	5	109	197	42	32	5
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	474	0	-	0	807	459
Stage 1	-	-	-	-	453	-
Stage 2	-	-	-	-	354	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1093	-	-	-	354	606
Stage 1	-	-	-	-	645	-
Stage 2	-	-	-	-	715	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	848	-	-	-	212	468
Mov Cap-2 Maneuver	-	-	-	-	212	-
Stage 1	-	-	-	-	497	-
Stage 2	-	-	-	-	555	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.4	0		23.6		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	848	-	-	-	230	
HCM Lane V/C Ratio	0.006	-	-	-	0.16	
HCM Control Delay (s)	9.3	0	-	-	23.6	
HCM Lane LOS	A	A	-	-	C	
HCM 95th %tile Q(veh)	0	-	-	-	0.6	

Timings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	30	775	133	200	884	55	187	40	35	30
Future Volume (vph)	30	775	133	200	884	55	187	40	35	30
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	6.5	7.0	7.0	6.5	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	25.0	25.0	11.0	25.0	25.0	27.5	27.5	27.5	27.5
Total Split (s)	11.0	50.0	50.0	12.0	51.0	51.0	28.0	28.0	28.0	28.0
Total Split (%)	12.2%	55.6%	55.6%	13.3%	56.7%	56.7%	31.1%	31.1%	31.1%	31.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0		3.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	7.5	7.5		7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	52.0	45.5	45.5	55.6	51.1	51.1	20.3	20.3		20.3
Actuated g/C Ratio	0.58	0.51	0.51	0.62	0.57	0.57	0.23	0.23		0.23
v/c Ratio	0.15	0.88	0.19	0.91	0.89	0.07	0.86	0.11		0.27
Control Delay	9.4	31.1	5.2	50.6	30.7	5.0	66.8	28.0		26.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	9.4	31.1	5.2	50.6	30.7	5.0	66.8	28.0		26.2
LOS	A	C	A	D	C	A	E	C		C
Approach Delay		26.7			32.9			59.8		26.2
Approach LOS		C			C			E		C

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 32.8

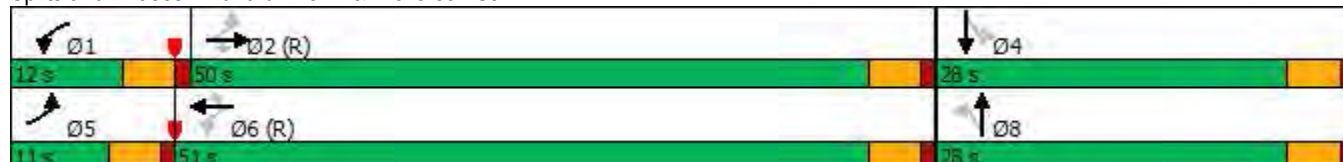
Intersection LOS: C

Intersection Capacity Utilization 84.8%

ICU Level of Service E











Analysis Period (min) 15

Splits and Phases: 6: 3rd Ave W & Nickerson St



Phasings
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Minimum Initial (s)	6.5	7.0	7.0	6.5	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	25.0	25.0	11.0	25.0	25.0	27.5	27.5	27.5	27.5
Total Split (s)	11.0	50.0	50.0	12.0	51.0	51.0	28.0	28.0	28.0	28.0
Total Split (%)	12.2%	55.6%	55.6%	13.3%	56.7%	56.7%	31.1%	31.1%	31.1%	31.1%
Maximum Green (s)	6.5	45.5	45.5	7.5	46.5	46.5	23.5	23.5	23.5	23.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	1.0	0.2	0.2	1.0	0.2	0.2	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)		50	50		28	28	83	83	160	160
90th %ile Green (s)	6.5	45.5	45.5	7.5	46.5	46.5	23.5	23.5	23.5	23.5
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Max	Hold	Hold
70th %ile Green (s)	6.5	45.5	45.5	7.5	46.5	46.5	23.5	23.5	23.5	23.5
70th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Max	Hold	Hold
50th %ile Green (s)	6.5	45.5	45.5	7.5	46.5	46.5	23.5	23.5	23.5	23.5
50th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Max	Hold	Hold
30th %ile Green (s)	0.0	45.5	45.5	8.0	58.0	58.0	23.0	23.0	23.0	23.0
30th %ile Term Code	Skip	Coord	Coord	Max	Coord	Coord	Ped	Ped	Ped	Ped
10th %ile Green (s)	0.0	45.5	45.5	8.0	58.0	58.0	23.0	23.0	23.0	23.0
10th %ile Term Code	Skip	Coord	Coord	Max	Coord	Coord	Hold	Hold	Ped	Ped

Intersection Summary

Cycle Length: 90










Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Control Type: Actuated-Coordinated

Queues
6: 3rd Ave W & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

									
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	32	833	143	215	951	59	201	44	92
v/c Ratio	0.15	0.88	0.19	0.91	0.89	0.07	0.86	0.11	0.27
Control Delay	9.4	31.1	5.2	50.6	30.7	5.0	66.8	28.0	26.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.4	31.1	5.2	50.6	30.7	5.0	66.8	28.0	26.2
Queue Length 50th (ft)	6	274	0	80	407	1	110	19	35
Queue Length 95th (ft)	m17	#640	50	m#139	#784	m8	#233	47	78
Internal Link Dist (ft)		79			214			74	171
Turn Bay Length (ft)	100			135		215			
Base Capacity (vph)	212	950	763	235	1067	856	237	406	344
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.88	0.19	0.91	0.89	0.07	0.85	0.11	0.27

Intersection Summary






















95th percentile volume exceeds capacity, queue may be longer.




Queue shown is maximum after two cycles.




m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary 6: 3rd Ave W & Nickerson St




2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	775	133	200	884	55	187	40	1	35	30	20
Future Volume (veh/h)	30	775	133	200	884	55	187	40	1	35	30	20
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		0.93	0.81		0.80	0.83		0.79
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1811	1811	1811	1900	1900	1900
Adj Flow Rate, veh/h	32	833	143	215	951	59	201	43	1	38	32	22
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	6	6	6	0	0	0
Cap, veh/h	216	991	800	302	1058	838	321	378	9	163	125	73
Arrive On Green	0.04	0.53	0.53	0.08	0.56	0.56	0.22	0.22	0.25	0.25	0.22	0.25
Sat Flow, veh/h	1795	1885	1522	1795	1885	1493	1060	1751	41	493	579	337
Grp Volume(v), veh/h	32	833	143	215	951	59	201	0	44	92	0	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1522	1795	1885	1493	1060	0	1792	1409	0	0
Q Serve(g_s), s	0.7	33.8	4.4	4.8	40.2	1.6	12.1	0.0	1.8	1.4	0.0	0.0
Cycle Q Clear(g_c), s	0.7	33.8	4.4	4.8	40.2	1.6	15.3	0.0	1.8	4.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.02	0.41		0.24
Lane Grp Cap(c), veh/h	216	991	800	302	1058	838	321	0	387	408	0	0
V/C Ratio(X)	0.15	0.84	0.18	0.71	0.90	0.07	0.63	0.00	0.11	0.23	0.00	0.00
Avail Cap(c_a), veh/h	274	991	800	317	1058	838	333	0	408	424	0	0
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.7	18.1	11.2	17.9	17.5	9.0	33.3	0.0	28.3	28.4	0.0	0.0
Incr Delay (d2), s/veh	0.1	8.6	0.5	5.7	12.0	0.2	2.5	0.0	0.0	0.1	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	0.3	16.1	1.6	2.8	19.5	0.5	4.4	0.0	0.8	1.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.8	26.7	11.7	23.6	29.5	9.2	35.8	0.0	28.4	28.5	0.0	0.0
LnGrp LOS	B	C	B	C	C	A	D	A	C	C	A	A
Approach Vol, veh/h		1008			1225			245			92	
Approach Delay, s/veh		24.3			27.5			34.5			28.5	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.3	51.8		26.9	8.1	55.0		26.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	7.5	45.5		23.5	6.5	46.5		23.5				
Max Q Clear Time (g_c+I1), s	6.8	35.8		6.2	2.7	42.2		18.3				
Green Ext Time (p_c), s	0.0	1.0		0.3	0.0	0.9		0.3				
Intersection Summary												
HCM 6th Ctrl Delay				26.9								
HCM 6th LOS				C								

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	135	0	0	0	93	225	70	5	220	139
Future Vol, veh/h	0	0	135	0	0	0	93	225	70	5	220	139
Conflicting Peds, #/hr	87	0	181	149	0	55	181	0	149	55	0	87
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	0	0	0
Mvmt Flow	0	0	141	0	0	0	97	234	73	5	229	145
Major/Minor	Minor2						Major1		Major2			
Conflicting Flow All	-	-	664				555	0	0	456	0	0
Stage 1	-	-	-				-	-	-	-	-	-
Stage 2	-	-	-				-	-	-	-	-	-
Critical Hdwy	-	-	6.2				4.13	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-				-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-				-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3				2.227	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	464				1010	-	-	1115	-	-
Stage 1	0	0	-				-	-	-	-	-	-
Stage 2	0	0	-				-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	0	318				836	-	-	1115	-	-
Mov Cap-2 Maneuver	-	0	-				-	-	-	-	-	-
Stage 1	-	0	-				-	-	-	-	-	-
Stage 2	-	0	-				-	-	-	-	-	-
Approach	EB						NB		SB			
HCM Control Delay, s	25						2.4		0.1			
HCM LOS	D											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR					
Capacity (veh/h)	836	-	-	318	1115	-	-					
HCM Lane V/C Ratio	0.116	-	-	0.442	0.005	-	-					
HCM Control Delay (s)	9.9	0	-	25	8.2	0	-					
HCM Lane LOS	A	A	-	D	A	A	-					
HCM 95th %tile Q(veh)	0.4	-	-	2.2	0	-	-					















Intersection						
Int Delay, s/veh	3.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	48	343	52	72	284
Future Vol, veh/h	33	48	343	52	72	284
Conflicting Peds, #/hr	126	40	0	126	40	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	93	93	93	93	93	93
Heavy Vehicles, %	8	8	4	4	0	0
Mvmt Flow	35	52	369	56	77	305
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1108	563	0	0	551	0
Stage 1	523	-	-	-	-	-
Stage 2	585	-	-	-	-	-
Critical Hdwy	6.48	6.28	-	-	4.1	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.2	-
Pot Cap-1 Maneuver	226	514	-	-	1029	-
Stage 1	583	-	-	-	-	-
Stage 2	545	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	157	435	-	-	906	-
Mov Cap-2 Maneuver	157	-	-	-	-	-
Stage 1	513	-	-	-	-	-
Stage 2	431	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	26.5	0	1.9			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	253	906	-	
HCM Lane V/C Ratio	-	-	0.344	0.085	-	
HCM Control Delay (s)	-	-	26.5	9.3	0	
HCM Lane LOS	-	-	D	A	A	
HCM 95th %tile Q(veh)	-	-	1.5	0.3	-	

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	94	5	85	10	312	103	49	259	10
Future Vol, veh/h	0	0	0	94	5	85	10	312	103	49	259	10
Conflicting Peds, #/hr	71	0	37	14	0	48	37	0	14	48	0	71
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	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	4	4	4	2	2	2
Mvmt Flow	0	0	0	96	5	87	10	318	105	50	264	10
Major/Minor												
Minor1				Major1				Major2				
Conflicting Flow All	822	884	467	345	0	0	471	0	0			
Stage 1	439	439	-	-	-	-	-	-	-	-	-	-
Stage 2	383	445	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2	4.14	-	-	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.4	5.5	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	2.236	-	-	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	346	286	600	1203	-	-	1091	-	-	-	-	-
Stage 1	654	582	-	-	-	-	-	-	-	-	-	-
Stage 2	694	578	-	-	-	-	-	-	-	-	-	-
Platoon blocked, %					-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	304	0	546	1203	-	-	1041	-	-	-	-	-
Mov Cap-2 Maneuver	304	0	-	-	-	-	-	-	-	-	-	-
Stage 1	617	0	-	-	-	-	-	-	-	-	-	-
Stage 2	645	0	-	-	-	-	-	-	-	-	-	-
Approach												
WB				NB				SB				
HCM Control Delay, s	22.9			0.2				1.3				
HCM LOS	C											
Minor Lane/Major Mvmt	NBL	NBT	NBRWBLn1	SBL	SBT	SBR						
Capacity (veh/h)	1203	-	-	385	1041	-	-					
HCM Lane V/C Ratio	0.008	-	-	0.488	0.048	-	-					
HCM Control Delay (s)	8	0	-	22.9	8.6	0	-					
HCM Lane LOS	A	A	-	C	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	2.6	0.2	-	-					

Intersection						
Int Delay, s/veh	3.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	90	45	36	337	287	67
Future Vol, veh/h	90	45	36	337	287	67
Conflicting Peds, #/hr	20	20	20	0	0	20
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	94	94	94	94	94	94
Heavy Vehicles, %	0	0	5	5	2	2
Mvmt Flow	96	48	38	359	305	71
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	816	381	396	0	-	0
Stage 1	361	-	-	-	-	-
Stage 2	455	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.15	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.245	-	-	-
Pot Cap-1 Maneuver	349	671	1146	-	-	-
Stage 1	710	-	-	-	-	-
Stage 2	643	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	322	646	1124	-	-	-
Mov Cap-2 Maneuver	322	-	-	-	-	-
Stage 1	667	-	-	-	-	-
Stage 2	631	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	19.7	0.8		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1124	-	387	-	-	
HCM Lane V/C Ratio	0.034	-	0.371	-	-	
HCM Control Delay (s)	8.3	0	19.7	-	-	
HCM Lane LOS	A	A	C	-	-	
HCM 95th %tile Q(veh)	0.1	-	1.7	-	-	

Timings
11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

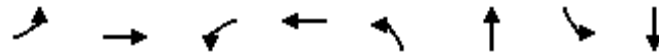
								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	824	19	1089	37	0	10	5
Future Volume (vph)	30	824	19	1089	37	0	10	5
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Detector Phase	2	2	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	17.5	17.5	17.5	17.5	24.5	24.5	24.5	24.5
Total Split (s)	65.0	65.0	65.0	65.0	25.0	25.0	25.0	25.0
Total Split (%)	72.2%	72.2%	72.2%	72.2%	27.8%	27.8%	27.8%	27.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	71.2	71.2	71.2	71.2		9.8		9.8
Actuated g/C Ratio	0.79	0.79	0.79	0.79		0.11		0.11
v/c Ratio	0.15	0.62	0.05	0.79		0.62		0.30
Control Delay	1.8	3.2	3.2	11.7		24.4		19.5
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	1.8	3.2	3.2	11.7		24.4		19.5
LOS	A	A	A	B		C		B
Approach Delay		3.2		11.5		24.4		19.5
Approach LOS		A		B		C		B
Intersection Summary								
Cycle Length: 90								
Actuated Cycle Length: 90								
Offset: 15 (17%), Referenced to phase 2:EBWB, Start of 1st Green								
Natural Cycle: 90								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.79								
Intersection Signal Delay: 9.2					Intersection LOS: A			
Intersection Capacity Utilization 82.0%					ICU Level of Service E			
Analysis Period (min) 15								

Splits and Phases: 11: W Cremona St & Nickerson St



Phasings
11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	17.5	17.5	17.5	17.5	24.5	24.5	24.5	24.5
Total Split (s)	65.0	65.0	65.0	65.0	25.0	25.0	25.0	25.0
Total Split (%)	72.2%	72.2%	72.2%	72.2%	27.8%	27.8%	27.8%	27.8%
Maximum Green (s)	60.5	60.5	60.5	60.5	20.5	20.5	20.5	20.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	6.0	6.0	6.0	6.0	13.0	13.0	13.0	13.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0
90th %ile Green (s)	65.5	65.5	65.5	65.5	15.5	15.5	15.5	15.5
90th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Gap	Gap
70th %ile Green (s)	69.7	69.7	69.7	69.7	11.3	11.3	11.3	11.3
70th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Gap	Gap
50th %ile Green (s)	72.7	72.7	72.7	72.7	8.3	8.3	8.3	8.3
50th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Gap	Gap
30th %ile Green (s)	74.0	74.0	74.0	74.0	7.0	7.0	7.0	7.0
30th %ile Term Code	Coord	Coord	Coord	Coord	Min	Min	Min	Min
10th %ile Green (s)	74.0	74.0	74.0	74.0	7.0	7.0	7.0	7.0
10th %ile Term Code	Coord	Coord	Coord	Coord	Min	Min	Min	Min

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 15 (17%), Referenced to phase 2:EBWB, Start of 1st Green

Control Type: Actuated-Coordinated

Queues
11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	32	911	20	1175	150	59
v/c Ratio	0.15	0.62	0.05	0.79	0.62	0.30
Control Delay	1.8	3.2	3.2	11.7	24.4	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.8	3.2	3.2	11.7	24.4	19.5
Queue Length 50th (ft)	1	25	2	247	21	9
Queue Length 95th (ft)	m2	m38	9	#702	m70	41
Internal Link Dist (ft)		409		773	14	101
Turn Bay Length (ft)	30		30			
Base Capacity (vph)	213	1458	386	1483	387	361
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.62	0.05	0.79	0.39	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.



















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

11: W Cremona St & Nickerson St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	824	32	19	1089	15	37	0	104	10	5	40
Future Volume (vph)	30	824	32	19	1089	15	37	0	104	10	5	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			4.5			4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.93			0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.98			0.99	
Frt	1.00	0.99		1.00	1.00			0.90			0.90	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1844		1787	1875			1426			1615	
Flt Permitted	0.14	1.00		0.26	1.00			0.92			0.88	
Satd. Flow (perm)	269	1844		488	1875			1328			1440	
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)	32	877	34	20	1159	16	39	0	111	11	5	43
RTOR Reduction (vph)	0	1	0	0	0	0	0	99	0	0	38	0
Lane Group Flow (vph)	32	910	0	20	1175	0	0	51	0	0	21	0
Confl. Peds. (#/hr)	17		29	36		24	29		36	24		17
Confl. Bikes (#/hr)			3			3						
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	8%	8%	8%	0%	0%	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)	71.2	71.2		71.2	71.2			9.8			9.8	
Effective Green, g (s)	71.2	71.2		71.2	71.2			9.8			9.8	
Actuated g/C Ratio	0.79	0.79		0.79	0.79			0.11			0.11	
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)	212	1458		386	1483			144			156	
v/s Ratio Prot		0.49			c0.63							
v/s Ratio Perm	0.12			0.04				c0.04			0.01	
v/c Ratio	0.15	0.62		0.05	0.79			0.35			0.13	
Uniform Delay, d1	2.2	3.9		2.0	5.3			37.2			36.3	
Progression Factor	0.25	0.41		1.00	1.00			1.07			1.00	
Incremental Delay, d2	0.9	1.2		0.3	4.4			1.5			0.4	
Delay (s)	1.5	2.8		2.3	9.7			41.4			36.6	
Level of Service	A	A		A	A			D			D	
Approach Delay (s)		2.8			9.5			41.4			36.6	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			9.6			HCM 2000 Level of Service			A			
HCM 2000 Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			82.0%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Int Delay, s/veh 5.9

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 98 30 30 48 32 24

Future Vol, veh/h 98 30 30 48 32 24

Conflicting Peds, #/hr 43 51 51 0 0 43

Sign Control Free Free Stop Stop Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 1 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 93 93 93 93 93 93

Heavy Vehicles, % 5 5 0 0 11 11

Mvmt Flow 105 32 32 52 34 26

Major/Minor Minor2 Major2

Conflicting Flow All 141 90 - 0

Stage 1 90 90 - -

Stage 2 51 0 - -

Critical Hdwy 6.4 6.5 - -

Critical Hdwy Stg 1 5.4 5.5 - -

Critical Hdwy Stg 2 - - - -

Follow-up Hdwy 3.5 4 - -

Pot Cap-1 Maneuver 857 804 - -

Stage 1 939 824 - -

Stage 2 - - - -

Platoon blocked, % - -

Mov Cap-1 Maneuver 788 0 - -

Mov Cap-2 Maneuver 788 0 - -

Stage 1 901 0 - -

Stage 2 - 0 - -

Approach NB SB

HCM Control Delay, s 10.1 0

HCM LOS B

Minor Lane/Major Mvmt NBLn1 SBT SBR

Capacity (veh/h) 788 - -

HCM Lane V/C Ratio 0.106 - -

HCM Control Delay (s) 10.1 - -

HCM Lane LOS B - -



















HCM 95th %tile Q(veh) 0.4 - -

Timings

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour

												
Lane Group	EBL2	EBT	WBL2	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SEL	SET
Lane Configurations												
Traffic Volume (vph)	5	0	5	5	215	421	25	5	40	5	5	990
Future Volume (vph)	5	0	5	5	215	421	25	5	40	5	5	990
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases		3			3			4		4		2
Permitted Phases	3		3	3		3	4		4		2	
Detector Phase	3	3	3	3	3	3	4	4	4	4	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	22.0	22.0
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	29.0	29.0	29.0	29.0	63.0	63.0
Total Split (%)	26.4%	26.4%	26.4%	26.4%	26.4%	26.4%	20.7%	20.7%	20.7%	20.7%	45.0%	45.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.0
Lost Time Adjust (s)		0.0			0.0	0.0		3.0		3.0		3.0
Total Lost Time (s)		6.5			6.5	6.5		9.5		9.5		9.0
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	C-Max	C-Max
Act Effect Green (s)		30.5			30.5	30.5		19.0		19.0		65.5
Actuated g/C Ratio		0.22			0.22	0.22		0.14		0.14		0.47
v/c Ratio		0.82			1.06	1.10		0.36		0.35		0.70
Control Delay		77.8			117.1	112.6		10.5		58.5		32.4
Queue Delay		31.5			0.0	0.0		0.1		0.0		0.1
Total Delay		109.3			117.1	112.6		10.5		58.5		32.5
LOS		F			F	F		B		E		C
Approach Delay		109.3			115.0			10.5		58.5		32.5
Approach LOS		F			F			B		E		C

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 112 (80%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 76.6

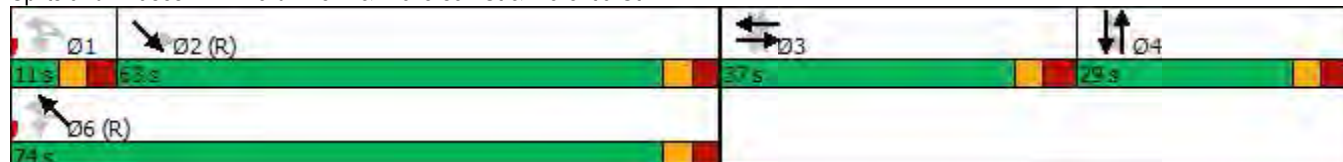
Intersection LOS: E

Intersection Capacity Utilization 124.5%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 14: 3rd Ave N & Nickerson St & Florentia St



Timings
14: 3rd Ave N & Nickerson St & Florentia St













2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	NWL2	NWL	NWT	Ø1
Lane Configurations				
Traffic Volume (vph)	15	75	760	
Future Volume (vph)	15	75	760	
Turn Type	custom	custom	NA	
Protected Phases			6	1
Permitted Phases	1 6	1 6		
Detector Phase	1 6	1 6	6	
Switch Phase				
Minimum Initial (s)			7.0	5.0
Minimum Split (s)			24.0	11.0
Total Split (s)			74.0	11.0
Total Split (%)			52.9%	8%
Yellow Time (s)			3.0	3.0
All-Red Time (s)			3.0	3.0
Lost Time Adjust (s)			3.0	
Total Lost Time (s)			9.0	
Lead/Lag				Lead
Lead-Lag Optimize?				Yes
Recall Mode			C-Max	None
Act Effct Green (s)			65.5	
Actuated g/C Ratio			0.47	
v/c Ratio			1.00	
Control Delay			65.4	
Queue Delay			35.6	
Total Delay			101.0	
LOS			F	
Approach Delay			101.0	
Approach LOS			F	
Intersection Summary				

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Lane Group	EBL2	EBT	WBL2	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SEL	SET
Protected Phases	3			3			4			4		2
Permitted Phases	3		3	3	3	3	4		4		2	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5	13.5	13.5	13.5	13.5	13.5	28.5	28.5	28.5	28.5	22.0	22.0
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	29.0	29.0	29.0	29.0	63.0	63.0
Total Split (%)	26.4%	26.4%	26.4%	26.4%	26.4%	26.4%	20.7%	20.7%	20.7%	20.7%	45.0%	45.0%
Maximum Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.5	22.5	22.5	22.5	57.0	57.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.0
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (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
Time To Reduce (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
Recall Mode	None	None	None	None	None	None	None	None	None	None	C-Max	C-Max
Walk Time (s)							8.0	8.0	8.0	8.0	7.0	7.0
Flash Dont Walk (s)							14.0	14.0	14.0	14.0	9.0	9.0
Pedestrian Calls (#/hr)							81	81	81	81	75	75
90th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
70th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
70th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
50th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
50th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
30th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
30th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord
10th %ile Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	22.0	22.0	22.0	22.0	68.5	68.5
10th %ile Term Code	Max	Max	Max	Max	Max	Max	Ped	Ped	Ped	Ped	Coord	Coord

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 112 (80%), Referenced to phase 2:SETL and 6:NWTL, Start of 1st Green

Control Type: Actuated-Coordinated

Phasings
14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour



Lane Group	NWL2	NWL	NWT	Ø1
Protected Phases			6	1
Permitted Phases	1 6	1 6		
Minimum Initial (s)			7.0	5.0
Minimum Split (s)			24.0	11.0
Total Split (s)			74.0	11.0
Total Split (%)			52.9%	8%
Maximum Green (s)			68.0	5.0
Yellow Time (s)			3.0	3.0
All-Red Time (s)			3.0	3.0
Lead/Lag				Lead
Lead-Lag Optimize?				Yes
Vehicle Extension (s)			2.0	2.0
Minimum Gap (s)			0.2	0.2
Time Before Reduce (s)			0.0	0.0
Time To Reduce (s)			0.0	0.0
Recall Mode			C-Max	None
Walk Time (s)			7.0	
Flash Dont Walk (s)			9.0	
Pedestrian Calls (#/hr)			174	
90th %ile Green (s)			68.5	0.0
90th %ile Term Code			Coord	Skip
70th %ile Green (s)			68.5	0.0
70th %ile Term Code			Coord	Skip
50th %ile Green (s)			68.5	0.0
50th %ile Term Code			Coord	Skip
30th %ile Green (s)			68.5	0.0
30th %ile Term Code			Coord	Skip
10th %ile Green (s)			68.5	0.0
10th %ile Term Code			Coord	Skip
Intersection Summary				

Queues

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT	SET	NWT
Lane Group Flow (vph)	201	372	335	108	58	1091	924
v/c Ratio	0.82	1.06	1.10	0.36	0.35	0.70	1.00
Control Delay	77.8	117.1	112.6	10.5	58.5	32.4	65.4
Queue Delay	31.5	0.0	0.0	0.1	0.0	0.1	35.6
Total Delay	109.3	117.1	112.6	10.5	58.5	32.5	101.0
Queue Length 50th (ft)	176	~391	~266	0	46	404	~455
Queue Length 95th (ft)	#309	#606	#476	46	94	486	#596
Internal Link Dist (ft)	413	299		354	158	814	375
Turn Bay Length (ft)							
Base Capacity (vph)	246	350	305	302	171	1567	926
Starvation Cap Reductn	0	0	0	0	0	0	104
Spillback Cap Reductn	49	0	0	7	0	47	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.02	1.06	1.10	0.37	0.34	0.72	1.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

















95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL2	EBT	EBR	WBL2	WBL	WBT	WBR	WBR2	NBL	NBT	NBR2	SBL
Lane Configurations												
Traffic Volume (vph)	5	0	180	5	5	215	421	5	25	5	70	40
Future Volume (vph)	5	0	180	5	5	215	421	5	25	5	70	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5				6.5	6.5			9.5		
Lane Util. Factor		1.00				0.95	0.95			1.00		
Frpb, ped/bikes		0.94				0.96	0.64			0.94		
Flpb, ped/bikes		1.00				1.00	1.00			0.98		
Frt		0.87				0.95	0.85			0.91		
Flt Protected		1.00				1.00	1.00			0.99		
Satd. Flow (prot)		1546				1626	967			1570		
Flt Permitted		0.73				0.99	1.00			0.90		
Satd. Flow (perm)		1133				1611	967			1425		
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)	5	0	196	5	5	234	458	5	27	5	76	43
RTOR Reduction (vph)	0	0	0	0	0	0	95	0	0	93	0	0
Lane Group Flow (vph)	0	201	0	0	0	372	240	0	0	15	0	0
Confl. Peds. (#/hr)	44		37	37	44		44	67	44		37	37
Confl. Bikes (#/hr)			1				37	37				
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	0%	0%	0%	2%
Turn Type	Perm	NA		Perm	Perm	NA	Perm		Perm	NA		Perm
Protected Phases		3				3				4		
Permitted Phases	3			3	3		3		4			4
Actuated Green, G (s)		30.5				30.5	30.5			22.0		
Effective Green, g (s)		30.5				30.5	30.5			19.0		
Actuated g/C Ratio		0.22				0.22	0.22			0.14		
Clearance Time (s)		6.5				6.5	6.5			6.5		
Vehicle Extension (s)		2.0				2.0	2.0			2.0		
Lane Grp Cap (vph)		246				350	210			193		
v/s Ratio Prot												
v/s Ratio Perm		0.18				0.23	0.25			0.01		
v/c Ratio		0.82				1.06	1.14			0.08		
Uniform Delay, d1		52.1				54.8	54.8			52.8		
Progression Factor		1.00				1.00	1.00			1.00		
Incremental Delay, d2		17.7				65.7	106.5			0.1		
Delay (s)		69.8				120.5	161.3			52.9		
Level of Service		E				F	F			D		
Approach Delay (s)		69.8				139.8				52.9		
Approach LOS		E				F				D		
Intersection Summary												
HCM 2000 Control Delay			70.4			HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				31.0		
Intersection Capacity Utilization			124.5%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 3rd Ave N & Nickerson St & Florentia St

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

	↓	↙	↘	↗	↖	↗	↖	↘	↙	↗
Movement	SBT	SBR	SBR2	SEL	SET	SER	SER2	NWL2	NWL	NWT
Lane Configurations	↕				↕					↕
Traffic Volume (vph)	5	5	5	5	990	5	5	15	75	760
Future Volume (vph)	5	5	5	5	990	5	5	15	75	760
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.5				9.0					9.0
Lane Util. Factor	1.00				0.95					0.95
Frpb, ped/bikes	0.97				1.00					1.00
Flpb, ped/bikes	0.96				1.00					1.00
Frt	0.98				1.00					1.00
Flt Protected	0.96				1.00					0.99
Satd. Flow (prot)	1629				3522					3555
Flt Permitted	0.72				0.95					0.55
Satd. Flow (perm)	1214				3349					1980
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	5	5	5	1076	5	5	16	82	826
RTOR Reduction (vph)	3	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	55	0	0	0	1091	0	0	0	0	924
Confl. Peds. (#/hr)		31	44	107		44	31	44	31	
Confl. Bikes (#/hr)		11	11			2	2			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	NA			Perm	NA			custom	custom	NA
Protected Phases	4				2					6
Permitted Phases				2				1 6	1 6	
Actuated Green, G (s)	22.0				68.5					68.5
Effective Green, g (s)	19.0				65.5					65.5
Actuated g/C Ratio	0.14				0.47					0.47
Clearance Time (s)	6.5				6.0					6.0
Vehicle Extension (s)	2.0				3.0					2.0
Lane Grp Cap (vph)	164				1566					926
v/s Ratio Prot										
v/s Ratio Perm	c0.05				0.33					c0.47
v/c Ratio	0.34				0.70					1.00
Uniform Delay, d1	54.8				29.4					37.2
Progression Factor	1.00				1.00					1.08
Incremental Delay, d2	0.4				2.6					25.6
Delay (s)	55.2				32.0					65.7
Level of Service	E				C					E
Approach Delay (s)	55.2				32.0					65.7
Approach LOS	E				C					E
Intersection Summary										

Intersection

Int Delay, s/veh 0

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 7 7 7 7 7 7

Traffic Vol, veh/h 0 5 0 1968 540 646

Future Vol, veh/h 0 5 0 1968 540 646

Conflicting Peds, #/hr 75 74 74 0 0 75

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 97 97 97 97 97 97

Heavy Vehicles, % 0 0 2 2 2 2

Mvmt Flow 0 5 0 2029 557 666

Major/Minor Minor2 Major1 Major2

Conflicting Flow All - 761 - 0 - 0

Stage 1 - - - - - -

Stage 2 - - - - - -

Critical Hdwy - 6.9 - - - -

Critical Hdwy Stg 1 - - - - - -

Critical Hdwy Stg 2 - - - - - -

Follow-up Hdwy - 3.3 - - - -

Pot Cap-1 Maneuver 0 352 0 - - -

Stage 1 0 - 0 - - -

Stage 2 0 - 0 - - -

Platoon blocked, % - - - - - -

Mov Cap-1 Maneuver - 304 - - - -

Mov Cap-2 Maneuver - - - - - -

Stage 1 - - - - - -

Stage 2 - - - - - -

Approach EB NB SB

HCM Control Delay, s 17 0 0

HCM LOS C

Minor Lane/Major Mvmt NBT EBLn1 SBT SBR

Capacity (veh/h) - 304 - -

HCM Lane V/C Ratio - 0.017 - -

HCM Control Delay (s) - 17 - -

HCM Lane LOS - C - -

HCM 95th %tile Q(veh) - 0.1 - -

Timings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	←←	→	←←	←←	←	←→	←←	→
Traffic Volume (vph)	853	269	517	790	223	330	320	115
Future Volume (vph)	853	269	517	790	223	330	320	115
Turn Type	Prot	NA	NA	custom	Split	NA	Split	NA
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Detector Phase	4	1 4	1	5	3	3	2	2
Switch Phase								
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	30.0		37.0	73.0	37.0	37.0	36.0	36.0
Total Split (%)	21.4%		26.4%	52.1%	26.4%	26.4%	25.7%	25.7%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		5.5	5.5	6.5	6.5	5.5	5.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Recall Mode	None		Max	C-Max	None	None	C-Max	C-Max
Act Effct Green (s)	26.9	64.9	31.5	67.5	27.1	27.1	30.5	30.5
Actuated g/C Ratio	0.19	0.46	0.22	0.48	0.19	0.19	0.22	0.22
v/c Ratio	1.33	0.55	0.68	0.86	0.68	0.51	0.45	0.64
Control Delay	199.6	52.1	54.6	39.5	62.2	52.5	49.9	51.3
Queue Delay	0.0	8.3	1.3	0.0	0.0	0.0	0.0	92.1
Total Delay	199.6	60.4	55.8	39.5	62.2	52.5	49.9	143.4
LOS	F	E	E	D	E	D	D	F
Approach Delay		152.7	46.0			56.4		89.0
Approach LOS		F	D			E		F

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 89 (64%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.33

Intersection Signal Delay: 91.0

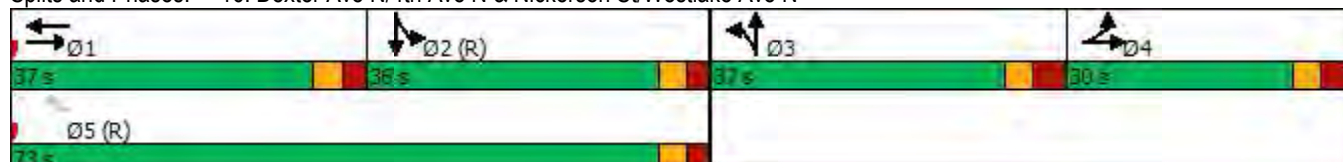
Intersection LOS: F

Intersection Capacity Utilization 107.5%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N



Phasings

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Protected Phases	4	1 4	1		3	3	2	2
Permitted Phases				5				
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.5		36.5	12.5	36.5	36.5	35.5	35.5
Total Split (s)	30.0		37.0	73.0	37.0	37.0	36.0	36.0
Total Split (%)	21.4%		26.4%	52.1%	26.4%	26.4%	25.7%	25.7%
Maximum Green (s)	23.5		31.5	67.5	30.5	30.5	30.5	30.5
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5		2.5	2.5	3.5	3.5	2.5	2.5
Lead/Lag	Lag		Lead		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2		0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None		Max	C-Max	None	None	C-Max	C-Max
Walk Time (s)			9.0		8.0	8.0	8.0	8.0
Flash Dont Walk (s)			22.0		22.0	22.0	22.0	22.0
Pedestrian Calls (#/hr)			46		48	48	17	17
90th %ile Green (s)	23.5		31.5	67.5	30.5	30.5	30.5	30.5
90th %ile Term Code	Max		MaxR	Coord	Max	Max	Coord	Coord
70th %ile Green (s)	24.0		31.5	67.5	30.0	30.0	30.5	30.5
70th %ile Term Code	Max		MaxR	Coord	Ped	Ped	Coord	Coord
50th %ile Green (s)	24.0		31.5	67.5	30.0	30.0	30.5	30.5
50th %ile Term Code	Max		MaxR	Coord	Ped	Ped	Coord	Coord
30th %ile Green (s)	24.0		31.5	67.5	30.0	30.0	30.5	30.5
30th %ile Term Code	Max		MaxR	Coord	Ped	Ped	Coord	Coord
10th %ile Green (s)	39.1		31.5	67.5	14.9	14.9	30.5	30.5
10th %ile Term Code	Max		MaxR	Coord	Gap	Gap	Coord	Coord

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 89 (64%), Referenced to phase 2:SBTL and 5:WBR, Start of 1st Green

Control Type: Actuated-Coordinated

Queues

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS

Proposed MIMP (2035) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	889	451	539	823	232	349	333	240
v/c Ratio	1.33	0.55	0.68	0.86	0.68	0.51	0.45	0.64
Control Delay	199.6	52.1	54.6	39.5	62.2	52.5	49.9	51.3
Queue Delay	0.0	8.3	1.3	0.0	0.0	0.0	0.0	92.1
Total Delay	199.6	60.4	55.8	39.5	62.2	52.5	49.9	143.4
Queue Length 50th (ft)	~583	404	237	341	193	146	137	173
Queue Length 95th (ft)	#727	m491	303	459	284	197	186	269
Internal Link Dist (ft)		375	150			693		176
Turn Bay Length (ft)				200				
Base Capacity (vph)	666	821	796	957	385	767	733	377
Starvation Cap Reductn	0	326	0	0	0	0	0	0
Spillback Cap Reductn	0	0	105	0	0	0	0	320
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.33	0.91	0.78	0.86	0.60	0.46	0.45	4.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.





















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

16: Dexter Ave N/4th Ave N & Nickerson St/Westlake Ave N

2020 SPU MIMP EIS
Proposed MIMP (2035) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	853	269	164	0	517	790	223	330	5	320	115	115
Future Volume (vph)	853	269	164	0	517	790	223	330	5	320	115	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	5.5			5.5	5.5	6.5	6.5		5.5	5.5	
Lane Util. Factor	0.97	1.00			0.95	0.88	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	0.98			1.00	0.68	1.00	1.00		1.00	0.96	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.94			1.00	0.85	1.00	1.00		1.00	0.93	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3467	1740			3539	1903	1770	3520		3367	1616	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3467	1740			3539	1903	1770	3520		3367	1616	
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)	889	280	171	0	539	823	232	344	5	333	120	120
RTOR Reduction (vph)	0	16	0	0	0	40	0	1	0	0	26	0
Lane Group Flow (vph)	889	435	0	0	539	783	232	348	0	333	214	0
Confl. Peds. (#/hr)	17		29	29		17	17		48	48		17
Confl. Bikes (#/hr)			2			371			156			53
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot	NA			NA	custom	Split	NA		Split	NA	
Protected Phases	4	1 4			1		3	3		2	2	
Permitted Phases						5						
Actuated Green, G (s)	26.9	64.9			31.5	67.5	27.1	27.1		30.5	30.5	
Effective Green, g (s)	26.9	58.4			31.5	67.5	27.1	27.1		30.5	30.5	
Actuated g/C Ratio	0.19	0.42			0.22	0.48	0.19	0.19		0.22	0.22	
Clearance Time (s)	6.5				5.5	5.5	6.5	6.5		5.5	5.5	
Vehicle Extension (s)	3.0				2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	666	725			796	917	342	681		733	352	
v/s Ratio Prot	c0.26	0.25			0.15		c0.13	0.10		0.10	0.13	
v/s Ratio Perm						c0.41						
v/c Ratio	1.33	0.60			0.68	0.85	0.68	0.51		0.45	0.61	
Uniform Delay, d1	56.5	31.7			49.6	31.9	52.4	50.5		47.5	49.4	
Progression Factor	0.97	1.89			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	158.1	1.0			4.6	9.9	4.2	0.3		2.0	7.6	
Delay (s)	213.0	60.8			54.2	41.8	56.6	50.8		49.6	57.0	
Level of Service	F	E			D	D	E	D		D	E	
Approach Delay (s)		161.8			46.7			53.1			52.7	
Approach LOS		F			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			88.5				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			107.5%				ICU Level of Service			G		
Analysis Period (min)			15									
c Critical Lane Group												

Appendix H Queuing Analysis

#	Intersection	Existing				NA 2031				NA 2035				Proposed MIMP 2035				Alt 2 2035				Alt 3 2035				Alt 4 2035				Alt 5 2035			
		AM		PM		AM		PM		AM		PM		AM		PM		AM		PM		AM		PM		AM		PM		AM		PM	
		Available Storage (ft)	95th Percentile Queue (ft)	Available Storage (ft)	95th Percentile Queue (ft)	Available Storage (ft)	95th Percentile Queue (ft)	Available Storage (ft)	95th Percentile Queue (ft)	Available Storage (ft)	95th Percentile Queue (ft)	Available Storage (ft)	95th Percentile Queue (ft)	Available Storage (ft)	95th Percentile Queue (ft)	Available Storage (ft)	95th Percentile Queue (ft)	Available Storage (ft)	95th Percentile Queue (ft)	Available Storage (ft)	95th Percentile Queue (ft)	Available Storage (ft)	95th Percentile Queue (ft)	Available Storage (ft)	95th Percentile Queue (ft)	Available Storage (ft)	95th Percentile Queue (ft)	Available Storage (ft)	95th Percentile Queue (ft)	Available Storage (ft)	95th Percentile Queue (ft)	Available Storage (ft)	95th Percentile Queue (ft)
1	6th/Nickerson																																
	Eastbound Left	500	0	500	0	500	2.5	500	0	500	2.5	500	0	500	2.5	500	2.5	500	5	500	5	500	5	500	5	500	5	500	5	500	5	500	5
	Eastbound Through/Right	860	0	860	0	860	0	860	0	860	0	860	0	860	0	860	0	800	0	800	0	800	0	800	0	800	0	800	0	800	0	800	0
	Westbound Left	750	2.5	750	0	750	2.5	750	0	750	2.5	750	0	750	2.5	750	0	750	5	750	5	750	5	750	5	750	5	750	5	750	5	750	5
	Westbound Through/Right	850	0	850	0	850	0	850	0	850	0	850	0	850	0	850	0	850	0	850	0	850	0	850	0	850	0	850	0	850	0	850	0
	Northbound Left/Through/Right	270	32.5	270	50	270	55	270	82.5	270	60	270	82.5	270	90	270	197.5	270	65	270	120	270	70	270	145	270	65	270	120	270	85	270	195
2	6th/Emerson																																
	Eastbound Left/Through/Right	500	5	500	2.5	500	5	500	2.5	500	5	500	2.5	500	5	500	2.5	500	5	500	5	500	5	500	5	500	5	500	5	500	5	500	5
	Westbound Left/Through/Right	300	2.5	300	5	300	2.5	300	5	300	2.5	300	5	300	-	300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Northbound Left/Through/Right	100	2.5	100	5	100	2.5	100	5	100	2.5	100	5	100	5	100	10	100	5	100	10	100	5	100	10	100	5	100	10	100	5	100	10
	Southbound Left/Through/Right	270	5	270	5	270	5	270	5	270	5	270	5	270	7.5	270	7.5	270	5	270	5	270	5	270	5	270	5	270	5	270	5	270	10
3	6th/Bertona																																
	Eastbound Left/Through/Right	260	0	260	0	260	0	260	0	260	0	260	0	260	0	260	2.5	260	0	260	5	260	0	260	5	260	0	260	5	260	0	260	5
	Westbound Left/Through/Right	280	0	280	0	280	0	280	0	280	0	280	0	280	0	280	0	500	0	500	0	500	0	500	0	500	0	500	0	280	0	280	0
	Northbound Left/Through/Right	150	2.5	150	10	150	2.5	150	12.5	150	2.5	150	12.5	150	5	150	17.5	150	0	150	10	150	0	150	5	150	0	150	5	150	5	150	15
	Southbound Left/Through/Right	100	7.5	100	7.5	100	10	100	7.5	100	10	100	7.5	100	12.5	100	12.5	100	5	100	10	100	10	100	10	100	10	100	10	100	10	100	15
4	6th/Dravus																																
	Eastbound Left/Through/Right	400	5	400	2.5	400	5	400	2.5	400	5	400	2.5	400	5	400	2.5	400	5	400	5	400	5	400	5	400	5	400	5	400	5	400	5
	Westbound Left/Through/Right	500	2.5	500	5	500	2.5	500	7.5	500	2.5	500	7.5	500	2.5	500	7.5	500	5	500	10	500	5	500	10	500	5	500	10	500	5	500	10
	Northbound Left/Through/Right	500	0	500	0	500	0	500	0	500	0	500	0	500	0	500	2.5	500	0	500	5	500	0	500	5	500	0	500	5	500	0	500	5
	Southbound Left/Through/Right	400	2.5	400	2.5	400	2.5	400	2.5	400	2.5	400	2.5	400	0	400	0	400	0	400	0	400	0	400	0	400	0	400	0	400	5	400	5
5	Bertona/Emerson																																
	Eastbound Through/Left	250	0	250	0	250	0	250	0	250	0	250	0	250	-	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Westbound Through/Right	500	0	500	0	500	0	500	0	500	0	500	0	500	-	500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Southbound Left/Right	275	0	275	12.5	275	0	275	17.5	275	0	275	17.5	275	-	275	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	3rd/Nickerson																																
	Eastbound Left	150	5	150	15	150	10	150	20	150	10	150	20	150	10	150	20	150	10	150	20	150	10	150	20	150	10	150	20	150	10	150	20
	Eastbound Through	860	455	860	445	860	640	860	470	860	680	860	495	860	710	860	535	800	695	800	500	800	705	800	545	800	695	800	510	800	700	800	530
	Eastbound Right	240	20	240	30	240	20	240	30	240	20	240	30	240	30	240	35	240	30	240	35	240	30	240	35	240	30	240	35	240	30	240	35
	Westbound Left	130	28	130	75	130	30	130	90	130	35	130	105	130	35	130	135	130	35	130	105	130	35	130	140	130	35	130	110	130	35	130	120
	Westbound Through	860	365	860	675	860	335	860	730	860	370	860	770	860	435	860	785	860	370	860	775	860	445	860	780	860	405	860	775	860	420	860	780
	Westbound Right	150	1	150	10	150	5	150	10	150	5	150	15	150	5	150	15	150	5	150	15	150	5	150	15	150	5	150	15	150	5	150	15
	Northbound Through/Right /Left (No Left in Mit)	80	120	80	150	80	130	80	165	80	140	80	175	80	155	80	245	80	150	80	255	80											

#	Intersection	Proposed MIMP 2035 Mit				Alt 2 2035 Mit				Alt 3 2035 Mit				Alt 4 2035 Mit				Alt 5 2035 Mit				
		AM		PM		AM		PM		AM		PM		AM		PM		AM		PM		
		Available Storage (ft)	95th Percentile Queue (ft)	Available Storage (ft)	95th Percentile Queue (ft)	Available Storage (ft)	95th Percentile Queue (ft)	Available Storage (ft)	95th Percentile Queue (ft)	Available Storage (ft)	95th Percentile Queue (ft)	Available Storage (ft)	95th Percentile Queue (ft)	Available Storage (ft)	95th Percentile Queue (ft)	Available Storage (ft)	95th Percentile Queue (ft)	Available Storage (ft)	95th Percentile Queue (ft)	Available Storage (ft)	95th Percentile Queue (ft)	
1	6th/Nickerson																					
	Eastbound Left	500	10	500	5	500	5	500	5	500	10	500	10	500	10	500	5	500	10	500	5	
	Eastbound Through/Right	860	745	860	415	860	760	860	395	860	745	860	430	860	760	860	395	860	760	860	425	
	Westbound Left	750	10	750	15	750	0	750	5	750	0	750	5	750	5	750	5	750	5	750	5	
	Westbound Through/Right	850	320	850	865	850	110	850	725	850	115	850	275	850	100	850	725	850	95	850	745	
	Northbound Left/Through/Right	270	75	270	80	270	75	270	85	270	75	270	80	270	75	270	85	270	80	270	100	
2	6th/Emerson																					
	Southbound Left/Through/Right	210	40	210	125	210	0	210	45	210	5	210	130	210	5	210	55	210	5	210	75	
	Eastbound Left/Through/Right	500	5	500	5	500	10	500	5	500	5	500	5	500	5	500	5	500	5	500	5	
	Westbound Left/Through/Right	300	-	300	-	300	0	300	0	300	0	300	0	300	0	300	0	300	5	300	5	
	Northbound Left/Through/Right	100	0	100	0	100	20	100	30	100	20	100	30	100	20	100	30	100	20	100	30	
	Southbound Left/Through/Right	270	0	270	0	270	10	270	5	270	5	270	5	270	5	270	5	270	5	270	10	
3	6th/Bertona																					
	Eastbound Left/Through/Right	260	10	260	12.5	260	10	260	15	260	10	260	15	260	10	260	15	260	10	260	15	
	Westbound Left/Through/Right	280	0	280	0	280	0	280	0	280	0	280	0	280	0	280	0	280	0	280	0	
	Northbound Left/Through/Right	150	7.5	150	22.5	150	0	150	5	150	0	150	5	150	0	150	5	150	5	150	20	
	Southbound Left/Through/Right	100	17.5	100	17.5	100	15	100	15	100	10	100	15	100	15	100	15	100	15	100	20	
	Eastbound Left/Through/Right	400	5	400	2.5	400	5	400	5	400	5	400	5	400	5	400	5	400	5	400	5	
4	6th/Dravus																					
	Westbound Left/Through/Right	500	2.5	500	7.5	500	5	500	10	500	5	500	10	500	5	500	10	500	5	500	15	
	Northbound Left/Through/Right	500	0	500	2.5	500	0	500	5	500	0	500	5	500	0	500	5	500	0	500	5	
	Southbound Left/Through/Right	400	0	400	0	400	0	400	0	400	0	400	0	400	0	400	0	400	5	400	5	
	Eastbound Through/Left	250	-	250	-	250	-	250	-	250	-	250	-	250	-	250	-	250	0	250	0	
	Westbound Through/Right	500	-	500	-	500	-	500	-	500	-	500	-	500	-	500	-	500	0	500	0	
5	Bertona/Emerson																					
	Southbound Left/Right	275	-	275	-	275	-	275	-	275	-	275	-	275	-	275	-	275	5	275	15	
	Eastbound Left/Through/Right	500	15	500	60	500	15	500	60	500	10	500	55	500	15	500	55	500	10	500	55	
	Northbound Through/Right	270	0	270	0	270	0	270	0	270	0	270	0	270	0	270	0	270	0	270	0	
	Northbound Left	100	2.5	100	10	100	5	100	10	100	5	100	10	100	5	100	10	100	5	100	10	
	Southbound Left/Through/Right	80	0	80	0	80	0	80	0	80	0	80	0	80	0	80	0	80	0	80	0	
6	3rd/Nickerson																					
	Eastbound Left	150	5	150	15	150	5	150	15	150	5	150	15	150	5	150	15	150	5	150	15	
	Eastbound Through	860	860	860	640	860	855	860	445	860	855	860	660	860	850	860	615	860	860	860	640	
	Eastbound Right	240	35	240	45	240	40	240	45	240	35	240	65	240	40	240	45	240	35	240	50	
	Westbound Left	130	50	130	140	130	50	130	85	130	45	130	105	130	50	130	125	130	50	130	140	
	Westbound Through	860	485	860	790	860	455	860	635	860	480	860	635	860	455	860	775	860	475	860	785	
7	3rd/Bertona																					
	Westbound Right	150	10	150	5	150	5	150	5	150	5	150	5	150	10	150	10	150	10	150	10	
	Northbound Through/Right /Left (No Left in Mit)	80	40	80	45	80	130	80	45	80	135	80	45	80	40	80	45	80	40	80	45	
	Northbound Left	80	130	80	265	80	40	80	275	80	40	80	265	80	130	80	280	80	125	80	235	
	Southbound Left/Through/Right	250	30	250	80	250	30	250	80	250	30	250	80	250	30	250	80	250	30	250	80	
	Eastbound Left/Through/Right	500	15	500	60	500	15	500	60	500	10	500	55	500	15	500	55	500	10	500	55	
8	3rd/Cremona																					
	Northbound Through/Right	270	0	270	0	270	0	270	0	270	0	270	0	270	0	270	0	270	0	270	0	
	Southbound Through/Left	270	2.5	270	5	270	5	270	10	270	5	270	10	270	5	270	15	270	5	270	10	
	Westbound Left/Right	500	7.5	500	27.5	500	10	500	50	500	10	500	40	500	15	500	50	500	10	500	40	
	Northbound Left/Through/Right	250	0	250	0	250	0	250	0	250	0	250	0	250	0	250	0	250	0	250	0	
	Southbound Left/Through/Right	270	2.5	270	5	270	5	270	10	270	5	270	10	270	5	270	15	270	5	270	10	
9	3rd/Dravus (N)																					
	Westbound Left/Through/Right	500	10	500	70	500	15	500	70	500	10	500	65	500	15	500	70	500	10	500	65	
	Northbound Left/Through/Right	150	0	150	0	150	0	150	0	150	0	150	0	150	0	150	0	150	0	150	0	
	Southbound Left/Through/Right	250	2.5	250	5	250	5	250	5	250	5	250	5	250	5	250	5	250	5	250	5	
	Eastbound Left/Right	300	10	300	45	300	10	300	40	300	10	300	40	300	10	300	40	300	10	300	45	
	Northbound Through/Left	500	2.5	500	2.5	500	5	500	5	500	5	500	5	500	5	500	5	500	5	500	5	
10	3rd/Dravus (S)																					
	Southbound Through/Right	150	0	150	0	150	0	150	0	150	0	150	0	150	0	150	0	150	0	150	0	
	Eastbound Left	450	10	450	15	450	5	450	5	450	5	450	5	450	5	450	5	450	5	450	5	
	Eastbound Through/Right	800	505	800	350	800	170	800	45	800	165	800	105	800	735	800	40	800	735	800	40	
	Westbound Left	500	10	500	10	500	85	500	15	500	25	500	15	500	25	500	10	500	15	500	10	
	Westbound Through/Right	500	220	500	685	500	295	500	890	500	320	500	900	500	215	500	725	500	220	500	700	
11	Queen Anne/Nickerson																					
	Northbound Left/Through/Right	25	60	25	75	25	60	25	70	25	55	25	60	25	65	25	75	25	65	25	70	
	Southbound Left/Through/Right	60	35	60	40	60	30	60	40	60	30	60	40	60	35	60	40	60	35	60	40	
	Eastbound Through	-	-	-	-	-	-	-	-	-												

Appendix I Signal Warrant Analysis

Warrants Summary													
Information													
Analyst	Transpo Group					Intersection	1						
Agency/Co						Jurisdiction							
Date Performed	8/18/2022					Units	U.S. Customary						
Project ID	19045.01					Time Period Analyzed							
East/West Street	W Nickerson St					North/South Street	6th Ave W						
File Name	Intersection 1 Proposed MIMP.xhy					Major Street	East-West						
Project Description 19045.01													
General						Roadway Network							
Major Street Speed (mph)	25	<input type="checkbox"/>	Population < 10,000				Two Major Routes				<input type="checkbox"/>		
Nearest Signal (ft)	935	<input type="checkbox"/>	Coordinated Signal System				Weekend Count				<input type="checkbox"/>		
Crashes (per year)	0	<input type="checkbox"/>	Adequate Trials of Alternatives				5-yr Growth Factor				0		
Geometry and Traffic	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of lanes, N	1	1	0	1	1	0	0	1	0	0	1	0	
Lane usage	L	TR		L	TR			LTR			LTR		
Vehicle Volume Averages (vph)	13	597	18	24	681	27	18	6	143	34	4	21	
Peds (ped/h) / Gaps (gaps/h)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	
Delay (s/veh) / (veh-hr)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	
Warrant 1: Eight-Hour Vehicular Volume												<input checked="" type="checkbox"/>	
1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--												<input checked="" type="checkbox"/>	
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--												<input checked="" type="checkbox"/>	
1 (80%) Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)												<input checked="" type="checkbox"/>	
Warrant 2: Four-Hour Vehicular Volume												<input checked="" type="checkbox"/>	
2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)												<input checked="" type="checkbox"/>	
Warrant 3: Peak Hour												<input checked="" type="checkbox"/>	
3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--												<input type="checkbox"/>	
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)												<input checked="" type="checkbox"/>	
Warrant 4: Pedestrian Volume												<input type="checkbox"/>	
4 A. Four Hour Volumes --or--												<input type="checkbox"/>	
4 B. One-Hour Volumes												<input type="checkbox"/>	
Warrant 5: School Crossing												<input type="checkbox"/>	
5. Student Volumes --and--												<input type="checkbox"/>	
5. Gaps Same Period												<input type="checkbox"/>	
Warrant 6: Coordinated Signal System												<input type="checkbox"/>	
6. Degree of Platooning (Predominant direction or both directions)												<input type="checkbox"/>	
Warrant 7: Crash Experience												<input type="checkbox"/>	
7 A. Adequate trials of alternatives, observance and enforcement failed --and--												<input type="checkbox"/>	
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--												<input type="checkbox"/>	

7 C. (80%) Volumes for Warrants 1A, 1B --or-- 4 are satisfied	<input checked="" type="checkbox"/>
Warrant 8: Roadway Network	<input type="checkbox"/>
8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	<input type="checkbox"/>
8 B. Weekend Volume (Five hours total)	<input type="checkbox"/>
Warrant 9: Grade Crossing	<input type="checkbox"/>
9 A. Grade Crossing within 140 ft --and--	<input type="checkbox"/>
9 B. Peak-Hour Vehicular Volumes	<input type="checkbox"/>

Warrants Summary													
Information													
Analyst	Transpo Group					Intersection	1						
Agency/Co						Jurisdiction							
Date Performed	6/19/2023					Units	U.S. Customary						
Project ID	19045.01					Time Period Analyzed							
East/West Street	W Nickerson St					North/South Street	6th Ave W						
File Name	Intersection 1 Alternative 2.xhy					Major Street	East-West						
Project Description 19045.01													
General						Roadway Network							
Major Street Speed (mph)	25	<input type="checkbox"/>	Population < 10,000				Two Major Routes				<input type="checkbox"/>		
Nearest Signal (ft)	935	<input type="checkbox"/>	Coordinated Signal System				Weekend Count				<input type="checkbox"/>		
Crashes (per year)	0	<input type="checkbox"/>	Adequate Trials of Alternatives				5-yr Growth Factor				0		
Geometry and Traffic	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of lanes, N	1	1	0	1	1	0	0	1	0	0	1	0	
Lane usage	L	TR		L	TR			LTR			LTR		
Vehicle Volume Averages (vph)	10	603	18	22	689	12	18	4	143	12	3	14	
Peds (ped/h) / Gaps (gaps/h)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	
Delay (s/veh) / (veh-hr)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	
Warrant 1: Eight-Hour Vehicular Volume												<input checked="" type="checkbox"/>	
1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--												<input type="checkbox"/>	
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--												<input checked="" type="checkbox"/>	
1 (80%) Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)												<input checked="" type="checkbox"/>	
Warrant 2: Four-Hour Vehicular Volume												<input checked="" type="checkbox"/>	
2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)												<input checked="" type="checkbox"/>	
Warrant 3: Peak Hour												<input checked="" type="checkbox"/>	
3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--												<input type="checkbox"/>	
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)												<input checked="" type="checkbox"/>	
Warrant 4: Pedestrian Volume												<input type="checkbox"/>	
4 A. Four Hour Volumes --or--												<input type="checkbox"/>	
4 B. One-Hour Volumes												<input type="checkbox"/>	
Warrant 5: School Crossing												<input type="checkbox"/>	
5. Student Volumes --and--												<input type="checkbox"/>	
5. Gaps Same Period												<input type="checkbox"/>	
Warrant 6: Coordinated Signal System												<input type="checkbox"/>	
6. Degree of Platooning (Predominant direction or both directions)												<input type="checkbox"/>	
Warrant 7: Crash Experience												<input type="checkbox"/>	
7 A. Adequate trials of alternatives, observance and enforcement failed --and--												<input type="checkbox"/>	
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--												<input type="checkbox"/>	

7 C. (80%) Volumes for Warrants 1A, 1B --or-- 4 are satisfied	<input checked="" type="checkbox"/>
Warrant 8: Roadway Network	<input type="checkbox"/>
8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	<input type="checkbox"/>
8 B. Weekend Volume (Five hours total)	<input type="checkbox"/>
Warrant 9: Grade Crossing	<input type="checkbox"/>
9 A. Grade Crossing within 140 ft --and--	<input type="checkbox"/>
9 B. Peak-Hour Vehicular Volumes	<input type="checkbox"/>

Warrants Summary													
Information													
Analyst	Transpo Group					Intersection	1						
Agency/Co						Jurisdiction							
Date Performed	6/19/2023					Units	U.S. Customary						
Project ID	19045.01					Time Period Analyzed							
East/West Street	W Nickerson St					North/South Street	6th Ave W						
File Name	Intersection 1 Alternative 3.xhy					Major Street	East-West						
Project Description 19045.01													
General						Roadway Network							
Major Street Speed (mph)	25	<input type="checkbox"/>	Population < 10,000				Two Major Routes				<input type="checkbox"/>		
Nearest Signal (ft)	935	<input type="checkbox"/>	Coordinated Signal System				Weekend Count				<input type="checkbox"/>		
Crashes (per year)	0	<input type="checkbox"/>	Adequate Trials of Alternatives				5-yr Growth Factor				0		
Geometry and Traffic	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of lanes, N	1	1	0	1	1	0	0	1	0	0	1	0	
Lane usage	L	TR		L	TR			LTR			LTR		
Vehicle Volume Averages (vph)	14	597	18	21	680	29	19	6	144	36	4	22	
Peds (ped/h) / Gaps (gaps/h)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	
Delay (s/veh) / (veh-hr)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	
Warrant 1: Eight-Hour Vehicular Volume												<input checked="" type="checkbox"/>	
1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--												<input checked="" type="checkbox"/>	
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--												<input checked="" type="checkbox"/>	
1 (80%) Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)												<input checked="" type="checkbox"/>	
Warrant 2: Four-Hour Vehicular Volume												<input checked="" type="checkbox"/>	
2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)												<input checked="" type="checkbox"/>	
Warrant 3: Peak Hour												<input checked="" type="checkbox"/>	
3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--												<input type="checkbox"/>	
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)												<input checked="" type="checkbox"/>	
Warrant 4: Pedestrian Volume												<input type="checkbox"/>	
4 A. Four Hour Volumes --or--												<input type="checkbox"/>	
4 B. One-Hour Volumes												<input type="checkbox"/>	
Warrant 5: School Crossing												<input type="checkbox"/>	
5. Student Volumes --and--												<input type="checkbox"/>	
5. Gaps Same Period												<input type="checkbox"/>	
Warrant 6: Coordinated Signal System												<input type="checkbox"/>	
6. Degree of Platooning (Predominant direction or both directions)												<input type="checkbox"/>	
Warrant 7: Crash Experience												<input type="checkbox"/>	
7 A. Adequate trials of alternatives, observance and enforcement failed --and--												<input type="checkbox"/>	
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--												<input type="checkbox"/>	

7 C. (80%) Volumes for Warrants 1A, 1B --or-- 4 are satisfied	<input checked="" type="checkbox"/>
Warrant 8: Roadway Network	<input type="checkbox"/>
8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	<input type="checkbox"/>
8 B. Weekend Volume (Five hours total)	<input type="checkbox"/>
Warrant 9: Grade Crossing	<input type="checkbox"/>
9 A. Grade Crossing within 140 ft --and--	<input type="checkbox"/>
9 B. Peak-Hour Vehicular Volumes	<input type="checkbox"/>

Warrants Summary													
Information													
Analyst	Transpo Group					Intersection	1						
Agency/Co						Jurisdiction							
Date Performed	6/19/2023					Units	U.S. Customary						
Project ID	19045.01					Time Period Analyzed							
East/West Street	W Nickerson St					North/South Street	6th Ave W						
File Name	Intersection 1 Alternative 4.xhy					Major Street	East-West						
Project Description 19045.01													
General						Roadway Network							
Major Street Speed (mph)	25	<input type="checkbox"/>	Population < 10,000				Two Major Routes				<input type="checkbox"/>		
Nearest Signal (ft)	935	<input type="checkbox"/>	Coordinated Signal System				Weekend Count				<input type="checkbox"/>		
Crashes (per year)	0	<input type="checkbox"/>	Adequate Trials of Alternatives				5-yr Growth Factor				0		
Geometry and Traffic	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of lanes, N	1	1	0	1	1	0	0	1	0	0	1	0	
Lane usage	L	TR		L	TR			LTR			LTR		
Vehicle Volume Averages (vph)	10	602	18	22	688	16	18	5	143	17	3	16	
Peds (ped/h) / Gaps (gaps/h)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	
Delay (s/veh) / (veh-hr)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	
Warrant 1: Eight-Hour Vehicular Volume												<input checked="" type="checkbox"/>	
1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--												<input checked="" type="checkbox"/>	
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--												<input checked="" type="checkbox"/>	
1 (80%) Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)												<input checked="" type="checkbox"/>	
Warrant 2: Four-Hour Vehicular Volume												<input checked="" type="checkbox"/>	
2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)												<input checked="" type="checkbox"/>	
Warrant 3: Peak Hour												<input checked="" type="checkbox"/>	
3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--												<input type="checkbox"/>	
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)												<input checked="" type="checkbox"/>	
Warrant 4: Pedestrian Volume												<input type="checkbox"/>	
4 A. Four Hour Volumes --or--												<input type="checkbox"/>	
4 B. One-Hour Volumes												<input type="checkbox"/>	
Warrant 5: School Crossing												<input type="checkbox"/>	
5. Student Volumes --and--												<input type="checkbox"/>	
5. Gaps Same Period												<input type="checkbox"/>	
Warrant 6: Coordinated Signal System												<input type="checkbox"/>	
6. Degree of Platooning (Predominant direction or both directions)												<input type="checkbox"/>	
Warrant 7: Crash Experience												<input type="checkbox"/>	
7 A. Adequate trials of alternatives, observance and enforcement failed --and--												<input type="checkbox"/>	
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--												<input type="checkbox"/>	

7 C. (80%) Volumes for Warrants 1A, 1B --or-- 4 are satisfied	<input checked="" type="checkbox"/>
Warrant 8: Roadway Network	<input type="checkbox"/>
8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	<input type="checkbox"/>
8 B. Weekend Volume (Five hours total)	<input type="checkbox"/>
Warrant 9: Grade Crossing	<input type="checkbox"/>
9 A. Grade Crossing within 140 ft --and--	<input type="checkbox"/>
9 B. Peak-Hour Vehicular Volumes	<input type="checkbox"/>

Warrants Summary													
Information													
Analyst	Transpo Group					Intersection	1						
Agency/Co						Jurisdiction							
Date Performed	6/19/2023					Units	U.S. Customary						
Project ID	19045.01					Time Period Analyzed							
East/West Street	W Nickerson St					North/South Street	6th Ave W						
File Name	Intersection 1 Alternative 5.xhy					Major Street	East-West						
Project Description 19045.01													
General						Roadway Network							
Major Street Speed (mph)	25	<input type="checkbox"/>	Population < 10,000				Two Major Routes				<input type="checkbox"/>		
Nearest Signal (ft)	935	<input type="checkbox"/>	Coordinated Signal System				Weekend Count				<input type="checkbox"/>		
Crashes (per year)	0	<input type="checkbox"/>	Adequate Trials of Alternatives				5-yr Growth Factor				0		
Geometry and Traffic	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of lanes, N	1	1	0	1	1	0	0	1	0	0	1	0	
Lane usage	L	TR		L	TR			LTR			LTR		
Vehicle Volume Averages (vph)	12	592	26	22	672	20	30	5	143	27	3	19	
Peds (ped/h) / Gaps (gaps/h)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	
Delay (s/veh) / (veh-hr)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	
Warrant 1: Eight-Hour Vehicular Volume												<input checked="" type="checkbox"/>	
1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--												<input checked="" type="checkbox"/>	
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--												<input checked="" type="checkbox"/>	
1 (80%) Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)												<input checked="" type="checkbox"/>	
Warrant 2: Four-Hour Vehicular Volume												<input checked="" type="checkbox"/>	
2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)												<input checked="" type="checkbox"/>	
Warrant 3: Peak Hour												<input checked="" type="checkbox"/>	
3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--												<input type="checkbox"/>	
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)												<input checked="" type="checkbox"/>	
Warrant 4: Pedestrian Volume												<input type="checkbox"/>	
4 A. Four Hour Volumes --or--												<input type="checkbox"/>	
4 B. One-Hour Volumes												<input type="checkbox"/>	
Warrant 5: School Crossing												<input type="checkbox"/>	
5. Student Volumes --and--												<input type="checkbox"/>	
5. Gaps Same Period												<input type="checkbox"/>	
Warrant 6: Coordinated Signal System												<input type="checkbox"/>	
6. Degree of Platooning (Predominant direction or both directions)												<input type="checkbox"/>	
Warrant 7: Crash Experience												<input type="checkbox"/>	
7 A. Adequate trials of alternatives, observance and enforcement failed --and--												<input type="checkbox"/>	
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--												<input type="checkbox"/>	

7 C. (80%) Volumes for Warrants 1A, 1B --or-- 4 are satisfied	<input checked="" type="checkbox"/>
Warrant 8: Roadway Network	<input type="checkbox"/>
8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	<input type="checkbox"/>
8 B. Weekend Volume (Five hours total)	<input type="checkbox"/>
Warrant 9: Grade Crossing	<input type="checkbox"/>
9 A. Grade Crossing within 140 ft --and--	<input type="checkbox"/>
9 B. Peak-Hour Vehicular Volumes	<input type="checkbox"/>

Warrants Summary													
Information													
Analyst	Transpo Group					Intersection	11						
Agency/Co						Jurisdiction							
Date Performed	8/18/2022					Units	U.S. Customary						
Project ID	19045.01					Time Period Analyzed							
East/West Street	W Nickerson St					North/South Street	W Cremona St						
File Name	Intersection 11 Proposed MIMP.xhy					Major Street	East-West						
Project Description 19045.01													
General						Roadway Network							
Major Street Speed (mph)	25	<input type="checkbox"/>	Population < 10,000				Two Major Routes				<input type="checkbox"/>		
Nearest Signal (ft)	950	<input type="checkbox"/>	Coordinated Signal System				Weekend Count				<input type="checkbox"/>		
Crashes (per year)	0	<input type="checkbox"/>	Adequate Trials of Alternatives				5-yr Growth Factor				0		
Geometry and Traffic	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of lanes, N	1	1	0	1	1	0	0	1	0	0	1	0	
Lane usage	L	TR		L	TR			LTR			LTR		
Vehicle Volume Averages (vph)	24	714	30	14	761	14	27	1	48	6	4	30	
Peds (ped/h) / Gaps (gaps/h)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	
Delay (s/veh) / (veh-hr)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	
Warrant 1: Eight-Hour Vehicular Volume												<input type="checkbox"/>	
1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--												<input type="checkbox"/>	
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--												<input type="checkbox"/>	
1 (80%) Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)												<input type="checkbox"/>	
Warrant 2: Four-Hour Vehicular Volume												<input checked="" type="checkbox"/>	
2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)												<input checked="" type="checkbox"/>	
Warrant 3: Peak Hour												<input checked="" type="checkbox"/>	
3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--												<input type="checkbox"/>	
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)												<input checked="" type="checkbox"/>	
Warrant 4: Pedestrian Volume												<input type="checkbox"/>	
4 A. Four Hour Volumes --or--												<input type="checkbox"/>	
4 B. One-Hour Volumes												<input type="checkbox"/>	
Warrant 5: School Crossing												<input type="checkbox"/>	
5. Student Volumes --and--												<input type="checkbox"/>	
5. Gaps Same Period												<input type="checkbox"/>	
Warrant 6: Coordinated Signal System												<input type="checkbox"/>	
6. Degree of Platooning (Predominant direction or both directions)												<input type="checkbox"/>	
Warrant 7: Crash Experience												<input type="checkbox"/>	
7 A. Adequate trials of alternatives, observance and enforcement failed --and--												<input type="checkbox"/>	
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--												<input type="checkbox"/>	

7 C. (80%) Volumes for Warrants 1A, 1B --or-- 4 are satisfied	<input checked="" type="checkbox"/>
Warrant 8: Roadway Network	<input type="checkbox"/>
8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	<input type="checkbox"/>
8 B. Weekend Volume (Five hours total)	<input type="checkbox"/>
Warrant 9: Grade Crossing	<input type="checkbox"/>
9 A. Grade Crossing within 140 ft --and--	<input type="checkbox"/>
9 B. Peak-Hour Vehicular Volumes	<input type="checkbox"/>

Warrants Summary													
Information													
Analyst	Transpo Group					Intersection	11						
Agency/Co						Jurisdiction							
Date Performed	6/19/2023					Units	U.S. Customary						
Project ID	19045.01					Time Period Analyzed							
East/West Street	W Nickerson St					North/South Street	W Cremona St						
File Name	Intersection 11 Alternative 2.xhy					Major Street	East-West						
Project Description 19045.01													
General						Roadway Network							
Major Street Speed (mph)	25	<input type="checkbox"/> Population < 10,000				Two Major Routes				<input type="checkbox"/>			
Nearest Signal (ft)	950	<input type="checkbox"/> Coordinated Signal System				Weekend Count				<input type="checkbox"/>			
Crashes (per year)	0	<input type="checkbox"/> Adequate Trials of Alternatives				5-yr Growth Factor				0			
Geometry and Traffic	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of lanes, N	1	1	0	1	1	0	0	1	0	0	1	0	
Lane usage	L	TR		L	TR			LTR			LTR		
Vehicle Volume Averages (vph)	24	699	29	31	749	14	26	1	72	6	4	30	
Peds (ped/h) / Gaps (gaps/h)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	
Delay (s/veh) / (veh-hr)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	
Warrant 1: Eight-Hour Vehicular Volume												<input checked="" type="checkbox"/>	
1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--												<input type="checkbox"/>	
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--												<input checked="" type="checkbox"/>	
1 (80%) Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)												<input type="checkbox"/>	
Warrant 2: Four-Hour Vehicular Volume												<input checked="" type="checkbox"/>	
2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)												<input checked="" type="checkbox"/>	
Warrant 3: Peak Hour												<input checked="" type="checkbox"/>	
3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--												<input type="checkbox"/>	
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)												<input checked="" type="checkbox"/>	
Warrant 4: Pedestrian Volume												<input type="checkbox"/>	
4 A. Four Hour Volumes --or--												<input type="checkbox"/>	
4 B. One-Hour Volumes												<input type="checkbox"/>	
Warrant 5: School Crossing												<input type="checkbox"/>	
5. Student Volumes --and--												<input type="checkbox"/>	
5. Gaps Same Period												<input type="checkbox"/>	
Warrant 6: Coordinated Signal System												<input type="checkbox"/>	
6. Degree of Platooning (Predominant direction or both directions)												<input type="checkbox"/>	
Warrant 7: Crash Experience												<input type="checkbox"/>	
7 A. Adequate trials of alternatives, observance and enforcement failed --and--												<input type="checkbox"/>	
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--												<input type="checkbox"/>	

7 C. (80%) Volumes for Warrants 1A, 1B --or-- 4 are satisfied	<input checked="" type="checkbox"/>
Warrant 8: Roadway Network	<input type="checkbox"/>
8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	<input type="checkbox"/>
8 B. Weekend Volume (Five hours total)	<input type="checkbox"/>
Warrant 9: Grade Crossing	<input type="checkbox"/>
9 A. Grade Crossing within 140 ft --and--	<input type="checkbox"/>
9 B. Peak-Hour Vehicular Volumes	<input type="checkbox"/>

Warrants Summary													
Information													
Analyst	Transpo Group					Intersection	11						
Agency/Co						Jurisdiction							
Date Performed	6/19/2023					Units	U.S. Customary						
Project ID	19045.01					Time Period Analyzed							
East/West Street	W Nickerson St					North/South Street	W Cremona St						
File Name	Intersection 11 Alternative 3.xhy					Major Street	East-West						
Project Description 19045.01													
General						Roadway Network							
Major Street Speed (mph)	25	<input type="checkbox"/>	Population < 10,000				Two Major Routes				<input type="checkbox"/>		
Nearest Signal (ft)	950	<input type="checkbox"/>	Coordinated Signal System				Weekend Count				<input type="checkbox"/>		
Crashes (per year)	0	<input type="checkbox"/>	Adequate Trials of Alternatives				5-yr Growth Factor				0		
Geometry and Traffic	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of lanes, N	1	1	0	1	1	0	0	1	0	0	1	0	
Lane usage	L	TR		L	TR			LTR			LTR		
Vehicle Volume Averages (vph)	24	717	28	18	761	14	25	1	51	6	4	30	
Peds (ped/h) / Gaps (gaps/h)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	
Delay (s/veh) / (veh-hr)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	
Warrant 1: Eight-Hour Vehicular Volume												<input type="checkbox"/>	
1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--												<input type="checkbox"/>	
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--												<input type="checkbox"/>	
1 (80%) Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)												<input type="checkbox"/>	
Warrant 2: Four-Hour Vehicular Volume												<input checked="" type="checkbox"/>	
2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)												<input checked="" type="checkbox"/>	
Warrant 3: Peak Hour												<input checked="" type="checkbox"/>	
3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--												<input type="checkbox"/>	
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)												<input checked="" type="checkbox"/>	
Warrant 4: Pedestrian Volume												<input type="checkbox"/>	
4 A. Four Hour Volumes --or--												<input type="checkbox"/>	
4 B. One-Hour Volumes												<input type="checkbox"/>	
Warrant 5: School Crossing												<input type="checkbox"/>	
5. Student Volumes --and--												<input type="checkbox"/>	
5. Gaps Same Period												<input type="checkbox"/>	
Warrant 6: Coordinated Signal System												<input type="checkbox"/>	
6. Degree of Platooning (Predominant direction or both directions)												<input type="checkbox"/>	
Warrant 7: Crash Experience												<input type="checkbox"/>	
7 A. Adequate trials of alternatives, observance and enforcement failed --and--												<input type="checkbox"/>	
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--												<input type="checkbox"/>	

7 C. (80%) Volumes for Warrants 1A, 1B --or-- 4 are satisfied	<input checked="" type="checkbox"/>
Warrant 8: Roadway Network	<input type="checkbox"/>
8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	<input type="checkbox"/>
8 B. Weekend Volume (Five hours total)	<input type="checkbox"/>
Warrant 9: Grade Crossing	<input type="checkbox"/>
9 A. Grade Crossing within 140 ft --and--	<input type="checkbox"/>
9 B. Peak-Hour Vehicular Volumes	<input type="checkbox"/>

Warrants Summary													
Information													
Analyst	Transpo Group					Intersection	11						
Agency/Co						Jurisdiction							
Date Performed	6/19/2023					Units	U.S. Customary						
Project ID	19045.01					Time Period Analyzed							
East/West Street	W Nickerson St					North/South Street	W Cremona St						
File Name	Intersection 11 Alternative 4.xhy					Major Street	East-West						
Project Description 19045.01													
General						Roadway Network							
Major Street Speed (mph)	25	<input type="checkbox"/>	Population < 10,000				Two Major Routes				<input type="checkbox"/>		
Nearest Signal (ft)	950	<input type="checkbox"/>	Coordinated Signal System				Weekend Count				<input type="checkbox"/>		
Crashes (per year)	0	<input type="checkbox"/>	Adequate Trials of Alternatives				5-yr Growth Factor				0		
Geometry and Traffic	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of lanes, N	1	1	0	1	1	0	0	1	0	0	1	0	
Lane usage	L	TR		L	TR			LTR			LTR		
Vehicle Volume Averages (vph)	24	702	29	28	751	14	26	1	68	6	4	30	
Peds (ped/h) / Gaps (gaps/h)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	
Delay (s/veh) / (veh-hr)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	
Warrant 1: Eight-Hour Vehicular Volume												<input checked="" type="checkbox"/>	
1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--												<input type="checkbox"/>	
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--												<input checked="" type="checkbox"/>	
1 (80%) Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)												<input type="checkbox"/>	
Warrant 2: Four-Hour Vehicular Volume												<input checked="" type="checkbox"/>	
2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)												<input checked="" type="checkbox"/>	
Warrant 3: Peak Hour												<input checked="" type="checkbox"/>	
3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--												<input type="checkbox"/>	
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)												<input checked="" type="checkbox"/>	
Warrant 4: Pedestrian Volume												<input type="checkbox"/>	
4 A. Four Hour Volumes --or--												<input type="checkbox"/>	
4 B. One-Hour Volumes												<input type="checkbox"/>	
Warrant 5: School Crossing												<input type="checkbox"/>	
5. Student Volumes --and--												<input type="checkbox"/>	
5. Gaps Same Period												<input type="checkbox"/>	
Warrant 6: Coordinated Signal System												<input type="checkbox"/>	
6. Degree of Platooning (Predominant direction or both directions)												<input type="checkbox"/>	
Warrant 7: Crash Experience												<input type="checkbox"/>	
7 A. Adequate trials of alternatives, observance and enforcement failed --and--												<input type="checkbox"/>	
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--												<input type="checkbox"/>	

7 C. (80%) Volumes for Warrants 1A, 1B --or-- 4 are satisfied	<input checked="" type="checkbox"/>
Warrant 8: Roadway Network	<input type="checkbox"/>
8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	<input type="checkbox"/>
8 B. Weekend Volume (Five hours total)	<input type="checkbox"/>
Warrant 9: Grade Crossing	<input type="checkbox"/>
9 A. Grade Crossing within 140 ft --and--	<input type="checkbox"/>
9 B. Peak-Hour Vehicular Volumes	<input type="checkbox"/>

Warrants Summary													
Information													
Analyst	Transpo Group					Intersection	11						
Agency/Co						Jurisdiction							
Date Performed	6/19/2023					Units	U.S. Customary						
Project ID	19045.01					Time Period Analyzed							
East/West Street	W Nickerson St					North/South Street	W Cremona St						
File Name	Intersection 11 Alternative 5.xhy					Major Street	East-West						
Project Description 19045.01													
General						Roadway Network							
Major Street Speed (mph)	25	<input type="checkbox"/>	Population < 10,000				Two Major Routes				<input type="checkbox"/>		
Nearest Signal (ft)	950	<input type="checkbox"/>	Coordinated Signal System				Weekend Count				<input type="checkbox"/>		
Crashes (per year)	0	<input type="checkbox"/>	Adequate Trials of Alternatives				5-yr Growth Factor				0		
Geometry and Traffic	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of lanes, N	1	1	0	1	1	0	0	1	0	0	1	0	
Lane usage	L	TR		L	TR			LTR			LTR		
Vehicle Volume Averages (vph)	24	710	30	18	756	14	27	1	54	6	4	30	
Peds (ped/h) / Gaps (gaps/h)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	
Delay (s/veh) / (veh-hr)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	
Warrant 1: Eight-Hour Vehicular Volume												<input type="checkbox"/>	
1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--												<input type="checkbox"/>	
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--												<input type="checkbox"/>	
1 (80%) Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)												<input type="checkbox"/>	
Warrant 2: Four-Hour Vehicular Volume												<input checked="" type="checkbox"/>	
2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)												<input checked="" type="checkbox"/>	
Warrant 3: Peak Hour												<input checked="" type="checkbox"/>	
3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--												<input type="checkbox"/>	
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)												<input checked="" type="checkbox"/>	
Warrant 4: Pedestrian Volume												<input type="checkbox"/>	
4 A. Four Hour Volumes --or--												<input type="checkbox"/>	
4 B. One-Hour Volumes												<input type="checkbox"/>	
Warrant 5: School Crossing												<input type="checkbox"/>	
5. Student Volumes --and--												<input type="checkbox"/>	
5. Gaps Same Period												<input type="checkbox"/>	
Warrant 6: Coordinated Signal System												<input type="checkbox"/>	
6. Degree of Platooning (Predominant direction or both directions)												<input type="checkbox"/>	
Warrant 7: Crash Experience												<input type="checkbox"/>	
7 A. Adequate trials of alternatives, observance and enforcement failed --and--												<input type="checkbox"/>	
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--												<input type="checkbox"/>	

7 C. (80%) Volumes for Warrants 1A, 1B --or-- 4 are satisfied	<input checked="" type="checkbox"/>
Warrant 8: Roadway Network	<input type="checkbox"/>
8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	<input type="checkbox"/>
8 B. Weekend Volume (Five hours total)	<input type="checkbox"/>
Warrant 9: Grade Crossing	<input type="checkbox"/>
9 A. Grade Crossing within 140 ft --and--	<input type="checkbox"/>
9 B. Peak-Hour Vehicular Volumes	<input type="checkbox"/>