

## **Background**

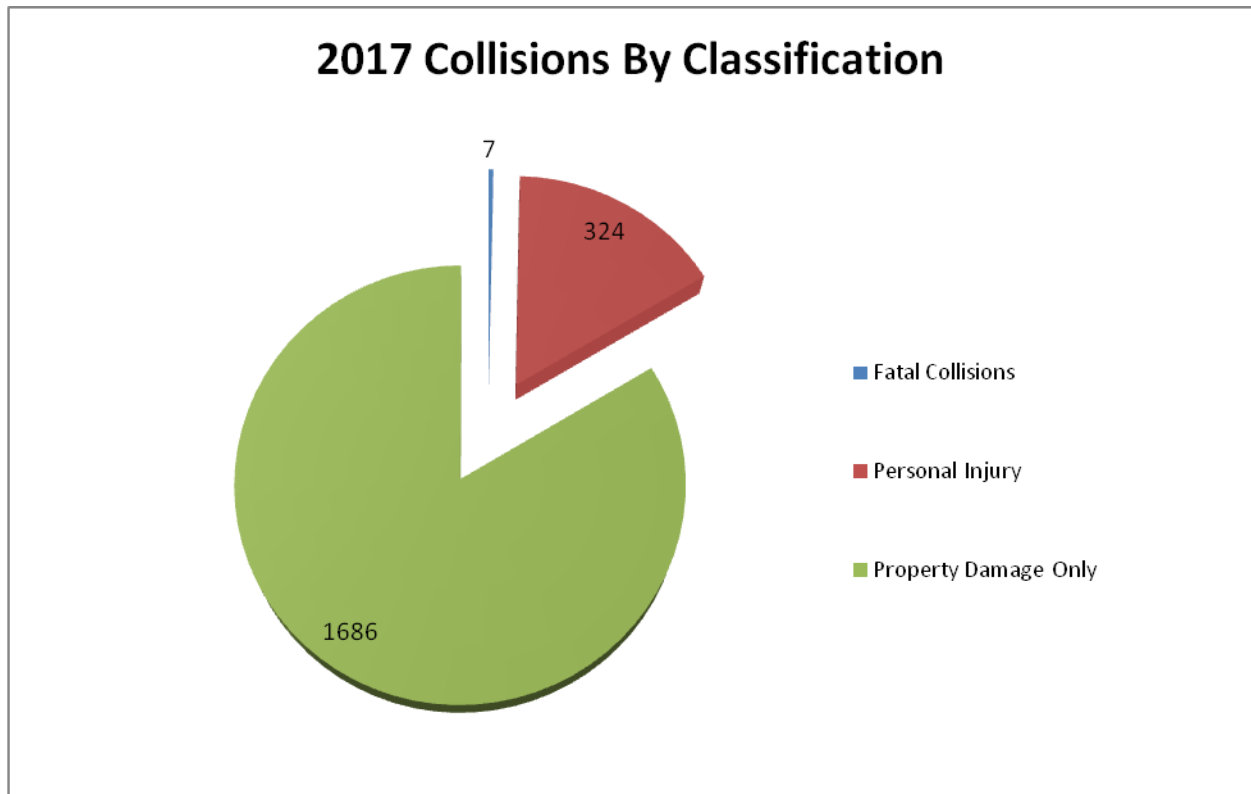
The Traffic and Asset Management Services section is responsible for the safe and efficient movement of people and goods on the City of Greater Sudbury's transportation network. Road jurisdictions have found that the most successful way to improve road safety is through the 3 Es; Engineering, Enforcement and Education. Over the last number of years, the City of Greater Sudbury has implemented a variety of initiatives to improve safety for cyclists, pedestrians and motorists.

To further enhance safety, staff has undertaken a Road Safety Assessment of all roads under the jurisdiction of the City of Greater Sudbury. The purpose of the Road Safety Assessment is to:

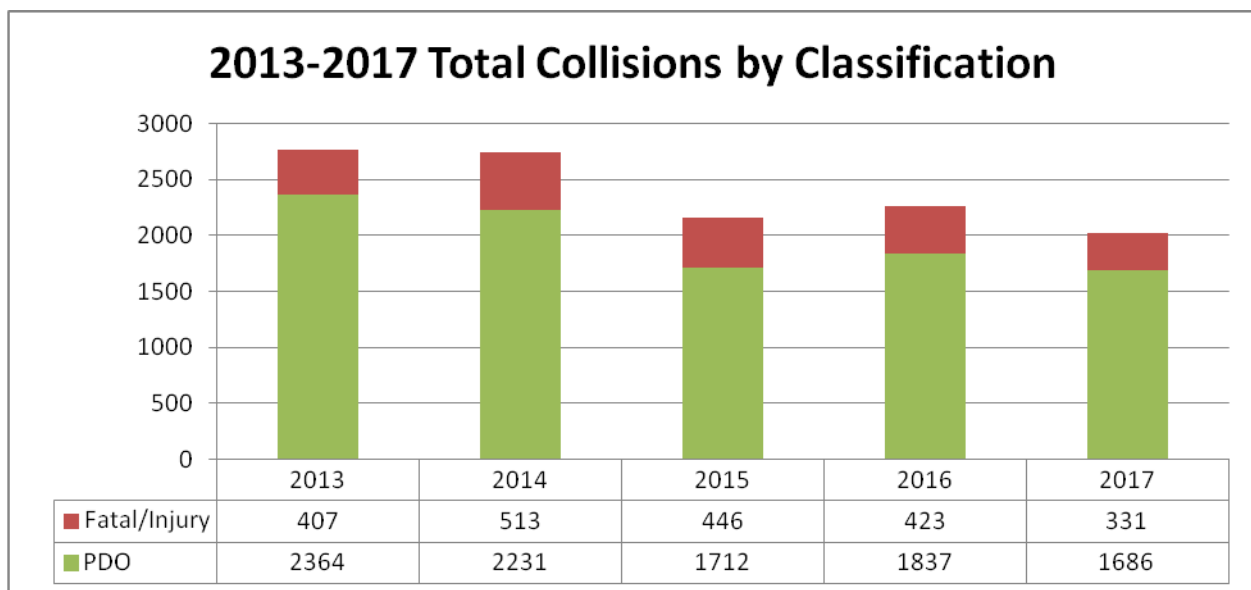
- 1) Provide collision statistics and trends over the past 5 years.
- 2) Identify improvements that have been undertaken to improve safety for road users.
- 3) Describe the network screening process.
- 4) Identify next steps in the screening process.
- 5) Provide a list of locations that have the highest potential for safety improvement using the network screening tool.

## **Collision Statistics and Trends**

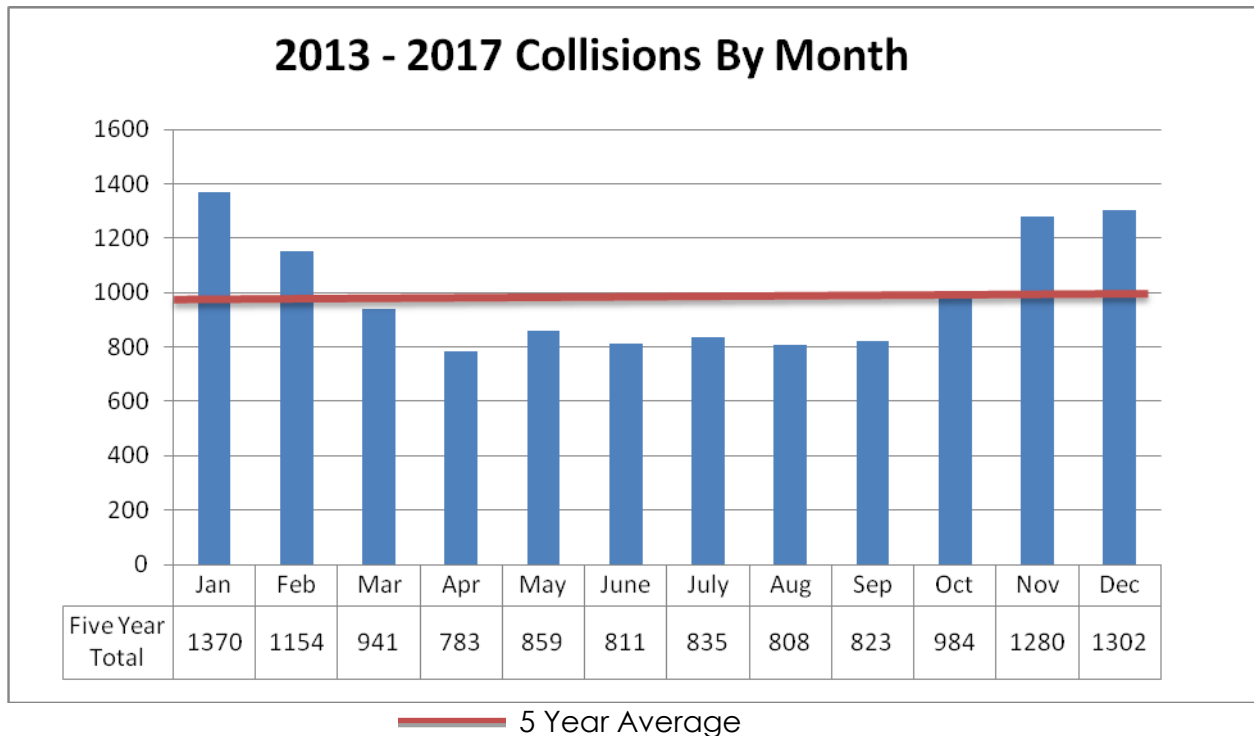
The City of Greater Sudbury receives copies of collision reports from Greater Sudbury Police Services. These reports are received on a regular basis and data entry is completed to enter the records into the City's database. It is not unusual for the City to receive a copy of a report 3 to 6 months after a collision has occurred. As such, the statistics provided below represent the data the City has available as of April 2018 and these statistics will change as more reports are received by the City. In addition, the statistics below do not include collisions which have occurred in parking lots or on off road trails.



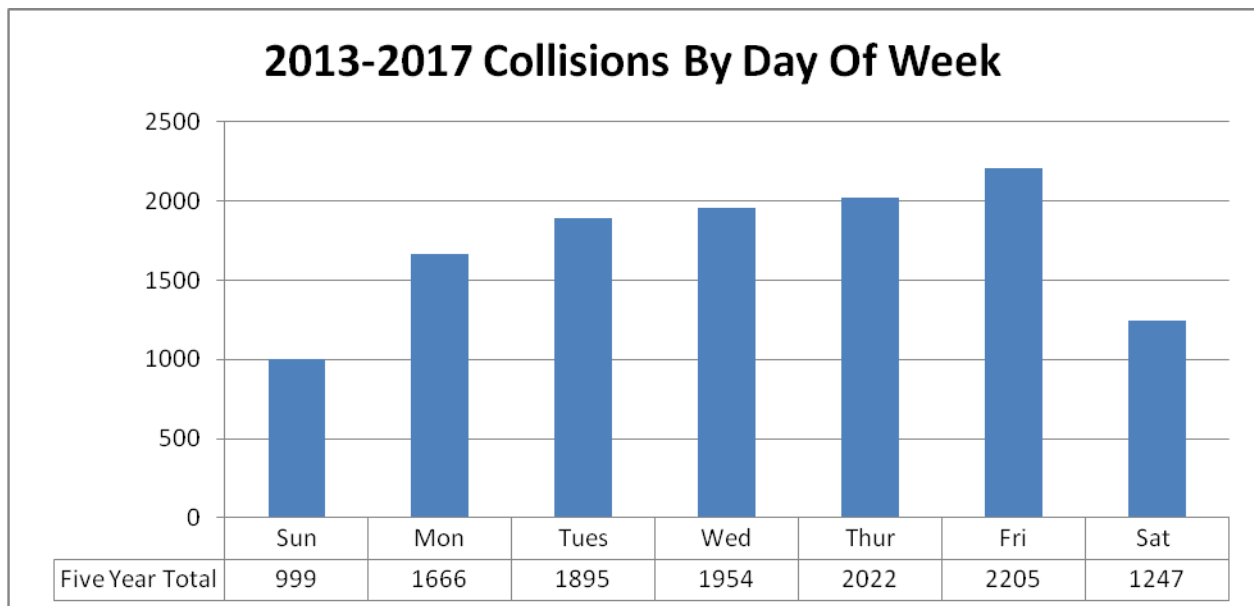
In 2017, there were a total of 2,017 reported collisions on roadways in the City of Greater Sudbury. The graph above shows the breakdown of collisions by the classification of the severity of the collision.



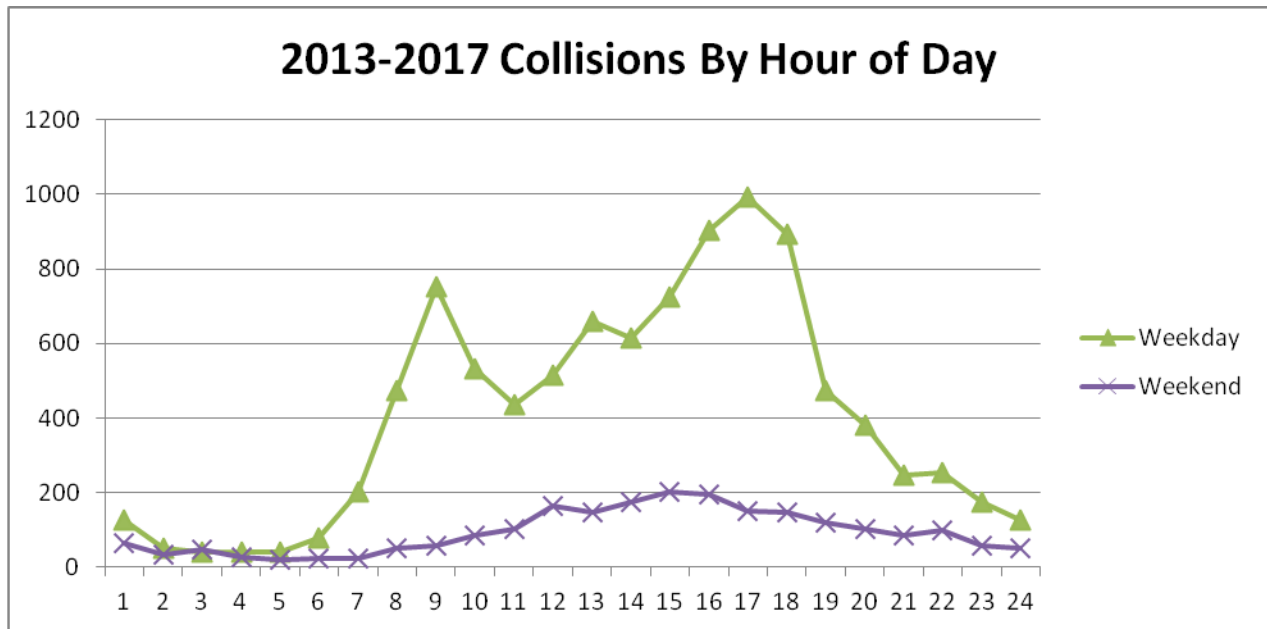
When looking at a five year trend the total number of collisions has decreased. In addition the total number of fatal and injury collisions as a percentage of total collisions has declined.



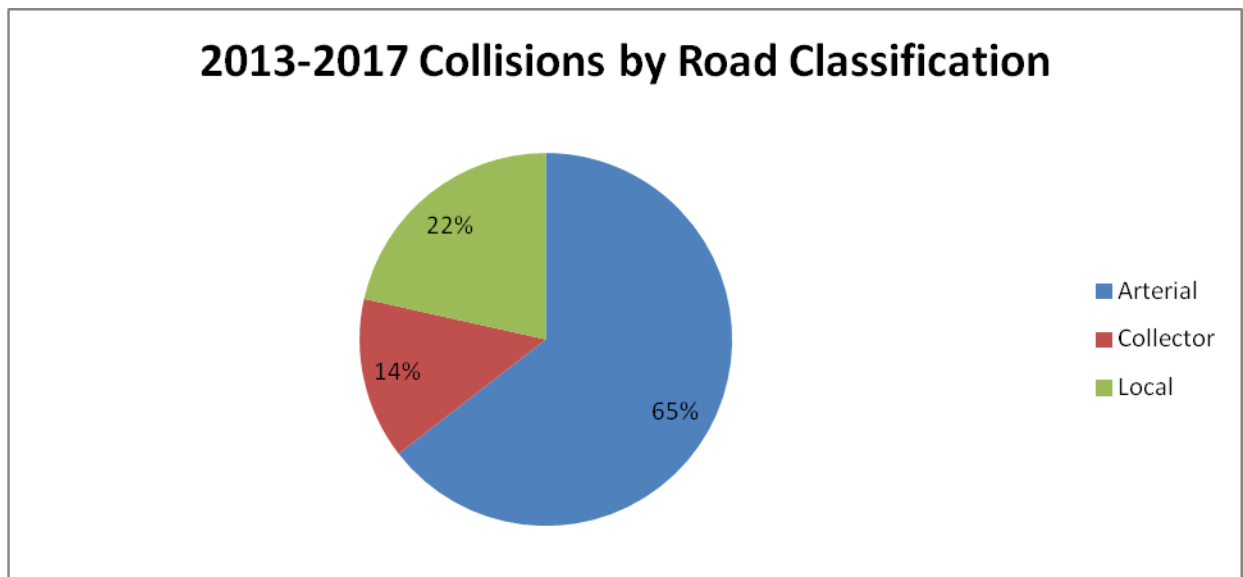
Total collisions per month from 2013 to 2017 shows an above average number of collisions during the winter months while spring and summer months are below average.



Over a five year period, the number of collisions during weekdays exceeds those on the weekend, with Friday experiencing the most collisions overall.

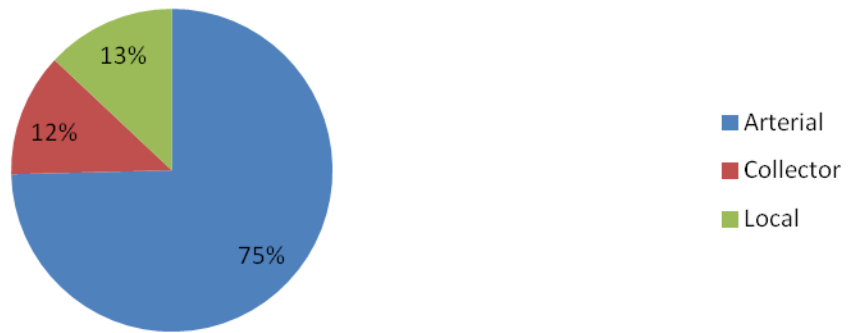


The number of collisions by hour of day shows that there are an increased number of collisions during the tail end of the typical Greater Sudbury morning rush hour (9 AM to 10 AM) and throughout the afternoon rush hours (3 PM to 7 PM).



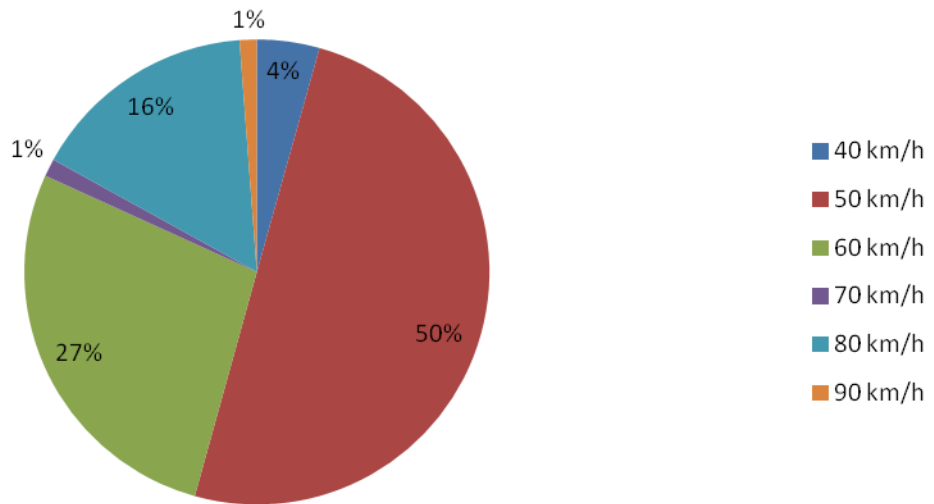
The number of collisions by road classification shows that the majority of collisions occur on arterial roads.

### 2013-2017 Fatal/Injury Collisions by Road Classification

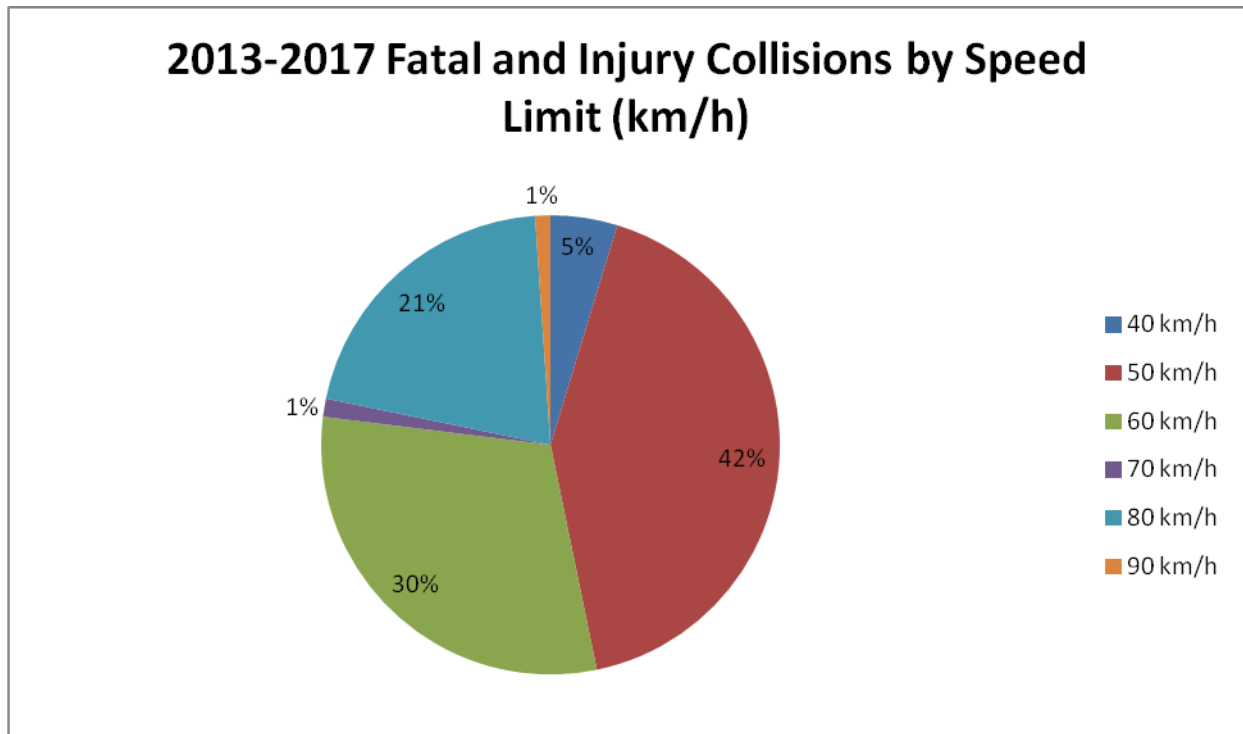


The number of fatal and injury collisions by road classification shows the majority of collisions still occur on arterial roads.

### 2013-2017 Collisions by Speed Limit (km/h)



Over seventy five percent of collisions occur on roadways where the speed limit is 50 km/h or 60 km/h.



The number remain consistent for fatal and injury collisions by speed limit with seventy two percent of collisions occurring when the speed limit is 50 km/h or 60 km/h.

## **Improvements for Road Users**

### **Pedestrians**

In 2016 staff presented a report called Pedestrian Safety Initiatives, <http://agendasonline.greatersudbury.ca/index.cfm?pg=agenda&action=navigator&id=1000&itemid=11286&lang=en>, which outlined steps that had been taken to improve safety for pedestrians. These included increased pedestrian crossing times, pedestrian traffic signals and work being done by the Sudbury Road Safety Committee.

Since that report, the City has started two new pedestrian safety initiatives. The first is the new pedestrian crossover program. To date there have been 41 pedestrian crossovers installed in the community. Staff continues to monitor compliance for those areas and evaluate new requests as they are received. This year, four new pedestrian crossovers are scheduled to be installed. More information about the pedestrian crossover program can be found in the Operations Committee Report entitled 2018 Pedestrian Crossover Program Update, <http://agendasonline.greatersudbury.ca/index.cfm?pg=agenda&action=navigator&id=1148&itemid=14004&lang=en>.

The second initiative is the Leading Pedestrian Interval (LPI). An LPI gives pedestrians a head start when crossing an intersection while traffic on all sides has a red light. In 2017 an LPI was trialed at the intersection of Notre Dame Avenue and Kathleen Street. This pilot project demonstrated a significant reduction in the number of conflicts between pedestrians and vehicles. In January 2018, a policy was adopted to formalize the process to implement further LPIs in the city. More information on the policy and LPIs can be found in the Operations Committee report entitled Leading Pedestrian Interval Policy,

<http://agendasonline.greatersudbury.ca/index.cfm?pg=agenda&action=navigator&id=1251&itemid=14364&lang=en>. The City will be implementing an LPI at three additional intersections during 2018.

## **Cyclists**

Improving safety for cyclists begins with building cycling infrastructure. In 2017, 13 kilometres of new cycling infrastructure was implemented. In addition, the City of Greater Sudbury received 1.1 million dollars in December of 2017 from the OMCC grant to accelerate the implementation of additional cycling infrastructure. A complete list of projects proposed through the OMCC program and a description of the program can be found in the City Council report entitled Ontario Municipal Commuter Cycling Program Grant,

<http://agendasonline.greatersudbury.ca/index.cfm?pg=agenda&action=navigator&id=1235&itemid=14423&lang=en>.

## **Motorists**

Over the last several years, the City has implemented a number of initiatives to improve safety for motorists. While categorized as safety improvements for motorists, many of these initiatives also improve safety for vulnerable road users. These initiatives include the following:

- Rumble Strips - Many factors contribute to drivers leaving the roadway or straying from their lane. These include driver fatigue and drowsiness; distracted driving; poor traction between vehicles and road surfaces and poor visibility in adverse weather conditions. Rumble strips create noise and vibration inside the vehicle that alert a driver as they cross the center or edge line. Often this alert is strong enough to get the attention of a distracted or drowsy driver, who can quickly make a corrective steering action to return to the roadway safely. Centre line and shoulder rumble strips are considered as part of all road rehabilitation projects on roadways with open ditches.
- Guide Rail – Guide rail is implemented to protect vehicles from roadside hazards such as water bodies and non-recoverable slopes and help reduce the severity of collisions. Staff has conducted a guide rail safety program over a number of years to identify areas where guide rail is warranted and to have it installed.

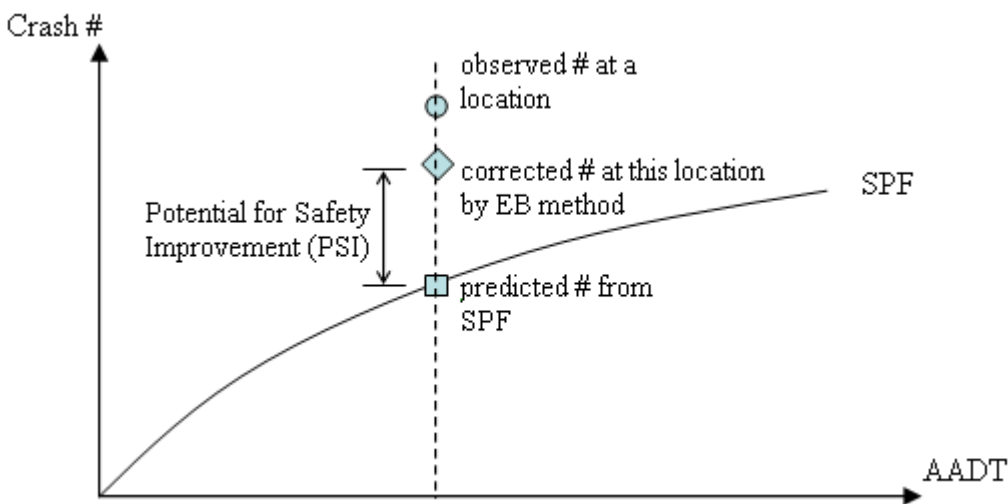
- Rock Cut Inventory and Inspections - An inventory of rock cuts adjacent to sidewalks and roadways was collected and classified to determine where rock fall hazards exist for motorists, cyclists and pedestrians. High priority sites will be monitored and reviewed on a regular basis to determine if remediation work is required.
- Red Light Cameras - A red light camera is a type of traffic enforcement camera that captures an image of a vehicle which has entered an intersection in spite of the traffic signal indicating red (during the red phase). By automatically photographing vehicles that run red lights, the photo is evidence that assists authorities in their enforcement of traffic laws. Generally, the camera is triggered when a vehicle enters the intersection (passes the stop-bar) after the traffic signal has turned red. The City has commissioned a study to determine whether any intersections with traffic signals would benefit from the installation of a Red Light Camera system. The report titled "Red Light Camera Program" being presented to the Finance and Administration Committee will provide an overview of the Red Light Camera program and the results of the completed study.

### **Network Screening**

Since 2015, staff have worked on building a network screening program, based on the Highway Safety Manual (HSM), as a proactive way to analyze areas that have higher than expected number of collisions. The Highway Safety Manual (HSM), produced by the American Association of State Highway and Transportation Officials (AASHTO), provides a comprehensive framework to conduct quantitative safety analysis. Network screening is the process of evaluating the transportation network for sites that are likely to respond to safety improvements.

The network screening tools and methodology in the HSM identify and prioritize locations in the City's road network that have a high potential for safety improvements (PSI). This method considers the number of predicted collisions based on the Safety Performance Factor (SPF) for the location, traffic volumes and the observed number of collisions. The observed number of collisions are adjusted using the Empirical Bayes method to consider regression to mean. The resulting PSI score is the difference between the number of predicted collisions and the adjusted number of collisions as depicted below. This proactive approach will allow staff to better prioritize resources for road safety based on a ranking of locations based on its PSI.





In 2018 the first network screening was processed.

### **City of Greater Sudbury Network Screening Process**

Staff recommends the following process be followed for network screening in the City of Greater Sudbury:

1. Conduct a network screening on all intersections and roads in the city and rank them based on the PSI (Potential for Safety Improvement) score.
2. Once the ranking is complete, the top 20 locations are selected for review.
3. Over a three year period, 5 locations plus upcoming capital projects will be reviewed by staff and community partners. Each location will have a series of countermeasures selected to address the observed collisions.
4. Provide an annual update to Operations Committee showing locations that have been selected for review and the countermeasures that have been identified.
5. At the end of the three year period, the network screening will be refreshed and locations that have already been reviewed will not be looked at for another three years so that the effectiveness of the countermeasures can be analyzed.

---

## **2018 Network Screening Results**

### Ranking

The top 20 locations identified by the network screening process are summarized in Table 1.

**Table 1: Network Screening Summary – Top 20 Locations**

<b>PSI Rank</b>	<b>Location</b>
1	Barry Downe Road at Lasalle Boulevard
2	Brady Street at Paris Street
3	Long Lake Road at Paris Street /Regent Street
4	Falconbridge Road at Kingsway / Second Avenue
5	Lasalle Boulevard at Notre Dame Avenue
6	Falconbridge Road at Lasalle Boulevard
7	Paris Street at Van Horne Street
8	Regent Street between Caswell Drive and Paris Street / Long Lake Road
9	Kingsway between the private road east of McDonalds & Silver Hills Drive
10	Paris Street at Ramsey Lake Road
11	Municipal Road 80 at Main Street
12	Lasalle Boulevard at Auger Avenue
13	Barry Downe Road at Westmount Avenue
14	Lasalle Boulevard at Attlee Avenue
15	Elm Street at Lloyd Street / Notre Dame Avenue
16	Notre Dame Avenue at Louis Street / Ste. Anne Road
17	Paris Street at Cedar Street
18	Barry Downe Road at Kingsway
19	Notre Dame Avenue between Wilma Street & Cambrian Heights Drive
20	Paris Street at Centennial Drive

### **Next Steps**

As described in the recommended network screening process, staff will review with community partners, the five locations with the greatest potential for safety improvement along with any other locations that have scheduled road rehabilitation. It is important to note that several locations within the top 20 locations (Barry Downe Road at Westmount, Barry Downe Road at Kingsway) have road rehabilitation projects scheduled for 2019. These locations will be reviewed ahead of locations with a higher PSI.

In addition, staff will prepare a business case for funding to implement countermeasures identified on roadways without a scheduled road rehabilitation project as part of the 2019 budget process.