

CONCERNED NEIGHBOURS AND CYCLISTS FOR UNION STREET BIKE PATH SAFETY

Whereas we applaud the City of Vancouver's recent initiatives to encourage bicycling: in light of recent collisions and accidents we have some key concerns and requests.



Union and Hawks

A busy intersection especially during the morning and afternoon rush hours, with significant north-south pedestrian traffic between the elementary school, park, community gardens, seniors' housing, transit routes and popular neighbourhood bakery. The marked stop signs are not observed by a significant number of east-west cycle traffic and has resulted in a few serious bike/pedestrian collisions and caused a considerable amount of anxiety among our elders, dog walkers and parents of small children especially.

Our requests:

- **That the City install marked pedestrian crossings and zebra crosswalks at both east and west intersections of Union and Hawks (on road and path respectively).** Per the General Manager of Engineering Services 2001 report on pedestrian safety (see attached RTS No. 02089) that recommends "*the installation of zebra pavement markings at crosswalks involving school children, the elderly or disabled, mid-block crosswalks, crossings of right-turn channels, and Special Crosswalks*"
- **That the City improve existing signage by lowering and repositioning stop signs for cyclist visibility and add road-painted SLOW markings particularly on the eastbound descent toward the path along 700 block Union.**
- **That the City physically alter the path to slow bike traffic along the meridian park path with speedbumps, cattle gates or a combination of both.**

Union and Gore

This intersection currently has an east-west stop sign, but no traffic control along the north-south axis. Currently, westbound auto traffic wishing to access Main Street from the Prior/Venables corridor must negotiate a west bound left turn at Union and Gore and there is a significant amount of (sometimes high speed) auto traffic heading south from Chinatown to Prior. With the growing number of east-west cycle traffic this has become a dangerously unsafe and confusing intersection.

Our request:

- **That the City install four way stop signs at Union and Gore.**

ADMINISTRATIVE REPORT

Date: May 16, 2001
Author/Local: W. Chou/7913

RTS No. 02089

CC File No. 5702

T&T: June 5, 2001

TO: Standing Committee on Transportation and Traffic
FROM: General Manager of Engineering Services
SUBJECT: Zebra Pavement Markings and Wider Crosswalks

RECOMMENDATION

A. THAT Council approve the installation of zebra pavement markings at crosswalks involving school children, the elderly or disabled, mid-block crosswalks, crossings of right-turn channels, and Special Crosswalks;

B. THAT the Pavement Marking Maintenance Budget be increased by \$53,000, for the installation and maintenance of the zebra pavement markings effective year 2002. The Pavement Marking Maintenance Budget will be re-evaluated at the time of Budget review once staff have gained experience with zebra pavement marking installations.

COUNCIL POLICY

Council has indicated an order of priority for transportation that places the highest priority on pedestrians.

On May 27, 1997, Council approved the Vancouver Transportation Plan which emphasizes the need for improved pedestrian facilities.

PURPOSE

The purpose of this report is to seek Council approval for the use of zebra pavement markings at selected pedestrian crosswalks, and to inform Council of the use of wider crosswalks at high volume pedestrian crossings.

DISCUSSION

Pedestrian safety is one of the most important aspects in traffic and safety engineering. In order for pedestrians and motorists to share the road safely, there must be an orderly and consistent exchange of information. Therefore, the Transportation Association of Canada (TAC) provides guidelines to standardize the use of pedestrian crossing devices as described in the Pedestrian Crossing Control Manual. This manual provides a hierarchical system of signing, marking, and signal control which helps to match pedestrian crossing devices with conditions found at specific locations. These devices range from marked crosswalks to pedestrian-actuated signals.

This report focuses on the application of pavement markings for marked pedestrian crosswalks. Although crosswalks exist at street intersections without pavement markings and signs, there is often the need to enhance driver awareness at a pedestrian crossing and to direct pedestrians to a preferred crossing location. Detailed studies are undertaken each year by staff to determine locations that require marked crosswalks. When evaluating a location for a marked crosswalk the following are considered: pedestrian volumes, age and ability; visibility conditions; traffic volumes and speeds; collision history; and proximity to adjacent pedestrian crossing devices. Simply marking a crosswalk may not improve safety, and there is some evidence that it may worsen conditions. Therefore, locations should be selected only after careful consideration.

The minimum standard for a marked crosswalk consists of ground mounted signs and pavement markings, as displayed in Appendix A. Where required, overhead and advanced warning signs are used. For crossings that are associated with a school route, school crosswalk signs would be used at the crossing. There are currently two designs of pavement markings recommended in the Pedestrian Crossing Control Manual, namely the standard crosswalk with twin parallel lines, and zebra markings. Zebra pavement markings have not been used in Vancouver and it is recommended that they be introduced because of the increased visibility of the design.

Staff have also been reviewing crosswalk widths at high volume pedestrian crossings. Based on these reviews, it was determined that a number of intersections in the City would benefit from wider crosswalks, and most are located within Downtown.

Zebra Crosswalks

The zebra pavement marking is an alternative recommended for special circumstances. These circumstances include crossings involving school children, the elderly or disabled, mid-block crossings, pedestrian crossings of right turn channels, and Special Crosswalks.

Staff have investigated the use of zebra pavement markings at crosswalks in other jurisdictions and have found a study conducted by the Federal Highway Administration (FHWA) comparing different pavement marking designs for crosswalks. The FHWA is a part of the US Department of Transportation which provides federal financial assistance to American States to construct and improve the National Highway System, urban and rural roads, and bridges. The results from the FHWA tests showed that a ladder (zebra) design was the most effective pattern for pavement markings from a driver visibility point of view. The results from the tests can be found in Appendix B. The FHWA did not analyze collision rates. Based on these findings and the guidelines in the Pedestrian Crossing Control Manual, staff recommend the use of zebra pavement markings at crosswalks.

Based on the guidelines in the Pedestrian Crossing Control Manual, the majority of crosswalks that would require zebra pavement markings are already marked with twin parallel pavement lines. Therefore, it is proposed to install zebra pavement markings as part of the maintenance and replacement of existing markings. The proposed program would replace 35 crosswalks with zebra pavement markings each year over a period of 3 years. Priority would be given to school crosswalks. Crosswalks identified for zebra pavement markings are listed in Appendix C. The cost increase associated with the replacement is approximately \$1,700 per zebra crosswalk, resulting in an annual cost increase of \$60,000 to the Pavement Marking Maintenance Budget. It is recommended that the Stamark Grade Tape, developed by 3M, be used to for marking zebra crosswalks rather than Thermo Plastic which is currently used for pavement markings. Although the Stamark Grade Tape is more expensive than Thermo Plastic, it has a greater slip resistance and is more reflective; it has a thinner profile which will help to eliminate trip hazards; and has an expected life of approximately 3 years. At the end of the 3 year life cycle, the tape would be replaced as part of a continuing maintenance program. The existing twin parallel line pavement markings at these locations would

be left in place and allowed to fade.

Wider Crosswalks

The guidelines in the Pedestrian Crossing Control Manual recommend a standard crosswalk width of 2.5 metres, but wider crosswalks may be used where higher pedestrian volumes exist. Staff are currently reviewing pedestrian volumes and movements at intersections throughout the City. Of the locations reviewed, almost 90% of intersections requiring wider crosswalks are located within Downtown. Because the Downtown Transportation Plan Team is also reviewing this and other related pedestrian improvements within the downtown, a policy for wider crosswalks should be deferred until completion of their work. The locations currently being reviewed for wider crosswalks are listed in Appendix D.

TRANSPORTATION PLAN

Council approved the Transportation Plan on May 27, 1997, which provides that measures to improve pedestrian safety and convenience are required (policy NP8). These measures help to implement this policy.

FINANCIAL IMPLICATIONS

Future operating budgets will be affected by increases in maintenance costs associated with the installation of zebra pavement markings. The proposed program would replace 35 crosswalks with zebra pavement markings each year over a period of 3 years. The cost increase associated with the replacement is approximately \$1,700 per zebra crosswalk, resulting in an annual cost increase of \$60,000 to future Pavement Marking Maintenance Budgets. The twin parallel line pavement markings at existing crosswalks would be allowed to fade. Therefore, the net increase in the Pavement Marking Maintenance Budget would be \$53,000. The Pavement Marking Maintenance Budget will be re-evaluated at the time of Budget review once staff have gained experience with zebra pavement marking installations. The Stamark Grade Tape has an expected life of approximately 3 years. At the end of the 3 year life cycle, the tape would be replaced as part of a continuing maintenance program.

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General Mgr./Dept. Head:

Date:

This report has been prepared in consultation with the departments listed to the right, and they concur with its contents

Report dated: May 16, 2000

Author: Winston Chou

Phone: 7913

Concurring Departments

Financial Services

APPENDIX A

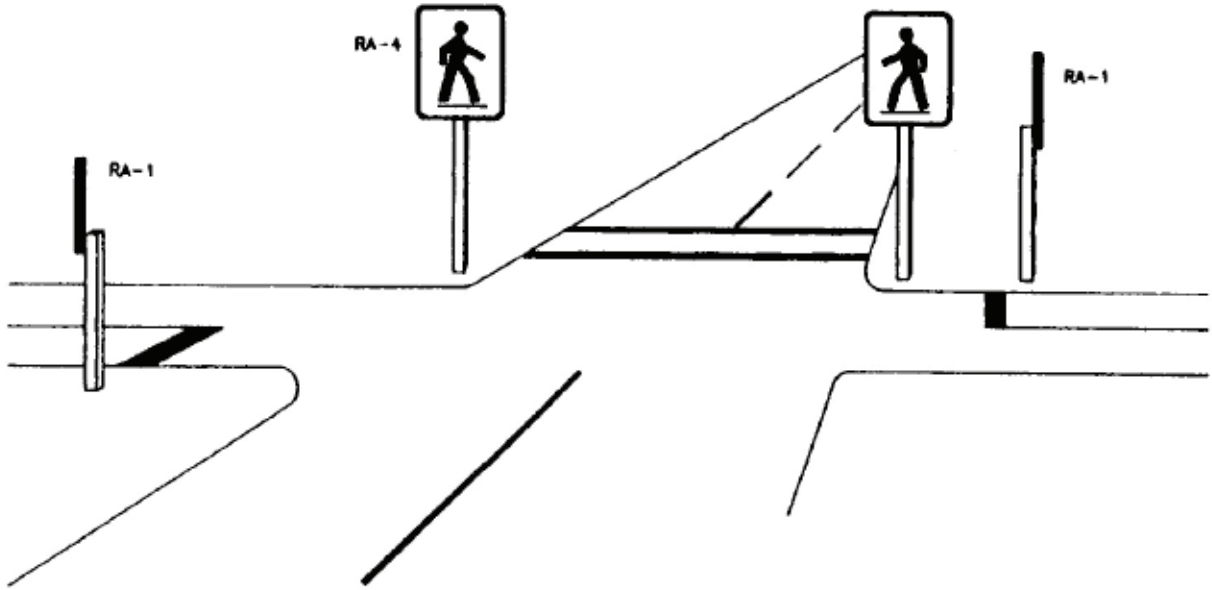


Figure 1 - Pedestrian Crosswalk with Twin Parallel Lines

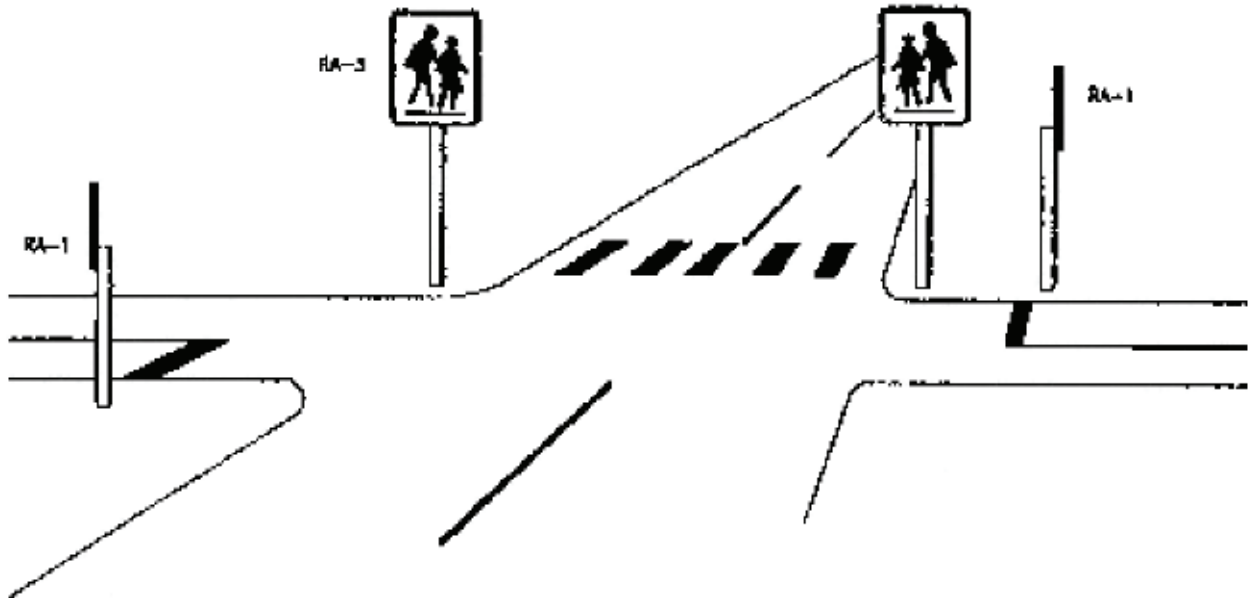


Figure 2 - School Crosswalk with Zebra Pavement Markings and Advanced Warning Sign

NOTE FROM CLERK - Second page of Appendix A, and Appendix B are not available in electronic form - on file in the Office of the City Clerk.