

## MEMORANDUM

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

**From:** Beth Ostrowski, P.E. (Tennessee), KCI Technologies, Inc.  
Kyle Jones, P.E., KCI Technologies, Inc. (TBPE Firm #10573)

**Re:** **Golden Rule – Pleasant Grove – Traffic Management Plan**

**Date:** December 16, 2019



### Introduction

This purpose of this memo is to provide a traffic management plan (TMP) for the Golden Rule School – Pleasant Grove campus. The school is located on Bruton Road, west of Cheyenne Road in Dallas, Texas. Specifically, the school is located at 10747 Bruton Road, Dallas, TX 75217, and their phone number is 469-341-5780. The school is currently planned to expand by 176 middle school students. The Pleasant Grove campus includes two vehicular access points on Bruton 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 provides access to the Pleasant Grove campus:

- Bruton Road is a two-way roadway that travels in an east-west direction with three lanes in each direction. Bruton Road is divided by a center median in the vicinity of the school. Bruton Road provides connection between Interstate 635 to the east and C.F. Hawn Freeway to the west. The posted speed limit on Bruton Road near the school is 35 mph.

The Golden Rule School – Pleasant Grove campus has a current enrollment of 216 full-time students. The existing enrollment includes 46 Pre-K students either during the morning hours (arrive at 8:00 AM, dismiss at 12:00 PM) or the afternoon hours (arrive at 12:00 PM and dismiss at 3:00 PM). The remainder of the existing enrollment consists

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of elementary students. Elementary school students arrive at 7:30 AM and dismiss at 3:00 PM. The 176 new middle school students will arrive and dismiss on a schedule, staggered from the elementary school, beginning at 8:00 AM and 3:30 PM, respectively. There are no school buses associated with the school, and students arriving on alternative modes of travel are minimal and discouraged by the school.

Field observations of the existing traffic management system at the school were made on a typical weekday during arrival and dismissal periods. The field observations indicate that the majority of traffic entering the school for drop-off/pick-up travel through the eastern access point. These vehicles travel to the northern parking lot, circulate through the parking lot, and exit out the same travel path after drop-off/pick-up. A portion of the exiting vehicles turn toward the southern parking lot and travel through the western access point. This driver behavior is likely due to the southbound egress queue, utilizing the western egress point may reduce egress delay for right-turners; however, it creates conflict between the two travel paths. Additionally, some vehicles enter through the western access point, park in the southern parking lot, and students/parents walk into the school from that location.

Field observations also indicate that existing queuing remains within the internal drives on campus during the arrival period in the morning. Before the dismissal period in the afternoon, vehicles queue along Bruton Road as they wait for students to be dismissed. Field measurements indicate that the maximum queue along Bruton Road spanned from the eastern access drive to a point approximately 575 feet to the east. Photos of existing queues are presented at the end of the report.

According to information provided by school officials, an identification system is in place for dismissal that involves student name signs displayed in vehicles and walkie-talkie communications in order to coordinate students with their vehicles as they arrive. There are two traffic control officers that direct traffic along Bruton Road during arrival and dismissal periods. Four school staff members assist in walking students to/from vehicles during arrival and dismissal periods.

### Turning Movement Counts

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

- Bruton Road and Leroy Road
- Bruton Road and West School Access

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- Bruton Road and East School Access
- Bruton Road and Cheyenne Road

Turning movement counts were conducted from 6:30 – 8:30 AM and 3:00 – 6:00 PM on a typical weekday in September 2019 by Marr Traffic. From the counts, it was determined that the peak hours of traffic flow occurred from 7:15 – 8:15 AM and 3:15 – 4:15 PM. The existing peak hour traffic volumes are presented on a figure at the end of the report.

### Sight Distance

Sight distance measurements were conducted on Bruton Road at the 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 35 mph speed on Bruton 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 250 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 Bruton Road without requiring a motorist on Bruton Road to significantly reduce speed. For example, for a speed of 35 mph, the design value for intersection sight distance for a motorist turning right from a stop is 335 feet. Therefore, it is desirable to provide a minimum of 335 feet looking to the east of the site accesses onto Bruton Road. For a speed of 35 mph, the design value for intersection sight distance for a motorist turning left (across 3 lanes) from a stop is 440 feet. Therefore, it is desirable to provide a minimum of 440 feet looking to the west of the site accesses onto Bruton Road.

According to field measurements, adequate intersection sight distance is available for all turning movements from the site access drives, with one exception. Adequate sight distance is not available for motorists turning right from the East School Access onto Bruton Road. Specifically, approximately 80 feet of sight distance is available due to an existing house located east of the property.

It should be noted that this driveway is existing. Furthermore, during arrival and dismissal periods a traffic control officer will mitigate this issue by directing traffic.

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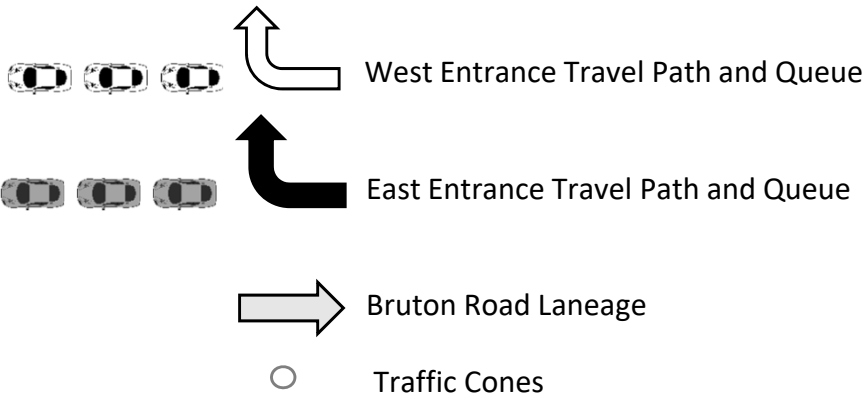
During non-peak hours, motorists turning right have the option of exiting out of the western site access point.

### **TMP Exhibit**

The TMP exhibit is shown on the next page. The TMP exhibit shows the following features of the Pleasant Grove campus:

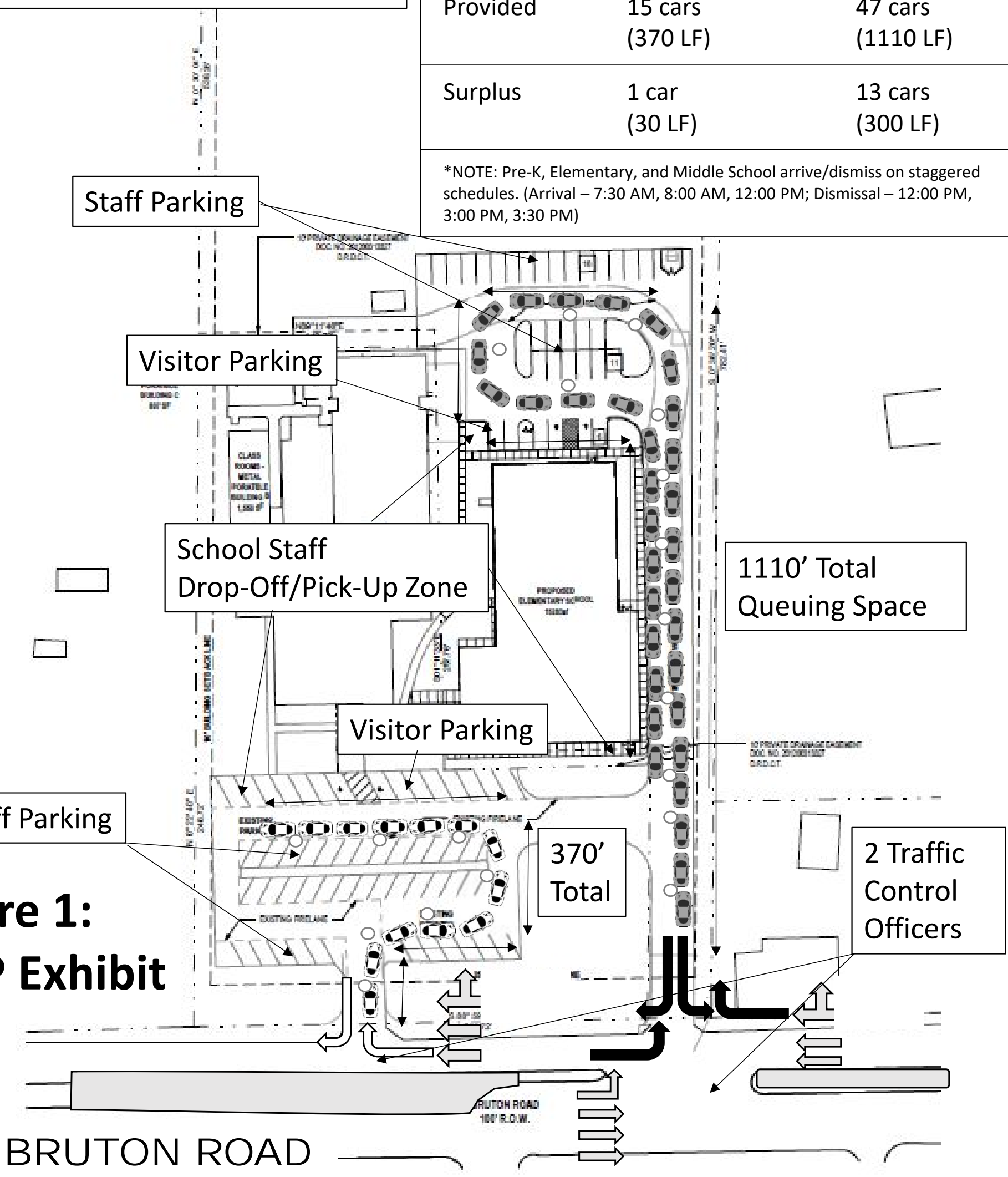
- Building footprints, curbs, parking, pavement markings, designated student drop-off and pick-up locations.
- School site location and all ingress and egress points of access for motor vehicles or pedestrians.
- On-site traffic circulation, including any temporary traffic control devices.
- Location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

# Legend



	West Entrance (Grades PK3, PK4, 4, 5, and 8)	East Entrance (Grades K-3, 6, and 7)
Student Population	149 students	243 students
Projected	14 cars (340 LF)	34 cars (810 LF)
Provided	15 cars (370 LF)	47 cars (1110 LF)
Surplus	1 car (30 LF)	13 cars (300 LF)

\*NOTE: Pre-K, Elementary, and Middle School arrive/dismiss on staggered schedules. (Arrival – 7:30 AM, 8:00 AM, 12:00 PM; Dismissal – 12:00 PM, 3:00 PM, 3:30 PM)



**Figure 1:  
TMP Exhibit**

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**Summary Table**

**TABLE 1: SUMMARY OF TMP**

<b>FEATURE</b>	<b>Existing Conditions</b>	<b>Projected Conditions</b>
Student Arrival Time:	Elementary - 7:30 AM, 12:00 PM (Pre-K only)	Elementary - 7:30 AM, 12:00 PM (Pre-K only) Middle School – 8:00 AM
Student Dismissal Time:	Elementary – 12:00 PM (Pre-K only), 3:00 PM	Elementary – 12:00 PM (Pre-K only), 3:00 PM Middle School – 3:30 PM
School Enrollment:	PK3 – 21 students PK4 – 25 students KG – 37 students Gr. 1 – 29 students Gr. 2 – 35 students Gr. 3 – 25 students Gr. 4 – 21 students Gr. 5 – 23 students	PK3 – 21 students PK4 – 25 students KG – 37 students Gr. 1 – 29 students Gr. 2 – 35 students Gr. 3 – 25 students Gr. 4 – 21 students Gr. 5 – 23 students Gr. 6,7,8 – 176 students
Number of School Staff Assisting Loading/Unloading:	4	4
Number of Crossing Guards and/or Off-Duty Officers:	2	2
Storage Capacity:	530 feet (Eastern Entrance) 270 feet (Western Entrance – Not Utilized)	1,110 feet (Eastern Entrance) 370 feet (Western Entrance)

As shown in the TMP Exhibit, during arrival and dismissal periods, traffic follows two separate travel paths. The first path is planned to travel through the western site access point and circulate through the southern parking lot. This path provides 370 feet of queuing space that is underutilized in existing conditions. The second path is planned to travel through the eastern site access point and circulate through the northern parking lot. As shown in Table 1, the expansion project will provide 580 feet of added storage capacity for the travel path that enters the eastern site access point. This is due to the northern parking lot being shifted further north than its existing location. The staggered arrival/dismissal schedule (elementary school at 3:00PM and middle school at 3:30PM) along with the added storage capacity should help mitigate existing queuing issues. The existing queuing

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extended onto Bruton Road for 575 feet, therefore the additional storage exceeds the existing off-site queue.

Further mitigating the existing queues, it is recommended that Golden Rule Charter School implement a standard practice to fully utilize both the east and west entrance during dismissal. The west travel path is currently underutilized. Ideal utilization for each entrance would be thirty percent of parents using the west travel path and 70 percent of parents using the east travel path. . Table 2, below illustrates how parents would be distributed:

**TABLE 2: DISTRIBUTION OF PARENTS FOR DISMISSAL**

Method and School		West Travel Path		East Travel Path	
		Group	Approximate Percent	Group	Approximate Percent
Sort by Grade*	Elementary School	4th and 5th Grade	26%	K-3rd Grade	74%
	Middle School	8th Grade	33%	6th and 7th Grade	67%
* This may result in siblings being separated, in this scenarios, older siblings should join younger siblings in the East Travel Path.					

It should be noted that the eastbound left-turn lane on Bruton Road into the East Entrance has approximately 60 feet of storage. Per the September 2019 Traffic Impact Study for this school expansion, the maximum peak hour queue is anticipated to be two vehicles (40-50 feet), therefore, the existing storage bay is anticipated to be sufficient to accommodate the projected traffic volumes.

In the event of an emergency occurring during peak arrival/dismissal periods, the school plans to utilize existing procedures to allow emergency vehicles onto the campus. School staff and traffic control officers will direct traffic either off-site, into parking spaces, or off the side of the internal drives in order to clear a path for emergency vehicles to travel.

Due to the relatively low traffic volumes observed making the eastbound u-turning movement at the intersection of Bruton Road at the site access drive, it is not recommended that u-turning movements be restricted at this location. The impact of u-

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turning movements on traffic operations at an intersection differs minimally from left turn movements. Therefore, traffic operations at the intersection should remain acceptable with the presence of u-turning movements at the observed rate.

### Conclusions and Recommendations

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

- Maintain existing traffic management plan characteristics, including 4 school staff members, 2 crossing guards, temporary traffic control equipment, and student identification system.
- Maintain and utilize the existing travel paths for both the eastern and western entrance points, as shown in the TMP Exhibit.
- Implement a standard practice to control utilization of each travel path by assigning students to each path by grade level. The recommended distribution strategy is identified above. Goal utilization should be 30% for the west travel path and 70% for the east travel path.
- Shift the front of the dismissal queue for each travel path to maximize storage. For the west path this pushes the front of queue to the west corner of the existing building. For the east path, this pushes the front of the queue to the northeast corner of the building expansion.
- Stagger arrival and dismissal times with as much time between phases as possible to avoid queueing issues.
- Place traffic cones between eastern and western travel paths to separate traffic.
- No parking, standing, or stopping on Bruton Road is allowed. Any observed vehicular queue on Bruton Road should be immediately mitigated.



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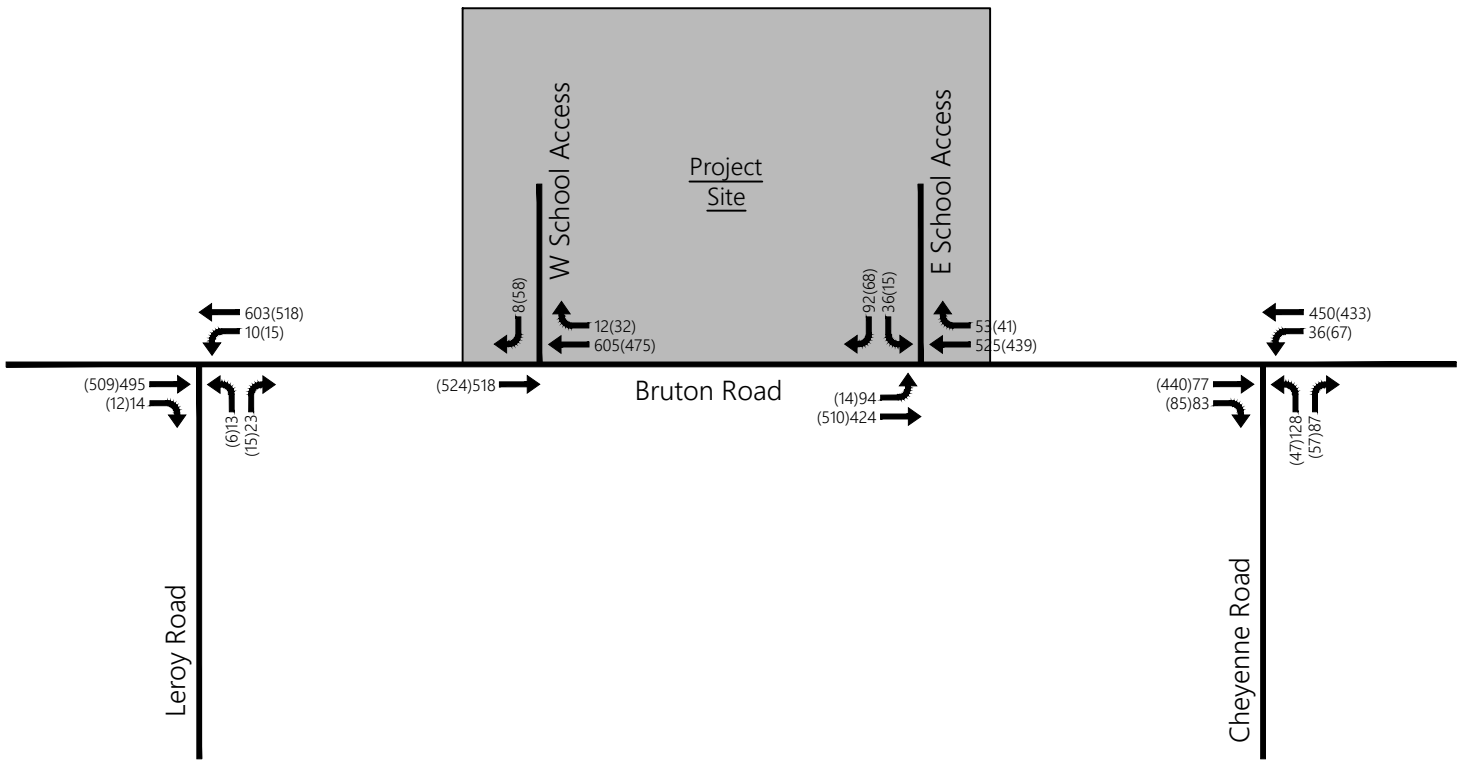
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**Existing Conditions Photos**





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



Existing Peak Hour Traffic Volumes  
 (Not to Scale)

Figure 3.