

Traffic Impact Study

Proposed Justice Cannabis Dispensary

Joliet, Illinois



Prepared For:



March 24, 2022

1. Introduction

This report summarizes the methodologies, results, and findings of a traffic impact study conducted by Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) for the proposed Justice Cannabis dispensary to be located at 2211 West Jefferson Street in Joliet, Illinois. The site, which currently contains the former Bakers Square restaurant building, is located on the north side of Jefferson Street (US 52) west of Hammes Avenue. As proposed, the existing building will be repurposed to provide an approximately 4,060 square-foot dispensary with approximately 65 parking spaces. Access to the site will continue to be provided via the existing shared access drive off Jefferson Street.

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

Figure 1 shows the location of the site in relation to the area roadway system. **Figure 2** shows an aerial view of the site.

The sections of this report present the following:

- Existing roadway conditions
- A description of the proposed dispensary
- Directional distribution of the dispensary traffic
- Vehicle trip generation for the dispensary
- Future traffic conditions including access to the dispensary
- Traffic analyses for the weekday morning, weekday evening, and Saturday midday peak hours
- Recommendations with respect to adequacy of the site access and adjacent roadway system
- Parking evaluation to determine the adequacy of the parking supply

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

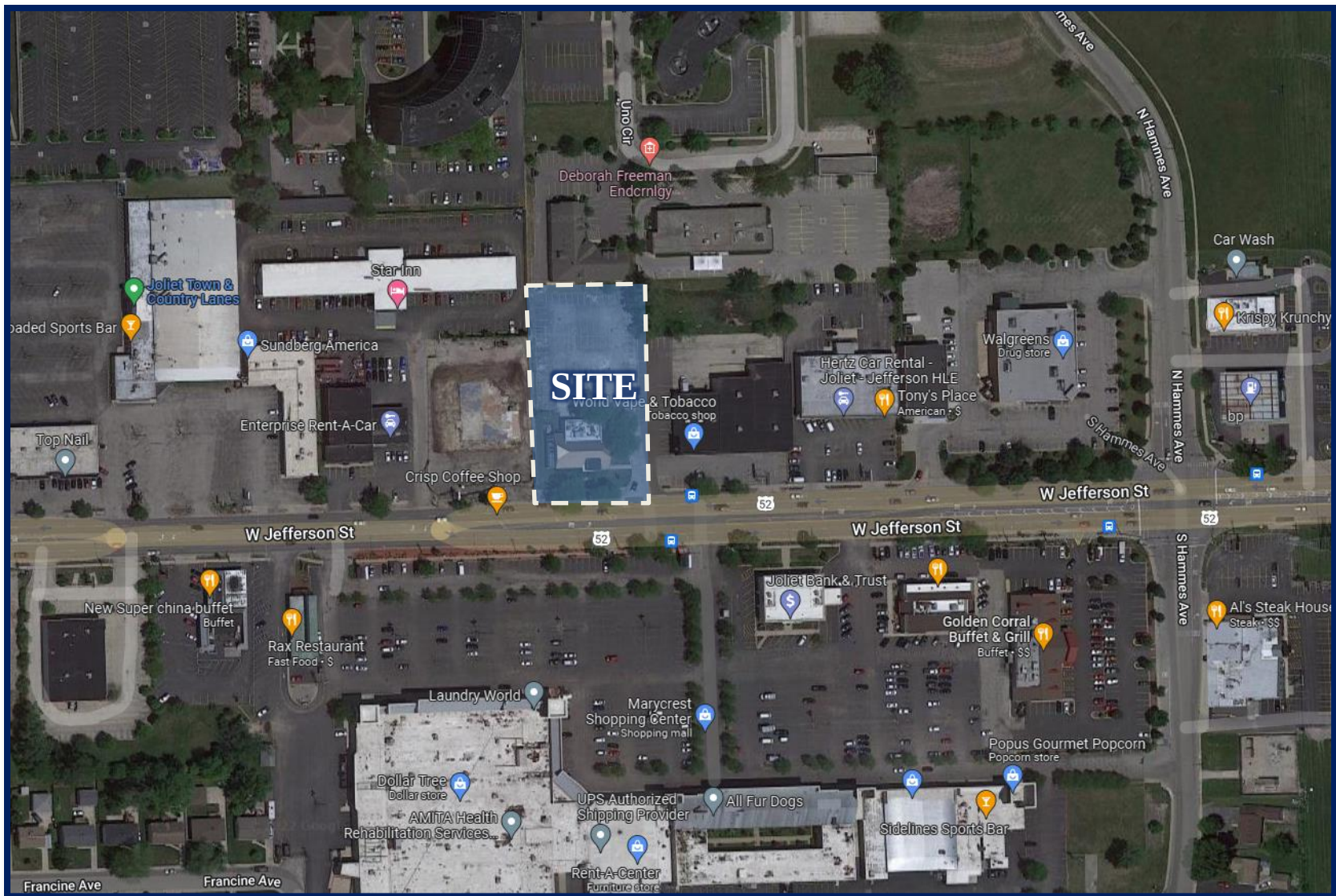
1. Existing Conditions – Analyze the capacity of the existing roadway system using existing peak hour traffic volumes in the surrounding area.
2. No-Build Conditions – Analyzes the capacity of the existing roadway system using existing peak hour traffic volumes increased by an ambient area growth factor not attributable to any particular development.
3. Projected Conditions – Analyzes the capacity of the future roadway system using the projected traffic volumes that include the existing traffic volumes, ambient area growth not attributable to any particular development, and the net increase in traffic estimated to be generated by the proposed dispensary.



Site Location

Figure 1

*Proposed Justice Cannabis Dispensary
Joliet, Illinois*



Aerial View of Site

Figure 2

2. Existing Conditions

Existing transportation conditions in the vicinity of the site were documented in order to obtain a database 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.

Site Location

The site, which currently contains the former Bakers Square restaurant building, is located on the north side of Jefferson Street (US 52) west of Hammes Avenue. Land uses in the immediate area are primarily commercial with a variety of retail, restaurant, and service establishments along Jefferson Street.

Existing Roadway System Characteristics

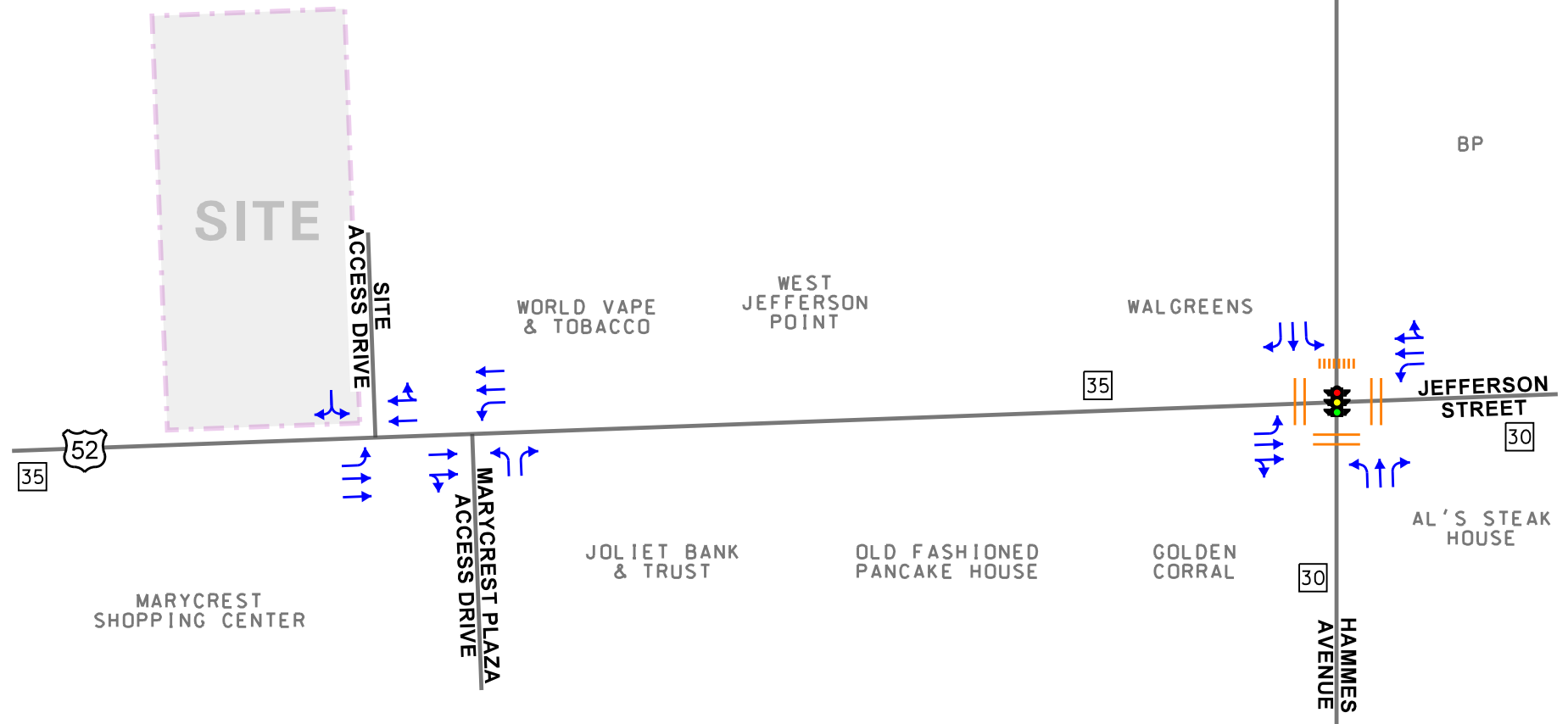
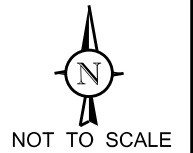
The characteristics of the existing roadways near the site are described below and illustrated in **Figure 3**.

Jefferson Street (US 52) is an east-west other principal arterial roadway which generally provides two lanes in each direction in the vicinity of the site separated by a median that accommodates exclusive left-turn lanes. At its signalized intersection with Hammes Avenue, Jefferson Street provides a left-turn lane, a through lane, and a combined through/right-turn lane on the eastbound and westbound approaches. Standard-style crosswalks are provided on both the east and west legs of the intersection. At its unsignalized intersection with the Marycrest Plaza access drive, Jefferson Street provides a through lane and a combined through/right-turn lane on the eastbound approach. On the westbound approach, Jefferson Street provides a left-turn lane and two through lanes. At its unsignalized intersection with the site access drive, Jefferson Street provides a left-turn lane and two through lanes on the eastbound approach. On the westbound approach, Jefferson Street provides a through lane and a combined through/right-turn lane. Sidewalks are generally provided on both sides of the roadway. Jefferson Street is under the jurisdiction of the Illinois Department of Transportation (IDOT), carries an Annual Average Daily Traffic (AADT) volume of approximately 30,100 vehicles (IDOT 2019), and has a posted speed limit of 35 miles per hour.

Hammes Avenue is a north-south major collector roadway that generally provides one lane in each direction in the vicinity of the site. At its signalized intersection with Jefferson Street, Hammes Avenue provides a left-turn lane, a through lane, and a right-turn lane on the northbound and southbound approaches. A high-visibility crosswalk is provided on the north leg and a standard-style crosswalk is provided on the south leg. Sidewalks are generally provided on both sides of the roadway. Hammes Avenue is under the jurisdiction of the City of Joliet, carries an AADT volume of approximately 4,050 vehicles (IDOT 2019), and has a posted speed limit of 30 miles per hour.

LEGEND

- ➡ - TRAVEL LANE
- 🚦 - TRAFFIC SIGNAL
- XX - SPEED LIMIT
- == - STANDARD CROSSWALK
- ||||| - HIGH VISIBILITY CROSSWALK



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Existing Roadway Characteristics

Marycrest Plaza Access Drive is a north-south private drive that provides one inbound lane and two outbound lanes at its intersection with Jefferson Street. The northbound approach provides a left-turn lane and a right-turn lane.

Site Access Drive is a north-south private drive that provides one inbound lane and one outbound lane at its intersection with Jefferson Street. The southbound approach provides a combined left-turn/right-turn lane. The access drive provides shared access to the site as well as the retail strip to the east of the site.

Existing Traffic Volumes

In order to determine current traffic conditions within the study area, KLOA, Inc. conducted peak period traffic counts at the following intersections:

- Jefferson Street (US 52) with Hammes Avenue
- Jefferson Street with Marycrest Plaza Access Drive
- Jefferson Street with Site Access Drive

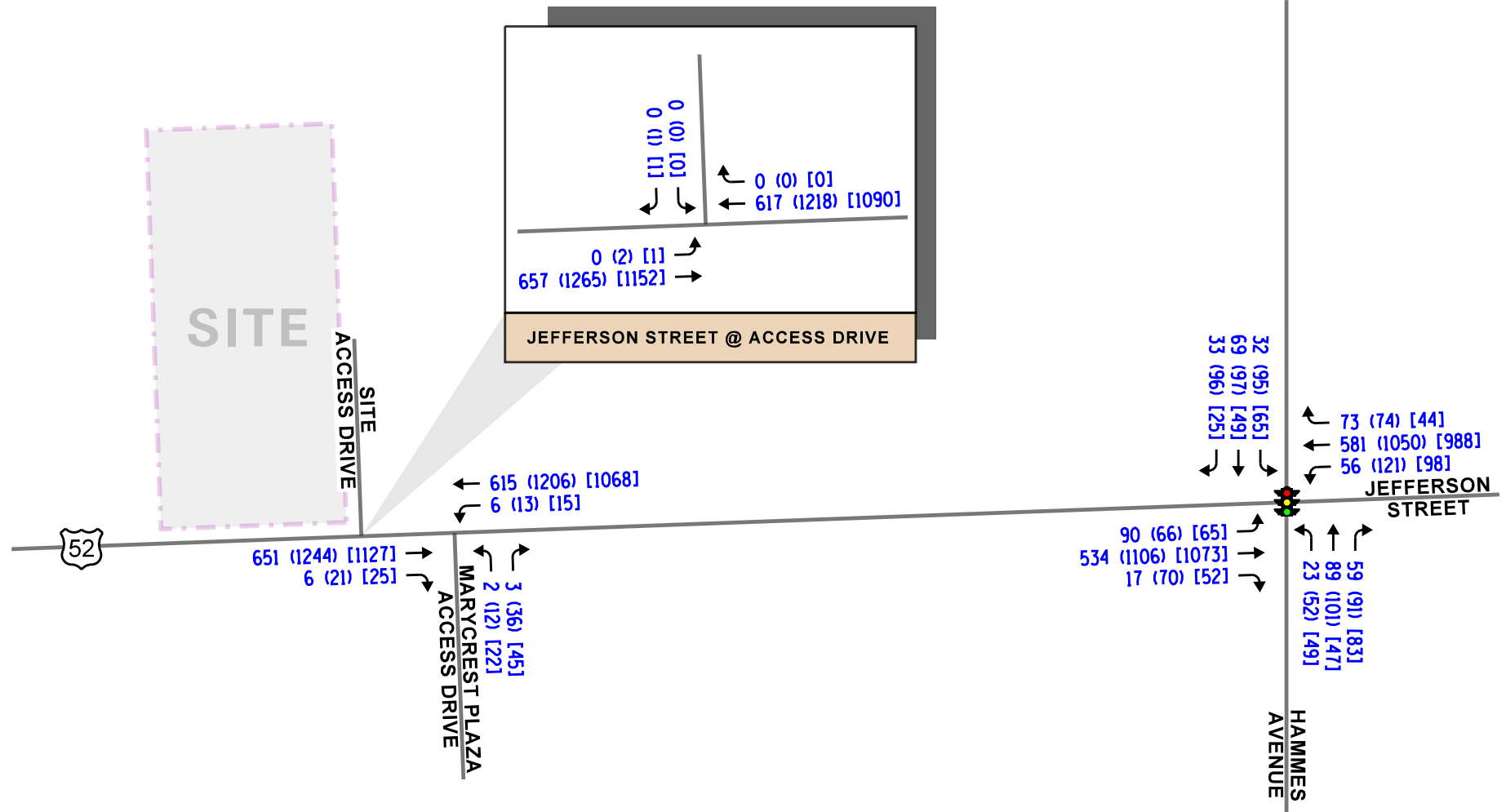
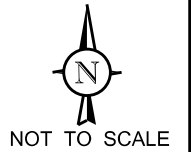
The counts were conducted during the weekday morning (7:00 A.M. to 8:00 A.M.), weekday evening (4:00 P.M. to 6:00 P.M.), and Saturday midday (11:30 A.M. to 2:00 P.M.) peak periods on a typical weekday and Saturday in February and March 2022. The results of the traffic counts show that the peak hours of traffic generally occur between 7:00 A.M. and 8:00 A.M. during the morning peak period, between 4:00 P.M. and 5:00 P.M. during the evening peak period, and between 11:30 A.M. to 12:30 P.M. during the Saturday midday peak period.

It should be noted that due to the ongoing COVID-19 pandemic, it is anticipated that traffic volumes in the area generally do not reflect normal or typical conditions. As such, the 2022 traffic counts were compared to the 2019 two-way traffic counts on the IDOT Traffic Count Database System that were increased to reflect 2022 volumes with an annual growth rate, to be discussed later. Based on the comparison, the traffic volumes conducted in 2022 along Jefferson Street were increased by approximately 10 percent during the peak hours. The comparison determined that the 2022 traffic volumes on Hammes Avenue were higher or consistent with the IDOT traffic volumes and therefore no adjustments were applied.

Figure 4 illustrates the Year 2022 base peak hour vehicle traffic volumes. Copies of the traffic count summary sheets are included in the Appendix.

LEGEND

- 00 - AM PEAK HOUR (7:00-8:00 AM)
- (00) - PM PEAK HOUR (4:00-5:00 PM)
- [00] - SATURDAY MIDDAY PEAK HOUR (11:30 AM-12:30 PM)



Proposed Justice Cannabis Dispensary
Joliet, Illinois

Year 2022 Base Traffic Volumes



Job No: 22-059

Figure: 4

Crash Analysis

KLOA, Inc. obtained crash data¹ from IDOT for the most recent available five years (2016 to 2020) for the intersections of Jefferson Street (US 52) with Hammes Avenue, Maryville Plaza access drive, and the site access drive. The crash data for the intersection of Jefferson Street with Hammes Avenue is summarized in **Table 1**. No crashes were reported at the intersections of Jefferson Street with Maryville Plaza access drive or the site access drive during the review period. A review of the crash data indicated that no fatalities were reported at any of the intersections during the review period.

Table 1

JEFFERSON STREET (US 52) WITH HAMMES AVENUE – CRASH SUMMARY

Year	Type of Crash Frequency						Total
	Angle	Object	Rear End	Sideswipe	Turning	Other	
2016	2	0	3	0	1	1	7
2017	0	1	7	0	2	0	10
2018	1	0	2	1	2	0	6
2019	3	0	3	0	0	0	6
2020	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>4</u>
Total	6	1	16	1	8	1	33
Average	1.2	<1.0	3.2	<1.0	1.6	<1.0	6.6

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). Additionally, for coding years 2015 to present, the Bureau of Data Collection uses the exact latitude/longitude supplied by the investigating law enforcement agency to locate crashes. Therefore, location data may vary in previous years since data prior to 2015 was physically located by bureau personnel.

3. Traffic Characteristics of the Proposed Dispensary

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

Proposed Site and Development Plan

The site, which currently contains the former Bakers Square restaurant building, is located on the north side of Jefferson Street (US 52) west of Hammes Avenue. As proposed, the existing restaurant building will be repurposed to accommodate the dispensary. The repurposed building will be approximately 4,060 square feet in size and will provide approximately 65 parking spaces. Based on the information provided by the operator, the dispensary will be open from 8:00 A.M. to 10:00 P.M. and will have, on average, approximately six to eight employees per shift. In addition, the dispensary will receive approximately two deliveries per week and approximately two cash pick-ups per week. Access to the dispensary parking lot will continue to be provided via the existing shared access drive. This access drive is approximately 36 feet wide and currently provides one inbound lane and one outbound lane. Outbound movements should be stop sign controlled. A copy of the site plan is included in the Appendix.

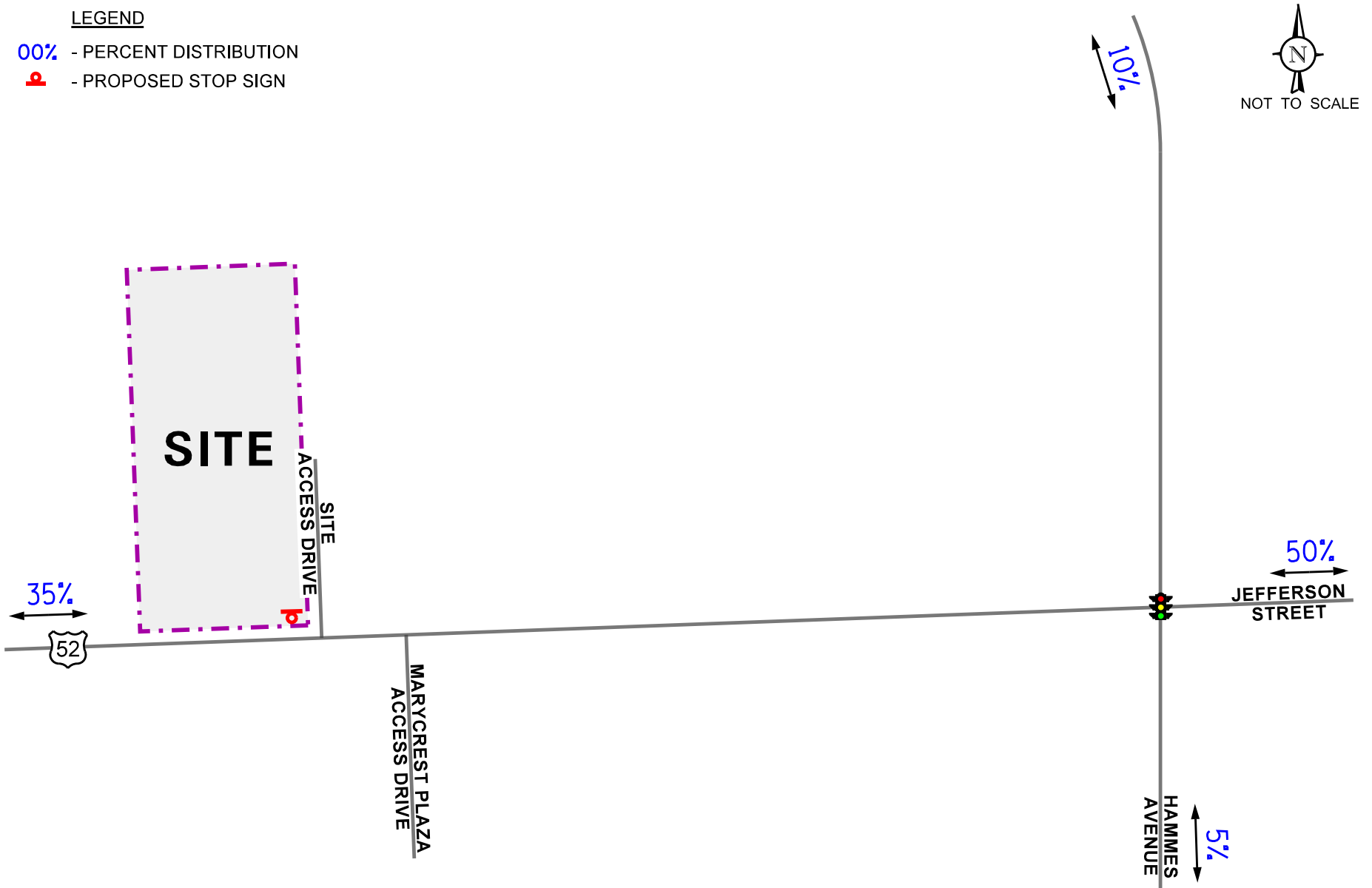
Directional Distribution

The directions from which patrons and employees will approach and depart the site were estimated based on existing travel patterns, as determined from the traffic counts. **Figure 5** illustrates the directional distribution of the traffic generated by the proposed dispensary.

LEGEND

00% - PERCENT DISTRIBUTION

 - PROPOSED STOP SIGN



Proposed Justice
Cannabis Dispensary
Joliet, Illinois

Estimated Directional Distribution



Job No: 22-059

Figure: 5

Peak Hour Traffic Volumes

The volume of traffic estimated to be generated by the proposed dispensary was based on trip generation rates published by the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition. **Table 2** shows the ITE trip generation estimates. The “Marijuana Dispensary” (Land-Use Code 882) rate was used for the proposed dispensary. It should be noted that based on information provided by the operator, the dispensary’s projected trips are approximately 300 customers per day. As such, the trip generation estimates were based on the ITE trip generation rates as they result in higher traffic volumes in order to provide conservative analyses.

Table 2

PROJECTED PEAK HOUR SITE-GENERATED TRAFFIC VOLUMES

Type/Size	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Saturday Midday Peak Hour			Daily Two-Way Traffic		
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
Proposed Marijuana Dispensary (4,060 s.f.)	22	21	43	38	39	77	58	59	117	429	429	850

4. Projected Traffic Conditions

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

Dispensary Traffic Assignment

The estimated weekday morning, weekday evening, and Saturday midday peak hour traffic volumes that will be generated by the proposed dispensary were assigned to the roadway system in accordance with the previously described directional distribution (Figure 5). **Figure 6** illustrates the traffic assignment of the total new trips.

Background (No-Build) Traffic Conditions

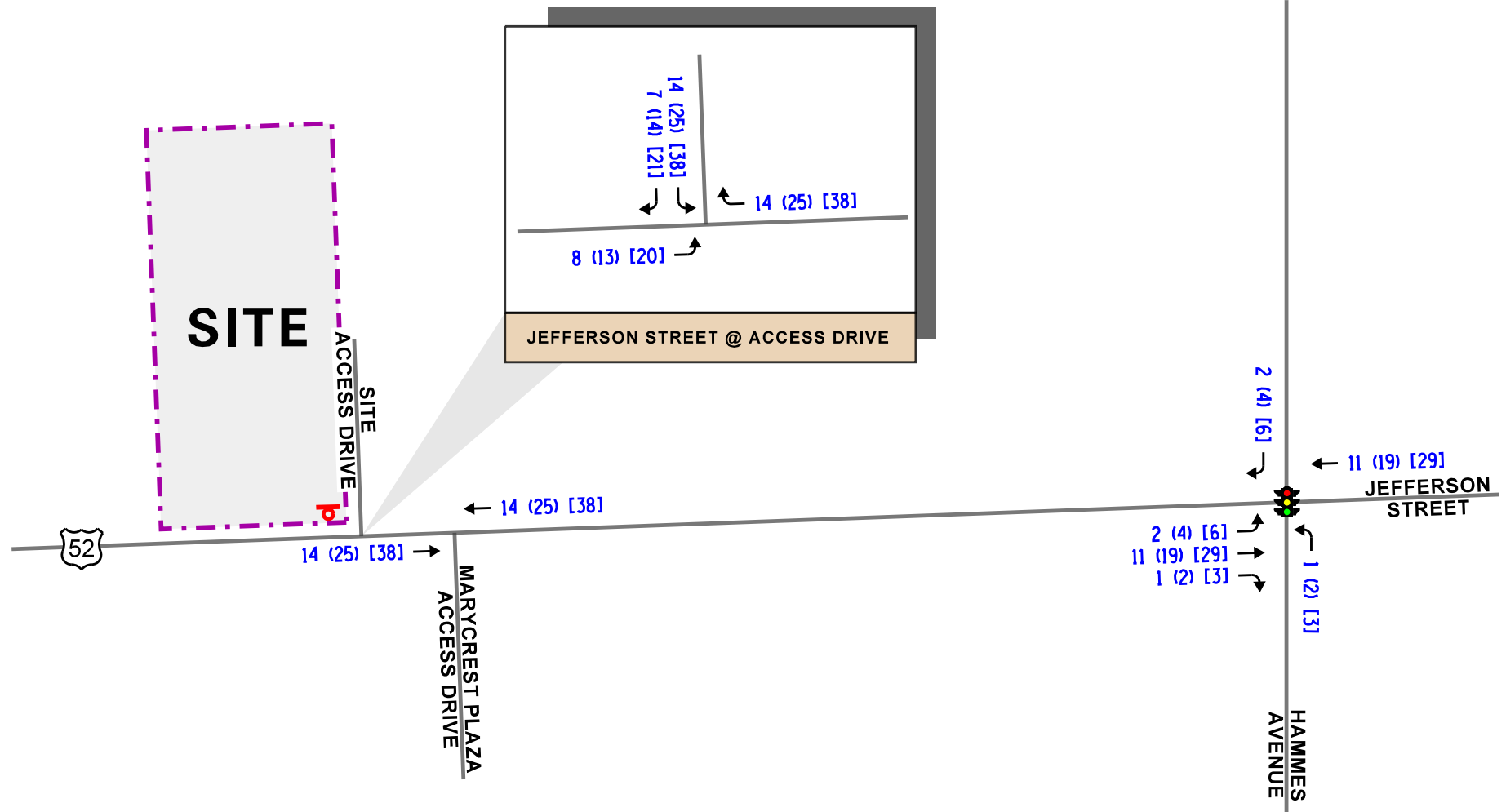
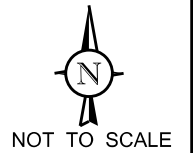
The Year 2022 base traffic volumes (Figure 4) were increased by a regional growth factor to account for the increase in existing traffic related to regional growth in the area (i.e., not attributable to any particular planned development). Based on AADT projections provided by CMAP in a letter dated March 23, 2022, the Year 2022 traffic volumes are projected to increase by a compound annual growth rate of 0.8 percent per year. As such, traffic volumes were increased by approximately 5 percent total to represent Year 2028 conditions (one-year buildout plus five years). A copy of the CMAP projections letter is included in the Appendix. The Year 2028 no-build traffic volumes, which include the existing traffic volumes increased by the regional growth factor, are illustrated in **Figure 7**.

Total Projected Traffic Volumes

The traffic to be generated by the proposed dispensary (Figure 6) was added to the existing traffic volumes accounting for ambient background growth (Figure 7) to determine the Year 2028 total projected traffic volumes, as shown in **Figure 8**.

LEGEND

- 00 - AM PEAK HOUR (7:00-8:00 AM)
- (00) - PM PEAK HOUR (4:00-5:00 PM)
- [00] - SATURDAY MIDDAY PEAK HOUR (11:30 AM-12:30 PM)
-  - PROPOSED STOP SIGN



Proposed Justice
Cannabis Dispensary
Joliet, Illinois

Estimated Site-Generated
Traffic Volumes

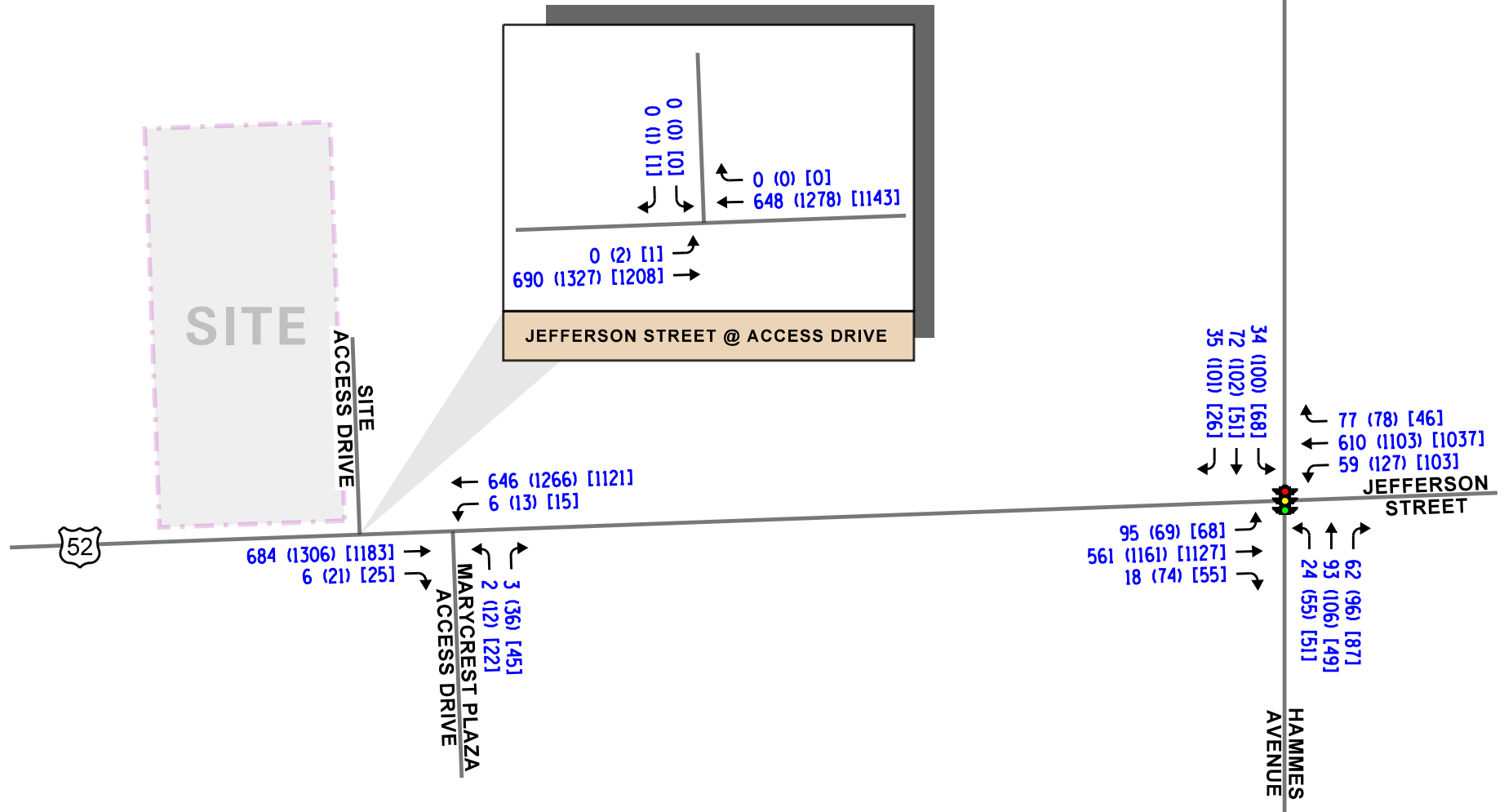
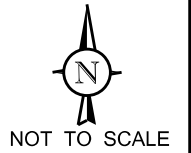


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Figure: 6

LEGEND

- 00 - AM PEAK HOUR (7:00-8:00 AM)
- (00) - PM PEAK HOUR (4:00-5:00 PM)
- [00] - SATURDAY MIDDAY PEAK HOUR (11:30 AM-12:30 PM)



Proposed Justice Cannabis Dispensary
Joliet, Illinois

Year 2028 No-Build Traffic Volumes

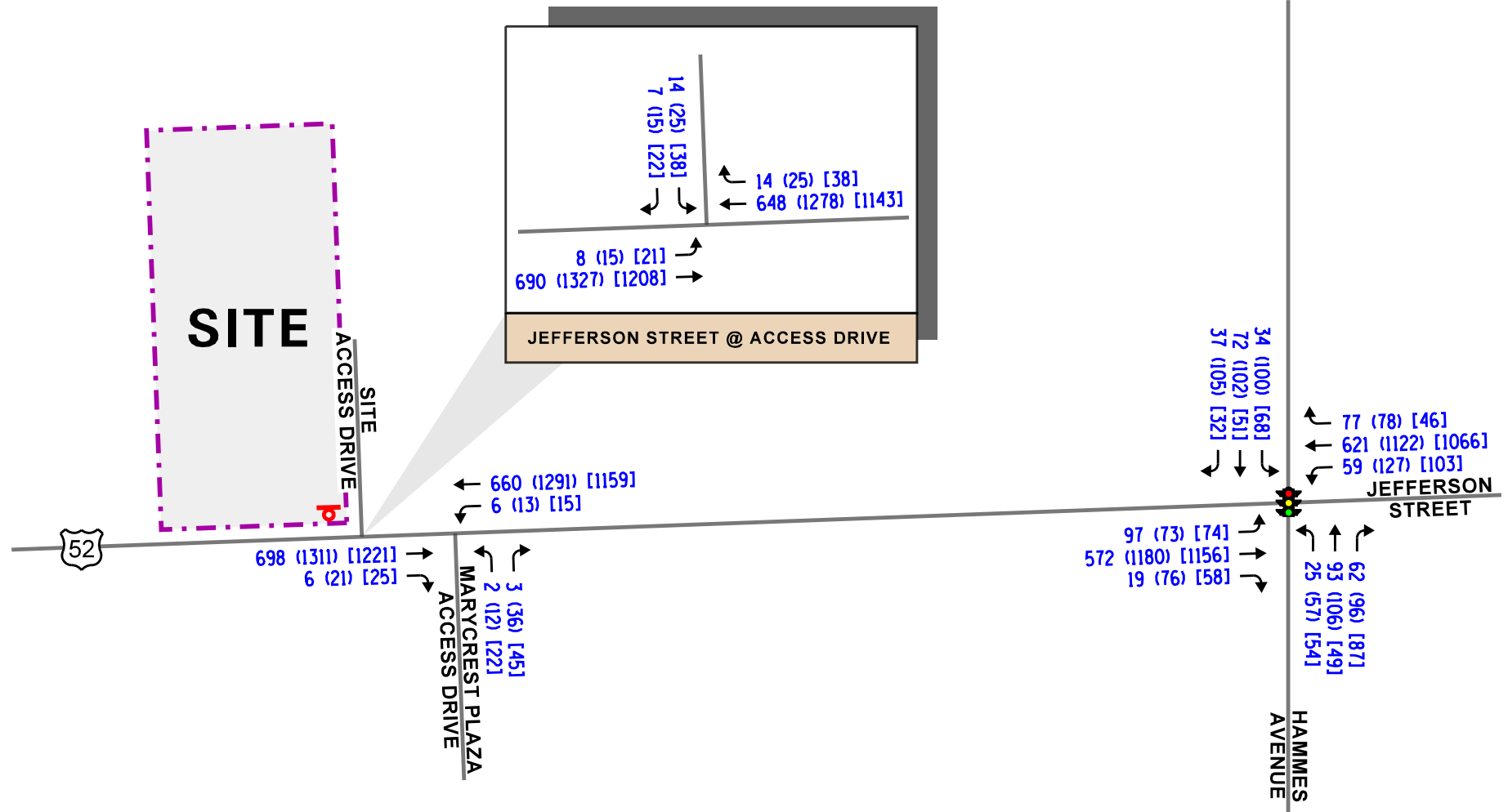
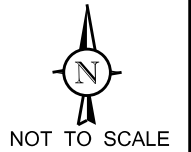


Job No: 22-059

Figure: 7

LEGEND

- 00 - AM PEAK HOUR (7:00-8:00 AM)
- (00) - PM PEAK HOUR (4:00-5:00 PM)
- [00] - SATURDAY MIDDAY PEAK HOUR (11:30 AM-12:30 PM)
-  - PROPOSED STOP SIGN



Proposed Justice
Cannabis Dispensary
Joliet, Illinois

Year 2028 Total Projected Traffic Volumes



Job No: 22-059

Figure: 8

5. Traffic Analysis and Recommendations

The following provides an evaluation conducted for the weekday morning, weekday evening, and Saturday midday 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, weekday evening, and Saturday midday peak hours for the base (Year 2022), Year 2028 no-build, and Year 2028 total projected 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 the Synchro/SimTraffic 11 software. The analysis for the traffic-signal controlled intersections were accomplished using actual cycle lengths and phasings to determine the average overall vehicle delay and levels of service.

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 base, no-build, and total projected conditions are presented in **Tables 4 through 7**. A discussion of each intersection follows. Summary sheets for the capacity analyses are included in the Appendix.

Table 4

CAPACITY ANALYSIS RESULTS – JEFFERSON STREET (US 52) WITH HAMMES AVENUE

	Peak Hour	Eastbound			Westbound			Northbound			Southbound			Overall
		L	T	R	L	T	R	L	T	R	L	T	R	
Year 2022 Existing Conditions	Weekday Morning	B 12.3	B 19.6		B 10.2	C 22.5		C 23.6	D 35.6	A 2.7	C 23.8	C 34.3	A 0.4	C 20.7
		B – 18.5			C – 21.6			C – 22.6			C – 23.5			
	Weekday Evening	B 15.0	C 31.3		C 25.3	C 27.6		C 29.9	D 45.2	A 9.7	C 31.0	D 42.0	A 8.9	C 28.8
		C – 30.5			C – 27.4			C – 28.7			C – 27.3			
	Saturday MIDDAY	B 13.7	C 29.0		B 17.1	C 25.5		C 29.5	D 41.5	A 3.2	C 29.9	D 40.6	A 0.1	C 26.2
		C – 28.2			C – 24.8			C – 20.4			C – 28.3			
Year 2028 No-Build Conditions	Weekday Morning	B 13.1	B 20.0		B 10.5	C 23.3		C 23.6	D 35.9	A 3.2	C 23.9	C 34.6	A 0.5	C 21.2
		B – 19.0			C – 22.2			C – 22.9			C – 23.6			
	Weekday Evening	B 16.0	C 33.0		C 33.9	C 28.8		C 30.0	D 45.8	A 9.9	C 31.2	D 42.3	A 8.7	C 30.2
		C – 32.1			C – 29.3			C – 29.0			C – 27.4			
	Saturday MIDDAY	B 14.2	C 30.3		B 19.0	C 26.3		C 29.6	D 41.6	A 3.5	C 30.0	D 40.7	A 0.1	C 27.2
		C – 29.4			C – 25.7			C – 20.6			C – 28.4			
Year 2028 Total Projected Conditions	Weekday Morning	B 13.4	C 20.2		B 10.5	C 23.5		C 23.6	D 35.9	A 3.2	C 23.9	C 34.6	A 0.5	C 21.3
		B – 19.2			C – 22.5			C – 22.9			C – 23.2			
	Weekday Evening	B 16.6	C 33.6		D 37.6	C 29.3		C 30.0	D 45.8	A 9.9	C 31.2	D 42.4	A 8.6	C 30.8
		C – 32.7			C – 30.1			C – 29.0			C – 27.2			
	Saturday MIDDAY	B 14.8	C 30.9		C 20.1	C 27.0		C 29.6	D 41.6	A 3.5	C 30.0	D 40.9	A 0.1	C 27.7
		C – 30.0			C – 26.4			C – 20.8			C – 27.4			
Delay is measured in seconds.														
L – Left T – Through R - Right														

Table 5

CAPACITY ANALYSIS RESULTS - EXISTING CONDITIONS – UNSIGNALIZED

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour		Saturday Midday Peak Hour	
	LOS	Delay	LOS	Delay	LOS	Delay
Jefferson Street (US 52) with Marycrest Plaza Access Drive¹						
• Northbound Approach	B	12.8	C	17.3	C	17.6
• Westbound Left Turn	B	10.1	B	11.9	B	11.3
Jefferson Street (US 52) with Site Access Drive¹						
• Southbound Approach	A	0.0	B	11.2	B	10.5
• Eastbound Left Turn	A	0.0	A	9.1	A	8.7
LOS = Level of Service Delay is measured in seconds.						

1 – Two-way stop control

Table 6

CAPACITY ANALYSIS RESULTS – NO-BUILD CONDITIONS – UNSIGNALIZED

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour		Saturday Midday Peak Hour	
	LOS	Delay	LOS	Delay	LOS	Delay
Jefferson Street (US 52) with Marycrest Plaza Access Drive¹						
• Northbound Approach	B	13.2	C	18.2	C	18.6
• Westbound Left Turn	B	10.3	B	12.3	B	11.7
Jefferson Street (US 52) with Site Access Drive¹						
• Southbound Approach	A	0.0	B	11.5	B	10.7
• Eastbound Left Turn	A	0.0	A	9.3	A	8.8
LOS = Level of Service Delay is measured in seconds.						

1 – Two-way stop control

Table 7
CAPACITY ANALYSIS RESULTS - PROJECTED CONDITIONS – UNSIGNALIZED

CAPACITY ANALYSIS RESULTS - PROJECTED CONDITIONS – UNSIGNALIZED

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour		Saturday Midday Peak Hour	
	LOS	Delay	LOS	Delay	LOS	Delay
Jefferson Street (US 52) with Marycrest Plaza Access Drive¹						
• Northbound Approach	B	13.4	C	18.7	C	19.3
• Westbound Left Turn	B	10.4	B	12.4	B	11.9
Jefferson Street (US 52) with Site Access Drive¹						
• Southbound Approach	B	12.6	C	17.5	C	17.2
• Eastbound Left Turn	A	8.3	A	9.4	A	8.9
LOS = Level of Service Delay is measured in seconds.			1 – Two-way stop control			

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 traffic to be generated by the proposed dispensary.

Jefferson Street (US 52) with Hammes Avenue

The results of the capacity analysis indicate that overall, this intersection currently operates at Level of Service (LOS) C during the weekday morning, weekday evening, and Saturday midday peak hours. Additionally, all approaches currently operate at LOS C or better during the peak hours. Under Year 2028 no-build and total conditions, the intersection is projected to continue operating at LOS C during weekday morning, weekday evening, and Saturday midday peak hours. All approaches are also projected to continue operating at LOS C or better. As such, no traffic signal modifications or roadway improvements are required at this intersection.

Jefferson Street with Marycrest Plaza Access Drive

The results of the capacity analysis indicate that the northbound approach currently operates at LOS B during the weekday morning peak hour and at LOS C during the weekday evening and Saturday midday peak hours. The westbound left-turn movement currently operates at LOS B during all peak hours. Under Year 2028 no-build and total conditions, the northbound approach is projected to continue operating at the current levels of service during the peak hours. The westbound left-turn movement is projected to continue operating at LOS B during all peak hours. As such, the intersection has sufficient reserve capacity to accommodate the development-generated traffic and no roadway or traffic control improvements are required.

Jefferson Street with Site Access Drive

The results of the capacity analysis indicate that the southbound approach currently operates at LOS A during the weekday morning peak hour and at LOS B during the weekday evening and Saturday midday peak hours. The eastbound left-turn movement currently operates at LOS A during the peak hours. Under Year 2028 no-build conditions, the southbound approach and the eastbound left-turn movement are projected to continue operating at their current levels of service. Under Year 2028 total conditions, the southbound approach is projected to operate at LOS B during the weekday morning peak hour and at LOS C during the weekday evening and Saturday midday peak hours. The eastbound left-turn movement is projected to continue operating at LOS A during all three peak hours. As such, no roadway improvements or traffic control improvements are required.

On-Site Circulation

The proposed plan calls for maintaining the existing on-site circulation. Signage and striping should be updated as they may have faded due to the building vacancy. Based on the above, the proposed site plan allows for efficient circulation minimizing on-site vehicle and pedestrian conflicts.

Parking Evaluation

As previously indicated, the dispensary will be approximately 4,060 square feet in size and will provide approximately 65 parking spaces. In order to determine the future parking need of the proposed dispensary, the parking demand was estimated based on the City of Joliet Code of Ordinances and parking rates published in the Institute of Transportation Engineers' (ITE) *Parking Generation Manual*, 5th Edition. Based on the two methodologies, the parking demand for the proposed dispensary will be as follows:

Parking Requirements per City Code

- Retail Stores
 - 23 parking spaces (ratio of one space per 180 s.f.)

Based on the above and the requirements of the City of Joliet, this translates into 23 parking spaces, which results in a surplus of 42 parking spaces.

ITE Parking Generation Manual

- Dispensary (Land Use Code 882):
 - 29 parking spaces (ratio of 7.19 spaces per 1,000 s.f.)

Based on the above and the rates published in the ITE *Parking Generation Manual*, this translates into 29 parking spaces. Therefore, the proposed parking supply of 65 parking spaces will exceed the ITE estimated peak parking demand of 29 parking spaces.

6. Conclusion

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

- The roadway system has sufficient reserve capacity to accommodate the traffic projected to be generated by the proposed Justice Cannabis dispensary and no additional roadway improvements or traffic control modifications are required.
- The new traffic generated by the proposed dispensary will have a limited impact on the intersection of Jefferson Street (US 52) with Hammes Avenue, as it will account for less than three percent of the traffic traversing it.
- The access drive on Jefferson Street will provide flexible and efficient access to and from the site and will be adequate in accommodating site traffic.
- A stop sign should be added for outbound movements from the site onto Jefferson Street.
- The proposed parking supply of 65 parking spaces will be adequate in meeting the projected parking needs based on the City of Joliet ordinance and parking rates published in the Institute of Transportation Engineers' (ITE) *Parking Generation Manual*, 5th Edition.

Appendix

Traffic Count Summary Sheets

Site Plan

CMAP 2050 Projection Letter

Level of Service Criteria

Capacity Analysis Summary Sheets

Traffic Count Summary Sheets



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400
Rosemont, Illinois, United States 60018
(847)518-9990 kpachowicz@kloainc.com

Count Name: W Jefferson St with Access Dr
Site Code:
Start Date: 02/19/2022
Page No: 1

Turning Movement Data

Start Time	W Jefferson St Eastbound					W Jefferson St Westbound					Access Dr Southbound				
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total
11:30 AM	1	257	0	0	258	275	0	0	0	275	0	1	0	2	1
11:45 AM	0	239	0	0	239	257	0	0	0	257	0	0	0	4	0
Hourly Total	1	496	0	0	497	532	0	0	0	532	0	1	0	6	1
12:00 PM	0	268	0	0	268	236	0	0	0	236	0	0	0	4	0
12:15 PM	0	283	0	0	283	223	0	0	0	223	0	0	0	0	0
12:30 PM	0	261	0	0	261	234	0	0	0	234	0	0	0	1	0
12:45 PM	0	272	0	0	272	267	0	0	0	267	0	0	0	1	0
Hourly Total	0	1084	0	0	1084	960	0	0	0	960	0	0	0	6	0
1:00 PM	0	285	0	0	285	244	0	0	0	244	0	0	0	1	0
1:15 PM	1	242	0	0	243	252	0	0	0	252	0	1	0	0	1
1:30 PM	1	250	0	0	251	245	0	0	0	245	0	1	0	0	1
1:45 PM	0	292	0	0	292	260	0	0	0	260	0	0	0	0	0
Hourly Total	2	1069	0	0	1071	1001	0	0	0	1001	0	2	0	1	2
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	0	110	0	0	110	96	0	0	0	96	0	0	0	1	0
7:15 AM	0	123	0	0	123	108	0	0	0	108	0	0	0	1	0
7:30 AM	0	156	0	0	156	126	0	0	0	126	0	0	0	1	0
7:45 AM	0	168	0	0	168	156	0	0	0	156	0	0	0	0	0
Hourly Total	0	557	0	0	557	486	0	0	0	486	0	0	0	3	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	151	0	0	151	232	0	0	0	232	0	0	0	0	0
4:15 PM	1	179	0	0	180	239	0	0	0	239	0	0	0	0	0
4:30 PM	0	184	0	0	184	229	0	0	0	229	0	0	0	2	0
4:45 PM	1	199	0	0	200	223	0	0	0	223	0	1	0	1	1
Hourly Total	2	713	0	0	715	923	0	0	0	923	0	1	0	3	1
5:00 PM	0	285	0	0	285	193	0	0	0	193	0	0	0	5	0
5:15 PM	0	211	0	0	211	226	0	0	0	226	0	0	0	1	0
5:30 PM	0	238	0	0	238	192	0	0	0	192	0	0	0	1	0
5:45 PM	0	188	0	0	188	192	0	0	0	192	0	0	0	0	0
Hourly Total	0	922	0	0	922	803	0	0	0	803	0	0	0	7	0
Grand Total	5	4841	0	0	4846	4705	0	0	0	4705	0	4	0	26	4
Approach %	0.1	99.9	0.0	-	-	100.0	0.0	0.0	-	-	0.0	100.0	0.0	-	-
Total %	0.1	50.7	0.0	-	50.7	49.2	0.0	0.0	-	49.2	0.0	0.0	0.0	-	0.0
Lights	5	4792	0	-	4797	4649	0	0	-	4649	0	4	0	-	4
% Lights	100.0	99.0	-	-	99.0	98.8	-	-	-	98.8	-	100.0	-	-	100.0
Buses	0	12	0	-	12	13	0	0	-	13	0	0	0	-	0

[illegible]

Rosemont, Illinois, United States 60018
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Start Date: 02/19/2022
Page No: 4

Turning Movement Peak Hour Data (7:00 AM)

[illegible]

Rosemont, Illinois, United States 60018
(847)518-9990 kpachowicz@kloainc.com

Count Name: W Jefferson St with Access Dr
Site Code:
Start Date: 02/19/2022
Page No: 5

Turning Movement Peak Hour Data (4:00 PM)

[illegible]



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 kpachowicz@kloainc.com

Count Name: W Jefferson St with N Hammes Ave
Site Code:
Start Date: 02/19/2022
Page No: 1

Turning Movement Data

Start Time	W Jefferson St Eastbound						W Jefferson St Westbound						N Hammes Ave Northbound						N Hammes Ave Southbound					
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Peds	App. Total	Int. Total	
11:30 AM	10	245	10	0	2	265	25	240	9	1	0	275	14	18	20	0	0	52	14	14	2	28	620	
11:45 AM	17	230	12	0	0	259	24	233	10	0	0	267	13	15	20	0	0	48	17	15	2	32	606	
Hourly Total	27	475	22	0	2	524	49	473	19	1	0	542	27	33	40	0	0	100	31	29	4	60	1226	
12:00 PM	13	245	9	0	0	267	20	218	9	0	0	247	12	11	23	0	0	46	17	13	0	30	590	
12:15 PM	19	255	16	0	0	290	20	207	12	0	0	239	10	3	20	0	0	33	17	7	0	24	586	
12:30 PM	12	216	18	0	0	246	19	201	18	0	0	238	12	12	22	0	1	46	10	11	0	21	551	
12:45 PM	12	238	16	0	0	266	18	236	12	1	0	267	10	7	19	0	0	36	21	11	0	32	601	
Hourly Total	56	954	59	0	0	1069	77	862	51	1	0	991	44	33	84	0	1	161	65	42	0	107	2328	
1:00 PM	9	261	18	0	1	288	17	206	12	0	0	235	11	15	22	0	0	48	9	10	1	19	590	
1:15 PM	13	216	6	0	0	235	16	238	5	0	0	259	7	8	24	0	0	39	19	14	0	33	566	
1:30 PM	7	224	7	0	0	238	18	220	6	0	0	244	9	9	23	0	0	41	14	11	0	25	548	
1:45 PM	14	256	12	0	0	282	23	225	5	0	0	253	11	11	18	0	0	40	15	16	0	31	606	
Hourly Total	43	957	43	0	1	1043	74	889	28	0	0	991	38	43	87	0	0	168	57	51	1	108	2310	
Grand Total	126	2386	124	0	3	2636	200	2224	98	2	0	2524	109	109	211	0	1	429	153	122	5	275	5864	
Approach %	4.8	90.5	4.7	0.0	-	-	7.9	88.1	3.9	0.1	-	-	25.4	25.4	49.2	0.0	-	-	55.6	44.4	-	-	-	
Total %	2.1	40.7	2.1	0.0	-	45.0	3.4	37.9	1.7	0.0	-	43.0	1.9	1.9	3.6	0.0	-	7.3	2.6	2.1	-	4.7	-	
Lights	126	2369	123	0	-	2618	198	2204	98	2	-	2502	108	109	209	0	-	426	152	122	-	274	5820	
% Lights	100.0	99.3	99.2	-	-	99.3	99.0	99.1	100.0	100.0	-	99.1	99.1	100.0	99.1	-	-	99.3	99.3	100.0	-	99.6	99.2	
Buses	0	2	0	0	-	2	0	4	0	0	-	4	0	0	0	0	-	0	0	0	-	0	6	
% Buses	0.0	0.1	0.0	-	-	0.1	0.0	0.2	0.0	0.0	-	0.2	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	0.0	0.1	
Single-Unit Trucks	0	10	1	0	-	11	2	12	0	0	-	14	1	0	2	0	-	3	1	0	-	1	29	
% Single-Unit Trucks	0.0	0.4	0.8	-	-	0.4	1.0	0.5	0.0	0.0	-	0.6	0.9	0.0	0.9	-	-	0.7	0.7	0.0	-	0.4	0.5	
Articulated Trucks	0	5	0	0	-	5	0	4	0	0	-	4	0	0	0	0	-	0	0	0	-	0	9	
% Articulated Trucks	0.0	0.2	0.0	-	-	0.2	0.0	0.2	0.0	0.0	-	0.2	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	0.0	0.2	
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	-	0	0	
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	0.0	0.0	
Pedestrians	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	5	-	-	
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	100.0	-	-	



Site Code: 02192022
Start Date: 02/19/2022
Page No: 2

Turning Movement Peak Hour Data (11:30 AM)

[illegible]



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400
Rosemont, Illinois, United States 60018
(847)518-9990 kpachowicz@kloainc.com

Count Name: W Jefferson St with N Hammes Ave
Site Code:
Start Date: 03/08/2022
Page No: 1

Turning Movement Data

Start Time	W Jefferson St Eastbound						W Jefferson St Westbound						S Hammes Ave Northbound						N Hammes Ave Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:00 AM	0	13	116	5	0	134	0	11	101	13	0	125	0	5	27	8	0	40	0	3	13	7	0	23	322
7:15 AM	0	9	114	2	0	125	0	8	96	18	0	122	0	7	9	13	0	29	0	8	12	9	0	29	305
7:30 AM	0	20	124	5	0	149	0	10	156	13	0	179	0	6	18	17	0	41	0	7	18	10	1	35	404
7:45 AM	0	40	131	3	0	174	0	22	175	22	0	219	0	5	35	21	0	61	0	14	26	7	0	47	501
Hourly Total	0	82	485	15	0	582	0	51	528	66	0	645	0	23	89	59	0	171	0	32	69	33	1	134	1532
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	14	238	11	0	263	0	33	217	19	0	269	0	10	26	15	1	51	0	29	20	21	0	70	653
4:15 PM	0	16	256	16	1	288	0	26	200	18	0	244	0	19	23	29	1	71	0	17	28	28	1	73	676
4:30 PM	0	17	249	12	0	278	0	23	203	11	0	237	0	7	24	25	1	56	0	23	25	27	1	75	646
4:45 PM	0	13	262	25	1	300	0	28	226	19	0	273	0	16	28	22	1	66	0	26	24	20	0	70	709
Hourly Total	0	60	1005	64	2	1129	0	110	846	67	0	1023	0	52	101	91	4	244	0	95	97	96	2	288	2684
5:00 PM	0	14	240	15	1	269	0	13	207	17	0	237	0	18	23	16	0	57	0	30	19	27	2	76	639
5:15 PM	0	18	252	20	2	290	0	28	217	14	0	259	0	16	12	12	0	40	0	25	24	19	1	68	657
5:30 PM	0	18	223	8	0	249	0	29	219	13	0	261	0	17	11	26	0	54	0	24	20	19	0	63	627
5:45 PM	0	15	178	12	2	205	0	17	186	14	0	217	0	17	19	19	0	55	0	11	14	15	0	40	517
Hourly Total	0	65	893	55	5	1013	0	87	829	58	0	974	0	68	65	73	0	206	0	90	77	80	3	247	2440
Grand Total	0	207	2383	134	7	2724	0	248	2203	191	0	2642	0	143	255	223	4	621	0	217	243	209	6	669	6656
Approach %	0.0	7.6	87.5	4.9	-	-	0.0	9.4	83.4	7.2	-	-	0.0	23.0	41.1	35.9	-	-	0.0	32.4	36.3	31.2	-	-	-
Total %	0.0	3.1	35.8	2.0	-	40.9	0.0	3.7	33.1	2.9	-	39.7	0.0	2.1	3.8	3.4	-	9.3	0.0	3.3	3.7	3.1	-	10.1	-
Lights	0	199	2326	131	-	2656	0	240	2152	187	-	2579	0	139	250	213	-	602	0	215	239	207	-	661	6498
% Lights	-	96.1	97.6	97.8	-	97.5	-	96.8	97.7	97.9	-	97.6	-	97.2	98.0	95.5	-	96.9	-	99.1	98.4	99.0	-	98.8	97.6
Buses	0	8	15	3	-	26	0	2	17	1	-	20	0	1	3	4	-	8	0	1	3	1	-	5	59
% Buses	-	3.9	0.6	2.2	-	1.0	-	0.8	0.8	0.5	-	0.8	-	0.7	1.2	1.8	-	1.3	-	0.5	1.2	0.5	-	0.7	0.9
Single-Unit Trucks	0	0	26	0	-	26	0	5	21	1	-	27	0	3	2	4	-	9	0	1	1	0	-	2	64
% Single-Unit Trucks	-	0.0	1.1	0.0	-	1.0	-	2.0	1.0	0.5	-	1.0	-	2.1	0.8	1.8	-	1.4	-	0.5	0.4	0.0	-	0.3	1.0
Articulated Trucks	0	0	16	0	-	16	0	1	13	1	-	15	0	0	0	0	-	0	0	0	0	1	-	1	32
% Articulated Trucks	-	0.0	0.7	0.0	-	0.6	-	0.4	0.6	0.5	-	0.6	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.5	-	0.1	0.5
Bicycles on Road	0	0	0	0	-	0	0	0	0	1	-	1	0	0	0	2	-	2	0	0	0	0	-	0	3
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.5	-	0.0	-	0.0	0.0	0.9	-	0.3	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	7	-	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	6	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

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Count Name: W Jefferson St with N Hammes Ave
Site Code:
Start Date: 03/08/2022
Page No: 2

Turning Movement Peak Hour Data (7:00 AM)

Start Time	W Jefferson St Eastbound						W Jefferson St Westbound						S Hammes Ave Northbound						N Hammes Ave Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
7:00 AM	0	13	116	5	0	134	0	11	101	13	0	125	0	5	27	8	0	40	0	3	13	7	0	23	322
7:15 AM	0	9	114	2	0	125	0	8	96	18	0	122	0	7	9	13	0	29	0	8	12	9	0	29	305
7:30 AM	0	20	124	5	0	149	0	10	156	13	0	179	0	6	18	17	0	41	0	7	18	10	1	35	404
7:45 AM	0	40	131	3	0	174	0	22	175	22	0	219	0	5	35	21	0	61	0	14	26	7	0	47	501
Total	0	82	485	15	0	582	0	51	528	66	0	645	0	23	89	59	0	171	0	32	69	33	1	134	1532
Approach %	0.0	14.1	83.3	2.6	-	-	0.0	7.9	81.9	10.2	-	-	0.0	13.5	52.0	34.5	-	-	0.0	23.9	51.5	24.6	-	-	-
Total %	0.0	5.4	31.7	1.0	-	38.0	0.0	3.3	34.5	4.3	-	42.1	0.0	1.5	5.8	3.9	-	11.2	0.0	2.1	4.5	2.2	-	8.7	-
PHF	0.000	0.513	0.926	0.750	-	0.836	0.000	0.580	0.754	0.750	-	0.736	0.000	0.821	0.636	0.702	-	0.701	0.000	0.571	0.663	0.825	-	0.713	0.764
Lights	0	76	468	13	-	557	0	46	504	63	-	613	0	22	86	54	-	162	0	31	68	31	-	130	1462
% Lights	-	92.7	96.5	86.7	-	95.7	-	90.2	95.5	95.5	-	95.0	-	95.7	96.6	91.5	-	94.7	-	96.9	98.6	93.9	-	97.0	95.4
Buses	0	6	6	2	-	14	0	2	11	1	-	14	0	1	2	3	-	6	0	0	1	1	-	2	36
% Buses	-	7.3	1.2	13.3	-	2.4	-	3.9	2.1	1.5	-	2.2	-	4.3	2.2	5.1	-	3.5	-	0.0	1.4	3.0	-	1.5	2.3
Single-Unit Trucks	0	0	6	0	-	6	0	2	7	0	-	9	0	0	1	1	-	2	0	1	0	0	-	1	18
% Single-Unit Trucks	-	0.0	1.2	0.0	-	1.0	-	3.9	1.3	0.0	-	1.4	-	0.0	1.1	1.7	-	1.2	-	3.1	0.0	0.0	-	0.7	1.2
Articulated Trucks	0	0	5	0	-	5	0	1	6	1	-	8	0	0	0	0	-	0	0	0	0	1	-	1	14
% Articulated Trucks	-	0.0	1.0	0.0	-	0.9	-	2.0	1.1	1.5	-	1.2	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	3.0	-	0.7	0.9
Bicycles on Road	0	0	0	0	-	0	0	0	0	1	-	1	0	0	0	1	-	1	0	0	0	0	-	0	2
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	1.5	-	0.2	-	0.0	0.0	1.7	-	0.6	-	0.0	0.0	0.0	-	0.0	0.1
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



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Count Name: W Jefferson St with N Hammes Ave
Site Code:
Start Date: 03/08/2022
Page No: 3

Turning Movement Peak Hour Data (4:00 PM)

Start Time	W Jefferson St Eastbound							W Jefferson St Westbound							S Hammes Ave Northbound							N Hammes Ave Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total		U-Turn	Left	Thru	Right	Peds	App. Total		U-Turn	Left	Thru	Right	Peds	App. Total		U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
4:00 PM	0	14	238	11	0	263		0	33	217	19	0	269		0	10	26	15	1	51		0	29	20	21	0	70	653
4:15 PM	0	16	256	16	1	288		0	26	200	18	0	244		0	19	23	29	1	71		0	17	28	28	1	73	676
4:30 PM	0	17	249	12	0	278		0	23	203	11	0	237		0	7	24	25	1	56		0	23	25	27	1	75	646
4:45 PM	0	13	262	25	1	300		0	28	226	19	0	273		0	16	28	22	1	66		0	26	24	20	0	70	709
Total	0	60	1005	64	2	1129		0	110	846	67	0	1023		0	52	101	91	4	244		0	95	97	96	2	288	2684
Approach %	0.0	5.3	89.0	5.7	-	-		0.0	10.8	82.7	6.5	-	-		0.0	21.3	41.4	37.3	-	-		0.0	33.0	33.7	33.3	-	-	-
Total %	0.0	2.2	37.4	2.4	-	42.1		0.0	4.1	31.5	2.5	-	38.1		0.0	1.9	3.8	3.4	-	9.1		0.0	3.5	3.6	3.6	-	10.7	-
PHF	0.000	0.882	0.959	0.640	-	0.941		0.000	0.833	0.936	0.882	-	0.937		0.000	0.684	0.902	0.784	-	0.859		0.000	0.819	0.866	0.857	-	0.960	0.946
Lights	0	59	982	63	-	1104		0	108	829	67	-	1004		0	51	99	88	-	238		0	94	95	96	-	285	2631
% Lights	-	98.3	97.7	98.4	-	97.8		-	98.2	98.0	100.0	-	98.1		-	98.1	98.0	96.7	-	97.5		-	98.9	97.9	100.0	-	99.0	98.0
Buses	0	1	6	1	-	8		0	0	4	0	-	4		0	0	1	1	-	2		0	1	1	0	-	2	16
% Buses	-	1.7	0.6	1.6	-	0.7		-	0.0	0.5	0.0	-	0.4		-	0.0	1.0	1.1	-	0.8		-	1.1	1.0	0.0	-	0.7	0.6
Single-Unit Trucks	0	0	13	0	-	13		0	2	8	0	-	10		0	1	1	2	-	4		0	0	1	0	-	1	28
% Single-Unit Trucks	-	0.0	1.3	0.0	-	1.2		-	1.8	0.9	0.0	-	1.0		-	1.9	1.0	2.2	-	1.6		-	0.0	1.0	0.0	-	0.3	1.0
Articulated Trucks	0	0	4	0	-	4		0	0	5	0	-	5		0	0	0	0	-	0		0	0	0	0	-	0	9
% Articulated Trucks	-	0.0	0.4	0.0	-	0.4		-	0.0	0.6	0.0	-	0.5		-	0.0	0.0	0.0	-	0.0		-	0.0	0.0	0.0	-	0.0	0.3
Bicycles on Road	0	0	0	0	-	0		0	0	0	0	-	0		0	0	0	0	-	0		0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0		-	0.0	0.0	0.0	-	0.0		-	0.0	0.0	0.0	-	0.0		-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	2	-		-	-	-	-	0	-		-	-	-	-	4	-		-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	100.0	-		-	-	-	-	-	-		-	-	-	-	100.0	-		-	-	-	-	100.0	-	-



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 kpachowicz@kloainc.com

Count Name: W Jefferson St with Shopping
Center Access
Site Code:
Start Date: 03/08/2022
Page No: 1

Turning Movement Data

Start Time	W Jefferson St Eastbound					W Jefferson St Westbound					Shopping Center Access Drive Northbound				
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	Int. Total
7:00 AM	0	131	1	0	132	0	1	110	0	111	0	0	2	1	245
7:15 AM	0	132	1	0	133	0	1	105	0	106	0	0	0	1	239
7:30 AM	0	151	1	0	152	0	2	165	0	167	0	1	0	0	320
7:45 AM	0	178	3	0	181	0	2	179	0	181	0	1	1	0	364
Hourly Total	0	592	6	0	598	0	6	559	0	565	0	2	3	2	1168
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	259	6	3	265	0	2	275	0	277	0	3	7	0	552
4:15 PM	0	281	10	0	291	0	3	280	0	283	0	2	16	0	592
4:30 PM	0	296	2	1	298	0	6	260	0	266	0	3	9	3	576
4:45 PM	0	295	3	0	298	0	2	281	1	283	0	4	4	0	589
Hourly Total	0	1131	21	4	1152	0	13	1096	1	1109	0	12	36	3	2309
5:00 PM	0	272	7	0	279	0	6	253	0	259	0	0	10	0	548
5:15 PM	0	284	2	0	286	0	3	262	0	265	0	3	9	0	563
5:30 PM	0	249	5	0	254	0	6	254	0	260	0	2	9	1	525
5:45 PM	0	208	3	0	211	0	5	226	0	231	0	2	3	0	447
Hourly Total	0	1013	17	0	1030	0	20	995	0	1015	0	7	31	1	2083
Grand Total	0	2736	44	4	2780	0	39	2650	1	2689	0	21	70	6	5560
Approach %	0.0	98.4	1.6	-	-	0.0	1.5	98.5	-	-	0.0	23.1	76.9	-	-
Total %	0.0	49.2	0.8	-	50.0	0.0	0.7	47.7	-	48.4	0.0	0.4	1.3	-	1.6
Lights	0	2669	41	-	2710	0	38	2595	-	2633	0	21	70	-	91
% Lights	-	97.6	93.2	-	97.5	-	97.4	97.9	-	97.9	-	100.0	100.0	-	100.0
Buses	0	27	0	-	27	0	0	17	-	17	0	0	0	-	44
% Buses	-	1.0	0.0	-	1.0	-	0.0	0.6	-	0.6	-	0.0	0.0	-	0.8
Single-Unit Trucks	0	23	3	-	26	0	1	24	-	25	0	0	0	-	51
% Single-Unit Trucks	-	0.8	6.8	-	0.9	-	2.6	0.9	-	0.9	-	0.0	0.0	-	0.9
Articulated Trucks	0	17	0	-	17	0	0	14	-	14	0	0	0	-	31
% Articulated Trucks	-	0.6	0.0	-	0.6	-	0.0	0.5	-	0.5	-	0.0	0.0	-	0.6
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0
Pedestrians	-	-	-	4	-	-	-	-	1	-	-	-	-	6	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-



Rosemont, Illinois, United States 60018
(847)518-9990 kpachowicz@kloainc.com

Turning Movement Peak Hour Data (7:00 AM)

Start Time	W Jefferson St Eastbound						W Jefferson St Westbound						Shopping Center Access Drive					
	U-Turn	Thru	Right	Peds	App. Total		U-Turn	Left	Thru	Peds	App. Total		U-Turn	Left	Right	Peds	App. Total	Int. Total
7:00 AM	0	131	1	0	132		0	1	110	0	111		0	0	2	1	2	245
7:15 AM	0	132	1	0	133		0	1	105	0	106		0	0	0	1	0	239
7:30 AM	0	151	1	0	152		0	2	165	0	167		0	1	0	0	1	320
7:45 AM	0	178	3	0	181		0	2	179	0	181		0	1	1	0	2	364
Total	0	592	6	0	598		0	6	559	0	565		0	2	3	2	5	1168
Approach %	0.0	99.0	1.0	-	-		0.0	1.1	98.9	-	-		0.0	40.0	60.0	-	-	-
Total %	0.0	50.7	0.5	-	51.2		0.0	0.5	47.9	-	48.4		0.0	0.2	0.3	-	0.4	-
PHF	0.000	0.831	0.500	-	0.826		0.000	0.750	0.781	-	0.780		0.000	0.500	0.375	-	0.625	0.802
Lights	0	567	6	-	573		0	5	533	-	538		0	2	3	-	5	1116
% Lights	-	95.8	100.0	-	95.8		-	83.3	95.3	-	95.2		-	100.0	100.0	-	100.0	95.5
Buses	0	14	0	-	14		0	0	12	-	12		0	0	0	-	0	26
% Buses	-	2.4	0.0	-	2.3		-	0.0	2.1	-	2.1		-	0.0	0.0	-	0.0	2.2
Single-Unit Trucks	0	6	0	-	6		0	1	7	-	8		0	0	0	-	0	14
% Single-Unit Trucks	-	1.0	0.0	-	1.0		-	16.7	1.3	-	1.4		-	0.0	0.0	-	0.0	1.2
Articulated Trucks	0	5	0	-	5		0	0	7	-	7		0	0	0	-	0	12
% Articulated Trucks	-	0.8	0.0	-	0.8		-	0.0	1.3	-	1.2		-	0.0	0.0	-	0.0	1.0
Bicycles on Road	0	0	0	-	0		0	0	0	-	0		0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0		-	0.0	0.0	-	0.0		-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-		-	-	-	0	-		-	-	-	2	-	-
% Pedestrians	-	-	-	-	-		-	-	-	-	-		-	-	-	100.0	-	-



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Count Name: W Jefferson St with Shopping
Center Access
Site Code:
Start Date: 03/08/2022
Page No: 3

Turning Movement Peak Hour Data (4:00 PM)

Start Time	W Jefferson St Eastbound						W Jefferson St Westbound						Shopping Center Access Drive Northbound					
	U-Turn	Thru	Right	Peds	App. Total		U-Turn	Left	Thru	Peds	App. Total		U-Turn	Left	Right	Peds	App. Total	Int. Total
4:00 PM	0	259	6	3	265		0	2	275	0	277		0	3	7	0	10	552
4:15 PM	0	281	10	0	291		0	3	280	0	283		0	2	16	0	18	592
4:30 PM	0	296	2	1	298		0	6	260	0	266		0	3	9	3	12	576
4:45 PM	0	295	3	0	298		0	2	281	1	283		0	4	4	0	8	589
Total	0	1131	21	4	1152		0	13	1096	1	1109		0	12	36	3	48	2309
Approach %	0.0	98.2	1.8	-	-		0.0	1.2	98.8	-	-		0.0	25.0	75.0	-	-	-
Total %	0.0	49.0	0.9	-	49.9		0.0	0.6	47.5	-	48.0		0.0	0.5	1.6	-	2.1	-
PHF	0.000	0.955	0.525	-	0.966		0.000	0.542	0.975	-	0.980		0.000	0.750	0.563	-	0.667	0.975
Lights	0	1108	20	-	1128		0	13	1077	-	1090		0	12	36	-	48	2266
% Lights	-	98.0	95.2	-	97.9		-	100.0	98.3	-	98.3		-	100.0	100.0	-	100.0	98.1
Buses	0	8	0	-	8		0	0	4	-	4		0	0	0	-	0	12
% Buses	-	0.7	0.0	-	0.7		-	0.0	0.4	-	0.4		-	0.0	0.0	-	0.0	0.5
Single-Unit Trucks	0	11	1	-	12		0	0	10	-	10		0	0	0	-	0	22
% Single-Unit Trucks	-	1.0	4.8	-	1.0		-	0.0	0.9	-	0.9		-	0.0	0.0	-	0.0	1.0
Articulated Trucks	0	4	0	-	4		0	0	5	-	5		0	0	0	-	0	9
% Articulated Trucks	-	0.4	0.0	-	0.3		-	0.0	0.5	-	0.5		-	0.0	0.0	-	0.0	0.4
Bicycles on Road	0	0	0	-	0		0	0	0	-	0		0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0		-	0.0	0.0	-	0.0		-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	4	-		-	-	-	1	-		-	-	-	3	-	-
% Pedestrians	-	-	-	100.0	-		-	-	-	100.0	-		-	-	-	100.0	-	-

Site Plan

NOT FOR
CONSTRUCTION

GEOFFREY LEWIS CROWLEY
LICENSE - 001-021961

BLOC
DISPENSARY

JUSTICE - WEST JEFFERSON

2211 WEST JEFFERSON ST.
JOLIET, IL. 60435

SCHEMATIC DESIGN

MARK	DATE	DESCRIPTION

THIS SHEET IS PART OF A COMPLETE SET. REFER
TO DRAWING INDEX FOR COMPLETE LIST OF
DOCUMENTS. SHEET SIZE 30 X 42

VERVE PROJECT NO.: 21094

ISSUE DATE: 02/23/2022

SHEET NAME:
FLOOR PLANS

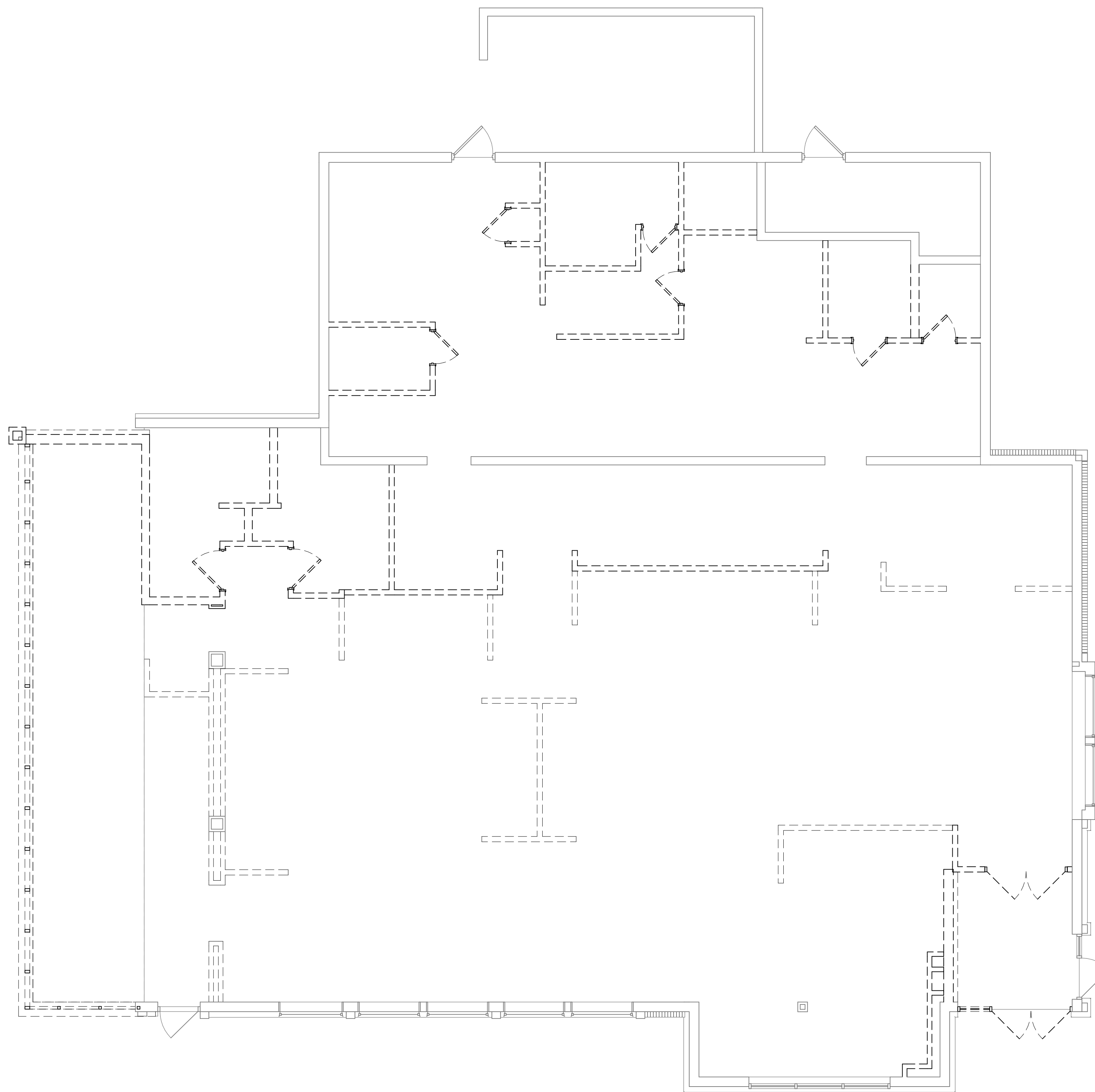
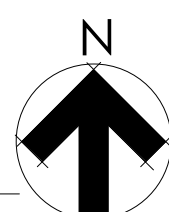
SHEET NO.

SD100

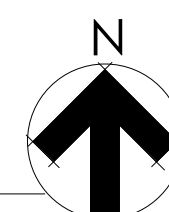
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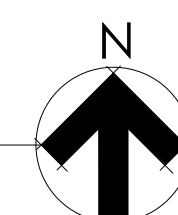
2 SCHEMATIC FLOOR PLAN
SD100 3/16" = 1'-0" 4230 SQ. FT. GROSS, 4060 SQ. FT. NET



1 DEMOLITION PLAN
SD100 3/16" = 1'-0"



Project Location



THIS SCHEMATIC DESIGN DRAWING HAS BEEN APPROVED FOR THE DESIGN PROJECT
TO PROCEED INTO THE DESIGN DEVELOPMENT PHASE AND CONSTRUCTION
DOCUMENTS PHASE BY THE FOLLOWING CLIENT REPRESENTATIVES:

Date _____

Date _____

Date _____

Date _____

CMAP 2050 Projection Letter



Chicago Metropolitan
Agency for Planning

433 West Van Buren Street
Suite 450
Chicago, IL 60607

312-454-0400
cmap.illinois.gov

March 23, 2022

Kelly Pachowicz
Consultant
Kenig, Lindgren, O'Hara and Aboona, Inc.
9575 West Higgins Road
Suite 400
Rosemont, IL 60018

Subject: *Jefferson Street (US 52) at Hammes Avenue*
IDOT

Dear Mr. Pachowicz:

In response to a request made on your behalf and dated March 21, 2022, we have developed year 2050 average daily traffic (ADT) projections for the subject location.

ROAD SEGMENT	Current ADT	Year 2050 ADT
Jefferson St (US 52), @ Hammes Ave	30,100	35,100
Hammes Ave, @ Jefferson St	4,050	5,700

Traffic projections are developed using existing ADT data provided in the request letter and the results from the December 2021 CMAP Travel Demand Analysis. The regional travel model uses CMAP 2050 socioeconomic projections and assumes the implementation of the ON TO 2050 Comprehensive Regional Plan for the Northeastern Illinois area. The provision of this data in support of your request does not constitute a CMAP endorsement of the proposed development or any subsequent developments.

If you have any questions, please call me at (312) 386-8806.

Sincerely,

Jose Rodriguez, PTP, AICP
Senior Planner, Research & Analysis

cc: Rios (IDOT)
2022_ForecastTraffic\Joliet\wi-11-22\wi-11-22.docx

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: <i>Highway Capacity Manual</i> , 2010.		

Capacity Analysis Summary Sheets
Existing Weekday Morning Peak Hour

Lanes, Volumes, Timings

1: Hammes Avenue & Jefferson Street (US 52)

03/24/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	534	17	56	581	73	23	89	59	32	69	33
Future Volume (vph)	90	534	17	56	581	73	23	89	59	32	69	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	320		0	240		0	135		140	90		90
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	105			195			90			110		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.995			0.983				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	3445	0	1641	3387	0	1736	1942	1509	1752	1980	1524
Flt Permitted	0.219			0.320			0.698			0.670		
Satd. Flow (perm)	389	3445	0	553	3387	0	1275	1942	1509	1236	1980	1524
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			17				125			125
Link Speed (mph)		35			30			30			30	
Link Distance (ft)		675			583			314			378	
Travel Time (s)		13.1			13.3			7.1			8.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	4%	13%	10%	5%	3%	4%	3%	7%	3%	1%	6%
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)	118	725	0	74	860	0	30	117	78	42	91	43
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6			4		4	8		8
Detector Phase	5	2		1	6		7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	10.0		4.0	8.0	8.0	4.0	8.0	8.0
Minimum Split (s)	9.5	41.5		9.5	52.5		9.5	47.5	47.5	9.5	45.5	45.5
Total Split (s)	14.0	49.0		14.0	49.0		14.0	23.0	23.0	14.0	23.0	23.0
Total Split (%)	14.0%	49.0%		14.0%	49.0%		14.0%	23.0%	23.0%	14.0%	23.0%	23.0%
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	0.5	2.0		0.5	2.0		0.5	2.0	2.0	0.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.5		4.0	6.5		4.0	6.5	6.5	4.0	6.5	6.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max		None	C-Max		None	Max	Max	None	Max	Max
Act Effect Green (s)	56.6	47.0		54.1	44.1		30.2	23.3	23.3	31.0	23.7	23.7
Actuated g/C Ratio	0.57	0.47		0.54	0.44		0.30	0.23	0.23	0.31	0.24	0.24

Lanes, Volumes, Timings

1: Hammes Avenue & Jefferson Street (US 52)

03/24/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.36	0.45		0.20	0.57		0.07	0.26	0.17	0.10	0.19	0.09
Control Delay	12.3	19.6		10.2	22.5		23.6	35.6	2.7	23.8	34.3	0.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.3	19.6		10.2	22.5		23.6	35.6	2.7	23.8	34.3	0.4
LOS	B	B		B	C		C	D	A	C	C	A
Approach Delay		18.5			21.6			22.6			23.5	
Approach LOS		B			C			C			C	
Queue Length 50th (ft)	31	163		19	205		13	64	0	18	49	0
Queue Length 95th (ft)	46	177		32	216		28	99	0	36	80	0
Internal Link Dist (ft)		595			503			234			298	
Turn Bay Length (ft)	320			240			135		140	90		90
Base Capacity (vph)	353	1621		421	1503		450	451	447	449	468	455
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.45		0.18	0.57		0.07	0.26	0.17	0.09	0.19	0.09

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 94 (94%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 20.7

Intersection LOS: C

Intersection Capacity Utilization 46.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Hammes Avenue & Jefferson Street (US 52)

					
Ø1	Ø2 (R)		Ø3	Ø4	
14 s	49 s		14 s	23 s	
					
Ø5	Ø6 (R)		Ø7	Ø8	
14 s	49 s		14 s	23 s	

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑	↑	↑
Traffic Vol, veh/h	651	6	6	615	2	3
Future Vol, veh/h	651	6	6	615	2	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	0	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	4	0	17	5	0	0
Mvmt Flow	814	8	8	769	3	4

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	822
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.44
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.37
Pot Cap-1 Maneuver	-	-	714
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	714
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	348	596	-	-	714	-
HCM Lane V/C Ratio	0.007	0.006	-	-	0.011	-
HCM Control Delay (s)	15.4	11.1	-	-	10.1	-
HCM Lane LOS	C	B	-	-	B	-
HCM 95th %tile Q(veh)	0	0	-	-	0	-

Notes

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

HCM 6th TWSC

3: Jefferson Street (US 52) & Site Access Drive

03/24/2022

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	657	617	0	0	0
Future Vol, veh/h	0	657	617	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	4	3	2	2	2
Mvmt Flow	0	811	762	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	762	0	-	0	1168	381
Stage 1	-	-	-	-	762	-
Stage 2	-	-	-	-	406	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1164	-	-	-	328	*829
Stage 1	-	-	-	-	717	-
Stage 2	-	-	-	-	641	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	1164	-	-	-	328	*829
Mov Cap-2 Maneuver	-	-	-	-	458	-
Stage 1	-	-	-	-	717	-
Stage 2	-	-	-	-	641	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1164	-	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	-	-	0	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	-	
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Capacity Analysis Summary Sheets
Existing Weekday Evening Peak Hour

Lanes, Volumes, Timings

1: Hammes Avenue & Jefferson Street (US 52)

03/24/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	1106	70	121	1050	74	52	101	91	95	97	96
Future Volume (vph)	66	1106	70	121	1050	74	52	101	91	95	97	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	320		0	240		0	135		140	90		90
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	105			195			90			110		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.991			0.990				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3507	0	1770	3508	0	1770	1961	1568	1787	1961	1615
Flt Permitted	0.135			0.100			0.691			0.616		
Satd. Flow (perm)	251	3507	0	186	3508	0	1287	1961	1568	1159	1961	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			7				97			101
Link Speed (mph)		35			30			30			30	
Link Distance (ft)		675			583			314			378	
Travel Time (s)		13.1			13.3			7.1			8.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	0%	2%	2%	3%	1%	2%	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)	69	1238	0	127	1183	0	55	106	96	100	102	101
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6			4		4	8		8
Detector Phase	5	2		1	6		7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	10.0		4.0	8.0	8.0	4.0	8.0	8.0
Minimum Split (s)	9.5	41.5		12.0	52.5		9.5	47.5	47.5	9.5	45.5	45.5
Total Split (s)	14.0	67.0		14.0	67.0		20.0	29.0	29.0	20.0	29.0	29.0
Total Split (%)	10.8%	51.5%		10.8%	51.5%		15.4%	22.3%	22.3%	15.4%	22.3%	22.3%
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	0.5	2.0		0.5	2.0		0.5	2.0	2.0	0.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.5		4.0	6.5		4.0	6.5	6.5	4.0	6.5	6.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max		None	C-Max		None	Max	Max	None	Max	Max
Act Effect Green (s)	71.6	61.5		74.9	64.8		38.7	28.0	28.0	43.9	32.2	32.2
Actuated g/C Ratio	0.55	0.47		0.58	0.50		0.30	0.22	0.22	0.34	0.25	0.25

Lanes, Volumes, Timings

1: Hammes Avenue & Jefferson Street (US 52)

03/24/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.30	0.74		0.59	0.68		0.13	0.25	0.23	0.23	0.21	0.21
Control Delay	15.0	31.3		25.3	27.6		29.9	45.2	9.7	31.0	42.0	8.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.0	31.3		25.3	27.6		29.9	45.2	9.7	31.0	42.0	8.9
LOS	B	C		C	C		C	D	A	C	D	A
Approach Delay		30.5			27.4			28.7			27.3	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	23	438		45	396		31	75	0	58	70	0
Queue Length 95th (ft)	45	531		89	492		63	134	48	102	125	48
Internal Link Dist (ft)		595			503			234			298	
Turn Bay Length (ft)	320			240			135		140	90		90
Base Capacity (vph)	259	1662		229	1752		500	421	413	478	486	476
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.74		0.55	0.68		0.11	0.25	0.23	0.21	0.21	0.21

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 11 (8%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 28.8

Intersection LOS: C

Intersection Capacity Utilization 65.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Hammes Avenue & Jefferson Street (US 52)

														
Ø1	Ø2 (R)		Ø3		Ø4	Ø5	Ø6 (R)	Ø7		Ø8		Ø9		Ø10
14 s	67 s		20 s		29 s	14 s	67 s	20 s		29 s		14 s		29 s

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑	↑	↑
Traffic Vol, veh/h	1244	21	13	1206	12	36
Future Vol, veh/h	1244	21	13	1206	12	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	0	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	5	0	2	0	0
Mvmt Flow	1282	22	13	1243	12	37

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1304
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	538
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	538
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	17.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	187	415	-	-	538	-
HCM Lane V/C Ratio	0.066	0.089	-	-	0.025	-
HCM Control Delay (s)	25.6	14.5	-	-	11.9	-
HCM Lane LOS	D	B	-	-	B	-
HCM 95th %tile Q(veh)	0.2	0.3	-	-	0.1	-

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

HCM 6th TWSC

3: Jefferson Street (US 52) & Site Access Drive

03/24/2022

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	1265	1218	0	0	1
Future Vol, veh/h	2	1265	1218	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	1	2	2	0
Mvmt Flow	2	1304	1256	0	0	1
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1256	0	-	0	1912	628
Stage 1	-	-	-	-	1256	-
Stage 2	-	-	-	-	656	-
Critical Hdwy	4.1	-	-	-	6.84	6.9
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.2	-	-	-	3.52	3.3
Pot Cap-1 Maneuver	*876	-	-	-	*134	*583
Stage 1	-	-	-	-	*547	-
Stage 2	-	-	-	-	*478	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	*876	-	-	-	*134	*583
Mov Cap-2 Maneuver	-	-	-	-	*293	-
Stage 1	-	-	-	-	*546	-
Stage 2	-	-	-	-	*478	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		11.2		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	* 876	-	-	-	583	
HCM Lane V/C Ratio	0.002	-	-	-	0.002	
HCM Control Delay (s)	9.1	-	-	-	11.2	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Capacity Analysis Summary Sheets
Existing Saturday Midday Peak Hour

Lanes, Volumes, Timings

1: Hammes Avenue & Jefferson Street (US 52)

03/24/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	1073	52	98	988	44	49	47	83	65	49	25
Future Volume (vph)	65	1073	52	98	988	44	49	47	83	65	49	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	320		0	240		0	135		140	90		90
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	105			195			90			110		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.993			0.994				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3548	0	1805	3554	0	1805	2000	1599	1805	2000	1583
Flt Permitted	0.174			0.126			0.724			0.708		
Satd. Flow (perm)	331	3548	0	239	3554	0	1376	2000	1599	1345	2000	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			5				97			97
Link Speed (mph)		35			30			30			30	
Link Distance (ft)		675			583			314			378	
Travel Time (s)		13.1			13.3			7.1			8.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	1%	2%	0%	1%	0%	0%	0%	1%	0%	0%	2%
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)	67	1160	0	101	1064	0	51	48	86	67	51	26
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	custom	pm+pt	NA	custom
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6			4		2	8		6
Detector Phase	5	2		1	6		7	4	2	3	8	6
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	10.0		4.0	8.0	10.0	4.0	8.0	10.0
Minimum Split (s)	9.5	41.5		9.5	52.5		9.5	47.5	41.5	9.5	45.5	52.5
Total Split (s)	14.0	67.0		14.0	67.0		20.0	29.0	67.0	20.0	29.0	67.0
Total Split (%)	10.8%	51.5%		10.8%	51.5%		15.4%	22.3%	51.5%	15.4%	22.3%	51.5%
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	0.5	2.0		0.5	2.0		0.5	2.0	2.0	0.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.5		4.0	6.5		4.0	6.5	6.5	4.0	6.5	6.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max		None	C-Max		None	Max	C-Max	None	Max	C-Max
Act Effect Green (s)	72.1	62.1		74.6	64.9		41.1	31.7	62.1	42.5	32.5	64.9
Actuated g/C Ratio	0.55	0.48		0.57	0.50		0.32	0.24	0.48	0.33	0.25	0.50

Lanes, Volumes, Timings

1: Hammes Avenue & Jefferson Street (US 52)

03/24/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.25	0.68		0.42	0.60		0.11	0.10	0.11	0.14	0.10	0.03
Control Delay	13.7	29.0		17.1	25.5		29.5	41.5	3.2	29.9	40.6	0.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.7	29.0		17.1	25.5		29.5	41.5	3.2	29.9	40.6	0.1
LOS	B	C		B	C		C	D	A	C	D	A
Approach Delay		28.2			24.8			20.4			28.3	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	23	389		35	336		29	32	0	38	34	0
Queue Length 95th (ft)	44	480		61	420		59	69	24	73	72	0
Internal Link Dist (ft)		595			503			234			298	
Turn Bay Length (ft)	320			240			135		140	90		90
Base Capacity (vph)	303	1696		259	1777		529	488	814	522	499	839
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.68		0.39	0.60		0.10	0.10	0.11	0.13	0.10	0.03

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 11 (8%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 26.2

Intersection LOS: C

Intersection Capacity Utilization 61.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Hammes Avenue & Jefferson Street (US 52)

 Ø1	 Ø2 (R)	 Ø3	 Ø4
14 s	67 s	20 s	29 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
14 s	67 s	20 s	29 s

Intersection

Int Delay, s/veh 0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↖	↖
Traffic Vol, veh/h	1127	25	15	1068	22	45
Future Vol, veh/h	1127	25	15	1068	22	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	0	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	0	0	2	5	0
Mvmt Flow	1186	26	16	1124	23	47

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1212
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	583
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	583
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	17.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	204	445	-	-	583	-
HCM Lane V/C Ratio	0.114	0.106	-	-	0.027	-
HCM Control Delay (s)	24.9	14.1	-	-	11.3	-
HCM Lane LOS	C	B	-	-	B	-
HCM 95th %tile Q(veh)	0.4	0.4	-	-	0.1	-

Notes

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

HCM 6th TWSC

3: Jefferson Street (US 52) & Site Access Drive

03/24/2022

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1152	1090	0	0	1
Future Vol, veh/h	1	1152	1090	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	0	2	2	0
Mvmt Flow	1	1213	1147	0	0	1
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1147	0	-	0	1756	574
Stage 1	-	-	-	-	1147	-
Stage 2	-	-	-	-	609	-
Critical Hdwy	4.1	-	-	-	6.84	6.9
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.2	-	-	-	3.52	3.3
Pot Cap-1 Maneuver	*983	-	-	-	*160	*655
Stage 1	-	-	-	-	*614	-
Stage 2	-	-	-	-	*505	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	*983	-	-	-	*160	*655
Mov Cap-2 Maneuver	-	-	-	-	*325	-
Stage 1	-	-	-	-	*614	-
Stage 2	-	-	-	-	*505	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		10.5		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	* 983	-	-	-	655	
HCM Lane V/C Ratio	0.001	-	-	-	0.002	
HCM Control Delay (s)	8.7	-	-	-	10.5	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0	
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Capacity Analysis Summary Sheets
Year 2028 No-Build Weekday Morning Peak Hour

Lanes, Volumes, Timings

1: Hammes Avenue & Jefferson Street (US 52)

03/24/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	561	18	59	610	77	24	93	62	34	72	35
Future Volume (vph)	95	561	18	59	610	77	24	93	62	34	72	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	320		0	240		0	135		140	90		90
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	105			195			90			110		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.995			0.983				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	3444	0	1641	3387	0	1736	1942	1509	1752	1980	1524
Flt Permitted	0.200			0.300			0.695			0.667		
Satd. Flow (perm)	355	3444	0	518	3387	0	1270	1942	1509	1230	1980	1524
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			17				125			125
Link Speed (mph)		35			30			30			30	
Link Distance (ft)		675			583			314			378	
Travel Time (s)		13.1			13.3			7.1			8.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	4%	13%	10%	5%	3%	4%	3%	7%	3%	1%	6%
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)	125	762	0	78	904	0	32	122	82	45	95	46
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6			4		4	8		8
Detector Phase	5	2		1	6		7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	10.0		4.0	8.0	8.0	4.0	8.0	8.0
Minimum Split (s)	9.5	41.5		9.5	52.5		9.5	47.5	47.5	9.5	45.5	45.5
Total Split (s)	14.0	49.0		14.0	49.0		14.0	23.0	23.0	14.0	23.0	23.0
Total Split (%)	14.0%	49.0%		14.0%	49.0%		14.0%	23.0%	23.0%	14.0%	23.0%	23.0%
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	0.5	2.0		0.5	2.0		0.5	2.0	2.0	0.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.5		4.0	6.5		4.0	6.5	6.5	4.0	6.5	6.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max		None	C-Max		None	Max	Max	None	Max	Max
Act Effect Green (s)	56.6	46.9		54.0	44.0		30.2	23.2	23.2	31.0	23.6	23.6
Actuated g/C Ratio	0.57	0.47		0.54	0.44		0.30	0.23	0.23	0.31	0.24	0.24

Lanes, Volumes, Timings

1: Hammes Avenue & Jefferson Street (US 52)

03/24/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.40	0.47		0.21	0.60		0.08	0.27	0.18	0.11	0.20	0.10
Control Delay	13.1	20.0		10.5	23.3		23.6	35.9	3.2	23.9	34.6	0.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.1	20.0		10.5	23.3		23.6	35.9	3.2	23.9	34.6	0.5
LOS	B	B		B	C		C	D	A	C	C	A
Approach Delay		19.0			22.2			22.9			23.6	
Approach LOS		B			C			C			C	
Queue Length 50th (ft)	33	174		20	221		14	68	0	20	51	0
Queue Length 95th (ft)	49	188		33	230		30	103	3	37	83	0
Internal Link Dist (ft)		595			503			234			298	
Turn Bay Length (ft)	320			240			135		140	90		90
Base Capacity (vph)	337	1617		404	1499		448	449	445	446	466	454
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.47		0.19	0.60		0.07	0.27	0.18	0.10	0.20	0.10

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 94 (94%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 21.2

Intersection LOS: C

Intersection Capacity Utilization 47.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Hammes Avenue & Jefferson Street (US 52)

					
Ø1	Ø2 (R)		Ø3	Ø4	
14 s	49 s		14 s	23 s	
					
Ø5	Ø6 (R)		Ø7	Ø8	
14 s	49 s		14 s	23 s	

Intersection

Int Delay, s/veh 0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↖	↖
Traffic Vol, veh/h	684	6	6	646	2	3
Future Vol, veh/h	684	6	6	646	2	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	0	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	4	0	17	5	0	0
Mvmt Flow	855	8	8	808	3	4

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	863
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.44
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.37
Pot Cap-1 Maneuver	-	-	687
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	687
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	13.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	328	577	-	-	687	-
HCM Lane V/C Ratio	0.008	0.006	-	-	0.011	-
HCM Control Delay (s)	16.1	11.3	-	-	10.3	-
HCM Lane LOS	C	B	-	-	B	-
HCM 95th %tile Q(veh)	0	0	-	-	0	-

Notes

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

HCM 6th TWSC

3: Jefferson Street (US 52) & Site Access Drive

03/24/2022

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	690	648	0	0	0
Future Vol, veh/h	0	690	648	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	4	3	2	2	2
Mvmt Flow	0	852	800	0	0	0
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	800	0	-	0	1226	400
Stage 1	-	-	-	-	800	-
Stage 2	-	-	-	-	426	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1116	-	-	-	293	*829
Stage 1	-	-	-	-	678	-
Stage 2	-	-	-	-	627	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	1116	-	-	-	293	*829
Mov Cap-2 Maneuver	-	-	-	-	431	-
Stage 1	-	-	-	-	678	-
Stage 2	-	-	-	-	627	-
Approach	EB		WB		SB	
HCM Control Delay, s	0		0		0	
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1116		-	-	-	
HCM Lane V/C Ratio	-		-	-	-	
HCM Control Delay (s)	0		-	-	0	
HCM Lane LOS	A		-	-	A	
HCM 95th %tile Q(veh)	0		-	-	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Capacity Analysis Summary Sheets
Year 2028 No-Build Weekday Evening Peak Hour

Lanes, Volumes, Timings

1: Hammes Avenue & Jefferson Street (US 52)

03/24/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	1161	74	127	1103	78	55	106	96	100	102	101
Future Volume (vph)	69	1161	74	127	1103	78	55	106	96	100	102	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	320		0	240		0	135		140	90		90
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	105			195			90			110		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.991			0.990				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3507	0	1770	3508	0	1770	1961	1568	1787	1961	1615
Flt Permitted	0.116			0.083			0.688			0.603		
Satd. Flow (perm)	216	3507	0	155	3508	0	1282	1961	1568	1134	1961	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			7				101			106
Link Speed (mph)		35			30			30			30	
Link Distance (ft)		675			583			314			378	
Travel Time (s)		13.1			13.3			7.1			8.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	0%	2%	2%	3%	1%	2%	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)	73	1300	0	134	1243	0	58	112	101	105	107	106
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6			4		4	8		8
Detector Phase	5	2		1	6		7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	10.0		4.0	8.0	8.0	4.0	8.0	8.0
Minimum Split (s)	9.5	41.5		12.0	52.5		9.5	47.5	47.5	9.5	45.5	45.5
Total Split (s)	14.0	67.0		14.0	67.0		20.0	29.0	29.0	20.0	29.0	29.0
Total Split (%)	10.8%	51.5%		10.8%	51.5%		15.4%	22.3%	22.3%	15.4%	22.3%	22.3%
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	0.5	2.0		0.5	2.0		0.5	2.0	2.0	0.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.5		4.0	6.5		4.0	6.5	6.5	4.0	6.5	6.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max		None	C-Max		None	Max	Max	None	Max	Max
Act Effect Green (s)	71.6	61.4		74.9	64.7		38.5	27.7	27.7	44.0	32.1	32.1
Actuated g/C Ratio	0.55	0.47		0.58	0.50		0.30	0.21	0.21	0.34	0.25	0.25

Lanes, Volumes, Timings

1: Hammes Avenue & Jefferson Street (US 52)

03/24/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.35	0.78		0.66	0.71		0.14	0.27	0.24	0.24	0.22	0.22
Control Delay	16.0	33.0		33.9	28.8		30.0	45.8	9.9	31.2	42.3	8.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.0	33.0		33.9	28.8		30.0	45.8	9.9	31.2	42.3	8.7
LOS	B	C		C	C		C	D	A	C	D	A
Approach Delay		32.1			29.3			29.0			27.4	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	25	475		47	428		33	79	0	61	74	0
Queue Length 95th (ft)	47	571		112	531		66	141	49	107	130	49
Internal Link Dist (ft)		595			503			234			298	
Turn Bay Length (ft)	320			240			135		140	90		90
Base Capacity (vph)	242	1658		214	1750		497	417	413	472	484	478
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.78		0.63	0.71		0.12	0.27	0.24	0.22	0.22	0.22

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 11 (8%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 30.2

Intersection LOS: C

Intersection Capacity Utilization 67.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Hammes Avenue & Jefferson Street (US 52)

 Ø1	 Ø2 (R)	 Ø3	 Ø4
14 s	67 s	20 s	29 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
14 s	67 s	20 s	29 s

Intersection

Int Delay, s/veh 0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↖	↖
Traffic Vol, veh/h	1306	21	13	1266	12	36
Future Vol, veh/h	1306	21	13	1266	12	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	0	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	5	0	2	0	0
Mvmt Flow	1346	22	13	1305	12	37

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1368
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	508
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	508
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	18.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	170	396	-	-	508	-
HCM Lane V/C Ratio	0.073	0.094	-	-	0.026	-
HCM Control Delay (s)	27.8	15	-	-	12.3	-
HCM Lane LOS	D	C	-	-	B	-
HCM 95th %tile Q(veh)	0.2	0.3	-	-	0.1	-

Notes

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

HCM 6th TWSC

3: Jefferson Street (US 52) & Site Access Drive

03/24/2022

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	1327	1278	0	0	1
Future Vol, veh/h	2	1327	1278	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	1	2	2	0
Mvmt Flow	2	1368	1318	0	0	1
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1318	0	-	0	2006	659
Stage 1	-	-	-	-	1318	-
Stage 2	-	-	-	-	688	-
Critical Hdwy	4.1	-	-	-	6.84	6.9
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.2	-	-	-	3.52	3.3
Pot Cap-1 Maneuver	*840	-	-	-	*112	*559
Stage 1	-	-	-	-	*525	-
Stage 2	-	-	-	-	*460	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	*840	-	-	-	*112	*559
Mov Cap-2 Maneuver	-	-	-	-	*274	-
Stage 1	-	-	-	-	*524	-
Stage 2	-	-	-	-	*460	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		11.5		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	* 840	-	-	-	559	
HCM Lane V/C Ratio	0.002	-	-	-	0.002	
HCM Control Delay (s)	9.3	-	-	-	11.5	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0	
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Capacity Analysis Summary Sheets
Year 2028 No-Build Saturday Midday Peak Hour

Lanes, Volumes, Timings

1: Hammes Avenue & Jefferson Street (US 52)

03/24/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	1127	55	103	1037	46	51	49	87	68	51	26
Future Volume (vph)	68	1127	55	103	1037	46	51	49	87	68	51	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	320		0	240		0	135		140	90		90
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	105			195			90			110		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.993			0.994				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3548	0	1805	3554	0	1805	2000	1599	1805	2000	1583
Flt Permitted	0.157			0.107			0.722			0.706		
Satd. Flow (perm)	298	3548	0	203	3554	0	1372	2000	1599	1341	2000	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			5				97			97
Link Speed (mph)		35			30			30			30	
Link Distance (ft)		675			583			314			378	
Travel Time (s)		13.1			13.3			7.1			8.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	1%	2%	0%	1%	0%	0%	0%	1%	0%	0%	2%
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)	70	1219	0	106	1116	0	53	51	90	70	53	27
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	custom	pm+pt	NA	custom
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6			4		2	8		6
Detector Phase	5	2		1	6		7	4	2	3	8	6
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	10.0		4.0	8.0	10.0	4.0	8.0	10.0
Minimum Split (s)	9.5	41.5		9.5	52.5		9.5	47.5	41.5	9.5	45.5	52.5
Total Split (s)	14.0	67.0		14.0	67.0		20.0	29.0	67.0	20.0	29.0	67.0
Total Split (%)	10.8%	51.5%		10.8%	51.5%		15.4%	22.3%	51.5%	15.4%	22.3%	51.5%
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	0.5	2.0		0.5	2.0		0.5	2.0	2.0	0.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.5		4.0	6.5		4.0	6.5	6.5	4.0	6.5	6.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max		None	C-Max		None	Max	C-Max	None	Max	C-Max
Act Effect Green (s)	72.0	61.9		74.6	64.9		41.0	31.6	61.9	42.6	32.4	64.9
Actuated g/C Ratio	0.55	0.48		0.57	0.50		0.32	0.24	0.48	0.33	0.25	0.50

Lanes, Volumes, Timings

1: Hammes Avenue & Jefferson Street (US 52)

03/24/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.28	0.72		0.48	0.63		0.12	0.11	0.11	0.15	0.11	0.03
Control Delay	14.2	30.3		19.0	26.3		29.6	41.6	3.5	30.0	40.7	0.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.2	30.3		19.0	26.3		29.6	41.6	3.5	30.0	40.7	0.1
LOS	B	C		B	C		C	D	A	C	D	A
Approach Delay		29.4			25.7			20.6			28.4	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	24	421		37	361		30	34	0	40	35	0
Queue Length 95th (ft)	45	515		64	450		60	73	27	76	73	0
Internal Link Dist (ft)		595			503			234			298	
Turn Bay Length (ft)	320			240			135		140	90		90
Base Capacity (vph)	286	1692		240	1775		528	485	812	521	498	838
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.72		0.44	0.63		0.10	0.11	0.11	0.13	0.11	0.03

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 11 (8%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 27.2

Intersection LOS: C

Intersection Capacity Utilization 63.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Hammes Avenue & Jefferson Street (US 52)

 Ø1	 Ø2 (R)	 Ø3	 Ø4
14 s	67 s	20 s	29 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
14 s	67 s	20 s	29 s

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑	↑	↑
Traffic Vol, veh/h	1183	25	15	1121	22	45
Future Vol, veh/h	1183	25	15	1121	22	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	0	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	0	0	2	5	0
Mvmt Flow	1245	26	16	1180	23	47

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1271
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	553
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	553
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	18.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	187	425	-	-	553	-
HCM Lane V/C Ratio	0.124	0.111	-	-	0.029	-
HCM Control Delay (s)	27	14.5	-	-	11.7	-
HCM Lane LOS	D	B	-	-	B	-
HCM 95th %tile Q(veh)	0.4	0.4	-	-	0.1	-

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

HCM 6th TWSC

3: Jefferson Street (US 52) & Site Access Drive

03/24/2022

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1208	1143	0	0	1
Future Vol, veh/h	1	1208	1143	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	0	2	2	0
Mvmt Flow	1	1272	1203	0	0	1
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1203	0	-	0	1841	602
Stage 1	-	-	-	-	1203	-
Stage 2	-	-	-	-	638	-
Critical Hdwy	4.1	-	-	-	6.84	6.9
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.2	-	-	-	3.52	3.3
Pot Cap-1 Maneuver	*947	-	-	-	*139	*631
Stage 1	-	-	-	-	*592	-
Stage 2	-	-	-	-	*488	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	*947	-	-	-	*139	*631
Mov Cap-2 Maneuver	-	-	-	-	*307	-
Stage 1	-	-	-	-	*591	-
Stage 2	-	-	-	-	*488	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		10.7		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	* 947	-	-	-	631	
HCM Lane V/C Ratio	0.001	-	-	-	0.002	
HCM Control Delay (s)	8.8	-	-	-	10.7	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Capacity Analysis Summary Sheets
Year 2028 Total Projected Weekday Morning Peak Hour

Lanes, Volumes, Timings

1: Hammes Avenue & Jefferson Street (US 52)

03/24/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	572	19	59	621	77	25	93	62	34	72	37
Future Volume (vph)	97	572	19	59	621	77	25	93	62	34	72	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	320		0	240		0	135		140	90		90
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	105			195			90			110		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.995			0.983				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	3444	0	1641	3387	0	1736	1942	1509	1752	1980	1524
Flt Permitted	0.193			0.293			0.695			0.670		
Satd. Flow (perm)	343	3444	0	506	3387	0	1270	1942	1509	1236	1980	1524
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			17				125			125
Link Speed (mph)		35			30			30			30	
Link Distance (ft)		675			583			314			378	
Travel Time (s)		13.1			13.3			7.1			8.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	4%	13%	10%	5%	3%	4%	3%	7%	3%	1%	6%
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)	128	778	0	78	918	0	33	122	82	45	95	49
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6			4		4	8		8
Detector Phase	5	2		1	6		7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	10.0		4.0	8.0	8.0	4.0	8.0	8.0
Minimum Split (s)	9.5	41.5		9.5	52.5		9.5	47.5	47.5	9.5	45.5	45.5
Total Split (s)	14.0	49.0		14.0	49.0		14.0	23.0	23.0	14.0	23.0	23.0
Total Split (%)	14.0%	49.0%		14.0%	49.0%		14.0%	23.0%	23.0%	14.0%	23.0%	23.0%
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	0.5	2.0		0.5	2.0		0.5	2.0	2.0	0.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.5		4.0	6.5		4.0	6.5	6.5	4.0	6.5	6.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max		None	C-Max		None	Max	Max	None	Max	Max
Act Effect Green (s)	56.7	46.9		53.9	43.9		30.2	23.2	23.2	31.0	23.5	23.5
Actuated g/C Ratio	0.57	0.47		0.54	0.44		0.30	0.23	0.23	0.31	0.24	0.24

Lanes, Volumes, Timings

1: Hammes Avenue & Jefferson Street (US 52)

03/24/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.41	0.48		0.22	0.61		0.08	0.27	0.18	0.11	0.20	0.11
Control Delay	13.4	20.2		10.5	23.5		23.6	35.9	3.2	23.9	34.6	0.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.4	20.2		10.5	23.5		23.6	35.9	3.2	23.9	34.6	0.5
LOS	B	C		B	C		C	D	A	C	C	A
Approach Delay		19.2			22.5			22.9			23.2	
Approach LOS		B			C			C			C	
Queue Length 50th (ft)	34	178		20	226		14	68	0	20	51	0
Queue Length 95th (ft)	50	193		33	234		30	103	3	37	83	0
Internal Link Dist (ft)		595			503			234			298	
Turn Bay Length (ft)	320			240			135		140	90		90
Base Capacity (vph)	331	1617		398	1496		448	449	445	447	466	454
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.48		0.20	0.61		0.07	0.27	0.18	0.10	0.20	0.11

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 94 (94%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 21.3

Intersection LOS: C

Intersection Capacity Utilization 47.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Hammes Avenue & Jefferson Street (US 52)

					
Ø1	Ø2 (R)		Ø3	Ø4	
14 s	49 s		14 s	23 s	
					
Ø5	Ø6 (R)		Ø7	Ø8	
14 s	49 s		14 s	23 s	

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑	↑	↑
Traffic Vol, veh/h	698	6	6	660	2	3
Future Vol, veh/h	698	6	6	660	2	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	0	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	4	0	17	5	0	0
Mvmt Flow	873	8	8	825	3	4

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	881
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.44
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.37
Pot Cap-1 Maneuver	-	-	675
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	675
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	13.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	319	570	-	-	675	-
HCM Lane V/C Ratio	0.008	0.007	-	-	0.011	-
HCM Control Delay (s)	16.4	11.4	-	-	10.4	-
HCM Lane LOS	C	B	-	-	B	-
HCM 95th %tile Q(veh)	0	0	-	-	0	-

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

HCM 6th TWSC

3: Jefferson Street (US 52) & Site Access Drive

03/24/2022

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	690	648	14	14	7
Future Vol, veh/h	8	690	648	14	14	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	4	3	2	2	2
Mvmt Flow	10	852	800	17	17	9
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	817	0	-	0	1255	409
Stage 1	-	-	-	-	809	-
Stage 2	-	-	-	-	446	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1096	-	-	-	277	*829
Stage 1	-	-	-	-	669	-
Stage 2	-	-	-	-	612	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	1096	-	-	-	275	*829
Mov Cap-2 Maneuver	-	-	-	-	416	-
Stage 1	-	-	-	-	663	-
Stage 2	-	-	-	-	612	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		12.6		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1096	-	-	-	499	
HCM Lane V/C Ratio	0.009	-	-	-	0.052	
HCM Control Delay (s)	8.3	-	-	-	12.6	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.2	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Capacity Analysis Summary Sheets
Year 2028 Total Projected Weekday Evening Peak Hour

Lanes, Volumes, Timings

1: Hammes Avenue & Jefferson Street (US 52)

03/24/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	73	1180	76	127	1122	78	57	106	96	100	102	105
Future Volume (vph)	73	1180	76	127	1122	78	57	106	96	100	102	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	320		0	240		0	135		140	90		90
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	105			195			90			110		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.991			0.990				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3507	0	1770	3508	0	1770	1961	1568	1787	1961	1615
Flt Permitted	0.110			0.076			0.688			0.605		
Satd. Flow (perm)	205	3507	0	142	3508	0	1282	1961	1568	1138	1961	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			7				101			111
Link Speed (mph)		35			30			30			30	
Link Distance (ft)		675			583			314			378	
Travel Time (s)		13.1			13.3			7.1			8.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	0%	2%	2%	3%	1%	2%	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)	77	1322	0	134	1263	0	60	112	101	105	107	111
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6			4		4	8		8
Detector Phase	5	2		1	6		7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	10.0		4.0	8.0	8.0	4.0	8.0	8.0
Minimum Split (s)	9.5	41.5		12.0	52.5		9.5	47.5	47.5	9.5	45.5	45.5
Total Split (s)	14.0	67.0		14.0	67.0		20.0	29.0	29.0	20.0	29.0	29.0
Total Split (%)	10.8%	51.5%		10.8%	51.5%		15.4%	22.3%	22.3%	15.4%	22.3%	22.3%
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	0.5	2.0		0.5	2.0		0.5	2.0	2.0	0.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.5		4.0	6.5		4.0	6.5	6.5	4.0	6.5	6.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max		None	C-Max		None	Max	Max	None	Max	Max
Act Effect Green (s)	71.7	61.3		74.8	64.6		38.6	27.7	27.7	43.9	32.0	32.0
Actuated g/C Ratio	0.55	0.47		0.58	0.50		0.30	0.21	0.21	0.34	0.25	0.25

Lanes, Volumes, Timings

1: Hammes Avenue & Jefferson Street (US 52)

03/24/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.37	0.80		0.68	0.72		0.15	0.27	0.24	0.24	0.22	0.23
Control Delay	16.6	33.6		37.6	29.3		30.0	45.8	9.9	31.2	42.4	8.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.6	33.6		37.6	29.3		30.0	45.8	9.9	31.2	42.4	8.6
LOS	B	C		D	C		C	D	A	C	D	A
Approach Delay		32.7			30.1			29.0			27.2	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	26	488		47	440		34	79	0	61	74	0
Queue Length 95th (ft)	49	586		#128	546		67	141	49	107	131	50
Internal Link Dist (ft)		595			503			234			298	
Turn Bay Length (ft)	320			240			135		140	90		90
Base Capacity (vph)	236	1657		207	1746		497	417	413	473	482	481
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.80		0.65	0.72		0.12	0.27	0.24	0.22	0.22	0.23

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 11 (8%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 30.8

Intersection LOS: C

Intersection Capacity Utilization 68.4%

ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Hammes Avenue & Jefferson Street (US 52)

														
Ø1	Ø2 (R)		Ø3		Ø4		Ø5		Ø6 (R)		Ø7		Ø8	
14 s	67 s		20 s		29 s		14 s		67 s		20 s		29 s	

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↱		↱	↑↑	↱	↱
Traffic Vol, veh/h	1331	21	13	1291	12	36
Future Vol, veh/h	1331	21	13	1291	12	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	0	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	5	0	2	0	0
Mvmt Flow	1372	22	13	1331	12	37
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1394	0	2075	697
Stage 1	-	-	-	-	1383	-
Stage 2	-	-	-	-	692	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	497	-	*93	388
Stage 1	-	-	-	-	*202	-
Stage 2	-	-	-	-	*528	-
Platoon blocked, %	-	-	-	-	1	-
Mov Cap-1 Maneuver	-	-	497	-	*91	388
Mov Cap-2 Maneuver	-	-	-	-	*163	-
Stage 1	-	-	-	-	*202	-
Stage 2	-	-	-	-	*514	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.1		18.7	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	163	388	-	-	497	-
HCM Lane V/C Ratio	0.076	0.096	-	-	0.027	-
HCM Control Delay (s)	28.9	15.3	-	-	12.4	-
HCM Lane LOS	D	C	-	-	B	-
HCM 95th %tile Q(veh)	0.2	0.3	-	-	0.1	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

HCM 6th TWSC

3: Jefferson Street (US 52) & Site Access Drive

03/24/2022

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	1327	1278	25	25	15
Future Vol, veh/h	15	1327	1278	25	25	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	1	2	2	0
Mvmt Flow	15	1368	1318	26	26	15
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1344	0	-	0	2045	672
Stage 1	-	-	-	-	1331	-
Stage 2	-	-	-	-	714	-
Critical Hdwy	4.1	-	-	-	6.84	6.9
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.2	-	-	-	3.52	3.3
Pot Cap-1 Maneuver	*840	-	-	-	*100	*559
Stage 1	-	-	-	-	*525	-
Stage 2	-	-	-	-	*446	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	*840	-	-	-	*98	*559
Mov Cap-2 Maneuver	-	-	-	-	*263	-
Stage 1	-	-	-	-	*516	-
Stage 2	-	-	-	-	*446	-
Approach	EB		WB		SB	
HCM Control Delay, s	0.1		0		17.5	
HCM LOS	C					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	* 840		-	-	-	328
HCM Lane V/C Ratio	0.018		-	-	-	0.126
HCM Control Delay (s)	9.4		-	-	-	17.5
HCM Lane LOS	A		-	-	-	C
HCM 95th %tile Q(veh)	0.1		-	-	-	0.4
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Capacity Analysis Summary Sheets
Year 2028 Total Projected Saturday Midday Peak Hour

Lanes, Volumes, Timings

1: Hammes Avenue & Jefferson Street (US 52)

03/24/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	1156	58	103	1066	46	54	49	87	68	51	32
Future Volume (vph)	74	1156	58	103	1066	46	54	49	87	68	51	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	320		0	240		0	135		140	90		90
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	105			195			90			110		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.993			0.994				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3548	0	1805	3554	0	1805	2000	1599	1805	2000	1583
Flt Permitted	0.146			0.098			0.722			0.710		
Satd. Flow (perm)	277	3548	0	186	3554	0	1372	2000	1599	1349	2000	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			4				97			97
Link Speed (mph)		35			30			30			30	
Link Distance (ft)		675			583			314			378	
Travel Time (s)		13.1			13.3			7.1			8.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	1%	2%	0%	1%	0%	0%	0%	1%	0%	0%	2%
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)	76	1252	0	106	1146	0	56	51	90	70	53	33
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	custom	pm+pt	NA	custom
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6			4		2	8		6
Detector Phase	5	2		1	6		7	4	2	3	8	6
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	10.0		4.0	8.0	10.0	4.0	8.0	10.0
Minimum Split (s)	9.5	41.5		9.5	52.5		9.5	47.5	41.5	9.5	45.5	52.5
Total Split (s)	14.0	67.0		14.0	67.0		20.0	29.0	67.0	20.0	29.0	67.0
Total Split (%)	10.8%	51.5%		10.8%	51.5%		15.4%	22.3%	51.5%	15.4%	22.3%	51.5%
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	0.5	2.0		0.5	2.0		0.5	2.0	2.0	0.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.5		4.0	6.5		4.0	6.5	6.5	4.0	6.5	6.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max		None	C-Max		None	Max	C-Max	None	Max	C-Max
Act Effect Green (s)	72.2	61.9		74.4	64.7		41.2	31.6	61.9	42.4	32.2	64.7
Actuated g/C Ratio	0.56	0.48		0.57	0.50		0.32	0.24	0.48	0.33	0.25	0.50

Lanes, Volumes, Timings

1: Hammes Avenue & Jefferson Street (US 52)

03/24/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.31	0.74		0.50	0.65		0.12	0.11	0.11	0.15	0.11	0.04
Control Delay	14.8	30.9		20.1	27.0		29.6	41.6	3.5	30.0	40.9	0.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.8	30.9		20.1	27.0		29.6	41.6	3.5	30.0	40.9	0.1
LOS	B	C		C	C		C	D	A	C	D	A
Approach Delay		30.0			26.4			20.8			27.4	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	26	438		37	377		32	34	0	40	35	0
Queue Length 95th (ft)	48	535		64	469		64	73	27	76	73	0
Internal Link Dist (ft)		595			503			234			298	
Turn Bay Length (ft)	320			240			135		140	90		90
Base Capacity (vph)	276	1692		232	1770		528	485	812	523	496	836
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.74		0.46	0.65		0.11	0.11	0.11	0.13	0.11	0.04

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 11 (8%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 27.7

Intersection LOS: C

Intersection Capacity Utilization 64.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Hammes Avenue & Jefferson Street (US 52)

 Ø1	 Ø2 (R)	 Ø3	 Ø4
14 s	67 s	20 s	29 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
14 s	67 s	20 s	29 s

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↱		↱	↑↑	↱	↱
Traffic Vol, veh/h	1221	25	15	1159	22	45
Future Vol, veh/h	1221	25	15	1159	22	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	0	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	0	0	2	5	0
Mvmt Flow	1285	26	16	1220	23	47
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1311	0	1940	656
Stage 1	-	-	-	-	1298	-
Stage 2	-	-	-	-	642	-
Critical Hdwy	-	-	4.1	-	6.9	6.9
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	-	-	2.2	-	3.55	3.3
Pot Cap-1 Maneuver	-	-	534	-	*113	413
Stage 1	-	-	-	-	*214	-
Stage 2	-	-	-	-	*565	-
Platoon blocked, %	-	-	-	-	1	-
Mov Cap-1 Maneuver	-	-	534	-	*109	413
Mov Cap-2 Maneuver	-	-	-	-	*177	-
Stage 1	-	-	-	-	*214	-
Stage 2	-	-	-	-	*548	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		19.3	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	177	413	-	-	534	-
HCM Lane V/C Ratio	0.131	0.115	-	-	0.03	-
HCM Control Delay (s)	28.4	14.8	-	-	11.9	-
HCM Lane LOS	D	B	-	-	B	-
HCM 95th %tile Q(veh)	0.4	0.4	-	-	0.1	-
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

HCM 6th TWSC

3: Jefferson Street (US 52) & Site Access Drive

03/24/2022

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	21	1208	1143	38	38	22
Future Vol, veh/h	21	1208	1143	38	38	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	0	2	2	0
Mvmt Flow	22	1272	1203	40	40	23
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1243	0	-	0	1903	622
Stage 1	-	-	-	-	1223	-
Stage 2	-	-	-	-	680	-
Critical Hdwy	4.1	-	-	-	6.84	6.9
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.2	-	-	-	3.52	3.3
Pot Cap-1 Maneuver	*947	-	-	-	*119	*631
Stage 1	-	-	-	-	*592	-
Stage 2	-	-	-	-	*465	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	*947	-	-	-	*116	*631
Mov Cap-2 Maneuver	-	-	-	-	*287	-
Stage 1	-	-	-	-	*578	-
Stage 2	-	-	-	-	*465	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		17.2		
HCM LOS	C					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	* 947	-	-	-	359	
HCM Lane V/C Ratio	0.023	-	-	-	0.176	
HCM Control Delay (s)	8.9	-	-	-	17.2	
HCM Lane LOS	A	-	-	-	C	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon