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Item No. 9.1.3
Transportation Standing Committee
September 10, 2014

TO: Chair and Members of the Transportation Standing Committee

Original signed

SUBMITTED BY:

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DATE: August 13, 2014

SUBJECT: Traffic Calming Policy

ORIGIN

Halifax Regional Municipality Neighbourhood Short-Cutting Policy (as approved by Halifax Regional Council, April 27, 1999).

LEGISLATIVE AUTHORITY

Part I, Section 21, "Standing, Special and Advisory Committees" of the HRM Charter.

RECOMMENDATION

It is recommended that the Transportation Standing Committee forward a request to Halifax Regional Council directing staff to prepare a policy with regard to the assessment of roadways within the Municipality for the purpose of determining need and suitability of implementing traffic calming measures, where such a policy shall outline the process for requesting that a street be traffic calmed as well as the method and criteria to be used in assessing the need and appropriateness of the implementation of traffic calming measures on a street.

BACKGROUND

The Neighbourhood Short-Cutting Policy (Attachment 1) was adopted by Halifax Regional Council on April 27, 1999. The policy was intended to address issues associated with the infiltration of non-local (cut through) traffic into residential neighbourhoods and to improve the overall safety of the street network for all users.

Through application of the policy, the Municipality sought to improve and maintain the liveability of residential areas by ensuring traffic volumes encountered on local, residential streets are in keeping with the intended function of the road and that neighbourhood streets are used primarily by traffic related to the neighbourhood, recognizing that some non-local traffic could be accepted (roads are public facilities after all).

The Neighbourhood Short-Cutting Policy focusses primarily on traffic volume levels and the main factor used in determining whether a short-cutting reduction study is undertaken or not is a traffic volume threshold of 3000 vehicles per day (which is considered to be the upper limit of traffic volume that a local roadway can reasonably accommodate). Although maintaining an appropriate traffic volume level is important in achieving safety and liveability of a neighbourhood, vehicle speed and operation through, and within, residential neighbourhoods is also important and the current Neighbourhood Short-Cutting Policy does not provide a mechanism or guidance for the implementation of traffic calming measures in relation to speed.

Although the policy does not directly deal with a framework for the assessment of speed related issues within residential neighbourhoods, there is recognition of the fact that vehicles in a residential area should operate in a manner consistent with the mixed use of neighbourhood streets, and reference made to the "HRM Traffic Calming Policy" which had not yet been prepared at the time of the Neighbourhood Short-Cutting Policy.

DISCUSSION

Traffic calming is the application of measures, mainly physical, with the intent to reduce the negative effects of motor vehicle use and alter driver behaviour with an aim to improving conditions for non-motorized street users.

An initial scan of jurisdictions across Canada revealed that there appears to be differing approaches to traffic calming programs. While many municipalities have official policies, others apply guidelines and still others have no official policy or guideline, but still undertake traffic calming studies. The following table identifies a sample of jurisdictions with official policies and provides some policy highlights from each:

Municipality	Policy Highlights
London, ON	<ul style="list-style-type: none">• Applies to local roads and secondary collectors• Initiated by resident petition• Preliminary pre-screening process• Study process involves community input and then community consent via survey• Measures include passive & mitigating measures, physical vertical and horizontal deflection and physical obstructions• Point Assessment process with a minimum score required for study (also used to prioritize projects)
Toronto, ON	<ul style="list-style-type: none">• Applies to local and collector roads• Measures include vertical and horizontal deflections, obstructions and signs• Preliminary requirements include a petition to initiate, assessment of safety and technical requirements• Requires community consent via polling• Point system for ranking relative priority• Requires report to community council

Municipality	Policy Highlights
Calgary, AB	<ul style="list-style-type: none"> • Residents document issues and submit reporting form and petition • Traffic calming issues evaluated and assigned points on subjective basis • Traffic calming plan developed with community support and community consent via survey • Measures include vertical and horizontal deflections, obstructions and signage. Policy provides guidance on when to apply the various measures.
Winnipeg, MB	<ul style="list-style-type: none"> • Policy mainly deals with speed humps • Policy only applies on local roads • Petition required with at least 70% (by block) in support of installation or removal • Installation requires satisfying one of three criterion showing that speeding exists • Traffic circles are also used (no information provided about installation policy/guidelines for these treatments)
Saskatoon, SK	<ul style="list-style-type: none"> • Policy applied to local roads and collectors • Measures include vertical and horizontal deflections and obstructions • Preliminary pre-screening • Concerns are grouped together for a community and treated as an area-wide issue • Evaluation of each community is done by sorting through all issues submitted which is used to prioritize neighbourhoods • Residents submit petition and the process involves community input and then community consent via survey
St John's NL	<ul style="list-style-type: none"> • Policy applied to local roads and collectors within urban areas only • Measures include vertical and horizontal deflections, obstructions and signage • Review can be initiated by a single request (petition is not required) • Preliminary screening occurs with each request awarded points and ranked. • Design is selected for Council approval • Once Council approves the project, a petition is circulated for support from residents
Waterloo, ON	<ul style="list-style-type: none"> • Measures include vertical and horizontal deflections, obstructions and signage • Concerns are brought forward by residents • Process includes a preliminary warrant assessment • Survey of residents required to continue with process • Alternatives are assessed via a staff study carried out in consultation with the public • Staff provide a recommended approach and conducts a second survey of affected residents for approval

Along with the initial jurisdictional scan, Staff has also reviewed the “Canadian Guide to Neighbourhood Traffic Calming (1998)” produced by the Transportation Association of Canada (TAC) in conjunction with the Canadian Institute of Transportation Engineers (CITE) and the Institute of Transportation Engineers (ITE). Many of the programs and policies identified during the initial jurisdictional review include and mirror much of the content outlined in the TAC guide.

Given the increase in resident concerns received by Staff related to vehicle speeds within residential neighbourhoods, the inability of the current Neighbourhood Short-Cutting Policy to appropriately deal with speed related issues and the apparent intent previously identified to create a traffic calming policy (indicated in the Neighbourhood Short-Cutting Policy), Staff recommend that an official traffic calming policy be developed.

It is the intent of Staff, if so directed by Regional Council, to move forward with the development of a Traffic Calming Policy that will include a framework for receiving requests, evaluating, and if deemed necessary and appropriate, implementing traffic calming measures. The policy itself would be implemented hand-in-hand with the current Neighbourhood Short-Cutting Policy.

Through the application of a traffic calming policy, in conjunction with the current Neighbourhood Short-Cutting Policy, there is the potential to positively affect the quality and liveability of residential neighbourhoods by changing the characteristics and traffic operations of the local street system.

FINANCIAL IMPLICATIONS

No financial implications are associated with this report. Any budget requirements associated with the implementation of a traffic calming policy will be identified at the time the policy is presented to Council for consideration.

COMMUNITY ENGAGEMENT

Community engagement was not deemed necessary at this time since one of the major contributors to the identification of a need for such a policy has been input/requests staff has received from the public.

ENVIRONMENTAL IMPLICATIONS

No environmental implications have been identified at this time.

ALTERNATIVES

There are no recommended alternatives.

ATTACHMENTS

Attachment 1 – Neighbourhood Short-Cutting Policy

A copy of this report can be obtained online at <http://www.halifax.ca/commcoun/index.php> then choose the appropriate Community Council and meeting date, or by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.

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Engineering and Transportation Services

Neighbourhood Short-Cutting Policy

September 9, 2004

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1. POLICY GOALS

This policy has two primary goals:

- To reduce, insofar as practicable, the infiltration and use of residential neighbourhood streets by traffic without either its origin or destination in the neighbourhood.
- To promote the overall safety of the street system for all users.

2. INTRODUCTION

This policy, represents the Halifax Regional Municipality's commitment to the safety and livability of residential neighbourhoods.

Traffic growth and increased concerns about the effects of traffic (collisions, congestion, energy consumption, air and noise pollution and the decline in neighbourhood spirit) are common trends in urban areas throughout the western world. These trends have prompted some planners to call for a departure from the traditional, automobile-oriented approach to urban planning that has resulted in many social, environmental and economic costs.

The 1994 Halifax Transportation Study found that there were concerns about the effects of traffic in Halifax and that current and potential problems exist with the infiltration of through traffic in urban neighbourhoods. The study predicted this problem would continue as pressures grow within the HRM road system for additional capacity. To address this problem of traffic infiltration in residential neighbourhoods, this policy sets out objectives, principles and procedures to be called the **Neighbourhood Short-Cutting Policy**.

Neighbourhood streets should be used primarily by traffic related to the neighbourhood. Furthermore, vehicles in a residential area should operate in a manner consistent with the mixed use of neighbourhood streets. Techniques used in some locations in short-cutting reduction and traffic calming include traffic control devices and geometric features as described in Appendix A.

By changing the characteristics of the local street system and traffic operations, a short-cutting reduction program can have a significant positive effect on the quality of life in residential neighbourhoods. Quality of life, or livability, may be characterized by the following:

- The ability of residents to feel safe and secure in their neighbourhood.
- The opportunity to interact socially with neighbours without distractions or threats.
- The ability to experience a sense of home and privacy.
- A sense of community and neighbourhood identity.
- A balanced relationship between the multiple uses and needs of a neighbourhood.

Traffic management plays a vital role in promoting these characteristics. The Neighbourhood Short-

Cutting Policy recognizes that vehicular traffic is only one element of a neighbourhood and that other residential needs must be given careful consideration. Through the Neighbourhood Short-Cutting Policy, residents can evaluate the various requirements, benefits, and trade-offs of projects in their neighbourhood and become actively involved in the decision making process.

This policy deals primarily with existing local streets. This policy is also to be considered in the design phase of all new neighbourhoods as a way of preventing problems in the future.

3. OBJECTIVES

The original overall objectives of this Neighbourhood Short-Cutting Policy stem from the former City of Halifax Municipal Development Plan (Section II, Item 9* and Item 9.4 **)

- * "The provision of a transportation network with special emphasis on public transportation and pedestrian safety and convenience which minimizes detrimental impacts on residential and business neighbourhoods, and which maximizes accessibility from home to work and to business and community facilities."
- ** "The transportation system within residential neighbourhoods should favour pedestrian movement and discourage vehicular through traffic in both new and existing neighbourhoods."

The objectives of any Neighbourhood Short-Cutting Plan are to:

1. Improve safety and convenience for all users of the street;
2. Reduce the number and severity of collisions;
3. Reduce the volume (and/or speed) of motorized traffic;
4. Reduce the volume of traffic that has neither its origin or destination within a residential neighbourhood;
5. Minimize effects on adjacent or nearby local residential streets;
6. Reduce motor vehicle emissions;
7. Encourage full community participation in developing short-cutting reduction plans;
8. Maximize community support for the plans.

4. PRINCIPLES

The following principles will act as guidelines in determining which local streets require application of the Neighbourhood Short-Cutting Policy:

1. Streets should generally serve traffic levels for which they were designed and intended. Generally speaking, residential area streets with frequent driveways, low speed urban alignments, high levels of pedestrian activity and serving a clearly residential environment should not serve as collector or arterial facilities
2. Traffic volumes on local streets should be in keeping with the volume on similar streets in the same area. Ideally, local residential streets should carry a volume of less than 3000 vehicles per day.
3. Application of the Neighbourhood Short-Cutting Policy should also be considered on streets where there are safety concerns due to high peak hour volumes (particularly near schools), or where there is a large percentage of external traffic.
4. Potential project streets which through time have evolved into an important link in the area's roadway network, such that redistribution of traffic cannot reasonably be absorbed by the area's major roadway network, are not eligible for application of this Neighbourhood Short-Cutting Policy. Instead problems on such streets should be handled under the HRM Traffic Calming Policy. [As of April 1999 this policy has not yet been prepared.]
5. Neighbourhood Short-Cutting projects should be prioritized based on the preceding principles.

In developing solutions for short-cutting problems the following principles will act as a guidelines:

6. Measures against short-cutting should be planned and undertaken over an area bounded by collectors or arterial roads. (See Appendix B.)
7. Transit service access, safety or scheduling should not be significantly affected.
8. Emergency vehicle access or response times should not be significantly affected.
9. Reasonable vehicle access should be maintained. However, projects that contain physical barriers to limit through traffic may affect ease of accessibility for some residents.
10. As the result of a short-cutting reduction project there may be increases in traffic volumes on other adjacent local streets. The volume increases that are acceptable should be determined

on a project-by-project basis by Staff using the "traffic diversion limit" as a guideline as shown in Appendix C.

11. If any project causes traffic to be diverted to another local street above acceptable limits, the affected street will also become a project street.
12. Measures to discourage short-cutting traffic must be in accordance with good traffic engineering practice.

5. ORGANIZATIONAL REQUIREMENTS

TRAFFIC ENGINEERING

Neighbourhood Short-Cutting studies will be undertaken by Staff with consultant support when required and possible.

6. IMPLEMENTATION PROCEDURE

6.1 PROJECT REQUEST & PRELIMINARY REVIEW

A neighbourhood short-cutting study may be requested by individual citizens, by neighbourhood associations, or by Regional Council. The requestor(s) will determine the level of agreement among residents that there is a problem they want to address by circulating a petition approved by the Traffic and Transportation Services Section. Signatures (one per address) representing a majority of the households and businesses on the candidate street are required.

Staff will gather information related to the request including volume, speed and collision data. If it is determined that, according to the principles of this policy, a problem exists, the process advances to the next step.

6.2 INITIAL PUBLIC MEETING

A meeting is held to inform residents of the pending project area and nearby areas of the study, to describe the Neighbourhood Short-Cutting Policy, and to gather additional information about traffic problems and related neighbourhood needs.

Meeting notifications are mailed out to residents of the project area; that is, the project street, cross streets, the next parallel local street, and streets for which the project street is the sole link. Also, written notification is sent to appropriate community publications, fire and police departments, local community organizations and, if the project street is a bus route, Metro Transit. Notification to all other parties will be given by a public meeting notice in all local daily newspapers.

At this meeting a request for volunteers will be made to form a Neighbourhood Traffic Committee consisting of a cross-section of residents from the project area. Also, a notification list will be started at this meeting for those who want to be informed directly of future meetings.

6.3 PLAN DEVELOPMENT, with FIRST and SECOND PUBLIC OPEN HOUSE MEETINGS

The Neighbourhood Traffic Committee, with the assistance of Staff and/or a consultant, develops a short-cutting reduction plan(s). Meetings of the Neighbourhood Traffic Committee will be open to the public, advertised in local newspapers, and allow for reasonable participation by spectators.

In the situation of a recognized hazardous condition on the project street(s), and the group being unable to reach a consensus on a plan(s), Staff will develop a plan based on the best technical action.

Public consultation and information is important to the success of any proposal, and to be open and fair to all citizens. Once the study has commenced, a First Public Open-House Meeting will be held to present data collected and opinions of the Neighbourhood Traffic Committee expressed to that time. Public comment received at this meeting will be taken into account in further work of the Committee.

Once possible alternative solutions are defined, a Second Public Open House Meeting will be held to show the possible solution ideas and to again solicit public opinion and comment. Following this Second Open House, a final proposal or proposals will be developed and detailed.

For the First and Second Open House Meetings, which are part of the plan development process, meeting notifications are mailed to the project area and to areas identified as possibly being affected by potential solutions, and to those on the notification list. A detailed information brochure and questionnaire should be included with the meeting notices distributed. Advertising in newspapers is also required.

6.4 THIRD PUBLIC OPEN-HOUSE MEETING

Once the proposal or proposals are finalized a Third Public Open House Meeting is held to present the short-cutting reduction plan(s) developed and receive comment on the proposal or proposals. Notification for this meeting is the same as for the First and Second Public Open House Meetings, and includes those on the notification list. Detailed information may or may not be included with the notifications of the Third Open House Meeting.

If valid concerns are raised at this meeting that can only be addressed by significant modifications to the plan, the process may return to step 6.3.

6.5 TRIAL INSTALLATION VOTE OF RESIDENTS AND BUSINESSES ON THE PROBLEM STREET(S)

If the proposed plan is one that can be implemented for a trial period, a mail-out/mail-back vote is prepared by Staff and circulated to households and businesses (one per household or business) on the project street and on adjacent local streets up to 60 metres from the project street. The purpose of the vote is to give the people living on the project street itself a voice in anything that is supposed to benefit them but with which they disagree. It also protects residents of the project street from an active minority on the street which does not adequately represent the views of all residents of the street.

If a minimum return rate of 50 percent is not achieved on the first ballot, a second ballot will be sent out after two weeks. Of the returned ballots, simple majority support is required for the plan to proceed to staff for consideration of a test .

6.6 TEST INSTALLATION & EVALUATION

For projects that can be installed on a temporary basis , a trial will be implemented, usually for a minimum of 6 months, subject to the approval of the Traffic Authority and the Municipal Engineer.

During the trial period the measures implemented will be evaluated to ensure that they achieve the objectives of the neighbourhood short-cutting reduction plan, and in particular that volumes on nearby local residential streets do not exceed the allowable traffic diversion limit. Temporary measures to protect affected streets outside the project area can be installed immediately, with a formal Neighbourhood Short-Cutting Study to follow as soon as reasonably possible.

If the plan is judged ineffective, the process returns to step 6.3.

6.7 PERMANENT INSTALLATION VOTE OF RESIDENTS AND BUSINESSES ON THE PROBLEM STREET(S)

Residents and businesses within the same area as the first vote for trial installation will be given the opportunity to vote on making permanent the short-cutting reduction plan by way of a mail-out/mail-back ballot. If the minimum return rate of 50 percent is not achieved on the first ballot, a second ballot will be sent out after 2 weeks. Of the returned ballots, simple majority support is required for the plan to proceed to Regional Council for consideration of permanent implementation. The purpose of the vote is to give the people living on the project street itself a say in anything that is supposed to benefit them but with which they disagree. It also protects residents of the project street from an active minority on the street which does not adequately represent the views of all residents of the street.

6.8 REGIONAL COUNCIL APPROVAL FOR PERMANENT INSTALLATION

The Chief Administrative Officer, after receiving input from Staff and considering public comment, will make a recommendation to Council regarding permanent implementation of the neighbourhood short-cutting reduction plan. Notification for the Public Meeting of Council to consider the matter is the same as for the three Public Open-House Meetings. Detailed information will likely not be included with the notification of the Regional Council Public Meeting because it is expected that most or all interested parties have been included in the earlier notices and information distribution. The notification will include a list of the proposed measures.

6.9 SCHEDULE

It is the policy of Halifax Regional Municipality that neighbourhood short-cutting problems be dealt with in a timely manner, subject to availability of Staff and resources for consultant assistance. Under normal circumstances it is expected that the study process from initiation of the study to trial installation will take about 18 to 24 months.

7. CONCLUSIONS

Short-cutting reduction has been an accepted practice in European cities for many years and more recently has gained acceptance in Canadian and US cities. This policy draws from the large body of knowledge on neighbourhood short-cutting reduction and traffic calming policies, and the procedures and experiences of some of these cities.

The implementation procedure described in this policy relies on neighbourhood cooperation to be effective. Such neighbourhood cooperation was demonstrated when solutions were sought to prevent traffic infiltration into the Quinpool, Robie, Cobourg and Oxford neighbourhood from the Quinpool Centre. This type of cooperation is not always present and in such cases, Regional Council, with the advice of Staff, should exercise their responsibility to govern and approve measures where they are deemed necessary.

In many cases neighbourhood infiltration can be reduced by relieving congestion or by increasing capacity on surrounding arterials. However, such strategies will not always work, particularly when the infiltration route is a good short-cut or is a route around traffic control devices. In such situations the cause of the infiltration problem should be recognized and dealt with directly.

APPENDIX A - Table A1. Short-Cutting Reduction and Traffic Calming Measures and Their Local Effects

Strategies	Definition	Volume Reduction	Speed Reduction	Safety		Environmental		Emergency	Maintenance Cost	Enforcement	Use in Other Jurisdictions
				Vehicles	Pedestrian	Noise	Vehicle Emissions				
Diagonal Diverters	Barrier placed diagonally across an intersection to force a driver to make a sharp turn, does not allow other movements	Yes	Likely	No Effect	Improved	Reduction	Reduction	Some Constraints	Moderate	Self	Common
Speed Bumps	Short strips of raised pavement (about 100mm H*200-900mm W)	Possible	Inconsistent	Problem	Improved	Increase	Increase	Significant Problem	Snow Problem	Self	Not Used
Speed Humps	Raised sections of pavement across travelled way (about 100mm H* 4m W)	Possible	Yes	Some Improvement	Improved	No Change	No Change	Minor	No Problem	Self	Some
Speed Tables	Speed Humps with a long flat section, often used as crosswalks (about 100mm H* 7m W)	Possible	Yes	Some Improvement	Improved	No Change	No Change	Minor	No Problem	Self	Some
Semi Diverters Half Closures	A barrier to traffic in one direction which permits traffic int the opposite direction to pass through	Yes	Likely	Shift Collision	Improved	Reduction	No Change	Minor	Moderate	Initially High	Common
Chokers	Narrowing of the street, either at intersection or at mid-block, to reduce the width of the travelled way	Yes	Yes	Shift Collision	Improved	No Change	No Change	Minor	Moderate to High	Self	Some
Chicanes	Curbed islands or curb extensions protruding into the roadway, leaving a single lane or narrow two lane gap, often at an angle to the centerline.	Yes	Yes	Improved	Improved	Reduction	Reduction	Minor	Moderate to High	Self	Common
Raised Crosswalks	Crosswalks raised transversely across the pavement	Possible	Yes	Some Improvement	Improved	No Change	No Change	Minor	Low to Moderate	Self	Common
Street Closure, Cul-De-Sacs	A complete barricade of a street at an intersection or a dead end street	Yes	Yes, near circle	No	Improved	Reduction	Reduction	Significant constraints	Moderate to High	Self	Some
Mid-block Cul-De-Sacs	A complete barricade of a street between intersections (circle may or may not be provided)	Yes	Yes, near circle	No	Improved	Reduction	Reduction	Significant constraints	Moderate to High	Self	Rare
Raised Intersection	Intersection raised transversely across the pavement	Possible	Yes	No	Some Improvement	Increase	No Change	Minor	Snow Problem	Self	Some
Traffic Circles	These geometric design features force traffic at intersections into circular manoeuvres	Some	Some	No	Varies	No Change	No Change	Minor	Moderate	Self	Not Common
Median barriers	Barriers along the centre line of a roadway	Yes	No	Improved	Improved	Reduction	Reduction	Minor	Varies	Self	Some
Forced Turn Channelization	Traffic islands or curbs specifically designed to prevent traffic from executing specific movements	Yes	Likely	Improved	Improved	Reduction	No Change	Minor	Low	Low	Some

Several types of control strategies have been implemented in North America to manage non-local traffic in residential neighbourhoods.

APPENDIX A - Table A2. Short-Cutting Reduction and Traffic Calming Strategies and Their Local Effects

Strategies	Definition	Volume Reduction	Speed Reduction	Safety		Environmental		Emergency	Maintenance Cost	Enforcement	Use in Other Jurisdictions
				Vehicles	Pedestrian	Noise	Vehicle Emissions				
Bicycle	Lanes Reserved for bicycles	Possible	No	Slight	Slight	Slight Reduction	Slight Reduction	No Effect	Low	Low	Some
Stop Signs	Two-way or all-way stop signs used to assign right-of-way at intersections	Seldom	Varies	Varies	Varies	Increase	Increase	No Effect	Low	Low	Some
One way Street	Restricted entry/exits to/from neighbourhoods, one-way street patterns	Yes	Varies	Improved	Improved	Reduction	Reduction	No Effect	Low	Low	Common
Speed limit signs	"50 km/h in Residential Areas" etc.	No	No	No Change	No Change	No Change	No Change	No Effect	Low	High	Some
Traffic Signals	Vehicle or pedestrian actuated	No	Possible	Improved	Improved	Increase	Increase	No Effect	Low	Low	Some
Truck Prohibition Sign	"No trucks over 20,000 lbs" etc.	Minor	No	Varies	Improved	Reduction	No Change	No Effect	Low	Low	Some
Turn Prohibition	Regulatory sign at intersections	Yes	Likely	Improved	Varies	Reduction	No Change	No Effect	Low	Low	Some
Novelty	"Slow Ducks Crossing" etc.	No	No	No Change	No Change	No Change	No Change	No Effect	Low	High	Not Common
Odd Speed Limit	"25 km/h" (not permitted by N.S. Motor Vehicle Act)	No	No	No Change	No Change	No Change	No Change	No Effect	Low	High	Some
Speed Alert Signs	Illuminated display shows actual speed to passing drivers	No	Varies	No Change	Slight Temporary Improvement	Slight Temporary Reduction	No Change	No Effect	Low	Low	Some
Pavement Treatment	Special pavement composition and marking to alert drivers to special hazard locations	No	Possible	No Change	Varies	No Change	No Change	No Effect	Low	N/A	Some
Speed Watch	Residents use radar to clock speeds, record license plate numbers; police send notice to drivers	No	Varies	No Change	Temporary improvement	Temporary Reduction	No Change	No Effect	Low	High	Some
Parking Variants	Parking areas create narrower roadways and increased activity leading to increased attention by drivers	Possible	Likely	Possible, might increase conflicts	Possible	Possible Reduction	No Change	No Effect	Low	Low	Common
Traversable Barriers	Mountable curb designed for emergency vehicles only	Yes	N/A	Some	Some	Possible Reduction	Possible Reduction	Low	Low	Low	Common
Rumble Strips	Patterned sections of rough pavement normally used to alert driver to a hazard location	No	Yes	Some	Some	Increase	No Change	Minor	Medium	Self	Some

Several types of control strategies have been implemented in North America to manage non-local traffic in residential neighbourhoods.

APPENDIX B Street Classification

The objective of an urban street classification system is to group streets according to the level of service they are intended to provide. Street classification closely relates to land use planning, particularly in new development areas. With the proper integration of land use planning and transportation planning, local streets primarily provide access to properties while through traffic and high operating speeds are discouraged. In a complimentary manner the streets in the upper end of the classification hierarchy, such as arterials and expressways, are planned to optimize mobility and circulation within urban areas, while severely restricting or eliminating direct access to adjacent lands.

However, in some older urban subdivisions such as those developed in the grid pattern, the hierarchy of the streets is not as clearly defined; consequently, the logical progression from access to high mobility is not clear. In these areas some definition of the progressive hierarchy is typically established through geometric elements such as number of lanes, street width, vertical alignment, traffic control and access restrictions. However, the desired progression from local streets to collectors to arterials may not always be achieved.

In developed areas where an appropriate street hierarchy is not established, or where the land use has been severely altered over time, retrofitting is often desirable to establish a network which systematically provides a gradation in street function from access to mobility. These retrofits often involve upgrading of collectors and arterials while discouraging or preventing through traffic on local streets.

A street classification system in concert with land use planning considerations establishes a hierarchy of urban streets that provide for the land use and function from access to mobility. A street network with appropriate classification hierarchy which supplements and is consistent with general municipal plans and bylaws, are tools which assist municipal officials in the orderly management of property during development.

The classification system adopted for the 1986 TAC guide has generally served design engineers. However, for urban applications it has shortcomings. Many urban streets function in more than one classification, and others do not readily fall into any particular classification. Recently the Urban Supplement of the Transportation Association of Canada (1995) recognized shortcomings and introduced further subgroups into these classifications. The urban street classification consists of six main groups and a number of subgroups, primarily related to land use. These main groups (as applicable to Halifax Regional Municipality) are expressways, arterials, major collectors, minor collectors, locals and public lanes. Various factors are considered for each classification, such as land use, service function, traffic volumes, flow characteristics, running speed, vehicle type, collections, etc. Additional classifications are created such as industrial collector, neighbourhood collector, etc. The purpose of public lanes and local streets is basically to serve land access and, in most developed areas, give rise to local residential streets, commercial streets and local industrial streets. These classifications provide definitions of different geometric design features in consideration of the significant traffic volume, etc.

Virtually all streets in the urban and suburban portion of Halifax Regional Municipality have been classified by a system such as outlined above in Municipal Planning Strategies, Municipal Development Plans, or similar documents. (Some of the names of the street classifications may vary, but the underlying definitions, including expected traffic volumes, are generally consistent across HRM.) Streets constructed since the applicable document was endorsed by Council are not included, however staff, the consultant (if one), and the Neighbourhood Traffic Committee will be able to determine the appropriate classification.

APPENDIX C Traffic Diversion Limits

An important objective of the Neighbourhood Short-Cutting Policy is to minimize the effect of any short-cutting reduction plan on adjacent local residential streets. If analysis or evaluation of a short-cutting reduction plan determines that traffic will be diverted from a project street to another local residential street these guidelines will help determine an acceptable volume of traffic diversion. The allowable limit of diversion is expressed as a curve (Figure C1) because the level of impact considered acceptable will change according to the existing traffic volume on the affected street.

These traffic diversion limits have been devised for the following reasons:

- a) Residents of adjacent non-project streets are provided with assurance that traffic problems on one street will not be solved by simply shifting the problem to other local streets;
- b) the limit curve can be translated into a table where the impact limit on any given street can be quickly and easily identified; and
- c) the limit curve provides a quantifiable and objective standard for measuring the effectiveness of a project or plan.

The following guidelines for the limit curve are based on the experience of other cities:

1. The diversion limit curve for short-cutting reduction projects is expressed in vehicles per day, and the parameters of the curve should meet the following criteria:
 - a) It should have a floor of at least 150 vehicles per day. In other words, an increase of up to 150 vehicles per day as a result of a short-cutting reduction project is acceptable on any street, regardless of its prior volume.
 - b) The curve should have a ceiling of no more than 400 vehicles per day on any local residential street.
 - c) The resulting traffic volume on any local residential street should not exceed 3000 vehicles per day.
2. Because of the margin of error inherent in the collection of traffic volume data, due to machine error and daily volume fluctuation, the curve should be presented as a band rather than a specific line. This allows the error margin to be accommodated within the range.

Therefore two supplementary curves, one on either side of the standard curve, should be considered along with the standard curve. These "margin of error" curves should be plus or minus 50 vehicles/day or 10 percent of the measured existing volume, whichever is greater.

The "standard" curve then becomes the "median" curve within a range. An increase in traffic volume that falls between the median curve and the lower curve would *probably* be acceptable. An increase that falls between the median and the upper curve would *possibly* be acceptable. An increase that falls above the upper curve would *clearly not* be acceptable.

3. The standard limit curve may be modified for application to a particular project based on consideration of the following:
 - a) The ratio of local to non-local traffic on the project street and adjacent streets.
 - b) The percentage of the rerouted traffic that is local vs. non-local.
 - c) The existing traffic volume on the project street.
 - d) The proximity of arterial routes that can absorb rerouted traffic.
 - e) peak hour volumes.
 - f) truck traffic.

The diversion limit curve is only one tool for judging whether a project's effect on adjacent streets is acceptable. In a sense, the curve describes maximum effect goals for the project. An increase in traffic volume that exceeds the diversion limit described by the curve is not necessarily fatal for a plan, unless the Neighbourhood Traffic Committee has chosen to make that commitment. In any event, a short-cutting reduction project can be offered to the residents of a street on which the allowable diversion limit has been exceeded.

Figure C1

