

CITY CLERK

Clause embodied in Report No. 9 of the Works Committee, as adopted by the Council of the City of Toronto at its Special Meeting held on July 30, 31 and August 1, 2002.

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Warrants for All-Way 'Stop' Sign Control and 40 km/h Maximum Speed Limits

(City Council at its Special Meeting held on July 30, 31 and August 1, 2002, adopted this Clause, without amendment.)

The Works Committee recommends the adoption of the following report (June 7, 2002) from the Commissioner of Works and Emergency Services:

Purpose:

To report on consultation with all Community Councils respecting the use of the interim warrants for all-way 'Stop' sign control and 40 km/h maximum speed limits for the purpose of recommending adoption of permanent warrants to City Council.

Financial Implications and Impact Statement:

There are no financial implications resulting from the adoption of this report.

Recommendations:

It is recommended that:

- (1) the criteria for considering all-way 'Stop' sign control implementation, as presented in Appendix 1, be adopted as amended to include an additional special consideration 'safety' statement; and
- (2) the criteria for considering 40 km/h maximum speed limit implementation, as presented in Appendix 2, be adopted.

Background:

City Council at its regular meeting held on April 23, 24, 25, 26 and 27, and its special meeting held on April 30, May 1 and 2, 2001, adopted Clause No. 6 contained in Report No. 5 of the Works Committee addressing, among other things, use of the interim warrants as presented in the March 6, 2001 report of the Commissioner of Works and Emergency Services entitled "Proposed Harmonized Warrants for Installation of 40 km/h Speed Limits and All-Way Stop Sign Control."

Comments:

Community Councils at the January 2002 meetings, made recommendations on the report of the General Manager, Transportation Services Division, dated January 15, 2002, entitled "Review of Interim Warrants for All-Way Stop Sign Control and 40 km/h Speed Limits". These recommendations addressed the Community Council experience with the trial period application of the interim warrants for the installation of all-way 'Stop' sign control at intersections and 40 km/h maximum speed limits on streets, as well as experience with the effectiveness of the proposed warrants during the trial period. This was done for the express purpose of proposing more permanent criteria for the use of these traffic control measures throughout the City.

Specifically, the Community Councils recommended to the Works Committee adoption of the recommendations contained within the General Manager's report, namely that:

- "(1) the interim criteria for installing All-Way Stop Sign Control, as presented in Appendix 1, be adopted for long-term use within the City of Toronto;
- (2) the interim criteria for establishing a 40 km/h speed limit be amended for long-term use in the City of Toronto by revising the warrant structure, to remove confusion and potential misinterpretation about road widths and operating speeds, as presented in Appendix 2; and
- (3) these recommendations be forwarded to the Works Committee."

In addition to the above, the Midtown and Humber York Community Councils forwarded additional recommendations to the Works Committee. The Midtown Community Council, at its meeting of January 29, 2002, recommended that "unimproved roads in the City (i.e., those without storm sewers and curbs) have a speed limit of 40 km/h when requested in writing by 60 percent or more of the households on the affected streets."

The recommended technical warrants for implementing a 40 km/h maximum speed limit recognize and take into account conditions where no sidewalks are provided. The lack of sidewalks is a typical condition of unimproved roads. The application of these technical warrants do not preclude the opportunity, through a separate process, to gauge affected residents' support of this initiative.

The Humber York Community Council, at its meeting of January 29, 2002, recommended that "the Commissioner of Works and Emergency Services be requested to develop an additional 'safety' warrant to be used with the criteria for the installation of all-way stop controls."

The all-way 'Stop' sign control warrant is a fundamental tool used to determine whether an intersection, with one or two approaches controlled by 'Stop' signs, is operationally suitable to be converted to an intersection with right-of-way controlled by 'Stop' signs on all approaches. The warrant does this through consideration of four tests or warrant conditions addressing: the intersection's collision history; volumes entering the intersection; whether traffic control signals have been considered; and, if intersection right-of-way control is being reversed. These warrant conditions, as presented in Appendix 1, are consistent with the Ministry of Transportation,

Ontario published warrants, refined for the 'Toronto' experience (i.e., considering a collision history correctable with all-way 'Stop' sign control, and volumes of vehicles and pedestrians for a range of road types, for example).

Although the March 6, 2001 report presenting the warrants noted that these criteria were not intended to be exhaustive but to address the "vast majority of traffic scenarios", in response to the recommendation of the Humber York Community Council, a safety statement (i.e., special consideration number 6) has been developed for inclusion at the end of Appendix 2.

By its inclusion, this statement explicitly acknowledges that staff will exercise engineering judgement in consideration of all-way 'Stop' sign control at an intersection, in order to address unique traffic operational situations.

Conclusions:

In light of the favourable experience with the application of the aforementioned interim warrants and in consideration of the comments above, it is recommended that the warrants for considering all-way 'Stop' sign control implementation, as amended (i.e., Appendix 1), as well as the warrants for considering 40 km/h maximum speed limit implementation (i.e., Appendix 2) be adopted on a permanent basis for use city-wide.

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List of Attachments:

Appendix 1 - Warrants for Implementing All-Way 'Stop' Sign Control Appendix 2 - Warrants for Implementing a 40 km/h Maximum Speed Limit

APPENDIX 1

June 2002

City of Toronto

Warrants for Implementing All-Way 'Stop' Sign Control

All-way 'Stop' sign control may be considered at intersections where at least one of the following of Warrants A or B is met, or other conditions identified in Warrants C or D is met:

A. COLLISIONS

There are an average of (*see number below*) collisions per year over three years of the type susceptible to correction by the use of all-way 'Stop' sign controls and where less restrictive measures* have been tried and found inadequate, with the major road classified as:

Yes/No

- minor arterial or collector (greater than 6000 AADT) 4 collisions per year.
- collector (AADT less than or equal to 6000) 3 collisions per year.
- local 2 collisions per year.

WARRANT A MET? Yes/No

B. VOLUMES

Roadway approaches have similar operating characteristics and the following conditions have been met:

- (1)(a) The total vehicle volume on all intersection approaches, with the major road classified as:
 - minor arterial or collector (AADT greater than 6000), exceeds 500 vehicles per hour for the average of the eight peak hours of the day.
 - collector (AADT less than or equal to 6000), exceeds 375 vehicles for the average of the four peak hours of the day.
 - local, exceeds 250 vehicles for the average of the four peak hours of the day.

Yes/No

Or

- (b) The combined vehicular and pedestrian volume on the minor approach (i.e. crossing the major road) exceeds (*see number below*), with the major road classified as:
 - minor arterial or collector (AADT greater than 6000), 200 units for the average of the same eight hours used in (a) above.
 - collector (AADT less than or equal to 6000), 150 units for the average of the same four peak hours used in (a) above.
 - local, 100 units for the average of the same four peak hours used in (a) above.

The volume split does not exceed 70/30, based on the same counts used (2) above. Volume on the major approaches is defined as vehicles only. Volume on the minor approaches includes all vehicles entering the intersection plus any pedestrians crossing the major road.

Yes/No

WARRANT B MET?

Yes/No

C. TRAFFIC CONTROL SIGNALS

As an interim measure where traffic control signals are technically warranted but cannot be implemented immediately.

Yes/No

WARRANT C MET?

Yes/No

D. REVERSAL OF INTERSECTION CONTROL

As a means of providing an introductory period to accustom drivers to a reversal of intersection control. Installation under this warrant shall be in conformance with Ontario MUTCD (1995), Section A2.11.04.

Yes/No

WARRANT D MET?

Yes/No

All-way 'Stop' sign control should not be used under the following conditions:

- (1) As a speed control device;
- (2) On roadways where progressive signal timing exists;
- On roadways within urban areas having a posted speed limit in excess of 50 km/h; (3)
- (4) At intersections that are offset, poorly defined or geometrically substandard;
- On truck or bus routes, except in an industrial area or where two such routes cross; (5)
- As a means of deterring the movement of through traffic in a residential area; and (6)
- Where visibility of the sign is hampered by curves or grades, parked vehicles, and (7) insufficient safe stopping distance exists.

All-way 'Stop' sign control can be used after special consideration in the following situations:

- As the primary form of control to facilitate a request based solely on pedestrian crossing (1) protection. This concern can usually be addressed by other means such as a school crossing, pedestrian crossover, or traffic control signal;
- (2) At intersections that are not roundabouts having less than three, or more than four, approaches;
- At intersections with multi-lane approaches; (3)
- Where traffic would be required to stop on grades; (4)

- (5) At intersections in close proximity to other traffic control devices controlling right-of way; and
- (6) At intersections under certain traffic conditions, such as to control a conflicting traffic movement problem or address a motorist sight-line problem that cannot be addressed by other means, when supported by engineering judgement as being a useful safety measure.
- * Note: In the case of Warrant A, less restrictive measures could include the removal of an obstruction or the prohibition of parking to improve sight lines; and/or the installation of warning signs, pavement markings and/or flashing beacons.

APPENDIX 2

June 2002

City of Toronto

Warrants for Implementing a 40 km/h Maximum Speed Limit

On February 29, 2000, Toronto City Council adopted a Road Classification System and determined that the minimum speed limit on major arterial roads would be 50 km/h. Therefore, this warrant applies to local, collector and minor arterial roads.

A 40 km/h maximum speed limit may be implemented on any street where one or more of the following Warrants B or C is met. In the case of streets 10.5 metres or more in width, Warrant A must also be satisfied.

A. WIDE ROADS

(1)	Pavement width equal to or more than 10.5 metres, where the	Yes /No
	operating speed 85% ile is equal to or less than 50km/h.	

* Note: Speed limit reductions on wide streets have negligible impact and in these cases, other measures should be considered to influence driver behaviour to reduce speed, such as geometric changes to the road itself.

Warrants B and C apply to all widths of roads. Roads 10.5 metres wide or more are considered if Warrant A1 is met.

B. PEDESTRIAN ENVIRONMENT

ONE OF THE FOLLOWING

(1)(i)	Elementary or junior high school abuts the road. *	
	OR	
(ii)	Parkland abuts the road which is contiguous to and used to gain access to an elementary or junior high school*	Yes/No
	OR	
(iii)	No sidewalk on either side of the road or a major portion of the road.	

OR

(2) The sidewalk is immediately adjacent to and not separated	
from the flow of motor vehicles by long-term parking (>3H)	Yes/No
or bike lanes, where the travelled portion of the road width is	
less than 5.7 metres for two-way operation, or less than	
4.0 metres for one-way operation.	

WARRANT B1 or B2 MET? Yes/No

OR

C. ROAD AND TRAFFIC ENVIRONMENT

ONE OF THE FOLLOWING

(1)(i)	Two or more locations of concern where:	
	Grades are greater than 5%; and/or	
	Safe speed on curves is less than 50 km/h.	
	OR	
(ii)	Lack of sufficient distance to stop safely at two or more	Yes/No
	locations when travelling at 50 km/h.	
	OR	
(iii)	Pattern of collisions where vehicle speed was identified as a	
	factor:	
	Local streets – 3 or more over 3 years.	
	Other streets – 5 or more over 3 years.	

(2)	Where long-term parking (>3H) is permitted on one or both	
	sides, and the remaining travelled portion of the road is less	Yes/No
	than 5.7 metres for two-way operation, or 4.0 metres for	
	one-way operation.	

WARRANT C1 or C2 MET? Yes/No

40 km/h Maximum Speed Limit is warranted:

WARRANT B or C MET? Yes/No

* Note: In the case of Warrant B1(i) or (ii), the 40 km/h maximum speed limit must extend no less than 150m beyond the boundary of school property and/or contiguous parkland.

The Works Committee submits the following report (January 15, 2002) from the General Manager, Transportation Services Division, addressed to the Community Councils:

Purpose:

To comment on the application of the interim warrants for the installation of 40 km/h speed limits and all-way 'Stop' sign control, and propose more permanent criteria for the use of these traffic control devices.

Financial Implications and Impact Statement:

The adoption of the recommendations within this report would not significantly impact upon the existing expenditures for the installation of 40 km/h signs or stop signs. These costs are included in the Transportation Services Division's proposed 2002 Current Budget.

Recommendations:

It is recommended that:

- (1) the interim criteria for installing all-way 'Stop' sign control as presented in Appendix 1, be adopted for long-term use within the City of Toronto;
- (2) the interim criteria for establishing a 40 km/h speed limit be amended for long-term use in the City of Toronto by revising the warrant structure, to remove confusion and potential misinterpretation about road widths and operating speeds, as presented in Appendix 2; and
- (3) these recommendations be forwarded to the Works Committee.

Background:

At its meeting of March 28, 2001, the Works Committee considered criteria and principles which could be applied uniformly across the City of Toronto when streets are being considered for a 40 km/h speed limit and for intersections being considered for all-way 'Stop' sign control. These

criteria were adopted for uniform use within the City of Toronto for a trial period, and Community Councils were asked to consider their experiences with the effectiveness of these criteria after the trial period.

The Works Committee will discuss the feedback from Community Councils early in 2002 for the purpose of recommending the adoption of more permanent warrants to City Council.

Comments:

(A) All-Way 'Stop' Sign Control (AWSSC) Criteria:

Prior to the amalgamation of the former municipalities into the City of Toronto, AWSSC warrants were based upon warrants which were originally established by the Ministry of Transportation of Ontario (MTO). Even though some modifications to these original warrants had been made over time, the new interim warrants were also based upon the MTO criteria, so they were reasonably harmonious with the warrants of the former municipalities.

Staff from all four traffic operations districts within the City of Toronto report that there is general satisfaction with the interim warrants, so they are being recommended for more long-term, permanent use without any modifications. They are attached to this report as Appendix 1.

(B) 40 km/h Speed Limit Criteria:

Prior to amalgamation, there was no harmonized approach to the consideration of 40 km/h speed limits in the former municipalities. The interim warrants represented a harmonization of the previous operating practices and policies of the former municipalities.

Generally speaking, the interim warrants provide more criteria and more opportunities to recommend the application of permanent 40 km/h speed limits on local, collector and minor arterial streets than previously in all the former municipalities, other than the City of Toronto. The use of 40 km/h on local and collector streets in the former City of Toronto was widespread. Some of the key criteria which are included within the interim warrants are the issue of the presence or lack of sidewalks on the street, and the exposure of pedestrians on sidewalks immediately adjacent to the travelled portion of the road, on fairly narrow streets.

Staff working in the former Cities of Etobicoke, North York, Scarborough and the Borough of East York report that a small number of requests have been received for a reduction in the speed limit on local residential streets from 50 km/h to 40 km/h. These requests have been supported where they generally would not have been previously, because they meet the new criteria within the interim warrants.

Staff have not had experience with the interim 40 km/h speed limit warrants in the former Cities of York and Toronto in 2001. However, there is the potential for requests in the

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former City of York to be supported, where they would not have been previously, for the reason cited above.

The use of 40 km/h speed limits in the former City of Toronto is so prevalent that the new warrants are not likely to have an impact.

Compared to previous practices within the former municipalities, utilizing the new 40 km/h warrants has resulted in a small overall increase in the number of recommendations to install 40 km/h speed limits.

In the application of the new warrants, staff have experienced some difficulties with the wording and structure within the interim criteria, and recommend the following minor amendments to correct the problems:

- (i) the primary influence on the operating speed of the road is the geometric design, notably the road width. If a road is wide, then the simple act of changing the speed limit and installing speed limit signs will have negligible impact on vehicle operating speeds. Currently this is addressed as a "consideration" within the interim warrants, and staff recommend that this issue be directly linked to the road width criteria already contained in the interim warrant. This is the new A1 criteria in Appendix 2. In these scenarios other measures need to be explored, such as white edge lines or geometric changes to the road itself, which will impact upon the operating speed; and
- (ii) the current structure of the warrants needs to be clarified because it is not clear whether the "Road and Traffic Environment" section applies to all roads or simply narrow roads. Staff recommended that this section be applied to all widths of roads, and the criteria has been restructured to reflect this.

Staff have a few other concerns about the application of these warrants, which are reflected in the following discussion:

- short cul-de-sacs: technically the criteria for placing 40 km/h speed limits will be (a) met on short cul-de-sacs if there is no sidewalk on either side. However, because of the short length of roadway, the operating speeds are likely to be less than 40 km/h. In these cases the cost of sign installation and maintenance may not be justified, so 40 km/h speed limits are not recommended; and
- (b) truly rural areas: there are a few roads left within the City of Toronto which serve rural areas where homes are intermittently located. The 40 km/h speed limit warrants do not apply to these rural roads. In these cases, 40 km/h speed limits would generally not be appropriate.

Conclusions:

Harmonized warrants for the uniform application of 40 km/h speed limits and all-way 'Stop' sign control across the City of Toronto were adopted on an interim trial basis in the spring of 2001.

Staff report that their experience with these sets of criteria have been favourable. Staff recommend adopting the interim all-way 'Stop' sign control warrants without amendment, for more permanent use. However, within this report, a few minor changes have been proposed for the 40 km/h speed limit warrants in order to further clarify the intended application.

Contact:

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List of Attachments:

Appendix 1 - Warrants for Implementing All-Way Stop Sign Control Appendix 2 - Warrants for Implementing a Permanent 40 km/h Maximum Speed Limit

The Works Committee also submits the following communication (January 30, 2002) from the City Clerk, Midtown Community Council:

Recommendations:

The Midtown Community Council recommends:

- (1) adoption of Recommendations Nos. (1) and (2) of the General Manager, Transportation Services Division, contained in his report (January 15, 2002); and
- (2) that unimproved roads in the City (i.e., those without storm sewers and curbs) have a speed limit of 40 km/hr when requested in writing by 60 percent or more of the households on the affected streets.

Background:

The Midtown Community Council, at its meeting on January 29, 2002, had before it the attached report (January 15, 2002) from the General Manager, Transportation Services Division, commenting on the application of the interim warrants for the installation of 40 km/hr Speed Limits and All-Way Stop Control, and proposing more permanent criteria for the use of these traffic control devices.

The Works Committee also submits the following communication (January 31, 2002) from the City Clerk, Etobicoke Community Council:

Recommendation:

The Etobicoke Community Council at its meeting held on January 30, 2002, recommended to the Works Committee the adoption of Recommendations Nos. (1) and (2) contained in the report dated January 15, 2002, from the General Manager, Transportation Services Division.

Background:

The Etobicoke Community Council had before it a report (January 15, 2002) from the General Manager, Transportation Services Division, respecting the application of the interim warrants for the installation of 40 km/h Speed Limits and All-Way Stop Sign Control and more permanent criteria for the use of these traffic control devices; advising that the Works Committee on March 28, 2001, considered criteria and principles which could be applied uniformly across the City of Toronto when streets are being considered for a 40 km/h speed limit and for intersections being considered for All-Way Stop Sign Control; that these criteria were adopted for uniform use within the City of Toronto for a trial period, and Community Councils were asked to consider their experiences with the effectiveness of these criteria after the trial period; further advising that the Works Committee will discuss the feedback from Community Councils early in 2002 for the purpose of recommending the adoption of more permanent warrants to City Council; and recommending that:

- (1) the interim criteria for installing All-Way Stop Sign Control as presented in Appendix 1, appended to the report, be adopted for long-term use within the City of Toronto;
- (2) the interim criteria for establishing a 40 km/h speed limit be amended for long-term use in the City of Toronto by revising the warrant structure, to remove confusion and potential misinterpretation about road widths and operating speeds, as presented in Appendix 2; and
- (3) these recommendations be forwarded to the Works Committee.

The Works Committee also submits the following communication (February 1, 2002) from the City Clerk, Scarborough Community Council:

Recommendation:

The Scarborough Community Council recommends approval of Recommendations Nos. (1) and (2) in the report, dated January 15, 2002, from the General Manager, Transportation Services Division.

Background:

The Scarborough Community Council, at its meeting held on January 29, 2002, had before it a report, dated January 15, 2002, from the General Manager, Transportation Services Division, recommending that:

- (1) the interim criteria for installing All-Way Stop Sign Control as presented in Appendix 1, be adopted for long-term use within the City of Toronto;
- (2) the interim criteria for establishing a 40 km/h speed limit be amended for long-term use in the City of Toronto by revising the warrant structure, to remove confusion and potential misinterpretation about road widths and operating speeds, as presented in Appendix 2; and

(3) these recommendations be forwarded to the Works Committee.

The Works Committee also submits the following communication (February 5, 2002) from the City Clerk, Humber York Community Council:

Recommendation:

The Humber York Community Council recommends to the Works Committee:

- (1) the adoption of Recommendations (1) and (2) in the report (January 15, 2002) from the General Manager, Transportation Services; and
- (2) that the Commissioner of Works and Emergency Services be requested to develop an additional "safety" warrant to be used with the criteria for the installation of all-way stop controls.

Background:

The Humber York Community Council on January 29, 2002, had before it a report (January 15, 2002) from the General Manager, Transportation Services Division, commenting on the application of the interim warrants for the installation of 40 km/h Speed Limits and All-Way Stop Sign Control, advising that the adoption of the recommendations within this report would not significantly impact upon the existing expenditures for the installation of 40 km/h signs or stop signs; that these costs are included in the Transportation Services Division's proposed 2002 Current Budget; and recommending that:

- (1) the interim criteria for installing All-Way Stop Sign Control as presented in Appendix 1, be adopted for long-term use within the City of Toronto;
- (2) the interim criteria for establishing a 40 km/h speed limit be amended for long-term use in the City of Toronto by revising the warrant structure, to remove confusion and potential misinterpretation about road widths and operating speeds, as presented in Appendix 2; and
- (3) these recommendations be forwarded to the Works Committee.

The Works Committee also submits the following communication (February 6, 2002) from the City Clerk, Toronto East York Community Council:

Recommendation:

The Toronto East York Community Council recommends the adoption of the attached report (January 15, 2002) from the General Manager, Transportation Services Division.

Background:

The Toronto East York Community Council, on January 29, 2002, had before it a report (January 15, 2002) from the General Manager, Transportation Services Division respecting Review of Interim Warrants for All-Way Stop Sign Control and 40 km/h Speed Limits and recommending that:

- (1) the interim criteria for installing All-Way Stop Sign Control as presented in Appendix 1, be adopted for long-term use within the City of Toronto;
- (2) the interim criteria for establishing a 40 km/h speed limit be amended for long-term use in the City of Toronto by revising the warrant structure, to remove confusion and potential misinterpretation about road widths and operating speeds, as presented in Appendix 2; and
- (3) these recommendations be forwarded to the Works Committee.

The Toronto East York Community Council's recommendation is noted above.

The Works Committee also submits the following communication (February 6, 2002) from the City Clerk, North York Community Council:

Recommendation:

The North York Community Council on January 30, 2002, recommended to the Works Committee that the report (January 15, 2002) from the General Manager, Transportation Services Division, be adopted.

Background:

The North York Community Council had before it a report (January 15, 2002) from the General Manager, Transportation Services, Works and Emergency Services, commenting on the application of the interim warrants for the installation of 40 km/h Speed Limits and All-Way Stop Control, and proposing more permanent criteria for the use of these traffic control devices; and recommending that:

- (1) the interim criteria for installing All-Way Stop Sign Control as presented in Appendix 1, be adopted for long-term use within the City of Toronto;
- (2) the interim criteria for establishing a 40 km/h speed limit be amended for long-term use in the City of Toronto by revising the warrant structure, to remove confusion and potential misinterpretation about road widths and operating speeds, as presented in Appendix 2; and
- (3) these recommendations be forwarded to the Works Committee.

The Works Committee reports, for the information of Council, having also had before it during consideration of the foregoing matter a communication (May 8, 2002) from the City Clerk advising that the Midtown Community Council at its meeting on May 7, 2002, during consideration of the installation of east and westbound stop signs at the intersection of Fenn Avenue and Beechwood Avenue, referred a communication (April 19, 2002) from Mr. Clifford E. Jenkins, with respect to the environmental impact of four-way stop signs to the Works Committee, the Board of Health, and the Toronto Atmospheric Fund, for consideration.

(A copy of Appendix 1 and 2 to the foregoing report dated January 15, 2002, was forwarded to all Members of Council with the agenda for the Works Committee meeting of January 15, 22 and 25, 2002, and a copy thereof is on file in the office of the City Clerk, City Hall.)