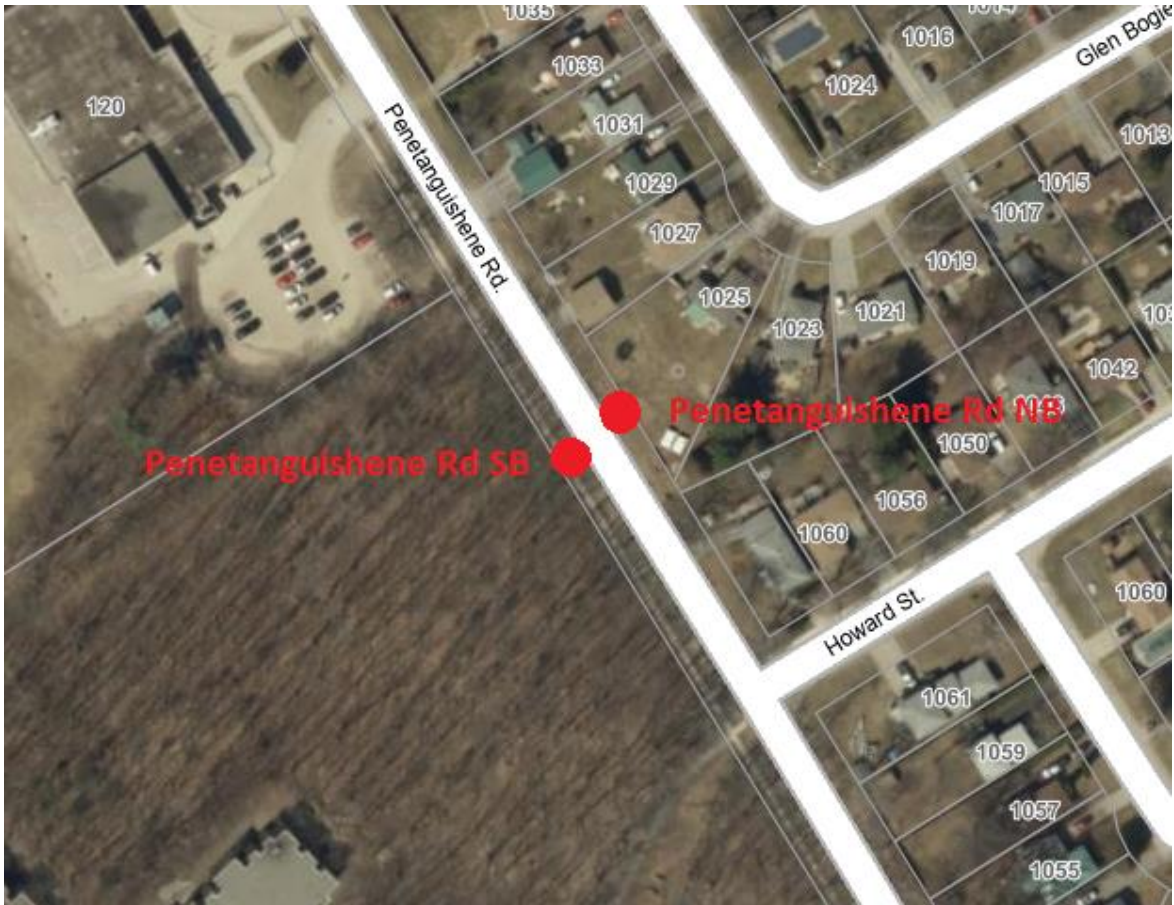


Traffic Data Analysis

Penetanguishene Rd



Town of Midland
Engineering Department
June 28th, 2023

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1.0 Introduction

A traffic count was conducted from June 14th to June 28th on Penetanguishene Road for the 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 Penetanguishene Rd for Northbound and Southbound direction. Table 1 below shows the location of the traffic trailer and data collection period.

Table 1- Locations of Traffic Trailer

Direction	Location	Period
Northbound	Behind 1025 Glen Bogie Dr on Penetanguishene Rd, Midland, ON	08:30 on June 14 th –09:00 June 21 st , 2023
Southbound	Across the street from above location, Midland, ON	09:30 on June 21 st – 08:00 on June 28 th , 2023

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 Penetanguishene Rd 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	44.9	55.3	5	84
Southbound	47.8	57.4	5	100

2.1 Northbound Speed Analysis

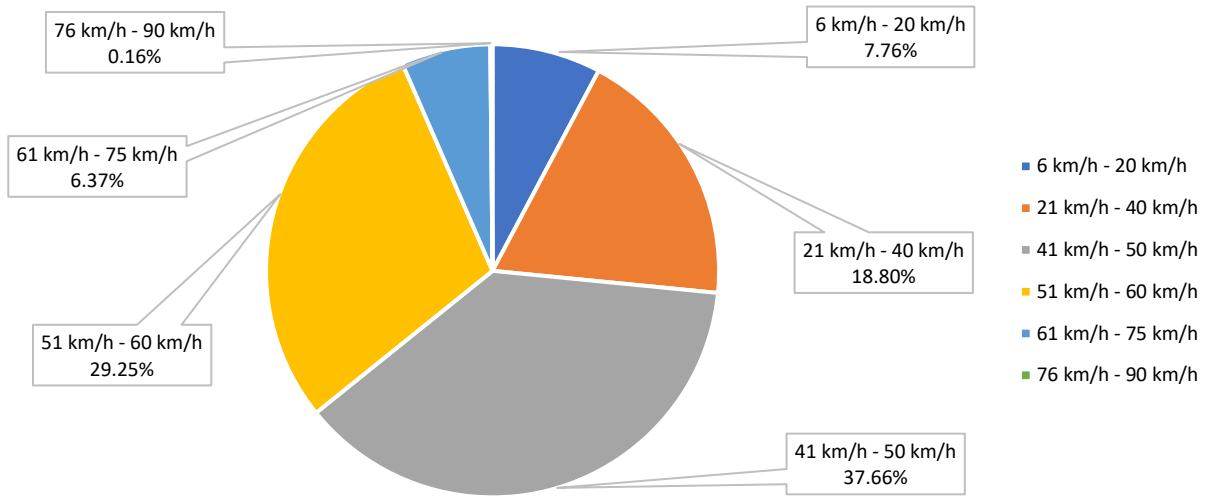


Figure 2- Total Volume Breakdown Based on Speed per Hour Intervals (Northbound)

Figure 2 above shows that 64.22% of vehicles were travelling below the posted speed limit, 29.25% of vehicles were travelling between 51-60 km/h, and 6.53% 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 93.47% of vehicles were travelling within the accepted speed limit in the Northbound direction.

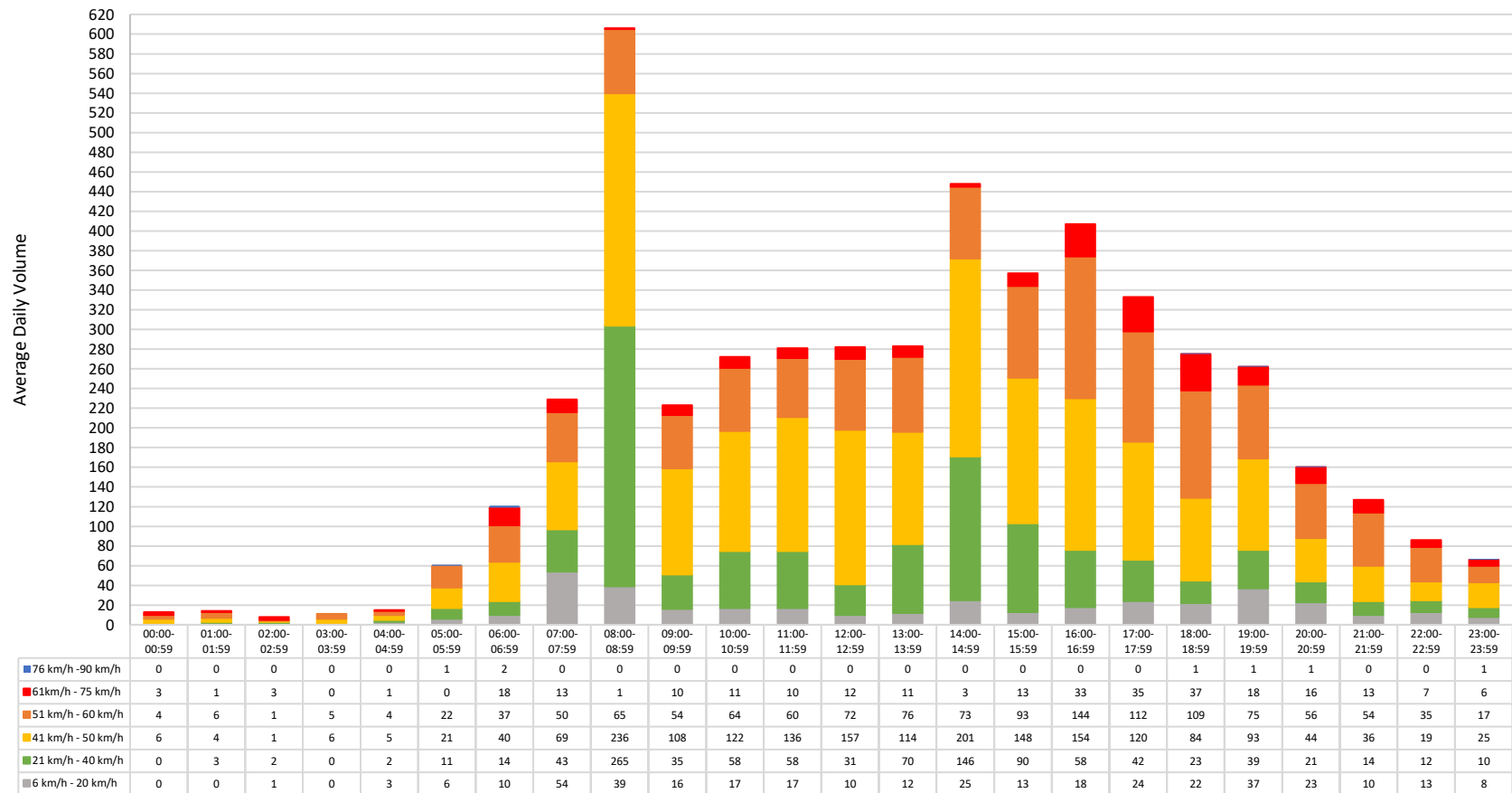


Figure 3 - Traffic Volume Speeds for Each Hour on Weekdays (Northbound)

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, and traffic volumes increase throughout the day, reaching its peak at 08:00, has a steady rate of volume between 09:00-13:59, a spike from 14:00-14:59, then traffic begins to decline. The largest volumes of traffic traveling at speeds beyond the acceptable limit were recorded from 18:00 - 18:59.

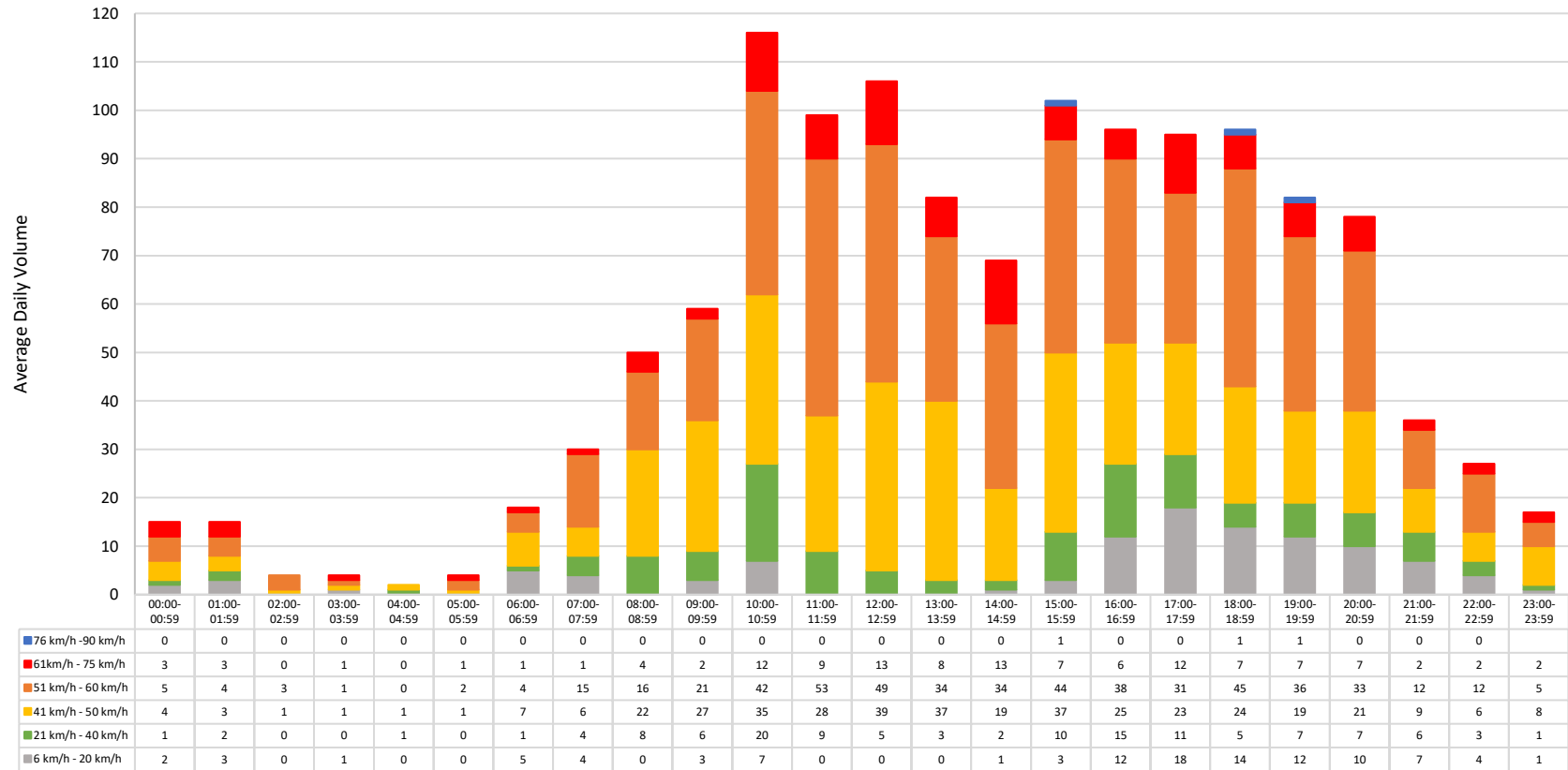


Figure 4 - Traffic Volume Speeds for Each Hour on Weekends (Northbound)

Figure 4 above is the graph used to determine the time when most speeding occurs on weekends. Generally, traffic volumes spiked and peaked from 10:00-10:59, and declined after 20:00-20:59.

2.2 Southbound Speed Analysis

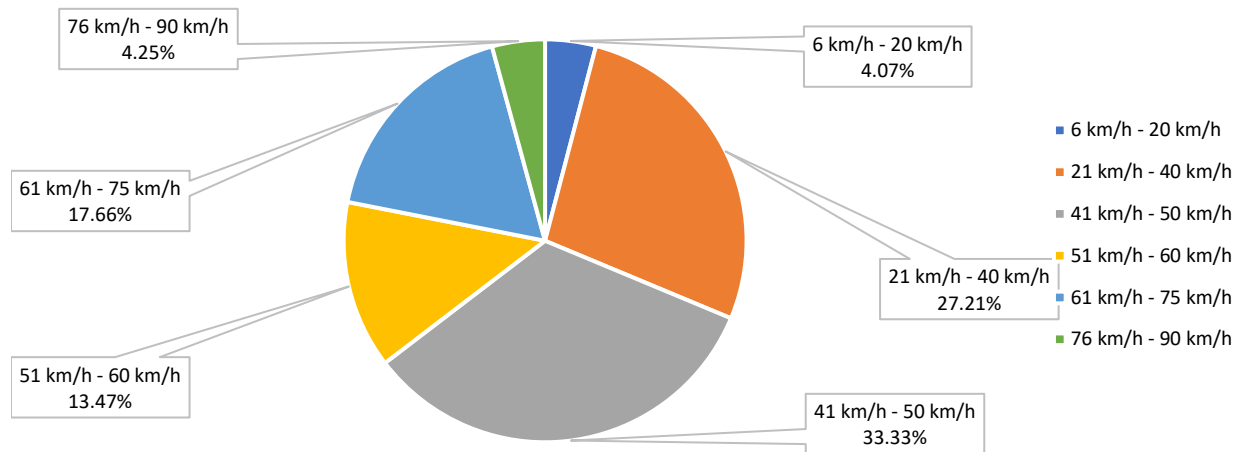


Figure 5 - Total Volume Breakdown Based on Speed per Hour Intervals (Southbound)

Figure 5 shows that 64.61% of the vehicles were travelling below the posted speed limit, 13.47% of vehicles were travelling between 51-60 km/h, and 21.91% 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 78.08% of vehicles were driving within the accepted speed limit.

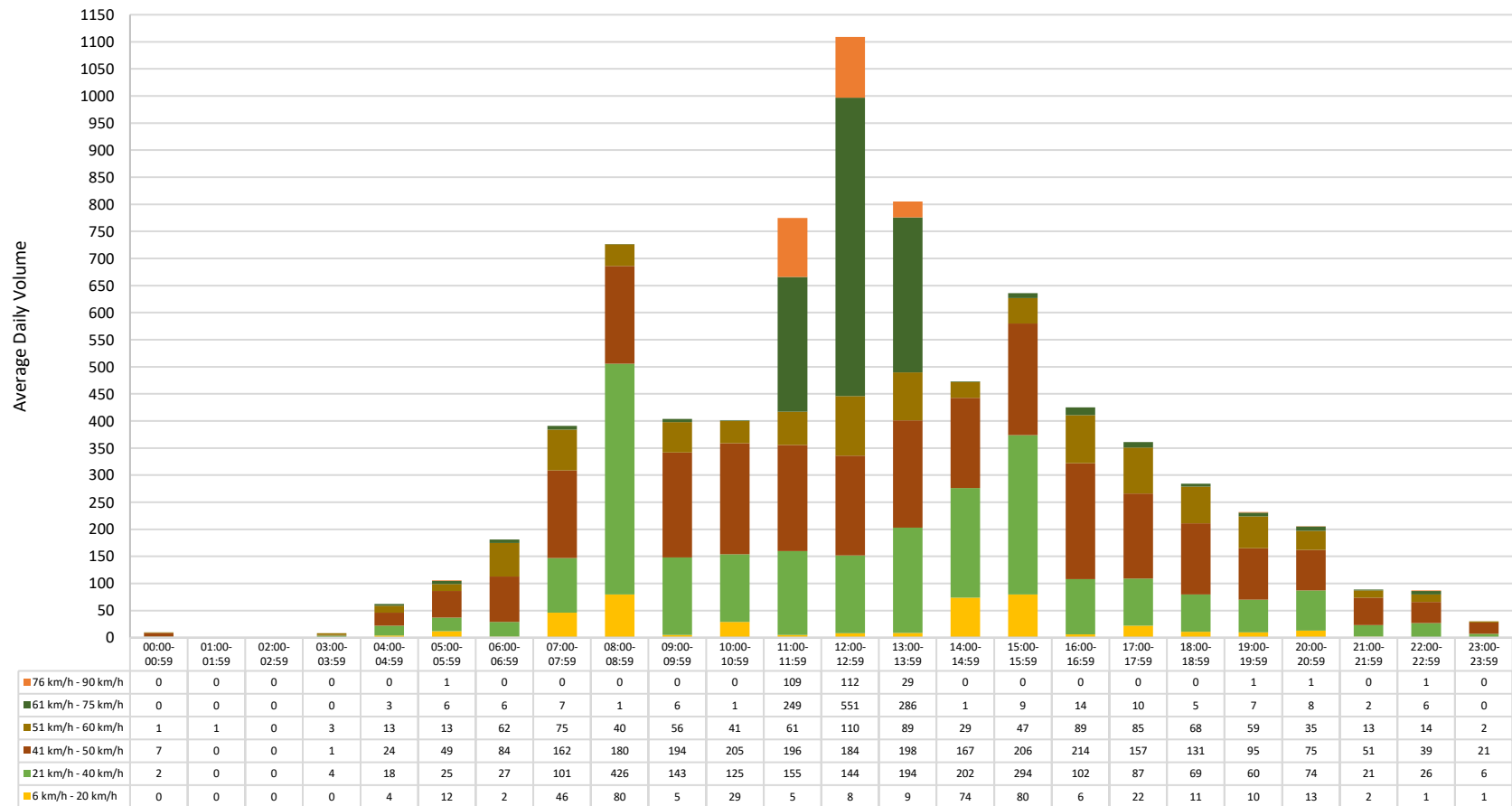


Figure 6 - Traffic Volume Speeds for Each Hour on Weekdays (Southbound)

Figure 6 above is the graph used to determine the time when most speeding occurs on weekdays. The information graphs a definite curve shape, where it has two significant peaks in volume of traffic. Traffic volumes increased slowly in the early morning, with the first, smaller spike at 8:00-8:59, dies down for a couple of hours, then peaks at 12:00-12:59 before traffic slowly declines to the night. The largest volumes of traffic traveling at speeds beyond the acceptable limit were recorded from 12:00 - 12:59.

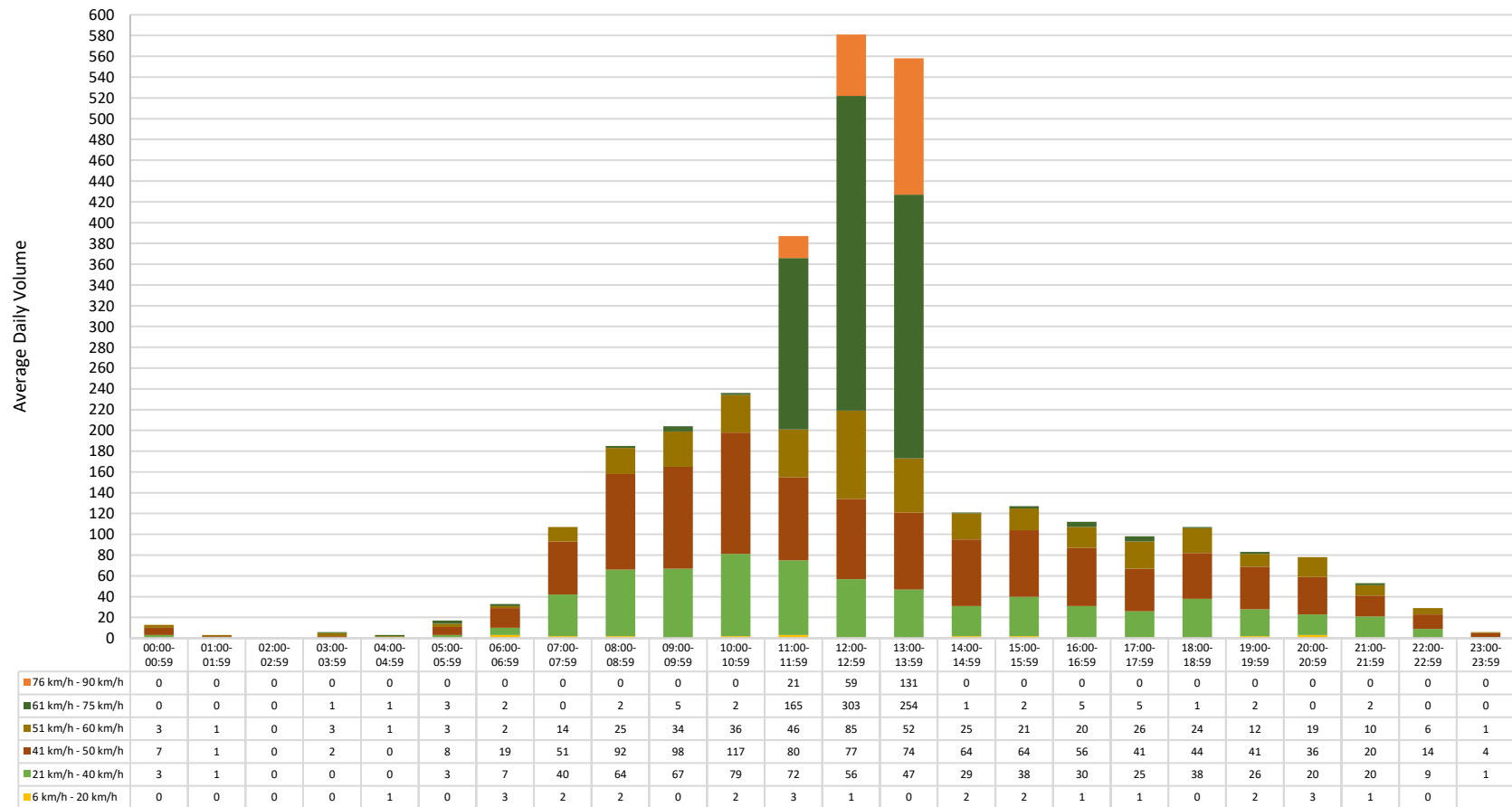


Figure 7 - Traffic Volume Speeds for Each Hour on Weekends (Southbound)

Figure 7 above is the graph used to determine the time when most speeding occurs on weekends. The information provided doesn't form a definite curve shape. Traffic volumes spike at 11:00-11:59, but there is some inconsistency in terms of increase/decrease throughout the day. Traffic volume reaches its peak at 12:00-12:59, then dips at 14:00-14:59.

3.0 Traffic Volume

Table 3 shows the average daily volume on Penetanguishene Rd for both Northbound and Southbound directions.

Table 3 - Volume Summary

Direction	Period	Average Daily Traffic Volume
Northbound	Weekday	824.8
Northbound	Weekend	651.0
Southbound	Weekday	1529.2
Southbound	Weekend	1574.0

3.1 Northbound Volume by Date

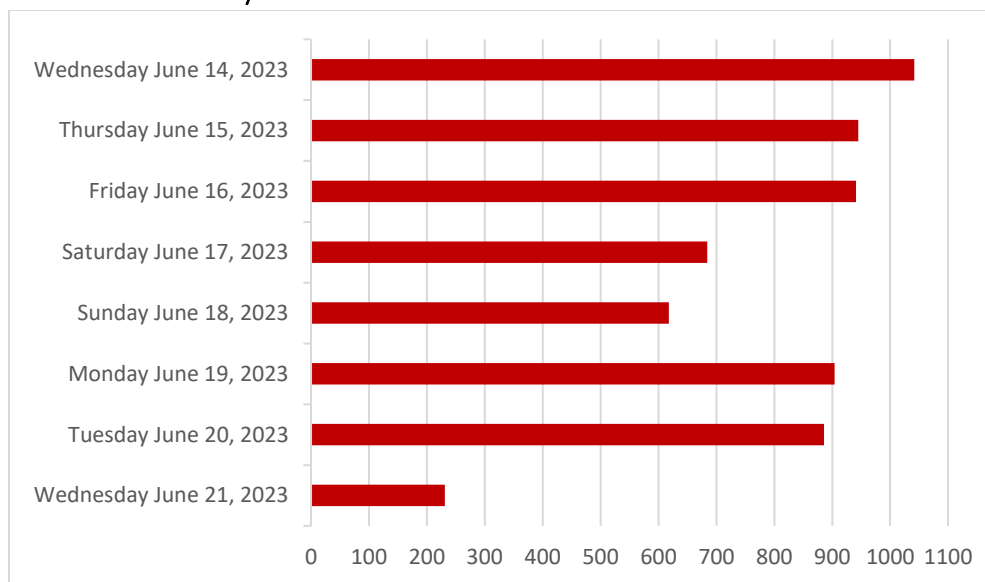


Figure 8 - Total Volume per Day (Northbound)

Figure 8 above shows the total volumes of each day data that was collected in the Northbound direction. Wednesday June 14th had about the largest traffic volume, while Sunday June 19th had the least (not including Wednesday June 21st when the Traffic Trailer was moved). Generally, more traffic was recorded on weekdays than weekends.

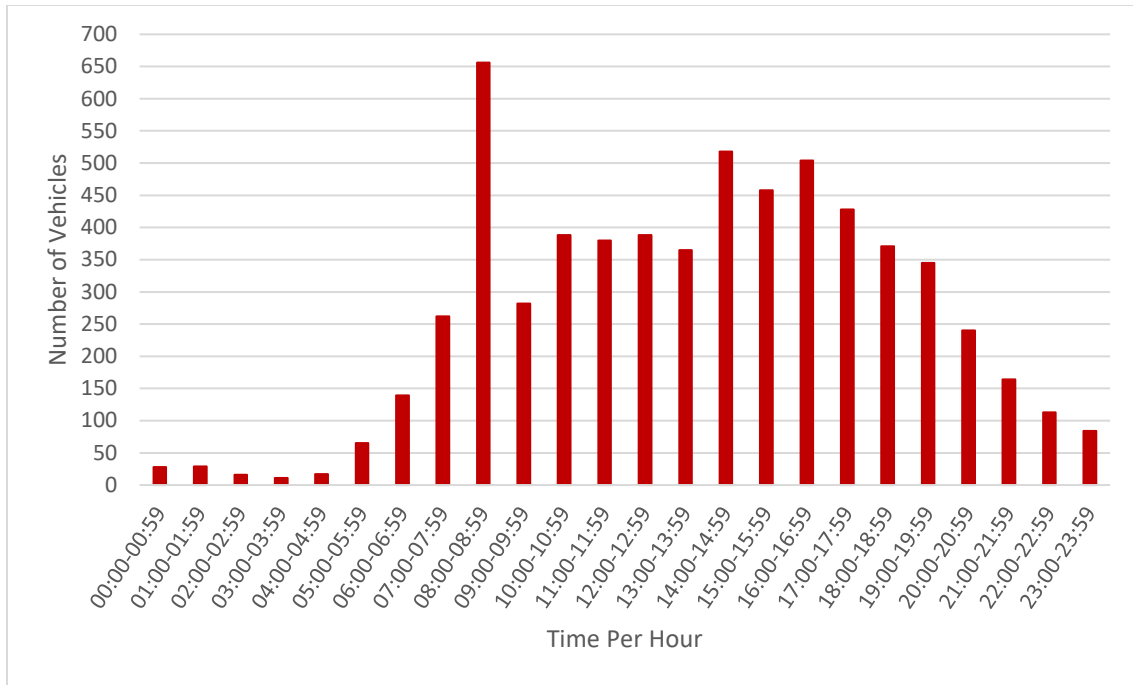


Figure 9 - Total Volume per Hour (Northbound)

As shown in Figure 9 above, the traffic volume carries a definite curve shape, in which traffic flow is low at night and begins to increase and peaks at 8:00-8:59. Traffic is steady from 09:00-13:59, experiences a little spike from 14:00-14:59, then begins to decline.

3.2 Southbound Volume by Date

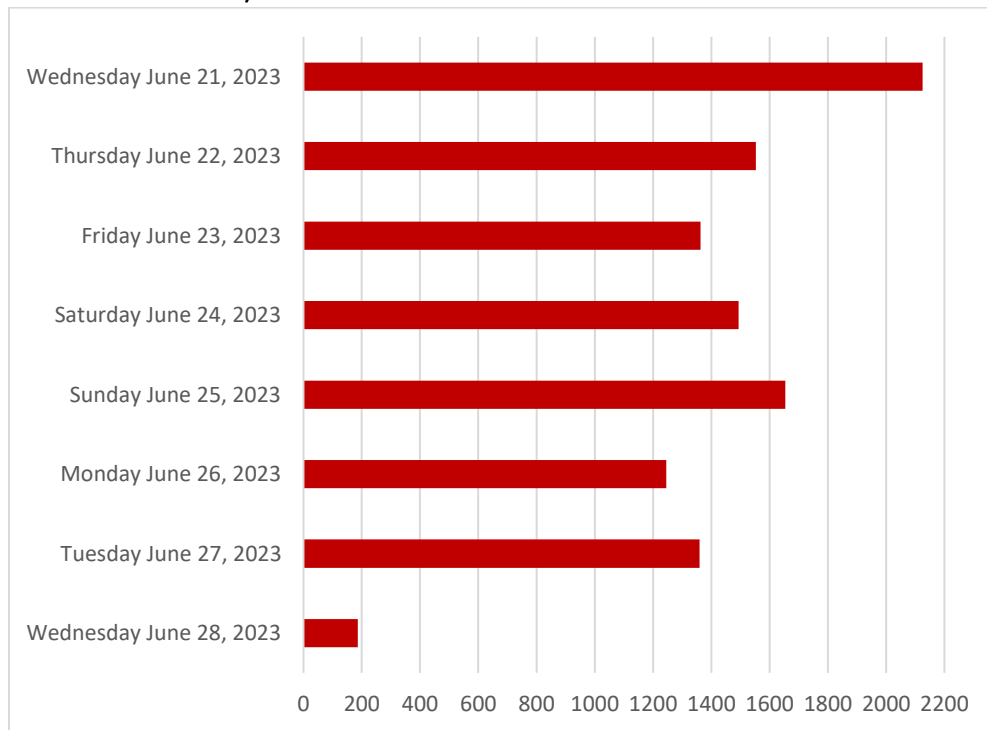


Figure 10 - Total Volume per Day (Southbound)

Figure 10 above shows the daily total traffic volumes in the Southbound direction. Wednesday, June 21st had the largest traffic volume, while Monday June 26th had the least (not including Wednesday June 28th when the Traffic Trailer was moved). Generally, more traffic was recorded on weekends than weekdays.

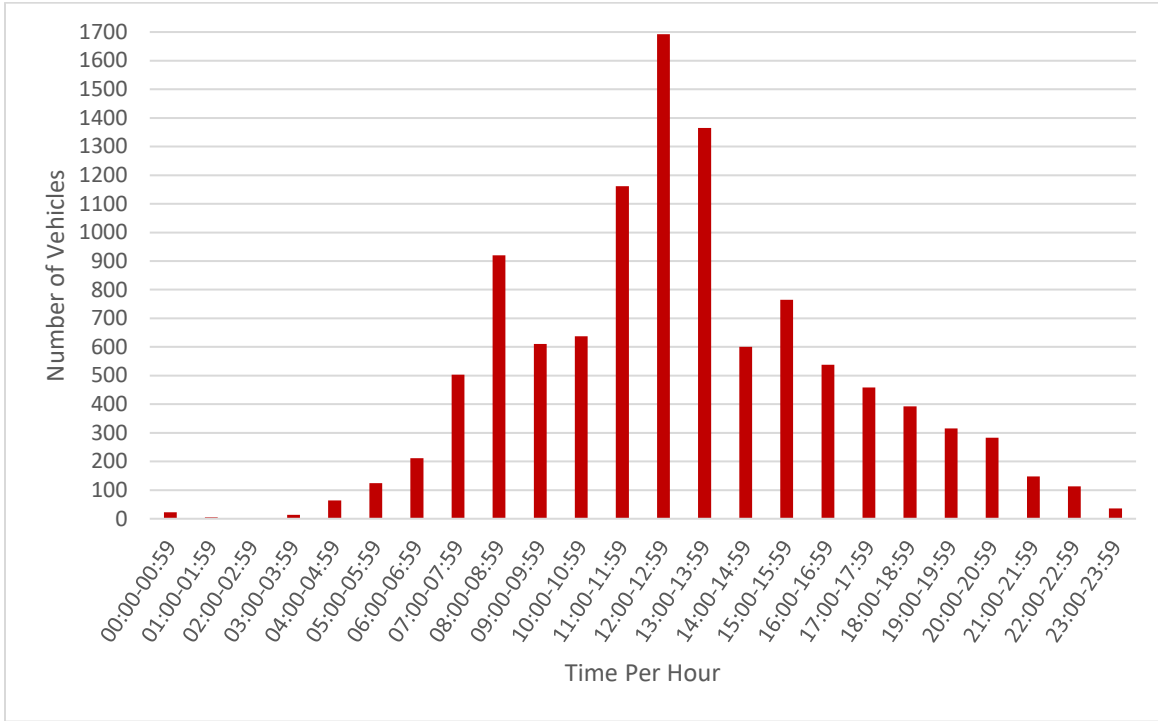


Figure 11 - Total Volume per Hour (Southbound)

The total volumes of traffic at different hours of the day in the Southbound direction are shown in Figure 11 above. Traffic volumes increased throughout the day with a tiny spike from 08:00-08:59, reached its peak at 12:00 – 12:59, then begins its decline afterward.

4.0 Conclusion

The traffic study conducted on Penetanguishene Rd for the Northbound and Southbound directions was carried out from June 14th to June 28th, 2023. From the speed analysis, it was determined that 93.47% of vehicles were travelling within the accepted speed limit for the Northbound direction and 78.08% in the Southbound direction, respectively. Traffic generally was higher on weekdays than on weekends and the most volume was at 08:00-8:59 in the Northbound direction, while it was 12:00-12:59 in the Southbound direction.