

Traffic Data Analysis

King St.

Northbound and Southbound



Town of Midland

Engineering Department

July 14th, 2021

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1.0 Introduction

A traffic count was conducted from June 30th, 2021, to July 14th, 2021, on King St for both northbound and southbound directions. Vehicle speeds and traffic volume were collected by a traffic trailer (model ATS-3).

1.1 Location

The traffic trailer was placed on King St between sidewalks and curbs to record the speed and volume of vehicles. Table 1 below shows the location of the traffic trailer and data collection period.

Table 1 Locations of Traffic Trailer

Direction	Location	Period
Northbound	815 King St, Midland, ON	10:00 AM on July 7 th , 2021- 9:00 AM on July 14 th , 2021
Southbound	788 King St, Midland, ON	11:00am on June 30 th , 2021 – 10:00am on July 7 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.



Figure 1 Traffic Trailer

2.0 Speed Summary

The posted speed limit on King St is 50km/h; however, 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 shows an overall speed summary of the data collected for southbound and northbound directions.

Table 2 Speed Summary

Direction	Average Speed (km/h)	85 th Percentile Speed (km/h)	Minimum Speed (km/h)	Maximum Speed(km/h)
Southbound	47.15	55.69	10	90
Northbound	51.39	58.51	10	91

2.1 Southbound Speed Analysis

Figure 2 to 4 below show the speed summary for the southbound traffic.

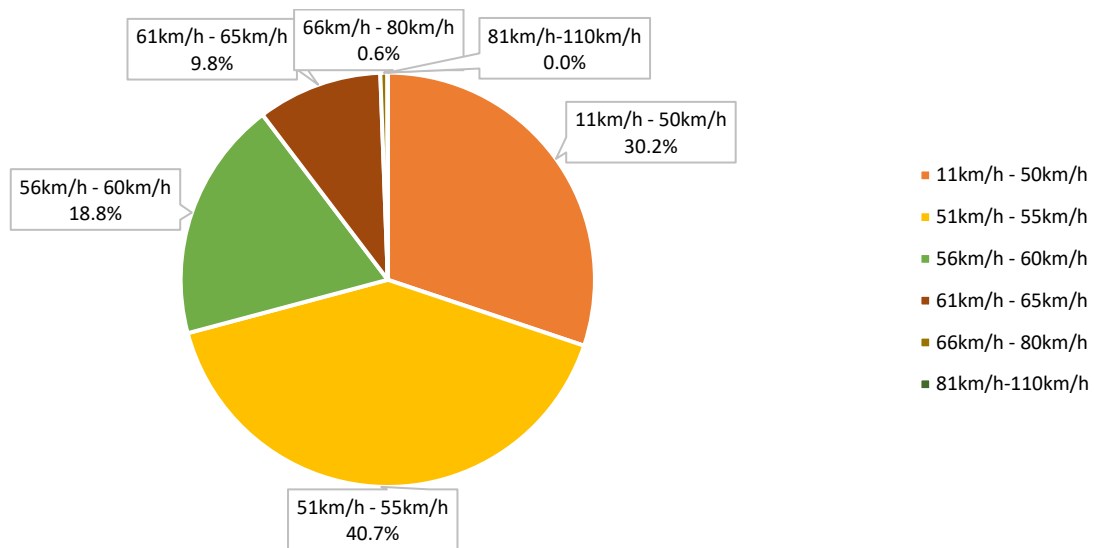


Figure 2 Speed by Average Volume Southbound

Figure 2 above shows that 30.2% of vehicles were travelling below the posted speed limit, 59.5% of vehicles were travelling between 51-60 km/h, and 10.4% of vehicles were travelling above 60km/h. Considering the accepted speed limit is 10km/h over the posted speed limit, a total of 89.7% of vehicles were travelling within the accepted speed limit in the southbound direction.

Figures 3 and 4 below are the speed by hour graphs for weekdays (July 1st to 2nd and July 5th to 6th) and the weekend (July 3rd to 4th) in the southbound direction.

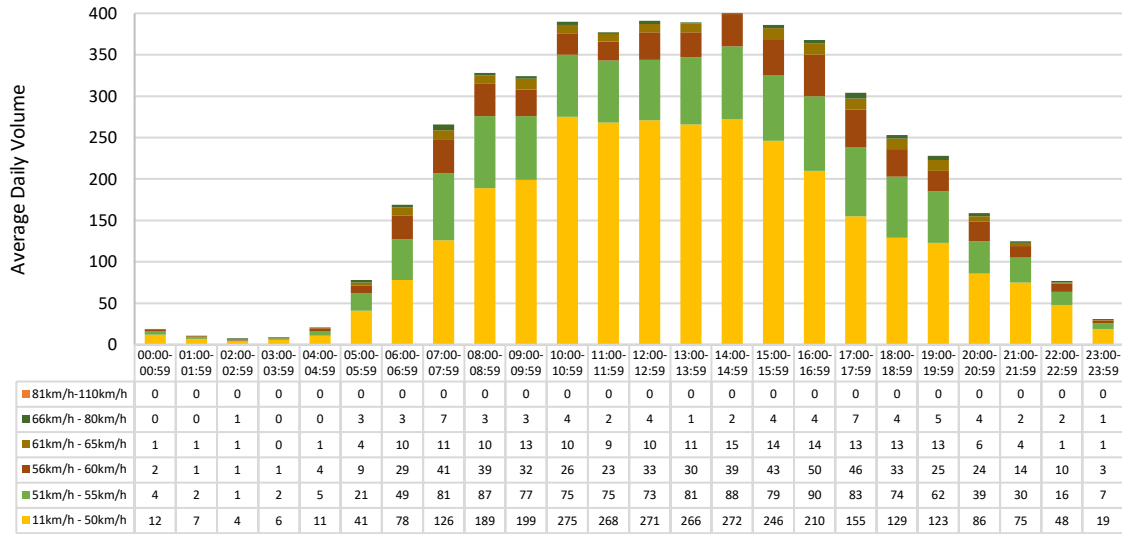


Figure 3 Speed by Hour Analysis for Southbound (Weekday)

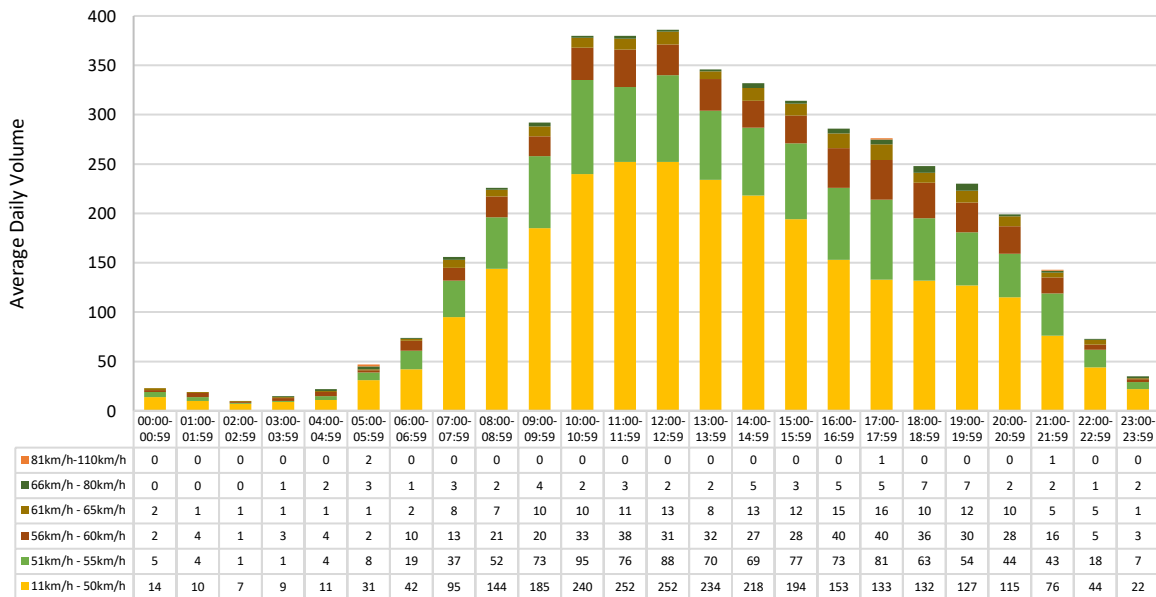


Figure 4 Speed by Hour Analysis for Southbound (Weekend)

Figure 3 (weekday) and Figure 4 (weekend) above are the speed by hour graphs used to determine the time where most speeding occurs. On weekdays, speeding rates for a curve that begins to increase at 5:00am before reaching a peak between 3:00pm and 7:00pm. On weekends, the rate of speeding formed a curve which began increasing at 7:00am and reached its peak from 4:00pm to 5:59pm before beginning to decrease again.

2.2 Northbound Speed Analysis

Figures 5 to 7 are the speed summary for the northbound traffic.

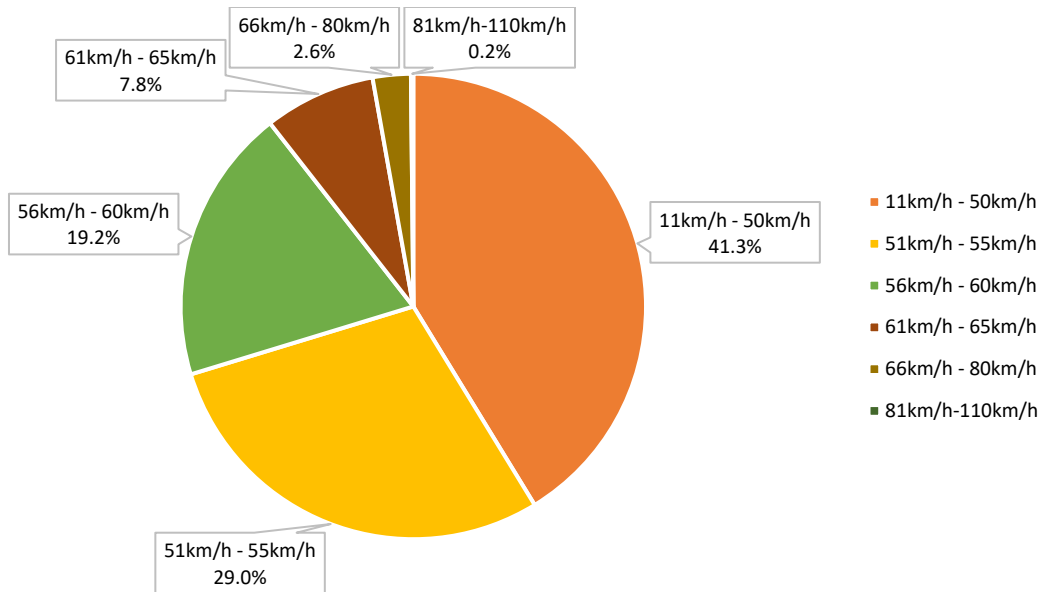


Figure 5 Speed by Average Volume Northbound

From this summary we can see that 41.3% of the vehicles were travelling below the posted speed limit, 48.2% of vehicles were travelling between 51-60 km/h, and 10.6% 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 89.5% of vehicles were driving within the accepted speed limit.

Figures 6 and 7 below are the speed by hour graphs for weekdays (July 8th to 9th and July 12th to 13th) and the weekend (July 10th to 11th) in the northbound direction.

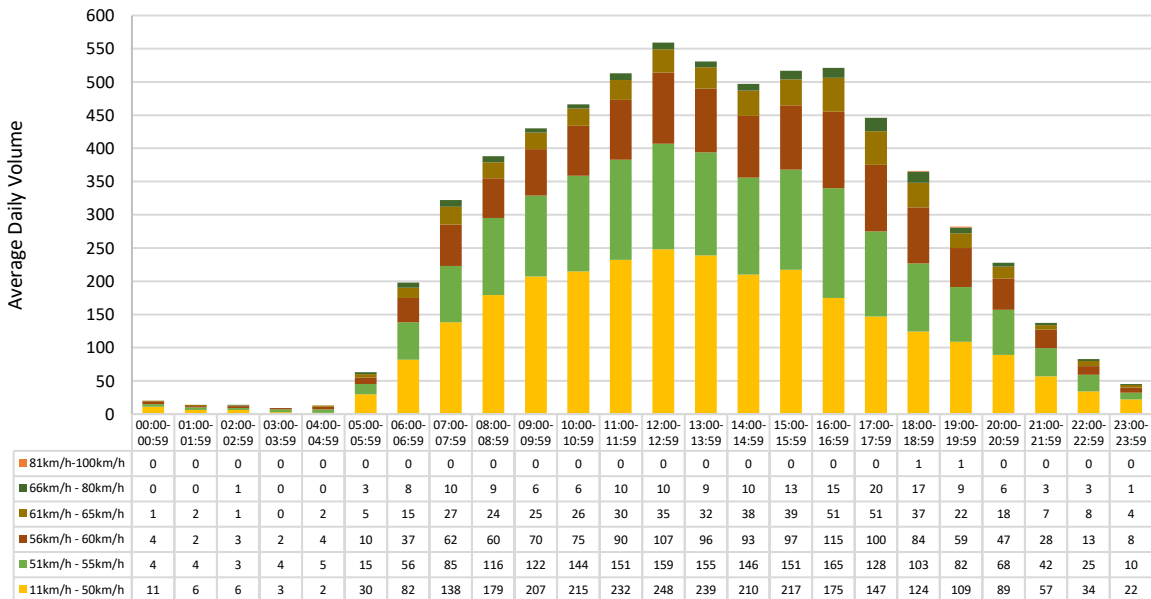


Figure 6 Speed by Hour Analysis for Northbound (weekday)

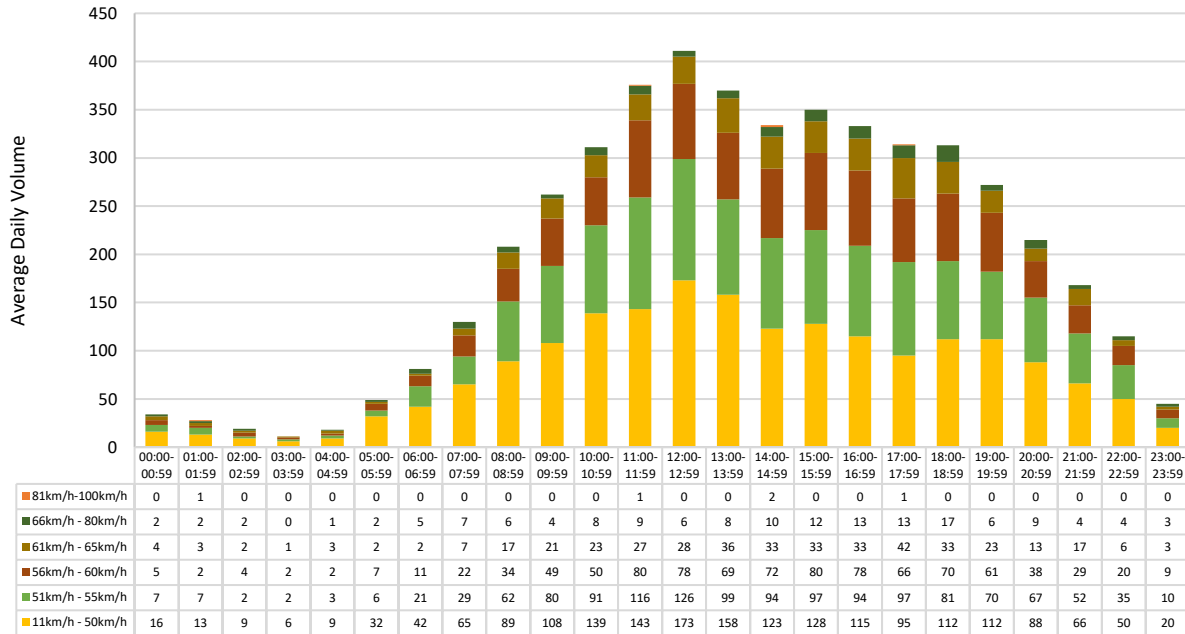


Figure 7 Speed by Hour Analysis for Northbound (weekend)

Figure 6 (weekday) and Figure 7 (weekend) above are the speed by hour graphs used to determine the time where most speeding occurs. On weekdays, speeding rates for a curve that begins to increase at 5:00am before reaching a peak between 4:00pm and 6:59pm. On weekends, the rate of speeding formed a curve which began increasing at 6:00am and reached its peak from 4:00pm to 6:59pm before beginning to decrease again.

Furthermore, the traffic trailer detected that 47.87% of vehicles slowed down in southbound direction and 57.61% slowed down in northbound direction when approaching the trailer. These percentages could include the vehicles slowed down to make a turn; however, it also shows that the trailer is influencing traffic calming.

3.0 Traffic Volume

Table 3 Volume Summary

Direction	Period	Average Daily Traffic Volume
Southbound	June 30 th - July 7 th , 2021	4,361.8
Northbound	July 7 th -14 th , 2021	6,104.1

Figures 8 and 9 show the average daily volumes on King St for northbound and southbound directions.

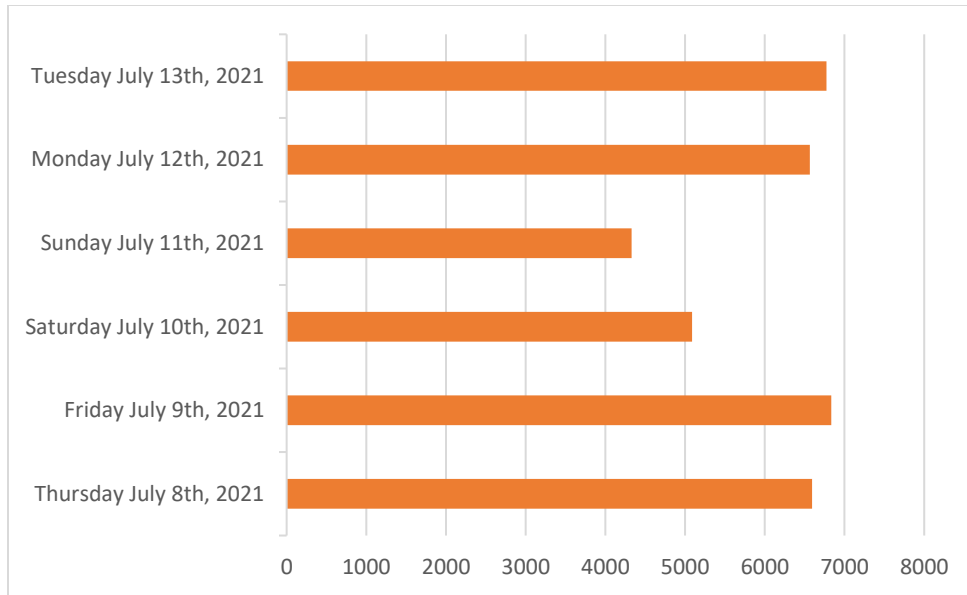


Figure 8 Total Volume per day (Northbound)

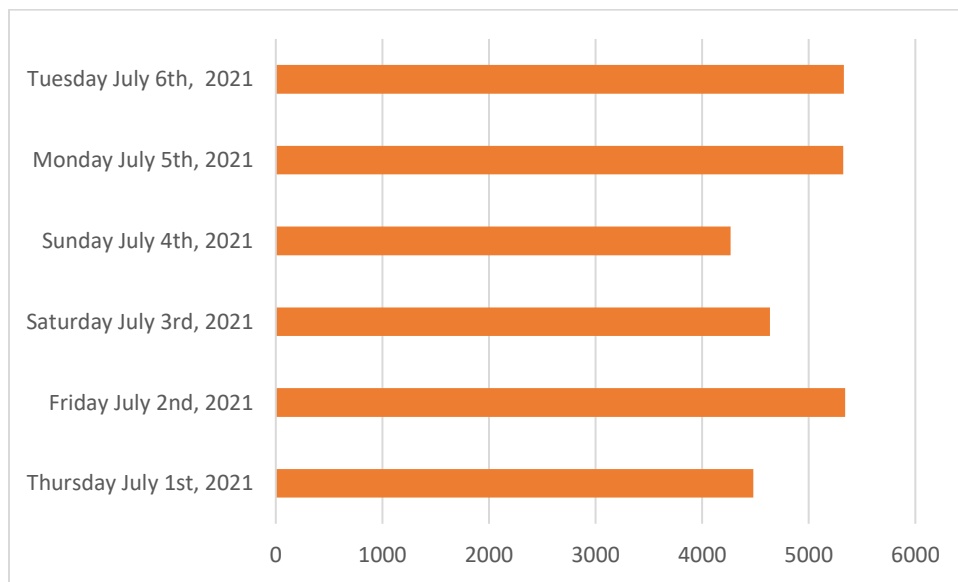


Figure 9 Total Volume per day (Southbound)

3.1 Southbound Volume by Hour

The data collected from July 1st to 2nd July 5th to 6th (weekdays) and July 3rd to 4th (weekend) are used to analyze the average traffic volume at different times of the day as shown in Figure 10 and Figure 11, respectively. It should be noted that July 1st was a statutory holiday which may have had an effect on traffic flow.

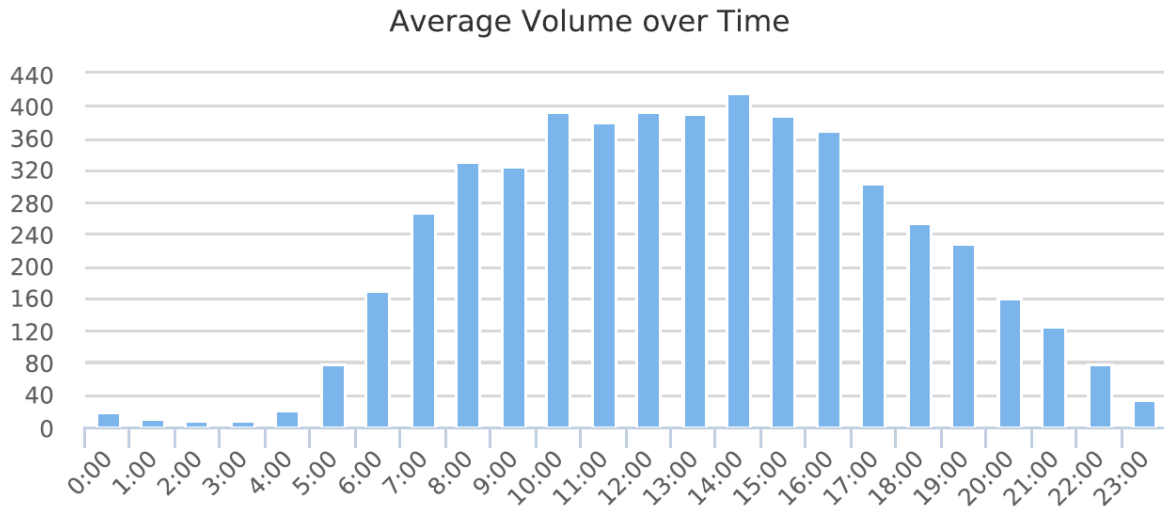


Figure 10 Average Volume by Hour from July 1st to 2nd and July 5th to 6th (Southbound)

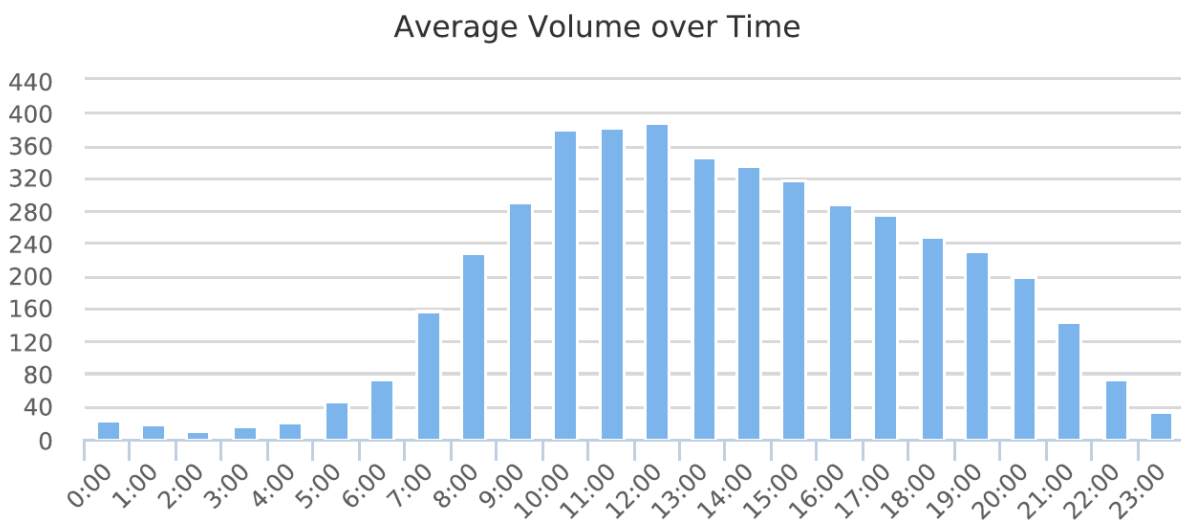


Figure 11 Average Volume by Hour from July 3rd to 4th (Southbound)

As shown in Figure 10, peak traffic occurs in the middle of the afternoon from 2:00pm to 2:59pm on the weekday in the southbound direction. On the weekend shown in Figure 11, the peak was reached from 10:00am to 12:59pm.

3.2 Northbound Volume by Hour

The data collected from July 8th to 9th and July 12th to 13th (weekdays) and from July 10th to 11th (weekend) are used to analyze the average traffic volume at different times of the day as shown in Figure 12 and Figure 13, respectively.

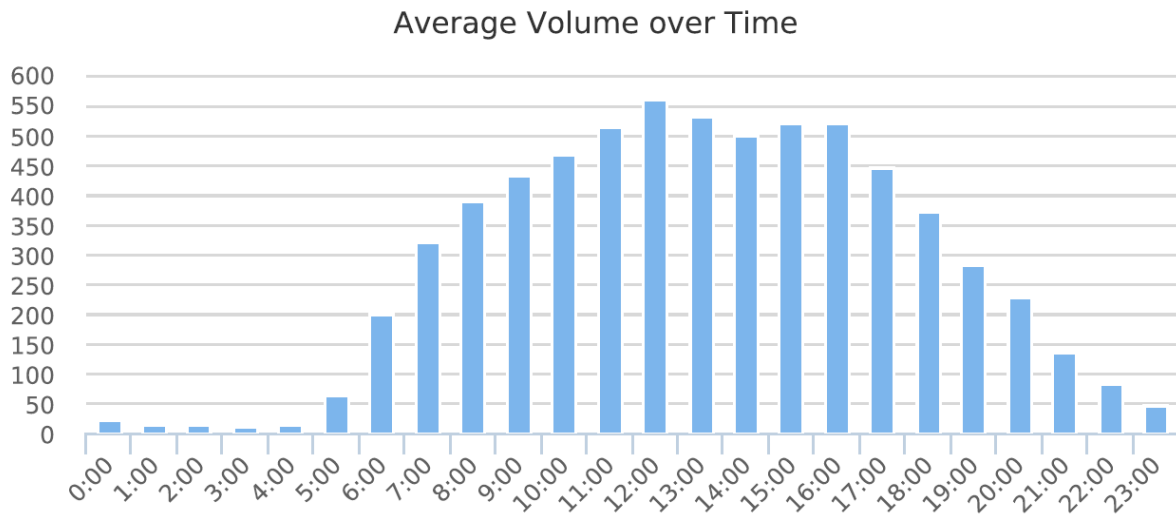


Figure 12 Average Volume by Hour from July 8th to 9th and July 12th to 13th (Northbound)

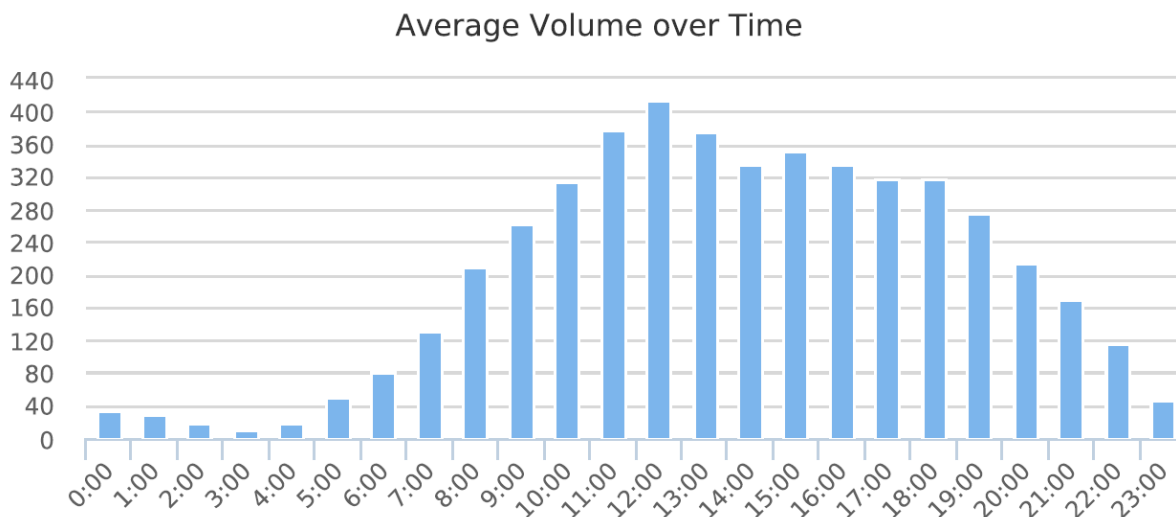


Figure 13 Average Volume by Hour from July 10th to 11th (Northbound)

As shown in Figure 12, peak traffic occurs in the middle of the day from 12:00pm to 1:59pm on the weekday in the southbound direction. On the weekend shown in Figure 13, the peak was reached from 12:00pm to 12:59pm.

4.0 Conclusion

The traffic study conducted on King St for both southbound and northbound directions was successfully carried out from June 30th to July 13th, 2021. From the speed analysis, it was determined that 89.7% of vehicles travelling in the southbound direction were travelling within the accepted speed limit. It was also determined that 89.5% of vehicles travelling in the northbound direction were travelling within the

accepted speed limit. In addition, from the volume analysis, it was determined that the peak traffic hours were at the in the early afternoon on weekdays and during the late morning and early afternoon on weekends for southbound direction. It was also determined that the peak traffic hours were around the middle of the day in the northbound direction.