Supports Item No. 2
T&T Committee Agenda
February 12, 2008

CITY OF **VANCOUVER**

POLICY REPORT

CITY OF VANCOUVER

Report Date:	January 29, 2008
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TO: Standing Committee on Transportation and Traffic

FROM: General Manager of Engineering Services

SUBJECT: Speed Hump Program Policy Change

RECOMMENDATION

THAT Council endorse the revised ranking system for the City's Speed Hump Program as described in Appendix A of this report.

COUNCIL POLICY

In November 1999, Council approved an annual speed hump installation program that would identify the highest ranking local residential street segments for speed hump installation.

PURPOSE

This report reviews the existing speed hump installation program and recommends improvements to its ranking system.

BACKGROUND

In 1999 the City completed the Speed Hump Pilot Project. The results of that project indicated that speed humps are an effective device for decreasing speeds on local residential streets while not diverting traffic to other streets. In the subsequent eight years, Council has approved the installation of speed humps on 210 street segments throughout the city.

DISCUSSION

The Annual Speed Hump Program has successfully addressed resident speed concerns since 2000. Now in the program's eighth year, staff have reviewed the existing ranking system and are proposing changes to better differentiate candidate streets and to ensure that all ranked locations still warrant speed hump installation.

The process for selecting eligible street segments for speed humps involves identifying priority locations using resident feedback and traffic data, conducting a follow up speed check at all locations in question and using an objective ranking system. To date, over 1800 speed checks have been conducted in response to resident and other requests and included in a database of candidate locations. Each street segment is assigned a rank based on an objective scoring system. Each year, approximately 30 of the highest priority street segments become eligible for speed humps pending approval of Fire and Rescue Services, local residents, and Council.

The objective scoring calculation used is adapted from a successful program in Portland, Oregon. This calculation was approved by Council in November 1999 and has been used since then to identify the highest priority street segments for speed hump installation. The calculation considers the speed and number of vehicles on the street segment, as well as attributes of the street such as nearby pedestrian generators or its status as a greenway or bikeway.

Through this program, speed humps have been installed on over 200 blocks of local residential street in Vancouver, the large majority of which are school and playground zones. These were the streets which had the worst documented speeding problems. The severity of speeding on the most affected local streets in Vancouver has steadily declined since 2001 as a result of this program (see Figure 1).

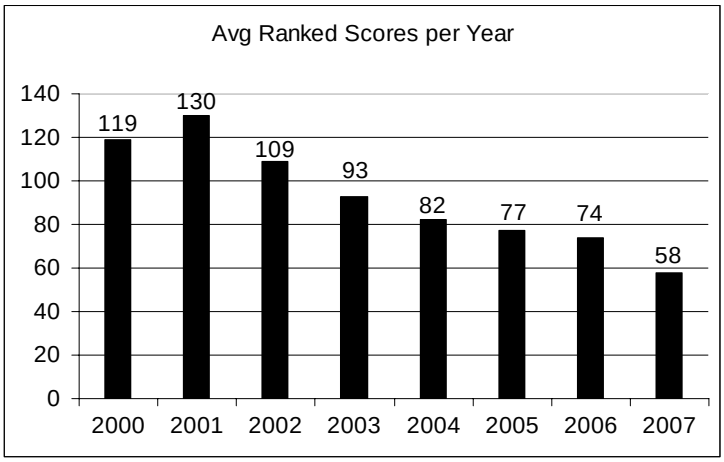

Figure 1: Average total scoring of installed locations, 2000-2007

In working with this ranking tool over the last few years, staff have identified a number of refinements which will improve their ability to identify streets warranting the installation of speed humps. These refinements include:

1. Giving a greater weight to higher speeds relative to higher traffic volumes.

2. Differentiating between elementary and secondary school zones.
3. Establishing a minimum measured traffic speed, below which speed humps would not be installed.
4. Adjustments to allow for the use of more varied data collection methods.

Staff investigated the effect of a number of changes to the system, and evaluated the effects of those changes on the resulting street ranking. The system described in Appendix A best meets the objectives listed above and is recommended for use in the future by the Annual Speed Hump Program. Appendix A includes a sample calculation. A summary of significant changes and an example of scoring using the existing system is provided in Appendix B.

CONCLUSION

The Annual Speed Hump Program has successfully addressed the most severe local residential speeding problems since its introduction in 1999. Refinements to its ranking system proposed in this report will allow it to address speeding issues on local streets in coming years.

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SPEED HUMP PROGRAM RANKING GUIDELINES

The following describes the objective scoring system which factors eight measurable characteristics of traffic and streets to determine the relative need for speed humps on local residential streets. A sample calculation is provided.

Traffic Conditions

Traffic Speed

The 85th percentile speed must be a minimum of 5 km/h over the speed limit to be eligible for speed humps. If the 85th percentile speed is greater than 5 km/h over the speed limit, the street segment will receive three (3) points for every 1 km/h the 85th percentile speed exceeds that threshold.

Excessive Speed

Excessive speed is a measure of the number of vehicles travelling significantly over the speed limit. The street segment will receive a number of points equal to the percentage of vehicles that exceed 15 km/h over the speed limit.

Traffic Volume

The street segment will receive one (1) point for every 200 vehicles/day.

Street Characteristics

Elementary School Zone

5 points are added if the street segment contains an elementary school zone.

Bikeway

5 points are added if the street segment is a part of a bikeway.

Greenway

5 points are added if the street segment is a part of a greenway.

Pedestrian Generators

5 points are added for each pedestrian generator (e.g. transit station, retail area, community centre, schools, playgrounds).

Pedestrian Environment

5 points are added if the street segment lacks a continuous sidewalk.

Sample Calculation

e.g. E 9th Avenue 200 block

Raw Data

Sample size =	41 vehicle speeds
Average Daily Traffic (ADT) volume =	1200 vehicles/day
85th percentile speed =	48 km/h
Speed limit (adjacent a secondary school) =	30 km/h

Traffic Conditions

Is the 85th percentile speed 5 km/h or more over the speed limit? If NO, Stop.
If YES, proceed to primary scoring.

Speed Points:
3 points for each km/h over 5 km/h above the design speed
(48 - (30 + 5)) x 3 = 39 points

Excessive Speed Points:
(percentage of vehicles travelling faster
than 15 km/h above the speed limit: 20%) 20 points

Volume Points:
1 point for every 200 vehicles/day
(1200/200) = 6 points

Street Characteristics

5 points for elementary school zone	0 points
5 points for each pedestrian generator (2 pedestrian generators: secondary school and retail area)	10 points
5 points if the street segment is part of a Greenway	0 points
5 points if the street segment is part of a Bikeway	0 points
5 points if the street segment lacks a continuous sidewalk	0 points

TOTAL SCORE = **75 points**

Comparison of Proposed and Existing Ranking Systems

	Proposed	**Existing**
Minimum traffic speed to be eligible for speed humps [1]	5 km/h above the speed limit [2]	n/a
Minimum traffic speed to receive ranking points [1]	5 km/h above the speed limit [2]	8 km/h above the speed limit [2]
Points received for each km/h over the threshold	3	3
Threshold to receive points for excessive speeding [1]	15 km/h above the speed limit [2]	16 km/h above the speed limit [2]
Points received for every 1000 vehicle per day	5	10
Points added to Bikeways	5	5
Points added to Greenways	5	5
Points added to elementary school speed zones [3]	10	5
Points added to secondary school speed zones [3]	5	5

Notes:

1. The 85th percentile speed is used for these calculations.
2. The speed limit on local residential streets in Vancouver is 50 km/h, except in posted school zones where it can be 30 km/h, in accordance with the BC Motor Vehicle Act.
3. All school are considered to be pedestrian generators, therefore secondary school zones will receive at least 5 points.

Sample Calculation, existing system

(approved by Council in 1999)

e.g. E 9TH Avenue 200 block

Raw Data

Sample size =	41 vehicle speeds
Average Daily Traffic (ADT) volume =	1200 vehicles/day
85th percentile speed (calculated) =	48 km/h
Design speed limit =	30 km/h

Primary Score

Speed Points:
3 points for each km/h over 8 km/h above the design speed (max. 50)
(48 - (30 + 8)) x 3 = 30 points

Volume Points:
1 point for every 100 vehicles ADT
(1200/100) = 12 points

Primary subtotal = **42 points**

Is the primary subtotal greater than 40? If NO, Stop.
If YES, proceed to secondary scoring.

Secondary Score

Additional Speed Points for excessive speed
(percentage of vehicles travelling over
16 km/h above the design speed)
percent travelling > 30 + 16 = 46km/h) : 16% 16 points

5 points for each school zone (maximum 10) 5 points

5 points for each pedestrian generator (maximum 15)
(2 pedestrian generators: secondary school and retail area) 10 points

5 points if adjacent to a Greenway 0 points

5 points if the street segment is part of a Bikeway 0 points

5 points if the street segment lacks a continuous sidewalk 0 points

Secondary subtotal = **31 points**

TOTAL SCORE (Primary + Secondary) = **73 points**