

# Traffic Data Analysis

Fourth Street

Southbound and Northbound



Town of Midland

Engineering Department

July 31<sup>st</sup>, 2019

## 1.0 Introduction

A traffic count was conducted from July 22<sup>nd</sup>, 2019 to July 29<sup>th</sup>, 2019 on Fourth Street for both southbound and northbound directions. Vehicle speeds and traffic volume 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 Fourth St for both southbound and northbound directions. The trailer was placed on the boulevard to record the speed and volume of vehicles passing by. Table 1 below shows the location of the traffic trailer and data collection period.

**Table 1. Locations of Traffic Trailer**

Direction	Location	Period
Southbound	124 Fourth St, Midland, ON	9:00am on July 22 <sup>nd</sup> , 2019 – 9:00am on July 25 <sup>th</sup> , 2019
Northbound	105 Fourth St, Midland, ON	9:00am on July 25 <sup>th</sup> , 2019 – 8:00am on July 29 <sup>th</sup> , 2019

### 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 traffic trailer uses radar to detect vehicles and collect data. The data is then grouped into one-hour intervals.



**Figure 1. Traffic Trailer**

## 2.0 Speed Summary

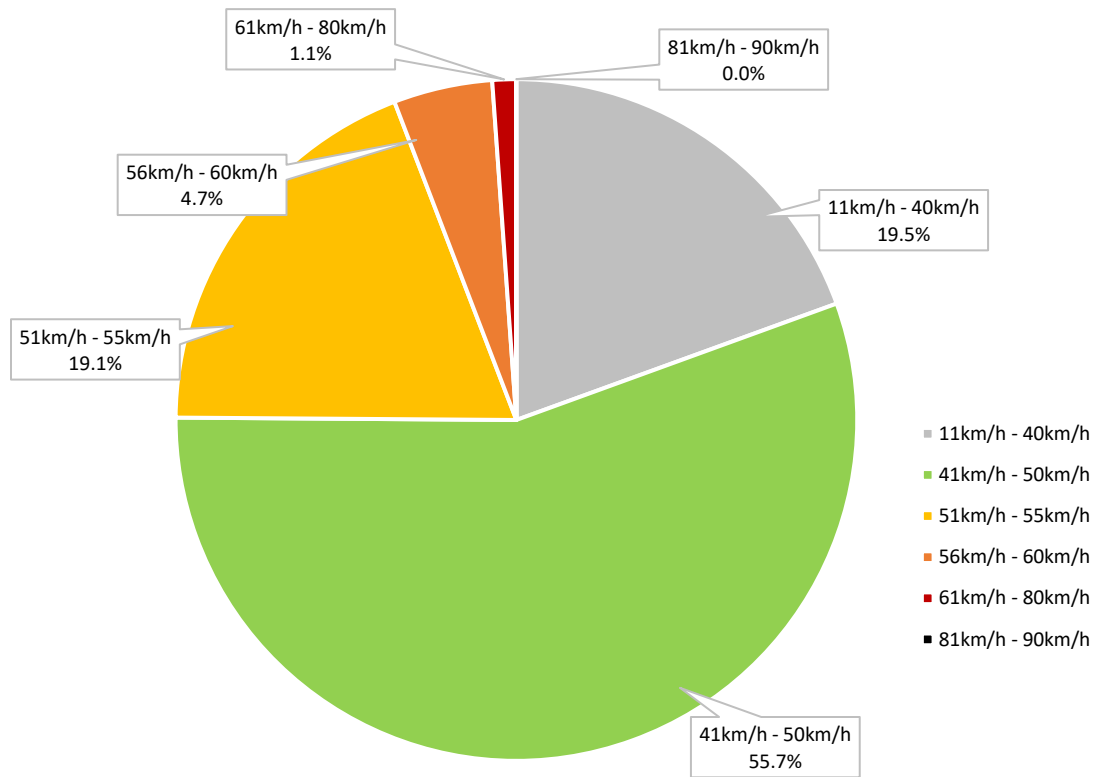
The posted speed limit on this section of Fourth St is 50km/h; however, generally it is accepted that vehicles that are travelling up to 10km/h above the posted speed limit are not considered to be speeding. Table 2 shows an overall speed summary of the data collected for southbound and northbound directions.

**Table 2. Speed Summary**

Direction	Average Speed (km/h)	Minimum Speed (km/h)	Maximum Speed(km/h)
Southbound	45.5	10	88
Northbound	49.9	10	110

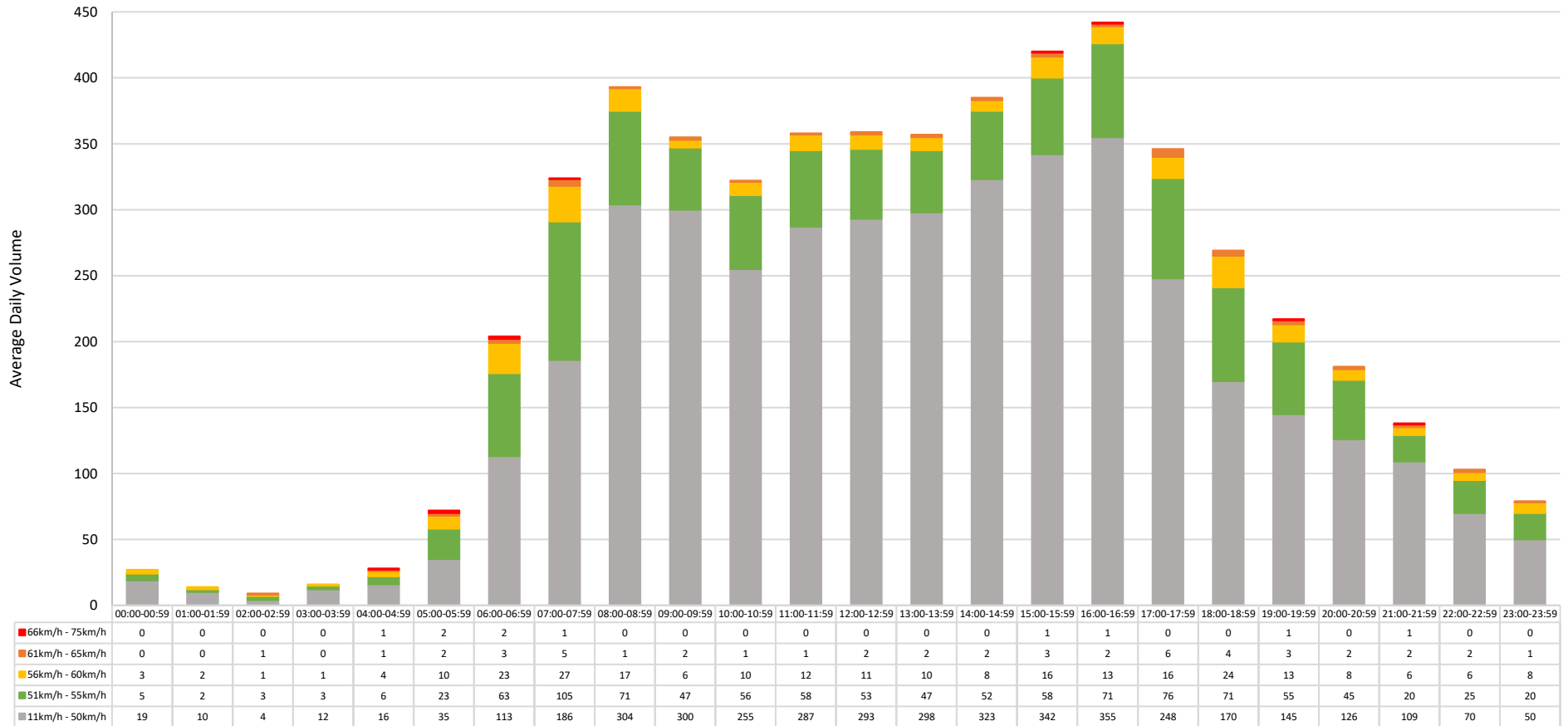
### 2.1 Southbound Speed Analysis

Figure 2 and 3 below show the speed summary for the southbound traffic.



**Figure 2. Fourth St. Southbound**

Figure 2 shows that 19.5% of vehicles were travelling below the posted speed limit, 55.7% of vehicles were travelling between 41 – 50 km/h, and 24.9% of vehicles were travelling above 51km/h. Considering the accepted speed limit is 10km/h over the posted speed limit, a total of 75.2% of vehicles were travelling within the accepted speed limit in the southbound direction.

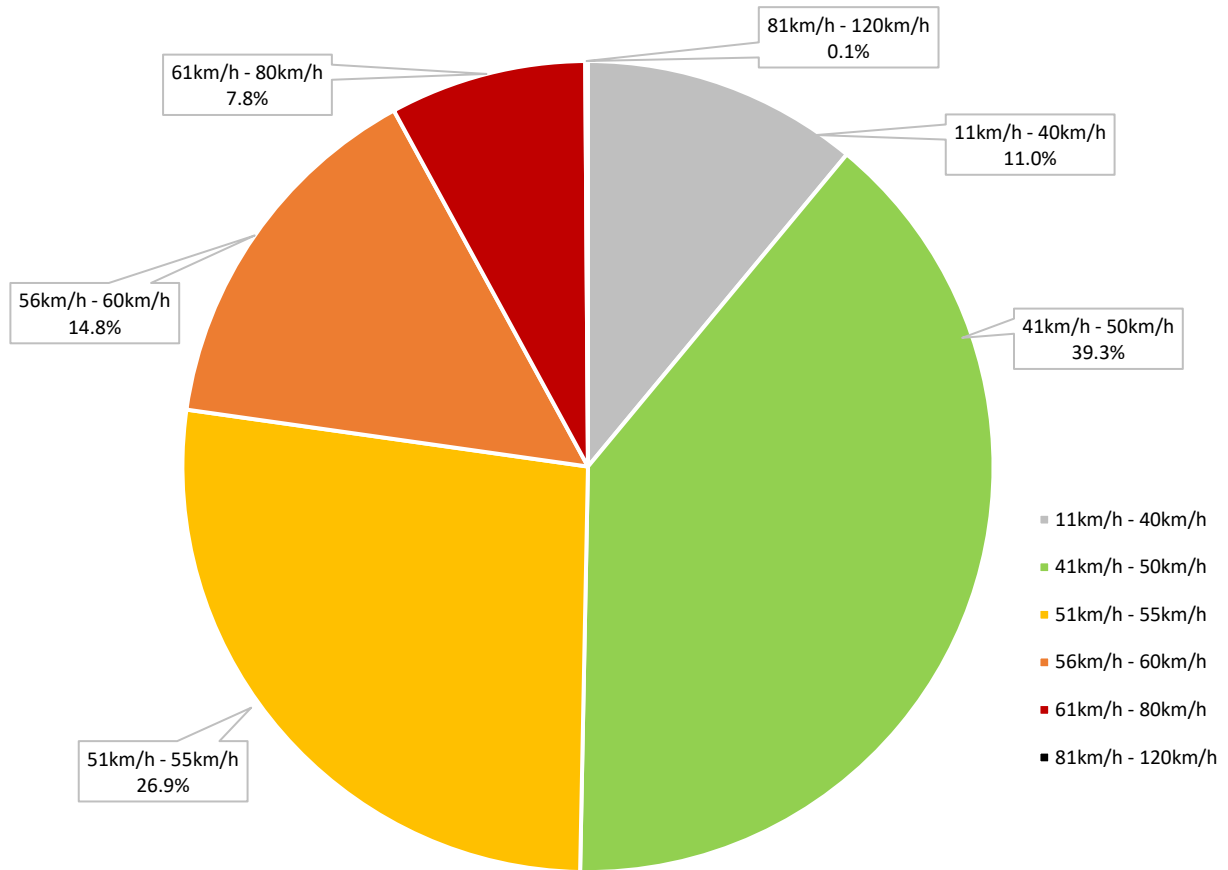


**Figure 3. Speed by Hour Analysis for Southbound**

Figure 3 is the speed by hour graph used to determine the time where most speeding occurs. This graph indicates that speeding remained relatively consistent throughout the collection period and speeding peaked between 7am to 8am and 5pm to 6pm. Based on the low volume of speeding that occurred, there are no speeding concerns in the southbound direction.

## 2.2 Northbound Speed Analysis

Figure 4 to 6 are the speed summary for the northbound traffic.



**Figure 4. Fourth St. Northbound**

Figure 4 shows that 50% of the vehicles were travelling below the posted speed limit, 42% of vehicles were travelling between 51-60km/h, and 8% of vehicles were travelling above 60km/h. Considering the accepted speed limit is 10km/h over the posted speed limit, a total of 92% of vehicles were driving within the accepted speed limit.

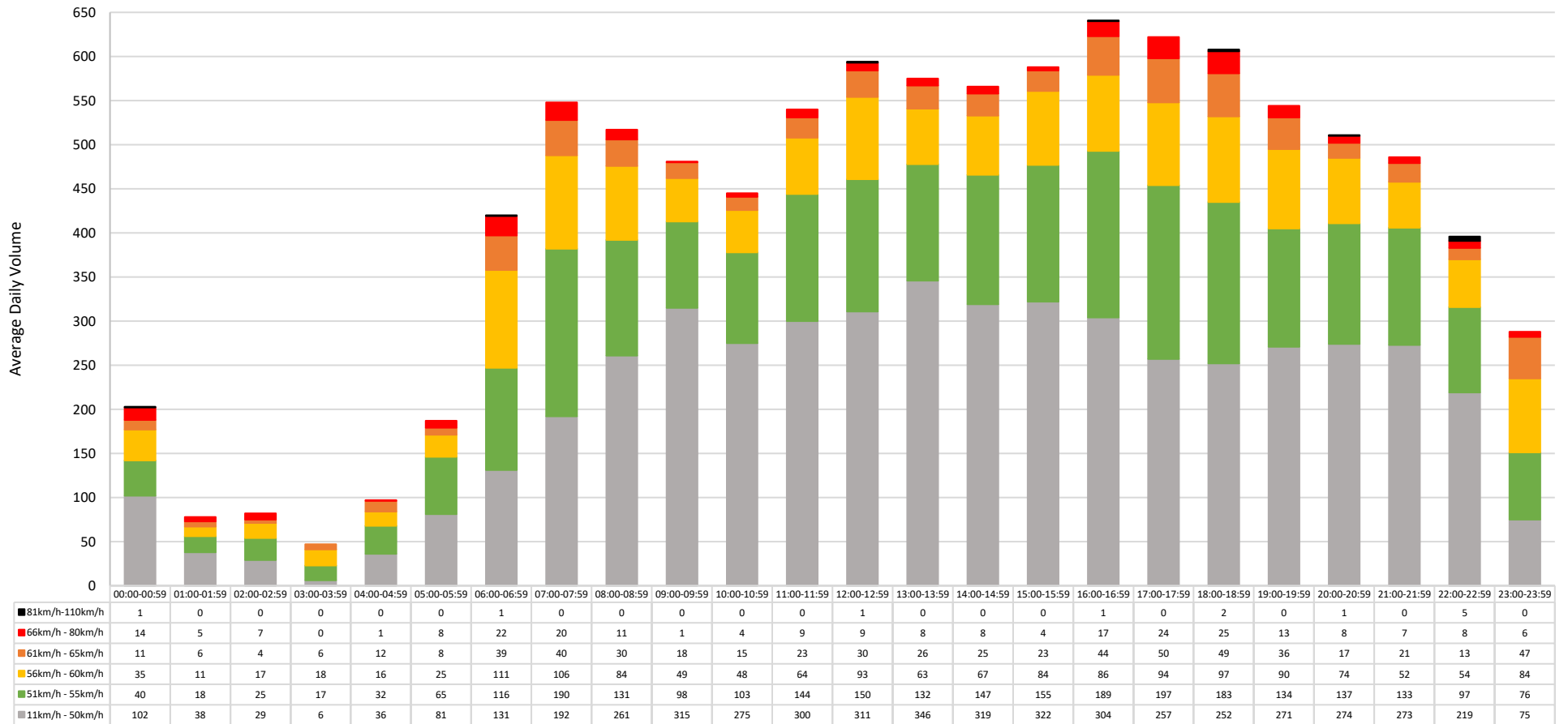
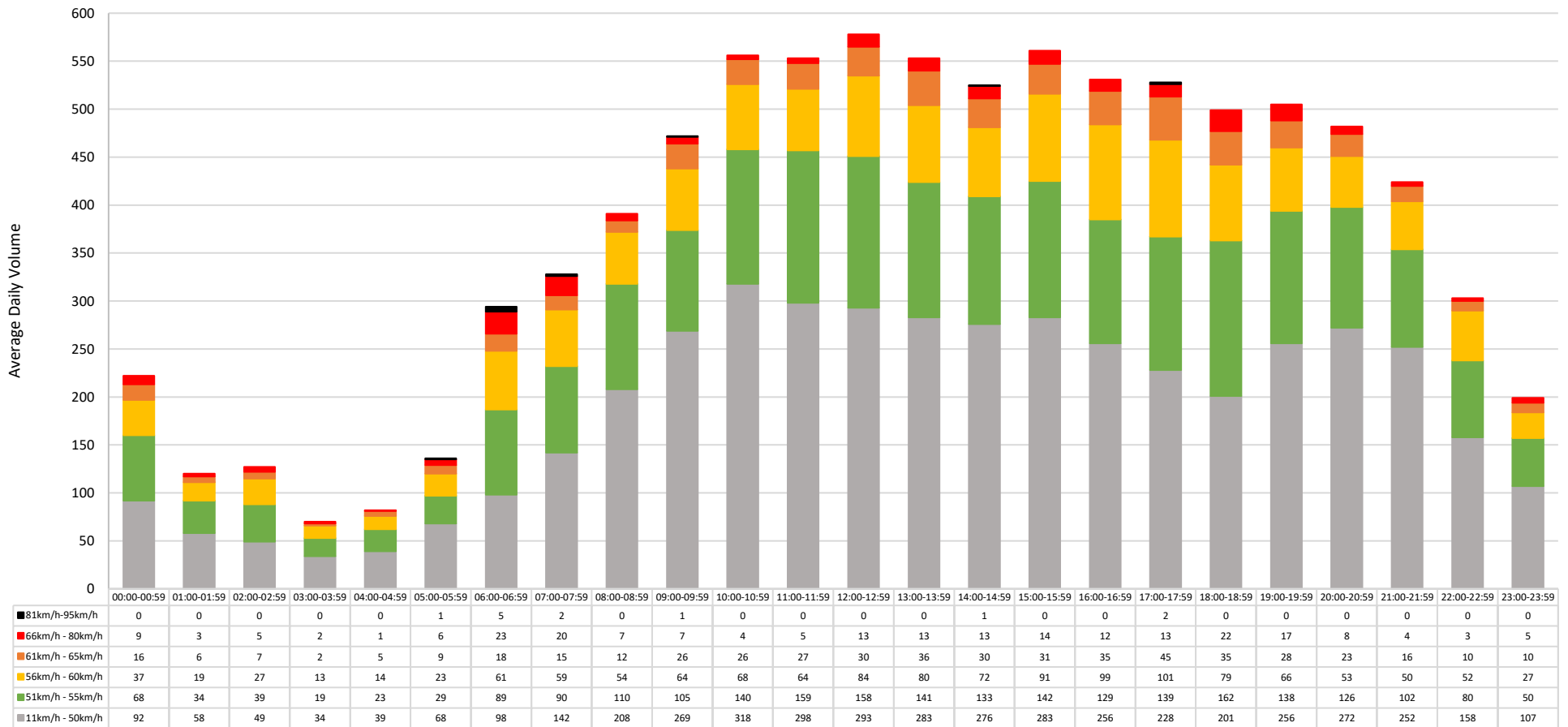


Figure 5. Speed by Hour Analysis for Northbound (July 25<sup>th</sup> to July 26<sup>th</sup>, 2019)



**Figure 6. Speed by Hour Analysis for Northbound (July 27<sup>th</sup> to July 28<sup>th</sup>, 2019)**

Figure 5 (weekday) and Figure 6 (weekend) above are the speed by hour graphs used to determine the time where most speeding occurs. The graphs indicate that on a weekday, speeding mostly occurred during the typical morning and evening commute times, which are 6:00am to

9:00am and 3:00pm to 6:00pm respectively. The data also shows that there is another peak at noon and around midnight. The graphs indicate that on a weekend, speeding mostly occurs between 6am and 8am and remains relatively consistent between 12pm and 8pm, peaking in the evening between 6pm and 7pm.



In addition, the traffic trailer detected that 60% of vehicles slowed down in the southbound direction and 50% slowed down in the 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

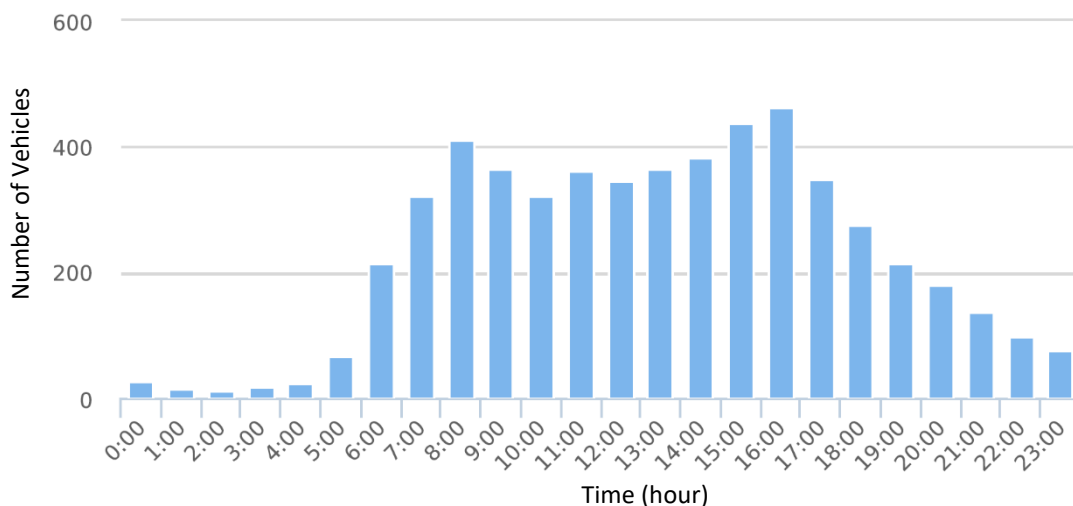
Table 3 shows the average daily volume on Fourth Street for southbound and northbound directions. Only the days when the traffic trailer was placed there for the full 24 hours are used in traffic volume analysis.

**Table 3. Volume Summary**

Direction	Period	Average Daily Traffic Volume
Southbound	July 23 <sup>rd</sup> to July 24 <sup>th</sup> (Tuesday to Wednesday)	5,476
Northbound	July 26 <sup>h</sup> (Friday)	10,222
Northbound	July 27 <sup>th</sup> to July 28 <sup>th</sup> (Saturday to Sunday)	8,972

### 3.1 Southbound Volume by Hour

The data collected for two full days (July 23<sup>rd</sup> to July 24<sup>th</sup>) is used to analyze the average traffic volume at different times of a day (Figure 7). From the graph, Fourth Street has peak traffic during the typical morning and evening commute times.



**Figure 7. Average Volume by Hour from July 23<sup>rd</sup> to July 24<sup>th</sup> (Southbound)**

### 3.2 Northbound Volume by Hour

The data collected on July 26<sup>th</sup> is used to analyze the average traffic volume at different times of a day on a weekday (Figure 8). From the graph, Fourth Street has peak traffic during the typical morning and evening commute times and around noon.

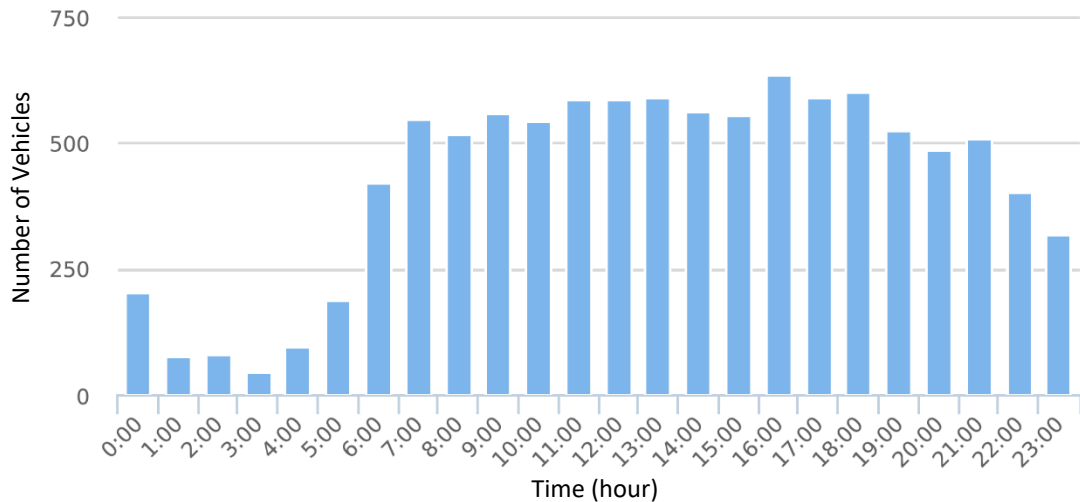


Figure 8. Volume by Hour on July 26<sup>th</sup> (Northbound)

The data collected from July 27<sup>th</sup> to July 28<sup>th</sup> (weekends) are used to analyze the average traffic volume at different times of the day as shown in Figure 9. From the graph, the traffic on the weekend in the northbound direction has a peak volume around noon.

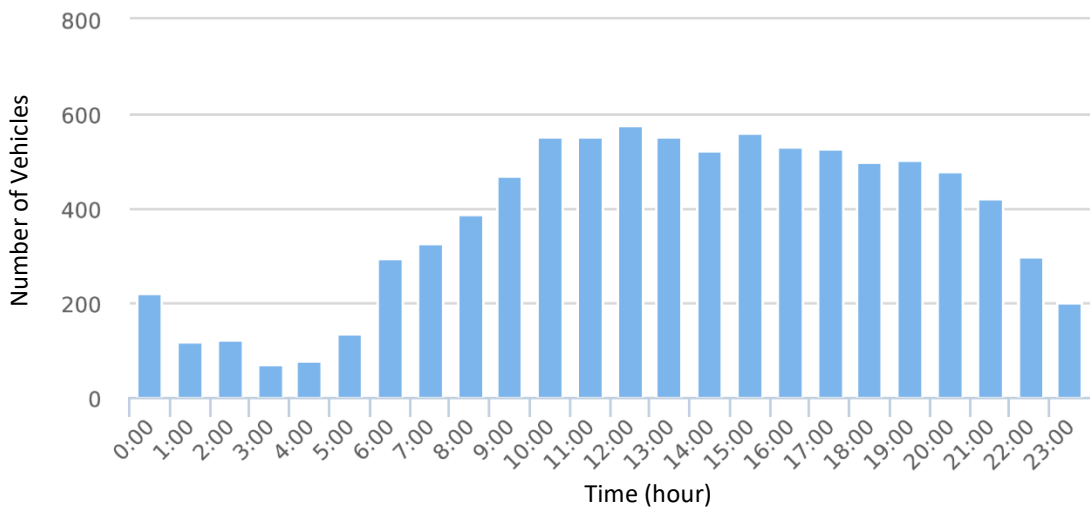


Figure 9. Average Volume by Hour on July 27<sup>th</sup> to July 28<sup>th</sup> (Northbound)

#### **4.0 Conclusion**

The traffic study conducted on Fourth Street for both southbound and northbound directions was successfully carried out from July 22<sup>nd</sup> to July 29<sup>th</sup>, 2019. From the speed analysis, it was determined that 99% of vehicles travelling in the southbound direction were travelling within the accepted speed limit. It was also determined that 92% 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 typical morning and evening commute times for southbound direction on a weekday. It was also determined that the peak traffic hours were around noon hour, as well as typical morning and evening commute times in the northbound direction on a weekday. The northbound traffic was monitored over the weekend and it was noted that it has peak volume around noon.