

**DEVELOPMENT OF REGIONAL IMPACT (DRI)
TRAFFIC IMPACT STUDY**

FOR

**MOUNT ZION DISTRIBUTION CENTER
(DRI #3039)
Clayton County, GA**

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EXECUTIVE SUMMARY

This traffic impact study has been conducted by Southeastern Engineering, Inc. (SEI) for a distribution center in Clayton County, GA. The project site is located northeast of Richardson Parkway and southeast of Mount Zion Boulevard. The site will be built on approximately 70 acres of undeveloped land and will consist of two buildings, totaling approximately 887,000 square feet. The proposed development will have two site access points along Richardson Parkway. The project exceeds 500,000 square feet of industrial use; therefore, it qualifies to be analyzed as a Development of Regional Impact (DRI) by Georgia Regional Transportation Authority (GRTA) and Atlanta Regional Commission (ARC).

The purpose of this study is to identify potential traffic impacts of the proposed industrial development on the surrounding roadway network and recommend improvements to reduce those impacts if necessary. The development is expected to generate 1490 daily trips for the proposed distribution center. Due to the truck restrictions in the study area, separate trip distribution and assignments were determined for car and truck traffic generated by the proposed development.

The study intersections of Mount Zion Boulevard at Richardson Parkway and Mount Zion Road at Richardson Parkway currently operate acceptably, LOS B-D, and are expected to operate at the same levels of service in the future without the development. Once the proposed development is constructed, the intersection of Mount Zion Boulevard at Richardson Parkway and the new intersection of Richardson Parkway at Driveway #2 are expected to operate acceptably, while the intersection of Mount Zion Road at Richardson Parkway is not expected to operate within an acceptable range during the PM peak hour.

Based on the findings of the analyses, the study intersection of Mount Zion Road at Richardson Parkway is expected to fail in build conditions. Driveway #1, which aligns with Mount Zion Road, will experience the highest delay. This delay is based on vehicles attempting to turn left out of the proposed Driveway #1.

To reduce the impact of the development on the intersection at Richardson Parkway and Mount Zion Road. It is recommended the proposed Driveway #1 be relocated 200 feet to the north. By relocating Driveway #1, all the study intersections are expected to operate acceptably, LOS B-C.

INTRODUCTION

This traffic impact study has been conducted by Southeastern Engineering, Inc. (SEI) for a distribution center in Clayton County, GA. The project site is located northeast of Richardson Parkway and southeast of Mt Zion Boulevard. The site will be built on approximately 70 acres of undeveloped land and will consist of two buildings, totaling approximately 887,000 square feet. The proposed development will have two site access points along Richardson Parkway. The project exceeds 500,000 square feet of industrial use; therefore, it qualifies to be analyzed as a Development of Regional Impact (DRI) by Georgia Regional Transportation Authority (GRTA) and Atlanta Regional Commission (ARC). An overall location map near the proposed development is as shown in **Figure1**.

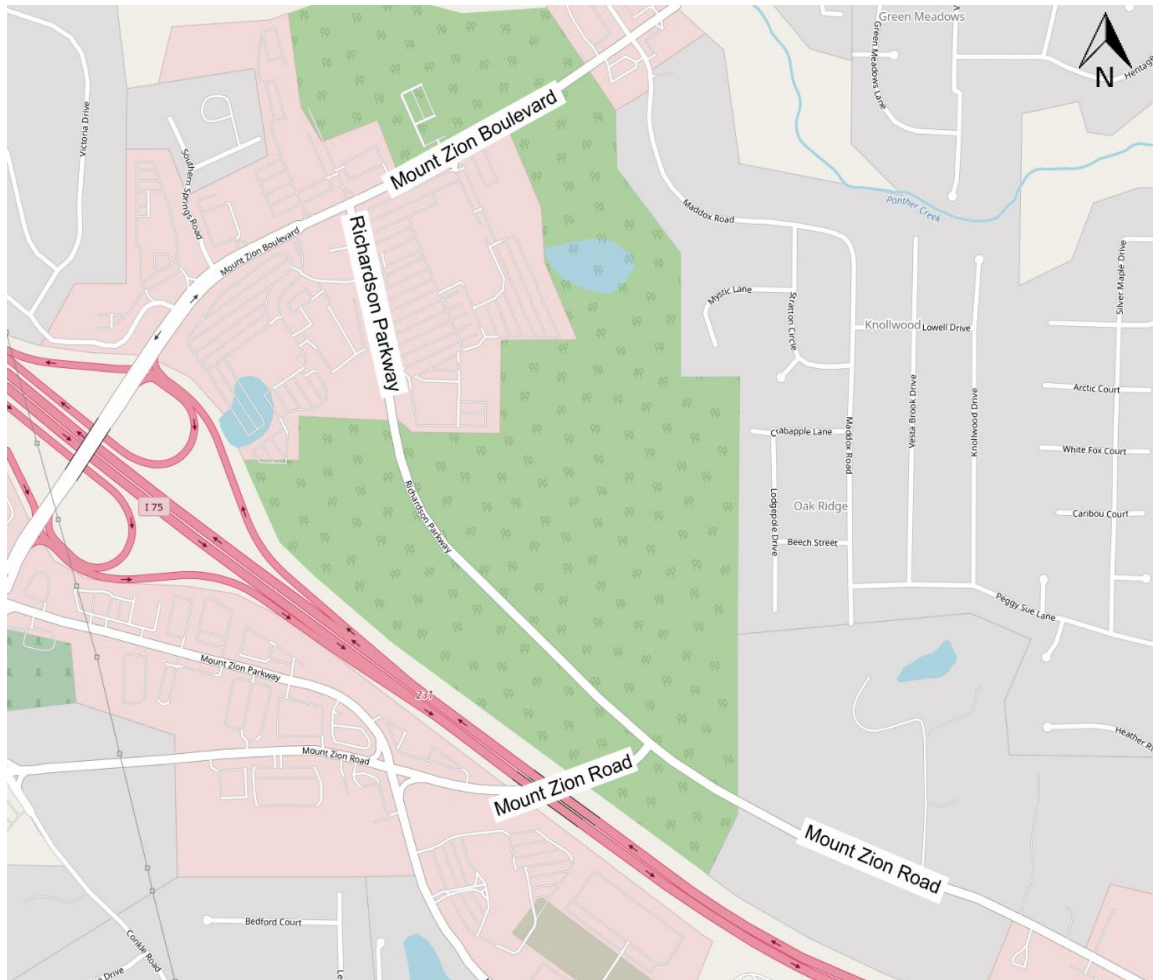


Figure 1 Location Map

The purpose of this study is to identify potential traffic impacts of the proposed industrial development on the surrounding roadway network and recommend improvements to reduce those impacts if necessary. The study includes the existing and future peak hour traffic operations and capacity analysis at study intersections as well as any proposed site access. Operational improvements will be analyzed to mitigate the traffic impact caused by the proposed development if needed. Based on the results of the capacity analysis for the study intersections and site access, recommendations will be made for the required geometry and traffic control.

PROJECT DESCRIPTION

The industrial development is proposed to be constructed on approximately 70 acres of land. The distribution center will consist of two buildings, totaling approximately 887,000 square feet. The site layout plan is included in **Appendix B**.

Study Network

The nearby roadway network was evaluated to determine the intersections most likely to be impacted by the proposed industrial development. Nearby Georgia Department of Transportation (GDOT) counts were utilized to determine the impacted roadways and project traffic distribution. The site-generated traffic was assigned to the study intersections according to the expected trip distribution and typical traffic patterns of the proposed land use and location on the roadway network. The study network was determined by utilizing GRTA's 7% rule. The study network consists of two existing intersections, one at Mount Zion Boulevard and Richardson Parkway and at Mount Zion Road and Richardson Parkway. The development is proposed to have two site access points, both along Richardson Parkway. The southernmost access point aligns with Mount Zion Road at the existing T-intersection of Richardson Parkway at Mount Zion Road. The other access point will create a new T-intersection with Richardson Parkway and is located approximately 0.3 miles to the northwest of the southernmost access point. The study network is bound by Mount Zion Boulevard in the north and Mount Zion Road in the south, both of which intersect Richardson Parkway. The transportation facilities within the study area are described below. An aerial of the study area can be seen in **Figure 2**.

Based on the February 8, 2020, DRI Letter of Understanding (attached in **Appendix A**), the following study intersections were included in the study network:

- Mount Zion Boulevard at Richardson Parkway
- Mount Zion Road at Richardson Parkway

Roadway Conditions

The roadway network adjacent to the proposed development in the study area was examined to evaluate the existing roadway conditions. The existing roadway network in the vicinity of the proposed distribution center is described below.

Mount Zion Boulevard

Mount Zion Boulevard alternates between a two-lane facility and a four-lane facility near Richardson Parkway. It is functionally classified as an urban minor arterial with a posted speed limit of 40 miles per hour. Sidewalks, as well as curb and gutter, can be found throughout its length, but it is not a consistent characteristic for the roadway. Mount Zion Boulevard connects to Southlake Parkway in the southwest and Rex Road in the northeast. Access ramps to I-75 are available from Mount Zion Parkway.

Richardson Parkway

Richardson Parkway is a three-lane facility, including a two-way left-turn lane, that is functionally classified as a minor arterial. It connects to Mount Zion Boulevard in the northwest and Mount Zion Road in the southeast, where the road name changes to Mount Zion Road. Richardson Parkway has a posted speed limit of 40 miles per hour and has truck restriction signs posted at its intersection with Mount Zion Boulevard. Curb and gutter are present throughout its length, but sidewalks are only available near its intersection with Mount Zion Boulevard, along its frontage with Allan Virgil Ford car dealership on the SE corner of the intersection.

Mount Zion Road

Mount Zion Road is a two-lane undivided roadway classified as a minor arterial with a posted speed limit of 40 miles per hour. It connects to Mount Zion Parkway in the west and Richardson Parkway in the east. After its intersection with Richardson Parkway, Mount Zion Road continues east until it meets Lake Spivey Parkway. There are truck restriction signs on Mount Zion Road at its intersection with Mount Zion Parkway and at its intersection with Fielder Road.



Figure 2 Study Area

Project Phasing Schedule

The project is expected to be completed in a single phase by the year 2022.

Vehicle Site Access

The proposed industrial development will have two access points along Richardson Parkway. The southernmost access point (Driveway #1) will align with Mount Zion Road at the existing intersection of Mount Zion Road at Richardson Parkway. The other access point (Driveway #2) is located approximately 0.3 miles to the northwest of Driveway #1 and will create a new T-intersection with Richardson Parkway.

Bicycle and Pedestrian Access

Roadways in the study network are not a part of any Georgia's State Bicycle Route and no designated bicycle facilities exist within the study area.

There are no sidewalks along Richardson Parkway near the proposed development. Sidewalks can be found on Richardson Parkway along its frontage with Allan Virgil Ford.

Transit Access and Facilities Description

Publicly funded transit operates under the Metropolitan Atlanta Rapid Transit Authority (MARTA) Bus system. MARTA bus route 194 (Conley Road/Mt Zion) serves the study area and has 60 minutes of headway between buses. The closest bus stop is to the north of the existing study intersection of Richardson Parkway at Mount Zion Road. A MARTA bus time table is included in **Table 1**.

Table 1: MARTA Bus Timetable - Line 194			
MARTA Bus Line	Travel Direction	Weekday Service Hours	
		Start	End
MARTA Bus Line 194 (Northbound)	Southlake Mall	05:10 AM	11:10 PM
	Lakewood Station	06:20 AM	12:20 AM
MARTA Bus Line 194 (Southbound)	Lakewood Station	05:45 AM	11:45 PM
	Southlake Mall	06:57 AM	12:57 AM

EXISTING TRAFFIC CONDITIONS

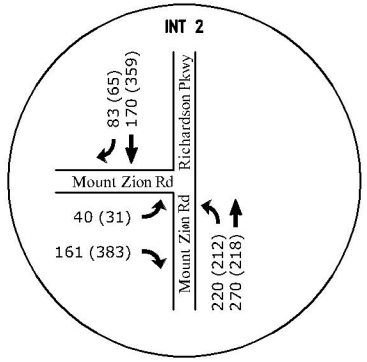
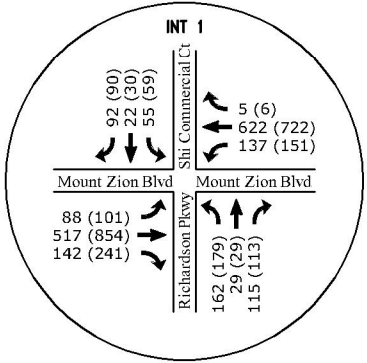
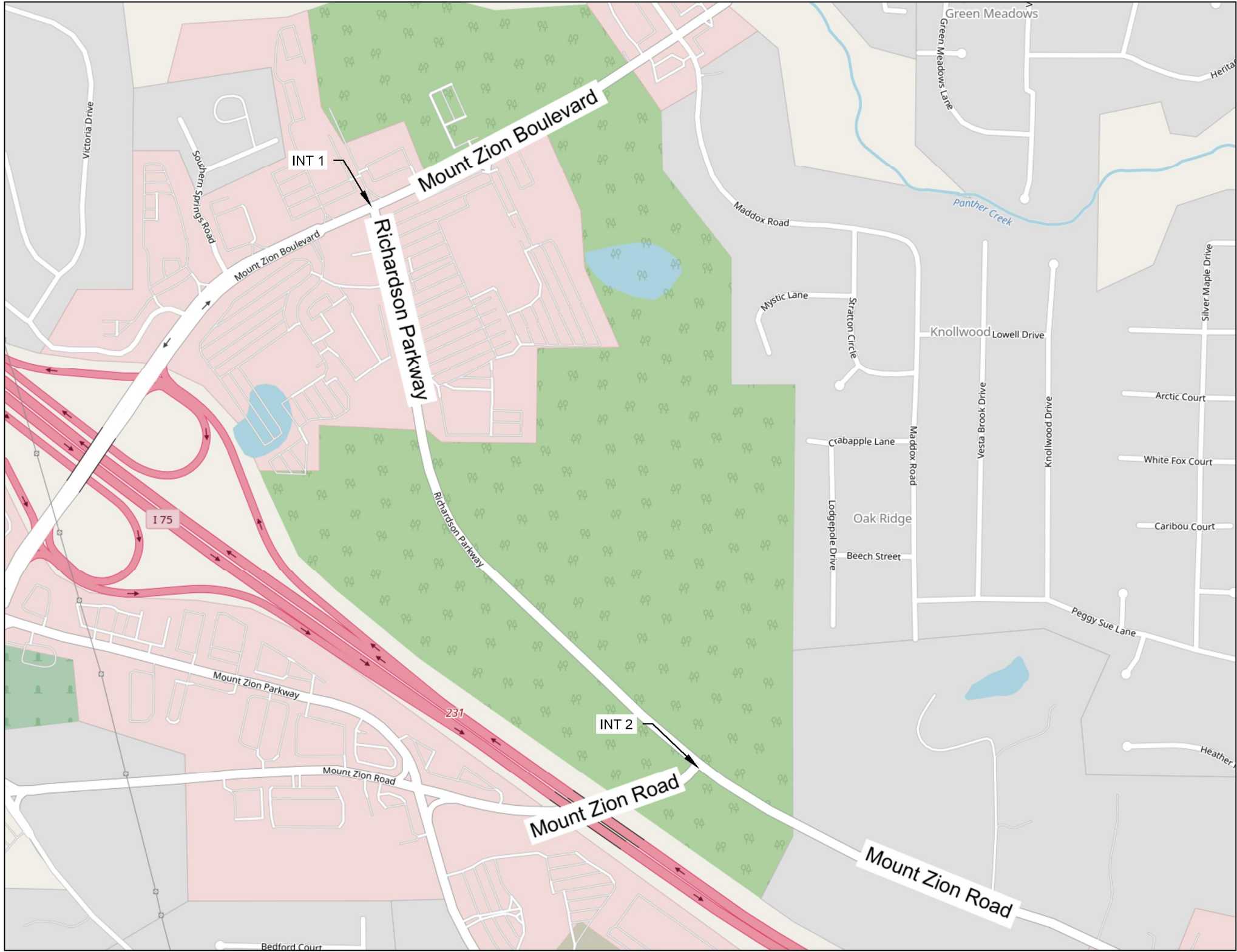
The traffic impact study analyzes the current traffic operations in the study network. Capacity analysis and level of service evaluations of the study intersections were conducted for the existing and future conditions with and without the proposed development.

Traffic Data Collection

Existing traffic volumes at the study intersection were collected on March 3, 2020, while school was session. The average traffic on Richardson Parkway was approximately 7,700 vehicles per day. The study analyzes weekday morning and evening peak hour traffic conditions for all the study intersections are shown in **Table 2**.

Table 2: Peak Hour Summary		
Intersection	AM Peak Hour	PM Peak Hour
Mount Zion Boulevard at Richardson Parkway	7:30 AM - 8:30 AM	5:00 PM - 6:00PM
Mount Zion Road at Richardson Parkway	7:30 AM - 8:30 AM	5:00 PM - 6:00PM

The collected traffic counts were also used to verify the expected traffic distribution, as well as existing and future conditions within the study area. The AM and PM peak hour traffic volumes for the study intersections are illustrated in **Figure 3** and attached in **Appendix C**.



Legend: AM (PM)

REVISION DATES			DATE:	SHEET NO.
NO.	DESCRIPTION	DATE		

PROPERTY AND EX. R/W LINE	==	STORM LINE	==
REQUIRED R/W LINE	==	TELEPHONE LINE	==
CONSTRUCTION LIMITS	==	OH POWER LINE	==
PERMANENT EASEMENT FOR MAINTENANCE	==	UG POWER LINE	==
TEMPORARY EASEMENT FOR CONSTRUCTION	==	WATER LINE	==
EASEMENT FOR CONSTRUCTION OF DRIVEWAYS	==	FIBER OPTIC LINE	==
PERMANENT DRAINAGE EASEMENT	==	GAS LINE	==
		SANITARY SEWER LINE	==
		LIGHTING CONDUIT	==
		RETAINING WALL	==
		LIMIT OF DISTURBANCE	==

FIGURE 3



EXISTING (2020) PEAK HOUR VOLUMES

Level of Service Methodology

Intersection capacity analyses were performed using the methodology outlined in the Highway Capacity Manual, 6th Edition (HCM). This methodology is the industry standard for the evaluation of intersection capacity and delay. To facilitate the analysis, computer software Synchro was used. This software conforms to the methodology of the HCM.

An analysis of peak hour traffic conditions was performed to determine the level of service (LOS) at the study intersections. LOS for an intersection is based on vehicular delay at the intersection and is a typical measure of effectiveness used to evaluate intersection operations. The HCM provides ranges of delay for each LOS definition, spanning from very minimal delays (LOS A) to high delays (LOS F). LOS F is considered unacceptable for most drivers.

For unsignalized intersections, where a stop sign controls side streets or minor streets, the criterion for evaluating traffic operations is the LOS for the controlled turning movements at the intersection. Methodology from the HCM to determine the delay and LOS for these turning movements is based on the following input data:

- Intersection geometry
- Lane configuration
- Turning movement volumes

For the signalized intersections, Synchro software was used to determine LOS, based on the following input data:

- Intersection geometry
- Lane configuration
- Turning movement volumes
- Existing traffic signal timing

Table 3 below indicates the relationship between delay and LOS for signalized and unsignalized intersections, respectively.

Table 3: Level of Service for Signalized and Unsignalized Intersections		
Level of Service	Control Delay Per Vehicle (sec)	
	Signalized Intersection	Unsignalized Intersection
A	≤10	≤10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	>80	>50

Existing Conditions Level of Service

The level of service for the existing conditions was determined using Synchro 10, which follows the HCM methodology. Left turning vehicles are also expected to experience the highest delay at intersections. The delay and LOS are given for the minor streets only at unsignalized intersections with minor street stop control. The intersection of Mount Zion Boulevard at Richardson Parkway is controlled by a traffic signal. The intersection of Mount Zion Road at Richardson Parkway is minor street stop-controlled, with Mount Zion Road as the minor street. The results for the existing intersection capacity analysis are summarized in **Table 4** and detailed results are included in **Appendix D**.

Table 4: Existing Level of Service		
Intersection	AM-Peak Delay (LOS)	PM-Peak Delay (LOS)
Mount Zion Boulevard at Richardson Parkway	29 (C)	39 (D)
Mount Zion Road at Richardson Parkway	12 (B)	22 (C)

The study intersections are operating at an acceptable level of service, LOS B-D, in the existing conditions.

FUTURE CONDITIONS - WITHOUT THE PROPOSED DEVELOPMENT (NO - BUILD)

In order to assess the impact of the proposed industrial development on the study intersections in the study area, traffic operations were analyzed and evaluated in the future year 2022 without the proposed development (No Build) to compare with the future conditions with the proposed development (Build).

Growth Rate Determination

The project growth rate was calculated using annual volume statistics from GDOT's Traffic Analysis & Data Application, ARC's Travel Demand Model, Clayton County's census data, and employment data. Historical data from nearby GDOT count stations was analyzed using all available data over a 10-year period, ranging from 2009-2018. A weighted average was calculated based on the 5-year and 10-year growth rates. The weighted growth rate is shown in **Table 5**.

Table 5: Growth Rate Based on Historical Data			
Station ID	Location	5-Year Growth Rate	10-Year Growth Rate
063-0252	Mount Zion Rd SW/O Richardson Pkwy	2.2%	-0.5%
063-0254	Mount Zion Rd W/O Pine Brook Rd	4.7%	1.8%
063-0261	Fielder Rd SW/O Kensington Way	3.6%	3.0%
063-0270	Mount Zion Blvd NE/O Richardson Pkwy	-0.2%	0.4%
063-1265	Mount Zion Rd W/O Mount Zion Blvd	2.5%	1.6%
063-0271	Mount Zion Blvd SW/O I-75	-0.5%	1.9%
063-r045	I-75 N on-ramp from Mount Zion Blvd (WB)	4.9%	3.1%
063-r002	I-75 N on-ramp from Mount Zion Blvd (EB)	3.8%	1.1%
063-r001	I-75 N off-ramp to Mount Zion Blvd	-0.1%	0.6%
063-r602	I-75 S on-ramp from Mount Zion Blvd	2.6%	0.8%
063-r601	I-75 S off-ramp to Mount Zion Blvd (EB)	4.0%	-9.1%
063-r046	I-75 S off-ramp to Mount Zion Blvd (WB)	2.5%	-2.4%
5-Year and 10-Year Average		2.5%	0.2%
Average Growth Rate		1.6%	

Another growth rate was determined using the county census data from the United States Census Bureau, as shown in **Table 6**.

Table 6: Annual Estimates of the Resident Population		
Geographic Area	5-Year Growth Rate	10-Year Growth Rate
Clayton County	2.1%	1.4%
Average Growth Rate	1.8%	

A weighted average growth rate was calculated using the Atlanta Regional Commission's Travel Demand Model. The ARC's TDM included traffic projections for 2020, 2030, and 2040. **Table 7** presents growth rates per location used to calculate an overall TDM growth rate.

Table 7: ARC Travel Demand Model Growth Rate			
Location	10 Year	10 Year	20 Year
	2020 – 2030	2030 – 2040	2020 – 2040
Richardson Pkwy S/O Mount Zion Blvd	-0.2%	1.2%	0.5%
Shi Commercial Ct N/O Mount Zion Blvd	0.3%	0.6%	0.4%
Mount Zion Blvd E/O Richardson Pkwy	0.3%	1.4%	0.8%
Mount Zion Blvd W/O Richardson Pkwy	-0.2%	1.3%	0.5%
Mount Zion Rd SW/O Richardson Pkwy	-0.4%	1.9%	0.7%
Mount Zion Rd W/O Richardson Pkwy	-0.3%	1.7%	0.7%
Mount Zion Rd W/O Fielder Rd	-0.4%	1.9%	0.7%
Mount Zion Rd E/O Fielder Rd	0.0%	1.2%	0.6%
Fielder Rd N/O Mount Zion Rd	2.1%	1.6%	1.7%
Fielder Rd S/O Mount Zion Rd	2.4%	1.3%	1.7%
I-75N entrance Ramp	-0.5%	0.1%	-0.2%
I-75N exit Ramp	-0.6%	-1.3%	-0.9%
I-75S entrance Ramp	-1.1%	-0.8%	-0.9%
I-75S exit Ramp	-0.2%	0.1%	-0.1%
Mount Zion Pkwy E/O Mount Zion Blvd	-1.0%	1.4%	0.2%
Mount Zion Blvd N/O Mount Zion Pkwy	-0.3%	0.6%	0.1%
Mount Zion Blvd S/O Mount Zion Pkwy	-0.3%	0.3%	0.0%
Mount Zion Blvd S/O Mount Zion Rd	-0.5%	1.0%	0.2%
Mount Zion Rd W/O Mount Zion Blvd	0.9%	-1.1%	-0.1%
Mount Zion Rd E/O Mount Zion Blvd	0.3%	0.3%	0.3%
Average	0.0%	0.7%	0.4%
Weighted Average	0.4%		

Lastly, an employment growth rate was developed. The employment growth rate for Clayton County can be seen below in **Table 8**. Employment Projections were obtained from the Atlanta Regional Commission (ARC).

Table 8: Employment Growth Rate			
County	Years		
	2010	2020	2040
Clayton	113,850	129,903	158,045
Employment Growth Rate	1.3%		1.0%
Average Growth Rate	1.2%		

Given the four different methods of growth rates compared, an overall growth rate of 1.25% was applied to grow the background traffic not generated by the proposed development. To increase the traffic from existing (2020) to future (2022) conditions, as documented on February 8, 2020, DRI Letter of Understanding.

Previously Planned Project

The following currently planned project is located near the study area:

- GDOT PI 751770, Battle Creek / Mt Zion Blvd from Southlake Pkwy to Somerton Dr (Construction Work Program)

The widening project of Mount Zion Boulevard from Battle Creek Road to Somerton Drive will widen the existing two and four-lane facility to a four-lane facility with a median. The intersection of Battle Creek Road at Mount Zion Boulevard will be realigned to provide an east-west through movement from eastbound Battle Creek Road to eastbound Mount Zion Boulevard.

The intersection of Mount Zion Boulevard and Richardson Parkway will be impacted, as its future conditions will differ from its existing conditions. The future no-build and build conditions include the widening project for traffic analysis.

Future No Build Traffic Volumes

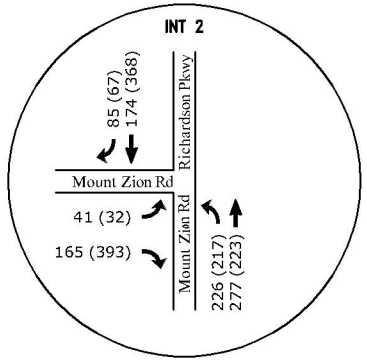
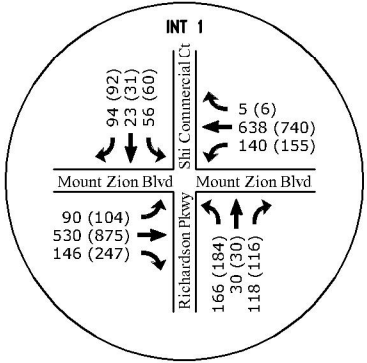
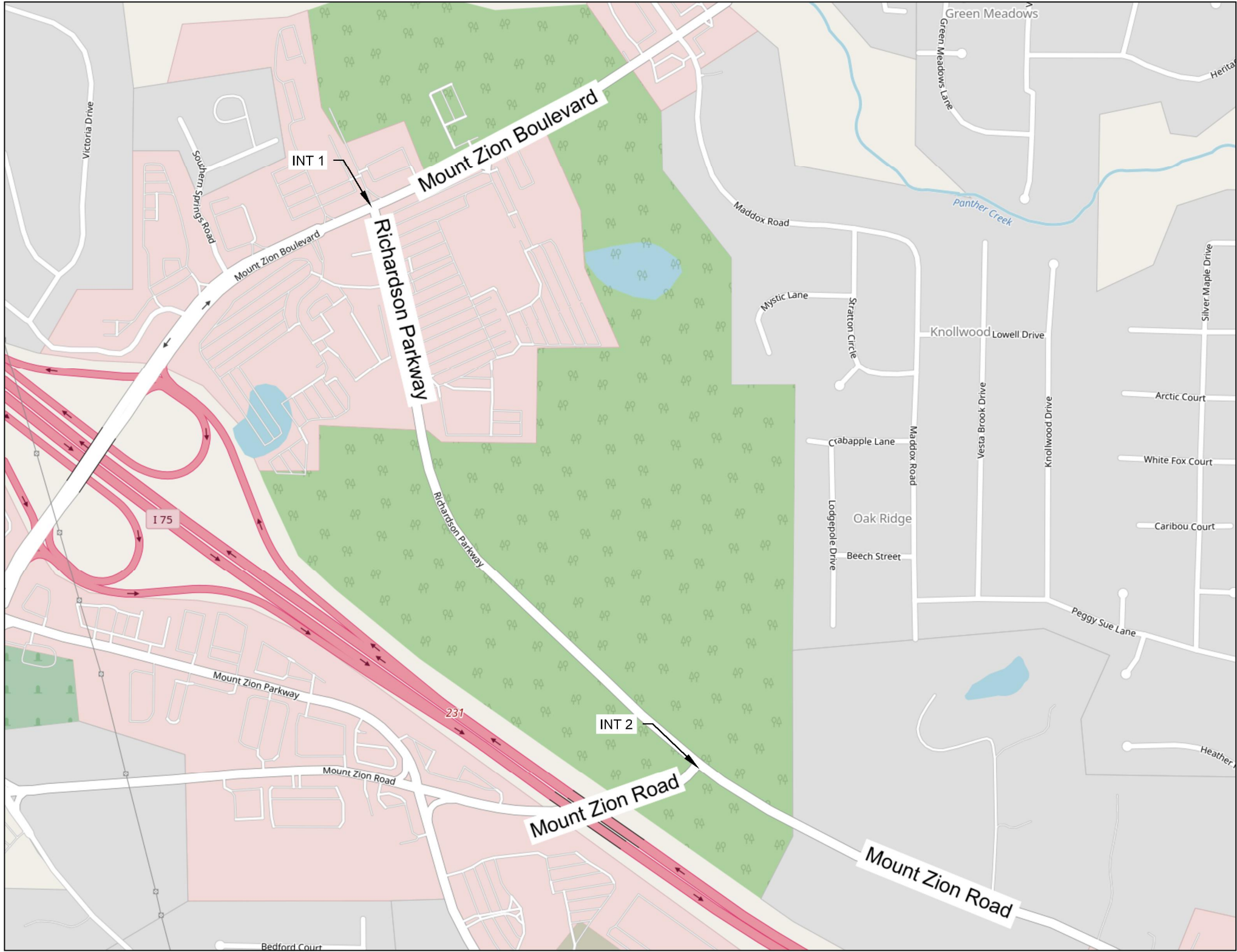
The future 2022 background traffic volumes were calculated by applying the annual exponential growth rate over two years to the existing background traffic volumes. Future background traffic volume is shown in **Figure 4**.

Future No Build Level of Service

The same methodology discussed previously was used to determine the level of service for the study intersections using the future 2022 background traffic volumes to determine short term operations at the study intersections. The intersection capacity analysis results for the future no-build year are summarized in **Table 9** and are included in **Appendix D**.

Table 9: Future No-Build Level of Service		
Intersection	AM-Peak Delay (LOS)	PM-Peak Delay (LOS)
Mount Zion Boulevard at Richardson Parkway	22 (C)	25 (C)
Mount Zion Road at Richardson Parkway	12 (B)	24 (C)

The study intersections are expected to operate at an acceptable level of service in the future with the widening of Mount Zion Boulevard. There is a significant improvement in delay at the study intersection of Mount Zion Boulevard at Richardson Parkway after the widening of Mount Zion Boulevard.



Legend: AM (PM)

PROPERTY AND EX. R/W LINE	---
REQUIRED R/W LINE	---
CONSTRUCTION LIMITS	---
PERMANENT EASEMENT FOR MAINTENANCE	---
TEMPORARY EASEMENT FOR CONSTRUCTION	---
EASEMENT FOR CONSTRUCTION OF DRIVEWAYS	---
PERMANENT DRAINAGE EASEMENT	---
STORM LINE	---
TELEPHONE LINE	---
OH POWER LINE	---
UG POWER LINE	---
WATER LINE	---
FIBER OPTIC LINE	---
GAS LINE	---
SANITARY SEWER LINE	---
LIGHTING CONDUIT	---
RETAINING WALL	---
LIMIT OF DISTURBANCE	---

FIGURE 4



NO BUILD (2022) PEAK
HOUR VOLUMES

REVISION DATES

DATE:

RICHARDSON PARKWAY TRACT

SHEET NO.

FUTURE BUILD CONDITIONS - WITH THE PROPOSED DEVELOPMENT

The future 2022 background traffic and trips generated from the proposed development were combined to analyze the traffic impact of the proposed development on the study network.

Trip Generation

The expected number of gross trips associated with this development was determined using trip generation software. The process estimates trips generated by the proposed land use under the Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition, 2012. The proposed distribution center will have no internal capture trips and pass-by trips.

The proposed distribution center is expected to have a certain percent of truck trips. The split of passenger vehicle traffic and truck traffic was based on the report *High-Cube Warehouse Vehicle Trip Generation Analysis*, prepared by ITE. The report suggests 70% of trips generated from the distribution center will be passenger vehicle traffic and the remaining 30% as truck traffic. Trip generation for the proposed distribution is summarized in **Table 10**.

Table 10: Proposed Site Trip Generation										
Land Use	Units (1000 SF)	Daily Traffic			AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Heavy (Trucks) Vehicles Trips										
Distribution Center	887	224	223	447	20	9	29	10	22	32
Passenger Vehicle Trips										
Distribution Center	887	522	521	1043	48	21	69	23	51	74
Total Trips										
Distribution Center	887	745	745	1490	68	30	98	33	73	106

Mode split

Richardson Parkway is served by the MARTA bus route 194 within the vicinity of the proposed development. As the proposed development is a distribution center, transit service is not expected to have a significant impact on the truck portion of the trip generation. Some employees may choose to take transit to work rather than taking their personal vehicles. No additional transit reduction has been proposed, to be conservative about the potential mode split.

Trip Distribution and Assignment

The trips expected to be generated from the proposed distribution center were distributed on the roadway network in the vicinity of the proposed distribution center. The proposed distribution is based on historical counts and observed traffic patterns in the area. Due to the truck restriction on Richardson Parkway and Mount Zion Road, it was assumed that no truck trips would enter or exit the distribution center from the southeast of the intersection of Richardson Parkway and Mount Zion Road. Trip distribution for passenger cars and trucks is shown in **Table 11**. The overall site trip distribution is shown in **Figure 5 and 6**.

Table 11: Site Generated Trip Distribution				
Road	Location	Direction	Passenger Car Distribution	Truck Distribution
Mount Zion Boulevard	North of Richardson Parkway	to/from the east	19%	20%
Mount Zion Boulevard	North of Richardson Parkway	to/from the west	27%	45%
Mount Zion Road	West of Richardson Parkway	to/from the west	32%	35%
Mount Zion Road	South of Richardson Parkway	to/from the south	22%	-



Figure 5 Overall Passenger Car Trip Distribution



Figure 6 Overall Truck Trip Distribution

The above distributions were considered for the proposed development. Trip assignment for the trips generated from the development is shown in **Figure 7**.

Future Build Traffic Volumes

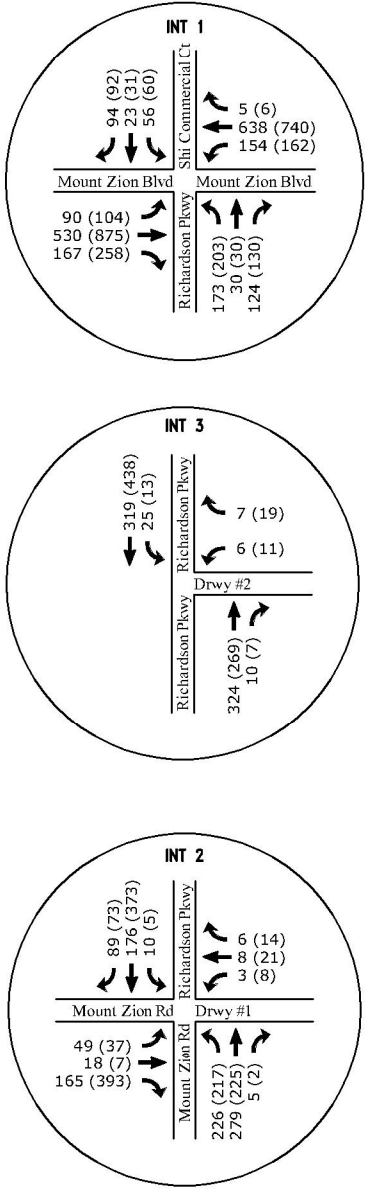
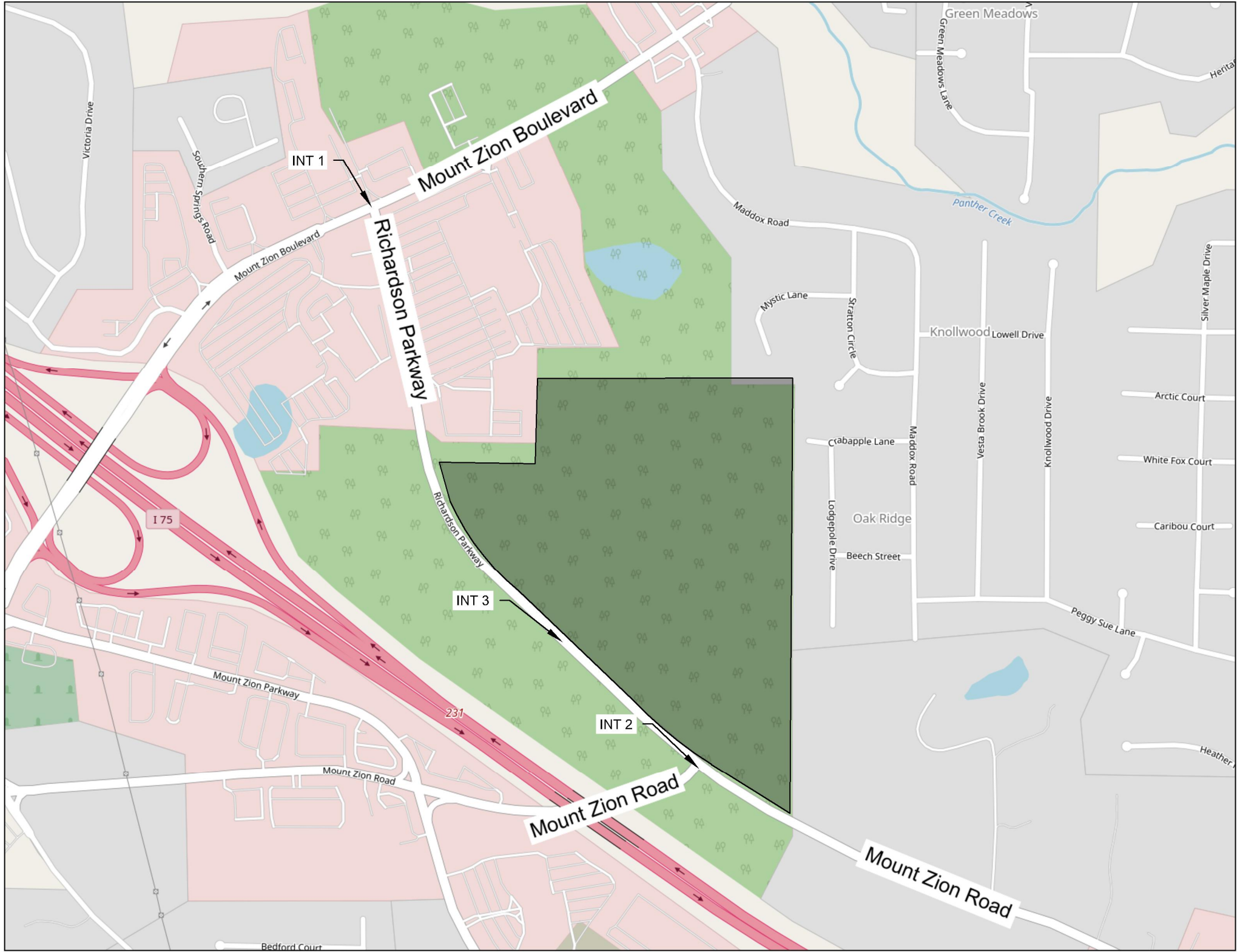
This scenario analysis has been conducted in order to determine the impact of the proposed development. Based on the site trip distribution and proposed site access, the generated peak hour volumes were assigned to the adjacent street network along with the background traffic not related to the proposed development and are presented in **Figure 8**.

Future Build Level of Service

The future 2022 background traffic volumes, along with the site generated volumes, were used to analyze the impacts of the proposed development on the study network. **Table 12** summarizes the results for future build conditions and the detailed results can be found in **Appendix D**.

Table 12: Future Build Level of Service		
Intersection	AM-Peak Delay (LOS)	PM-Peak Delay (LOS)
Mount Zion Boulevard at Richardson Parkway	25 (C)	31 (C)
Mount Zion Road / Driveway #1 at Richardson Parkway	24 (C)	82 (F)
Driveway #2 at Richardson Parkway	12 (B)	11 (B)

The study intersection of Mount Zion Road at Richardson Parkway, where Driveway #1 aligns with Mount Zion Road, is expected to fail during the PM peak hour. The reported delay at this intersection is mostly experienced on Driveway #1. The other minor approach to the intersection is Mount Zion Road, which is expected to operate acceptably with a delay of 28 seconds and LOS D; therefore, the proposed development does not significantly impact the operations of the existing roadway network. Additional efforts are recommended to reduce the delay experienced on Driveway #1.



Legend: AM (PM)

PROPERTY AND EX. R/W LINE		STORM LINE	
REQUIRED R/W LINE		TELEPHONE LINE	
CONSTRUCTION LIMITS		OH POWER LINE	
PERMANENT EASEMENT FOR MAINTENANCE		UG POWER LINE	
TEMPORARY EASEMENT FOR CONSTRUCTION		WATER LINE	
EASEMENT FOR CONSTRUCTION OF DRIVEWAYS		FIBER OPTIC LINE	
PERMANENT DRAINAGE EASEMENT		GAS LINE	
		SANITARY SEWER LINE	
		LIGHTING CONDUIT	
		RETAINING WALL	
		LIMIT OF DISTURBANCE	

FIGURE 8



BUILD (2022) PEAK HOUR VOLUMES

REVISION DATES			DATE:	
			RICHARDSON PARKWAY TRACT	
			SHEET NO.	

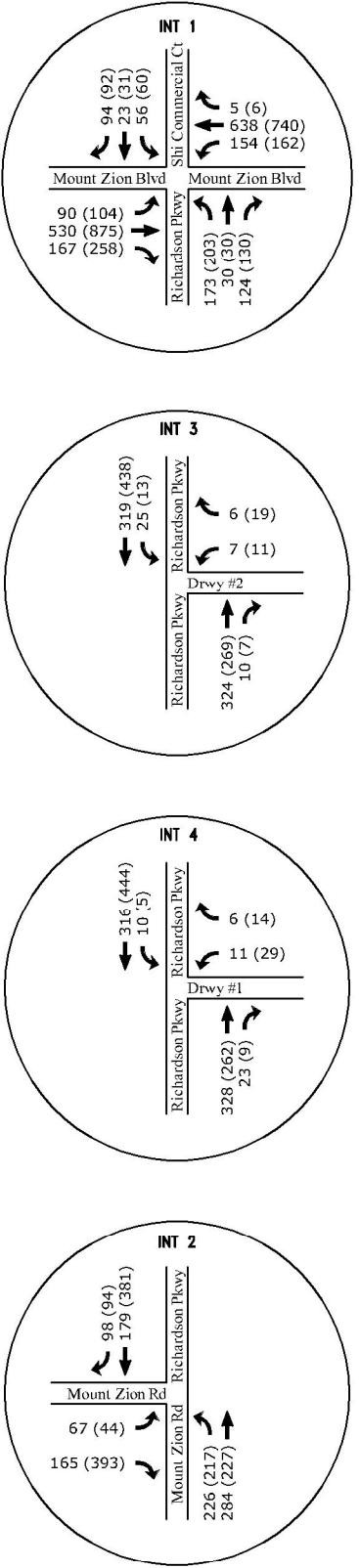
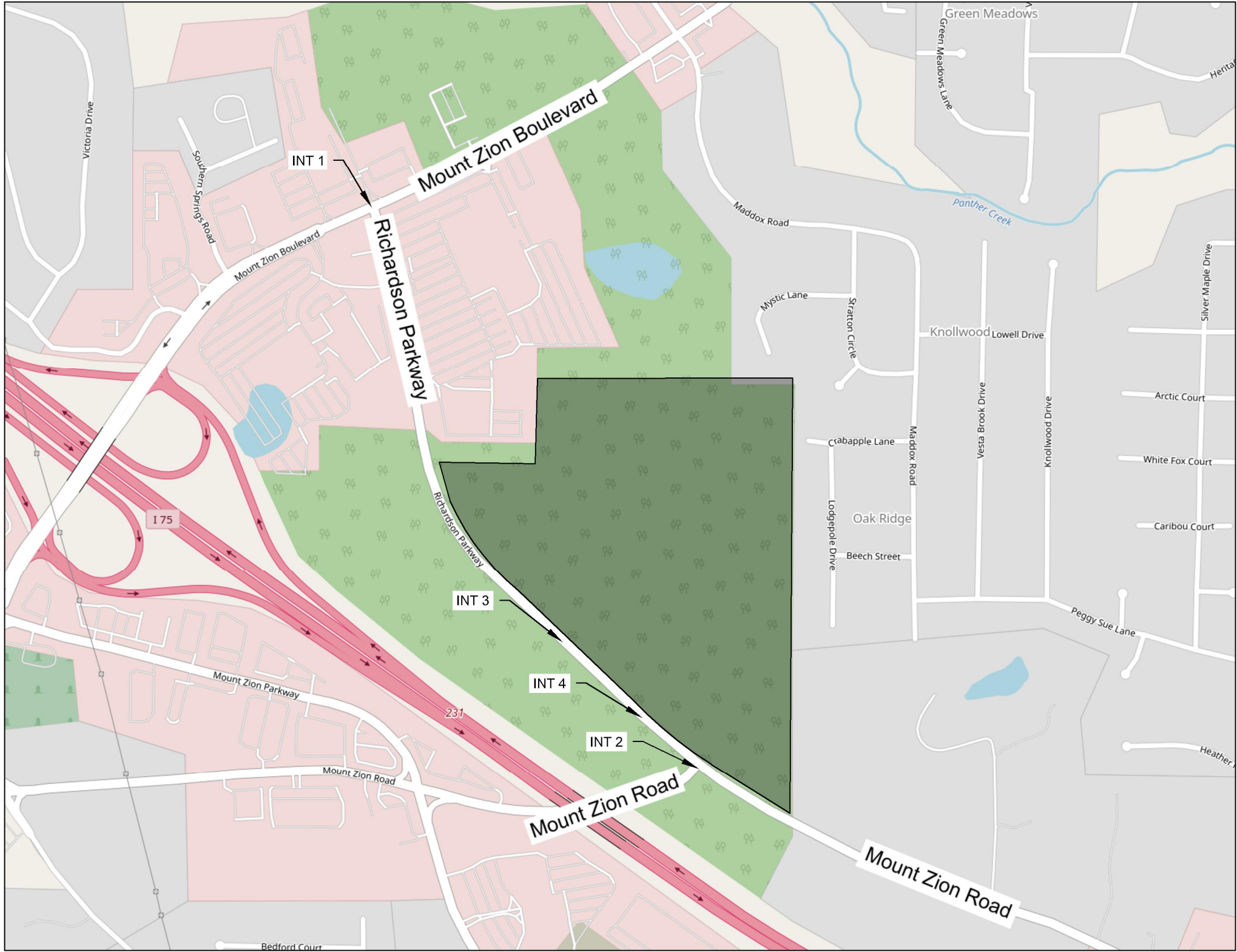
Future Needs Analysis

The study intersection of Mount Zion Road at Richardson Parkway is expected to fail in build conditions. Based on the analysis, it was observed that proposed Driveway #1, which aligns with Mount Zion Road, will experience the highest delay. This delay is based on vehicles attempting to turn left out of the proposed Driveway #1.

To reduce the impact of the development on the intersection at Richardson Parkway and Mount Zion Road. The proposed Driveway #1 can be relocated 200 feet to the north. Delay and LOS levels were calculated after relocating Driveway # 1. **Table 13** summarizes the results of the proposed improvements, and the detailed results are included in **Appendix D**.

Table 13: Future Build (with Improvements) Level of Service		
Intersection	AM-Peak Delay (LOS)	PM-Peak Delay (LOS)
Mount Zion Boulevard at Richardson Parkway	25 (C)	29 (C)
Mount Zion Road at Richardson Parkway	14 (B)	23 (C)
Driveway #1 at Richardson Parkway	12 (B)	12 (B)
Driveway #2 at Richardson Parkway	12 (B)	11 (B)

By relocating Driveway #1, all the study intersections are expected to operate acceptably, LOS B-C. The traffic volumes with the recommended improvements are presented in **Figure 9**.



Legend: AM (PM)

PROPERTY AND EX. R/W LINE		STORM LINE	
REQUIRED R/W LINE		TELEPHONE LINE	
CONSTRUCTION LIMITS		OH POWER LINE	
PERMANENT EASEMENT FOR MAINTENANCE		UG POWER LINE	
TEMPORARY EASEMENT FOR CONSTRUCTION		WATER LINE	
EASEMENT FOR CONSTRUCTION OF DRIVEWAYS		FIBER OPTIC LINE	
PERMANENT DRAINAGE EASEMENT		GAS LINE	
		SANITARY SEWER LINE	
		LIGHTING CONDUIT	
		RETAINING WALL	
		LIMIT OF DISTURBANCE	

FIGURE 9



BUILD (2022) PEAK HOUR
VOLUMES WITH
RECOMMENDATIONS

REVISION DATES			DATE:	RICHARDSON PARKWAY TRACT	SHEET NO.

FINDINGS

The study intersections of Mount Zion Boulevard at Richardson Parkway and Mount Zion Road at Richardson Parkway currently operate acceptably, LOS B-D, and are expected to operate at the same levels of service in the future without the development. Once the proposed development is constructed, the intersection of Mount Zion Boulevard at Richardson Parkway and the new intersection of Richardson Parkway at Driveway #2 are expected to operate acceptably, while the intersection of Mount Zion Road at Richardson Parkway is not expected to operate within an acceptable range during the PM peak hour.

RECOMMENDATIONS

Based on the findings of the analyses, the study intersection of Mount Zion Road at Richardson Parkway is expected to fail in build conditions. Driveway #1, which aligns with Mount Zion Road, will experience the highest delay. This delay is based on vehicles attempting to turn left out of the proposed Driveway #1.

To reduce the impact of the development on the intersection at Richardson Parkway and Mount Zion Road it is recommended that the proposed Driveway #1 be relocated 200 feet to the north. By relocating Driveway #1, all the study intersections are expected to operate acceptably, LOS B-C.

APPENDICES

- **Appendix A**
 - DRI Letter of Understanding
- **Appendix B**
 - Site Plan
- **Appendix C**
 - Traffic Count Summary Sheets
- **Appendix D**
 - Synchro Reports

Appendix A
DRI Letter of Understanding



LETTER OF UNDERSTANDING

February 8, 2020

Scott Martin
Hillwood
3414 Peachtree Rd NE, Suite 960
Atlanta, GA 30326

RE: **DRI #3039 Mt. Zion & Richardson**

Dear Mr. Martin:

The purpose of this letter is to document the discussions during the Pre-Review and Methodology Meeting held at ARC's office on December 9, 2019 regarding **DRI #3039 Mt. Zion & Richardson**. Some of the following items were discussed in this meeting and should assist you and your consultant team in preparing the DRI Review Package.

PROJECT OVERVIEW

- The project is located in the Clayton County east of Richardson Parkway and west of Lodgepole Drive.
- The DRI triggers for this development is a rezoning.
- The project includes two warehouse buildings totaling 887,000 SF.
- The vehicular trip generation is estimated to be 1,490 gross daily trips based on the *ITE Trip Generation Manual 10th edition*.
- The development site proposes two new connections to Richardson Parkway. The southernmost connection is proposed to align with Mt. Zion Road.
- The projected build-out is one phase, to be completed by 2022.
- The applicant is applying for approval under GRTA's expedited review process.

STUDY NETWORK

1. Richardson Parkway at Mt. Zion Boulevard
2. Richardson Parkway at Mt. Zion Road

METHODOLOGY

- All intersections identified as within the study network shall be analyzed during the AM and PM peak hours for (1) existing conditions, (2) future "no-build" conditions [may not be applicable for the site driveways, and (3) future "build" conditions. This DRI shall be reviewed in one phase to be completed by 2022.
- Capacity analysis shall be based on turning movement counts collected not more than 12-months prior to the date of the actual DRI submittal to GRTA. As appropriate, pedestrian counts and heavy vehicle counts shall be collected with vehicle counts and considered within the capacity analysis. Turning movement counts shall be collected while local schools are in session and ordinarily not between the week of Thanksgiving and the second week of January or any week of a major holiday.

- A 1.25% annual background traffic growth rate shall be used for all roadways. The growth rate includes the anticipated traffic for nearby DRIs.
- The Level of Service (LOS) standard for all analyses shall be LOS D.
- No alternate mode trip reduction reductions shall be taken for this development.
- Default values should not be assumed in the traffic modeling. Existing conditions shall be taken into account.
- The applicant shall research TIP, STIP, RTP, and GDOT's construction work program, as well as any local government plans (SPLOST, CIP, etc.), to determine the open-to-traffic date, sponsor, cost of the project, funding source(s), for future roadway projects in the project vicinity. This information shall be included within the traffic analysis. The Mount Zion Boulevard widening project (PI 751770 / CL-019) shall be included in the no-build/background and build scenarios.

ADDITIONAL INFORMATION

Every roadway segment and intersection listed above will be analyzed for "required improvements." If the existing LOS for the segment or intersection is below the applicable level of service for a particular time period (e.g., A.M. peak period, P.M. peak period, etc.), then the measured LOS service for that segment and time periods is the standard by which the "base" and "future" traffic conditions will be designed. For example, if the County's LOS standard is LOS D, but an intersection or segment currently operates at LOS E for a certain peak period, then the LOS standard for that intersection or segment for "base" and "future" conditions becomes LOS E (only for that intersection and only for that peak period). The "base" is the phase year traffic without the development traffic (also called future "no-build" conditions) and the "future" is the phase year with the development traffic (also called future "build" conditions). As required in the technical guidelines, specific "required improvements" will be identified to bring the "base" LOS and "future" LOS for every roadway segment and intersection up to the applicable LOS standard. If the existing LOS for the segment or intersection is LOS F, then the future "no-build" and future "build" LOS standard will be LOS E. The improvements required to achieve the desired LOS standard will be provided in a table and graphic within the study. The traffic study should indicate the existing roadway laneage at each studied intersection as well as the laneage required (to meet the LOS standard) for future "no-build" and future "build" conditions. The improvements may include both programmed improvements and improvements identified in the study.

The planned and programmed improvement should indicate the project sponsor, the anticipated funding by source (federal, state, city/county, developer, CID, etc.), the year open-to-traffic, and estimate of the total project cost. All other required improvements identified in the study should, to the extent known, identify the cost, sponsor, funding, and timing. If any of these elements are not known, please state as "unknown."

The future "no-build" and the future "build" analyses should NOT automatically include/assume the additional lanes/capacity associated with planned and programmed improvement projects unless those roadway projects are currently under construction. Instead, the traffic consultant should recommend the additional laneage required to satisfy the level of service standard.

DRI REVIEW PACKAGE CHECKLIST

Please use the DRI Review Package Checklist to help you prepare your GRTA DRI Review Package for expedited review of your application. The Checklist reflects the understandings set forth in this letter, and is incorporated into this letter by reference.

The site plan shall be prepared in accordance with Section 4-104 of the DRI Review Package Technical Guidelines and it shall be dated, and shall be at a scale of 1"= 200' or larger (showing more detail). The site plan shall be consistent with GRTA's Site Plan Information Guidelines, which represents the minimum required information on site plans.

The applicant shall indicate on the site plans all adjacent land uses, current zoning, and future land use as indicated on the future land use map. Additionally, all existing and proposed sidewalks, existing and proposed pedestrian trails, and existing and proposed roadway laneage should be indicated on the site plan.

DRI REVIEW PACKAGE SUBMITTAL

At the time you are ready to submit your DRI Review Package to GRTA, please note the following:

- Provide one (1) paper copy of all materials:
 - Transportation analysis
 - Site Plan
- Provide one (1) CD-ROM with electronic versions of all submittal documents:
 - Provide a PDF of each document
 - Provide the native format for each document
 - .dwg is the preferred CAD format (AutoCAD)
 - .doc is the preferred word processing format (Word)
 - .xls is the preferred spreadsheet format (Excel)
 - .sy8, .sy9 or .sy10 is the preferred capacity analysis format (Synchro)

As part of the completeness certification process, please have your consultant forward one copy of the completed GRTA DRI Review Package (traffic analysis, site plan, CD) to the GDOT District Office, Regional Commission and local government Planning & Development and Transportation group (contact information provided below). GRTA shall be copied on each of the transmittal letters.

GRTA	ATLANTA REGIONAL COMMISSION	GDOT DISTRICT 7	CLAYTON COUNTY	CLAYTON COUNTY DOT
Andrew Spiliotis 245 Peachtree Center Ave. Suite 2200 Atlanta, GA 30303	Andrew Smith International Tower 229 Peachtree Street NE Suite 100 Atlanta, GA 30303	Paul DeNard 5025 New Peachtree Rd. NE Chamblee, GA 30341	Madolyn Spann P.K. Dixon Building Annex 2 121 South McDonough St. Jonesboro, GA 30236	Lee Kelley 7960 N. McDonough Street, Jonesboro GA 30236

If you have any questions, please feel free to contact me directly at 404-893-6171 or aspiliotis@srta.ga.gov.

Sincerely,
Andrew Spiliotis
Transportation Planner

cc:

Jon West, DCA
Andrew Smith, ARC
Greg Giuffrida, ARC
Annie Gillespie, GRTA
Parker Martin, GRTA
Justin Hatch, GDOT
Megan Wilson, GDOT
Paul DeNard, GDOT

Josh Montefusco, GDOT
Daniel Parker, GDOT
Greg Floyd, MARTA
Scott Martin, Hillwood
Wayne Matthews, SEI
Madolyn Spann, Clayton County
Lee Kelley, Clayton County
Daniel Pino, SEI

Appendix B

Site Plan

SITE DATA

OWNER/DEVELOPER: HILLWOOD
3000 TURTLE CREEK BOULEVARD
DALLAS, TX 75219

ENGINEER/SURVEYOR: SOUTHEASTERN ENGINEERING, INC.
2470 SANDY PLAINS ROAD
MARIETTA, GA 30066
PHONE: 770.321.3936

BOUNDARY: CLAYTON COUNTY GIS
TOPOGRAPHY: CLAYTON COUNTY GIS

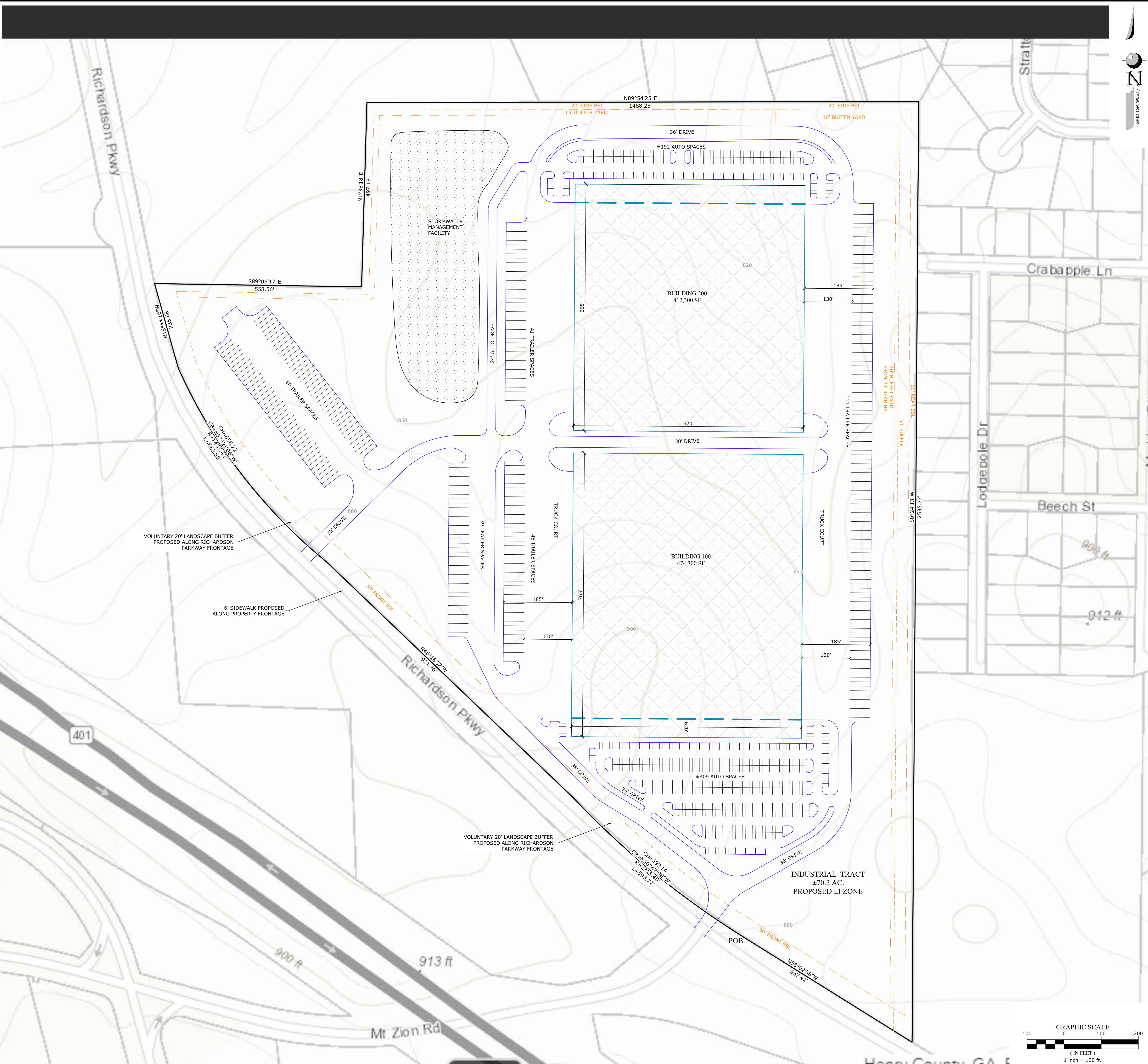
SITE AREA: ±70.2 ACRES

FLOOD INFO: THIS SITE IS NOT LOCATED WITHIN THE 100 YEAR FLOOD ZONE PER FEMA FLOOD PANELS # 13063C0083F, DATED 6-17-17.

EXISTING ZONING: A1 - AGRICULTURAL

PROPOSED ZONING: LI - LIGHT INDUSTRIAL

DEVELOPMENT STANDARDS: MIN. FRONT BUILDING SETBACK: 50'
MIN. SIDE BUILDING SETBACK: 20' MIN.
REAR BUILDING SETBACK: 50'
BUFFER YARDS REQUIRED AGAINST RESIDENTIAL PROPERTIES AND ARE SHOWN IN WIDTHS OF 15' AND 40'
PARKING REQUIREMENTS: 586,600 SF ± 1 SPACE/1700 SF
+ 5 SPACES = 527 SPACES
PARKING PROVIDED = ±601 SPACES



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PROJECT OWNED/DEVELOPED BY:
HILLWOOD
3000 TURTLE CREEK BLVD.
DALLAS, TX 75219
PHONE: (972) 201-2968

24-HOUR CONTACT INFORMATION

CONCEPT SITE PLAN

2464 MT. ZION ROAD TRACT
PROJECT LOCATED AT:
LL 84 AND 85, 12TH DISTRICT
CLAYTON COUNTY, GEORGIA

Project No.: 1009
Designed By: EWM
Issue Date: 10-02-19

1

811
Know what's below.
Call before you dig.

SEI
SOUTHEASTERN ENGINEERING, INC.
2470 Sandy Plains Road Marietta, Georgia 30066
Tel: 770.321.3936
www.seiengineering.com

ISSUED DESCRIPTION
1 SITE PLAN REVISED
2
3
4
5
6
7
8
9

DATE:
10-08-19

1009

Appendix C
Traffic Count Summary Sheets

Day: Tuesday
Date: 3/3/2020

City: Morrow
Project #: GA20_9087_001e

East Bound

Time	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
00:00 AM	0	18	1	0	1	0	0	0	0	0	0	0	0	20
00:15	0	20	1	0	0	0	0	0	0	0	0	0	0	21
00:30	0	15	2	0	0	0	0	0	0	0	0	0	0	17
00:45	0	11	0	0	0	0	0	0	0	0	0	0	0	11
01:00	0	6	1	1	0	0	0	0	0	0	0	0	0	8
01:15	0	4	0	0	0	0	0	0	0	0	0	0	0	4
01:30	0	4	0	0	0	0	0	0	0	0	0	0	0	4
01:45	0	7	0	0	1	0	0	0	0	0	0	0	0	8
02:00	0	4	1	0	0	0	0	0	0	0	0	0	0	5
02:15	0	4	0	0	0	0	0	0	0	0	0	0	0	4
02:30	0	4	0	0	0	0	0	0	0	0	0	0	0	4
02:45	0	2	1	0	0	0	0	0	0	0	0	0	0	3
03:00	0	2	1	0	0	0	0	0	0	0	0	0	0	3
03:15	0	1	1	0	0	0	0	1	0	0	0	0	0	3
03:30	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:45	0	4	1	0	0	0	0	0	0	0	0	0	0	5
04:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
04:15	0	4	0	0	0	0	0	0	0	0	0	0	0	4
04:30	0	3	3	0	1	0	0	0	0	0	0	0	0	7
04:45	0	7	0	0	0	0	0	0	0	0	0	0	0	7
05:00	0	4	1	0	0	0	0	0	0	0	0	0	0	5
05:15	0	13	0	0	0	0	0	0	0	0	0	0	0	13
05:30	0	5	0	0	0	0	0	0	0	0	0	0	0	5
05:45	0	10	0	0	0	0	0	0	0	0	0	0	0	10
06:00	0	8	3	0	0	0	0	0	0	0	0	0	0	11
06:15	0	7	3	1	1	0	0	0	0	0	0	0	0	12
06:30	0	4	2	1	0	0	0	0	0	0	0	0	0	7
06:45	0	20	3	1	1	0	0	0	0	0	0	0	0	25
07:00	0	27	2	0	2	0	0	0	0	0	0	0	0	31
07:15	0	33	5	1	0	0	0	0	0	0	0	0	0	39
07:30	0	26	6	0	0	0	0	0	0	0	0	0	0	32
07:45	0	40	2	0	2	0	0	0	0	0	0	0	0	44
08:00	0	50	9	0	0	0	0	0	0	0	0	0	0	59
08:15	0	61	4	1	0	0	0	0	0	0	0	0	0	66
08:30	0	28	5	0	2	0	0	0	0	0	0	0	0	35
08:45	0	39	5	0	0	0	0	0	0	0	0	0	0	44
09:00	0	40	3	0	2	0	0	0	0	0	0	0	0	45
09:15	0	31	6	0	5	0	0	0	0	0	0	0	0	42
09:30	0	36	6	0	1	0	0	0	0	0	0	0	0	43
09:45	0	42	1	0	1	0	0	1	0	0	0	0	0	45
10:00	0	51	4	0	2	0	0	0	0	0	0	0	0	57
10:15	0	34	6	0	0	0	0	0	0	0	0	0	0	40
10:30	0	37	5	0	1	0	0	0	0	0	0	0	0	43
10:45	0	48	3	0	0	0	0	0	0	0	0	0	0	51
11:00	0	54	6	1	1	1	0	0	0	0	0	0	0	63
11:15	0	50	8	0	2	1	0	0	0	0	0	0	0	61
11:30	0	45	5	0	0	0	0	0	0	0	0	0	0	50
11:45	0	51	3	0	0	0	0	0	0	0	0	0	0	54
12:00 PM	0	42	11	0	0	0	0	0	0	0	0	0	0	53
12:15	0	45	7	0	0	0	0	0	0	0	0	0	0	52
12:30	0	40	6	0	0	0	0	0	0	0	0	0	0	46
12:45	0	53	13	0	3	0	0	0	0	0	0	0	0	69
13:00	0	47	10	0	2	0	0	0	0	0	0	0	0	59
13:15	0	57	5	0	1	0	0	0	0	0	0	0	0	63
13:30	0	36	8	2	2	0	0	0	0	0	0	0	0	48
13:45	0	38	7	2	0	0	0	0	0	0	0	0	0	47
14:00	0	58	9	2	1	0	0	0	0	0	0	0	0	70
14:15	0	62	13	0	0	0	0	0	0	0	0	0	0	75
14:30	0	86	12	1	0	0	0	0	0	0	0	0	0	99
14:45	0	55	11	0	2	0	0	1	0	0	0	0	0	69
15:00	0	74	4	0	1	0	0	0	0	0	0	0	0	79
15:15	0	90	7	4	2	0	0	0	0	0	0	0	0	103
15:30	0	69	10	0	2	0	0	0	0	0	0	0	0	81
15:45	0	101	8	0	1	0	0	0	0	0	0	0	0	110
16:00	0	82	15	0	1	0	0	0	0	0	0	0	0	98
16:15	0	81	11	1	1	0	0	0	0	0	0	0	0	94
16:30	0	73	14	0	0	0	0	0	0	0	0	0	0	87
16:45	0	80	12	0	0	0	0	0	0	0	0	0	0	92
17:00	0	104	13	0	0	0	0	0	0	0	0	0	0	117
17:15	0	119	9	0	0	0	0	0	0	0	0	0	0	128
17:30	0	76	5	0	0	0	0	0	0	0	0	0	0	81
17:45	0	66	8	0	0	0	0	0	0	0	0	0	0	74
18:00	0	80	12	0	1	0	0	0	0	0	0	0	0	93
18:15	0	67	8	0	2	1	0	0	0	0	0	0	0	78
18:30	0	78	9	0	2	0	0	0	0	0	0	0	0	89
18:45	0	78	7	0	1	0	0	0	0	0	0	0	0	86
19:00	0	72	7	0	0	0	0	0	0	0	0	0	0	79
19:15	0	74	11	0	1	0	0	0	0	0	0	0	0	86
19:30	0	65	5	0	4	0	0	0	0	0	0	0	0	74
19:45	0	60	5	0	0	0	0	0	0	0	0	0	0	65
20:00	0	62	1	0	1	0	0	0	0	0	0	0	0	64
20:15	0	54	2	0	0	0	0	0	0	0	0	0	0	56
20:30	0	53	3	0	0	0	0	0	0	0	0	0	0	56
20:45	0	50	5	0	1	0	0	0	0	0	0	0	0	56
21:00	0	43	5	0	0	0	0	0	0	0	0	0	0	48
21:15	0	43	1	0	0	0	0	0	0	0	0	0	0	44
21:30	0	31	4	0	0	0	0	0	0	0	0	0	0	35
21:45	0	31	6	0	0	0	0	0	0	0	0	0	0	37
22:00	0	42	5	0	0	0	0	0	0	0	0	0	0	47
22:15	0	30	1	0	0	1	0	0	0	0	0	0	0	32
22:30	0	19	1	0	0	0	0	0	0	0	0	0	0	20
22:45	0	22	1	0	0	0	0	0	0	0	0	0	0	23
23:00	0	29	2	0	0	0	0	0	0	0	0	0	0	31
23:15	0	19	0	0	1	0	0	0	0	0	0	0	0	20
23:30	0	17	3	0	0	0	0	0	0	0	0	0	0	20
23:45	0	20	0	0	0	0	0	0	0	0	0	0	0	20
Totals		3791	461	19	56	4		3						4327
% of Totals		88%	10%	0%	1%	0%		0%						100%

AM Volumes	0	1019	119	7	26	2	0	2	0	0	0	0	0	1174
% AM		24%	3%	0%	1%	0%		0%						27%
AM Peak Hour Volume														
PM Volumes	0	2773	332	12	33	2	0	1	0	0	0	0	0	3153
% PM		64%	8%	0%	1%	0%		0%						73%
PM Peak Hour Volume														
Directional Peak Periods														
All Classes			AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
			Volume		%	Volume		%	Volume		%	Volume		%
			350	↔	8%	437	↔	10%	771	↔	18%	2769	↔	64%

Classification Definitions				
1 Motorcycles	4 Buses	7 >=4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers
2 Passenger Cars	5 2-Axle, 6-Tire Single Unit	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers	

Day: Tuesday
Date: 3/3/2020

City: Morrow
Project #: GA20_9087_001w

West Bound

Time	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
00:00 AM	0	10	1	0	0	0	0	0	0	0	0	0	0	11
00:15	0	4	0	0	1	0	0	0	0	0	0	0	0	5
00:30	0	5	0	0	0	0	0	0	0	0	0	0	0	5
00:45	0	7	2	0	0	0	0	0	0	0	0	0	0	9
01:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
01:15	0	1	0	0	0	0	0	0	0	0	0	0	0	1
01:30	0	4	0	0	0	0	0	0	0	0	0	0	0	4
01:45	0	2	0	0	0	0	0	0	0	0	0	0	0	2
02:00	0	6	0	0	0	0	0	0	0	0	0	0	0	6
02:15	0	2	0	0	0	0	0	0	0	0	0	0	0	2
02:30	0	4	0	0	0	0	0	0	0	0	0	0	0	4
02:45	0	2	0	0	0	0	0	0	0	0	0	0	0	2
03:00	0	2	1	0	0	0	0	0	0	0	0	0	0	3
03:15	0	2	0	0	0	0	0	0	0	0	0	0	0	2
03:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45	0	4	0	0	0	0	0	0	0	0	0	0	0	4
04:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
04:15	0	3	0	0	0	0	0	0	0	0	0	0	0	3
04:30	0	7	0	0	0	0	0	0	0	0	0	0	0	7
04:45	0	4	1	0	0	0	0	0	0	0	0	0	0	5
05:00	0	3	2	0	0	0	0	0	0	0	0	0	0	5
05:15	0	7	1	0	0	0	0	0	0	0	0	0	0	8
05:30	0	11	0	0	0	0	0	0	0	0	0	0	0	11
05:45	0	15	4	0	0	0	0	0	0	0	0	0	0	19
06:00	0	10	6	0	1	0	0	0	0	0	0	0	0	17
06:15	0	21	1	0	0	0	0	0	0	0	0	0	0	22
06:30	0	25	1	0	1	0	0	0	0	0	0	0	0	27
06:45	0	18	6	0	2	0	0	0	0	0	0	0	0	26
07:00	0	35	4	1	0	0	0	0	0	0	0	0	0	40
07:15	0	53	2	0	0	0	0	0	0	0	0	0	0	55
07:30	0	57	5	1	0	0	0	0	0	0	0	0	0	63
07:45	0	76	8	2	2	0	0	0	0	0	0	0	0	88
08:00	0	74	9	0	1	0	0	0	0	0	0	0	0	84
08:15	0	54	13	0	1	0	0	0	0	0	0	0	0	68
08:30	0	55	3	0	1	0	0	0	0	0	0	0	0	59
08:45	0	52	8	0	0	0	0	0	0	0	0	0	0	60
09:00	0	58	5	0	1	0	0	0	0	0	0	0	0	64
09:15	0	53	5	0	0	1	0	0	0	0	0	0	0	59
09:30	0	63	8	0	2	0	0	0	0	0	0	0	0	73
09:45	0	45	4	0	1	0	0	0	0	0	0	0	0	50
10:00	0	49	7	0	0	0	0	0	0	0	0	0	0	56
10:15	0	48	9	0	0	0	0	0	0	0	0	0	0	57
10:30	0	39	7	0	1	0	0	0	0	0	0	0	0	47
10:45	0	42	2	0	1	0	0	0	0	0	0	0	0	45
11:00	0	45	6	0	1	0	0	0	0	0	0	0	0	52
11:15	0	38	5	0	0	0	0	0	0	0	0	0	0	43
11:30	0	38	5	0	1	0	0	0	0	0	0	0	0	44
11:45	0	29	6	0	1	0	0	0	0	0	0	0	0	36
12:00 PM	0	54	7	0	0	0	0	0	0	0	0	0	0	61
12:15	0	49	7	0	2	0	0	0	0	0	0	0	0	58
12:30	0	36	7	0	2	0	0	0	0	0	0	0	0	45
12:45	0	55	6	0	1	0	0	0	0	0	0	0	0	62
13:00	0	64	4	0	0	0	0	0	0	0	0	0	0	68
13:15	0	55	7	0	1	0	0	0	0	0	0	0	0	63
13:30	0	46	6	0	1	0	0	0	0	0	0	0	0	53
13:45	0	49	5	0	1	0	0	0	0	0	0	0	0	55
14:00	0	43	6	0	1	0	0	0	0	0	0	0	0	50
14:15	0	50	10	0	0	0	0	0	0	0	0	0	0	60
14:30	0	62	10	0	1	0	0	0	0	0	0	0	0	73
14:45	0	57	7	0	3	0	0	0	0	0	0	0	0	67
15:00	0	66	5	1	1	0	0	0	0	0	0	0	0	73
15:15	0	58	5	0	0	0	0	0	0	0	0	0	0	63
15:30	0	59	4	0	0	0	0	0	0	0	0	0	0	63
15:45	0	58	7	2	2	0	0	0	0	0	0	0	0	69
16:00	0	64	4	0	0	0	0	0	0	0	0	0	0	68
16:15	0	62	4	0	3	0	0	0	0	0	0	0	0	69
16:30	0	62	3	1	2	0	0	0	0	0	0	0	0	68
16:45	0	66	6	0	1	0	0	0	0	0	0	0	0	73
17:00	0	57	8	0	1	0	0	0	0	0	0	0	0	66
17:15	0	64	5	0	1	0	0	0	0	0	0	0	0	70
17:30	0	70	8	1	0	0	0	0	0	0	0	0	0	79
17:45	0	66	5	0	0	0	0	0	0	0	0	0	0	71
18:00	0	51	4	0	0	0	0	0	0	0	0	0	0	55
18:15	0	60	5	0	1	0	0	0	0	0	0	0	0	66
18:30	0	71	2	0	0	0	0	0	0	0	0	0	0	73
18:45	0	66	6	0	1	0	0	0	0	0	0	0	0	73
19:00	0	38	2	0	0	0	0	0	0	0	0	0	0	40
19:15	1	35	2	0	0	0	0	0	0	0	0	0	0	38
19:30	0	37	3	0	0	0	0	0	0	0	0	0	0	40
19:45	0	36	2	0	0	0	0	0	0	0	0	0	0	38
20:00	0	41	3	0	0	0	0	0	0	0	0	0	0	44
20:15	0	38	5	0	0	0	0	0	0	0	0	0	0	43
20:30	0	27	2	0	0	1	0	0	0	0	0	0	0	30
20:45	0	20	3	0	0	0	0	0	0	0	0	0	0	23
21:00	0	26	4	0	0	0	0	0	0	0	0	0	0	30
21:15	0	19	3	0	0	0	0	0	0	0	0	0	0	22
21:30	0	21	1	0	0	0	0	0	0	0	0	0	0	22
21:45	0	25	1	0	0	0	0	0	0	0	0	0	0	26
22:00	0	13	4	0	0	0	0	0	0	0	0	0	0	17
22:15	0	9	1	0	0	0	0	0	0	0	0	0	0	10
22:30	0	12	0	0	0	1	0	0	0	0	0	0	0	13
22:45	0	10	1	0	0	0	0	0	0	0	0	0	0	11
23:00	0	6	2	0	0	0	0	0	0	0	0	0	0	8
23:15	0	9	1	0	0	0	0	0	0	0	0	0	0	10
23:30	0	6	0	0	0	0	0	0	0	0	0	0	0	6
23:45	0	4	1	0	0	0	0	0	0	0	0	0	0	5
Totals	1	3239	361	9	45	3	3							3648
% of Totals	0%	89%	10%	0%	1%	0%								

AM Volumes	0	1187	147	4	19	1	0	0	0	0	0	0	1358
% AM		33%	4%	0%	1%	0%							37%
AM Peak Hour Volume													
PM Volumes	1	2052	204	5	26	2	0	0	0	0	0	0	2290
% PM		56%	6%	0%	1%	0%							63%
PM Peak Hour Volume													
Directional Peak Periods		AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Classes		Volume	%		Volume	%		Volume	%		Volume	%	
		517	↔	14%	465	↔	13%	564	↔	15%	2102	↔	58%
Classification Definitions													
1 Motorcycles		4 Buses		7 >=4-Axle Single Units		10 >=6-Axle Single Trailers		13 >=7-Axle Multi-Trailers					
2 Passenger Cars		5 2-Axle, 6-Tire Single Unit		8 <=4-Axle Single Trailers		11 <=5-Axle Multi-Trailers							
3 2-Axle, 4-Tire Single Units		6 3-Axle Single Units		9 5-Axle Single Trailers		12 6-Axle Multi-Trailers							

Day: Tuesday
Date: 3/3/2020

City: Morrow
Project #: GA20_9087_002w

West Bound

Time		#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
00:00 AM	0	34	8	0	0	0	0	0	0	0	0	0	0	0	42
00:15	0	22	3	0	0	0	0	0	0	0	0	0	0	0	25
00:30	0	20	4	1	1	0	0	0	0	0	0	0	0	0	26
00:45	0	17	5	0	0	0	0	0	0	0	0	0	0	0	22
01:00	0	13	8	0	0	0	0	0	0	0	0	0	0	0	21
01:15	0	18	3	0	1	0	0	0	0	0	0	0	0	0	22
01:30	0	15	7	0	0	0	0	0	0	0	0	0	0	0	22
01:45	0	7	6	1	2	0	0	0	0	0	0	0	0	0	16
02:00	0	8	4	0	0	0	0	0	0	0	0	0	0	0	12
02:15	0	13	5	0	0	0	0	0	0	0	0	0	0	0	18
02:30	0	10	4	0	1	0	0	0	0	0	0	0	0	0	15
02:45	0	8	3	0	1	0	0	0	0	0	0	0	0	0	12
03:00	0	6	2	0	0	0	0	0	0	0	0	0	0	0	8
03:15	0	10	7	0	0	0	0	0	0	0	0	0	0	0	17
03:30	0	17	2	0	0	0	0	0	0	0	0	0	0	0	19
03:45	0	21	2	0	0	0	0	0	0	0	0	0	0	0	23
04:00	0	26	7	0	0	0	0	0	0	0	0	0	0	0	33
04:15	0	35	7	0	1	0	0	0	0	0	0	0	0	0	43
04:30	0	33	18	0	0	0	0	0	0	0	0	0	0	0	51
04:45	0	45	16	1	0	0	0	0	0	0	0	0	0	0	62
05:00	0	66	14	0	0	0	0	0	0	0	0	0	0	0	80
05:15	0	60	22	0	0	0	0	0	0	0	0	0	0	0	82
05:30	0	77	21	0	4	0	0	0	0	0	0	0	0	0	102
05:45	0	88	32	0	2	0	0	1	0	0	0	0	0	0	123
06:00	0	79	25	0	4	1	0	0	0	0	0	0	0	0	109
06:15	0	90	27	2	6	0	0	0	0	1	0	0	0	0	126
06:30	0	86	25	0	3	1	0	0	0	0	0	0	0	0	115
06:45	0	108	31	0	1	0	0	0	0	0	0	0	0	0	140
07:00	0	105	25	2	2	0	0	1	0	0	0	0	0	0	135
07:15	0	132	15	0	1	0	0	0	0	0	0	0	0	0	148
07:30	0	153	27	1	2	0	0	1	0	0	0	0	0	0	184
07:45	0	186	27	3	5	0	0	0	0	0	0	0	0	0	221
08:00	0	147	24	1	9	0	0	0	0	0	0	0	0	0	181
08:15	0	148	24	1	2	0	0	2	1	0	0	0	0	0	178
08:30	1	130	20	3	4	1	0	0	1	0	0	0	0	0	160
08:45	0	163	22	4	2	0	0	1	2	0	0	0	0	0	194
09:00	0	150	35	2	3	2	0	3	0	0	0	0	0	0	195
09:15	0	135	33	1	1	1	0	2	0	0	0	0	0	0	173
09:30	0	136	27	3	3	0	0	0	0	0	0	0	0	0	169
09:45	0	134	31	1	4	0	0	0	0	0	0	0	0	0	170
10:00	0	141	33	2	3	0	0	0	0	0	0	0	0	0	179
10:15	0	109	31	1	2	0	0	0	0	0	0	0	0	0	143
10:30	0	131	27	1	7	0	0	0	0	0	0	0	0	0	166
10:45	0	118	26	0	1	0	0	1	0	0	0	0	0	0	146
11:00	1	122	23	0	5	1	0	0	0	0	0	0	0	0	152
11:15	0	123	31	0	4	0	0	0	0	0	0	0	0	0	158
11:30	0	143	30	3	3	1	0	1	0	0	0	0	0	0	181
11:45	1	120	33	1	1	0	0	0	0	0	0	0	0	0	156
12:00 PM	0	136	44	2	5	0	0	0	0	0	0	0	0	0	187
12:15	0	125	33	1	3	0	0	0	0	0	0	0	0	0	162
12:30	0	125	35	1	3	0	0	0	1	0	0	0	0	0	165
12:45	0	126	31	2	4	0	0	0	0	0	0	0	0	0	163
13:00	0	142	44	0	2	0	0	1	1	0	0	0	0	0	190
13:15	0	140	37	0	3	0	0	0	1	0	0	0	0	0	181
13:30	1	178	35	1	2	0	0	1	0	0	0	0	0	0	218
13:45	0	147	28	0	2	0	0	1	0	0	0	0	0	0	178
14:00	0	169	21	1	3	0	0	0	0	0	0	0	0	0	194
14:15	0	163	21	2	8	0	0	0	0	0	0	0	0	0	194
14:30	0	134	33	2	4	0	0	0	1	0	0	0	0	0	174
14:45	0	150	37	1	3	3	0	0	1	0	0	0	0	0	195
15:00	0	154	26	3	6	0	0	0	0	0	0	0	0	0	189
15:15	0	151	27	1	2	0	0	0	0	0	0	0	0	0	181
15:30	0	153	23	2	3	0	0	1	0	0	0	0	0	0	182
15:45	0	155	33	1	6	1	0	0	0	0	0	0	0	0	196
16:00	0	172	22	1	4	0	0	1	1	0	0	0	0	0	201
16:15	1	174	31	3	3	0	0	1	0	0	0	0	0	0	213
16:30	0	148	37	3	3	0	0	0	0	0	0	0	0	0	191
16:45	0	195	34	1	4	0	0	0	0	0	0	0	0	0	234
17:00	0	172	21	1	0	0	0	1	1	0	0	0	0	0	196
17:15	0	167	30	0	1	0	0	1	0	0	0	0	0	0	199
17:30	0	186	30	1	2	0	0	0	0	0	0	0	0	0	219
17:45	0	178	20	1	1	0	0	1	0	0	0	0	0	0	201
18:00	0	191	15	0	3	0	0	0	0	0	0	0	0	0	209
18:15	0	162	42	2	1	0	0	1	0	0	0	0	0	0	208
18:30	0	162	34	1	1	0	0	0	0	0	0	0	0	0	198
18:45	0	146	27	3	3	0	0	0	0	0	0	0	0	0	179
19:00	0	158	20	1	1	0	0	0	0	0	0	0	0	0	180
19:15	0	132	22	0	3	0	0	0	0	0	0	0	0	0	157
19:30	0	147	29	1	4	0	0	0	0	0	0	0	0	0	181
19:45	0	135	17	0	4	0	0	0	0	0	0	0	0	0	156
20:00	0	132	14	1	1	0	0	0	0	0	0	0	0	0	148
20:15	0	120	23	2	0	0	0	0	0	0	0	0	0	0	145
20:30	0	108	26	1	0	1	0	0	0	0	0	0	0	0	136
20:45	0	87	19	0	3	0	0	0	0	0	0	0	0	0	109
21:00	0	73	20	0	4	0	0	0	0	0	0	0	0	0	97
21:15	0	84	15	0	0	0	0	0	0	0	0	0	0	0	99
21:30	0	86	18	1	1	0	0	0	0	0	0	0	0	0	106
21:45	0	86	11	0	0	0	0	0	0	0	0	0	0	0	97
22:00	0	69	16	0	1	0	0	0	0	0	0	0	0	0	86
22:15	0	69	13	0	2	0	0	0	0	0	0	0	0	0	84
22:30	0	52	5	1	0	0	0	0	0	0	0	0	0	0	58
22:45	0	55	12	1	2	0	0	0	0	0	0	0	0	0	70
23:00	0	38	11	0	2	0	0	0	0	0	0	0	0	0	51
23:15	0	46	10	0	0	0	0	0	0	0	0	0	0	0	56
23:30	0	42	11	1	0	0	0	0	0	0	0	0	0	0	54
23:45	0	28	10	0	0	0	0	0	0	0	0	0	0	0	38
Totals	5	9906	2035	82	204	13		23	12						12280
% of Totals	0%	81%	17%	1%	2%	0%		0%	0%						100%

AM Volumes % AM	3 0%	3758 31%	862 7%	35 0%	91 1%	8 0%	0 0%	13 0%	5 0%	0 0%	0 0%	0 0%	4775 39%
AM Peak Hour Volume													
PM Volumes % PM	2 0%	6148 50%	1173 10%	47 0%	113 1%	9 0%	0 0%	10 0%	7 0%	0 0%	0 0%	0 0%	7505 61%
PM Peak Hour Volume													
Directional Peak Periods All Classes		AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes					
	Volume		%	Volume	%	Volume	%	Volume	%				
	1401	↔	11%	1444	↔	12%	1654	↔	13%	7781	↔	63%	

Classification Definitions

- | Classification Definitions | | | | | |
|-------------------------------|------------------------------|----------------------------|-----------------------------|---------------------------|--|
| 1 Motorcycles | 4 Buses | 7 >=4-Axle Single Units | 10 >=6-Axle Single Trailers | 13 >=7-Axle Multi-Trailer | |
| 2 Passenger Cars | 2 2-Axle, 6-Tire Single Unit | 8 <=4-Axle Single Trailers | 11 <=5-Axle Multi-Trailers | | |
| 3 2-Axle, 4-Tire Single Units | 6 3-Axle Single Units | 9 5-Axle Single Trailers | 12 6-Axle Multi-Trailers | | |

Prepared by National Data & Surveying Services
CLASSIFICATION
Richardson Pkwy N/O Mt Zion Rd

Day: Tuesday
Date: 3/3/2020

City: Morrow
Project #: GA20_9087_003n

North Bound

Time	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
00:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	3
00:15	0	6	1	0	0	0	0	0	0	0	0	0	0	7
00:30	0	11	1	0	1	0	0	0	0	0	0	0	0	13
00:45	0	3	0	1	0	0	0	0	0	0	0	0	0	4
01:00	0	5	1	0	0	0	0	0	0	0	0	0	0	6
01:15	0	8	2	0	0	0	0	0	0	0	0	0	0	10
01:30	0	5	2	0	0	0	0	0	0	0	0	0	0	7
01:45	0	3	0	0	0	0	0	0	0	0	0	0	0	3
02:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
02:15	0	3	0	0	0	0	0	0	0	0	0	0	0	3
02:30	0	6	0	0	0	0	0	0	0	0	0	0	0	6
02:45	0	4	1	0	0	0	0	0	0	0	0	0	0	5
03:00	0	3	0	1	0	0	0	0	0	0	0	0	0	4
03:15	0	10	0	0	0	0	0	0	0	0	0	0	0	10
03:30	0	7	3	0	0	0	0	1	0	0	0	0	0	11
03:45	0	9	3	0	0	0	0	0	0	0	0	0	0	12
04:00	0	12	0	0	0	0	0	0	0	0	0	0	0	12
04:15	0	15	2	0	1	0	0	0	0	0	0	0	0	18
04:30	0	18	4	0	0	0	0	0	0	0	0	0	0	22
04:45	0	15	2	0	0	0	0	0	0	0	0	0	0	17
05:00	0	12	6	1	0	0	0	0	0	0	0	0	0	19
05:15	0	24	8	1	1	0	0	0	0	0	0	0	0	34
05:30	2	33	3	0	0	0	0	0	0	0	0	0	0	38
05:45	0	33	10	0	0	0	0	0	0	0	0	0	0	43
06:00	0	31	8	0	2	0	0	0	0	0	0	0	0	41
06:15	0	40	5	1	0	0	0	0	0	0	0	0	0	46
06:30	0	28	6	0	1	0	0	0	0	0	0	0	0	35
06:45	0	51	4	0	0	0	0	0	0	0	0	0	0	55
07:00	0	63	7	1	0	0	0	1	0	0	0	0	0	72
07:15	0	58	10	1	3	0	0	0	0	0	0	0	0	72
07:30	0	75	12	1	0	0	0	0	0	0	0	0	0	88
07:45	0	60	4	0	0	0	0	0	0	0	0	0	0	64
08:00	0	64	12	0	0	0	0	0	0	0	0	0	0	76
08:15	0	71	8	2	2	0	0	0	0	0	0	0	0	83
08:30	0	41	7	2	0	0	0	0	0	0	0	0	0	50
08:45	0	31	12	0	1	0	0	0	0	0	0	0	0	44
09:00	1	48	9	0	1	0	0	0	0	0	0	0	0	59
09:15	0	35	6	0	1	0	0	0	0	0	0	0	0	42
09:30	0	43	8	1	1	0	0	0	0	0	0	0	0	53
09:45	0	30	13	0	0	0	0	0	0	0	0	0	0	43
10:00	0	31	9	0	1	0	0	0	0	0	0	0	0	41
10:15	0	42	4	0	1	0	0	0	0	0	0	0	0	47
10:30	0	39	7	1	2	0	0	0	0	0	0	0	0	49
10:45	0	26	9	1	1	0	0	1	0	0	0	0	0	38
11:00	0	34	8	0	1	0	0	0	0	0	0	0	0	43
11:15	0	38	13	0	3	0	0	0	0	0	0	0	0	54
11:30	0	31	8	1	0	0	0	0	0	0	0	0	0	40
11:45	0	39	8	0	2	0	0	0	0	0	0	0	0	49
12:00 PM	0	36	10	1	1	0	0	0	0	0	0	0	0	48
12:15	0	38	10	1	2	0	0	0	0	0	0	0	0	51
12:30	0	50	11	0	1	0	0	0	0	0	0	0	0	62
12:45	0	32	8	0	1	0	0	0	0	0	0	0	0	41
13:00	0	54	5	0	1	0	0	0	0	0	0	0	0	60
13:15	0	59	9	1	3	0	0	0	0	0	0	0	0	72
13:30	0	55	10	0	1	0	0	0	0	0	0	0	0	66
13:45	1	44	6	1	1	0	0	0	0	0	0	0	0	53
14:00	0	43	3	0	2	0	0	0	0	0	0	0	0	48
14:15	0	49	6	0	1	0	0	0	0	0	0	0	0	56
14:30	0	52	3	1	3	0	0	0	0	0	0	0	0	59
14:45	0	37	8	0	1	0	0	0	0	0	0	0	0	46
15:00	0	53	6	0	3	0	0	0	0	0	0	0	0	62
15:15	0	66	9	1	4	0	0	0	0	0	0	0	0	80
15:30	0	46	8	1	1	0	0	0	0	0	0	0	0	56
15:45	0	59	6	0	0	0	0	0	0	0	0	0	0	65
16:00	0	54	11	1	2	0	0	0	0	0	0	0	0	68
16:15	0	44	9	1	1	0	0	0	0	0	0	0	0	55
16:30	0	52	8	1	1	0	0	0	0	0	0	0	0	62
16:45	0	54	4	0	2	0	0	0	0	0	0	0	0	60
17:00	0	55	16	0	2	0	0	0	0	0	0	0	0	73
17:15	0	47	3	0	1	0	0	0	0	0	0	0	0	51
17:30	0	54	5	1	0	0	0	1	0	0	0	0	0	61
17:45	0	52	10	1	0	0	0	0	0	0	0	0	0	63
18:00	0	63	3	0	2	0	0	0	0	0	0	0	0	68
18:15	0	57	4	0	0	0	0	0	0	0	0	0	0	61
18:30	0	51	5	1	0	0	0	0	0	0	0	0	0	57
18:45	0	52	5	0	0	0	0	0	0	0	0	0	0	57
19:00	0	44	5	0	0	0	0	0	0	0	0	0	0	49
19:15	0	37	8	0	0	0	0	0	0	0	0	0	0	45
19:30	1	32	2	0	0	0	0	0	0	0	0	0	0	35
19:45	0	37	2	1	0	0	0	0	0	0	0	0	0	40
20:00	0	27	2	0	1	0	0	0	0	0	0	0	0	30
20:15	0	33	4	0	1	0	0	0	0	0	0	0	0	38
20:30	0	26	5	1	0	0	0	0	0	0	0	0	0	32
20:45	0	21	1	0	1	0	0	0	0	0	0	0	0	23
21:00	0	20	2	0	0	0	0	0	0	0	0	0	0	22
21:15	0	23	0	0	1	0	0	0	0	0	0	0	0	24
21:30	0	17	3	1	1	0	0	0	0	0	0	0	0	22
21:45	0	29	1	0	0	0	0	0	0	0	0	0	0	30
22:00	0	17	2	0	1	0	0	0	0	0	0	0	0	20
22:15	0	18	3	0	0	0	0	0	0	0	0	0	0	21
22:30	0	18	1	1	1	0	0	0	0	0	0	0	0	21
22:45	0	21	1	0	0	0	0	0	0	0	0	0	0	22
23:00	0	15	2	0	0	0	0	0	0	0	0	0	0	17
23:15	0	10	0	0	0	0	0	0	0	0	0	0	0	10
23:30	0	15	1	1	0	0	0	0	0	0	0	0	0	17
23:45	0	16	2	0	1	0	0	0	0	0	0	0	0	19
Totals	5	3186	494	34	71			4						3794
% of Totals	0%	84%	13%	1%	2%			0%						100%

AM Volumes	3	1302	246	16	26	0	0	3	0	0	0	0	0	1596
% AM	0%	34%	6%	0%	1%			0%						42%
AM Peak Hour	04:45	07:30	08:00	07:45	10:30			02:45						07:30
Volume	2	270	39	4	7			1						311
PM Volumes	2	1884	248	18	45	0	0	1	0	0	0	0	0	2198
% PM	0%	50%	7%	0%	1%			0%						58%
PM Peak Hour	13:00	17:30	12:00	15:15	14:30			16:45						15:15
Volume	1	226	39	3	11			1						269
Directional Peak Periods			AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Classes			Volume			Volume			Volume			Volume		
			549			453			493			2299		
			↔ 14%			↔ 12%			↔ 13%			↔ 61%		
Classification Definitions														
1 Motorcycles			4 Buses			7 >=4-Axle Single Units			10 >=6-Axle Single Trailers			13 >=7-Axle Multi-Trailers		
2 Passenger Cars			5 2-Axle, 6-Tire Single Unit			8 <=4-Axle Single Trailers			11 <=5-Axle Multi-Trailers					
3 2-Axle, 4-Tire Single Units			6 3-Axle Single Units			9 5-Axle Single Trailers			12 6-Axle Multi-Trailers					

Day: Tuesday
Date: 3/3/2020

City: Morrow
Project #: GA20_9087_003s

South Bound

Time	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
00:00 AM	0	12	1	0	0	0	0	0	0	0	0	0	0	13
00:15	0	14	2	0	0	0	0	0	0	0	0	0	0	16
00:30	0	15	5	1	0	0	0	2	0	0	0	0	0	23
00:45	1	13	4	0	0	0	0	0	0	0	0	0	0	18
01:00	0	5	0	0	1	0	0	0	0	0	0	0	0	6
01:15	0	5	2	0	0	0	0	0	0	0	0	0	0	7
01:30	0	7	2	0	0	0	0	0	0	0	0	0	0	9
01:45	0	5	2	0	0	0	0	0	0	0	0	0	0	7
02:00	0	7	1	0	0	0	0	0	0	0	0	0	0	8
02:15	0	7	0	0	0	0	0	0	0	0	0	0	0	7
02:30	0	4	0	0	0	0	0	0	0	0	0	0	0	4
02:45	0	6	0	0	0	0	0	0	0	0	0	0	0	6
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:15	0	2	1	0	0	0	0	0	0	0	0	0	0	3
03:30	0	5	0	0	0	0	0	0	0	0	0	0	0	5
03:45	0	4	2	0	0	0	0	0	0	0	0	0	0	6
04:00	0	6	0	0	1	0	0	0	0	0	0	0	0	7
04:15	0	3	1	0	0	0	0	0	0	0	0	0	0	4
04:30	0	6	0	0	0	0	0	0	0	0	0	0	0	6
04:45	0	7	1	0	0	0	0	0	0	0	0	0	0	8
05:00	0	8	1	0	0	0	0	0	0	0	0	0	0	9
05:15	0	6	0	0	0	0	0	0	0	0	0	0	0	6
05:30	0	9	1	0	1	0	0	0	0	0	0	0	0	10
05:45	0	8	0	0	1	0	0	0	0	0	0	0	0	9
06:00	0	17	0	0	1	0	0	0	0	0	0	0	0	18
06:15	0	15	1	1	2	0	0	0	0	0	0	0	0	19
06:30	0	16	1	1	1	0	0	1	0	0	0	0	0	20
06:45	1	20	2	1	1	0	0	0	0	0	0	0	0	25
07:00	0	32	5	0	0	0	0	0	0	0	0	0	0	37
07:15	0	38	5	0	1	0	0	0	0	0	0	0	0	44
07:30	0	40	4	1	0	0	0	0	0	0	0	0	0	45
07:45	0	61	9	2	4	0	0	0	0	0	0	0	0	76
08:00	0	62	9	0	0	0	0	0	0	0	0	0	0	71
08:15	0	49	7	0	2	0	0	0	0	0	0	0	0	58
08:30	0	30	6	1	1	0	0	0	0	0	0	0	0	38
08:45	0	34	8	0	0	0	0	0	0	0	0	0	0	42
09:00	0	26	5	0	1	0	0	0	0	0	0	0	0	32
09:15	0	32	10	1	2	0	0	0	0	0	0	0	0	45
09:30	0	23	5	1	1	0	0	0	0	0	0	0	0	30
09:45	0	22	8	0	2	0	0	0	0	0	0	0	0	32
10:00	0	31	7	1	2	0	0	0	0	0	0	0	0	41
10:15	0	33	4	0	1	0	0	1	0	0	0	0	0	39
10:30	0	35	6	1	2	0	0	0	0	0	0	0	0	44
10:45	0	27	5	0	1	0	0	0	0	0	0	0	0	33
11:00	0	35	8	0	1	0	0	0	0	0	0	0	0	44
11:15	0	26	8	0	0	0	0	0	0	0	0	0	0	34
11:30	0	38	10	1	2	0	0	0	0	0	0	0	0	51
11:45	0	31	6	0	3	0	0	0	0	0	0	0	0	40
12:00 PM	0	40	9	0	1	0	0	0	0	0	0	0	0	50
12:15	0	38	5	0	2	0	0	0	0	0	0	0	0	45
12:30	0	30	12	1	0	0	0	0	0	0	0	0	0	43
12:45	0	44	8	0	0	0	0	0	0	0	0	0	0	52
13:00	0	31	10	0	1	0	0	0	0	0	0	0	0	42
13:15	0	41	6	0	3	0	0	0	0	0	0	0	0	50
13:30	0	41	9	1	4	0	0	0	0	0	0	0	0	55
13:45	0	39	9	1	1	0	0	0	0	0	0	0	0	50
14:00	0	53	11	0	0	0	0	0	0	0	0	0	0	64
14:15	0	66	9	0	2	0	0	0	0	0	0	0	0	77
14:30	0	61	10	1	1	0	0	0	0	0	0	0	0	73
14:45	0	62	6	0	1	0	0	0	0	0	0	0	0	69
15:00	0	58	10	0	1	0	0	0	0	0	0	0	0	69
15:15	0	58	12	0	1	0	0	0	0	0	0	0	0	71
15:30	0	65	12	1	0	0	0	0	0	0	0	0	0	78
15:45	0	81	9	0	2	0	0	0	0	0	0	0	0	92
16:00	0	70	18	1	0	0	0	0	0	0	0	0	0	89
16:15	0	60	10	0	0	0	0	0	0	0	0	0	0	70
16:30	0	63	8	1	1	0	0	0	0	0	0	0	0	73
16:45	0	81	11	0	0	0	0	0	0	0	0	0	0	92
17:00	0	83	10	1	0	0	0	1	0	0	0	0	0	95
17:15	0	99	10	0	0	0	0	0	0	0	0	0	0	109
17:30	0	78	17	1	2	0	0	0	0	0	0	0	0	98
17:45	0	92	16	0	0	0	0	0	0	0	0	0	0	108
18:00	0	63	9	1	2	0	0	0	0	0	0	0	0	75
18:15	0	70	13	0	0	0	0	0	0	0	0	0	0	83
18:30	0	83	6	1	1	0	0	0	0	0	0	0	0	91
18:45	0	71	8	0	1	0	0	0	0	0	0	0	0	80
19:00	0	51	10	0	0	0	0	0	0	0	0	0	0	61
19:15	0	47	6	0	1	0	0	0	0	0	0	0	0	54
19:30	0	36	7	1	1	0	0	0	0	0	0	0	0	45
19:45	0	55	9	0	0	0	0	0	0	0	0	0	0	64
20:00	0	49	2	0	1	0	0	0	0	0	0	0	0	52
20:15	0	34	2	0	0	0	0	0	0	0	0	0	0	36
20:30	0	43	6	1	0	0	0	0	0	0	0	0	0	50
20:45	0	38	3	0	1	0	0	0	0	0	0	0	0	42
21:00	0	28	4	0	0	0	0	0	0	0	0	0	0	32
21:15	0	23	1	0	0	0	0	0	0	0	0	0	0	24
21:30	0	32	2	1	0	0	0	0	0	0	0	0	0	35
21:45	0	28	3	0	0	0	0	0	0	0	0	0	0	31
22:00	0	23	1	0	2	0	0	0	0	0	0	0	0	26
22:15	0	19	3	0	0	0	0	0	0	0	0	0	0	22
22:30	0	26	5	1	1	0	0	0	0	0	0	0	0	33
22:45	0	14	2	0	0	0	0	0	0	0	0	0	0	16
23:00	0	18	4	0	1	0	0	0	0	0	0	0	0	23
23:15	0	17	0	0	1	0	0	0	0	0	0	0	0	18
23:30	0	22	2	1	0	0	0	0	0	0	0	0	0	25
23:45	0	21	3	0	0	0	0	0	0	0	0	0	0	24
Totals	2	3283	523	29	70			5						3912
% of Totals	0%	84%	13%	1%	2%			0%						100%

AM Volumes	2	939	165	13	94	0	0	4	0	0	0	0	1156
% AM		24%	4%	0%	3%			0%					30%
AM Peak Hour		07:30	11:15	06:00	11:30								07:30
Volume	1	212	33	3	8			2					250
PM Volumes	0	2340	358	18	98	0	0	1	0	0	0	0	2756
% PM		60%	9%	0%	1%			0%					70%
PM Peak Hour		17:00	17:30	13:00	13:00			16:15					17:00
Volume		352	55	2	9			1					410

Classification Definitions

1	Motorcycles	4	Buses	7	>=4-Axle Single Units	10	>=6-Axle Single Trailers	13	>=7-Axle Multi-Trailer
2	Passenger Cars	5	2-Axle, 6-Tire Single Unit	8	<=4-Axle Single Trailers	11	<=5-Axle Multi-Trailers		
3	2-Axle, 4-Tire Single Units	6	3-Axle Single Units	9	5-Axle Single Trailers	12	6-Axle Multi-Trailers		

Day: Tuesday
Date: 3/3/2020

City: Morrow
Project #: GA20_9087_004w

West Bound

Time	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
00:00 AM	0	25	3	1	0	0	0	0	0	0	0	0	0	29
00:15	0	18	3	0	1	0	0	0	0	0	0	0	0	22
00:30	0	31	1	1	0	0	0	0	0	0	0	0	0	33
00:45	0	19	0	0	0	0	0	0	0	0	0	0	0	19
01:00	0	13	2	1	1	0	0	0	0	0	0	0	0	17
01:15	0	15	3	0	0	0	0	0	0	0	0	0	0	18
01:30	0	12	4	0	0	1	0	0	0	0	0	0	0	17
01:45	0	10	5	0	0	0	0	0	0	0	0	0	0	15
02:00	0	10	3	0	0	0	0	0	0	0	0	0	0	13
02:15	0	13	1	0	0	0	0	0	0	0	0	0	0	14
02:30	0	14	2	2	0	0	0	0	0	0	0	0	0	18
02:45	0	14	4	0	0	0	0	0	0	0	0	0	0	18
03:00	0	11	1	1	0	0	0	0	0	0	0	0	0	13
03:15	0	16	4	0	0	0	0	0	0	0	0	0	0	20
03:30	0	28	4	1	0	0	0	1	0	0	0	0	0	34
03:45	0	29	7	0	1	0	0	1	0	0	0	0	0	38
04:00	0	34	6	0	2	0	0	0	0	0	0	0	0	42
04:15	0	39	10	0	1	0	0	0	0	0	0	0	0	50
04:30	0	55	9	0	1	0	0	0	0	0	0	0	0	65
04:45	0	48	14	0	2	0	0	0	0	0	0	0	0	64
05:00	0	80	21	1	1	0	0	0	0	0	0	0	0	103
05:15	0	86	28	1	1	0	0	1	1	0	0	0	0	118
05:30	0	109	31	0	3	0	0	0	0	0	0	0	0	143
05:45	1	103	39	0	6	0	0	0	0	0	0	0	0	149
06:00	0	115	24	1	5	0	0	0	0	0	0	0	0	145
06:15	0	119	36	0	6	0	0	0	0	0	0	0	0	161
06:30	0	99	19	1	5	0	0	0	1	0	0	0	0	125
06:45	0	128	31	0	3	0	0	0	0	0	0	0	0	162
07:00	0	147	36	1	3	0	0	0	0	0	0	0	0	187
07:15	0	167	39	0	1	0	0	0	2	0	0	0	0	209
07:30	0	188	36	0	0	0	0	1	0	0	0	0	0	225
07:45	0	184	50	3	4	0	0	0	0	0	0	0	0	241
08:00	0	146	50	4	9	0	0	0	1	0	0	0	0	210
08:15	0	171	32	2	1	0	0	0	0	0	0	0	0	206
08:30	0	145	31	3	5	0	0	1	1	0	0	0	0	186
08:45	0	177	31	3	5	0	0	0	0	0	0	0	0	216
09:00	0	159	34	2	3	0	0	0	1	0	0	0	0	199
09:15	0	149	26	0	6	1	0	0	0	0	0	0	0	182
09:30	0	174	22	0	5	0	1	1	0	0	0	0	0	203
09:45	0	149	26	1	6	1	0	0	0	0	0	0	0	183
10:00	0	165	33	3	2	0	0	0	1	1	0	0	0	205
10:15	0	142	34	0	3	0	0	0	1	0	0	0	0	180
10:30	0	176	27	1	3	0	0	0	0	0	0	0	0	207
10:45	0	151	39	0	2	0	0	1	1	0	0	0	0	194
11:00	0	140	43	0	5	0	0	1	0	0	0	0	0	189
11:15	0	153	33	1	5	0	0	1	0	0	0	0	0	193
11:30	0	175	41	1	4	1	0	0	0	0	0	0	0	222
11:45	0	179	31	0	5	1	0	0	0	0	0	0	0	216
12:00 PM	0	172	42	4	6	1	0	0	0	0	0	0	0	225
12:15	0	184	32	0	4	1	0	3	0	0	0	0	0	224
12:30	0	162	40	1	6	0	0	1	0	0	0	0	0	210
12:45	2	184	34	0	4	0	0	0	0	0	0	0	0	224
13:00	0	202	37	0	8	0	0	0	0	0	0	0	0	247
13:15	0	191	37	0	10	0	0	2	0	0	0	0	0	240
13:30	0	197	44	0	3	0	0	1	0	0	0	0	0	245
13:45	0	168	28	0	7	0	0	0	0	0	0	0	0	203
14:00	1	180	19	1	9	0	0	1	0	0	0	0	0	211
14:15	1	202	32	0	7	1	0	0	0	0	0	0	0	243
14:30	0	189	28	0	5	0	0	0	0	0	0	0	0	222
14:45	0	186	33	1	6	0	0	0	0	0	0	0	0	226
15:00	1	190	37	1	7	1	0	0	0	0	0	0	0	237
15:15	0	162	40	1	3	0	1	0	0	0	0	0	0	207
15:30	0	195	31	3	7	1	0	1	0	0	0	0	0	238
15:45	1	179	23	1	1	0	0	0	0	0	0	0	0	205
16:00	0	222	32	1	7	0	0	0	0	0	0	0	0	262
16:15	0	204	33	4	6	0	0	0	0	0	0	0	0	247
16:30	0	198	27	1	2	0	0	0	0	0	0	0	0	228
16:45	0	234	38	3	4	0	0	0	0	0	0	0	0	279
17:00	0	199	42	0	3	0	0	0	1	0	0	0	0	245
17:15	0	220	33	0	4	0	0	0	0	0	0	0	0	257
17:30	0	235	36	0	3	0	0	0	1	0	0	0	0	275
17:45	0	209	22	1	1	0	0	0	0	0	0	0	0	233
18:00	0	222	30	1	5	0	0	1	0	0	0	0	0	259
18:15	0	201	37	1	0	1	0	1	1	0	0	0	0	242
18:30	0	217	22	0	1	0	1	0	0	0	0	0	0	241
18:45	0	207	16	0	7	0	0	0	1	0	0	0	0	231
19:00	0	167	24	0	1	0	0	0	3	0	0	0	0	195
19:15	0	166	28	0	2	0	0	0	0	0	0	0	0	196
19:30	0	155	18	1	1	0	0	0	0	0	0	0	0	175
19:45	0	157	12	1	3	0	0	0	0	0	0	0	0	173
20:00	0	135	23	0	4	0	0	0	0	0	0	0	0	162
20:15	0	133	17	1	3	1	0	0	0	0	0	0	0	155
20:30	0	107	17	0	1	0	0	0	0	0	0	0	0	125
20:45	0	111	9	0	0	0	0	0	0	0	0	0	0	120
21:00	0	97	8	1	0	0	0	0	0	0	0	0	0	106
21:15	0	93	9	0	2	0	0	1	0	0	0	0	0	105
21:30	0	69	12	0	1	0	0	0	0	0	0	0	0	82
21:45	0	103	9	1	2	0	0	0	0	0	0	0	0	115
22:00	0	79	14	0	1	0	0	0	0	0	0	0	0	94
22:15	0	49	5	0	0	0	0	0	0	0	0	0	0	54
22:30	0	69	4	0	0	0	0	0	0	0	0	0	0	73
22:45	0	58	4	0	1	0	0	0	0	0	0	0	0	63
23:00	0	53	7	0	0	0	0	0	0	0	0	0	0	60
23:15	0	37	4	0	1	0	0	0	0	0	0	0	0	42
23:30	0	41	3	0	0	0	0	0	0	0	0	0	0	44
23:45	0	40	2	0	0	0	0	0	0	0	0	0	0	42
Totals	7	11960	2143	66	275	12	3	22	17					14505
% of Totals	0%	82%	15%	0%	2%	0%	0%	0%	0%					100%

[illegible]

Day: Tuesday
Date: 3/3/2020

City: Morrow
Project #: GA20_9087_005n

North Bound

[illegible][illegible]

Day: Tuesday
Date: 3/3/2020

City: Morrow
Project #: GA20_9087_005s

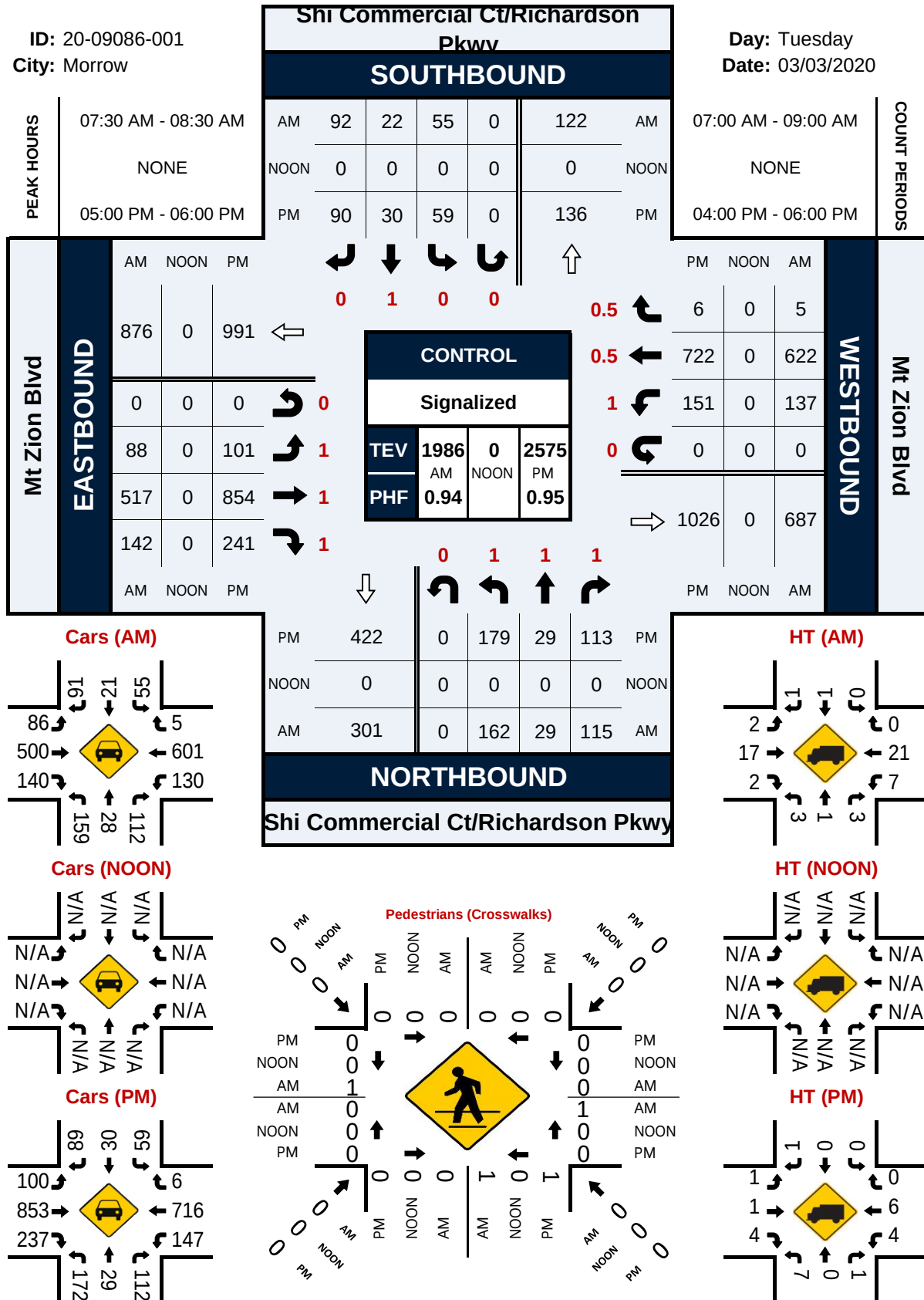
South Bound

Time		#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
00:00 AM	0	34	4	0	0	0	0	0	0	0	0	0	0	0	38
00:15	0	32	2	0	0	0	0	0	0	0	0	0	0	0	34
00:30	0	26	1	1	1	0	0	0	0	0	0	0	0	0	29
00:45	0	24	0	0	0	0	0	0	0	0	0	0	0	0	24
01:00	0	19	2	1	0	0	0	0	0	0	0	0	0	0	22
01:15	0	13	1	0	0	0	0	0	0	0	0	0	0	0	14
01:30	0	9	0	0	0	0	0	0	0	0	0	0	0	0	9
01:45	0	12	1	0	1	0	0	0	0	0	0	0	0	0	14
02:00	0	7	2	0	0	0	0	0	0	0	0	0	0	0	9
02:15	0	10	0	0	0	0	0	0	0	0	0	0	0	0	10
02:30	0	12	0	0	0	0	0	0	0	0	0	0	0	0	12
02:45	0	7	1	0	0	0	0	0	0	0	0	0	0	0	8
03:00	0	4	1	0	0	0	0	0	0	0	0	0	0	0	5
03:15	0	3	2	0	0	0	0	0	0	1	0	0	0	0	6
03:30	0	7	1	0	0	0	0	0	0	0	0	0	0	0	8
03:45	0	7	1	0	0	0	0	0	0	0	0	0	0	0	8
04:00	0	6	0	0	0	0	0	0	0	0	0	0	0	0	6
04:15	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5
04:30	0	7	3	0	0	0	0	0	0	0	0	0	0	0	10
04:45	0	12	1	0	0	0	0	0	0	0	0	0	0	0	13
05:00	0	8	2	0	0	0	0	0	0	0	0	0	0	0	10
05:15	0	14	0	0	0	0	0	0	0	0	0	0	0	0	14
05:30	0	10	1	0	0	0	0	0	0	0	0	0	0	0	11
05:45	0	17	1	0	1	0	0	0	0	0	0	0	0	0	19
06:00	0	25	2	0	0	0	0	0	0	0	0	0	0	0	27
06:15	0	19	1	2	2	0	0	0	0	0	0	0	0	0	24
06:30	0	23	4	3	1	0	0	0	0	0	0	0	0	0	31
06:45	0	34	5	1	2	0	0	0	0	0	0	0	0	0	42
07:00	0	56	4	0	3	0	0	0	0	0	0	0	0	0	63
07:15	0	62	9	1	0	0	0	0	0	1	0	0	0	0	73
07:30	0	52	13	1	0	0	0	0	0	0	0	0	0	0	66
07:45	0	76	6	0	3	0	0	0	0	0	0	0	0	0	85
08:00	0	75	9	0	2	0	0	0	0	0	0	0	0	0	86
08:15	0	81	7	1	0	0	0	0	0	0	0	0	0	0	89
08:30	0	47	9	1	1	0	0	0	0	0	0	0	0	0	58
08:45	0	58	9	0	1	0	0	0	0	0	0	0	0	0	68
09:00	0	53	9	0	1	0	0	0	0	0	0	0	0	0	63
09:15	0	58	8	1	6	0	0	0	0	0	0	0	0	0	73
09:30	0	48	13	0	1	0	0	0	0	0	0	0	0	0	62
09:45	0	54	12	0	1	0	0	1	0	0	0	0	0	0	68
10:00	0	71	9	1	3	0	0	0	0	0	0	0	0	0	84
10:15	0	57	15	1	1	1	0	0	0	0	0	0	0	0	75
10:30	0	57	12	1	4	0	0	0	0	0	0	0	0	0	74
10:45	0	68	5	0	0	0	0	0	0	0	0	0	0	0	73
11:00	0	82	9	1	2	1	0	0	0	0	0	0	0	0	95
11:15	0	76	12	0	3	0	0	0	0	0	0	0	0	0	91
11:30	0	84	9	2	0	0	0	0	0	0	0	0	0	0	95
11:45	0	67	16	0	0	0	0	0	0	0	0	0	0	0	83
12:00 PM	0	78	17	0	0	0	0	0	0	0	0	0	0	0	95
12:15	0	83	13	2	0	0	0	0	0	0	0	0	0	0	98
12:30	0	64	9	1	0	0	0	0	0	0	0	0	0	0	74
12:45	0	73	17	0	3	0	0	0	0	0	0	0	0	0	93
13:00	0	79	19	0	3	0	0	0	0	0	0	0	0	0	101
13:15	0	79	11	0	1	0	0	0	0	0	0	0	0	0	91
13:30	0	89	18	4	5	0	0	0	0	0	0	0	0	0	116
13:45	0	81	10	3	1	0	0	0	0	0	0	0	0	0	95
14:00	0	104	20	2	1	0	0	0	0	0	0	0	0	0	127
14:15	0	113	19	0	2	0	0	0	0	0	0	0	0	0	134
14:30	0	97	27	2	1	0	0	0	0	0	0	0	0	0	127
14:45	0	104	21	1	3	0	0	1	0	0	0	0	0	0	130
15:00	0	98	9	0	1	0	0	0	0	0	0	0	0	0	108
15:15	0	114	13	2	1	0	0	0	0	0	0	0	0	0	130
15:30	0	128	19	1	1	0	0	0	0	0	0	0	0	0	149
15:45	0	149	11	0	1	0	0	1	0	0	0	0	0	0	162
16:00	0	134	28	0	1	0	0	0	0	0	0	0	0	0	163
16:15	0	125	18	1	1	0	0	0	0	0	0	0	0	0	145
16:30	0	123	23	1	0	0	0	0	0	0	0	0	0	0	147
16:45	0	143	23	0	0	0	0	0	0	0	0	0	0	0	166
17:00	0	169	20	1	1	0	0	0	0	0	0	0	0	0	191
17:15	0	191	26	0	0	0	0	0	0	0	0	0	0	0	217
17:30	0	136	15	0	2	0	0	0	0	0	0	0	0	0	153
17:45	0	152	13	1	0	0	0	0	0	0	0	0	0	0	166
18:00	0	130	18	0	1	0	0	0	0	0	0	0	0	0	149
18:15	1	134	7	0	2	1	0	0	0	0	0	0	0	0	145
18:30	0	140	17	0	4	0	0	0	0	0	0	0	0	0	161
18:45	0	133	15	1	1	0	0	0	0	0	0	0	0	0	150
19:00	0	123	9	0	0	0	0	0	0	0	0	0	0	0	132
19:15	0	113	18	0	3	0	0	0	0	0	0	0	0	0	134
19:30	0	90	12	2	4	0	0	0	0	0	0	0	0	0	108
19:45	0	115	15	0	0	0	0	0	0	0	0	0	0	0	130
20:00	0	105	13	1	1	0	0	0	0	0	0	0	0	0	120
20:15	0	86	6	0	0	0	0	0	0	1	0	0	0	0	93
20:30	1	90	5	1	1	0	0	0	0	0	0	0	0	0	98
20:45	0	82	9	0	1	0	0	0	0	0	0	0	0	0	92
21:00	0	57	9	0	3	0	0	0	0	0	0	0	0	0	69
21:15	0	70	4	0	0	0	0	0	0	0	0	0	0	0	74
21:30	0	54	6	1	0	0	0	0	0	0	0	0	0	0	61
21:45	0	63	9	0	0	0	0	0	0	0	0	0	0	0	72
22:00	0	64	7	0	1	0	0	0	0	0	0	0	0	0	72
22:15	0	47	2	0	0	1	0	0	0	0	0	0	0	0	50
22:30	0	45	2	1	0	0	0	0	0	0	0	0	0	0	48
22:45	0	38	1	0	0	0	0	0	0	0	0	0	0	0	39
23:00	0	52	3	0	0	0	0	0	0	0	0	0	0	0	55
23:15	0	36	3	0	1	0	0	0	0	0	0	0	0	0	40
23:30	0	32	4	1	0	0	0	0	0	0	0	0	0	0	37
23:45	0	28	1	0	1	0	0	0	3	0	0	0	0	0	30
Totals		2	6321	848	48	93	4		3	3					7323
% of Totals	0%	86%	12%	1%	1%	0%			0%	0%					

AM Volumes	0	1688	234	19	40	2	0	1	2	0	0	0	1986
% AM		23%	3%	0%	1%	0%		0%	0%				27%
AM Peak Hour Volume													
PM Volumes	2	4633	614	30	53	2	0	2	1	0	0	0	5337
% PM	0%	63%	9%	0%	1%	0%		0%	0%				73%
PM Peak Hour Volume													
Directional Peak Periods		AM 7-9				NOON 12-2				PM 4-6		Off Peak Volumes	
All Classes		Volume	%		Volume	%		Volume	%		Volume	%	
		588	↔	8%	763	↔	10%	1348	↔	18%	4624	↔	63%
Classification Definitions													
1 Motorcycles		4 Buses			7 >=4-Axle Single Units			10 >=6-Axle Single Trailers			13 >=7-Axle Multi-Trailers		
2 Passenger Cars		5 2-Axle, 6-Tire Single Unit			8 <=4-Axle Single Trailers			11 <=5-Axle Multi-Trailers					
3 2-Axle, 4-Tire Single Units		6 3-Axle Single Units			9 5-Axle Single Trailers			12 6-Axle Multi-Trailers					

ID: 20-09086-001
City: Morrow

Day: Tuesday
Date: 03/03/2020

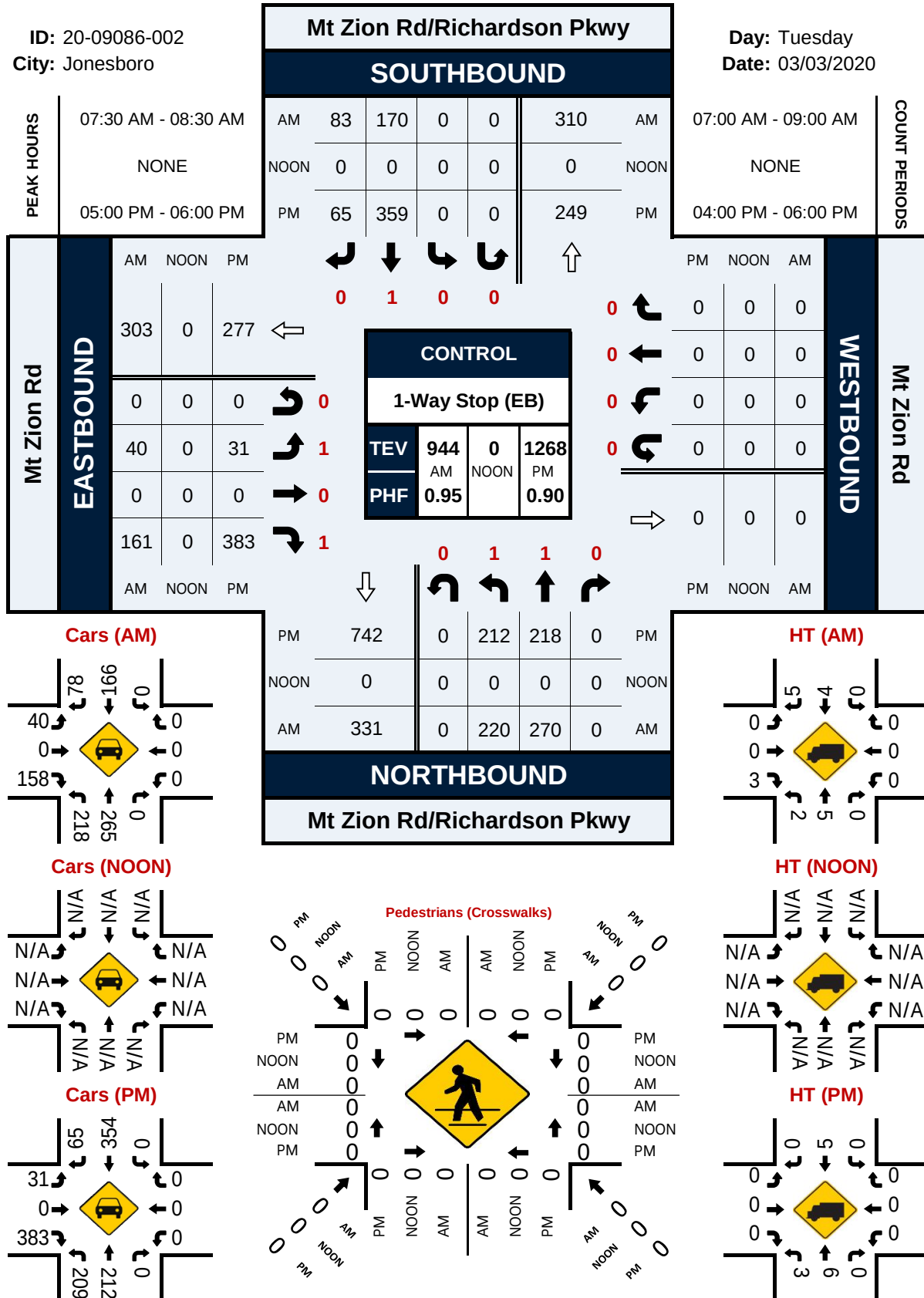


Mt Zion Rd/Richardson Pkwy & Mt Zion Rd

Peak Hour Turning Movement Count

ID: 20-09086-002
City: Jonesboro

Day: Tuesday
Date: 03/03/2020



Appendix D

Synchro Reports

Lanes, Volumes, Timings

1: Richarson Pkwy/Shi Com Ct & Mt Zion Blvd

03/17/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	517	142	137	622	5	162	29	115	55	22	92
Future Volume (vph)	88	517	142	137	622	5	162	29	115	55	22	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	125		0	250		125	0		0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (ft)	50			50			75			25		
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
Frt			0.850		0.999				0.850		0.926	
Flt Protected	0.950			0.950			0.950				0.984	
Satd. Flow (prot)	1770	1845	1599	1719	1843	0	1770	1845	1568	0	1711	0
Flt Permitted	0.155			0.219			0.471				0.879	
Satd. Flow (perm)	289	1845	1599	396	1843	0	877	1845	1568	0	1528	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			218		1				133		60	
Link Speed (mph)		40			40			40			25	
Link Distance (ft)		672			629			2511			239	
Travel Time (s)		11.5			10.7			42.8			6.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	3%	1%	5%	3%	0%	2%	3%	3%	0%	5%	1%
Adj. Flow (vph)	94	550	151	146	662	5	172	31	122	59	23	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	94	550	151	146	667	0	172	31	122	0	180	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes			Yes				
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	0	1	1		1	1	0	1	1	
Detector Template										Left		
Leading Detector (ft)	40	306	0	40	306		40	40	0	20	40	
Trailing Detector (ft)	0	300	0	0	300		0	0	0	0	0	
Detector 1 Position(ft)	0	300	0	0	300		0	0	0	0	0	
Detector 1 Size(ft)	40	6	20	40	6		40	40	20	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		
Detector Phase	1	6	6	5	2		3	8	8	4	4	
Switch Phase												
Minimum Initial (s)	4.0	12.0	12.0	4.0	12.0		4.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	11.0	25.0	25.0	11.0	25.0		11.0	25.0	25.0	25.0	25.0	

Lanes, Volumes, Timings

1: Richarson Pkwy/Shi Com Ct & Mt Zion Blvd

03/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	11.0	42.0	42.0	12.0	43.0		11.0	36.0	36.0	25.0	25.0	
Total Split (%)	12.2%	46.7%	46.7%	13.3%	47.8%		12.2%	40.0%	40.0%	27.8%	27.8%	
Maximum Green (s)	4.0	35.0	35.0	5.0	36.0		4.0	29.0	29.0	18.0	18.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0		7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	None	Min		None	None	None	None	None	
Act Effect Green (s)	32.5	28.4	28.4	36.2	32.4		23.5	23.5	23.5		12.2	
Actuated g/C Ratio	0.41	0.36	0.36	0.46	0.41		0.30	0.30	0.30		0.16	
v/c Ratio	0.48	0.82	0.21	0.54	0.88		0.56	0.06	0.22		0.62	
Control Delay	19.5	34.3	1.4	19.7	37.4		31.6	21.8	4.8		32.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	19.5	34.3	1.4	19.7	37.4		31.6	21.8	4.8		32.1	
LOS	B	C	A	B	D		C	C	A		C	
Approach Delay		26.3			34.2			20.6			32.1	
Approach LOS		C			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 78.5

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 29.0

Intersection LOS: C

Intersection Capacity Utilization 71.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Richarson Pkwy/Shi Com Ct & Mt Zion Blvd

 Ø1	 Ø2	 Ø3	 Ø4
11 s	43 s	11 s	25 s
 Ø5	 Ø6	 Ø7	 Ø8
12 s	42 s	36 s	

HCM 6th TWSC
2: Mt Zion Rd & Richardson Pkwy

03/17/2020

Intersection						
Int Delay, s/veh	4.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	170	83	220	270	40	161
Future Vol, veh/h	170	83	220	270	40	161
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	125
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	92	95	95
Heavy Vehicles, %	2	6	1	2	0	2
Mvmt Flow	179	87	232	293	42	169
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	266	0	980	223
Stage 1	-	-	-	-	223	-
Stage 2	-	-	-	-	757	-
Critical Hdwy	-	-	4.11	-	6.4	6.22
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.318
Pot Cap-1 Maneuver	-	-	1304	-	279	817
Stage 1	-	-	-	-	819	-
Stage 2	-	-	-	-	467	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1304	-	229	817
Mov Cap-2 Maneuver	-	-	-	-	321	-
Stage 1	-	-	-	-	819	-
Stage 2	-	-	-	-	384	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	3.7		12.1		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	321	817	-	-	1304	-
HCM Lane V/C Ratio	0.131	0.207	-	-	0.178	-
HCM Control Delay (s)	17.9	10.6	-	-	8.4	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	0.8	-	-	0.6	-

Lanes, Volumes, Timings

1: Richarson Pkwy/Shi Com Ct & Mt Zion Blvd

03/17/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	854	241	151	722	6	179	29	113	59	30	90
Future Volume (vph)	101	854	241	151	722	6	179	29	113	59	30	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	125		0	250		125	0		0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (ft)	50			50			75			25		
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
Frt			0.850		0.999				0.850		0.932	
Flt Protected	0.950			0.950			0.950				0.984	
Satd. Flow (prot)	1787	1900	1583	1752	1879	0	1736	1900	1599	0	1734	0
Flt Permitted	0.168			0.071			0.426				0.878	
Satd. Flow (perm)	316	1900	1583	131	1879	0	778	1900	1599	0	1547	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			196		1				119		36	
Link Speed (mph)		40			40			40			25	
Link Distance (ft)		673			629			2511			239	
Travel Time (s)		11.5			10.7			42.8			6.5	
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
Heavy Vehicles (%)	1%	0%	2%	3%	1%	0%	4%	0%	1%	0%	0%	1%
Adj. Flow (vph)	106	899	254	159	760	6	188	31	119	62	32	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	106	899	254	159	766	0	188	31	119	0	189	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes			Yes				
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	0	1	1		1	1	0	1	1	
Detector Template										Left		
Leading Detector (ft)	40	306	0	40	306		40	40	0	20	40	
Trailing Detector (ft)	0	300	0	0	300		0	0	0	0	0	
Detector 1 Position(ft)	0	300	0	0	300		0	0	0	0	0	
Detector 1 Size(ft)	40	6	20	40	6		40	40	20	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		
Detector Phase	1	6	6	5	2		3	8	8	4	4	
Switch Phase												
Minimum Initial (s)	4.0	12.0	12.0	4.0	12.0		4.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	11.0	25.0	25.0	11.0	25.0		11.0	25.0	25.0	25.0	25.0	

Lanes, Volumes, Timings

1: Richarson Pkwy/Shi Com Ct & Mt Zion Blvd

03/17/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	11.0	70.0	70.0	13.0	72.0		12.0	37.0	37.0	25.0	25.0	
Total Split (%)	9.2%	58.3%	58.3%	10.8%	60.0%		10.0%	30.8%	30.8%	20.8%	20.8%	
Maximum Green (s)	4.0	63.0	63.0	6.0	65.0		5.0	30.0	30.0	18.0	18.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0		7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	None	Min		None	None	None	None	None	
Act Effect Green (s)	58.0	53.9	53.9	62.1	56.0		27.2	27.2	27.2		15.0	
Actuated g/C Ratio	0.53	0.50	0.50	0.57	0.52		0.25	0.25	0.25		0.14	
v/c Ratio	0.48	0.95	0.29	0.96	0.79		0.79	0.07	0.24		0.77	
Control Delay	16.9	46.7	4.9	85.1	28.5		61.9	34.3	7.8		59.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	16.9	46.7	4.9	85.1	28.5		61.9	34.3	7.8		59.6	
LOS	B	D	A	F	C		E	C	A		E	
Approach Delay		35.8			38.3			40.3			59.6	
Approach LOS		D			D			D			E	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 108.7

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 38.9

Intersection LOS: D

Intersection Capacity Utilization 87.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Richarson Pkwy/Shi Com Ct & Mt Zion Blvd

 Ø1	 Ø2	 Ø3	 Ø4
11 s	72 s	12 s	25 s
 Ø5	 Ø6	 Ø8	
13 s	70 s	37 s	

HCM 6th TWSC
2: Mt Zion Rd & Richardson Pkwy

03/17/2020

Intersection						
Int Delay, s/veh	8.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	359	65	212	218	31	383
Future Vol, veh/h	359	65	212	218	31	383
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	125
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	0	1	3	0	0
Mvmt Flow	399	72	236	242	34	426
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	471	0	1149	435
Stage 1	-	-	-	-	435	-
Stage 2	-	-	-	-	714	-
Critical Hdwy	-	-	4.11	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1096	-	221	625
Stage 1	-	-	-	-	657	-
Stage 2	-	-	-	-	489	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1096	-	173	625
Mov Cap-2 Maneuver	-	-	-	-	292	-
Stage 1	-	-	-	-	657	-
Stage 2	-	-	-	-	384	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	4.5		21.9		
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	292	625	-	-	1096	-
HCM Lane V/C Ratio	0.118	0.681	-	-	0.215	-
HCM Control Delay (s)	19	22.1	-	-	9.2	-
HCM Lane LOS	C	C	-	-	A	-
HCM 95th %tile Q(veh)	0.4	5.3	-	-	0.8	-

Lanes, Volumes, Timings

1: Richarson Pkwy/Shi Com Ct & Mt Zion Blvd

03/20/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	530	146	140	638	5	166	30	118	56	23	94
Future Volume (vph)	90	530	146	140	638	5	166	30	118	56	23	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	125		0	250		125	0		0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (ft)	50			50			75			25		
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
Frt			0.850		0.999				0.850		0.927	
Flt Protected	0.950			0.950			0.950				0.984	
Satd. Flow (prot)	1770	1845	1599	1719	1843	0	1770	1845	1568	0	1713	0
Flt Permitted	0.144			0.210			0.465				0.879	
Satd. Flow (perm)	268	1845	1599	380	1843	0	866	1845	1568	0	1530	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			218						133		60	
Link Speed (mph)		40			40			40			25	
Link Distance (ft)		672			629			2581			239	
Travel Time (s)		11.5			10.7			44.0			6.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	3%	1%	5%	3%	0%	2%	3%	3%	0%	5%	1%
Adj. Flow (vph)	96	564	155	149	679	5	177	32	126	60	24	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	564	155	149	684	0	177	32	126	0	184	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes			Yes				
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	0	1	1		1	1	0	1	1	
Detector Template										Left		
Leading Detector (ft)	40	306	0	40	306		40	40	0	20	40	
Trailing Detector (ft)	0	300	0	0	300		0	0	0	0	0	
Detector 1 Position(ft)	0	300	0	0	300		0	0	0	0	0	
Detector 1 Size(ft)	40	6	20	40	6		40	40	20	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		
Detector Phase	1	6	6	5	2		3	8	8	4	4	
Switch Phase												
Minimum Initial (s)	4.0	12.0	12.0	4.0	12.0		4.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	11.0	25.0	25.0	11.0	25.0		11.0	25.0	25.0	25.0	25.0	

Lanes, Volumes, Timings

1: Richarson Pkwy/Shi Com Ct & Mt Zion Blvd

03/20/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	11.0	42.0	42.0	12.0	43.0		11.0	36.0	36.0	25.0	25.0	
Total Split (%)	12.2%	46.7%	46.7%	13.3%	47.8%		12.2%	40.0%	40.0%	27.8%	27.8%	
Maximum Green (s)	4.0	35.0	35.0	5.0	36.0		4.0	29.0	29.0	18.0	18.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0		7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	None	Min		None	None	None	None	None	
Act Effct Green (s)	33.4	29.3	29.3	37.0	33.2		23.6	23.6	23.6		12.4	
Actuated g/C Ratio	0.42	0.37	0.37	0.47	0.42		0.30	0.30	0.30		0.16	
v/c Ratio	0.51	0.83	0.21	0.57	0.89		0.58	0.06	0.23		0.64	
Control Delay	21.0	34.8	1.5	20.8	38.6		32.9	22.0	5.1		32.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	21.0	34.8	1.5	20.8	38.6		32.9	22.0	5.1		32.9	
LOS	C	C	A	C	D		C	C	A		C	
Approach Delay		26.8			35.4			21.4			32.9	
Approach LOS		C			D			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 79.5

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 29.8

Intersection LOS: C

Intersection Capacity Utilization 73.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Richarson Pkwy/Shi Com Ct & Mt Zion Blvd

 Ø1	 Ø2	 Ø3	 Ø4
11 s	43 s	11 s	25 s
 Ø5	 Ø6	 Ø8	
12 s	42 s	36 s	

HCM 6th TWSC
2: Mt Zion Rd & Richardson Pkwy

03/20/2020

Intersection						
Int Delay, s/veh	4.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	174	85	226	277	41	165
Future Vol, veh/h	174	85	226	277	41	165
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	125
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	92	95	95
Heavy Vehicles, %	2	6	1	2	0	2
Mvmt Flow	183	89	238	301	43	174
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	272	0	1005	228
Stage 1	-	-	-	-	228	-
Stage 2	-	-	-	-	777	-
Critical Hdwy	-	-	4.11	-	6.4	6.22
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.318
Pot Cap-1 Maneuver	-	-	1297	-	270	811
Stage 1	-	-	-	-	815	-
Stage 2	-	-	-	-	457	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1297	-	220	811
Mov Cap-2 Maneuver	-	-	-	-	312	-
Stage 1	-	-	-	-	815	-
Stage 2	-	-	-	-	373	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	3.7		12.2		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	312	811	-	-	1297	-
HCM Lane V/C Ratio	0.138	0.214	-	-	0.183	-
HCM Control Delay (s)	18.4	10.6	-	-	8.4	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.5	0.8	-	-	0.7	-

Lanes, Volumes, Timings

1: Richarson Pkwy/Shi Com Ct & Mt Zion Blvd

03/20/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	875	247	155	740	6	184	30	116	60	31	92
Future Volume (vph)	104	875	247	155	740	6	184	30	116	60	31	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	125		0	250		125	0		0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (ft)	50			50			75			25		
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
Frt			0.850		0.999				0.850		0.932	
Flt Protected	0.950			0.950			0.950				0.984	
Satd. Flow (prot)	1787	1900	1583	1752	1879	0	1736	1900	1599	0	1734	0
Flt Permitted	0.160			0.069			0.420				0.879	
Satd. Flow (perm)	301	1900	1583	127	1879	0	767	1900	1599	0	1549	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			196		1				122		36	
Link Speed (mph)		40			40			40			25	
Link Distance (ft)		673			629			2511			239	
Travel Time (s)		11.5			10.7			42.8			6.5	
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
Heavy Vehicles (%)	1%	0%	2%	3%	1%	0%	4%	0%	1%	0%	0%	1%
Adj. Flow (vph)	109	921	260	163	779	6	194	32	122	63	33	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	921	260	163	785	0	194	32	122	0	193	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes			Yes				
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	0	1	1		1	1	0	1	1	
Detector Template										Left		
Leading Detector (ft)	40	306	0	40	306		40	40	0	20	40	
Trailing Detector (ft)	0	300	0	0	300		0	0	0	0	0	
Detector 1 Position(ft)	0	300	0	0	300		0	0	0	0	0	
Detector 1 Size(ft)	40	6	20	40	6		40	40	20	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		
Detector Phase	1	6	6	5	2		3	8	8	4	4	
Switch Phase												
Minimum Initial (s)	4.0	12.0	12.0	4.0	12.0		4.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	11.0	25.0	25.0	11.0	25.0		11.0	25.0	25.0	25.0	25.0	

Lanes, Volumes, Timings

1: Richarson Pkwy/Shi Com Ct & Mt Zion Blvd

03/20/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	11.0	70.0	70.0	13.0	72.0		12.0	37.0	37.0	25.0	25.0	
Total Split (%)	9.2%	58.3%	58.3%	10.8%	60.0%		10.0%	30.8%	30.8%	20.8%	20.8%	
Maximum Green (s)	4.0	63.0	63.0	6.0	65.0		5.0	30.0	30.0	18.0	18.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0		7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	None	Min		None	None	None	None	None	
Act Effect Green (s)	59.9	55.9	55.9	64.0	57.9		27.5	27.5	27.5		15.3	
Actuated g/C Ratio	0.54	0.50	0.50	0.58	0.52		0.25	0.25	0.25		0.14	
v/c Ratio	0.50	0.96	0.29	1.01	0.80		0.83	0.07	0.25		0.79	
Control Delay	18.1	48.3	5.1	98.2	29.0		67.7	34.6	7.8		61.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	18.1	48.3	5.1	98.2	29.0		67.7	34.6	7.8		61.4	
LOS	B	D	A	F	C		E	C	A		E	
Approach Delay		37.0			40.9			43.6			61.4	
Approach LOS		D			D			D			E	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 110.8

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 40.9

Intersection LOS: D

Intersection Capacity Utilization 98.0%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 1: Richarson Pkwy/Shi Com Ct & Mt Zion Blvd

 Ø1	 Ø2	 Ø3	 Ø4
11 s	72 s	12 s	25 s
 Ø5	 Ø6	 Ø8	
13 s	70 s	37 s	

HCM 6th TWSC
2: Mt Zion Rd & Richardson Pkwy

03/20/2020

Intersection

Int Delay, s/veh 9.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	368	67	217	223	32	393
Future Vol, veh/h	368	67	217	223	32	393
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	125
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	0	1	3	0	0
Mvmt Flow	409	74	241	248	36	437

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	483
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.11
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.209
Pot Cap-1 Maneuver	-	-	1085
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1085
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.6	23.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	284	617	-	-	1085	-
HCM Lane V/C Ratio	0.125	0.708	-	-	0.222	-
HCM Control Delay (s)	19.5	23.7	-	-	9.3	-
HCM Lane LOS	C	C	-	-	A	-
HCM 95th %tile Q(veh)	0.4	5.8	-	-	0.8	-

Lanes, Volumes, Timings

1: Richarson Pkwy/Shi Com Ct & Mt Zion Blvd

04/06/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	530	167	154	638	5	173	30	124	56	23	94
Future Volume (vph)	90	530	167	154	638	5	173	30	124	56	23	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	125		0	250		125	0		0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (ft)	50			50			75			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.999				0.850		0.927	
Flt Protected	0.950			0.950			0.950				0.984	
Satd. Flow (prot)	1770	3505	1599	1719	3502	0	1770	1845	1568	0	1713	0
Flt Permitted	0.349			0.258			0.475				0.879	
Satd. Flow (perm)	650	3505	1599	467	3502	0	885	1845	1568	0	1530	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			218		1				133		60	
Link Speed (mph)		40			40			40			25	
Link Distance (ft)		672			629			2542			239	
Travel Time (s)		11.5			10.7			43.3			6.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	3%	1%	5%	3%	0%	2%	3%	3%	0%	5%	1%
Adj. Flow (vph)	96	564	178	164	679	5	184	32	132	60	24	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	564	178	164	684	0	184	32	132	0	184	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes			Yes				
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	0	1	1		1	1	0	1	1	
Detector Template										Left		
Leading Detector (ft)	40	306	0	40	306		40	40	0	20	40	
Trailing Detector (ft)	0	300	0	0	300		0	0	0	0	0	
Detector 1 Position(ft)	0	300	0	0	300		0	0	0	0	0	
Detector 1 Size(ft)	40	6	20	40	6		40	40	20	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		
Detector Phase	1	6	6	5	2		3	8	8	4	4	
Switch Phase												
Minimum Initial (s)	4.0	12.0	12.0	4.0	12.0		4.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	11.0	25.0	25.0	11.0	25.0		11.0	25.0	25.0	25.0	25.0	

Lanes, Volumes, Timings

1: Richarson Pkwy/Shi Com Ct & Mt Zion Blvd

04/06/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	13.0	32.0	32.0	17.0	36.0		16.0	41.0	41.0	25.0	25.0	
Total Split (%)	14.4%	35.6%	35.6%	18.9%	40.0%		17.8%	45.6%	45.6%	27.8%	27.8%	
Maximum Green (s)	6.0	25.0	25.0	10.0	29.0		9.0	34.0	34.0	18.0	18.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0		7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	None	Min		None	None	None	None	None	
Act Effct Green (s)	21.4	15.4	15.4	29.1	21.6		27.7	27.7	27.7		11.9	
Actuated g/C Ratio	0.29	0.21	0.21	0.40	0.29		0.38	0.38	0.38		0.16	
v/c Ratio	0.34	0.77	0.35	0.48	0.67		0.42	0.05	0.20		0.62	
Control Delay	17.7	35.7	4.2	18.9	28.0		19.9	15.9	4.2		29.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	17.7	35.7	4.2	18.9	28.0		19.9	15.9	4.2		29.7	
LOS	B	D	A	B	C		B	B	A		C	
Approach Delay		27.0			26.3			13.6			29.7	
Approach LOS		C			C			B			C	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 73.6

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 24.8

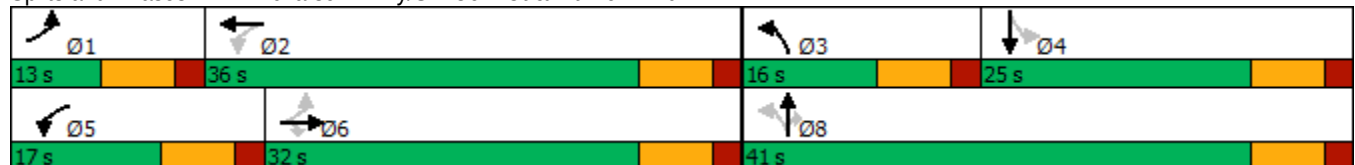
Intersection LOS: C

Intersection Capacity Utilization 57.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Richarson Pkwy/Shi Com Ct & Mt Zion Blvd



Intersection												
Int Delay, s/veh	6.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	176	89	226	279	5	49	18	165	3	8	6
Future Vol, veh/h	10	176	89	226	279	5	49	18	165	3	8	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	200	-	-	-	-	125	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	95	95	95	92	92	95	92	95	92	92	92
Heavy Vehicles, %	2	2	6	1	2	2	0	2	2	2	2	2
Mvmt Flow	11	185	94	238	303	5	52	20	174	3	9	7
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	308	0	0	279	0	0	1044	1038	232	1133	1083	306
Stage 1	-	-	-	-	-	-	254	254	-	782	782	-
Stage 2	-	-	-	-	-	-	790	784	-	351	301	-
Critical Hdwy	4.12	-	-	4.11	-	-	7.1	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.209	-	-	3.5	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1253	-	-	1289	-	-	209	231	807	180	217	734
Stage 1	-	-	-	-	-	-	755	697	-	387	405	-
Stage 2	-	-	-	-	-	-	386	404	-	666	665	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1253	-	-	1289	-	-	170	187	807	111	175	734
Mov Cap-2 Maneuver	-	-	-	-	-	-	170	187	-	111	175	-
Stage 1	-	-	-	-	-	-	748	691	-	384	330	-
Stage 2	-	-	-	-	-	-	304	329	-	503	659	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			3.7			19			23.8		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	174 807		1253	-	-	1289	-	-	210			
HCM Lane V/C Ratio	0.409 0.215		0.009	-	-	0.185	-	-	0.088			
HCM Control Delay (s)	39.3 10.7		7.9	-	-	8.4	-	-	23.8			
HCM Lane LOS	E B		A	-	-	A	-	-	C			
HCM 95th %tile O(veh)	1.8 0.8		0	-	-	0.7	-	-	0.3			

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	7	324	10	25	319
Future Vol, veh/h	6	7	324	10	25	319
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	8	352	11	27	347
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	759	358	0	0	363	0
Stage 1	358	-	-	-	-	-
Stage 2	401	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	374	686	-	-	1196	-
Stage 1	707	-	-	-	-	-
Stage 2	676	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	365	686	-	-	1196	-
Mov Cap-2 Maneuver	478	-	-	-	-	-
Stage 1	707	-	-	-	-	-
Stage 2	660	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	11.5	0	0.6			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	571	1196	-	
HCM Lane V/C Ratio	-	-	0.025	0.023	-	
HCM Control Delay (s)	-	-	11.5	8.1	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-	

Lanes, Volumes, Timings

1: Richarson Pkwy/Shi Com Ct & Mt Zion Blvd

04/07/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	875	258	162	740	6	203	30	130	60	31	92
Future Volume (vph)	104	875	258	162	740	6	203	30	130	60	31	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	125		0	250		125	0		0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (ft)	50			50			75			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.999				0.850		0.932	
Flt Protected	0.950			0.950			0.950				0.984	
Satd. Flow (prot)	1787	3610	1583	1752	3571	0	1736	1900	1599	0	1734	0
Flt Permitted	0.280			0.117			0.450				0.879	
Satd. Flow (perm)	527	3610	1583	216	3571	0	822	1900	1599	0	1549	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			272		1				164		37	
Link Speed (mph)		40			40			40			25	
Link Distance (ft)		673			629			2460			239	
Travel Time (s)		11.5			10.7			41.9			6.5	
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
Heavy Vehicles (%)	1%	0%	2%	3%	1%	0%	4%	0%	1%	0%	0%	1%
Adj. Flow (vph)	109	921	272	171	779	6	214	32	137	63	33	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	921	272	171	785	0	214	32	137	0	193	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes			Yes				
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	0	1	1		1	1	0	1	1	
Detector Template										Left		
Leading Detector (ft)	40	306	0	40	306		40	40	0	20	40	
Trailing Detector (ft)	0	300	0	0	300		0	0	0	0	0	
Detector 1 Position(ft)	0	300	0	0	300		0	0	0	0	0	
Detector 1 Size(ft)	40	6	20	40	6		40	40	20	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		
Detector Phase	1	6	6	5	2		3	8	8	4	4	
Switch Phase												
Minimum Initial (s)	4.0	12.0	12.0	4.0	12.0		4.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	11.0	25.0	25.0	11.0	25.0		11.0	25.0	25.0	25.0	25.0	

Lanes, Volumes, Timings

1: Richarson Pkwy/Shi Com Ct & Mt Zion Blvd

04/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	13.0	48.0	48.0	21.0	56.0		22.0	51.0	51.0	29.0	29.0	
Total Split (%)	10.8%	40.0%	40.0%	17.5%	46.7%		18.3%	42.5%	42.5%	24.2%	24.2%	
Maximum Green (s)	6.0	41.0	41.0	14.0	49.0		15.0	44.0	44.0	22.0	22.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0		7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	None	Min		None	None	None	None	None	
Act Effect Green (s)	34.9	28.6	28.6	45.7	34.2		35.2	35.2	35.2		15.1	
Actuated g/C Ratio	0.36	0.29	0.29	0.47	0.35		0.36	0.36	0.36		0.15	
v/c Ratio	0.41	0.87	0.41	0.60	0.63		0.51	0.05	0.20		0.71	
Control Delay	20.6	42.8	5.4	25.8	28.6		29.0	22.9	3.0		48.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	20.6	42.8	5.4	25.8	28.6		29.0	22.9	3.0		48.6	
LOS	C	D	A	C	C		C	C	A		D	
Approach Delay		33.2			28.1			19.2			48.6	
Approach LOS		C			C			B			D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 97.5

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 30.6

Intersection LOS: C

Intersection Capacity Utilization 78.3%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Richarson Pkwy/Shi Com Ct & Mt Zion Blvd

Ø1	Ø2	Ø3	Ø4
13 s	56 s	22 s	29 s
Ø5	Ø6	Ø7	Ø8
21 s	48 s	51 s	

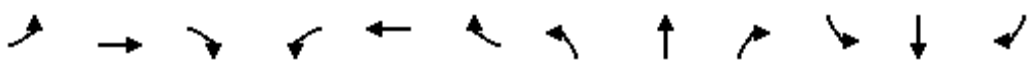
Intersection												
Int Delay, s/veh	12.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	373	73	217	225	2	37	7	393	8	21	14
Future Vol, veh/h	5	373	73	217	225	2	37	7	393	8	21	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	200	-	-	-	-	125	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	90	90	90	90	92	90	92	90	92	92	92
Heavy Vehicles, %	2	1	0	1	3	2	0	2	0	2	2	2
Mvmt Flow	5	414	81	241	250	2	41	8	437	9	23	15
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	252	0	0	495	0	0	1217	1199	455	1420	1238	251
Stage 1	-	-	-	-	-	-	465	465	-	733	733	-
Stage 2	-	-	-	-	-	-	752	734	-	687	505	-
Critical Hdwy	4.12	-	-	4.11	-	-	7.1	6.52	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.209	-	-	3.5	4.018	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1313	-	-	1074	-	-	159	185	609	114	176	788
Stage 1	-	-	-	-	-	-	581	563	-	412	426	-
Stage 2	-	-	-	-	-	-	405	426	-	437	540	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1313	-	-	1074	-	-	113	143	609	26	136	788
Mov Cap-2 Maneuver	-	-	-	-	-	-	113	143	-	26	136	-
Stage 1	-	-	-	-	-	-	579	561	-	410	331	-
Stage 2	-	-	-	-	-	-	287	331	-	122	538	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			4.6			27.7			81.9		
HCM LOS							D			F		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	117	609	1313	-	-	1074	-	-	90			
HCM Lane V/C Ratio	0.416	0.717	0.004	-	-	0.224	-	-	0.519			
HCM Control Delay (s)	56.1	24.5	7.8	-	-	9.3	-	-	81.9			
HCM Lane LOS	F	C	A	-	-	A	-	-	F			
HCM 95th %tile Q(veh)	1.8	6	0	-	-	0.9	-	-	2.3			

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	19	269	7	13	438
Future Vol, veh/h	11	19	269	7	13	438
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	21	292	8	14	476
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	800	296	0	0	300	0
Stage 1	296	-	-	-	-	-
Stage 2	504	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	354	743	-	-	1261	-
Stage 1	755	-	-	-	-	-
Stage 2	607	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	350	743	-	-	1261	-
Mov Cap-2 Maneuver	461	-	-	-	-	-
Stage 1	755	-	-	-	-	-
Stage 2	600	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	11.3	0		0.2		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	607	1261	-	
HCM Lane V/C Ratio	-	-	0.054	0.011	-	
HCM Control Delay (s)	-	-	11.3	7.9	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	0.2	0	-	

Lanes, Volumes, Timings

1: Richarson Pkwy/Shi Com Ct & Mt Zion Blvd

04/14/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	530	167	154	638	5	173	30	124	56	23	94
Future Volume (vph)	90	530	167	154	638	5	173	30	124	56	23	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	125		0	250		125	0		0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (ft)	50			50			75			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.999				0.850		0.927	
Flt Protected	0.950			0.950			0.950				0.984	
Satd. Flow (prot)	1770	3505	1599	1719	3502	0	1770	1845	1568	0	1713	0
Flt Permitted	0.349			0.258			0.475				0.879	
Satd. Flow (perm)	650	3505	1599	467	3502	0	885	1845	1568	0	1530	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			218		1				133		60	
Link Speed (mph)		40			40			40			25	
Link Distance (ft)		672			629			2600			239	
Travel Time (s)		11.5			10.7			44.3			6.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	3%	1%	5%	3%	0%	2%	3%	3%	0%	5%	1%
Adj. Flow (vph)	96	564	178	164	679	5	184	32	132	60	24	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	564	178	164	684	0	184	32	132	0	184	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes			Yes				
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	0	1	1		1	1	0	1	1	
Detector Template										Left		
Leading Detector (ft)	40	306	0	40	306		40	40	0	20	40	
Trailing Detector (ft)	0	300	0	0	300		0	0	0	0	0	
Detector 1 Position(ft)	0	300	0	0	300		0	0	0	0	0	
Detector 1 Size(ft)	40	6	20	40	6		40	40	20	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		
Detector Phase	1	6	6	5	2		3	8	8	4	4	
Switch Phase												
Minimum Initial (s)	4.0	12.0	12.0	4.0	12.0		4.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	11.0	25.0	25.0	11.0	25.0		11.0	25.0	25.0	25.0	25.0	

Lanes, Volumes, Timings

1: Richarson Pkwy/Shi Com Ct & Mt Zion Blvd

04/14/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	13.0	32.0	32.0	17.0	36.0		16.0	41.0	41.0	25.0	25.0	
Total Split (%)	14.4%	35.6%	35.6%	18.9%	40.0%		17.8%	45.6%	45.6%	27.8%	27.8%	
Maximum Green (s)	6.0	25.0	25.0	10.0	29.0		9.0	34.0	34.0	18.0	18.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0		7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	None	Min		None	None	None	None	None	
Act Effect Green (s)	21.4	15.4	15.4	29.1	21.6		27.7	27.7	27.7		11.9	
Actuated g/C Ratio	0.29	0.21	0.21	0.40	0.29		0.38	0.38	0.38		0.16	
v/c Ratio	0.34	0.77	0.35	0.48	0.67		0.42	0.05	0.20		0.62	
Control Delay	17.7	35.7	4.2	18.9	28.0		19.9	15.9	4.2		29.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	17.7	35.7	4.2	18.9	28.0		19.9	15.9	4.2		29.7	
LOS	B	D	A	B	C		B	B	A		C	
Approach Delay		27.0			26.3			13.6			29.7	
Approach LOS		C			C			B			C	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 73.6

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 24.8

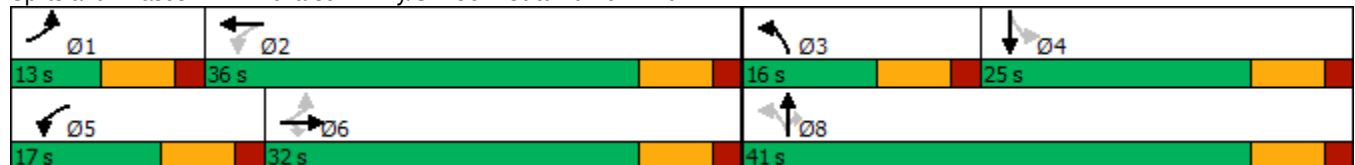
Intersection LOS: C

Intersection Capacity Utilization 57.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Richarson Pkwy/Shi Com Ct & Mt Zion Blvd



HCM 6th TWSC
2: Mt Zion Rd & Richardson Pkwy

04/14/2020

Intersection						
Int Delay, s/veh	4.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	179	98	226	284	67	165
Future Vol, veh/h	179	98	226	284	67	165
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	125
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	95	92	92	95
Heavy Vehicles, %	2	2	1	2	2	2
Mvmt Flow	195	107	238	309	73	174
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	302	0	1034	249
Stage 1	-	-	-	-	249	-
Stage 2	-	-	-	-	785	-
Critical Hdwy	-	-	4.11	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.209	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1265	-	257	790
Stage 1	-	-	-	-	792	-
Stage 2	-	-	-	-	449	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1265	-	209	790
Mov Cap-2 Maneuver	-	-	-	-	303	-
Stage 1	-	-	-	-	792	-
Stage 2	-	-	-	-	365	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	3.7		13.7		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	303	790	-	-	1265	-
HCM Lane V/C Ratio	0.24	0.22	-	-	0.188	-
HCM Control Delay (s)	20.6	10.8	-	-	8.5	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.9	0.8	-	-	0.7	-

Intersection

Int Delay, s/veh 0.5

Movement SEL SET NWT NWR SWL SWRLane Configurations 

Traffic Vol, veh/h 25 319 324 10 7 6

Future Vol, veh/h 25 319 324 10 7 6

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Free Free Free Free Stop Stop

RT Channelized - None - None - None

Storage Length - - - - 0 -

Veh in Median Storage, # - 0 0 - 0 -

Grade, % - 0 0 - 0 -

Peak Hour Factor 92 92 92 92 92 92

Heavy Vehicles, % 2 2 2 2 2 2

Mvmt Flow 27 347 352 11 8 7

Major/Minor Major1 Major2 Minor2

Conflicting Flow All 363 0 - 0 759 358

Stage 1 - - - - 358 -

Stage 2 - - - - 401 -

Critical Hdwy 4.12 - - - 6.42 6.22

Critical Hdwy Stg 1 - - - - 5.42 -

Critical Hdwy Stg 2 - - - - 5.42 -

Follow-up Hdwy 2.218 - - - 3.518 3.318

Pot Cap-1 Maneuver 1196 - - - 374 686

Stage 1 - - - - 707 -

Stage 2 - - - - 676 -

Platoon blocked, % - - - -

Mov Cap-1 Maneuver 1196 - - - 364 686

Mov Cap-2 Maneuver - - - - 477 -

Stage 1 - - - - 687 -

Stage 2 - - - - 676 -

Approach SE NW SW

HCM Control Delay, s 0.6 0 11.7

HCM LOS B

Minor Lane/Major Mvmt NWT NWR SEL SETSWLn1

Capacity (veh/h) - - 1196 - 555

HCM Lane V/C Ratio - - 0.023 - 0.025

HCM Control Delay (s) - - 8.1 0 11.7

HCM Lane LOS - - A A B

HCM 95th %tile Q(veh) - - 0.1 - 0.1

HCM 6th TWSC
4: Richardson Pkwy & Drwy #1

04/14/2020

Intersection						
Int Delay, s/veh	0.4					
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	10	316	328	23	11	6
Future Vol, veh/h	10	316	328	23	11	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	343	357	25	12	7
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	382	0	-	0	735	370
Stage 1	-	-	-	-	370	-
Stage 2	-	-	-	-	365	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1176	-	-	-	387	676
Stage 1	-	-	-	-	699	-
Stage 2	-	-	-	-	702	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1176	-	-	-	382	676
Mov Cap-2 Maneuver	-	-	-	-	492	-
Stage 1	-	-	-	-	691	-
Stage 2	-	-	-	-	702	-
Approach	SE	NW		SW		
HCM Control Delay, s	0.2	0		11.9		
HCM LOS				B		
Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1	
Capacity (veh/h)	-	-	1176	-	544	
HCM Lane V/C Ratio	-	-	0.009	-	0.034	
HCM Control Delay (s)	-	-	8.1	0	11.9	
HCM Lane LOS	-	-	A	A	B	
HCM 95th %tile Q(veh)	-	-	0	-	0.1	

Lanes, Volumes, Timings

1: Richarson Pkwy/Shi Com Ct & Mt Zion Blvd

04/14/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	875	258	162	740	6	203	30	130	60	31	92
Future Volume (vph)	104	875	258	162	740	6	203	30	130	60	31	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	125		0	250		125	0		0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (ft)	50			50			75			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.999				0.850		0.932	
Flt Protected	0.950			0.950			0.950				0.984	
Satd. Flow (prot)	1787	3610	1583	1752	3571	0	1736	1900	1599	0	1734	0
Flt Permitted	0.292			0.136			0.452				0.879	
Satd. Flow (perm)	549	3610	1583	251	3571	0	826	1900	1599	0	1549	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			272		1				137		51	
Link Speed (mph)		40			40			40			25	
Link Distance (ft)		672			629			2600			239	
Travel Time (s)		11.5			10.7			44.3			6.5	
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
Heavy Vehicles (%)	1%	0%	2%	3%	1%	0%	4%	0%	1%	0%	0%	1%
Adj. Flow (vph)	109	921	272	171	779	6	214	32	137	63	33	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	921	272	171	785	0	214	32	137	0	193	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes			Yes				
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	0	1	1		1	1	0	1	1	
Detector Template										Left		
Leading Detector (ft)	40	306	0	40	306		40	40	0	20	40	
Trailing Detector (ft)	0	300	0	0	300		0	0	0	0	0	
Detector 1 Position(ft)	0	300	0	0	300		0	0	0	0	0	
Detector 1 Size(ft)	40	6	20	40	6		40	40	20	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		
Detector Phase	1	6	6	5	2		3	8	8	4	4	
Switch Phase												
Minimum Initial (s)	4.0	12.0	12.0	4.0	12.0		4.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	11.0	25.0	25.0	11.0	25.0		11.0	25.0	25.0	25.0	25.0	

Lanes, Volumes, Timings

1: Richarson Pkwy/Shi Com Ct & Mt Zion Blvd

04/14/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	13.0	32.0	32.0	17.0	36.0		16.0	41.0	41.0	25.0	25.0	
Total Split (%)	14.4%	35.6%	35.6%	18.9%	40.0%		17.8%	45.6%	45.6%	27.8%	27.8%	
Maximum Green (s)	6.0	25.0	25.0	10.0	29.0		9.0	34.0	34.0	18.0	18.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0		7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	None	Min		None	None	None	None	None	
Act Effect Green (s)	29.1	23.0	23.0	37.2	29.5		28.9	28.9	28.9		13.0	
Actuated g/C Ratio	0.35	0.28	0.28	0.45	0.36		0.35	0.35	0.35		0.16	
v/c Ratio	0.39	0.92	0.43	0.60	0.61		0.55	0.05	0.21		0.67	
Control Delay	17.7	44.2	5.7	24.2	25.9		26.5	18.4	4.4		36.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	17.7	44.2	5.7	24.2	25.9		26.5	18.4	4.4		36.7	
LOS	B	D	A	C	C		C	B	A		D	
Approach Delay		33.9			25.6			17.9			36.7	
Approach LOS		C			C			B			D	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 82.6

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 29.2

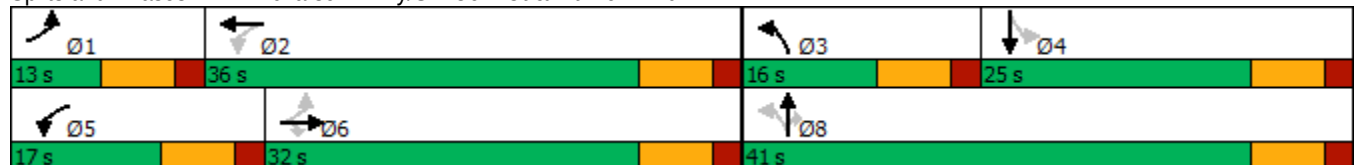
Intersection LOS: C

Intersection Capacity Utilization 78.3%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Richarson Pkwy/Shi Com Ct & Mt Zion Blvd



HCM 6th TWSC
2: Mt Zion Rd & Richardson Pkwy

04/14/2020

Intersection

Int Delay, s/veh 8.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	381	94	217	227	44	393
Future Vol, veh/h	381	94	217	227	44	393
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	125
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	90	90	90	90	95
Heavy Vehicles, %	2	1	1	3	0	0
Mvmt Flow	414	104	241	252	49	414

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	518
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.11
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.209
Pot Cap-1 Maneuver	-	-	1053
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1053
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.6	22.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	278	601	-	-	1053	-
HCM Lane V/C Ratio	0.176	0.688	-	-	0.229	-
HCM Control Delay (s)	20.7	23.2	-	-	9.4	-
HCM Lane LOS	C	C	-	-	A	-
HCM 95th %tile Q(veh)	0.6	5.4	-	-	0.9	-

Intersection						
Int Delay, s/veh	0.6					
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	13	438	269	7	11	19
Future Vol, veh/h	13	438	269	7	11	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	476	292	8	12	21
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	300	0	-	0	800	296
Stage 1	-	-	-	-	296	-
Stage 2	-	-	-	-	504	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1261	-	-	-	354	743
Stage 1	-	-	-	-	755	-
Stage 2	-	-	-	-	607	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1261	-	-	-	349	743
Mov Cap-2 Maneuver	-	-	-	-	461	-
Stage 1	-	-	-	-	744	-
Stage 2	-	-	-	-	607	-
Approach	SE	NW		SW		
HCM Control Delay, s	0.2	0		11.3		
HCM LOS				B		
Minor Lane/Major Mvmt		NWT	NWR	SEL	SETSWLn1	
Capacity (veh/h)		-	-	1261	-	607
HCM Lane V/C Ratio		-	-	0.011	-	0.054
HCM Control Delay (s)		-	-	7.9	0	11.3
HCM Lane LOS		-	-	A	A	B
HCM 95th %tile Q(veh)		-	-	0	-	0.2

HCM 6th TWSC
4: Richardson Pkwy & Drwy #1

04/14/2020

Intersection						
Int Delay, s/veh	0.8					
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	5	444	262	9	29	14
Future Vol, veh/h	5	444	262	9	29	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	483	285	10	32	15
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	295	0	-	0	783	290
Stage 1	-	-	-	-	290	-
Stage 2	-	-	-	-	493	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1266	-	-	-	362	749
Stage 1	-	-	-	-	759	-
Stage 2	-	-	-	-	614	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1266	-	-	-	360	749
Mov Cap-2 Maneuver	-	-	-	-	470	-
Stage 1	-	-	-	-	755	-
Stage 2	-	-	-	-	614	-
Approach	SE	NW		SW		
HCM Control Delay, s	0.1	0		12.4		
HCM LOS				B		
Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1	
Capacity (veh/h)	-	-	1266	-	535	
HCM Lane V/C Ratio	-	-	0.004	-	0.087	
HCM Control Delay (s)	-	-	7.9	0	12.4	
HCM Lane LOS	-	-	A	A	B	
HCM 95th %tile Q(veh)	-	-	0	-	0.3	