

Traffic Data Analysis

William St.

Northbound and Southbound



Town of Midland
Engineering Department

July 2nd, 2019

1.0 Introduction

A traffic count was conducted from June 17th, 2019 to June 24th, 2019 on William St for both northbound and southbound directions. Vehicle speeds and traffic volume were collected by a traffic trailer (model ATS-3). The purpose is to see if there is any speeding issue around the Sacred Heart Catholic school zone and raise safety awareness and help calm traffic by displaying speeds of vehicles approaching.

1.1 Location

The traffic trailer was placed on William St between sidewalks and curbs to record the speed and volume of vehicles entering the Sacred Heart Catholic school zone for both directions. Table 1 below shows the location of the traffic trailer and data collection period.

Table 1. Locations of Traffic Trailer

Direction	Location	Period
Northbound	351 William St, Midland, ON	09:00am on June 17 th , 2019 – 08:00am on June 20 th , 2019
Southbound	350 William St, Midland, ON	11:00am on June 20 th , 2019 – 08:00am on June 24 th , 2019

1.2 Traffic Trailer

The traffic trailer used was model ATS-3 as shown in the Figure 1. The traffic trailer is set to display the speed of the approaching vehicle and display short messages depending on the speed. The traffic trailer uses radar to detect vehicles and group collected data into 1-hour intervals. The speed limit in this community safety zone changes at different time of a day according to school times. Therefore, the challenge was to change the settings on the trailer to correspond this schedule.



Figure 1. Traffic Trailer

2.0 Speed Summary

The posted speed limit on William St is 50km/h; however, the traffic trailer was placed in a community safety zone where the speed limit will change to 40km/h during school times (08:00 to 9:00, 11:45 to 13:00, and 15:00 to 16:00 on weekdays).

Table 2 shows an overall speed summary for northbound and southbound directions. The traffic trailer detected that the maximum speed was 78km/h and 79km/h for northbound and southbound directions respectively. Generally it is accepted that vehicles that are travelling up to 10km/h above the posted speed limit are not considered to be speeding.

Table 2. Speed Summary

Direction	Time Period	Speed Limit (km/h)	Average Speed (km/h)
Northbound	00:00-07:59	50	43.3
	08:00-08:59	40	38.0
	09:00-11:59	50	40.3
	12:00-12:59	40	40.0
	13:00-14:59	50	39.7
	15:00-15:59	40	39.3
	16:00-23:59	50	43.1
Southbound	00:00-07:59	50	49.5
	08:00-08:59	40	45.7
	09:00-11:59	50	47.2
	12:00-12:59	40	44.5
	13:00-14:59	50	45.9
	15:00-15:59	40	44.8
	16:00-23:59	50	47.7

Figure 2 below shows that 50% of vehicles were travelling below the school times speed limit, 36% of vehicles were travelling between 41-50 km/h, and 14% of vehicles were travelling above 50km/h. When we consider the accepted speed limit is 10km/h over the school times speed limit, we find that a total of 86% of vehicles were travelling within the accepted speed limit.

Figure 3 below shows that 75% of vehicles were travelling below the posted speed limit, 21% of vehicles were travelling between 51-60 km/h, and 4% of vehicles were travelling above 60km/h. When we consider the accepted speed limit is 10km/h over the posted speed limit, we find that a total of 96% of vehicles were travelling within the accepted speed limit.

2.1 Northbound Speed Analysis

Figure 2 and 3 below are the speed summary for the northbound traffic.

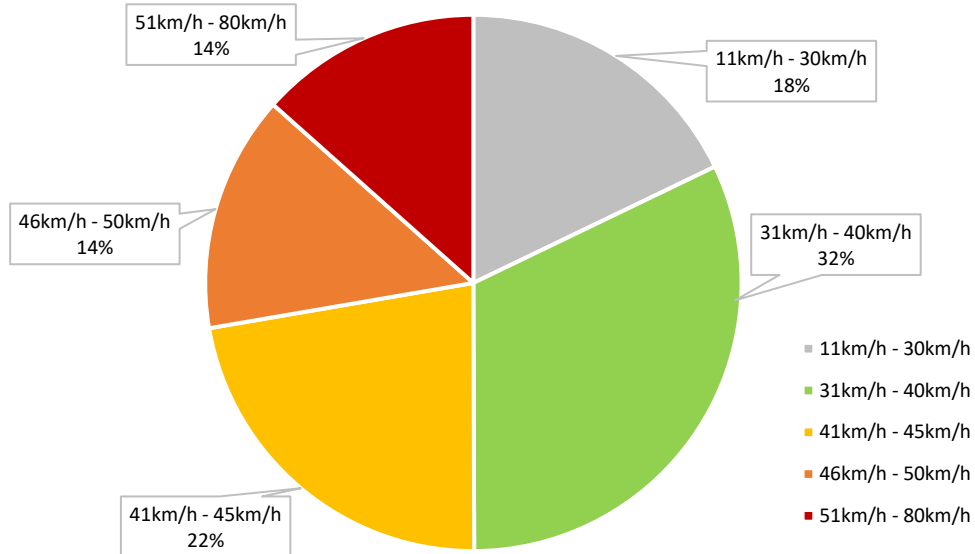


Figure 2. William St. Northbound (speed limit: 40km/h)

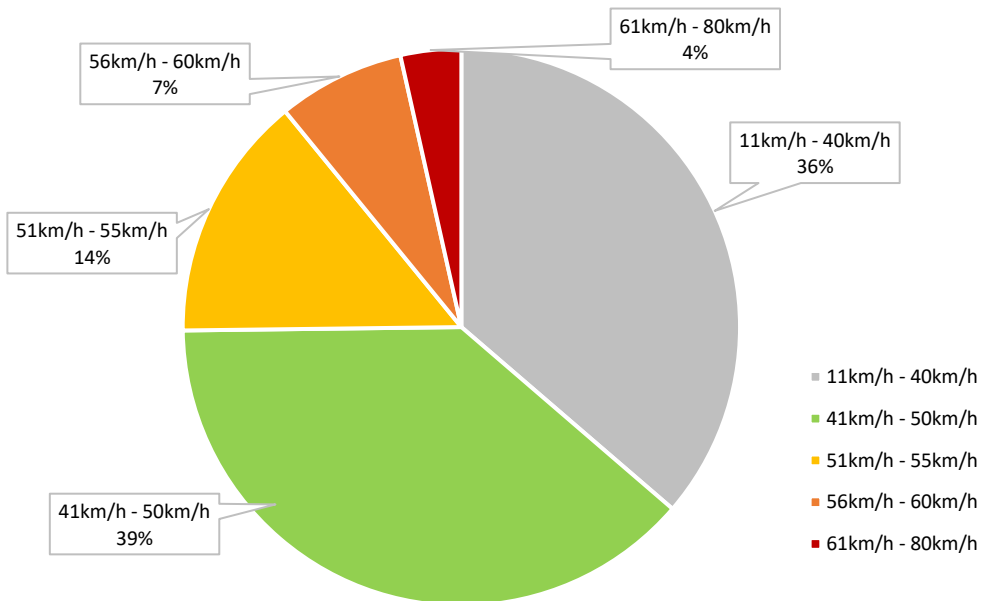


Figure 3. William St. Northbound (speed limit: 50km/h)

Figure 4 is the speed by hour graph in the northbound direction from June 17th to June 20th (weekday).

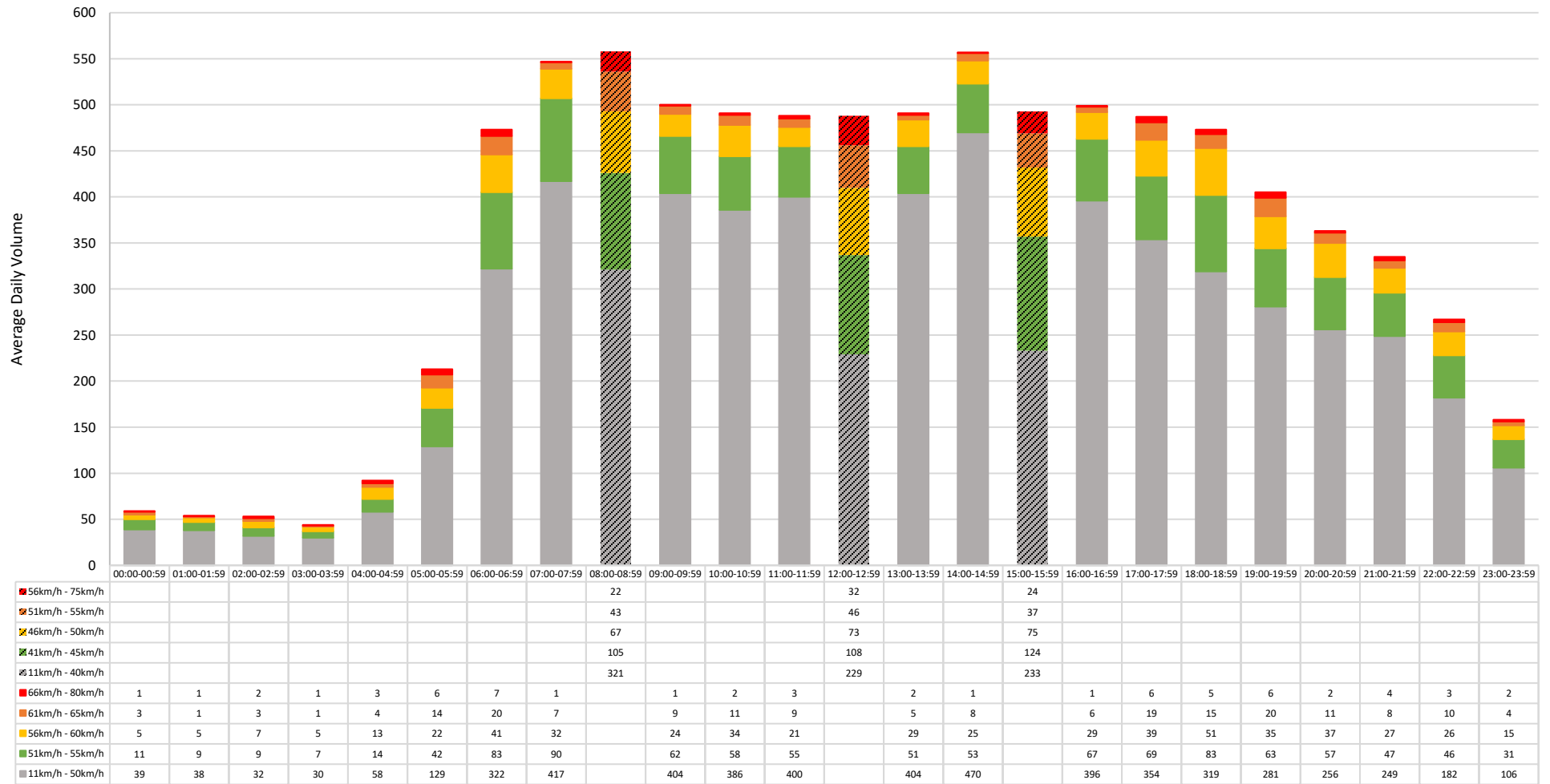


Figure 4. Speed by Hour Analysis for Northbound (weekday)

2.2 Southbound Speed Analysis

Figure 5 and 6 below are the speed summary for the southbound traffic.

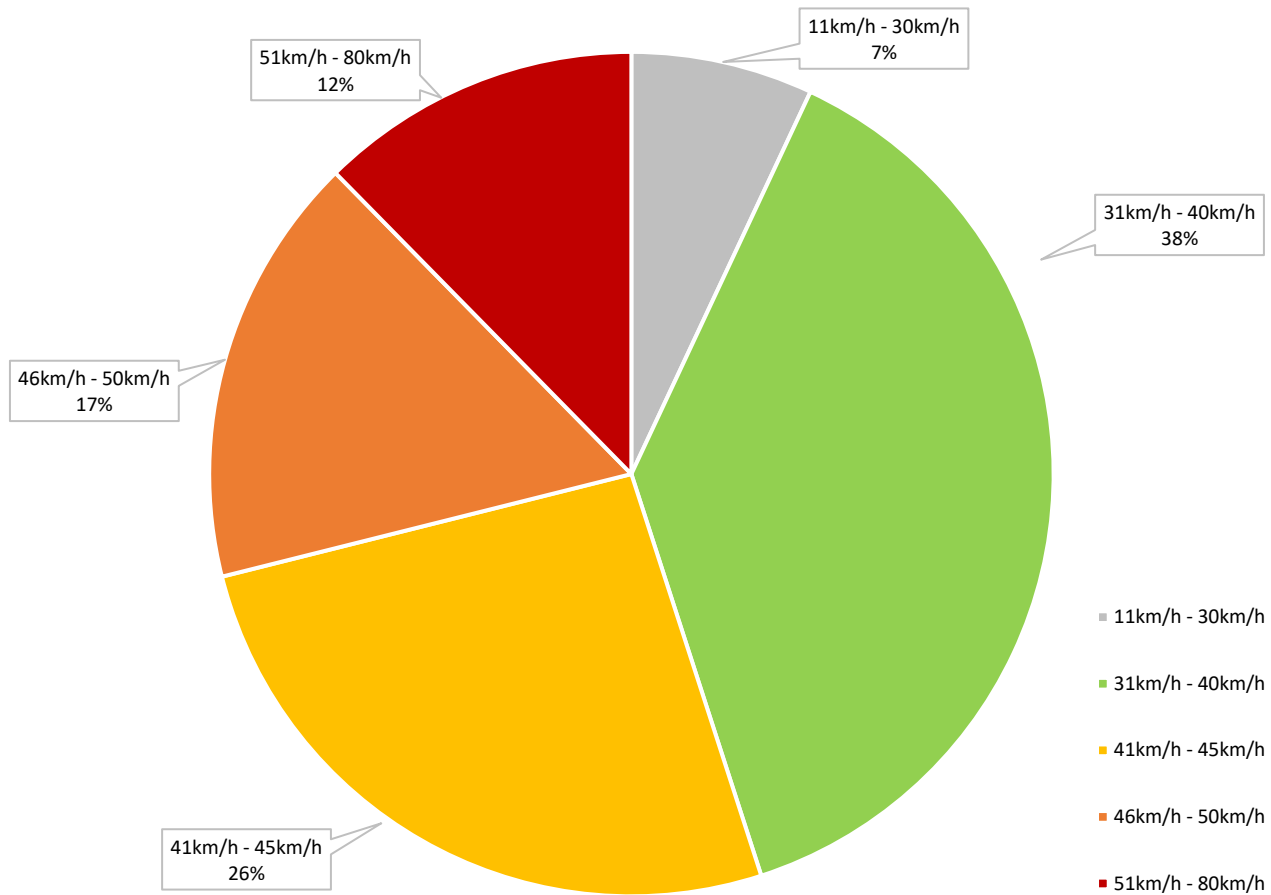


Figure 5. William St. Southbound (speed limit: 40km/h)

Figure 5 above shows that 45% of vehicles were travelling below the school times speed limit, 43% of vehicles were travelling between 41-50 km/h, and 12% of vehicles were travelling above 50km/h. When we consider the accepted speed limit is 10km/h over the school times speed limit, we find that a total of 88% of vehicles were travelling within the accepted speed limit.

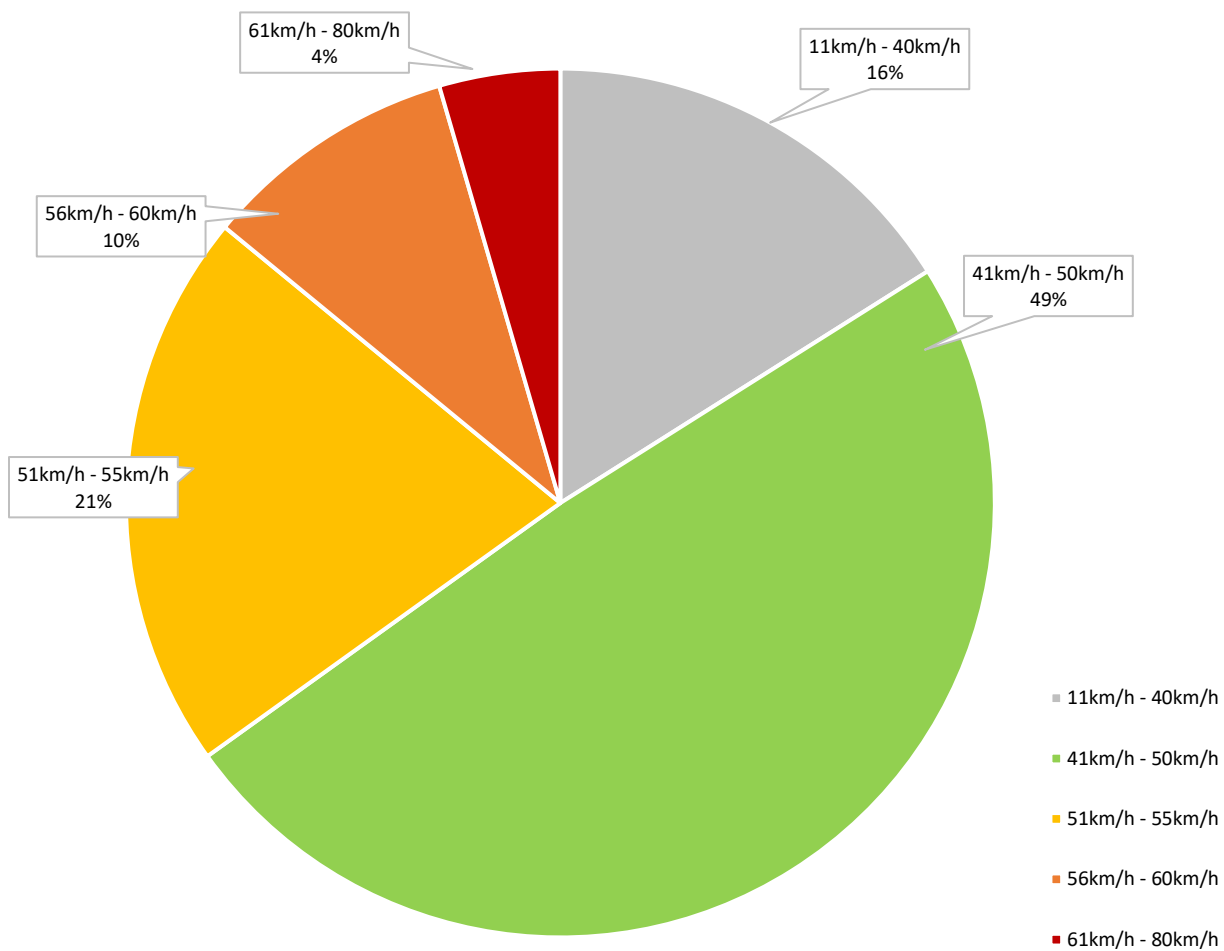


Figure 6. William St. Southbound (speed limit: 50km/h)

Figure 6 above shows that 65% of vehicles were travelling below the posted speed limit, 31% of vehicles were travelling between 51-60 km/h, and 4% of vehicles were travelling above 60km/h. When we consider the accepted speed limit is 10km/h over the posted speed limit, we find that a total of 96% of vehicles were travelling within the accepted speed limit.

Figure 7 and 8 below are the speed by hour graph for weekdays (June 20th – June 21st) and the weekend (June 22nd – June 23rd) in the southbound direction.

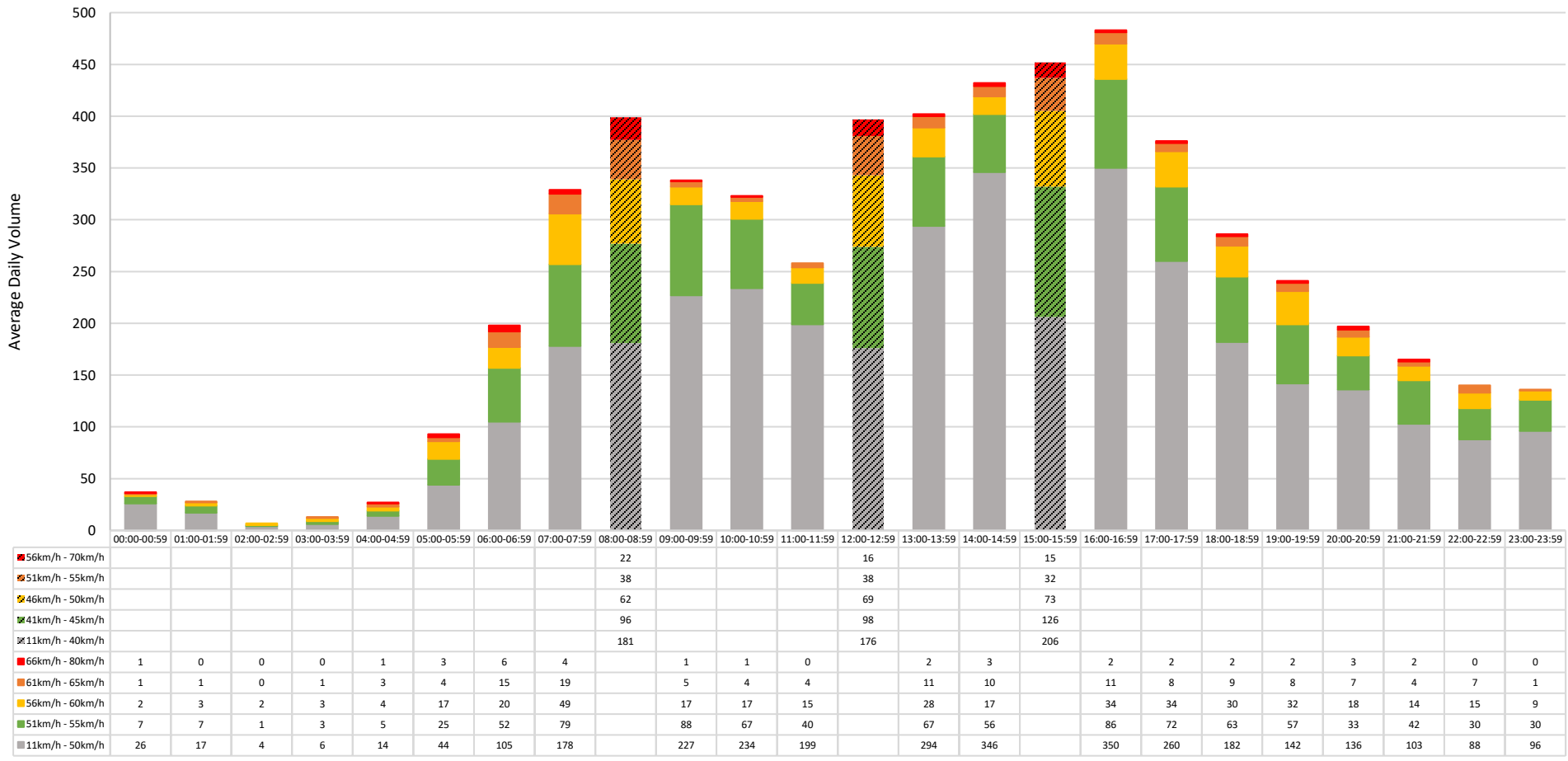


Figure 7. Speed by Hour Analysis for Southbound (weekday)

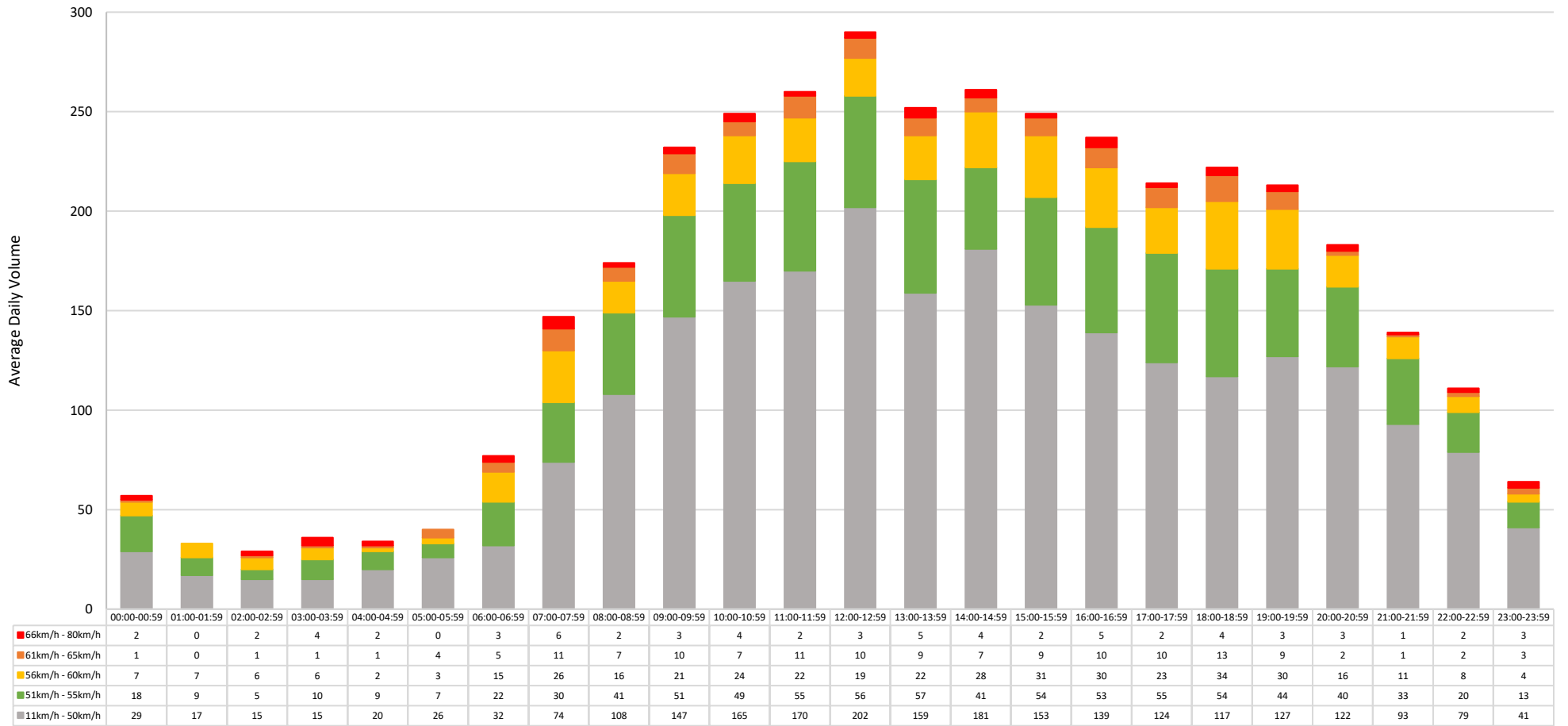


Figure 8. Speed by Hour Analysis for Southbound (weekend)

Furthermore, the traffic trailer detected that there were 60% of vehicles slowed down in the northbound direction and 70% slowed down in the southbound direction when approaching the trailer. These percentages could include the vehicles slowed down to enter driveways or make a turn; however, it also shows that the trailer is influencing traffic calming. It appears that some drivers are not slowing down when entering the community safety zone during school times. If so, alternative measures could be taken to further calm traffic during these times.

3.0 Traffic Volume

Only the days when the traffic trailer was placed there for the full 24 hours are used in the traffic volume analysis. The average number of vehicles on William St daily are shown in Table 3. It appears that there was more traffic in the northbound direction than in the southbound direction.

Table 3. Volume Summary

Direction	Period	Average Daily Traffic Volume
Northbound	June 18 th to June 19 th (Tuesday to Wednesday)	8,595
Southbound	June 21 st (Friday)	5,805
Southbound	June 22 nd to June 23 rd (weekend)	3,720

3.1 Northbound Volume by Hour

Figure 9 shows the average volume of vehicles travelling northbound of William St on June 18th and June 19th. It is noticed that the peak traffic occurs at typical morning and evening rush hours on a weekday in the northbound direction.

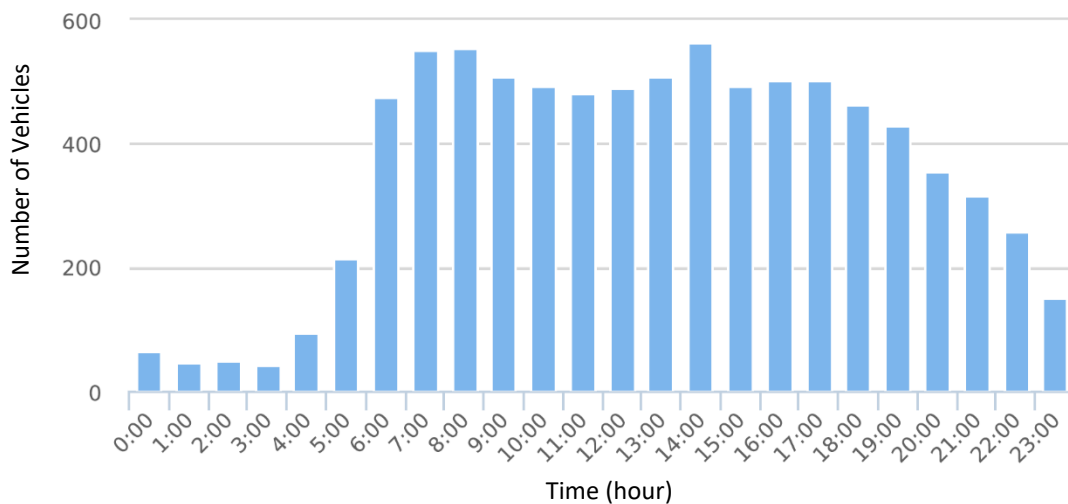


Figure 9. Average Volume by Hour on June 18th and June 19th (Northbound)

3.2 Southbound Volume by Hour

The data collected on June 21st (Friday) is used to analyze the traffic volume by hour on a weekday in the southbound direction as shown in Figure 10. The school hours at the Sacred Heart Catholic School is from 08:45 to 15:00, and it appears that the peak traffic in the southbound direction occurs during when school starts and ends.

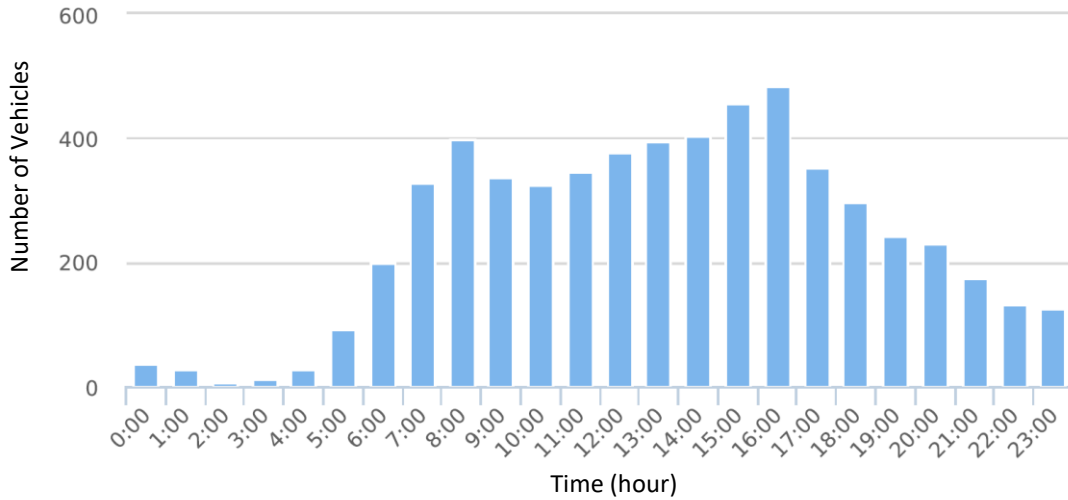


Figure 10. Volume by Hour on June 21st (Southbound)

Figure 11 shows the average traffic volume on the weekend from June 22nd to June 23rd. It is noticed that the traffic volume pattern is quite different from a weekday. The volume of the traffic on the weekend continues to increase, peak around noon and decrease in the afternoon.

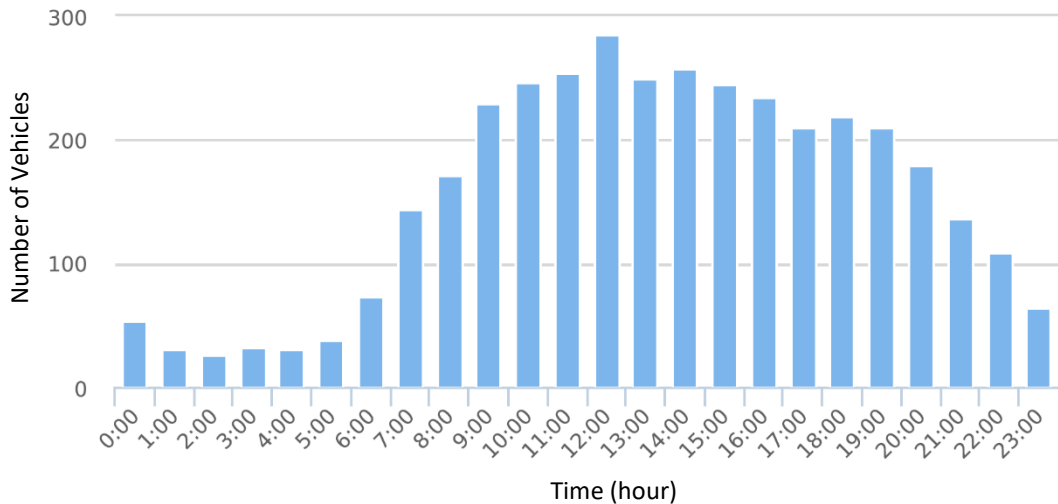


Figure 11. Average Volume by Hour on June 22nd and June 23rd (Southbound)

4.0 Conclusion

The traffic study conducted on William St was successfully carried out from June 17th to June 24th, 2019 for northbound and southbound directions. From the speed analysis, when the posted speed limit is 50km/h, there were 96% of vehicles travelling within the accepted speed limit in the northbound direction. It was also determined that during the 50km/h speed limit period, 96% of vehicles travelling in the southbound direction were within the accepted speed limit. In addition, during school times, 86% of vehicles driving northbound were travelling within the accepted speed limit. It was also determined that during school times, 88% of vehicles travelling southbound were within the accepted speed limit.

Furthermore, from the traffic volume analysis, it was observed that the traffic volume on William St has peak traffic volume during typical rush hours for both directions on a weekday. On the weekend, the peak traffic occurs during noon in the southbound direction.