Otak

Gwendolyn Hotel & Mixed-Use Development Proposal

Transportation Impact Analysis

Site Location: 619 NE 3rd Street in McMinnville

Submitted to:

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Project No. 19914

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Section 1. Introduction

This Transportation Impact Analysis (TIA) has been prepared in support of the proposed McMinnville Mixed Use Development proposal, also identified as Gwendolyn Hotel. The project is located at the corner of 3rd Street and Ford Street in downtown McMinnville. This redevelopment replaces three existing buildings on the same city block.

The current policy of City of McMinnville requires that developments which generate more than 200 weekday trips or 20 PM peak hour trips on city streets provide a traffic impact analysis.

Project Description

The project will replace three existing buildings with a mixed-use development consisting of five floors: a ground floor restaurant, with hotel rooms and condominiums on the floors above. The project includes underground parking consisting of 68 parking spaces. The site will be redeveloped as a single building set to open in 2024.

Since the project is replacing previously existing buildings, it is assumed prior uses and the resulting trip generation have been permitted at some point over time.

Location Description

The proposed site is located at 619 NE 3rd Street in McMinnville, and comprises tax lots R4421BC 04201, R4421BC 04200, R4421BC 04300 and R4421BC 04500. Site parking will be accessed off of Ford Street between NE 3rd and 4th Streets. The main entrance to the building is on NE 3rd Street.

The subject site is located within the Downtown Design District (DD) and within the General Commercial (GC) zone district. The surrounding land uses consist of office buildings, restaurants, drinking establishments, small shops, and a theatre. The terrain is generally flat with a high level of connectivity throughout the existing street grid.

Existing Roadways

Roadways in the immediate vicinity of the site are generally downtown streets with speeds of 25 mph or less. On-street parking is prevalent around the site. There are no dedicated bicycle lanes in the downtown area of McMinnville. The sidewalk network is complete and accessible, with ADA ramps at corners along the street frontage.

The roadways comprising the study area intersections are described in Section 2. The study intersections are mapped in Figure 1.

Study intersection mobility targets adopted by ODOT and by the City of McMinnville are shown in Table 1 below. City of McMinnville operating standards were adopted as part of the City's Transportation System Plan (TSP), adopted in 2010. For the purposes of the McMinnville TSP, the mobility standard for all local (city) intersections and streets shall be a volume/capacity (V/C) ratio of 0.90.[1]

The 2010 TSP designates Highway 99W as an Expressway on a Regional or District Highway. As the current speed limit for Highway 99W in the study area is 30 mph, the ODOT intersections fall under the

[1] https://www.mcminnvilleoregon.gov/sites/default/files/fileattachments/planning/page/1305/c_chapter_2_guiding_goal_and_policies.pdf

"Non-MPO outside of STAs where nonfreeway speed limit <45 mph" mobility target[2] for this functional classification. For signalized intersections, the applicable mobility target for the Highway 99W intersections is a maximum V/C of 0.80.

More information can be found in the Existing Conditions section of this TIA. Vicinity and site maps are contained in Appendix A.

Table 1 Study Intersection Mobility Targets

Study Intersection		Traffic Control	Jurisdiction	Mobility Target (V/C)
1	Adams Street (OR 99W)/NE 2nd Street	Signalized	ODOT	0.80
2	Baker Street (OR 99W)/NE 2nd Street	Signalized	ODOT	0.80
3	Adams Street (OR 99W)/ E 5th Street	Signalized	ODOT	0.80
4	Baker Street (OR 99W)/NE 5th Street	Signalized	ODOT	0.80
5	NE Johnson Street/NE 3rd Street	Signalized	McMinnville	0.90

Scope of Analysis

Based on preliminary net new trip generation estimates (70 AM peak, 125 PM peak), the proposal will require a full TIA under City development code. Pursuant to email correspondence with Heather Richards, Planning Director at City of McMinnville, the study area is defined as the collector and highway classified streets and intersections in the immediate vicinity of the project. Intersections to be studied are shown below and mapped in Figure 1; all are signalized:

1. Highway 99W/Baker Street at NE 2nd Street
2. Highway 99W/Adams Street at NE 2nd Street
3. Highway 99W/ Baker Street at NE 5th Street
4. Highway 99W/ Adams Street at NE 5th Street
5. NE 3rd Street at Lafayette Street/Johnson Street

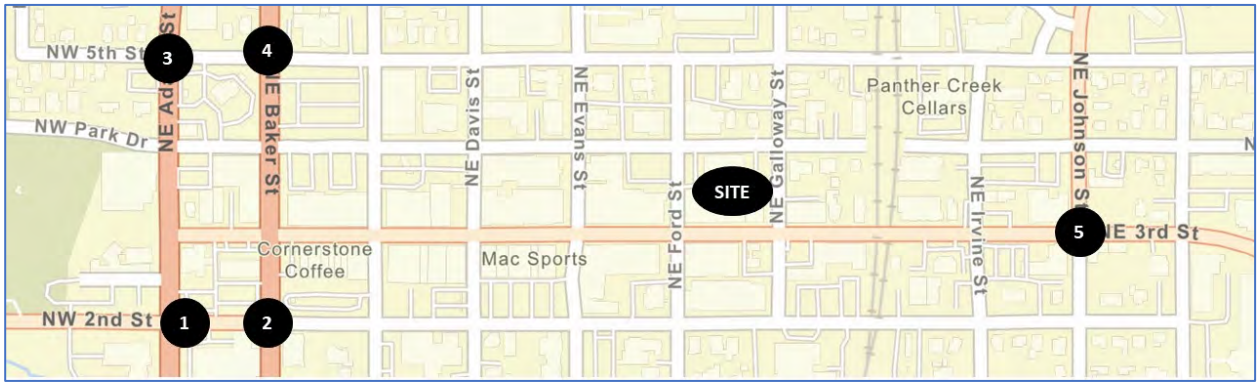


Figure 1 TIA Study Intersections

Map base from ODOT TransGIS

[2] Oregon Highway Plan Policies, https://www.oregon.gov/ODOT/Planning/Documents/OHP.pdf, Table 6.

The components of this TIA include:

- Existing transportation conditions, including vehicle classification counts, levels-of-service/mobility performance, safety based on crash history, and alternative/active transportation modes including transit, bicycles, and pedestrians.
- Pre-Development (without site) conditions for a 2024 opening year scenario, including background traffic growth and growth from in-process developments.
- Future Year 2024 conditions with the site, including:
  - Trip generation estimates for the proposed uses; accounting for trip generation from the previous uses
  - Trip distribution and traffic assignment for the site trips
  - Resultant levels-of-service with the site built out, with findings and conclusions and, if applicable, recommended mitigation

Analysis Methodology

All intersection capacity analyses described in this report were performed in accordance with the procedures stated in the Highway Capacity Manual, 6th Edition (HCM, Reference 4), using Synchro 11 software in accordance with analysis guidance provided in latest update of the ODOT Analysis Procedures Manual (APM)[3]. Both ODOT and the City of McMinnville use intersection volume-to-capacity ratios (V/C) as the operational performance measures ("mobility targets"). Overall intersection V/C is reported for the five study intersections, which are all signalized.

As traffic counts at or near all of the study intersections are at least four years old and were collected before the COVID-19 pandemic, counts were collected at all five intersections and seasonally adjusted (see Existing Conditions chapter, below). These counts were used to identify the AM and PM peak hours, the peak 15-minute flow rates, and peak hour factor (PHF) for each intersection. Queueing analyses presented in this report reflect 95th percentile queues as reported from the Synchro 11 software.

Data was collected using manual traffic count methods during weekdays on July 11-14, 2022. There were no civic, traffic, or weather-related events reported during this period.

Performance Measures and Operating Standards

Analysis Scenarios

This TIA reviews AM and PM peak hour conditions at the study area intersections for the following scenarios:

- 2022 Base Year/Existing Conditions
- 2024 Pre-Development without project (background growth and in-process trips)
- 2024 Post-Development with Site (all trips)

Examining prior TIAs conducted within the city, AM peak period is generally 7-9 AM while PM peak period is generally 4-6 PM. The traffic counts collected will be used to determine the peak 15 minute interval and AM and PM peak hours for each intersection.

Because the development proposal is consistent with existing zoning and is not proposing any comprehensive plan or zoning changes, or changes to the adopted Transportation System Plan, the evaluation scenarios do not include a 20-year post completion scenario.

[3] https://www.oregon.gov/odot/Planning/Documents/APMv2.pdf

Section 2. Existing Conditions

The existing conditions analysis identifies current traffic volumes and operations, traffic control and geometric characteristics, and recent collision history of the roadways near the study intersections.

Land Uses in the Site Area

The site is located in downtown McMinnville, within the Downtown Design District (DD) and within the General Commercial (GC) zone district. Uses are generally mixed single-story and small multi-story commercial, retail, and office uses.

Roadways at Study Area Intersections

- Adams Street and Baker Street are a one-way couplet and are included on the state highway system as Highway 99W (ODOT Highway #091). Both are two-lane, one-way facilities with posted speeds of 30 mph.
- NE 3rd Street is a City of McMinnville urban collector with a posted speed of 20 mph. It consists of one travel lane in each direction with on-street bike lanes east of NE Johnson Street.
- NE Johnson Street is a City of McMinnville urban collector with a posted speed of 25 mph. It consists of one travel lane in each direction with on-street bike lanes north of NE 3rd Street.
- NE 2nd Street is a City of McMinnville urban minor arterial with a posted speed of 25 mph. It consists of one travel lane in each direction with shared traffic and bicycle lanes (“sharrows”).
- NE 5th Street is a City of McMinnville urban collector with an unposted speed, assumed for this TIA to be 20 mph. It consists of one travel lane in each direction with shared traffic and bicycle lanes (“sharrows”).

Table 2 summarizes the roadway characteristics of the study area roadways.

Table 2 Study Area Roadway Characteristics

Roadway	Jurisdiction	Functional Classification	Posted Speed (mph)	Direction of Travel	Travel Lanes	Bike Lanes	On-Street Parking[4]	Sidewalks
Adams Street (99W SB)	ODOT	Expressway on Regional or District Highway	30	One-way SB	2	No	Yes	Yes
Baker Street (99W SB)	ODOT	Expressway on Regional or District Highway	30	One-way NB	2	No	Yes	Yes
NE 2nd Street	McMinnville	Minor Arterial	25	Two-way E-W	2[5]	Sharrows	No	Yes
NE 3rd Street	McMinnville	Collector	20	Two-way E-W	2	East of Johnson St.	West of Lafayette St./ Johnson St.	Yes
Lafayette Street/Johnson Street	McMinnville	Collector	25	Two-Way N-S	1	North of 3rd St.	No	Yes
5th Street	McMinnville	Collector	25[6]	Two-way E-W	1	Sharrows	Yes	Yes

[4] Only parking within 100 feet of the intersection.
[5] NE 2nd Street also has left-turn lanes in each direction between Adams and Baker Streets.
[6] There was no speed limit signage posted in the vicinity; it is assumed for this TIA to be 25 mph.

Multi-modal Transportation

The transportation network surrounding the site consists of downtown streets with on-street parking and a complete sidewalk network. The streets in the vicinity are generally low speed at 20-25 mph where vehicles and bicycles are expected to share the roadway. There are no dedicated bicycle lanes.

The sidewalk network is complete. In general, sidewalks are 5-8 feet wide. The majority of corners are constructed with dual curb ramps, reflecting recent ADA guidelines.

Yamhill County Transit is the public transportation provider serving McMinnville. Yamhill County Transit Routes 1, 2, 3, and 4 all provide weekday service within a few blocks (within walking distance) of the proposed site. All of the routes connect through the McMinnville Transit Center, located on NE 2nd Street between Galloway and Irvine, approximately 1,000 feet from the site. A map of Yamhill County Transit's McMinnville System and route schedules are found in Appendix B.

Existing Traffic Volumes

A check of traffic impact studies submitted to the City over the past 3-4 years did not yield any recent counts that would be usable for this analysis. Thus, new traffic counts were collected July 11-14, 2022, at the five study intersections, for two-hour AM and two-hour PM peak periods in five-minute intervals.

The nearest Automated Traffic Recording (ATR) stations are several miles from the site:

- ATR #36-006, MP 41, Highway 18 SW of McMinnville approximate five miles southwest of McMinnville
- ATR #36-005, MP 47.45, Highway 99W approximately eight miles south of McMinnville

Neither ATR station yielded traffic volume information that could be used for the five study intersections.

Raw traffic volumes were seasonally adjusted, consistent with ODOT's *Analysis Procedures Manual*[7], Chapter 5 "Developing Existing Year Volumes" to arrive at peak hours volumes approximating the 30th highest hour of the year. Three methods were evaluated for applicability for this report:

- On-Site ATR Method: counts adjusted based on date/time of year and nearby ATR station(s). In this case, there are no ATR stations in proximity to the site or study intersections.
- ATR Characteristic Table Method: adjustment of counts based on ATRs located within Oregon in similar traffic environments with average daily traffic (ADT) within 10% of the sites being studied. There are no ATRs that match the circumstances being studied in McMinnville.
- Seasonal Trend Method: adjusts counts based on factors developed for the time of year of the count and a seasonal factor based on traffic characteristics of the area. This was the most relevant and applicable of the three methods evaluation and was chosen for this study.

Two ODOT seasonal factor tables were referenced. The first was to consider ATRs in the vicinity of McMinnville and identify traffic and road characteristics for the study area. Table 3 shows the ATR characteristics for ATR stations within 10-15 miles of McMinnville. These indicate that the study area is a mix of rural and small urban fringe area types, commuter and summer traffic trends, with ADTs in the range of 7,500 to 34,000 vehicles per day. Highway 99W in the study area (Baker and Adams Streets) averages approximately 22,000 to 23,000 ADT (ODOT TransGIS database), which puts the highway in the middle of that range. Thus, the seasonal traffic adjustments will be an average of commuter and summer traffic trends.

[7] https://www.oregon.gov/odot/Planning/Documents/APMv2_Ch5.pdf

Using ODOT's Seasonal Trend Table (July 2021 update;
Table 4), and the averaging of summer and commuter trends from that table, yields a Count Date Seasonal Factor to Peak Period Seasonal Factor of 1.013. In other words, the raw traffic counts collected in July 2022 will be adjusted upward by 1.3% to approximate the 30th highest hour peak volumes.

The adjusted existing Year 2022 AM and PM peak hour volumes are shown in Figure 2.

Traffic counts included vehicle classifications (large trucks and buses), bicycles, and pedestrians.

Detailed counts are included in Appendix C.

COVID-19 Impacts
Recent traffic impact studies conducted in Yamhill and Marion Counties have collected Year 2021 and 2022 counts and have compared them to pre-pandemic conditions. These counts collected in the past year are indicating for the most part that traffic volumes have reached or now exceed pre-pandemic conditions. No further adjustments to the July 2022 traffic counts are recommended to account for COVID-19 impacts.

Table 3 ATR Characteristic Table for Study Area

2021 Seasonal Traffic Trend	Area Type	# Lanes	Weekly Traffic Trend	2021 AADT	OHP Classification	ATR Number	County	Highway Route, Name & Location	MP	State Highway Number	K_{30}
COM	Rural	4	Weekday	34400	Statewide Highway	36-004	Yamhill	OR99W/OR219, Pacific Highway West, 0.01 mile west of Brutscher Street	21.81	91	0.0933
COM	Rural	2	Weekday	7500	Regional Highway	36-005	Yamhill	OR99W, Pacific Highway West, 0.07 mile north of Yamhill/ Polk County line	47.45	91	0.1133
SUM	Small Urban Fringe	2	Weekday	14600	Statewide Highway	36-006	Yamhill	OR18, Salmon River Highway, 3.36 miles south of Pacific Highway West	41.00	39	0.1052

Table 4 Seasonal Trend Table

SEASONAL TREND TABLE (Updated: 7/20/2021)[1]																								Seasonal Trend Peak Period Factor
TREND	1-Jan	15-Jan	1-Feb	15-Feb	1-Mar	15-Mar	1-Apr	15-Apr	1-May	15-May	1-Jun	15-Jun	1-Jul	15-Jul	1-Aug	15-Aug	1-Sep	15-Sep	1-Oct	15-Oct	1-Nov	15-Nov	1-Dec	15-Dec	
INTERSTATE URBANIZED	1.0672	1.0684	1.0922	1.1160	1.0605	1.0050	0.9923	0.9796	0.9781	0.9767	0.9615	0.9463	0.9517	0.9571	0.9551	0.9531	0.9674	0.9816	0.9850	0.9884	1.0045	1.0206	1.0322	1.0438	0.9463
INTERSTATE NONURBANIZED	1.2426	1.2883	1.3750	1.4616	1.2645	1.0673	1.0382	1.0092	0.9798	0.9504	0.9005	0.8506	0.8322	0.8139	0.8221	0.8302	0.8719	0.9135	0.9441	0.9747	1.0178	1.0608	1.1123	1.1638	0.8139
COMMUTER	1.0850	1.0875	1.1183	1.1492	1.0880	1.0268	1.0014	0.9759	0.9705	0.9650	0.9503	0.9355	0.9470	0.9585	0.9509	0.9433	0.9528	0.9623	0.9614	0.9604	0.9938	1.0272	1.0474	1.0676	0.9355
COASTAL DESTINATION	1.1885	1.1712	1.2001	1.2289	1.1242	1.0194	1.0316	1.0437	1.0080	0.9723	0.9347	0.8972	0.8612	0.8252	0.8205	0.8159	0.8686	0.9214	0.9689	1.0164	1.0660	1.1156	1.1580	1.2005	0.8159
COASTAL DESTINATION ROUTE	1.3445	1.3248	1.4108	1.4968	1.2858	1.0747	1.0911	1.1076	1.0274	0.9473	0.8941	0.8409	0.7820	0.7231	0.7218	0.7205	0.8016	0.8827	0.9669	1.0511	1.1133	1.1754	1.2480	1.3206	0.7205
AGRICULTURE	1.4583	1.4827	1.5763	1.6700	1.4596	1.2492	1.1487	1.0482	0.9747	0.9011	0.8579	0.8146	0.8058	0.7970	0.7922	0.7873	0.7772	0.7670	0.8288	0.8905	0.9947	1.0989	1.2462	1.3934	0.7670
RECREATIONAL SUMMER	1.5848	1.6474	1.7861	1.9247	1.6595	1.3942	1.2973	1.2004	1.0517	0.9029	0.8256	0.7484	0.7018	0.6552	0.6708	0.6864	0.7393	0.7922	0.8898	0.9874	1.1242	1.2610	1.3965	1.5320	0.6552
RECREATIONAL SUMMER WINTER	0.8736	0.8525	0.9330	1.0135	1.0146	1.0158	1.1492	1.2825	1.1763	1.0700	0.9760	0.8821	0.8005	0.7190	0.7305	0.7420	0.8897	1.0374	1.2010	1.3645	1.5212	1.6778	1.3812	1.0847	0.7190
RECREATIONAL WINTER	0.6997	0.6389	0.6561	0.6733	0.7219	0.7704	1.0580	1.3455	1.3746	1.4038	1.2832	1.1625	0.9985	0.8344	0.8600	0.8857	1.0560	1.2262	1.4100	1.5937	1.8758	2.1580	1.5328	0.9076	0.6389
SUMMER	1.2151	1.2357	1.3129	1.3901	1.2520	1.1139	1.0620	1.0100	0.9718	0.9336	0.8976	0.8615	0.8457	0.8299	0.8354	0.8410	0.8743	0.9077	0.9357	0.9638	1.0273	1.0908	1.1322	1.1737	0.8299
SUMMER < 2500	1.3035	1.3186	1.3817	1.4448	1.2869	1.1289	1.0598	0.9906	0.9480	0.9053	0.8720	0.8387	0.8237	0.8086	0.8229	0.8373	0.8616	0.8859	0.9233	0.9607	1.0428	1.1249	1.2016	1.2783	0.8086
* Seasonal Trend Table factors are based on previous year ATR data. The table is updated yearly.														Counts: 7/11-7/14/22											
* Grey shading indicates months were seasonal factor is greater than or less than 30%													AVERAGE	0.8942											0.8827
* February 2019 snow event causing lower seasonal factors																									

[1]**Seasonal Trend Table: The 2020 table is based on 2019 values due to the irregularity caused by the Covid epidemic shutdown during the 2020 count year.**

Adjustment Factors for Counts	
Count Date Seasonal Factor (Average)	0.8942
Peak Period Seasonal Factor (Average)	0.8827
Count Date Seasonal Factor / Peak Period Seasonal Factor	1.013
Counts will be adjusted upward by:	1.30%

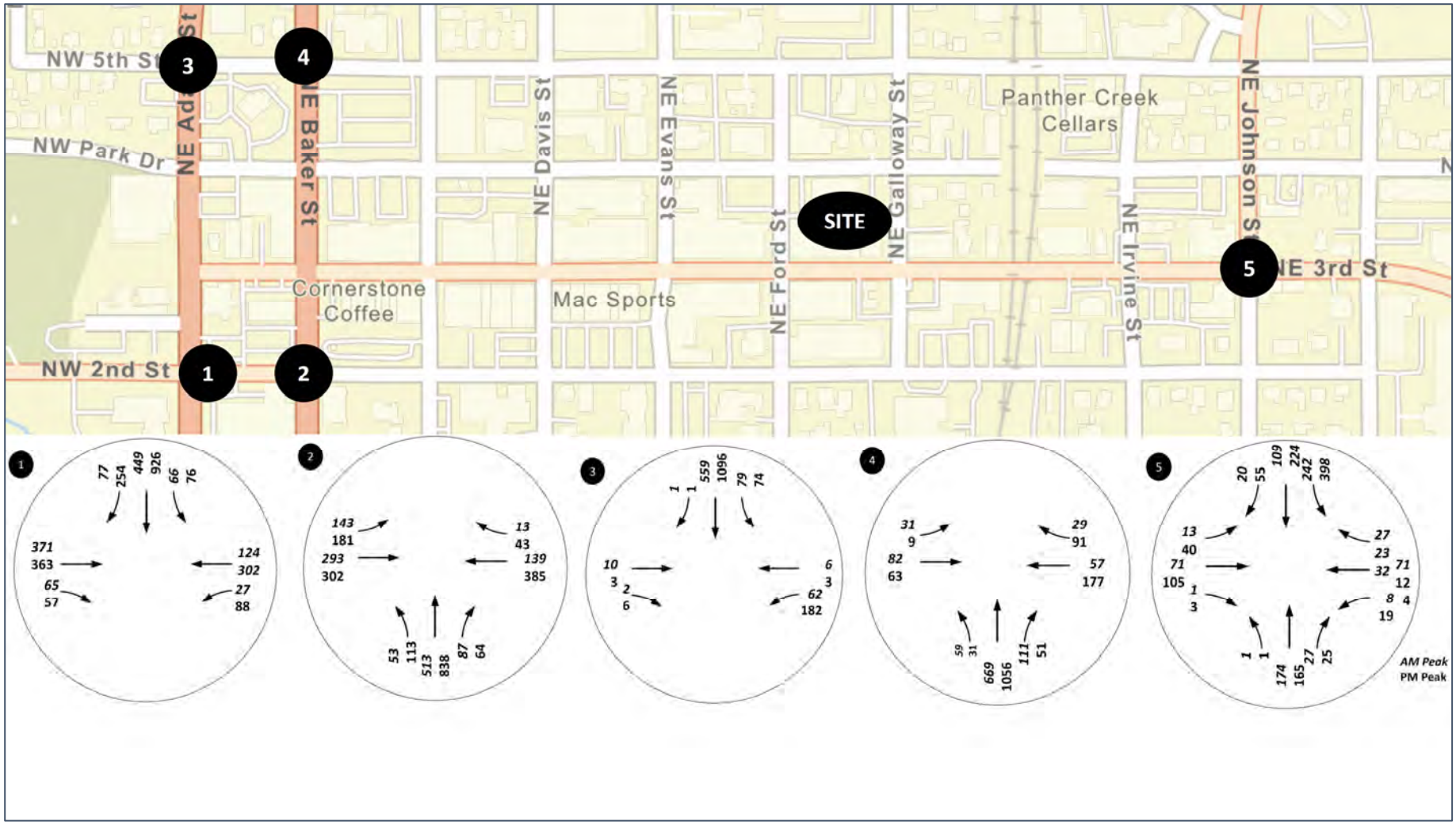


Figure 2 TIA Study Intersections Existing Peak Hour Volumes

Traffic Operations

The seasonally adjusted existing (2022) volumes were entered into Synchro 11 traffic models, as were trucks, bicycles, and pedestrians. The counts were used to develop peak hour factors (PHF) for each approach. Existing signal timing and operations were input to the Synchro model. The traffic counts were used to identify the peak 15-minutes and peak hour for each of the AM and PM peak periods.

Existing vehicular levels-of-service are shown for each of the five intersections in Table 5.

All intersections are operating within mobility/V/C targets for ODOT and McMinnville.

Table 5 Existing Peak Hour Intersection Operational Analysis

Intersection	Mobility Target/ Jurisdiction	Peak Hour	Analysis Results – LOS/ V/C[8]
			2022 Existing Conditions
1. Adams Street at NE 2nd Street	0.80 ODOT	AM Peak	C / 0.57
		PM Peak	C / 0.71
2. Baker Street at NE 2nd Street	0.80 ODOT	AM Peak	B / 0.49
		PM Peak	C / 0.69
3. Adams Street at NE 5th Street	0.80 ODOT	AM Peak	B / 0.29
		PM Peak	B / 0.60
4. Baker Street at NE 5th Street	0.80 ODOT	AM Peak	C / 0.42
		PM Peak	C / 0.59
5. Johnson Street/Lafayette Street at NE 3rd Street	0.90 McMinnville	AM Peak	B / 0.50
		PM Peak	D / 0.84

Crash Analysis

Reported crash history for the most recent five complete years of data for each study intersection was reviewed in an effort to identify potential safety issues. Collision data was retrieved from ODOT's Traffic Data System – Crash Reports[9] for the period January 1, 2016, through December 31, 2020. Complete Year 2021 collision data was not available at the time this document was produced.

Table 6 shows the intersection crash history for each of the study intersections, while Table 7 is the intersection crash rate assessment. To calculate the observed crash rate, the average number of crashes per year for each intersection was divided by the average annual million entering vehicles to arrive at a "crashes per million entering vehicles" rate. Each intersection's rate was compared to ODOT's 90th percentile "expected" rate by intersection configuration and land type. In the case of all intersections, the 4SG (four-leg signalized intersection) and urban land type rate of 0.86 was used.[10]

A critical crash rate analysis was also conducted using ODOT's Crash Rate Calculator.

[8] HCM 2000 Results for full intersection.
[9] https://tvc.odot.state.or.us/tvc/
[10] Analysis Procedures Manual, Chapter 4 Safety, Exhibit 4-1 "Intersection Crash Rates per MEV by Land Type and Traffic Control."

All intersections are within ODOT's statewide 90th percentile crash rates with one exception: the intersection of Baker Street (Highway 99W) and NE 2nd Street. That crash rate is elevated due to a high number of collisions up to and including 2017. In the fall of 2017, the City of McMinnville completed a signal replacement and improvement project at that intersection. The crash history from 2018 through 2020 at that intersection shows the annual number of collisions, and crash rate, have substantially decreased. It is anticipated that when Year 2021 collision data is available, the crash rate at this intersection will be within the ODOT statewide 90th percentile threshold.

The ODOT Safety Priority Index System (SPIS) reports from the latest reporting period (2020 database, 2017-2019 crash reporting period) were reviewed to determine if any of the study intersections are being monitored for elevated or potentially elevated crash rates and preventative measures. The SPIS is a systemic scoring method that identifies potential safety problems on state highways based on three years of crash data. The SPIS score considers crash frequency, crash rate, and crash severity. ODOT screens SPIS segments annually to identify and prioritize which have potential for safety improvements and merit further investigation.

The SPIS analysis found the following:

- Adams Street: 2017-2019 SPIS Score 29.89, 70th percentile range
- Baker Street: 2017-2019 SPIS Score 32.85, 75th percentile range
- Johnson Street at 3rd Street vicinity: 2017-2019 SPIS score 34.05, 75th percentile range
- 5th Street at 99W vicinity: SPIS Score 22.64, 45th percentile range

None of these sites are within ODOT Region 2's Top 15% SPIS sites by score.

Appendix D contains the ODOT crash report data and crash rate calculator summary.

Table 6 Intersection Crash History (2016-2020)

Intersection	Collision Type					Severity			Total Crashes
	Angle	Turning	Rear-End	Bike/Ped	Other	PDO[11]	Injury	Fatal	
1. Adams Street at NE 2nd Street	7	9	4	1	0	12	9	0	21
2. Baker Street at NE 2nd Street	11	11	6	2	2	19	13	0	32
3. Adams Street at NE 5th Street	1	0	3	0	1	3	2	0	5
4. Baker Street at NE 5th Street	4	3	2	1	1	7	4	0	11
5. Johnson Street/Lafayette Street at NE 3rd Street	1	5	2	0	1	5	4	0	9

Table 7 Intersection Crash Rate Assessment

Intersection	Total Crashes	90th Percentile Intersection Crash Rate	Observed Crash Rate at Intersection	Observed Crash Rate > 90th Percentile Rate?	Critical Crash Rate[12]	Observed Crash Rate > Critical Cras Rate?
1. Adams Street at NE 2nd Street	21	0.86	0.60	No	0.62	No
2. Baker Street at NE 2nd Street	32	0.86	0.93	***Yes[13]***	***0.62***	***Yes[13]***
3. Adams Street at NE 5th Street	5	0.86	0.18	No	0.62	No
4. Baker Street at NE 5th Street	11	0.86	0.41	No	0.62	No
5. Johnson Street/Lafayette Street at NE 3rd Street	9	0.86	0.63	No	1.97	No

[11] PDO = Property Damage Only

[12] Using ODOT's 2020 Crash Rates by Jurisdiction and Functional Classification

[13] Signal and intersection modification project completed by McMinnville in fall 2017. Since then, average annual collisions have been reduced from 8.0 per year before the improvement to 5.3 per year after. Future summaries should indicate that this intersection's crash rate will fall below the 90th percentile rate.

Section 3. Pre-Development Conditions

Pre-development traffic conditions are future-year estimates without the proposed site. The Gwendolyn Hotel proposal is anticipated to be completed and occupied before the end of 2023. However, to be conservative, a Year 2024 “year of opening” scenario is assumed and analyzed here.

Pre-development Year 2024 conditions consider the following:

- Planned transportation improvements contained in an adopted plan or program potentially impacting/increasing capacity or improving traffic operations at any of the five study intersections between now and 2024; and
- Existing traffic volumes plus two years of traffic growth without the site proposal.

Planned Transportation Improvements

There are no upcoming transportation improvements currently on the City’s Capital/Transportation Improvement Program in the next five years that would directly impact any of the study intersections.

Background Traffic Growth

Background traffic growth consists of general growth in traffic that occurs over time, and traffic from developments that have received approval by the City but have not yet been completed and occupied.

In review of the City’s Transportation System Plan and recent TIAs conducted in the area, an average 1.3% per year background growth rate is used to calculate future traffic volumes.

For in-process development traffic, the City indicates that the development projects listed below have been approved but are not yet occupied. All of these approvals are smaller and do not have an associated TIA.

- Boutique Retreat: 9th Street and Alpine Avenue – 9 room lodging (New Build)
- Pebble Dentistry: 9th Street and Lafayette Street – Dental Office (New Build)
- Granary Row: 10th Street and Lafayette Street – New Restaurant (New Build)
- Okta Restaurant/Tributary Hotel: 618 NE 3rd Street (Rehab of Vacant Building)
- Two Dogs Taphouse: 4th Street and Evans Street – New Restaurant (Rehab of Vacant Building)
- Wine Tasting Room: 3rd Street and Baker Street – New Drinking Place (Rehab of Vacant Building).

To account for in-process traffic growth, in the absence of TIAs, the background traffic growth rate is increased to 1.5% per year.

Pre-Development Traffic Operations

The existing, seasonally-adjusted traffic volumes were increased by 1.5% per year for two years to reflect the 2024 conditions before completion and opening of the site. Figure 3 shows the Year 2024 Background traffic volumes, while Table 8 shows the resultant levels-of-service and V/C ratios for the study intersections.

Figure 3 Year 2024 Background Traffic Volumes

All intersections are operating within mobility/V/C targets for ODOT and McMinnville.

Table 8 Existing and 2024 Background Peak Hour Intersection Operational Analysis

Intersection	V/C Mobility Target/ Jurisdiction	Peak Hour	2022 Existing Conditions (LOS/v/c)	2024 Background Conditions (LOS/v/c)
1. Adams Street at NE 2nd Street	0.80 ODOT	AM Peak	C / 0.57	C / 0.59
		PM Peak	C / 0.71	C / 0.73
2. Baker Street at NE 2nd Street	0.80 ODOT	AM Peak	B / 0.49	B / 0.51
		PM Peak	C / 0.69	C / 0.71
3. Adams Street at NE 5th Street	0.80 ODOT	AM Peak	B / 0.29	B / 0.30
		PM Peak	B / 0.60	B / 0.62
4. Baker Street at NE 5th Street	0.80 ODOT	AM Peak	C / 0.42	C / 0.43
		PM Peak	C / 0.59	B / 0.65
5. Johnson Street/Lafayette Street at NE 3rd Street	0.90 McMinnville	AM Peak	B / 0.50	B / 0.52
		PM Peak	D / 0.84	C / 0.84*

**Fully actuated signal; cycle length and splits optimized in Synchro model*

Section 4. Transportation Impact Analysis

Site Information

Generally, the Downtown Design Standards and zoning map allow for commercial uses with "Main Street" qualities. In the surrounding area, this includes small shops, services, restaurants, drinking establishments, a historic hotel, and a theatre.

The Gwendolyn Hotel project includes the following specific uses:

- Hotel with 85 guestrooms
- Ground floor retail (specialty retail small shops) of 2,700 SF
- Ground floor restaurant of 6,200 SF
- Roof-top restaurant/drinking place of 2,145 SF
- Roof-top salon of 1,500 SF

The hotel includes typical amenities such including a lobby, meeting rooms, and back-of-house administrative offices and storage. The restaurant would be a ground floor establishment with sidewalk seating. A parking garage is included with 68 stalls under the building. The rooftop uses include a terrace with a fitness room, a rooftop bar/restaurant, and a pool and hot tub. Most uses are for hotel guests, although the rooftop bar/restaurant may be open to the public during afternoon and evening business hours (i.e., closed in the morning). The retail space is expected to be a small shop. The project also includes underground parking, development of required underground utilities, landscaping, and associated frontage on-street improvements.

Existing buildings being replaced include small offices (formerly a bookkeeping company, realtor office, and co-working space), with a total of 5,891 SF; the News-Register publishing offices, with a total of

6,093 SF; and mixed commercial uses including, over time, a restaurant, hair salon, property management office, and a community church utilizing a total of 6,048 SF.

Trip Generation

Trip generation estimates were developed using the 11th Edition of the Institute of Transportation Engineers' *Trip Generation Manual* (September 2021), using the closest land use descriptions applied in the "general urban/suburban" setting. Trips were estimated for both the proposed uses and uses that are being replaced, resulting in "net new trips" for the analysis. The ground floor retail is intended to consist of small, specialty shops. There is no specific ITE Code for that use in the 11th Edition, so the 9th Edition Land Use Code 826 (Specialty Retail) is used in this trip generation analysis.

Because of the mixed-use nature of the development, an internal capture rate of 10% of site trips was assumed using the ITE *Trip Generation Handbook*, 3rd Edition (September 2017). Internal trips consist of those trips that start and end within the same development such as hotel guests visiting the salon; the restaurant or roof-top pub/drinking place; or customers of the restaurant, pub, or salon walking from adjacent buildings to visit those establishments, in which case the trips are not vehicular but walking or bicycling.

Table 9 summarizes AM peak, PM peak, and weekday trip generation based on the site proposal and uses that were in the existing buildings. AM and PM trips were separated into "ins" and "outs" for assignment to the street network. The result of the trip generation analysis is that the new site is expected to generate 70 net new AM peak hour vehicle trips, 125 net new PM peak hour vehicle trips, and 1,566 net new weekday vehicle trips.

Table 9 Site Trip Generation Calculations

Land Use	Size	ITE Code[14]	Trips		
			AM Peak	PM Peak	Weekday
Previous (Existing) Uses					
Small Office	5,891 SF	712	10 (8 in, 2 out)	13 (4 in, 9 out)	85
Newspaper/ Single tenant office	6,093 SF	715	11 (10 in, 1 out)	18 (2 in, 16 out)	80
Mixed/ Commercial	6,048 SF	712	10 (8 in, 2 out)	13 (4 in, 9 out)	86
TOTAL			31 (26 in, 5 out)	44 (10 in, 34 out)	251
Proposed Uses					
Retail (Specialty Retail store)	2,700 SF	826 (ITE 9th Edition)	3 (2 in, 1 out)	7 (3 in, 4 out)	120
High-turnover (Sit-Down) Restaurant	6,200 SF (Ground level)	932	59 (32 in, 27 out)	56 (34 in, 22 out)	665
Drinking Place (Restaurant/Bar)	2,145 SF (roof level)	975	0 (closed in the AM)	24 (16 in,8 out)	240
Hotel	85 rooms	310	39 (22 in, 17 out)	50 (25 in, 25 out)	679
Salon	1,500 SF	918	2 (1 in, 1 out)	2 (1 in, 1 out)	20
Subtotal			103 (57 in, 46 out)	139	2,019

[14] Institute of Transportation Engineers *Trip Generation Manual*, 11th Edition (September 2021), unless otherwise indicated in the table.

Land Use	Size	ITE Code[14]	Trips		
			AM Peak	PM Peak	Weekday
Mixed Use Internal Trip Capture (10%)			*(10) (6 in, 4 out)*	*(14) (8 in, 6 out)*	*(202)*
NET NEW TRIPS			**70**	**125**	**1,566**
Inbound			**25**	**61**	
Outbound			**45**	**64**	

Trip Distribution and Traffic Assignment

The net new trips from the trip generation analysis shown above were distributed (assigned) to the transportation network based on existing traffic patterns, general trip distribution from the 2010 TSP and forecast market data for the proposed development. The primary trip destinations for the distribution analysis are:

A. Downtown McMinnville and Linfield College area: 5% of trips[15]
B. Southwest via Oregon Highway 18: 25% of trips
C. West McMinnville: 3% of trips (via 2nd Street)
D. Northeast of McMinnville via Highway 99W: 32%
E. East and Northeast of McMinnville via Oregon Highway 18: 35% (via 3rd Street).

Figure 4 summarizes the trip distribution on a map of the area. Table 10 summarizes the trip distribution by direction and time of day for the traffic assignment.

Figure 5 shows the traffic assignment of site trips to the study intersections, while Figure 6 shows Year 2024 total trips including background and site traffic for the traffic operations analysis.

Table 10 Trip Distribution by Time of Day

Destination	%	AM Trips			PM Trips		
		In	Out	Total	In	Out	Total
A. Downtown McMinnville and Linfield College area	5%	1	2	3	3	3	6
B. Southwest via Oregon Highway 18: 25% of trips	25%	6	11	17	15	16	31
C. West McMinnville (via 2nd Street)	3%	1	1	2	2	2	4
D. Northeast of McMinnville via Highway 99W	32%	8	14	22	20	20	40
E. East and Northeast of McMinnville via Oregon Highway 18 (via 3rd Street).	35%	9	16	25	21	22	43
TOTAL	**100%**	**25**	**45**	**70**	**61**	**64**	**125**

[15] These trips will likely use the City's downtown street system to circulate and will not be routed through any of the TIA's study intersections.

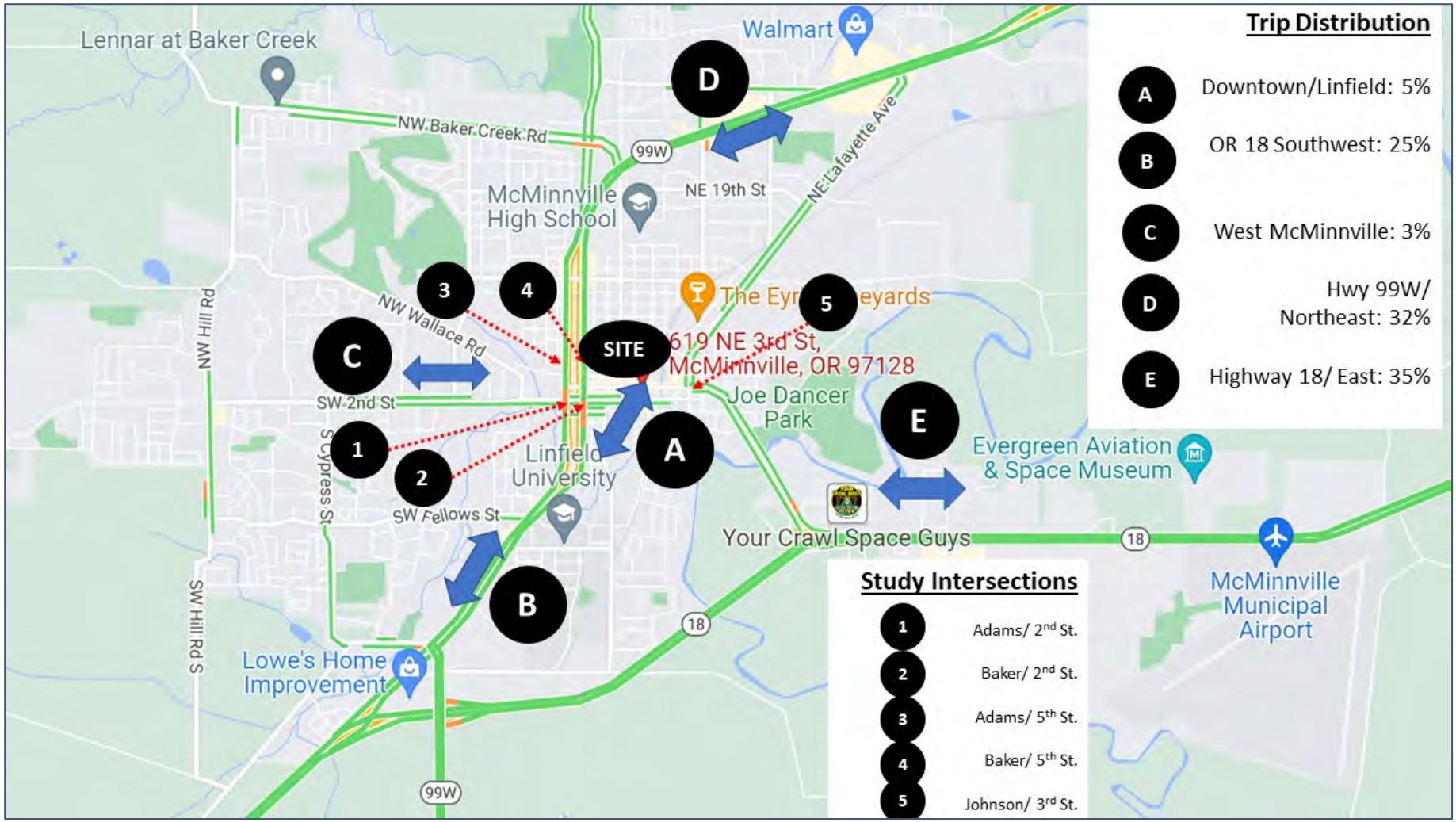


Figure 4 Trip Distribution

Figure 5 Assignment of Site Trips

Figure 6 Year 2024 Total Peak Hour Volumes (with site)

Comparative Observations

The Gwendolyn Hotel proposal is a mixed-use hotel with on-site commercial uses. To be conservative, the trip generation and distribution analysis assumes a more suburban-style setting where trips are predominantly by automobile.

To gain an understanding of how trips may actually occur to and from the site, observations were made at similar land uses in downtown McMinnville. The observation sites included the Hotel Oregon, a McMenamin's establishment which has guest rooms, a rooftop bar, and a ground floor pub.

The observations conclude that guests of a mixed-use building similar to Hotel Gwendolyn may not be making as many vehicle trips as the more traditional ITE analysis above would indicate. People tend to drive into and park in downtown McMinnville, then use the complete sidewalk network to walk to various establishments for the day or evening. On-site amenities proposed for Gwendolyn Hotel are also expected to contain trips on-site. Hotel guests tend to park for their stay and walk around downtown, with some vehicular travel to tourist and recreational destinations, including Spirit Mountain Casino and the surrounding vineyards.

Many trips will be made by walking or bicycling around downtown. There are some shuttle tours that are available to accommodate multiple guests, instead of each person or family driving independently. The completeness of the sidewalk system downtown helps to encourage walking or slow bicycling, while the low traffic speeds can accommodate on-street bicycling around the area.

Site Access/ Sight Distance Evaluation

The proposed parking garage access on Ford Street is adjacent to the current parking lot access for the existing buildings. The photos in Figure 7 show the current access point and sight distances both approaching the driveway as well as looking down the street from the driveway. Sight distance triangles for vehicles exiting the parking garage will be established on the site plans and will comply with City of McMinnville requirements.

Note: while there are on-street parked vehicles near the driveway access, the low traffic levels and slow speeds of Ford Street will allow the access to operate satisfactorily.

Figure 7 Gwendolyn/Ford Street Access Photos

Existing Ford Street Access Location

Looking South from Existing Ford Street Access

Ford Street Looking Toward Existing Site Access

Section 5. Operational Analysis

The Year 2024 total traffic conditions analysis forecasts the operation of the study intersections for 2024, with background traffic and the inclusion of traffic generated by the site proposal. The analysis addresses both the AM and PM peak hours.

The operational analysis consists of two parts:

- Intersection operation analysis, resulting in levels-of-service (LOS) and V/C ratios for the five study intersections; and
- Queuing analysis, showing the 95th Percentile queue lengths by approach for each of the study intersections.

Mobility targets for ODOT and the City of McMinnville were applied to the results. Table 11 shows the peak hour operational analysis for all three scenarios (2022 Existing, 2024 Background, and 2024 All Trips). All intersections are operating within the mobility targets for ODOT and McMinnville in the Year 2024 All Trips scenario for both AM and PM peak hours.

Intersection Queuing Analysis

An intersection queuing analysis was conducted for key study area intersections for the AM and PM peak hours for the Year 2024 with site (All Trips) scenario. The 95th percentile queues were summarized from the Synchro 11 timing reports. In the case of Highway 99W (Adams and Baker Streets), there are no separate turn lanes; thus, the queuing is assessed for the potential to back-up into adjacent intersections.

Table 12 shows the 95th percentile queues from the HCM 2000 intersection reports (HCM provides intersection V/C ratios). The results in **bold** indicate the queue length exceeds storage capacity.

During the Year 2024 All Trips scenario for the AM peak, no apparent queuing issues are projected. However, during the Year 2024 PM peak scenario, two of the intersections are projected to have queues that either exceed turn lane storage lengths or may extend into adjacent intersections. These are:

- NE 2nd Street at Baker Street/Highway 99W: eastbound and westbound traffic will queue due to through movements. These issues were observed to occur periodically during the July 2022 traffic counts, and the site is anticipated to have minimal impacts to this situation. Because this and the adjacent NE 2nd Street at Adams Street intersections are built-out and are working off of a coordinated, fixed-time signal operation; other than minor changes to the signal timing patterns by ODOT, there are no other recommended mitigation improvements at this location.
- NE Johnson Street/Lafayette Street at NE 3rd Street: queues for westbound through traffic and southbound left turns are projected to exceed storage lengths. These issues were observed at times during the July 2022 traffic counts. As this intersection is fully actuated, the City should continue to monitor this intersection for changes in cycle length and phasing operations. The site is anticipated to have minimal impacts on queuing at this intersection.

Table 11 Year 2024 Total Traffic Conditions Peak Hour Intersection Operational Analysis

Intersection	Mobility Target/ Jurisdiction	Peak Hour	2022 Existing Conditions	2024 Background Conditions	Year 2024 Total Traffic Conditions (With Site)
1. Adams Street at NE 2nd Street	0.80 ODOT	AM Peak	C/ 0.57	C/ 0.59	C/ 0.59
		PM Peak	C/ 0.71	C/ 0.73	C/ 0.74
2. Baker Street at NE 2nd Street	0.80 ODOT	AM Peak	B/ 0.49	B/ 0.51	B/ 0.51
		PM Peak	C/ 0.69	C/ 0.71	D/ 0.74
3. Adams Street at NE 5th Street	0.80 ODOT	AM Peak	B/ 0.29	B/ 0.30	B/ 0.30
		PM Peak	B/ 0.60	B/ 0.62	B/ 0.62
4. Baker Street at NE 5th Street	0.80 ODOT	AM Peak	C/ 0.42	C/ 0.43	C/ 0.43
		PM Peak	B/ 0.59	B/ 0.65	B/ 0.67
5. Johnson Street/Lafayette Street at NE 3rd Street	0.90 McMinnville	AM Peak	B/ 0.50	B/ 0.52	B/ 0.56
		PM Peak	D/ 0.84	C/ 0.84*	D/ 0.87*

**Fully actuated signal; cycle length and splits optimized in Synchro model.*

Table 12 Queuing Analysis

Intersection	Approach/ Movement	Striped/ Effective Storage Length (feet)	Queue Length (Feet)[16]	
			AM Peak	PM Peak
A. Adams Street at NE 2nd Street	Eastbound Thru	500+	300	300
	Eastbound Right	150	<25	25
	Westbound Left	230	25	75
	Westbound Thru	230	25	225
	Southbound (all)	500+	125	375
B. Baker Street at NE 2nd Street	Eastbound Left	230	25	175
	Eastbound Thru	230	25	***250***
	Westbound (all)	250	125	***500***
	Northbound (all)	500+	150	300
C. Adams Street at NE 5th Street	Eastbound (all)	300+	<25	<25
	Westbound (all)	230	50	50
	Southbound (all)	500+	125	250
D. Baker Street at NE 5th Street	Eastbound (all)	230	75	75
	Westbound (all)	300+	50	200
	Northbound (all)	300+	250	325
E. Johnson Street/Lafayette Street at NE 3rd Street	Eastbound Left	200	<25	25
	Eastbound Thru/ Right	300+	75	100
	Westbound Left	100	<25	25
	Westbound Thru	300+	125	***350***
	Westbound Right	40	<40	>40[17]
	Northbound (all)	230	100	150
	Southbound Left	150	100	***300***
	Southbound Thru/ Right	300+	50	150

[16] 95th Percentile Queue Length from Synchro 11 timing report, rounded to nearest 25 feet.
[17] Westbound through traffic queues impact ability of right-turning vehicles to enter the right-turn storage lane.

Section 6. Findings and Recommendations

The proposed development of the Gwendolyn Hotel can comply with the City of McMinnville's transportation-related standards, including mobility (V/C) and crash rates. The site is expected to generate a modest level of new vehicle trips in the downtown area, with minor impacts to the five study intersections. All five intersections can accommodate the additional trips and remain within the mobility targets of the agencies. The fully actuated signal at Johnson Street/Lafayette Street and NE 3rd Street should be monitored by the City over time for signal timing adjustments to accommodate traffic growth.

Four of the study intersections exhibit collision rates within the statewide 90th percentile rate expected for the intersection. One intersection, Baker Street/99W at NE 2nd Street, exhibits an elevated collision rate that is slightly over the 90th percentile rate. However, this appears to be due to a high number of collisions in the early part of the five-year reporting period that occurred prior to a signal and intersection improvement completed by the City of McMinnville in late 2017. Since that time, the collision rate has noticeably decreased, and it is expected that adding the full Year 2021 collision data to the five-year analysis will show a reduced collision rate.

The site has public transportation service and a transit center within walking distance. The sidewalk network is complete within the site's vicinity. The front (walk) entrance to the site is readily accessible and will be designed to comply with requirements of the Americans with Disabilities Act (ADA).

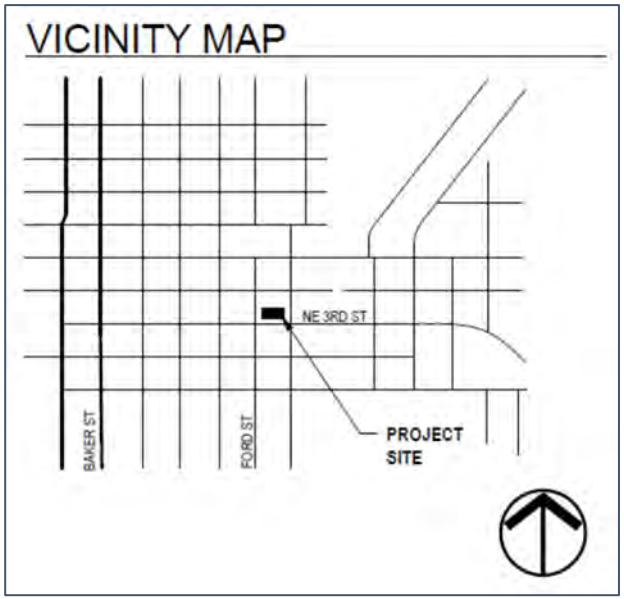
While the downtown street network does not have on-street bike lanes, the slow speeds allow bikes to share the road environment with vehicles with no apparent issues. Bike lanes are included on the roadways approaching all five study intersections.

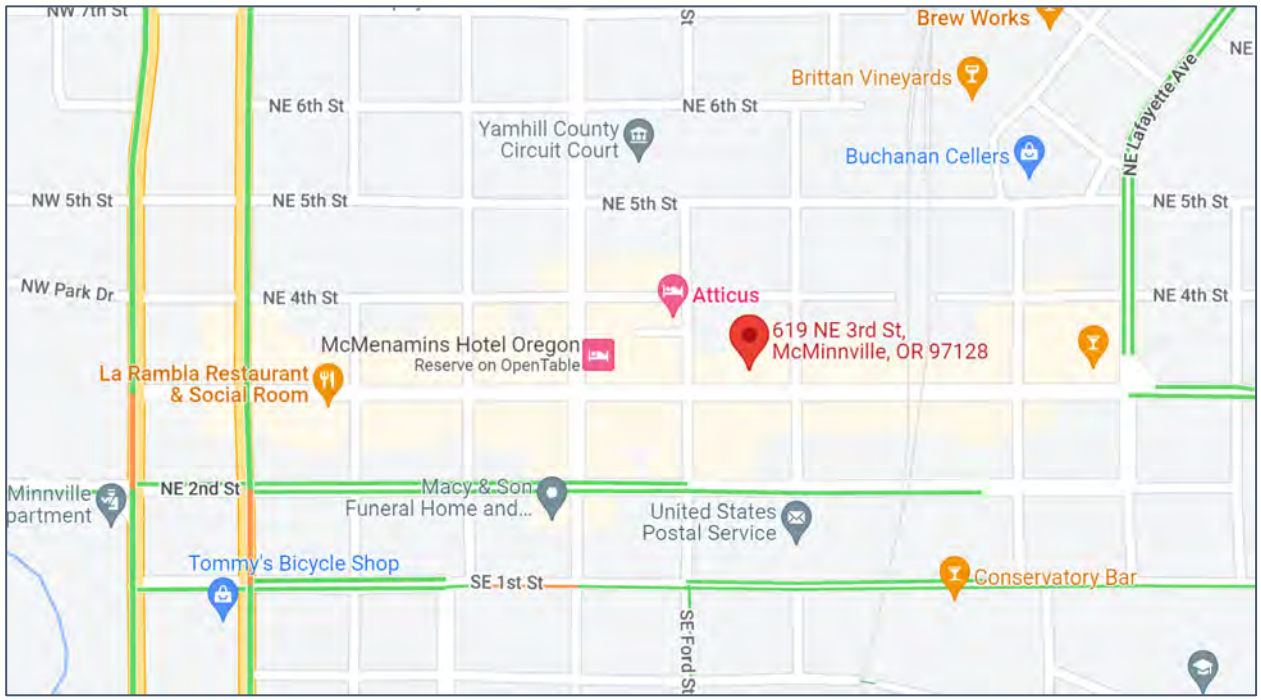
No traffic mitigation measures are recommended.

Appendix A

Vicinity and Site Maps

Vicinity Map





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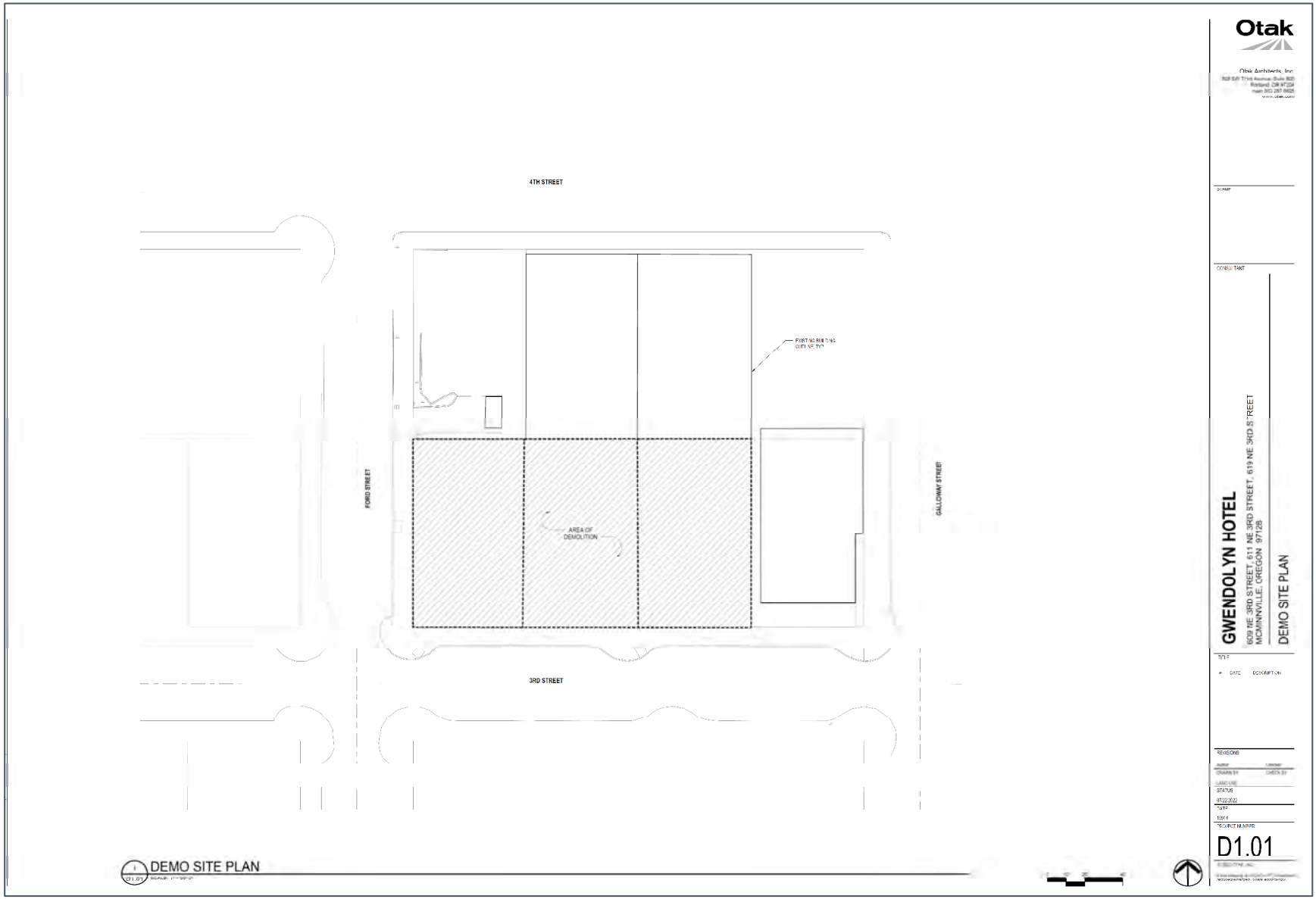
Existing Buildings Being Replaced



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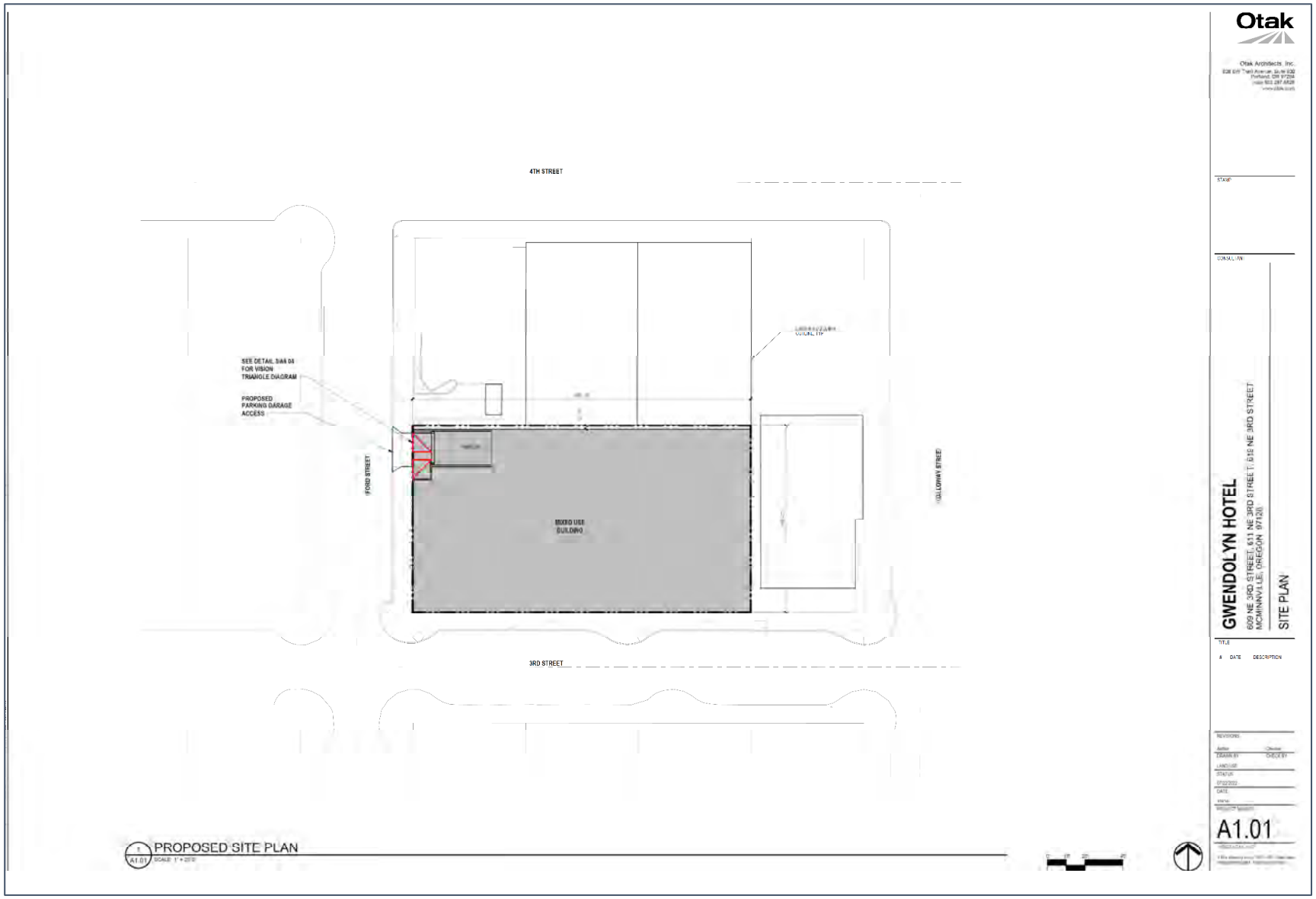
Site Plan Building Footprint



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Site Plan Interior Spaces

Appendix B

Yamhill County Transit McMinnville Route Map

ROUTES 1&3 · ROUTES 2&4

McMINNVILLE

MONDAY - FRIDAY

ROUTE 1 — McMINNVILLE - SOUTH LOOP

784364	835709	784532	784316	784360	784364
McMinnville 800 NE 2nd St Transit Center	McMinnville 5th St & Cowls OMI	McMinnville Booth Bend Lowe's (between Hwy 18 & Hwy 99W)	McMinnville Cypress & Alexandria Discovery Meadows Park	McMinnville Hwy 99W & Founders Linfield Blaine St Shelter	McMinnville 800 NE 2nd St Transit Center
8:30 am	8:34 am	8:41 am	8:44 am	8:49 am	8:55 am
9:30 am	9:34 am	9:41 am	9:44 am	9:49 am	9:55 am
10:30 am	10:34 am	10:41 am	10:44 am	10:49 am	10:55 am
11:30 am	11:34 am	11:41 am	11:44 am	11:49 am	11:55 am
12:30 pm	**12:34 pm**	**12:41 pm**	**12:44 pm**	**12:49 pm**	**12:55 pm**
1:30 pm	**1:34 pm**	**1:41 pm**	**1:44 pm**	**1:49 pm**	**1:55 pm**
2:30 pm	**2:34 pm**	**2:41 pm**	**2:44 pm**	**2:49 pm**	**2:55 pm**
3:30 pm	**3:34 pm**	**3:41 pm**	**3:44 pm**	**3:49 pm**	**3:55 pm**
4:30 pm	**4:34 pm**	**4:41 pm**	**4:44 pm**	**4:49 pm**	**4:55 pm**
5:30 pm	**5:34 pm**	**5:41 pm**	**5:44 pm**	**5:49 pm**	**5:55 pm**

o Real-Time Stop ID#

MONDAY - FRIDAY

ROUTE 3 — McMINNVILLE - NORTH LOOP

784364	784313	784314	784509	784408	784364
McMinnville 800 NE 2nd St Transit Center	McMinnville Evans & 19th	McMinnville Hembree & 27th	McMinnville Grandhaven WinCo Foods	McMinnville HW Adams St & 12th	McMinnville 800 NE 2nd St Transit Center
8:04 am	8:09 am	8:13 am	8:19 am	8:25 am	8:30 am
9:04 am	9:09 am	9:13 am	9:19 am	9:25 am	9:30 am
10:04 am	10:09 am	10:13 am	10:19 am	10:25 am	10:30 am
11:04 am	11:09 am	11:13 am	11:19 am	11:25 am	11:30 am
12:04 pm	**12:09 pm**	**12:13 pm**	**12:19 pm**	**12:25 pm**	**12:30 pm**
1:04 pm	**1:09 pm**	**1:13 pm**	**1:19 pm**	**1:25 pm**	**1:30 pm**
2:04 pm	**2:09 pm**	**2:13 pm**	**2:19 pm**	**2:25 pm**	**2:30 pm**
3:04 pm	**3:09 pm**	**3:13 pm**	**3:19 pm**	**3:25 pm**	**3:30 pm**
4:04 pm	**4:09 pm**	**4:13 pm**	**4:19 pm**	**4:25 pm**	**4:30 pm**
5:04 pm	**5:09 pm**	**5:13 pm**	**5:19 pm**	**5:25 pm**	**5:30 pm**

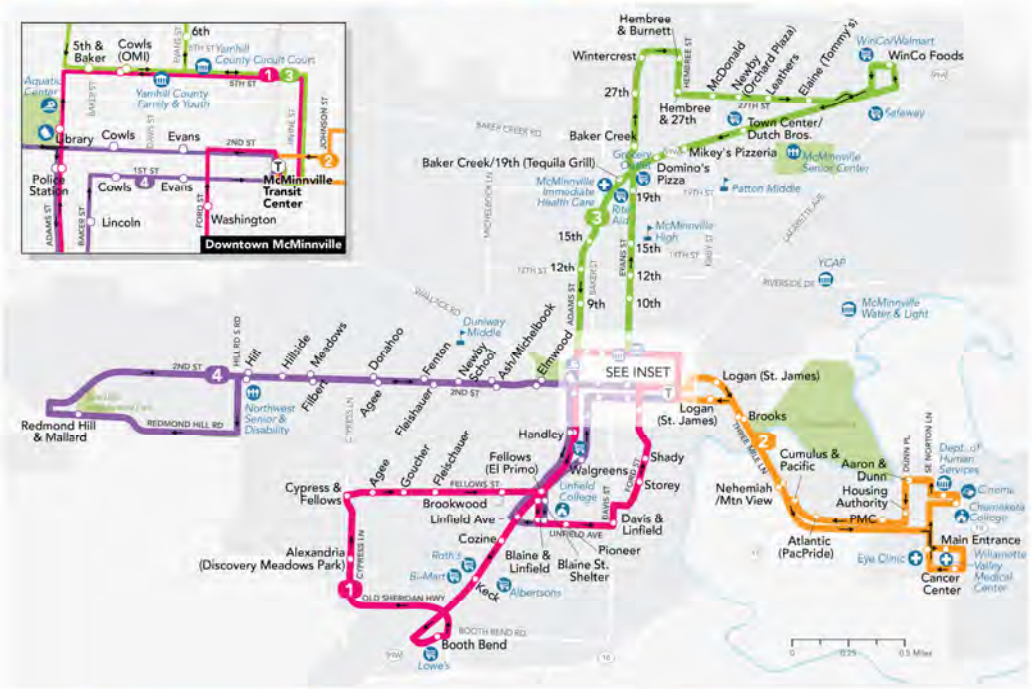
o Real-Time Stop ID#

HOW'S THE WEATHER?

For the safety of our riders, service may be suspended, re-routed or reduced during inclement weather.

For schedule changes:

- Call Main: 503-474-4900
  Newberg: 503-538-7433
- Visit YCBus.org
  - Check Real-Time
  - Check Rider Alerts



MONDAY - FRIDAY

ROUTE 2 — McMINNVILLE - EAST LOOP

784364	784325	784442	784364
McMinnville 800 NE 2nd St Transit Center	McMinnville Sinatra Ave Willamette Valley Medical Center front entrance	McMinnville Norton Ln CCC/Cinema/DHS	McMinnville 800 NE 2nd St Transit Center
7:01 am	7:07 am	7:13 am	7:20 am
8:11 am	8:17 am	8:23 am	8:30 am
9:11 am	9:17 am	9:23 am	9:30 am
10:11 am	10:17 am	10:23 am	10:30 am
11:11 am	11:17 am	11:23 am	11:30 am
12:11 pm	**12:17 pm**	**12:23 pm**	**12:30 pm**
1:11 pm	**1:17 pm**	**1:23 pm**	**1:30 pm**
2:11 pm	**2:17 pm**	**2:23 pm**	**2:30 pm**
3:11 pm	**3:17 pm**	**3:23 pm**	**3:30 pm**
4:11 pm	**4:17 pm**	**4:23 pm**	**4:30 pm**
5:11 pm	**5:17 pm**	**5:23 pm**	**5:30 pm**

o Real-Time Stop ID#

MONDAY - FRIDAY

ROUTE 4 — McMINNVILLE - WEST LOOP

784364	784311	784514	784312	784360	784364
McMinnville 800 NE 2nd St Transit Center	McMinnville 2nd & Fenton	McMinnville Redmond Hill Rd West Hills Park	McMinnville 2nd & Fleischauer	McMinnville Hwy 99W & Founders Linfield Blaine St Shelter	McMinnville 800 NE 2nd St Transit Center
7:30 am	7:34 am	7:41 am	7:49 am	7:53 am	7:57 am
8:30 am	8:34 am	8:41 am	8:49 am	8:53 am	8:57 am
9:30 am	9:34 am	9:41 am	9:49 am	9:53 am	9:57 am
10:30 am	10:34 am	10:41 am	10:49 am	10:53 am	10:57 am
11:30 am	11:34 am	11:41 am	11:49 am	11:53 am	11:57 am
12:30 pm	**12:34 pm**	**12:41 pm**	**12:49 pm**	**12:53 pm**	**12:57 pm**
1:30 pm	**1:34 pm**	**1:41 pm**	**1:49 pm**	**1:53 pm**	**1:57 pm**
2:30 pm	**2:34 pm**	**2:41 pm**	**2:49 pm**	**2:53 pm**	**2:57 pm**
3:30 pm	**3:34 pm**	**3:41 pm**	**3:49 pm**	**3:53 pm**	**3:57 pm**
4:30 pm	**4:34 pm**	**4:41 pm**	**4:49 pm**	**4:53 pm**	**4:57 pm**
5:30 pm	**5:34 pm**	**5:41 pm**	**5:49 pm**	**5:53 pm**	**5:57 pm**

o Real-Time Stop ID#

HOLIDAY SCHEDULE

YC Transit does not operate on major holidays, including:

- New Years Day
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day
- Christmas Day

YAMHILL COUNTY TRANSIT

Main: 503-474-4900 · Newberg: 503-538-7433 · YCBus.org

Otak

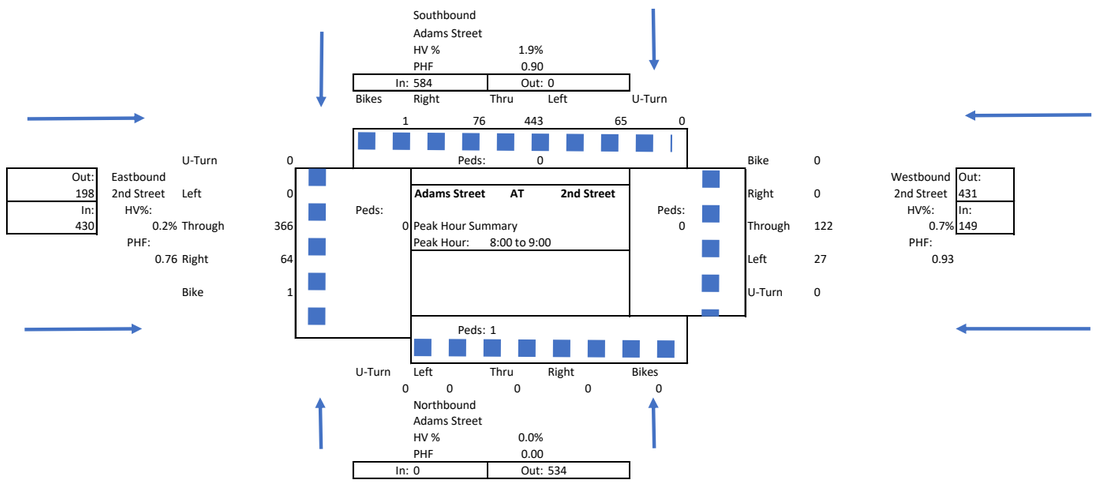
Appendix C

Traffic Count Summaries

2nd and Adams St Turn Count AM

Otak, Incorporated Counts Program

East-West Street:	2nd Street	
North-South Street:	Adams Street	
Location:	McMinnville	
Date of Count:	7/12/2022	
Start time:	7:00 AM	
Peak Hour Start:	8:00 AM	
Peak 15 Mins Start:	8:45 AM	Check
Peak Hour TEV:	1163	1163
Peak 15 MinsTEV:	354	354
Intersection PHF:	0.82	
Note:	Adams SB Only	
	70 sec cycle	
	40 sec E/W	
Counted by:	LG	



Total Vehicles

	Northbound					Southbound					Eastbound					Westbound					Interval	Rolling	Rolling 1	Pedestrians - Crosswalk			
Interval Start Time (AM)	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	Total	15 Mins	Hr.	North	South	East	West
7:00 - 7:05						1	21	1				15	9			1	5				53						
7:05 - 7:10							23	2				16	10			1	6				58						
7:10 - 7:15						2	21	1				7	2			4	16				53	164					
7:15 - 7:20						1	30	4				16	3			11	8				73	184					
7:20 - 7:25						2	30	2				23	3			1	8				69	195					
7:25 - 7:30						2	30	2				28	3			1	8				74	216					
7:30 - 7:35						2	25	2				23	5			2	15				74	217					
7:35 - 7:40						1	20	1				18	8			2	20				70	218		1	1		
7:40 - 7:45						3	26	7				38	5		1		7				86	230					
7:45 - 7:50						5	27	7				32	5			1	11				88	244					
7:50 - 7:55						6	28	6				24	4			2	15				85	259					
7:55 - 8:00						5	33	5				32	5			2	14				96	269	879				
8:00 - 8:05						3	38	4				40	6			2	12				105	286	931				
8:05 - 8:10						4	33	5				31				4	11				88	289	961				
8:10 - 8:15						4	27	6				22	3			6	10				78	271	986		1		
8:15 - 8:20						8	34	5				25	4			4	9				89	255	1002				
8:20 - 8:25						11	39	3				28	4		1	2	8				95	262	1028				
8:25 - 8:30						10	40	4				28	4			2	9				97	281	1051				
8:30 - 8:35							30	8				26	4			2	8				78	270	1055				
8:35 - 8:40						5	29	9				25	3			1	9				81	256	1066				
8:40 - 8:45						4	36	9				31	5			2	11				98	257	1078				
8:45 - 8:50						5	40	10		1		37	7			1	12				112	291	1102				
8:50 - 8:55						6	46	8				36	10			1	12				119	329	1136				
8:55 - 9:00						5	51	5				37	14				11				123	354	1163				
Peak Hour Vehicles	0	0	0	0	0	65	443	76	0	1	0	366	64	0	1	27	122	0	0	0				0	1	0	0
Peak 15 Mins. Vehicles	0	0	0	0	0	16	137	23	0	1	0	110	31	0	0	2	35	0	0	0							
Peak Hours Trucks/Buses	0	0	0			0	11	0			0	1	0			0	1	0									

Truck/Bus Counts

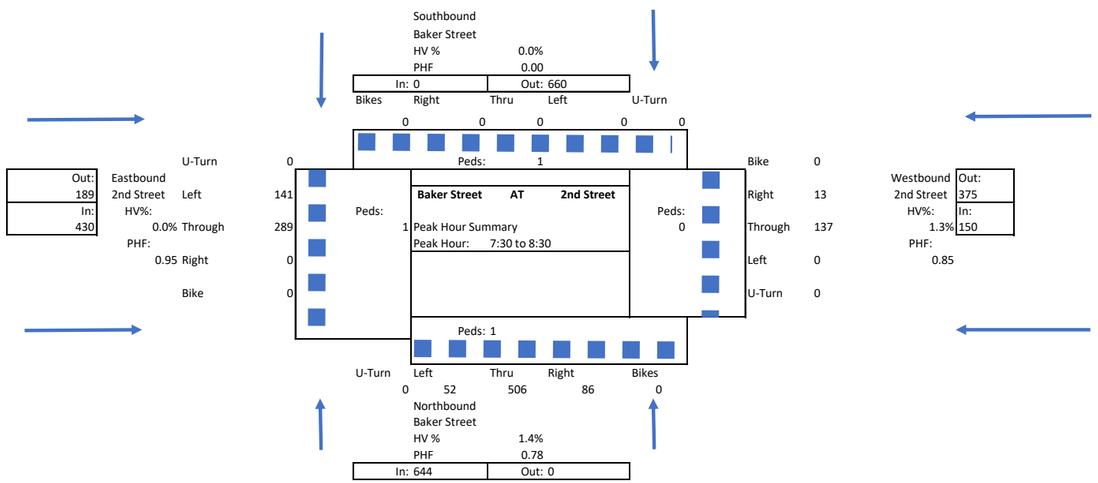
	Northbound				Southbound				Eastbound				Westbound				Interval
Interval Start Time	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	Total
7:00 - 7:05				0				0				0				0	0
7:05 - 7:10				0				0				0				0	0
7:10 - 7:15				0				0				0				0	0
7:15 - 7:20				0		2		2				0		1		1	3
7:20 - 7:25				0		1		1				0				0	1
7:25 - 7:30				0		1		1				0				0	1
7:30 - 7:35				0				0				0				0	0
7:35 - 7:40				0				0				0		1		1	1
7:40 - 7:45				0		2		2				0		2		2	4
7:45 - 7:50				0		2		2				0		1		1	3
7:50 - 7:55				0		1		1			1	1				0	2
7:55 - 8:00				0				0		1		1				0	1
8:00 - 8:05				0		1		1		1		1				0	2
8:05 - 8:10				0		1		1				0				0	1
8:10 - 8:15				0		1		1				0				0	1
8:15 - 8:20				0				0				0				0	0
8:20 - 8:25				0		1		1				0				0	1
8:25 - 8:30				0		1		1				0				0	1
8:30 - 8:35				0		1		1				0				0	1
8:35 - 8:40				0		1		1				0		1		1	2
8:40 - 8:45				0		2		2				0				0	2
8:45 - 8:50				0		2		2				0				0	2
8:50 - 8:55				0				0				0				0	0
8:55 - 9:00				0				0				0				0	0

Peak 15 minutes
Peak Hour

2nd and Baker St Turn Count AM

Otak, Incorporated Counts Program

East-West Street:	2nd Street	
North-South Street:	Baker Street	
Location:	McMinnville	
Date of Count:	7/12/2022	
Start time:	7:00 AM	
Peak Hour Start:	7:30 AM	
Peak 15 Mins Start:	7:50 AM	Check
Peak Hour TEV:	1224	1224
Peak 15 MinsTEV:	363	363
Intersection PHF:	0.84	
Note:	Baker NB Only	
	70 sec cycle	
	35 sec E/W	
Counted by:	CG	



Total Vehicles

	Northbound					Southbound					Eastbound					Westbound					Interval	Rolling	Rolling 1	Pedestrians - Crosswalk			
Interval Start Time (AM)	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	Total	15 Mins	Hr.	North	South	East	West
7:00 - 7:05	5	37	4								10	7					2	1			66						
7:05 - 7:10	4	34	4								7	14					5	1			69						
7:10 - 7:15	2	31	4								3	20					7	1			68	203					
7:15 - 7:20	3	33	5								4	22					10	1			78	215					
7:20 - 7:25	2	38	8								10	23					5	1			87	233					
7:25 - 7:30		37	9								9	22					3				80	245		1			
7:30 - 7:35	2	37	3								11	24					12	1			90	257					
7:35 - 7:40	2	37	11								12	25					13	1			101	271					
7:40 - 7:45		31	10								10	23					12				86	277			1		
7:45 - 7:50	4	62	10								12	32					8	2			130	317					
7:50 - 7:55	6	57	10								15	26					12	1			127	343					
7:55 - 8:00	7	52	11								17	19					16				122	379	1104				
8:00 - 8:05	6	49	8								13	23					13	2			114	363	1152				
8:05 - 8:10	5	45	5								8	27					9	3			102	338	1185				1
8:10 - 8:15	5	40	6								8	8					10	2			79	295	1196				
8:15 - 8:20	4	35	7								7	26					11				90	271	1208				
8:20 - 8:25	5	32	4								12	27					11	1			92	261	1213				
8:25 - 8:30	6	29	1								16	29					10				91	273	1224	1			
8:30 - 8:35		25	3								4	19					6	1			58	241	1192				
8:35 - 8:40	1	33	3								9	22					12	2			82	231	1173				
8:40 - 8:45		40	3								13	24			2		17	2			99	239	1186				
8:45 - 8:50	2	38	4								9	26					16	2			97	278	1153				
8:50 - 8:55	3	37	5								5	27					16	2			95	291	1121				
8:55 - 9:00	2	36	4								8	25					16	2			93	285	1092				
Peak Hour Vehicles	52	506	86	0	0	0	0	0	0	0	141	289	0	0	0	0	137	13	0	0				1	1	0	1
Peak 15 Mins. Vehicles	19	158	29	0		0	0	0	0	0	45	68	0	0	0	0	41	3	0	0							
Peak Hour Trucks/Buses	0	8	1			0	0	0			0	0	0			0	2	0									

Truck/Bus Counts

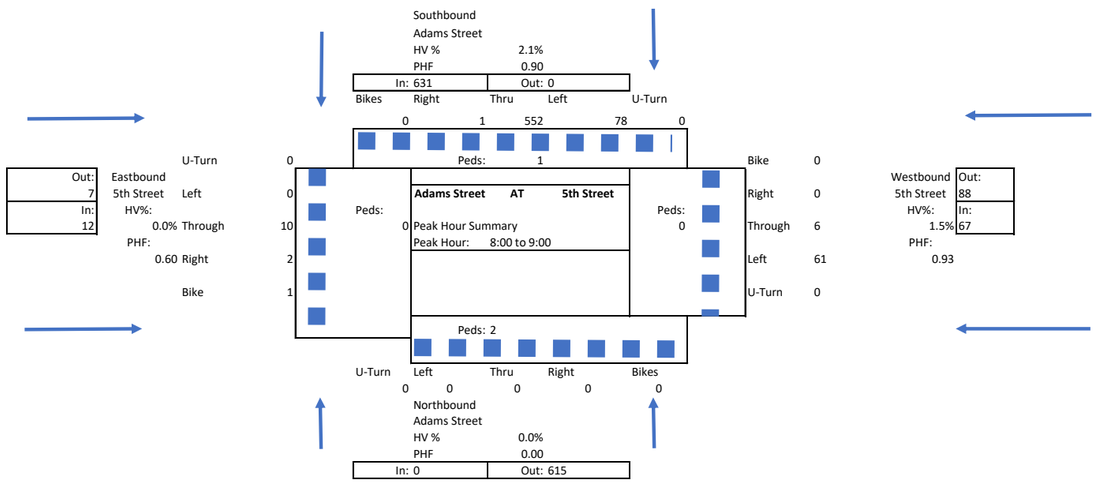
	Northbound				Southbound				Eastbound				Westbound				Interval
Interval Start Time	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	Total
7:00 - 7:05				0				0				0				0	0
7:05 - 7:10				0				0				0				0	0
7:10 - 7:15				0				0				0		1		1	1
7:15 - 7:20		1		1				0				0				0	1
7:20 - 7:25		1		1				0				0				0	1
7:25 - 7:30				0				0				0		1		1	1
7:30 - 7:35		1		1				0				0				0	1
7:35 - 7:40				0				0				0				0	0
7:40 - 7:45				0				0				0		1		1	1
7:45 - 7:50		1		1				0				0				0	1
7:50 - 7:55		2		2				0				0				0	2
7:55 - 8:00		2	1	3				0				0				0	3
8:00 - 8:05		1		1				0				0				0	1
8:05 - 8:10				0				0				0				0	0
8:10 - 8:15		1		1				0				0				0	1
8:15 - 8:20				0				0				0				0	0
8:20 - 8:25				0				0				0				0	0
8:25 - 8:30				0				0				0		1		1	1
8:30 - 8:35				0				0				0				0	0
8:35 - 8:40		1		1				0				0				0	1
8:40 - 8:45		2		2				0				0				0	2
8:45 - 8:50				0				0				0				0	0
8:50 - 8:55		1		1				0				0				0	1
8:55 - 9:00		1		1				0				0				0	1

Peak 15 minutes
Peak Hour

5th and Adams St Turn Count AM

Otak, Incorporated Counts Program

East-West Street:	5th Street	
North-South Street:	Adams Street	
Location:	McMinnville	
Date of Count:	7/12/2022	
Start time:	7:00 AM	
Peak Hour Start:	8:00 AM	
Peak 15 Mins Start:	8:45 AM	Check
Peak Hour TEV:	710	710
Peak 15 MinsTEV:	198	198
Intersection PHF:	0.90	
Note:	Adams SB Only	
	70 Sec cycle	
	30 sec E/W	
	Pretimed	
Counted by:	CG	



Total Vehicles

	Northbound					Southbound					Eastbound					Westbound					Interval	Rolling	Rolling 1	Pedestrians - Crosswalk			
Interval Start Time (AM)	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	Total	15 Mins	Hr.	North	South	East	West
7:00 - 7:05						4	28														32						
7:05 - 7:10						5	30									1					36						
7:10 - 7:15						5	31									5					41	109					
7:15 - 7:20						5	30									4	1				40	117					
7:20 - 7:25						5	29									1	1				36	117					
7:25 - 7:30						4	31									2	1				38	114					
7:30 - 7:35						4	31									1	1				37	111		1			
7:35 - 7:40						8	31					1	1			4	1				46	121					
7:40 - 7:45						10	32									5					47	130					
7:45 - 7:50						9	47					1				6	1				64	157					
7:50 - 7:55						8	57														65	176					
7:55 - 8:00						9	46					1				5					61	190	543				
8:00 - 8:05						9	40					1				3					53	179	564	1			
8:05 - 8:10						8	47					1				3					59	173	587				
8:10 - 8:15						6	53					2			1	7	1				69	181	615		2		
8:15 - 8:20						7	43									8	1				59	187	634				
8:20 - 8:25						8	37									9					54	182	652				
8:25 - 8:30						7	41									8	1				57	170	671				
8:30 - 8:35						6	45									2	1				54	165	688				
8:35 - 8:40						6	42					1				2	1				52	163	694				
8:40 - 8:45						7	44					2				2					55	161	702				
8:45 - 8:50						5	53					1	1			4					64	171	702				
8:50 - 8:55						4	57	1				1	1			7					71	190	708				
8:55 - 9:00						5	50					1				6	1				63	198	710				
Peak Hour Vehicles	0	0	0	0	0	78	552	1	0	0	0	10	2	0	1	61	6	0	0	0				1	2	0	0
Peak 15 mins vehicles	0	0	0	0		14	160	1	0		0	3	2	0		17	1	0	0								
Peak Hour Trucks/Buses	0	0	0			0	13	0			0	0	0			1	0	0									

Truck/Bus Counts

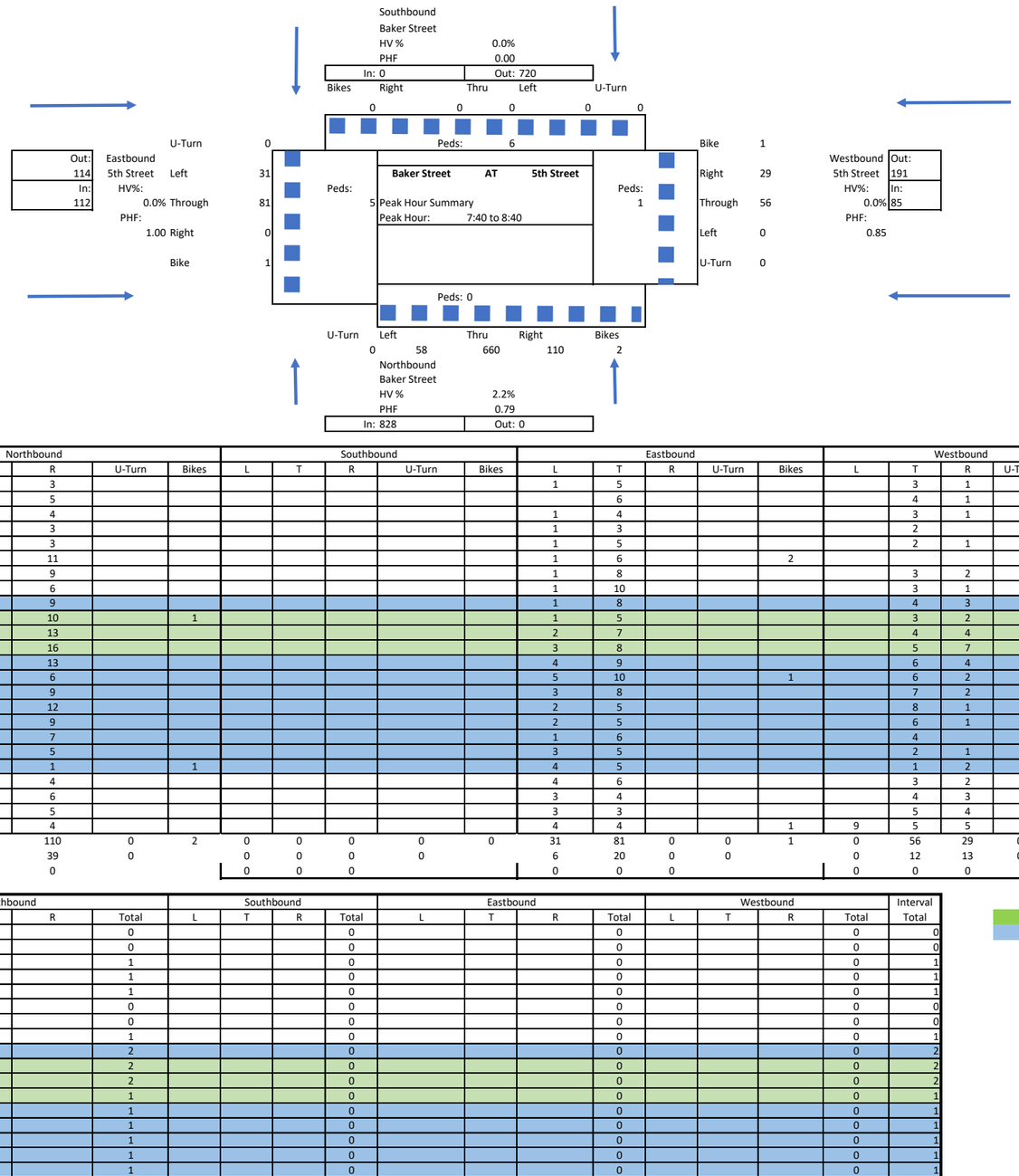
	Northbound				Southbound				Eastbound				Westbound				Interval
Interval Start Time	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	Total
7:00 - 7:05				0				0				0				0	0
7:05 - 7:10				0		1		1				0				0	1
7:10 - 7:15				0		1		1				0				0	1
7:15 - 7:20				0		1		1				0				0	1
7:20 - 7:25				0		1		1				0				0	1
7:25 - 7:30				0		1		1				0				0	1
7:30 - 7:35				0		2		2				0				0	2
7:35 - 7:40				0		1		1				0				0	1
7:40 - 7:45				0		1		1				0				0	1
7:45 - 7:50				0		2		2				0				0	2
7:50 - 7:55				0		2		2				0				0	2
7:55 - 8:00				0		1		1				0				0	1
8:00 - 8:05				0		1		1				0				0	1
8:05 - 8:10				0		1		1				0				0	1
8:10 - 8:15				0		3		3				0				0	3
8:15 - 8:20				0		1		1				0				0	1
8:20 - 8:25				0		1		1				0	1			1	2
8:25 - 8:30				0		1		1				0				0	1
8:30 - 8:35				0		1		2				0				0	2
8:35 - 8:40				0		1		1				0				0	1
8:40 - 8:45				0		1		2				0				0	2
8:45 - 8:50				0		2		2				0				0	2
8:50 - 8:55				0				0				0				0	0
8:55 - 9:00				0				0				0				0	0

Peak 15 minutes
Peak Hour

5th and Baker St Turn Count AM

Otak, Incorporated Counts Program

5th Street	
Baker Street	
McMinnville	
7/12/2022	
7:00 AM	
7:40 AM	
7:45 AM	Check
1025	1025
314	314
0.82	
Baker NB Only	
70 Sec Cycle	
40 Sec E/W	
LG	



Northbound					Southbound					Eastbound					Westbound					Interval	Rolling	Rolling 1	Pedestrians - Crosswalk			
L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	Total	15 Mins	Hr.	North	South	East	West
1	30	3								1	5					3	1			44						
	34	5									6					4	1			50						
	38	4								1	4					3	1			51	145		1			1
1	43	3								1	3					2				53	154					2
2	47	3								1	5					2	1			61	165					1
2	47	11								1	6			2						67	181		2			
3	43	9								1	8					3	2			69	197					
4	39	6								1	10					3	1			64	200					
5	54	9								1	8					4	3			84	217					
4	75	10		1						1	5					3	2		1	100	248					
10	67	13								2	7					4	4			107	291		1			
12	56	16								3	8					5	7			107	314	857	1		1	
10	51	13								4	9					6	4			97	311	910	1			
3	48	6								5	10			1		6	2			80	284	940				
4	53	9								3	8					7	2			86	263	975				
3	58	12								2	5					8	1			89	255	1011				2
2	51	9								2	5					6	1			76	251	1026				
2	44	7								1	6					4				64	229	1023	1			
2	49	5								3	5					2	1			67	207	1021				
1	54	1		1						4	5					1	2			68	199	1025				
1	63	4								4	6					3	2			83	218	1024	1			
1	73	6								3	4					4	3			94	245	1018			1	
2	71	5								3	3					5	4			93	270	1004				
11	70	4								4	4			1	9	5	5			112	299	1009	3			3
58	660	110	0	2	0	0	0	0	0	31	81	0	0	1	0	56	29	0	1				6	0	1	5
26	198	39	0		0	0	0	0		6	20	0	0		0	12	13	0								
0	18	0			0	0	0			0	0	0			0	0	0									

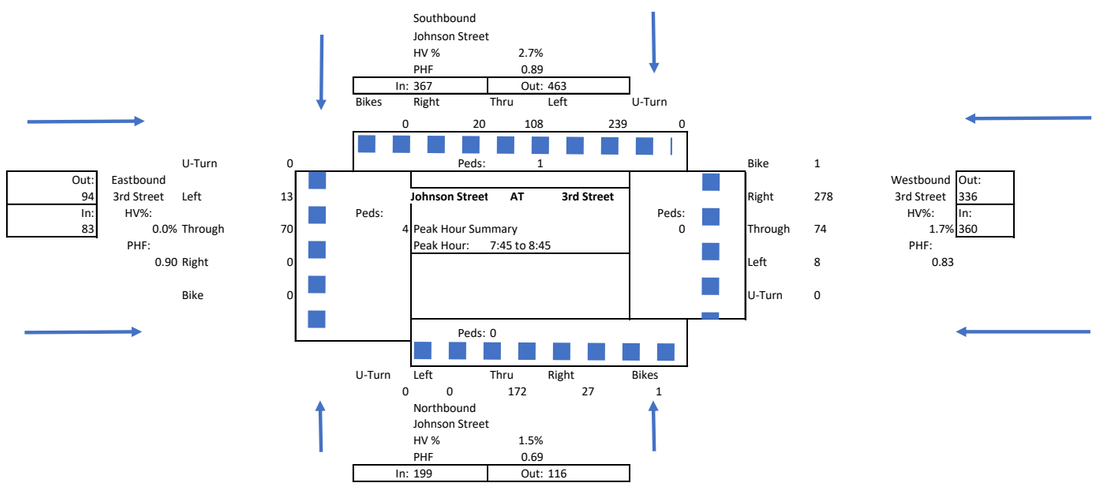
Northbound				Southbound				Eastbound				Westbound				Interval
L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	Total
			0				0				0				0	0
			0				0				0				0	0
	1		1				0				0				0	1
	1		1				0				0				0	1
	1		1				0				0				0	1
			0				0				0				0	0
			0				0				0				0	0
	1		1				0				0				0	1
	2		2				0				0				0	2
	2		2				0				0				0	2
	2		2				0				0				0	2
	1		1				0				0				0	1
	1		1				0				0				0	1
	1		1				0				0				0	1
	1		1				0				0				0	1
	1		1				0				0				0	1
	1		1				0				0				0	1
	1		1				0				0				0	1
	2		2				0				0				0	2
	3		3				0				0				0	3
	1		1				0				0				0	1
	1		1				0				0				0	1
	2		2				0				0				0	2
	4		4				0				0				0	4

Peak 15 minutes
Peak Hour

NE 3rd St and Johnson Turn Count AM

Otak, Incorporated Counts Program

East-West Street:	3rd Street
North-South Street:	Johnson Street
Location:	McMinnville
Date of Count:	7/14/2022
Start time:	7:00 AM
Peak Hour Start:	7:45 AM
Peak 15 Mins Start:	7:45 AM Check
Peak Hour TEV:	1009 1009
Peak 15 MinsTEV:	307 307
Intersection PHF:	0.82
Note:	Fully actuated signal
	Estimated 40 second min.
Counted by:	CG



Total Vehicles

	Northbound					Southbound					Eastbound					Westbound					Interval	Rolling	Rolling 1	Pedestrians - Crosswalk			
Interval Start Time (AM)	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	Total	15 Mins	Hr.	North	South	East	West
7:00 - 7:05		5	1				6	7			1	5					8	11			44						
7:05 - 7:10		16	4			4	4	15				3						20			66						
7:10 - 7:15		9	1			20	3	1			1	1	1				4	15			56	166					
7:15 - 7:20		10	1			24	7				1	2					3	22			70	192				1	
7:20 - 7:25		18	1			25	7				1	2					3	21			78	204					
7:25 - 7:30		14	2			19	5	2			3	2				1	5	14			67	215			1	2	
7:30 - 7:35		16	3			14	6				2	3					4	18			66	211					
7:35 - 7:40		13	3			16	10	2				2					5	15			66	199					
7:40 - 7:45		15	2			26	4	1			3	3					5	9			68	200					2
7:45 - 7:50		25	3			17	7				1	5				1	8	23			90	224					
7:50 - 7:55		22	3		1	28	15	4			1	7					5	33			118	276					
7:55 - 8:00		17	2			28	3	1			3	6					10	29			99	307	888				
8:00 - 8:05		10	4			21	13	4			2	3					5	16			78	295	922				
8:05 - 8:10		14	3			14	8					8				1	6	26			80	257	936				1
8:10 - 8:15		14	3			14	8					8				1	6	26			80	238	960				1
8:15 - 8:20		11	1			12	5	1			1	7					4	23			65	225	955				
8:20 - 8:25		13	2			13	13	1			2	5				1	2	23			75	220	952				
8:25 - 8:30		10	4			27	11	1			1	5				1	8	19			87	227	972				
8:30 - 8:35		15				24	7	3				5					9	17			80	242	986				
8:35 - 8:40		13	2			25	10	1			1	8				1	3	22			86	253	1006	1			2
8:40 - 8:45		8				16	8	4			1	3				2	8	21		1	71	237	1009				
8:45 - 8:50		16				26	8	3													53	210	972	1			
8:50 - 8:55		19	1			11	3	4			4	4				2	5	28			81	205	935	1	1		
8:55 - 9:00		13				16	5	4			5	6				1	4	28			82	216	918				
Peak Hour Vehicles	0	172	27	0	1	239	108	20	0	0	13	70	0	0	0	8	74	278	0	1				1	0	0	4
Peak 15 Mins. Vehicles	0	64	8	0		73	25	5	0		5	18	0	0		1	23	85	0								
Peak Hour Trucks/Buses	0	3	0			6	1	3			0	0	0			0	1	5									

Truck/Bus Counts

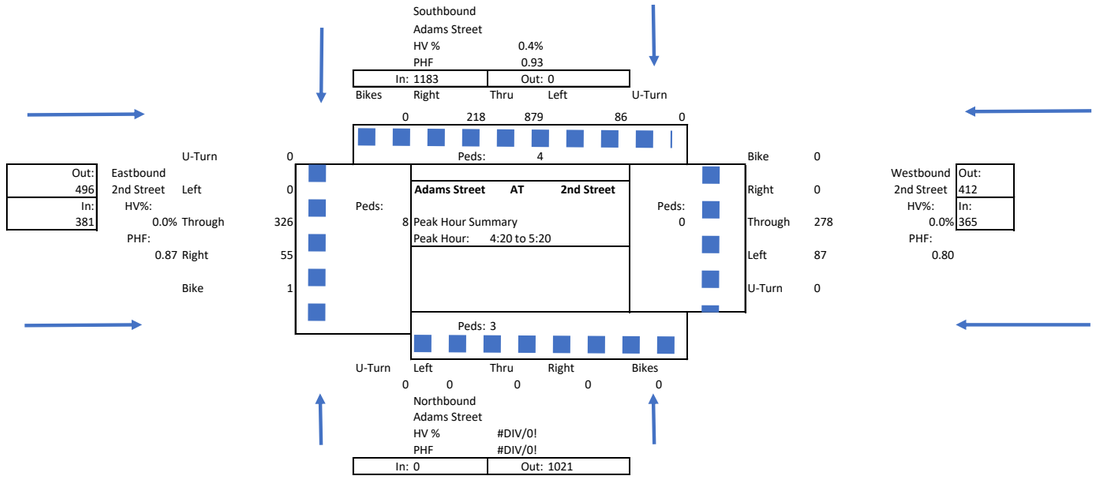
	Northbound				Southbound				Eastbound				Westbound				Interval
Interval Start Time	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	Total
7:00 - 7:05				0				0		1		1				0	1
7:05 - 7:10				0				0				0				0	0
7:10 - 7:15				0	1			1				0				0	1
7:15 - 7:20				0				0				0				0	0
7:20 - 7:25		2		2				0				0				0	2
7:25 - 7:30			1	1				0				0			1	1	2
7:30 - 7:35				0				0				0			1	1	1
7:35 - 7:40				0				0				0				0	0
7:40 - 7:45				0	1			1				0				0	1
7:45 - 7:50				0				0				0				0	0
7:50 - 7:55		1		1			2	2				0		1		1	4
7:55 - 8:00				0				0				0				0	0
8:00 - 8:05				0	3			3				0				0	3
8:05 - 8:10				0				0				0			1	1	1
8:10 - 8:15				0				0				0			1	1	1
8:15 - 8:20				0				0				0				0	0
8:20 - 8:25		1		1	1			1				0			1	1	3
8:25 - 8:30				0				0				0			1	1	1
8:30 - 8:35		1		1			1	1				0				0	2
8:35 - 8:40				0	1			1				0			1	1	2
8:40 - 8:45				0		1		1				0				0	1
8:45 - 8:50		1		1		1		1				0			1	1	3
8:50 - 8:55				0				0				0			1	1	1
8:55 - 9:00		1		1	1			1				0			2	2	4

Peak 15 minutes
Peak Hour

2nd and Adams St Turn Count PM

Otak, Incorporated Counts Program

East-West Street:	2nd Street	
North-South Street:	Adams Street	
Location:	McMinnville	
Date of Count:	12-Jul	
Start time:	4:00 PM	
Peak Hour Start:	4:20 PM	
Peak 15 Mins Start:	5:00 PM	Check
Peak Hour TEV:	1929	1929
Peak 15 MinsTEV:	541	541
Intersection PHF:	0.89	
Note:	Adams SB Only	
Counted by:	CG	



Total Vehicles

	Northbound					Southbound					Eastbound					Westbound					Interval	Rolling	Rolling 1	Pedestrians - Crosswalk			
Interval Start Time (PM)	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	Total	15 Mins	Hr.	North	South	East	West
4:00 - 4:05						5	62	16				22				8	24			1	137			1	1		1
4:05 - 4:10						5	66	17				23				9	25				145						
4:10 - 4:15						6	55	17				28	2			9	25				142	424		1	1		1
4:15 - 4:20						6	44	16				33	3			8	24				134	421					1
4:20 - 4:25						7	57	15				31	6			5	21				142	418					1
4:25 - 4:30						8	70	14				28	8		1	3	18				149	425					5
4:30 - 4:35						8	69	16				21	6			7	21				148	439					2
4:35 - 4:40						7	67	12				13	4			11	23				137	434		1			
4:40 - 4:45						6	70	20				25	4			7	21				153	438			1		
4:45 - 4:50						4	73	23				36	4			3	20				163	453		1	2		
4:50 - 4:55						6	74	20				30	4			5	24				163	479					
4:55 - 5:00						10	75	20				23	1			7	27				163	489	1776				
5:00 - 5:05						9	74	20				29	4			10	28				174	500	1813	1			
5:05 - 5:10						7	72	19				35	6			13	28				180	517	1848	1			
5:10 - 5:15						7	90	20				30	5			10	25				187	541	1893				
5:15 - 5:20						7	88	19				25	3			6	22				170	537	1929				
5:20 - 5:25						5	80	24				28	5			7	25				174	531	1961	1		1	1
5:25 - 5:30						3	72	28				31	7			7	27				175	519	1987	4	2	2	4
5:30 - 5:35						5	73	24				31	7			7	26				173	522	2012				
5:35 - 5:40						6	74	19				20	6			7	25				157	505	2032				
5:40 - 5:45						6	76	17				30	5			6	23				163	493	2042				
5:45 - 5:50						5	77	15				3o	3			4	20				124	444	2003	1			
5:50 - 5:55						7	73	17				25	4			4	21				151	438	1991	1			
5:55 - 6:00						10	69	18				20	5			4	3	22			151	426	1979		1	1	
Peak Hour Vehicles	0	0	0	0	0	86	879	218	0	0	0	326	55	0	1	87	278	0	0	0				4	3	0	8
Peak Hours Trucks/Buses	0	0	0			0	5	0			0	0	0			0	0	0									

Truck/Bus Counts

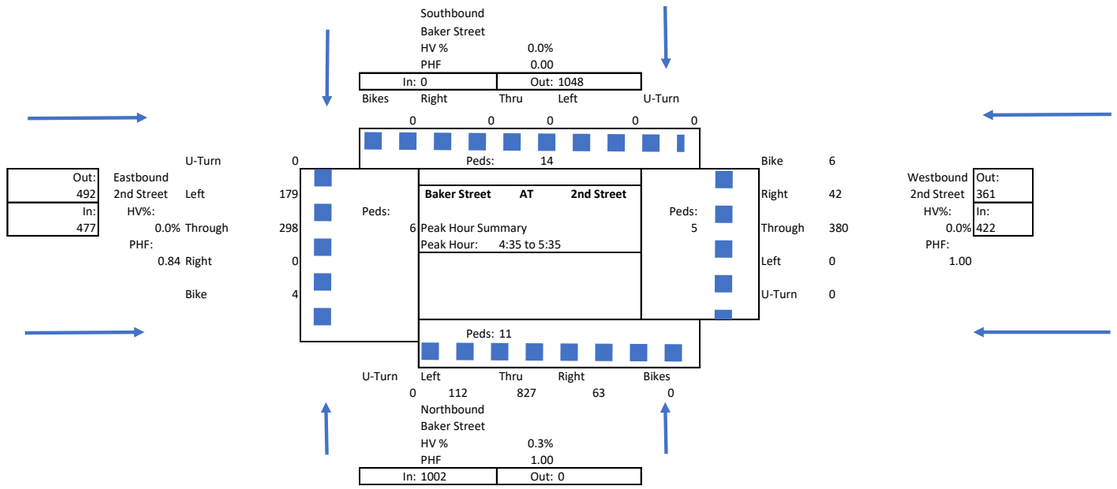
	Northbound				Southbound				Eastbound				Westbound				Interval
Interval Start Time	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	Total
4:00 - 4:05				0		1		1				0				0	1
4:05 - 4:10				0				0				0				0	0
4:10 - 4:15				0		1		1				0				0	1
4:15 - 4:20				0				0				0				0	0
4:20 - 4:25				0				0				0				0	0
4:25 - 4:30				0		1		1				0				0	1
4:30 - 4:35				0		1		1				0				0	1
4:35 - 4:40				0				0				0				0	0
4:40 - 4:45				0				0				0				0	0
4:45 - 4:50				0				0				0				0	0
4:50 - 4:55				0				0				0				0	0
4:55 - 5:00				0		2		2				0				0	2
5:00 - 5:05				0		1		1				0				0	1
5:05 - 5:10				0				0				0				0	0
5:10 - 5:15				0				0				0				0	0
5:15 - 5:20				0				0				0				0	0
5:20 - 5:25				0				0				0				0	0
5:25 - 5:30				0				0				0				0	0
5:30 - 5:35				0		1		1				0				0	1
5:35 - 5:40				0				0				0				0	0
5:40 - 5:45				0		1		1				0				0	1
5:45 - 5:50				0				0				0				0	0
5:50 - 5:55				0				0				0				0	0
5:55 - 6:00				0				0				0				0	0

Peak 15 minutes
Peak Hour

2nd and Adams St Turn Count PM

Otak, Incorporated Counts Program

East-West Street:	2nd Street
North-South Street:	Baker Street
Location:	McMinnville
Date of Count:	7/13/2022
Start time:	4:00 PM
Peak Hour Start:	4:35 PM
Peak 15 Mins Start:	5:15 PM Check
Peak Hour TEV:	1901 1901
Peak 15 MinsTEV:	493 493
Intersection PHF:	0.96
Note:	Baker NB Only
	90 Sec Cycle
	35 Sec E/W
Counted by:	LG



Total Vehicles

	Northbound					Southbound					Eastbound					Westbound					Interval	Rolling	Rolling 1	Pedestrians - Crosswalk			
Interval Start Time (PM)	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	Total	15 Mins	Hr.	North	South	East	West
4:00 - 4:05	6	65	15								15	20					27	0			148			1		1	1
4:05 - 4:10	6	71	11								11	20				7	28	2			156			1	1		
4:10 - 4:15	6	76	6		1						6	19			0		29	3			145	449		1	2		
4:15 - 4:20	6	76	5								9	18					30	4			148	449		1	2		1
4:20 - 4:25	5	75	4								12	13					30	4			143	436		1	4		2
4:25 - 4:30	7	63	5								13	23					35	4		1	150	441			2		1
4:30 - 4:35	9	51	5								13	29					39	3			149	442			4		1
4:35 - 4:40	8	57	5								15	30					37	3			155	454			2		1
4:40 - 4:45	7	64	4								16	29					35	2		1	157	461		1	1		
4:45 - 4:50	6	71	6								15	24			1		35	4		1	161	473		1	1		1
4:50 - 4:55	5	78	7								9	18			1		34	5		1	156	474		1	1		3
4:55 - 5:00	11	79	7								10	20			1		31	4			162	479	1830				
5:00 - 5:05	17	62	6								11	21					25	2		2	144	462	1826	2	1		
5:05 - 5:10	12	70	5								17	22					24	4		1	154	460	1824		1		1
5:10 - 5:15	7	78	4								23	21			1		23	6			162	460	1841		2	3	
5:15 - 5:20	9	71	5								21	27					28	4			165	481	1858	2	1		
5:20 - 5:25	11	64	5								19	32					33	1			165	492	1880	4	1		
5:25 - 5:30	10	66	5								14	29					36	3			163	493	1893	2		1	
5:30 - 5:35	9	67	4								9	25					39	4			157	485	1901	1		1	
5:35 - 5:40	9	58	3								13	25					34	3			145	465	1891	1		1	1
5:40 - 5:45	9	51	2								17	24					29	2			134	436	1868	2			2
5:45 - 5:50	8	61	5								18	25					24	3			144	423	1851	1			1
5:50 - 5:55	8	70	8								18	25			1		19	3			151	429	1846	1			
5:55 - 6:00	9	59	7								17	24					17	4		1	137	432	1821	1			
Peak Hour Vehicles	112	827	63	0	0	0	0	0	0	0	179	298	0	0	4	0	380	42	0	6				14	11	5	6
Peak 15 Mins. Vehicles	30	201	15	0		0	0	0	0		54	88	0	0		0	97	8	0								
Peak Hour Trucks/Buses	0	3	0			0	0	0			0	0	0			0	0	0									

Truck/Bus Counts

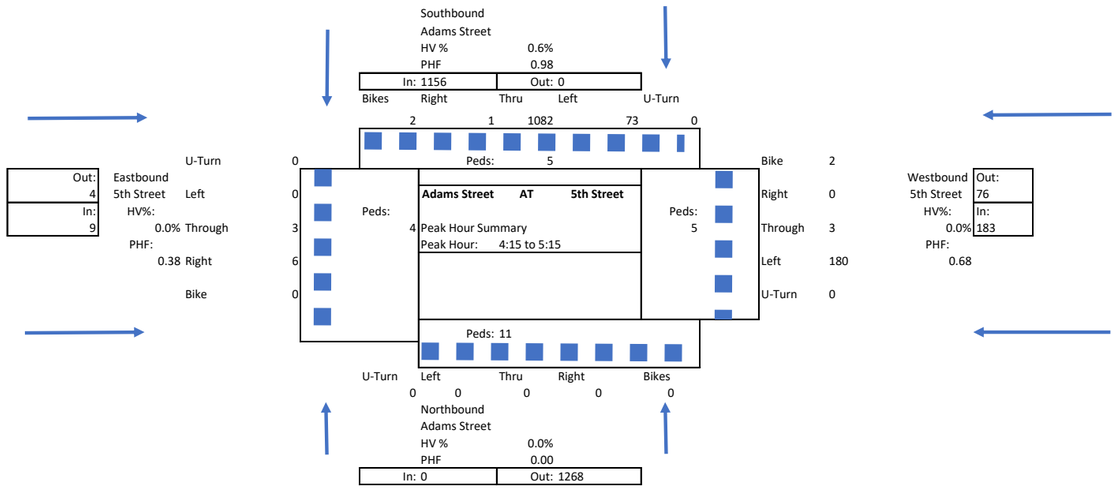
	Northbound				Southbound				Eastbound				Westbound				Interval
Interval Start Time	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	Total
4:00 - 4:05				0				0				0				0	0
4:05 - 4:10		1		1				0				0				0	1
4:10 - 4:15				0				0				0				0	0
4:15 - 4:20				0				0				0				0	0
4:20 - 4:25		2		2				0				0				0	2
4:25 - 4:30		1		1				0				0				0	1
4:30 - 4:35			1	1				0				0				0	1
4:35 - 4:40				0				0				0				0	0
4:40 - 4:45				0				0				0				0	0
4:45 - 4:50		1		1				0				0				0	1
4:50 - 4:55		1		1				0				0				0	1
4:55 - 5:00		1		1				0				0				0	1
5:00 - 5:05				0				0				0				0	0
5:05 - 5:10				0				0				0				0	0
5:10 - 5:15				0				0				0				0	0
5:15 - 5:20				0				0				0				0	0
5:20 - 5:25				0				0				0				0	0
5:25 - 5:30				0				0				0				0	0
5:30 - 5:35				0				0				0				0	0
5:35 - 5:40		1		1				0				0				0	1
5:40 - 5:45		1		1				0				0				0	1
5:45 - 5:50		1		1				0				0				0	1
5:50 - 5:55				0				0				0				0	0
5:55 - 6:00				0				0				0				0	0

Peak 15 minutes
Peak Hour

5th and Adams St Turn Count PM

Otak, Incorporated Counts Program

East-West Street:	5th Street	
North-South Street:	Adams Street	
Location:	McMinnville	
Date of Count:	7/13/2022	
Start time:	4:00 PM	
Peak Hour Start:	4:15 PM	
Peak 15 Mins Start:	4:55 PM	Check
Peak Hour TEV:	1348	1348
Peak 15 MinsTEV:	369	369
Intersection PHF:	0.91	
Note:	Adams SB Only	
	90 Sec Cycle	
	30 Sec E/W	
Counted by:	LG	



Total Vehicles

	Northbound					Southbound					Eastbound					Westbound					Interval	Rolling	Rolling 1	Pedestrians - Crosswalk			
Interval Start Time (PM)	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	Total	15 Mins	Hr.	North	South	East	West
4:00 - 4:05						8	93									10	1				112			1		2	
4:05 - 4:10						9	98					1				11	1				120						
4:10 - 4:15						9	104					1				12	1				127	359		1			
4:15 - 4:20							102									19					121	368					
4:20 - 4:25						8	100					1				7				1	116	364				1	
4:25 - 4:30						7	92									12					111	348					
4:30 - 4:35						5	83									16					104	331		2	1	2	1
4:35 - 4:40						7	85									16	1				109	324					
4:40 - 4:45						9	87									15	1				112	325		1	3	1	1
4:45 - 4:50						7	85									11					103	324					
4:50 - 4:55						4	80									6					90	305			1		2
4:55 - 5:00						6	92	1				1	1			12					113	306	1338				
5:00 - 5:05						8	97					1	2			19					127	330	1353		5		
5:05 - 5:10						7	95						1			22					125	365	1358				
5:10 - 5:15						5	84			2			2			25	1			1	117	369	1348	2	1	1	
5:15 - 5:20						5	81									16	1				103	345	1330				
5:20 - 5:25						6	77									10	2			1	95	315	1309		1		
5:25 - 5:30						5	85									12	1				103	301	1301				
5:30 - 5:35						4	93									13					110	308	1307				
5:35 - 5:40						5	88	1								12					106	319	1304				
5:40 - 5:45						5	83	3								11	1				103	319	1295	1	1		
5:45 - 5:50						4	93	1				1				9	1				109	318	1301				
5:50 - 5:55						2	103					1	1			7					114	326	1325	1	2		
5:55 - 6:00						3	100									6					109	332	1321				
Peak Hour Vehicles	0	0	0	0	0	73	1082	1	0	2	0	3	6	0	0	180	3	0	0	2				5	11	5	4
Peak 15 Mins. Vehicle	0	0	0	0		20	276	0	0		0	1	5	0		66	1	0	0								
Peak Hour Trucks/Buses	0	0	0			0	7	0			0	0	0			0	0	0									

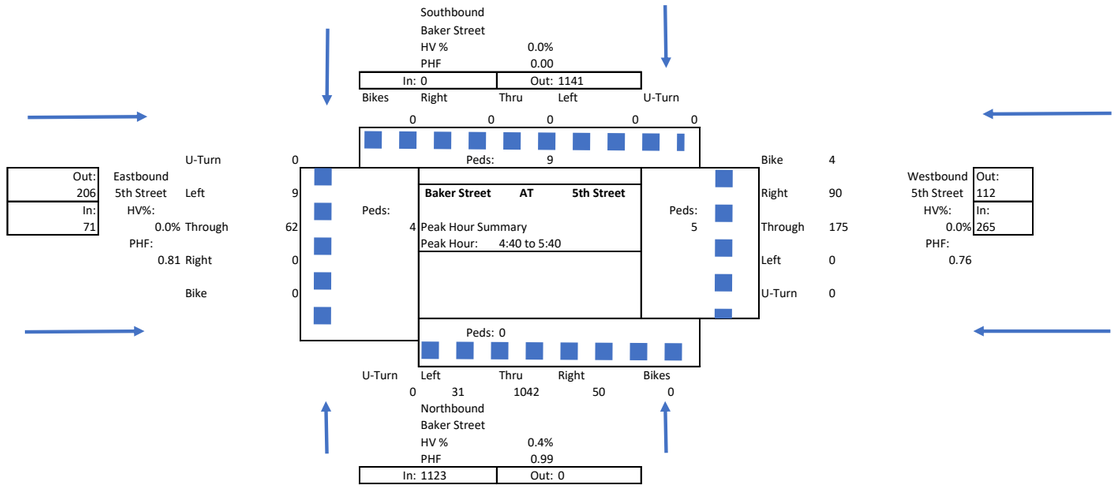
Truck/Bus Counts

	Northbound				Southbound				Eastbound				Westbound				Interval
Interval Start Time	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	Total
4:00 - 4:05				0		1		1				0				0	1
4:05 - 4:10				0		1		1				0				0	1
4:10 - 4:15				0		1		1				0				0	1
4:15 - 4:20				0		1		1				0				0	1
4:20 - 4:25				0				0				0				0	0
4:25 - 4:30				0				0				0				0	0
4:30 - 4:35				0				0				0				0	0
4:35 - 4:40				0		1		1				0				0	1
4:40 - 4:45				0		1		1				0				0	1
4:45 - 4:50				0				0				0				0	0
4:50 - 4:55				0				0				0				0	0
4:55 - 5:00				0		1		1				0				0	1
5:00 - 5:05				0		1		1				0				0	1
5:05 - 5:10				0		1		1				0				0	1
5:10 - 5:15				0		1		1				0				0	1
5:15 - 5:20				0		1		1				0				0	1
5:20 - 5:25				0		1		1				0				0	1
5:25 - 5:30				0				0				0				0	0
5:30 - 5:35				0				0				0				0	0
5:35 - 5:40				0		1		1				0				0	1
5:40 - 5:45				0				0				0				0	0
5:45 - 5:50				0				0				0				0	0
5:50 - 5:55				0				0				0				0	0
5:55 - 6:00				0		1		1				0				0	1

Peak 15 minutes
Peak Hour

5th and Baker St Turn Count PM

East-West Street:	5th Street	
North-South Street:	Baker Street	
Location:	McMinnville	
Date of Count:	7/12/2022	
Start time:	4:00 PM	
Peak Hour Start:	4:40 PM	
Peak 15 Mins Start:	4:50 PM	Check
Peak Hour TEV:	1459	1459
Peak 15 MinsTEV:	394	394
Intersection PHF:	0.93	
Note:	Baker NB Only	
	90 Sec Cycle	
	35 Sec E/W	
Counted by:	CG	



Otak, Incorporated Counts Program

Total Vehicles

	Northbound					Southbound					Eastbound					Westbound					Interval	Rolling	Rolling 1	Pedestrians - Crosswalk			
Interval Start Time (PM)	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	Total	15 Mins	Hr.	North	South	East	West
4:00 - 4:05	3	80	4								1	3					6	3			100						
4:05 - 4:10	4	82	5		1						1	3					7	3			105						3
4:10 - 4:15	2	80	3								2	3					7	9			106	311					
4:15 - 4:20	2	77	4								3	5					7	12			110	321		1			
4:20 - 4:25	2	78	4								3	7					11	8			113	329		1			
4:25 - 4:30	2	79	3		1						3	9					14	4			114	337		1	1		
4:30 - 4:35	3	78	5								2	7					14	3			112	339					
4:35 - 4:40	3	77	7									4					14	2			107	333		2			
4:40 - 4:45	2	90	6									4					13	3			118	337					
4:45 - 4:50	1	103	4									4					11	4			127	352					
4:50 - 4:55	2	95	4								1	5					18	6			131	376					
4:55 - 5:00	3	88	3								2	6					23	8			133	391	1376	1			1
5:00 - 5:05	4	83	3								1	7					20	12			130	394	1406	1			1
5:05 - 5:10	4	79	2									7					17	15			124	387	1425	4		3	2
5:10 - 5:15	3	80	3								1	6					20	12			125	379	1444	2			
5:15 - 5:20	3	79	3								1	5					10	8		2	109	358	1443	1			
5:20 - 5:25	3	84	4								1	6					10	7		1	115	349	1445				
5:25 - 5:30	3	89	5								1	6					9	6		1	119	343	1450				
5:30 - 5:35	2	87	6								1	4					11	5			116	350	1454				
5:35 - 5:40	1	85	7									2					13	4			112	347	1459			2	
5:40 - 5:45	2	75									1	1					10	4			93	321	1434	1			
5:45 - 5:50	2	66	1								2	1					7	3			82	287	1389		1	1	
5:50 - 5:55	3	63	1								2	3					7	3			82	257	1340				1
5:55 - 6:00	3	58	2								1	3					7	4			78	242	1285				
Peak Hour Vehicles	31	1042	50	0	0	0	0	0	0	0	9	62	0	0	0	0	175	90	0	4				9	0	5	4
Peak 15 Mins. Vehicles	9	266	10	0		0	0	0	0		4	18	0	0		0	61	26	0								
Peak Hour Trucks/Buses	0	4	0			0	0	0			0	0	0			0	0	0									

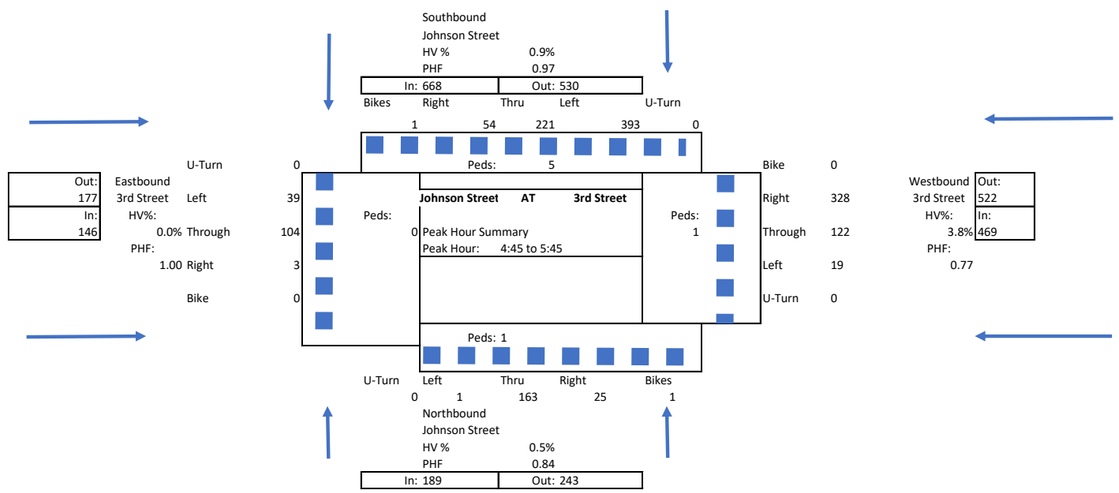
Truck/Bus Counts

	Northbound				Southbound				Eastbound				Westbound				Interval
Interval Start Time	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	Total
4:00 - 4:05				0				0				0				0	0
4:05 - 4:10				0				0				0				0	0
4:10 - 4:15				0				0				0				0	0
4:15 - 4:20				0				0				0				0	0
4:20 - 4:25				0				0				0				0	0
4:25 - 4:30				0				0				0				0	0
4:30 - 4:35				0				0				0				0	0
4:35 - 4:40			1	1				0				0				0	1
4:40 - 4:45				0				0				0				0	0
4:45 - 4:50				0				0				0				0	0
4:50 - 4:55				0				0				0				0	0
4:55 - 5:00				0				0				0				0	0
5:00 - 5:05				0				0				0				0	0
5:05 - 5:10		1		1				0				0				0	1
5:10 - 5:15		1		1				0				0				0	1
5:15 - 5:20				0				0				0				0	0
5:20 - 5:25				0				0				0				0	0
5:25 - 5:30				0				0				0				0	0
5:30 - 5:35		1		1				0				0				0	1
5:35 - 5:40		1		1				0				0				0	1
5:40 - 5:45				0				0				0				0	0
5:45 - 5:50				0				0				0				0	0
5:50 - 5:55				0				0				0				0	0
5:55 - 6:00				0				0				0				0	0

Peak 15 minutes
Peak Hour

NE 3rd St and Johnson Turn Count PM

3rd Street	
Johnson Street	
McMinnville	
7/11/2022	
4:00 PM	
4:45 PM	
5:30 PM	Check
1472	1472
406	406
0.91	
FYA for EB, WB, SB	
Cycle: 70 secs	
Fully actuated	
CG	



Otak, Incorporated Counts Program

Northbound					Southbound					Eastbound					Westbound					Interval	Rolling	Rolling 1	Pedestrians - Crosswalk			
L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	L	T	R	U-Turn	Bikes	Total	15 Mins	Hr.	North	South	East	West
	9			2	34	7	4			7	10				3	4	7			85				3		
1	16	2			2	19	25			3	8	1			1	6	20			104						
1	17				31	16	2			3	8				1	14	22			115	304			1		
	26	2			28	15	8		2	3	5				4	8	19			118	337					
	16	3			32	23	1			3	4				2	10	19			113	346			1		
	14				28	11	45			7	7				1	10	19			142	373					
	18				25	16	5			3	12					8	26			113	368					
	20	1			23	18	3			4	10				1	6	22			108	363					
	6				34	21	5			4	3				3	10	22			108	329					
	16	1			38	24	5		1	2	8					13	30			137	353					
	15	3		1	34	20				5	5				1	10	20			113	358					
	16	2			12	11	4			2	8					8	20			83	333	1339	1	1		
	18	1			27	25	4			2	7				3	6	19			112	308	1366	1			
	19	2			32	13	6			5	13	1			3	11	26			131	326	1393				
	6	1			39	17	5			4	8	1			2	8	20			111	354	1389	1			
1	14	2			41	22	3			5	12	1			3	5	32			141	383	1412	1			
		2			37	18	5			4	12				2	6	31			117	369	1416				
	12	2			32	15	7			3	12				1	7	30			121	379	1395			1	
	11	1			39	15	8			1	4				2	9	37			127	365	1409	1			
	17	6			35	21	4			2	8					15	40			148	396	1449				
	19	2			27	20	3			4	7				2	24	23			131	406	1472				
	13	2			18	18	2			3	11				2	7	24			100	379	1435				
	18				25	21	4			2	6				2	6	23			107	338	1429				
	15	1		1	31	20	5			1	3				1	7	16			100	307	1446				
1	163	25	0	1	393	221	54	0	1	39	104	3	0	0	19	122	328	0	0				5	1	1	0
0	47	9	0		101	56	15	0		7	19	0	0		4	48	100	0								
0	1	0			1	0	5			0	0	0			6	12	0									

Northbound				Southbound				Eastbound				Westbound				Interval
L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	Total
			0	1			1				0					1
			0	1			1				0					1
			0	1			1				0					1
	1		1	1			1				0			1	1	3
			0	1	1		2				0				0	2
			0	2			2				0				0	2
	1		1		1		1				0			1	1	3
	1		1				0				0			1	1	2
	1		1	1			1				0				0	2
			0	1			1				0			2	2	3
			0	1	1		2				0			1	1	3
			0				0				0			1	1	1
	1		1	1			1				0				0	2
			0				0				0				0	0
			0	1			1				0				0	1
			0				0				0			1	1	1
			0				0				0			1	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				0	0
	1		1				0		1		1				0	2
			0				0				0				0	0

Peak 15 minutes
Peak Hour

Appendix D

Crash Data

Analyst:	Chuck Green, PE
Agency/Company:	Otak, Inc.
Date:	7/23/2022
Project Name:	Gwendolyn Hotel TIA

Intersection Crash Data

Intersection	Intersection Type	Year					Total
		2016	**2017**	**2018**	**2019**	**2020**	
2nd at Adams/99W SB	Urban 4SG	12	4	1	3	1	21
2nd at Baker/99W NB	Urban 4SG	7	9	6	6	4	32
5th at Adams/99W SB	Urban 4SG	2	1	0	1	1	5
5th at Baker/99W BB	Urban 4SG	1	2	5	2	1	11
3rd at Johnson	Urban 4SG	4	3	0	2	0	9
							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
	Total	26	19	12	14	7	78

Intersection Population Type Crash Rate

Average Crash Rate per intersection type

Intersection Pop. Type	Sum of Crashes	Sum of 5-year MEV	Avg Crash Rate for Ref Pop.	INT in Pop
Rural 3SG	0	0		
Rural 3ST	0	0		
Rural 4SG	0	0		
Rural 4ST	0	0		
Urban 3ST	0	0		
Urban 3SG	0	0		
Urban 4ST	0	0		
Urban 4SG	78	150	0.5206	5

Critical Rate Calculation

Intersection	AADT Entering Intersection	5-year MEV	Crash Total	Intersection Population Type	Intersection Crash Rate	Reference Population Crash Rate	Critical Rate*	Over Critical
2nd at Adams/99W SB	19,290	35.2	21	Urban 4SG	0.60	0.52	0.62	Under
2nd at Baker/99W NB	19,010	34.7	32	Urban 4SG	0.92	0.52	0.62	**Over**
5th at Adams/99W SB	14,480	26.4	5	Urban 4SG	0.19	0.52	0.62	Under
5th at Baker/99W NB	14,590	26.6	11	Urban 4SG	0.41	0.52	0.62	Under
3rd at Johnson	14,720	26.9	9	Urban 4SG	0.34	0.52	1.97	Under

* TABLE IV: 2020 Crash Rates by Jurisdiction and Functional Classification, Urban Cities

99W both directions at 2nd Street crashes 2016-2020

Highway 091 ALL ROAD TYPES, MP 37.74 to 37.77, Both Add and Non-Add mileage, 01/01/2016 to 12/31/2020

| CRASH_ID | SER_NO | INVSTG_AGY_SHORT_DESC | CRASH_SPED_INVLV_FLG | ALCHL_INVLV_FLG | DRUG_INVLV_FLG | MJ_INVLV_FLG | CRASH_DT | CRASH_WK_DAY_CD | CRASH_HR_SHORT_DESC | HWY_NO | HWY_MED_NM | RDWY_NO | FC_CD | HWY_COMPNT_CD | HWY_COMPNT_SHORT_DESC | MP_NO | ST_NO | ST_NM | ISECT_ST_NO | ISECT_ST_NM | RD_CHAR_SHORT_DESC | RD_CHAR_CD | RD_CHAR_SHORT_DESC | CMPSS_DIR_SHORT_DESC | IMPCT_LOC_CD | ISECT_TYP_SHORT_DESC | TRAF_CNTL_DEVICE_SHORT_DESC | OFF_RDWY_FLG | RNDABT_FLG | DRVWY_REL_FLG | WTHR_COND_SHORT_DESC | RD_SURF_SHORT_DESC | LGT_COND_SHORT_DESC | CRASH_TYP_SHORT_DESC | COLLIS_TYP_SHORT_DESC | CRASH_SVR_TY_SHORT_DESC | CRASH_CAUSE_1_CD | VHCL_ID | STRIKG_VHCL_FLG | VHCL_CODED_SEQ_NO | VHCL_TYP_SHORT_DESC | VHCL_USE_SHORT_DESC | TRLR_QTY | VHCL_OWNSHP_SHORT_DESC | VHCL_MVMNT_SHORT_DESC | VHCL_CMPS_DIR_FROM_SHORT_DESC | VHCL_CMPS_DIR_TO_SHORT_DESC | PARTIC_ID | STRIKG_PARTIC_FLG | PARTIC_VHCL_SEQ_NO | PARTIC_TYP_CD | PARTIC_TYP_SHORT_DESC | INJ_SVRTY_SHORT_DESC | AGE_VAL | SEX_CD | DRVR_LIC_STAT_SHORT_DESC | DRVR_RES_SHORT_DESC | PARTIC_ACTN_CD | NON_MOTRST_LOC_SHORT_DESC | PARTIC_CAUSE_1_CD | TOTAL_CRASHES | TOTAL_ROWS |
|---|---|---

99W both directions at 2nd Street crashes 2016-2022

| | | |

99W both directions at 2nd Street crashes 2016-2022

1867940 00355	NONE	0	0	0	0	4/19/2019	6 6P	091 PACIFIC HIGHWAY WEST	2 14	1 CP	37.76 00203	BAKER ST	08002	2ND ST	1	INTER	S	06	CROSS	TRF SIGNAL	0	0	0 RAIN	WET	DAY	S-1STOP	SS-O	PDO	08	3516679	0	2 PSNGR CAR	NONE	9 N/A	STOP	S	N	4003777	0	1 1	DRVR	NONE	00 9	UNK	UNK	000	00	53	114
1871134 01311	NONE	0	0	0	0	12/17/2019	3 1P	091 PACIFIC HIGHWAY WEST	2 14	1 CP	37.76 00203	BAKER ST	08002	2ND ST	1	INTER	S	06	CROSS	TRF SIGNAL	0	0	0 UNK	UNK	DAY	S-1STOP	REAR	PDO	07	3522361	1	1 PSNGR CAR	NONE	9 N/A	STRGHT	S	N	4009263	0	1 1	DRVR	NONE	00 9	UNK	UNK	000	00	53	114
1871134 01311	NONE	0	0	0	0	12/17/2019	3 1P	091 PACIFIC HIGHWAY WEST	2 14	1 CP	37.76 00203	BAKER ST	08002	2ND ST	1	INTER	S	06	CROSS	TRF SIGNAL	0	0	0 UNK	UNK	DAY	S-1STOP	REAR	PDO	07	3522362	0	2 PSNGR CAR	NONE	9 N/A	STOP	S	N	4009264	0	1 1	DRVR	NONE	00 9	UNK	UNK	000	00	53	114
1755195 00186	NONE	0	0	0	0	2/24/2017	6 2P	091 PACIFIC HIGHWAY WEST	2 14	1 CP	37.77 00203	BAKER ST	08002	2ND ST	3	STRGHT	S	08		UNKNOWN	0	0	0 CLR	DRY	DAY	S-STRGHT	REAR	PDO	29	3310379	1	1 PSNGR CAR	NONE	9 N/A	STRGHT	S	N	3776007	0	1 1	DRVR	NONE	00 9	UNK	UNK	000	00	53	114
1755195 00186	NONE	0	0	0	0	2/24/2017	6 2P	091 PACIFIC HIGHWAY WEST	2 14	1 CP	37.77 00203	BAKER ST	08002	2ND ST	3	STRGHT	S	08		UNKNOWN	0	0	0 CLR	DRY	DAY	S-STRGHT	REAR	PDO	29	3310380	0	2 PSNGR CAR	NONE	9 N/A	STRGHT	S	N	3776008	0	1 1	DRVR	NONE	00 9	UNK	UNK	000	00	53	114

Summary

Severity	Adams/2nd	Baker/2nd
PDO	12	19
INJ	9	13
FAT	0	0
TOTAL	21	32

TYPE		
Angle	7	11
Turn	9	11
Rear-End	4	6
Sideswipe	0	1
Fixed Object	0	1
Ped/Bike	1	2
Head-on	0	0
Other	0	0
Total	21	32

ADT		
Adams	10834	8.0
Baker	10607.5	5.3
2nd	8231	

Intersection	ADT	Annual MEV	Five-Year MEV
Adams/2nd	19065	6.959	34.793625
Baker/2nd	18839	6.876	34.3802625

Crash Rates	Crashes	5-Yr. MEV	Crashes/MEV	4SG 90%
Adams/2nd	21	34.79	0.60	0.86
Baker/2nd	32	34.38	0.93	0.86

Baker/2nd Data

		2016	2017	2018	2019	2020	TOT	2014	2015
	Collisions/Year	7	9	6	6	4	32	5	10
Adams/2nd	Collisions/Year	12	4	1	3	1	21		

OR 99W AT 2nd ST SIGNAL REPLACEMENT Sealed bids for the OR 99W AT 2nd ST SIGNAL REPLACEMENT, Project No. 2015-17 will be received by Roy Markee, Project Manager, at the Community Development Department, 231 Northeast Fifth Street, McMinnville, Oregon 97128, until the bid closing time of 2:00 p.m., on the 13th day of April 2017, at which time the bids will be publicly opened and read. Bidder shall submit the required first-tier subcontractors disclosure form within two working hours of the bid closing time. Bidders whose bids and/or disclosure statements are received after the stated times will be considered non-responsive and their bids will not be considered. The scope of work being considered includes the removable and installation of traffic signals at the 2 nd Street and Adams Street (OR99W) intersection and at the 2nd Street and Baker Street (OR 99W) intersection. C
2017 signal and intersection improvements
Completed fall 2017
OR 99W AT 2nd ST SIGNAL REPLACEMENT, City of McMinnville Project No. 2015-17

99W both directions at 5th Street crashes 2016-2020

Highway 091 ALL ROAD TYPES, MP 37.59 to 37.62, Both Add and Non-Add mileage, 01/01/2016 to 12/31/2020

| CRASH_ID | SER_NO | INVSTG_AGY_SHORT_DESC | CRASH_SPED_INVLV_FLG | ALCHL_INVLV_FLG | DRUG_INVLV_FLG | MJ_INVLV_FLG | CRASH_DT | CRASH_WK_DAY_CD | CRASH_HR_SHORT_DESC | HWY_NO | HWY_MED_NM | RDWY_NO | MP_NO | ST_NO | ST_NM | ISECT_ST_NO | ISECT_ST_NM | RD_CHAR_CD | RD_CLR_SHORT_DESC | ISECT_TYP_SHORT_DESC | MEDN_TYP_SHORT_DESC | TURNG_LEG_QTY | LN_QTY | ISECT_REL_FLG | TRAF_CNTL_DEVICE_SHORT_DESC | OFF_RDWY_FLG | RNDABT_FLG | DRVWY_REL_FLG | WTHR_COND_SHORT_DESC | RD_SURF_SHORT_DESC | LGT_COND_SHORT_DESC | CRASH_TYP_SHORT_DESC | COLLIS_TYP_SHORT_DESC | CRASH_SVRTY_SHORT_DESC | CRASH_SE_1_CD | CRASH_CAUSE_2_CD | CRASH_CAUSE_3_CD | VHCL_ID | STRKG_VHCL_FLG | VHCL_CODED_SEQ_NO | VHCL_TYP_SHORT_DESC | VHCL_USE_SHORT_DESC | TRLR_QTY | VHCL_OWNSHP_SHORT_DESC | VHCL_MVMNT_SHORT_DESC | VHCL_CMPS_DIR_FROM_SHORT_DESC | VHCL_CMPS_DIR_TO_SHORT_DESC | VHCL_ACTN_CD | VHCL_CAUSE_1_CD | PARTIC_ID | STRKG_PARTIC_FLG | PARTIC_VHCL_SEQ_NO | PARTIC_TYP_CD | PARTIC_TYP_SHORT_DESC | INJ_SVRTY_SHORT_DESC | PARTIC_ACTN_CD | NON_MOTR_LOC_SHORT_DESC | TOTAL_CRASHES | TOTAL_ROWS |
|---|---|---

Johnson at 3rd Crashes 2016-2020

JOHNSON ST at 3RD ST, City of McMinnville, Yamhill County, 01/01/2016 to 12/31/2020

CRASH_ID	SER_NO	CRASH_DT	CRASH_WK_DAY_CD	CRASH_HR_SHORT_DESC	MP_NO	ST_NO	ST_NM	ISECT_ST_NO	ISECT_ST_NM	RD_CHAR_CD	RD_CHAR_SHORT_DESC	CMPSS_DIR_CD	CMPSS_DIR_SHORT_DESC	IMPCT_LOC_CD	ISECT_TYP_SHORT_DESC	TURNG_LEG_QTY	LN_QTY	ISECT_REL_FLG	TRAF_CNTL_DEVICE_SHORT_DESC	OFF_RDWY_FLG	RNDABT_FLG	DRVWY_REL_FLG	WTHR_COND_SHORT_DESC	RD_SURF_SHORT_DESC	LGT_COND_SHORT_DESC
1714406	01183	10/8/2016	7	8P		01201	JOHNSON ST	08003	3RD ST	1	INTER	2	NE	09	CROSS	1		0	YIELD	0	0	0	CLR	WET	DLIT
1714406	01183	10/8/2016	7	8P		01201	JOHNSON ST	08003	3RD ST	1	INTER	2	NE	09	CROSS	1		0	YIELD	0	0	0	CLR	WET	DLIT
1714860	01391	11/9/2016	4	4P		01201	JOHNSON ST	08003	3RD ST	1	INTER	3	E	06	CROSS	1		0	TRF SIGNAL	0	0	0	CLR	DRY	DAY
1714860	01391	11/9/2016	4	4P		01201	JOHNSON ST	08003	3RD ST	1	INTER	3	E	06	CROSS	1		0	TRF SIGNAL	0	0	0	CLR	DRY	DAY
1771184	01226	11/3/2017	6	9A		01201	JOHNSON ST	08003	3RD ST	1	INTER	3	E	06	CROSS	1		0	TRF SIGNAL	0	0	0	CLD	DRY	DAY
1771184	01226	11/3/2017	6	9A		01201	JOHNSON ST	08003	3RD ST	1	INTER	3	E	06	CROSS	1		0	TRF SIGNAL	0	0	0	CLD	DRY	DAY
1772016	01370	12/13/2017	4	1P		01201	JOHNSON ST	08003	3RD ST	1	INTER	3	E	06	CROSS	0		0	L-GRN-SIG	0	0	0	CLR	DRY	DAY
1772016	01370	12/13/2017	4	1P		01201	JOHNSON ST	08003	3RD ST	1	INTER	3	E	06	CROSS	0		0	L-GRN-SIG	0	0	0	CLR	DRY	DAY
1831424	00836	8/29/2019	5	5A		01201	JOHNSON ST	08003	3RD ST	1	INTER	9	CN	01	CROSS	0		0	TRF SIGNAL	0	0	0	UNK	DRY	DLIT
1831424	00836	8/29/2019	5	5A		01201	JOHNSON ST	08003	3RD ST	1	INTER	9	CN	01	CROSS	0		0	TRF SIGNAL	0	0	0	UNK	DRY	DLIT
1692007	00082	1/1/2016	6	7A		01201	JOHNSON ST	08003	3RD ST	1	INTER	9	CN	02	CROSS	1		0	TRF SIGNAL	0	0	0	CLR	UNK	DAWN
1692007	00082	1/1/2016	6	7A		01201	JOHNSON ST	08003	3RD ST	1	INTER	9	CN	02	CROSS	1		0	TRF SIGNAL	0	0	0	CLR	UNK	DAWN
1680948	01376	11/13/2016	1	5P		01201	JOHNSON ST	08003	3RD ST	1	INTER	9	CN	04	CROSS	0		0	L-GRN-SIG	0	0	0	RAIN	WET	DLIT
1680948	01376	11/13/2016	1	5P		01201	JOHNSON ST	08003	3RD ST	1	INTER	9	CN	04	CROSS	0		0	L-GRN-SIG	0	0	0	RAIN	WET	DLIT
1680948	01376	11/13/2016	1	5P		01201	JOHNSON ST	08003	3RD ST	1	INTER	9	CN	04	CROSS	0		0	L-GRN-SIG	0	0	0	RAIN	WET	DLIT
1723045	00108	2/4/2017	7	4P		01201	JOHNSON ST	08003	3RD ST	1	INTER	9	CN	04	CROSS	1		0	TRF SIGNAL	0	0	0	RAIN	WET	DUSK
1723045	00108	2/4/2017	7	4P		01201	JOHNSON ST	08003	3RD ST	1	INTER	9	CN	04	CROSS	1		0	TRF SIGNAL	0	0	0	RAIN	WET	DUSK
1844110	01185	11/25/2019	2	1P		01201	JOHNSON ST	08003	3RD ST	1	INTER	9	CN	04	CROSS	1		0	TRF SIGNAL	0	0	0	CLR	DRY	DAY
1844110	01185	11/25/2019	2	1P		01201	JOHNSON ST	08003	3RD ST	1	INTER	9	CN	04	CROSS	1		0	TRF SIGNAL	0	0	0	CLR	DRY	DAY

CRASH_ID	CRASH_TYP_SHORT_DESC	COLLIS_TYP_SHORT_DESC	CRASH_SVRTY_SHORT_DESC	CRASH_CAUSE_1_CD	CRASH_CAUSE_2_CD	CRASH_CAUSE_3_CD	LAT DEG NO	LAT MINUTE NO	LAT SEC NO	LONGTD DEG NO	LONGTD MINUTE NO	LONGTD SEC NO	VHCL_ID	STRIKG_VHCL_FLG	VHCL_CODED_SEQ_NO	VHCL_TYP_SHORT_DESC	VHCL_USE_SHORT_DESC	VHCL_OWNSHP_SHORT_DESC	VHCL_MVMNT_SHORT_DESC	VHCL_CMPSS_DIR_FROM_SHORT_DESC	VHCL_CMPSS_DIR_TO_SHORT_DESC	VHCL_ACTN_CD
1714406	S-OTHER	REAR	PDO	29			45	12	36.1	-123	11	19.15	3234561	1	1	PSNGR CAR	NONE	N/A	TURN-R	E	N	000
1714406	S-OTHER	REAR	PDO	29			45	12	36.1	-123	11	19.15	3234562	0	2	PSNGR CAR	NONE	N/A	TURN-R	E	N	006
1714860	S-1STOP	REAR	PDO	27			45	12	36.1	-123	11	19.15	3235350	1	1	PSNGR CAR	NONE	N/A	STRGHT	E	W	000
1714860	S-1STOP	REAR	PDO	27			45	12	36.1	-123	11	19.15	3235351	0	2	PSNGR CAR	NONE	N/A	STOP	E	W	011
1771184	S-1STOP	REAR	PDO	07	29		45	12	36.1	-123	11	19.15	3339110	1	1	PSNGR CAR	NONE	N/A	STRGHT	E	W	000
1771184	S-1STOP	REAR	PDO	07	29		45	12	36.1	-123	11	19.15	3339111	0	2	TRUCK	NONE	N/A	STOP	E	W	011
1772016	ANGL-STP	TURN	PDO	08			45	12	36.1	-123	11	19.15	3340542	1	1	SEMI TOW	NONE	N/A	TURN-L	N	E	000
1772016	ANGL-STP	TURN	PDO	08			45	12	36.1	-123	11	19.15	3340543	0	2	PSNGR CAR	NONE	N/A	STOP	E	W	012
1831424	O-1 L-TURN	TURN	INJ	04	08	02	45	12	36.11	-123	11	19.17	3449179	1	1	PSNGR CAR	NONE	PRVTE	STRGHT	N	S	000
1831424	O-1 L-TURN	TURN	INJ	04	08	02	45	12	36.11	-123	11	19.17	3449180	0	2	PSNGR CAR	NONE	PRVTE	TURN-L	S	W	000
1692007	O-1 L-TURN	TURN	PDO	02	08		45	12	36.1	-123	11	19.15	3194399	1	1	PSNGR CAR	NONE	N/A	STRGHT	E	W	000
1692007	O-1 L-TURN	TURN	PDO	02	08		45	12	36.1	-123	11	19.15	3194400	0	2	PSNGR CAR	NONE	N/A	TURN-L	W	N	000
1680948	O-1 L-TURN	TURN	INJ	02			45	12	36.1	-123	11	19.15	3173870	1	1	PSNGR CAR	NONE	PRVTE	STRGHT	S	N	000
1680948	O-1 L-TURN	TURN	INJ	02			45	12	36.1	-123	11	19.15	3173870	1	1	PSNGR CAR	NONE	PRVTE	STRGHT	S	N	000
1680948	O-1 L-TURN	TURN	INJ	02			45	12	36.1	-123	11	19.15	3173871	0	2	PSNGR CAR	NONE	PRVTE	TURN-L	N	E	000
1723045	O-1 L-TURN	TURN	INJ	02			45	12	36.1	-123	11	19.15	3250552	1	1	PSNGR CAR	NONE	PRVTE	TURN-L	N	E	000
1723045	O-1 L-TURN	TURN	INJ	02			45	12	36.1	-123	11	19.15	3250553	0	2	PSNGR CAR	NONE	PRVTE	STRGHT	S	N	000
1844110	O-1 L-TURN	TURN	INJ	02			45	12	36.1	-123	11	19.15	3473393	1	1	PSNGR CAR	NONE	PRVTE	TURN-L	N	E	000
1844110	O-1 L-TURN	TURN	INJ	02			45	12	36.1	-123	11	19.15	3473394	0	2	PSNGR CAR	NONE	PRVTE	STRGHT	S	N	000

CRASH_ID	VHCL_EVNT_1_CD	VHCL_EVNT_2_CD	VHCL_EVNT_3_CD	VHCL_CAUSE_1_CD	VHCL_CAUSE_2_CD	VHCL_CAUSE_3_CD	PARTIC_ID	STRIKG_PARTIC_FLG	PARTIC_VHCL_SEQ_NO	PARTIC_TYP_CD	PARTIC_TYP_SHORT_DESC	PARTIC_MVMNT_SHORT_DESC	PARTIC_CMPSS_DIR_FROM_SHORT_DESC	PARTIC_CMPSS_DIR_TO_SHORT_DESC	INJ_SVRTY_SHORT_DESC	AGE_VAL	SEX_CD	DRVR_LIC_STAT_SHORT_DESC	DRVR_RES_SHORT_DESC	PARTIC_ACTN_CD	NON_MOTRST_LOC_SHORT_DESC	PARTIC_ERR_1_CD	TOTAL_CRASHES	TOTAL_ROWS
1714406				00			3686704	0	1	1	DRVR				NONE	00	9	UNK	UNK	000		000	9	19
1714406				00			3686705	0	1	1	DRVR				NONE	00	9	UNK	UNK	000		000	9	19
1714860				00			3687467	0	1	1	DRVR				NONE	00	9	UNK	UNK	000		000	9	19
1714860				00			3687468	0	1	1	DRVR				NONE	00	9	UNK	UNK	000		000	9	19
1771184				00			3803983	0	1	1	DRVR				NONE	00	9	UNK	UNK	000		000	9	19
1771184				00			3803984	0	1	1	DRVR				NONE	00	9	UNK	UNK	000		000	9	19
1772016				00			3805364	0	1	1	DRVR				NONE	00	9	UNK	UNK	000		000	9	19
1772016				00			3805365	0	1	1	DRVR				NONE	00	9	UNK	UNK	000		000	9	19
1831424				00			3928976	0	1	1	DRVR				INJB	48	2	OR-Y	OR<25	000		000	9	19
1831424				00			3928977	0	1	1	DRVR				INJC	16	1	NONE	OR<25	000		004	9	19
1692007				00			3647592	0	1	1	DRVR				NONE	00	9	UNK	UNK	000		000	9	19
1692007				00			3647593	0	1	1	DRVR				NONE	00	9	UNK	UNK	000		000	9	19
1680948				00			3624538	0	1	1	DRVR				NONE	75	1	OR-Y	OR<25	000		000	9	19
1680948				00			3624539	0	2	2	PSNG				INJB	75	2			000		000	9	19
1680948				00			3624540	0	1	1	DRVR				NONE	18	2	N-VAL	OR<25	000		028	9	19
1723045				00			3705117	0	1	1	DRVR				NONE	85	1	OR-Y	OR<25	000		028	9	19
1723045				00			3705118	0	1	1	DRVR				INJC	22	2	OR-Y	OR<25	000		000	9	19
1844110				00			3957543	0	1	1	DRVR				NONE	80	1	OR-Y	OR<25	000		028	9	19
1844110				00			3957544	0	1	1	DRVR				INJC	23	2	OR-Y	OR<25	000		000	9	19

Summary Severity

PDO	5
INJ	4
FAT	0
TOTAL	9

TYPE	
Angle	1
Turn	5
Rear-End	2
Sideswipe	
Fixed Object	
Ped/Bike	
Head-on	
Other	1
Total	9

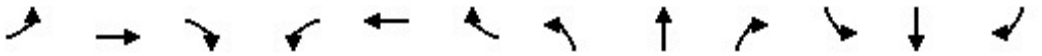
ADT	
Johnson	4123
3rd	3684

Intersection	ADT
ADT	7807
Crashes	9
Annual MEV	2.85
Five-Year ME	14.25
Crashes/MEV	0.63
4SG 90%	0.86

Collisions/Ye	2016	2017	2018	2019	2020	TOTAL
3rd/Johnson	4	3	0	2	0	9

Appendix E

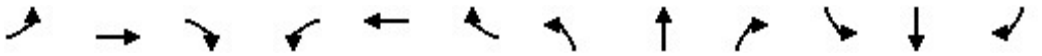
Traffic Operations Reports: Existing and 2024 Pre-Development



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	371	65	27	124	0	0	0	0	66	449	77
Future Volume (vph)	0	371	65	27	124	0	0	0	0	66	449	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5						4.5	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.95	
Frpb, ped/bikes		1.00	0.99	1.00	1.00						1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						0.98	
Flt Protected		1.00	1.00	0.95	1.00						0.99	
Satd. Flow (prot)		1900	1592	1787	1881						3440	
Flt Permitted		1.00	1.00	0.18	1.00						0.99	
Satd. Flow (perm)		1900	1592	334	1881						3440	
Peak-hour factor, PHF	0.92	0.76	0.76	0.93	0.93	0.92	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	0	488	86	29	133	0	0	0	0	73	499	86
RTOR Reduction (vph)	0	0	64	0	0	0	0	0	0	0	17	0
Lane Group Flow (vph)	0	488	22	29	133	0	0	0	0	0	641	0
Confl. Peds. (#/hr)			1	1						1		1
Confl. Bikes (#/hr)			1									1
Heavy Vehicles (%)	2%	0%	0%	1%	1%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		4		3	8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		18.0	18.0	27.6	27.6						33.4	
Effective Green, g (s)		18.0	18.0	27.6	27.6						33.4	
Actuated g/C Ratio		0.26	0.26	0.39	0.39						0.48	
Clearance Time (s)		4.5	4.5	4.5	4.5						4.5	
Lane Grp Cap (vph)		488	409	237	741						1641	
v/s Ratio Prot		c0.26		0.01	c0.07							
v/s Ratio Perm			0.01	0.04							0.19	
v/c Ratio		1.00	0.05	0.12	0.18						0.39	
Uniform Delay, d1		26.0	19.6	24.1	13.8						11.8	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		40.7	0.3	1.1	0.5						0.7	
Delay (s)		66.7	19.8	25.2	14.3						12.5	
Level of Service		E	B	C	B						B	
Approach Delay (s)		59.7			16.3			0.0			12.5	
Approach LOS		E			B			A			B	

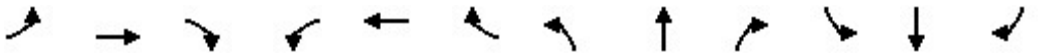
Intersection Summary			
HCM 2000 Control Delay	32.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	293	0	0	139	13	53	513	87	0	0	0
Future Volume (vph)	143	293	0	0	139	13	53	513	87	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5				
Lane Util. Factor	1.00	1.00			1.00			0.95				
Frpb, ped/bikes	1.00	1.00			1.00			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.99			0.98				
Flt Protected	0.95	1.00			1.00			1.00				
Satd. Flow (prot)	1804	1900			1858			3478				
Flt Permitted	0.61	1.00			1.00			1.00				
Satd. Flow (perm)	1156	1900			1858			3478				
Peak-hour factor, PHF	0.95	0.95	0.92	0.92	0.85	0.85	0.78	0.78	0.78	0.92	0.92	0.92
Adj. Flow (vph)	151	308	0	0	164	15	68	658	112	0	0	0
RTOR Reduction (vph)	0	0	0	0	4	0	0	18	0	0	0	0
Lane Group Flow (vph)	151	308	0	0	175	0	0	820	0	0	0	0
Confl. Peds. (#/hr)	1					1	1		1			
Heavy Vehicles (%)	0%	0%	2%	2%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA				
Protected Phases	7	4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)	27.5	27.5			18.0			33.5				
Effective Green, g (s)	27.5	27.5			18.0			33.5				
Actuated g/C Ratio	0.39	0.39			0.26			0.48				
Clearance Time (s)	4.5	4.5			4.5			4.5				
Lane Grp Cap (vph)	500	746			477			1664				
v/s Ratio Prot	0.02	c0.16			0.09							
v/s Ratio Perm	0.10							0.24				
v/c Ratio	0.30	0.41			0.37			0.49				
Uniform Delay, d1	15.6	15.4			21.3			12.5				
Progression Factor	0.18	0.17			1.00			1.00				
Incremental Delay, d2	0.6	0.6			2.2			1.0				
Delay (s)	3.3	3.3			23.5			13.5				
Level of Service	A	A			C			B				
Approach Delay (s)		3.3			23.5			13.5			0.0	
Approach LOS		A			C			B			A	

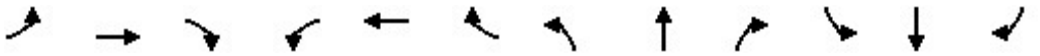
Intersection Summary			
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	10	2	62	6	0	0	0	0	79	559	1
Future Volume (vph)	0	10	2	62	6	0	0	0	0	79	559	1
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	
Lane Util. Factor		1.00			1.00						0.95	
Frpb, ped/bikes		1.00			1.00						1.00	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.98			1.00						1.00	
Flt Protected		1.00			0.96						0.99	
Satd. Flow (prot)		1857			1777						3516	
Flt Permitted		1.00			0.78						0.99	
Satd. Flow (perm)		1857			1449						3516	
Peak-hour factor, PHF	0.92	0.60	0.60	0.93	0.93	0.92	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	0	17	3	67	6	0	0	0	0	88	621	1
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	18	0	0	73	0	0	0	0	0	710	0
Confl. Peds. (#/hr)			2	2						1		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	2%	0%	0%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			8						6	
Permitted Phases				8						6		
Actuated Green, G (s)		25.5			25.5						35.5	
Effective Green, g (s)		25.5			25.5						35.5	
Actuated g/C Ratio		0.36			0.36						0.51	
Clearance Time (s)		4.5			4.5						4.5	
Lane Grp Cap (vph)		676			527						1783	
v/s Ratio Prot		0.01										
v/s Ratio Perm					c0.05						0.20	
v/c Ratio		0.03			0.14						0.40	
Uniform Delay, d1		14.3			14.9						10.7	
Progression Factor		1.00			1.10						1.00	
Incremental Delay, d2		0.1			0.5						0.7	
Delay (s)		14.4			16.9						11.3	
Level of Service		B			B						B	
Approach Delay (s)		14.4			16.9			0.0			11.3	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	40.3%	ICU Level of Service	A
Analysis Period (min)	15		

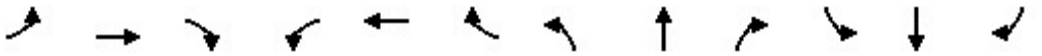
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	82	0	0	57	29	59	669	111	0	0	0
Future Volume (vph)	31	82	0	0	57	29	59	669	111	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.95			0.98				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1871			1802			3453				
Flt Permitted		0.92			1.00			1.00				
Satd. Flow (perm)		1754			1802			3453				
Peak-hour factor, PHF	1.00	1.00	0.92	0.92	0.85	0.85	0.79	0.79	0.92	0.92	0.92	0.92
Adj. Flow (vph)	31	82	0	0	67	34	75	847	121	0	0	0
RTOR Reduction (vph)	0	0	0	0	17	0	0	15	0	0	0	0
Lane Group Flow (vph)	0	113	0	0	84	0	0	1028	0	0	0	0
Confl. Peds. (#/hr)	6					6	5		1			
Confl. Bikes (#/hr)						1			2			
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		35.5			35.5			25.5				
Effective Green, g (s)		35.5			35.5			25.5				
Actuated g/C Ratio		0.51			0.51			0.36				
Clearance Time (s)		4.5			4.5			4.5				
Lane Grp Cap (vph)		889			913			1257				
v/s Ratio Prot					0.05							
v/s Ratio Perm		c0.06						0.30				
v/c Ratio		0.13			0.09			0.82				
Uniform Delay, d1		9.1			8.9			20.1				
Progression Factor		1.39			1.00			1.00				
Incremental Delay, d2		0.3			0.2			6.0				
Delay (s)		12.9			9.1			26.2				
Level of Service		B			A			C				
Approach Delay (s)		12.9			9.1			26.2			0.0	
Approach LOS		B			A			C			A	

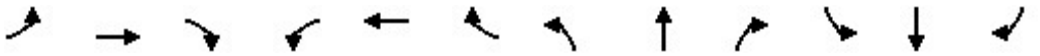
Intersection Summary			
HCM 2000 Control Delay	23.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	71	1	8	71	282	1	174	27	242	109	20
Future Volume (vph)	13	71	1	8	71	282	1	174	27	242	109	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.98			1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.88			0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1805	1896		1763	1609			1823		1752	1796	
Flt Permitted	0.47	1.00		0.70	1.00			1.00		0.55	1.00	
Satd. Flow (perm)	884	1896		1309	1609			1823		1011	1796	
Peak-hour factor, PHF	0.90	0.90	0.90	0.85	0.85	0.85	0.69	0.69	0.69	0.89	0.89	0.89
Adj. Flow (vph)	14	79	1	9	84	332	1	252	39	272	122	22
RTOR Reduction (vph)	0	1	0	0	265	0	0	8	0	0	9	0
Lane Group Flow (vph)	14	79	0	9	151	0	0	284	0	272	135	0
Confl. Peds. (#/hr)			4	4		1	1		1	1		1
Confl. Bikes (#/hr)			1			1			1			1
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	9.4	8.6		10.8	9.3			18.3		28.0	28.0	
Effective Green, g (s)	9.4	8.6		10.8	9.3			18.3		28.0	28.0	
Actuated g/C Ratio	0.18	0.17		0.21	0.18			0.35		0.54	0.54	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	175	316		287	289			646		623	974	
v/s Ratio Prot	c0.00	0.04		0.00	c0.09					c0.04	0.08	
v/s Ratio Perm	0.01			0.01				0.16		c0.19		
v/c Ratio	0.08	0.25		0.03	0.52			0.44		0.44	0.14	
Uniform Delay, d1	21.4	18.7		16.2	19.1			12.7		9.9	5.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.4		0.0	1.7			2.2		0.5	0.3	
Delay (s)	21.6	19.1		16.3	20.9			14.9		10.4	6.1	
Level of Service	C	B		B	C			B		B	A	
Approach Delay (s)		19.5			20.8			14.9			8.9	
Approach LOS		B			C			B			A	

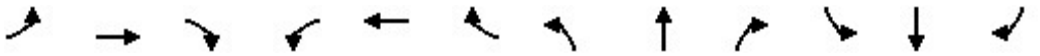
Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	51.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	363	57	88	302	0	0	0	0	76	926	254
Future Volume (vph)	0	363	57	88	302	0	0	0	0	76	926	254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5						4.5	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.95	
Frpb, ped/bikes		1.00	0.98	1.00	1.00						0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						0.97	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		1900	1585	1786	1881						3429	
Flt Permitted		1.00	1.00	0.31	1.00						1.00	
Satd. Flow (perm)		1900	1585	574	1881						3429	
Peak-hour factor, PHF	0.92	0.95	0.95	0.84	0.84	0.92	0.92	0.92	0.92	1.00	1.00	1.00
Adj. Flow (vph)	0	382	60	105	360	0	0	0	0	76	926	254
RTOR Reduction (vph)	0	0	43	0	0	0	0	0	0	0	25	0
Lane Group Flow (vph)	0	382	17	105	360	0	0	0	0	0	1231	0
Confl. Peds. (#/hr)			4	4						3		6
Confl. Bikes (#/hr)			1									1
Heavy Vehicles (%)	2%	0%	0%	1%	1%	2%	2%	2%	2%	1%	1%	1%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		4		3	8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		25.5	25.5	35.5	35.5						45.5	
Effective Green, g (s)		25.5	25.5	35.5	35.5						45.5	
Actuated g/C Ratio		0.28	0.28	0.39	0.39						0.51	
Clearance Time (s)		4.5	4.5	4.5	4.5						4.5	
Lane Grp Cap (vph)		538	449	300	741						1733	
v/s Ratio Prot		c0.20		0.02	c0.19							
v/s Ratio Perm			0.01	0.12							0.36	
v/c Ratio		0.71	0.04	0.35	0.49						0.71	
Uniform Delay, d1		28.9	23.4	28.2	20.4						17.2	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		7.7	0.2	3.2	2.3						2.5	
Delay (s)		36.7	23.5	31.4	22.7						19.7	
Level of Service		D	C	C	C						B	
Approach Delay (s)		34.9			24.6			0.0			19.7	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	23.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		

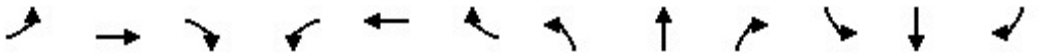
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	181	302	0	0	385	43	113	838	64	0	0	0
Future Volume (vph)	181	302	0	0	385	43	113	838	64	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5				
Lane Util. Factor	1.00	1.00			1.00			0.95				
Frpb, ped/bikes	1.00	1.00			1.00			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.99			0.99				
Flt Protected	0.95	1.00			1.00			0.99				
Satd. Flow (prot)	1805	1900			1867			3507				
Flt Permitted	0.19	1.00			1.00			0.99				
Satd. Flow (perm)	356	1900			1867			3507				
Peak-hour factor, PHF	0.84	0.84	0.92	0.92	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92
Adj. Flow (vph)	215	360	0	0	385	43	113	838	64	0	0	0
RTOR Reduction (vph)	0	0	0	0	4	0	0	5	0	0	0	0
Lane Group Flow (vph)	215	360	0	0	424	0	0	1010	0	0	0	0
Confl. Peds. (#/hr)	14			11		14	6		5			
Confl. Bikes (#/hr)			4			6			1			
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	1%	1%	1%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA				
Protected Phases	7	4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)	41.5	41.5			25.5			50.5				
Effective Green, g (s)	41.5	41.5			25.5			50.5				
Actuated g/C Ratio	0.41	0.41			0.25			0.50				
Clearance Time (s)	4.5	4.5			4.5			4.5				
Lane Grp Cap (vph)	311	780			471			1753				
v/s Ratio Prot	c0.08	0.19			c0.23							
v/s Ratio Perm	0.21							0.29				
v/c Ratio	0.69	0.46			0.90			0.58				
Uniform Delay, d1	35.9	21.6			36.5			17.7				
Progression Factor	1.00	1.00			1.00			1.00				
Incremental Delay, d2	11.9	2.0			22.9			1.4				
Delay (s)	47.9	23.6			59.4			19.1				
Level of Service	D	C			E			B				
Approach Delay (s)		32.7			59.4			19.1			0.0	
Approach LOS		C			E			B			A	

Intersection Summary			
HCM 2000 Control Delay	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	101.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		

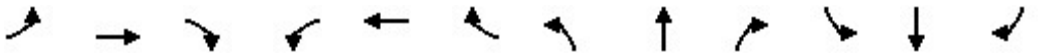
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	3	6	182	3	0	0	0	0	74	1096	1
Future Volume (vph)	0	3	6	182	3	0	0	0	0	74	1096	1
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	
Lane Util. Factor		1.00			1.00						0.95	
Frpb, ped/bikes		0.98			1.00						1.00	
Flpb, ped/bikes		1.00			0.98						1.00	
Frt		0.91			1.00						1.00	
Flt Protected		1.00			0.95						1.00	
Satd. Flow (prot)		1696			1782						3560	
Flt Permitted		1.00			0.72						1.00	
Satd. Flow (perm)		1696			1344						3560	
Peak-hour factor, PHF	0.92	0.60	0.60	0.68	0.68	0.92	0.92	0.92	0.92	0.98	0.98	0.98
Adj. Flow (vph)	0	5	10	268	4	0	0	0	0	76	1118	1
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	8	0	0	272	0	0	0	0	0	1195	0
Confl. Peds. (#/hr)			11	11						5		4
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	2%	2%	2%	1%	1%	1%
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			8						6	
Permitted Phases				8						6		
Actuated Green, G (s)		25.5			25.5						55.5	
Effective Green, g (s)		25.5			25.5						55.5	
Actuated g/C Ratio		0.28			0.28						0.62	
Clearance Time (s)		4.5			4.5						4.5	
Lane Grp Cap (vph)		480			380						2195	
v/s Ratio Prot		0.00										
v/s Ratio Perm					c0.20						0.34	
v/c Ratio		0.02			0.72						0.54	
Uniform Delay, d1		23.2			29.0						10.0	
Progression Factor		1.00			1.00						1.00	
Incremental Delay, d2		0.1			11.0						1.0	
Delay (s)		23.3			40.0						10.9	
Level of Service		C			D						B	
Approach Delay (s)		23.3			40.0			0.0			10.9	
Approach LOS		C			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		

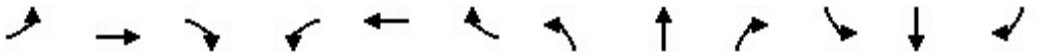
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	63	0	0	177	91	31	1056	51	0	0	0
Future Volume (vph)	9	63	0	0	177	91	31	1056	51	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.95			0.99				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1889			1798			3539				
Flt Permitted		0.97			1.00			1.00				
Satd. Flow (perm)		1833			1798			3539				
Peak-hour factor, PHF	1.00	0.81	0.81	0.92	0.76	0.76	0.99	0.99	0.99	0.92	0.92	0.92
Adj. Flow (vph)	9	78	0	0	233	120	31	1067	52	0	0	0
RTOR Reduction (vph)	0	0	0	0	9	0	0	5	0	0	0	0
Lane Group Flow (vph)	0	87	0	0	344	0	0	1145	0	0	0	0
Confl. Peds. (#/hr)	9					9	4		5			
Confl. Bikes (#/hr)			1			4			2			
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%	1%	1%	1%	2%	2%	2%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		35.5			35.5			25.5				
Effective Green, g (s)		35.5			35.5			25.5				
Actuated g/C Ratio		0.51			0.51			0.36				
Clearance Time (s)		4.5			4.5			4.5				
Lane Grp Cap (vph)		929			911			1289				
v/s Ratio Prot					c0.19							
v/s Ratio Perm		0.05						0.32				
v/c Ratio		0.09			0.38			0.89				
Uniform Delay, d1		8.9			10.5			20.9				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		0.2			1.2			9.4				
Delay (s)		9.1			11.7			30.3				
Level of Service		A			B			C				
Approach Delay (s)		9.1			11.7			30.3			0.0	
Approach LOS		A			B			C			A	

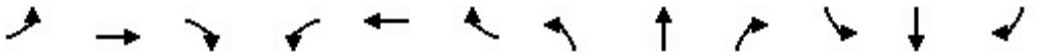
Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	105	3	19	124	332	1	165	25	398	224	55
Future Volume (vph)	40	105	3	19	124	332	1	165	25	398	224	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.98			1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.89			0.98		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1804	1891		1734	1591			1842		1786	1817	
Flt Permitted	0.22	1.00		0.69	1.00			1.00		0.55	1.00	
Satd. Flow (perm)	427	1891		1254	1591			1840		1030	1817	
Peak-hour factor, PHF	1.00	1.00	1.00	0.77	0.77	0.77	0.84	0.84	0.84	0.97	0.97	0.97
Adj. Flow (vph)	40	105	3	25	161	431	1	196	30	410	231	57
RTOR Reduction (vph)	0	1	0	0	137	0	0	8	0	0	12	0
Lane Group Flow (vph)	40	107	0	25	455	0	0	219	0	410	276	0
Confl. Peds. (#/hr)	5		1	1		5	1		1	1		1
Confl. Bikes (#/hr)			1			1			1			1
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	1%	1%	1%	1%	1%	1%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	21.5	17.8		23.1	18.6			20.1		33.2	33.2	
Effective Green, g (s)	21.5	17.8		23.1	18.6			20.1		33.2	33.2	
Actuated g/C Ratio	0.31	0.26		0.33	0.27			0.29		0.48	0.48	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	206	487		451	428			536		589	874	
v/s Ratio Prot	c0.01	0.06		0.00	c0.29					c0.09	0.15	
v/s Ratio Perm	0.05			0.01				0.12		c0.25		
v/c Ratio	0.19	0.22		0.06	1.06			0.41		0.70	0.32	
Uniform Delay, d1	27.8	20.1		15.6	25.2			19.7		18.1	10.9	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.2		0.1	61.5			2.3		3.6	0.9	
Delay (s)	28.3	20.4		15.6	86.7			22.0		21.7	11.9	
Level of Service	C	C		B	F			C		C	B	
Approach Delay (s)		22.5			83.9			22.0			17.7	
Approach LOS		C			F			C			B	

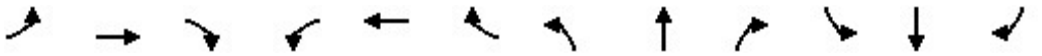
Intersection Summary			
HCM 2000 Control Delay	42.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	69.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	382	67	28	127	0	0	0	0	68	461	79
Future Volume (vph)	0	382	67	28	127	0	0	0	0	68	461	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5						4.5	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.95	
Frpb, ped/bikes		1.00	0.99	1.00	1.00						1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						0.98	
Flt Protected		1.00	1.00	0.95	1.00						0.99	
Satd. Flow (prot)		1900	1592	1787	1881						3440	
Flt Permitted		1.00	1.00	0.18	1.00						0.99	
Satd. Flow (perm)		1900	1592	334	1881						3440	
Peak-hour factor, PHF	0.92	0.76	0.76	0.93	0.93	0.92	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	0	503	88	30	137	0	0	0	0	76	512	88
RTOR Reduction (vph)	0	0	65	0	0	0	0	0	0	0	17	0
Lane Group Flow (vph)	0	503	23	30	137	0	0	0	0	0	659	0
Confl. Peds. (#/hr)			1	1						1		1
Confl. Bikes (#/hr)			1									1
Heavy Vehicles (%)	2%	0%	0%	1%	1%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		4		3	8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		18.0	18.0	27.6	27.6						33.4	
Effective Green, g (s)		18.0	18.0	27.6	27.6						33.4	
Actuated g/C Ratio		0.26	0.26	0.39	0.39						0.48	
Clearance Time (s)		4.5	4.5	4.5	4.5						4.5	
Lane Grp Cap (vph)		488	409	237	741						1641	
v/s Ratio Prot		c0.26		0.01	c0.07							
v/s Ratio Perm			0.01	0.04							0.19	
v/c Ratio		1.03	0.06	0.13	0.18						0.40	
Uniform Delay, d1		26.0	19.6	24.8	13.9						11.8	
Progression Factor		1.00	1.00	0.39	0.41						1.00	
Incremental Delay, d2		48.9	0.3	1.0	0.5						0.7	
Delay (s)		74.9	19.9	10.6	6.2						12.6	
Level of Service		E	B	B	A						B	
Approach Delay (s)		66.7			7.0			0.0			12.6	
Approach LOS		E			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	34.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		

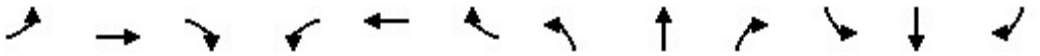
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	302	0	0	143	13	55	528	90	0	0	0
Future Volume (vph)	147	302	0	0	143	13	55	528	90	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5				
Lane Util. Factor	1.00	1.00			1.00			0.95				
Frpb, ped/bikes	1.00	1.00			1.00			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.99			0.98				
Flt Protected	0.95	1.00			1.00			1.00				
Satd. Flow (prot)	1804	1900			1858			3478				
Flt Permitted	0.60	1.00			1.00			1.00				
Satd. Flow (perm)	1144	1900			1858			3478				
Peak-hour factor, PHF	0.95	0.95	0.92	0.92	0.85	0.85	0.78	0.78	0.78	0.92	0.92	0.92
Adj. Flow (vph)	155	318	0	0	168	15	71	677	115	0	0	0
RTOR Reduction (vph)	0	0	0	0	4	0	0	17	0	0	0	0
Lane Group Flow (vph)	155	318	0	0	179	0	0	846	0	0	0	0
Confl. Peds. (#/hr)	1					1	1		1			
Heavy Vehicles (%)	0%	0%	2%	2%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA				
Protected Phases	7	4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)	27.5	27.5			18.0			33.5				
Effective Green, g (s)	27.5	27.5			18.0			33.5				
Actuated g/C Ratio	0.39	0.39			0.26			0.48				
Clearance Time (s)	4.5	4.5			4.5			4.5				
Lane Grp Cap (vph)	496	746			477			1664				
v/s Ratio Prot	0.02	c0.17			0.10							
v/s Ratio Perm	0.10							0.24				
v/c Ratio	0.31	0.43			0.37			0.51				
Uniform Delay, d1	15.8	15.5			21.4			12.6				
Progression Factor	0.18	0.17			1.00			1.00				
Incremental Delay, d2	0.5	0.6			2.2			1.1				
Delay (s)	3.3	3.3			23.6			13.7				
Level of Service	A	A			C			B				
Approach Delay (s)		3.3			23.6			13.7			0.0	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		

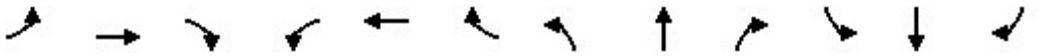
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	10	2	64	6	0	0	0	0	81	576	1
Future Volume (vph)	0	10	2	64	6	0	0	0	0	81	576	1
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	
Lane Util. Factor		1.00			1.00						0.95	
Frpb, ped/bikes		1.00			1.00						1.00	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.98			1.00						1.00	
Flt Protected		1.00			0.96						0.99	
Satd. Flow (prot)		1857			1777						3516	
Flt Permitted		1.00			0.78						0.99	
Satd. Flow (perm)		1857			1445						3516	
Peak-hour factor, PHF	0.92	0.60	0.60	0.93	0.93	0.92	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	0	17	3	69	6	0	0	0	0	90	640	1
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	18	0	0	75	0	0	0	0	0	731	0
Confl. Peds. (#/hr)			2	2						1		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	2%	0%	0%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			8						6	
Permitted Phases				8						6		
Actuated Green, G (s)		25.5			25.5						35.5	
Effective Green, g (s)		25.5			25.5						35.5	
Actuated g/C Ratio		0.36			0.36						0.51	
Clearance Time (s)		4.5			4.5						4.5	
Lane Grp Cap (vph)		676			526						1783	
v/s Ratio Prot		0.01										
v/s Ratio Perm					c0.05						0.21	
v/c Ratio		0.03			0.14						0.41	
Uniform Delay, d1		14.3			14.9						10.7	
Progression Factor		1.00			1.10						1.00	
Incremental Delay, d2		0.1			0.5						0.7	
Delay (s)		14.4			16.9						11.4	
Level of Service		B			B						B	
Approach Delay (s)		14.4			16.9			0.0			11.4	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		

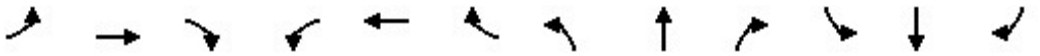
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	84	0	0	58	30	61	689	114	0	0	0
Future Volume (vph)	32	84	0	0	58	30	61	689	114	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.95			0.98				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1871			1801			3453				
Flt Permitted		0.92			1.00			1.00				
Satd. Flow (perm)		1751			1801			3453				
Peak-hour factor, PHF	1.00	1.00	0.92	0.92	0.85	0.85	0.79	0.79	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	84	0	0	68	35	77	872	124	0	0	0
RTOR Reduction (vph)	0	0	0	0	17	0	0	15	0	0	0	0
Lane Group Flow (vph)	0	116	0	0	86	0	0	1058	0	0	0	0
Confl. Peds. (#/hr)	6					6	5		1			
Confl. Bikes (#/hr)						1			2			
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		35.5			35.5			25.5				
Effective Green, g (s)		35.5			35.5			25.5				
Actuated g/C Ratio		0.51			0.51			0.36				
Clearance Time (s)		4.5			4.5			4.5				
Lane Grp Cap (vph)		888			913			1257				
v/s Ratio Prot					0.05							
v/s Ratio Perm		c0.07						0.31				
v/c Ratio		0.13			0.09			0.84				
Uniform Delay, d1		9.1			8.9			20.4				
Progression Factor		1.38			1.00			1.00				
Incremental Delay, d2		0.3			0.2			7.0				
Delay (s)		12.8			9.1			27.4				
Level of Service		B			A			C				
Approach Delay (s)		12.8			9.1			27.4			0.0	
Approach LOS		B			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



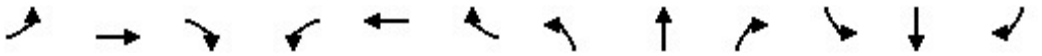
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	73	1	8	73	290	1	179	28	249	112	21
Future Volume (vph)	13	73	1	8	73	290	1	179	28	249	112	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.98			1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.88			0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1805	1896		1763	1609			1823		1752	1794	
Flt Permitted	0.45	1.00		0.70	1.00			1.00		0.54	1.00	
Satd. Flow (perm)	864	1896		1306	1609			1822		992	1794	
Peak-hour factor, PHF	0.90	0.90	0.90	0.85	0.85	0.85	0.69	0.69	0.69	0.89	0.89	0.89
Adj. Flow (vph)	14	81	1	9	86	341	1	259	41	280	126	24
RTOR Reduction (vph)	0	1	0	0	265	0	0	8	0	0	9	0
Lane Group Flow (vph)	14	81	0	9	162	0	0	293	0	280	141	0
Confl. Peds. (#/hr)			4	4		1	1		1	1		1
Confl. Bikes (#/hr)			1			1			1			1
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	9.6	8.8		11.0	9.5			18.3		28.0	28.0	
Effective Green, g (s)	9.6	8.8		11.0	9.5			18.3		28.0	28.0	
Actuated g/C Ratio	0.19	0.17		0.21	0.18			0.35		0.54	0.54	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	174	322		290	295			643		612	969	
v/s Ratio Prot	c0.00	0.04		0.00	c0.10					c0.05	0.08	
v/s Ratio Perm	0.01			0.01				0.16		c0.20		
v/c Ratio	0.08	0.25		0.03	0.55			0.46		0.46	0.15	
Uniform Delay, d1	21.5	18.6		16.2	19.2			12.9		10.3	5.9	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.4		0.0	2.2			2.3		0.5	0.3	
Delay (s)	21.7	19.1		16.2	21.4			15.2		10.8	6.2	
Level of Service	C	B		B	C			B		B	A	
Approach Delay (s)		19.4			21.3			15.2			9.2	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	51.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	374	59	91	311	0	0	0	0	78	954	262
Future Volume (vph)	0	374	59	91	311	0	0	0	0	78	954	262
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5						4.5	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.95	
Frpb, ped/bikes		1.00	0.98	1.00	1.00						0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						0.97	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		1900	1585	1786	1881						3429	
Flt Permitted		1.00	1.00	0.29	1.00						1.00	
Satd. Flow (perm)		1900	1585	545	1881						3429	
Peak-hour factor, PHF	0.92	0.95	0.95	0.84	0.84	0.92	0.92	0.92	0.92	1.00	1.00	1.00
Adj. Flow (vph)	0	394	62	108	370	0	0	0	0	78	954	262
RTOR Reduction (vph)	0	0	44	0	0	0	0	0	0	0	25	0
Lane Group Flow (vph)	0	394	18	108	370	0	0	0	0	0	1269	0
Confl. Peds. (#/hr)			4	4						3		6
Confl. Bikes (#/hr)			1									1
Heavy Vehicles (%)	2%	0%	0%	1%	1%	2%	2%	2%	2%	1%	1%	1%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		4		3	8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		25.5	25.5	35.5	35.5						45.5	
Effective Green, g (s)		25.5	25.5	35.5	35.5						45.5	
Actuated g/C Ratio		0.28	0.28	0.39	0.39						0.51	
Clearance Time (s)		4.5	4.5	4.5	4.5						4.5	
Lane Grp Cap (vph)		538	449	290	741						1733	
v/s Ratio Prot		c0.21		0.02	c0.20							
v/s Ratio Perm			0.01	0.12							0.37	
v/c Ratio		0.73	0.04	0.37	0.50						0.73	
Uniform Delay, d1		29.2	23.4	28.9	20.5						17.5	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		8.5	0.2	3.6	2.4						2.8	
Delay (s)		37.7	23.5	32.5	22.9						20.2	
Level of Service		D	C	C	C						C	
Approach Delay (s)		35.8			25.1			0.0			20.2	
Approach LOS		D			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	24.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	186	311	0	0	397	44	116	863	66	0	0	0
Future Volume (vph)	186	311	0	0	397	44	116	863	66	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5				
Lane Util. Factor	1.00	1.00			1.00			0.95				
Frpb, ped/bikes	1.00	1.00			1.00			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.99			0.99				
Flt Protected	0.95	1.00			1.00			0.99				
Satd. Flow (prot)	1805	1900			1867			3507				
Flt Permitted	0.17	1.00			1.00			0.99				
Satd. Flow (perm)	321	1900			1867			3507				
Peak-hour factor, PHF	0.84	0.84	0.92	0.92	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92
Adj. Flow (vph)	221	370	0	0	397	44	116	863	66	0	0	0
RTOR Reduction (vph)	0	0	0	0	4	0	0	5	0	0	0	0
Lane Group Flow (vph)	221	370	0	0	437	0	0	1040	0	0	0	0
Confl. Peds. (#/hr)	14			11		14	6		5			
Confl. Bikes (#/hr)			4			6			1			
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	1%	1%	1%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA				
Protected Phases	7	4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)	41.5	41.5			25.5			50.5				
Effective Green, g (s)	41.5	41.5			25.5			50.5				
Actuated g/C Ratio	0.41	0.41			0.25			0.50				
Clearance Time (s)	4.5	4.5			4.5			4.5				
Lane Grp Cap (vph)	300	780			471			1753				
v/s Ratio Prot	c0.08	0.19			c0.23							
v/s Ratio Perm	0.22							0.30				
v/c Ratio	0.74	0.47			0.93			0.59				
Uniform Delay, d1	36.7	21.8			36.9			17.9				
Progression Factor	1.00	1.00			1.00			1.00				
Incremental Delay, d2	14.9	2.1			27.0			1.5				
Delay (s)	51.6	23.8			63.8			19.4				
Level of Service	D	C			E			B				
Approach Delay (s)		34.2			63.8			19.4			0.0	
Approach LOS		C			E			B			A	

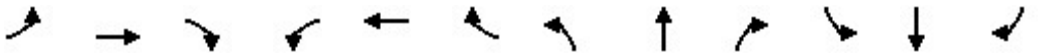
Intersection Summary			
HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	101.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	3	6	187	3	0	0	0	0	76	1129	1
Future Volume (vph)	0	3	6	187	3	0	0	0	0	76	1129	1
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	
Lane Util. Factor		1.00			1.00						0.95	
Frpb, ped/bikes		0.98			1.00						1.00	
Flpb, ped/bikes		1.00			0.98						1.00	
Frt		0.91			1.00						1.00	
Flt Protected		1.00			0.95						1.00	
Satd. Flow (prot)		1696			1782						3560	
Flt Permitted		1.00			0.72						1.00	
Satd. Flow (perm)		1696			1343						3560	
Peak-hour factor, PHF	0.92	0.60	0.60	0.68	0.68	0.92	0.92	0.92	0.92	0.98	0.98	0.98
Adj. Flow (vph)	0	5	10	275	4	0	0	0	0	78	1152	1
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	8	0	0	279	0	0	0	0	0	1231	0
Confl. Peds. (#/hr)			11	11						5		4
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	2%	2%	2%	1%	1%	1%
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			8						6	
Permitted Phases				8						6		
Actuated Green, G (s)		25.5			25.5						55.5	
Effective Green, g (s)		25.5			25.5						55.5	
Actuated g/C Ratio		0.28			0.28						0.62	
Clearance Time (s)		4.5			4.5						4.5	
Lane Grp Cap (vph)		480			380						2195	
v/s Ratio Prot		0.00										
v/s Ratio Perm					c0.21						0.35	
v/c Ratio		0.02			0.73						0.56	
Uniform Delay, d1		23.2			29.2						10.1	
Progression Factor		1.00			1.00						1.00	
Incremental Delay, d2		0.1			11.9						1.0	
Delay (s)		23.3			41.1						11.2	
Level of Service		C			D						B	
Approach Delay (s)		23.3			41.1			0.0			11.2	
Approach LOS		C			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		

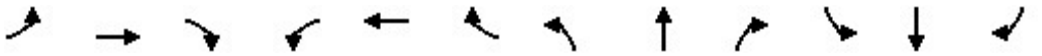
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	65	0	0	182	94	32	1088	53	0	0	0
Future Volume (vph)	9	65	0	0	182	94	32	1088	53	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.95			0.99				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1888			1799			3509				
Flt Permitted		0.96			1.00			1.00				
Satd. Flow (perm)		1815			1799			3509				
Peak-hour factor, PHF	1.00	1.00	0.92	0.92	0.85	0.85	0.79	0.79	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	65	0	0	214	111	41	1377	58	0	0	0
RTOR Reduction (vph)	0	0	0	0	20	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	74	0	0	305	0	0	1473	0	0	0	0
Confl. Peds. (#/hr)	6					6	5		1			
Confl. Bikes (#/hr)						1			2			
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		30.5			30.5			50.5				
Effective Green, g (s)		30.5			30.5			50.5				
Actuated g/C Ratio		0.34			0.34			0.56				
Clearance Time (s)		4.5			4.5			4.5				
Lane Grp Cap (vph)		615			609			1968				
v/s Ratio Prot					c0.17							
v/s Ratio Perm		0.04						0.42				
v/c Ratio		0.12			0.50			0.75				
Uniform Delay, d1		20.5			23.7			14.9				
Progression Factor		1.38			1.00			1.00				
Incremental Delay, d2		0.3			2.9			2.7				
Delay (s)		28.6			26.6			17.6				
Level of Service		C			C			B				
Approach Delay (s)		28.6			26.6			17.6			0.0	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	108	3	20	128	342	1	170	26	410	231	57
Future Volume (vph)	41	108	3	20	128	342	1	170	26	410	231	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.98			1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.89			0.98		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1805	1891		1733	1590			1841		1786	1817	
Flt Permitted	0.18	1.00		0.69	1.00			1.00		0.50	1.00	
Satd. Flow (perm)	347	1891		1251	1590			1840		931	1817	
Peak-hour factor, PHF	1.00	1.00	1.00	0.77	0.77	0.77	0.84	0.84	0.84	0.97	0.97	0.97
Adj. Flow (vph)	41	108	3	26	166	444	1	202	31	423	238	59
RTOR Reduction (vph)	0	1	0	0	121	0	0	7	0	0	11	0
Lane Group Flow (vph)	41	110	0	26	489	0	0	227	0	423	286	0
Confl. Peds. (#/hr)	5		1	1		5	1		1	1		1
Confl. Bikes (#/hr)			1			1			1			1
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	1%	1%	1%	1%	1%	1%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	25.6	21.9		32.4	25.3			19.8		35.3	35.3	
Effective Green, g (s)	25.6	21.9		32.4	25.3			19.8		35.3	35.3	
Actuated g/C Ratio	0.33	0.28		0.42	0.33			0.25		0.45	0.45	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	183	532		564	517			468		543	824	
v/s Ratio Prot	c0.01	0.06		c0.00	c0.31					c0.11	0.16	
v/s Ratio Perm	0.06			0.01				0.12		c0.24		
v/c Ratio	0.22	0.21		0.05	0.94			0.49		0.78	0.35	
Uniform Delay, d1	32.3	21.3		13.5	25.6			24.7		22.1	13.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.2		0.0	26.2			3.6		7.0	1.2	
Delay (s)	32.9	21.5		13.6	51.8			28.2		29.1	14.9	
Level of Service	C	C		B	D			C		C	B	
Approach Delay (s)		24.6			50.2			28.2			23.2	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	77.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Appendix F

Traffic Operations Reports: 2024 With Site

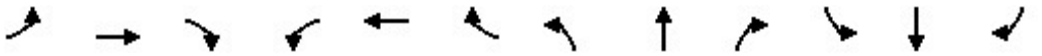
HCM Signalized Intersection Capacity Analysis
1: NE 2nd St & Adams St SB 99W

07/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	382	67	39	128	0	0	0	0	72	461	79
Future Volume (vph)	0	382	67	39	128	0	0	0	0	72	461	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5						4.5	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.95	
Frpb, ped/bikes		1.00	0.99	1.00	1.00						1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						0.98	
Flt Protected		1.00	1.00	0.95	1.00						0.99	
Satd. Flow (prot)		1900	1592	1787	1881						3439	
Flt Permitted		1.00	1.00	0.18	1.00						0.99	
Satd. Flow (perm)		1900	1592	334	1881						3439	
Peak-hour factor, PHF	0.92	0.76	0.76	0.93	0.93	0.92	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	0	503	88	42	138	0	0	0	0	80	512	88
RTOR Reduction (vph)	0	0	65	0	0	0	0	0	0	0	17	0
Lane Group Flow (vph)	0	503	23	42	138	0	0	0	0	0	663	0
Confl. Peds. (#/hr)			1	1						1		1
Confl. Bikes (#/hr)			1									1
Heavy Vehicles (%)	2%	0%	0%	1%	1%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		4		3	8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		18.0	18.0	27.6	27.6						33.4	
Effective Green, g (s)		18.0	18.0	27.6	27.6						33.4	
Actuated g/C Ratio		0.26	0.26	0.39	0.39						0.48	
Clearance Time (s)		4.5	4.5	4.5	4.5						4.5	
Lane Grp Cap (vph)		488	409	237	741						1640	
v/s Ratio Prot		c0.26		0.01	c0.07							
v/s Ratio Perm			0.01	0.06							0.19	
v/c Ratio		1.03	0.06	0.18	0.19						0.40	
Uniform Delay, d1		26.0	19.6	25.0	13.9						11.9	
Progression Factor		1.00	1.00	0.37	0.39						1.00	
Incremental Delay, d2		48.9	0.3	1.5	0.5						0.7	
Delay (s)		74.9	19.9	10.9	6.0						12.6	
Level of Service		E	B	B	A						B	
Approach Delay (s)		66.7			7.1			0.0			12.6	
Approach LOS		E			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	33.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



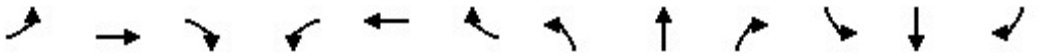
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	306	0	0	156	18	55	528	96	0	0	0
Future Volume (vph)	147	306	0	0	156	18	55	528	96	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5				
Lane Util. Factor	1.00	1.00			1.00			0.95				
Frpb, ped/bikes	1.00	1.00			1.00			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.99			0.98				
Flt Protected	0.95	1.00			1.00			1.00				
Satd. Flow (prot)	1804	1900			1853			3473				
Flt Permitted	0.57	1.00			1.00			1.00				
Satd. Flow (perm)	1079	1900			1853			3473				
Peak-hour factor, PHF	0.95	0.95	0.92	0.92	0.85	0.85	0.78	0.78	0.78	0.92	0.92	0.92
Adj. Flow (vph)	155	322	0	0	184	21	71	677	123	0	0	0
RTOR Reduction (vph)	0	0	0	0	6	0	0	19	0	0	0	0
Lane Group Flow (vph)	155	322	0	0	199	0	0	852	0	0	0	0
Confl. Peds. (#/hr)	1					1	1		1			
Heavy Vehicles (%)	0%	0%	2%	2%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA				
Protected Phases	7	4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)	27.5	27.5			18.0			33.5				
Effective Green, g (s)	27.5	27.5			18.0			33.5				
Actuated g/C Ratio	0.39	0.39			0.26			0.48				
Clearance Time (s)	4.5	4.5			4.5			4.5				
Lane Grp Cap (vph)	475	746			476			1662				
v/s Ratio Prot	0.02	c0.17			0.11							
v/s Ratio Perm	0.10							0.25				
v/c Ratio	0.33	0.43			0.42			0.51				
Uniform Delay, d1	16.4	15.5			21.6			12.6				
Progression Factor	0.18	0.18			1.00			1.00				
Incremental Delay, d2	0.6	0.6			2.7			1.1				
Delay (s)	3.6	3.4			24.3			13.7				
Level of Service	A	A			C			B				
Approach Delay (s)		3.5			24.3			13.7			0.0	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	10	2	64	6	0	0	0	0	85	576	1
Future Volume (vph)	0	10	2	64	6	0	0	0	0	85	576	1
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	
Lane Util. Factor		1.00			1.00						0.95	
Frpb, ped/bikes		1.00			1.00						1.00	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.98			1.00						1.00	
Flt Protected		1.00			0.96						0.99	
Satd. Flow (prot)		1857			1777						3515	
Flt Permitted		1.00			0.78						0.99	
Satd. Flow (perm)		1857			1445						3515	
Peak-hour factor, PHF	0.92	0.60	0.60	0.93	0.93	0.92	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	0	17	3	69	6	0	0	0	0	94	640	1
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	18	0	0	75	0	0	0	0	0	735	0
Confl. Peds. (#/hr)			2	2						1		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	2%	0%	0%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			8						6	
Permitted Phases				8						6		
Actuated Green, G (s)		25.5			25.5						35.5	
Effective Green, g (s)		25.5			25.5						35.5	
Actuated g/C Ratio		0.36			0.36						0.51	
Clearance Time (s)		4.5			4.5						4.5	
Lane Grp Cap (vph)		676			526						1782	
v/s Ratio Prot		0.01										
v/s Ratio Perm					c0.05						0.21	
v/c Ratio		0.03			0.14						0.41	
Uniform Delay, d1		14.3			14.9						10.8	
Progression Factor		1.00			1.10						1.00	
Incremental Delay, d2		0.1			0.5						0.7	
Delay (s)		14.4			16.9						11.5	
Level of Service		B			B						B	
Approach Delay (s)		14.4			16.9			0.0			11.5	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	40.9%	ICU Level of Service	A
Analysis Period (min)	15		

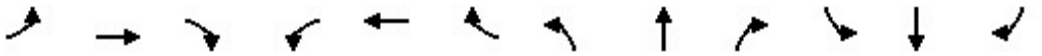
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	89	0	0	58	40	61	693	115	0	0	0
Future Volume (vph)	32	89	0	0	58	40	61	693	115	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.94			0.98				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1872			1781			3453				
Flt Permitted		0.92			1.00			1.00				
Satd. Flow (perm)		1752			1781			3453				
Peak-hour factor, PHF	1.00	1.00	0.92	0.92	0.85	0.85	0.79	0.79	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	89	0	0	68	47	77	877	125	0	0	0
RTOR Reduction (vph)	0	0	0	0	21	0	0	15	0	0	0	0
Lane Group Flow (vph)	0	121	0	0	94	0	0	1064	0	0	0	0
Confl. Peds. (#/hr)	6					6	5		1			
Confl. Bikes (#/hr)						1			2			
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		35.5			35.5			25.5				
Effective Green, g (s)		35.5			35.5			25.5				
Actuated g/C Ratio		0.51			0.51			0.36				
Clearance Time (s)		4.5			4.5			4.5				
Lane Grp Cap (vph)		888			903			1257				
v/s Ratio Prot					0.05							
v/s Ratio Perm		c0.07						0.31				
v/c Ratio		0.14			0.10			0.85				
Uniform Delay, d1		9.1			9.0			20.5				
Progression Factor		1.38			1.00			1.00				
Incremental Delay, d2		0.3			0.2			7.2				
Delay (s)		12.9			9.2			27.6				
Level of Service		B			A			C				
Approach Delay (s)		12.9			9.2			27.6			0.0	
Approach LOS		B			A			C			A	

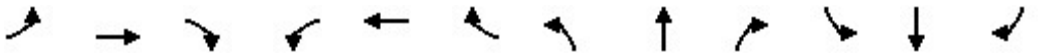
Intersection Summary			
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	89	1	8	82	290	1	179	28	249	112	21
Future Volume (vph)	13	89	1	8	82	290	1	179	28	249	112	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.98			1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.88			0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1805	1897		1763	1615			1823		1752	1794	
Flt Permitted	0.40	1.00		0.69	1.00			1.00		0.53	1.00	
Satd. Flow (perm)	768	1897		1285	1615			1822		980	1794	
Peak-hour factor, PHF	0.90	0.90	0.90	0.85	0.85	0.85	0.69	0.69	0.69	0.89	0.89	0.89
Adj. Flow (vph)	14	99	1	9	96	341	1	259	41	280	126	24
RTOR Reduction (vph)	0	1	0	0	233	0	0	8	0	0	9	0
Lane Group Flow (vph)	14	99	0	9	204	0	0	293	0	280	141	0
Confl. Peds. (#/hr)			4	4		1	1		1	1		1
Confl. Bikes (#/hr)			1			1			1			1
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	10.7	9.9		11.9	10.5			18.3		28.0	28.0	
Effective Green, g (s)	10.7	9.9		11.9	10.5			18.3		28.0	28.0	
Actuated g/C Ratio	0.20	0.19		0.23	0.20			0.35		0.53	0.53	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	171	355		302	321			631		595	951	
v/s Ratio Prot	c0.00	0.05		0.00	c0.13					c0.05	0.08	
v/s Ratio Perm	0.02			0.01				0.16		c0.20		
v/c Ratio	0.08	0.28		0.03	0.64			0.46		0.47	0.15	
Uniform Delay, d1	22.0	18.4		16.0	19.4			13.4		11.0	6.3	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.4		0.0	4.1			2.4		0.6	0.3	
Delay (s)	22.2	18.8		16.0	23.5			15.9		11.6	6.6	
Level of Service	C	B		B	C			B		B	A	
Approach Delay (s)		19.2			23.3			15.9			9.8	
Approach LOS		B			C			B			A	

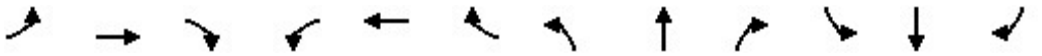
Intersection Summary			
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	52.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	375	59	108	313	0	0	0	0	88	954	262
Future Volume (vph)	0	375	59	108	313	0	0	0	0	88	954	262
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5						4.5	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.95	
Frpb, ped/bikes		1.00	0.98	1.00	1.00						0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						0.97	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		1900	1585	1786	1881						3429	
Flt Permitted		1.00	1.00	0.29	1.00						1.00	
Satd. Flow (perm)		1900	1585	543	1881						3429	
Peak-hour factor, PHF	0.92	0.95	0.95	0.84	0.84	0.92	0.92	0.92	0.92	1.00	1.00	1.00
Adj. Flow (vph)	0	395	62	129	373	0	0	0	0	88	954	262
RTOR Reduction (vph)	0	0	44	0	0	0	0	0	0	0	25	0
Lane Group Flow (vph)	0	395	18	129	373	0	0	0	0	0	1279	0
Confl. Peds. (#/hr)			4	4						3		6
Confl. Bikes (#/hr)			1									1
Heavy Vehicles (%)	2%	0%	0%	1%	1%	2%	2%	2%	2%	1%	1%	1%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		4		3	8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		25.5	25.5	35.5	35.5						45.5	
Effective Green, g (s)		25.5	25.5	35.5	35.5						45.5	
Actuated g/C Ratio		0.28	0.28	0.39	0.39						0.51	
Clearance Time (s)		4.5	4.5	4.5	4.5						4.5	
Lane Grp Cap (vph)		538	449	290	741						1733	
v/s Ratio Prot		c0.21		0.03	c0.20							
v/s Ratio Perm			0.01	0.15							0.37	
v/c Ratio		0.73	0.04	0.44	0.50						0.74	
Uniform Delay, d1		29.2	23.4	29.6	20.6						17.6	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		8.6	0.2	4.9	2.4						2.9	
Delay (s)		37.8	23.5	34.5	23.0						20.4	
Level of Service		D	C	C	C						C	
Approach Delay (s)		35.9			26.0			0.0			20.4	
Approach LOS		D			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		

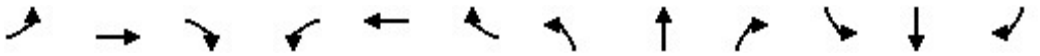
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	187	323	0	0	415	54	116	863	81	0	0	0
Future Volume (vph)	187	323	0	0	415	54	116	863	81	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5				
Lane Util. Factor	1.00	1.00			1.00			0.95				
Frpb, ped/bikes	1.00	1.00			1.00			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.98			0.99				
Flt Protected	0.95	1.00			1.00			0.99				
Satd. Flow (prot)	1805	1900			1862			3498				
Flt Permitted	0.13	1.00			1.00			0.99				
Satd. Flow (perm)	253	1900			1862			3498				
Peak-hour factor, PHF	0.84	0.84	0.92	0.92	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92
Adj. Flow (vph)	223	385	0	0	415	54	116	863	81	0	0	0
RTOR Reduction (vph)	0	0	0	0	4	0	0	6	0	0	0	0
Lane Group Flow (vph)	223	385	0	0	465	0	0	1054	0	0	0	0
Confl. Peds. (#/hr)	14			11		14	6		5			
Confl. Bikes (#/hr)			4			6			1			
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	1%	1%	1%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA				
Protected Phases	7	4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)	41.5	41.5			25.5			50.5				
Effective Green, g (s)	41.5	41.5			25.5			50.5				
Actuated g/C Ratio	0.41	0.41			0.25			0.50				
Clearance Time (s)	4.5	4.5			4.5			4.5				
Lane Grp Cap (vph)	280	780			470			1749				
v/s Ratio Prot	c0.09	0.20			c0.25							
v/s Ratio Perm	0.24							0.30				
v/c Ratio	0.80	0.49			0.99			0.60				
Uniform Delay, d1	38.3	22.0			37.6			18.1				
Progression Factor	1.00	1.00			1.00			1.00				
Incremental Delay, d2	20.5	2.2			38.7			1.5				
Delay (s)	58.9	24.2			76.3			19.6				
Level of Service	E	C			E			B				
Approach Delay (s)		36.9			76.3			19.6			0.0	
Approach LOS		D			E			B			A	

Intersection Summary			
HCM 2000 Control Delay	37.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	101.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		

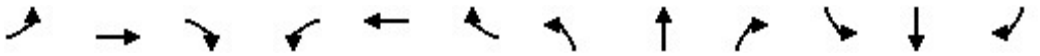
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	3	6	188	3	0	0	0	0	86	1129	1
Future Volume (vph)	0	3	6	188	3	0	0	0	0	86	1129	1
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	
Lane Util. Factor		1.00			1.00						0.95	
Frpb, ped/bikes		0.98			1.00						1.00	
Flpb, ped/bikes		1.00			0.98						1.00	
Frt		0.91			1.00						1.00	
Flt Protected		1.00			0.95						1.00	
Satd. Flow (prot)		1696			1782						3558	
Flt Permitted		1.00			0.72						1.00	
Satd. Flow (perm)		1696			1343						3558	
Peak-hour factor, PHF	0.92	0.60	0.60	0.68	0.68	0.92	0.92	0.92	0.92	0.98	0.98	0.98
Adj. Flow (vph)	0	5	10	276	4	0	0	0	0	88	1152	1
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	8	0	0	280	0	0	0	0	0	1241	0
Confl. Peds. (#/hr)			11	11						5		4
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	2%	2%	2%	1%	1%	1%
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			8						6	
Permitted Phases				8						6		
Actuated Green, G (s)		25.5			25.5						55.5	
Effective Green, g (s)		25.5			25.5						55.5	
Actuated g/C Ratio		0.28			0.28						0.62	
Clearance Time (s)		4.5			4.5						4.5	
Lane Grp Cap (vph)		480			380						2194	
v/s Ratio Prot		0.00										
v/s Ratio Perm					c0.21						0.35	
v/c Ratio		0.02			0.74						0.57	
Uniform Delay, d1		23.2			29.2						10.2	
Progression Factor		1.00			1.00						1.00	
Incremental Delay, d2		0.1			12.0						1.1	
Delay (s)		23.3			41.3						11.2	
Level of Service		C			D						B	
Approach Delay (s)		23.3			41.3			0.0			11.2	
Approach LOS		C			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

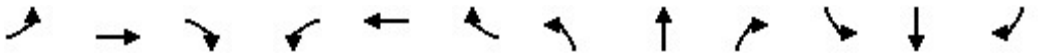
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	75	0	0	183	104	32	1098	53	0	0	0
Future Volume (vph)	9	75	0	0	183	104	32	1098	53	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.95			0.99				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1889			1793			3509				
Flt Permitted		0.96			1.00			1.00				
Satd. Flow (perm)		1823			1793			3509				
Peak-hour factor, PHF	1.00	1.00	0.92	0.92	0.85	0.85	0.79	0.79	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	75	0	0	215	122	41	1390	58	0	0	0
RTOR Reduction (vph)	0	0	0	0	22	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	84	0	0	315	0	0	1486	0	0	0	0
Confl. Peds. (#/hr)	6					6	5		1			
Confl. Bikes (#/hr)						1			2			
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		30.5			30.5			50.5				
Effective Green, g (s)		30.5			30.5			50.5				
Actuated g/C Ratio		0.34			0.34			0.56				
Clearance Time (s)		4.5			4.5			4.5				
Lane Grp Cap (vph)		617			607			1968				
v/s Ratio Prot					c0.18							
v/s Ratio Perm		0.05						0.42				
v/c Ratio		0.14			0.52			0.76				
Uniform Delay, d1		20.6			23.9			15.0				
Progression Factor		1.38			1.00			1.00				
Incremental Delay, d2		0.4			3.1			2.8				
Delay (s)		28.9			27.0			17.8				
Level of Service		C			C			B				
Approach Delay (s)		28.9			27.0			17.8			0.0	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	130	3	20	148	342	1	170	26	410	231	57
Future Volume (vph)	41	130	3	20	148	342	1	170	26	410	231	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.98			1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.90			0.98		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1805	1893		1734	1599			1841		1786	1817	
Flt Permitted	0.17	1.00		0.67	1.00			1.00		0.48	1.00	
Satd. Flow (perm)	319	1893		1226	1599			1840		901	1817	
Peak-hour factor, PHF	1.00	1.00	1.00	0.77	0.77	0.77	0.84	0.84	0.84	0.97	0.97	0.97
Adj. Flow (vph)	41	130	3	26	192	444	1	202	31	423	238	59
RTOR Reduction (vph)	0	1	0	0	104	0	0	7	0	0	11	0
Lane Group Flow (vph)	41	132	0	26	532	0	0	227	0	423	286	0
Confl. Peds. (#/hr)	5		1	1		5	1		1	1		1
Confl. Bikes (#/hr)			1			1			1			1
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	1%	1%	1%	1%	1%	1%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	27.6	23.8		34.2	27.1			18.7		34.2	34.2	
Effective Green, g (s)	27.6	23.8		34.2	27.1			18.7		34.2	34.2	
Actuated g/C Ratio	0.35	0.30		0.44	0.34			0.24		0.44	0.44	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	183	573		579	551			437		515	790	
v/s Ratio Prot	c0.01	0.07		c0.00	c0.33					c0.11	0.16	
v/s Ratio Perm	0.07			0.02				0.12		c0.24		
v/c Ratio	0.22	0.23		0.04	0.97			0.52		0.82	0.36	
Uniform Delay, d1	32.6	20.5		12.8	25.3			26.0		23.4	14.9	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.2		0.0	29.4			4.4		10.2	1.3	
Delay (s)	33.2	20.7		12.8	54.7			30.4		33.6	16.2	
Level of Service	C	C		B	D			C		C	B	
Approach Delay (s)		23.7			53.1			30.4			26.4	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	36.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	78.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			