

# Traffic Impact Study

## Proposed Warehouse/Distribution Development

Crest Hill, Illinois



Prepared For:

**MIDWEST**  
**INDUSTRIAL FUNDS**  
REAL ESTATE INVESTMENT & DEVELOPMENT

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

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# 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 a proposed warehouse/distribution development to be located in Crest Hill, Illinois. The site, which is currently vacant, is located on the south side of Lidice Parkway. As proposed, the site will be developed with an approximately 579,000 square-foot warehouse/distribution building with access provided via three full movement access drives on the south side of Lidice Parkway.

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

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

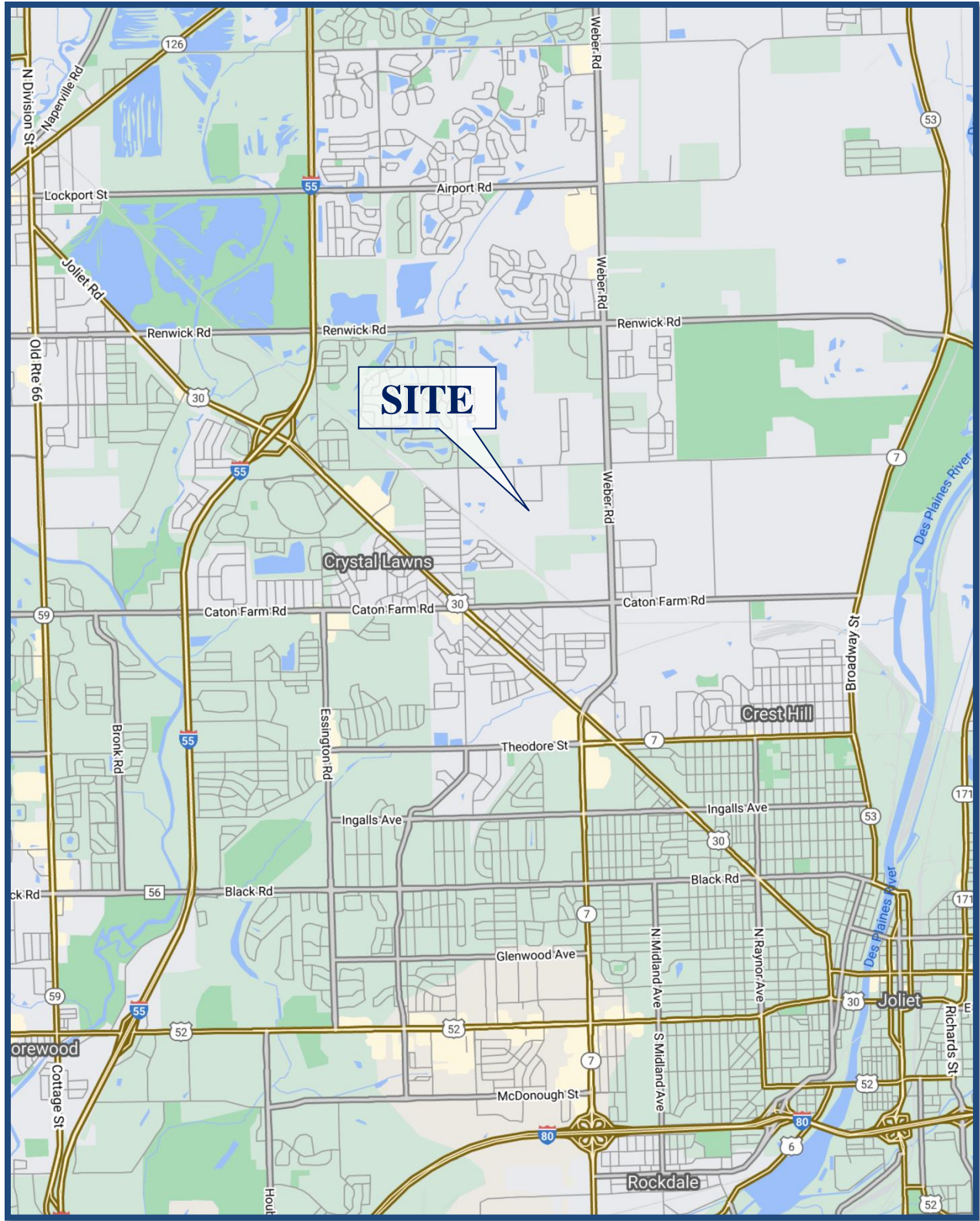
The sections of this report present the following:

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

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

1. Base Conditions – Analyzes the capacity of the existing roadway system using peak hour traffic volumes provided by the City of Crest Hill.
2. Year 2029 No-Build Conditions – Analyzes the capacity of the future roadway system using base traffic volumes increased by an ambient area growth factor as well as the traffic expected to be generated by area developments.
3. Year 2029 Total Projected Conditions – Analyzes the capacity of the future roadway system using Year 2029 no-build traffic volumes plus the traffic estimated to be generated by the proposed development.





**Site Location**

**Figure 1**





**Aerial View of Site**

**Figure 2**

*Warehouse/Distribution Development  
Crest Hill, Illinois*

## 2. Existing Conditions

Existing transportation conditions in the vicinity of the site were documented based on field visits conducted by KLOA, Inc. in order to obtain a 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.

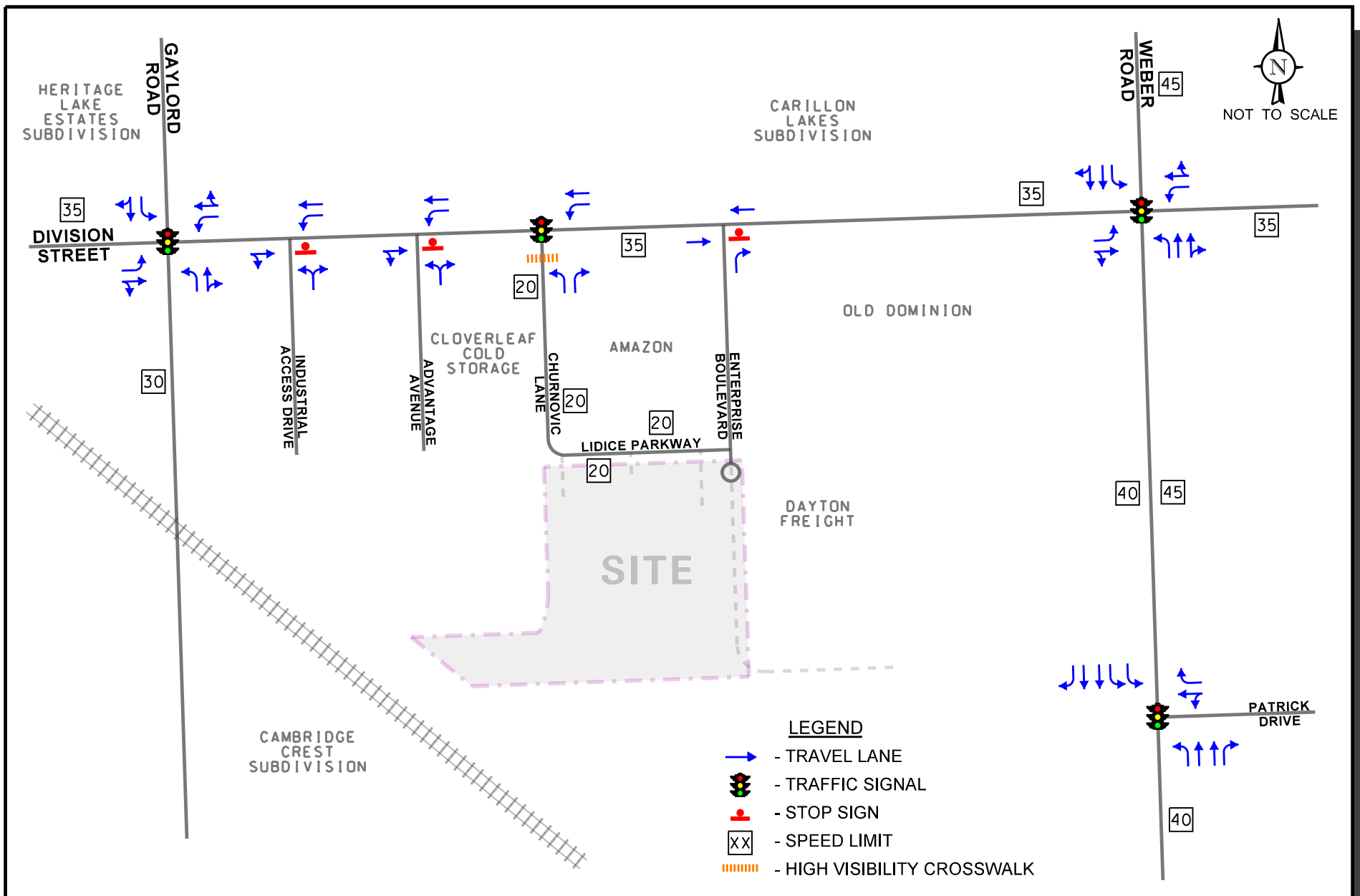
### Site Location

The site of the development is bounded by Lidice Parkway to the north, Enterprise Boulevard and Dayton Freight to the east, and agricultural/undeveloped land to the west and south. Land uses in the vicinity of the site are primarily industrial along the south side of Division Street and include an Amazon Fulfillment Center, Old Dominion and Dayton Freight truck terminals, and Cloverleaf Cold Storage. Land uses on the north side of Division Street and along Gaylord Road are primarily residential.

### Existing Roadway System Characteristics

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

*Weber Road* is a north-south, arterial roadway that in the vicinity of the site provides two through lanes in each direction. At its signalized intersection with Division Street, Weber Road provides an exclusive left-turn lane, a through lane, and a shared through/right-turn lane on both approaches. At its signalized intersection with Patrick Drive, Weber Road provides dual left-turn lanes, two through lanes, and an exclusive right-turn lane on the southbound approach and an exclusive left-turn lane, two through lanes, and an exclusive right-turn lane on the northbound approach. While this intersection currently operates as a T-intersection, the Weber Road improvements for the west leg have been constructed. Weber Road is under the jurisdiction of the Will County Division of Transportation (WCDOT), is classified as a strategic regional arterial (SRA), carries an annual average daily traffic (AADT) volume of 20,400 vehicles (IDOT 2019), and has a posted speed limit of 45 miles per hour.



Lidice Parkway  
Development  
Crest Hill, Illinois

Existing Roadway Characteristics



*Division Street* is an east-west, collector roadway that provides one lane in each direction. Between Advantage Avenue and the industrial access road located approximately 700 feet east of Gaylord Avenue, Division Street is divided by a two-way left-turn lane. At its signalized intersection with Weber Road, Division Street provides an exclusive left-turn lane and a shared through/right-turn lane on both approaches. At its signalized intersection with Gaylord Road, Division Street provides an exclusive left-turn lane and a shared through/right-turn lane on both approaches. At its signalized intersection with Churnovic Lane, Division Street provides a shared left-turn/through/right-turn lane on the eastbound approach and an exclusive left-turn lane and a shared through/right-turn lane on the westbound approach. At its unsignalized intersection with Advantage Avenue, Division Street provides a shared left-turn/through/right-turn lane on the eastbound approach and an exclusive left-turn lane and a shared through/right-turn lane on the westbound approach. At its unsignalized intersection with Enterprise Boulevard, left-turn and right-turn movements are prohibited from Division Street to Enterprise Boulevard. Division Street is under the jurisdiction of the City of Crest Hill, carries an AADT volume of 3,300 vehicles west of Weber Road (IDOT 2019), and has a posted speed limit of 35 miles per hour.

*Gaylord Road* is a north-south, major collector roadway that provides one lane in each direction. At its signalized intersection with Division Street, Gaylord Road provides an exclusive left-turn lane and a shared through/right-turn lane on both approaches. Gaylord Road is under the jurisdiction of the City of Crest Hill, carries an AADT volume of 7,650 vehicles north of Division Street (IDOT 2019), and has a posted speed limit of 30 miles per hour.

*Advantage Avenue* is a north-south, local roadway that extends south from Division Street and provides one lane in each direction. At its unsignalized intersection with Division Street, Advantage Avenue provides a shared left-turn/right-turn lane on the northbound approach and is under stop sign control. Advantage Avenue is under the jurisdiction of the City of Crest Hill.

*Churnovic Lane* is a north-south, local roadway that extends between Division Street and Lidice Parkway and provides one lane in each direction generally divided by a striped median (40-foot width). At its signalized intersection with Division Street, Churnovic Lane is aligned opposite a private access drive and provides an exclusive left-turn lane and an exclusive right-turn lane. The private access drive has a single lane approach. Churnovic Lane is under the jurisdiction of the City of Crest Hill and has a posted speed limit of 20 mph.

*Enterprise Boulevard* is an east-west, local roadway that extends between Division Street and just south of Lidice Parkway and provides one lane in each direction. At its unsignalized intersection with Division Street, Enterprise Drive is restricted to right-turn movements only and is under stop sign control. Further, left-turn and right-turn movements from Division Street to Enterprise Boulevard are prohibited. Enterprise Boulevard is under the jurisdiction of the City of Crest Hill.

*Lidice Parkway* is an east-west, local roadway that extends between Churnovic Lane and Enterprise Boulevard and provides one lane in each direction. The road is under stop sign control at its intersection with Enterprise Boulevard. Lidice Parkway is under the jurisdiction of the City of Crest Hill and has a posted speed limit of 20 mph.

## Existing Traffic Volumes

Per the direction of the City of Crest Hill, previous weekday morning and weekday evening peak hour traffic counts performed by Christopher B. Burke Engineering, Ltd. for the City were utilized for this study. The traffic counts were performed on November 9, 2021 at the following intersections:

- Weber Road with Division Street
- Weber Road with Patrick Drive
- Division Street with Gaylord Road
- Division Street with the industrial access road
- Division Street with Advantage Avenue
- Division Street with Churnovic Lane
- Division Street with Enterprise Boulevard
- IL 53 with Emerald Drive

Per the traffic counts, the weekday morning peak hour of traffic occurred from 7:15 A.M. to 8:15 A.M. and the weekday evening peak hour of traffic occurred from 3:45 P.M. to 4:45 P.M. **Figure 4** illustrates the existing peak hour vehicle traffic volumes, inclusive of heavy vehicles. **Figure 5** illustrates the existing heavy vehicle peak hour traffic volumes. Copies of the traffic counts are included in the Appendix.

## Crash Analysis

KLOA, Inc. obtained currently available crash data from IDOT for a five-year period (Years 2017 through 2021) for the intersections of Weber Road with Division Street, Weber Road with Patrick Drive, Division Street with Gaylord Road, Division Street with the industrial access road, Division Street with Advantage Avenue, Division Street with Churnovic Lane, and Division Street with Enterprise Boulevard.<sup>1</sup> A review of the crash data indicated the following:

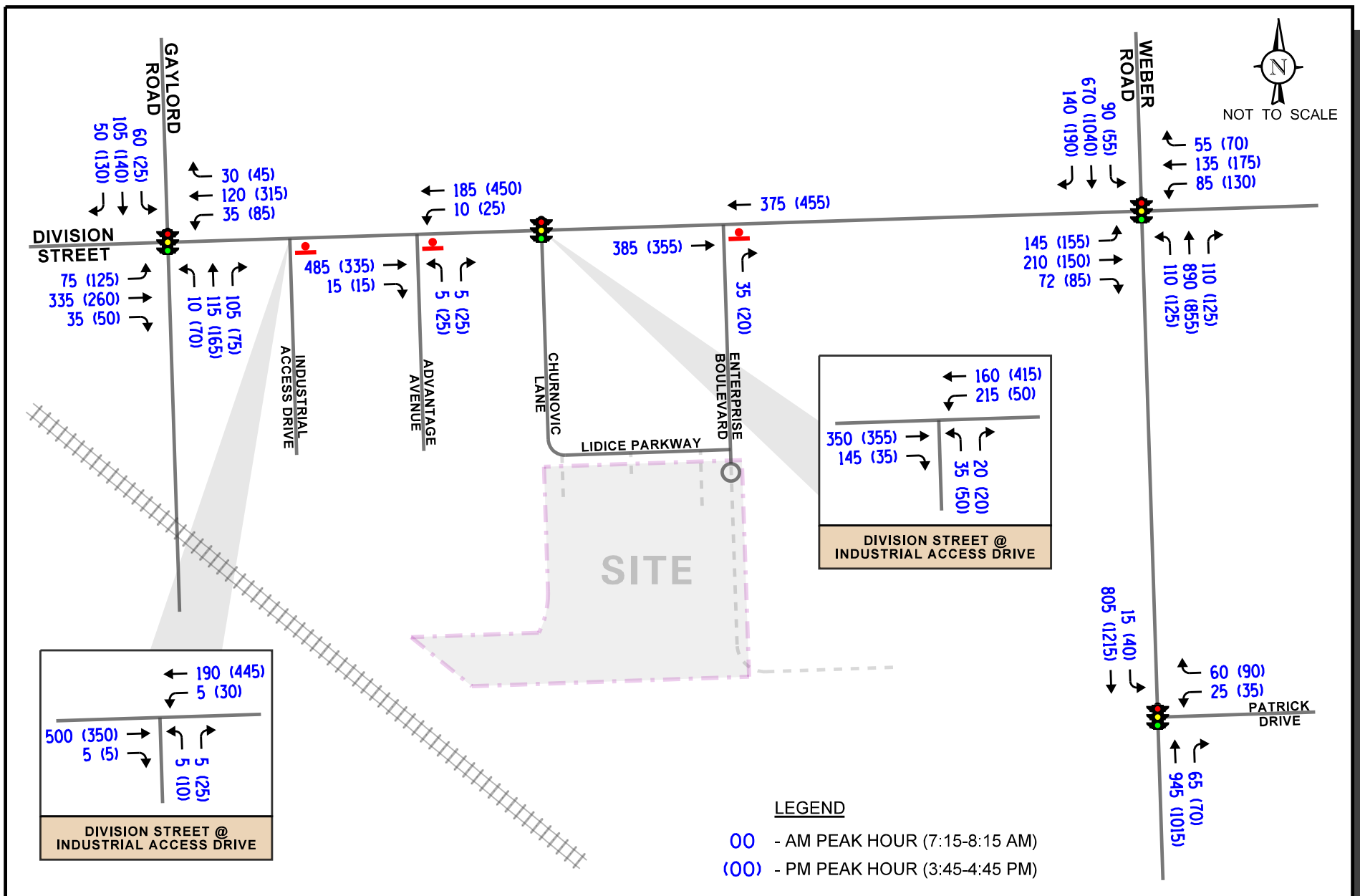
- There were six crashes at the Weber Road/Patrick Dive intersection (two each in 2018 and 2021, one each in 2019 and 2020)
- There were no crashes at the Division Street/industrial access road intersection
- There was one crash at the Division Street/Advantage Avenue intersection (2020)
- There were three crashes at the Division Street/Churnovic Lane intersection (one in 2020 and two in 2021)
- There was one crash at the Division Street/Enterprise Boulevard intersection (2017)

The crash data for the remaining two intersections is summarized in **Tables 1** and **2**. Further, there were no fatalities reported at any of the studied intersections during the review period.

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<sup>1</sup> IDOT DISCLAIMER: The motor vehicle crash data referenced herein was provided by the Illinois Department of Transportation. The author is responsible for any data analyses and conclusions drawn.





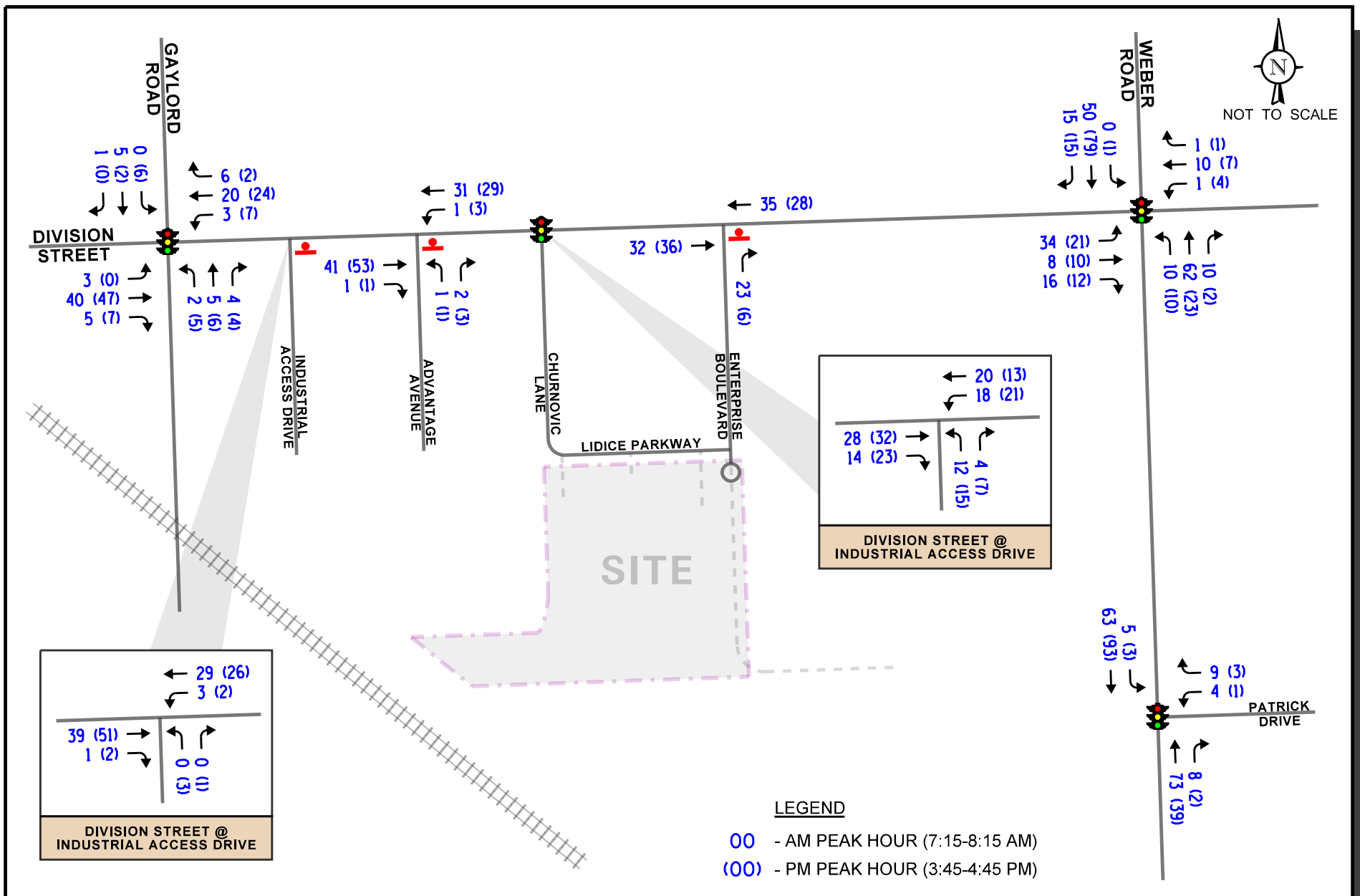


Table 1

## WEBER ROAD WITH DIVISION STREET – CRASH SUMMARY

Year	Type of Crash Frequency							
	Angle	Head On	Object	Rear End	Sideswipe	Turning	Other	Total
2017	0	0	0	8	0	5	0	13
2018	1	0	0	4	1	5	0	11
2019	2	0	1	4	0	4	0	11
2020	0	0	0	4	0	3	0	7
2021	<u>1</u>	<u>0</u>	<u>1</u>	<u>6</u>	<u>1</u>	<u>7</u>	<u>2</u>	<u>18</u>
<b>Total</b>	<b>4</b>	<b>0</b>	<b>2</b>	<b>26</b>	<b>2</b>	<b>24</b>	<b>2</b>	<b>60</b>
<b>Average</b>	<b>&lt;1.0</b>	<b>0</b>	<b>&lt;1.0</b>	<b>5.2</b>	<b>&lt;1.0</b>	<b>4.8</b>	<b>&lt;1.0</b>	<b>12.0</b>

Table 2

## DIVISION STREET WITH GAYLORD ROAD – CRASH SUMMARY

Year	Type of Crash Frequency							
	Angle	Head On	Object	Rear End	Sideswipe	Turning	Other	Total
2017	4	0	0	1	0	1	0	6
2018	1	0	0	4	0	1	0	6
2019	3	0	0	1	0	1	0	5
2020	1	0	0	3	0	0	0	4
2021	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>3</u>
<b>Total</b>	<b>11</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>24</b>
<b>Average</b>	<b>2.2</b>	<b>0</b>	<b>0</b>	<b>1.8</b>	<b>0</b>	<b>&lt;1.0</b>	<b>0</b>	<b>4.8</b>



### 3. Traffic Characteristics of the Proposed Development

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

#### Proposed Site and Development Plan

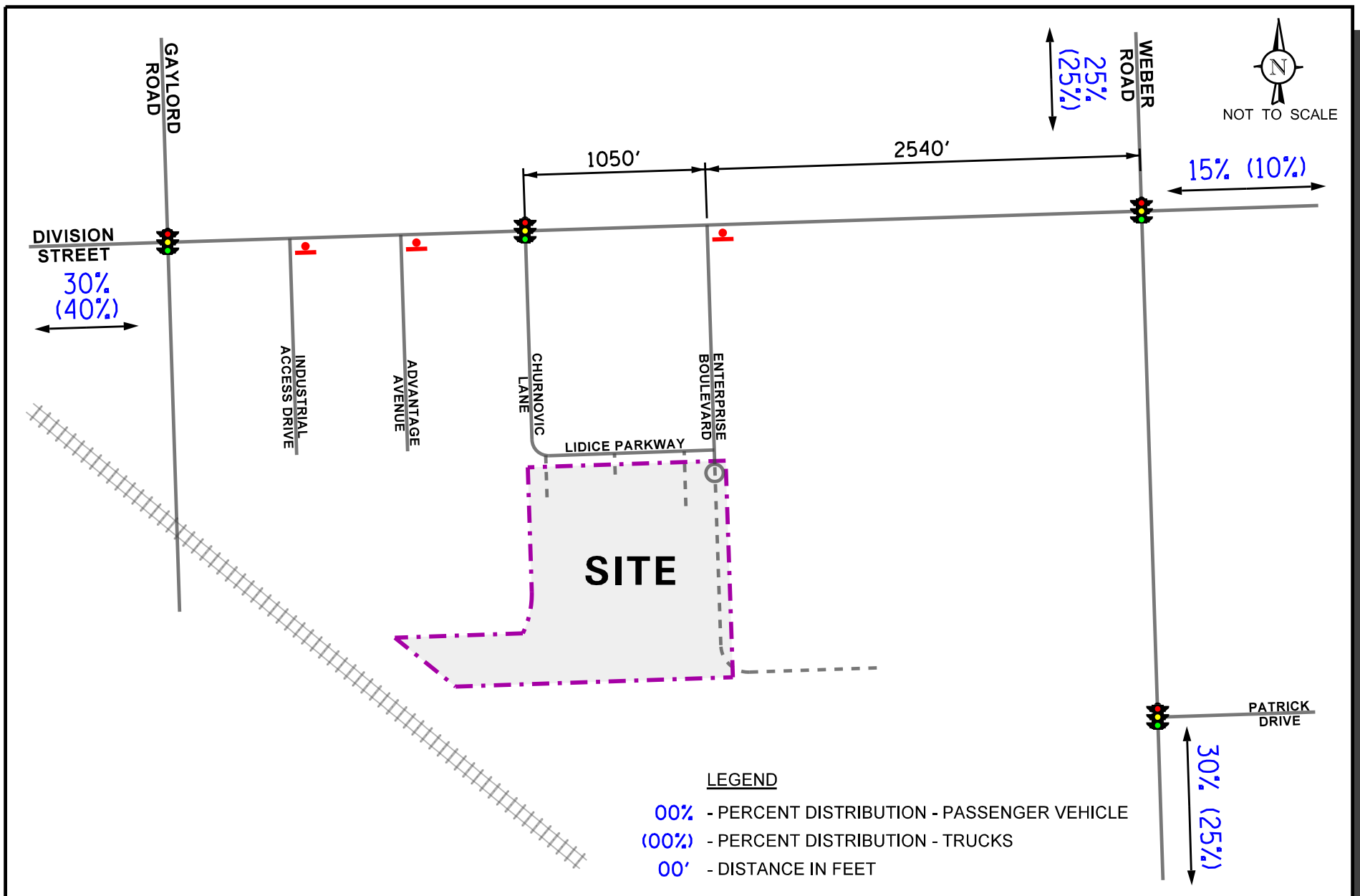
As proposed, the development is to consist of a single building with approximately 579,000 square feet of warehouse/distribution space and 113 truck docks. In addition, 333 employee parking spaces will be located on the north and south sides of the site and 151 truck parking spaces will be located on the east and west sides of the site. Access to the development will be provided via the following three access drives to be located on the south side of Lidice Parkway:

- The western access drive will be located on the south side of the road just east of Churnovic Lane. This access drive will serve employees and trucks.
- The middle access drive will be located on the south side of the road approximately 555 feet west of Enterprise Boulevard opposite the western access drive serving the Amazon distribution facility located on the north side of Lidice Parkway. This access drive will serve employees only.
- The eastern access drive will be located on the south side of the road approximately 200 feet west of Enterprise Boulevard opposite the eastern access drive serving the Amazon distribution facility located on the north side of Lidice Parkway. This access drive will serve employees and trucks.

All three access drives are proposed to provide one inbound lane and one outbound lane with outbound lanes under stop sign control. A copy of the preliminary site plan is included in the Appendix.

#### Directional Distribution

The directions from which employees and trucks will approach and depart the development were estimated based on existing travel patterns, as determined from the traffic counts. **Figure 6** illustrates the directional distribution of the development-generated traffic.



## Development-Generated Traffic Volumes

The total number of peak hour vehicle trips estimated to be generated by the proposed development was based on vehicle trip generation rates contained in *Trip Generation Manual*, 11<sup>th</sup> Edition, published by the Institute of Transportation Engineers (ITE) for Land-Use Code 150 (Warehouse). **Table 3** summarizes the trips projected to be generated by the development during the peak hours and on a daily basis. **Table 4** summarizes the truck trips projected to be generated by the development throughout the day. Copies of the ITE trip generation sheets are included in the Appendix.

Table 3

ESTIMATED PEAK HOUR AND DAILY TRIP GENERATION

ITE Land-Use Code	Type/Size	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Daily Trips	
		In	Out	Total	In	Out	Total	In	Out
<b>150</b>	<b>Warehouse (579,000 s.f.)</b>	72	21	93	27	69	96	477	477
	Truck Trips	5	13	18	12	10	22	160	160
	Passenger Vehicle Trips	67	8	75	15	59	74	317	317

Table 4

ESTIMATED 24-HOUR TRUCK TRIP GENERATION

Hour	Warehouse (ITE Land-Use Code 150) – 579,000 s.f.					
	Weekday Morning			Weekday Evening		
	In	Out	Total	In	Out	Total
12:00	0	1	<b>1</b>	13	8	<b>21</b>
1:00	0	0	<b>0</b>	13	12	<b>25</b>
2:00	2	2	<b>4</b>	10	9	<b>19</b>
3:00	3	1	<b>4</b>	17	12	<b>29</b>
4:00	3	5	<b>8</b>	12	10	<b>22</b>
5:00	6	6	<b>12</b>	6	7	<b>13</b>
6:00	8	6	<b>14</b>	1	2	<b>3</b>
7:00	5	13	<b>18</b>	1	1	<b>2</b>
8:00	7	11	<b>18</b>	3	2	<b>5</b>
9:00	20	12	<b>32</b>	0	2	<b>2</b>
10:00	13	19	<b>32</b>	0	0	<b>0</b>
11:00	17	19	<b>36</b>	0	0	<b>0</b>
Based on daily truck trips (Table 1) and ITE's Hourly Distribution of Entering and Exiting Truck Trips tables.						



## 4. Projected Traffic Conditions

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

### Development Traffic Assignment

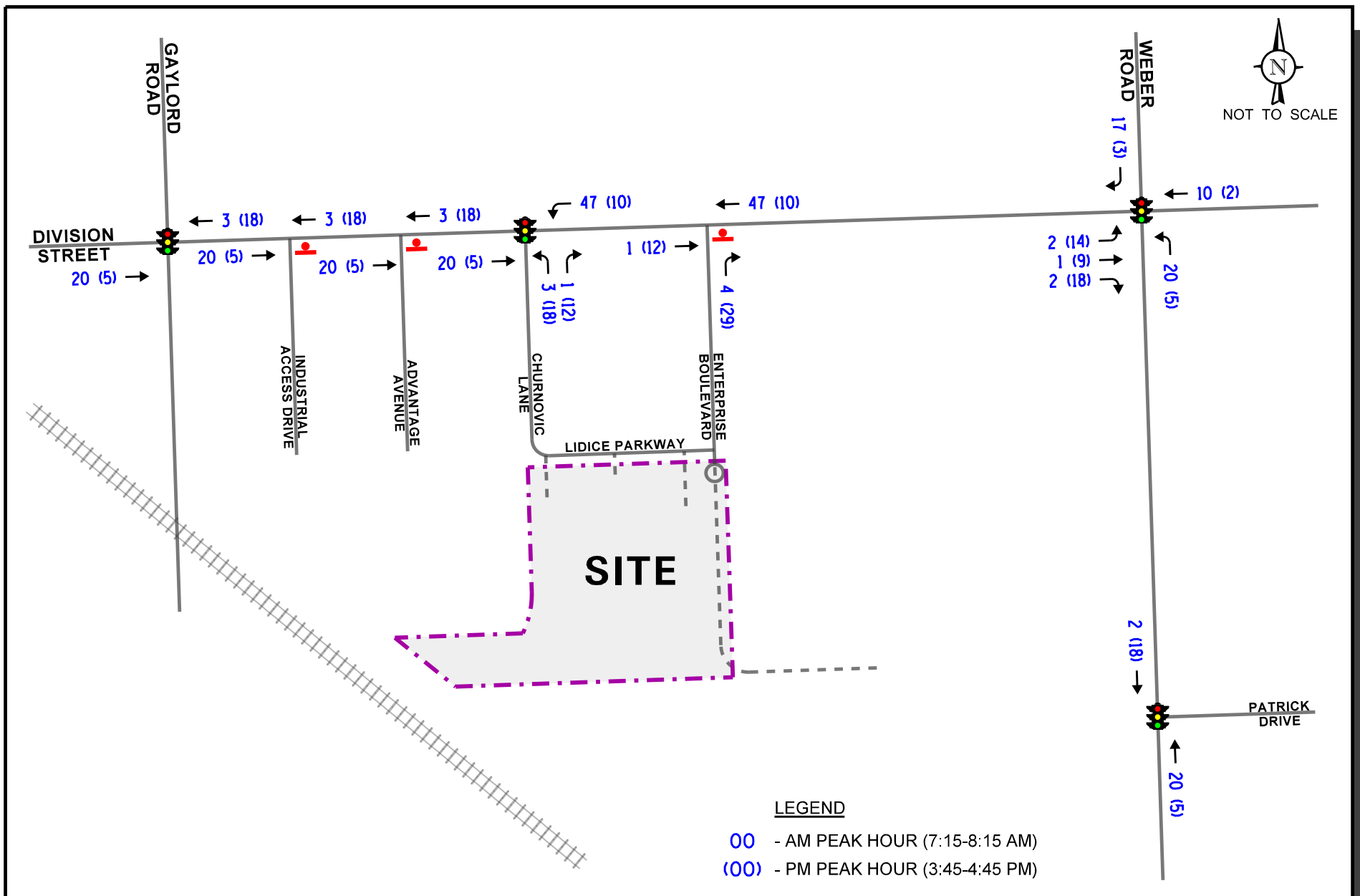
The estimated weekday morning and weekday evening traffic volumes that will be generated by the proposed development were assigned to the roadway system in accordance with the previously described directional distribution (Figure 6). **Figure 7** illustrates the traffic assignment of the new passenger vehicle trips and **Figure 8** illustrates the traffic assignment of the new truck trips.

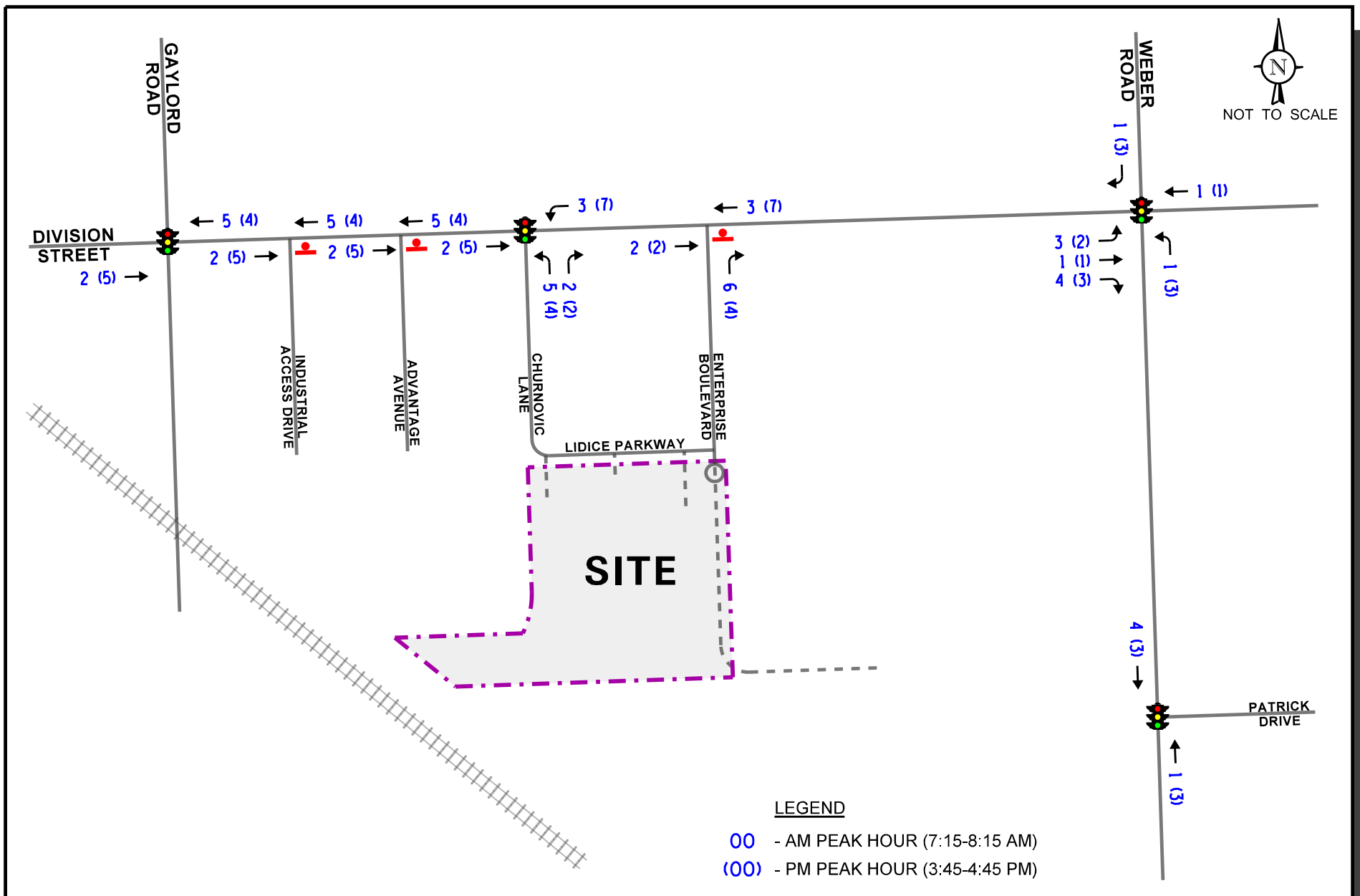
### Year 2029 No-Build Traffic Volumes

The 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 the Chicago Metropolitan Agency for Planning (CMAP), the existing traffic volumes were increased by an annually compounded growth rate of 1.5 percent per year for seven years (buildout year plus five years) for a total of 9.8 percent. A copy of the CMAP 2050 projections letter is included in the Appendix.

In addition, the traffic estimated to be generated by a proposed mixed-use development to be located in the northwest quadrant of the intersection of Weber Road with Division Street was included in the Year 2029 no-build traffic volumes. As proposed, the mixed-use development is to consist of the following uses:

- A fuel center with 14 passenger vehicle fueling positions, three truck fueling positions, an approximately 8,020 square-foot convenience store including an approximately 1,000 square-foot coffee/donut shop with drive-through facility, and a car wash.
- A 12,600 square-foot building that is to contain 6,800 square feet of commercial space, a 4,000 square-foot sit-down restaurant, and an 1,800 square-foot quick service restaurant with drive-through facility.
- A 12,000 square-foot building that is to contain commercial space.
- Two 2,500 square-foot quick service restaurants with drive-through facilities.
- Thirty-eight (38) townhome buildings with a total of 154 units.
- 135 single-family homes.





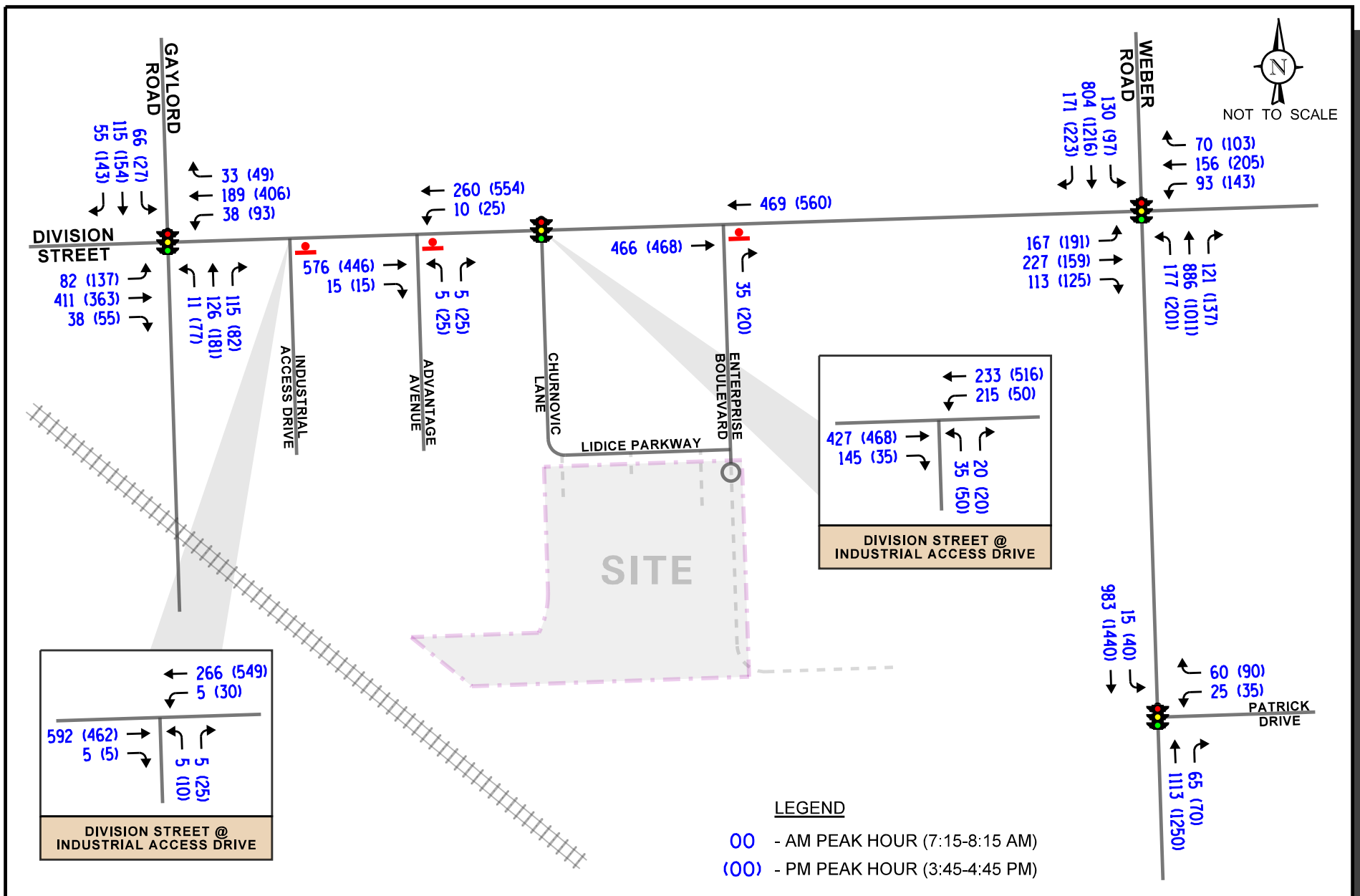


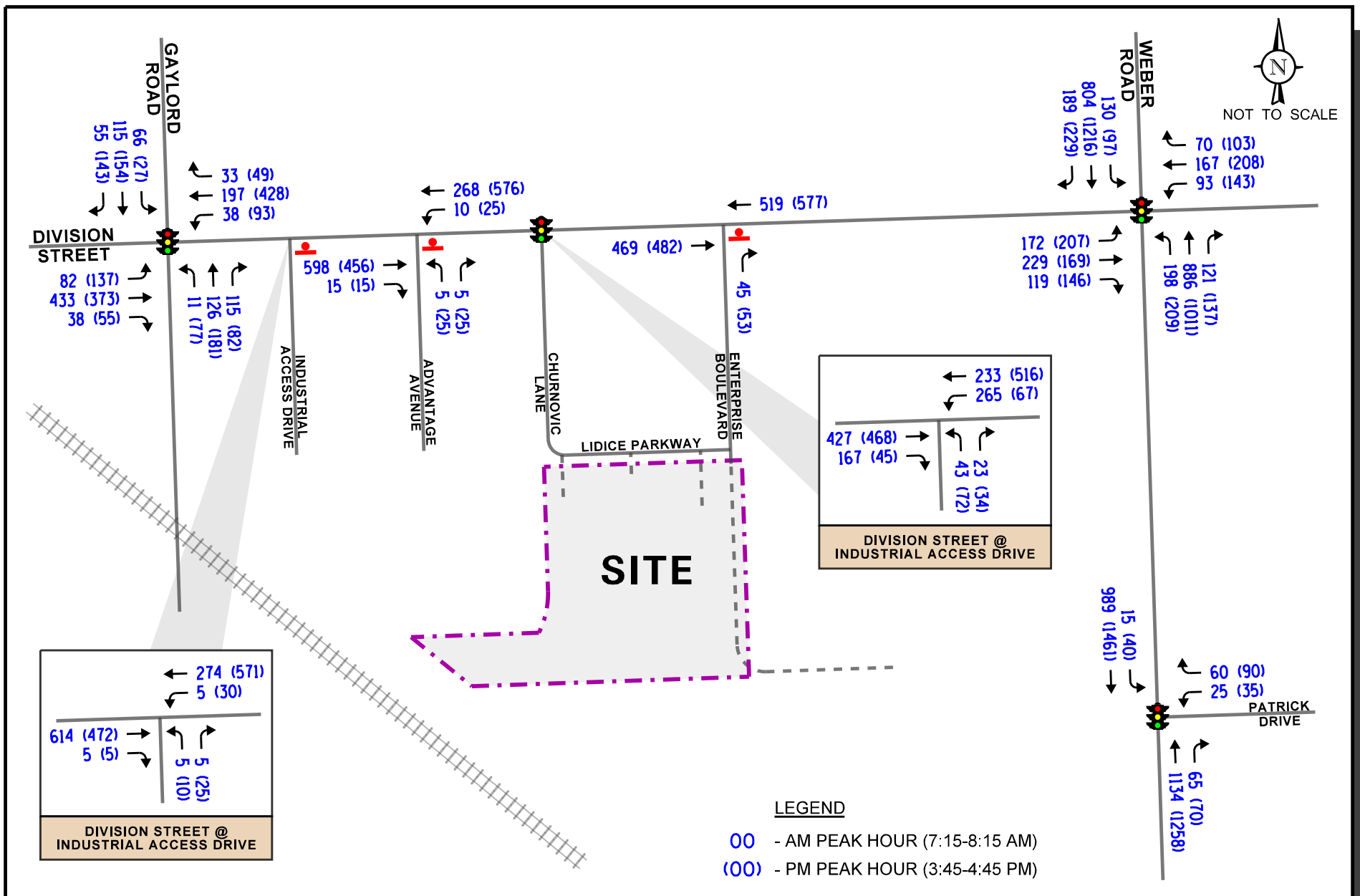
Access to the mixed-use development will be provided a full access road on Weber Road that will form the fourth leg of the signalized intersection of Weber Road with Randich Road, two right-in/right-out access drives on Weber Road, a proposed right-in/right-out access drive and a proposed full movement access drive on Division Street, and a proposed access drive on Zausa Drive. As part of this development, a southbound right-turn lane will be provided at the signalized intersection of Weber Road with Division Street.

**Figure 9** illustrates the Year 2029 no-build traffic volumes, which include the base traffic volumes increased by the ambient growth factor and the traffic estimated to be generated by the mixed-use development.

### Year 2029 Total Projected Conditions

The Year 2029 total projected traffic volumes include the Year 2029 no-build traffic volumes (Figure 9) plus the traffic estimated to be generated by the proposed development which are illustrated in **Figure 10**.





## 5. Traffic Analysis and Recommendations

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

### Traffic Analyses

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

The traffic analyses were performed using the methodologies outlined in the Transportation Research Board's *Highway Capacity Manual (HCM)*, 6<sup>th</sup> Edition and analyzed using Synchro/SimTraffic 11 software. The analysis for the intersection of Weber Road with Division Street were accomplished using actual cycle lengths and phasings, the analysis for the intersection of Weber Road with Patrick Drive were accomplished using estimated cycle lengths and phasings, and the analysis for the intersections of Division Street with Gaylord Road and Churnovic Lane were accomplished using field measured cycle lengths and phasings.

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

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

Summaries of the traffic analysis results showing the level of service and overall intersection delay (measured in seconds) for the Year 2022 base, Year 2029 no-build, and Year 2029 total projected conditions are presented in **Tables 5** through **11**. A discussion of each intersection follows. Summary sheets for the capacity analyses are included in the Appendix.



Table 5

## CAPACITY ANALYSIS RESULTS – WEBER ROAD WITH DIVISION STREET – SIGNALIZED

Base Conditions	Peak Hour	Eastbound			Westbound			Northbound			Southbound			Overall	
		L	T	R	L	T	R	L	T	R	L	T	R		
	Weekday Morning Peak Hour	D 47.3	E 67.3		D 40.1	E 57.3		B 13.3	C 21.9		B 13.6	C 24.2		C 31.5	
		E – 60.6			D – 52.0			C – 21.0			C – 23.2				
	Weekday Evening Peak Hour	E 66.7	F 84.0		D 47.8	E 65.4		B 15.5	B 16.3		B 10.9	C 26.6		C 32.8	
		E – 77.2			E – 59.3			B – 16.2			C – 26.0				
	Year 2029 No-Build Conditions <sup>1</sup>	Weekday Morning Peak Hour	E 61.4	F 97.3		D 46.8	E 64.1		B 18.1	C 22.8		B 16.1	C 25.2	A 4.1	D 35.7
			F – 85.5			D – 59.0			C – 22.1			C – 20.8			
		Weekday Evening Peak Hour	F 99+	F 99+		D 53.6	F 82.6		D 45.0	C 20.1		B 14.0	C 25.9	A 7.7	D 44.7
			E – 99+			E – 73.4			C – 23.9			C – 22.5			
Year 2029 Total Projected Conditions <sup>1</sup>	Weekday Morning Peak Hour	E 67.0	F 99+		D 47.6	E 67.1		C 21.6	C 22.8		B 16.1	C 25.6	A 4.1	D 37.5	
		F – 92.5			D – 61.6			C – 22.6			C – 20.9				
	Weekday Evening Peak Hour	F 99+	F 99+		D 53.6	F 84.8		E 55.2	C 20.1		B 14.0	C 25.9	A 7.7	D 52.0	
		E – 99+			E – 74.9			C – 25.5			C – 22.4				
1 – Includes future southbound right-turn lane Letter denotes Level of Service Delay is measured in seconds.								L – Left Turns R – Right Turns T – Through							

Table 6

## CAPACITY ANALYSIS RESULTS – WEBER ROAD WITH PATRICK DRIVE – SIGNALIZED

Base Conditions	Peak Hour	Westbound		Northbound		Southbound		Overall	
		L	R	T	R	L	T		
	Weekday Morning Peak Hour	E 73.4	B 15.1	A 4.5	A 1.2	E 56.0	A 1.3	A 4.6	
		C – 32.2		A – 4.2		A – 2.3			
	Weekday Evening Peak Hour	E 73.7	B 12.3	A 5.7	A 1.3	F 94.9	A 0.6	A 5.7	
		C – 29.5		A – 5.4		A – 3.6			
	Year 2029 No-Build Conditions	Weekday Morning Peak Hour	E 73.4	B 14.4	A 5.2	A 1.7	E 54.9	A 1.3	A 4.7
			C – 31.7		A – 5.0		A – 2.1		
		Weekday Evening Peak Hour	E 73.7	C 24.6	A 6.5	A 1.8	F 95.3	A 1.3	A 6.4
			D – 38.3		A – 6.3		A – 3.8		
Year 2029 Total Projected Conditions	Weekday Morning Peak Hour	E 73.4	B 14.4	A 5.2	A 1.7	E 55.6	A 1.3	A 4.8	
		C – 31.7		A – 5.1		A – 2.1			
	Weekday Evening Peak Hour	E 73.7	C 25.1	A 6.6	A 1.8	F 94.2	A 1.3	A 6.4	
		D – 38.7		A – 6.3		A – 3.8			
Letter denotes Level of Service Delay is measured in seconds.						L – Left Turns R – Right Turns T – Through			

Table 7

## CAPACITY ANALYSIS RESULTS – DIVISION STREET WITH GAYLORD ROAD – SIGNALIZED

Base Conditions	Peak Hour	Eastbound			Westbound			Northbound			Southbound			Overall	
		L	T	R	L	T	R	L	T	R	L	T	R		
	Weekday Morning Peak Hour	A 7.6	B 15.7		A 6.8	B 13.5		B 19.3	D 40.9		B 19.2	C 24.9		C 21.2	
		B – 14.2			B – 12.2			D – 39.9			C – 23.3				
	Weekday Evening Peak Hour	A 7.6	B 18.1		A 7.2	B 19.8		C 22.4	D 38.7		C 21.0	E 75.6		C 31.0	
		B – 15.1			B – 17.4			D – 35.0			E – 71.0				
	Year 2029 No-Build Conditions	Weekday Morning Peak Hour	A 6.3	B 17.3		A 6.2	B 14.4		C 22.2	E 58.6		C 23.1	C 29.9		C 25.6
			B – 15.6			B – 13.2			E – 56.9			C – 28.0			
		Weekday Evening Peak Hour	A 7.6	B 19.4		A 7.1	B 20.4		C 26.0	D 48.8		C 24.0	F 99+		D 41.4
			B – 16.5			B – 18.1			D – 43.6			F – 99+			
Year 2029 Total Projected Conditions <sup>1</sup>	Weekday Morning Peak Hour	A 6.2	B 17.6		A 6.2	B 14.4		C 22.6	E 60.0		C 23.6	C 30.4		C 25.8	
		B – 15.9			B – 13.3			E – 58.3			C – 28.5				
	Weekday Evening Peak Hour	A 7.6	B 19.3		A 7.0	B 20.7		C 26.9	D 51.1		C 24.8	F 99+		D 42.9	
		B – 16.5			B – 18.5			D – 45.6			F – 99+				
Letter denotes Level of Service Delay is measured in seconds.								L – Left Turns R – Right Turns T – Through							

Table 8

## CAPACITY ANALYSIS RESULTS – DIVISION STREET WITH CHURNOVIC LANE – SIGNALIZED

Base Conditions	Peak Hour	Eastbound		Westbound		Northbound		Overall
		T	R	L	T	L	R	
	Weekday Morning Peak Hour	B 14.4	A 4.9	A 4.1	C 29.0	B 13.9	B 10.9	
			A – 4.5		C – 23.5			
	Weekday Evening Peak Hour	B 10.9	A 4.1	A 5.3	C 24.0	B 12.3	A 8.8	
			A – 5.1		C – 20.7			
	Year 2029 No-Build Conditions	Weekday Morning Peak Hour	B 14.4	A 5.3	A 4.1	C 29.9	B 13.9	B 11.5
				A – 4.6		C – 24.1		
		Weekday Evening Peak Hour	B 11.3	A 3.9	A 5.4	C 26.8	B 13.1	A 9.0
				A – 5.2		C – 22.9		
Year 2029 Total Projected Conditions	Weekday Morning Peak Hour	B 17.6	A 6.4	A 4.0	C 31.5	B 14.2	B 12.7	
			A – 5.3		C – 25.5			
	Weekday Evening Peak Hour	B 14.6	A 4.7	A 6.6	C 28.9	B 11.1	B 11.4	
			A – 6.4		C – 23.2			
Letter denotes Level of Service Delay is measured in seconds.					L – Left Turns R – Right Turns T – Through			



Table 9

CAPACITY ANALYSIS RESULTS – UNSIGNALIZED  
DIVISION STREET WITH THE INDUSTRIAL ACCESS ROAD

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
<b>Base Conditions</b>				
• Westbound Left Turn	A	9.5	A	8.2
• Northbound Approach	B	13.1	B	13.3
<b>Year 2029 No-Build Conditions</b>				
• Westbound Left Turn	A	10.0	A	8.5
• Northbound Approach	B	14.9	C	15.9
<b>Year 2029 Total Projected Conditions</b>				
• Westbound Left Turn	B	10.1	A	8.6
• Northbound Approach	C	15.3	C	16.3
LOS = Level of Service Delay is measured in seconds.				

Table 10

CAPACITY ANALYSIS RESULTS – UNSIGNALIZED  
DIVISION STREET WITH ADVANTAGE AVENUE

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
<b>Base Conditions</b>				
• Westbound Left Turn	A	8.6	A	8.2
• Northbound Approach	B	12.9	B	12.7
<b>Year 2029 No-Build Conditions</b>				
• Westbound Left Turn	A	9.0	A	8.6
• Northbound Approach	B	14.0	B	14.3
<b>Year 2029 Total Projected Conditions</b>				
• Westbound Left Turn	A	9.0	A	8.6
• Northbound Approach	B	14.3	B	14.0
LOS = Level of Service Delay is measured in seconds.				

Table 11  
CAPACITY ANALYSIS RESULTS - UNSIGNALIZED  
DIVISION STREET WITH ENTERPRISE BOULEVARD

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
<b>Base Conditions</b>				
• Northbound Approach	B	12.3	B	11.1
<b>Year 2029 No-Build Conditions</b>				
• Northbound Approach	B	13.3	B	12.2
<b>Year 2029 Total Projected Conditions</b>				
• Northbound Approach	B	13.6	B	12.5
LOS = Level of Service Delay is measured in seconds.				

## Discussion and Recommendations

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

### *Weber Road with Division Street*

The results of the capacity analysis indicate that this signalized intersection is currently operating at Level of Service (LOS) C during the weekday morning and weekday evening peak hours. Further, northbound and southbound through/right-turn movements on Weber Road currently operate at LOS C or better during both peak hours. The Division Street eastbound and westbound through/right-turn movements and the eastbound left-turn movement currently operate at LOS D or E during the peak hours. This is due in part to the fact that Weber Road functions as the major roadway at this intersection and, as such, the traffic signal is programmed so that Weber Road has priority over Division Street. Further, this intersection has a long cycle length of 150 seconds during the weekday peak hours.

Assuming Year 2029 no-build volumes and the addition of the southbound right-turn lane on Weber Road, the intersection is projected to operate at LOS D during the weekday morning and evening peak hours. Further, the Weber Road northbound and southbound through movements are projected to continue to operate at LOS C during both peak hours. If the Year 2027 total traffic volumes are realized, the Division Street eastbound and westbound through/right-turn movements and the eastbound left-turn movement are projected to operate at LOS E or F during both peak hours. This is due in part to the reduced amount of green time that these movements currently receive and the long traffic signal cycle length (150 seconds).

Assuming the Year 2029 total projected volumes, the intersection is projected to operate at LOS D during the weekday morning and weekday evening peak hours. The Weber Road northbound and southbound through movements are projected to continue to operate at LOS C during both peak hours. The Division Street eastbound and westbound through/right-turn movements and the eastbound left-turn movement are projected to continue to operate at LOS E or F during both peak hours. This is due in part to the reduced amount of green time that these movements currently receive and the long traffic signal cycle length. With some modifications to the current traffic signal phasing and reallocation of green time, the Division Street movements will operate better during both peak hours and the Weber Road through movements are projected to operate at LOS C during both peak hours. Overall, the proposed development is projected to increase the volume of traffic traversing this intersection by two percent or less. As such, the proposed development will have a limited impact on the existing operations of this intersection.

### *Weber Road with Patrick Drive*

The results of the capacity analysis indicate that this signalized intersection is currently operating at LOS A during the weekday morning and weekday evening peak hours. Further, northbound and southbound through movements on Weber Road currently operate at LOS A during both peak hours. The westbound and southbound left turn movements currently operate at LOS E or F during the peak hours. This is due to the reduced green time these movements receive and the long cycle length (150 seconds) during the weekday peak hours. These movements currently operate well below the capacity of their lanes.

Assuming Year 2029 no-build and Year 2029 total projected volumes, this intersection is projected to continue to operate at LOS A during the weekday morning and weekday evening peak hours. Further, all movements are generally projected to operate at the same levels of service as existing conditions. As such, this intersection has sufficient reserve capacity to accommodate the traffic to be generated by the development and no roadway improvements or traffic control modifications are required.

### *Division Street with Gaylord Road*

The results of the capacity analysis indicate that this signalized intersection is currently operating at LOS C during the weekday morning and weekday evening peak hours. Further, all the movement are currently operating at LOS D or better except the southbound through/right-turn movement which operates at LOS E during the weekday evening peak hour. This is due in part to the limited green time given to this movements (15 seconds). However, the timings at this intersection were determined based on field observations under existing conditions. While the southbound approach was only observed to receive only 15 seconds of green time, it is possible that more green time can be allotted to this movement by the controller during times of higher traffic volumes such as the base conditions.

Assuming Year 2029 no-build volumes, this intersection is projected to operate at LOS C during the weekday morning peak hour and at LOS D during the weekday evening peak hour. All the movements are projected to operate at LOS D or better except the northbound and southbound through movements. The southbound through movement is projected to operate at LOS F during the evening peak hour and the northbound movement is projected to operate on the threshold of LOS D/E during the morning peak hour.

Assuming the Year 2029 total projected volumes, this intersection is projected to continue to operate at LOS C during the weekday morning peak hour and LOS D during the weekday evening peak hour. All the movements are projected to operate at LOS D or better except the northbound and southbound through movements. The southbound through movement is projected to continue to operate at LOS F during the evening peak hour and the northbound movement is projected to operate at LOS E during the morning peak. It should be noted that proposed development is not projected to increase the volume of northbound or southbound traffic at this intersection.

With the reallocation of five seconds of green time to the northbound and southbound through movements during the weekday evening peak hour, the southbound through movement is able to operate at LOS E and the Division Street through movements are projected to operate at LOS C. As such, the implemented timings at this intersection should be verified to determine the maximum green time allotted to the southbound through movement and, if required, increase the allotted green time in order to better accommodate existing southbound volumes. As such, the intersection has sufficient reserve capacity to accommodate the traffic to be generated by the development. and no roadway improvements or traffic control modifications are required.

#### *Division Street with Churnovic Lane*

The results of the capacity analysis indicate that this signalized intersection is currently operating at LOS B during the weekday morning and weekday evening peak hours. Further, all movements operate at LOS C or better during both peak hours.

Assuming Year 2029 no-build volumes, this intersection is projected to continue to operate at LOS B during the weekday morning peak hour and at LOS A during the weekday evening peak hour. Further, all movements are projected to operate at LOS C or better during both peak hours.

Assuming the Year 2029 total projected volumes, this intersection is projected to operate at LOS B during the weekday morning and weekday evening peak hours. Further, all movement are projected to continue to operate at LOS C or better. As such, the intersection has sufficient reserve capacity to accommodate the traffic to be generated by the development. and no roadway improvements or traffic control modifications are required.

#### *Division Street with the Industrial Access Road*

The results of the capacity analysis indicate that the critical movements at this intersection currently operate at LOS B or better. Assuming the Year 2029 no-build traffic volumes, the critical movements at this intersection are projected to operate at LOS C or better. Assuming the Year 2029 total projected traffic volumes, the critical movements at this intersection are projected to continue to operate at LOS C or better. As such, the intersection has sufficient reserve capacity to accommodate the traffic to be generated by the development. and no roadway improvements or traffic control modifications are required.

#### *Division Street with Advantage Avenue*

The results of the capacity analysis indicate that the critical movements at this intersection currently operate at LOS B or better. Assuming the Year 2029 no-build traffic volumes, the critical movements at this intersection are projected to continue to operate at LOS B or better. Assuming the Year 2029 total projected traffic volumes, the critical movements at this intersection are projected to continue to operate at LOS B or better. As such, the intersection has sufficient reserve capacity to accommodate the traffic to be generated by the development. and no roadway improvements or traffic control modifications are required.



### *Division Street with Enterprise Boulevard*

The results of the capacity analysis indicate that the northbound approach at this intersection currently operates at a LOS B during the weekday morning and weekday evening peak hours. Assuming Year 2029 no-build volumes, the northbound approach is projected to continue to operate at LOS B during both peak hours. Assuming the Year 2029 total projected volumes, this northbound approach is projected to operate at LOS B during the weekday morning and weekday evening peak hours. As such, the intersection has sufficient reserve capacity to accommodate the traffic to be generated by the development. and no roadway improvements or traffic control modifications are required.

## 6. Conclusion

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

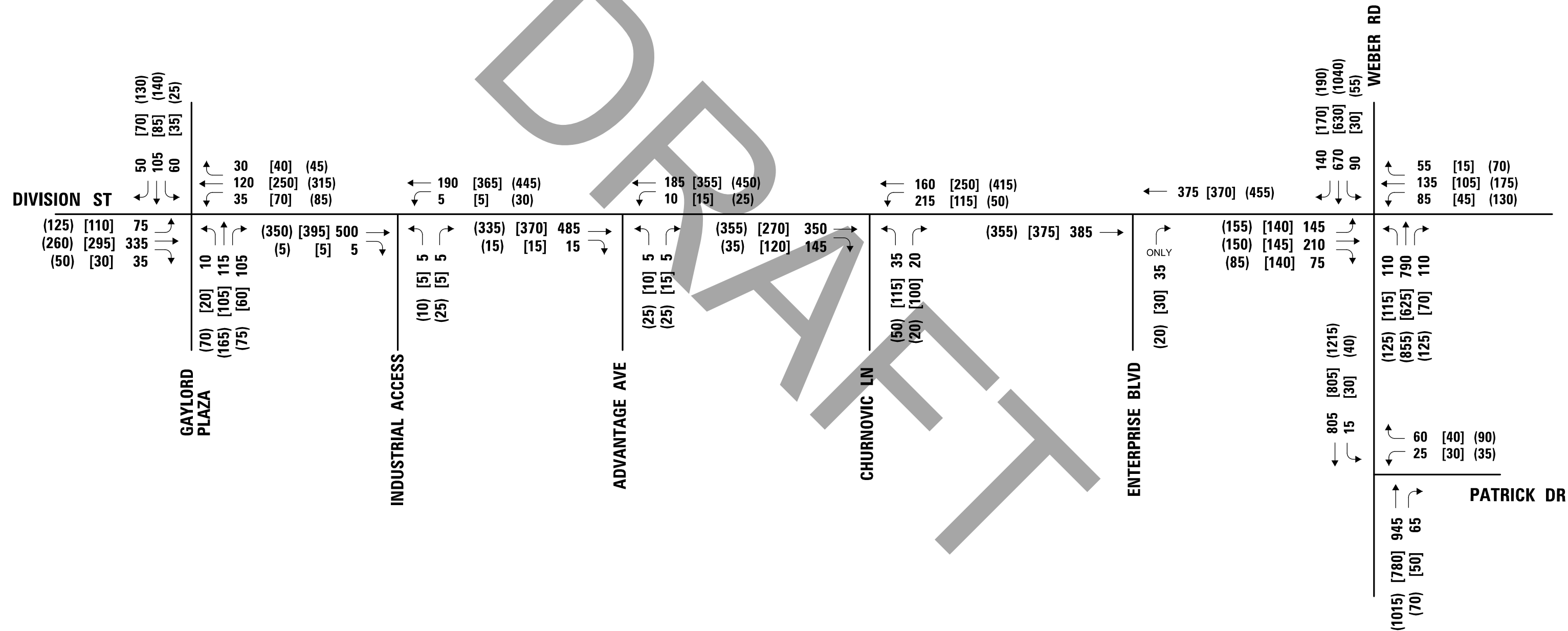
- The proposed development will consist of an approximately 579,000 square-foot warehouse/distribution building with 113 docks and will be located on the south side of Lidice Parkway
- Access to the development will be provided via the following three access drives on Lidice Parkway:
  - The western access drive will be located on the south side of the road just east of Churnovic Lane. This access drive will serve employees and trucks.
  - The middle access drive will be located on the south side of the road approximately 555 feet west of Enterprise Boulevard opposite the western access drive serving the Amazon distribution facility located on the north side of Lidice Parkway. This access drive will serve employees only.
  - The eastern access drive will be located on the south side of the road approximately 200 feet west of Enterprise Boulevard opposite the eastern access drive serving the Amazon distribution facility located on the north side of Lidice Parkway. This access drive will serve employees and trucks.
- All three access drives are proposed to provide one inbound lane and one outbound lane with outbound lanes under stop sign control.
- The proposed access system and the intersections of Division Street with Churnovic Lane and Division Street with Enterprise Boulevard will be adequate in accommodating the traffic projected to be generated by the proposed development and will provide efficient and flexible access.
- The area roadway system generally has sufficient capacity to accommodate the traffic to be generated by the proposed development. However, the signal timings at the intersections of Weber Road with Division Street and Division Street with Gaylord Road should be evaluated and modified to better accommodate the existing and projected traffic volumes.

# Appendix

Traffic Count Sheets  
Preliminary Site Plan  
ITE Trip Generation Worksheets  
CMAP 2050 Projections Letter  
Level of Service Criteria  
Capacity Analysis Summary Sheets

## Traffic Count Sheets

NOTE:  
COUNTED VEHICLES INCLUDE CARS,  
MEDIUM TRUCKS AND ARTICULATED TRUCKS.



LEGEND:  
## = A.M. PEAK HOUR VOLUMES (7:15 AM - 8:15 AM)  
[ ## ] = MIDDAY PEAK HOUR VOLUMES (12:30 PM - 1:30 PM)  
( ## ) = P.M. PEAK HOUR VOLUMES (3:45 PM - 4:45 PM)  
COUNTS CONDUCTED NOVEMBER 9, 2021

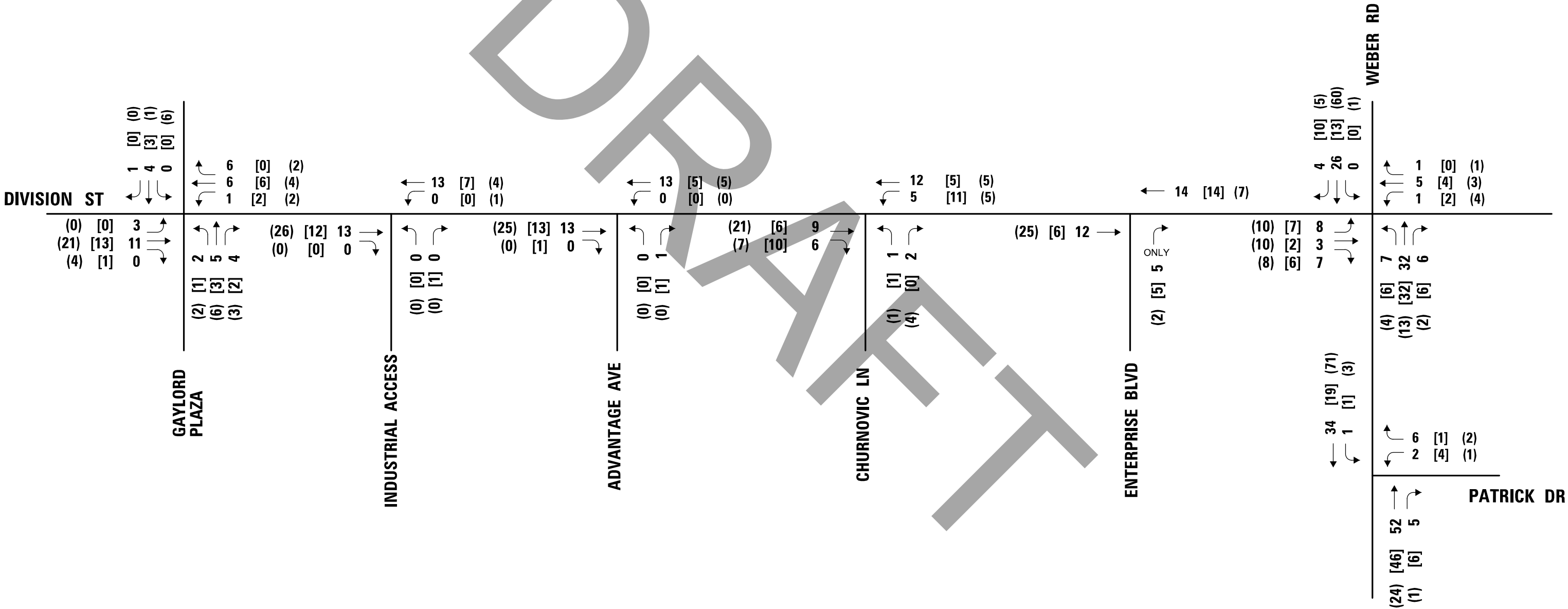
**CHRISTOPHER B. BURKE**  
ENGINEERING, LTD.  
9575 West Higgins Road  
Suite 600, Rosemont, Illinois 60018  
(847) 823-0500

CITY OF CREST HILL, ILLINOIS  
EXISTING PEAK HOUR TRAFFIC VOLUMES

DESIGN	FN	PROJECT NO.
DRAWN	BG	210222
CHECKED	GMZ	SHEET OF 6
SCALE:	NTS	DRAWING NO.
DATE:	1/5/2022	EXH-1



NOTE:  
COUNTED VEHICLES INCLUDE MEDIUM TRUCKS.

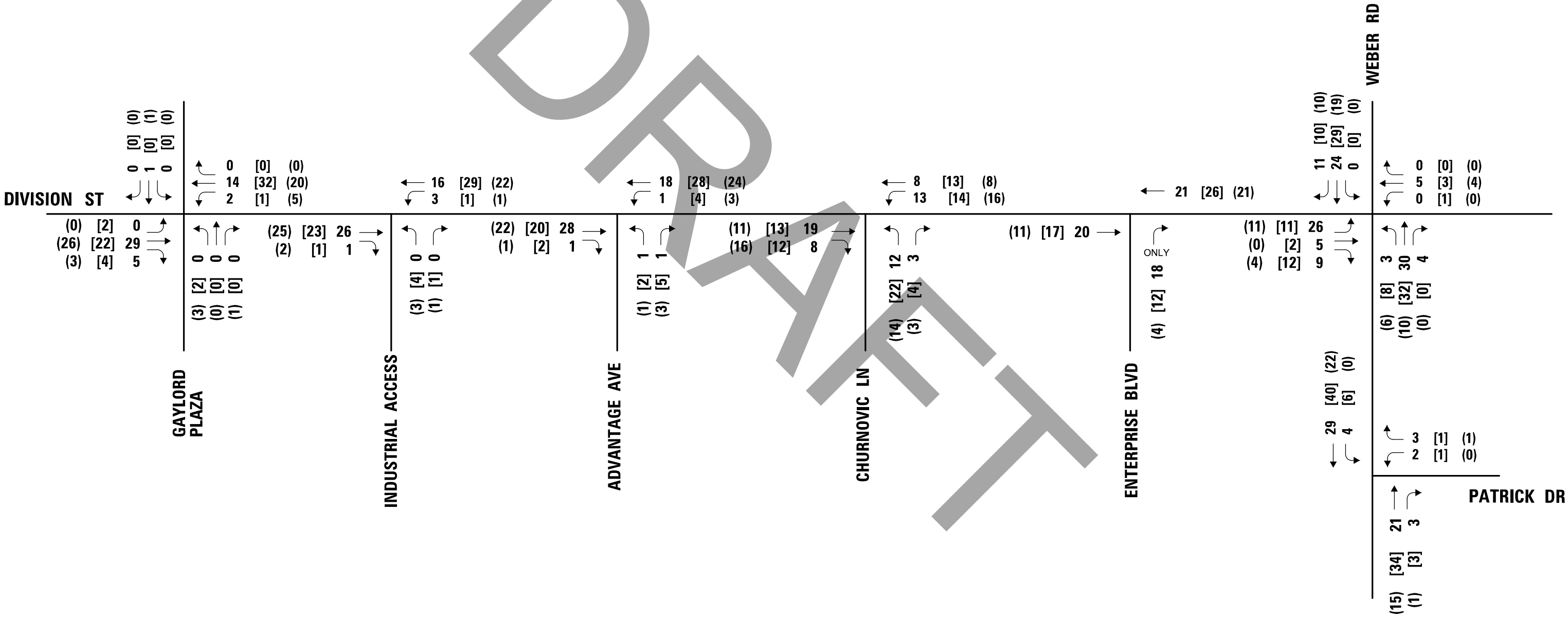


**CHRISTOPHER B. BURKE**  
ENGINEERING, LTD.  
9575 West Higgins Road  
Suite 600, Rosemont, Illinois 60018  
(847) 823-0500

CITY OF CREST HILL, ILLINOIS  
EXISTING PEAK HOUR TRUCK VOLUMES  
MEDIUM TRUCKS

DESIGN	FN	PROJECT NO.
DRAWN	BG	210222
CHECKED	GMZ	SHEET OF 6
SCALE:	NTS	DRAWING NO.
DATE:	1/5/2022	EXH-2

NOTE:  
COUNTED VEHICLES INCLUDE ARTICULATED TRUCKS.



**CHRISTOPHER B. BURKE**  
ENGINEERING, LTD.  
9575 West Higgins Road  
Suite 600, Rosemont, Illinois 60018  
(847) 823-0500

CITY OF CREST HILL, ILLINOIS  
EXISTING PEAK HOUR TRUCK VOLUMES  
ARTICULATED TRUCKS

DESIGN	FN	PROJECT NO.
DRAWN	BG	210222
CHECKED	GMZ	SHEET OF 6
SCALE:	NTS	DRAWING NO.
DATE:	1/5/2022	<b>EXH-3</b>

**LEGEND:**  
## = A.M. PEAK HOUR VOLUMES (7:15 AM - 8:15 AM)  
[##] = MIDDAY PEAK HOUR VOLUMES (12:30 PM - 1:30 PM)  
(##) = P.M. PEAK HOUR VOLUMES (3:45 PM - 4:45 PM)  
COUNTS CONDUCTED NOVEMBER 9, 2021

# Preliminary Site Plan

**BUILDING YARD AND PAVEMENT  
SETBACK REQUIREMENTS**

ZONING	"M-1" GENERAL MANUFACTURING DISTRICT
<b>BUILDING SETBACKS</b>	
FRONT YARD SETBACK	30'-0"
SIDE YARD SETBACK	20'-0"
REAR YARD SETBACK	20'-0"
CORNER SIDE YARD SETBACK	30'-0"

<b>BUILDING PAVEMENT SETBACKS</b>	
FRONT YARD PAVEMENT SETBACK	30'-0"
SIDE YARD PAVEMENT SETBACK	5'-0"
REAR YARD PAVEMENT SETBACK	5'-0"

**SITE DATA**

SITE AREA (437.12 AC.)	+/-1,617,123 SF
PROPOSED DETENTION (SEE CIVIL DWGS)	35%
FLOOR AREA RATIO (F.A.R.) PROVIDED	35%
<b>BUILDING AREA</b>	
PROPOSED OFFICE AREA	32,000 S.F.
PROPOSED WAREHOUSE AREA	545,422 S.F.
TOTAL BUILDING AREA	577,422 S.F.
<b>CAR PARKING PROVIDED</b>	
STANDARD CAR PARKING - NORTH	211 STALLS
STANDARD CAR PARKING - SOUTH	129 STALLS
TOTAL	340 STALLS
<b>EXTERIOR DOCKS</b>	
EXTERIOR DOCKS - WEST	56 DOCKS
EXTERIOR DOCKS - EAST	56 DOCKS
TOTAL	112 DOCKS
<b>TRAILER PARKING</b>	
TRAILER PARKING - WEST	75 STALLS
TRAILER PARKING - EAST	76 STALLS
TOTAL	151 STALLS
DRIVE IN OVERHEAD DOORS	4 DOORS
BUILDING INTERIOR CLEAR HEIGHT	36'-0"

## CMAP 2050 Projections Letter



Chicago Metropolitan  
Agency for Planning

433 West Van Buren Street  
Suite 450  
Chicago, IL 60607

312-454-0400  
cmap.illinois.gov

June 23, 2021

Elise Purguette  
Traffic Engineer  
Kenig, Lindgren, O'Hara and Aboona, Inc.  
9575 West Higgins Road  
Suite 400  
Rosemont, IL 60018

**Subject: Weber Road @ Division Street**  
IDOT

Dear Ms. Purguette:

In response to a request made on your behalf and dated June 22, 2021, we have developed year 2050 average daily traffic (ADT) projections for the subject location.

ROAD SEGMENT	Current ADT	Year 2050 ADT
Weber Rd, @ Division St (N of)	20,400	28,300
Division St west of Weber Rd	3,300	6,000
Division St east of Weber Rd	5,200	7,100

Traffic projections are developed using existing ADT data provided in the request letter and the results from the December 2020 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)  
2021\_CY\_TrafficForecast\CrestHill\wi-24-21\wi-24-21.docx



# ITE Trip Generation Worksheets

# Warehousing (150)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA  
On a: Weekday

Setting/Location: General Urban/Suburban

Number of Studies: 31

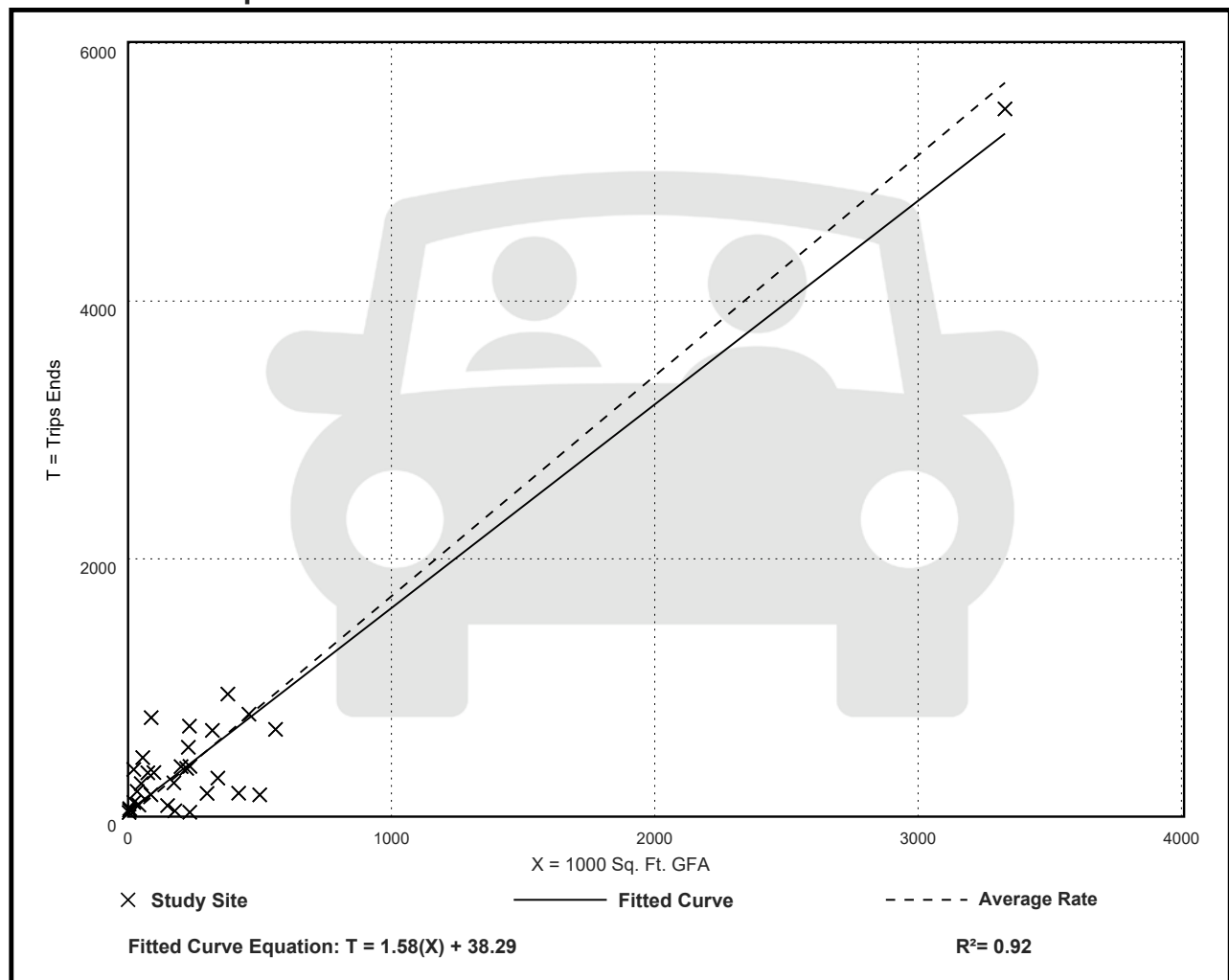
Avg. 1000 Sq. Ft. GFA: 292

Directional Distribution: 50% entering, 50% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.71	0.15 - 16.93	1.48

## Data Plot and Equation



# Warehousing (150)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 36

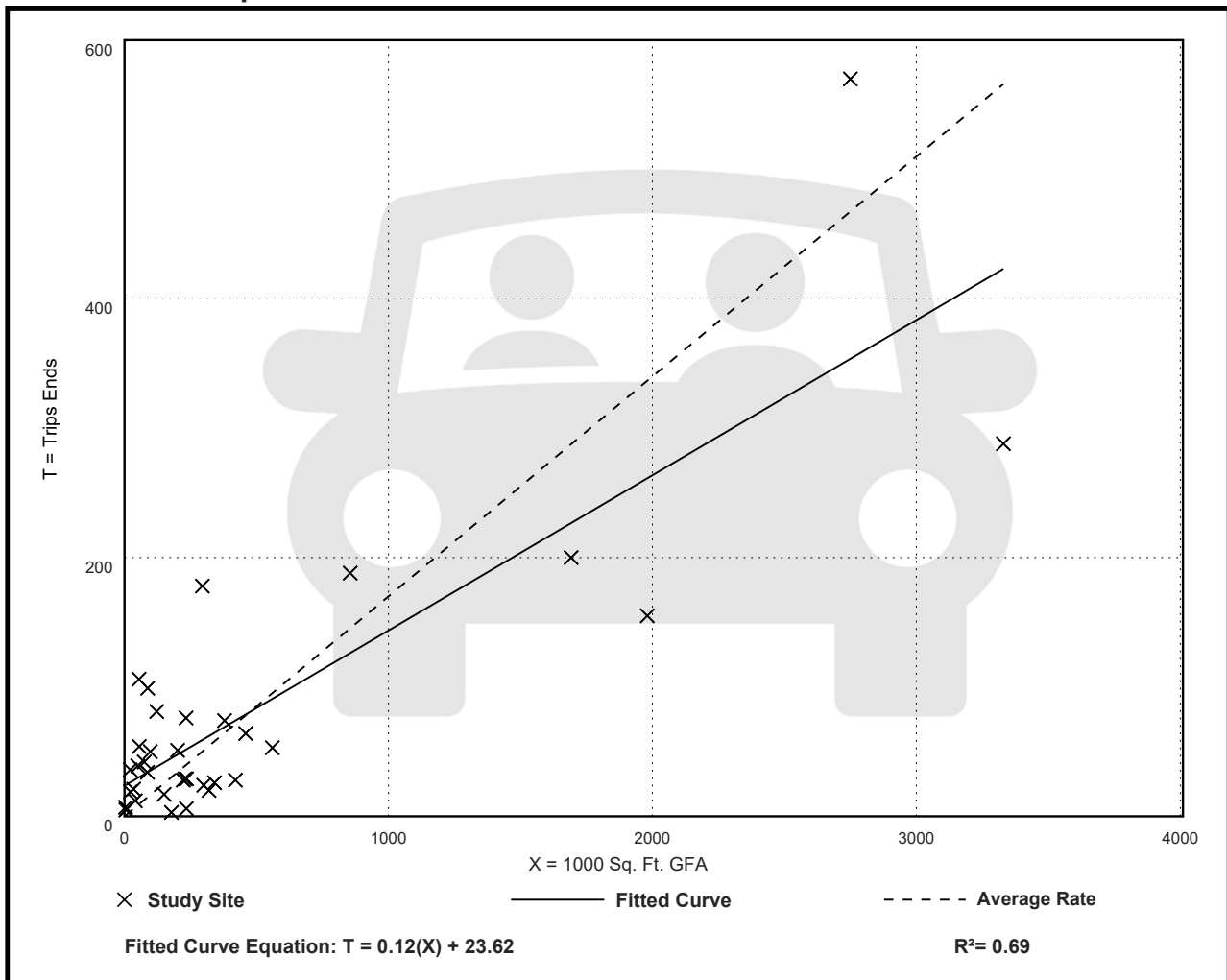
Avg. 1000 Sq. Ft. GFA: 448

Directional Distribution: 77% entering, 23% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.17	0.02 - 1.93	0.19

## Data Plot and Equation



# Warehousing (150)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 49

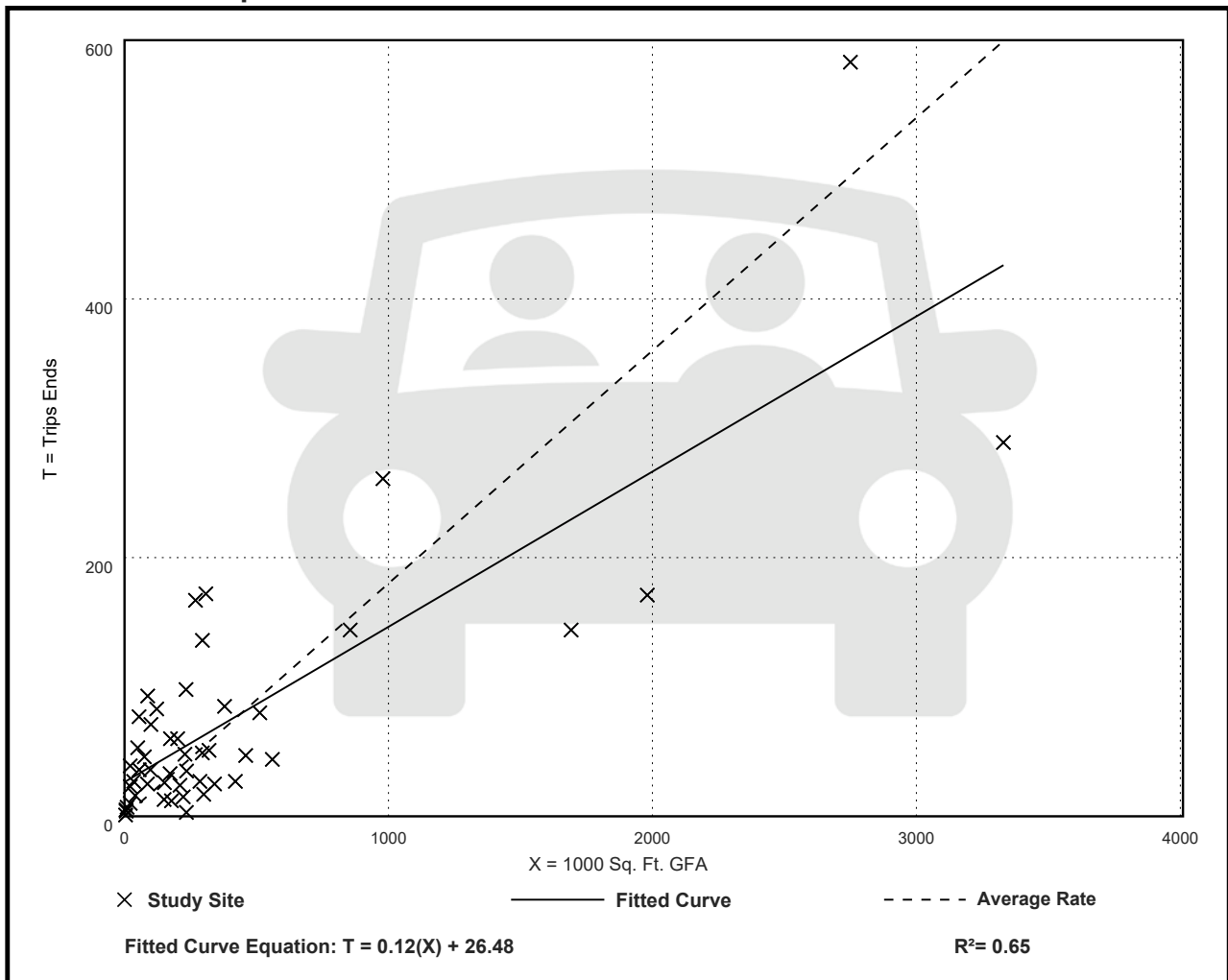
Avg. 1000 Sq. Ft. GFA: 400

Directional Distribution: 28% entering, 72% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.18	0.01 - 1.80	0.18

## Data Plot and Equation



## Level of Service Criteria

## LEVEL OF SERVICE CRITERIA

Signalized Intersections		
Level of Service	Interpretation	Average Control Delay (seconds per vehicle)
A	Favorable progression. Most vehicles arrive during the green indication and travel through the intersection without stopping.	≤10
B	Good progression, with more vehicles stopping than for Level of Service A.	>10 - 20
C	Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear. Number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	>20 - 35
D	The volume-to-capacity ratio is high and either progression is ineffective or the cycle length is too long. Many vehicles stop and individual cycle failures are noticeable.	>35 - 55
E	Progression is unfavorable. The volume-to-capacity ratio is high and the cycle length is long. Individual cycle failures are frequent.	>55 - 80
F	The volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.	>80.0
Unsignalized Intersections		
Level of Service	Average Total Delay (SEC/VEH)	
A	0 - 10	
B	> 10 - 15	
C	> 15 - 25	
D	> 25 - 35	
E	> 35 - 50	
F	> 50	
Source: <i>Highway Capacity Manual</i> , 2010.		
























# Capacity Analysis Summary Sheets

Base Weekday Morning Peak Hour Conditions

# Lanes, Volumes, Timings

## 1: Weber Road & Division Street













07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	210	75	85	135	55	110	790	110	90	670	140
Future Volume (vph)	145	210	75	85	135	55	110	790	110	90	670	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%			0%			0%			0%		
Storage Length (ft)	150		0	220		0	120		0	155		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	160			155			135			270		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt	0.960			0.956			0.982			0.974		
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1467	1681	0	1787	1721	0	1656	3279	0	1805	3265	0
Flt Permitted	0.417			0.308			0.249			0.221		
Satd. Flow (perm)	644	1681	0	579	1721	0	434	3279	0	420	3265	0
Right Turn on Red	Yes			Yes			Yes			Yes		
Satd. Flow (RTOR)	10			12			15			24		
Link Speed (mph)	35			35			45			45		
Link Distance (ft)	2553			2127			2930			1292		
Travel Time (s)	49.7			41.4			44.4			19.6		
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 (%)	23%	4%	21%	1%	7%	2%	9%	8%	9%	0%	7%	11%
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)	153	300	0	89	200	0	116	948	0	95	852	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	20.0		3.0	20.0	
Minimum Split (s)	9.5	22.0		9.5	24.0		7.0	26.0		7.0	26.0	
Total Split (s)	15.0	30.0		18.0	33.0		18.0	84.0		18.0	84.0	
Total Split (%)	10.0%	20.0%		12.0%	22.0%		12.0%	56.0%		12.0%	56.0%	
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.5		3.0	4.5	
All-Red Time (s)	0.5	1.5		0.5	1.5		0.5	1.5		0.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	
Act Effect Green (s)	48.9	33.9		44.5	31.2		90.0	77.8		87.8	76.7	
Actuated g/C Ratio	0.33	0.23		0.30	0.21		0.60	0.52		0.59	0.51	

# Lanes, Volumes, Timings

## 1: Weber Road & Division Street

07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.54	0.78		0.35	0.54		0.34	0.56		0.29	0.51	
Control Delay	47.3	67.3		40.1	57.3		13.3	21.9		13.6	24.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	47.3	67.3		40.1	57.3		13.3	21.9		13.6	24.2	
LOS	D	E		D	E		B	C		B	C	
Approach Delay		60.6			52.0			21.0			23.2	
Approach LOS		E			D			C			C	
Queue Length 50th (ft)	107	261		59	166		25	333		38	290	
Queue Length 95th (ft)	#189	#516		112	263		63	220		54	278	
Internal Link Dist (ft)		2473			2047			2850			1212	
Turn Bay Length (ft)	150			220			120			155		
Base Capacity (vph)	284	387		302	367		385	1742		392	1726	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.54	0.78		0.29	0.54		0.30	0.54		0.24	0.49	

### Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 31.5

Intersection LOS: C

Intersection Capacity Utilization 67.3%

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: Weber Road & Division Street

 Ø1	 Ø2 (R)	 Ø3	 Ø4
18 s	84 s	18 s	30 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
18 s	84 s	15 s	33 s

## Lanes, Volumes, Timings

### 2: Weber Road & Patrick Drive

07/27/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	25	60	945	65	15	805
Future Volume (vph)	25	60	945	65	15	805
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	2000
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	210		180	275	
Storage Lanes	1	1		1	2	
Taper Length (ft)	25				200	
Lane Util. Factor	1.00	1.00	0.95	1.00	0.97	0.95
Ped Bike Factor						
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1556	1404	3519	1442	2633	3519
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1556	1404	3519	1442	2633	3519
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		63		67		
Link Speed (mph)	30		45			45
Link Distance (ft)	812		4281			2930
Travel Time (s)	18.5		64.9			44.4
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	16%	15%	8%	12%	33%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	26	63	995	68	16	847
Turn Type	Prot	pm+ov	NA	Perm	Prot	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	3.0	15.0	15.0	3.0	15.0
Minimum Split (s)	14.0	7.5	21.0	21.0	7.5	21.0
Total Split (s)	33.0	18.0	99.0	99.0	18.0	117.0
Total Split (%)	22.0%	12.0%	66.0%	66.0%	12.0%	78.0%
Yellow Time (s)	4.5	3.5	4.5	4.5	3.5	4.5
All-Red Time (s)	1.5	1.0	1.5	1.5	1.0	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.5	6.0	6.0	4.5	6.0
Lead/Lag		Lag	Lead	Lead	Lag	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Recall Mode	None	None	C-Min	C-Min	None	C-Min
Act Effect Green (s)	9.4	16.8	125.9	125.9	7.0	136.6
Actuated g/C Ratio	0.06	0.11	0.84	0.84	0.05	0.91

## Lanes, Volumes, Timings

### 2: Weber Road & Patrick Drive

07/27/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
v/c Ratio	0.27	0.30	0.34	0.06	0.13	0.26
Control Delay	73.4	15.1	4.5	1.2	56.0	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.4	15.1	4.5	1.2	56.0	1.3
LOS	E	B	A	A	E	A
Approach Delay	32.2		4.2			2.3
Approach LOS	C		A			A
Queue Length 50th (ft)	25	0	130	0	6	46
Queue Length 95th (ft)	57	43	196	13	m15	60
Internal Link Dist (ft)	732		4201			2850
Turn Bay Length (ft)		210		180	275	
Base Capacity (vph)	280	239	2953	1221	236	3205
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.26	0.34	0.06	0.07	0.26

#### Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 144 (96%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.34

Intersection Signal Delay: 4.6

Intersection LOS: A

Intersection Capacity Utilization 41.5%

ICU Level of Service A

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.





















Splits and Phases: 2: Weber Road & Patrick Drive



# Lanes, Volumes, Timings

## 3: Gaylord Road & Division Street













07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	335	35	35	120	30	10	115	105	60	105	50
Future Volume (vph)	75	335	35	35	120	30	10	115	105	60	105	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%			0%			0%			0%		
Storage Length (ft)	215		0	215		0	120		0	200		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	215			215			155			180		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.986			0.970			0.928			0.952		
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1670	0	1656	1567	0	1504	1695	0	1805	1739	0
Flt Permitted	0.609			0.485			0.653			0.418		
Satd. Flow (perm)	1113	1670	0	845	1567	0	1034	1695	0	794	1739	0
Right Turn on Red	Yes			Yes			Yes			Yes		
Satd. Flow (RTOR)	8			19			41			21		
Link Speed (mph)	35			35			30			30		
Link Distance (ft)	2085			739			2627			2703		
Travel Time (s)	40.6			14.4			59.7			61.4		
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 (%)	4%	12%	14%	9%	17%	20%	20%	4%	4%	0%	5%	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)	79	390	0	37	158	0	11	232	0	63	164	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	5.0		2.5	5.0	
Minimum Split (s)	6.5	21.0		6.5	21.0		6.5	11.0		6.5	11.0	
Total Split (s)	15.0	48.0		15.0	48.0		12.0	15.0		12.0	15.0	
Total Split (%)	16.7%	53.3%		16.7%	53.3%		13.3%	16.7%		13.3%	16.7%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	None		None	None	
Act Effect Green (s)	31.4	26.2		29.7	23.7		15.9	10.0		18.3	14.3	
Actuated g/C Ratio	0.54	0.45		0.51	0.41		0.27	0.17		0.31	0.24	

# Lanes, Volumes, Timings

## 3: Gaylord Road & Division Street

07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.12	0.52		0.07	0.24		0.03	0.72		0.17	0.37	
Control Delay	6.9	15.7		6.8	13.5		19.3	40.9		19.2	24.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	6.9	15.7		6.8	13.5		19.3	40.9		19.2	24.9	
LOS	A	B		A	B		B	D		B	C	
Approach Delay		14.2			12.2			39.9			23.3	
Approach LOS		B			B			D			C	
Queue Length 50th (ft)	14	90		6	39		2	65		14	35	
Queue Length 95th (ft)	30	206		17	80		16	#255		54	#160	
Internal Link Dist (ft)		2005			659			2547			2623	
Turn Bay Length (ft)	215			215			120			200		
Base Capacity (vph)	747	1267		640	1191		377	324		412	442	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.11	0.31		0.06	0.13		0.03	0.72		0.15	0.37	

### Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 58.5

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 21.2

Intersection LOS: C

Intersection Capacity Utilization 55.6%







ICU Level of Service B

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 3: Gaylord Road & Division Street












 Ø1	 Ø2	 Ø3	 Ø4
15 s	48 s	12 s	15 s
 Ø5	 Ø6	 Ø7	 Ø8
15 s	48 s	12 s	15 s



# Lanes, Volumes, Timings

## 4: Churnovic Lane & Division Street

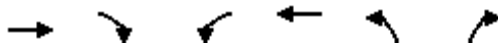
07/27/2022

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	350	145	215	160	35	20
Future Volume (vph)	350	145	215	160	35	20
Ideal Flow (vphpl)	1900	1900	1900	2000	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	200		190	0
Storage Lanes		0	1		1	1
Taper Length (ft)			220		135	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.960					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1680	0	1671	1770	1347	1346
Flt Permitted			0.341		0.950	
Satd. Flow (perm)	1680	0	600	1770	1347	1346
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	31					21
Link Speed (mph)	35			35	20	
Link Distance (ft)	720			1049	1235	
Travel Time (s)	14.0			20.4	42.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	10%	8%	13%	34%	20%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	521	0	226	168	37	21
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	15.0		3.0	15.0	5.0	5.0
Minimum Split (s)	21.0		6.5	21.0	11.0	11.0
Total Split (s)	47.0		23.0	70.0	20.0	20.0
Total Split (%)	52.2%		25.6%	77.8%	22.2%	22.2%
Yellow Time (s)	4.5		3.5	4.5	4.5	4.5
All-Red Time (s)	1.5		0.0	1.5	1.5	1.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		3.5	6.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None		None	None	None	None
Act Effect Green (s)	31.1		46.7	48.0	12.7	12.7
Actuated g/C Ratio	0.52		0.78	0.81	0.21	0.21

# Lanes, Volumes, Timings

## 4: Churnovic Lane & Division Street

07/27/2022



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
v/c Ratio	0.58		0.36	0.12	0.13	0.07
Control Delay	14.4		4.9	4.1	29.0	13.9
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	14.4		4.9	4.1	29.0	13.9
LOS	B		A	A	C	B
Approach Delay	14.4			4.5	23.5	
Approach LOS	B			A	C	
Queue Length 50th (ft)	144		27	22	14	0
Queue Length 95th (ft)	272		54	46	43	19
Internal Link Dist (ft)	640			969	1155	
Turn Bay Length (ft)			200		190	
Base Capacity (vph)	1224		882	1602	371	386
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.43		0.26	0.10	0.10	0.05

### Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 59.5

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 10.9

Intersection LOS: B

Intersection Capacity Utilization 56.7%

ICU Level of Service B






Analysis Period (min) 15

Splits and Phases: 4: Churnovic Lane & Division Street



HCM 6th TWSC  
5: Access Road & Division Street

07/27/2022

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	500	5	5	190	5	5
Future Vol, veh/h	500	5	5	190	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	20	60	15	0	0
Mvmt Flow	526	5	5	200	5	5

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	531	0	739
Stage 1	-	-	-	-	529
Stage 2	-	-	-	-	210
Critical Hdwy	-	-	4.7	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.74	-	3.5
Pot Cap-1 Maneuver	-	-	799	-	388
Stage 1	-	-	-	-	595
Stage 2	-	-	-	-	830
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	799	-	386
Mov Cap-2 Maneuver	-	-	-	-	386
Stage 1	-	-	-	-	595
Stage 2	-	-	-	-	825

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	13.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	455	-	-	799	-
HCM Lane V/C Ratio	0.023	-	-	0.007	-
HCM Control Delay (s)	13.1	-	-	9.5	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-





# HCM 6th TWSC

## 6: Advantage Avenue & Division Street

07/27/2022

### Intersection

Int Delay, s/veh 0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	485	15	10	185	5	5
Future Vol, veh/h	485	15	10	185	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	130	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	7	10	17	20	40
Mvmt Flow	511	16	11	195	5	5

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	527
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.2
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.29
Pot Cap-1 Maneuver	-	-	1000
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1000
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	12.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	469	-	-	1000	-
HCM Lane V/C Ratio	0.022	-	-	0.011	-
HCM Control Delay (s)	12.9	-	-	8.6	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM 6th TWSC  
7: Enterprise Boulevard & Division Street

07/27/2022

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑		↗
Traffic Vol, veh/h	385	0	0	375	0	35
Future Vol, veh/h	385	0	0	375	0	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	0	0	9	0	66
Mvmt Flow	405	0	0	395	0	37
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	405
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.86
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.894
Pot Cap-1 Maneuver	-	0	0	-	0	528
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	528
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		12.3	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1		EBT	WBT		
Capacity (veh/h)	528		-	-		
HCM Lane V/C Ratio	0.07		-	-		
HCM Control Delay (s)	12.3		-	-		
HCM Lane LOS	B		-	-		
HCM 95th %tile Q(veh)	0.2		-	-		






















# Capacity Analysis Summary Sheets

Base Weekday Evening Peak Hour Conditions

# Lanes, Volumes, Timings

## 1: Weber Road & Division Street

07/27/2022













												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	150	85	130	175	70	125	855	125	55	1040	190
Future Volume (vph)	155	150	85	130	175	70	125	855	125	55	1040	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	220		0	120		0	155		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	160			155			135			270		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt		0.946			0.957			0.981			0.977	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1583	1641	0	1752	1763	0	1671	3443	0	1770	3266	0
Flt Permitted	0.380			0.238			0.115			0.216		
Satd. Flow (perm)	633	1641	0	439	1763	0	202	3443	0	402	3266	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			12			17			21	
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		2553			2127			2930			1292	
Travel Time (s)		49.7			41.4			44.4			19.6	
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 (%)	14%	7%	14%	3%	4%	1%	8%	3%	2%	2%	8%	8%
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)	163	247	0	137	258	0	132	1032	0	58	1295	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	20.0		3.0	20.0	
Minimum Split (s)	9.5	22.0		9.5	24.0		7.0	26.0		7.0	26.0	
Total Split (s)	13.0	22.0		27.0	36.0		15.0	86.0		15.0	86.0	
Total Split (%)	8.7%	14.7%		18.0%	24.0%		10.0%	57.3%		10.0%	57.3%	
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.5		3.0	4.5	
All-Red Time (s)	0.5	1.5		0.5	1.5		0.5	1.5		0.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	
Act Effect Green (s)	37.1	25.1		44.6	30.0		96.9	86.1		91.5	81.7	
Actuated g/C Ratio	0.25	0.17		0.30	0.20		0.65	0.57		0.61	0.54	



# Lanes, Volumes, Timings

## 1: Weber Road & Division Street

07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.75	0.86		0.54	0.71		0.58	0.52		0.19	0.72	
Control Delay	66.7	84.0		47.8	65.4		15.5	16.3		10.9	26.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	66.7	84.0		47.8	65.4		15.5	16.3		10.9	26.6	
LOS	E	F		D	E		B	B		B	C	
Approach Delay		77.2			59.3			16.2			26.0	
Approach LOS		E			E			B			C	
Queue Length 50th (ft)	124	225		102	228		43	315		19	368	
Queue Length 95th (ft)	#191	#441		161	331		43	398		36	590	
Internal Link Dist (ft)		2473			2047			2850			1212	
Turn Bay Length (ft)	150			220			120			155		
Base Capacity (vph)	216	286		338	362		243	1983		360	1788	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.75	0.86		0.41	0.71		0.54	0.52		0.16	0.72	

### Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 32.8

Intersection LOS: C

Intersection Capacity Utilization 80.5%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.













### Splits and Phases: 1: Weber Road & Division Street

											
Ø1	Ø2 (R)		Ø3	Ø4		Ø5	Ø6 (R)	Ø7	Ø8		
15 s	86 s		27 s	22 s		15 s	86 s	13 s	36 s		

## Lanes, Volumes, Timings

### 2: Weber Road & Patrick Drive

07/27/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	35	90	1015	70	40	1215
Future Volume (vph)	35	90	1015	70	40	1215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	210		180	275	
Storage Lanes	1	1		1	2	
Taper Length (ft)	25				200	
Lane Util. Factor	1.00	1.00	0.95	1.00	0.97	0.95
Ped Bike Factor						
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1568	3471	1568	3242	3343
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1752	1568	3471	1568	3242	3343
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		95		68		
Link Speed (mph)	30		30			30
Link Distance (ft)	812		4281			2930
Travel Time (s)	18.5		97.3			66.6
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	4%	3%	8%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	37	95	1068	74	42	1279
Turn Type	Prot	pm+ov	NA	Perm	Prot	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	3.0	15.0	15.0	3.0	15.0
Minimum Split (s)	14.0	7.5	21.0	21.0	7.5	21.0
Total Split (s)	36.0	15.0	99.0	99.0	15.0	114.0
Total Split (%)	24.0%	10.0%	66.0%	66.0%	10.0%	76.0%
Yellow Time (s)	4.5	3.5	4.5	4.5	3.5	4.5
All-Red Time (s)	1.5	1.0	1.5	1.5	1.0	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.5	6.0	6.0	4.5	6.0
Lead/Lag		Lead	Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Recall Mode	None	None	C-Min	C-Min	None	C-Min
Act Effect Green (s)	9.9	20.4	119.1	119.1	7.4	132.1
Actuated g/C Ratio	0.07	0.14	0.79	0.79	0.05	0.88

## Lanes, Volumes, Timings

### 2: Weber Road & Patrick Drive

07/27/2022

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
v/c Ratio	0.32	0.32	0.39	0.06	0.27	0.43
Control Delay	73.7	12.3	5.7	1.3	94.9	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.7	12.3	5.7	1.3	94.9	0.6
LOS	E	B	A	A	F	A
Approach Delay	29.5		5.4			3.6
Approach LOS	C		A			A
Queue Length 50th (ft)	35	0	154	1	20	5
Queue Length 95th (ft)	73	52	216	14	m28	13
Internal Link Dist (ft)	732		4201			2850
Turn Bay Length (ft)		210		180	275	
Base Capacity (vph)	350	326	2755	1259	226	2944
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.29	0.39	0.06	0.19	0.43

#### Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 99 (66%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.43

Intersection Signal Delay: 5.7

Intersection LOS: A

Intersection Capacity Utilization 50.3%

ICU Level of Service A

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.





















Splits and Phases: 2: Weber Road & Patrick Drive



# Lanes, Volumes, Timings

## 3: Gaylord Road & Division Street













07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	260	50	85	315	45	70	165	75	25	140	130
Future Volume (vph)	125	260	50	85	315	45	70	165	75	25	140	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	215		0	215		0	120		0	200		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	215			215			155			180		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.976			0.981			0.953			0.928	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1580	0	1671	1734	0	1687	1736	0	1456	1754	0
Flt Permitted	0.414			0.514			0.280			0.602		
Satd. Flow (perm)	787	1580	0	904	1734	0	497	1736	0	922	1754	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			11			20			41	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		2085			739			2627			2703	
Travel Time (s)		40.6			14.4			59.7			61.4	
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 (%)	0%	18%	14%	8%	8%	4%	7%	4%	5%	24%	1%	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)	132	327	0	89	379	0	74	253	0	26	284	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	5.0		2.5	5.0	
Minimum Split (s)	6.5	21.0		6.5	21.0		6.5	11.0		6.5	11.0	
Total Split (s)	15.0	48.0		15.0	48.0		12.0	15.0		12.0	15.0	
Total Split (%)	16.7%	53.3%		16.7%	53.3%		13.3%	16.7%		13.3%	16.7%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	None		None	None	
Act Effect Green (s)	35.7	26.7		34.0	25.9		19.8	14.3		17.5	9.8	
Actuated g/C Ratio	0.54	0.41		0.52	0.39		0.30	0.22		0.27	0.15	

# Lanes, Volumes, Timings

## 3: Gaylord Road & Division Street

07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.24	0.50		0.16	0.55		0.26	0.64		0.09	0.96	
Control Delay	7.6	18.1		7.2	19.8		22.4	38.7		21.0	75.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.6	18.1		7.2	19.8		22.4	38.7		21.0	75.6	
LOS	A	B		A	B		C	D		C	E	
Approach Delay		15.1			17.4			35.0			71.0	
Approach LOS		B			B			D			E	
Queue Length 50th (ft)	23	100		15	123		22	80		7	~119	
Queue Length 95th (ft)	45	175		32	210		64	#313		30	#333	
Internal Link Dist (ft)		2005			659			2547			2623	
Turn Bay Length (ft)	215			215			120			200		
Base Capacity (vph)	640	1055		652	1156		318	393		338	297	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.21	0.31		0.14	0.33		0.23	0.64		0.08	0.96	

### Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 65.8

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 31.0

Intersection LOS: C

Intersection Capacity Utilization 62.1%

ICU Level of Service B

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.












Splits and Phases: 3: Gaylord Road & Division Street

 Ø1	 Ø2	 Ø3	 Ø4
15 s	48 s	12 s	15 s
 Ø5	 Ø6	 Ø7	 Ø8
15 s	48 s	12 s	15 s

# Lanes, Volumes, Timings

## 4: Churnovic Lane & Division Street

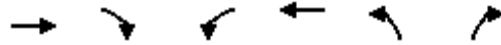
07/27/2022

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	355	35	50	415	50	20
Future Volume (vph)	355	35	50	415	50	20
Ideal Flow (vphpl)	1900	1900	1900	2000	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	200		190	0
Storage Lanes		0	1		1	1
Taper Length (ft)			220		135	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.988					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1645	0	1271	1942	1388	1196
Flt Permitted			0.445		0.950	
Satd. Flow (perm)	1645	0	595	1942	1388	1196
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	7					21
Link Speed (mph)	35			35	20	
Link Distance (ft)	720			1049	1235	
Travel Time (s)	14.0			20.4	42.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	9%	66%	42%	3%	30%	35%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	411	0	53	437	53	21
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	15.0		3.0	15.0	5.0	5.0
Minimum Split (s)	21.0		6.5	21.0	11.0	11.0
Total Split (s)	47.0		23.0	70.0	20.0	20.0
Total Split (%)	52.2%		25.6%	77.8%	22.2%	22.2%
Yellow Time (s)	4.5		3.5	4.5	4.5	4.5
All-Red Time (s)	1.5		0.0	1.5	1.5	1.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		3.5	6.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None		None	None	None	None
Act Effect Green (s)	34.0		36.7	38.6	14.3	14.3
Actuated g/C Ratio	0.68		0.74	0.78	0.29	0.29

# Lanes, Volumes, Timings

## 4: Churnovic Lane & Division Street

07/27/2022



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
v/c Ratio	0.37		0.10	0.29	0.13	0.06
Control Delay	10.9		4.1	5.3	24.0	12.3
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	10.9		4.1	5.3	24.0	12.3
LOS	B		A	A	C	B
Approach Delay	10.9			5.1	20.7	
Approach LOS	B			A	C	
Queue Length 50th (ft)	102		6	69	16	0
Queue Length 95th (ft)	189		16	122	53	18
Internal Link Dist (ft)	640			969	1155	
Turn Bay Length (ft)			200		190	
Base Capacity (vph)	1266		799	1862	514	456
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.32		0.07	0.23	0.10	0.05

### Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 49.7

Natural Cycle: 40

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.37

Intersection Signal Delay: 8.8

Intersection LOS: A

Intersection Capacity Utilization 41.6%

ICU Level of Service A






Analysis Period (min) 15

Splits and Phases: 4: Churnovic Lane & Division Street



HCM 6th TWSC  
5: Access Road & Division Street

07/27/2022

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	350	5	30	445	10	25
Future Vol, veh/h	350	5	30	445	10	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	15	40	7	6	30	4
Mvmt Flow	368	5	32	468	11	26

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	373	0	903	371
Stage 1	-	-	-	-	371	-
Stage 2	-	-	-	-	532	-
Critical Hdwy	-	-	4.17	-	6.7	6.24
Critical Hdwy Stg 1	-	-	-	-	5.7	-
Critical Hdwy Stg 2	-	-	-	-	5.7	-
Follow-up Hdwy	-	-	2.263	-	3.77	3.336
Pot Cap-1 Maneuver	-	-	1159	-	275	670
Stage 1	-	-	-	-	640	-
Stage 2	-	-	-	-	536	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1159	-	267	670
Mov Cap-2 Maneuver	-	-	-	-	267	-
Stage 1	-	-	-	-	640	-
Stage 2	-	-	-	-	521	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	13.3
HCM LOS			B





Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	468	-	-	1159	-
HCM Lane V/C Ratio	0.079	-	-	0.027	-
HCM Control Delay (s)	13.3	-	-	8.2	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-



# HCM 6th TWSC

## 6: Advantage Avenue & Division Street

07/27/2022

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	335	15	25	450	25	25
Future Vol, veh/h	335	15	25	450	25	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	130	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	16	7	12	6	4	12
Mvmt Flow	353	16	26	474	26	26
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	369	0	887	361
Stage 1	-	-	-	-	361	-
Stage 2	-	-	-	-	526	-
Critical Hdwy	-	-	4.22	-	6.44	6.32
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.308	-	3.536	3.408
Pot Cap-1 Maneuver	-	-	1137	-	312	662
Stage 1	-	-	-	-	701	-
Stage 2	-	-	-	-	589	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1137	-	305	662
Mov Cap-2 Maneuver	-	-	-	-	425	-
Stage 1	-	-	-	-	701	-
Stage 2	-	-	-	-	575	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.4		12.7	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	518	-	-	1137	-	
HCM Lane V/C Ratio	0.102	-	-	0.023	-	
HCM Control Delay (s)	12.7	-	-	8.2	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-	

HCM 6th TWSC  
7: Enterprise Boulevard & Division Street

07/27/2022






















Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑		↗
Traffic Vol, veh/h	355	0	0	455	0	20
Future Vol, veh/h	355	0	0	455	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	10	0	0	6	0	30
Mvmt Flow	374	0	0	479	0	21
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	374
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.5
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.57
Pot Cap-1 Maneuver	-	0	0	-	0	614
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	614
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		11.1	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	WBT			
Capacity (veh/h)	614	-	-			
HCM Lane V/C Ratio	0.034	-	-			
HCM Control Delay (s)	11.1	-	-			
HCM Lane LOS	B	-	-			
HCM 95th %tile Q(veh)	0.1	-	-			

Capacity Analysis Summary Sheets  
2029 No-Build Weekday Morning Peak Hour Conditions

# Lanes, Volumes, Timings

## 1: Weber Road & Division Street













07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	167	227	113	93	156	70	177	886	121	130	804	171
Future Volume (vph)	167	227	113	93	156	70	177	886	121	130	804	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	220		0	120		0	155		175
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	160			155			135			270		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor												
Frt		0.950			0.953			0.982				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1444	1661	0	1787	1711	0	1671	3279	0	1805	3374	1442
Flt Permitted	0.341			0.160			0.245			0.183		
Satd. Flow (perm)	518	1661	0	301	1711	0	431	3279	0	348	3374	1442
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			13			15				162
Link Speed (mph)		35			35			45				45
Link Distance (ft)		2553			2127			2930				1292
Travel Time (s)		49.7			41.4			44.4				19.6
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 (%)	25%	4%	18%	1%	8%	1%	8%	8%	9%	0%	7%	12%
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)	176	358	0	98	238	0	186	1060	0	137	846	180
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	20.0		3.0	20.0	20.0
Minimum Split (s)	9.5	22.0		9.5	24.0		7.0	26.0		7.0	26.0	26.0
Total Split (s)	15.0	30.0		18.0	33.0		18.0	84.0		18.0	84.0	84.0
Total Split (%)	10.0%	20.0%		12.0%	22.0%		12.0%	56.0%		12.0%	56.0%	56.0%
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.5		3.0	4.5	4.5
All-Red Time (s)	0.5	1.5		0.5	1.5		0.5	1.5		0.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	C-Min
Act Effect Green (s)	46.3	32.1		43.8	30.1		92.4	77.7		88.0	75.5	75.5
Actuated g/C Ratio	0.31	0.21		0.29	0.20		0.62	0.52		0.59	0.50	0.50

# Lanes, Volumes, Timings

## 1: Weber Road & Division Street

07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.73	0.98		0.49	0.67		0.51	0.62		0.46	0.50	0.22
Control Delay	61.4	97.3		46.8	64.1		18.1	22.8		16.1	25.2	4.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	61.4	97.3		46.8	64.1		18.1	22.8		16.1	25.2	4.1
LOS	E	F		D	E		B	C		B	C	A
Approach Delay		85.5			59.0			22.1			20.8	
Approach LOS		F			E			C			C	
Queue Length 50th (ft)	139	~402		72	212		66	209		47	261	8
Queue Length 95th (ft)	#218	#642		121	#327		96	242		74	283	48
Internal Link Dist (ft)		2473			2047			2850			1212	
Turn Bay Length (ft)	150			220			120			155		175
Base Capacity (vph)	241	365		237	353		388	1759		355	1771	833
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.73	0.98		0.41	0.67		0.48	0.60		0.39	0.48	0.22

### Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 35.7

Intersection LOS: D

Intersection Capacity Utilization 76.2%

ICU Level of Service D

Analysis Period (min) 15


~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.













### Splits and Phases: 1: Weber Road & Division Street

 Ø1	 Ø2 (R)	 Ø3	 Ø4
18 s	84 s	18 s	30 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
18 s	84 s	15 s	33 s

## Lanes, Volumes, Timings

### 2: Weber Road & Patrick Drive

07/27/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	25	60	1113	65	15	983
Future Volume (vph)	25	60	1113	65	15	983
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	2000
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	210		180	275	
Storage Lanes	1	1		1	2	
Taper Length (ft)	25				200	
Lane Util. Factor	1.00	1.00	0.95	1.00	0.97	0.95
Ped Bike Factor						
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1556	1404	3519	1442	2633	3551
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1556	1404	3519	1442	2633	3551
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		63		57		
Link Speed (mph)	30		45			45
Link Distance (ft)	812		4281			2930
Travel Time (s)	18.5		64.9			44.4
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	16%	15%	8%	12%	33%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	26	63	1172	68	16	1035
Turn Type	Prot	pm+ov	NA	Perm	Prot	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	3.0	15.0	15.0	3.0	15.0
Minimum Split (s)	14.0	7.5	21.0	21.0	7.5	21.0
Total Split (s)	33.0	18.0	99.0	99.0	18.0	117.0
Total Split (%)	22.0%	12.0%	66.0%	66.0%	12.0%	78.0%
Yellow Time (s)	4.5	3.5	4.5	4.5	3.5	4.5
All-Red Time (s)	1.5	1.0	1.5	1.5	1.0	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.5	6.0	6.0	4.5	6.0
Lead/Lag		Lag	Lead	Lead	Lag	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Recall Mode	None	None	C-Min	C-Min	None	C-Min
Act Effect Green (s)	9.4	17.5	125.2	125.2	7.7	136.6
Actuated g/C Ratio	0.06	0.12	0.83	0.83	0.05	0.91

## Lanes, Volumes, Timings

### 2: Weber Road & Patrick Drive

07/27/2022

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
v/c Ratio	0.27	0.29	0.40	0.06	0.12	0.32
Control Delay	73.4	14.4	5.2	1.7	54.9	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.4	14.4	5.2	1.7	54.9	1.3
LOS	E	B	A	A	D	A
Approach Delay	31.7		5.0			2.1
Approach LOS	C		A			A
Queue Length 50th (ft)	25	0	165	2	8	58
Queue Length 95th (ft)	57	41	271	17	m15	m58
Internal Link Dist (ft)	732		4201			2850
Turn Bay Length (ft)		210		180	275	
Base Capacity (vph)	280	247	2937	1213	236	3234
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.26	0.40	0.06	0.07	0.32

#### Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 144 (96%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.40

Intersection Signal Delay: 4.7

Intersection LOS: A

Intersection Capacity Utilization 45.9%

ICU Level of Service A

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.





















Splits and Phases: 2: Weber Road & Patrick Drive



# Lanes, Volumes, Timings

## 3: Gaylord Road & Division Street

07/27/2022













												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	411	38	38	189	33	11	126	115	66	115	55
Future Volume (vph)	82	411	38	38	189	33	11	126	115	66	115	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%			0%			0%			0%		
Storage Length (ft)	215		0	215		0	120		0	200		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	215			215			155			180		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.987			0.978			0.929			0.951		
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1687	0	1671	1627	0	1530	1705	0	1805	1748	0
Flt Permitted	0.565			0.407			0.644			0.335		
Satd. Flow (perm)	1032	1687	0	716	1627	0	1037	1705	0	636	1748	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			13			40			21	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		2085			739			2627			2703	
Travel Time (s)		40.6			14.4			59.7			61.4	
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 (%)	4%	11%	13%	8%	13%	21%	18%	4%	3%	0%	4%	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)	86	473	0	40	234	0	12	254	0	69	179	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	5.0		2.5	5.0	
Minimum Split (s)	6.5	21.0		6.5	21.0		6.5	11.0		6.5	11.0	
Total Split (s)	15.0	48.0		15.0	48.0		12.0	15.0		12.0	15.0	
Total Split (%)	16.7%	53.3%		16.7%	53.3%		13.3%	16.7%		13.3%	16.7%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	None		None	None	
Act Effect Green (s)	37.6	31.1		35.3	27.7		16.0	10.1		18.3	14.2	
Actuated g/C Ratio	0.58	0.48		0.54	0.42		0.25	0.15		0.28	0.22	



# Lanes, Volumes, Timings

## 3: Gaylord Road & Division Street

07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.13	0.59		0.08	0.34		0.04	0.86		0.22	0.45	
Control Delay	6.3	17.3		6.2	14.4		22.2	58.6		23.1	29.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	6.3	17.3		6.2	14.4		22.2	58.6		23.1	29.9	
LOS	A	B		A	B		C	E		C	C	
Approach Delay		15.6			13.2			56.9			28.0	
Approach LOS		B			B			E			C	
Queue Length 50th (ft)	15	162		7	66		4	~114		23	58	
Queue Length 95th (ft)	32	263		17	119		18	#295		60	#189	
Internal Link Dist (ft)		2005			659			2547			2623	
Turn Bay Length (ft)	215			215			120			200		
Base Capacity (vph)	752	1175		613	1135		341	296		348	396	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.11	0.40		0.07	0.21		0.04	0.86		0.20	0.45	

### Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 65.2

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 25.6

Intersection LOS: C

Intersection Capacity Utilization 61.3%

ICU Level of Service B

Analysis Period (min) 15



~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.












Splits and Phases: 3: Gaylord Road & Division Street

 Ø1	 Ø2	 Ø3	 Ø4
15 s	48 s	12 s	15 s
 Ø5	 Ø6	 Ø7	 Ø8
15 s	48 s	12 s	15 s

# Lanes, Volumes, Timings

## 4: Churnovic Lane & Division Street

07/27/2022

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	427	145	215	233	35	20
Future Volume (vph)	427	145	215	233	35	20
Ideal Flow (vphpl)	1900	1900	1900	2000	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	200		190	0
Storage Lanes		0	1		1	1
Taper Length (ft)			220		135	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.966					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1691	0	1671	1802	1347	1346
Flt Permitted			0.293		0.950	
Satd. Flow (perm)	1691	0	515	1802	1347	1346
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	25					21
Link Speed (mph)	35			35	20	
Link Distance (ft)	720			1049	1235	
Travel Time (s)	14.0			20.4	42.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	10%	8%	11%	34%	20%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	602	0	226	245	37	21
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	15.0		3.0	15.0	5.0	5.0
Minimum Split (s)	21.0		6.5	21.0	11.0	11.0
Total Split (s)	47.0		23.0	70.0	20.0	20.0
Total Split (%)	52.2%		25.6%	77.8%	22.2%	22.2%
Yellow Time (s)	4.5		3.5	4.5	4.5	4.5
All-Red Time (s)	1.5		0.0	1.5	1.5	1.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		3.5	6.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None		None	None	None	None
Act Effect Green (s)	34.2		49.6	50.7	12.6	12.6
Actuated g/C Ratio	0.55		0.79	0.81	0.20	0.20

# Lanes, Volumes, Timings

## 4: Churnovic Lane & Division Street

07/27/2022



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
v/c Ratio	0.64		0.40	0.17	0.14	0.07
Control Delay	15.7		5.3	4.1	29.9	13.9
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	15.7		5.3	4.1	29.9	13.9
LOS	B		A	A	C	B
Approach Delay	15.7			4.6	24.1	
Approach LOS	B			A	C	
Queue Length 50th (ft)	183		27	34	16	0
Queue Length 95th (ft)	342		54	66	43	19
Internal Link Dist (ft)	640			969	1155	
Turn Bay Length (ft)			200		190	
Base Capacity (vph)	1210		823	1597	346	361
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.50		0.27	0.15	0.11	0.06

### Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 62.4

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 11.5

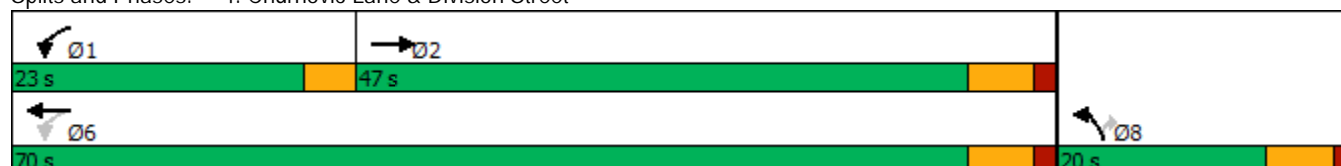
Intersection LOS: B

Intersection Capacity Utilization 60.7%

ICU Level of Service B






Analysis Period (min) 15

Splits and Phases: 4: Churnovic Lane & Division Street



HCM 6th TWSC  
5: Access Road & Division Street





07/27/2022

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	592	5	5	266	5	5
Future Vol, veh/h	592	5	5	266	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	20	60	13	0	0
Mvmt Flow	623	5	5	280	5	5
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	628	0	916	626
Stage 1	-	-	-	-	626	-
Stage 2	-	-	-	-	290	-
Critical Hdwy	-	-	4.7	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.74	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	728	-	305	488
Stage 1	-	-	-	-	537	-
Stage 2	-	-	-	-	764	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	728	-	303	488
Mov Cap-2 Maneuver	-	-	-	-	303	-
Stage 1	-	-	-	-	537	-
Stage 2	-	-	-	-	759	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		14.9	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	374	-	-	728	-	
HCM Lane V/C Ratio	0.028	-	-	0.007	-	
HCM Control Delay (s)	14.9	-	-	10	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

# HCM 6th TWSC

## 6: Advantage Avenue & Division Street

07/27/2022

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	576	15	10	260	5	5
Future Vol, veh/h	576	15	10	260	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	130	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	7	10	14	20	40
Mvmt Flow	606	16	11	274	5	5
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	622	0	910	614
Stage 1	-	-	-	-	614	-
Stage 2	-	-	-	-	296	-
Critical Hdwy	-	-	4.2	-	6.6	6.6
Critical Hdwy Stg 1	-	-	-	-	5.6	-
Critical Hdwy Stg 2	-	-	-	-	5.6	-
Follow-up Hdwy	-	-	2.29	-	3.68	3.66
Pot Cap-1 Maneuver	-	-	921	-	283	429
Stage 1	-	-	-	-	507	-
Stage 2	-	-	-	-	715	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	921	-	280	429
Mov Cap-2 Maneuver	-	-	-	-	391	-
Stage 1	-	-	-	-	507	-
Stage 2	-	-	-	-	706	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.3		14	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	409	-	-	921	-	
HCM Lane V/C Ratio	0.026	-	-	0.011	-	
HCM Control Delay (s)	14	-	-	9	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

HCM 6th TWSC  
7: Enterprise Boulevard & Division Street

07/27/2022






















Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑		↗
Traffic Vol, veh/h	466	0	0	469	0	35
Future Vol, veh/h	466	0	0	469	0	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	0	0	9	0	66
Mvmt Flow	491	0	0	494	0	37
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	491
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.86
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.894
Pot Cap-1 Maneuver	-	0	0	-	0	468
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	468
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		13.3	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1		EBT	WBT		
Capacity (veh/h)	468		-	-		
HCM Lane V/C Ratio	0.079		-	-		
HCM Control Delay (s)	13.3		-	-		
HCM Lane LOS	B		-	-		
HCM 95th %tile Q(veh)	0.3		-	-		

Capacity Analysis Summary Sheets  
2029 No-Build Weekday Evening Peak Hour Conditions

# Lanes, Volumes, Timings

## 1: Weber Road & Division Street

07/27/2022













												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	191	159	125	143	205	103	201	1011	137	97	1216	223
Future Volume (vph)	191	159	125	143	205	103	201	1011	137	97	1216	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	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)	150		0	220		0	120		0	155		175
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	160			155			135			270		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor												
Frt		0.934			0.950			0.982				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1583	1617	0	1752	1752	0	1687	3480	0	1787	3551	1482
Flt Permitted	0.226			0.145			0.115			0.152		
Satd. Flow (perm)	377	1617	0	267	1752	0	204	3480	0	286	3551	1482
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			15			15				143
Link Speed (mph)		35			35			45				45
Link Distance (ft)		2553			2127			2930			1292	
Travel Time (s)		49.7			41.4			44.4			19.6	
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 (%)	14%	8%	12%	3%	4%	1%	7%	2%	1%	1%	7%	9%
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)	201	299	0	151	324	0	212	1208	0	102	1280	235
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	20.0		3.0	20.0	20.0
Minimum Split (s)	9.5	22.0		9.5	24.0		7.0	26.0		7.0	26.0	26.0
Total Split (s)	13.0	22.0		27.0	36.0		15.0	86.0		15.0	86.0	86.0
Total Split (%)	8.7%	14.7%		18.0%	24.0%		10.0%	57.3%		10.0%	57.3%	57.3%
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.5		3.0	4.5	4.5
All-Red Time (s)	0.5	1.5		0.5	1.5		0.5	1.5		0.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	C-Min
Act Effect Green (s)	36.1	24.1		44.9	30.0		96.5	82.8		91.2	80.0	80.0
Actuated g/C Ratio	0.24	0.16		0.30	0.20		0.64	0.55		0.61	0.53	0.53



# Lanes, Volumes, Timings

## 1: Weber Road & Division Street

07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	1.21	1.08		0.65	0.90		0.87	0.63		0.39	0.68	0.27
Control Delay	176.2	130.3		53.6	82.6		45.0	20.1		14.0	25.9	7.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	176.2	130.3		53.6	82.6		45.0	20.1		14.0	25.9	7.7
LOS	F	F		D	F		D	C		B	C	A
Approach Delay		148.7			73.4			23.9			22.5	
Approach LOS		F			E			C			C	
Queue Length 50th (ft)	~168	~306		113	300		73	416		35	368	42
Queue Length 95th (ft)	#365	#565		176	#478		#230	512		58	405	92
Internal Link Dist (ft)		2473			2047			2850			1212	
Turn Bay Length (ft)	150			220			120			155		175
Base Capacity (vph)	166	276		313	362		245	1928		294	1893	857
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.21	1.08		0.48	0.90		0.87	0.63		0.35	0.68	0.27

### Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.21

Intersection Signal Delay: 44.7

Intersection LOS: D

Intersection Capacity Utilization 87.4%

ICU Level of Service E

Analysis Period (min) 15


~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.













### Splits and Phases: 1: Weber Road & Division Street

								
Ø1	Ø2 (R)			Ø3			Ø4	
15 s	86 s			27 s			22 s	
								
Ø5	Ø6 (R)			Ø7	Ø8			
15 s	86 s			13 s	36 s			

## Lanes, Volumes, Timings

### 2: Weber Road & Patrick Drive

07/27/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	35	90	1250	70	40	1440
Future Volume (vph)	35	90	1250	70	40	1440
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	210		180	275	
Storage Lanes	1	1		1	2	
Taper Length (ft)	25				200	
Lane Util. Factor	1.00	1.00	0.95	1.00	0.97	0.95
Ped Bike Factor						
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1568	3471	1568	3242	3374
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1752	1568	3471	1568	3242	3374
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		64		55		
Link Speed (mph)	30		30			30
Link Distance (ft)	812		4281			2930
Travel Time (s)	18.5		97.3			66.6
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	4%	3%	8%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	37	95	1316	74	42	1516
Turn Type	Prot	pm+ov	NA	Perm	Prot	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	3.0	15.0	15.0	3.0	15.0
Minimum Split (s)	14.0	7.5	21.0	21.0	7.5	21.0
Total Split (s)	36.0	15.0	99.0	99.0	15.0	114.0
Total Split (%)	24.0%	10.0%	66.0%	66.0%	10.0%	76.0%
Yellow Time (s)	4.5	3.5	4.5	4.5	3.5	4.5
All-Red Time (s)	1.5	1.0	1.5	1.5	1.0	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.5	6.0	6.0	4.5	6.0
Lead/Lag		Lead	Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Recall Mode	None	None	C-Min	C-Min	None	C-Min
Act Effect Green (s)	9.9	20.4	119.1	119.1	7.4	132.1
Actuated g/C Ratio	0.07	0.14	0.79	0.79	0.05	0.88

## Lanes, Volumes, Timings

### 2: Weber Road & Patrick Drive

07/27/2022

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
v/c Ratio	0.32	0.35	0.48	0.06	0.27	0.51
Control Delay	73.7	24.6	6.5	1.8	95.3	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.7	24.6	6.5	1.8	95.3	1.3
LOS	E	C	A	A	F	A
Approach Delay	38.3		6.3			3.8
Approach LOS	D		A			A
Queue Length 50th (ft)	35	27	212	4	21	13
Queue Length 95th (ft)	73	80	293	17	m29	m17
Internal Link Dist (ft)	732		4201			2850
Turn Bay Length (ft)		210		180	275	
Base Capacity (vph)	350	300	2755	1256	226	2972
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.32	0.48	0.06	0.19	0.51

#### Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 99 (66%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.51

Intersection Signal Delay: 6.4

Intersection LOS: A

Intersection Capacity Utilization 56.5%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.





















Splits and Phases: 2: Weber Road & Patrick Drive



# Lanes, Volumes, Timings

## 3: Gaylord Road & Division Street













07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	363	55	93	406	49	77	181	82	27	154	143
Future Volume (vph)	137	363	55	93	406	49	77	181	82	27	154	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	215		0	215		0	120		0	200		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	215			215			155			180		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.980			0.984			0.953			0.928	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1619	0	1656	1753	0	1703	1736	0	1433	1754	0
Flt Permitted	0.337			0.401			0.280			0.501		
Satd. Flow (perm)	640	1619	0	699	1753	0	502	1736	0	755	1754	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			9			20			41	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		2085			739			2627			2703	
Travel Time (s)		40.6			14.4			59.7			61.4	
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 (%)	0%	15%	15%	9%	7%	4%	6%	4%	5%	26%	1%	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)	144	440	0	98	479	0	81	277	0	28	313	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	5.0		2.5	5.0	
Minimum Split (s)	6.5	21.0		6.5	21.0		6.5	11.0		6.5	11.0	
Total Split (s)	15.0	48.0		15.0	48.0		12.0	15.0		12.0	15.0	
Total Split (%)	16.7%	53.3%		16.7%	53.3%		13.3%	16.7%		13.3%	16.7%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	None		None	None	
Act Effect Green (s)	41.6	32.5		40.0	31.7		19.9	14.3		17.6	9.8	
Actuated g/C Ratio	0.58	0.45		0.56	0.44		0.28	0.20		0.24	0.14	

# Lanes, Volumes, Timings

## 3: Gaylord Road & Division Street

07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.28	0.60		0.20	0.62		0.30	0.77		0.11	1.14	
Control Delay	7.6	19.4		7.1	20.4		26.0	48.8		24.0	129.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.6	19.4		7.1	20.4		26.0	48.8		24.0	129.8	
LOS	A	B		A	C		C	D		C	F	
Approach Delay		16.5			18.1			43.6			121.1	
Approach LOS		B			B			D			F	
Queue Length 50th (ft)	26	153		17	173		28	107		10	~179	
Queue Length 95th (ft)	48	252		35	279		72	#359		33	#385	
Internal Link Dist (ft)		2005			659			2547			2623	
Turn Bay Length (ft)	215			215			120			200		
Base Capacity (vph)	588	1018		582	1096		293	362		283	275	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.24	0.43		0.17	0.44		0.28	0.77		0.10	1.14	

### Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 71.9

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.14

Intersection Signal Delay: 41.4

Intersection LOS: D

Intersection Capacity Utilization 69.7%

ICU Level of Service C

Analysis Period (min) 15







~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.












Splits and Phases: 3: Gaylord Road & Division Street

 Ø1	 Ø2	 Ø3	 Ø4
15 s	48 s	12 s	15 s
 Ø5	 Ø6	 Ø7	 Ø8
15 s	48 s	12 s	15 s

# Lanes, Volumes, Timings

## 4: Churnovic Lane & Division Street

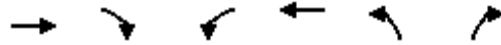
07/27/2022

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	468	35	50	516	50	20
Future Volume (vph)	468	35	50	516	50	20
Ideal Flow (vphpl)	1900	1900	1900	2000	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	200		190	0
Storage Lanes		0	1		1	1
Taper Length (ft)			220		135	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.991					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1680	0	1271	1942	1388	1196
Flt Permitted			0.370		0.950	
Satd. Flow (perm)	1680	0	495	1942	1388	1196
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	6					21
Link Speed (mph)	35			35	20	
Link Distance (ft)	720			1049	1235	
Travel Time (s)	14.0			20.4	42.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	66%	42%	3%	30%	35%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	530	0	53	543	53	21
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	15.0		3.0	15.0	5.0	5.0
Minimum Split (s)	21.0		6.5	21.0	11.0	11.0
Total Split (s)	47.0		23.0	70.0	20.0	20.0
Total Split (%)	52.2%		25.6%	77.8%	22.2%	22.2%
Yellow Time (s)	4.5		3.5	4.5	4.5	4.5
All-Red Time (s)	1.5		0.0	1.5	1.5	1.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		3.5	6.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None		None	None	None	None
Act Effect Green (s)	38.8		41.5	43.5	14.6	14.6
Actuated g/C Ratio	0.71		0.76	0.80	0.27	0.27

# Lanes, Volumes, Timings

## 4: Churnovic Lane & Division Street

07/27/2022



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
v/c Ratio	0.44		0.11	0.35	0.14	0.06
Control Delay	11.3		3.9	5.4	26.8	13.1
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	11.3		3.9	5.4	26.8	13.1
LOS	B		A	A	C	B
Approach Delay	11.3			5.2	22.9	
Approach LOS	B			A	C	
Queue Length 50th (ft)	148		6	95	19	0
Queue Length 95th (ft)	263		16	160	54	18
Internal Link Dist (ft)	640			969	1155	
Turn Bay Length (ft)			200		190	
Base Capacity (vph)	1233		754	1787	473	422
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.43		0.07	0.30	0.11	0.05

### Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 54.6

Natural Cycle: 50

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.44

Intersection Signal Delay: 9.0

Intersection LOS: A

Intersection Capacity Utilization 47.6%

ICU Level of Service A






Analysis Period (min) 15

Splits and Phases: 4: Churnovic Lane & Division Street



HCM 6th TWSC  
5: Access Road & Division Street

07/27/2022






Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	462	5	30	549	10	25
Future Vol, veh/h	462	5	30	549	10	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	13	40	7	6	30	4
Mvmt Flow	486	5	32	578	11	26
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	491	0	1131	489
Stage 1	-	-	-	-	489	-
Stage 2	-	-	-	-	642	-
Critical Hdwy	-	-	4.17	-	6.7	6.24
Critical Hdwy Stg 1	-	-	-	-	5.7	-
Critical Hdwy Stg 2	-	-	-	-	5.7	-
Follow-up Hdwy	-	-	2.263	-	3.77	3.336
Pot Cap-1 Maneuver	-	-	1047	-	199	575
Stage 1	-	-	-	-	563	-
Stage 2	-	-	-	-	475	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1047	-	193	575
Mov Cap-2 Maneuver	-	-	-	-	193	-
Stage 1	-	-	-	-	563	-
Stage 2	-	-	-	-	460	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.4		15.9	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	367	-	-	1047	-	
HCM Lane V/C Ratio	0.1	-	-	0.03	-	
HCM Control Delay (s)	15.9	-	-	8.5	-	
HCM Lane LOS	C	-	-	A	-	
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-	



# HCM 6th TWSC

## 6: Advantage Avenue & Division Street

07/27/2022

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	446	15	25	554	25	25
Future Vol, veh/h	446	15	25	554	25	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	130	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	14	7	12	6	4	12
Mvmt Flow	469	16	26	583	26	26
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	485	0	1112	477
Stage 1	-	-	-	-	477	-
Stage 2	-	-	-	-	635	-
Critical Hdwy	-	-	4.22	-	6.44	6.32
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.308	-	3.536	3.408
Pot Cap-1 Maneuver	-	-	1028	-	229	568
Stage 1	-	-	-	-	620	-
Stage 2	-	-	-	-	524	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1028	-	223	568
Mov Cap-2 Maneuver	-	-	-	-	356	-
Stage 1	-	-	-	-	620	-
Stage 2	-	-	-	-	511	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.4		14.3	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	438	-	-	1028	-	
HCM Lane V/C Ratio	0.12	-	-	0.026	-	
HCM Control Delay (s)	14.3	-	-	8.6	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-	

HCM 6th TWSC  
7: Enterprise Boulevard & Division Street

07/27/2022






















Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑		↗
Traffic Vol, veh/h	468	0	0	560	0	20
Future Vol, veh/h	468	0	0	560	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	9	0	0	6	0	30
Mvmt Flow	493	0	0	589	0	21
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	493
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.5
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.57
Pot Cap-1 Maneuver	-	0	0	-	0	523
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	523
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		12.2	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1		EBT	WBT		
Capacity (veh/h)	523		-	-		
HCM Lane V/C Ratio	0.04		-	-		
HCM Control Delay (s)	12.2		-	-		
HCM Lane LOS	B		-	-		
HCM 95th %tile Q(veh)	0.1		-	-		

Capacity Analysis Summary Sheets  
2029 Projected Weekday Morning Peak Hour Conditions

# Lanes, Volumes, Timings

## 1: Weber Road & Division Street













07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	229	119	93	167	70	198	886	121	130	804	189
Future Volume (vph)	172	229	119	93	167	70	198	886	121	130	804	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	220		0	120		0	155		175
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	160			155			135			270		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor												
Frt		0.949			0.956			0.982				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1433	1637	0	1787	1715	0	1671	3279	0	1805	3374	1455
Flt Permitted	0.307			0.146			0.240			0.185		
Satd. Flow (perm)	463	1637	0	275	1715	0	422	3279	0	352	3374	1455
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			12			15				179
Link Speed (mph)		35			35			45				45
Link Distance (ft)		2553			2127			2930				1292
Travel Time (s)		49.7			41.4			44.4				19.6
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 (%)	26%	5%	20%	1%	8%	1%	8%	8%	9%	0%	7%	11%
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)	181	366	0	98	250	0	208	1060	0	137	846	199
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	20.0		3.0	20.0	20.0
Minimum Split (s)	9.5	22.0		9.5	24.0		7.0	26.0		7.0	26.0	26.0
Total Split (s)	15.0	30.0		18.0	33.0		18.0	84.0		18.0	84.0	84.0
Total Split (%)	10.0%	20.0%		12.0%	22.0%		12.0%	56.0%		12.0%	56.0%	56.0%
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.5		3.0	4.5	4.5
All-Red Time (s)	0.5	1.5		0.5	1.5		0.5	1.5		0.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	C-Min
Act Effect Green (s)	46.3	32.1		43.4	29.6		93.1	77.7		87.3	74.8	74.8
Actuated g/C Ratio	0.31	0.21		0.29	0.20		0.62	0.52		0.58	0.50	0.50

# Lanes, Volumes, Timings

## 1: Weber Road & Division Street

07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.78	1.01		0.51	0.72		0.56	0.62		0.46	0.50	0.24
Control Delay	67.0	105.1		47.6	67.1		21.6	22.8		16.1	25.6	4.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	67.0	105.1		47.6	67.1		21.6	22.8		16.1	25.6	4.1
LOS	E	F		D	E		C	C		B	C	A
Approach Delay		92.5			61.6			22.6			20.9	
Approach LOS		F			E			C			C	
Queue Length 50th (ft)	143	~421		72	226		74	208		47	265	9
Queue Length 95th (ft)	#248	#663		121	#355		129	241		74	283	51
Internal Link Dist (ft)		2473			2047			2850			1212	
Turn Bay Length (ft)	150			220			120			155		175
Base Capacity (vph)	231	361		231	348		383	1759		355	1762	845
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.78	1.01		0.42	0.72		0.54	0.60		0.39	0.48	0.24

### Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 37.5

Intersection LOS: D

Intersection Capacity Utilization 76.7%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.






















### Splits and Phases: 1: Weber Road & Division Street

				
Ø1	Ø2 (R)		Ø3	Ø4
18 s	84 s		18 s	30 s
				
Ø5	Ø6 (R)		Ø7	Ø8
18 s	84 s		15 s	33 s

# Lanes, Volumes, Timings

## 1: Weber Road & Division Street













07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	229	119	93	167	70	198	886	121	130	804	189
Future Volume (vph)	172	229	119	93	167	70	198	886	121	130	804	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%			0%			0%			0%		
Storage Length (ft)	150		0	220		0	120		0	155		175
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	160			155			135			270		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor												
Frt	0.949			0.956			0.982			0.850		
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1433	1637	0	1787	1715	0	1671	3279	0	1805	3374	1455
Flt Permitted	0.250			0.264			0.246			0.188		
Satd. Flow (perm)	377	1637	0	497	1715	0	433	3279	0	357	3374	1455
Right Turn on Red	Yes			Yes			Yes			Yes		
Satd. Flow (RTOR)	17			12			14			169		
Link Speed (mph)	35			35			45			45		
Link Distance (ft)	2553			2127			2930			1292		
Travel Time (s)	49.7			41.4			44.4			19.6		
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 (%)	26%	5%	20%	1%	8%	1%	8%	8%	9%	0%	7%	11%
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)	181	366	0	98	250	0	208	1060	0	137	846	199
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	20.0		3.0	20.0	20.0
Minimum Split (s)	9.5	22.0		9.5	24.0		7.0	26.0		7.0	26.0	26.0
Total Split (s)	19.0	44.0		8.0	33.0		18.0	80.0		18.0	80.0	80.0
Total Split (%)	12.7%	29.3%		5.3%	22.0%		12.0%	53.3%		12.0%	53.3%	53.3%
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.5		3.0	4.5	4.5
All-Red Time (s)	0.5	1.5		0.5	1.5		0.5	1.5		0.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	C-Min
Act Effect Green (s)	47.9	35.9		34.7	26.2		94.3	79.1		89.0	76.4	76.4
Actuated g/C Ratio	0.32	0.24		0.23	0.17		0.63	0.53		0.59	0.51	0.51

# Lanes, Volumes, Timings

## 1: Weber Road & Division Street

07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.79	0.91		0.59	0.81		0.55	0.61		0.44	0.49	0.24
Control Delay	64.4	78.9		57.9	76.5		21.3	22.4		16.1	25.4	5.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	64.4	78.9		57.9	76.5		21.3	22.4		16.1	25.4	5.1
LOS	E	E		E	E		C	C		B	C	A
Approach Delay		74.1			71.3			22.2			20.9	
Approach LOS		E			E			C			C	
Queue Length 50th (ft)	137	330		69	226		79	225		51	284	15
Queue Length 95th (ft)	#207	#504		#126	#355		137	259		81	297	60
Internal Link Dist (ft)		2473			2047			2850			1212	
Turn Bay Length (ft)	150			220			120			155		175
Base Capacity (vph)	232	427		166	318		393	1734		361	1718	824
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.78	0.86		0.59	0.79		0.53	0.61		0.38	0.49	0.24

### Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 35.3

Intersection LOS: D

Intersection Capacity Utilization 76.7%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.













### Splits and Phases: 1: Weber Road & Division Street



## Lanes, Volumes, Timings

### 2: Weber Road & Patrick Drive

07/27/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	25	60	1134	65	15	989
Future Volume (vph)	25	60	1134	65	15	989
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	2000
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	210		180	275	
Storage Lanes	1	1		1	2	
Taper Length (ft)	25				200	
Lane Util. Factor	1.00	1.00	0.95	1.00	0.97	0.95
Ped Bike Factor						
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1556	1404	3551	1442	2633	3519
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1556	1404	3551	1442	2633	3519
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		63		56		
Link Speed (mph)	30		45			45
Link Distance (ft)	812		4281			2930
Travel Time (s)	18.5		64.9			44.4
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	16%	15%	7%	12%	33%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	26	63	1194	68	16	1041
Turn Type	Prot	pm+ov	NA	Perm	Prot	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	3.0	15.0	15.0	3.0	15.0
Minimum Split (s)	14.0	7.5	21.0	21.0	7.5	21.0
Total Split (s)	33.0	18.0	99.0	99.0	18.0	117.0
Total Split (%)	22.0%	12.0%	66.0%	66.0%	12.0%	78.0%
Yellow Time (s)	4.5	3.5	4.5	4.5	3.5	4.5
All-Red Time (s)	1.5	1.0	1.5	1.5	1.0	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.5	6.0	6.0	4.5	6.0
Lead/Lag		Lag	Lead	Lead	Lag	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Recall Mode	None	None	C-Min	C-Min	None	C-Min
Act Effect Green (s)	9.4	17.5	125.2	125.2	7.7	136.6
Actuated g/C Ratio	0.06	0.12	0.83	0.83	0.05	0.91



## Lanes, Volumes, Timings

### 2: Weber Road & Patrick Drive

07/27/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
v/c Ratio	0.27	0.29	0.40	0.06	0.12	0.32
Control Delay	73.4	14.4	5.2	1.7	55.6	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.4	14.4	5.2	1.7	55.6	1.3
LOS	E	B	A	A	E	A
Approach Delay	31.7		5.1			2.1
Approach LOS	C		A			A
Queue Length 50th (ft)	25	0	168	2	8	59
Queue Length 95th (ft)	57	41	277	17	m14	m58
Internal Link Dist (ft)	732		4201			2850
Turn Bay Length (ft)		210		180	275	
Base Capacity (vph)	280	247	2964	1213	236	3205
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.26	0.40	0.06	0.07	0.32

#### Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 144 (96%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.40

Intersection Signal Delay: 4.8

Intersection LOS: A

Intersection Capacity Utilization 46.4%

ICU Level of Service A

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.





















Splits and Phases: 2: Weber Road & Patrick Drive



# Lanes, Volumes, Timings

## 3: Gaylord Road & Division Street













07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	433	38	38	197	33	11	126	115	66	115	55
Future Volume (vph)	82	433	38	38	197	33	11	126	115	66	115	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%			0%			0%			0%		
Storage Length (ft)	215		0	215		0	120		0	200		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	215			215			155			180		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.988			0.978			0.929			0.951		
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1689	0	1671	1604	0	1530	1705	0	1805	1748	0
Flt Permitted	0.557			0.387			0.644			0.329		
Satd. Flow (perm)	1018	1689	0	681	1604	0	1037	1705	0	625	1748	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			13			40			21	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		2085			739			2627			2703	
Travel Time (s)		40.6			14.4			59.7			61.4	
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 (%)	4%	11%	13%	8%	15%	21%	18%	4%	3%	0%	4%	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)	86	496	0	40	242	0	12	254	0	69	179	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	5.0		2.5	5.0	
Minimum Split (s)	6.5	21.0		6.5	21.0		6.5	11.0		6.5	11.0	
Total Split (s)	15.0	48.0		15.0	48.0		12.0	15.0		12.0	15.0	
Total Split (%)	16.7%	53.3%		16.7%	53.3%		13.3%	16.7%		13.3%	16.7%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	None		None	None	
Act Effect Green (s)	38.4	31.8		36.1	28.4		16.0	10.1		18.3	14.2	
Actuated g/C Ratio	0.58	0.48		0.55	0.43		0.24	0.15		0.28	0.22	

# Lanes, Volumes, Timings

## 3: Gaylord Road & Division Street

07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.13	0.61		0.08	0.35		0.04	0.86		0.22	0.46	
Control Delay	6.2	17.6		6.2	14.4		22.6	60.0		23.6	30.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	6.2	17.6		6.2	14.4		22.6	60.0		23.6	30.4	
LOS	A	B		A	B		C	E		C	C	
Approach Delay		15.9			13.3			58.3			28.5	
Approach LOS		B			B			E			C	
Queue Length 50th (ft)	15	174		7	69		4	~117		23	59	
Queue Length 95th (ft)	32	280		17	124		18	#295		60	#189	
Internal Link Dist (ft)		2005			659			2547			2623	
Turn Bay Length (ft)	215			215			120			200		
Base Capacity (vph)	750	1168		599	1111		338	294		343	392	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.11	0.42		0.07	0.22		0.04	0.86		0.20	0.46	

### Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 66

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 25.8

Intersection LOS: C

Intersection Capacity Utilization 62.4%

ICU Level of Service B

Analysis Period (min) 15









~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.












Splits and Phases: 3: Gaylord Road & Division Street

 Ø1	 Ø2	 Ø3	 Ø4
15 s	48 s	12 s	15 s
 Ø5	 Ø6	 Ø7	 Ø8
15 s	48 s	12 s	15 s

# Lanes, Volumes, Timings

## 4: Churnovic Lane & Division Street

07/27/2022

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	427	167	265	233	43	23
Future Volume (vph)	427	167	265	233	43	23
Ideal Flow (vphpl)	1900	1900	1900	2000	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	200		190	0
Storage Lanes		0	1		1	1
Taper Length (ft)			220		135	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.962					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1684	0	1671	1802	1289	1282
Flt Permitted			0.275		0.950	
Satd. Flow (perm)	1684	0	484	1802	1289	1282
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	29					24
Link Speed (mph)	35			35	20	
Link Distance (ft)	720			1049	1235	
Travel Time (s)	14.0			20.4	42.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	10%	8%	11%	40%	26%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	625	0	279	245	45	24
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	15.0		3.0	15.0	5.0	5.0
Minimum Split (s)	21.0		6.5	21.0	11.0	11.0
Total Split (s)	47.0		23.0	70.0	20.0	20.0
Total Split (%)	52.2%		25.6%	77.8%	22.2%	22.2%
Yellow Time (s)	4.5		3.5	4.5	4.5	4.5
All-Red Time (s)	1.5		0.0	1.5	1.5	1.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		3.5	6.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None		None	None	None	None
Act Effect Green (s)	35.3		51.6	52.8	12.8	12.8
Actuated g/C Ratio	0.55		0.80	0.82	0.20	0.20

# Lanes, Volumes, Timings

## 4: Churnovic Lane & Division Street

07/27/2022

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
v/c Ratio	0.67		0.50	0.17	0.18	0.09
Control Delay	17.6		6.4	4.0	31.5	14.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	17.6		6.4	4.0	31.5	14.2
LOS	B		A	A	C	B
Approach Delay	17.6			5.3	25.5	
Approach LOS	B			A	C	
Queue Length 50th (ft)	204		36	36	20	0
Queue Length 95th (ft)	399		66	65	52	21
Internal Link Dist (ft)	640			969	1155	
Turn Bay Length (ft)			200		190	
Base Capacity (vph)	1175		795	1567	318	335
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.53		0.35	0.16	0.14	0.07

### Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 64.7

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 12.7

Intersection LOS: B

Intersection Capacity Utilization 64.8%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 4: Churnovic Lane & Division Street








# HCM 6th TWSC

## 5: Access Road & Division Street

07/27/2022

### Intersection

Int Delay, s/veh 0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	614	5	5	274	5	5
Future Vol, veh/h	614	5	5	274	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	20	60	15	0	0
Mvmt Flow	646	5	5	288	5	5

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	651
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.7
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.74
Pot Cap-1 Maneuver	-	-	712
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	712
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	15.3
HCM LOS			C






Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	360	-	-	712	-
HCM Lane V/C Ratio	0.029	-	-	0.007	-
HCM Control Delay (s)	15.3	-	-	10.1	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

# HCM 6th TWSC 6: Advantage Avenue & Division Street

07/27/2022

## Intersection

Int Delay, s/veh 0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	598	15	10	268	5	5
Future Vol, veh/h	598	15	10	268	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	130	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	7	10	16	20	40
Mvmt Flow	629	16	11	282	5	5

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	645
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.2
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.29
Pot Cap-1 Maneuver	-	-	903
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	903
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	14.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	397	-	-	903	-
HCM Lane V/C Ratio	0.027	-	-	0.012	-
HCM Control Delay (s)	14.3	-	-	9	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM 6th TWSC  
7: Enterprise Boulevard & Division Street

07/27/2022

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑		↗
Traffic Vol, veh/h	469	0	0	519	0	45
Future Vol, veh/h	469	0	0	519	0	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	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	9	0	0	8	0	64
Mvmt Flow	494	0	0	546	0	47
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	494
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.84
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.876
Pot Cap-1 Maneuver	-	0	0	-	0	468
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	468
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		13.6	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1		EBT	WBT		
Capacity (veh/h)	468		-	-		
HCM Lane V/C Ratio	0.101		-	-		
HCM Control Delay (s)	13.6		-	-		
HCM Lane LOS	B		-	-		
HCM 95th %tile Q(veh)	0.3		-	-		
























Capacity Analysis Summary Sheets  
2029 Projected Weekday Evening Peak Hour Conditions

# Lanes, Volumes, Timings

## 1: Weber Road & Division Street













07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	207	169	146	143	208	103	209	1011	137	97	1216	229
Future Volume (vph)	207	169	146	143	208	103	209	1011	137	97	1216	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	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)	150		0	220		0	120		0	155		175
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	160			155			135			270		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor												
Frt		0.930			0.950			0.982				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1583	1608	0	1752	1741	0	1656	3480	0	1787	3551	1468
Flt Permitted	0.219			0.145			0.115			0.152		
Satd. Flow (perm)	365	1608	0	267	1741	0	200	3480	0	286	3551	1468
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			15			15				147
Link Speed (mph)		35			35			45				45
Link Distance (ft)		2553			2127			2930				1292
Travel Time (s)		49.7			41.4			44.4				19.6
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 (%)	14%	8%	12%	3%	5%	1%	9%	2%	1%	1%	7%	10%
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)	218	332	0	151	327	0	220	1208	0	102	1280	241
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	20.0		3.0	20.0	20.0
Minimum Split (s)	9.5	22.0		9.5	24.0		7.0	26.0		7.0	26.0	26.0
Total Split (s)	13.0	22.0		27.0	36.0		15.0	86.0		15.0	86.0	86.0
Total Split (%)	8.7%	14.7%		18.0%	24.0%		10.0%	57.3%		10.0%	57.3%	57.3%
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.5		3.0	4.5	4.5
All-Red Time (s)	0.5	1.5		0.5	1.5		0.5	1.5		0.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	C-Min
Act Effect Green (s)	36.1	24.1		44.9	30.0		96.5	82.8		91.2	80.0	80.0
Actuated g/C Ratio	0.24	0.16		0.30	0.20		0.64	0.55		0.61	0.53	0.53

# Lanes, Volumes, Timings

## 1: Weber Road & Division Street

07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	1.33	1.20		0.65	0.91		0.92	0.63		0.39	0.68	0.28
Control Delay	219.2	167.1		53.6	84.8		55.2	20.1		14.0	25.9	7.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	219.2	167.1		53.6	84.8		55.2	20.1		14.0	25.9	7.7
LOS	F	F		D	F		E	C		B	C	A
Approach Delay		187.8			74.9			25.5			22.4	
Approach LOS		F			E			C			C	
Queue Length 50th (ft)	~207	~372		113	303		87	416		35	368	43
Queue Length 95th (ft)	#406	#639		176	#488		#256	512		58	405	94
Internal Link Dist (ft)		2473			2047			2850			1212	
Turn Bay Length (ft)	150			220			120			155		175
Base Capacity (vph)	164	277		313	360		240	1928		294	1893	851
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.33	1.20		0.48	0.91		0.92	0.63		0.35	0.68	0.28

### Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.33

Intersection Signal Delay: 52.0

Intersection LOS: D

Intersection Capacity Utilization 88.9%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.






















### Splits and Phases: 1: Weber Road & Division Street

								
Ø1	Ø2 (R)		Ø3		Ø4		Ø5	Ø6 (R)
15 s	86 s		27 s		22 s		13 s	36 s
								
Ø5	Ø6 (R)		Ø7		Ø8			
15 s	86 s		13 s		36 s			

# Lanes, Volumes, Timings

## 1: Weber Road & Division Street













07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	207	169	146	143	208	103	209	1011	137	97	1216	229
Future Volume (vph)	207	169	146	143	208	103	209	1011	137	97	1216	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	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)	150		0	220		0	120		0	155		175
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	160			155			135			270		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor												
Frt		0.930			0.950			0.982				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1583	1608	0	1752	1741	0	1656	3480	0	1787	3551	1468
Flt Permitted	0.167			0.378			0.090			0.145		
Satd. Flow (perm)	278	1608	0	697	1741	0	157	3480	0	273	3551	1468
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29			15			14				132
Link Speed (mph)		35			35			45				45
Link Distance (ft)		2553			2127			2930			1292	
Travel Time (s)		49.7			41.4			44.4			19.6	
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 (%)	14%	8%	12%	3%	5%	1%	9%	2%	1%	1%	7%	10%
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)	218	332	0	151	327	0	220	1208	0	102	1280	241
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	20.0		3.0	20.0	20.0
Minimum Split (s)	9.5	22.0		9.5	24.0		7.0	26.0		7.0	26.0	26.0
Total Split (s)	19.0	47.0		10.0	38.0		15.0	83.0		10.0	78.0	78.0
Total Split (%)	12.7%	31.3%		6.7%	25.3%		10.0%	55.3%		6.7%	52.0%	52.0%
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.5		3.0	4.5	4.5
All-Red Time (s)	0.5	1.5		0.5	1.5		0.5	1.5		0.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	C-Min
Act Effect Green (s)	52.1	39.6		39.6	30.6		90.9	78.2		81.2	72.0	72.0
Actuated g/C Ratio	0.35	0.26		0.26	0.20		0.61	0.52		0.54	0.48	0.48

# Lanes, Volumes, Timings

## 1: Weber Road & Division Street

07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.94	0.75		0.66	0.89		0.98	0.66		0.47	0.75	0.31
Control Delay	85.0	57.2		54.7	81.5		79.1	23.7		19.9	33.0	11.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	85.0	57.2		54.7	81.5		79.1	23.7		19.9	33.0	11.0
LOS	F	E		D	F		E	C		B	C	B
Approach Delay		68.2			73.0			32.2			28.9	
Approach LOS		E			E			C			C	
Queue Length 50th (ft)	159	271		104	298		~150	455		41	405	57
Queue Length 95th (ft)	#306	391		162	#464		#317	540		68	478	117
Internal Link Dist (ft)		2473			2047			2850			1212	
Turn Bay Length (ft)	150			220			120			155		175
Base Capacity (vph)	231	460		229	383		224	1822		215	1704	773
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.94	0.72		0.66	0.85		0.98	0.66		0.47	0.75	0.31

### Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 40.6

Intersection LOS: D

Intersection Capacity Utilization 88.9%

ICU Level of Service E

Analysis Period (min) 15


~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.













### Splits and Phases: 1: Weber Road & Division Street

				
Ø1	Ø2 (R)		Ø3	Ø4
10 s	83 s		10 s	47 s
				
Ø5	Ø6 (R)		Ø7	Ø8
15 s	78 s		19 s	38 s

## Lanes, Volumes, Timings

### 2: Weber Road & Patrick Drive

07/27/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	35	90	1258	70	40	1461
Future Volume (vph)	35	90	1258	70	40	1461
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	210		180	275	
Storage Lanes	1	1		1	2	
Taper Length (ft)	25				200	
Lane Util. Factor	1.00	1.00	0.95	1.00	0.97	0.95
Ped Bike Factor						
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1568	3471	1568	3242	3374
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1752	1568	3471	1568	3242	3374
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		63		55		
Link Speed (mph)	30		30			30
Link Distance (ft)	812		4281			2930
Travel Time (s)	18.5		97.3			66.6
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	4%	3%	8%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	37	95	1324	74	42	1538
Turn Type	Prot	pm+ov	NA	Perm	Prot	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	3.0	15.0	15.0	3.0	15.0
Minimum Split (s)	14.0	7.5	21.0	21.0	7.5	21.0
Total Split (s)	36.0	15.0	99.0	99.0	15.0	114.0
Total Split (%)	24.0%	10.0%	66.0%	66.0%	10.0%	76.0%
Yellow Time (s)	4.5	3.5	4.5	4.5	3.5	4.5
All-Red Time (s)	1.5	1.0	1.5	1.5	1.0	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.5	6.0	6.0	4.5	6.0
Lead/Lag		Lead	Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Recall Mode	None	None	C-Min	C-Min	None	C-Min
Act Effect Green (s)	9.9	20.4	119.1	119.1	7.4	132.1
Actuated g/C Ratio	0.07	0.14	0.79	0.79	0.05	0.88

## Lanes, Volumes, Timings

### 2: Weber Road & Patrick Drive

07/27/2022

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
v/c Ratio	0.32	0.36	0.48	0.06	0.27	0.52
Control Delay	73.7	25.1	6.6	1.8	94.2	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.7	25.1	6.6	1.8	94.2	1.3
LOS	E	C	A	A	F	A
Approach Delay	38.7		6.3			3.8
Approach LOS	D		A			A
Queue Length 50th (ft)	35	28	214	4	21	15
Queue Length 95th (ft)	73	81	296	17	m28	m19
Internal Link Dist (ft)	732		4201			2850
Turn Bay Length (ft)		210		180	275	
Base Capacity (vph)	350	299	2755	1256	226	2972
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.32	0.48	0.06	0.19	0.52

#### Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 99 (66%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 6.4

Intersection LOS: A

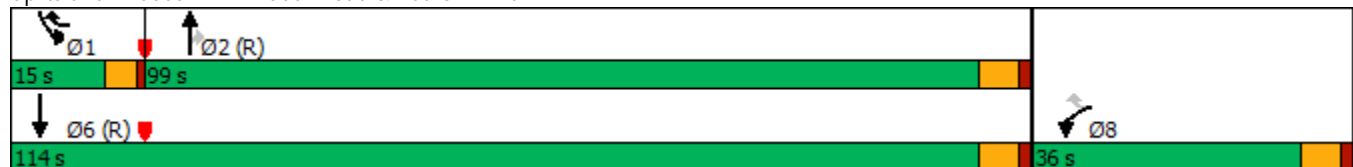
Intersection Capacity Utilization 57.1%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.





















Splits and Phases: 2: Weber Road & Patrick Drive



# Lanes, Volumes, Timings

## 3: Gaylord Road & Division Street

07/27/2022













												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	373	55	93	428	49	77	181	82	27	154	143
Future Volume (vph)	137	373	55	93	428	49	77	181	82	27	154	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	215		0	215		0	120		0	200		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	215			215			155			180		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.981			0.984			0.953			0.928	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1609	0	1656	1738	0	1703	1736	0	1433	1754	0
Flt Permitted	0.321			0.395			0.280			0.480		
Satd. Flow (perm)	610	1609	0	689	1738	0	502	1736	0	724	1754	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			9			20			41	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		2085			739			2627			2703	
Travel Time (s)		40.6			14.4			59.7			61.4	
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 (%)	0%	16%	15%	9%	8%	4%	6%	4%	5%	26%	1%	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)	144	451	0	98	503	0	81	277	0	28	313	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	5.0		2.5	5.0	
Minimum Split (s)	6.5	21.0		6.5	21.0		6.5	11.0		6.5	11.0	
Total Split (s)	15.0	48.0		15.0	48.0		12.0	15.0		12.0	15.0	
Total Split (%)	16.7%	53.3%		16.7%	53.3%		13.3%	16.7%		13.3%	16.7%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	None		None	None	
Act Effect Green (s)	43.3	34.2		41.7	33.4		19.9	14.3		17.7	9.8	
Actuated g/C Ratio	0.59	0.46		0.57	0.45		0.27	0.19		0.24	0.13	



# Lanes, Volumes, Timings

## 3: Gaylord Road & Division Street

07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.29	0.60		0.20	0.64		0.31	0.78		0.12	1.16	
Control Delay	7.6	19.3		7.0	20.7		26.9	51.1		24.8	138.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.6	19.3		7.0	20.7		26.9	51.1		24.8	138.5	
LOS	A	B		A	C		C	D		C	F	
Approach Delay		16.5			18.5			45.6			129.2	
Approach LOS		B			B			D			F	
Queue Length 50th (ft)	27	160		18	187		30	112		10	~189	
Queue Length 95th (ft)	48	262		35	300		72	#359		33	#385	
Internal Link Dist (ft)		2005			659			2547			2623	
Turn Bay Length (ft)	215			215			120			200		
Base Capacity (vph)	575	999		580	1068		287	354		273	269	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.25	0.45		0.17	0.47		0.28	0.78		0.10	1.16	

### Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 73.6

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.16

Intersection Signal Delay: 42.9

Intersection LOS: D

Intersection Capacity Utilization 70.9%

ICU Level of Service C

Analysis Period (min) 15



~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.





















Splits and Phases: 3: Gaylord Road & Division Street

 Ø1	 Ø2	 Ø3	 Ø4
15 s	48 s	12 s	15 s
 Ø5	 Ø6	 Ø7	 Ø8
15 s	48 s	12 s	15 s

# Lanes, Volumes, Timings

## 3: Gaylord Road & Division Street













07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	373	55	93	428	49	77	181	82	27	154	143
Future Volume (vph)	137	373	55	93	428	49	77	181	82	27	154	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%			0%			0%			0%		
Storage Length (ft)	215		0	215		0	120		0	200		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	215			215			155			180		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.981			0.984			0.953			0.928		
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1609	0	1656	1738	0	1703	1736	0	1433	1754	0
Flt Permitted	0.265			0.396			0.233			0.497		
Satd. Flow (perm)	504	1609	0	690	1738	0	418	1736	0	749	1754	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			8			21			44	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		2085			739			2627			2703	
Travel Time (s)		40.6			14.4			59.7			61.4	
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 (%)	0%	16%	15%	9%	8%	4%	6%	4%	5%	26%	1%	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)	144	451	0	98	503	0	81	277	0	28	313	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	5.0		2.5	5.0	
Minimum Split (s)	6.5	21.0		6.5	21.0		6.5	11.0		6.5	11.0	
Total Split (s)	15.0	43.0		15.0	43.0		12.0	20.0		12.0	20.0	
Total Split (%)	16.7%	47.8%		16.7%	47.8%		13.3%	22.2%		13.3%	22.2%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	None		None	None	
Act Effect Green (s)	45.2	35.7		42.2	32.0		24.6	18.9		22.3	14.4	
Actuated g/C Ratio	0.57	0.45		0.53	0.40		0.31	0.24		0.28	0.18	

# Lanes, Volumes, Timings

## 3: Gaylord Road & Division Street

07/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.34	0.62		0.21	0.72		0.32	0.65		0.10	0.89	
Control Delay	10.0	23.0		9.0	27.1		24.9	38.1		21.9	59.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	10.0	23.0		9.0	27.1		24.9	38.1		21.9	59.0	
LOS	B	C		A	C		C	D		C	E	
Approach Delay		19.8			24.1			35.1			56.0	
Approach LOS		B			C			D			E	
Queue Length 50th (ft)	32	182		21	213		31	116		11	150	
Queue Length 95th (ft)	57	299		42	342		67	#303		30	#327	
Internal Link Dist (ft)		2005			659			2547			2623	
Turn Bay Length (ft)	215			215			120			200		
Base Capacity (vph)	487	787		540	835		269	427		294	353	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.30	0.57		0.18	0.60		0.30	0.65		0.10	0.89	

### Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 79.8

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 30.6

Intersection LOS: C

Intersection Capacity Utilization 70.9%








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: 3: Gaylord Road & Division Street

 Ø1	 Ø2	 Ø3	 Ø4
15 s	43 s	12 s	20 s
 Ø5	 Ø6	 Ø7	 Ø8
15 s	43 s	12 s	20 s

# Lanes, Volumes, Timings

## 4: Churnovic Lane & Division Street

07/27/2022

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	468	45	67	516	72	34
Future Volume (vph)	468	45	67	516	72	34
Ideal Flow (vphpl)	1900	1900	1900	2000	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	200		190	0
Storage Lanes		0	1		1	1
Taper Length (ft)			220		135	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.988					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1666	0	1271	1942	1433	1282
Flt Permitted			0.337		0.950	
Satd. Flow (perm)	1666	0	451	1942	1433	1282
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	7					36
Link Speed (mph)	35			35	20	
Link Distance (ft)	720			1049	1235	
Travel Time (s)	14.0			20.4	42.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	62%	42%	3%	26%	26%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	540	0	71	543	76	36
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	15.0		3.0	15.0	5.0	5.0
Minimum Split (s)	21.0		6.5	21.0	11.0	11.0
Total Split (s)	47.0		23.0	70.0	20.0	20.0
Total Split (%)	52.2%		25.6%	77.8%	22.2%	22.2%
Yellow Time (s)	4.5		3.5	4.5	4.5	4.5
All-Red Time (s)	1.5		0.0	1.5	1.5	1.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		3.5	6.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None		None	None	None	None
Act Effect Green (s)	37.3		44.3	44.7	14.6	14.6
Actuated g/C Ratio	0.60		0.71	0.72	0.24	0.24

# Lanes, Volumes, Timings

## 4: Churnovic Lane & Division Street

07/27/2022



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
v/c Ratio	0.54		0.17	0.39	0.22	0.11
Control Delay	14.6		4.7	6.6	28.9	11.1
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	14.6		4.7	6.6	28.9	11.1
LOS	B		A	A	C	B
Approach Delay	14.6			6.4	23.2	
Approach LOS	B			A	C	
Queue Length 50th (ft)	161		9	100	29	0
Queue Length 95th (ft)	276		21	160	72	24
Internal Link Dist (ft)	640			969	1155	
Turn Bay Length (ft)			200		190	
Base Capacity (vph)	1099		662	1761	415	397
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.49		0.11	0.31	0.18	0.09

### Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 62

Natural Cycle: 50

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 11.4

Intersection LOS: B

Intersection Capacity Utilization 48.6%

ICU Level of Service A

Analysis Period (min) 15






Splits and Phases: 4: Churnovic Lane & Division Street



# HCM 6th TWSC

## 5: Access Road & Division Street






07/27/2022

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	472	5	30	571	10	25
Future Vol, veh/h	472	5	30	571	10	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	14	40	7	6	30	4
Mvmt Flow	497	5	32	601	11	26
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	502	0	1165	500
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	665	-
Critical Hdwy	-	-	4.17	-	6.7	6.24
Critical Hdwy Stg 1	-	-	-	-	5.7	-
Critical Hdwy Stg 2	-	-	-	-	5.7	-
Follow-up Hdwy	-	-	2.263	-	3.77	3.336
Pot Cap-1 Maneuver	-	-	1037	-	189	567
Stage 1	-	-	-	-	556	-
Stage 2	-	-	-	-	463	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1037	-	183	567
Mov Cap-2 Maneuver	-	-	-	-	183	-
Stage 1	-	-	-	-	556	-
Stage 2	-	-	-	-	449	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.4		16.3	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	354	-	-	1037	-	
HCM Lane V/C Ratio	0.104	-	-	0.03	-	
HCM Control Delay (s)	16.3	-	-	8.6	-	
HCM Lane LOS	C	-	-	A	-	
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-	

# HCM 6th TWSC

## 6: Advantage Avenue & Division Street

07/27/2022

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	456	15	25	576	25	25
Future Vol, veh/h	456	15	25	576	25	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	130	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	14	7	12	7	4	12
Mvmt Flow	480	16	26	606	26	26
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	496	0	1146	488
Stage 1	-	-	-	-	488	-
Stage 2	-	-	-	-	658	-
Critical Hdwy	-	-	4.22	-	6.44	6.32
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.308	-	3.536	3.408
Pot Cap-1 Maneuver	-	-	1018	-	218	560
Stage 1	-	-	-	-	613	-
Stage 2	-	-	-	-	511	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1018	-	212	560
Mov Cap-2 Maneuver	-	-	-	-	346	-
Stage 1	-	-	-	-	613	-
Stage 2	-	-	-	-	498	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.4		14.6	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	428	-	-	1018	-	
HCM Lane V/C Ratio	0.123	-	-	0.026	-	
HCM Control Delay (s)	14.6	-	-	8.6	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-	

HCM 6th TWSC  
7: Enterprise Boulevard & Division Street

07/27/2022

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑		↗
Traffic Vol, veh/h	482	0	0	577	0	53
Future Vol, veh/h	482	0	0	577	0	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	9	0	0	7	0	19
Mvmt Flow	507	0	0	607	0	56
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	507
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.39
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.471
Pot Cap-1 Maneuver	-	0	0	-	0	533
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	533
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		12.5	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1		EBT	WBT		
Capacity (veh/h)	533		-	-		
HCM Lane V/C Ratio	0.105		-	-		
HCM Control Delay (s)	12.5		-	-		
HCM Lane LOS	B		-	-		
HCM 95th %tile Q(veh)	0.3		-	-		