

MEMORANDUM

To: David Nevarez., P.E., City of Dallas

From: Tyler Fosnes, P.E. (Tennessee), KCI Technologies, Inc.
Jeff Lawrence, P.E., PTOE, PTP, RSP1, KCI Technologies, Inc.

Re: **Nueva Vida School – Traffic Management Plan**

Date: March 31, 2021



DocuSigned by:
Jeffrey Lawrence
B3B184A42D9444A...
4/1/2021

Introduction

This purpose of this memo is to provide a traffic management plan (TMP) for the proposed Nueva Vida School. The school is located on the west side of Cheyenne Road and south of Limestone Drive in Dallas, Texas. Specifically, the school is located at 1809 Cheyenne Road, Dallas, TX 75217. The school is currently planned to include 440 elementary students and 176 day care students. The Nueva Vida School will include three vehicular access points on Cheyenne Road.

The TMP exhibit, attached, consists of a site-specific plan providing guidelines to coordinate traffic circulation during school peak hours. Specifically, this TMP is intended to promote strategies to manage all modes of transportation and maintain student safety at all times.

Existing Conditions

The following roadway will provide access to the proposed school:

- Cheyenne Road is a two-way roadway oriented in a north-south direction with one lane in each direction. Cheyenne Road provides a connection between Bruton Road to the north and Lake June Road to the south. The posted speed limit on Cheyenne Road is 30 mph.

Turning Movement Counts

In order to provide data for the traffic impact analysis, traffic counts were conducted at the following locations:

Z201-228

MEMORANDUM

Date: March 12, 2021

Re: Nueva Vida School – Traffic Management Plan

- Cheyenne Road and Limestone Drive (unsignalized)
- Cheyenne Road and Access Drive 1 (unsignalized)
- Cheyenne Road and Access Drive 2 (unsignalized)
- Cheyenne Road and Oak Gate Lane / Martin Street (unsignalized)
- Bruton Road and Cheyenne Road (unsignalized)

Specifically, KCI Technologies, Inc. conducted the traffic counts from 7:00 – 9:00 AM and 3:00 – 6:00 PM on a typical weekday in March 2021 while local schools were in session. From the counts, it was determined that the peak hours of traffic flow for the majority of the study intersections occurred from 7:15 – 8:15 AM and 3:00 – 4:00 PM. It should be noted that the peak hour at the intersection of Bruton Road and Cheyenne Road was 3:45 PM – 4:45 PM. For the analyses, the volumes at each study intersection corresponds with the location’s specific peak hour.

Given the changes in traffic patterns resulting from Covid-19, the traffic volumes at the study intersections were compared to historical counts. After a review of the historical counts, it was determined that the traffic volumes should be increased by 35% in the AM peak hour and 15% in the PM peak hour to account for the changes in traffic patterns. The adjusted existing peak hour traffic volumes are presented on a figure at the end of the report.

Sight Distance

Sight distance measurements were conducted on Cheyenne Road at all site access drives to determine if adequate sight distance would be available for motorists making left or right turns from the site accesses. For a 30 mph speed on Cheyenne Road, the guidelines from *A Policy on Geometric Design of Highways and Streets*, by the American Association of State Highway and Transportation Officials (AASHTO), call for a minimum stopping sight distance of 200 feet as a design value. This is the distance required for a motorist to detect an object in the roadway necessitating a stop and be able to stop before reaching the object.

Subsequently, AASHTO also provides minimum design values for intersection sight distance. For example, the intersection sight distance allows enough time gap for a motorist to turn from the site access drives onto Cheyenne Road without requiring a motorist on Cheyenne Road to significantly reduce speed. For a speed of 30 mph, the design value for intersection sight distance for a motorist is 290 feet for right-turns and 335 feet for left-turns. Therefore, it is desirable to provide a minimum of 290 feet

Z201-228

MEMORANDUM

Date: March 12, 2021

Re: Nueva Vida School – Traffic Management Plan

looking to the north and 335 feet looking to the south of the site access drives onto Cheyenne Road.

According to field measurements, adequate intersection sight distance is available for all turning movements from the site access drives onto Cheyenne Road.

TMP Exhibit

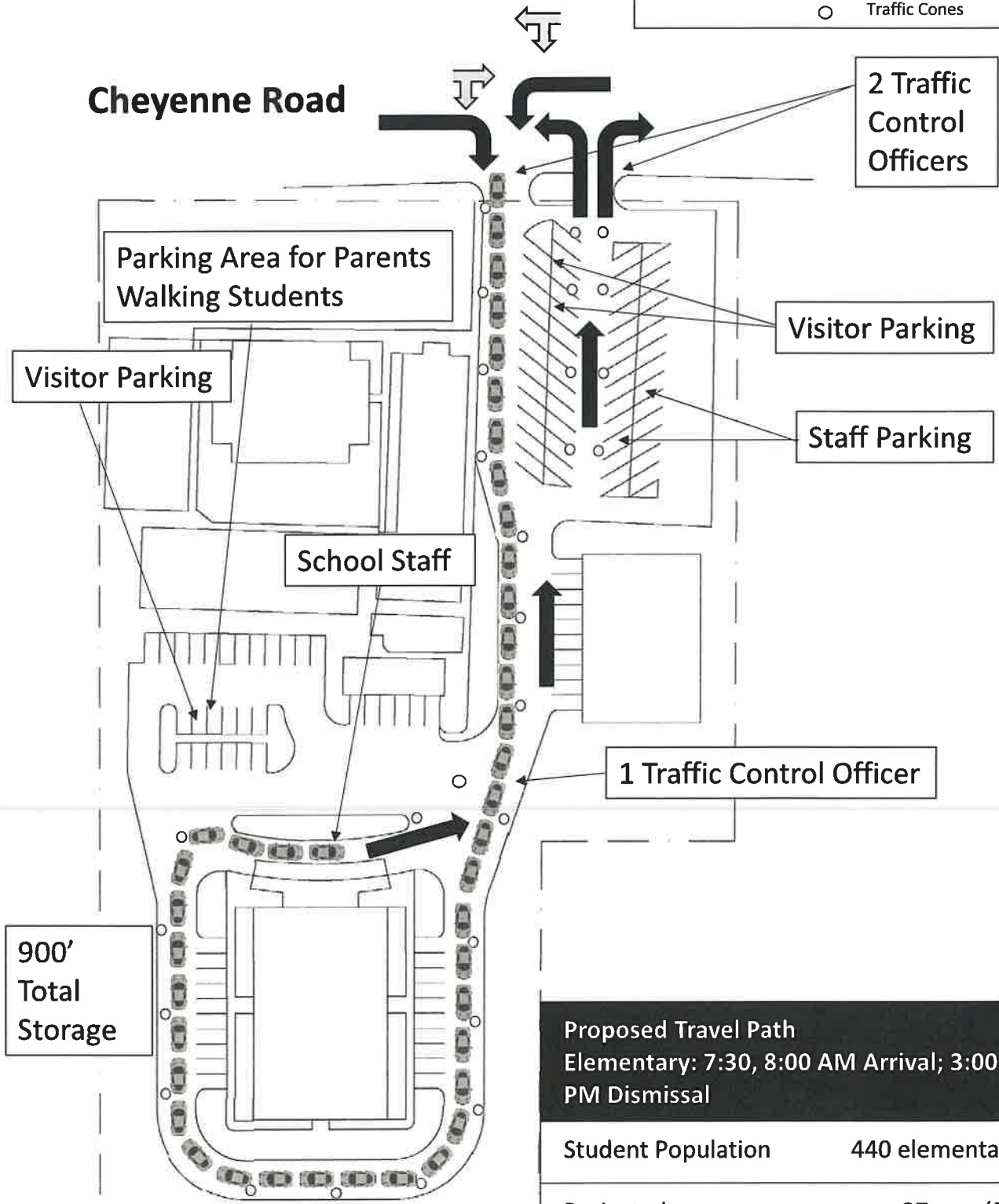
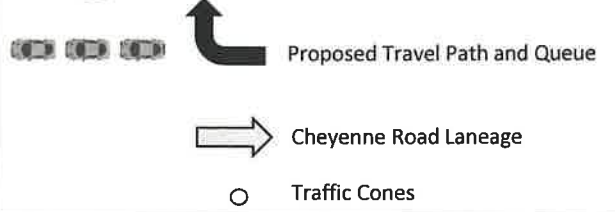
The TMP exhibit is shown on the next page. The TMP exhibit shows the following features of the Nueva Vida School:

- Building footprints, curbs, parking, pavement markings, designated student drop-off and pick-up locations.
- School site location and all ingress and egress points of access for motor vehicles or pedestrians.
- On-site traffic circulation, including any temporary traffic control devices.
- Location of school staff assisting with unloading and loading students, as well as location of school crossing guards and/or off-duty deputized officers.

201-228

Figure 1: TMP Exhibit

Legend



Proposed Travel Path	
Elementary: 7:30, 8:00 AM Arrival; 3:00 PM, 3:30 PM Dismissal	
Student Population	440 elementary students
Projected	37 cars (870 LF)
Provided	38 cars (900 LF)
Surplus	1 car (30 LF)



2201-228

MEMORANDUM

Date: March 12, 2021

Re: Nueva Vida School – Traffic Management Plan

Summary Table

TABLE 1: SUMMARY OF TMP

FEATURE	Existing Conditions	Projected Conditions
Student Arrival Time:	N/A	7:30 AM, 8:00 AM
Student Dismissal Time:	N/A	3:00 PM, 3:30 PM
School Enrollment:	N/A	Elementary – 440 students Day Care – 176 students
Number of School Staff Assisting Loading/Unloading:	N/A	4
Number of Crossing Guards and/or Off-Duty Officers:	N/A	3
Storage Capacity:	N/A	900 feet

As shown in the TMP Exhibit, during arrival and dismissal periods, traffic is planned to travel through the northern site access point and circulate around the school on the west side of the property. Vehicles will then complete drop-off/pick-up at the front of the building and will exit through the southern site access point. This path provides approximately 900 feet of queuing space to the drop-off/pick-up point..

The staggered arrival/dismissal schedule should allow for 220 elementary students to be picked up/dropped off in each period. Furthermore, the day care center does not have a set arrival/dismissal schedule, and any vehicles that enter during the elementary arrival/dismissal are expected to park which will not affect the projected queue. Through coordination with the City of Dallas, a ratio of one vehicle per six students included during an arrival/dismissal period was suggested as an equation to project a maximum possible queue length. As shown, the projected maximum queue length based on the suggested ratio would be approximately 37 vehicles (~870 linear feet). Therefore, the provided queue length of 900 feet should be adequate to accommodate the projected queue.

Finally, the Texas Transportation Institute's *Traffic Operations and Safety at Schools: Recommended Guidelines* was reviewed to determine if the provided storage length will be adequate to accommodate the school. This study provides recommended storage lengths based on student population size for elementary, middle, and high schools. According to the guidelines, it is recommended that 900-1,200 feet of storage be provided for

201-228

MEMORANDUM

Date: March 12, 2021

Re: Nueva Vida School – Traffic Management Plan

elementary schools with student populations of 200-600 students. Therefore, the proposed travel path with 900 feet of storage should be sufficient.

Conclusions and Recommendations

The analyses presented in this memo that safe and efficient traffic operations can be achieved by implementing the following recommendations:

- The traffic management plan should include at least 4 school staff members, 3 crossing guards and temporary traffic control equipment, as shown in the TMP Exhibit.
- Specifically, the crossing guards should be stationed at the site entrance, site exit, and the conflict point where exiting vehicles cross the entering vehicle queue.
- Maintain and utilize the proposed travel path, as shown in the TMP Exhibit.
- Implement a staggered arrival/dismissal schedule in which 50% of the student population be included in each period. The staggered schedule should include as much time as possible between phases.
- School staff members and peace officers on-site should wear safety vests during arrival/dismissal, as well as utilizing reversible hand-paddle signs (STOP/SLOW) and audible warnings such as whistles when directing traffic.
- No parking, standing, or stopping on Cheyenne Road is allowed. Any observed vehicular queue on Cheyenne Road should be immediately mitigated.

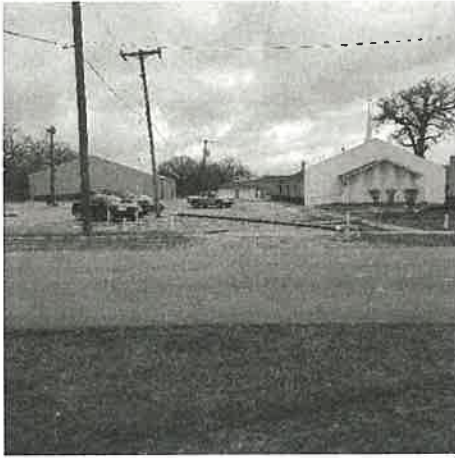
Z 201-228

MEMORANDUM

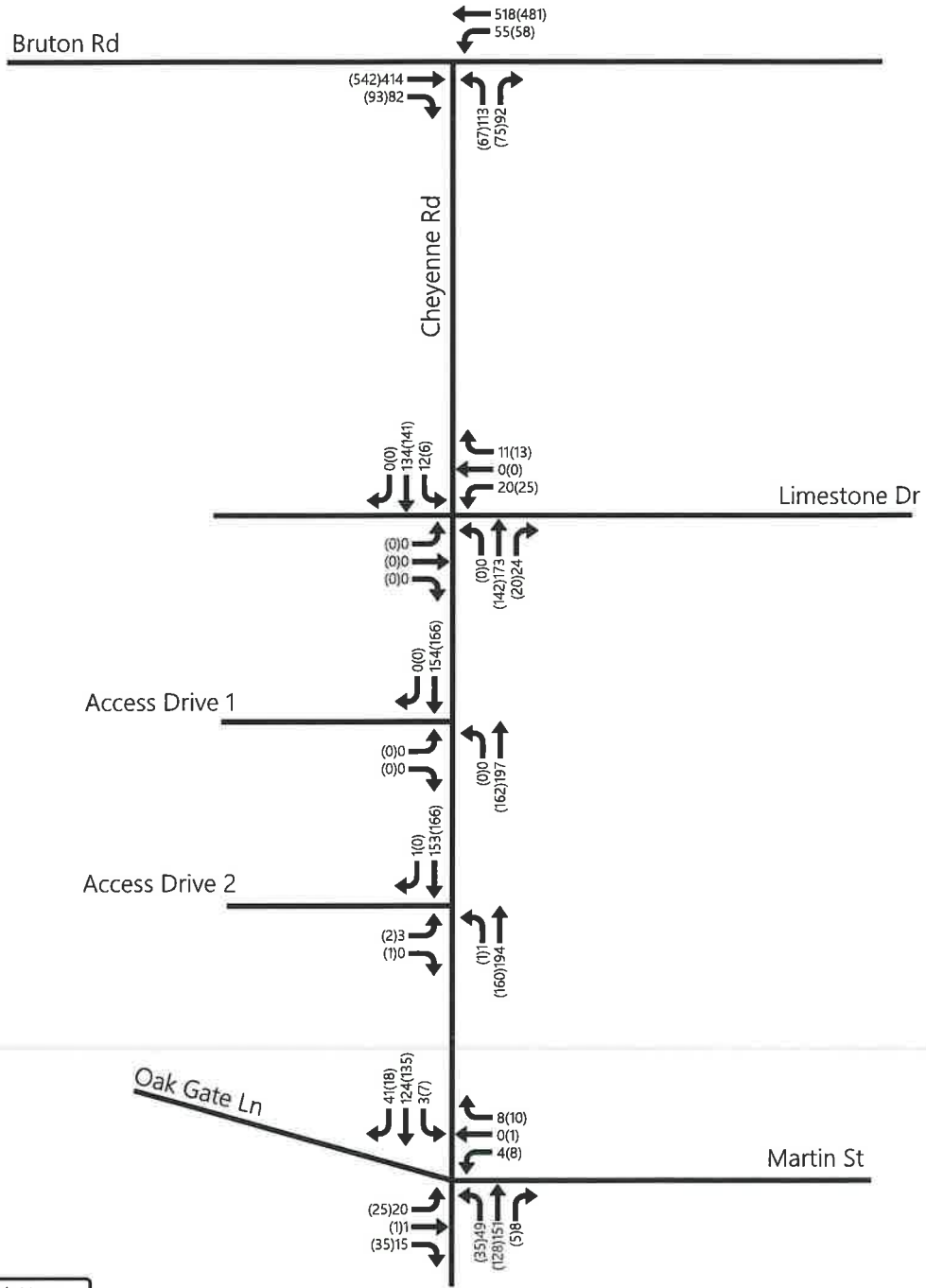
Date: March 12, 2021

Re: Nueva Vida School – Traffic Management Plan

Existing Conditions Photos



Z 201-228



XXX - AM Peak Hour
Traffic Volumes
(XXX) - PM Peak Hour
Traffic Volumes



Existing Peak Hour Traffic Volumes
(Not to Scale)

Figure 3.

Z201-228



TRAFFIC IMPACT STUDY

NUEVA VIDA SCHOOL

DALLAS, TEXAS



PREPARED FOR:
CALLAWAY ARCHITECTURE
MARCH 2021

**TRAFFIC IMPACT STUDY
NUEVA VIDA SCHOOL
DALLAS, TEXAS**

**PREPARED FOR:
CALLAWAY ARCHITECTURE**

**PREPARED BY:
KCI TECHNOLOGIES, INC**
500 11th Avenue North, Suite 290
Nashville, TN 37203
615.370.8410 office 615.370.8455 fax
www.kci.com



DocuSigned by:
Jeffrey Lawrence
B3B184A42D9444A...
4/1/2021

Z201228

TABLE OF CONTENTS

1. INTRODUCTION AND PROJECT DESCRIPTION 1

2. EXISTING CONDITIONS..... 3

 2.1 Existing Traffic Volumes 3

 2.2 Existing Traffic Operations..... 6

3. BACKGROUND TRAFFIC VOLUMES..... 8

 3.1 Establishing Background Volumes..... 8

4. IMPACTS 9

 4.1 Trip Generation..... 9

 4.2 Trip Distribution and Traffic Assignment 10

 4.3 Capacity / Level of Service Analyses 13

5. ANALYSIS OF SITE PLAN..... 17

 5.1 Site Access Review..... 17

 5.2 Sight Distance Analyses..... 17

6. CONCLUSIONS AND RECOMMENDATIONS 18

APPENDICES 19

Z201-228

LIST OF FIGURES

FIGURE 1. LOCATION OF THE PROJECT SITE 2
FIGURE 2. EXISTING LANEAGE 4
FIGURE 3. EXISTING PEAK HOUR TRAFFIC VOLUMES 5
FIGURE 4. DISTRIBUTION OF TRAFFIC GENERATED BY THE PROJECT SITE 11
FIGURE 5. ASSIGNMENT OF TRAFFIC GENERATED BY THE PROJECT SITE 12
FIGURE 6. TOTAL PROJECTED PEAK HOUR TRAFFIC VOLUMES 14

Z 201-228

LIST OF TABLES

TABLE 1. DESCRIPTIONS OF LEVEL OF SERVICE..... 6
TABLE 2. EXISTING PEAK HOUR LEVELS OF SERVICE..... 7
TABLE 3. DEVELOPMENT TRIP GENERATION 9
TABLE 4A. PROJECTED AM PEAK HOUR LEVELS OF SERVICE..... 15
TABLE 4B. PROJECTED PM PEAK HOUR LEVELS OF SERVICE..... 16

Z 201-228

EXECUTIVE SUMMARY

Project Description

The proposed Nueva Vida School is located on the west side of Cheyenne Road and south of Limestone Drive in Dallas, Texas. The planned enrollment at the school is 440 elementary students with 25 staff members and a day care center that includes 176 students with 10 staff members. It should be noted that the 176 day care students could include an after school program for the elementary school. However, all 176 day care students were conservatively assumed to be separate from the elementary school population. The school is planned to open for the 2021-2022 school year. The planned elementary school is expected to include two separate arrival/dismissal periods, and the day care center hours of operation are planned to be 6:00 AM – 6:00 PM on weekdays. The purpose of this study is to analyze the access plan and the traffic impacts associated with this proposed development.

Data Collection

In order to provide data for the traffic impact analysis, traffic counts were conducted at the following intersections:

1. Cheyenne Road and Limestone Drive (unsignalized)
2. Cheyenne Road and Access Drive 1 (unsignalized)
3. Cheyenne Road and Access Drive 2 (unsignalized)
4. Cheyenne Road and Oak Gate Lane / Martin Street (unsignalized)
5. Bruton Road and Cheyenne Road (unsignalized)

Specifically, KCI Technologies, Inc. conducted the traffic counts from 7:00 – 9:00 AM and 3:00 – 6:00 PM on a typical weekday in March 2021 while local schools were in session. From the counts, it was determined that the peak hours of traffic flow for the majority of the study intersections occurred from 7:15 – 8:15 AM and 3:00 – 4:00 PM. It should be noted that the afternoon peak hour at the intersection of Bruton Road and Cheyenne Road was 3:45 PM – 4:45 PM. For the analyses, the volumes at each study intersection corresponds with the location's specific peak hour. The traffic volumes at the study intersections were adjusted to account for changes in traffic patterns resulting from Covid-19.

Projection of Future Traffic Volumes

Z201-228

The estimated total project-generated traffic volumes for the proposed school were added to the existing peak hour traffic volumes in order to obtain the total projected peak hour traffic volumes for the study area intersections.

Conclusions and Recommendations

The Nueva Vida School is planned to be located on the west side of Cheyenne Road and south of Limestone Drive in Dallas, Texas. The planned enrollment at the school is expected to be 440 elementary students and 176 day care center students.

The analyses presented in this study indicate that the impacts of the proposed project on the existing street network will be minimal. Therefore, based on the analyses conducted, no further recommendations are presented for the proposed school. Please refer to the Traffic Management Plan associated with this project for specific recommendations to the school traffic operations during arrival and dismissal periods.

Z 201-228

1. INTRODUCTION AND PROJECT DESCRIPTION

The purpose of this study is to analyze the traffic impacts and access plan associated with the proposed Nueva Vida School, located on the west side of Cheyenne Road and south of Limestone Drive in Dallas, Texas. The planned enrollment at the school is 440 elementary students with 25 staff members and a day care center that includes 176 students with 10 staff members. It should be noted that the 176 day care students could include an after school program for the elementary school. However, all 176 day care students were conservatively assumed to be separate from the elementary school population. The school is planned to open for the 2021-2022 school year. The planned elementary school is expected to include two separate arrival/dismissal periods, and the day care center hours of operation are planned to be 6:00 AM – 6:00 PM on weekdays. The current site plan is presented in Appendix A.

Figure 1 shows the location of the project site. As shown, the property is bounded on the north, south, and west by single-family residential properties, and on the east by the existing church. The Nueva Vida School will share three existing access drives with the church adjacent to the property. The existing church has regular events on Sundays and in the evenings on Wednesday and Friday.

In this study, the current operating characteristics of the adjacent roadways are evaluated. The expected trips generated by the proposed expansion are determined and distributed to the roadway network. The adjacent roadways are then re-evaluated to determine the anticipated traffic impacts of the project. Finally, recommendations are presented, including roadway improvements and/or traffic control improvements that are needed to accommodate the expected traffic.

Z 201-228

FIGURE 1. LOCATION OF THE PROJECT SITE



Location of the Project Site
(Not to Scale)

Figure 1.

Z 201-228

2. EXISTING CONDITIONS

2.1 Existing Traffic Volumes

In order to provide data for the traffic impact analysis, traffic counts were conducted at the following intersections:

1. Cheyenne Road and Limestone Drive (unsignalized)
2. Cheyenne Road and Access Drive 1 (unsignalized)
3. Cheyenne Road and Access Drive 2 (unsignalized)
4. Cheyenne Road and Oak Gate Lane / Martin Street (unsignalized)
5. Bruton Road and Cheyenne Road (unsignalized)

Specifically, KCI Technologies, Inc. conducted the traffic counts from 7:00 – 9:00 AM and 3:00 – 6:00 PM on a typical weekday in March 2021 while local schools were in session. From the counts, it was determined that the peak hours of traffic flow for the majority of the study intersections occurred from 7:15 – 8:15 AM and 3:00 – 4:00 PM. These peak hours coincide with the proposed arrival/dismissal periods. It should be noted that the afternoon peak hour at the intersection of Bruton Road and Cheyenne Road was 3:45 PM – 4:45 PM. For the analyses, the volumes at each study intersection corresponds with the location's specific peak hour.

Given the changes in traffic patterns resulting from Covid-19, the traffic volumes at the study intersections were compared to historical counts. After a review of the historical counts, it was determined that the traffic volumes should be increased by 35% in the AM peak hour and 15% in the PM peak hour to account for the changes in traffic patterns. The existing laneage at the study intersections is illustrated in Figure 2. The existing peak hour turning movement volumes are presented in Figure 3. It should be noted that the traffic volumes shown along Cheyenne Road from Limestone Road to Access Drive 2 have been balanced. A detailed summary of the traffic counts is included in Appendix B.

Z 201-228



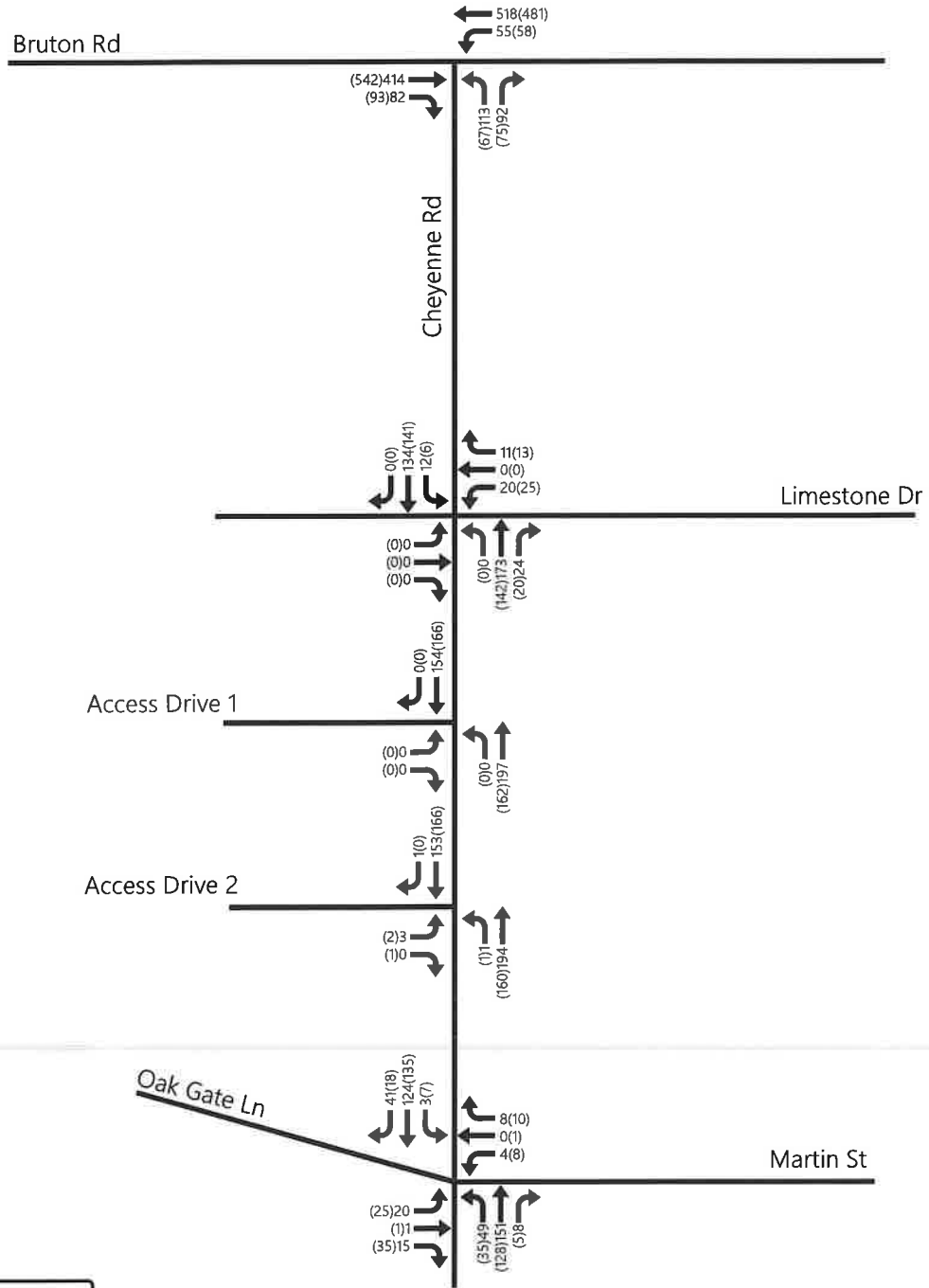
▼ - Stop Sign
 XX' - Storage Length



Existing Laneage
 (Not to Scale)

Figure 2.

Z 201-228



XXX - AM Peak Hour
Traffic Volumes
(XXX) - PM Peak Hour
Traffic Volumes



Existing Peak Hour Traffic Volumes
(Not to Scale)

Figure 3.

Z201-228

2.2 Existing Traffic Operations

To determine the current operation of the study intersections, capacity analyses were performed for the AM and PM peak hours. The capacity calculations were performed according to the methods outlined in the *Highway Capacity Manual*, 6th Edition. The capacity analyses result in the determination of a Level of Service (LOS) for an intersection. The LOS is a concept used to describe how well an intersection or roadway operates. LOS A is the best, while LOS F is the worst. LOS D is typically considered as the minimum acceptable LOS for an intersection in an urbanized area. Table 1 presents the descriptions of LOS for unsignalized intersections.

TABLE 1. DESCRIPTIONS OF LEVEL OF SERVICE

LEVEL OF SERVICE	DESCRIPTION	UNSIGNALIZED CONTROL DELAY (sec/veh)
A	Little or no delay	≤ 10.0
B	Short traffic delay	>10 and ≤ 15
C	Average traffic delay	>15 and ≤ 25
D	Long traffic delay	>25 and ≤ 35
E	Very long traffic delay	>35 and ≤ 50
F	Extreme traffic delay	> 50.0

Source: *Highway Capacity Manual*, 6th Edition

The results of the capacity analyses for the existing conditions at the study intersections are presented in Table 2. As shown, all intersections and critical movements operate at LOS B or better in the AM and PM peak hours with the following exceptions:

- Bruton Road and Cheyenne Road
 - The northbound approach operates at LOS D in the AM peak hour and LOS C in the PM peak hour.

Capacity analyses worksheets are included in Appendix C.

Z 201-228

TABLE 2. EXISTING PEAK HOUR LEVELS OF SERVICE

INTERSECTION	TURNING MOVEMENT	LEVEL OF SERVICE (Average Approach Delay in sec/veh)	
		AM PEAK	PM PEAK
Cheyenne Road and Limestone Drive	Northbound Approach	A (0.0)	A (0.0)
	Eastbound Approach	A (0.0)	A (0.0)
	Westbound Approach	B (10.8)	B (10.6)
	Southbound Approach	A (7.7)	A (7.6)
Cheyenne Road and Access Drive 1	Northbound Approach	A (0.0)	A (0.0)
	Eastbound Approach	A (0.0)	A (0.0)
Cheyenne Road and Access Drive 2	Northbound Approach	A (7.6)	A (7.6)
	Eastbound Approach	B (10.8)	B (10.2)
Cheyenne Road and Oak Gate Lane / Martin Street	Northbound Approach	A (7.7)	A (7.6)
	Eastbound Approach	B (11.3)	B (10.7)
	Westbound Approach	B (10.3)	B (10.6)
	Southbound Approach	A (7.6)	A (7.5)
Bruton Road and Cheyenne Road	Northbound Approach	D (27.9)	C (24.5)
	Westbound Left-Turn	B (11.1)	B (12.4)

Z 201-228

3. BACKGROUND TRAFFIC VOLUMES

3.1 Establishing Background Volumes

As previously discussed, the proposed school is expected to be complete before the 2021-2022 school year, which is a one-year horizon. After a review of the nearby properties in the area, it is expected that there will be minimal background traffic growth on the study area roadways over the next year. Based on these reasons, analyses of background conditions were not conducted for this study.

Z 201-228

4. IMPACTS

4.1 Trip Generation

A traffic generation process was used to estimate the amount of traffic expected to be generated by the proposed Nueva Vida School. Factors for the trip generation were taken from ITE's *Trip Generation*, 10th Edition. According to the developer, the proposed enrollment is 440 elementary students and 176 day care students.

Table 3 presents the daily, AM and PM peak hour trip generation for the proposed school. As shown in Table 5, the proposed development can be expected to generate approximately 1,552 new vehicle trips per day. The AM and PM peak hour trip generations will equal approximately 432 and 214 new trips, respectively. These trips represent the new traffic that will be generated by the proposed Nueva Vida School. The calculations for trip generation are included in Appendix D.

TABLE 3. DEVELOPMENT TRIP GENERATION

LAND USE	SIZE	DAILY TRAFFIC	GENERATED TRAFFIC			
			AM PEAK Enter	AM PEAK Exit	PM PEAK Enter	PM PEAK Exit
Elementary School (LUC 520)	440 students	832	159	136	36	39
Day Care Center (LUC 565)	176 students	720	72	65	65	74
SUBTOTAL		1,552	231	201	101	113
			432		214	

Source: *Trip Generation*, 10th Edition

Z 201-228

4.2 Trip Distribution and Traffic Assignment

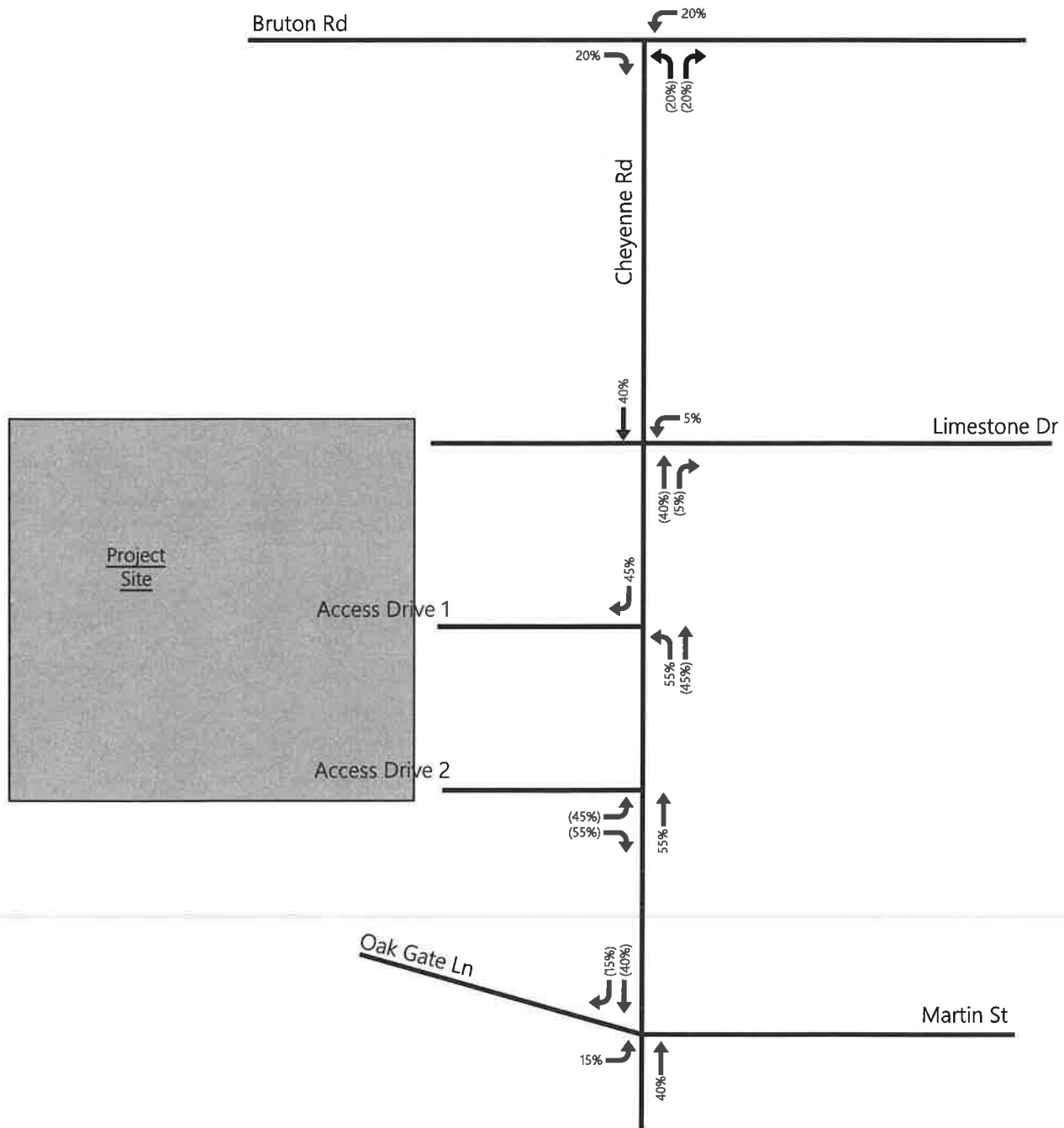
A directional distribution of traffic generated by the proposed project was established based on the proposed access, the existing roadway network, and the existing travel patterns developed from the existing peak hour traffic counts. As previously discussed, access to the development is planned to be provided by three driveways. According to information provided by the developer, the vehicles will enter the site through Access Drive 1 and exit the site through Access Drive 2 during arrival/dismissal periods.

The directional distribution for the proposed development is shown in Figure 4. As shown in the figure,

- approximately 40% of the traffic generated by the school will be oriented to the south on Cheyenne Road,
- 20% to the west on Bruton Road,
- 20% to the east on Bruton Road,
- 15% to the west on Oak Gate Lane, and
- 5% to the east on Limestone Drive.

Based on the directional distribution, the project-generated traffic for the AM and PM peak hours was assigned to the roadway network. The traffic assignment for the proposed development is shown in Figure 5.

Z201-228



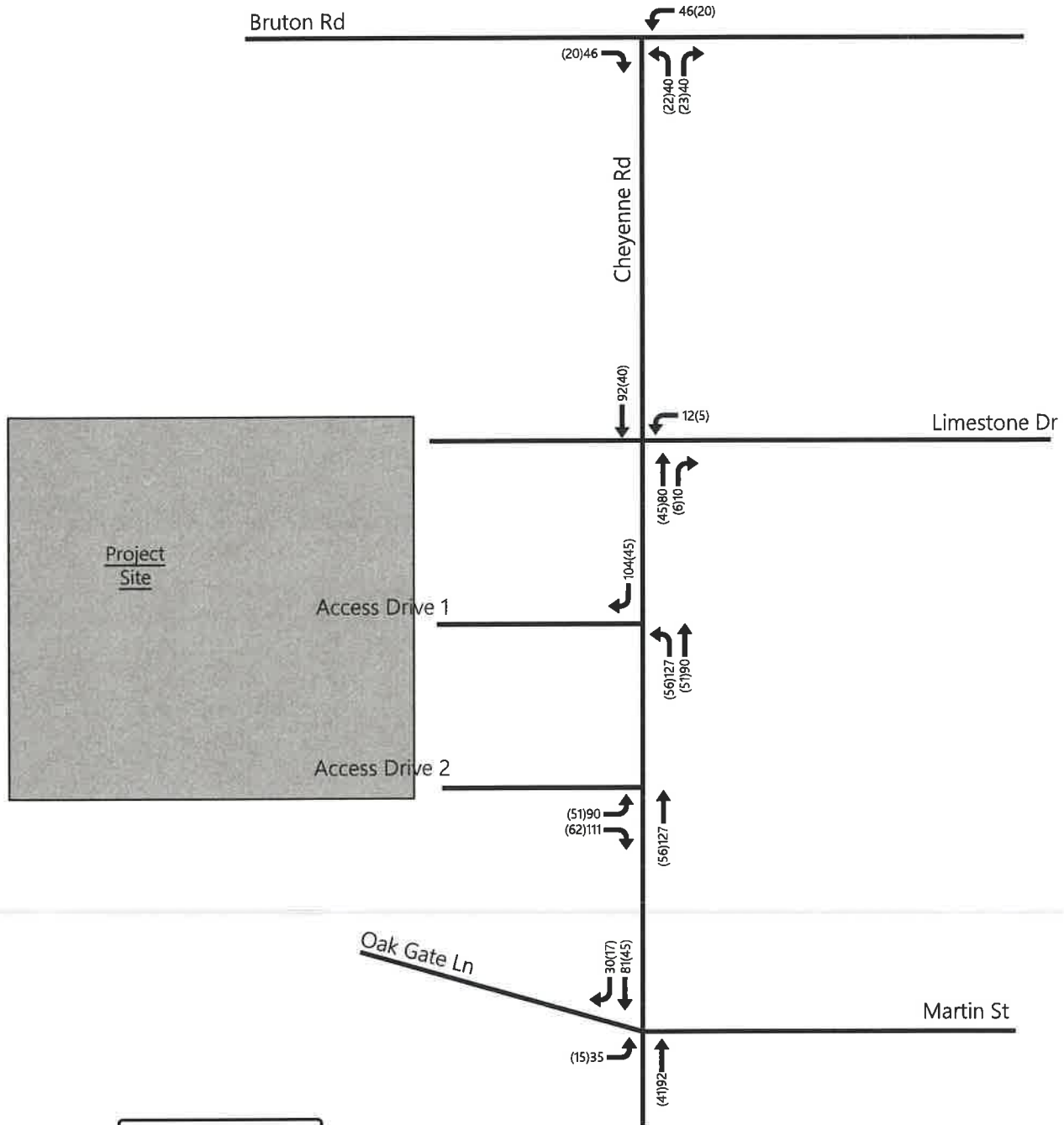
XX% - Enter
(XX%) - Exit



Distribution of Peak Hour Traffic Volumes
Generated by the Project Site
(Not to Scale)

Figure 4.

Z 201-228



XXX - AM Peak Hour Traffic Volumes
 (XXX) - PM Peak Hour Traffic Volumes



Assignment of Peak Hour Traffic Volumes
 Generated by the Project Site
 (Not to Scale)

Figure 5.

Z 201-228

4.3 Capacity / Level of Service Analyses

The total site-generated traffic volumes were added to the background peak hour traffic volumes for the proposed school in order to obtain the total projected traffic volumes for the study intersections. Figure 6 presents the total projected AM and PM peak hour traffic volumes expected at the completion of the proposed school.

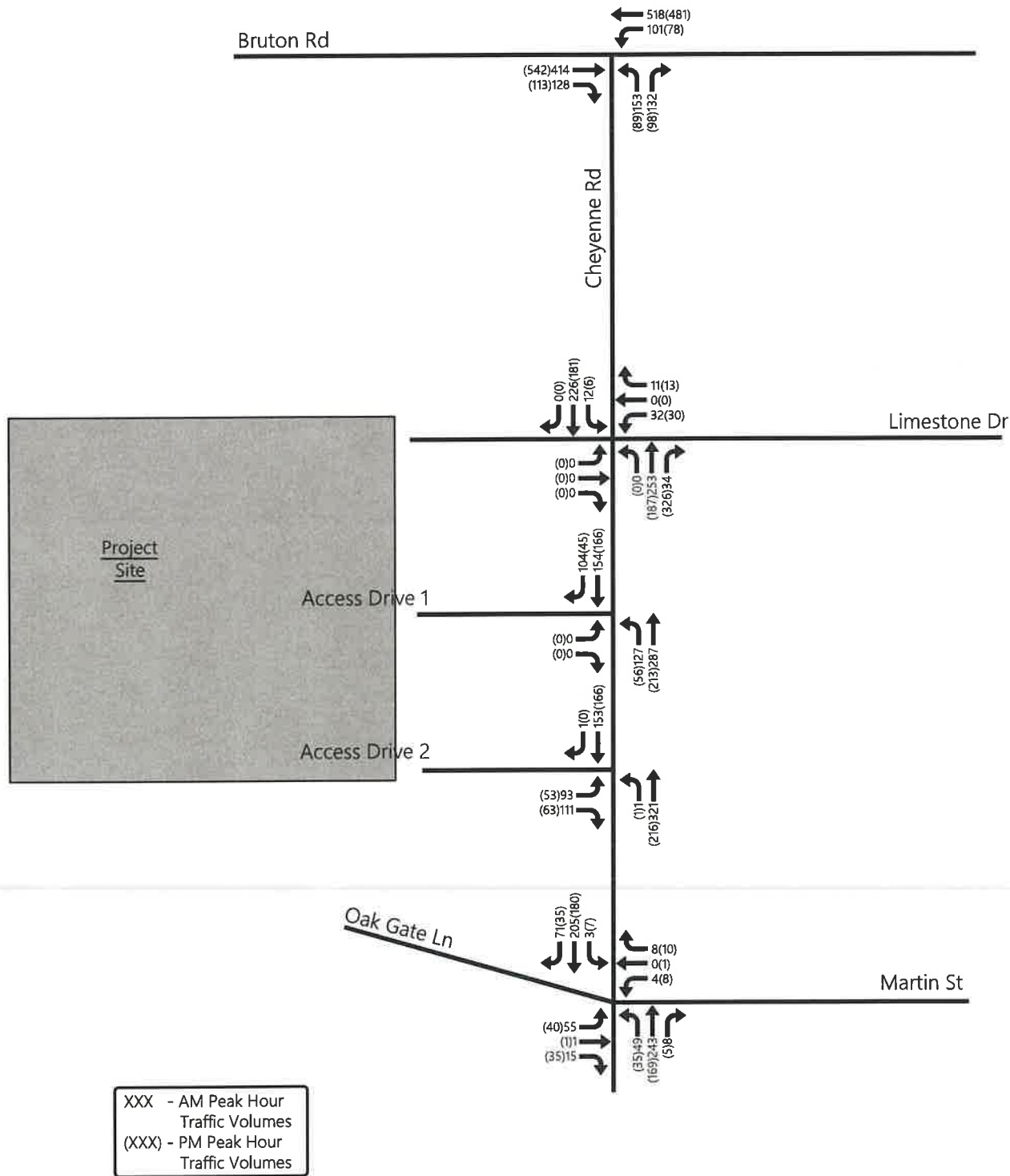
Capacity analyses were performed in order to determine the impact of the project on the study intersections. These capacity analyses were also used to evaluate the need for roadway and traffic control improvements at the intersections studied. The capacity calculations were performed according to the methods outlined in the *Highway Capacity Manual*, 6th Edition. The results of the capacity analyses for the projected conditions at the study area intersections are presented in Tables 4A and 4B. For the analyses, the intersection configurations were the same as the existing and background conditions.

As shown in Tables 4A and 4B, under projected conditions, the capacity analyses indicate that the operational performances of the critical movements at the study intersections are generally expected to operate at LOS C or better in the AM and PM peak hours with the following exception:

- Bruton Road and Cheyenne Road
 - The northbound approach is expected to operate at LOS F in the AM peak hour and LOS E in the PM peak hour.
 - It should be noted that these levels of service are common during peak hours for low-volume stop-controlled approaches to high-volume roadways such as Bruton Road.

Capacity analyses worksheets are included in Appendix C.

Z201-228



Total Projected Peak Hour Traffic Volumes
(Not to Scale)

Figure 6.

Z 201-228

TABLE 4A. PROJECTED AM PEAK HOUR LEVELS OF SERVICE

INTERSECTION	TURNING MOVEMENT	LEVEL OF SERVICE (Average Approach Delay in sec/veh)	
		EXISTING	PROJECTED
Cheyenne Road and Limestone Drive	Northbound Approach	A (0.0)	A (0.0)
	Eastbound Approach	A (0.0)	A (0.0)
	Westbound Approach	B (10.8)	B (13.3)
	Southbound Approach	A (7.7)	A (7.9)
Cheyenne Road and Access Drive 1	Northbound Approach	A (0.0)	A (8.1)
	Eastbound Approach	A (0.0)	A (0.0)
Cheyenne Road and Access Drive 2	Northbound Approach	A (7.6)	A (7.6)
	Eastbound Approach	B (10.8)	B (13.1)
Cheyenne Road and Oak Gate Lane / Martin Street	Northbound Approach	A (7.7)	A (8.0)
	Eastbound Approach	B (11.3)	C (15.8)
	Westbound Approach	B (10.3)	B (11.6)
	Southbound Approach	A (7.6)	A (7.8)
Bruton Road and Cheyenne Road	Northbound Approach	D (27.9)	F (89.7)
	Westbound Left-Turn	B (11.1)	B (12.1)

Z 201-128

TABLE 4B. PROJECTED PM PEAK HOUR LEVELS OF SERVICE

INTERSECTION	TURNING MOVEMENT	LEVEL OF SERVICE (Average Approach Delay in sec/veh)	
		EXISTING	PROJECTED
Cheyenne Road and Limestone Drive	Northbound Approach	A (0.0)	A (0.0)
	Eastbound Approach	A (0.0)	A (0.0)
	Westbound Approach	B (10.6)	B (11.5)
	Southbound Approach	A (7.6)	A (7.7)
Cheyenne Road and Access Drive 1	Northbound Approach	A (0.0)	A (7.8)
	Eastbound Approach	A (0.0)	A (0.0)
Cheyenne Road and Access Drive 2	Northbound Approach	A (7.6)	A (7.6)
	Eastbound Approach	B (10.2)	B (11.1)
Cheyenne Road and Oak Gate Lane / Martin Street	Northbound Approach	A (7.6)	A (7.8)
	Eastbound Approach	B (10.7)	B (12.3)
	Westbound Approach	B (10.6)	B (11.3)
	Southbound Approach	A (7.5)	A (7.6)
Bruton Road and Cheyenne Road	Northbound Approach	C (24.5)	E (37.5)
	Westbound Left-Turn	B (12.4)	B (12.9)

Z201-222

5. ANALYSIS OF SITE PLAN

5.1 Site Access Review

According to information provided by the development team, the planned enrollment at the Nueva Vida School will be 440 elementary students and 176 day care students. There are three site access points that the school will share with the existing church adjacent to the site. Vehicles will enter through Access Drive 1 and exit through Access Drive 2 during arrival/dismissal periods. There will be two separate arrival/dismissal periods for elementary students. The planned day care center will operate from 6:00 AM – 6:00 PM with no scheduled arrival/dismissal times.

5.2 Sight Distance Analyses

Sight distance measurements were conducted on Cheyenne Road at all site access drives to determine if adequate sight distance would be available for motorists making left or right turns from the site accesses. For a 30 mph speed on Cheyenne Road, the guidelines from *A Policy on Geometric Design of Highways and Streets*, by the American Association of State Highway and Transportation Officials (AASHTO), call for a minimum stopping sight distance of 200 feet as a design value. This is the distance required for a motorist to detect an object in the roadway necessitating a stop and be able to stop before reaching the object.

Subsequently, AASHTO also provides minimum design values for intersection sight distance. For example, the intersection sight distance allows enough time gap for a motorist to turn from the site access drives onto Cheyenne Road without requiring a motorist on Cheyenne Road to significantly reduce speed. For a speed of 30 mph, the design value for intersection sight distance for a motorist is 290 feet for right-turns and 335 feet for left-turns. Therefore, it is desirable to provide a minimum of 290 feet looking to the north and 335 feet looking to the south of the site access drives onto Cheyenne Road.

According to field measurements, adequate intersection sight distance is available for all turning movements from the site access drives onto Cheyenne Road.

7201-228

6. CONCLUSIONS AND RECOMMENDATIONS

The Nueva Vida School is planned to be located on the west side of Cheyenne Road and south of Limestone Drive in Dallas, Texas. The planned enrollment at the school is expected to be 440 elementary students and 176 day care centers.

The analyses presented in this study indicate that the impacts of the proposed project on the existing street network will be minimal. Therefore, based on the analyses conducted, no further recommendations are presented for the proposed school. Please refer to the Traffic Management Plan associated with this project for specific recommendations to the school traffic operations during arrival and dismissal periods.

201228

APPENDICES

APPENDIX A
PRELIMINARY SITE PLAN

APPENDIX B
DETAILED TURNING MOVEMENT COUNTS

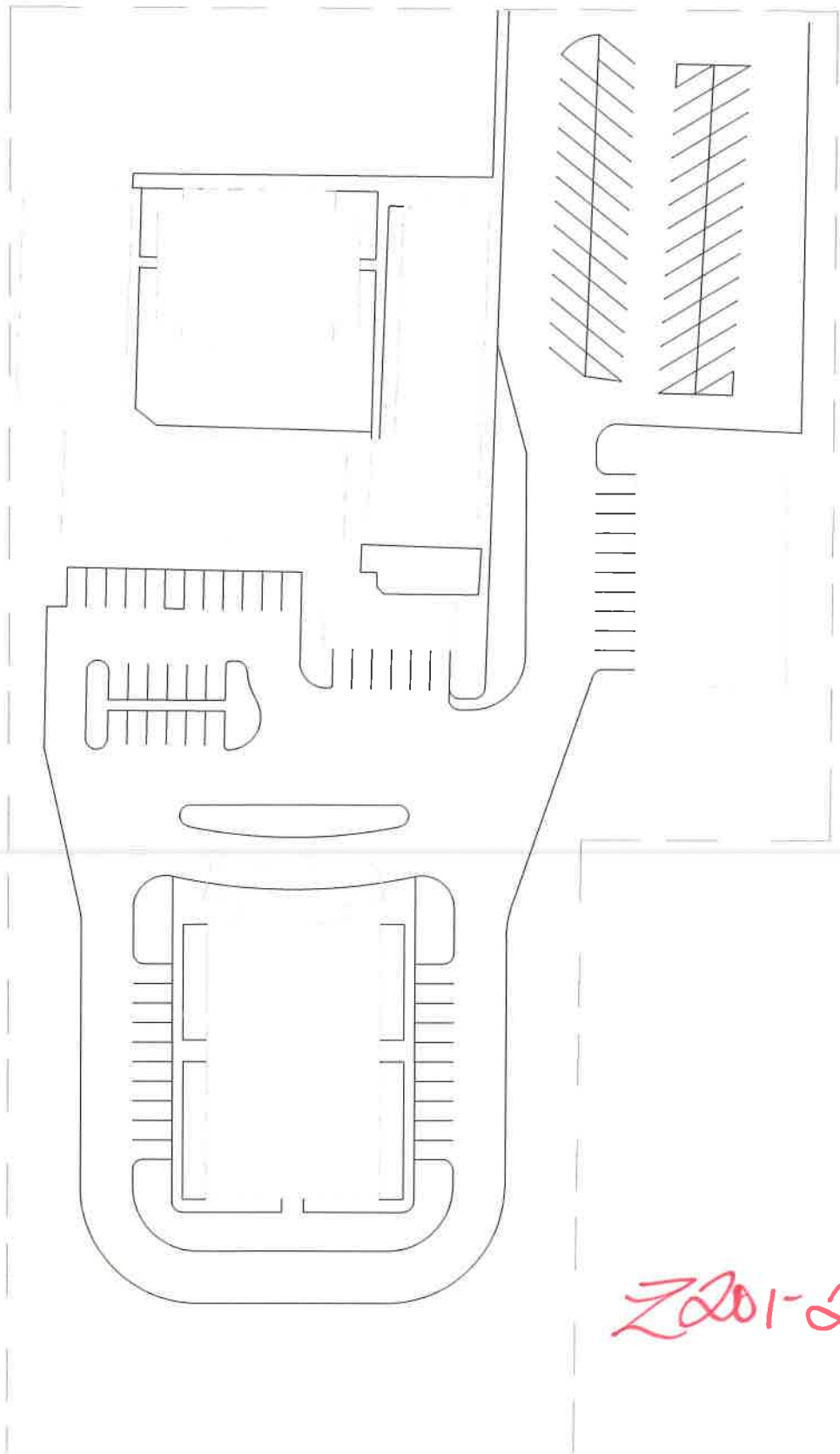
APPENDIX C
CAPACITY ANALYSES

APPENDIX D
TRIP GENERATION CALCULATIONS

Z 201-228

APPENDIX A
PRELIMINARY SITE PLAN

Z201-228



Z201-228

APPENDIX B
DETAILED TURNING MOVEMENT COUNTS

201-228

Dallas, TX
Classified Turn Movement Count



Marr Traffic Inc
www.marrtraffic.com

Site 1 of 5
Cheyenne Rd (South)
Cheyenne Rd (North)
Limestone Dr (West)
Limestone Dr (East)

Lat/Long
32,744682°, -96,639847°

Date
Wednesday, February 3, 2021

Weather
Fair
53°F

0700 - 0900 (Weekday 2h Session) (03-02-2021)
All vehicles

TIME	Northbound Cheyenne Rd (South)					Southbound Cheyenne Rd (North)					Eastbound Limestone Dr (West)					Westbound Limestone Dr (East)					Int Total
	Left 1.1	Thru 1.2	Right 1.3	U-Turn 1.4	App Total	Left 1.5	Thru 1.6	Right 1.7	U-Turn 1.8	App Total	Left 1.9	Thru 1.10	Right 1.11	U-Turn 1.12	App Total	Left 1.13	Thru 1.14	Right 1.15	U-Turn 1.16	App Total	
	0700 - 0715	0	26	1	0	27	2	15	0	0	17	0	0	0	0	0	0	0	2	0	
0715 - 0730	0	28	3	0	31	0	19	0	0	19	0	0	0	0	0	1	0	2	0	3	53
0730 - 0745	0	37	5	0	42	3	30	0	0	33	0	0	0	0	0	6	0	3	0	9	84
0745 - 0800	0	31	4	0	35	3	28	0	0	31	0	0	0	0	0	4	0	3	0	7	73
Hourly Total	0	122	13	0	135	8	92	0	0	100	0	0	0	0	0	11	0	10	0	21	256
0800 - 0815	0	32	6	0	38	3	22	0	0	25	0	0	0	0	0	4	0	0	0	4	67
0815 - 0830	0	18	6	0	24	0	15	0	0	15	0	0	0	0	0	4	0	0	0	4	43
0830 - 0845	0	11	6	0	17	1	5	0	0	6	0	0	0	0	0	2	0	1	0	3	26
0845 - 0900	0	12	1	0	13	1	12	0	0	13	0	0	0	0	0	3	0	0	0	3	29
Hourly Total	0	73	19	0	92	5	54	0	0	59	0	0	0	0	0	13	0	1	0	14	165
Grand Total	0	195	32	0	227	13	146	0	0	159	0	0	0	0	0	24	0	11	0	35	421
Approach %	0,00	85,90	14,10	0,00	-	8,18	91,82	0,00	0,00	-	0,00	0,00	0,00	0,00	-	68,57	0,00	31,43	0,00	-	
Intersection %	0,00	46,32	7,60	0,00	53,92	3,09	34,68	0,00	0,00	37,77	0,00	0,00	0,00	0,00	0,00	5,70	0,00	2,61	0,00	8,31	
PHF	0,00	0,86	0,75	0,00	0,87	0,75	0,83	0,00	0,00	0,82	0,00	0,00	0,00	0,00	0,00	0,63	0,00	0,67	0,00	0,64	0,82

1500 - 1800 (Weekday 3h Session) (03-02-2021)
All vehicles

TIME	Northbound Cheyenne Rd (South)					Southbound Cheyenne Rd (North)					Eastbound Limestone Dr (West)					Westbound Limestone Dr (East)					Int Total
	Left 1.1	Thru 1.2	Right 1.3	U-Turn 1.4	App Total	Left 1.5	Thru 1.6	Right 1.7	U-Turn 1.8	App Total	Left 1.9	Thru 1.10	Right 1.11	U-Turn 1.12	App Total	Left 1.13	Thru 1.14	Right 1.15	U-Turn 1.16	App Total	
	1500 - 1515	0	36	7	0	43	0	32	0	0	32	0	0	0	0	0	4	0	3	0	
1515 - 1530	0	28	4	0	32	1	26	0	0	27	0	0	0	0	0	7	0	3	0	10	69
1530 - 1545	0	24	2	0	26	3	30	0	0	33	0	0	0	0	0	6	0	1	0	7	66
1545 - 1600	0	35	4	0	39	1	35	0	0	36	0	0	0	0	0	5	0	4	0	9	84
Hourly Total	0	123	17	0	140	5	123	0	0	128	0	0	0	0	0	22	0	11	0	33	301
1600 - 1615	0	34	2	0	36	3	25	0	0	28	0	0	0	0	0	2	0	2	0	4	68
1615 - 1630	0	19	1	0	20	1	30	0	0	31	0	0	0	0	0	2	0	4	1	7	58
1630 - 1645	0	19	1	0	20	1	26	0	0	27	0	0	0	0	0	2	0	4	0	6	53
1645 - 1700	0	25	7	0	32	3	26	0	0	29	0	0	0	0	0	4	0	2	0	6	67
Hourly Total	0	97	11	0	108	8	107	0	0	115	0	0	0	0	0	10	0	12	1	23	246
1700 - 1715	0	20	2	0	22	3	34	0	0	37	0	0	0	0	0	6	0	6	0	12	71
1715 - 1730	0	27	3	0	30	3	37	0	0	40	0	0	0	0	0	5	0	3	0	8	78
1730 - 1745	0	25	4	0	29	1	30	0	0	31	0	0	0	0	0	10	0	6	0	16	76
1745 - 1800	0	24	1	0	25	0	34	0	0	34	0	0	0	0	0	6	0	7	0	13	72
Hourly Total	0	96	10	0	106	7	135	0	0	142	0	0	0	0	0	27	0	22	0	49	297
Grand Total	0	316	38	0	354	20	365	0	0	385	0	0	0	0	0	59	0	45	1	105	844
Approach %	0,00	89,27	10,73	0,00	-	5,19	94,81	0,00	0,00	-	0,00	0,00	0,00	0,00	-	56,19	0,00	42,86	0,95	-	
Intersection %	0,00	37,44	4,50	0,00	41,94	2,37	43,25	0,00	0,00	45,62	0,00	0,00	0,00	0,00	0,00	6,99	0,00	5,33	0,12	12,44	
PHF	0,00	0,85	0,61	0,00	0,81	0,42	0,88	0,00	0,00	0,89	0,00	0,00	0,00	0,00	0,00	0,79	0,00	0,69	0,00	0,83	0,90

Z 201-228

Dallas, TX
Classified Turn Movement Count



Marr Traffic Inc
www.marrtraffic.com

Site 2 of 5
Cheyenne Rd (South)
Cheyenne Rd (North)
Driveway

Lat/Long
32,743959°, -96,639897°

Date
Wednesday, February 3, 2021

Weather
Fair
53°F

0700 - 0900 (Weekday 2h Session) (03-02-2021)
All vehicles

TIME	Northbound Cheyenne Rd (South)				Southbound Cheyenne Rd (North)				Eastbound Driveway			Int Total	
	Left 2.1	Thru 2.2	U-Turn 2.3	App Total	Thru 2.4	Right 2.5	U-Turn 2.6	App Total	Left 2.7	Right 2.8	U-Turn 2.9		App Total
	0700 - 0715	0	28	0	28	15	0	0	15	0	0		0
0715 - 0730	0	30	0	30	20	0	0	20	0	0	0	0	50
0730 - 0745	0	42	0	42	36	0	0	36	0	0	0	0	78
0745 - 0800	0	36	0	36	32	0	0	32	0	0	0	0	68
Hourly Total	0	136	0	136	103	0	0	103	0	0	0	0	239
0800 - 0815	0	38	0	38	26	0	0	26	0	0	0	0	64
0815 - 0830	0	26	0	26	18	0	0	18	0	0	0	0	44
0830 - 0845	0	15	0	15	7	0	0	7	0	0	0	0	22
0845 - 0900	0	13	0	13	16	0	0	16	0	0	0	0	29
Hourly Total	0	92	0	92	67	0	0	67	0	0	0	0	159
Grand Total	0	228	0	228	170	0	0	170	0	0	0	0	398
Approach %	0,00	100,00	0,00	-	100,00	0,00	0,00	-	0,00	0,00	0,00	-	
Intersection %	0,00	57,29	0,00	57,29	42,71	0,00	0,00	42,71	0,00	0,00	0,00	0,00	
PHF	0,00	0,87	0,00	0,87	0,79	0,00	0,00	0,79	0,00	0,00	0,00	0,00	0,83

1500 - 1800 (Weekday 3h Session) (03-02-2021)
All vehicles

TIME	Northbound Cheyenne Rd (South)				Southbound Cheyenne Rd (North)				Eastbound Driveway			Int Total	
	Left 2.1	Thru 2.2	U-Turn 2.3	App Total	Thru 2.4	Right 2.5	U-Turn 2.6	App Total	Left 2.7	Right 2.8	U-Turn 2.9		App Total
	1500 - 1515	0	43	0	43	36	0	0	36	0	0		0
1515 - 1530	0	33	0	33	33	0	0	33	0	0	0	0	66
1530 - 1545	0	27	0	27	35	0	0	35	0	0	0	0	62
1545 - 1600	0	38	0	38	39	0	0	39	0	0	0	0	77
Hourly Total	0	141	0	141	143	0	0	143	0	0	0	0	284
1600 - 1615	0	35	0	35	27	0	0	27	0	0	0	0	62
1615 - 1630	0	21	0	21	32	0	0	32	0	0	0	0	53
1630 - 1645	0	19	0	19	29	0	0	29	0	0	0	0	48
1645 - 1700	0	31	0	31	30	0	0	30	0	0	0	0	61
Hourly Total	0	106	0	106	118	0	0	118	0	0	0	0	224
1700 - 1715	0	22	0	22	40	0	0	40	0	0	0	0	62
1715 - 1730	0	30	0	30	42	0	0	42	0	0	0	0	72
1730 - 1745	0	29	0	29	39	0	0	39	0	0	0	0	68
1745 - 1800	0	25	0	25	41	0	0	41	0	0	0	0	66
Hourly Total	0	106	0	106	162	0	0	162	0	0	0	0	268
Grand Total	0	353	0	353	423	0	0	423	0	0	0	0	776
Approach %	0,00	100,00	0,00	-	100,00	0,00	0,00	-	0,00	0,00	0,00	-	
Intersection %	0,00	45,49	0,00	45,49	54,51	0,00	0,00	54,51	0,00	0,00	0,00	0,00	
PHF	0,00	0,82	0,00	0,82	0,92	0,00	0,00	0,92	0,00	0,00	0,00	0,00	0,90

Z 201-228

Dallas, TX
Classified Turn Movement Count



Marr Traffic Inc
www.marrtraffic.com

Site 3 of 5
Cheyenne Rd (South)
Cheyenne Rd (North)
Driveway

Lat/Long
32,743812°, -96,639907°

Date
Wednesday, February 3, 2021

Weather
Fair
53°F

0700 - 0900 (Weekday 2h Session) (03-02-2021)
All vehicles

TIME	Northbound Cheyenne Rd (South)				Southbound Cheyenne Rd (North)				Eastbound Driveway			Int Total	
	Left 3.1	Thru 3.2	U-Turn 3.3	App Total	Thru 3.4	Right 3.5	U-Turn 3.6	App Total	Left 3.7	Right 3.8	U-Turn 3.9		App Total
	0700 - 0715	0	28	0	28	15	0	0	15	0	0		0
0715 - 0730	0	30	0	30	19	1	0	20	0	0	0	0	50
0730 - 0745	1	42	0	43	36	0	0	36	0	0	0	0	79
0745 - 0800	0	35	0	35	32	0	0	32	1	0	0	1	68
Hourly Total	1	135	0	136	102	1	0	103	1	0	0	1	240
0800 - 0815	0	37	0	37	26	0	0	26	1	0	0	1	64
0815 - 0830	0	26	0	26	18	0	0	18	0	0	0	0	44
0830 - 0845	0	15	0	15	7	0	0	7	0	1	0	1	23
0845 - 0900	0	13	0	13	16	0	0	16	0	0	0	0	29
Hourly Total	0	91	0	91	67	0	0	67	1	1	0	2	160
Grand Total	1	226	0	227	169	1	0	170	2	1	0	3	400
Approach %	0,44	99,56	0,00	-	99,41	0,59	0,00	-	66,67	33,33	0,00	-	
Intersection %	0,25	56,50	0,00	56,75	42,25	0,25	0,00	42,50	0,50	0,25	0,00	0,75	
PHF	0,25	0,86	0,00	0,84	0,78	0,25	0,00	0,79	0,50	0,00	0,00	0,50	0,83

1500 - 1800 (Weekday 3h Session) (09-02-2021)
All vehicles

TIME	Northbound Cheyenne Rd (South)				Southbound Cheyenne Rd (North)				Eastbound Driveway			Int Total	
	Left 3.1	Thru 3.2	U-Turn 3.3	App Total	Thru 3.4	Right 3.5	U-Turn 3.6	App Total	Left 3.7	Right 3.8	U-Turn 3.9		App Total
	1500 - 1515	0	43	1	44	36	0	0	36	0	0		0
1515 - 1530	0	32	0	32	33	0	0	33	1	0	0	1	66
1530 - 1545	0	27	0	27	35	0	0	35	0	0	0	0	62
1545 - 1600	0	37	0	37	39	0	0	39	1	1	0	2	78
Hourly Total	0	139	1	140	143	0	0	143	2	1	0	3	286
1600 - 1615	0	35	0	35	27	0	0	27	0	0	0	0	62
1615 - 1630	0	21	0	21	31	1	0	32	0	0	0	0	53
1630 - 1645	0	19	0	19	29	0	0	29	0	0	0	0	48
1645 - 1700	0	31	0	31	30	0	0	30	0	0	0	0	61
Hourly Total	0	106	0	106	117	1	0	118	0	0	0	0	224
1700 - 1715	0	22	0	22	40	0	0	40	0	1	0	1	63
1715 - 1730	0	30	0	30	42	0	0	42	0	0	0	0	72
1730 - 1745	0	29	0	29	39	0	0	39	0	0	0	0	68
1745 - 1800	0	25	0	25	41	0	0	41	0	0	0	0	66
Hourly Total	0	106	0	106	162	0	0	162	0	1	0	1	269
Grand Total	0	351	1	352	422	1	0	423	2	2	0	4	779
Approach %	0,00	99,72	0,28	-	99,76	0,24	0,00	-	50,00	50,00	0,00	-	
Intersection %	0,00	45,06	0,13	45,19	54,17	0,13	0,00	54,30	0,26	0,26	0,00	0,51	
PHF	0,00	0,81	0,25	0,80	0,92	0,00	0,00	0,92	0,50	0,25	0,00	0,38	0,89

2001-228

Dallas, TX
Classified Turn Movement Count

Site 4 of 5
Cheyenne Rd (South)
Cheyenne Rd (North)
Oak Gate Ln
Martin St

Lat/Long
32,742051°, -96,639877°

Date
Wednesday, February 3, 2021

Weather
Fair
53°F



Marr Traffic Inc
www.marrtraffic.com

0700 - 0900 (Weekday 2h Session) (03-02-2021)
All vehicles

TIME	Northbound					Southbound					Eastbound					Westbound					Int Total
	Cheyenne Rd (South)					Cheyenne Rd (North)					Oak Gate Ln					Martin St					
	Left 4.1	Thru 4.2	Right 4.3	U-Turn 4.4	App Total	Left 4.5	Thru 4.6	Right 4.7	U-Turn 4.8	App Total	Left 4.9	Thru 4.10	Right 4.11	U-Turn 4.12	App Total	Left 4.13	Thru 4.14	Right 4.15	U-Turn 4.16	App Total	
0700 - 0715	3	22	4	0	29	1	12	1	0	14	3	0	1	0	4	0	1	1	0	2	49
0715 - 0730	4	22	1	0	27	1	14	5	0	20	2	0	1	0	3	0	0	1	0	1	51
0730 - 0745	7	37	1	0	45	0	26	13	0	39	3	1	5	0	9	3	0	2	0	5	98
0745 - 0800	16	30	3	0	49	0	29	9	0	38	6	0	3	0	9	0	0	1	0	1	97
Hourly Total	30	111	9	0	150	2	81	28	0	111	14	1	10	0	25	3	1	5	0	9	295
0800 - 0815	9	23	1	0	33	1	23	3	0	27	4	0	2	0	6	0	0	2	0	2	68
0815 - 0830	3	20	0	0	23	0	14	3	0	17	4	1	0	0	5	0	0	1	0	1	46
0830 - 0845	0	9	2	0	11	0	5	1	0	6	3	0	1	0	4	1	0	1	0	2	23
0845 - 0900	3	9	0	0	12	0	14	3	1	18	1	0	1	0	2	2	0	1	0	3	35
Hourly Total	15	61	3	0	79	1	56	10	1	68	12	1	4	0	17	3	0	5	0	8	172
Grand Total	45	172	12	0	229	3	137	38	1	179	26	2	14	0	42	6	1	10	0	17	467
Approach %	19.65	75.11	5.24	0.00	-	1.68	76.54	21.23	0.56	-	61.90	4.76	33.33	0.00	-	35.29	5.88	58.82	0.00	-	
Intersection %	9.64	36.83	2.57	0.00	49.04	0.64	29.34	8.14	0.21	38.33	5.57	0.43	3.00	0.00	8.99	1.28	0.21	2.14	0.00	3.64	
PHF	0.56	0.76	0.50	0.00	0.79	0.50	0.79	0.58	0.00	0.79	0.63	0.25	0.55	0.00	0.75	0.25	0.00	0.75	0.00	0.45	0.80

1500 - 1800 (Weekday 3h Session) (03-02-2021)
All vehicles

TIME	Northbound					Southbound					Eastbound					Westbound					Int Total
	Cheyenne Rd (South)					Cheyenne Rd (North)					Oak Gate Ln					Martin St					
	Left 4.1	Thru 4.2	Right 4.3	U-Turn 4.4	App Total	Left 4.5	Thru 4.6	Right 4.7	U-Turn 4.8	App Total	Left 4.9	Thru 4.10	Right 4.11	U-Turn 4.12	App Total	Left 4.13	Thru 4.14	Right 4.15	U-Turn 4.16	App Total	
1500 - 1515	14	32	1	0	47	0	26	8	0	34	10	1	12	0	23	2	0	2	0	4	108
1515 - 1530	6	27	2	0	35	3	21	4	0	28	3	0	3	0	6	0	0	1	0	1	70
1530 - 1545	5	18	1	0	24	2	34	0	0	36	4	0	9	0	13	2	0	4	0	6	79
1545 - 1600	5	34	0	0	39	1	36	4	0	41	5	0	6	0	11	3	1	2	0	6	97
Hourly Total	30	111	4	0	145	6	117	16	0	139	22	1	30	0	53	7	1	9	0	17	354
1600 - 1615	10	32	0	0	42	1	22	3	0	26	3	1	2	0	6	0	0	0	0	0	74
1615 - 1630	3	15	0	0	18	4	20	6	0	30	0	0	4	0	4	1	0	2	0	3	55
1630 - 1645	11	16	2	0	29	0	24	4	0	28	2	1	3	0	6	2	1	2	0	5	68
1645 - 1700	5	23	1	0	29	1	24	4	0	29	6	0	8	0	14	1	3	0	0	4	76
Hourly Total	29	86	3	0	118	6	90	17	0	113	11	2	17	0	30	4	4	4	0	12	273
1700 - 1715	2	21	2	0	25	2	32	5	0	39	2	1	2	0	5	1	0	0	0	1	70
1715 - 1730	1	28	0	0	29	0	35	5	0	40	2	0	8	0	10	1	0	0	0	1	80
1730 - 1745	6	20	1	0	27	0	34	6	0	40	5	0	1	0	6	13	4	4	0	21	94
1745 - 1800	6	22	2	0	30	3	32	6	0	41	4	1	6	0	11	1	0	1	0	2	84
Hourly Total	15	91	5	0	111	5	133	22	0	160	13	2	17	0	32	16	4	5	0	25	328
Grand Total	74	288	12	0	374	17	340	55	0	412	46	5	64	0	115	27	9	18	0	54	955
Approach %	19.79	77.01	3.21	0.00	-	4.13	82.52	13.35	0.00	-	40.00	4.35	55.65	0.00	-	50.00	16.67	33.33	0.00	-	
Intersection %	7.75	30.16	1.26	0.00	99.16	1.78	35.60	5.76	0.00	43.14	4.82	0.52	6.70	0.00	12.04	2.83	0.94	1.88	0.00	5.65	
PHF	0.54	0.82	0.50	0.00	0.77	0.50	0.81	0.50	0.00	0.85	0.55	0.25	0.63	0.00	0.58	0.58	0.25	0.56	0.00	0.71	0.82

Z201-228

Dallas, TX
Classified Turn Movement Count

Site 5 of 5
Cheyenne Rd
Driveway
Bruton Rd (West)
Bruton Rd (East)

Lat/Long
32,748648°, -96,639826°

Date
Wednesday, February 3, 2021

Weather
Fair
53°F



Marr Traffic Inc
www.marrtraffic.com

0700 - 0900 (Weekday 2h Session) (03-02-2021)
All vehicles

TIME	Northbound Cheyenne Rd					Southbound Driveway					Eastbound Bruton Rd (West)					Westbound Bruton Rd (East)					Int Total
	Left 5.1	Thru 5.2	Right 5.3	U-Turn 5.4	App Total	Left 5.5	Thru 5.6	Right 5.7	U-Turn 5.8	App Total	Left 5.9	Thru 5.10	Right 5.11	U-Turn 5.12	App Total	Left 5.13	Thru 5.14	Right 5.15	U-Turn 5.16	App Total	
	0700 - 0715	18	0	12	0	30	0	0	0	0	0	0	57	5	1	63	11	78	0	0	
0715 - 0730	22	0	14	0	36	0	0	0	0	0	0	66	7	0	73	14	95	0	0	109	
0730 - 0745	16	0	24	0	40	0	0	1	0	1	0	86	14	0	100	10	113	0	0	123	
0745 - 0800	29	0	13	0	42	0	0	2	0	2	0	90	22	0	112	9	100	0	0	109	
Hourly Total	85	0	63	0	148	0	0	3	0	3	0	299	48	1	348	44	386	0	0	430	
0800 - 0815	17	0	17	0	34	0	0	0	0	0	0	65	18	0	83	8	76	0	0	84	
0815 - 0830	8	0	15	0	23	0	0	0	0	0	0	47	10	0	57	8	78	0	0	86	
0830 - 0845	7	0	11	0	18	0	0	0	0	0	0	68	2	0	70	5	80	0	1	86	
0845 - 0900	8	0	5	0	13	0	0	0	0	0	0	50	7	0	57	10	55	0	0	65	
Hourly Total	40	0	48	0	88	0	0	0	0	0	0	230	37	0	267	31	289	0	1	321	
Grand Total	125	0	111	0	236	0	0	3	0	3	0	529	85	1	615	75	675	0	1	751	
Approach %	52.97	0.00	47.03	0.00	-	0.00	0.00	100.00	0.00	-	0.00	86.02	13.82	0.16	-	9.99	89.88	0.00	0.13	-	
Intersection %	7.79	0.00	6.92	0.00	14.70	0.00	0.00	0.19	0.00	0.19	0.00	32.96	5.30	0.06	38.32	4.67	42.06	0.00	0.06	46.79	
PHF	0.72	0.00	0.71	0.00	0.90	0.00	0.00	0.38	0.00	0.38	0.00	0.85	0.69	0.00	0.82	0.73	0.85	0.00	0.00	0.86	

1500 - 1800 (Weekday 3h Session) (03-02-2021)
All vehicles

TIME	Northbound Cheyenne Rd					Southbound Driveway					Eastbound Bruton Rd (West)					Westbound Bruton Rd (East)					Int Total
	Left 5.1	Thru 5.2	Right 5.3	U-Turn 5.4	App Total	Left 5.5	Thru 5.6	Right 5.7	U-Turn 5.8	App Total	Left 5.9	Thru 5.10	Right 5.11	U-Turn 5.12	App Total	Left 5.13	Thru 5.14	Right 5.15	U-Turn 5.16	App Total	
	1500 - 1515	14	0	19	0	33	0	0	0	0	0	0	101	16	0	117	14	87	0	0	
1515 - 1530	22	0	13	0	35	0	0	0	0	0	0	91	22	0	113	13	98	0	0	111	
1530 - 1545	9	0	8	0	17	0	0	0	0	0	0	108	15	1	124	16	92	0	0	108	
1545 - 1600	18	0	21	0	39	0	0	0	0	0	1	130	31	2	164	10	110	0	0	120	
Hourly Total	63	0	61	0	124	0	0	0	0	0	1	430	84	3	518	53	387	0	0	440	
1600 - 1615	14	0	20	0	34	0	0	0	0	0	0	103	17	2	122	16	104	0	0	120	
1615 - 1630	12	0	13	0	25	0	0	0	0	0	0	116	16	0	132	13	96	0	2	111	
1630 - 1645	14	0	11	0	25	0	0	0	0	0	0	122	17	0	139	9	108	0	0	117	
1645 - 1700	10	0	13	0	23	0	0	0	0	0	1	94	18	0	113	17	99	0	0	116	
Hourly Total	50	0	57	0	107	0	0	0	0	0	1	435	68	2	506	55	407	0	2	464	
1700 - 1715	9	0	13	0	22	0	0	0	0	0	0	108	18	0	126	23	81	0	0	104	
1715 - 1730	13	0	14	0	27	0	0	0	0	0	0	102	19	0	121	19	95	0	0	114	
1730 - 1745	14	0	13	0	27	0	0	0	0	0	0	102	18	1	121	16	86	0	1	103	
1745 - 1800	23	0	5	0	28	0	0	0	0	0	0	97	20	0	117	18	96	0	0	114	
Hourly Total	59	0	45	0	104	0	0	0	0	0	0	409	75	1	485	76	358	0	1	435	
Grand Total	172	0	163	0	335	0	0	0	0	0	2	1274	227	6	1509	184	1152	0	3	1339	
Approach %	51.34	0.00	48.66	0.00	-	0.00	0.00	0.00	0.00	-	0.14	84.43	15.04	0.40	-	13.74	86.03	0.00	0.77	-	
Intersection %	5.40	0.00	5.12	0.00	10.52	0.00	0.00	0.00	0.00	0.00	0.06	40.03	7.13	0.19	47.41	5.78	36.19	0.00	0.09	42.07	
PHF	0.81	0.00	0.77	0.00	0.79	0.00	0.00	0.00	0.00	0.00	0.25	0.91	0.65	0.50	0.85	0.75	0.95	0.00	0.25	0.98	

Z201-228

APPENDIX C
CAPACITY ANALYSES

Z 201-228

EXISTING CONDITIONS
CAPACITY ANALYSES

Z 201-228

Intersection

Int Delay, s/veh 1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Traffic Vol, veh/h	0	0	0	20	0	11	0	173	24	12	134	0
Future Vol, veh/h	0	0	0	20	0	11	0	173	24	12	134	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	22	0	12	0	188	26	13	146	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	379	386	146	373	373	201	146	0	0	214	0	0
Stage 1	172	172	-	201	201	-	-	-	-	-	-	-
Stage 2	207	214	-	172	172	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	579	548	901	584	557	840	1436	-	-	1356	-	-
Stage 1	830	756	-	801	735	-	-	-	-	-	-	-
Stage 2	795	725	-	830	756	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	566	543	901	579	551	840	1436	-	-	1356	-	-
Mov Cap-2 Maneuver	566	543	-	579	551	-	-	-	-	-	-	-
Stage 1	830	748	-	801	735	-	-	-	-	-	-	-
Stage 2	784	725	-	822	748	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	10.8	0	0.6
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1436	-	-	-	651	1356	-	-
HCM Lane V/C Ratio	-	-	-	-	0.052	0.01	-	-
HCM Control Delay (s)	0	-	-	0	10.8	7.7	0	-
HCM Lane LOS	A	-	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.2	0	-	-

7-201-228

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			←↑	↑→	
Traffic Vol, veh/h	0	0	0	197	154	0
Future Vol, veh/h	0	0	0	197	154	0
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	-	-	-	-	-
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	0	0	0	214	167	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	381	167	167	0	-	0
Stage 1	167	-	-	-	-	-
Stage 2	214	-	-	-	-	-
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	621	877	1411	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	822	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	621	877	1411	-	-	-
Mov Cap-2 Maneuver	621	-	-	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	822	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1411	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Z201-228

Intersection

Int Delay, s/veh 0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y*			←↑	↑	
Traffic Vol, veh/h	3	0	1	194	153	1
Future Vol, veh/h	3	0	1	194	153	1
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	-	-	-	-	-
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	3	0	1	211	166	1

Major/Minor

	Minor2	Major1	Major2			
Conflicting Flow All	380	167	167	0	-	0
Stage 1	167	-	-	-	-	-
Stage 2	213	-	-	-	-	-
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	622	877	1411	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	823	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	621	877	1411	-	-	-
Mov Cap-2 Maneuver	621	-	-	-	-	-
Stage 1	862	-	-	-	-	-
Stage 2	823	-	-	-	-	-

Approach

EB NB SB
HCM Control Delay, s 10.8 0 0
HCM LOS B

Minor Lane/Major Mvmt

	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1411	-	621	-	-
HCM Lane V/C Ratio	0.001	-	0.005	-	-
HCM Control Delay (s)	7.6	0	10.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Z201-228

Intersection

Int Delay, s/veh 2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↔			↔			↔		
Traffic Vol, veh/h	20	1	15	4	0	8	49	151	8	3	124	41
Future Vol, veh/h	20	1	15	4	0	8	49	151	8	3	124	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	1	16	4	0	9	53	164	9	3	135	45

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	443	443	158	447	461	169	180	0	0	173	0	0
Stage 1	164	164	-	275	275	-	-	-	-	-	-	-
Stage 2	279	279	-	172	186	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	525	509	887	522	497	875	1396	-	-	1404	-	-
Stage 1	838	762	-	731	683	-	-	-	-	-	-	-
Stage 2	728	680	-	830	746	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	502	487	887	494	475	875	1396	-	-	1404	-	-
Mov Cap-2 Maneuver	502	487	-	494	475	-	-	-	-	-	-	-
Stage 1	803	760	-	700	654	-	-	-	-	-	-	-
Stage 2	690	651	-	812	745	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.3	10.3	1.8	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1396	-	-	612	696	1404	-	-
HCM Lane V/C Ratio	0.038	-	-	0.064	0.019	0.002	-	-
HCM Control Delay (s)	7.7	0	-	11.3	10.3	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.1	0	-	-

Z201-228

Intersection						
Int Delay, s/veh	5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↑	↑↑	↑↑	
Traffic Vol, veh/h	414	82	55	518	113	92
Future Vol, veh/h	414	82	55	518	113	92
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	65	-	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	450	89	60	563	123	100

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	539	0	897
Stage 1	-	-	-	-	495
Stage 2	-	-	-	-	402
Critical Hdwy	-	-	5.34	-	6.29
Critical Hdwy Stg 1	-	-	-	-	6.64
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	3.12	-	3.67
Pot Cap-1 Maneuver	-	-	649	-	312
Stage 1	-	-	-	-	501
Stage 2	-	-	-	-	623
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	649	-	283
Mov Cap-2 Maneuver	-	-	-	-	283
Stage 1	-	-	-	-	501
Stage 2	-	-	-	-	566

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	27.9
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	374	-	-	649	-
HCM Lane V/C Ratio	0.596	-	-	0.092	-
HCM Control Delay (s)	27.9	-	-	11.1	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	3.7	-	-	0.3	-

Z 201-228

Intersection

Int Delay, s/veh 1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Traffic Vol, veh/h	0	0	0	25	0	13	0	142	20	6	141	0
Future Vol, veh/h	0	0	0	25	0	13	0	142	20	6	141	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	27	0	14	0	154	22	7	153	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	339	343	153	332	332	165	153	0	0	176	0	0
Stage 1	167	167	-	165	165	-	-	-	-	-	-	-
Stage 2	172	176	-	167	167	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	615	579	893	621	588	879	1428	-	-	1400	-	-
Stage 1	835	760	-	837	762	-	-	-	-	-	-	-
Stage 2	830	753	-	835	760	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	603	576	893	619	585	879	1428	-	-	1400	-	-
Mov Cap-2 Maneuver	603	576	-	619	585	-	-	-	-	-	-	-
Stage 1	835	756	-	837	762	-	-	-	-	-	-	-
Stage 2	817	753	-	831	756	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	10.6	0	0.3
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1428	-	-	-	689	1400	-	-
HCM Lane V/C Ratio	-	-	-	-	0.06	0.005	-	-
HCM Control Delay (s)	0	-	-	0	10.6	7.6	0	-
HCM Lane LOS	A	-	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.2	0	-	-

Z 201-228

Intersection

Int Delay, s/veh 0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			←↑	↑→	
Traffic Vol, veh/h	0	0	0	162	166	0
Future Vol, veh/h	0	0	0	162	166	0
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	-	-	-	-	-
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	0	0	0	176	180	0

Major/Minor

	Minor2	Major1	Major2			
Conflicting Flow All	356	180	180	0	-	0
Stage 1	180	-	-	-	-	-
Stage 2	176	-	-	-	-	-
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	642	863	1396	-	-	-
Stage 1	851	-	-	-	-	-
Stage 2	855	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	642	863	1396	-	-	-
Mov Cap-2 Maneuver	642	-	-	-	-	-
Stage 1	851	-	-	-	-	-
Stage 2	855	-	-	-	-	-

Approach

	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt

	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1396	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Z 201-228

Intersection

Int Delay, s/veh 0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			←↑	↑	
Traffic Vol, veh/h	2	1	1	160	166	0
Future Vol, veh/h	2	1	1	160	166	0
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	-	-	-	-	-
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	2	1	1	174	180	0

Major/Minor

	Minor2	Major1	Major2			
Conflicting Flow All	356	180	180	0	-	0
Stage 1	180	-	-	-	-	-
Stage 2	176	-	-	-	-	-
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	642	863	1396	-	-	-
Stage 1	851	-	-	-	-	-
Stage 2	855	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	641	863	1396	-	-	-
Mov Cap-2 Maneuver	641	-	-	-	-	-
Stage 1	850	-	-	-	-	-
Stage 2	855	-	-	-	-	-

Approach

	EB	NB	SB
HCM Control Delay, s	10.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt

	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1396	-	701	-	-
HCM Lane V/C Ratio	0.001	-	0.005	-	-
HCM Control Delay (s)	7.6	0	10.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Z 201-228

Intersection

Int Delay, s/veh 2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕		↕		↕		↕		↕			
Traffic Vol, veh/h	25	1	35	8	1	10	35	128	5	7	135	18
Future Vol, veh/h	25	1	35	8	1	10	35	128	5	7	135	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	1	38	9	1	11	38	139	5	8	147	20

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	397	393	157	411	401	142	167	0	0	144	0	0
Stage 1	173	173	-	218	218	-	-	-	-	-	-	-
Stage 2	224	220	-	193	183	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	563	543	889	551	538	906	1411	-	-	1438	-	-
Stage 1	829	756	-	784	723	-	-	-	-	-	-	-
Stage 2	779	721	-	809	748	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	540	524	889	512	519	906	1411	-	-	1438	-	-
Mov Cap-2 Maneuver	540	524	-	512	519	-	-	-	-	-	-	-
Stage 1	805	751	-	761	702	-	-	-	-	-	-	-
Stage 2	746	700	-	769	744	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	10.6	1.6	0.3
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1411	-	-	697	665	1438	-	-
HCM Lane V/C Ratio	0.027	-	-	0.095	0.031	0.005	-	-
HCM Control Delay (s)	7.6	0	-	10.7	10.6	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.1	0	-	-

Z 201-228

Intersection

Int Delay, s/veh 3.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↘	↑↑	↘	
Traffic Vol, veh/h	542	93	58	481	67	75
Future Vol, veh/h	542	93	58	481	67	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	65	-	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	589	101	63	523	73	82

Major/Minor

	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	690	0	1028
Stage 1	-	-	-	-	640
Stage 2	-	-	-	-	388
Critical Hdwy	-	-	5.34	-	6.29
Critical Hdwy Stg 1	-	-	-	-	6.64
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	3.12	-	3.67
Pot Cap-1 Maneuver	-	-	551	-	263
Stage 1	-	-	-	-	410
Stage 2	-	-	-	-	633
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	551	-	233
Mov Cap-2 Maneuver	-	-	-	-	233
Stage 1	-	-	-	-	410
Stage 2	-	-	-	-	561

Approach

	EB	WB	NB
HCM Control Delay, s	0	1.3	24.5
HCM LOS			C

Minor Lane/Major Mvmt

	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	336	-	-	551	-
HCM Lane V/C Ratio	0.459	-	-	0.114	-
HCM Control Delay (s)	24.5	-	-	12.4	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	2.3	-	-	0.4	-

Z 201-228

PROJECTED CONDITIONS
CAPACITY ANALYSES

Z 201-228

Intersection												
Int Delay, s/veh	1.2											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Traffic Vol, veh/h	0	0	0	32	0	11	0	253	34	12	226	0
Future Vol, veh/h	0	0	0	32	0	11	0	253	34	12	226	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	35	0	12	0	275	37	13	246	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	572	584	246	566	566	294	246	0	0	312	0	0
Stage 1	272	272	-	294	294	-	-	-	-	-	-	-
Stage 2	300	312	-	272	272	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	431	423	793	435	434	745	1320	-	-	1248	-	-
Stage 1	734	685	-	714	670	-	-	-	-	-	-	-
Stage 2	709	658	-	734	685	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	420	418	793	431	429	745	1320	-	-	1248	-	-
Mov Cap-2 Maneuver	420	418	-	431	429	-	-	-	-	-	-	-
Stage 1	734	677	-	714	670	-	-	-	-	-	-	-
Stage 2	698	658	-	725	677	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	13.3	0	0.4
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1320	-	-	-	483	1248	-	-
HCM Lane V/C Ratio	-	-	-	-	0.097	0.01	-	-
HCM Control Delay (s)	0	-	-	0	13.3	7.9	0	-
HCM Lane LOS	A	-	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.3	0	-	-

Z201-228

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		←↑		↑→	
Traffic Vol, veh/h	0	0	127	287	154	104
Future Vol, veh/h	0	0	127	287	154	104
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	-	-	-	-	-
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	0	0	138	312	167	113

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	812	224	280	0	-
Stage 1	224	-	-	-	-
Stage 2	588	-	-	-	-
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	348	815	1283	-	-
Stage 1	813	-	-	-	-
Stage 2	555	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	303	815	1283	-	-
Mov Cap-2 Maneuver	303	-	-	-	-
Stage 1	707	-	-	-	-
Stage 2	555	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	2.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1283	-	-	-	-
HCM Lane V/C Ratio	0.108	-	-	-	-
HCM Control Delay (s)	8.1	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	-	-

Z 201-228

Intersection						
Int Delay, s/veh	3.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		L		T	
Traffic Vol, veh/h	93	111	1	321	153	1
Future Vol, veh/h	93	111	1	321	153	1
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	-	-	-	-	-
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	101	121	1	349	166	1

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	518	167	167	0	-	0
Stage 1	167	-	-	-	-	-
Stage 2	351	-	-	-	-	-
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	518	877	1411	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	713	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	517	877	1411	-	-	-
Mov Cap-2 Maneuver	517	-	-	-	-	-
Stage 1	862	-	-	-	-	-
Stage 2	713	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1411	-	666	-	-
HCM Lane V/C Ratio	0.001	-	0.333	-	-
HCM Control Delay (s)	7.6	0	13.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	1.5	-	-

Z 201-228

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↔			↔			↔		
Traffic Vol, veh/h	55	1	15	4	0	8	49	243	8	3	205	71
Future Vol, veh/h	55	1	15	4	0	8	49	243	8	3	205	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	60	1	16	4	0	9	53	264	9	3	223	77

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	647	647	262	651	681	269	300	0	0	273	0	0
Stage 1	268	268	-	375	375	-	-	-	-	-	-	-
Stage 2	379	379	-	276	306	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	384	390	777	382	373	770	1261	-	-	1290	-	-
Stage 1	738	687	-	646	617	-	-	-	-	-	-	-
Stage 2	643	615	-	730	662	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	364	369	777	358	353	770	1261	-	-	1290	-	-
Mov Cap-2 Maneuver	364	369	-	358	353	-	-	-	-	-	-	-
Stage 1	701	685	-	614	586	-	-	-	-	-	-	-
Stage 2	604	584	-	711	660	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.8	11.6	1.3	0.1
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1261	-	-	410	557	1290	-	-
HCM Lane V/C Ratio	0.042	-	-	0.188	0.023	0.003	-	-
HCM Control Delay (s)	8	0	-	15.8	11.6	7.8	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	0.1	0	-	-

Z201-228

Intersection

Int Delay, s/veh 18.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↑	↑↑	↑	
Traffic Vol, veh/h	414	128	101	518	153	132
Future Vol, veh/h	414	128	101	518	153	132
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	65	-	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	450	139	110	563	166	143

Major/Minor

	Major1	Major2	Minor1
Conflicting Flow All	0	0	589
Stage 1	-	-	520
Stage 2	-	-	502
Critical Hdwy	-	5.34	6.29
Critical Hdwy Stg 1	-	-	6.64
Critical Hdwy Stg 2	-	-	5.84
Follow-up Hdwy	-	3.12	3.67
Pot Cap-1 Maneuver	-	615	265
Stage 1	-	-	484
Stage 2	-	-	555
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	615	218
Mov Cap-2 Maneuver	-	-	218
Stage 1	-	-	484
Stage 2	-	-	456

Approach

	EB	WB	NB
HCM Control Delay, s	0	2	89.7
HCM LOS			F

Minor Lane/Major Mvmt

	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	309	-	-	615	-
HCM Lane V/C Ratio	1.003	-	-	0.179	-
HCM Control Delay (s)	89.7	-	-	12.1	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	10.8	-	-	0.6	-

Z 201-228

Intersection

Int Delay, s/veh 1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Traffic Vol, veh/h	0	0	0	30	0	13	0	187	26	6	181	0
Future Vol, veh/h	0	0	0	30	0	13	0	187	26	6	181	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	33	0	14	0	203	28	7	197	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	435	442	197	428	428	217	197	0	0	231	0	0
Stage 1	211	211	-	217	217	-	-	-	-	-	-	-
Stage 2	224	231	-	211	211	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	531	510	844	537	519	823	1376	-	-	1337	-	-
Stage 1	791	728	-	785	723	-	-	-	-	-	-	-
Stage 2	779	713	-	791	728	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	519	507	844	534	516	823	1376	-	-	1337	-	-
Mov Cap-2 Maneuver	519	507	-	534	516	-	-	-	-	-	-	-
Stage 1	791	724	-	785	723	-	-	-	-	-	-	-
Stage 2	766	713	-	786	724	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	11.5	0	0.2
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1376	-	-	-	597	1337	-	-
HCM Lane V/C Ratio	-	-	-	-	0.078	0.005	-	-
HCM Control Delay (s)	0	-	-	0	11.5	7.7	0	-
HCM Lane LOS	A	-	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.3	0	-	-

Z 201-228

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		L		T	
Traffic Vol, veh/h	0	0	56	213	166	45
Future Vol, veh/h	0	0	56	213	166	45
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	-	-	-	-	-
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	0	0	61	232	180	49

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	559	205	229	0	-
Stage 1	205	-	-	-	-
Stage 2	354	-	-	-	-
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	490	836	1339	-	-
Stage 1	829	-	-	-	-
Stage 2	710	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	465	836	1339	-	-
Mov Cap-2 Maneuver	465	-	-	-	-
Stage 1	786	-	-	-	-
Stage 2	710	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	1.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1339	-	-	-	-
HCM Lane V/C Ratio	0.045	-	-	-	-
HCM Control Delay (s)	7.8	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-	-

Z201-228

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			←	→	
Traffic Vol, veh/h	53	63	1	216	166	0
Future Vol, veh/h	53	63	1	216	166	0
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	-	-	-	-	-
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	58	68	1	235	180	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	417	180	180	0	-	0
Stage 1	180	-	-	-	-	-
Stage 2	237	-	-	-	-	-
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	592	863	1396	-	-	-
Stage 1	851	-	-	-	-	-
Stage 2	802	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	591	863	1396	-	-	-
Mov Cap-2 Maneuver	591	-	-	-	-	-
Stage 1	850	-	-	-	-	-
Stage 2	802	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1396	-	713	-	-
HCM Lane V/C Ratio	0.001	-	0.177	-	-
HCM Control Delay (s)	7.6	0	11.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

Z 201-228

Intersection

Int Delay, s/veh 2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Traffic Vol, veh/h	40	1	35	8	1	10	35	169	5	7	180	35
Future Vol, veh/h	40	1	35	8	1	10	35	169	5	7	180	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	43	1	38	9	1	11	38	184	5	8	196	38

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	500	496	215	514	513	187	234	0	0	189	0	0
Stage 1	231	231	-	263	263	-	-	-	-	-	-	-
Stage 2	269	265	-	251	250	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	481	475	825	471	465	855	1333	-	-	1385	-	-
Stage 1	772	713	-	742	691	-	-	-	-	-	-	-
Stage 2	737	689	-	753	700	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	460	456	825	435	447	855	1333	-	-	1385	-	-
Mov Cap-2 Maneuver	460	456	-	435	447	-	-	-	-	-	-	-
Stage 1	747	708	-	718	669	-	-	-	-	-	-	-
Stage 2	703	667	-	712	695	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.3	11.3	1.3	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1333	-	-	578	588	1385	-	-
HCM Lane V/C Ratio	0.029	-	-	0.143	0.035	0.005	-	-
HCM Control Delay (s)	7.8	0	-	12.3	11.3	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.1	0	-	-

Z201-228

Intersection

Int Delay, s/veh 5.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↑	↑↑	↑↑	
Traffic Vol, veh/h	542	113	78	481	89	98
Future Vol, veh/h	542	113	78	481	89	98
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	65	-	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	589	123	85	523	97	107

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	712
Stage 1	-	-	651
Stage 2	-	-	432
Critical Hdwy	-	5.34	6.29
Critical Hdwy Stg 1	-	-	6.64
Critical Hdwy Stg 2	-	-	5.84
Follow-up Hdwy	-	3.12	3.67
Pot Cap-1 Maneuver	-	538	244
Stage 1	-	-	404
Stage 2	-	-	602
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	538	205
Mov Cap-2 Maneuver	-	-	205
Stage 1	-	-	404
Stage 2	-	-	507

Approach	EB	WB	NB
HCM Control Delay, s	0	1.8	37.5
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	305	-	-	538	-
HCM Lane V/C Ratio	0.666	-	-	0.158	-
HCM Control Delay (s)	37.5	-	-	12.9	-
HCM Lane LOS	E	-	-	B	-
HCM 95th %tile Q(veh)	4.4	-	-	0.6	-

Z 201-228

APPENDIX D
TRIP GENERATION CALCULATIONS

Z 201-228

TOTAL TRIP GENERATION

ITE CODE	LAND USE	# UNITS	UNIT TYPE	ADT	AM			PM		
					Enter	Exit	Total	Enter	Exit	Total
520	Elementary School	440	Students	832	159	136	295	36	39	75
565	Day Care Center	176	Students	720	72	65	137	65	74	139

SUBTOTAL				1552	231	201	432	101	113	214
-----------------	--	--	--	-------------	------------	------------	------------	------------	------------	------------

TOTAL NEW TRIPS				1552	231	201	432	101	113	214
------------------------	--	--	--	-------------	------------	------------	------------	------------	------------	------------

Z 201-228

TRIP GENERATION

Elementary School

520 ITE Land Code

440 Students

Average Daily Traffic:

$$T = 1.89 * (X)$$

$$T = 1.89 * (440)$$

$T = 832$

A.M. Peak Hour:

$$T = 0.67 * (X)$$

$$T = 0.67 * (440)$$

$T = 295$

Enter = 159 54%

Exit = 136 46%

P.M. Peak Hour:

$$T = 0.17 * (X)$$

$$T = 0.17 * (440)$$

$T = 75$

Enter = 36 48%

Exit = 39 52%

TRIP GENERATION

Day Care Center

565 ITE Land Code

176 students

Average Daily Traffic:

$$T = 4.09 * (X)$$

$$T = 4.09 * (176)$$

$$T = 720$$

A.M. Peak Hour:

$$T = 0.78 * (X)$$

$$T = 0.78 * (176)$$

$$T = 137$$

Enter = 72 53%

Exit = 65 47%

P.M. Peak Hour:

$$T = 0.79 * (X)$$

$$T = 0.79 * (176)$$

$$T = 139$$

Enter = 65 47%

Exit = 74 53%

Z 201-228