

Traffic Data Analysis

Queen St

Northbound and Southbound



Town of Midland

Engineering Department

August 19th, 2022

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1.0 Introduction

A traffic count was conducted from July 27th, 2022, to August 17th, 2022, on Queen Street for both northbound and southbound directions. Vehicle speeds and traffic volumes were collected by a traffic trailer (model ATS-3). The purpose is to see if there are any speeding issues, raise safety awareness, and help calm traffic by displaying speeds of vehicles approaching.

1.1 Location

The traffic trailer was placed on Queen Street for both northbound and southbound 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	303 Queen Street, Midland, ON	11:00 on July 27 th , 2022 – 08:00 on August 3 rd , 2022
Southbound	294 Queen Street, Midland, ON	09:00 on August 3 rd , 2022 – 08:00 on August 17 th , 2022

1.2 Traffic Trailer

The traffic trailer used was model ATS-3 as shown in Figure 1. The traffic trailer is set to show the speed of the approaching vehicle and display short messages depending on the speed. The data is collected and grouped into one-hour intervals.



Figure 1 - Traffic Trailer

2.0 Speed Summary

The posted speed limit on Queen St is 50 km/h; however, generally it is accepted that vehicles that are travelling up to 10 km/h above the posted speed limit are not considered to be speeding. Table 2 shows an overall speed summary of the data collected for northbound and southbound directions.

Table 2- Speed Summary

Direction	Average Speed (km/h)	85 th Percentile Speed (km/h)	Minimum Speed (km/h)	Maximum Speed (km/h)
Northbound	35.55	48.13	10.00	87.00
Southbound	27.10	34.54	10.00	73.00

2.1 Northbound Speed Analysis

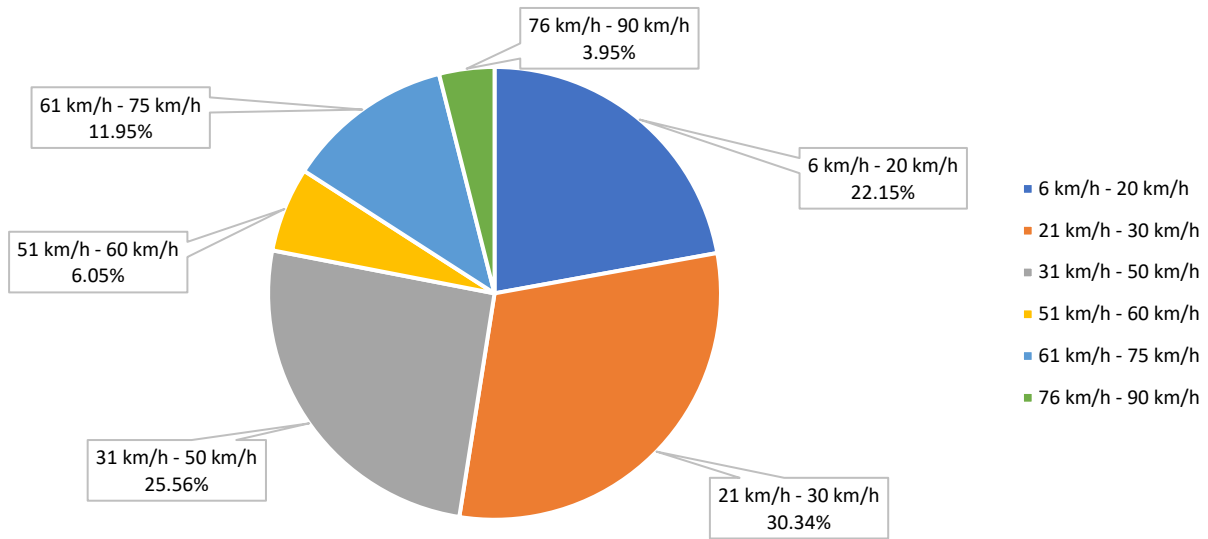


Figure 2- Total Volume Breakdown Based on Speed per Hour Intervals (Northbound)

Figure 2 above shows that 78.05% of vehicles were travelling below the posted speed limit, 6.05% of vehicles were travelling between 51-60 km/h, and 15.90% of vehicles were travelling above 60 km/h. Considering the accepted speed limit is 10 km/h over the posted speed limit, a total of 84.10% of vehicles were travelling within the accepted speed limit in the northbound direction.

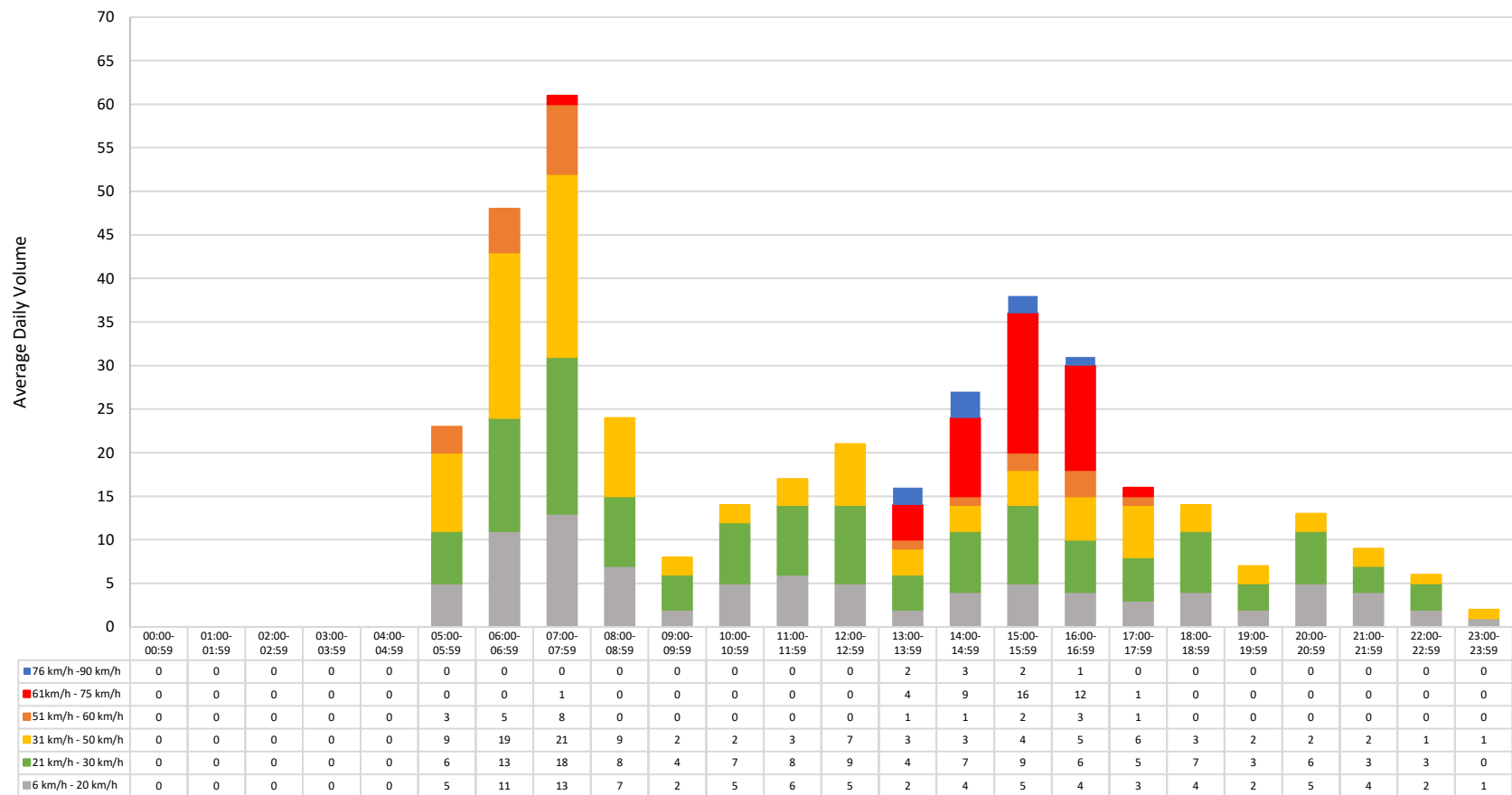


Figure 3 - Traffic Volume Speeds for Each Hour on Weekdays (Northbound)

Figure 3 above is the graph used to determine the time when most speeding occurs on weekdays. The data does not have a definite curve shape but, traffic volumes increased throughout the day with a spike from 05:00 – 05:59 until it reached its peak at 07:00 – 07:59 and begins to decline. On average, there was no traffic recorded from 23:00 – 04:59. The largest volumes of traffic traveling at speeds beyond the acceptable limit were recorded from 13:00 - 16:59.

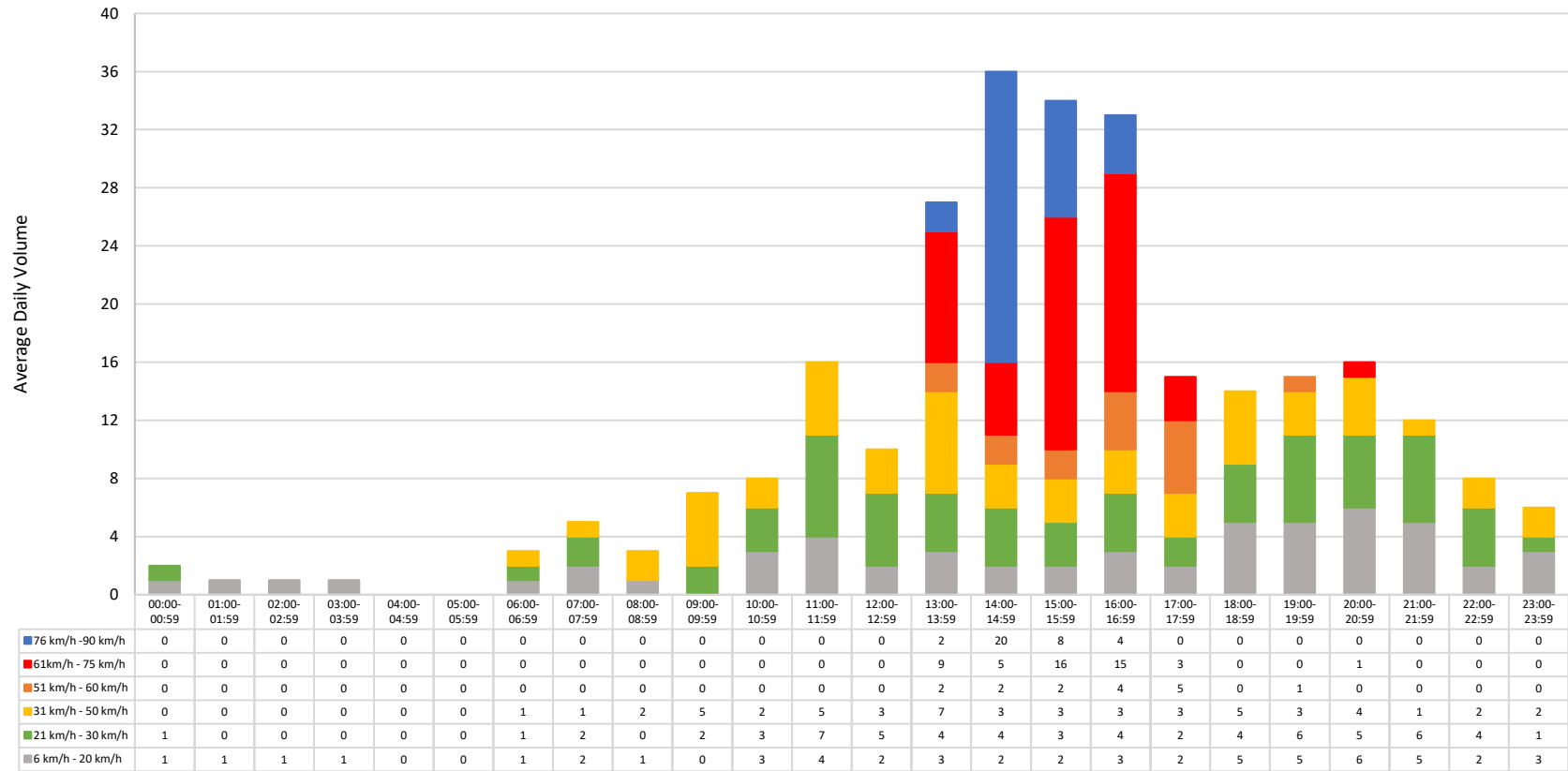


Figure 4 - Traffic Volume Speeds for Each Hour on Weekends (Northbound)

Figure 4 above is the graph used to determine the time when most speeding occurs on weekends. Generally, the data shows that speeds formed a curve as traffic volumes increased throughout the day from 08:00 – 08:59 and peaks at 14:00 – 14:59. On average, there was no traffic recorded from 04:00 – 05:59. The largest volumes of traffic traveling at speeds beyond the acceptable limit were recorded from 13:00 - 16:59.

2.2 Southbound Speed Analysis

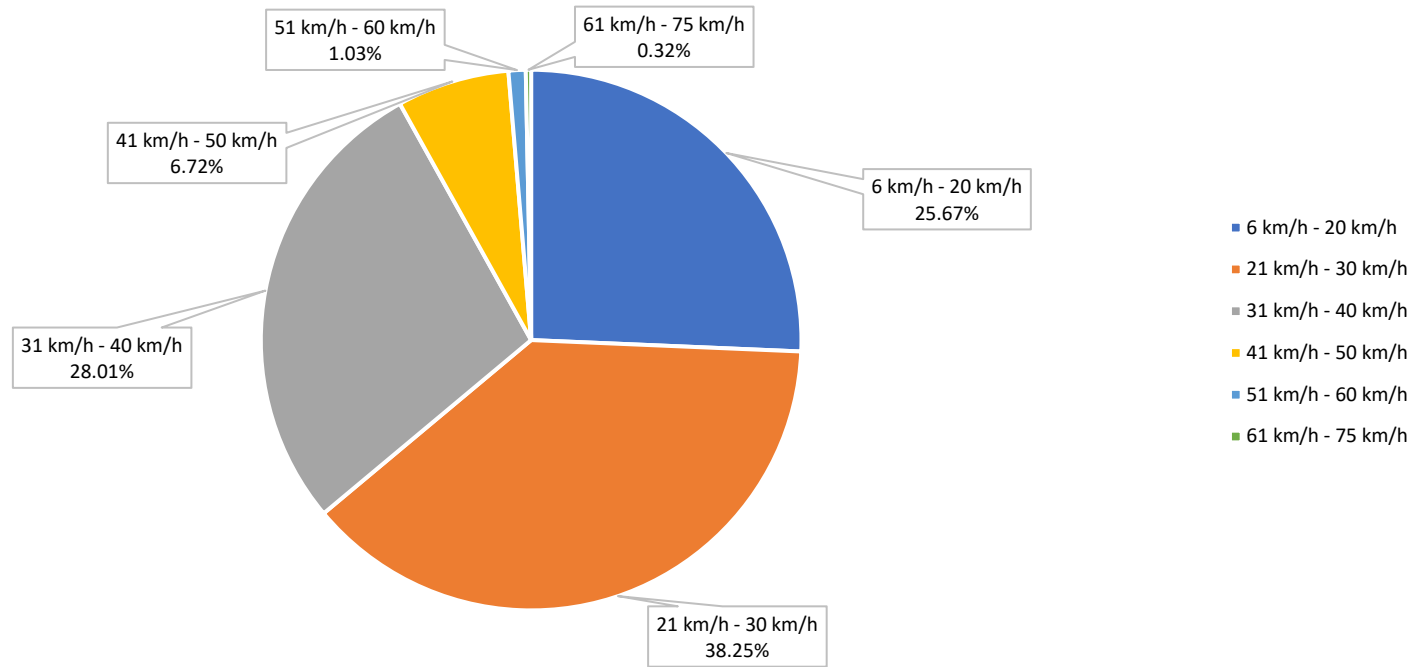


Figure 5 - Total Volume Breakdown Based on Speed per Hour Intervals (Southbound)

Figure 5 shows that 98.65% of the vehicles were travelling below the posted speed limit, 1.03% of vehicles were travelling between 51-60 km/h, and 0.32% of vehicles were travelling above 60 km/h. Considering the accepted speed limit is 10 km/h over the posted speed limit, a total of 99.68% of vehicles were driving within the accepted speed limit.

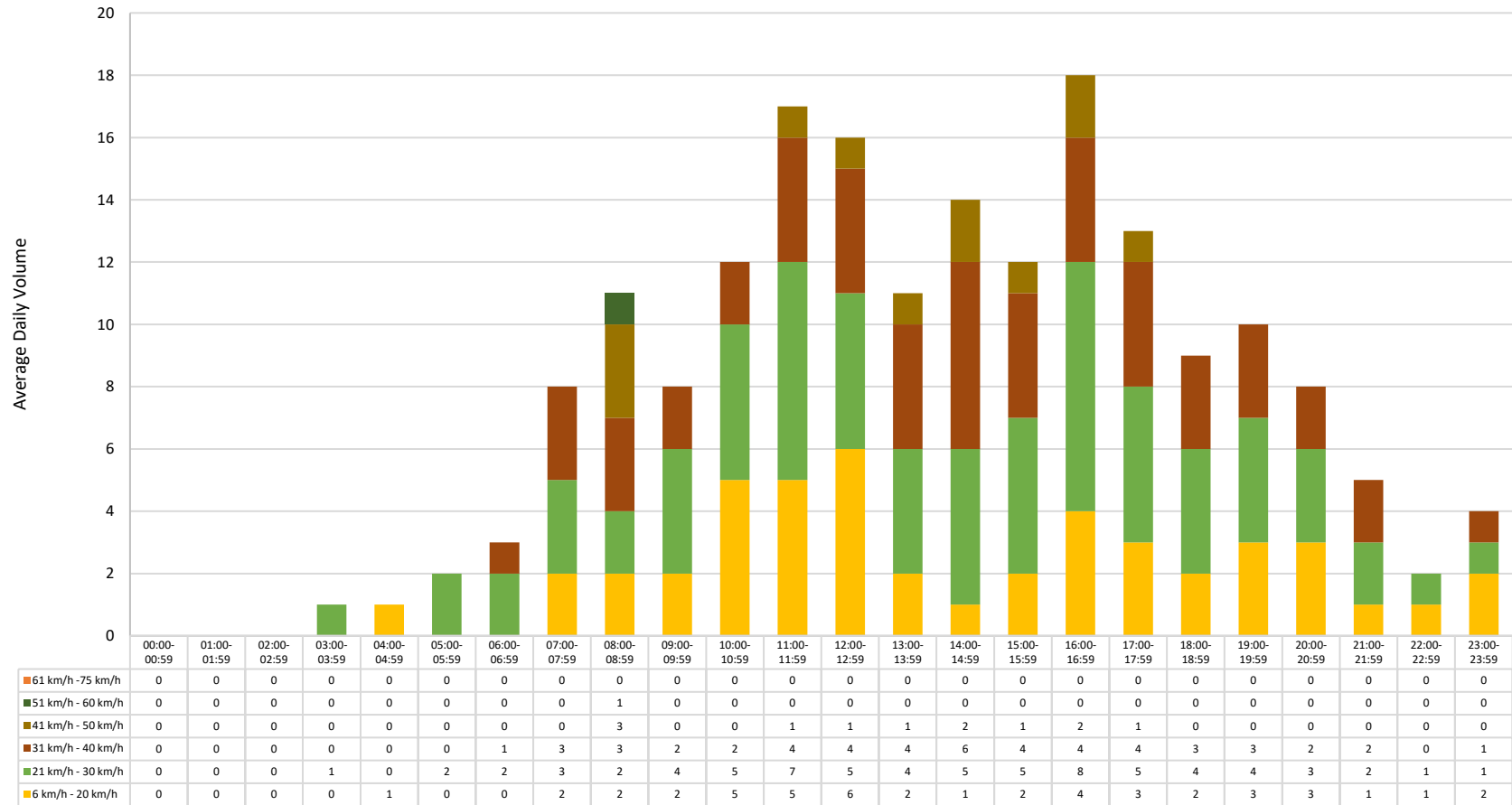


Figure 6 - Traffic Volume Speeds for Each Hour on Weekdays (Southbound)

Figure 6 above is the graph used to determine the time when most speeding occurs on weekdays. The data does not have a definite curve shape but, traffic volumes increased throughout the day with a spike from 07:00 – 07:59 until it reached its peak at 11:00 – 11:59 and again at 16:00 – 16:59. On average, there were no vehicles between 00:00 – 02:59. No vehicles were moving beyond the acceptable speed limit.

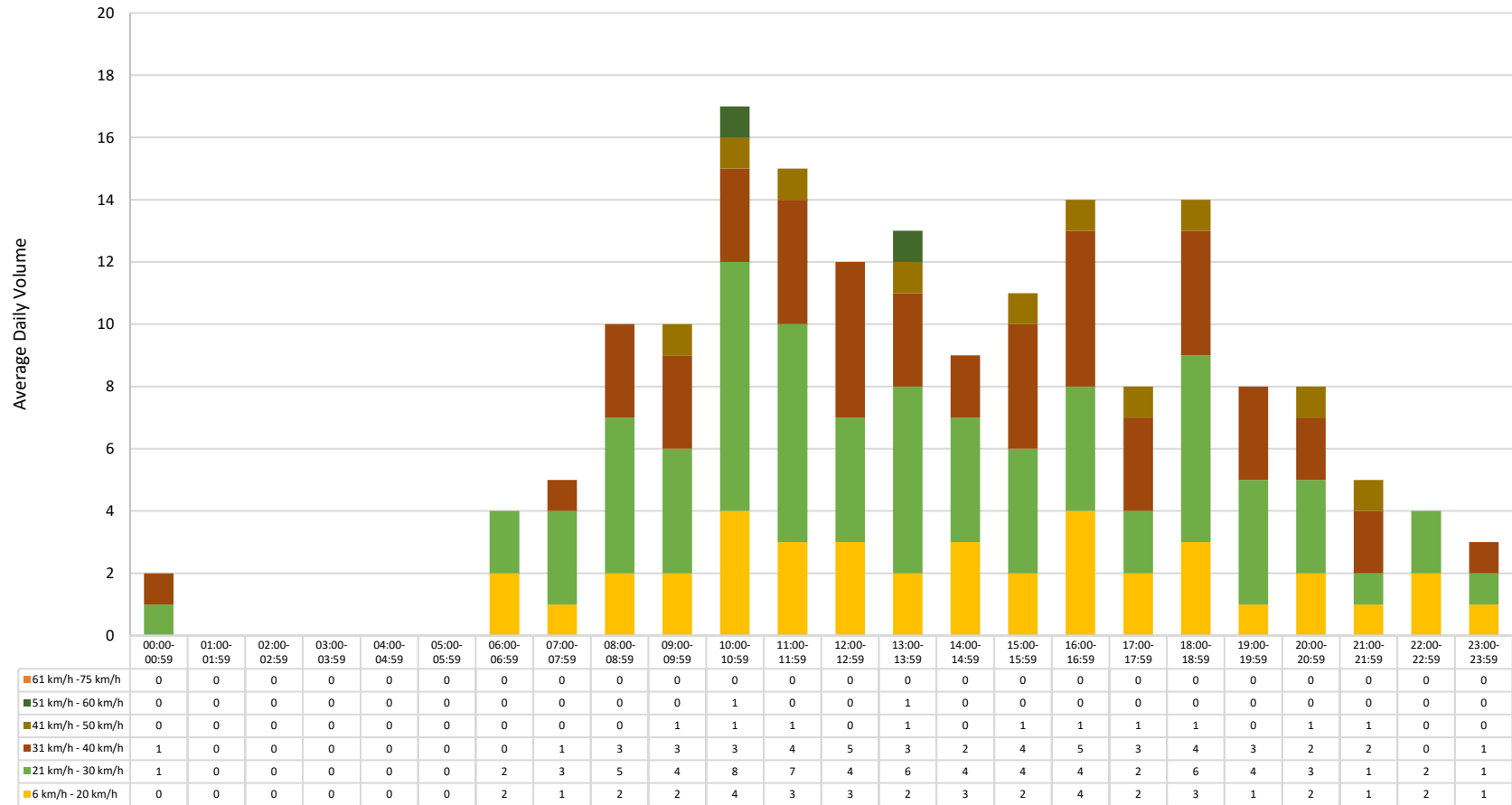


Figure 7 - Traffic Volume Speeds for Each Hour on Weekends (Southbound)

Figure 7 above is the graph used to determine the time when most speeding occurs on weekdays. The data does not have a definite curve shape but, traffic volumes increased throughout the day from 06:00 – 06:59 until it reached its peak at 10:00 – 10:59. On average, there were no vehicles between 01:00 – 05:59. No vehicles were moving beyond the acceptable speed limit.

3.0 Traffic Volume

Table 3 shows the average daily volume on Queen St for northbound and southbound directions.

Table 3 - Volume Summary

Direction	Period	Average Daily Traffic Volume
Northbound	Weekday	328
Northbound	Weekend	228
Southbound	Weekday	177
Southbound	Weekend	153

3.1 Northbound Volume by Hour

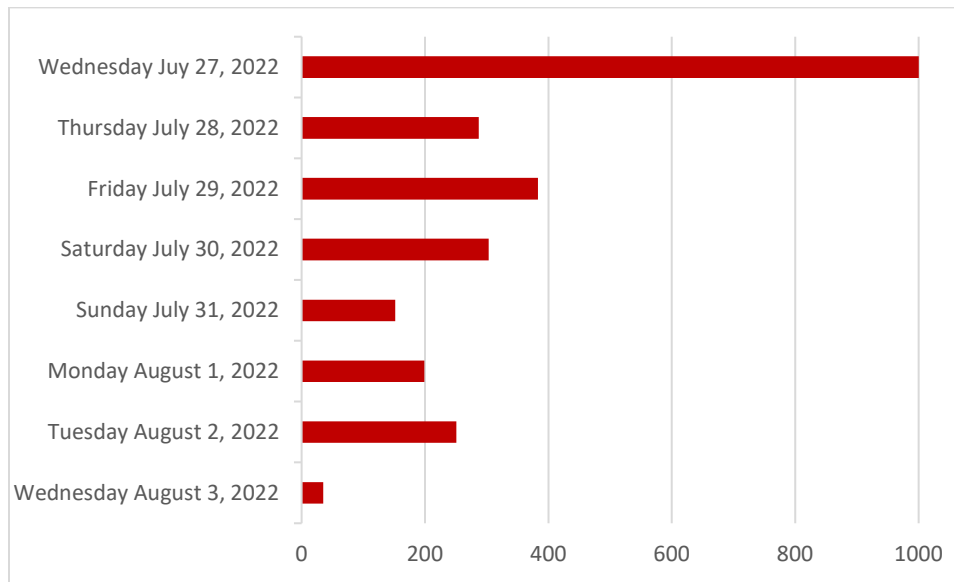


Figure 8 - Total Volume per Day (Northbound)

Figure 8 above shows the total volumes of each day data was collected in the northbound direction. Thursday July 29th had the largest traffic volume, while Sunday July 31st had the least discounting August 3rd, whereby data was not collected for the full day. Generally, more traffic was recorded on weekdays than weekends.

The traffic trailer was switched on Wednesday July 27th. The total volume is extremely large compared to the rest. This may be due to splitting the data incorrectly on the traffic cloud website.

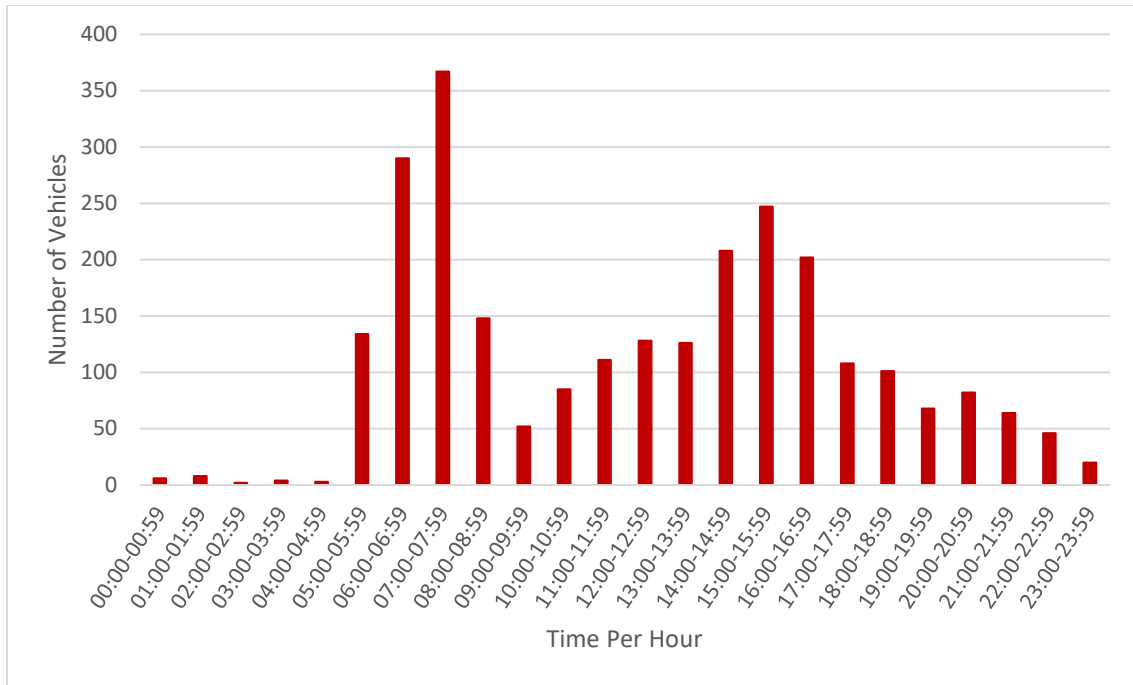


Figure 9 - Total Volume per Hour (Northbound)

As shown in Figure 9 above, the traffic volume forms a curve in which traffic flow is low at night and begins to increase at 06:00 – 06:59. Peak traffic volume occurs at 07:00 – 07:59 and it begins to decline into the night.

3.2 Southbound Volume by Hour

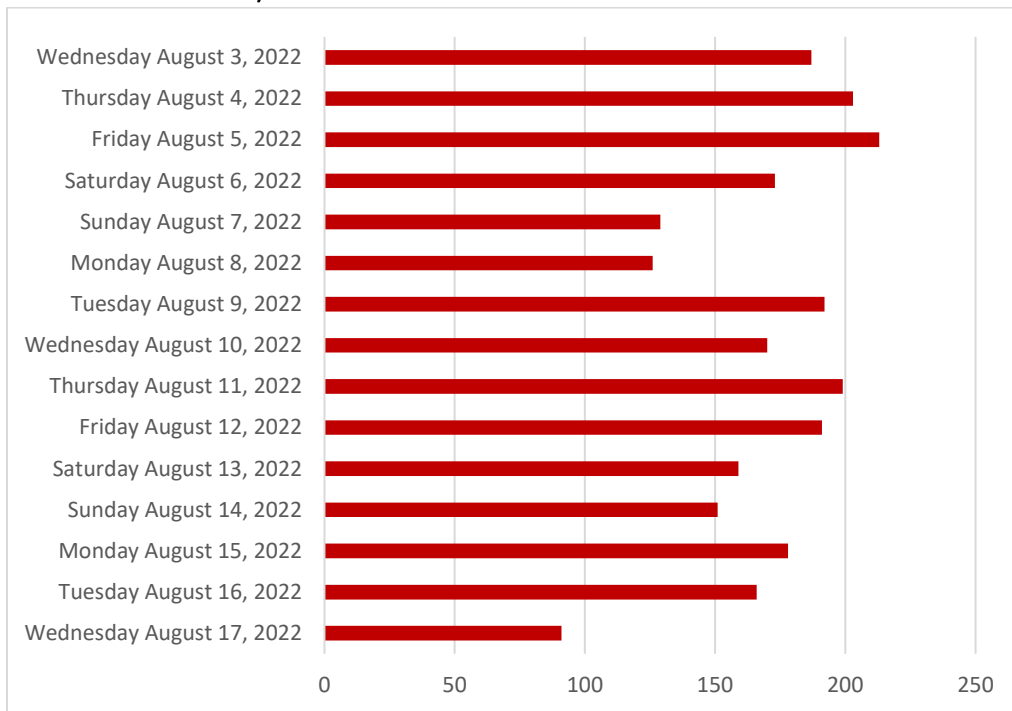


Figure 10 - Total Volume per Day (Southbound)

Figure 10 above shows the daily total traffic volumes in the southbound direction. Friday August 5th had the largest traffic volume. Generally, more traffic was recorded on weekdays than weekends.

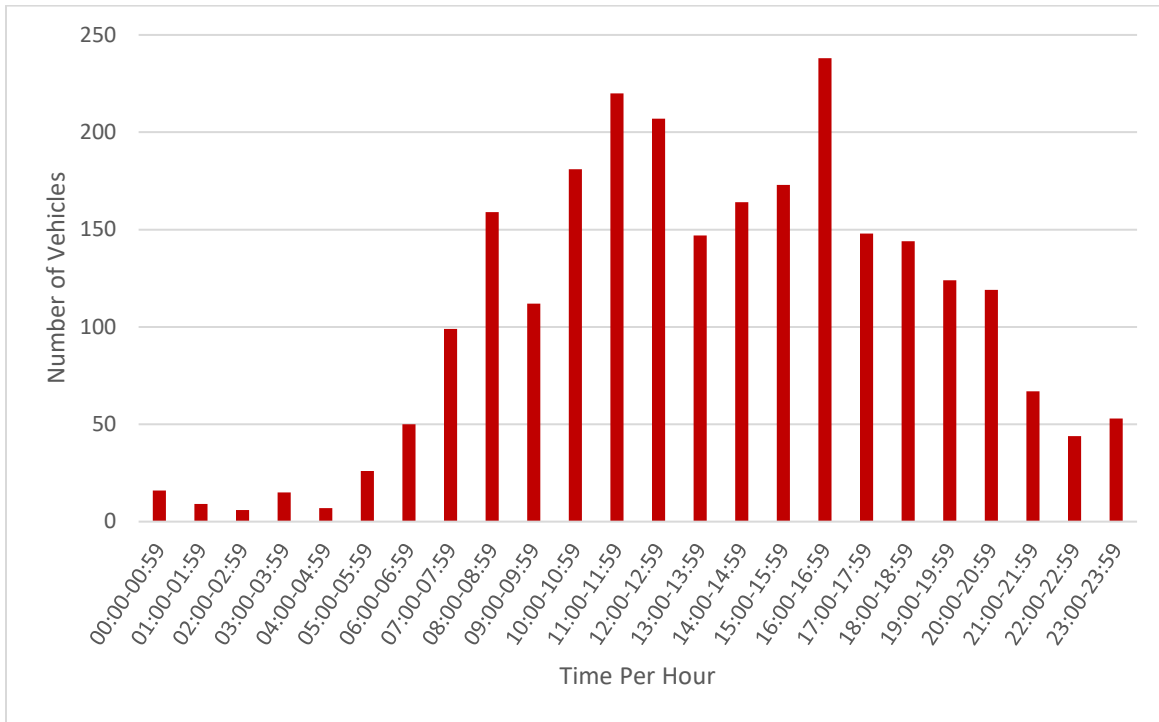


Figure 11 - Total Volume per Hour (Southbound)

The total volumes of traffic at different hours of the day in the southbound direction are shown in Figure 11 above. The data does not have a definite curve shape but, traffic volumes increased throughout the day from 05:00 – 05:59 until it reached its peak at 11:00 – 11:59 and again at 16:00-16:59.

4.0 Conclusion

The traffic study conducted on Queen St for both northbound and southbound directions was carried out from July 27th to August 17th, 2022. From the speed analysis, it was determined that 84.10% and 99.68% of vehicles were travelling within the accepted speed limit for the northbound and southbound directions, respectively.