

Gateway Speed Limits in Residential Areas

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

As part of the Safer School Zones Act, the provincial government amended the HTA to allow municipalities to designate an entire area as having a posted speed limit lower than 50km/h. Previously, to designate a speed limit which differed from the Statutory Speed Limit, the municipality would have been required to post speed limit signs for the entire length of each roadway with the reduced speed limit. In addition, each roadway would need to have a by-law passed prescribing the rate of speed. These requirements made posting large sections of a community with a reduced speed limit a substantial financial undertaking and resulted in speed limits of less than 50 km/h being isolated to small areas such as school zones.

In 2013, in response to the Ontario Chief Coroner’s report titled [“Pedestrian Death Report,”](#) staff were asked to investigate options to reduce speed limits on residential roads to 40 km/h in an effort to improve safety for vulnerable road users. Studies have shown that the operating speed of a vehicle which strikes a vulnerable road user has a direct correlation to the risk of serious injury or death. Figure 1 (shown below), from the City of Toronto’s Complete Streets Guidelines, demonstrates that a reduction in vehicle operating speeds from 50 km/h to 40 km/h significantly increases the chance of survival for a vulnerable road user from 15% to 70%. This is further increased to 90% for operating speeds of 30 km/h.

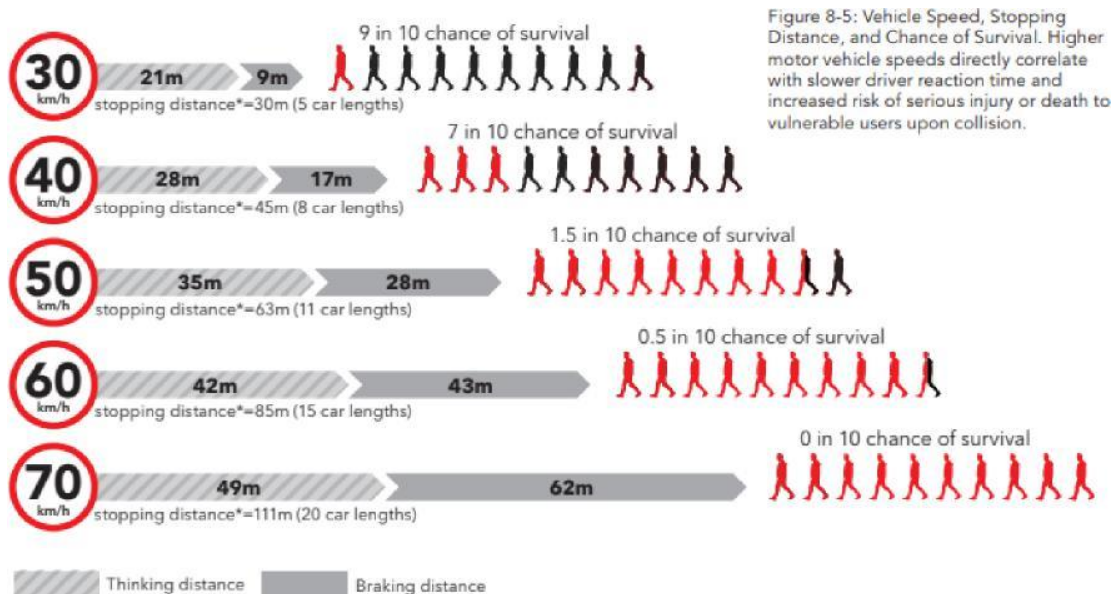


Figure 8-5: Vehicle Speed, Stopping Distance, and Chance of Survival. Higher motor vehicle speeds directly correlate with slower driver reaction time and increased risk of serious injury or death to vulnerable users upon collision.

*Stopping distances during wet conditions. Single car length=5.6m. Based on a 2.5s reaction time, representing 90th percentile of drivers.

source: Adapted from World Health Organization, 2008. Speed management: a road safety manual for decision-makers and practitioners. Transportation Association of Canada, 2011. Geometric Design Guide for Canadian Roads Part 1. 1.2.5.2 - 1.2.5.4.

Figure 1 – Vulnerable Road User Chance of Survival

In January 2014, staff presented a report to the Operations Committee titled [Residential 40 km/h Speed Limits](#) in which it was estimated it would require 9,600 signs to post every local and collector residential roadway with a 40 km/h speed limit under the old regulation. At the time, staff estimated the cost to install these 9,600 signs at \$2.5 million dollars with an additional \$125,000 increase in the yearly sign maintenance budget.

With the amendments to the HTA, a municipality is now only required to post a new type of speed limit sign (Figure 2 shown below) at all the entrance/exit points to the area they have designated. However, the reduced speed limit would apply to all roadways within the area. These changes greatly reduce the number of required signs and associated costs to reduce the speed limit in a large area. Staff are referring to these new signs as Gateway Speed Limit signs.



Figure 2 – Gateway Speed Limit Signs

Implementation

While this change to HTA may be applied to any type of road in the City, staff recommended Gateway Speed Limits only be considered on local and collector residential roads. In addition, in the event a school zone speed limit of 40 km/h falls within one of these designated areas, it is recommended that the school zone speed limit be reduced to 30 km/h. Further reducing school zone speed limits will reinforce to motorists that they are entering a school zone and extra caution is needed as they are more likely to encounter young children within the road.

Figure 3 (shown on page 3), provides a typical example of how a Gateway Speed Limit area would be signed. Gateway Speed Limit signs would be posted on all the entrances to the residential roads. As a result, all roads within the area will have a 40 km/h speed limit.

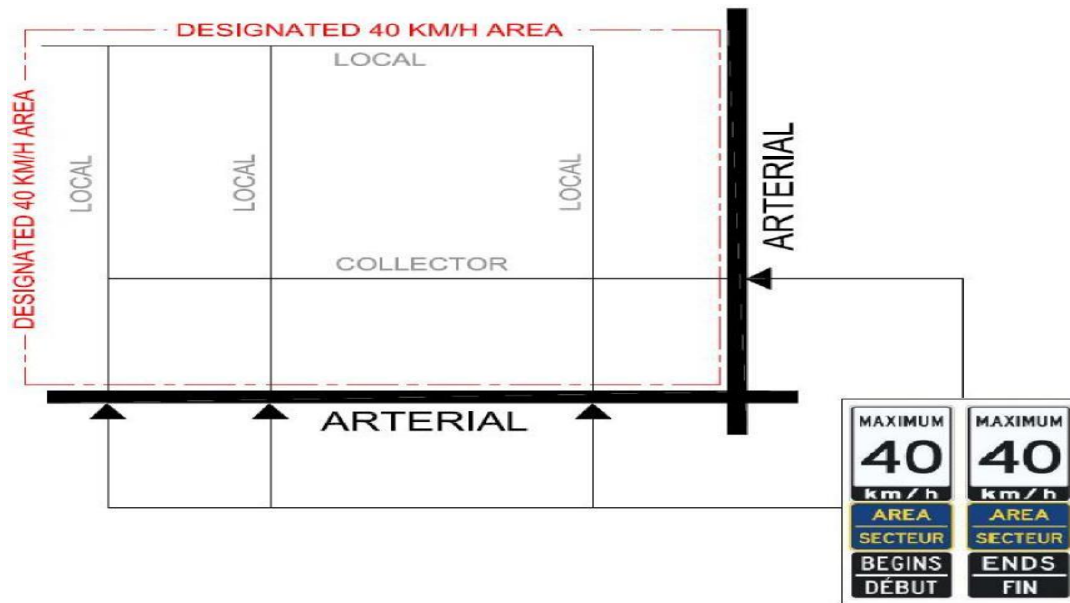


Figure 3 – Gateway Speed Limit Area Example

Figure 4 below shows a typical example of how a school zone would be signed within a Gateway Speed Limit area.

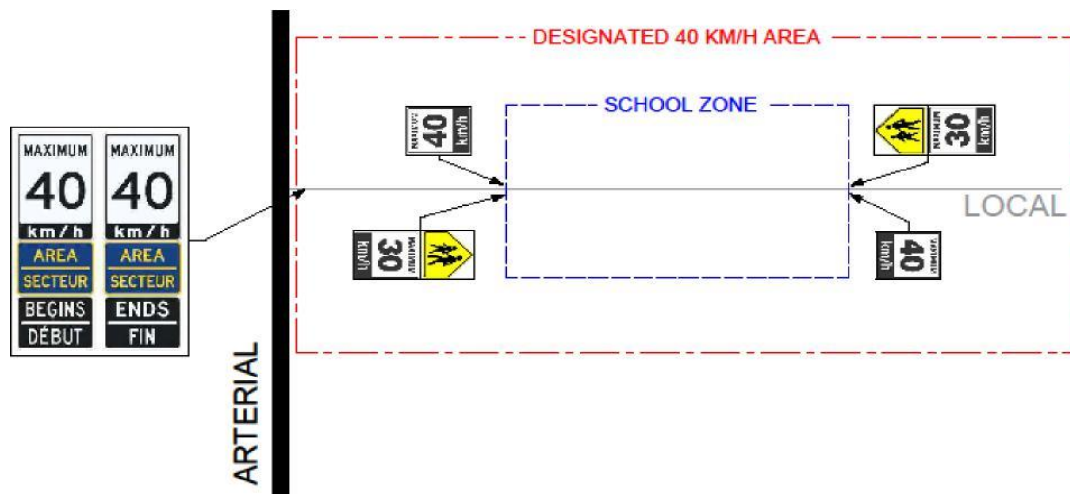


Figure 4 – Gateway Speed Limit Area with School Zone Example

Staff estimate to reduce the speed limit to 40 km/h on all residential roads would require approximately 850 Gateway Speed Limit signs. To complete the manufacturing and installation of the required signs utilizing current staff resources would cost approximately \$320,000 and take approximately 4 to 5 years to complete. Additionally, it will require an increase of \$8,170 to the annual sign maintenance budget.

Impact of the Speed Limit on Vehicle Operating Speeds

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 in the table below:

Speed Limit (km/h)	Number of Studies	Number of Vehicles Recorded	Weighted Average Speed (km/h)	Weighted 85th Percentile Speed* (km/h)
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
80	22	214,981	83	93

** The 85th 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 85th percentile speed exceeds the speed limit and for roads with a posted 40 km/h speed limit, the average and 85th percentile speeds are only 1 km/h lower than roads with a 50 km/h speed limit.

School zone speed limits of 40 km/h have been implemented in the area of all schools in the City of Greater Sudbury. 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 meters 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. Fluorescent 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.

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

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

As shown in the table above, a 10 km/h reduction in the speed limit 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.

As the studies have shown, simply lowering the speed limit alone is not enough to lower operating speeds. 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. Without implementing engineering measures to force motorists to slow down, staff have concerns with the burden that will be imposed on the Greater Sudbury Police Service to appropriately enforce a reduced speed limit on all residential roads.

In discussions with the Greater Sudbury Police Services they note that enforcement is but one component of their Traffic Safety Plan along with education. In addition, their list of traffic related concerns continues to rise while current enforcement efforts are focused on high speed arterial roads where the most serious collisions are occurring.

The City of Greater Sudbury uses engineering and education programs to proactively manage speeds in residential areas. Through the traffic calming program, the City will install physical measures on a road to reduce operating speeds. 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. Recently, [City Council approved a pilot project](#) to test the effectiveness of flexible bollards as a temporary traffic calming device. If proven effective, the flexible bollards will provide a lower cost measure which can be implemented on area roads more quickly. Staff will be reporting back to the Operations Committee during the summer of 2020 on the effectiveness of the pilot project.

The City also has two programs to help educate the public on the impact of speed on residential roads. The first program is Speed Watch. Through this program, the City lends portable radar equipment to residents to help raise awareness about speeding on neighbourhood streets. Additional information on the City's Speed Watch program can be found on the City's website at <https://www.greatersudbury.ca/live/transportation-parking-and-roads/traffic-management-and-road-safety/speed-watch-program/>

Also, through the Sudbury Road Safety Committee, the City helped develop a program where residents are given lawn signs with messages encouraging motorists to drive slower. More information on the Watch For Us! Community Sign Program can be found on the City's website at <https://www.greatersudbury.ca/live/transportation-parking-and-roads/traffic-management-and-road-safety/watch-for-us-community-sign-program/>

In addition to the existing programs described above, the framework for the Automated Speed Enforcement program continues to be developed and is expected to be in place by the end of 2019. Staff continue to participate in the provincial working group and anticipate bringing forward a report on the program in the first quarter of 2020.

Recommendations

At this time, staff recommend the decision to implement a 40 km/h speed limit on residential roads be delayed until consideration is given to additional measures which will impact the operating speeds of vehicles. These measures could include the Automated Speed Enforcement program or an expanded flexible bollard traffic calming program based on the pilot project that is currently underway.

Should Council choose to advance the 40 km/h residential speed limit through the Gateway Speed Limit program prior to the consideration of additional measures to impact vehicle operating speeds, staff recommend the program be implemented evenly across all 12 wards over a 5 year period and that staff work with each Ward Councilor to prioritize areas within each ward.

Resources Cited:

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