

Traffic Data Analysis

Ottawa St.

Eastbound and Westbound



Town of Midland

Engineering Department

October 22, 2021

1.0 Introduction

A traffic count was conducted from October 7th 2021 to October 20th 2021, on Ottawa St for both Eastbound and Westbound 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 Bayview Public 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 Ottawa St between sidewalks and curbs to record the speed and volume of vehicles entering the Bayview Public 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
Eastbound	800 Ottawa St, Midland, ON	11:00am on October 7 th , 2021 – 8:00am on October 14 th , 2021
Westbound	807 Ottawa St, Midland, ON	8:00am on October 14 th , 2021 – 7:00am on October 20 th , 2021

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 Ottawa 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 (08:10 to 9:10, 10:20 to 11:30, 12:35 to 13:34 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 102km/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)
Eastbound	00:00-07:59	50	32.19
	08:00-08:59	40	26.99
	09:00-09:59	50	32.42
	10:00-10:59	40	33.19
	11:00-11:59	50	30.90
	12:00-13:59	40	33.40
	14:00-14:59	50	31.07
	15:00-15:59	40	26.14
	16:00-23:59	50	31.25
Westbound	00:00-07:59	50	45.12
	08:00-08:59	40	34.71
	09:00-09:59	50	36.79
	10:00-10:59	40	36.49
	11:00-11:59	50	35.60
	12:00-13:59	40	37.25
	14:00-14:59	50	34.89
	15:00-15:59	40	29.87
	16:00-23:59	50	36.13

Figure 2 represents when Ottawa St is 40km/hr for the community safety zone and shows that 83.1% of vehicles were travelling below the school times speed limit, 16.9% of vehicles were travelling between 41-50 km/h, and 0% 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 100% of vehicles were travelling within the accepted speed limit.

Figure 3 represents when Ottawa St is 50km/hr and shows that 100% of vehicles were travelling below the posted speed limit, 0% of vehicles were travelling above 50km/h. When we consider the accepted speed limit is 10km/h over the posted speed limit, we find that a total of 100% of vehicles were travelling within the accepted speed limit.

2.1 Eastbound Speed Analysis

Figures 2 and 3 below are the speed summary for the eastbound traffic.

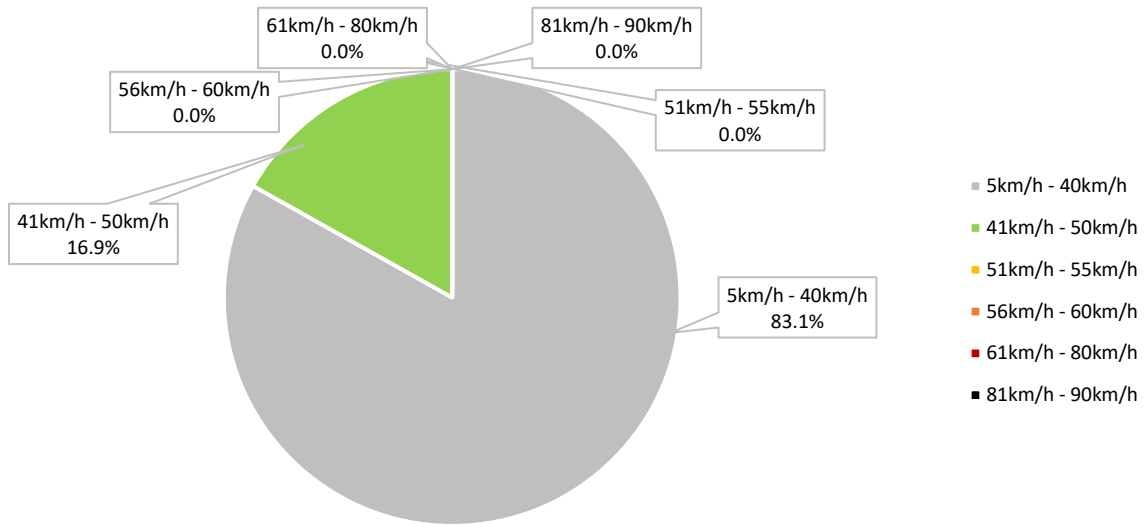


Figure 2. Ottawa St. Eastbound (speed limit: 40km/h)

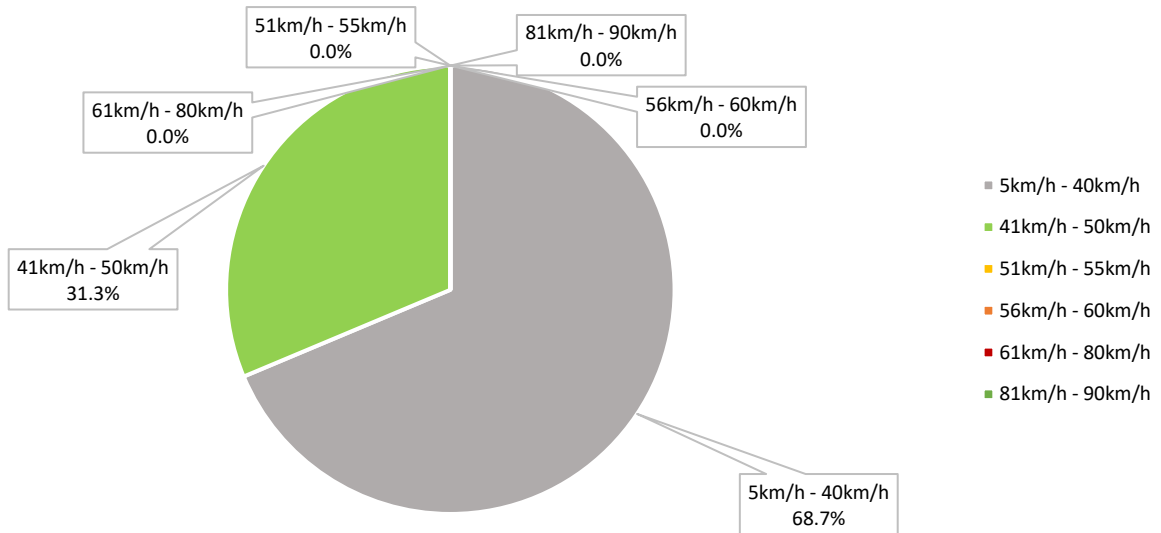


Figure 3. Ottawa St. Eastbound (speed limit: 50km/h)

Figure 4 is the speed by hour graph in the eastbound direction from October 7th to October 14th (weekday).

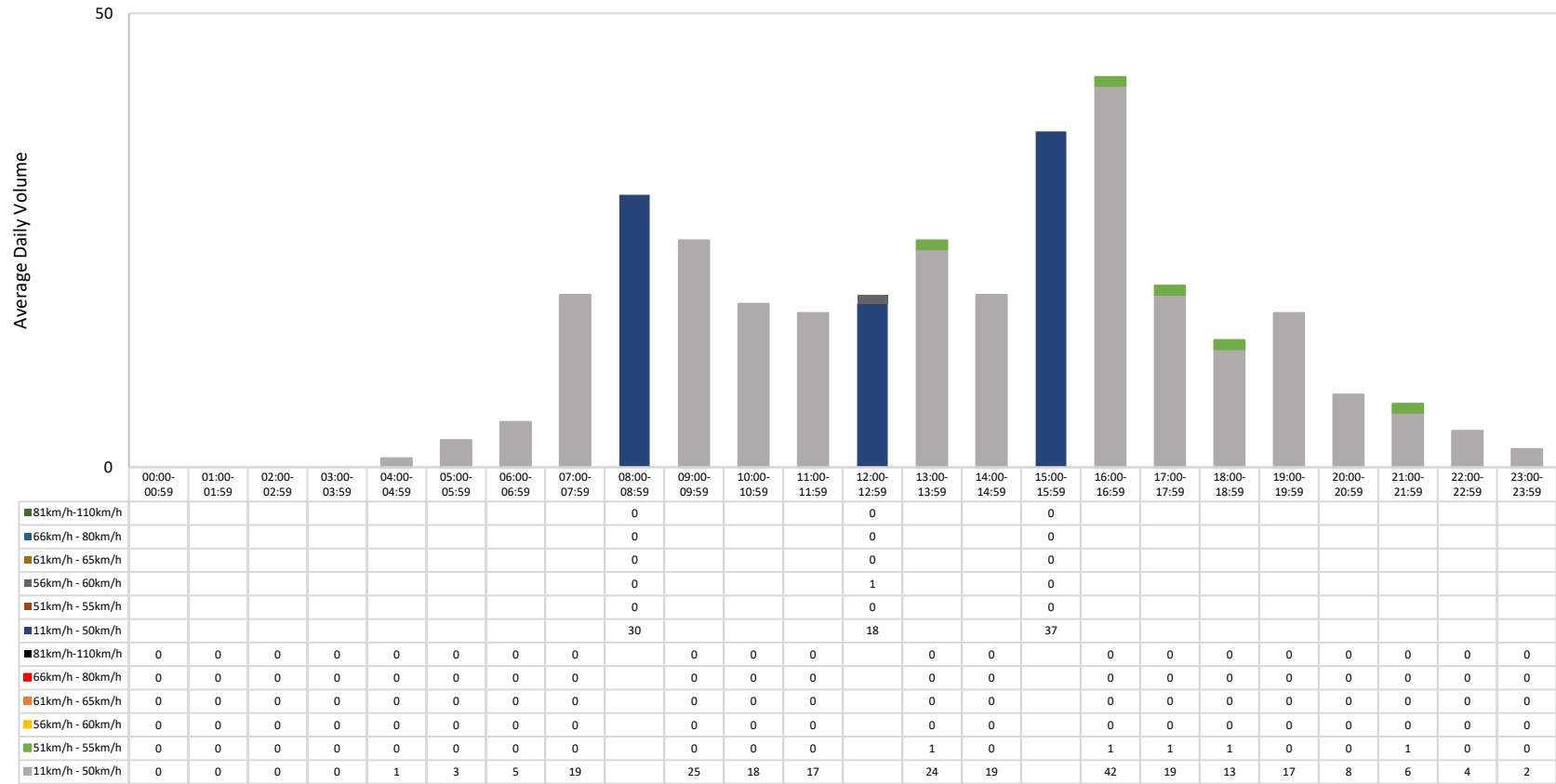


Figure 4. Speed by Hour Analysis for eastbound (weekday)

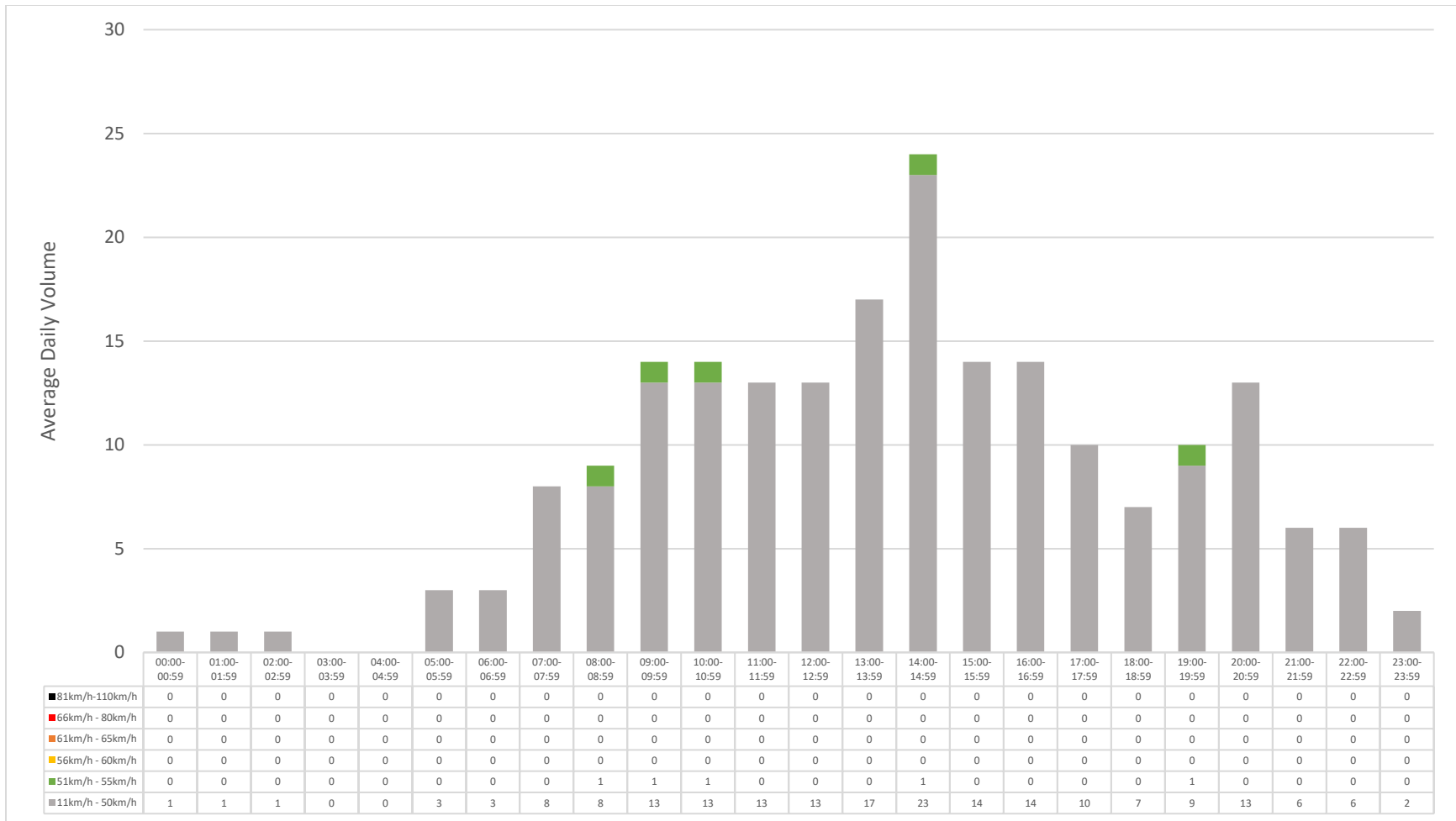


Figure 5. Speed by Hour Analysis for Northbound (weekend)

Figures 4 and 5 are the speed by hour graph for weekdays (October 7th, 8th, 11th, 12th, 13th, and 14th) and the weekend (October 9th and 10th) in the eastbound direction.

2.2 Westbound Speed Analysis

Figures 6 and 7 below are the speed summary for the southbound traffic.

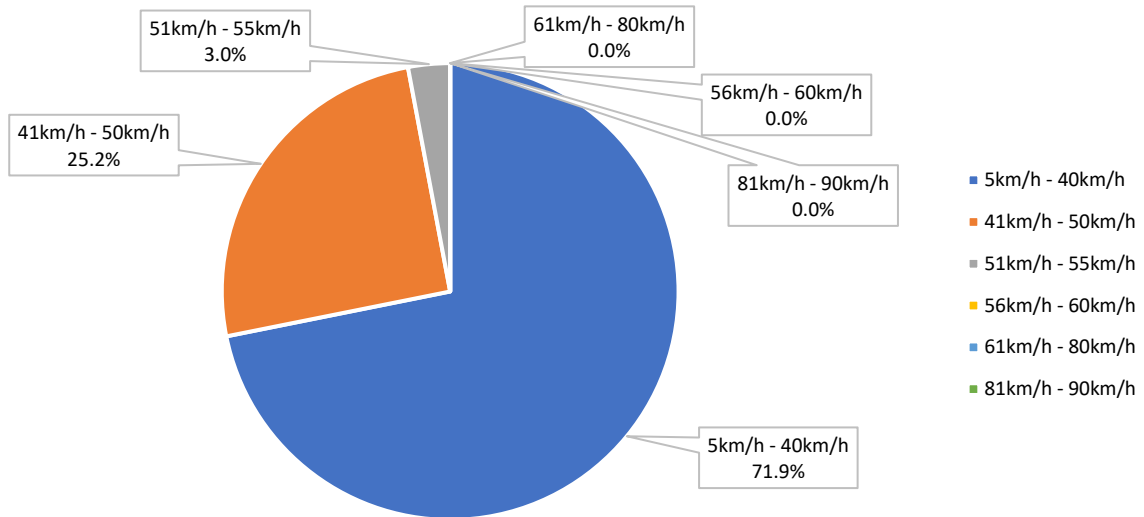


Figure 6. Ottawa St. Westbound (speed limit: 40km/h)

Figure 6 above shows that 71.9% of vehicles were travelling below the school times speed limit, 25.2% of vehicles were travelling between 41-50 km/h, and 3.0% 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 97.1% of vehicles were travelling within the accepted speed limit in the community safety zone.

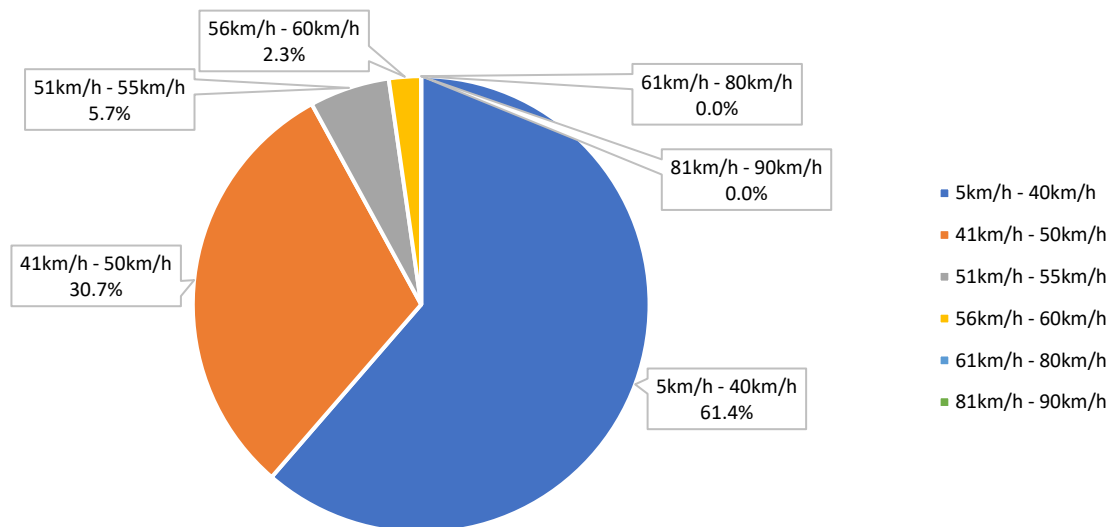


Figure 7. Ottawa St. Westbound (speed limit: 50km/h)

Figure 7 above shows that 92.1% of vehicles were travelling below the posted speed limit, 8.0% of vehicles were travelling between 51-60 km/h, and 0% 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 100% of vehicles were travelling within the accepted speed limit.

Figures 8 and 9 below are the speed by hour graph for weekdays (October 14th, 15th, 18th, 19th, and 20th) and the weekend (October 16th and 17th) in the westbound direction.

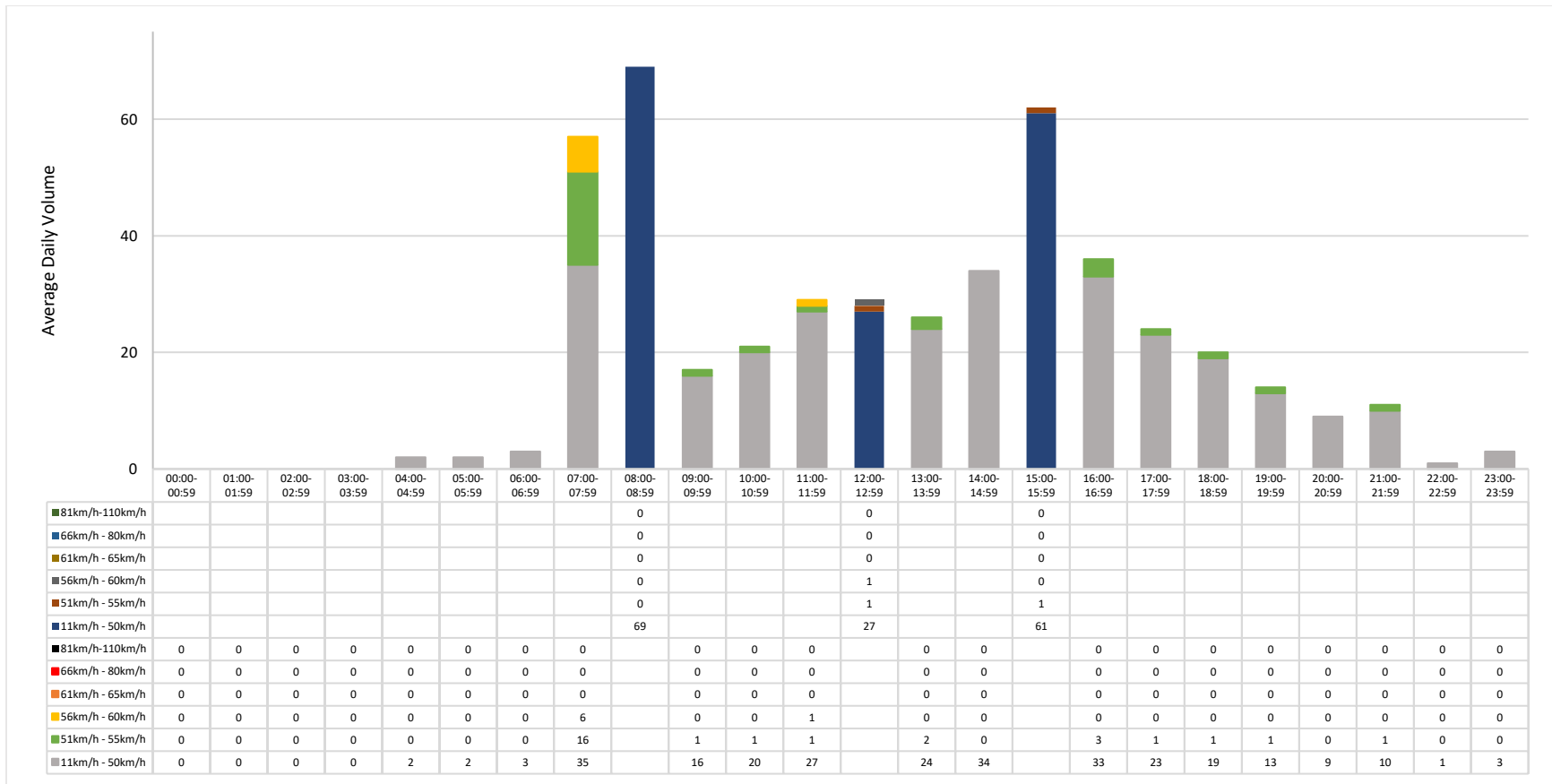


Figure 8. Speed by Hour Analysis for westbound (weekday)

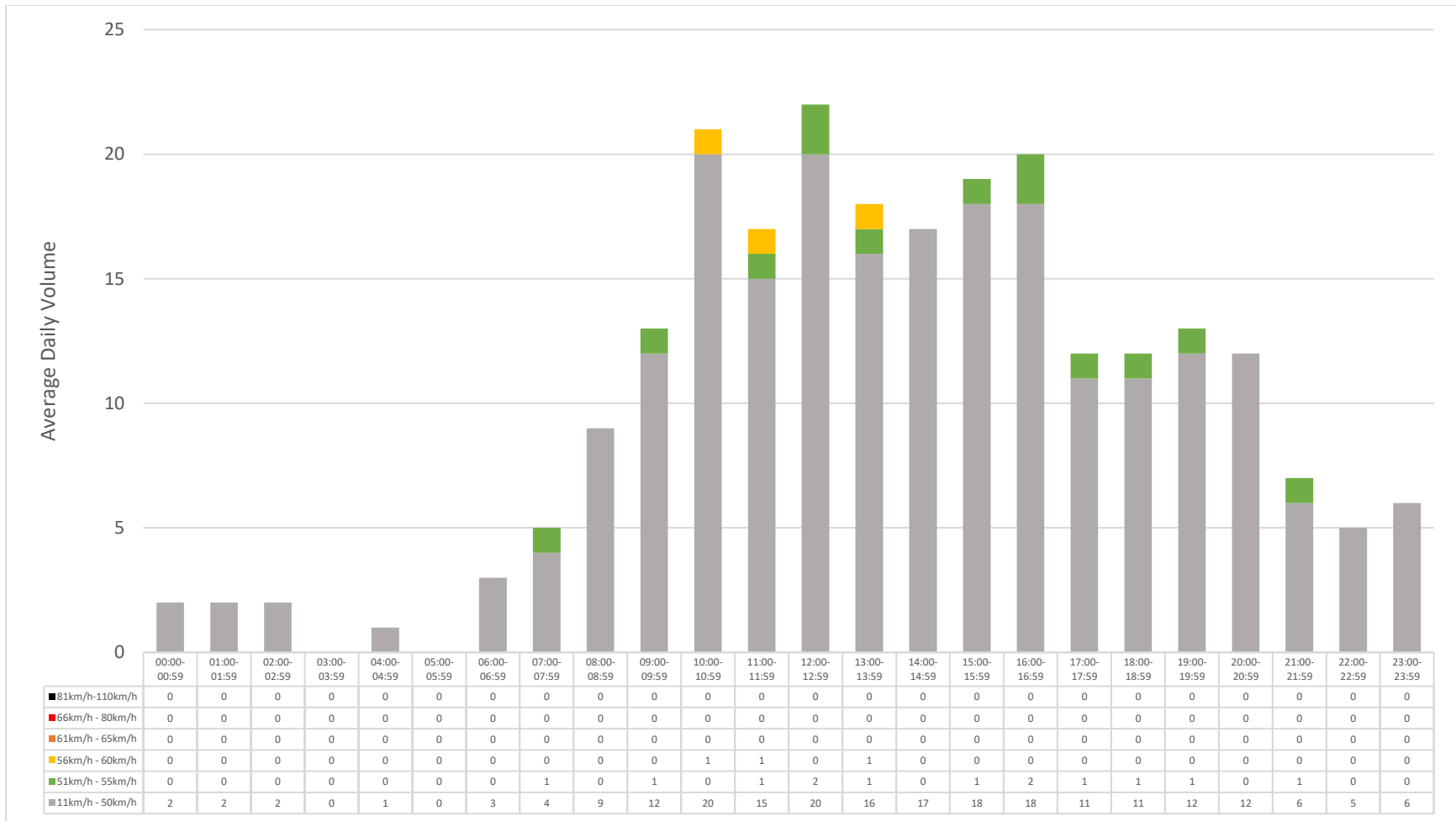


Figure 9. Speed by Hour Analysis for westbound (weekend)

Furthermore, the traffic trailer detected that there were 13.5% of vehicles slowed down in the eastbound direction and 35.5% slowed down in the westbound 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.

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.

Table 3. Volume Summary

Direction	Period	Average Daily Traffic Volume
Eastbound	October 7 th , 8 th , 11 th , 12 th , 13 th (weekday)	293.3
Eastbound	October 9 th and 10 th (weekend)	160.5
Westbound	October 14 th , 15 th , 18 th , 19 th , 20 th (Weekday)	359.0
Westbound	October 16 th and 17 th (Weekend)	187.5

3.1 Northbound Volume by Hour

Figure 10 shows the average volume of vehicles travelling eastbound on Ottawa St on October 7th, 8th, 11th, 12th and 13th (weekday). It is noticed that the peak traffic occurs at typical morning and evening rush hours on a weekday in the eastbound direction with a spike around 7am.

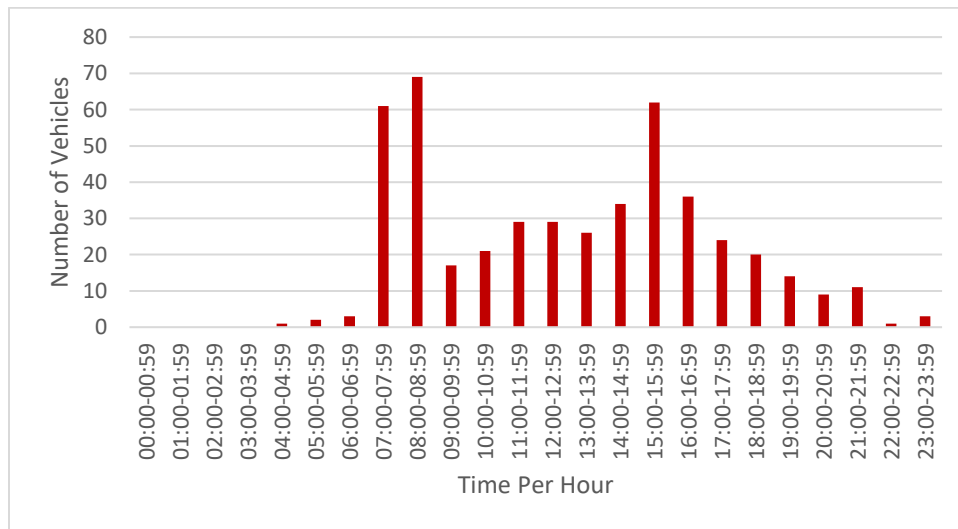


Figure 10. Average Volume by Hour on October 7th, 8th, 11th, 12th, 13th (weekday)

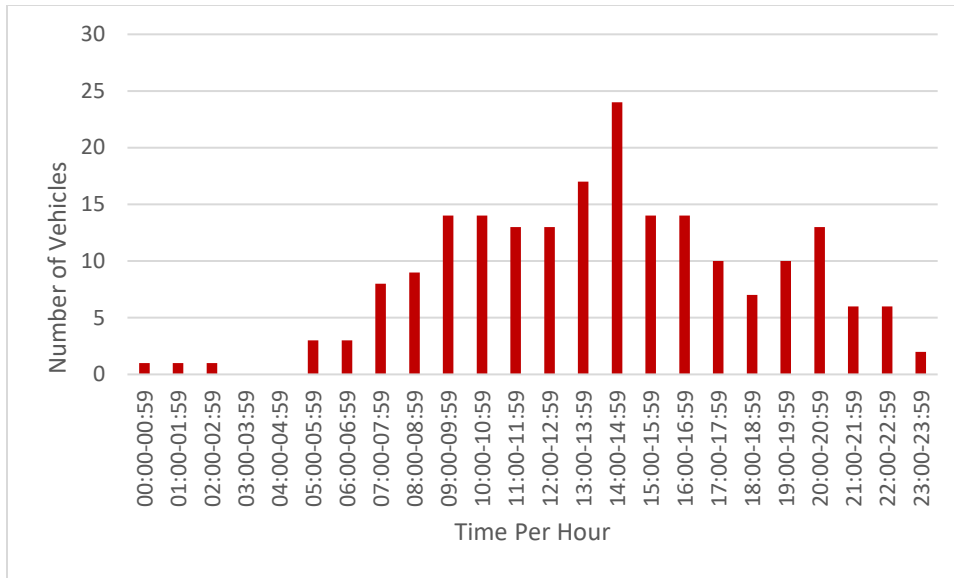


Figure 11. Average Volume by Hour on October 9th and 10th (weekend)

Figure 11 shows the average traffic volume on the weekend from October 9th and 10th. 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 in the morning with a peak at 2pm as it begins to decline into the evening.

3.2 Westbound Volume by Hour

The data collected between October 14th, 15th, 18th, 19th and 20th (Weekday) is used to analyze the traffic volume by hour on a weekday in the westbound direction as shown in Figure 12. The school hours at the Bayview Public School are from 08:10 to 16:00, and it appears that the peak traffic in the westbound direction occurs at 7 and 8am and has a spike at 3pm.

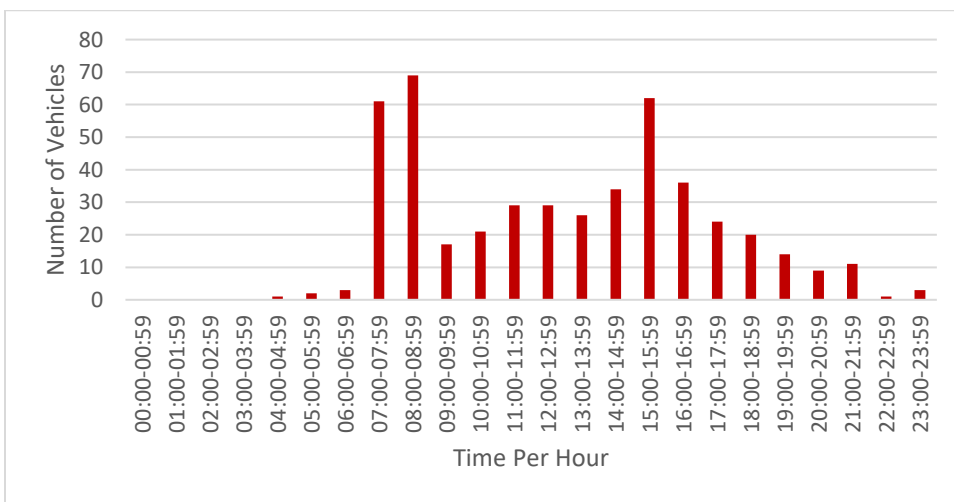


Figure 12. Volume by Hour on October 14th, 15th, 18th, 19th, and 20th (Weekday)

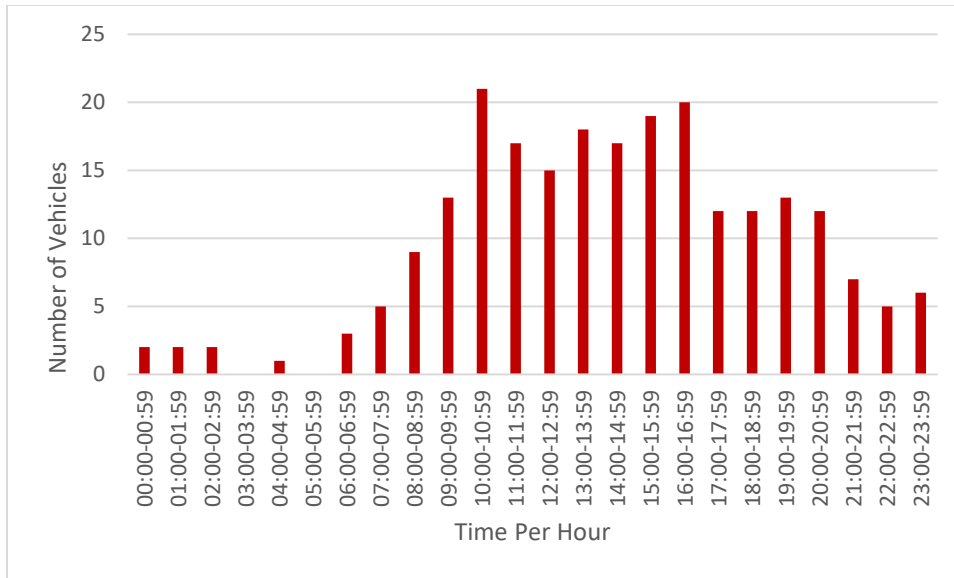


Figure 13. Average Volume by Hour on October 16th and 17th (Weekend)

Figure 13 shows the average traffic volume on the weekend from October 16th and 17th. 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 at 10am and decrease in the late morning and afternoon.

4.0 Conclusion

The traffic study conducted on Ottawa St was successfully carried out from October 7th, 2021, to October 20th, 2021, for eastbound and westbound directions. From the speed analysis, when the posted speed limit is 50km/h, there were 100% of vehicles travelling within the accepted speed limit in the eastbound direction. It was also determined that during the 50km/h speed limit period, 100% of vehicles travelling in the westbound direction were within the accepted speed limit. In addition, during school times, 100% of vehicles driving eastbound were travelling within the accepted speed limit. It was also determined that during school times, 97.1% of vehicles travelling westbound were within the accepted speed limit.

Furthermore, from the traffic volume analysis, it was observed that the traffic volume on Ottawa St has peak traffic volume during typical rush hours for both directions on a weekday. On the weekend, the peak traffic occurs during the morning in the westbound and eastbound directions.