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## For Information Only

### Speed Limits in the City of Greater Sudbury

#### Recommendation

For Information Only

## Background

The Ontario Highway Traffic Act (HTA) states that “no person shall drive a motor vehicle at a rate of speed greater than 50 kilometres per hour (km/h) on a highway within a local municipality or within a built-up area. This speed limit is commonly referred to as the Statutory Speed Limit.

The HTA also allows a municipality, via by-law, to set speed limits which differ from the Statutory Speed Limit. Schedule U of the Traffic and Parking By-Law 2010-1 lists the roads within the City of Greater Sudbury which have a speed limit which differs from the Statutory Speed Limit.

#### How Are Speed Limits Set Within the City of Greater Sudbury?

A common question received is “How do we change the speed limit on a road?”

The way the City of Greater Sudbury determines the speed limit for a road is based on its planning classification and whether there is a school adjacent to the road.

#### Local Roads

For most local roads, the City of Greater Sudbury uses the Statutory Speed Limit of 50 km/h. This allows the City to post signs at the provincial highway entry points indicating that the speed limit is “50 km/h unless otherwise posted.”

#### Collector and Arterial Roads

In 2010, City Council adopted the Canadian Guidelines for Establishing Posted Limits published by the Transportation Association of Canada (TAC) for establishing posted speed limits on arterial and major collector roads.

These guidelines were developed to provide guidance and to enhance consistency in evaluating posted speed limits across the country. As stated in the guidelines,

“road safety may be enhanced through credible posted speed limits that match the expectation of drivers for a given roadway and its surrounding area.”

The guidelines are based on the classification, function and engineering characteristics of a roadway. The risks associated with the engineering characteristics determine the appropriate speed limit. The higher the risks, the lower the recommended speed limit.

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The engineering characteristics used in the analysis include: horizontal and vertical alignment; lane widths; roadside hazards; pedestrian and cyclist exposure; pavement surface; number of intersections and driveways; and whether on-street parking is permitted and utilized.

#### School Zone Speed Limits of 40 km/h

To deal with numerous requests to reduce the speed limit near schools, City Council adopted a School Zone Speed Reduction Policy in 2001 and further revised the policy in 2009. The approved policy states the following:

That staff be directed to bring to the attention of City Council requests for speed reduction zones adjacent to schools based on the following considerations:

- That a school speed zone be installed at schools with primary grade aged students.
- That the school speed zone be limited to residential streets or residential collector streets.
- That the maximum speed of the roadways considered for school speed zones be 50 km/h.
- That if schools are closed, the speed limit will revert back to 50 km/h.
- That only those requests that meet the above four criteria be brought forward by staff to City Council for consideration.

In 2014, this policy was further expanded to include all secondary schools.

School zone speed limits were implemented for all schools which met the above criteria prior to the 2014/2015 school year.

#### Residential 40 km/h Speed Limits

In light of the Ontario Chief Coroner's Report into Pedestrian Deaths, a common question asked is "Why don't we lower the speed limit to all residential roads to 40 km/h?"

The Coroner's report recommended that the Ontario Ministry of Transportation "amend the Highway Traffic Act to allow municipalities to set the unsigned default speed limit at 40 kilometers an hour on residential speeds."

As stated previously, the HTA has set the Statutory Speed Limit at 50 km/h. Without the amendment recommended by the Coroner's report, a 40 km/h speed limit on all residential roads could only be enforced under the HTA by installing maximum speed limit signs on every road affected.

In January 2014, staff presented a report to the Operations Committee (see Exhibit A) which estimated that more than 9,600 signs would be required to implement 40 km/h speed limits on all local and collector roads. The total cost for the installation of these signs would be approximately \$2.5 million and the sign maintenance budget would need to be increased by \$125,000 annually based on a 20 year life expectancy.

Despite the financial implications of implementing a 40 km/h speed limit on all roads, the effectiveness of simply lowering the speed limit is limited without significant police enforcement. The Coroner's report recognized this and stated "although supportive of changes to lower the speed limit for local municipalities, there was a strong view that in the absence of enforcement, drivers will drive the speed at which they are comfortable, irrespective of the posted speed, unless speed reduction is accompanied by engineering changes to the road to encourage adoption of slower speeds."

#### Summary of Speed Studies

The City of Greater Sudbury has collected vehicle operating speed data on many roads with various speed limits throughout the city. A summary of the data is presented below:

<b>Speed Limit (km/h)</b>	<b>Number of Studies</b>	<b>Number of Vehicles Recorded</b>	<b>Weighted Average Speed (km/h)</b>	<b>Weighted 85th Percentile Speed* (km/h)</b>
40	37	121,660	47	55
50	424	1,095,799	48	56
60	18	96,974	67	76
70	4	6,627	73	85

*\* The 85<sup>th</sup> percentile speed is the speed at or below which 85 percent of drivers are travelling and is generally accepted as a good indicator of an appropriate speed limit.*

As can be seen from the data, the posted speed limit of a roadway does not limit the speed of drivers. For each speed limit where data was collected, the 85<sup>th</sup> percentile speed exceeds the speed limit and for roads with a posted 40 km/h speed limit, the average and 85<sup>th</sup> percentile speeds are only 1 km/h lower than roads with a 50 km/h speed limit.

As previously mentioned, school zone speed limits of 40 km/h have been implemented in the area of all schools. On many of the roads, speed studies had been previously conducted. This presented an opportunity to conduct follow up studies to measure the effect of lowering the speed limit on these roads.

It is important to note that school zone speed limits are typically limited to approximately 150 metres before and after a school. It is within this area that school buses and parents drop off and pick up students. The purpose to limiting the speed reduction to this area is to emphasize to motorists that a school is nearby and extra caution is required.

Flourescent yellow/green school area signs are also installed in advance of schools to alert motorists of an upcoming school. This colour of sign is exclusively used for school area and school crossing signs. Also, the pentagonal shape of the school area sign is not used for any other sign.

Speed studies were completed prior to the end of the school year within 11 different school zones. A summary of each speed study can be found in Exhibit B.

The effect of reducing the speed limit varied. On eight of the roadways, operating speeds were reduced between 2 and 12 km/h. One roadway, Kennedy Street in Sudbury, had no change in operating speeds. On two of the roadways, Houle Avenue and Loach's Road, the recorded speeds increased when compared to the 50 km/h speed limit. In the case of Loach's Road, speeds have likely increased due to the asphalt resurfacing that took place between the initial study in 2012 and this spring.

The following table provides a summary of the 11 school zone speed studies.

<b>Speed Limit (km/h)</b>	<b>Number of Vehicles Recorded</b>	<b>Weighted Average Speed (km/h)</b>	<b>Weighted 85<sup>th</sup> Percentile Speed (km/h)</b>
50	12,414	42	52
40	14,141	44	52

As shown in the table above, a 10 km/h reduction in speed has yielded no reduction in overall operating speeds. Also, while the majority of drivers were obeying the 50 km/h speed limits, only a small minority are obeying the 40 km/h speed limits.

Similar before and after studies have been completed on other roads that have had their speed limit reduced. Exhibit 'C' provides a summary of each study.

Once again, the effect of reducing the speed limits varied on each road. On Municipal Road 15, operating speeds were greatly reduced in some areas, while increased in others. Most notably, however, is the 85<sup>th</sup> percentile speed on each segment exceeded the posted speed limit of 60 km/h by at least 20 km/h.

On Montee Rouleau, South Bay Road and Vermilion Lake Road, operating speeds were reduced between 2 and 4 km/h despite the posted speed limit being reduced by 10 km/h.

### **How Do You Lower Operating Speeds of Vehicles?**

As the studies have shown, simply lowering the speed limit alone is not enough to lower operating speeds. It is through Engineering, Enforcement and Education that operating speeds on roads can be reduced.

#### **Engineering**

As detailed in the Canadian Guidelines for Establishing Posted Speed Limits, the physical characteristics of a road play a large part in vehicle operating speeds. By altering these physical characteristics the operating speeds on roads can be reduced.

Throughout North America, communities have utilized traffic calming as a method to alter the physical characteristics to improve neighbourhood liveability and increase road user safety. Traffic calming measures are generally defined as the installation of mainly physical measures to reduce the negative effects of motor vehicle use, alter driver behavior and improve conditions for non-motorized street users.

In May 2010, City Council adopted a Traffic Calming Policy for the City of Greater Sudbury. The policy details the roads where traffic calming is permitted, the types of traffic calming measures that can be used, the method to determine if a road qualifies for traffic calming and the process used to implement traffic calming.

Some examples of roads that the City has installed traffic calming measures include:

- Attlee Avenue
- Jeanne D'Arc Street, Val Therese
- Kathleen Street
- Niemi Road
- Southview Drive

The advantage to traffic calming measures is they are self-enforcing. By physically altering the road a reasonable driver will reduce their operating speed without the need for police enforcement.

Follow up studies have been completed on many roads where traffic calming measures have been installed. A selection of these studies is presented in the table below:

Location	Year of Study	Speed Limit (km/h)	Average Speed (km/h)	85th Percentile Speed (km/h)
Attlee Avenue between Gemmell Street and Beatrice Crescent	2010 (pre)	50	50	55
	2014 (post)	50	46	52
	<b>Difference:</b>		<b>-4</b>	<b>-3</b>
Attlee Avenue between Peel Street and Belfry Street	2010 (pre)	50	58	66
	2014 (post)	50	49	56
	<b>Difference:</b>		<b>-9</b>	<b>-10</b>
Jeanne D'Arc Street, Val Therese West of Heritage Drive	2011 (post)	50	43	50
Niemi Road East of Santala Road	2009 (pre)	50	44	52
	2014 (post)	50	39	53
	<b>Difference:</b>		<b>-5</b>	<b>1</b>
Southview Drive East of the East leg of Cranbrook Crescent	2008 (pre)	50	47	54
	2010 (Traffic Circle)	50	41	49
	2013 (removed)	50	51	57
	2014 (Speed Table)	50	28	35

As the studies indicate, some measures have been more effective than others. For example, on Attlee Avenue, although operating speeds have been reduced, the 85th percentile speeds remain above the posted speed limit. The effectiveness of traffic calming measures varies by the type of measure used. Horizontal devices (median islands, curb extensions) are not as effective at reducing speeds as vertical devices (speed humps and tables).

### Enforcement

Police enforcement is an effective measure to have drivers reduce their operating speed to the posted speed limit. It not only affects the drivers who violate the speed limit but also those who hear about or see others get caught. The

challenge with enforcement is the effects are both limited in time and place. Without constant and rigorous enforcement of the speed limit, drivers tend to return to operating their vehicle at the speed they feel most comfortable, regardless of the posted speed limit. Also, police enforcement in one area of the city will not affect the operating speeds in other areas.

### Education

An important aspect of trying to reduce operating speeds is educating the public on the effect of speeding in residential areas. Speed Watch is a program offered by the City to help raise awareness of speeding. Speeding concerns are most commonly raised on residential roads, however, it is most often the area residents themselves who are the most frequent speeders. Speed Watch allows residents to borrow radar equipment, a speed limit sign and a digital display to show drivers how fast they are travelling and what the speed limit is on that road. Residents who participate in Speed Watch are encouraged to record license plate information if possible. This information is forwarded to Greater Sudbury Police Services who may issue cautionary letters to motorists identified by Speed Watch volunteers and may schedule a “zero tolerance” speed enforcement campaign in the area identified.



## Request for Decision

### Residential 40 km/h Speed Limits

Presented To:	Operations Committee
Presented:	Monday, Jan 20, 2014
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Type:	Managers' Reports

### Recommendation

THAT the City of Greater Sudbury maintain the statutory 50 km/h speed limits on residential roads, all in accordance with the report from the General Manager of Infrastructure Services dated January 13, 2014.

### **Background**

At the Operations Committee meeting held on September 16, 2013, the following recommendation was approved:

OP2013-43 Caldarelli/Berthiaume: WHEREAS at its May 23, 2007 meeting, Greater Sudbury City Council unanimously passed the following resolution: "AND BE IT FURTHER RESOLVED that the City of Greater Sudbury accept the challenge to become the most pedestrian friendly City in Ontario by 2015";

AND WHEREAS the City of Greater Sudbury cannot afford to provide the pedestrian and cycling infrastructure necessary to encourage more people to use active transportation to get safely to their destinations;

AND WHEREAS there is clear evidence that physical activity from active transportation generates important health benefits;

AND WHEREAS at page 37 of the Ontario Chief Coroner's Report into Pedestrian Deaths, it is recommended that the Ministry of Transportation amend the "Highway Traffic Act, to allow local municipalities to set the unsigned default speed limit at 40 kilometres an hour on residential streets, a decrease from the current 50 kilometres an hour;

AND WHEREAS slower streets make for more livable and safer neighbourhoods;

AND WHEREAS an increase in speed is directly related both to the likelihood of a crash occurring and to the severity of the crash consequences;

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AND WHEREAS the Sustainable Mobility Panel recommended that the City of Greater Sudbury be bold and modify its Traffic and Parking By-Law 2010-1 to reduce speed limits on all residential streets to 40 kilometres per hour unless otherwise posted, rather than the current 50 kilometres per hour;

AND WHEREAS the City of North Bay has instituted a by-law establishing 40 kilometre per hour speed limits on residential streets and the City of Ottawa has established a method where by means of petition, residents can request a reduction in the speed limit to 40 kilometres per hour on local residential streets provided there is a consensus of 66 percent of the residents on the entire street;

THEREFORE BE RESOLVED that the City of Greater Sudbury direct staff to investigate options to amend the Traffic and Parking By-Law 2010-1 to reduce speed limits on residential streets to 40 kilometres per hour unless otherwise posted, rather than the current 50 kilometres per hour and that those options be presented to the Operations Committee at its January 2014 meeting.

### Statutory Speed Limit

Section 128 (1) of the Ontario Highway Traffic Act states that “no person shall drive a motor vehicle at a rate of speed greater than 50 kilometres per hour (km/h) on a highway within a local municipality or within a built-up area”. This speed limit is commonly referred to as the Statutory Speed Limit. The City of Greater Sudbury has signs posted at the provincial highway entry points into the City indicating that the speed limit is “50 km/h unless otherwise posted”. The Ontario Traffic Manual (OTM) indicates that “maximum speed” signs are required when the speed limit is different than the statutory speeds. They may also be used to supplement the statutory speed limit. Based on the Highway Traffic Act and OTM requirements, it is the City’s practice to install 50 km/h maximum speed limit signs only when there is a change from a higher or lower maximum speed limit.

### Speed and Driver Behavior

A report prepared for the British Columbia Ministry of Transportation titled Review and Analysis of Posted Speed Limits and Speed Limit Setting Practices in British Columbia states the following:

“Based on years of experience and observation, the following fundamental concepts have been used to establish realistic speed zones.

The majority of motorists drive at a speed they consider reasonable, and safe for road, traffic, and environmental conditions. Posted limits which are set higher or lower than dictated by roadway and traffic conditions are ignored by the majority of motorists.

The normally careful and competent actions of a reasonable person should be considered legal.

A speed limit should be set so that the majority of motorists observe it voluntarily and enforcement can be directed to the minority of offenders.

A driver’s choice of speed can impose risks on other road users. Crash severity increases with increasing speeds because in a collision, the amount of kinetic energy dissipated is proportional to the square of the velocity. Crashes, however, appear to depend less on speed and more on the variation in speeds. The likelihood of a crash occurring is significantly greater for motorists traveling at speed slower and faster than the mean speed of traffic.

Maximum speed limits are set for ideal road, traffic, and environmental conditions.

The Coroner's report recognized this and stated "although supportive of changes to lower the speed limit for local municipalities, there was a strong view that in the absence of enforcement, drivers will drive the speed at which they are comfortable, irrespective of the posted speed, unless speed reduction is accompanied by engineering changes to the road to encourage adoption of slower speeds."

## Effectiveness of 40 km/h Speed Limits

It is the City's current policy to reduce the speed limit to 40 km/h on local and collector roadways adjacent to elementary schools. However, there are some streets with 40 km/h limits that are not adjacent to elementary schools.

As part of the Traffic Calming Program, City staff has undertaken many spot speed studies on residential roads with both 40 and 50 km/h speed limits. The following table provides a summary of the speed study results from 2009 to 2012 inclusive.

### Speed Study Summary

Speed Limit (km/h)	Number of Studies	Weighted Average Speed (km/h)
40	33	46.3
50	292	48.8

While the studies do not represent actual before versus after data, they do provide some insight into the effectiveness and acceptance of 40 km/h speed zones. As indicated, a 10 km/h reduction in the speed limit has yielded a 2.5 km/h reduction in average operating speed. Also, while the majority of drivers obey 50 km/h speed limits, only a small minority are currently obeying 40 km/h speed limits.

The Coroner's report also recognized this, stating "when the City of Ottawa reduced speed from 50 km/h to 40 km/h, studies which followed indicated that there was no substantial change in speed which motorists travelled the roads."

## 40 km/h Speed Limit on All Residential Roadways

In order for a 40 km/h speed limit to be enforced under the Highway Traffic Act, maximum speed limit signs will be required on every roadway affected. It is difficult to determine the exact number of speed limit signs that would be required to lower the speed limit on all residential roadways. However, the OTM recommends that the signs be spaced at 300 metres, and/or after each major intersection. There are more than 1,800 local and collector roads in the city totaling more than 2,900 lane kilometres. Installing speed limit signs every 300 metres will result in the need for more than 9,600 signs at a total cost of approximately \$2.5 million.

In order to maintain such a large inventory of new signs, the sign maintenance budget would need to be increased by \$125,000 annually based on a 20 year life expectancy.

The Coroner's recommendation to the Ministry of Transportation (MTO) is to amend the *Highway Traffic Act* to allow local municipalities to lower the unsigned default speed limit to 40 km/h. This amendment would



significantly reduce the costs associated in reducing the speed limit on residential roadways.

Many studies have shown that majority of pedestrian fatalities have been on arterial streets, which are wide roads (multiple lanes) and higher volumes. During the review period of the Coroner's report, 75 % of pedestrian fatalities occurred on arterial roads. The City has similar distribution of pedestrian collisions between arterial and local roads. Therefore, the proposed change in speed limit will affect a minority of pedestrian collisions.

## 40 km/h Speed Limits On All New Residential Roadways

It is possible to implement 40km/h speed limits on all newly assumed residential roadways without significantly impacting current sign maintenance budgets. As part of the subdivision approval process, the developer is responsible for the cost of any traffic control signs that are required. Therefore, the cost of installing 40 km/h signs on newly assumed roads can be passed on to the developer.

Implementing 40km/h speed limits on new roads, and maintaining 50km/h on existing roads will create a double standard, which is not recommended by staff. Also, often times newer streets are built to a higher standard than older streets with respect to the provision of curbs, sidewalks and illumination.

## 40 km/h Speed Limits Adjacent To Public Playgrounds

It is currently the City's policy to bring forward requests to lower the speed limit to 40 km/h on local and collector roads adjacent to elementary schools. In the last six years, the City has implemented school zone speed limits at many locations. However, there are still twenty schools that qualify for a reduced limit, but have not yet been completed. Based on the current budget, it will take approximately four years to have the speed limit reduced at all the elementary schools that qualify.

School zone speed limits have been implemented by Council due to the high concentration of young children in these areas. Once the elementary school areas are completed, Council may consider implementing 40 km/h speed limits adjacent to public playgrounds on local and collector roadways. Playgrounds represent another area where high numbers of young children can be found near to the road.

There are nearly 200 playgrounds in the city. Should Council decide to reduce the speed limit near playgrounds, it would cost approximately \$300,000 to supply and install the required signs. Council may consider a budget option of \$30,000 per year as part of the 2015 budget process to complete the school zone speed limits in 2015 and all playgrounds by 2025.

# EXHIBIT B

## School Zone Speed Study Summary

Roadway	Year of Study	Speed Limit (km/h)	Average Speed (km/h)	85th Percentile Speed (km/h)	Speed Limit Compliance Rate
Creighton Road, Copper Cliff Between School Street and Club Road	2014	50	33	42	96%
	2015	40	32	40	85%
	Difference:		-1	-2	-9%
Holland Road, Sudbury Between Lamothe Street and Woodbine Avenue	2010	50	48	55	65%
	2015	40	43	52	30%
	Difference:		-5	-3	-35%
Houle Avenue, Dowling Between Riverside Drive and Arlington Drive	2013	50	45	53	74%
	2015	40	47	56	65%
	Difference:		2	3	-9%
Kennedy Street, Sudbury East of Barrydowne Road	2013	50	43	52	83%
	2015	40	41	52	40%
	Difference		-2	0	-43%
Kirkwood Drive, Sudbury North of Ramsey Lake Road	2012	50	41	48	90%
	2015	40	39	46	59%
	Difference:		-2	-2	-31%
Lamothe Street, Sudbury Between Arvo Avenue and Holland Road	2013	50	36	44	97%
	2015	40	33	40	89%
	Difference:		-3	-4	-8%
Lansdowne Street, Sudbury Between Patterson Street and Bloor Street	2013	50	39	48	92%
	2015	40	36	44	96%
	Difference:		-3	-4	4%
Loach's Road, Sudbury Between Lady Ashley Court and Windle Drive	2012	50	40	52	49%
	2015	40	52	60	5%
	Difference:		12	8	-44%
Roy Avenue, Sudbury Between Lamothe Street and Sparks Street	2012	50	47	55	70%
	2015	40	35	43	76%
	Difference:		-12	-12	6%
Spruce Street, Garson West of Falconbridge Road	2012	50	52	61	44%
	2015	40	42	58	48%
	Difference:		-10	-3	4%
St. Nicholas Street, Sudbury Between Edmund Street and St. Brendan Street	2014	50	28	37	100%
	2015	40	26	32	96%
	Difference:		-2	-5	-4%

# EXHIBIT C

## Speed Study Summary

Roadway	Year of Study	Speed Limit (km/h)	Average Speed (km/h)	85th Percentile Speed (km/h)	Speed Limit Compliance Rate
Municipal Road 15 Between Ford Drive and Radisson Avenue	2007	80	69	77	*
	2009	60	73	82	*
	Difference:		4	5	N/A
Municipal Road 15 1.4 km East of Dupont Street	2006	80	85	98	*
	2007	60	76	86	*
	2009	60	71	80	*
	Difference (2009 vs. 2006):		-14	-18	N/A
Municipal Road 15 1.5 km West of Montee Principale	2006	80	77	85	*
	2007	60	72	79	*
	2009	60	71	84	*
	Difference (2009 vs. 2006):		-6	-1	N/A
Municipal Road 15 1.5 km East of Montee Principale	2007	80	86	95	*
	2009	60	74	82	*
	Difference:		-12	-13	N/A
Montee Rouleau 200 m South of Bonin Road	2010	80	78	89	55%
	2015	70	73	85	41%
	Difference:		-5	-3	-14%
South Bay Road 230 m South of Ramsey Lake Road	2011	50	63	71	5%
	2013	40	59	66	1%
	2015	40	58	67	3%
	Difference (2015 vs. 2011):		-5	-4	-2%
Vermilion Lake Road Near Davey's Road	2010	80	80	93	42%
	2015	70	78	92	25%
	Difference:		-2	-2	-17%

*\*Due to the method used to collect data for these speed studies, we are unable to provide the speed limit compliance rate.*