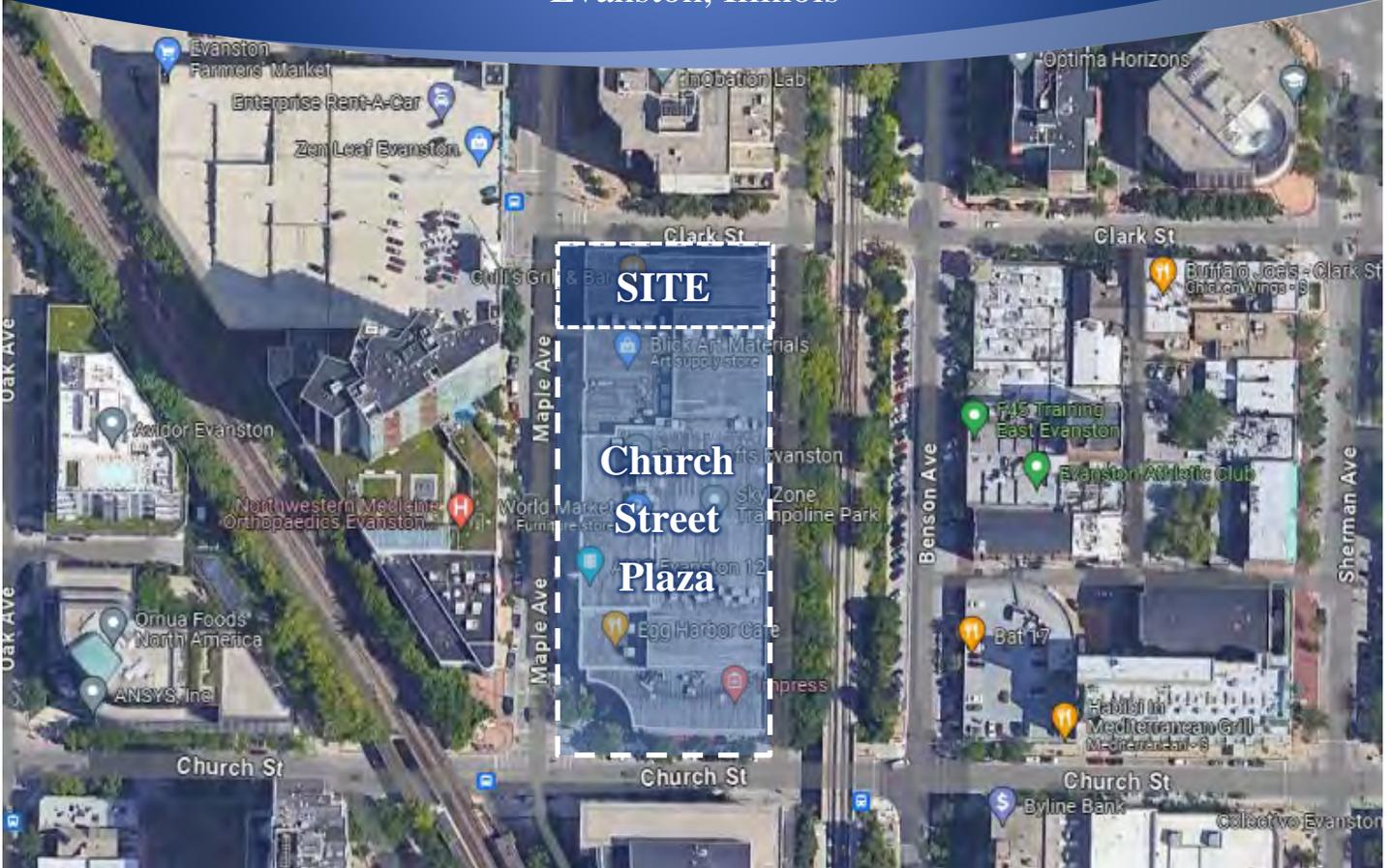


Traffic Impact Study Church Street Plaza Residential Development

Evanston, Illinois



Prepared for:

Continuum Development, LLC



January 14, 2025

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Executive Summary

This report summarizes the results of a traffic impact study conducted by Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) for a proposed residential development located in Evanston, Illinois. The development is to be located along the north end of the Church Street Plaza development which is located on the east side of Maple Avenue between Church Street and Clark Street. To accommodate the development, approximately 23,775 square feet of gross floor area at Church Street Plaza will be removed which is currently occupied by Chili's Grill & Bar, Dogtopia of Downtown Evanston, and a portion of the AMC movie theater.

The objective of the traffic study was as follows:

- Determine the existing vehicular, pedestrian, bicycle, and public transportation conditions in the study area to establish existing condition.
- Assess the impact that the proposed development will have on transportation conditions in the area.
- Determine any roadway, access, bicycle, and pedestrian modifications and/or improvements that will be necessary to effectively accommodate and mitigate future conditions.

Accessibility to and from the area is enhanced by the public transportation and various alternative modes of transportation. The Metra Union Pacific North Line (UP-N) and Chicago Transit Authority (CTA) Rapid Transit Purple Line have stations less than 0.2 miles from the site and several CTA bus routes have stops in the area. In addition, pedestrian facilities including sidewalks and crosswalks are generally provided on all roadways within the area. Barrier-protected bike lanes are provided on Church Street and Davis Street. Car-sharing vehicles are also located within the area.

Vehicle, pedestrian, and bicycle counts were conducted during the weekday morning and evening peak periods in order to determine the general transportation conditions during these time periods. The following intersections were analyzed as part of this study:

- Maple Street with Church Street
- Maple Avenue with the midblock pedestrian crossing
- Maple Avenue with Clark Street and the Maple Avenue parking garage access drive
- Maple Avenue with University Place
- Benson Avenue with Clark Street

The proposed Transit Oriented Development (TOD) will be a mixed-use development containing approximately 358 apartment units with 168 studios, 148 one-bedroom units, 35 two-bedroom units, six three-bedroom units, and one four-bedroom unit and approximately 3,400 square feet of commercial space. Parking for the development will be provided via the City of Evanston Maple Street parking garage located directly west of the site. In addition, the development will provide indoor parking for 179 bicycles.

Based on the preceding analyses and recommendations, the following conclusions have been made:

- The volume of new traffic to be generated by the development will be reduced due to (1) the public transportation and alternative modes of transportation serving the area and (2) the fact that the development will be replacing approximately 23,775 square feet of gross floor area at Church Street Plaza which is currently occupied by Chili's Grill & Bar, Dogtopia of Downtown Evanston, and a portion of the AMC movie theater.
- Parking for the development will be provided via the Maple Street parking garage located directly west of the site. Primary access to the parking garage is provided via an access drive located on the west side of Maple Avenue aligned opposite Clark Street. The access drive has one inbound lane and three outbound lanes striped for a separate left-turn lane, a shared through/left-turn lane, and a separate right-turn lane. The intersection of Maple Avenue with Clark Street and the parking garage access drive is under traffic signal control. Secondary access to the parking garage is provided via an access road that extends from the south side of University Place to the entrance of the parking garage. The access road provides one lane in each direction with the northbound lane under stop sign control at its intersection with University Place.
- As proposed, the parking along the south side of Clark Street along the frontage of the development is to be eliminated to extend the sidewalk and to provide a dedicated loading zone for three passenger vehicles. The loading zone will be used for short-term drop-off/pick-up of residents, guests, and commercial patrons via private vehicles, taxis, and ride share companies as well as for food deliveries. Loading for all truck deliveries will occur in the loading dock. The three-space loading zone should be sufficient to accommodate the peak demand of the development and is similar to what is provided at other residential developments.
- Access to the loading dock to be located on the east side of the building will be provided via the existing north-south alley that extends between Church Street Plaza and the CTA tracks. All deliveries will be accommodated via the loading dock which is designed for single-unit trucks.
- The existing roadway system has sufficient reserve capacity to accommodate the traffic to be generated by the proposed development. All the intersections within the study area are projected to continue to operate at a good level of service assuming the additional traffic to be generated by the proposed development and the other area growth. As such, no roadway improvements and/or traffic control modifications are required.
- The following summarizes measures to be implemented by the development and/or recommendations to further minimize the impact of the development, foster alternative modes of transportation, and to enhance pedestrian/bicycle safety:
 - The development will provide covered parking for approximately 179 bicycles.

- Parking at the Maple Street parking garage will be an additional cost and is not included in the base unit lease. Charging for parking or unbundling parking costs from unit leases is an effective method to reduce traffic to and from the development as well as reduce the demand for on-site parking.
- Consideration should be given to making transit information available to residents by providing an information kiosk in the leasing office with information on the CTA Purple line, the Metra Pacific North Line, and local bus routes.
- Consideration should be given to replacing the standard style crosswalks with high visibility, ladder style crosswalks at the following intersections:
 - On all four legs of the intersection of Maple Avenue with Clark Street and the Maple Street parking garage access drive.
 - On all four legs of the intersection of Benson Avenue with Clark Street.
- Parking for the development is proposed to be provided via the Maple Avenue parking garage located directly west of the site. If the development is approved, the owners of the development have committed to lease from the City of Evanston a minimum of 79 designated parking spaces within the Maple Avenue parking garage. Further, the City of Evanston has indicated that the Maple Avenue parking garage has sufficient vacancy to accommodate in excess of 125 leased parking spaces for the proposed development. The range of the parking ratios for the proposed development is comparable, particularly the ratios per bedroom, to the parking ratios for several recently approved developments in the City of Evanston.

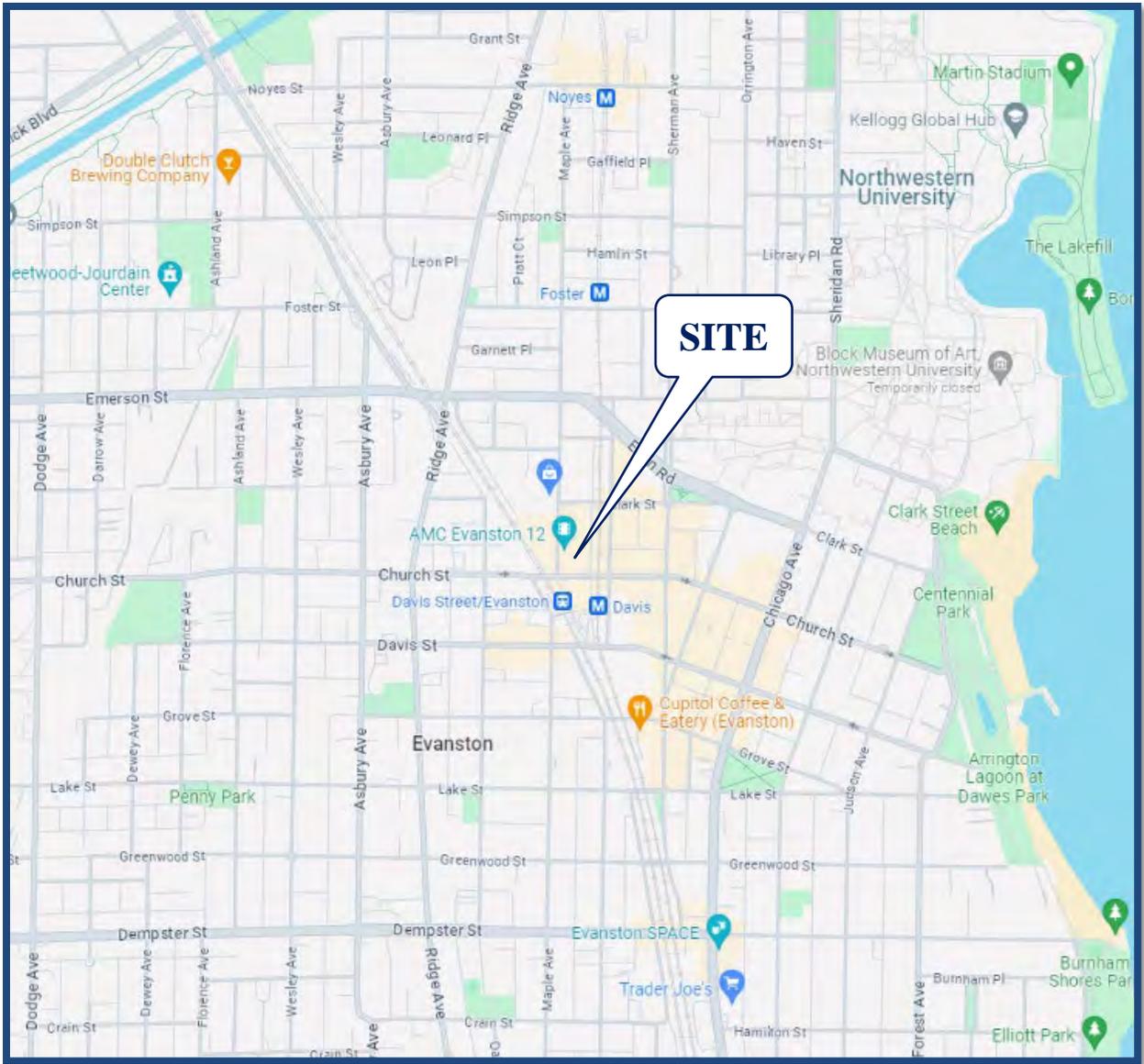
1. Introduction

This report summarizes the results of a traffic impact study conducted by Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) for a proposed residential development located in Evanston, Illinois. The development is to be located along the north end of the Church Street Plaza development which is located on the east side of Maple Avenue between Church Street and Clark Street. To accommodate the development, approximately 23,775 square feet of gross floor area at Church Street Plaza will be removed which is currently occupied by Chili's Grill & Bar, Dogtopia of Downtown Evanston, and a portion of the AMC movie theater. **Figure 1** shows the location of the site in relation to the area roadway system. **Figure 2** shows an aerial view of Church Street Plaza and the subject site.

The proposed Transit Oriented Development (TOD) will be a mixed-use development with approximately 358 apartments with 168 studios, 148 one-bedroom units, 35 two-bedroom units, six three-bedroom units, and one four-bedroom unit and approximately 3,400 square feet of commercial space. Parking for the development will be provided via the City of Evanston Maple Street parking garage located directly west of the site. In addition, the development will provide indoor parking for 179 bicycles. As proposed, the parking along the south side of Clark Street along the frontage of the development is to be eliminated to extend the sidewalk and to provide a dedicated loading zone for three passenger vehicles.

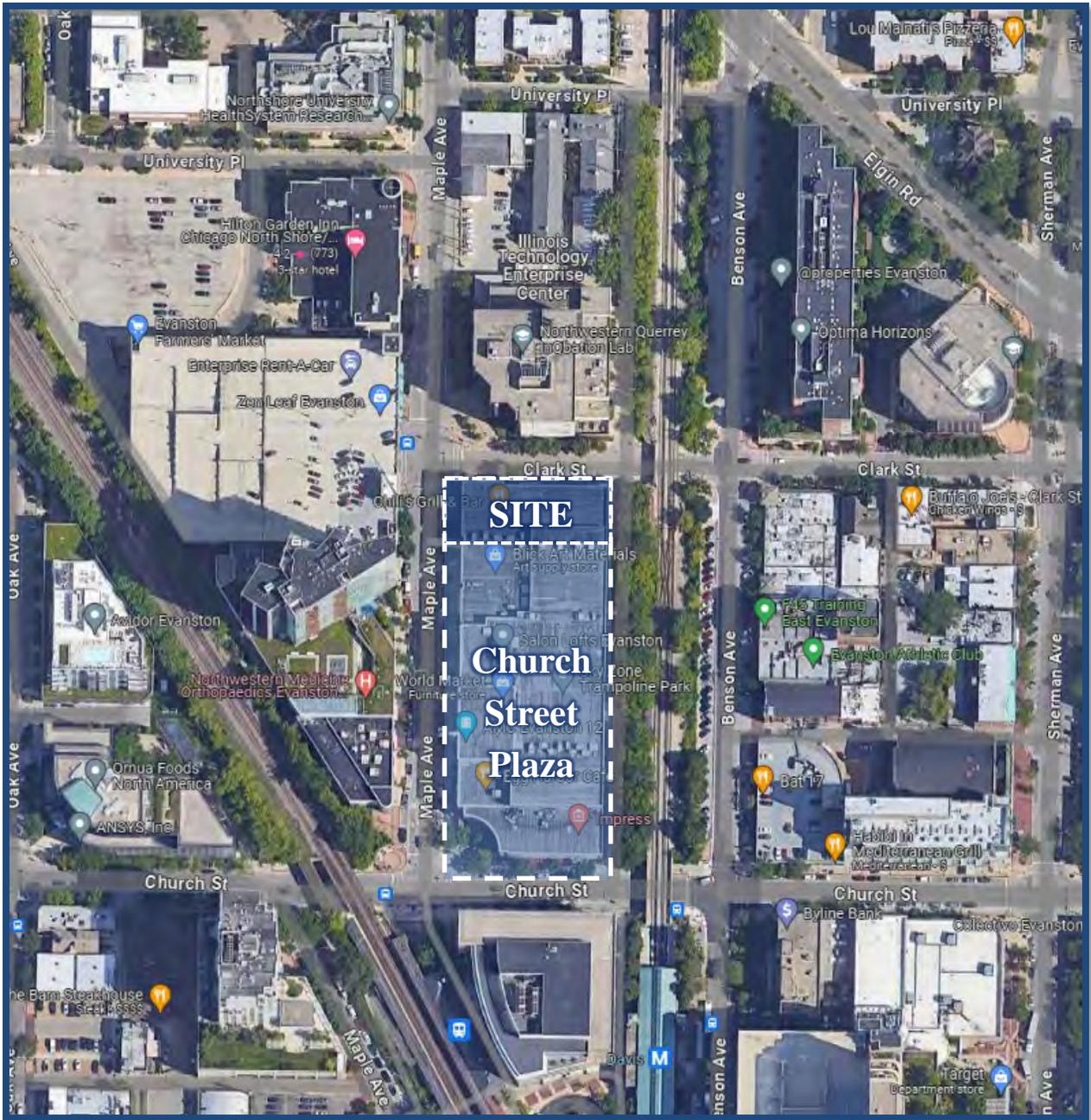
The purpose of this study was to examine background traffic conditions, assess the impact that the proposed development will have on traffic conditions in the area, and determine if any roadway or access improvements are necessary to accommodate traffic generated by the proposed development. The sections of this report present the following:

- Existing transportation conditions
- A description of the proposed development
- Directional distribution of the development traffic
- Vehicle trip generation for the development
- Future traffic conditions including access to the development
- Traffic analyses for the weekday morning and evening peak hours
- Recommendations with respect to adequacy of the site access and adjacent transportation system
- Evaluation of the proposed parking supply



Site Location

Figure 1



Aerial View of Site

Figure 2

Traffic capacity analyses were conducted for the weekday morning and evening peak hours for the following conditions:

1. Year 2024 Existing Conditions – Analyzes the capacity of the existing roadway system using the existing traffic volumes.
2. Year 2030 No-Build Conditions – Analyzes the capacity of the existing roadway system using the existing traffic volumes increased by a regional growth factor and including the traffic to be generated by other proposed and/or approved area developments.
3. Year 2030 Total Projected Conditions – Analyzes the capacity of the projected roadway system assuming projected traffic volumes which include the existing traffic volumes, ambient area growth not attributable to any particular development, the traffic to be generated by other proposed/approved area developments, and the traffic estimated to be generated by the proposed subject development.

2. Existing Conditions

Existing transportation conditions in the vicinity of the site were documented based on field visits conducted by KLOA, Inc. in order to obtain a data base for projecting future conditions. The following provides a description of the geographical location of the site, physical characteristics of the area roadway system including lane usage and traffic control devices, and existing peak hour traffic volumes and the public transportation and alternative modes of transportation serving the area.

Site Location

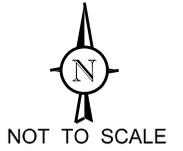
The development is to be located along the north end of the Church Street Plaza development which is located on the east side of Maple Avenue between Church Street and Clark Street. To accommodate the development, approximately 23,775 square feet of gross floor area at Church Street Plaza will be removed which is currently occupied by Chili's Grill & Bar, Dogtopia of Downtown Evanston, and a portion of the AMC movie theater. Located within Evanston's central business district, the land uses surrounding the site generally consist of commercial, office, and multi-story residential developments. The City of Evanston Maple Street parking garage is located directly west of the site.

Existing Roadway System Characteristics

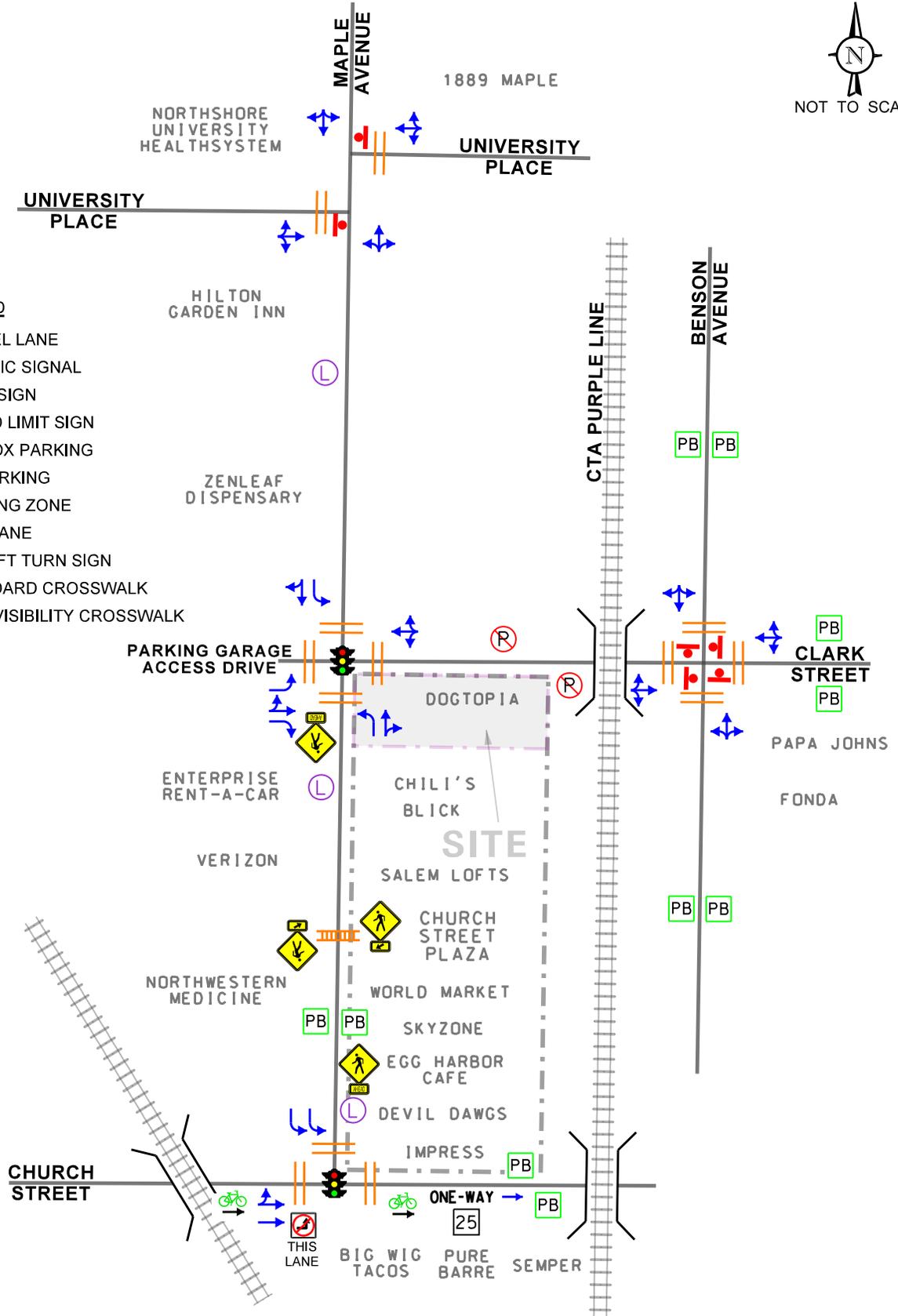
The characteristics of the existing roadways within the study area are illustrated in **Figure 3** and described below. All roadways are under the jurisdiction of the City of Evanston unless otherwise stated.

Maple Avenue is a north-south, local road that has one lane in each direction with parking and loading generally permitted on both sides of the road. At its signalized T-intersection with Church Street, Maple Avenue has dual left-turn lanes and a standard-style crosswalk on the southbound approach. At its signalized intersection with Clark Street/parking garage access drive, Maple Avenue has a separate left-turn lane and a shared through/right-turn lane as well as a standard crosswalk on both approaches. At its unsignalized, off-set intersections with University Place, Maple Avenue has single-lane approaches. In addition, a mid-block crosswalk with a high visibility, ladder style crosswalk and pedestrian warning signs is located on Maple Avenue approximately halfway between Clark Street and Church Street.

Benson Avenue is a north-south, local road that has one lane in each direction with parking and loading generally permitted on both sides of the road north of Clark Street and prohibited on both sides of the road south of Clark Street. At its all-way stop sign controlled intersection with Clark Street, Benson Avenue has single-lane approaches with standard style crosswalks on both legs of the intersection.



- LEGEND**
- TRAVEL LANE
 - TRAFFIC SIGNAL
 - STOP SIGN
 - SPEED LIMIT SIGN
 - PAYBOX PARKING
 - NO PARKING
 - LOADING ZONE
 - BIKE LANE
 - NO LEFT TURN SIGN
 - STANDARD CROSSWALK
 - HIGH VISIBILITY CROSSWALK



Church Street Plaza
Residential Development
Evanston, Illinois

Existing Roadway Characteristics



Job No: 24-174

Figure: 3

Church Street is generally a one-way eastbound road that has two eastbound vehicle lanes, a barrier-protected eastbound bike lane on the north side of the road, and parking and loading generally permitted on both sides of the road. At its signalized intersection with Maple Avenue, Church Street has a through lane and a shared through/right-turn lane on the eastbound approach. Both the east and west legs of the intersection provide standard style crosswalks. Church Street is classified as a major collector road and carries an average annual daily traffic (AADT) volume of 7,600 vehicles (Illinois Department of Transportation [IDOT] 2023).

Clark Street is generally an east-west, local road that has one lane in each direction with parking and loading generally permitted on both sides of the road. At its signalized intersection with Maple Avenue, Clark Street is aligned opposite the Maple Street parking garage access drive and has a single-lane approach with a standard style crosswalk. The Maple Street parking garage access drive has a separate left-turn lane, a shared through/left-turn lane, and a separate right-turn lane with a standard style crosswalk. At its all-way stop sign controlled intersection with Benson Avenue, Clark Street has single-lane approaches with standard style crosswalks on both legs of the intersection.

University Place is an east-west, local road that has an off-set intersection with Maple Avenue and provides one lane in each direction with parking generally prohibited on both sides of the road. At unsignalized intersections with Maple Avenue, University Place has single-lane approaches that are under stop sign control. In addition, standard style crosswalks are provided on both legs of University Place at its intersections with Maple Avenue.

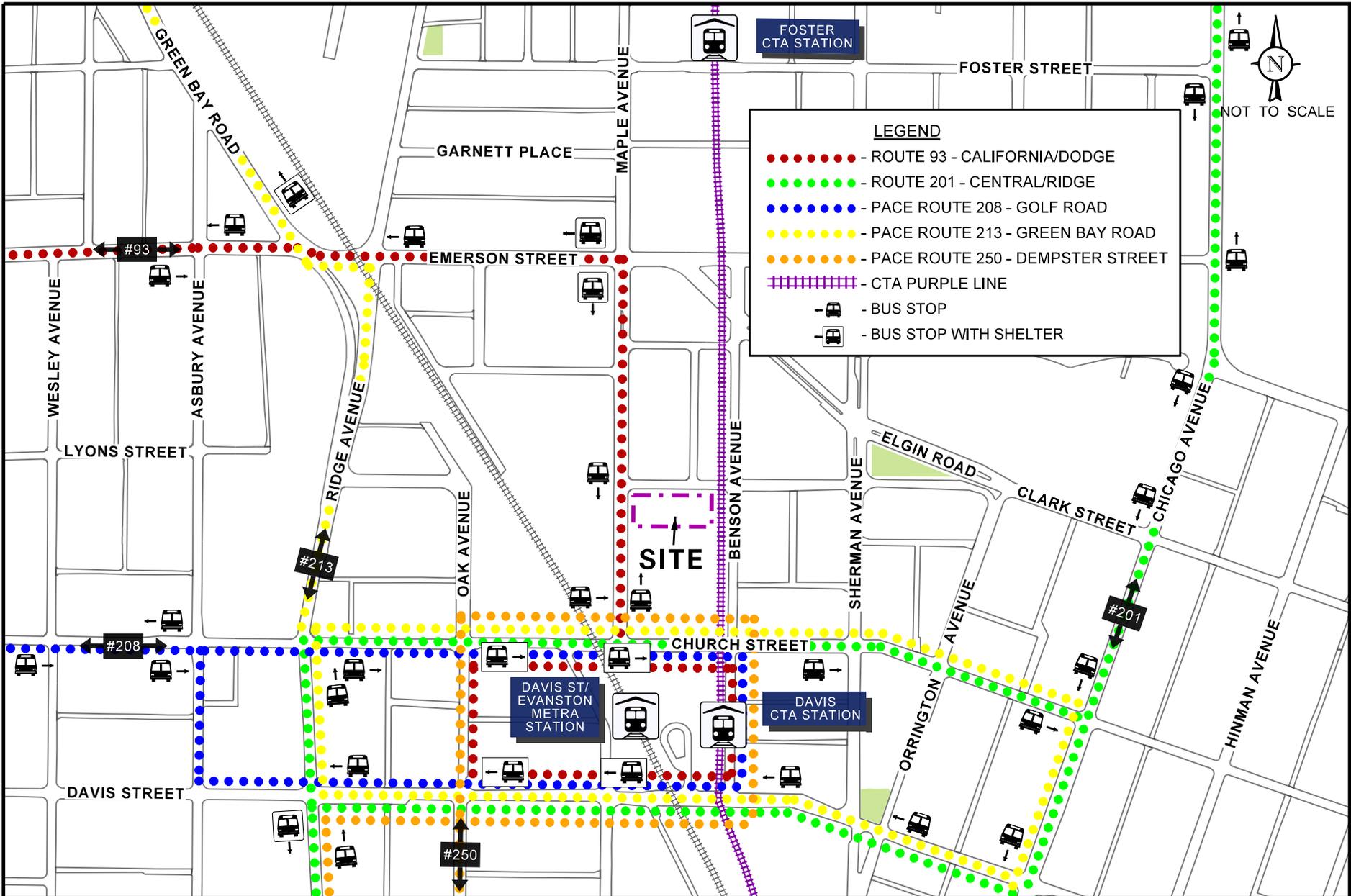
Alternative Modes of Transportation

Accessibility to and from the Evanston central business district is enhanced by the alternative modes of transportation serving the area as summarized below.

Public Transportation. The area is served by several modes of public transportation including Metra commuter rail, CTA rapid transit service, and several bus lines.

The following summarizes the rail lines providing service to the area:

- The *Metra Union Pacific/North Line (UP-N)* has a local stop at Benson Avenue just north of Davis Street, which is located approximately 0.1 miles or a three-minute walk north of the site. This line provides daily service between Ogilvie Transportation Center in Chicago and Kenosha, Wisconsin.
- The *CTA Purple Transit Line* has a local stop at Benson Avenue, which is located approximately 0.2 miles or a four-minute walk north of the site. This line provides daily service between the Linden station in Wilmette and the Howard station on the border of Chicago and Evanston. In addition, weekday peak period express service is provided between the Howard station and downtown Chicago.



LEGEND

- - ROUTE 93 - CALIFORNIA/DODGE
- - ROUTE 201 - CENTRAL/RIDGE
- - PACE ROUTE 208 - GOLF ROAD
- - PACE ROUTE 213 - GREEN BAY ROAD
- - PACE ROUTE 250 - DEMPSTER STREET
- — — — — CTA PURPLE LINE
- 🚌 - BUS STOP
- 🚌 - BUS STOP WITH SHELTER



Church Street Plaza
Residential Development
Evanston, Illinois

Public Transportation

KLOA
Kenig, Lindgren, O'Hara, Aboona, Inc.

Job No: 24-174 Figure: 4

The following bus routes serve the immediate area with bus stops located between 0.1 to 0.3 miles or a one- to eight-minute walk from the site:

- *Route 208 (Golf)* generally runs along Golf Road between the Davis Street CTA station and Woodfield Mall. Service is provided weekdays and Saturdays.
- *Route 213 (Green Bay Road)* generally runs along Chicago Avenue and Green Bay Road between the Howard Street CTA station and downtown Highland Park with a stop at the Davis Street CTA station. Service is provided on weekdays and Saturdays.
- *Route 201 (Dempster and Dempster Pulse Line)* generally runs along Dempster Street between the Davis Street CTA station and O'Hare Airport and Old Orchard Mall. Service is provided seven days a week.

Non-Motorized Transportation Systems. Most of the roads within the immediate area have sidewalks on both sides of the road. Standard style crosswalks are generally provided on all approaches under traffic signal or stop sign control in the study area. In addition, countdown pedestrian traffic signals are provided at the intersection of Maple Avenue with Church Street and Maple Avenue with Clark Street and the parking garage access drive. In addition, a mid-block crosswalk with a high visibility, ladder style crosswalk with pedestrian warning signs is located on Maple Avenue approximately halfway between Clark Street and Church Street.

According to the City of Evanston's Area Bike Map, Maple Avenue, Church Street, and Davis Street are designated bike routes. In addition, Davis Street and Church Street provide barrier-protected bike lanes within the vicinity of the site.

Divvy Bike Share System. One Divvy bike share station is located within 0.2 miles of the site at the Benson Avenue and Church Street intersection and contains 12 bike docks.

Car-Sharing Transportation Availability. Multiple car-sharing services serve the area.

Existing Traffic Volumes

In order to determine current vehicle, pedestrian, and bicycle conditions within the study area, KLOA, Inc. performed peak period transportation counts at the following intersections:

- Maple Avenue with Church Street
- Maple Avenue with the midblock pedestrian crossing
- Maple Avenue with Clark Street and the Maple Street parking garage access drive
- Maple Avenue with University Place
- Benson Avenue with Clark Street

All the traffic counts were conducted during the weekday morning (7:00 A.M. to 9:00 A.M.) and evening (4:00 P.M. to 6:00 P.M.) peak periods on Thursday, July 11, 2024. The results of the traffic counts showed that the weekday morning peak hour of traffic occurs from 8:00 A.M. to 9:00 A.M. and the weekday evening peak hour of traffic occurs from 4:45 P.M. to 5:45 P.M. **Figure 5** illustrates the Year 2024 existing peak hour traffic volumes and **Figure 6** illustrates the existing pedestrian and bicycle peak hour volumes. Copies of the traffic count summary sheets are included in the Appendix.

Crash Analysis

KLOA, Inc. obtained crash data¹ from IDOT for the most recent available five years (2019 to 2023) for the four intersections within the study area. The crash data at the Maple Avenue with Church Street intersection is summarized in **Table 1**. The following summarizes the number of crashes at the other intersections:

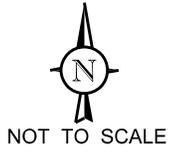
- Only one crash occurred in the five-year period at the Maple Avenue/Clark Street/parking garage access drive intersection.
- Only one crash occurred in the five-year period at the Maple Avenue/University Place intersections.
- Only two crashes occurred in the five-year period at the Clark Street/Benson Avenue intersection.

Further, it should be noted that no fatalities were reported at these intersections during the five-year period.

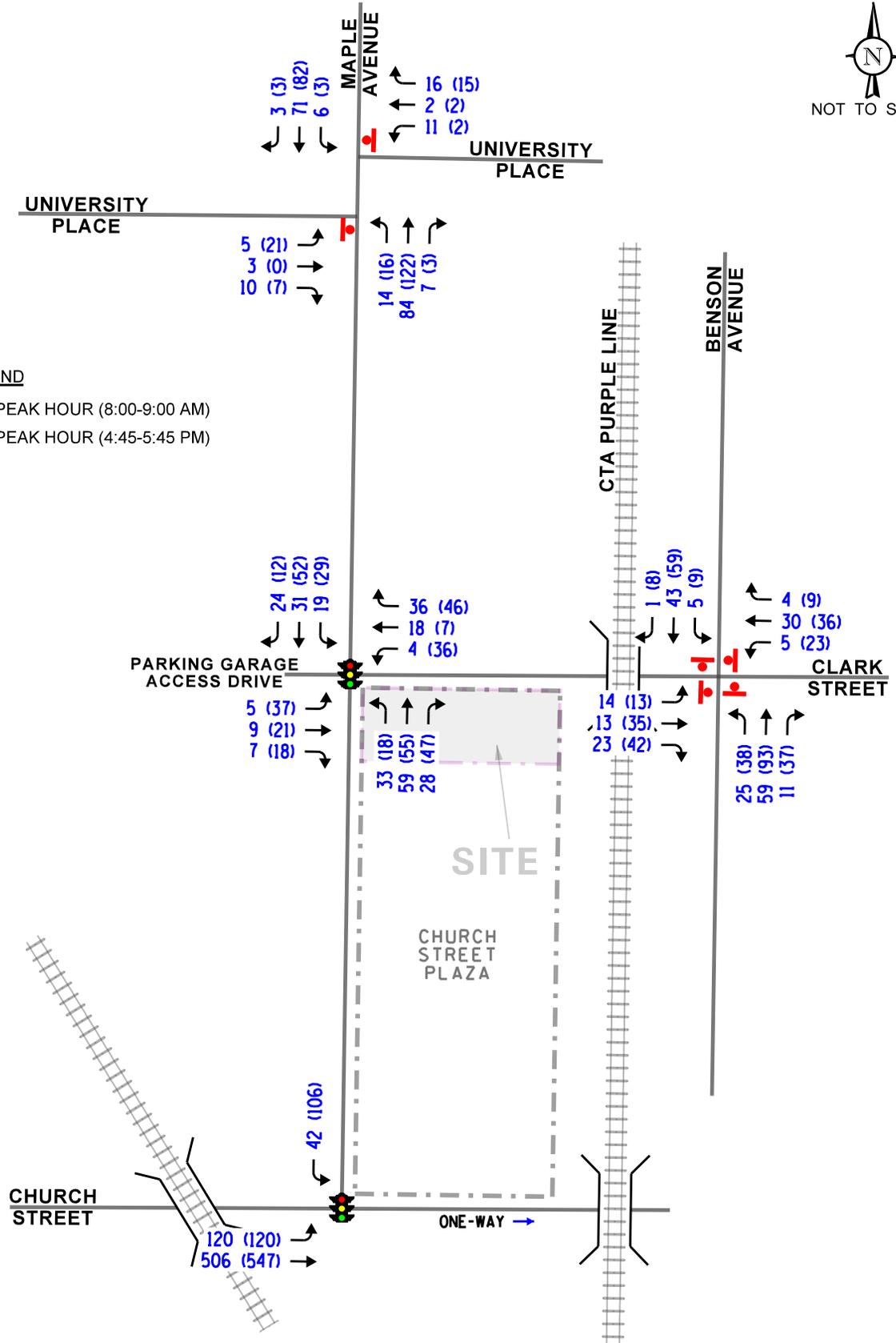
Table 1
MAPLE AVENUE WITH CHURCH STREET – CRASH SUMMARY

Year	Type of Crash Frequency							Total
	Angle	Head On	Object	Rear End	Sideswipe	Turning	Other	
2019	0	0	0	0	2	3	1	6
2020	0	0	1	0	0	1	0	2
2021	0	0	0	0	0	3	1	4
2022	0	0	1	0	1	0	0	2
2023	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>
Total	0	0	3	0	3	7	2	15
Average	0	0	<1.0	0	<1.0	1.4	<1.0	3.0

¹ IDOT DISCLAIMER: The motor vehicle crash data referenced herein was provided by the Illinois Department of Transportation. Any conclusions drawn from analysis of the aforementioned data are the sole responsibility of the data recipient(s).



- LEGEND**
- 00 - AM PEAK HOUR (8:00-9:00 AM)
 - (00) - PM PEAK HOUR (4:45-5:45 PM)



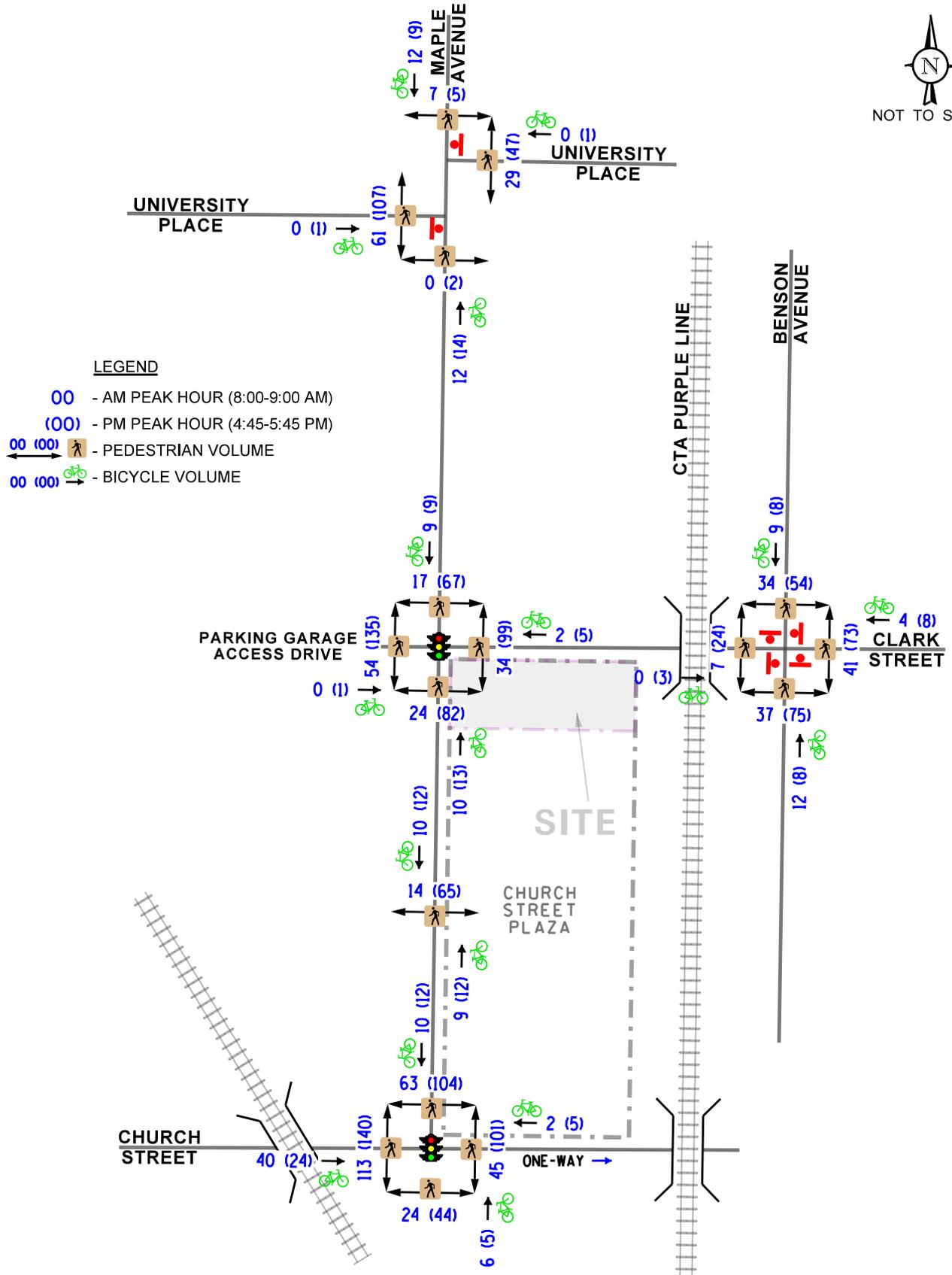
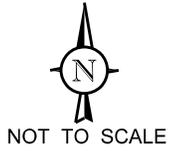
Church Street Plaza
Residential Development
Evanston, Illinois

Existing Traffic Volumes



Job No: 24-174

Figure: 5



Church Street Plaza
Residential Development
Evanston, Illinois

Existing Pedestrian and Bicycle
Traffic Volumes



Job No: 24-174

Figure: 6

3. Traffic Characteristics of the Proposed Development

In order to properly evaluate future traffic conditions in the surrounding area, it was necessary to determine the traffic characteristics of the proposed development, including the directional distribution and volumes of traffic that it will generate.

Proposed Site Plan

The proposed TOD will be a mixed-use development containing approximately 358 apartment units 168 studios, 148 one-bedroom units, 35 two-bedroom units, six three-bedroom units, and one four-bedroom unit and approximately 3,400 square feet of commercial space. To accommodate the development, approximately 23,775 square feet of gross floor area at Church Street Plaza will be removed which is currently occupied by Chili's Grill & Bar, Dogtopia of Downtown Evanston, and a portion of the AMC movie theater. In addition, the development will provide indoor parking for 179 bicycles.

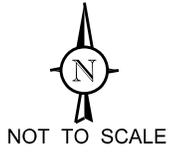
Parking for the development will be provided via the Maple Street parking garage located directly west of the site. Primary access to the parking garage is provided via an access drive located on the west side of Maple Avenue aligned opposite Clark Street. The access drive has one inbound lane and three outbound lanes striped for a separate left-turn lane, a shared through/left-turn lane, and a separate right-turn lane. The intersection of Maple Avenue with Clark Street and the parking garage access drive is under traffic signal control. Secondary access to the parking garage is provided via an access road that extends from the south side of University Place to the entrance of the parking garage. The access road provides one lane in each direction with the northbound lane under stop sign control at its intersection with University Place.

In addition, the parking along the south side of Clark Street along the frontage of the development is proposed to be eliminated to extend the sidewalk and to provide a dedicated loading zone for three passenger vehicles. The loading zone will be used for short term drop-off/pick-up of residents, guests, and commercial patrons via private vehicles, taxis, and ride share companies as well as for food deliveries. Loading for all truck deliveries will occur in the loading dock.

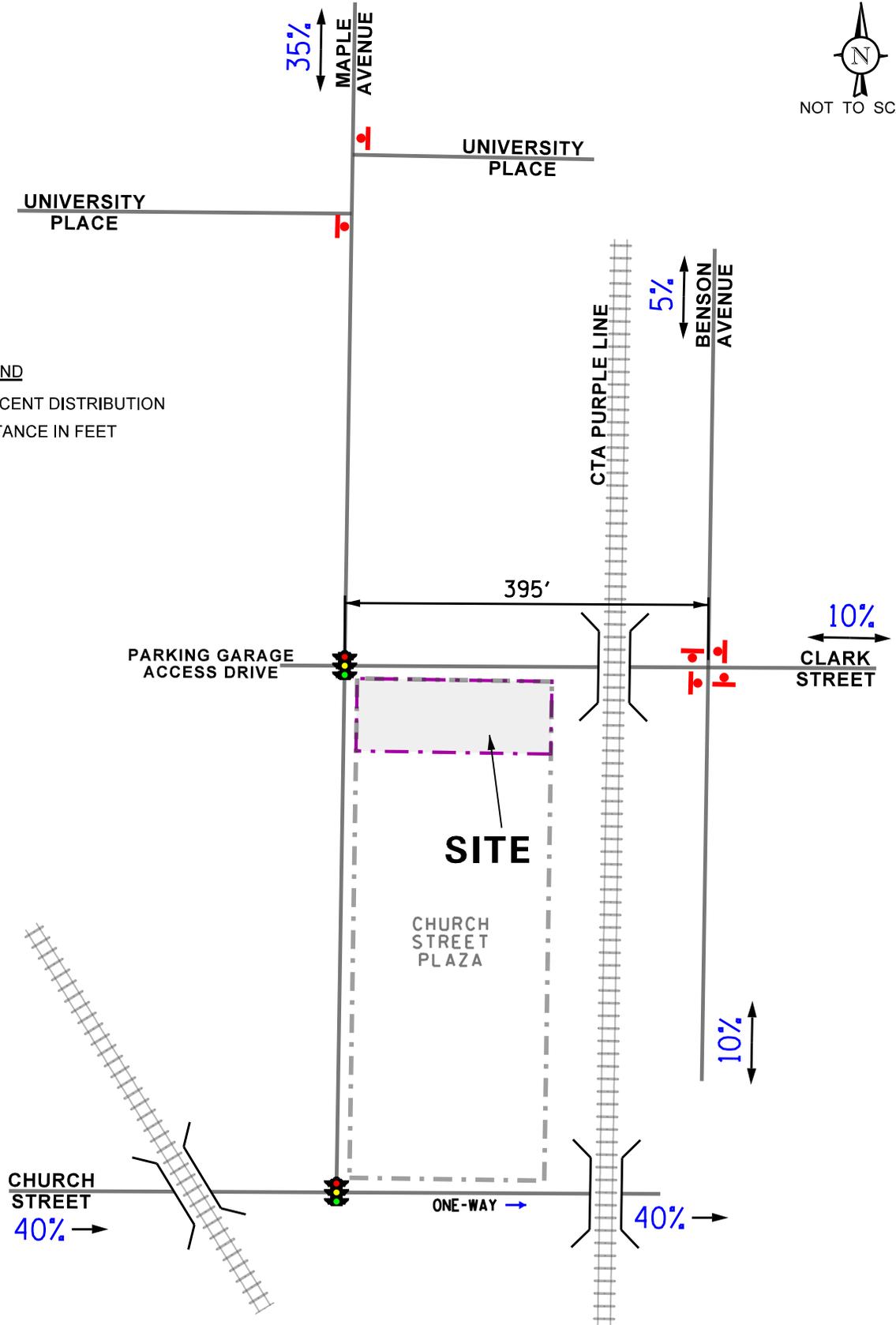
Access to the loading dock to be located on the east side of the building will be provided via the existing north-south alley that extends between Church Street Plaza and the CTA tracks. All deliveries will be accommodated via the loading dock which is designed for single-unit trucks.

Directional Distribution

The directions from which development-generated traffic will approach and depart the development were estimated based on existing travel patterns, as determined from the traffic counts. **Figure 7** illustrates the directional distribution of the development-generated traffic.



LEGEND
 00% - PERCENT DISTRIBUTION
 00' - DISTANCE IN FEET



Church Street Plaza
 Residential Development
 Evanston, Illinois

Directional Distribution



Job No: 24-174

Figure: 7

Development Traffic Generation

The number of peak hour vehicle trips estimated to be generated by the proposed development was based on vehicle trip generation rates contained in the *Trip Generation Manual*, 11th Edition, published by the Institute of Transportation Engineers (ITE). It should be noted that the ITE trip rates are based on suburban rates where the primary mode of transportation is the automobile. Given the location of the proposed site within the central business district and its proximity to alternative modes of transportation, the number of additional vehicle trips generated by the development will be reduced. A review of the U.S. Census data in the area showed that only approximately 50 percent of residents in the area drive a car to work. In addition, it was assumed that five percent of the trips will be made via taxi or ride share. **Table 2** summarizes the estimated gross trips and the projected vehicle trips anticipated with the development during the weekday morning and weekday evening peak hours. Copies of the ITE trip generation sheets are included in the Appendix.

Table 2
DEVELOPMENT-GENERATED TRAFFIC VOLUMES

Land Use/Size	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
	In	Out	Total	In	Out	Total
Gross Trips						
Apartments – 358 units (LUC 220)	34	109	143	115	64	183
Retail – 3,400 s.f. (LUC 822)	8	6	14	18	18	36
Total Gross Trips	42	115	157	133	82	215
Vehicle Trips						
Vehicle Trips (50 Percent)	21	58	79	67	41	108
Ride-share, taxi, etc. (5 Percent)	7	7	14	9	9	18
Total Vehicle Trips	28	65	93	76	50	118

As discussed previously, to accommodate the development, approximately 23,775 square feet of gross floor area at Church Street Plaza will be removed which is currently occupied by Chili's Grill & Bar, Dogtopia of Downtown Evanston, and a portion of the AMC movie theater. As such, the traffic to be generated by the proposed development will not be all new traffic to the area roadway system as it will be replacing existing uses that currently generate traffic.

4. Projected Traffic Conditions

The total projected traffic volumes include the existing traffic volumes, increase in background traffic due to ambient growth, and the traffic estimated to be generated by the proposed subject development.

Development Traffic Assignment

The estimated weekday morning and evening peak hour traffic volumes that will be generated by the proposed development were assigned to the road system in accordance with the previously described directional distribution (Figure 7) and are illustrated in **Figure 8**.

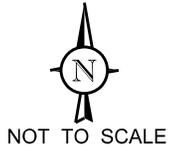
Background (No-Build) Traffic Conditions

The Year 2024 existing traffic volumes (Figure 5) were increased by a regional growth factor to account for the increase in existing traffic related to regional growth in the area (i.e., not attributable to any particular planned development). Based on employment and population projections provided by the Chicago Metropolitan Agency for Planning (CMAP) in a letter dated July 11, 2024 the existing traffic volumes in the study area were increased by a compounded growth rate of 0.70 percent per year for six years for a total of approximately 4.3 percent. A copy of the CMAP letter is included in the Appendix. Further, since the existing traffic counts were performed in the summer when enrollment at Northwestern University is lower, all the existing traffic volumes were increased by an additional 15 percent for a total increase in traffic of 19.3 percent.

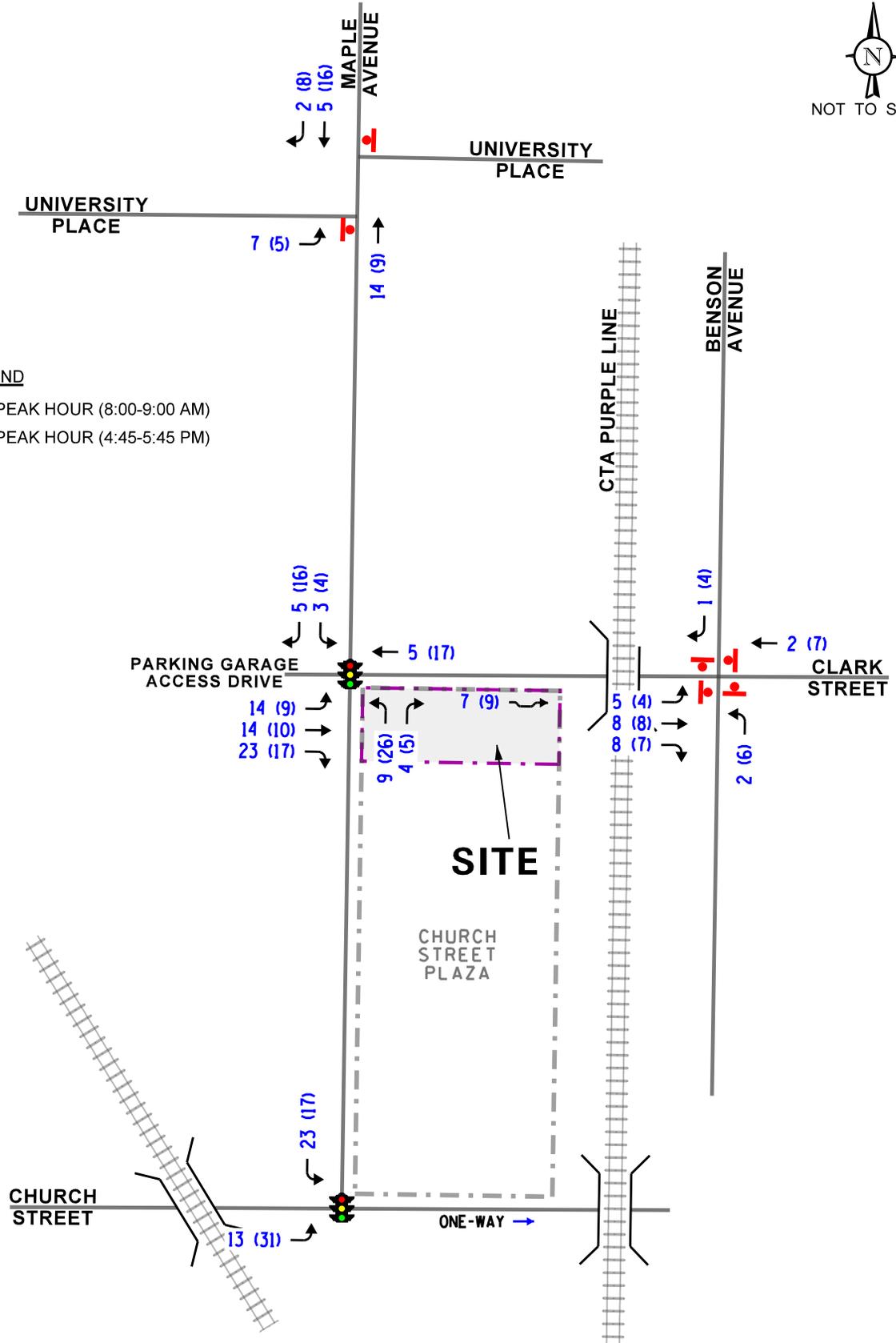
In addition, the traffic study included the buildout of the following proposed and/or approved area developments:

- An office development approved to be located at 605 Davis Street that is to contain approximately 200,000 square feet of office space.
- An office development approved to be located at 710 Clark Street that is to contain approximately 123,00 square feet of office/laboratory space and 5,200 square feet of ground floor retail space.
- The Emerson development approved to be located at 1900 Sherman Avenue that is to contain approximately 168 age-restricted units.
- A residential development proposed to be located at 1012-1034 Chicago Avenue that is to contain 116 units and approximately 5,000 square feet of ground floor retail space.
- The redevelopment of the Varsity Theater located at 1706 Sherman Avenue that is to contain 35 units and approximately 10,000 square feet of ground floor retail space.

The Year 2030 no-build traffic volumes are illustrated in **Figure 9**.



- LEGEND**
- 00** - AM PEAK HOUR (8:00-9:00 AM)
 - (00)** - PM PEAK HOUR (4:45-5:45 PM)



Church Street Plaza
Residential Development
Evanston, Illinois

Site-Generated Traffic Volumes

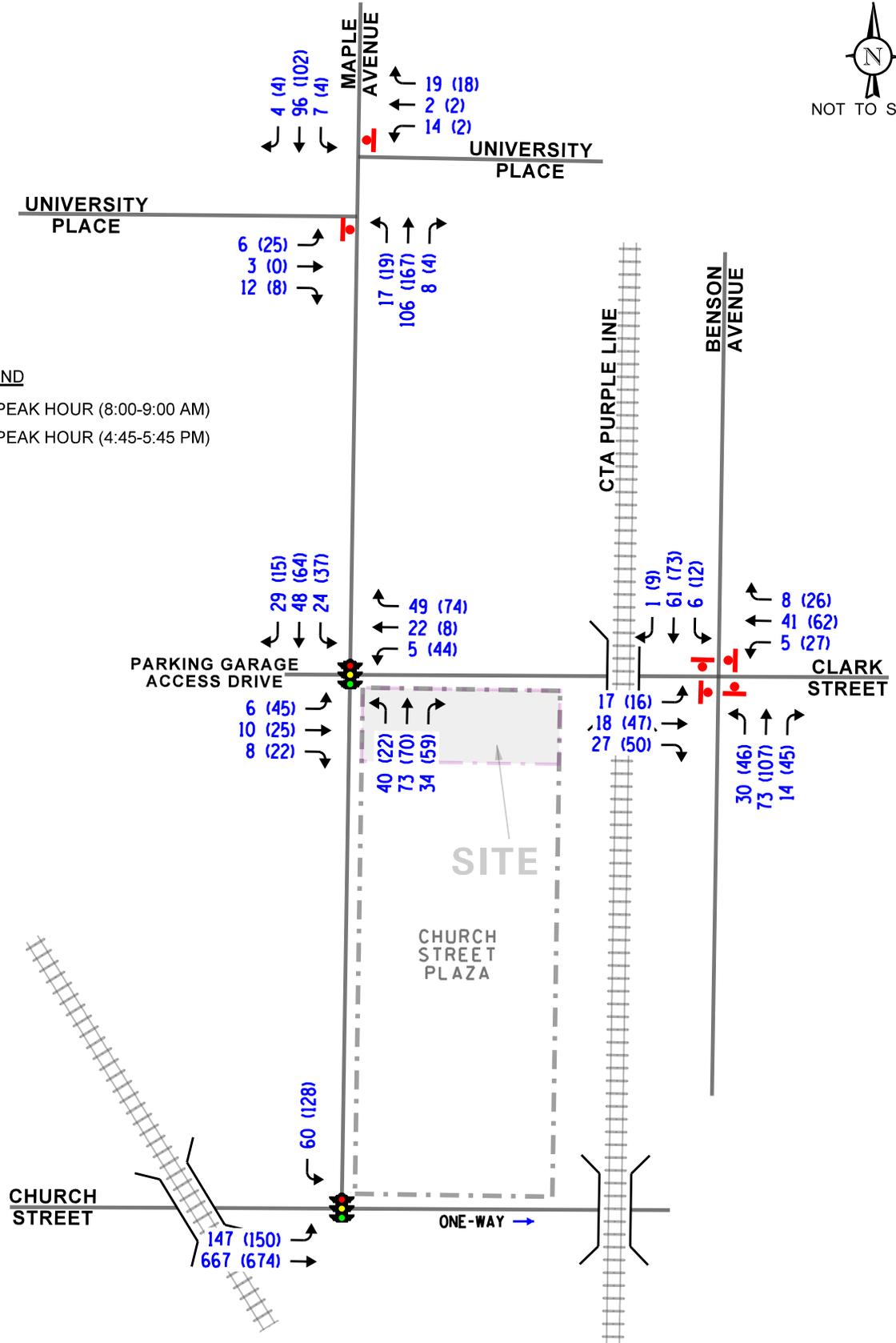


Job No: 24-174

Figure: 8



- LEGEND**
- 00** - AM PEAK HOUR (8:00-9:00 AM)
 - (00)** - PM PEAK HOUR (4:45-5:45 PM)



Church Street Plaza
Residential Development
Evanston, Illinois

Year 2030 No-Build Traffic Volumes



Job No: 24-174

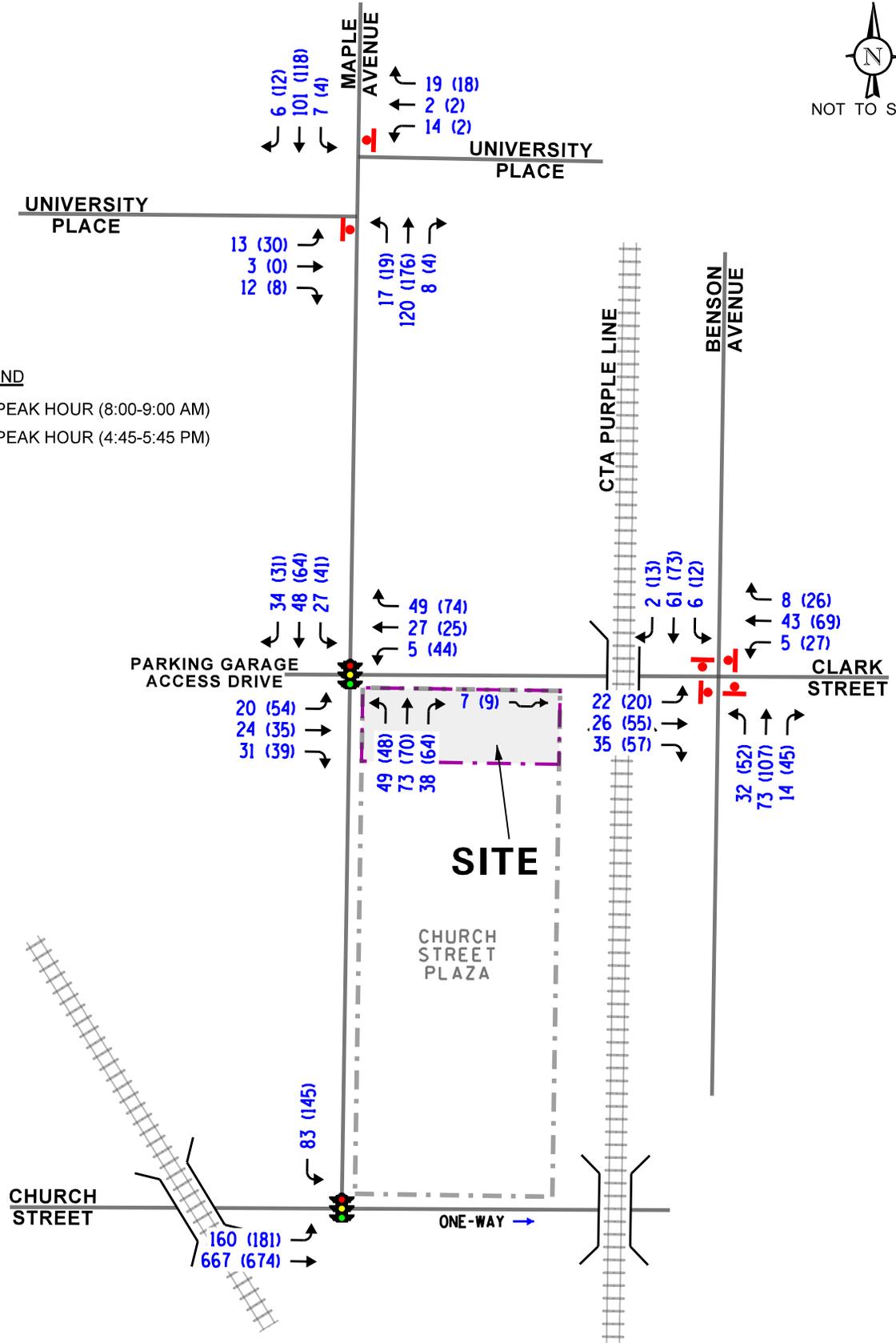
Figure: 9

Total Projected Traffic Volumes

The development-generated traffic (Figure 8) was added to the Year 2024 existing traffic volumes accounting for background growth (Figure 9) to determine the Year 2030 total projected traffic volumes, shown in **Figure 10**.



- LEGEND**
- 00** - AM PEAK HOUR (8:00-9:00 AM)
 - (00)** - PM PEAK HOUR (4:45-5:45 PM)



Church Street Plaza
Residential Development
Evanston, Illinois

Year 2030 Total Traffic Volumes



Job No: 24-174 Figure: 10

5. Traffic Analysis and Recommendations

The following provides an evaluation conducted for the weekday morning and weekday evening peak hours. The analysis includes conducting capacity analyses to determine how well the roadway system and access drives are projected to operate and whether any roadway improvements or modifications are required.

Traffic Analyses

Roadway and adjacent or nearby intersection analyses were performed for the weekday morning and weekday evening peak hours for the Year 2024 existing, Year 2030 no-build, and Year 2030 total traffic volumes.

The traffic analyses were performed using the methodologies outlined in the Transportation Research Board's *Highway Capacity Manual (HCM)*, 6th Edition and analyzed using Synchro/SimTraffic computer software. The analyses for signalized intersections were done using field measured cycle lengths and phasings.

The analyses for the unsignalized intersections determine the average control delay to vehicles at an intersection. Control delay is the elapsed time from a vehicle joining the queue at a stop sign (includes the time required to decelerate to a stop) until its departure from the stop sign and resumption of free flow speed. The methodology analyzes each intersection approach controlled by a stop sign and considers traffic volumes on all approaches and lane characteristics.

The ability of an intersection to accommodate traffic flow is expressed in terms of level of service, which is assigned a letter from A to F based on the average control delay experienced by vehicles passing through the intersection. The *Highway Capacity Manual* definitions for levels of service and the corresponding control delay for signalized intersections and unsignalized intersections are included in the Appendix of this report.

Summaries of the traffic analysis results showing the level of service and overall intersection delay (measured in seconds) for the Year 2024 existing, Year 2030 no-build, and Year 2030 total projected conditions for the study area intersections are presented in **Tables 3** through **6**. A discussion of the intersections follows. Summary sheets for the capacity analyses are included in the Appendix.

Table 3

MAPLE AVENUE WITH CLARK STREET/GARAGE ACCESS DRIVE – SIGNALIZED

	Peak Hour	Eastbound			Westbound	Northbound		Southbound		Overall
		L	T	R	L/T/R	L	T/R	L	T/R	
Year 2024 Existing Conditions	Weekday Morning	C 30.2	C 30.1	A 0.3	C 21.3	A 0.8	A 0.7	A 6.4	A 4.4	A 7.8
		C – 20.6				A – 0.7		A – 4.9		
Year 2024 Existing Conditions	Weekday Evening	C 32.7	C 28.8	A 0.7	C 26.0	A 1.3	A 1.7	A 5.8	A 4.8	B 12.7
		C – 24.0				A – 1.6		A – 5.1		
Year 2030 No-Build Conditions	Weekday Morning	C 29.3	C 29.5	A 0.3	C 20.9	A 0.9	A 0.7	A 6.8	A 4.8	A 7.8
		C – 20.1				A – 0.7		A – 5.3		
Year 2030 No-Build Conditions	Weekday Evening	C 34.7	C 27.6	A 0.7	C 24.8	A 1.6	A 2.0	A 7.6	A 6.3	B 13.4
		C – 24.8				A – 2.0		A – 6.8		
Year 2030 Projected Conditions	Weekday Morning	C 31.4	C 30.8	A 1.3	C 21.5	A 1.0	A 0.8	A 7.0	A 4.7	A 9.1
		C – 18.9				A – 0.8		A – 5.3		
Year 2030 Projected Conditions	Weekday Evening	D 35.7	C 27.3	A 1.6	C 27.2	A 2.1	A 2.5	A 9.1	A 6.7	B 14.1
		C – 23.0				A – 2.4		A – 7.5		

Letter denotes Level of Service L – Left Turn R – Right Turn
 Delay is measured in seconds. T – Through

Table 4

MAPLE AVENUE WITH CHURCH STREET– SIGNALIZED

	Peak Hour	Eastbound	Southbound	Overall
		L/T	L	
Year 2024 Existing Conditions	Weekday Morning	C 26.1	A 8.8	C 25.0
	Weekday Evening	C 24.8	A 9.7	C 22.7
Year 2030 No-Build Conditions	Weekday Morning	C 22.3	B 11.2	C 21.6
	Weekday Evening	C 21.8	B 12.2	C 20.5
Year 2030 Projected Conditions	Weekday Morning	C 22.0	B 12.0	C 21.1
	Weekday Evening	C 21.3	B 13.1	C 20.1
Letter denotes Level of Service Delay is measured in seconds.		L – Left Turn T – Through	R – Right Turn	

Table 5

BENSON AVENUE WITH CLARK STREET – ALL-WAY STOP CONTROL

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
Year 2024 Existing Conditions				
• Overall	A	7.7	A	8.2
• Eastbound Approach	A	7.4	A	7.9
• Westbound Approach	A	7.6	A	8.1
• Northbound Approach	A	7.8	A	8.6
• Southbound Approach	A	7.9	A	8.0
Year 2030 No-Build Conditions				
• Overall	A	8.0	A	8.8
• Eastbound Approach	A	7.7	A	8.4
• Westbound Approach	A	7.8	A	8.6
• Northbound Approach	A	8.2	A	9.3
• Southbound Approach	A	8.2	A	8.5
Year 2030 Projected Conditions				
• Overall	A	8.1	A	9.0
• Eastbound Approach	A	7.9	A	8.7
• Westbound Approach	A	7.9	A	8.8
• Northbound Approach	A	8.3	A	9.5
• Southbound Approach	A	8.3	A	8.6
LOS = Level of Service Delay is measured in seconds.				

Table 6

MAPLE AVENUE WITH UNIVERSITY PLACE – TWO-WAY STOP CONTROL

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
Year 2024 Existing Conditions				
• Eastbound Approach	B	10.3	B	12.4
• Westbound Approach	B	10.1	B	10.3
• Northbound Left	A	7.8	A	8.0
• Southbound Left	A	7.7	A	7.7
Year 2030 No-Build Conditions				
• Eastbound Approach	B	10.8	B	13.9
• Westbound Approach	B	10.6	B	10.8
• Northbound Left	A	7.9	A	8.1
• Southbound Left	A	7.8	A	7.9
Year 2030 Projected Conditions				
• Eastbound Approach	B	11.4	B	14.7
• Westbound Approach	B	10.8	B	10.9
• Northbound Left	A	7.9	A	8.2
• Southbound Left	A	7.9	A	7.9
LOS = Level of Service Delay is measured in seconds.				

Discussion and Recommendations

The following summarizes how the intersections are projected to operate and identifies any roadway and traffic control improvements necessary to accommodate the development traffic.

Maple Avenue with Church Street

The results of the capacity analysis indicate that this signalized intersection currently operates at an overall Level of Service (LOS) C during the weekday morning and evening peak hours. Both approaches currently operate at LOS C or better during both peak hours. Under Year 2030 no-build and total conditions, the overall intersection is projected to continue to operate at LOS C during the weekday morning and evening peak hours. Further, both approaches are projected to continue to operate at LOS C or better during both peak hours. As such, this intersection has sufficient reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no roadway improvements or traffic control modifications will be required.

Maple Avenue with Clark Street and Parking Garage Access Drive

The results of the capacity analysis indicate that this signalized intersection currently operates at an overall LOS A during the weekday morning peak hour and LOS B during the weekday evening peak hour. All the approaches and movements currently operate at LOS C or better during both peak hours. Under Year 2030 no-build conditions, the overall intersection is projected to continue to operate at LOS A during the weekday morning peak hour and LOS B during the weekday evening peak hour. Further, all the approaches and movements are projected to continue to operate at LOS C or better during both peak hours. Under Year 2030 projected conditions, the overall intersection is projected to continue to operate at LOS A during the weekday morning peak hour and LOS B during the weekday evening peak hour. Further, all the approaches and movements are projected to continue to operate at LOS C or better during both peak hours, except the eastbound left-turn movement. During the weekday evening peak hour, the left-turn movement is projected to operate on the threshold of LOS C/D. As such, this intersection has sufficient reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no roadway improvements or traffic control modifications will be required.

Clark Street with Benson Avenue

The results of the capacity analysis indicate that this all-way stop sign controlled intersection overall and all four approaches currently operate at LOS A during the weekday morning and evening peak hours. Under Year 2030 no-build and total conditions, the overall intersection and all four approaches are projected to continue to operate at LOS A during the weekday morning and evening peak hours. As such, this intersection has sufficient reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no roadway improvements or traffic control modifications will be required.

Maple Avenue with University Place

The results of the capacity analysis indicate that the critical approaches and movements at this unsignalized intersection currently operate at LOS B or better during the weekday morning and evening peak hours. Under Year 2030 no-build and total conditions, the critical approaches and movements at this intersection are projected to continue to operate at LOS B or better during the weekday morning and evening peak hours. As such, this intersection has sufficient reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no roadway improvements or traffic control modifications will be required.

Operation of Clark Street Loading Zone

As proposed, the parking along the south side of Clark Street along the frontage of the development is to be eliminated to extend the sidewalk and to provide a dedicated loading zone for three passenger vehicles. The loading zone will be used for short term drop-off/pick-up of residents, guests, and commercial patrons via private vehicles, taxis, and ride share companies as well as for food deliveries. Loading for all truck deliveries and/or longer-term deliveries will occur in the loading dock. It is important to note the residential portion of the development will have a doorman that will manage the loading zone. In addition, all food deliveries will be dropped off with the doorman, reducing the time that the food delivery vehicles will be in the loading zone. As such, the loading zone should be sufficient to accommodate the peak development demand and is similar to what is provided at other residential developments.

Transportation Sustainability Conclusions and Recommendations

The following summarizes measures to be implemented by the development and/or recommendations to further minimize the impact of the development, foster alternative modes of transportation other than the automobile, and to enhance pedestrian/bicycle safety:

- The development will provide covered parking for approximately 179 bicycles.
- Parking at the Maple Street parking garage will be an additional cost and is not included in the base unit lease. Charging for parking or unbundling parking costs from unit leases is an effective method to reduce traffic to and from the development as well as reduce the demand for on-site parking.
- Consideration should be given to making transit information available to residents by providing an information kiosk in the leasing office with information on the CTA Purple line, the Metra Pacific North Line, and local bus routes.
- Consideration should be given to replacing the standard style crosswalks with high visibility, ladder style crosswalks at the following intersections:
 - On all four legs of the intersection of Maple Avenue with Clark Street and the Maple Street parking garage access drive.
 - On all four legs of the intersection of Benson Avenue with Clark Street.

Parking Analysis

The development is proposed to have a total of 358 apartment units with 168 studios, 148 one-bedroom units, 35 two-bedroom units, six three-bedroom units, and one four-bedroom unit. As proposed, parking for the development will be provided via the Maple Avenue parking garage located directly west of the site. If the development is approved, the owners of the development have committed to lease from the City of Evanston a minimum of 79 designated parking spaces within the Maple Avenue parking garage. Further, the City of Evanston has indicated that the Maple Avenue parking garage has sufficient vacancy to accommodate in excess of 125 leased parking spaces for the proposed development. As such, based on the ability to lease between 79 to 125 parking spaces, the development will have a parking ratio as follows:

- A parking ratio of 0.22 to 0.35 parking spaces per unit
- A parking ratio of 0.19 to 0.31 parking spaces per bedroom

It is important to note that the range of the parking ratios for the proposed development is comparable, particularly the ratios per bedroom, to the parking ratios for several recently approved developments in the City of Evanston. Furthermore, given the location of the development within downtown Evanston and its proximity to public transportation and alternative modes of transportation, the development is considered a Transit Oriented Development (TOD). As such, the development's parking demand will be reduced given the following:

- Numerous studies have shown that TODs have a lower parking demand than typical developments. For example, *Empty Parking Spaces: Real Parking Needs at Five TODs*, published by Smart Growth America, found that the parking demand of the five TODs were 55 to 80 percent lower than what would be estimated based on parking generation rates published by ITE. The lower parking demand of TODs is due in part to the proximity of TODs to public transportation and alternative modes of transportation. As indicated previously, the area is served by several modes of transportation, and it is anticipated that a minimum of 50 percent of the residents will commute to work via alternative modes of transportation.
- The 88 percent of the units within the development will be studio and one-bedroom units. *Stalled Out: How Empty Parking Spaces Diminish Neighborhood Affordability*, published by the Center for Neighborhood Technology (CNT), is a study that summarizes the results and findings of parking surveys performed at 41 TODs in the City of Chicago. The study showed that parking demand for buildings comprised entirely of studio and one-bedroom units was approximately one-half the parking demand of buildings comprised entirely of two- and three-bedroom units.
- Approximately 60 of the units within the development will be reserved as inclusionary units. The vehicle ownership of inclusionary units is typically lower than vehicle ownership for market rate units.

- Further reducing the car ownership at TODs is the growth of ride hailing and car sharing services over the past decade. The reliability and affordability of these services as well as rental car services has greatly reduced the need to own a vehicle, particularly considering the costs of the vehicle, gas, maintenance, and parking. Several car sharing vehicles are located within walking distance of the site. It is important to note that the costs for parking in the TOD will be extra and not included in the base rent for the unit.

6. Conclusion

Based on the preceding analyses and recommendations, the following conclusions have been made:

- The volume of new traffic to be generated by the development will be reduced due to (1) the public transportation and alternative modes of transportation serving the area and (2) the fact that the development will be replacing approximately 23,775 square feet of gross floor area at Church Street Plaza which is currently occupied by Chili's Grill & Bar, Dogtopia of Downtown Evanston, and a portion of the AMC movie theater.
- Parking for the development will be provided via the Maple Street parking garage located directly west of the site. Primary access to the parking garage is provided via an access drive located on the west side of Maple Avenue aligned opposite Clark Street. The access drive has one inbound lane and three outbound lanes striped for a separate left-turn lane, a shared through/left-turn lane, and a separate right-turn lane. The intersection of Maple Avenue with Clark Street and the parking garage access drive is under traffic signal control. Secondary access to the parking garage is provided via an access road that extends from the south side of University Place to the entrance of the parking garage. The access road provides one lane in each direction with the northbound lane under stop sign control at its intersection with University Place.
- As proposed, the parking along the south side of Clark Street along the frontage of the development is to be eliminated to extend the sidewalk and to provide a dedicated loading zone for three passenger vehicles. The loading zone will be used for short term drop-off/pick-up of residents, guests, and commercial patrons via private vehicles, taxis, and ride share companies as well as for food deliveries. Loading for all truck deliveries will occur in the loading dock. The three-space loading zone should be sufficient to accommodate the peak demand of the development and is similar to what is provided at other residential developments.
- Access to the loading dock to be located on the east side of the building will be provided via the existing north-south alley that extends between Church Street Plaza and the CTA tracks. All deliveries will be accommodated via the loading dock which is designed for single-unit trucks.
- The existing roadway system has sufficient reserve capacity to accommodate the traffic to be generated by the proposed development. All the intersections within the study area are projected to continue to operate at a good level of service assuming the additional traffic to be generated by the proposed development and the other area growth. As such, no roadway improvements and/or traffic control modifications are required.

- The following summarizes measures to be implemented by the development and/or recommendations to further minimize the impact of the development, foster alternative modes of transportation, and to enhance pedestrian/bicycle safety:
 - The development will provide covered parking for approximately 179 bicycles.
 - Parking at the Maple Street parking garage will be an additional cost and is not included in the base unit lease. Charging for parking or unbundling parking costs from unit leases is an effective method to reduce traffic to and from the development as well as reduce the demand for on-site parking.
 - Consideration should be given to making transit information available to residents by providing an information kiosk in the leasing office with information on the CTA Purple line, the Metra Pacific North Line, and local bus routes.
 - Consideration should be given to replacing the standard style crosswalks with high visibility, ladder style crosswalks at the following intersections:
 - On all four legs of the intersection of Maple Avenue with Clark Street and the Maple Street parking garage access drive.
 - On all four legs of the intersection of Benson Avenue with Clark Street.
- Parking for the development is proposed to be provided via the Maple Avenue parking garage located directly west of the site. If the development is approved, the owners of the development have committed to lease from the City of Evanston a minimum of 79 designated parking spaces within the Maple Avenue parking garage. Further, the City of Evanston has indicated that the Maple Avenue parking garage has sufficient vacancy to accommodate in excess of 125 leased parking spaces for the proposed development. The range of the parking ratios for the proposed development is comparable, particularly the ratios per bedroom, to the parking ratios for several recently approved developments in the City of Evanston.

Appendix

Traffic Count Summary Sheets

Preliminary Site Plan

Trip Generation Sheets

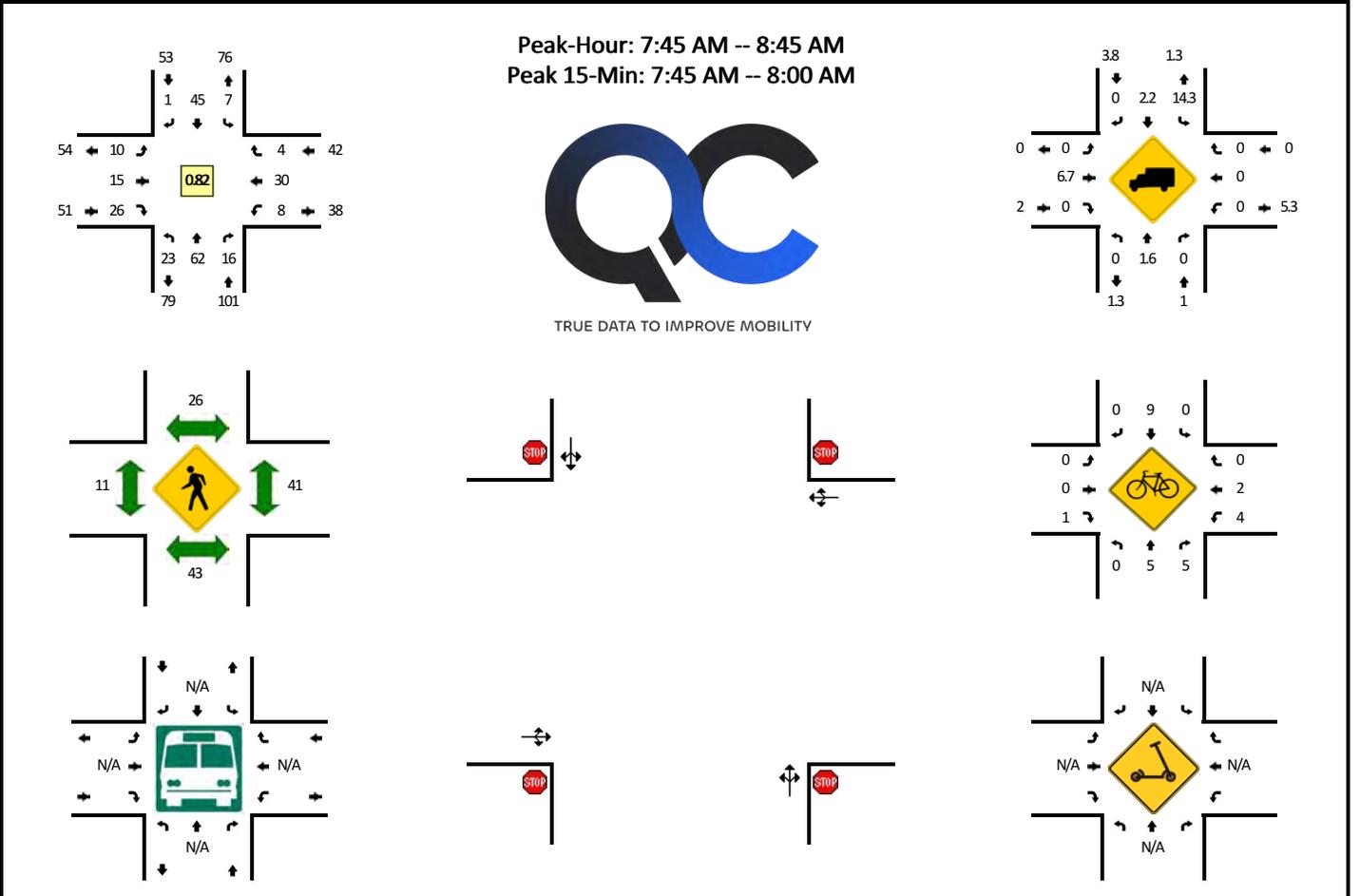
Level of Service Criteria

Capacity Analysis Summary Sheets

Traffic Count Summary Sheets

LOCATION: Benson Ave -- Clark St
CITY/STATE: Evanston, IL

QC JOB #: 16659801
DATE: Thu, Jul 11 2024

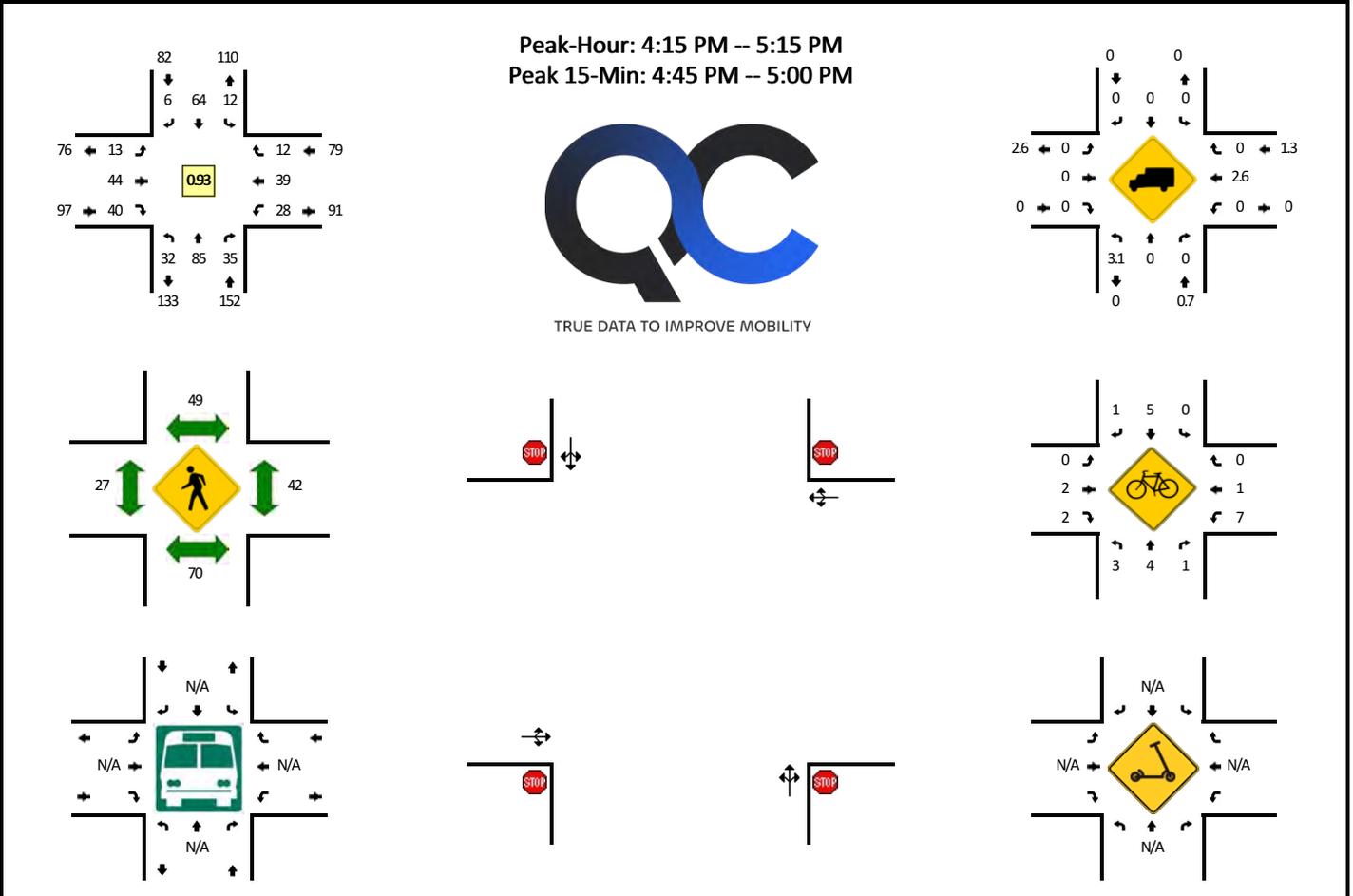


15-Min Count Period Beginning At	Benson Ave (Northbound)				Benson Ave (Southbound)				Clark St (Eastbound)				Clark St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	8	6	0	0	10	0	0	0	4	2	0	2	2	0	0	36	
7:15 AM	4	4	6	0	3	5	0	0	0	2	3	0	1	1	0	0	29	
7:30 AM	5	5	3	0	1	8	0	0	1	3	1	0	2	6	0	0	35	
7:45 AM	5	21	10	0	3	10	0	0	1	5	8	0	4	8	0	0	75	175
8:00 AM	7	15	2	0	2	8	1	0	1	3	5	0	0	9	2	0	55	194
8:15 AM	5	11	1	0	1	16	0	0	1	5	3	0	1	7	1	0	52	217
8:30 AM	6	15	3	0	1	11	0	0	7	2	10	0	3	6	1	0	65	247
8:45 AM	7	18	5	0	1	8	0	0	5	3	5	0	1	8	0	0	61	233
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	20	84	40	0	12	40	0	0	4	20	32	0	16	32	0	0	300	
Heavy Trucks	0	4	0		0	4	0		0	0	0		0	0	0		8	
Buses																		
Pedestrians		56				16				16				40			128	
Bicycles	0	4	0		0	0	0		0	0	4		4	8	0		20	
Scoters																		

Comments:

LOCATION: Benson Ave -- Clark St
CITY/STATE: Evanston, IL

QC JOB #: 16659802
DATE: Thu, Jul 11 2024

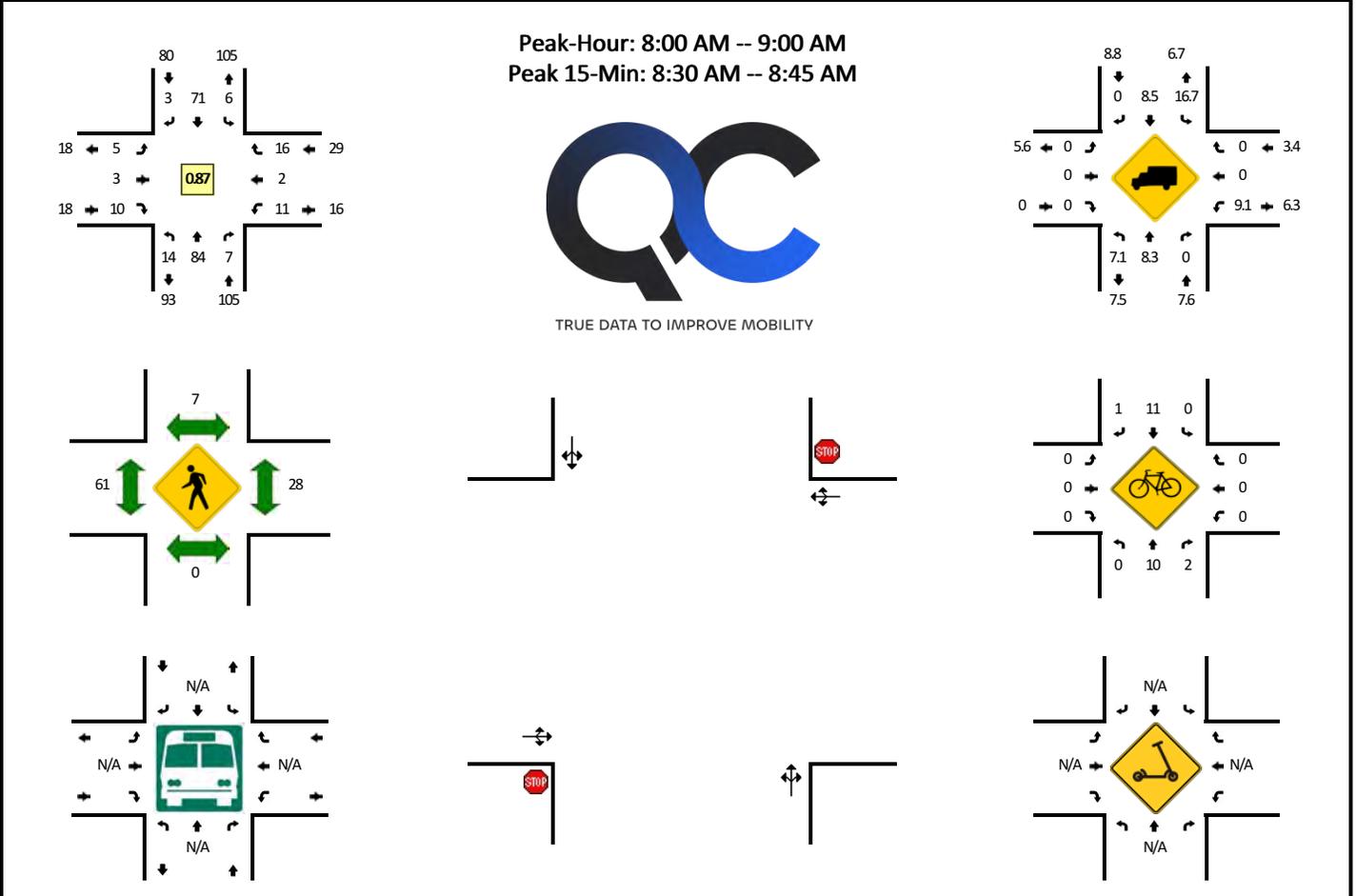


15-Min Count Period Beginning At	Benson Ave (Northbound)				Benson Ave (Southbound)				Clark St (Eastbound)				Clark St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	8	19	11	0	1	14	4	0	2	5	9	0	3	7	3	0	86	
4:15 PM	8	19	9	0	2	16	1	0	4	10	7	0	8	11	5	0	100	
4:30 PM	5	21	8	0	5	18	1	0	2	14	8	0	8	6	2	0	98	
4:45 PM	7	24	9	1	3	15	0	0	4	14	12	0	7	12	2	0	110	394
5:00 PM	11	21	9	0	2	15	4	0	3	6	13	0	5	10	3	0	102	410
5:15 PM	8	27	7	0	2	19	2	0	1	9	5	0	5	10	1	0	96	406
5:30 PM	11	21	12	0	2	10	2	0	5	4	12	0	6	4	3	0	92	400
5:45 PM	9	24	6	0	3	9	0	0	1	6	5	0	6	6	3	0	78	368
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	28	96	36	4	12	60	0	0	16	56	48	0	28	48	8	0	440	
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0	
Buses																		
Pedestrians		60				40				20				40			160	
Bicycles	0	0	0		0	0	0		0	4	0		8	0	0		12	
Scooters																		

Comments:

LOCATION: Maple Ave -- University Pl
CITY/STATE: Evanston, IL

QC JOB #: 16659803
DATE: Thu, Jul 11 2024

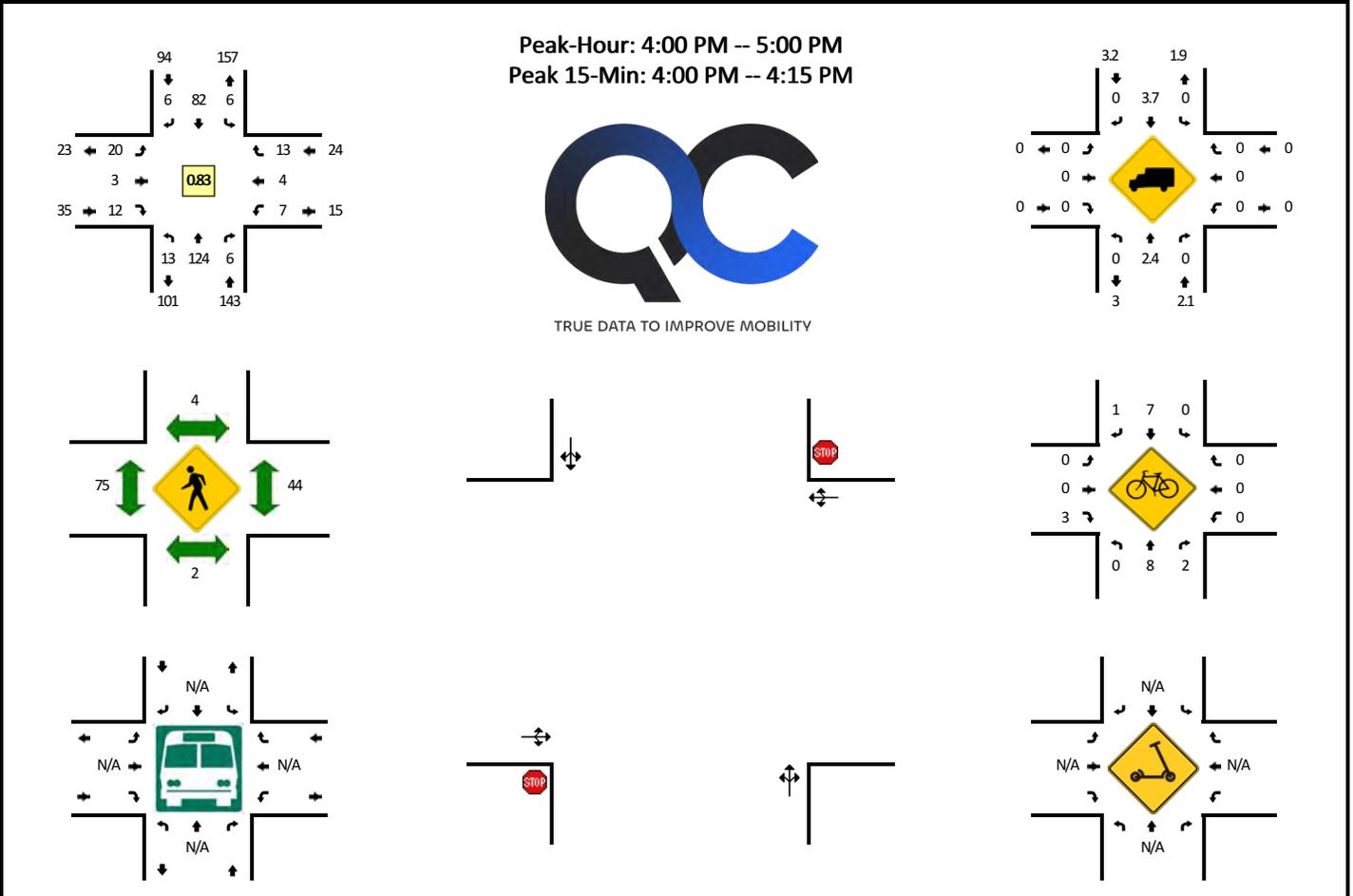


15-Min Count Period Beginning At	Maple Ave (Northbound)				Maple Ave (Southbound)				University Pl (Eastbound)				University Pl (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	7	2	0	0	4	2	0	0	2	3	0	2	2	3	0	27	
7:15 AM	0	10	2	0	2	13	0	0	2	0	2	0	1	0	5	0	37	
7:30 AM	3	9	2	0	2	11	0	0	1	0	3	0	2	2	1	0	36	
7:45 AM	2	22	2	0	1	21	1	0	2	0	1	0	2	0	5	0	59	159
8:00 AM	3	27	0	1	2	12	1	0	1	0	2	0	2	0	0	0	51	183
8:15 AM	0	25	0	0	1	17	0	0	0	0	0	0	2	0	5	0	50	196
8:30 AM	6	16	4	0	1	23	0	0	2	1	6	0	5	1	2	0	67	227
8:45 AM	4	16	3	0	2	19	2	0	2	2	2	0	2	1	9	0	64	232
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	24	64	16	0	4	92	0	0	8	4	24	0	20	4	8	0	268	
Heavy Trucks	0	4	0		4	8	0		0	0	0		0	0	0		16	
Buses																		
Pedestrians		0				24				96				28			148	
Bicycles	0	16	4		0	8	0		0	0	0		0	0	0		28	
Scooters																		

Comments:

LOCATION: Maple Ave -- University Pl
CITY/STATE: Evanston, IL

QC JOB #: 16659804
DATE: Thu, Jul 11 2024

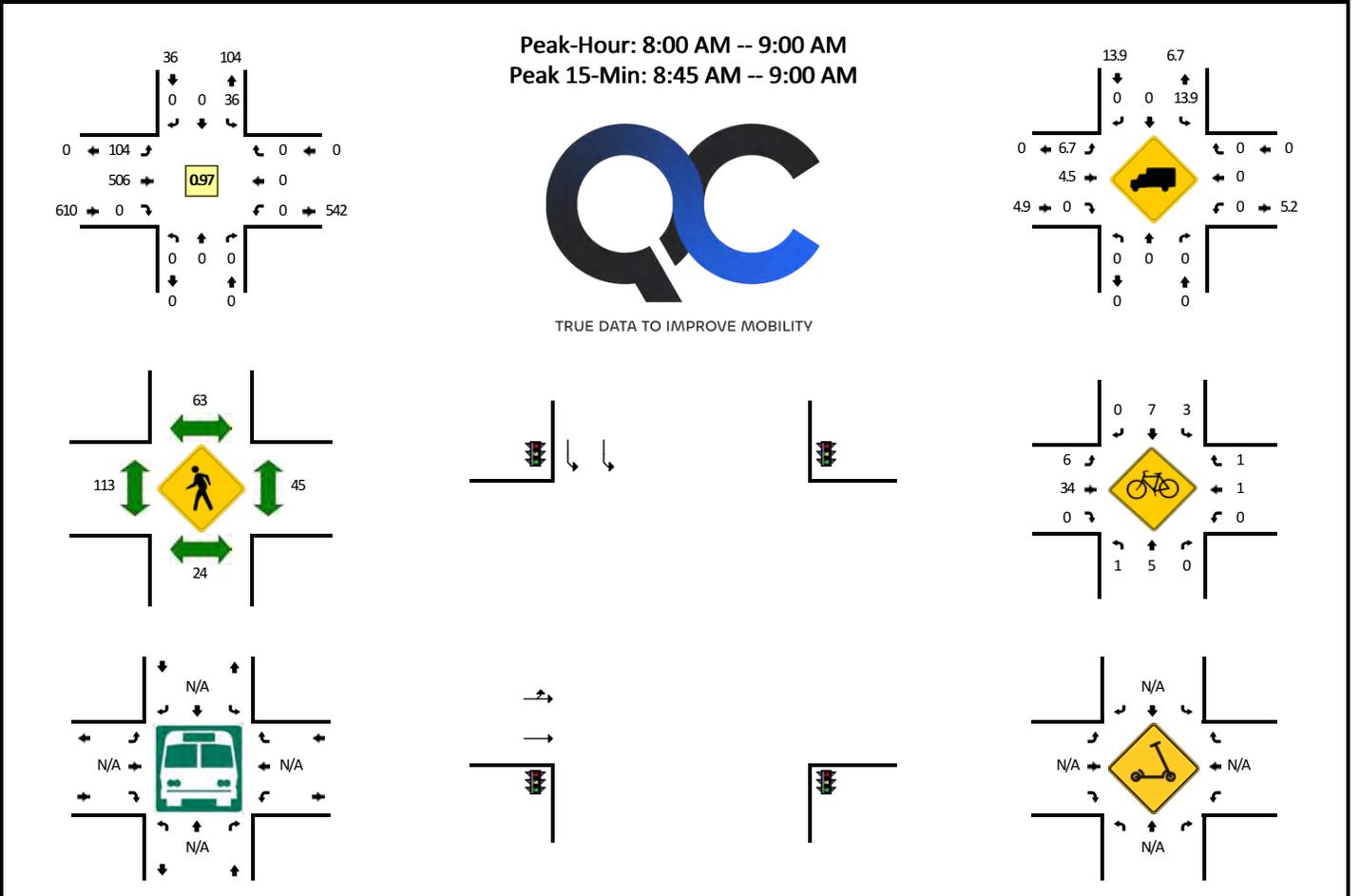


15-Min Count Period Beginning At	Maple Ave (Northbound)				Maple Ave (Southbound)				University Pl (Eastbound)				University Pl (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	3	33	1	0	3	28	2	0	7	2	2	0	1	0	7	0	89	
4:15 PM	3	30	2	0	0	19	2	0	7	0	5	0	4	3	2	0	77	
4:30 PM	1	28	0	0	2	21	2	0	4	1	4	0	1	0	3	0	67	
4:45 PM	6	33	3	0	1	14	0	0	2	0	1	0	1	1	1	0	63	296
5:00 PM	2	32	0	0	1	22	1	0	7	0	2	0	0	1	6	0	74	281
5:15 PM	2	32	0	0	0	18	1	0	5	0	1	0	0	0	4	0	63	267
5:30 PM	6	25	0	0	1	28	1	0	7	0	3	0	1	0	4	0	76	276
5:45 PM	3	23	1	1	0	18	2	0	1	1	1	0	0	0	11	0	62	275
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	12	132	4	0	12	112	8	0	28	8	8	0	4	0	28	0	356	
Heavy Trucks	0	0	0		0	4	0		0	0	0		0	0	0		4	
Buses																		
Pedestrians		4				8				52				28			92	
Bicycles	0	8	4		0	20	0		0	0	0		0	0	0		32	
Scoters																		

Comments:

LOCATION: Maple Ave -- Church St
CITY/STATE: Evanston, IL

QC JOB #: 16659805
DATE: Thu, Jul 11 2024

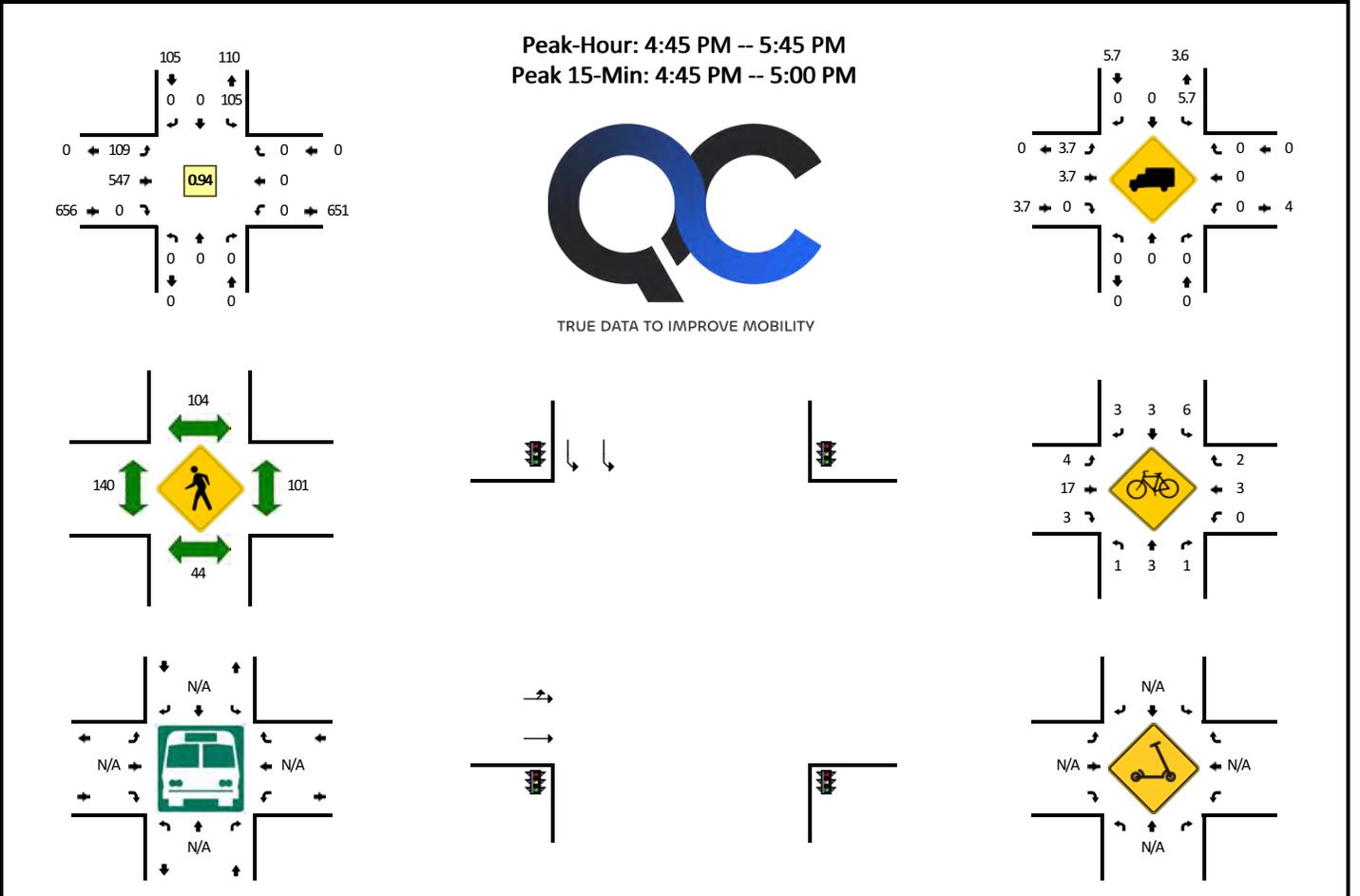


15-Min Count Period Beginning At	Maple Ave (Northbound)				Maple Ave (Southbound)				Church St (Eastbound)				Church St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	6	0	0	0	16	47	0	0	0	0	0	0	69	
7:15 AM	0	0	0	0	3	0	0	0	15	66	0	0	0	0	0	0	84	
7:30 AM	0	0	0	0	4	0	0	0	20	77	0	0	0	0	0	0	101	
7:45 AM	0	0	0	0	9	0	0	0	18	89	0	0	0	0	0	0	116	370
8:00 AM	0	0	0	0	10	0	0	0	35	113	0	0	0	0	0	0	158	459
8:15 AM	0	0	0	0	10	0	0	0	26	125	0	0	0	0	0	0	161	536
8:30 AM	0	0	0	0	5	0	0	0	16	139	0	0	0	0	0	0	160	595
8:45 AM	0	0	0	0	11	0	0	0	27	129	0	0	0	0	0	0	167	646
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	44	0	0	0	108	516	0	0	0	0	0	0	668	
Heavy Trucks	0	0	0	0	0	0	0	0	4	24	0	0	0	0	0	0	28	
Buses																		
Pedestrians		4				48				72				44			168	
Bicycles	0	4	0		4	8	0		4	20	0		0	0	0		40	
Scoters																		

Comments:

LOCATION: Maple Ave -- Church St
CITY/STATE: Evanston, IL

QC JOB #: 16659806
DATE: Thu, Jul 11 2024

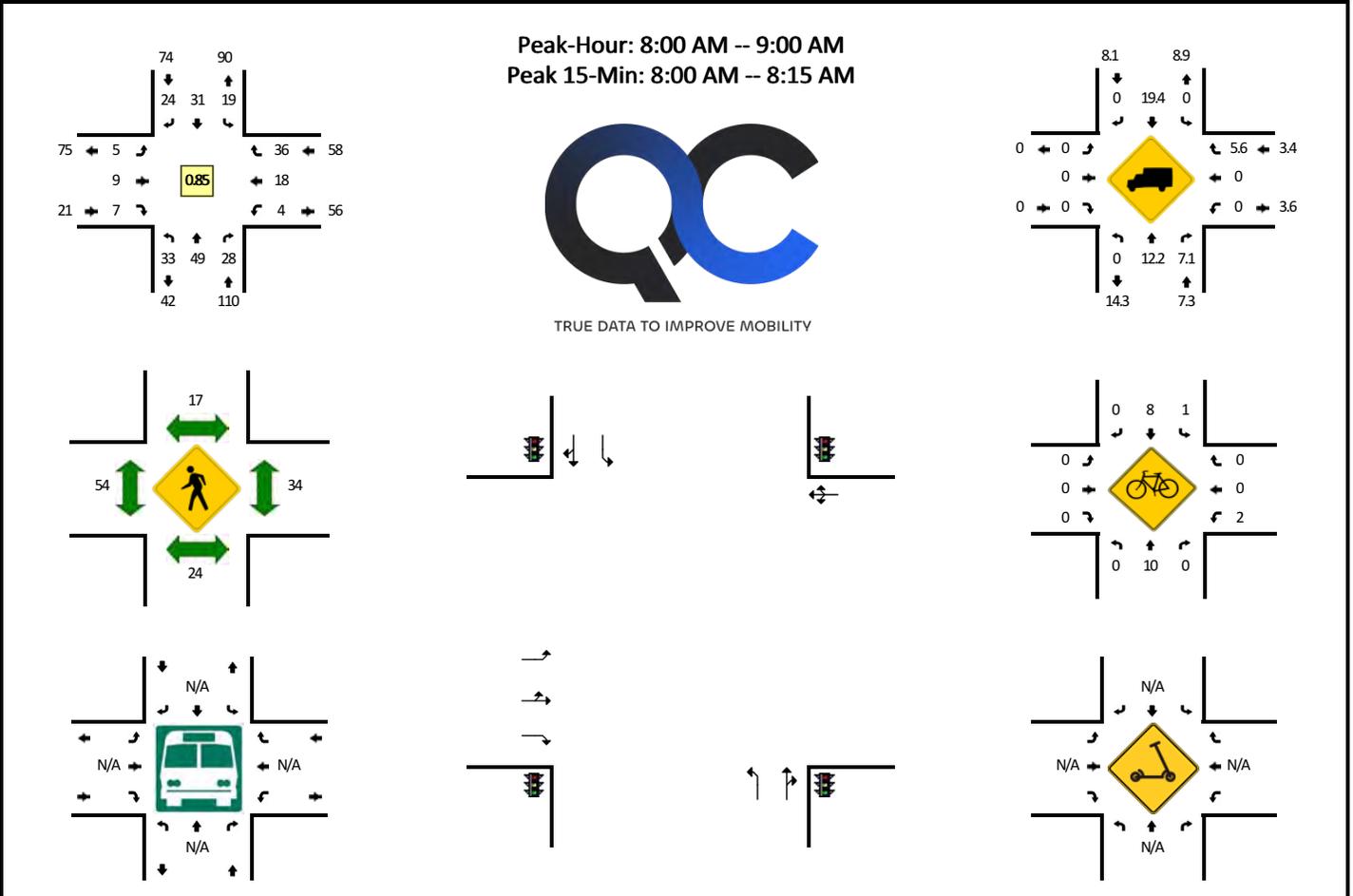


15-Min Count Period Beginning At	Maple Ave (Northbound)				Maple Ave (Southbound)				Church St (Eastbound)				Church St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	29	0	0	0	30	100	0	0	0	0	0	0	159	
4:15 PM	0	0	0	0	26	0	0	0	16	111	0	0	0	0	0	0	153	
4:30 PM	0	0	0	0	19	0	0	0	31	119	0	0	0	0	0	0	169	
4:45 PM	0	0	0	0	28	0	0	1	34	140	0	0	0	0	0	0	203	684
5:00 PM	0	0	0	0	28	0	0	0	26	135	0	0	0	0	0	0	189	714
5:15 PM	0	0	0	0	28	0	0	0	26	138	0	0	0	0	0	0	192	753
5:30 PM	0	0	0	0	20	0	0	0	23	134	0	0	0	0	0	0	177	761
5:45 PM	0	0	0	0	20	0	0	0	16	105	0	0	0	0	0	0	141	699
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	112	0	0	4	136	560	0	0	0	0	0	0	812	
Heavy Trucks	0	0	0	0	0	0	0	0	4	28	0	0	0	0	0	0	32	
Buses																		
Pedestrians		44				116				144				124			428	
Bicycles	0	4	4		4	4	0		4	8	0		0	0	0		28	
Scoters																		

Comments:

LOCATION: Maple Ave -- Parking Garage/Clark St
CITY/STATE: Evanston, IL

QC JOB #: 16659807
DATE: Thu, Jul 11 2024

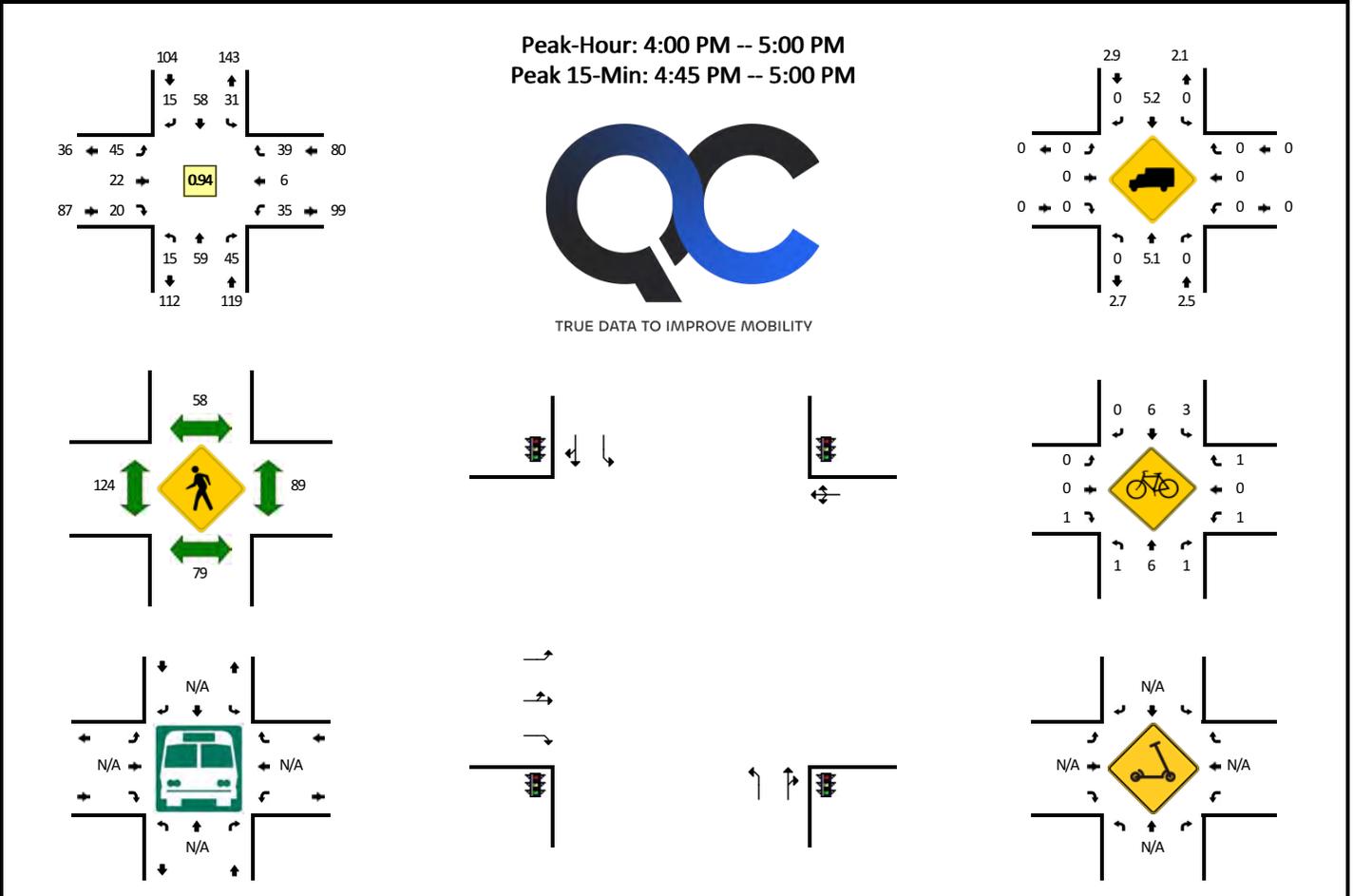


15-Min Count Period Beginning At	Maple Ave (Northbound)				Maple Ave (Southbound)				Parking Garage/Clark St (Eastbound)				Parking Garage/Clark St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	7	5	3	0	4	4	1	0	1	0	0	0	1	1	4	0	31	
7:15 AM	8	2	2	0	4	4	7	0	1	0	0	0	0	4	3	1	36	
7:30 AM	12	7	2	0	3	5	4	0	2	1	0	0	0	4	6	0	46	
7:45 AM	7	7	2	0	10	7	4	0	3	3	1	0	2	4	8	0	58	171
8:00 AM	13	19	7	0	4	10	2	0	0	1	2	0	2	8	9	0	77	217
8:15 AM	9	7	9	0	2	7	4	0	2	2	3	0	0	2	11	0	58	239
8:30 AM	2	10	3	0	10	6	8	0	3	2	0	0	0	3	9	0	56	249
8:45 AM	9	13	9	0	3	8	10	0	0	4	2	0	2	5	7	0	72	263
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	52	76	28	0	16	40	8	0	0	4	8	0	8	32	36	0	308	
Heavy Trucks	0	4	4		0	8	0		0	0	0		0	0	4		20	
Buses																		
Pedestrians		36				16				68				28			148	
Bicycles	0	8	0		4	0	0		0	0	0		0	0	0		12	
Scoters																		

Comments:

LOCATION: Maple Ave -- Parking Garage/Clark St
CITY/STATE: Evanston, IL

QC JOB #: 16659808
DATE: Thu, Jul 11 2024



15-Min Count Period Beginning At	Maple Ave (Northbound)				Maple Ave (Southbound)				Parking Garage/Clark St (Eastbound)				Parking Garage/Clark St (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
4:00 PM	1	20	9	0	7	19	4	0	12	5	5	0	11	2	7	0	102		
4:15 PM	4	11	7	0	10	15	4	0	11	6	5	0	7	2	13	0	95		
4:30 PM	6	10	10	0	7	13	4	0	11	7	6	0	5	1	9	0	89		
4:45 PM	4	18	19	0	7	11	3	0	11	4	4	0	11	1	10	1	104	390	
5:00 PM	5	12	12	1	5	14	4	0	9	8	6	0	8	1	15	0	100	388	
5:15 PM	4	11	8	0	6	13	1	0	10	5	6	0	8	1	14	0	87	380	
5:30 PM	4	14	8	0	11	14	4	0	7	4	2	0	8	4	7	0	87	378	
5:45 PM	2	11	4	0	9	11	4	0	8	2	5	0	2	0	10	0	68	342	
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total		
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
All Vehicles	16	72	76	0	28	44	12	0	44	16	16	0	44	4	40	4	416		
Heavy Trucks	0	4	0		0	0	0		0	0	0		0	0	0		4		
Buses																			
Pedestrians		64				92				124				120				400	
Bicycles	4	4	0		4	4	0		0	0	0		0	0	0		16		
Scooters																			

Comments:

Preliminary Site Plan



Trip Generation Sheets

Multifamily Housing (Low-Rise) Not Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 49

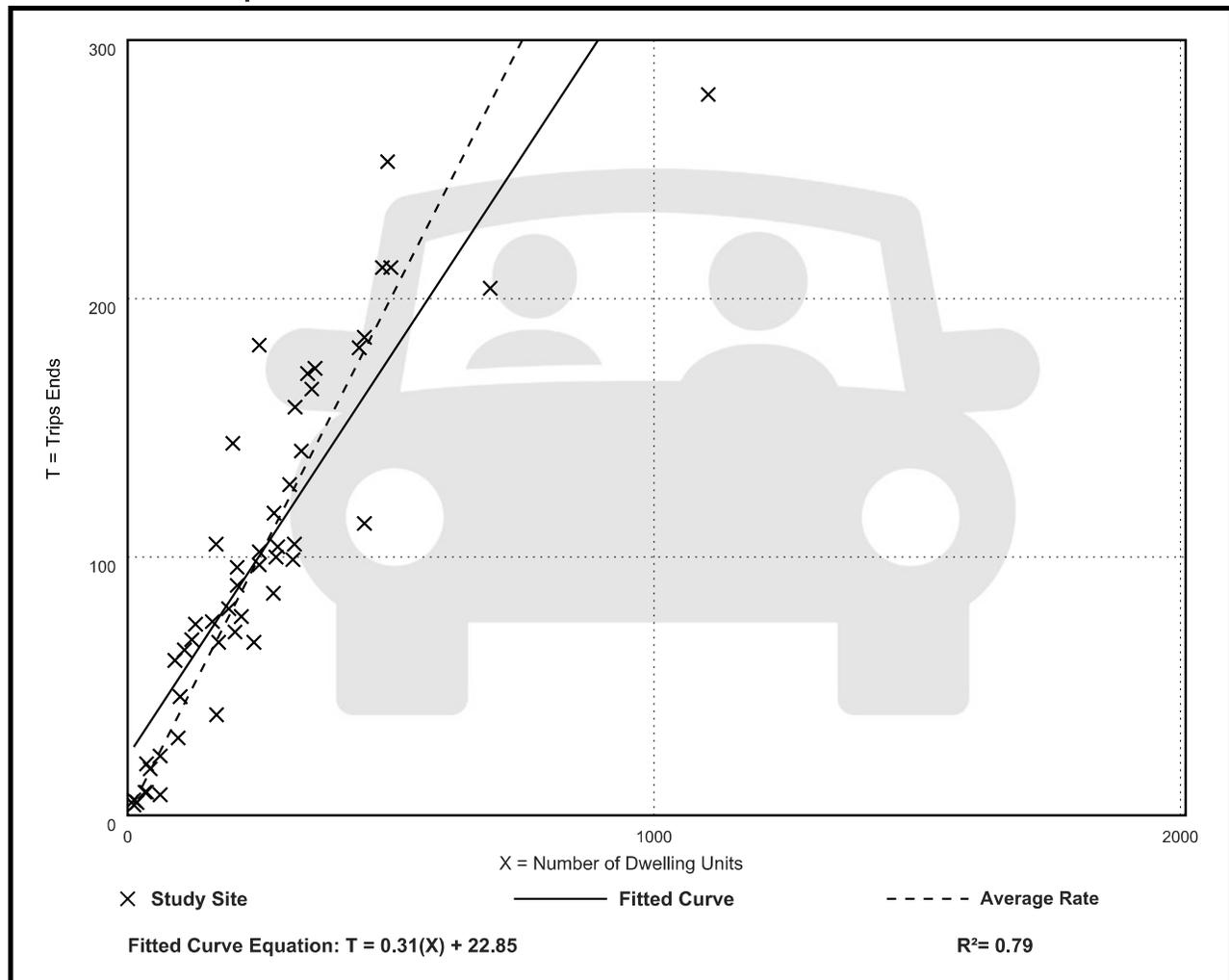
Avg. Num. of Dwelling Units: 249

Directional Distribution: 24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.40	0.13 - 0.73	0.12

Data Plot and Equation



Multifamily Housing (Low-Rise) Not Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 59

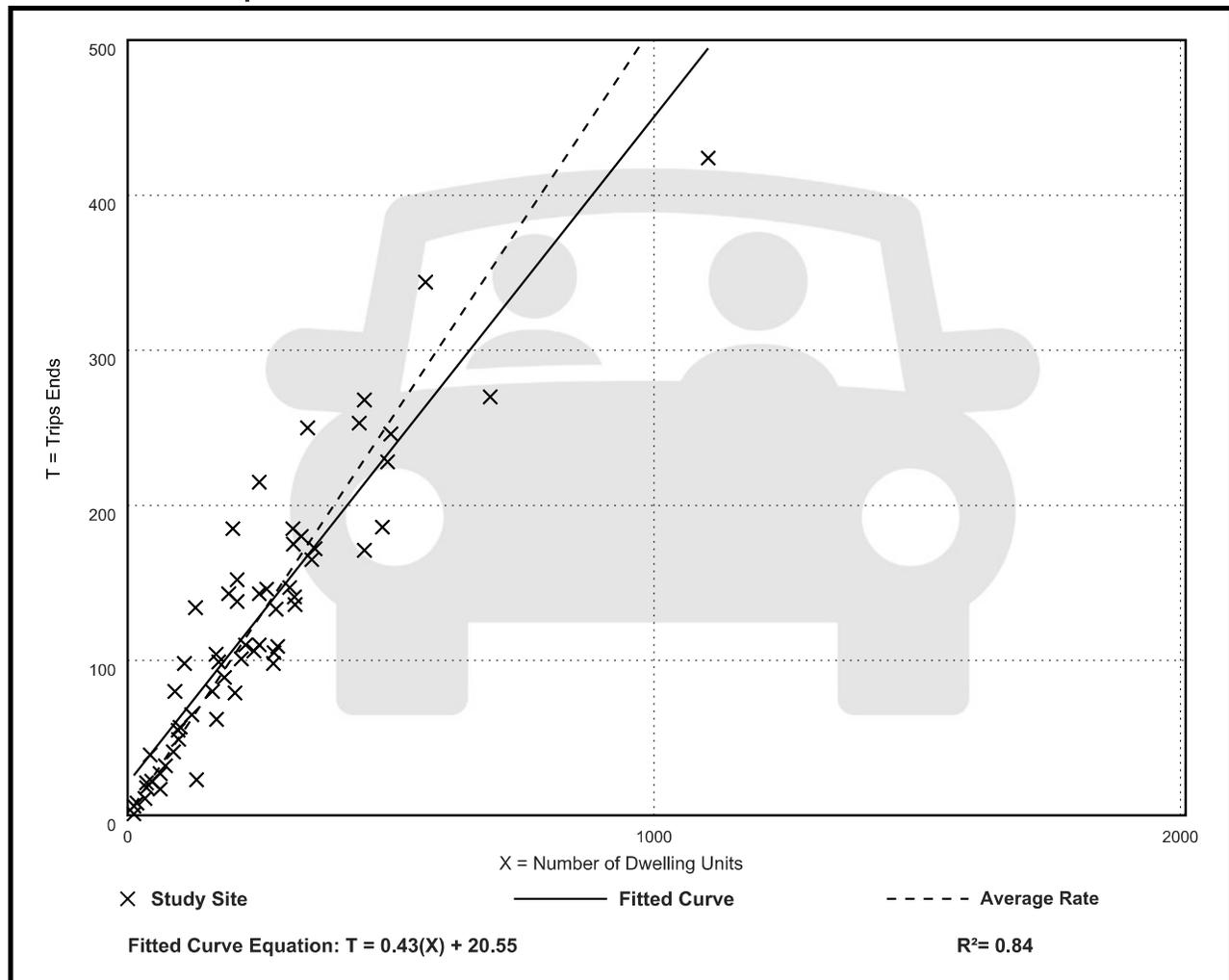
Avg. Num. of Dwelling Units: 241

Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.51	0.08 - 1.04	0.15

Data Plot and Equation



Strip Retail Plaza (<40k) (822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 25

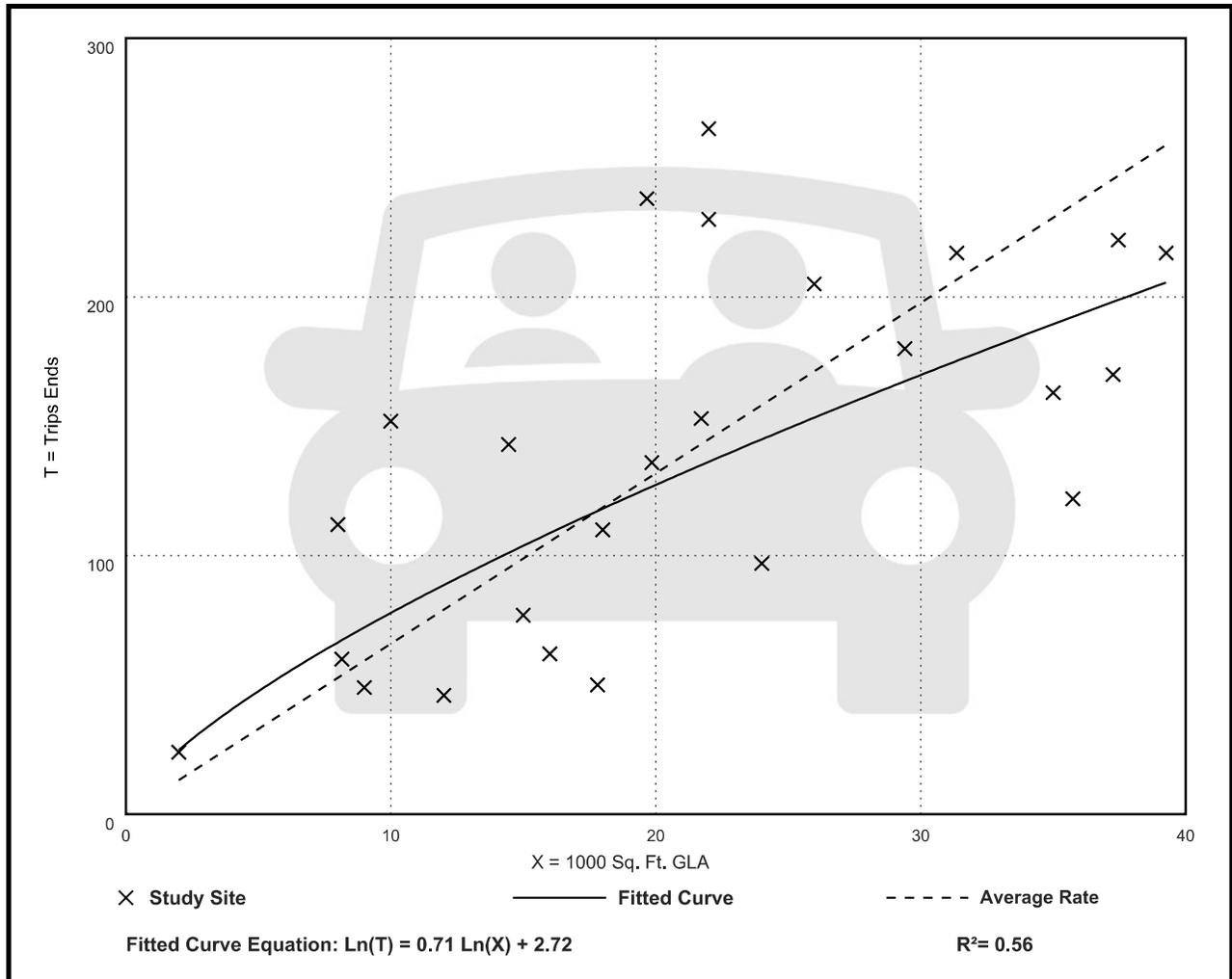
Avg. 1000 Sq. Ft. GLA: 21

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
6.59	2.81 - 15.20	2.94

Data Plot and Equation



Strip Retail Plaza (<40k) (822)

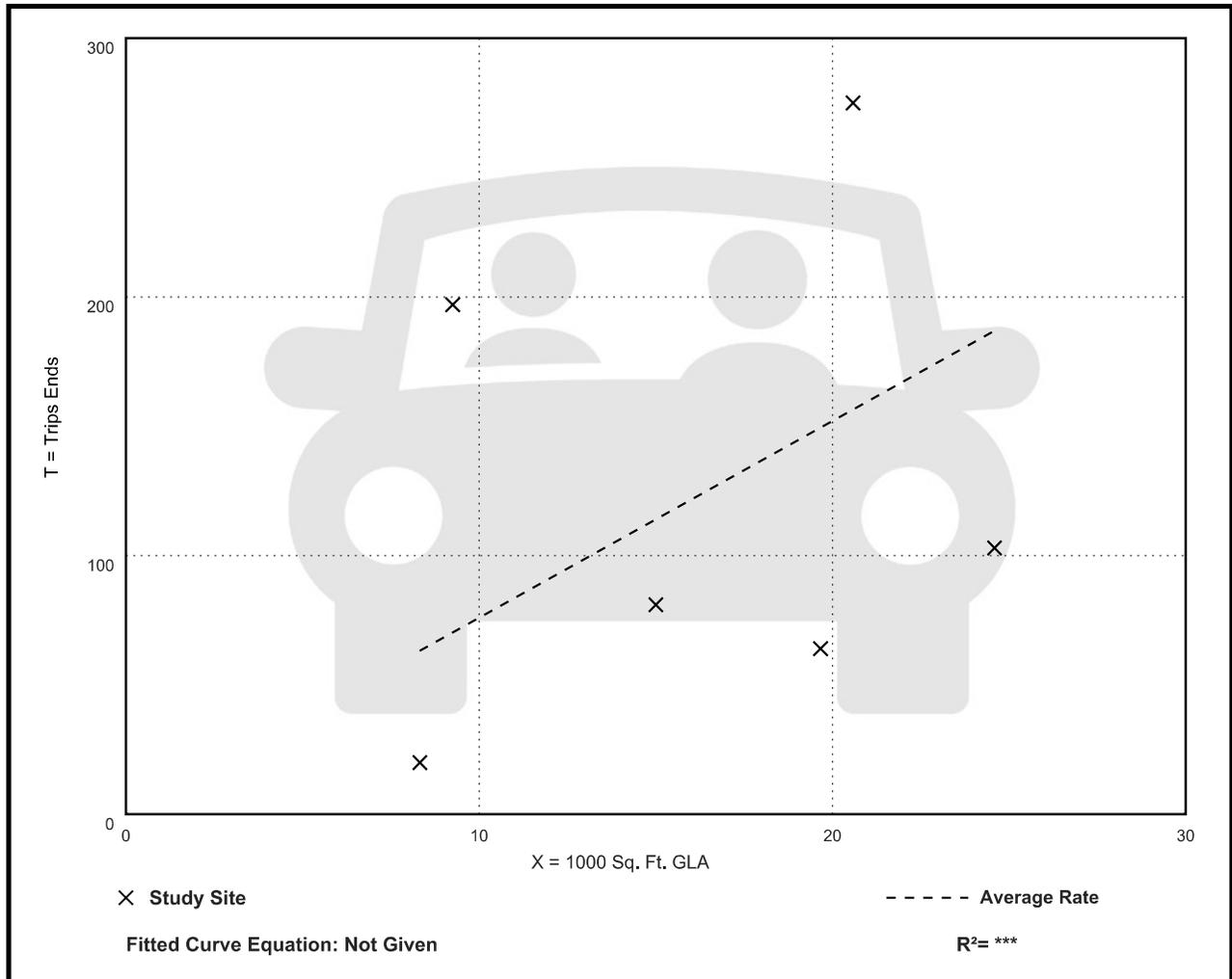
Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday,
AM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 6
Avg. 1000 Sq. Ft. GLA: 16
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
7.60	2.40 - 21.30	6.45

Data Plot and Equation



Level of Service Criteria

LEVEL OF SERVICE CRITERIA

Signalized Intersections		
Level of Service	Interpretation	Average Control Delay (seconds per vehicle)
A	Favorable progression. Most vehicles arrive during the green indication and travel through the intersection without stopping.	≤10
B	Good progression, with more vehicles stopping than for Level of Service A.	>10 - 20
C	Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear. Number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	>20 - 35
D	The volume-to-capacity ratio is high and either progression is ineffective or the cycle length is too long. Many vehicles stop and individual cycle failures are noticeable.	>35 - 55
E	Progression is unfavorable. The volume-to-capacity ratio is high and the cycle length is long. Individual cycle failures are frequent.	>55 - 80
F	The volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.	>80.0
Unsignalized Intersections		
Level of Service	Average Total Delay (SEC/VEH)	
A	0 - 10	
B	> 10 - 15	
C	> 15 - 25	
D	> 25 - 35	
E	> 35 - 50	
F	> 50	

Source: *Highway Capacity Manual*, 2010.

Capacity Analysis Summary Sheets
Weekday Morning Peak Hour – Existing Conditions

Lanes, Volumes, Timings
2: Church Street & Maple Avenue

08/20/2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕			↕↕	
Traffic Volume (vph)	120	506	0	0	42	0
Future Volume (vph)	120	506	0	0	42	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	80	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	1.00	1.00	0.97	1.00
Ped Bike Factor		0.97			0.91	
Frt						
Flt Protected		0.990			0.950	
Satd. Flow (prot)	0	3391	0	0	3072	0
Flt Permitted		0.990			0.950	
Satd. Flow (perm)	0	3306	0	0	2784	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						
Link Speed (mph)		25	25		25	
Link Distance (ft)		536	831		575	
Travel Time (s)		14.6	22.7		15.7	
Confl. Peds. (#/hr)	63				45	
Confl. Bikes (#/hr)						10
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	7%	5%	2%	2%	14%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	646	0	0	43	0
Turn Type	Perm	NA			Perm	
Protected Phases		4				
Permitted Phases	4				6	
Detector Phase	4	4			6	
Switch Phase						
Minimum Initial (s)	5.0	5.0			5.0	
Minimum Split (s)	24.0	24.0			24.0	
Total Split (s)	45.0	45.0			30.0	
Total Split (%)	60.0%	60.0%			40.0%	
Yellow Time (s)	4.0	4.0			4.0	
All-Red Time (s)	2.0	2.0			2.0	
Lost Time Adjust (s)		0.0			0.0	
Total Lost Time (s)		6.0			6.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None			C-Max	
Act Effct Green (s)		22.1			40.9	
Actuated g/C Ratio		0.29			0.55	
v/c Ratio		0.66			0.03	
Control Delay (s/veh)		26.1			8.8	
Queue Delay		0.0			0.0	
Total Delay (s/veh)		26.1			8.8	
LOS		C			A	
Approach Delay (s/veh)		26.1			8.8	

Lanes, Volumes, Timings
 2: Church Street & Maple Avenue

08/20/2024

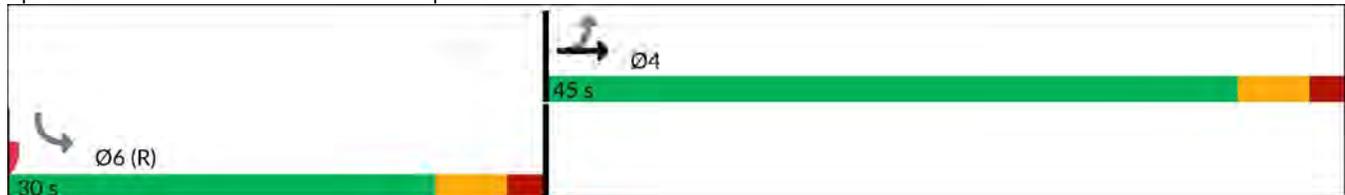


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach LOS		C			A	
Queue Length 50th (ft)		137			4	
Queue Length 95th (ft)		165			11	
Internal Link Dist (ft)		456	751		495	
Turn Bay Length (ft)					80	
Base Capacity (vph)		1719			1518	
Starvation Cap Reductn		0			0	
Spillback Cap Reductn		0			0	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		0.38			0.03	

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	75
Offset:	0 (0%), Referenced to phase 2: and 6:SBL, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.66
Intersection Signal Delay (s/veh):	25.0
Intersection LOS:	C
Intersection Capacity Utilization:	31.6%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 2: Church Street & Maple Avenue



Lanes, Volumes, Timings
 5: Maple Avenue & Garage Drive/Clark Street

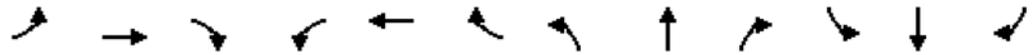
08/20/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	9	7	4	18	36	33	59	28	19	31	24
Future Volume (vph)	5	9	7	4	18	36	33	59	28	19	31	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	75		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	25			25			70			70		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.97		0.93		0.96		0.91	0.97		0.94	0.94	
Frt			0.850		0.917			0.951			0.934	
Flt Protected	0.950				0.996		0.950			0.950		
Satd. Flow (prot)	1805	1900	1615	0	1614	0	1805	1586	0	1805	1507	0
Flt Permitted	0.713				0.972		0.668			0.691		
Satd. Flow (perm)	1311	1900	1504	0	1570	0	1151	1586	0	1232	1507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95		42			33				28
Link Speed (mph)		25			25			25				25
Link Distance (ft)		163			399			575				378
Travel Time (s)		4.4			10.9			15.7				10.3
Confl. Peds. (#/hr)	17		24	24		17	54		34	34		54
Confl. Bikes (#/hr)						2			10			9
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	0%	0%	0%	0%	6%	0%	12%	7%	0%	19%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	11	8	0	68	0	39	102	0	22	64	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2				6
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0		9.5	24.0		24.0	24.0	
Total Split (s)	30.0	30.0	30.0	30.0	30.0		10.0	45.0		35.0	35.0	
Total Split (%)	40.0%	40.0%	40.0%	40.0%	40.0%		13.3%	60.0%		46.7%	46.7%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		0.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0		6.0		3.5	6.0		6.0	6.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Max		C-Max	C-Max	
Act Effct Green (s)	7.2	7.2	7.2		7.2		60.6	59.3		53.5	53.5	
Actuated g/C Ratio	0.10	0.10	0.10		0.10		0.81	0.79		0.71	0.71	
v/c Ratio	0.05	0.06	0.03		0.36		0.04	0.08		0.03	0.06	
Control Delay (s/veh)	30.2	30.1	0.3		21.3		0.8	0.7		6.4	4.4	
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	30.2	30.1	0.3		21.3		0.8	0.7		6.4	4.4	
LOS	C	C	A		C		A	A		A	A	
Approach Delay (s/veh)		20.6			21.3			0.7				4.9

Lanes, Volumes, Timings
 5: Maple Avenue & Garage Drive/Clark Street

08/20/2024

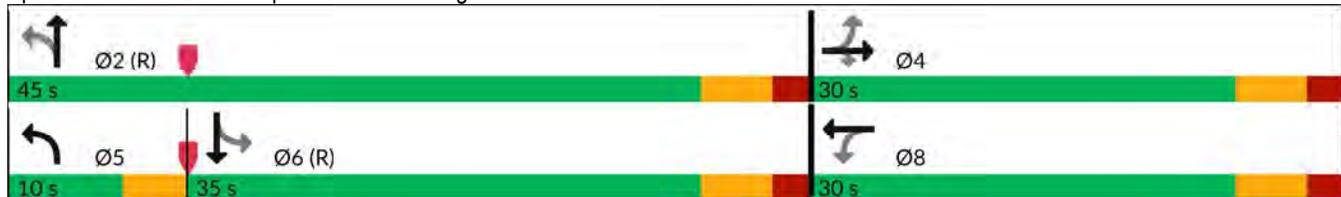


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		C				C				A		
Queue Length 50th (ft)	3	5	0		11		0	0		3	6	
Queue Length 95th (ft)	12	18	0		42		1	0		12	20	
Internal Link Dist (ft)		83				319				495		
Turn Bay Length (ft)							100				75	
Base Capacity (vph)	419	608	545		530		986	1261		879	1083	
Starvation Cap Reductn	0	0	0		0		0	0		0	0	
Spillback Cap Reductn	0	0	0		0		0	0		0	0	
Storage Cap Reductn	0	0	0		0		0	0		0	0	
Reduced v/c Ratio	0.01	0.02	0.01		0.13		0.04	0.08		0.03	0.06	

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	75
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.36
Intersection Signal Delay (s/veh):	7.8
Intersection LOS:	A
Intersection Capacity Utilization:	49.1%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 5: Maple Avenue & Garage Drive/Clark Street



Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	13	23	5	30	4	25	59	11	5	43	1
Future Vol, veh/h	14	13	23	5	30	4	25	59	11	5	43	1
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	7	0	0	0	0	0	2	0	14	2	0
Mvmt Flow	17	16	28	6	37	5	30	72	13	6	52	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.4	7.6	7.8	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	26%	28%	13%	10%
Vol Thru, %	62%	26%	77%	88%
Vol Right, %	12%	46%	10%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	95	50	39	49
LT Vol	25	14	5	5
Through Vol	59	13	30	43
RT Vol	11	23	4	1
Lane Flow Rate	116	61	48	60
Geometry Grp	1	1	1	1
Degree of Util (X)	0.132	0.07	0.057	0.073
Departure Headway (Hd)	4.116	4.126	4.322	4.424
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	860	873	833	799
Service Time	2.194	2.127	2.324	2.511
HCM Lane V/C Ratio	0.135	0.07	0.058	0.075
HCM Control Delay, s/veh	7.8	7.4	7.6	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.2	0.2	0.2

HCM 7th TWSC
8: Maple Avenue & University Place

08/20/2024

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	3	10	11	2	16	14	84	7	6	71	3
Future Vol, veh/h	5	3	10	11	2	16	14	84	7	6	71	3
Conflicting Peds, #/hr	7	0	0	0	0	7	61	0	29	29	0	61
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	9	0	0	7	8	0	17	9	0
Mvmt Flow	6	3	11	13	2	18	16	97	8	7	82	3

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	295	324	144	259	322	137	146	0	0	134	0	0
Stage 1	158	158	-	162	162	-	-	-	-	-	-	-
Stage 2	137	166	-	97	160	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.19	6.5	6.2	4.17	-	-	4.27	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.581	4	3.3	2.263	-	-	2.353	-	-
Pot Cap-1 Maneuver	661	597	908	680	599	917	1406	-	-	1364	-	-
Stage 1	849	771	-	824	768	-	-	-	-	-	-	-
Stage 2	871	765	-	892	769	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	592	537	856	636	538	886	1324	-	-	1326	-	-
Mov Cap-2 Maneuver	592	537	-	636	538	-	-	-	-	-	-	-
Stage 1	795	722	-	791	737	-	-	-	-	-	-	-
Stage 2	834	734	-	871	721	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	10.3	10.08	1.03	0.58
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	236	-	-	700	742	134	-	-
HCM Lane V/C Ratio	0.012	-	-	0.03	0.045	0.005	-	-
HCM Control Delay (s/veh)	7.8	0	-	10.3	10.1	7.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Capacity Analysis Summary Sheets
Weekday Evening Peak Hour – Existing Conditions

Lanes, Volumes, Timings
2: Church Street & Maple Avenue

08/20/2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕			↕↕	
Traffic Volume (vph)	120	547	0	0	106	0
Future Volume (vph)	120	547	0	0	106	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	80	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	1.00	1.00	0.97	1.00
Ped Bike Factor		0.96			0.79	
Frt						
Flt Protected		0.991			0.950	
Satd. Flow (prot)	0	3440	0	0	3303	0
Flt Permitted		0.991			0.950	
Satd. Flow (perm)	0	3306	0	0	2608	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						
Link Speed (mph)		25	25		25	
Link Distance (ft)		536	831		575	
Travel Time (s)		14.6	22.7		15.7	
Confl. Peds. (#/hr)	104				101	
Confl. Bikes (#/hr)						12
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	4%	4%	2%	2%	6%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	710	0	0	113	0
Turn Type	Perm	NA			Prot	
Protected Phases		4			6	
Permitted Phases	4					
Detector Phase	4	4			6	
Switch Phase						
Minimum Initial (s)	5.0	5.0			5.0	
Minimum Split (s)	24.0	24.0			24.0	
Total Split (s)	45.0	45.0			30.0	
Total Split (%)	60.0%	60.0%			40.0%	
Yellow Time (s)	4.0	4.0			4.0	
All-Red Time (s)	2.0	2.0			2.0	
Lost Time Adjust (s)		0.0			0.0	
Total Lost Time (s)		6.0			6.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None			C-Max	
Act Effct Green (s)		24.0			39.0	
Actuated g/C Ratio		0.32			0.52	
v/c Ratio		0.67			0.07	
Control Delay (s/veh)		24.8			9.7	
Queue Delay		0.0			0.0	
Total Delay (s/veh)		24.8			9.7	
LOS		C			A	
Approach Delay (s/veh)		24.8			9.7	

Lanes, Volumes, Timings
 2: Church Street & Maple Avenue

08/20/2024

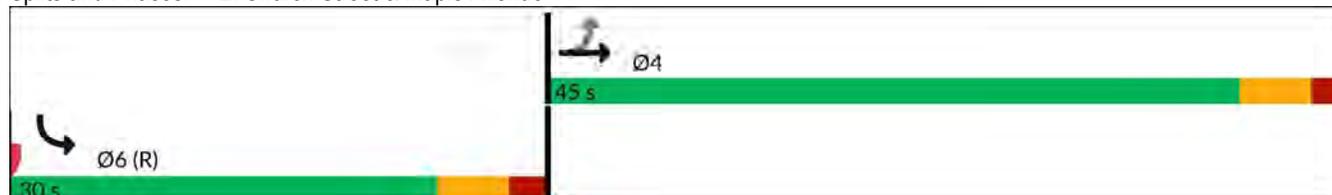


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach LOS		C			A	
Queue Length 50th (ft)		150			13	
Queue Length 95th (ft)		174			30	
Internal Link Dist (ft)		456	751		495	
Turn Bay Length (ft)					80	
Base Capacity (vph)		1719			1715	
Starvation Cap Reductn		0			0	
Spillback Cap Reductn		0			0	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		0.41			0.07	

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	75
Offset:	0 (0%), Referenced to phase 2: and 6:SBL, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.67
Intersection Signal Delay (s/veh):	22.7
Intersection LOS:	C
Intersection Capacity Utilization:	32.8%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 2: Church Street & Maple Avenue



Lanes, Volumes, Timings
 5: Maple Avenue & Garage Drive/Clark Street

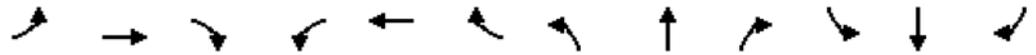
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	21	18	36	7	46	18	55	47	29	52	12
Future Volume (vph)	37	21	18	36	7	46	18	55	47	29	52	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	75		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	25			25			70			70		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.88		0.81		0.85		0.77	0.89		0.82	0.94	
Frt			0.850		0.930			0.931			0.971	
Flt Protected	0.950				0.980		0.950			0.950		
Satd. Flow (prot)	1805	1900	1615	0	1538	0	1805	1443	0	1805	1507	0
Flt Permitted	0.816				0.858		0.667			0.687		
Satd. Flow (perm)	1360	1900	1311	0	1256	0	975	1443	0	1074	1507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95		49			50			13	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		163			399			575			378	
Travel Time (s)		4.4			10.9			15.7			10.3	
Confl. Peds. (#/hr)	67		82	82		67	135		99	99		135
Confl. Bikes (#/hr)			1			5			13			9
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	0%	6%	0%	12%	7%	0%	19%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	39	22	19	0	94	0	19	109	0	31	68	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0		9.5	24.0		25.0	25.0	
Total Split (s)	30.0	30.0	30.0	30.0	30.0		10.0	45.0		35.0	35.0	
Total Split (%)	40.0%	40.0%	40.0%	40.0%	40.0%		13.3%	60.0%		46.7%	46.7%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		0.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0		6.0		3.5	6.0		6.0	6.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Max		C-Max	C-Max	
Act Effct Green (s)	8.6	8.6	8.6		8.6		59.2	57.9		55.9	55.9	
Actuated g/C Ratio	0.11	0.11	0.11		0.11		0.79	0.77		0.75	0.75	
v/c Ratio	0.25	0.10	0.08		0.50		0.02	0.10		0.04	0.06	
Control Delay (s/veh)	32.7	28.8	0.7		26.0		1.3	1.7		5.8	4.8	
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	32.7	28.8	0.7		26.0		1.3	1.7		5.8	4.8	
LOS	C	C	A		C		A	A		A	A	
Approach Delay (s/veh)		24.0			26.0			1.6			5.1	

Lanes, Volumes, Timings
 5: Maple Avenue & Garage Drive/Clark Street

08/20/2024

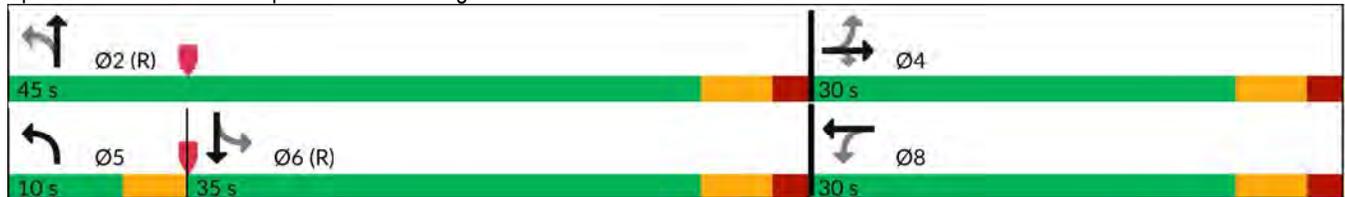


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		C			C			A			A	
Queue Length 50th (ft)	17	9	0		20		0	0		3	6	
Queue Length 95th (ft)	41	27	0		59		m3	21		18	29	
Internal Link Dist (ft)		83			319			495			298	
Turn Bay Length (ft)								100			75	
Base Capacity (vph)	435	608	484		435		841	1124		800	1126	
Starvation Cap Reductn	0	0	0		0		0	0		0	0	
Spillback Cap Reductn	0	0	0		0		0	0		0	0	
Storage Cap Reductn	0	0	0		0		0	0		0	0	
Reduced v/c Ratio	0.09	0.04	0.04		0.22		0.02	0.10		0.04	0.06	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.50
 Intersection Signal Delay (s/veh): 12.7 Intersection LOS: B
 Intersection Capacity Utilization 58.7% ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Maple Avenue & Garage Drive/Clark Street



Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	13	35	42	23	36	9	38	93	37	9	59	8
Future Vol, veh/h	13	35	42	23	36	9	38	93	37	9	59	8
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	0	0	0	0	3	0	3	0	0	0	0	0
Mvmt Flow	14	38	45	25	39	10	41	100	40	10	63	9
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.9	8.1	8.6	8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	23%	14%	34%	12%
Vol Thru, %	55%	39%	53%	78%
Vol Right, %	22%	47%	13%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	168	90	68	76
LT Vol	38	13	23	9
Through Vol	93	35	36	59
RT Vol	37	42	9	8
Lane Flow Rate	181	97	73	82
Geometry Grp	1	1	1	1
Degree of Util (X)	0.218	0.116	0.093	0.101
Departure Headway (Hd)	4.344	4.329	4.592	4.446
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	829	829	782	807
Service Time	2.36	2.35	2.613	2.466
HCM Lane V/C Ratio	0.218	0.117	0.093	0.102
HCM Control Delay, s/veh	8.6	7.9	8.1	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.8	0.4	0.3	0.3

HCM 7th TWSC
8: Maple Avenue & University Place

08/20/2024

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	21	0	7	2	2	15	16	122	3	3	82	3
Future Vol, veh/h	21	0	7	2	2	15	16	122	3	3	82	3
Conflicting Peds, #/hr	5	0	2	2	0	5	107	0	47	47	0	107
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	4	0
Mvmt Flow	25	0	8	2	2	18	19	147	4	4	99	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	407	451	210	342	451	201	209	0	0	198	0	0
Stage 1	215	215	-	234	234	-	-	-	-	-	-	-
Stage 2	192	236	-	108	217	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	558	507	836	616	507	845	1373	-	-	1387	-	-
Stage 1	792	729	-	773	715	-	-	-	-	-	-	-
Stage 2	815	713	-	902	727	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	476	426	749	569	426	804	1233	-	-	1325	-	-
Mov Cap-2 Maneuver	476	426	-	569	426	-	-	-	-	-	-	-
Stage 1	709	652	-	726	671	-	-	-	-	-	-	-
Stage 2	776	670	-	888	651	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s/v12.35			10.26		0.9		0.26	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	203	-	-	523	707	61	-
HCM Lane V/C Ratio	0.016	-	-	0.064	0.032	0.003	-
HCM Control Delay (s/veh)	8	0	-	12.4	10.3	7.7	0
HCM Lane LOS	A	A	-	B	B	A	A
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-

Capacity Analysis Summary Sheets
Weekday Morning Peak Hour – No-Build Conditions

Lanes, Volumes, Timings
2: Church Street & Maple Avenue

01/14/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕			↕↕	
Traffic Volume (vph)	147	667	0	0	60	0
Future Volume (vph)	147	667	0	0	60	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	80	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	1.00	1.00	0.97	1.00
Ped Bike Factor		0.97			0.90	
Frt						
Flt Protected		0.991			0.950	
Satd. Flow (prot)	0	3395	0	0	3072	0
Flt Permitted		0.991			0.950	
Satd. Flow (perm)	0	3307	0	0	2752	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						
Link Speed (mph)		25	25		25	
Link Distance (ft)		536	831		575	
Travel Time (s)		14.6	22.7		15.7	
Confl. Peds. (#/hr)	69				50	
Confl. Bikes (#/hr)						11
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	5%	2%	2%	14%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	840	0	0	62	0
Turn Type	Perm	NA			Perm	
Protected Phases		4				
Permitted Phases	4				6	
Detector Phase	4	4			6	
Switch Phase						
Minimum Initial (s)	5.0	5.0			5.0	
Minimum Split (s)	24.0	24.0			24.0	
Total Split (s)	45.0	45.0			30.0	
Total Split (%)	60.0%	60.0%			40.0%	
Yellow Time (s)	4.0	4.0			4.0	
All-Red Time (s)	2.0	2.0			2.0	
Lost Time Adjust (s)		0.0			0.0	
Total Lost Time (s)		6.0			6.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None			C-Max	
Act Effct Green (s)		27.9			35.1	
Actuated g/C Ratio		0.37			0.47	

Lanes, Volumes, Timings
 2: Church Street & Maple Avenue

01/14/2025

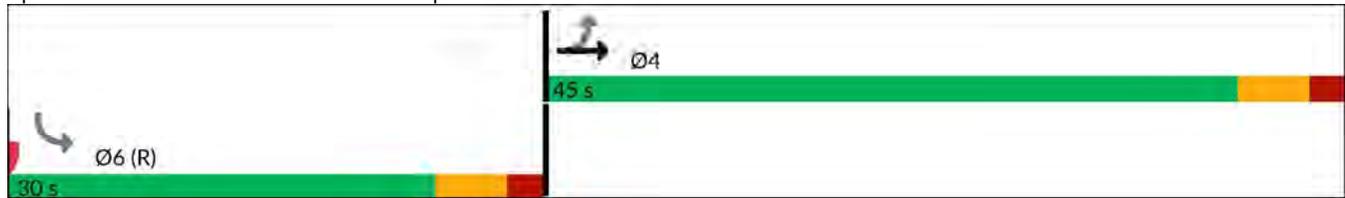


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
v/c Ratio		0.68			0.05	
Control Delay (s/veh)		22.3			11.2	
Queue Delay		0.0			0.0	
Total Delay (s/veh)		22.3			11.2	
LOS		C			B	
Approach Delay (s/veh)		22.3			11.2	
Approach LOS		C			B	
Queue Length 50th (ft)		168			6	
Queue Length 95th (ft)		190			14	
Internal Link Dist (ft)		456	751		495	
Turn Bay Length (ft)					80	
Base Capacity (vph)		1719			1289	
Starvation Cap Reductn		0			0	
Spillback Cap Reductn		0			0	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		0.49			0.05	

Intersection Summary

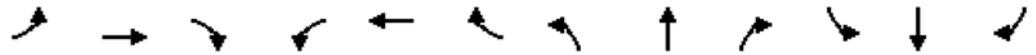
Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Green
 Natural Cycle: 50
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.68
 Intersection Signal Delay (s/veh): 21.6
 Intersection LOS: C
 Intersection Capacity Utilization 36.9%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 2: Church Street & Maple Avenue



Lanes, Volumes, Timings
 5: Maple Avenue & Garage Drive/Clark Street

01/14/2025



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	10	8	5	22	49	40	73	34	24	48	29
Future Volume (vph)	6	10	8	5	22	49	40	73	34	24	48	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	100		0	75		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	25			25			70			70		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.97		0.93		0.96		0.90	0.97		0.94	0.94	
Frt			0.850		0.913			0.952			0.943	
Flt Protected	0.950				0.997		0.950			0.950		
Satd. Flow (prot)	1805	1900	1615	0	1600	0	1805	1585	0	1805	1512	0
Flt Permitted	0.870				0.974		0.652			0.676		
Satd. Flow (perm)	1595	1900	1497	0	1557	0	1117	1585	0	1201	1512	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95		58			40			34	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		163			399			575			378	
Travel Time (s)		4.4			10.9			15.7			10.3	
Confl. Peds. (#/hr)	19		26	26		19	59		37	37		59
Confl. Bikes (#/hr)						2			11			10
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	0%	6%	0%	12%	7%	0%	19%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	12	9	0	90	0	47	126	0	28	90	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0		9.5	24.0		24.0	24.0	
Total Split (s)	30.0	30.0	30.0	30.0	30.0		10.0	45.0		35.0	35.0	
Total Split (%)	40.0%	40.0%	40.0%	40.0%	40.0%		13.3%	60.0%		46.7%	46.7%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		0.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0		6.0		3.5	6.0		6.0	6.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Max		C-Max	C-Max	
Act Effct Green (s)	7.5	7.5	7.5		7.5		60.3	59.0		53.1	53.1	
Actuated g/C Ratio	0.10	0.10	0.10		0.10		0.80	0.79		0.71	0.71	

Lanes, Volumes, Timings
 5: Maple Avenue & Garage Drive/Clark Street

01/14/2025

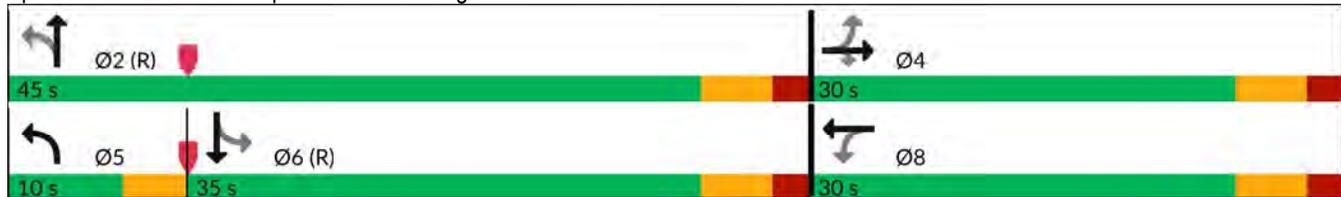


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.04	0.06	0.04		0.43		0.05	0.10		0.03	0.08	
Control Delay (s/veh)	29.3	29.5	0.3		20.9		0.9	0.7		6.8	4.8	
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	29.3	29.5	0.3		20.9		0.9	0.7		6.8	4.8	
LOS	C	C	A		C		A	A		A	A	
Approach Delay (s/veh)		20.1			20.9			0.8			5.3	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)	3	5	0		14		0	0		5	9	
Queue Length 95th (ft)	13	18	0		48		m2	2		15	28	
Internal Link Dist (ft)		83			319			495			298	
Turn Bay Length (ft)							100			75		
Base Capacity (vph)	510	608	543		537		957	1254		850	1080	
Starvation Cap Reductn	0	0	0		0		0	0		0	0	
Spillback Cap Reductn	0	0	0		0		0	0		0	0	
Storage Cap Reductn	0	0	0		0		0	0		0	0	
Reduced v/c Ratio	0.01	0.02	0.02		0.17		0.05	0.10		0.03	0.08	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.43
 Intersection Signal Delay (s/veh): 7.8 Intersection LOS: A
 Intersection Capacity Utilization 50.5% ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Maple Avenue & Garage Drive/Clark Street



Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	18	27	5	41	8	30	73	14	6	61	1
Future Vol, veh/h	17	18	27	5	41	8	30	73	14	6	61	1
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	7	0	0	0	0	0	2	0	14	2	0
Mvmt Flow	21	22	33	6	50	10	37	89	17	7	74	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.7	7.8	8.2	8.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	26%	27%	9%	9%
Vol Thru, %	62%	29%	76%	90%
Vol Right, %	12%	44%	15%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	117	62	54	68
LT Vol	30	17	5	6
Through Vol	73	18	41	61
RT Vol	14	27	8	1
Lane Flow Rate	143	76	66	83
Geometry Grp	1	1	1	1
Degree of Util (X)	0.17	0.09	0.081	0.106
Departure Headway (Hd)	4.293	4.285	4.431	4.618
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	838	839	811	779
Service Time	2.306	2.299	2.445	2.633
HCM Lane V/C Ratio	0.171	0.091	0.081	0.107
HCM Control Delay, s/veh	8.2	7.7	7.8	8.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.3	0.3	0.4

HCM 7th TWSC
8: Maple Avenue & University Place

01/14/2025

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	3	12	14	2	19	17	106	8	7	96	4
Future Vol, veh/h	6	3	12	14	2	19	17	106	8	7	96	4
Conflicting Peds, #/hr	8	0	0	0	0	8	67	0	32	32	0	67
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	9	0	0	7	8	0	17	9	0
Mvmt Flow	7	3	14	16	2	22	20	122	9	8	110	5

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	366	398	180	326	396	166	182	0	0	163	0	0
Stage 1	196	196	-	198	198	-	-	-	-	-	-	-
Stage 2	170	202	-	128	198	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.19	6.5	6.2	4.17	-	-	4.27	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.581	4	3.3	2.263	-	-	2.353	-	-
Pot Cap-1 Maneuver	594	543	868	614	545	883	1364	-	-	1329	-	-
Stage 1	811	743	-	788	741	-	-	-	-	-	-	-
Stage 2	837	738	-	859	741	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	523	481	813	568	483	850	1277	-	-	1289	-	-
Mov Cap-2 Maneuver	523	481	-	568	483	-	-	-	-	-	-	-
Stage 1	754	691	-	752	707	-	-	-	-	-	-	-
Stage 2	793	704	-	835	689	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v10.78		10.59	1.02	0.51
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	230	-	-	647	684	117	-	-
HCM Lane V/C Ratio	0.015	-	-	0.037	0.059	0.006	-	-
HCM Control Delay (s/veh)	7.9	0	-	10.8	10.6	7.8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-	-

Capacity Analysis Summary Sheets
Weekday Evening Peak Hour – No-Build Conditions

Lanes, Volumes, Timings
2: Church Street & Maple Avenue

01/14/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕			↕↕	
Traffic Volume (vph)	150	674	0	0	128	0
Future Volume (vph)	150	674	0	0	128	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	80	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	1.00	1.00	0.97	1.00
Ped Bike Factor		0.96			0.77	
Frt						
Flt Protected		0.991			0.950	
Satd. Flow (prot)	0	3440	0	0	3303	0
Flt Permitted		0.991			0.950	
Satd. Flow (perm)	0	3291	0	0	2540	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						
Link Speed (mph)		25	25		25	
Link Distance (ft)		536	831		575	
Travel Time (s)		14.6	22.7		15.7	
Confl. Peds. (#/hr)	114				111	
Confl. Bikes (#/hr)						13
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	2%	2%	6%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	877	0	0	136	0
Turn Type	Perm	NA			Prot	
Protected Phases		4			6	
Permitted Phases	4					
Detector Phase	4	4			6	
Switch Phase						
Minimum Initial (s)	5.0	5.0			5.0	
Minimum Split (s)	24.0	24.0			24.0	
Total Split (s)	45.0	45.0			30.0	
Total Split (%)	60.0%	60.0%			40.0%	
Yellow Time (s)	4.0	4.0			4.0	
All-Red Time (s)	2.0	2.0			2.0	
Lost Time Adjust (s)		0.0			0.0	
Total Lost Time (s)		6.0			6.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None			C-Max	
Act Effct Green (s)		28.9			34.1	
Actuated g/C Ratio		0.39			0.45	

Lanes, Volumes, Timings
 2: Church Street & Maple Avenue

01/14/2025

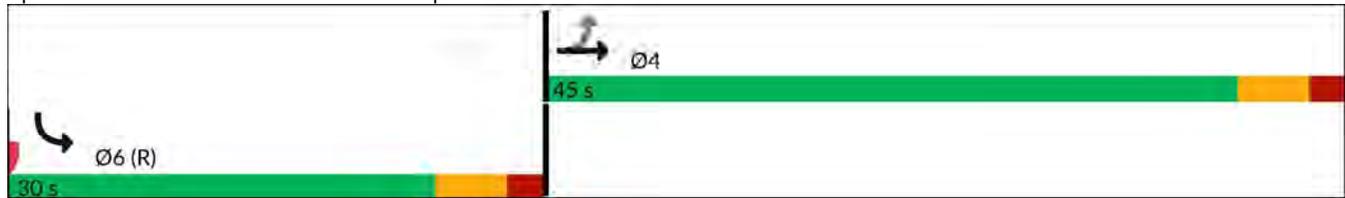


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
v/c Ratio		0.69			0.09	
Control Delay (s/veh)		21.8			12.2	
Queue Delay		0.0			0.0	
Total Delay (s/veh)		21.8			12.2	
LOS		C			B	
Approach Delay (s/veh)		21.8			12.2	
Approach LOS		C			B	
Queue Length 50th (ft)		174			17	
Queue Length 95th (ft)		197			35	
Internal Link Dist (ft)		456	751		495	
Turn Bay Length (ft)					80	
Base Capacity (vph)		1711			1499	
Starvation Cap Reductn		0			0	
Spillback Cap Reductn		0			0	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		0.51			0.09	

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	75
Offset:	0 (0%), Referenced to phase 2: and 6:SBL, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.69
Intersection Signal Delay (s/veh):	20.5
Intersection LOS:	C
Intersection Capacity Utilization:	37.2%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 2: Church Street & Maple Avenue



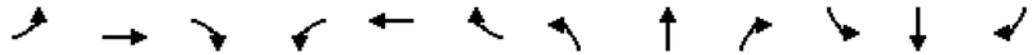
Lanes, Volumes, Timings
5: Maple Avenue & Garage Drive/Clark Street

01/14/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	25	22	44	8	74	22	70	59	37	64	15
Future Volume (vph)	45	25	22	44	8	74	22	70	59	37	64	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	100		0	75		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	25			25			70			70		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.88		0.80		0.84		0.75	0.88		0.81	0.94	
Frt			0.850		0.921			0.931			0.971	
Flt Protected	0.950				0.983		0.950			0.950		
Satd. Flow (prot)	1805	1900	1615	0	1491	0	1805	1427	0	1805	1498	0
Flt Permitted	0.663				0.874		0.655			0.669		
Satd. Flow (perm)	1104	1900	1284	0	1242	0	933	1427	0	1032	1498	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95		79			63				16
Link Speed (mph)		25			25			25				25
Link Distance (ft)		163			399			575				378
Travel Time (s)		4.4			10.9			15.7				10.3
Confl. Peds. (#/hr)	74		90	90		74	149		109	109		149
Confl. Bikes (#/hr)			1			5			14			10
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	0%	6%	0%	12%	7%	0%	19%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%				0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	27	23	0	135	0	23	137	0	39	84	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2				6
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0		9.5	24.0		25.0	25.0	
Total Split (s)	30.0	30.0	30.0	30.0	30.0		10.0	45.0		35.0	35.0	
Total Split (%)	40.0%	40.0%	40.0%	40.0%	40.0%		13.3%	60.0%		46.7%	46.7%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		0.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0		6.0		3.5	6.0		6.0	6.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Max		C-Max	C-Max	
Act Effct Green (s)	9.6	9.6	9.6		9.6		58.2	56.9		53.0	53.0	
Actuated g/C Ratio	0.13	0.13	0.13		0.13		0.78	0.76		0.71	0.71	

Lanes, Volumes, Timings
 5: Maple Avenue & Garage Drive/Clark Street

01/14/2025

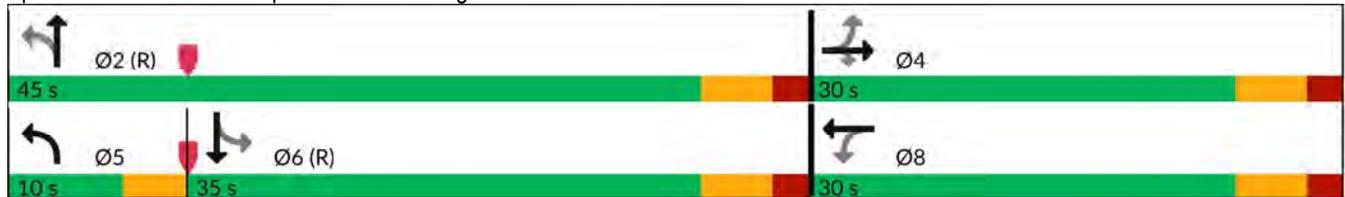


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.34	0.11	0.09		0.59		0.03	0.12		0.05	0.08	
Control Delay (s/veh)	34.7	27.6	0.7		24.8		1.6	2.0		7.6	6.3	
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	34.7	27.6	0.7		24.8		1.6	2.0		7.6	6.3	
LOS	C	C	A		C		A	A		A	A	
Approach Delay (s/veh)		24.8			24.8			2.0			6.8	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)	21	11	0		24		0	0		4	7	
Queue Length 95th (ft)	47	30	0		70		m5	37		24	37	
Internal Link Dist (ft)		83			319			495			298	
Turn Bay Length (ft)							100			75		
Base Capacity (vph)	353	608	475		451		799	1097		729	1063	
Starvation Cap Reductn	0	0	0		0		0	0		0	0	
Spillback Cap Reductn	0	0	0		0		0	0		0	0	
Storage Cap Reductn	0	0	0		0		0	0		0	0	
Reduced v/c Ratio	0.14	0.04	0.05		0.30		0.03	0.12		0.05	0.08	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.59
 Intersection Signal Delay (s/veh): 13.4 Intersection LOS: B
 Intersection Capacity Utilization 59.2% ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Maple Avenue & Garage Drive/Clark Street



Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	47	50	27	62	26	46	107	45	12	73	9
Future Vol, veh/h	16	47	50	27	62	26	46	107	45	12	73	9
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	0	0	0	0	3	0	3	0	0	0	0	0
Mvmt Flow	17	51	54	29	67	28	49	115	48	13	78	10
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.4	8.6	9.3	8.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	23%	14%	23%	13%
Vol Thru, %	54%	42%	54%	78%
Vol Right, %	23%	44%	23%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	198	113	115	94
LT Vol	46	16	27	12
Through Vol	107	47	62	73
RT Vol	45	50	26	9
Lane Flow Rate	213	122	124	101
Geometry Grp	1	1	1	1
Degree of Util (X)	0.269	0.153	0.161	0.132
Departure Headway (Hd)	4.553	4.547	4.688	4.69
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	788	786	763	762
Service Time	2.59	2.59	2.731	2.733
HCM Lane V/C Ratio	0.27	0.155	0.163	0.133
HCM Control Delay, s/veh	9.3	8.4	8.6	8.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.1	0.5	0.6	0.5

HCM 7th TWSC
8: Maple Avenue & University Place

01/14/2025

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	0	8	2	2	18	19	167	4	4	102	4
Future Vol, veh/h	25	0	8	2	2	18	19	167	4	4	102	4
Conflicting Peds, #/hr	5	0	2	2	0	5	118	0	52	52	0	118
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	4	0
Mvmt Flow	30	0	10	2	2	22	23	201	5	5	123	5

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	506	557	245	436	557	261	246	0	0	258	0	0
Stage 1	253	253	-	301	301	-	-	-	-	-	-	-
Stage 2	253	304	-	135	255	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	480	442	798	534	442	783	1332	-	-	1318	-	-
Stage 1	756	701	-	712	668	-	-	-	-	-	-	-
Stage 2	756	667	-	874	700	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	398	363	707	487	363	741	1182	-	-	1253	-	-
Mov Cap-2 Maneuver	398	363	-	487	363	-	-	-	-	-	-	-
Stage 1	668	620	-	662	621	-	-	-	-	-	-	-
Stage 2	711	620	-	857	619	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s/v13.87			10.79		0.81		0.29			
HCM LOS	B		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	179	-	-	445	649	65	-	-
HCM Lane V/C Ratio	0.019	-	-	0.089	0.041	0.004	-	-
HCM Control Delay (s/veh)	8.1	0	-	13.9	10.8	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.1	0	-	-

Capacity Analysis Summary Sheets
Weekday Morning Peak Hour – Projected Conditions

Lanes, Volumes, Timings
2: Church Street & Maple Avenue

01/14/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕			↕↕	
Traffic Volume (vph)	160	667	0	0	83	0
Future Volume (vph)	160	667	0	0	83	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	80	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	1.00	1.00	0.97	1.00
Ped Bike Factor		0.97			0.90	
Frt						
Flt Protected		0.990			0.950	
Satd. Flow (prot)	0	3391	0	0	3072	0
Flt Permitted		0.990			0.950	
Satd. Flow (perm)	0	3297	0	0	2752	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						
Link Speed (mph)		25	25		25	
Link Distance (ft)		536	831		575	
Travel Time (s)		14.6	22.7		15.7	
Confl. Peds. (#/hr)	69				50	
Confl. Bikes (#/hr)						11
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	5%	2%	2%	14%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	853	0	0	86	0
Turn Type	Perm	NA			Perm	
Protected Phases		4				
Permitted Phases	4				6	
Detector Phase	4	4			6	
Switch Phase						
Minimum Initial (s)	5.0	5.0			5.0	
Minimum Split (s)	24.0	24.0			24.0	
Total Split (s)	45.0	45.0			30.0	
Total Split (%)	60.0%	60.0%			40.0%	
Yellow Time (s)	4.0	4.0			4.0	
All-Red Time (s)	2.0	2.0			2.0	
Lost Time Adjust (s)		0.0			0.0	
Total Lost Time (s)		6.0			6.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None			C-Max	
Act Effct Green (s)		28.4			34.6	
Actuated g/C Ratio		0.38			0.46	

Lanes, Volumes, Timings
 2: Church Street & Maple Avenue

01/14/2025

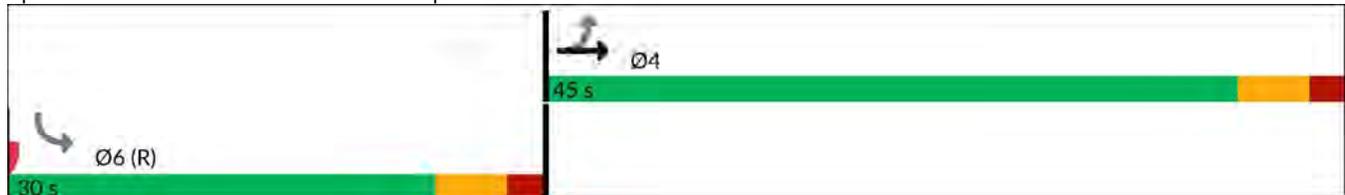


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
v/c Ratio		0.68			0.07	
Control Delay (s/veh)		22.0			12.0	
Queue Delay		0.0			0.0	
Total Delay (s/veh)		22.0			12.0	
LOS		C			B	
Approach Delay (s/veh)		22.0			12.0	
Approach LOS		C			B	
Queue Length 50th (ft)		170			9	
Queue Length 95th (ft)		192			21	
Internal Link Dist (ft)		456	751		495	
Turn Bay Length (ft)					80	
Base Capacity (vph)		1714			1269	
Starvation Cap Reductn		0			0	
Spillback Cap Reductn		0			0	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		0.50			0.07	

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	75
Offset:	0 (0%), Referenced to phase 2: and 6:SBL, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.68
Intersection Signal Delay (s/veh):	21.1
Intersection LOS:	C
Intersection Capacity Utilization:	37.3%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 2: Church Street & Maple Avenue



Lanes, Volumes, Timings
 5: Maple Avenue & Garage Drive/Clark Street

01/14/2025



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	24	31	5	27	49	49	73	38	27	48	34
Future Volume (vph)	20	24	31	5	27	49	49	73	38	27	48	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	100		0	75		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	25			25			70			70		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.97		0.93		0.96		0.90	0.96		0.94	0.94	
Frt			0.850		0.918			0.948			0.937	
Flt Protected	0.950				0.997		0.950			0.950		
Satd. Flow (prot)	1805	1900	1615	0	1616	0	1805	1576	0	1805	1503	0
Flt Permitted	0.826				0.975		0.648			0.673		
Satd. Flow (perm)	1515	1900	1497	0	1575	0	1112	1576	0	1197	1503	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95		58			45			40	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		163			399			575			378	
Travel Time (s)		4.4			10.9			15.7			10.3	
Confl. Peds. (#/hr)	19		26	26		19	59		37	37		59
Confl. Bikes (#/hr)						2			11			10
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	0%	6%	0%	12%	7%	0%	19%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	28	36	0	96	0	58	131	0	32	96	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0		9.5	24.0		24.0	24.0	
Total Split (s)	30.0	30.0	30.0	30.0	30.0		10.0	45.0		35.0	35.0	
Total Split (%)	40.0%	40.0%	40.0%	40.0%	40.0%		13.3%	60.0%		46.7%	46.7%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		0.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0		6.0		3.5	6.0		6.0	6.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Max		C-Max	C-Max	
Act Effct Green (s)	7.8	7.8	7.8		7.8		60.0	58.7		52.7	52.7	
Actuated g/C Ratio	0.10	0.10	0.10		0.10		0.80	0.78		0.70	0.70	

Lanes, Volumes, Timings
 5: Maple Avenue & Garage Drive/Clark Street

01/14/2025

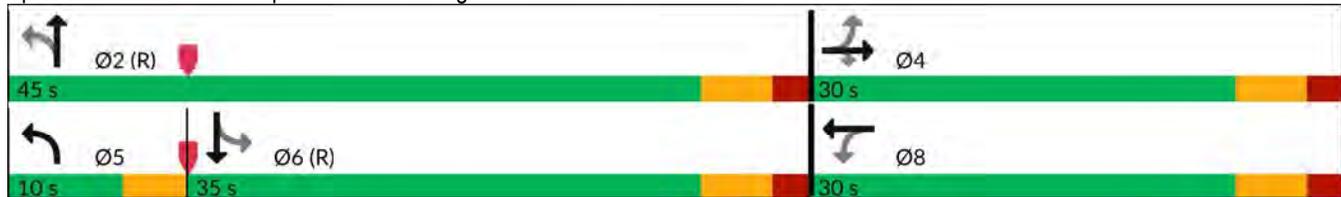


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.15	0.14	0.15		0.45		0.06	0.11		0.04	0.09	
Control Delay (s/veh)	31.4	30.8	1.3		21.5		1.0	0.8		7.0	4.7	
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	31.4	30.8	1.3		21.5		1.0	0.8		7.0	4.7	
LOS	C	C	A		C		A	A		A	A	
Approach Delay (s/veh)		18.9			21.5			0.8			5.3	
Approach LOS		B			C			A			A	
Queue Length 50th (ft)	10	12	0		17		1	0		5	9	
Queue Length 95th (ft)	28	31	0		52		m4	5		17	29	
Internal Link Dist (ft)		83			319			495			298	
Turn Bay Length (ft)							100			75		
Base Capacity (vph)	484	608	543		543		950	1243		841	1068	
Starvation Cap Reductn	0	0	0		0		0	0		0	0	
Spillback Cap Reductn	0	0	0		0		0	0		0	0	
Storage Cap Reductn	0	0	0		0		0	0		0	0	
Reduced v/c Ratio	0.05	0.05	0.07		0.18		0.06	0.11		0.04	0.09	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.45
 Intersection Signal Delay (s/veh): 9.1 Intersection LOS: A
 Intersection Capacity Utilization 50.6% ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Maple Avenue & Garage Drive/Clark Street



Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	22	26	35	5	43	8	32	73	14	6	61	2
Future Vol, veh/h	22	26	35	5	43	8	32	73	14	6	61	2
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	7	0	0	0	0	0	2	0	14	2	0
Mvmt Flow	27	32	43	6	52	10	39	89	17	7	74	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.9	7.9	8.3	8.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	27%	27%	9%	9%
Vol Thru, %	61%	31%	77%	88%
Vol Right, %	12%	42%	14%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	119	83	56	69
LT Vol	32	22	5	6
Through Vol	73	26	43	61
RT Vol	14	35	8	2
Lane Flow Rate	145	101	68	84
Geometry Grp	1	1	1	1
Degree of Util (X)	0.176	0.121	0.085	0.109
Departure Headway (Hd)	4.365	4.309	4.476	4.681
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	824	833	802	767
Service Time	2.381	2.327	2.495	2.7
HCM Lane V/C Ratio	0.176	0.121	0.085	0.11
HCM Control Delay, s/veh	8.3	7.9	7.9	8.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.4	0.3	0.4

HCM 7th TWSC
8: Maple Avenue & University Place

01/14/2025

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	13	3	12	14	2	19	17	120	8	7	101	6
Future Vol, veh/h	13	3	12	14	2	19	17	120	8	7	101	6
Conflicting Peds, #/hr	8	0	0	0	0	8	67	0	32	32	0	67
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	9	0	0	7	8	0	17	9	0
Mvmt Flow	15	3	14	16	2	22	20	138	9	8	116	7

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	389	421	187	348	420	183	190	0	0	179	0	0
Stage 1	203	203	-	214	214	-	-	-	-	-	-	-
Stage 2	186	218	-	134	206	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.19	6.5	6.2	4.17	-	-	4.27	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.581	4	3.3	2.263	-	-	2.353	-	-
Pot Cap-1 Maneuver	574	527	861	594	528	865	1354	-	-	1311	-	-
Stage 1	804	738	-	773	730	-	-	-	-	-	-	-
Stage 2	820	726	-	853	735	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	504	467	806	549	468	832	1268	-	-	1271	-	-
Mov Cap-2 Maneuver	504	467	-	549	468	-	-	-	-	-	-	-
Stage 1	747	686	-	737	695	-	-	-	-	-	-	-
Stage 2	777	692	-	828	683	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s/v	11.4		10.76		0.92		0.48	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	208	-	-	595	665	109	-	-
HCM Lane V/C Ratio	0.015	-	-	0.054	0.06	0.006	-	-
HCM Control Delay (s/veh)	7.9	0	-	11.4	10.8	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.2	0	-	-

Capacity Analysis Summary Sheets
Weekday Evening Peak Hour – Projected Conditions

Lanes, Volumes, Timings

2: Church Street & Maple Avenue

01/14/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕			↕↕	
Traffic Volume (vph)	181	674	0	0	145	0
Future Volume (vph)	181	674	0	0	145	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	80	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	1.00	1.00	0.97	1.00
Ped Bike Factor		0.95			0.77	
Frt						
Flt Protected		0.990			0.950	
Satd. Flow (prot)	0	3436	0	0	3303	0
Flt Permitted		0.990			0.950	
Satd. Flow (perm)	0	3263	0	0	2540	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						
Link Speed (mph)		25	25		25	
Link Distance (ft)		536	831		575	
Travel Time (s)		14.6	22.7		15.7	
Confl. Peds. (#/hr)	114				111	
Confl. Bikes (#/hr)						13
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	2%	2%	6%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	910	0	0	154	0
Turn Type	Perm	NA			Prot	
Protected Phases		4			6	
Permitted Phases	4					
Detector Phase	4	4			6	
Switch Phase						
Minimum Initial (s)	5.0	5.0			5.0	
Minimum Split (s)	24.0	24.0			24.0	
Total Split (s)	45.0	45.0			30.0	
Total Split (%)	60.0%	60.0%			40.0%	
Yellow Time (s)	4.0	4.0			4.0	
All-Red Time (s)	2.0	2.0			2.0	
Lost Time Adjust (s)		0.0			0.0	
Total Lost Time (s)		6.0			6.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None			C-Max	
Act Effct Green (s)		30.0			33.0	
Actuated g/C Ratio		0.40			0.44	

Lanes, Volumes, Timings
 2: Church Street & Maple Avenue

01/14/2025

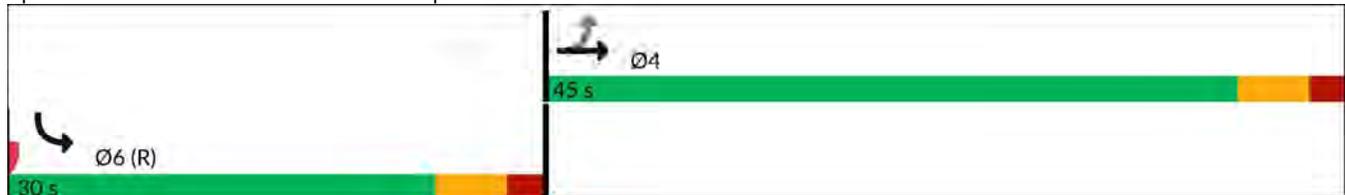


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
v/c Ratio		0.70			0.11	
Control Delay (s/veh)		21.3			13.1	
Queue Delay		0.0			0.0	
Total Delay (s/veh)		21.3			13.1	
LOS		C			B	
Approach Delay (s/veh)		21.3			13.1	
Approach LOS		C			B	
Queue Length 50th (ft)		180			21	
Queue Length 95th (ft)		200			41	
Internal Link Dist (ft)		456	751		495	
Turn Bay Length (ft)					80	
Base Capacity (vph)		1696			1454	
Starvation Cap Reductn		0			0	
Spillback Cap Reductn		0			0	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		0.54			0.11	

Intersection Summary

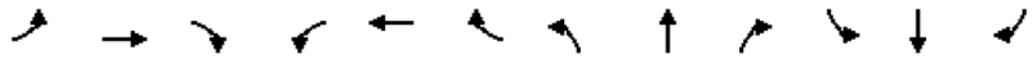
Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	75
Offset:	0 (0%), Referenced to phase 2: and 6:SBL, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.70
Intersection Signal Delay (s/veh):	20.1
Intersection LOS:	C
Intersection Capacity Utilization:	38.1%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 2: Church Street & Maple Avenue



Lanes, Volumes, Timings
 5: Maple Avenue & Garage Drive/Clark Street

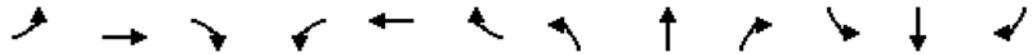
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	35	39	44	25	74	48	70	64	41	64	31
Future Volume (vph)	54	35	39	44	25	74	48	70	64	41	64	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	100		0	75		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	25			25			70			70		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.88		0.80		0.86		0.76	0.88		0.81	0.89	
Frt			0.850		0.930			0.928			0.951	
Flt Protected	0.950				0.985		0.950			0.950		
Satd. Flow (prot)	1805	1900	1615	0	1535	0	1805	1416	0	1805	1429	0
Flt Permitted	0.624				0.883		0.642			0.666		
Satd. Flow (perm)	1046	1900	1284	0	1301	0	923	1416	0	1029	1429	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95		75			68				33
Link Speed (mph)		25			25			25				25
Link Distance (ft)		163			399			575				378
Travel Time (s)		4.4			10.9			15.7				10.3
Confl. Peds. (#/hr)	74		90	90		74	149		109	109		149
Confl. Bikes (#/hr)			1			5			14			10
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	0%	6%	0%	12%	7%	0%	19%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%				0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	37	41	0	153	0	51	142	0	44	101	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2				6
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0		9.5	24.0		25.0	25.0	
Total Split (s)	30.0	30.0	30.0	30.0	30.0		10.0	45.0		35.0	35.0	
Total Split (%)	40.0%	40.0%	40.0%	40.0%	40.0%		13.3%	60.0%		46.7%	46.7%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		0.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0		6.0		3.5	6.0		6.0	6.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Max		C-Max	C-Max	
Act Effct Green (s)	10.4	10.4	10.4		10.4		55.1	52.6		46.6	46.6	
Actuated g/C Ratio	0.14	0.14	0.14		0.14		0.73	0.70		0.62	0.62	

Lanes, Volumes, Timings
 5: Maple Avenue & Garage Drive/Clark Street

01/14/2025

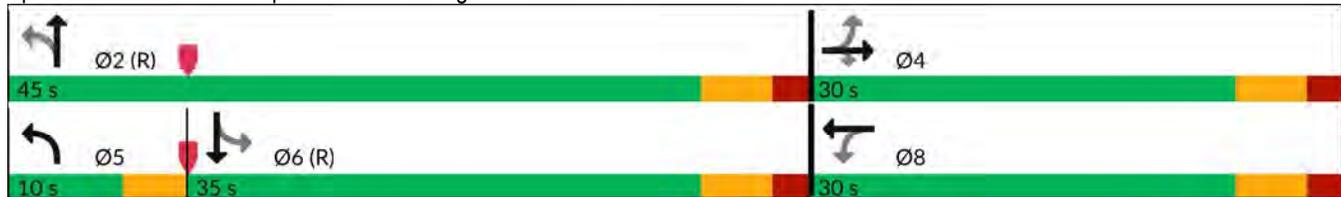


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.39	0.14	0.16		0.63		0.07	0.14		0.07	0.11	
Control Delay (s/veh)	35.7	27.3	1.6		27.2		2.1	2.5		9.1	6.7	
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	35.7	27.3	1.6		27.2		2.1	2.5		9.1	6.7	
LOS	D	C	A		C		A	A		A	A	
Approach Delay (s/veh)		23.0			27.2			2.4			7.5	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)	25	15	0		34		0	0		8	13	
Queue Length 95th (ft)	54	36	3		83		m13	45		28	42	
Internal Link Dist (ft)		83			319			495			298	
Turn Bay Length (ft)							100			75		
Base Capacity (vph)	334	608	475		467		756	1013		638	899	
Starvation Cap Reductn	0	0	0		0		0	0		0	0	
Spillback Cap Reductn	0	0	0		0		0	0		0	0	
Storage Cap Reductn	0	0	0		0		0	0		0	0	
Reduced v/c Ratio	0.17	0.06	0.09		0.33		0.07	0.14		0.07	0.11	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay (s/veh): 14.1 Intersection LOS: B
 Intersection Capacity Utilization 59.3% ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Maple Avenue & Garage Drive/Clark Street



Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	55	57	27	69	26	52	107	45	12	73	13
Future Vol, veh/h	20	55	57	27	69	26	52	107	45	12	73	13
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	0	0	0	0	3	0	3	0	0	0	0	0
Mvmt Flow	22	59	61	29	74	28	56	115	48	13	78	14
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.7	8.8	9.5	8.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	15%	22%	12%
Vol Thru, %	52%	42%	57%	74%
Vol Right, %	22%	43%	21%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	204	132	122	98
LT Vol	52	20	27	12
Through Vol	107	55	69	73
RT Vol	45	57	26	13
Lane Flow Rate	219	142	131	105
Geometry Grp	1	1	1	1
Degree of Util (X)	0.283	0.181	0.173	0.139
Departure Headway (Hd)	4.639	4.603	4.757	4.753
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	772	776	752	751
Service Time	2.683	2.652	2.806	2.804
HCM Lane V/C Ratio	0.284	0.183	0.174	0.14
HCM Control Delay, s/veh	9.5	8.7	8.8	8.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.2	0.7	0.6	0.5

HCM 7th TWSC
8: Maple Avenue & University Place

01/14/2025

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	0	8	2	2	18	19	176	4	4	118	12
Future Vol, veh/h	30	0	8	2	2	18	19	176	4	4	118	12
Conflicting Peds, #/hr	5	0	2	2	0	5	118	0	52	52	0	118
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	4	0
Mvmt Flow	36	0	10	2	2	22	23	212	5	5	142	14

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	541	592	269	466	597	271	275	0	0	269	0	0
Stage 1	277	277	-	312	312	-	-	-	-	-	-	-
Stage 2	264	315	-	154	284	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	455	422	774	510	419	772	1300	-	-	1306	-	-
Stage 1	734	685	-	703	661	-	-	-	-	-	-	-
Stage 2	746	659	-	853	680	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	377	346	686	464	344	730	1154	-	-	1242	-	-
Mov Cap-2 Maneuver	377	346	-	464	344	-	-	-	-	-	-	-
Stage 1	649	605	-	653	614	-	-	-	-	-	-	-
Stage 2	701	613	-	836	601	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	14.71	10.94	0.78	0.24
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	171	-	-	416	633	53	-	-
HCM Lane V/C Ratio	0.02	-	-	0.11	0.042	0.004	-	-
HCM Control Delay (s/veh)	8.2	0	-	14.7	10.9	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.1	0	-	-