



**Kirkland Light Industrial & Business Park
Woodland, WA**

Kirkland Maker Space

Traffic Impact Analysis

Submitted on behalf of:

**Kirkland Light Industrial & Business Park
2370 E 3rd Loop, Suite 100
Vancouver, WA 98661**

September 10, 2021

Prepared by:

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Project No. 20078

PURPOSE

Transportation Impact Analysis and Parking Evaluation to support the proposed Kirkland Maker Space development proposal.

SITE INFORMATION

SUBJECT PROPERTY: 600 Mitchell Avenue in Woodland WA 98674
5042302 (approximately 2 acres)

APPLICANT/PROPERTY OWNER/TEAM

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TABLE OF CONTENTS

	Page
Section 1. Executive Summary	4
Section 2. Traffic Impact Analysis	4
Introduction	4
Scope.....	4
Site and Area Characteristics	5
Trip Generation Summary	9
Trip Distribution.....	9
Traffic Operations and Level-of-Service	12
Intersection Capacity Analysis.....	12
Queuing and Left-Turn Lane Analysis	13
Sight Distance Analysis	13
Safety Analysis	18
Traffic Signal Warrants	18
Non-Motorized Transportation	19
Section 3. Parking Evaluation	20
Section 4. Conclusions and Recommendations	20

TABLES

Table 1	Vehicle Trip Generation Using ITE Manual (10 th Edition)	9
Table 2	Levels-of-Service Analysis Summary.....	17
Table 3	Crash Rate Analysis of Study Locations	18

FIGURES

Figure 1	Site Vicinity Map	6
Figure 2	Site Plan Map	7
Figure 3	Existing Traffic Control at Area Intersections	8
Figure 4	Trip Distribution with Kirkland Maker Space Proposal	10
Figure 5	Kirkland Maker Space AM Peak Trip Distribution	11
Figure 6	Kirkland Maker Space with PM Peak Trip Distribution.....	11
Figure 7	Year 2020 Existing Peak Hour Traffic Volumes (from Charbonneau TIA)	14
Figure 8	Year 2023 Peak Hour Background Traffic Volumes (from Charbonneau TIA)	15
Figure 9	Year 2023 Peak Hour Total Traffic Volumes (With Woodland Maker Space Site)	16
Figure 10	Year 2023 Total Traffic Volumes Peak Hour Warrant Analysis	19

APPENDICES

Appendix A	Site Vacinity Photos
Appendix B	Existing Conditions - Synchro/Level-of-Service Reports
Appendix C	Year 2023 Background Traffic - Synchro/Level-of-Service Reports
Appendix D	Year 2023 Total Traffic with Site - Synchro/Level-of-Service Reports
Appendix E	Traffic Counts
Appendix F	Collision Reports from WSDOT

Section 1. Executive Summary

Otak, Inc. was retained by Kirkland Development to prepare a Traffic Impact Analysis (TIA) and Parking Evaluation for the proposed Kirkland Maker Space, located at 600 Mitchell Avenue, Woodland, WA 98674. The development project is a proposed light industrial business park for small, individual manufacturers and is comprised of three small industrial buildings with a total of approximately 36,500 square feet with associated parking and other site facilities.

This site proposal replaces a previous application for a senior living facility and associated TIA, and updates the traffic operations analysis as well as safety/crash analysis. Also included in this TIA is an analysis of the site's parking supply needs.

The results of our analysis, as presented in this TIA, indicate that the proposed project will not result in any capacity, level-of-service, or safety issue on the adjacent street system; the site plan proposal provides adequate off-street, on-site parking supply.

Section 2. Traffic Impact Analysis

Introduction

The previous TIA was submitted by Charbonneau and Associates in November 2020, for a proposed senior living facility and amenities; it was referenced for existing conditions information and scope for this TIA. Existing conditions information contained in the Charbonneau TIA was used where possible for traffic conditions and existing transportation facilities information. The safety analysis from that TIA was updated using more recent five-year data supplied by the Washington State Department of Transportation.

Scope

The Kirkland Maker Space TIA was scoped as follows (based on previous scoping consultations between Charbonneau and City of Woodland development review staff):

- Inventory and record pertinent information such as traffic control devices, circulation patterns, lane conditions, pedestrian & bicycle facilities, transit zones and availability, parking, and street characteristics.
- Record data on typical weekdays during the AM and PM peak traffic hours.
- Collect November 2020 peak hour traffic counts at the study intersections and review available year 2018 historical traffic count data. Use historical volumes to calibrate the year 2020 data (recorded during COVID-19 pandemic).
- Three years of traffic growth at 3.0% per year was applied as background traffic growth. In-process trips were incorporated based on the Charbonneau TIA and data previously provided by City staff.
- Level of service (LOS) analysis of the study intersections to measure the approach delays for comparison to Woodland standards; a vehicular queuing analysis at the study intersections as well as a signal and left-turn lane warrant analysis were included.
- Review intersection sight distance at the proposed access location.
- Review five-year traffic accident data furnished by WSDOT. Determine the intersection crash rates at the study intersections. The safety study period for this TIA was updated to January 1, 2016, through December 31, 2020.

Study locations for this TIA include:

- Mitchell Avenue at proposed site access (stop bar controlled)
- Mitchell Avenue at Down River Road (side-street stop sign controlled)
- Columbia Street at Glenwood Street (all-way stop sign controlled)
- Columbia Street at Pacific Avenue (side-street stop sign controlled)

Site and Area Characteristics

The Kirkland Maker Space project is located in an area zoned light industrial (I-1 zoning) along Mitchell Avenue in Woodland, Washington. The surrounding vicinity is developed with a mix of industrial and commercial uses.

The site where the Maker Space project is being proposed is approximately two (2) acres in size. The proposal is for a business park with three (3) small, industrial buildings for individual manufacturers totaling approximately 36,500 square feet. Associated parking, landscaping, and utilities including water, sewer, and storm water systems are also included with the proposal. Parking includes 55 standard stalls, 3 ADA parking stalls, 1 ADA Van-accessible stall, and 3 compact vehicle stalls for a total of 62 spaces.

The site access is on a curve where the street changes names from Mitchell Avenue to Glenwood Street. The proposed access onto Mitchell Avenue will allow all traffic movements and be controlled by a white stop bar on the approach to Mitchell Avenue.

Figure 1 shows the site vicinity map and Figure 2 shows the proposed site plan, both from Otak's site plan packet.

The existing lane configurations and traffic control are presented in Figure 3 along with the proposed site access. No other changes to traffic control are recommended.

Mitchell Avenue is classified as a local city street and provides one through travel lane in each direction. No left turn lanes are provided along Mitchell Avenue. Mitchell Avenue turns into Glenwood Street at the curve located near the proposed site access. A continuous sidewalk is available on the north side of Mitchell Avenue and the east side of Glenwood Street with sidewalk segments available on the south side. The travel speed is 25 MPH. A golf cart travel zone begins just west of the proposed site access and continues around the curve onto Glenwood Street.

Columbia Street is classified as a local city street and provides one through travel lane in each direction. No left turn lanes are provided along Columbia Street. A continuous sidewalk is available on the south side of the street with sidewalk segments available on the north side. The travel speed is 25 MPH.

The intersection at Mitchell Avenue and Down River Road is configured as a tee-shaped design with stop signing posted on the westbound Mitchell Avenue approach. No turn lanes are provided at the intersection. Pedestrian crosswalks are not marked at this location.

The intersection at Glenwood Street at Columbia Street is configured as a tee-shaped design with all-way stop sign control. No turn lanes are provided at the intersection. Although pedestrian crosswalks are not marked at this location, there are yellow tactile surfaces at the two ADA wheelchair ramps for a north-south crossing on the east leg of that intersection.

The intersection at Columbia Street at Pacific Avenue is configured as a tee-shaped design with stop signing posted on the eastbound Columbia Street approach. No turn lanes are provided on the Columbia

Street intersection approach. A northbound left turn lane is provided on Pacific Avenue. Pedestrian crosswalks are not marked at this location.

The proposed site driveway approach at Mitchell Avenue will provide for one ingress lane and one egress lane with stop control posted on the approach to Mitchell Avenue (with painted stop bar). Pedestrian connectivity to the sidewalk system on Mitchell Avenue will be provided from within the site.

Photos of existing conditions in the site vicinity are contained in Appendix A.

Figure 1 Site Vicinity Map

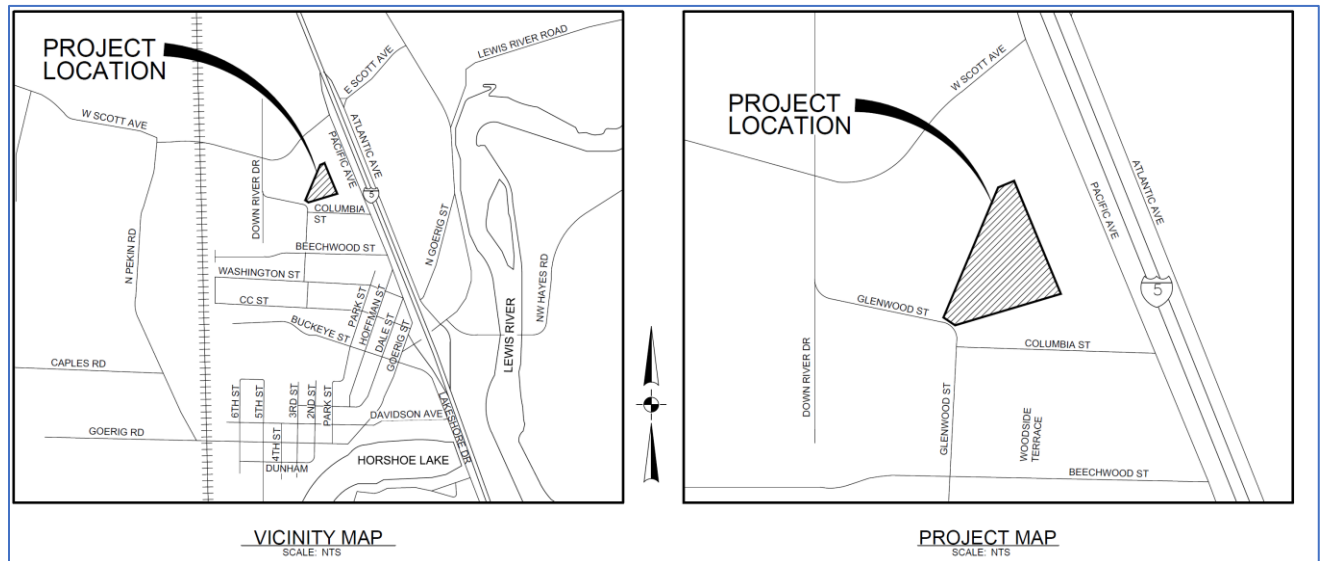


Figure 2 Site Plan Map

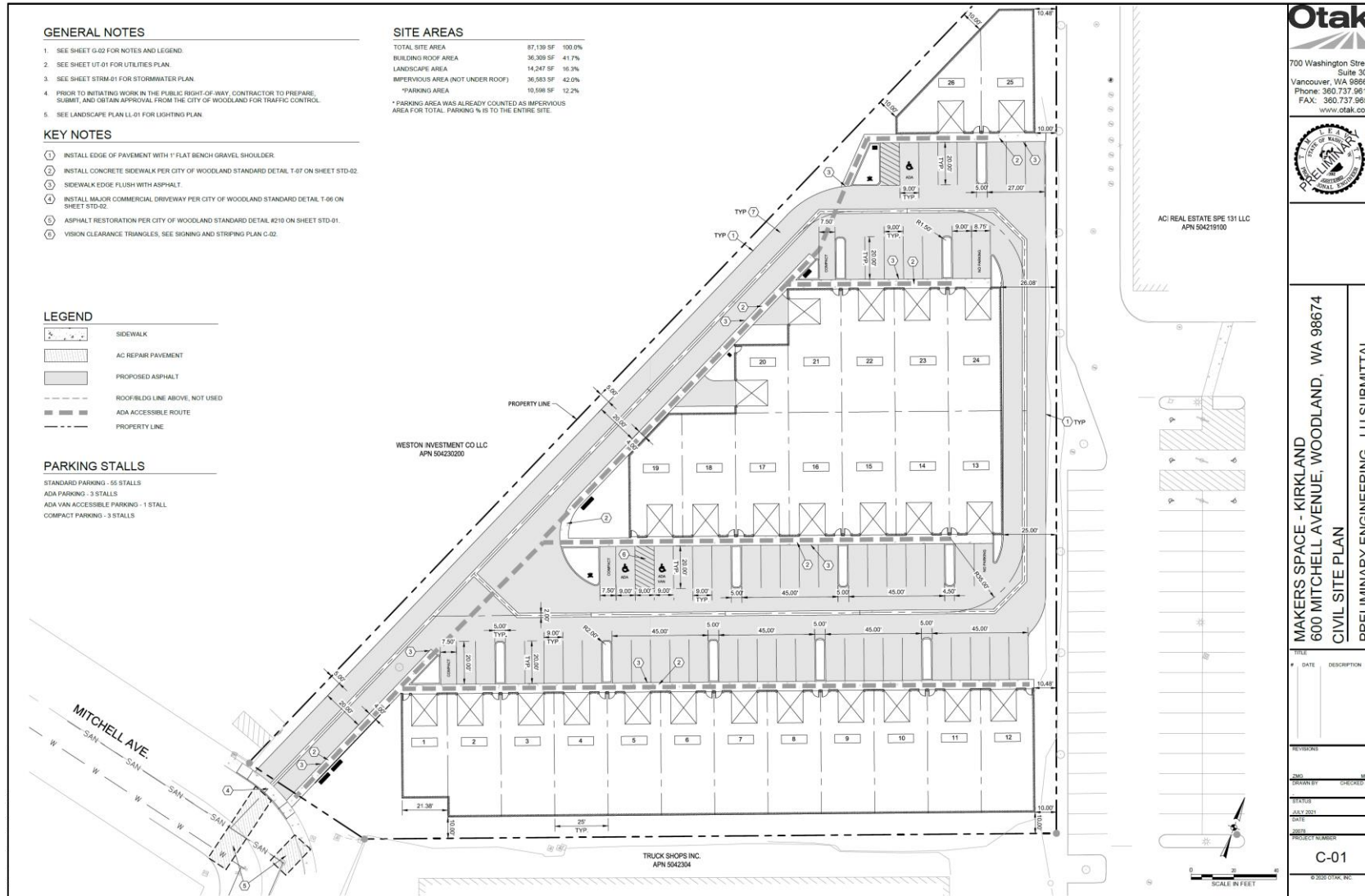
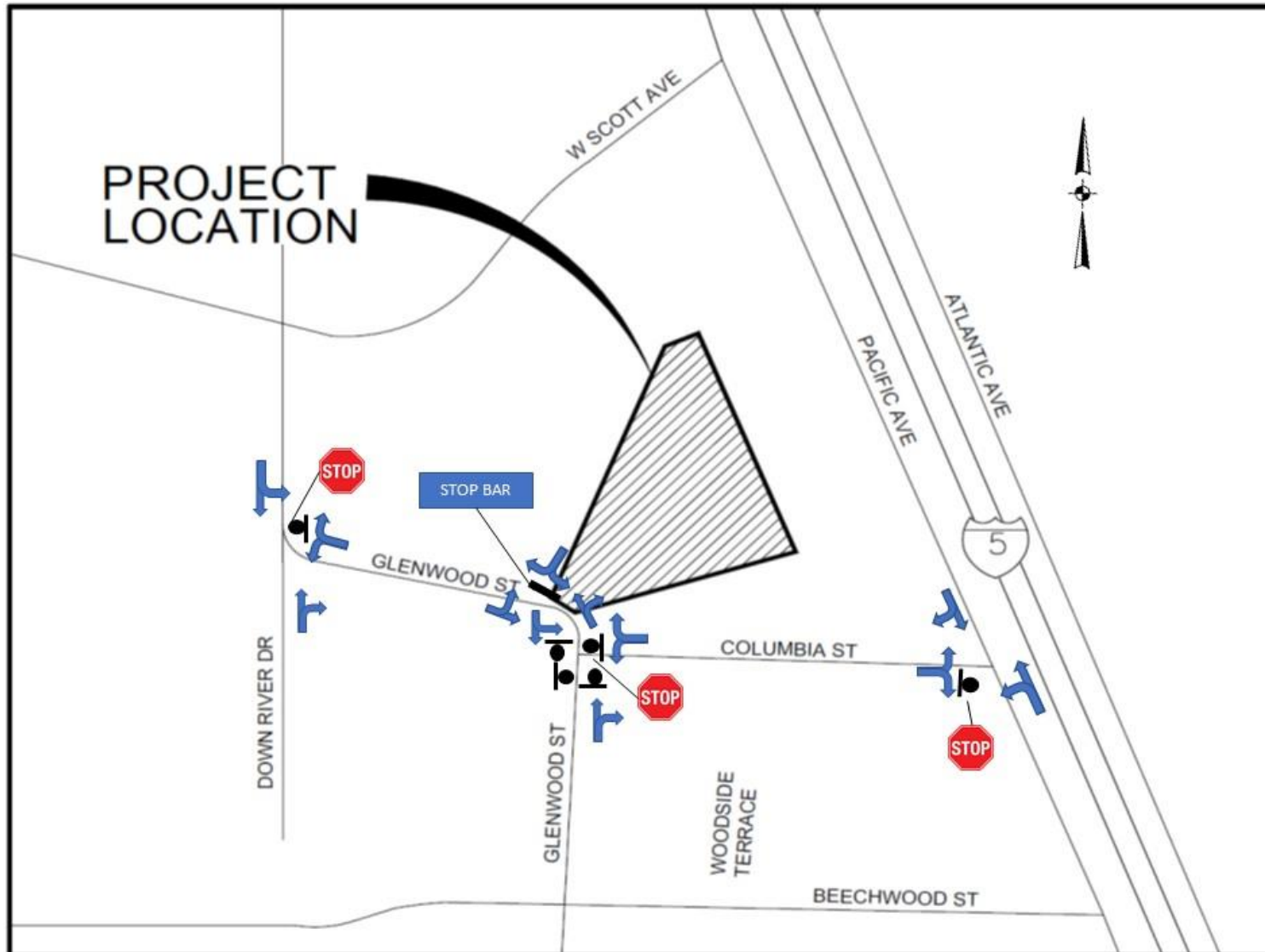


Figure 3 Existing Traffic Control at Area Intersections



Trip Generation Summary

Trip generation is the method used to estimate the number of vehicles that are added to the site driveway and surrounding roadway network as a result of the proposed project. The Institute of Transportation Engineers' (ITE) 10th Edition Trip Generation Manual is used here for trip generation estimates for the Kirkland Maker Space proposal. Trip generation calculations were developed for the AM and PM Peak hours and total weekday.

The site proposal is for individual industrial manufacturing uses contained in three small buildings in the City of Woodland's I-1 Light Industrial Use District zone. According to Woodland Municipal Code section 17.44.010, the light industrial use district (I-1) zoning classification provides for "light manufacturing and fabrication, warehousing and storage, construction and contracting operations, wholesale distribution operations, and related activities which normally require ready access by various transportation modes for the movement of materials, goods, and the area work force." The ITE land use code most applicable for this proposal is Land Use Code 140, Manufacturing: "A manufacturing facility is an area where the primary activity is the conversion of raw materials or parts into finished products. Size and type of activity may vary substantially from one facility to another. In addition to the actual production of goods, manufacturing facilities generally also have office, warehouse, research, and associated functions."

The previous Charbonneau TIA estimated trip generation as 656 net new weekday trips, 31 net new AM peak hour trips and 49 net new PM peak hour trips. The trip generation estimates included in this Maker Space TIA are much lower than the previous TIA trips: 200 net new weekday trips, 26 net new AM peak hour trips and 23 net new PM peak hour trips.

Table 1 shows the resultant trip generation estimates.

Table 1 Vehicle Trip Generation Using ITE Manual (10th Edition)

ITE Code/ Land Use	Size	AM Peak Total			PM Peak			Total Weekday ¹
		Ins	Outs	Total	Ins	Outs	Total	
Manufacturing/ 140	36,500 GFA	22	4	26	3	20	23	200
Internal Capture	N/A	0	0	0	0	0	0	0
Retail Pass-By	N/A	0	0	0	0	0	0	0
TOTAL TRIPS		22	4	26	3	20	23	200

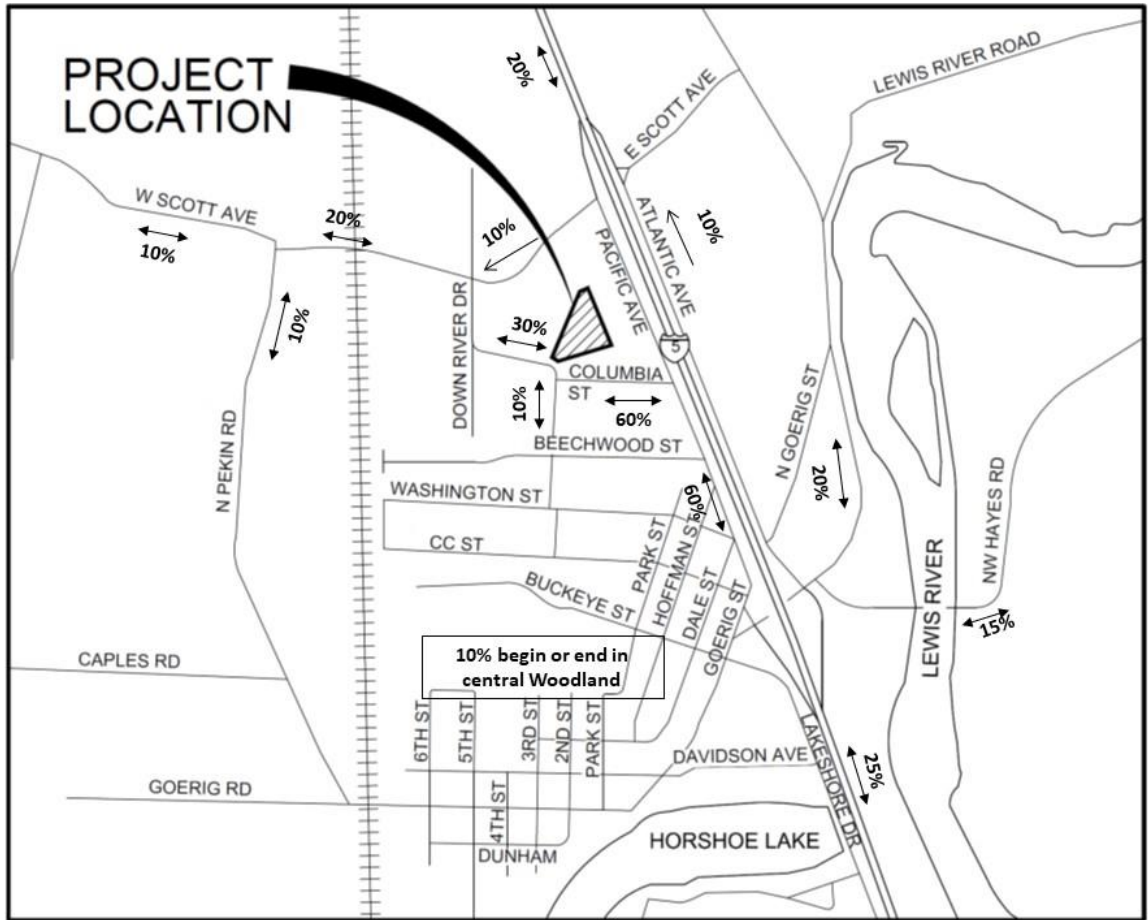
Trip Distribution

Trip distribution estimates how traffic generated by the proposed project would access the site and what roads project trips would take. The distribution of these trips on the surrounding roadway system was estimated based on traffic patterns observed in the area, assumptions from the Charbonneau TIA, and work from previous studies incorporating forecasts by the Cowlitz-Wahkiakum Council of Governments and the Southwest Washington Regional Transportation Council (RTC) travel demand models.

Trip distribution assumptions are shown in Figure 4.

¹ The case studies included in the ITE Trip Generation Manual for this use are much larger than what is being proposed here. The peak hour and weekday trip generation estimates shown here are on the high end of average rates calculated using ITE.

Figure 4 Trip Distribution with Kirkland Maker Space Proposal



AM peak site trip distribution is shown in Figure 5, while PM peak trips are shown in Figure 6.

Figure 5 Kirkland Maker Space AM Peak Trip Distribution

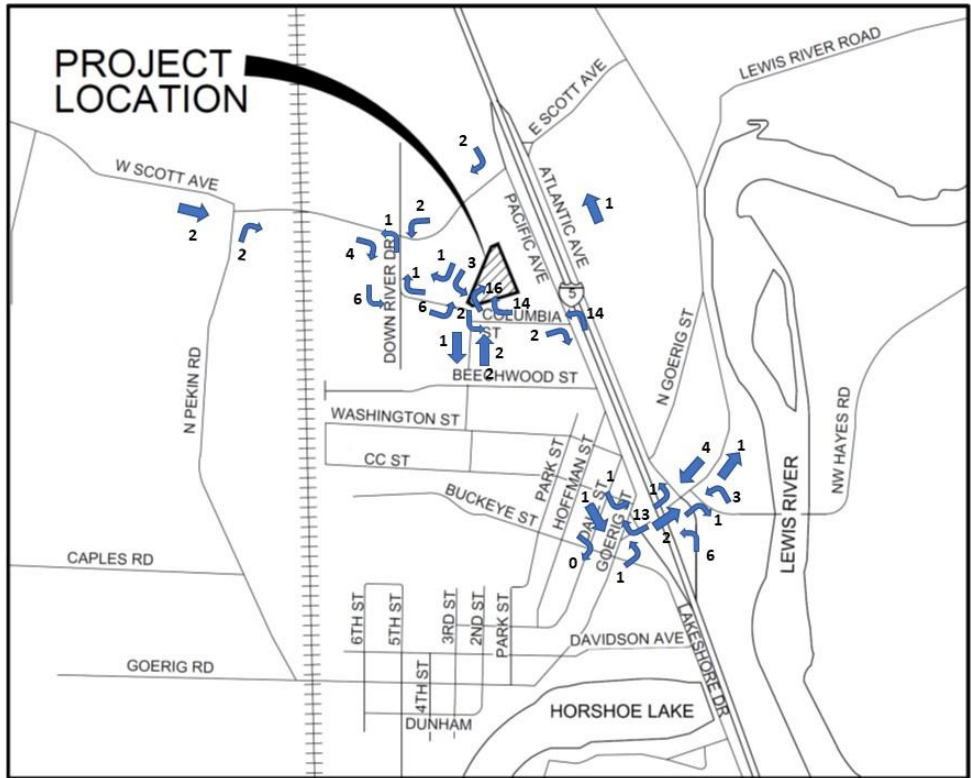
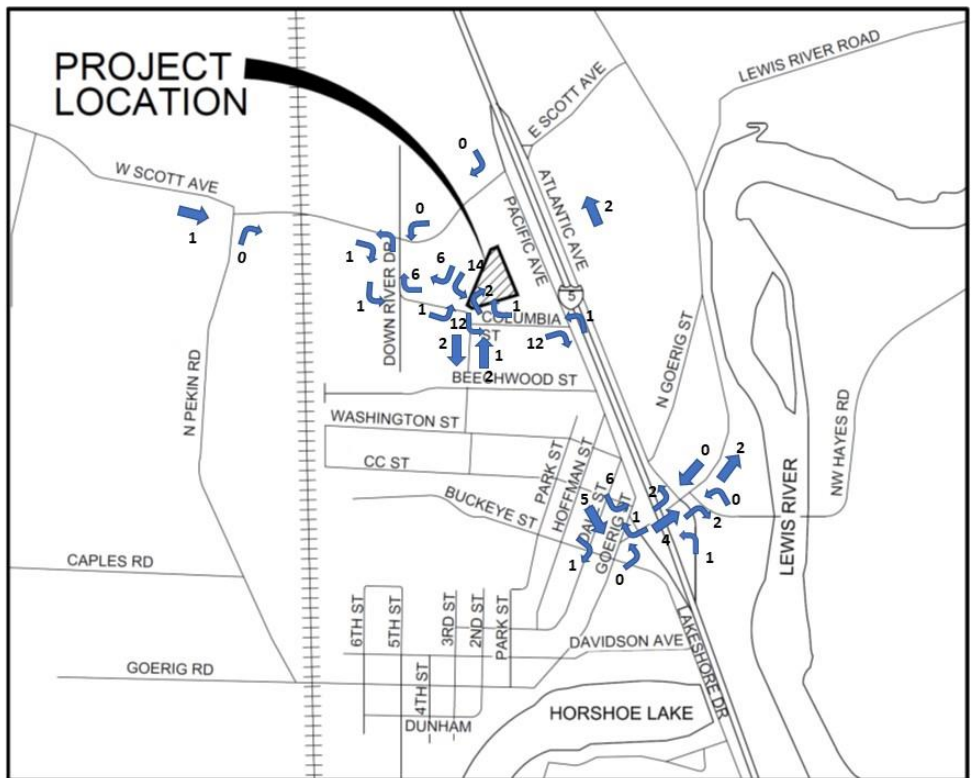


Figure 6 Kirkland Maker Space with PM Peak Trip Distribution



Traffic Operations and Level-of-Service

Based on the trip distribution results, the key intersections most impacted by the Kirkland site are:

- Mitchell Avenue at proposed site access (driveway stop bar controlled)
- Mitchell Avenue at Down River Road (side-street stop sign controlled)
- Columbia Street at Glenwood Street (all-way stop sign controlled)
- Columbia Street at Pacific Avenue (side-street stop sign controlled)

Intersection Capacity Analysis

The Charbonneau TIA undertook counts in November 2020. To evaluate traffic flow and delay, the study intersections were analyzed for level of service (LOS) conditions, delay, queuing, and safety. The intersections on Mitchell Avenue at Down River Road, Glenwood Street at Columbia Street, Pacific Avenue at Columbia Street, and the site access at Mitchell Avenue were evaluated. LOS and queuing analyses were completed in the AM and PM peak hour periods for the following scenarios:

- Year 2020 Traffic
- 2023 Background Traffic
- 2023 Total Traffic

The Highway Capacity Manual definitions of level-of-service include a system rated “A” through “F”, with delay ranges based on type of intersection traffic control (signalized or unsignalized). All study area intersections are stop-controlled and thus unsignalized. All study intersections will operate at acceptable LOS “C” or better through the year 2023 total traffic scenario and meet the City’s standard of LOS “D”. No mitigation is necessary at the intersections. Generally, LOS “A”, “B”, “C”, and “D” are desirable service levels ranging from no vehicle delays to average or longer than average delays in the peak hours. Level “E” represents long delays, indicating signalization warrants need to be reviewed and signals considered only if warrants are met. Level “F” indicates that intersection improvements, such as widening and signalization, may be required. According to the Highway Capacity Manual (HCM), the site access on Mitchell Avenue will operate at acceptable levels-of-service through the year 2023 total traffic scenario.

Existing Conditions

Traffic counts were conducted by All Traffic Data for the Charbonneau TIA in November 2020. That was a non-holiday and the counts were taken during a typical weekday. To factor in the lingering effects of COVID-19 on traffic volumes, counts taken at the Pacific Avenue and Scott Avenue intersection were also taken and compared to counts taken in 2018. The result was to increase the November 2020 counts by a rate of nine percent to account for the COVID-19 impacts to traffic.

Figure 5 illustrates the year 2020 existing conditions volume data.

Background Traffic Growth

City of Woodland staff provided in-process traffic data for the development project. Several approved developments were incorporated into the background traffic scenario. The in-process traffic is presented in Figure 2 and includes Guild Road Industrial Park (Phases #1 & #2), Arco Woodland, and Carpinito Woodland Business Park.

Three years of traffic growth at 3.0% per year has been added to the year 2020 volumes to account for the background traffic volumes. The year 2023 background traffic volumes are illustrated in Figure 6.

Total 2023 Traffic with Site

Site traffic was added to the 2023 background traffic volumes to develop total volumes. These are illustrated in Figure 7.

Table 3 provides a summary of existing, 2023 (site buildout) background conditions, and 2023 full traffic conditions (background plus site trips). As shown in the table, all intersections meet the City's mobility/level-of-service standards in upon site buildout.

Queuing and Left-Turn Lane Analysis

Left turn lanes do not exist on Mitchell Avenue or Glenwood Street. There is a northbound left-turn lane on Pacific Avenue at Columbia Street with approximately 100 feet of storage.

The 95th percentile queues were examined from the Synchro reports contained in Appendices B, C and D (labelled "95th %tile Q" at the bottom of each report). Traffic queues on the stop approaches at all of the study intersections will not exceed two to three vehicles in the peak hours through the year 2023 total traffic scenario. The storage length of the northbound left-turn lane on Pacific Avenue at Columbia Street will not be exceeded. The southbound queue at the site access intersection with Mitchell Avenue will not exceed one to two vehicles in the peak hours.

Additionally, left turn lane warrants were applied to each of the "total traffic scenarios". Based on the results of the queuing and left-turn lane warrants analysis, no mitigation for queuing is required.

Sight Distance Analysis

Intersection sight distance at the future site access intersection with Mitchell Avenue was reviewed in accordance with the American Association of State Highway and Transportation Officials (AASHTO) and City standards. Photos showing sight distance to the west and to the south are posted in Appendix A. Currently over 500 feet of sight distance is available to the west along Mitchell Avenue and to the south along Glenwood Street. It should be noted that the Glenwood Street/Columbia Street is an all-way stop near the proposed site access, but sight distance is clear along Glenwood Street for at least 500 feet.

Based on the posted speed of 25 miles per hour, AASHTO requires that 280 feet of sight distance be available; the intersection sight distance standard will be met at the proposed site access. When the proposed development and site access are built, it will be necessary to maintain the required sight distance. Placement of any objects such as building structures, walls, signing, parking, above ground utilities, or landscaping that obstruct the sightlines is not permitted for safety purposes.

Figure 7 Year 2020 Existing Peak Hour Traffic Volumes (from Charbonneau TIA)

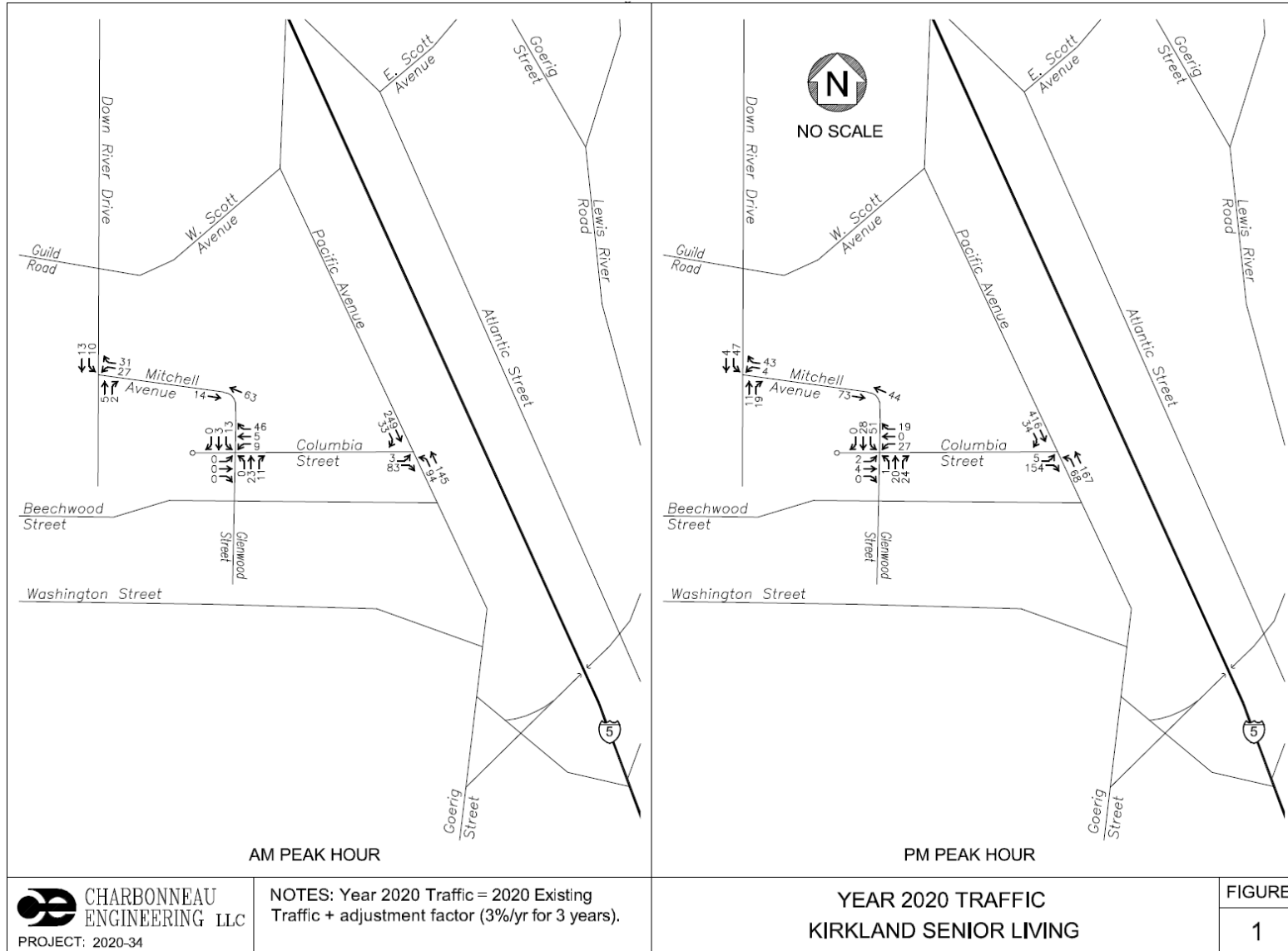


Figure 8 Year 2023 Peak Hour Background Traffic Volumes (from Charbonneau TIA)

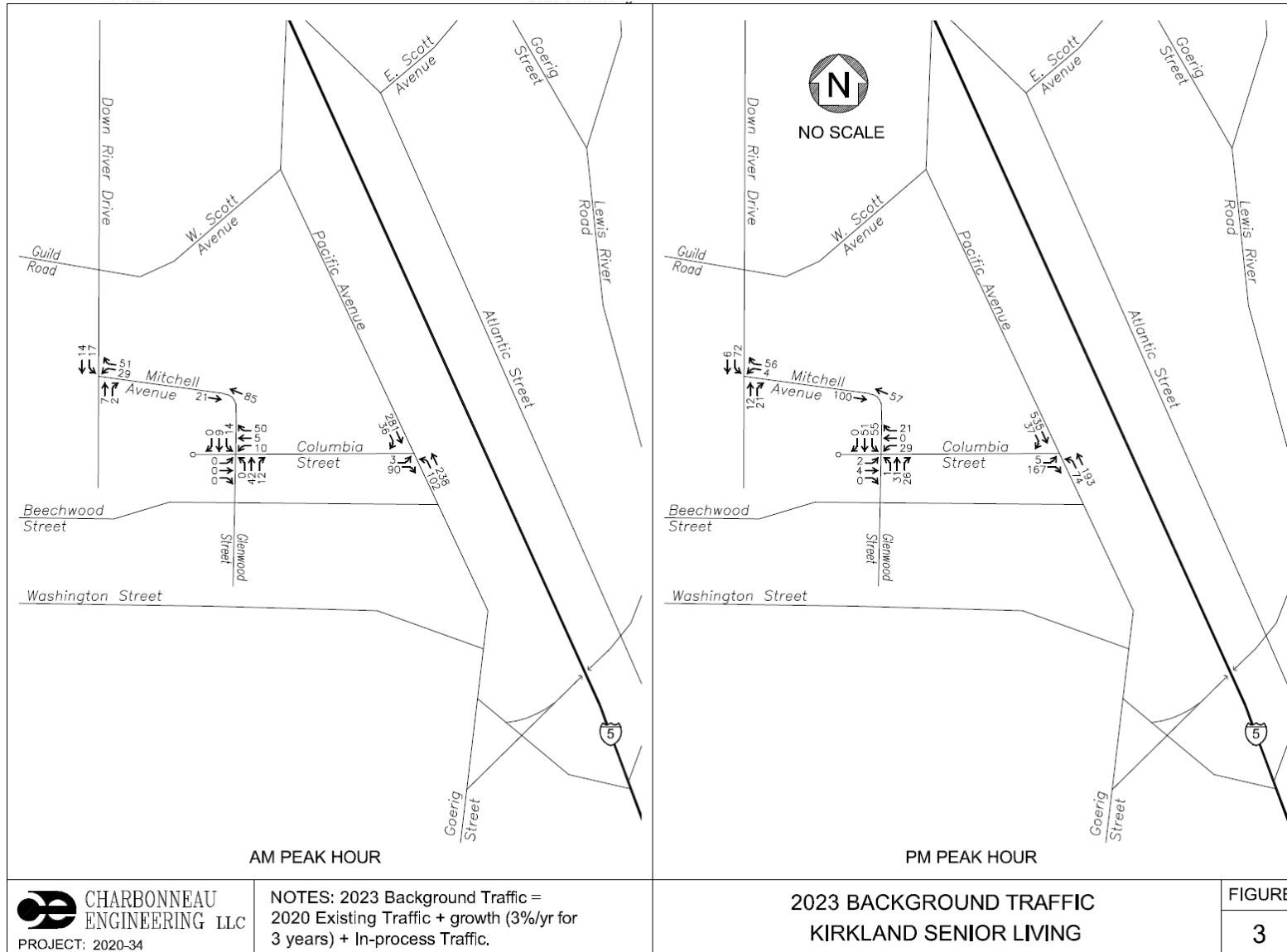


Figure 9 Year 2023 Peak Hour Total Traffic Volumes (With Woodland Maker Space Site)

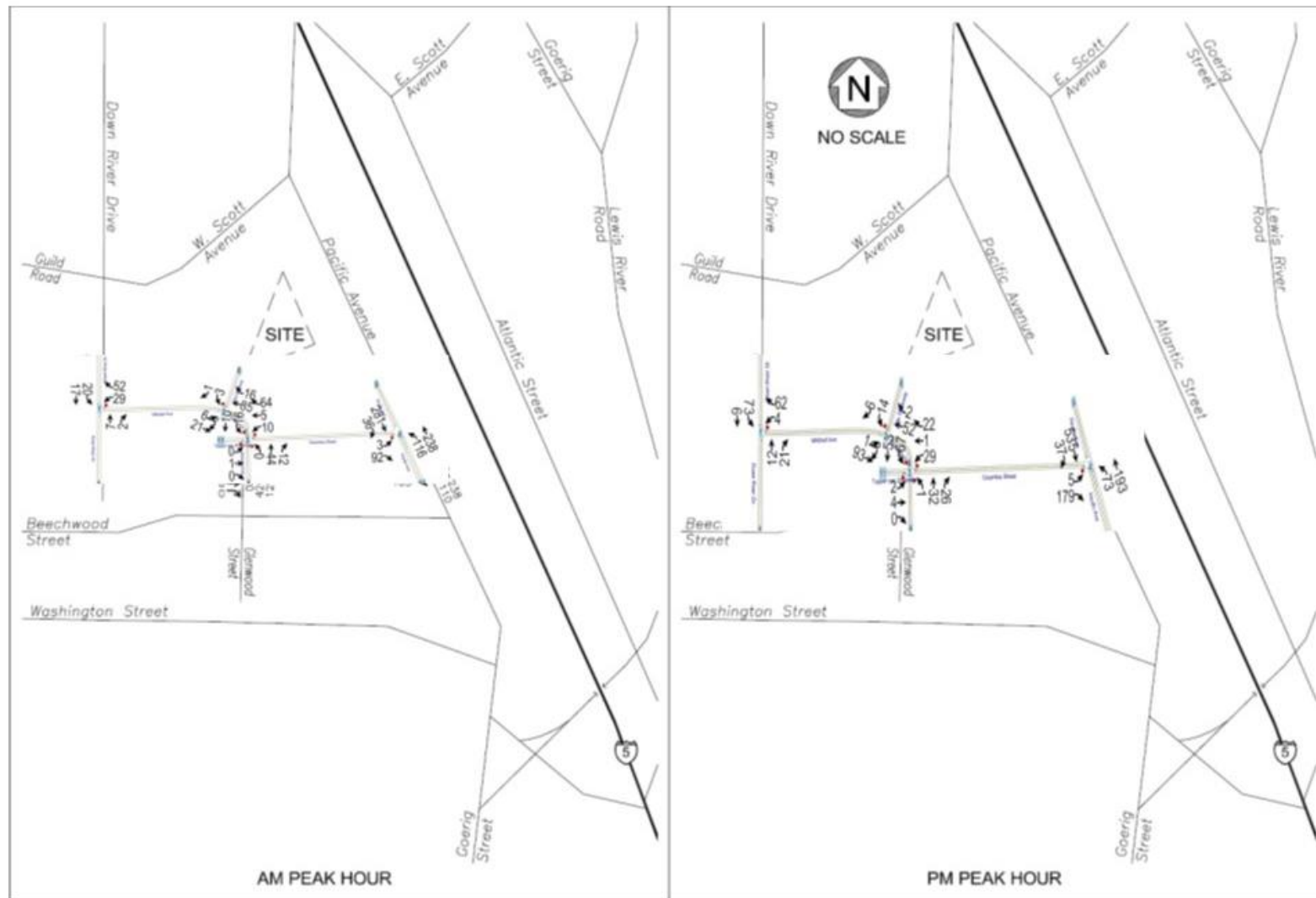


Table 2 Levels-of-Service Analysis Summary

Intersection	Type of Control/ LOS Standard	Scenario											
		Year 2020 Existing				Year 2023 with Background + In-Process				Year 2023 With Site (Total Trips)			
		Control Movement	LOS	Delay	V/C	Control Movement	LOS	Delay	V/C	Control Movement	LOS	Delay	V/C
AM Peak Hour													
1. Down River Drive at Mitchell Avenue	Two-Way Stop/ LOS D	WB	A	8.8	0.06	WB	A	8.9	0.09	WB	A	8.9	0.09
2. Proposed Site Access and Mitchell Avenue	Driveway Yield to Street	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Exiting (SB)	A	9.2	0.01
3. Glenwood Street at Columbia Street	All-Way Stop/ LOS D	---	A	7.4	0.07	---	A	7.4	0.07	---	A	7.5	0.09
4. Pacific Avenue at Columbia Street	Two-Way Stop/ LOS D	EB	B	10.7	0.13	EB	B	11.1	0.14	EB	B	11.2	0.15
PM Peak Hour													
1. Down River Drive at Mitchell Avenue	Two-Way Stop/ LOS D	WB	A	8.7	0.05	WB	A	8.8	0.06	WB	A	8.8	0.07
2. Proposed Site Access and Mitchell Avenue	Driveway Yield to Street	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Exiting (SB)	A	9.3	0.03
3. Glenwood Street at Columbia Street	All-Way Stop/ LOS D	---	A	7.8	0.10	---	A	8.0	0.14	---	A	8.1	0.16
4. Pacific Avenue at Columbia Street	Two-Way Stop/ LOS D	EB	B	13.7	0.29	EB	C	16.6	0.37	EB	C	17.0	0.39

Safety Analysis

Crash data for the study intersections was obtained from the Charbonneau TIA and updated with WSDOT data. The study period covered five years from January 2016 through December 2020.

The crash rates presented in Table 3 are based on the number of accidents per million entering vehicles (MEV) per year. Typically, an intersection has an elevated crash rate when the accident rate exceeds the threshold value of 1.0 accidents per MEV.

Five total crashes have been recorded at the study area locations in the five-year analysis period. There have been no reported crashes at any of the locations since 2018.

None of the locations show an elevated crash rate. No safety mitigation is recommended.

Table 3 Crash Rate Analysis of Study Locations

Intersection	Average Annual Collisions PM Peak				Acc/MEV ⁵
	PDO ²	Injury ³	Fatal ⁴	Total	
Columbia Street at Glenwood Street	1	0	0	1	0.31
Down River Drive at Mitchell Avenue	0	0	0	0	0.00
Pacific Avenue at Columbia Street (I-5 Business Route MP 0.41)	4	0	0	4	0.41
Mitchell Avenue/Glenwood Street, Down River Drive to Columbia Street (includes site access)	0	0	0	0	0.00

Traffic Signal Warrants

Traffic signal warrants from the Manual on Uniform Traffic Control Devices (MUTCD) 2009 Edition with 2012 Updates were reviewed for both peak hours volumes and for collisions. The peak hour signal warrant was evaluated for all study area intersections. It was determined that the warrant is not met through the year 2023 total traffic scenarios on the Mitchell Avenue and Glenwood Street intersections.

The PM peak hour warrant is marginally met for the year 2020 traffic, year 2023 background traffic, and year 2023 total traffic scenarios at the intersection of Pacific Avenue and Columbia Street, if right turns are included in the side-street volumes (see Figure 10). Other jurisdictions, including those in Oregon, tend to discount right-turn volumes if there are sufficient gaps in traffic to safely make right turns without experiencing a substantial delay. If right turns are discounted, the peak hour warrant is not met.

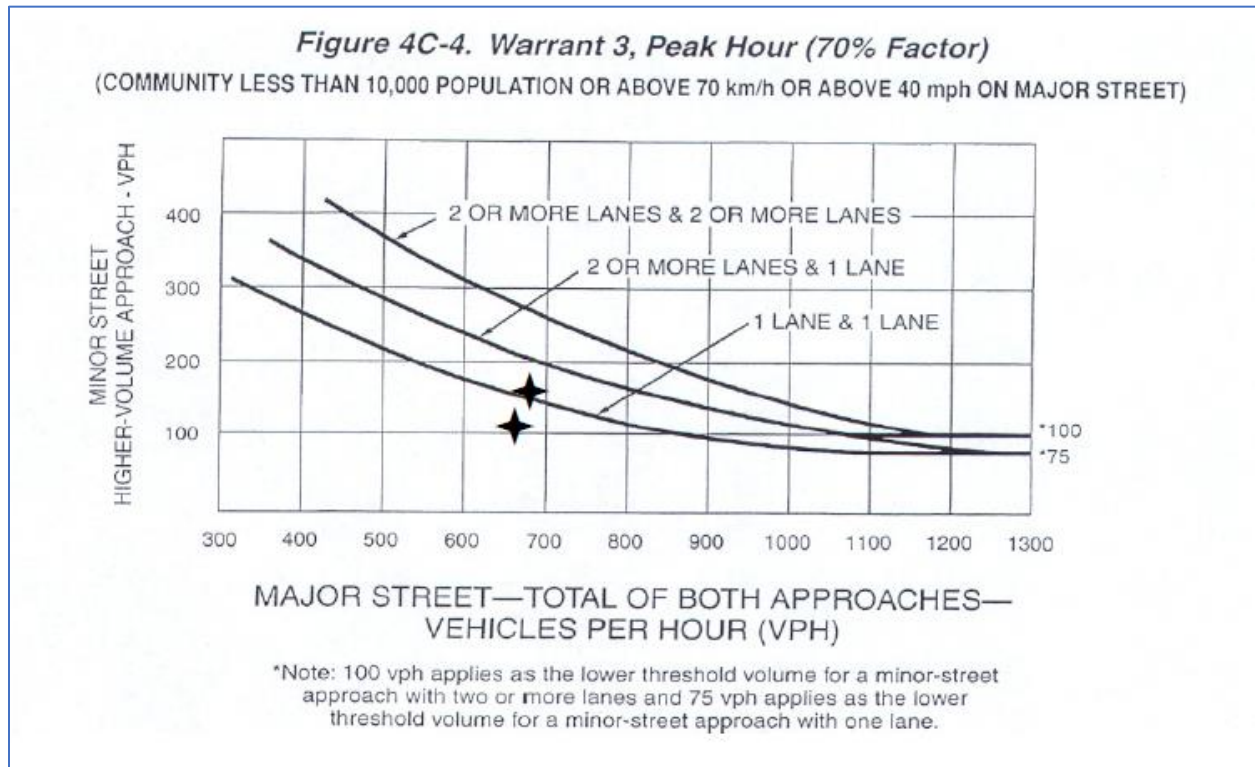
² PDO = Property Damage Only

³ Injury = Crashes involving one or more possible or evident injury/injuries

⁴ Fatal = Crashes involving one or more fatalities

⁵ Acc/MEV = Accidents per Million Entering Vehicles (intersections) or Accidents per Million Vehicle Miles Traveled (segments not at intersections)

Figure 10 Year 2023 Total Traffic Volumes Peak Hour Warrant Analysis



In the case of the Columbia Street/Pacific Avenue intersection, the highest delay is in the 2023 PM peak hour total traffic conditions, but the delay is only 17 seconds, mostly for the few left turning vehicles from Columbia onto Pacific Avenue. Therefore, installation of a traffic signal at the intersection is not recommended for the following reasons:

- The PM peak hour warrant results are marginal, barely exceeding the warrant volume threshold (reference Warrant Figure 4C-4 in appendix), mostly due to the right-turning traffic volumes on Columbia Street.
- The delay to turning traffic is moderate (17 seconds in the 2023 PM Peak with site traffic), and primarily affects the few left-turning vehicles from the side street.
- The intersection does not have an existing, elevated crash rate which is required for a signal to be considered as a crash reduction measure.
- The 95th percentile queues for the northbound left-turn lane do not exceed the existing storage capacity.

Non-Motorized Transportation

Sidewalk is available in the area including along the north side of Mitchell Avenue, east side of Glenwood Street, and south side of Columbia Street. Sidewalk will be constructed within the development site to provide connectivity to the existing sidewalk system on Mitchell Avenue and Glenwood Street.

Bicycle lanes are not provided along the local streets within the study area. No new bike lanes will be constructed with the development project.

Neither C-TRAN nor RiverCities Transit provide service in Woodland. Lower Columbia Community Action Program (CAP) provides regular intercity bus service between Longview, Kalama, Woodland, and Vancouver (99th Street Transit Center) on a daily schedule. The Woodland stop is at the Park-and-Ride

located at the I-5 interchange with Lewis River Road/Goehrig Street, approximately 3,300 feet from the site.

Section 3. Parking Evaluation

Kirkland Maker Space is proposed as a light industrial business park for small, individual manufacturers. Woodland Municipal Code 17.56.040 - Off-street parking - Light industrial district requires one space for each seven hundred square feet of gross floor area used for manufacturing. The code requires two ways to calculate minimum required parking, with the calculation for both employees and floor area required and the greater of the of the two used as the minimum number required: "To insure adequate overall parking facilities, space for parking must be related to both the size of the building and number of expected employees using the same size building, depending on the nature of the operation or building use. Owners must provide parking facilities either on-site or at a satellite facility, based on either subsection (B)(1) or (B)(2) of this section, whichever provides the most parking spaces."

1. Parking in relation to personnel (subsection (B)(1)): *One space for each two plant employees on maximum shift; One space for each managerial personnel; One visitor parking space for every ten managerial personnel; and no less than four per plant site.* Each of the 26 proposed tenant units is anticipated to have one employee and one manager/owner on site during peak times. There would add three visitor spaces (one for each ten units) for a total of 55. Rather than calling each small owner/tenant unit its own "plant", the entire project is would be considered a "plant", and having at least 55 parking spaces would meet the minimum of the four spaces requirement.
2. Parking in relation to floor area (worker density; subsection (B)(2)): *One space for each one thousand two hundred fifty square feet of gross floor area used for warehousing and distribution; one space for each seven hundred square feet of gross floor area used for manufacturing; one space for each four hundred square feet of office floor area.* In this case, each of the 26 owner/tenants will provide their own storage (warehousing) and office space, with distribution being considered as trucks delivering materials to the site. With up to 36,500 square feet of gross floor area, the code requires a total of 52 off-street parking spaces on-site (36,500 GFA divided by one space per 700 GFA yields 52 spaces).

The current proposal is to provide 55 standard stalls, 3 ADA parking stalls, 1 ADA Van-accessible stall, and 3 compact vehicle stalls for a total of 62 spaces. This exceeds the minimum number of spaces required under either (1) or (2) above. The parking supply provided for in the proposal is not expected to result in personnel associated with the uses parking in unauthorized locations either in or adjacent to the light industrial district.

Section 4. Conclusions and Recommendations

The proposed development is expected to have a minor impact on daily and peak hour trip generation and levels-of-service in the site vicinity. The traffic impact analysis concludes that the development will not result in any level-of-service deficiencies and will not result in any safety deficiencies. No mitigation measures related to safety or crash history are recommended.

Appendix A
Site Vicinity Photos

At Proposed Site Access Looking into Site



Looking West Along Mitchell Avenue from Proposed Site Access



Looking South Along Glenwood Street from Proposed Site Access



Adjacent Columbia Street/Glenwood Street Intersection



Appendix B

Existing Conditions
Synchro/Level-of-Service Reports

HCM 2010 TWSC

1: Down River Dr. & Mitchell Ave

08/31/2021

Intersection						
Int Delay, s/veh	6.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		Y			Y
Traffic Vol, veh/h	27	31	5	2	10	13
Future Vol, veh/h	27	31	5	2	10	13
Conflicting Peds, #/hr	1	1	0	1	1	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	92	92	92	92	92	92
Heavy Vehicles, %	2	3	2	3	3	2
Mvmt Flow	29	34	5	2	11	14
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	44	8	0	0	8	0
Stage 1	7	-	-	-	-	-
Stage 2	37	-	-	-	-	-
Critical Hdwy	6.42	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	967	1071	-	-	1606	-
Stage 1	1016	-	-	-	-	-
Stage 2	985	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	958	1069	-	-	1604	-
Mov Cap-2 Maneuver	958	-	-	-	-	-
Stage 1	1015	-	-	-	-	-
Stage 2	977	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	8.8	0	3.2			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	1014	1604		
HCM Lane V/C Ratio	-	-	0.062	0.007		
HCM Control Delay (s)	-	-	8.8	7.3		
HCM Lane LOS	-	-	A	A		
HCM 95th %tile Q(veh)	-	-	0.2	0		



HCM 2010 AWSC

3: Topper Ind. Driveway/Columbia Street & Glenwood St.

09/06/2021

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	1	0	9	5	46	0	23	11	13	3	0
Future Vol, veh/h	0	1	0	9	5	46	0	23	11	13	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	1	0	10	5	50	0	25	12	14	3	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	6.9	7.1	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	15%	81%
Vol Thru, %	68%	100%	8%	19%
Vol Right, %	32%	0%	77%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	34	1	60	16
LT Vol	0	0	9	13
Through Vol	23	1	5	3
RT Vol	11	0	46	0
Lane Flow Rate	37	1	65	17
Geometry Grp	1	1	1	1
Degree of Util (X)	0.04	0.001	0.066	0.021
Departure Headway (Hd)	3.919	4.128	3.649	4.292
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	914	865	981	835
Service Time	1.94	2.161	1.674	2.314
HCM Lane V/C Ratio	0.04	0.001	0.066	0.02
HCM Control Delay	7.1	7.2	6.9	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0	0.2	0.1



HCM 2010 TWSC

4: Pacific Ave & Columbia Street

08/31/2021

Intersection						
Int Delay, s/veh	2.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	U	U	
Traffic Vol, veh/h	3	83	94	145	249	33
Future Vol, veh/h	3	83	94	145	249	33
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	3	87	99	153	262	35
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	632	281	298	0	-	0
Stage 1	281	-	-	-	-	-
Stage 2	351	-	-	-	-	-
Critical Hdwy	6.46	6.26	4.16	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	2.254	-	-	-
Pot Cap-1 Maneuver	438	748	1241	-	-	-
Stage 1	757	-	-	-	-	-
Stage 2	704	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	402	747	1240	-	-	-
Mov Cap-2 Maneuver	402	-	-	-	-	-
Stage 1	696	-	-	-	-	-
Stage 2	703	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	10.7	3.2	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1240	-	725	-	-	
HCM Lane V/C Ratio	0.08	-	0.125	-	-	
HCM Control Delay (s)	8.2	-	10.7	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0.3	-	0.4	-	-	



HCM 2010 TWSC

1: Down River Dr. & Mitchell Ave

09/06/2021

Intersection

Int Delay, s/veh 5.9

Movement WBL WBR NBT NBR SBL SBT

Lane Configurations	W	W	N	N	S	S
Traffic Vol, veh/h	4	43	11	19	47	4
Future Vol, veh/h	4	43	11	19	47	4
Conflicting Peds, #/hr	1	1	0	1	1	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	92	92	92	92	92	92
Heavy Vehicles, %	2	3	2	3	3	2
Mvmt Flow	4	47	12	21	51	4

Major/Minor Minor1 Major1 Major2

Conflicting Flow All	131	25	0	0	34	0
Stage 1	24	-	-	-	-	-
Stage 2	107	-	-	-	-	-
Critical Hdwy	6.42	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	863	1048	-	-	1571	-
Stage 1	999	-	-	-	-	-
Stage 2	917	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	833	1046	-	-	1570	-
Mov Cap-2 Maneuver	833	-	-	-	-	-
Stage 1	998	-	-	-	-	-
Stage 2	886	-	-	-	-	-

Approach WB NB SB

HCM Control Delay, s	8.7	0	6.8
HCM LOS	A		

Minor Lane/Major Mvmt NBT NBRWBLn1 SBL SBT

Capacity (veh/h)	-	-	1024	1570	-
HCM Lane V/C Ratio	-	-	0.05	0.033	-
HCM Control Delay (s)	-	-	8.7	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-



HCM 2010 AWSC

3: Topper Ind. Driveway/Columbia Street & Glenwood St.

09/06/2021

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	2	4	0	27	1	19	1	20	24	51	28	0
Future Vol, veh/h	2	4	0	27	1	19	1	20	24	51	28	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	2	4	0	29	1	21	1	22	26	55	30	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	7.4	7.4	7.1	7.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	33%	57%	65%
Vol Thru, %	44%	67%	2%	35%
Vol Right, %	53%	0%	40%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	45	6	47	79
LT Vol	1	2	27	51
Through Vol	20	4	1	28
RT Vol	24	0	19	0
Lane Flow Rate	49	7	51	86
Geometry Grp	1	1	1	1
Degree of Util (X)	0.052	0.008	0.058	0.101
Departure Headway (Hd)	3.834	4.323	4.094	4.251
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	927	818	866	841
Service Time	1.885	2.401	2.161	2.288
HCM Lane V/C Ratio	0.053	0.009	0.059	0.102
HCM Control Delay	7.1	7.4	7.4	7.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0	0.2	0.3



Intersection

Int Delay, s/veh	3.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑	↑	
Traffic Vol, veh/h	5	154	68	167	416	34
Future Vol, veh/h	5	154	68	167	416	34
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	5	162	72	176	438	36

Major/Minor

	Minor2	Major1		Major2	
Conflicting Flow All	777	457	475	0	- 0
Stage 1	457	-	-	-	-
Stage 2	320	-	-	-	-
Critical Hdwy	6.46	6.26	4.16	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-
Follow-up Hdwy	3.554	3.354	2.254	-	-
Pot Cap-1 Maneuver	360	595	1066	-	-
Stage 1	629	-	-	-	-
Stage 2	727	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	335	594	1065	-	-
Mov Cap-2 Maneuver	335	-	-	-	-
Stage 1	586	-	-	-	-
Stage 2	726	-	-	-	-

Approach

	EB	NB	SB
HCM Control Delay, s	13.7	2.5	0
HCM LOS	B		

Minor Lane/Major Mvmt

	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1065	-	580	-	-
HCM Lane V/C Ratio	0.067	-	0.289	-	-
HCM Control Delay (s)	8.6	-	13.7	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.2	-	1.2	-	-



Appendix C

Year 2023 Background Traffic
Synchro/Level-of-Service Reports

HCM 2010 TWSC

1: Down River Dr. & Mitchell Ave

08/31/2021

Intersection						
Int Delay, s/veh	6.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Vol, veh/h	29	51	7	2	14	17
Future Vol, veh/h	29	51	7	2	14	17
Conflicting Peds, #/hr	1	1	0	1	1	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	92	92	92	92	92	92
Heavy Vehicles, %	2	3	2	3	3	2
Mvmt Flow	32	55	8	2	15	18
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	59	11	0	0	11	0
Stage 1	10	-	-	-	-	-
Stage 2	49	-	-	-	-	-
Critical Hdwy	6.42	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	948	1067	-	-	1602	-
Stage 1	1013	-	-	-	-	-
Stage 2	973	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	938	1065	-	-	1600	-
Mov Cap-2 Maneuver	938	-	-	-	-	-
Stage 1	1012	-	-	-	-	-
Stage 2	963	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	8.9	0	3.3			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	1015	1600		
HCM Lane V/C Ratio	-	-	0.086	0.01		
HCM Control Delay (s)	-	-	8.9	7.3	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.3	0		



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	0	1	0	10	5	50	0	42	12	14	9	0
Future Vol, veh/h	0	1	0	10	5	50	0	42	12	14	9	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	1	0	11	5	54	0	46	13	15	10	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	7.3	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	15%	61%
Vol Thru, %	78%	100%	8%	39%
Vol Right, %	22%	0%	77%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	54	1	65	23
LT Vol	0	0	10	14
Through Vol	42	1	5	9
RT Vol	12	0	50	0
Lane Flow Rate	59	1	71	25
Geometry Grp	1	1	1	1
Degree of Util (X)	0.065	0.001	0.073	0.03
Departure Headway (Hd)	3.996	4.184	3.699	4.277
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	896	850	964	836
Service Time	2.023	2.234	1.739	2.308
HCM Lane V/C Ratio	0.066	0.001	0.074	0.03
HCM Control Delay	7.3	7.2	7	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0	0.2	0.1



HCM 2010 TWSC
4: Pacific Ave & Columbia Street

08/31/2021

Intersection						
Int Delay, s/veh	2.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑	↑	
Traffic Vol, veh/h	3	90	102	238	281	36
Future Vol, veh/h	3	90	102	238	281	36
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	3	95	107	251	296	38
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	781	316	335	0	-	0
Stage 1	316	-	-	-	-	-
Stage 2	465	-	-	-	-	-
Critical Hdwy	6.46	6.26	4.16	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	2.254	-	-	-
Pot Cap-1 Maneuver	358	715	1202	-	-	-
Stage 1	730	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	325	714	1201	-	-	-
Mov Cap-2 Maneuver	325	-	-	-	-	-
Stage 1	664	-	-	-	-	-
Stage 2	623	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	11.1	2.5		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1201	-	687	-	-	
HCM Lane V/C Ratio	0.089	-	0.142	-	-	
HCM Control Delay (s)	8.3	-	11.1	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0.3	-	0.5	-	-	



HCM 2010 TWSC
1: Down River Dr. & Mitchell Ave

09/06/2021

Intersection						
Int Delay, s/veh	6.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T	T	T	T
Traffic Vol, veh/h	4	56	12	21	72	6
Future Vol, veh/h	4	56	12	21	72	6
Conflicting Peds, #/hr	1	1	0	1	1	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	92	92	92	92	92	92
Heavy Vehicles, %	2	3	2	3	3	2
Mvmt Flow	4	61	13	23	78	7
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	190	27	0	0	37	0
Stage 1	26	-	-	-	-	-
Stage 2	164	-	-	-	-	-
Critical Hdwy	6.42	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	799	1046	-	-	1567	-
Stage 1	997	-	-	-	-	-
Stage 2	865	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	757	1044	-	-	1566	-
Mov Cap-2 Maneuver	757	-	-	-	-	-
Stage 1	996	-	-	-	-	-
Stage 2	821	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	8.8	0	6.8			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	1018	1566	-	
HCM Lane V/C Ratio	-	-	0.064	0.05	-	
HCM Control Delay (s)	-	-	8.8	7.4	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0.2	-	



HCM 2010 AWSC

3: Topper Ind. Driveway/Columbia Street & Glenwood St.

09/06/2021

Intersection

Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	4	0	29	1	21	1	31	26	55	51	0
Future Vol, veh/h	2	4	0	29	1	21	1	31	26	55	51	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	2	4	0	32	1	23	1	34	28	60	55	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	7.5	7.5	7.3	8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %		2%	33%	57%
Vol Thru, %		53%	67%	2%
Vol Right, %		45%	0%	41%
Sign Control		Stop	Stop	Stop
Traffic Vol by Lane		58	6	51
LT Vol		1	2	29
Through Vol		31	4	1
RT Vol		26	0	21
Lane Flow Rate		63	7	55
Geometry Grp		1	1	1
Degree of Util (X)		0.069	0.008	0.064
Departure Headway (Hd)		3.914	4.507	4.163
Convergence, Y/N		Yes	Yes	Yes
Cap		906	799	847
Service Time		1.977	2.507	2.254
HCM Lane V/C Ratio		0.07	0.009	0.065
HCM Control Delay		7.3	7.5	7.5
HCM Lane LOS		A	A	A
HCM 95th-tile Q		0.2	0	0.2



HCM 2010 TWSC

4: Pacific Ave & Columbia Street

09/06/2021

Intersection						
Int Delay, s/veh	3.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑	↔	
Traffic Vol, veh/h	5	167	72	193	535	37
Future Vol, veh/h	5	167	72	193	535	37
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	5	176	76	203	563	39
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	939	584	603	0	-	0
Stage 1	584	-	-	-	-	-
Stage 2	355	-	-	-	-	-
Critical Hdwy	6.46	6.26	4.16	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	2.254	-	-	-
Pot Cap-1 Maneuver	288	504	955	-	-	-
Stage 1	550	-	-	-	-	-
Stage 2	701	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	264	504	954	-	-	-
Mov Cap-2 Maneuver	264	-	-	-	-	-
Stage 1	505	-	-	-	-	-
Stage 2	700	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	16.6	2.5	0			
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	954	-	491	-	-	
HCM Lane V/C Ratio	0.079	-	0.369	-	-	
HCM Control Delay (s)	9.1	-	16.6	-	-	
HCM Lane LOS	A	-	C	-	-	
HCM 95th %tile Q(veh)	0.3	-	1.7	-	-	



Appendix D

Year 2023 Total Traffic with Site
Synchro/Level-of-Service Reports

HCM 2010 TWSC
1: Down River Dr. & Mitchell Ave

08/31/2021

Intersection

Int Delay, s/veh 6.8

Movement WBL WBR NBT NBR SBL SBT

Lane Configurations	W	W	N	N	S	S
Traffic Vol, veh/h	29	52	7	2	20	17
Future Vol, veh/h	29	52	7	2	20	17
Conflicting Peds, #/hr	1	1	0	1	1	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	92	92	92	92	92	92
Heavy Vehicles, %	2	3	2	3	3	2
Mvmt Flow	32	57	8	2	22	18

Major/Minor Minor1 Major1 Major2

Conflicting Flow All	73	11	0	0	11	0
Stage 1	10	-	-	-	-	-
Stage 2	63	-	-	-	-	-
Critical Hdwy	6.42	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	931	1067	-	-	1602	-
Stage 1	1013	-	-	-	-	-
Stage 2	960	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	916	1065	-	-	1600	-
Mov Cap-2 Maneuver	916	-	-	-	-	-
Stage 1	1012	-	-	-	-	-
Stage 2	946	-	-	-	-	-

Approach WB NB SB

HCM Control Delay, s	8.9	0	3.9
HCM LOS	A		

Minor Lane/Major Mvmt NBT NBRWBLn1 SBL SBT

Capacity (veh/h)	-	-	1006	1600	-
HCM Lane V/C Ratio	-	-	0.088	0.014	-
HCM Control Delay (s)	-	-	8.9	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-



HCM 2010 TWSC

2: Mitchell Ave/Glenwood St. & Site Driveway

08/31/2021

Intersection

Int Delay, s/veh 0.6

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	6	21	85	16	3	1
Future Vol, veh/h	6	21	85	16	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	5	5
Mvmt Flow	7	23	92	17	3	1

Major/Minor Major1 Major2 Minor2

Conflicting Flow All	109	0	-	0	138	101
Stage 1	-	-	-	-	101	-
Stage 2	-	-	-	-	37	-
Critical Hdwy	4.12	-	-	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	2.218	-	-	-	3.545	3.345
Pot Cap-1 Maneuver	1481	-	-	-	848	946
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	978	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1481	-	-	-	844	946
Mov Cap-2 Maneuver	-	-	-	-	844	-
Stage 1	-	-	-	-	911	-
Stage 2	-	-	-	-	978	-

Approach EB WB SB

HCM Control Delay, s	1.7	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1

Capacity (veh/h)	1481	-	-	-	867
HCM Lane V/C Ratio	0.004	-	-	-	0.005
HCM Control Delay (s)	7.4	0	-	-	9.2
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0



HCM 2010 AWSC

3: Topper Ind. Driveway/Columbia Street & Glenwood St.

09/06/2021

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	1	0	10	5	64	0	44	12	16	10	0
Future Vol, veh/h	0	1	0	10	5	64	0	44	12	16	10	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	1	0	11	5	70	0	48	13	17	11	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	7.3	7.1	7.4	7.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	13%	62%
Vol Thru, %	79%	100%	6%	38%
Vol Right, %	21%	0%	81%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	56	1	79	26
LT Vol	0	0	10	16
Through Vol	44	1	5	10
RT Vol	12	0	64	0
Lane Flow Rate	61	1	86	28
Geometry Grp	1	1	1	1
Degree of Util (X)	0.068	0.001	0.088	0.034
Departure Headway (Hd)	4.029	4.205	3.678	4.306
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	887	845	969	829
Service Time	2.06	2.261	1.723	2.342
HCM Lane V/C Ratio	0.069	0.001	0.089	0.034
HCM Control Delay	7.4	7.3	7.1	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0	0.3	0.1



HCM 2010 TWSC
4: Pacific Ave & Columbia Street

08/31/2021

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		Y	↑	↑	
Traffic Vol, veh/h	3	92	116	238	281	36
Future Vol, veh/h	3	92	116	238	281	36
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	3	97	122	251	296	38

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	811	316	335	0	-	0
Stage 1	316	-	-	-	-	-
Stage 2	495	-	-	-	-	-
Critical Hdwy	6.46	6.26	4.16	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	2.254	-	-	-
Pot Cap-1 Maneuver	343	715	1202	-	-	-
Stage 1	730	-	-	-	-	-
Stage 2	604	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	307	714	1201	-	-	-
Mov Cap-2 Maneuver	307	-	-	-	-	-
Stage 1	655	-	-	-	-	-
Stage 2	603	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.2	2.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1201	-	685	-	-
HCM Lane V/C Ratio	0.102	-	0.146	-	-
HCM Control Delay (s)	8.3	-	11.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.5	-	-



HCM 2010 TWSC

1: Down River Dr. & Mitchell Ave

09/06/2021

Intersection						
Int Delay, s/veh	6.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T	T	T	T
Traffic Vol, veh/h	4	62	12	21	73	6
Future Vol, veh/h	4	62	12	21	73	6
Conflicting Peds, #/hr	1	1	0	1	1	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	92	92	92	92	92	92
Heavy Vehicles, %	2	3	2	3	3	2
Mvmt Flow	4	67	13	23	79	7

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	192	27	0	0	37
Stage 1	26	-	-	-	-
Stage 2	166	-	-	-	-
Critical Hdwy	6.42	6.23	-	-	4.13
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.327	-	-	2.227
Pot Cap-1 Maneuver	797	1046	-	-	1567
Stage 1	997	-	-	-	-
Stage 2	863	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	755	1044	-	-	1566
Mov Cap-2 Maneuver	755	-	-	-	-
Stage 1	996	-	-	-	-
Stage 2	818	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	6.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1020	1566
HCM Lane V/C Ratio	-	-	0.07	0.051
HCM Control Delay (s)	-	-	8.8	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.2



HCM 2010 TWSC

2: Mitchell Ave/Glenwood St. & Site Driveway

09/06/2021

Intersection

Int Delay, s/veh 1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	1	93	52	2	14	6
Future Vol, veh/h	1	93	52	2	14	6
Conflicting Peds, #/hr	0	0	0	0	0	0
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	5	5
Mvmt Flow	1	101	57	2	15	7

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	59	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	1545	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1545	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	9.3
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1545	-	-	-	868
HCM Lane V/C Ratio	0.001	-	-	-	0.025
HCM Control Delay (s)	7.3	0	-	-	9.3
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1



HCM 2010 AWSC

3: Topper Ind. Driveway/Columbia Street & Glenwood St.

09/06/2021

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	4	0	29	1	22	1	32	26	67	53	0
Future Vol, veh/h	2	4	0	29	1	22	1	32	26	67	53	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	2	4	0	32	1	24	1	35	28	73	58	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	7.6	7.6	7.3	8.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %		2%	33%	56%
Vol Thru, %		54%	67%	2%
Vol Right, %		44%	0%	42%
Sign Control		Stop	Stop	Stop
Traffic Vol by Lane		59	6	52
LT Vol		1	2	29
Through Vol		32	4	1
RT Vol		26	0	22
Lane Flow Rate		64	7	57
Geometry Grp		1	1	1
Degree of Util (X)		0.07	0.008	0.066
Departure Headway (Hd)		3.933	4.546	4.183
Convergence, Y/N		Yes	Yes	Yes
Cap		901	792	842
Service Time		2.001	2.546	2.282
HCM Lane V/C Ratio		0.071	0.009	0.068
HCM Control Delay		7.3	7.6	7.6
HCM Lane LOS		A	A	A
HCM 95th-tile Q		0.2	0	0.2



HCM 2010 AWSC

3: Topper Ind. Driveway/Columbia Street & Glenwood St.

09/06/2021

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	4	0	29	1	22	1	32	26	67	53	0
Future Vol, veh/h	2	4	0	29	1	22	1	32	26	67	53	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	2	4	0	32	1	24	1	35	28	73	58	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	7.6	7.6	7.3	8.1
HCM LOS	A	A	A	A

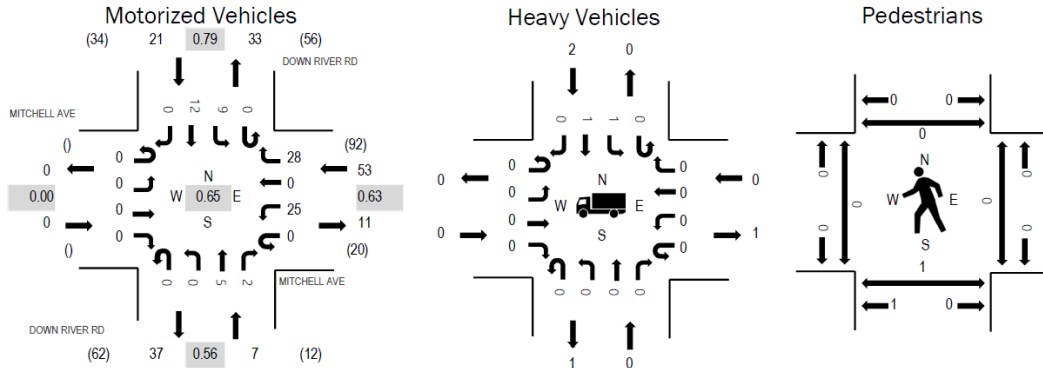
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %		2%	33%	56%
Vol Thru, %		54%	67%	2%
Vol Right, %		44%	0%	42%
Sign Control		Stop	Stop	Stop
Traffic Vol by Lane		59	6	52
LT Vol		1	2	29
Through Vol		32	4	1
RT Vol		26	0	22
Lane Flow Rate		64	7	57
Geometry Grp		1	1	1
Degree of Util (X)		0.07	0.008	0.066
Departure Headway (Hd)		3.933	4.546	4.183
Convergence, Y/N		Yes	Yes	Yes
Cap		901	792	842
Service Time		2.001	2.546	2.282
HCM Lane V/C Ratio		0.071	0.009	0.068
HCM Control Delay		7.3	7.6	7.6
HCM Lane LOS		A	A	A
HCM 95th-tile Q		0.2	0	0.2



Appendix E

Traffic Counts

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	0.0%	0.63
NB	0.0%	0.56
SB	9.5%	0.79
All	2.5%	0.65

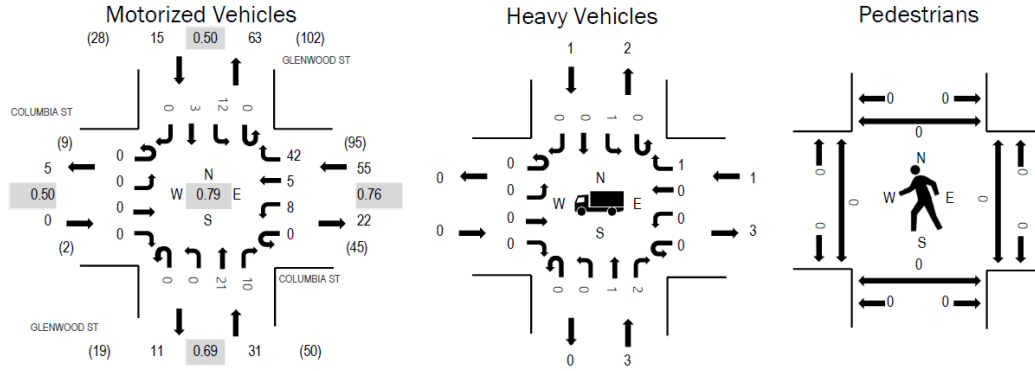
Traffic Counts - Motorized Vehicles

Interval Start Time	MITCHELL AVE Eastbound				MITCHELL AVE Westbound			DOWN RIVER RD Northbound				DOWN RIVER RD Southbound				Total	Rolling Hour	
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru			Right
7:00 AM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	3	70
7:05 AM	0	0	0	0	0	3	0	2	0	0	0	0	0	0	0	0	5	75
7:10 AM	0	0	0	0	0	1	0	3	0	0	0	0	0	0	1	0	5	77
7:15 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	2	0	0	7	80
7:20 AM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	78
7:25 AM	0	0	0	0	0	3	0	1	0	0	0	0	0	1	2	0	7	81
7:30 AM	0	0	0	0	0	0	0	4	0	0	0	0	0	2	1	0	7	79
7:35 AM	0	0	0	0	0	6	0	2	0	0	0	0	0	0	0	0	8	76
7:40 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	2	72
7:45 AM	0	0	0	0	0	2	0	1	0	0	2	0	0	0	1	0	6	74
7:50 AM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	75
7:55 AM	0	0	0	0	0	3	0	8	0	0	1	0	0	1	3	0	16	79
8:00 AM	0	0	0	0	0	3	0	1	0	0	1	0	0	1	2	0	8	68
8:05 AM	0	0	0	0	0	4	0	3	0	0	0	0	0	0	0	0	7	
8:10 AM	0	0	0	0	0	0	0	4	0	0	1	1	0	2	0	0	8	
8:15 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	2	0	5	
8:20 AM	0	0	0	0	0	2	0	1	0	0	0	1	0	1	0	0	5	
8:25 AM	0	0	0	0	0	2	0	1	0	0	0	0	0	1	1	0	5	
8:30 AM	0	0	0	0	0	1	0	3	0	0	0	0	0	0	0	0	4	
8:35 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	1	2	0	4	
8:40 AM	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0	4	
8:45 AM	0	0	0	0	0	2	0	2	0	0	1	1	0	0	1	0	7	
8:50 AM	0	0	0	0	0	2	0	2	0	0	0	1	0	1	0	0	6	
8:55 AM	0	0	0	0	0	2	0	2	0	0	0	1	0	0	0	0	5	
Count Total	0	0	0	0	0	43	0	49	0	0	7	5	0	15	19	0	138	
Peak Hour	0	0	0	0	0	25	0	28	0	0	5	2	0	9	12	0	81	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM						7:00 AM	0	0	0	0	0
7:05 AM	0	0	0	0	0	7:05 AM						7:05 AM	0	0	0	0	0
7:10 AM	0	0	0	0	0	7:10 AM						7:10 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0	7:15 AM						7:15 AM	0	0	0	0	0
7:20 AM	0	0	0	0	0	7:20 AM						7:20 AM	0	0	0	0	0
7:25 AM	0	0	0	0	0	7:25 AM						7:25 AM	0	1	0	0	1
7:30 AM	0	0	0	1	1	7:30 AM						7:30 AM	0	0	0	0	0
7:35 AM	0	0	0	0	0	7:35 AM						7:35 AM	0	0	0	0	0
7:40 AM	0	0	0	0	0	7:40 AM						7:40 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0	7:45 AM						7:45 AM	0	0	0	0	0
7:50 AM	0	0	0	0	0	7:50 AM						7:50 AM	0	0	0	0	0
7:55 AM	0	0	0	0	0	7:55 AM						7:55 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0	8:00 AM						8:00 AM	0	0	0	0	0
8:05 AM	0	0	0	0	0	8:05 AM						8:05 AM	0	0	0	0	0
8:10 AM	0	0	0	1	1	8:10 AM						8:10 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0	8:15 AM						8:15 AM	0	0	0	0	0
8:20 AM	0	0	0	0	0	8:20 AM						8:20 AM	0	0	0	0	0
8:25 AM	0	0	0	0	0	8:25 AM						8:25 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0	8:30 AM						8:30 AM	0	0	0	0	0
8:35 AM	0	0	0	0	0	8:35 AM						8:35 AM	0	0	0	0	0
8:40 AM	0	0	0	0	0	8:40 AM						8:40 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0	8:45 AM						8:45 AM	0	0	0	0	0
8:50 AM	0	0	0	0	0	8:50 AM						8:50 AM	0	0	0	0	0
8:55 AM	0	0	0	0	0	8:55 AM						8:55 AM	0	0	0	0	0
Count Total	0	0	0	2	2	Count Total						Count Total	0	1	0	0	1
Peak Hour	0	0	0	2	2	Peak Hour						Peak Hour	0	1	0	0	1

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.50
WB	1.8%	0.76
NB	9.7%	0.69
SB	6.7%	0.50
All	5.0%	0.79

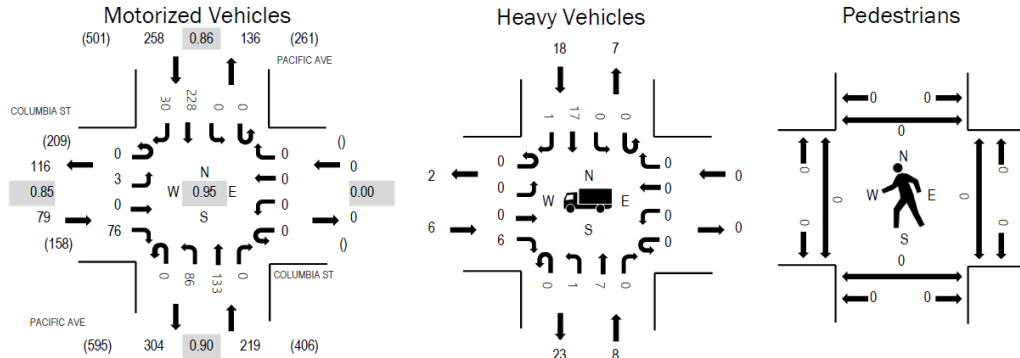
Traffic Counts - Motorized Vehicles

Interval Start Time	COLUMBIA ST Eastbound				COLUMBIA ST Westbound				GLENWOOD ST Northbound			GLENWOOD ST Southbound				Total	Rolling Hour	
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru			Right
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	3	91
7:05 AM	0	0	0	0	0	1	0	0	4	0	1	1	0	0	0	0	7	99
7:10 AM	0	0	0	0	0	1	0	3	0	0	3	0	0	0	0	0	7	101
7:15 AM	0	0	0	0	0	0	0	4	0	0	0	1	0	3	1	0	9	100
7:20 AM	0	0	0	0	0	2	0	1	0	0	1	0	0	1	0	0	5	96
7:25 AM	0	0	0	0	0	1	0	3	0	0	1	0	0	3	0	0	8	98
7:30 AM	0	0	0	0	0	0	1	4	0	0	1	0	0	3	0	0	9	95
7:35 AM	0	0	0	0	0	1	0	5	0	0	2	2	0	0	0	0	10	94
7:40 AM	0	0	0	0	0	2	0	1	0	0	3	2	0	1	0	0	9	90
7:45 AM	0	0	0	0	0	0	1	3	0	0	0	2	0	0	0	0	6	83
7:50 AM	0	0	0	0	0	1	2	1	0	0	1	0	0	1	0	0	6	83
7:55 AM	0	0	0	0	0	0	0	3	0	0	8	0	0	0	1	0	12	86
8:00 AM	0	0	0	0	0	0	1	7	0	0	0	2	0	0	1	0	11	84
8:05 AM	0	0	0	0	0	0	0	7	0	0	1	1	0	0	0	0	9	
8:10 AM	0	0	0	0	0	0	0	1	0	0	2	2	0	1	0	0	6	
8:15 AM	0	0	0	0	0	0	0	3	0	0	0	1	0	1	0	0	5	
8:20 AM	0	0	0	0	0	0	0	2	0	0	1	1	0	2	0	1	7	
8:25 AM	0	0	0	0	0	1	0	3	0	0	0	1	0	0	0	0	5	
8:30 AM	0	0	1	0	0	1	0	4	0	0	1	0	0	1	0	0	8	
8:35 AM	0	0	0	0	0	1	2	2	0	0	0	0	0	0	1	0	6	
8:40 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2	
8:45 AM	0	0	0	0	0	1	0	4	0	0	0	0	0	1	0	0	6	
8:50 AM	0	1	0	0	0	1	0	2	0	0	2	1	0	2	0	0	9	
8:55 AM	0	0	0	0	0	1	0	4	0	0	0	2	0	3	0	0	10	
Count Total	0	1	1	0	0	15	8	72	0	0	29	21	0	23	4	1	175	
Peak Hour	0	0	0	0	0	8	5	42	0	0	21	10	0	12	3	0	101	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM						7:00 AM	0	0	0	0	0
7:05 AM	0	0	0	0	0	7:05 AM						7:05 AM	0	0	0	0	0
7:10 AM	0	0	0	0	0	7:10 AM						7:10 AM	0	0	0	0	0
7:15 AM	0	0	0	1	1	7:15 AM						7:15 AM	0	0	0	0	0
7:20 AM	0	0	0	0	0	7:20 AM						7:20 AM	0	0	0	0	0
7:25 AM	0	0	0	0	0	7:25 AM						7:25 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0	7:30 AM						7:30 AM	0	0	0	0	0
7:35 AM	0	0	0	0	0	7:35 AM						7:35 AM	0	0	0	0	0
7:40 AM	0	3	0	0	3	7:40 AM						7:40 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0	7:45 AM						7:45 AM	0	0	0	0	0
7:50 AM	0	0	0	0	0	7:50 AM						7:50 AM	0	0	0	0	0
7:55 AM	0	0	0	0	0	7:55 AM						7:55 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0	8:00 AM						8:00 AM	0	0	0	0	0
8:05 AM	0	0	1	0	1	8:05 AM						8:05 AM	0	0	0	0	0
8:10 AM	0	0	0	1	1	8:10 AM						8:10 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0	8:15 AM						8:15 AM	0	0	0	0	0
8:20 AM	0	0	0	0	0	8:20 AM						8:20 AM	0	0	0	0	0
8:25 AM	0	0	0	0	0	8:25 AM						8:25 AM	0	0	0	0	0
8:30 AM	0	0	1	0	1	8:30 AM						8:30 AM	0	0	0	0	0
8:35 AM	0	0	0	0	0	8:35 AM						8:35 AM	0	0	0	0	0
8:40 AM	0	0	0	0	0	8:40 AM						8:40 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0	8:45 AM						8:45 AM	0	0	0	0	0
8:50 AM	0	0	0	0	0	8:50 AM						8:50 AM	0	0	0	0	0
8:55 AM	0	0	0	0	0	8:55 AM						8:55 AM	0	0	0	0	0
Count Total	0	3	2	2	7	Count Total						Count Total	0	0	0	0	0
Peak Hour	0	3	1	1	5	Peak Hour						Peak Hour	0	0	0	0	0

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	7.6%	0.85
WB	0.0%	0.00
NB	3.7%	0.90
SB	7.0%	0.86
All	5.8%	0.95

Traffic Counts - Motorized Vehicles

Interval Start Time	COLUMBIA ST Eastbound				COLUMBIA ST Westbound				PACIFIC AVE Northbound				PACIFIC AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	1	0	6	0	0	0	0	0	6	10	0	0	0	20	3	46	510
7:05 AM	0	0	0	3	0	0	0	0	0	7	8	0	0	0	19	3	40	518
7:10 AM	0	0	0	7	0	0	0	0	0	2	8	0	0	0	12	2	31	518
7:15 AM	0	0	0	5	0	0	0	0	0	6	8	0	0	0	18	2	39	534
7:20 AM	0	0	0	7	0	0	0	0	0	3	12	0	0	0	16	1	39	537
7:25 AM	0	0	0	9	0	0	0	0	0	4	12	0	0	0	18	3	46	553
7:30 AM	0	0	0	13	0	0	0	0	0	7	11	0	0	0	10	2	43	545
7:35 AM	0	0	0	5	0	0	0	0	0	7	12	0	0	0	19	1	44	556
7:40 AM	0	0	0	6	0	0	0	0	0	5	9	0	0	0	20	1	41	546
7:45 AM	0	0	0	7	0	0	0	0	0	7	13	0	0	0	19	2	48	550
7:50 AM	0	0	0	10	0	0	0	0	0	8	10	0	0	0	16	4	48	544
7:55 AM	0	1	0	7	0	0	0	0	0	7	13	0	0	0	14	3	45	544
8:00 AM	0	1	0	2	0	0	0	0	0	10	13	0	0	0	21	7	54	555
8:05 AM	0	0	0	7	0	0	0	0	0	10	6	0	0	0	16	1	40	
8:10 AM	0	1	0	3	0	0	0	0	0	3	18	0	0	0	21	1	47	
8:15 AM	0	0	0	5	0	0	0	0	0	3	14	0	0	0	15	5	42	
8:20 AM	0	0	0	15	0	0	0	0	0	7	6	0	0	0	27	0	55	
8:25 AM	0	0	0	5	0	0	0	0	0	9	8	0	0	0	15	1	38	
8:30 AM	0	0	0	4	0	0	0	0	0	10	11	0	0	0	25	4	54	
8:35 AM	0	0	0	6	0	0	0	0	0	5	9	0	0	0	13	1	34	
8:40 AM	0	0	0	6	0	0	0	0	0	4	14	0	0	0	17	4	45	
8:45 AM	0	1	0	3	0	0	0	0	1	7	10	0	0	0	18	2	42	
8:50 AM	0	0	0	6	0	0	0	0	0	6	8	0	0	0	25	3	48	
8:55 AM	0	2	0	4	0	0	0	0	0	8	11	0	0	0	29	2	56	
Count Total	0	7	0	151	0	0	0	0	1	151	254	0	0	0	443	58	1,065	
Peak Hour	0	3	0	76	0	0	0	0	0	86	133	0	0	0	228	30	556	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

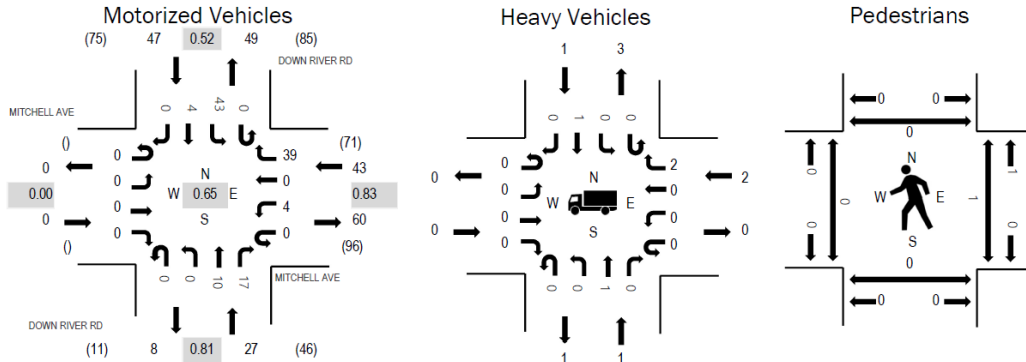
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	1	1	0	2	4	7:00 AM						7:00 AM	0	0	0	0	0
7:05 AM	0	0	0	0	0	7:05 AM						7:05 AM	1	0	0	0	1
7:10 AM	0	1	0	1	2	7:10 AM						7:10 AM	0	0	0	0	0
7:15 AM	1	1	0	1	3	7:15 AM						7:15 AM	0	0	0	0	0
7:20 AM	0	1	0	2	3	7:20 AM						7:20 AM	0	0	0	0	0
7:25 AM	0	3	0	3	6	7:25 AM						7:25 AM	0	0	0	0	0
7:30 AM	0	0	0	1	1	7:30 AM						7:30 AM	0	0	0	0	0
7:35 AM	0	1	0	2	3	7:35 AM						7:35 AM	0	0	0	0	0
7:40 AM	2	1	0	2	5	7:40 AM						7:40 AM	0	0	0	0	0
7:45 AM	1	1	0	1	3	7:45 AM						7:45 AM	0	0	0	0	0
7:50 AM	0	0	0	2	2	7:50 AM						7:50 AM	0	0	0	0	0
7:55 AM	0	0	0	1	1	7:55 AM						7:55 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0	8:00 AM						8:00 AM	0	0	0	0	0
8:05 AM	1	1	0	1	3	8:05 AM						8:05 AM	0	0	0	0	0
8:10 AM	1	1	0	2	4	8:10 AM						8:10 AM	0	0	0	0	0
8:15 AM	0	1	0	3	4	8:15 AM						8:15 AM	0	0	0	0	0
8:20 AM	0	0	0	2	2	8:20 AM						8:20 AM	0	0	0	0	0
8:25 AM	1	1	0	1	3	8:25 AM						8:25 AM	0	0	0	0	0
8:30 AM	0	1	0	1	2	8:30 AM						8:30 AM	0	0	0	0	0
8:35 AM	0	1	0	2	3	8:35 AM						8:35 AM	0	0	0	0	0
8:40 AM	0	1	0	0	1	8:40 AM						8:40 AM	0	0	0	0	0
8:45 AM	0	0	0	1	1	8:45 AM						8:45 AM	0	0	0	0	0
8:50 AM	1	1	0	2	4	8:50 AM						8:50 AM	0	0	0	0	0
8:55 AM	1	0	0	5	6	8:55 AM						8:55 AM	0	0	0	0	0
Count Total	10	18	0	38	66	Count Total						Count Total	1	0	0	0	1
Peak Hour	6	8	0	18	32	Peak Hour						Peak Hour	0	0	0	0	0



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Location: 1 DOWN RIVER RD & MITCHELL AVE PM
Date: Tuesday, November 17, 2020
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	4.7%	0.83
NB	3.7%	0.81
SB	2.1%	0.52
All	3.4%	0.65

Traffic Counts - Motorized Vehicles

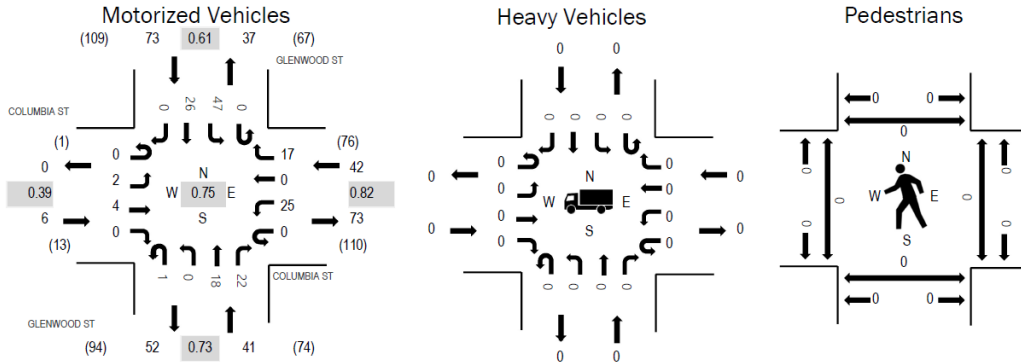
Interval Start Time	MITCHELL AVE Eastbound				MITCHELL AVE Westbound				DOWN RIVER RD Northbound				DOWN RIVER RD Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	0	0	0	0	8	0	0	3	0	0	2	1	0	14	117
4:05 PM	0	0	0	0	0	0	0	2	0	0	0	1	0	5	0	0	8	117
4:10 PM	0	0	0	0	0	0	0	2	0	0	0	2	0	2	0	0	6	116
4:15 PM	0	0	0	0	0	2	0	2	0	0	1	0	0	1	0	0	6	115
4:20 PM	0	0	0	0	0	0	0	3	0	0	1	2	0	3	0	0	9	114
4:25 PM	0	0	0	0	0	0	0	4	0	0	2	0	0	2	0	0	8	111
4:30 PM	0	0	0	0	0	0	0	2	0	0	0	2	0	7	1	0	12	108
4:35 PM	0	0	0	0	0	1	0	6	0	0	1	4	0	10	1	0	23	102
4:40 PM	0	0	0	0	0	1	0	3	0	0	1	0	0	5	0	0	10	85
4:45 PM	0	0	0	0	0	0	0	2	0	0	0	3	0	2	0	0	7	80
4:50 PM	0	0	0	0	0	0	0	1	0	0	1	2	0	3	1	0	8	78
4:55 PM	0	0	0	0	0	0	0	4	0	0	0	1	0	1	0	0	6	78
5:00 PM	0	0	0	0	0	0	0	6	0	0	1	1	0	6	0	0	14	75
5:05 PM	0	0	0	0	0	0	0	2	0	0	1	3	0	1	0	0	7	
5:10 PM	0	0	0	0	0	0	0	3	0	0	0	1	0	1	0	0	5	
5:15 PM	0	0	0	0	0	0	0	1	0	0	1	1	0	2	0	0	5	
5:20 PM	0	0	0	0	0	0	0	3	0	0	0	2	0	1	0	0	6	
5:25 PM	0	0	0	0	0	0	0	3	0	0	1	1	0	0	0	0	5	
5:30 PM	0	0	0	0	0	0	0	1	0	0	1	1	0	3	0	0	6	
5:35 PM	0	0	0	0	0	0	0	4	0	0	1	0	0	1	0	0	6	
5:40 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	4	0	0	5	
5:45 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	2	1	0	5	
5:50 PM	0	0	0	0	0	0	0	2	0	0	2	1	0	2	1	0	8	
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	
Count Total	0	0	0	0	0	4	0	67	0	0	18	28	0	68	7	0	192	
Peak Hour	0	0	0	0	0	4	0	39	0	0	10	17	0	43	4	0	117	



Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	2	1	3	4:00 PM						4:00 PM	0	0	0	0	0
4:05 PM	0	0	0	0	0	4:05 PM						4:05 PM	0	0	1	0	1
4:10 PM	0	0	0	0	0	4:10 PM						4:10 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0	4:15 PM						4:15 PM	0	0	0	0	0
4:20 PM	0	0	0	0	0	4:20 PM						4:20 PM	0	0	0	0	0
4:25 PM	0	1	0	0	1	4:25 PM						4:25 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0	4:30 PM						4:30 PM	0	0	0	0	0
4:35 PM	0	0	0	0	0	4:35 PM						4:35 PM	0	0	0	0	0
4:40 PM	0	0	0	0	0	4:40 PM						4:40 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM						4:45 PM	0	0	0	0	0
4:50 PM	0	0	0	0	0	4:50 PM						4:50 PM	0	0	0	0	0
4:55 PM	0	0	0	0	0	4:55 PM						4:55 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM						5:00 PM	0	0	0	0	0
5:05 PM	0	0	0	0	0	5:05 PM						5:05 PM	0	0	0	0	0
5:10 PM	0	0	0	0	0	5:10 PM						5:10 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0	5:15 PM						5:15 PM	0	0	0	0	0
5:20 PM	0	0	0	0	0	5:20 PM						5:20 PM	0	0	0	0	0
5:25 PM	0	0	0	0	0	5:25 PM						5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM						5:30 PM	0	0	0	1	1
5:35 PM	0	0	0	0	0	5:35 PM						5:35 PM	0	0	0	0	0
5:40 PM	0	0	0	0	0	5:40 PM						5:40 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM						5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM						5:50 PM	0	0	0	0	0
5:55 PM	0	0	0	1	1	5:55 PM						5:55 PM	0	0	0	0	0
Count Total	0	1	2	2	5	Count Total						Count Total	0	0	1	1	2
Peak Hour	0	1	2	1	4	Peak Hour						Peak Hour	0	0	1	0	1

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.39
WB	0.0%	0.82
NB	0.0%	0.73
SB	0.0%	0.61
All	0.0%	0.75

Traffic Counts - Motorized Vehicles

Interval Start Time	COLUMBIA ST Eastbound				COLUMBIA ST Westbound				GLENWOOD ST Northbound				GLENWOOD ST Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	0	0	0	0	2	0	0	6	4	0	1	4	0	17	157
4:05 PM	0	0	2	0	0	3	0	0	0	0	1	3	0	1	5	0	15	162
4:10 PM	0	0	0	0	0	2	0	2	0	0	1	0	0	3	2	0	10	161
4:15 PM	0	0	0	0	0	2	0	3	0	0	1	1	0	1	1	0	9	158
4:20 PM	0	0	0	0	0	0	0	0	1	0	0	2	0	3	3	0	9	155
4:25 PM	0	0	0	0	0	1	0	1	0	0	4	1	0	1	1	0	9	159
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	1	0	8	2	0	12	158
4:35 PM	0	0	0	0	0	2	0	3	0	0	3	0	0	9	6	0	23	155
4:40 PM	0	0	0	0	0	2	0	1	0	0	3	3	0	5	0	0	14	140
4:45 PM	0	0	0	0	0	3	0	2	0	0	1	6	0	2	3	0	17	133
4:50 PM	0	0	0	0	0	1	0	1	0	0	0	2	0	6	1	0	11	122
4:55 PM	0	0	0	0	0	2	0	4	0	0	1	2	0	2	0	0	11	120
5:00 PM	0	2	2	0	0	6	0	0	0	0	3	1	0	6	2	0	22	115
5:05 PM	0	1	1	1	0	3	0	0	0	0	1	1	0	4	2	0	14	
5:10 PM	0	0	0	0	0	1	0	1	0	0	2	1	0	2	0	0	7	
5:15 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	0	6	
5:20 PM	0	0	1	0	0	4	0	2	0	0	1	2	0	1	2	0	13	
5:25 PM	0	1	0	1	0	3	0	0	0	0	0	1	0	2	0	0	8	
5:30 PM	0	0	0	0	0	1	0	3	0	0	1	0	0	2	2	0	9	
5:35 PM	0	0	0	0	0	3	0	1	0	0	2	1	0	0	1	0	8	
5:40 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	3	2	0	7	
5:45 PM	0	0	0	0	0	1	0	1	0	0	1	0	0	1	2	0	6	
5:50 PM	0	0	0	0	0	2	0	0	0	0	2	3	0	0	1	1	9	
5:55 PM	0	0	0	1	0	2	0	0	0	0	0	2	0	0	1	0	6	
Count Total	0	4	6	3	0	47	0	29	1	0	34	39	0	65	43	1	272	
Peak Hour	0	2	4	0	0	25	0	17	1	0	18	22	0	47	26	0	162	

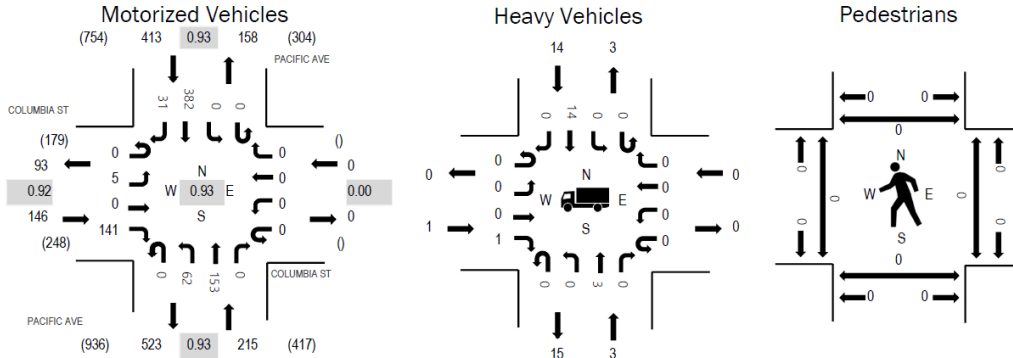
Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk					
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total	
4:00 PM	0	3	0	0	3	4:00 PM						4:00 PM	0	0	0	0	0	0
4:05 PM	0	0	0	0	0	4:05 PM						4:05 PM	0	0	0	0	0	0
4:10 PM	0	0	0	0	0	4:10 PM						4:10 PM	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	4:15 PM						4:15 PM	0	0	0	0	0	0
4:20 PM	0	0	0	0	0	4:20 PM						4:20 PM	0	0	0	0	0	0
4:25 PM	0	0	0	0	0	4:25 PM						4:25 PM	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	4:30 PM						4:30 PM	0	0	0	0	0	0
4:35 PM	0	0	0	0	0	4:35 PM						4:35 PM	0	0	0	0	0	0
4:40 PM	0	0	0	0	0	4:40 PM						4:40 PM	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM						4:45 PM	0	0	0	0	0	0
4:50 PM	0	0	0	0	0	4:50 PM						4:50 PM	0	0	0	0	0	0
4:55 PM	0	0	0	0	0	4:55 PM						4:55 PM	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM						5:00 PM	0	0	0	0	0	0
5:05 PM	0	0	0	0	0	5:05 PM						5:05 PM	0	0	0	0	0	0
5:10 PM	0	0	0	0	0	5:10 PM						5:10 PM	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	5:15 PM						5:15 PM	0	0	0	0	0	0
5:20 PM	0	0	0	0	0	5:20 PM						5:20 PM	0	0	0	0	0	0
5:25 PM	0	0	0	0	0	5:25 PM						5:25 PM	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM						5:30 PM	0	0	0	0	0	0
5:35 PM	0	0	0	0	0	5:35 PM						5:35 PM	0	0	0	0	0	0
5:40 PM	0	0	0	0	0	5:40 PM						5:40 PM	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM						5:45 PM	0	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM						5:50 PM	0	0	0	0	0	0
5:55 PM	0	0	0	0	0	5:55 PM						5:55 PM	0	0	0	0	0	0
Count Total	0	3	0	0	3	Count Total						Count Total	0	0	0	0	0	0
Peak Hour	0	0	0	0	0	Peak Hour						Peak Hour	0	0	0	0	0	0



Location: 3 PACIFIC AVE & COLUMBIA ST PM
 Date: Tuesday, November 17, 2020
 Peak Hour: 04:25 PM - 05:25 PM
 Peak 15-Minutes: 04:50 PM - 05:05 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.7%	0.92
WB	0.0%	0.00
NB	1.4%	0.93
SB	3.4%	0.93
All	2.3%	0.93

Traffic Counts - Motorized Vehicles

Interval Start Time	COLUMBIA ST Eastbound				COLUMBIA ST Westbound				PACIFIC AVE Northbound			PACIFIC AVE Southbound				Total	Rolling Hour	
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru			Right
4:00 PM	0	0	0	12	0	0	0	0	0	4	16	0	0	0	29	1	62	747
4:05 PM	0	0	0	8	0	0	0	0	0	1	12	0	0	0	36	4	61	749
4:10 PM	0	0	0	7	0	0	0	0	0	10	11	0	0	0	25	2	55	747
4:15 PM	0	1	0	4	0	0	0	0	0	5	13	0	0	0	23	1	47	757
4:20 PM	0	1	0	9	0	0	0	0	0	5	11	0	0	0	35	1	62	773
4:25 PM	0	0	0	9	0	0	0	0	0	2	11	0	0	0	35	2	59	774
4:30 PM	0	0	0	14	0	0	0	0	0	6	12	0	0	0	38	2	72	772
4:35 PM	0	1	0	17	0	0	0	0	0	5	13	0	0	0	29	1	66	755
4:40 PM	0	0	0	7	0	0	0	0	0	8	14	0	0	0	25	2	56	740
4:45 PM	0	0	0	15	0	0	0	0	0	4	14	0	0	0	28	2	63	737
4:50 PM	0	1	0	15	0	0	0	0	0	5	11	0	0	0	35	5	72	724
4:55 PM	0	0	0	6	0	0	0	0	0	7	19	0	0	0	34	6	72	702
5:00 PM	0	0	0	16	0	0	0	0	0	3	13	0	0	0	30	2	64	672
5:05 PM	0	1	0	12	0	0	0	0	0	3	7	0	0	0	34	2	59	
5:10 PM	0	0	0	6	0	0	0	0	0	5	19	0	0	0	32	3	65	
5:15 PM	0	0	0	11	0	0	0	0	0	6	10	0	0	0	33	3	63	
5:20 PM	0	2	0	13	0	0	0	0	0	8	10	0	0	0	29	1	63	
5:25 PM	0	0	0	10	0	0	0	0	0	3	16	0	0	0	25	3	57	
5:30 PM	0	1	0	9	0	0	0	0	0	9	12	0	0	0	21	3	55	
5:35 PM	0	2	0	10	0	0	0	0	0	7	7	0	0	0	22	3	51	
5:40 PM	0	0	0	4	0	0	0	0	0	5	17	0	0	0	27	0	53	
5:45 PM	0	1	0	6	0	0	0	0	0	3	7	0	0	0	31	2	50	
5:50 PM	0	1	0	7	0	0	0	0	0	8	10	0	0	0	22	2	50	
5:55 PM	0	0	0	9	0	0	0	0	0	3	7	0	0	0	22	1	42	
Count Total	0	12	0	236	0	0	0	0	0	125	292	0	0	0	700	54	1,419	
Peak Hour	0	5	0	141	0	0	0	0	0	62	153	0	0	0	382	31	774	



Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	2	0	0	2	4	4:00 PM					4:00 PM	0	0	0	0	0	
4:05 PM	0	2	0	1	3	4:05 PM					4:05 PM	0	0	0	0	0	
4:10 PM	0	0	0	4	4	4:10 PM					4:10 PM	0	0	0	0	0	
4:15 PM	0	0	0	2	2	4:15 PM					4:15 PM	0	0	0	0	0	
4:20 PM	0	1	0	2	3	4:20 PM					4:20 PM	0	0	0	0	0	
4:25 PM	0	0	0	1	1	4:25 PM					4:25 PM	0	0	0	0	0	
4:30 PM	0	0	0	1	1	4:30 PM					4:30 PM	0	0	0	0	0	
4:35 PM	1	1	0	1	3	4:35 PM					4:35 PM	0	0	0	0	0	
4:40 PM	0	0	0	0	0	4:40 PM					4:40 PM	0	0	0	0	0	
4:45 PM	0	0	0	0	0	4:45 PM					4:45 PM	0	0	0	0	0	
4:50 PM	0	0	0	6	6	4:50 PM					4:50 PM	0	0	0	0	0	
4:55 PM	0	1	0	0	1	4:55 PM					4:55 PM	0	0	0	0	0	
5:00 PM	0	0	0	2	2	5:00 PM					5:00 PM	0	0	0	0	0	
5:05 PM	0	0	0	0	0	5:05 PM					5:05 PM	0	0	0	0	0	
5:10 PM	0	1	0	2	3	5:10 PM					5:10 PM	0	0	0	0	0	
5:15 PM	0	0	0	0	0	5:15 PM					5:15 PM	0	0	0	0	0	
5:20 PM	0	0	0	1	1	5:20 PM					5:20 PM	0	0	0	0	0	
5:25 PM	0	0	0	0	0	5:25 PM					5:25 PM	1	0	0	0	1	
5:30 PM	0	2	0	0	2	5:30 PM					5:30 PM	0	0	0	0	0	
5:35 PM	0	1	0	1	2	5:35 PM					5:35 PM	0	0	0	0	0	
5:40 PM	0	0	0	0	0	5:40 PM					5:40 PM	1	0	0	0	1	
5:45 PM	0	0	0	0	0	5:45 PM					5:45 PM	0	0	0	0	0	
5:50 PM	0	1	0	1	2	5:50 PM					5:50 PM	1	0	0	0	1	
5:55 PM	0	0	0	0	0	5:55 PM					5:55 PM	0	0	0	0	0	
Count Total	3	10	0	27	40	Count Total					Count Total	3	0	0	0	3	
Peak Hour	1	3	0	14	18	Peak Hour					Peak Hour	0	0	0	0	0	

Appendix F

Collision Reports from WSDOT

Collision Data from WSDOT
Reported Crashes at Study Area Locations
01/01/2016 – 12/31/2020

Under 23 U.S. Code § 148 and 23 U.S. Code § 409, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

PRIMARY TRAFFICWAY	BLOCK NUMBER	INTERSECTING TRAFFICWAY	DIST FROM REF POINT	MI or FT	COMP DIR FROM REF POINT	REFERENCE POINT NAME	MILEPOST	REPORT NUMBER	DATE	MOST SEVERE INJURY TYPE	# J	# T	# H	# S	# I	# V	# E	# D	# S	# B I K	VEH 1 COMPASS DIR FROM	VEH 1 COMPASS DIR TO	VEH 2 COMPASS DIR FROM	VEH 2 COMPASS DIR TO
COLUMBIA ST	700		50	F	E	GLENWOOD ST		E783266	03/13/2018	No Apparent Injury	0	0	1	0	0						West	East		
005FD02108		Pacific Ave				Columbia St	0.41	E659015	04/03/2017	No Apparent Injury	0	0	2	0	0						West	East	West	East
005FD02108		Pacific Ave				Columbia St	0.41	E663279	04/14/2017	No Apparent Injury	0	0	2	0	0						West	East	Stopped	Stopped
005FD02108		Pacific Ave				Columbia St	0.44	E837087	09/11/2018	No Apparent Injury	0	0	3	0	0						North	South	North	South
005FD02108		Pacific Ave				Columbia St	0.47	E817330	07/11/2018	No Apparent Injury	0	0	2	0	0						West	South	North	South