TO: Mayor and Members of Council

C. Arvin Prasad, Commissioner, Development Services
Brian Lee, Director, Engineering
Loy Cheah, Senior Manager, Transportation

FROM: David Porretta, Manager, Traffic Engineering, Ext. 2040

DATE: December 11, 2018

Re: School Zone Centreline Speed Sign Program Update (City-wide)

This memorandum provides an update regarding the School Zone Centreline Program and its expansion to additional school zones in Markham in 2019.

As of 2018, centreline flexible signs have been deployed in 24 school zones. These locations can be found in Attachment "A". Examples of typical installation configurations can be seen in Attachment "B". Given the continued success of the program, Traffic Engineering staff conducted assessments of the remaining 54 school zones located on City streets to determine where centreline flexible signs could be effectively implemented.

The centreline flexible signs are effective only in certain roadway situations. Effectiveness is dependent on certain operational characteristics and road design elements. Using the site selection justification criteria (see Attachment "C"), staff identified an additional 8 school zones where the provision of flexible signs could reduce vehicle speeds. School zones that were not selected either do not meet criteria or are located on Regional arterial roads.

Once implemented, 32 of 78 school zones located on City streets will be provided with centreline flexible signs. Funding for the expansion of the program to an additional 8 locations has been accounted for in the 2019 "Traffic Operational Improvements" capital budget request, subject to Council approval. On-going maintenance costs will be managed within the existing operating budget; therefore there is no incremental impact to the operating budget.

Attachments

Attachment "A" – Locations & Effectiveness Study Results
Attachment "B" – Typical Configurations
Attachment "C" – Site Selection Criteria

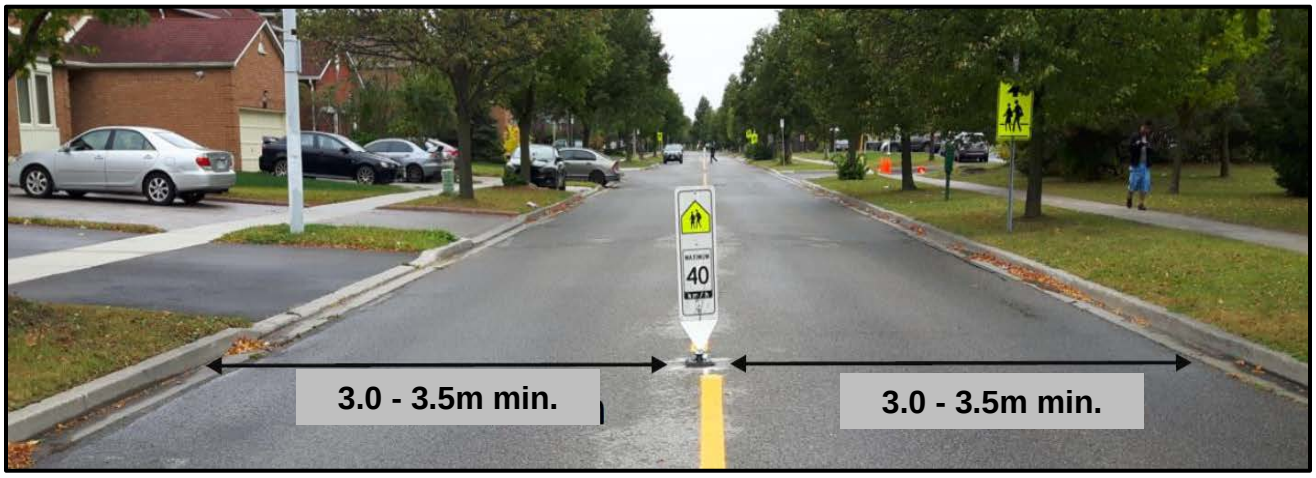
ATTACHMENT "A"

Centreline Flexible Sign Program - Effectiveness Study Results

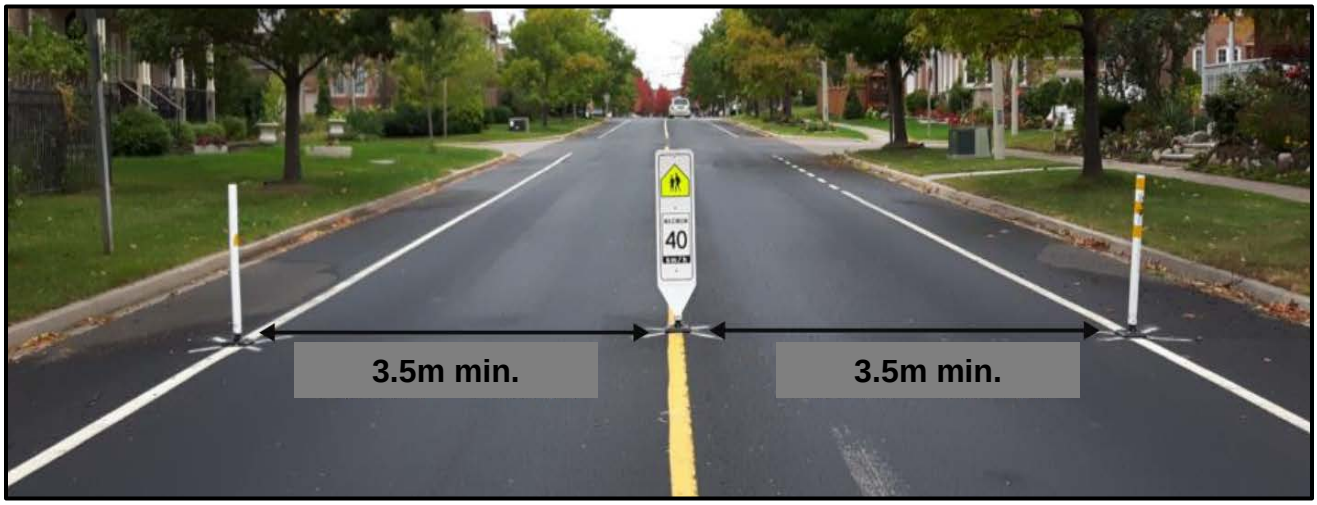
School Zone Location	Installation Year	OPERATING SPEED (km/h)		
		BEFORE INSTALL	AFTER INSTALL	DIFFERENCE
WARD 1				
Henderson Ave (Henderson PS)	2017	51	50	-1
Willowbrook Rd (Willowbrook PS)	2018	53	49	-4
Royal Orchard Blvd (Woodland PS)	2018	59	51	-8
Thornhill SS (Dudley Ave)	***2019***	***52***	***N/A***	
WARD 2				
Hollingham Rd (St. Justin Martyr CS)	2017	50	48	-2
Calvert Rd (Ashton Meadows PS)	2018	59	57	-2
Hazelton Ave (Sir Wilfred Laurier PS)	2018	50	44	-6
WARD 3				
South Unionville Ave (Unionville Meadows PS)	2017	53	49	-4
Carlton Rd (William Berczy PS)	2018	54	49	-5
Central Park Dr (Central Park PS)	2018	53	48	-5
Main St Unionville (Bill Crothers SS)	***2019***	***63***	***N/A***	
Waterbridge Lane (St. Matthew CS)	***2019***	***57***	***N/A***	
WARD 4				
Church St (Markham District HS)	2017	56	53	-3
Wootten Way (Reesor Park PS)	2018	54	47	-7
Mingay Ave (Wismer PS)	2018	59	49	-10
WARD 5				
Cornell Centre Blvd (St. Joseph CS)	2017	53	49	-4
Country Glen Dr (Cornell Village PS)	2018	51	48	-3
Alfred Paterson PS (Alfred Paterson PS)	2018	55	50	-5
Williamson Ave (Mt. Joy PS)	***2019***	***56***	***N/A***	
Delray/Alfred Paterson Dr (Sam Chapman PS)	***2019***	***51***	***N/A***	
WARD 6				
Castlemore Ave (Castlemore PS & All Saints CS)	2017	53	46	-7
Mingay Ave (Donald Cousens PS)	2018	54	51	-3
Stonebridge Dr (Stonebridge PS)	2018	55	49	-6
WARD 7				
Roxbury St (Sir Richard W. Scott CS)	2017	53	47	-6
Elson St (Cedarwood PS)	2018	50	43	-7
Russell Jarvis/Rouge Bank (Legacy PS)	2018	54	48	-6
Fonda Rd (Markham Gateway PS)	***2019***	***57***	***N/A***	
Riverwalk Dr. (David Suzuki PS)	***2019***	***54***	***N/A***	
Coxworth Ave (Parkland PS)	***2019***	***51***	***N/A***	
WARD 8				
Randall Ave (Randall PS)	2017	46	43	-3
Highgate Dr (Highgate PS)	2018	47	40	-7
Highglen Ave (St. Francis Xavier PS)	2018	49	46	-3

ATTACHMENT “B”

Centreline Flexible Signs
Typical Configurations



Option 1: Two-way streets with a width between 7.0m and 8.5m



Option 2: Two-way streets with a width greater than 8.5m

***For streets with frequent on-street parking, delineators on each side may not be required**

ATTACHMENT "C"

Centreline School Zone Flexible Speed Sign - Site Selection Criteria

The effectiveness of the flexible signs is largely dependent on a number of factors and site conditions.

The guidelines described below should be applied when considering locations for the placement of centreline flexible signs. The objective is to identify locations where the centreline flexible signs would be most effective at reducing driver speeds and positively modifying driver behaviour.

Criteria 1 – Road Cross-section
Must be on a two-lane road (one lane per direction). Centreline flexible signs on four-lane roads are ineffective.

Criteria 2 – Vehicular Operating Speed
Existing 85th percentile vehicular operating speeds shall be above 50 km/h. Where operating speeds are under 50 km/h, effectiveness is negligible.

Criteria 3 – Desirable Minimum Lane Width
Narrowed lane widths of 3.3m or 3.5m (for transit routes) must be achievable through application of the flexible posts, without impeding transit and service vehicles.

Criteria 4 – Proximity to Existing Intersection Traffic Control
Flexible signs shall be installed in a location that is at least 80 metres from an existing intersection traffic control device, such as an all-way stop. Stop signs inherently contribute to reduced vehicle speeds, inhibiting the effectiveness of installing a flexible sign within close proximity of a stop control.

Criteria 5 – Horizontal Alignment
Flexible signs shall be installed in a location that is at least 80 metres from a curve in the road, where feasible. Flexible signs or posts placed within or adjacent to a curve is prone to repeated vehicle impacts and reduced asset life.

Other Considerations
When identifying specific placement and layout of the flexible signs, conditions to consider include on-street parking activity, proximity to private driveways, and transit stops. While the devices are intended to withstand low-speed impacts, effort should be made to avoid such conflicts.