TORONTO STAFF REPORT

June 13, 2001

To: Works Committee

From: Barry H. Gutteridge, Commissioner, Works and Emergency Services

Subject: Noise Mitigation Efforts for Audible Pedestrian Signals

Purpose:

To respond to a request from the Planning and Transportation Committee to report on the cost and feasibility of amending audible traffic signals to reduce ambient noise levels by utilizing receivers for people who require them.

Financial Implications:

The funds associated with the installation of audible pedestrian signals are contained in the Transportation Capital Works Program under account No. CTP701-6, Audible Signals. In 2001, the approved budget is $300,000.00.

The Commissioner of Works and Emergency Services has been authorized to use any under-expenditures in the Capital Transportation budget, up to $100,000.00, to install additional audible pedestrian signals from the priority list, and has been requested to report, in year, through the Works Committee, for authorization for the transfer of funds within the overall 2001 Capital Budget Program.

Recommendation:

It is recommended that this report be received by the Works Committee and forwarded to Planning and Transportation Committee and the Board of Health for information.

Background:

The Planning and Transportation Committee, at its meeting held on June 12, 2000, gave consideration to a report from the Secretary, Board of Health on the subject of the health effects of noise. The Planning and Transportation Committee requested the Commissioner of Works and Emergency Services to report to the Works Committee on the cost and feasibility of amending audible traffic signals to include receivers for people who require them.

Comments:

A. The Audible Pedestrian Signals (APS) Program

The former Metropolitan Toronto Council, at its meeting on July 2 and 3, 1997, adopted an annual Audible Pedestrian Signals (APS) installation program which continues to this day.

Audible Pedestrian Signals (APS) provide directional and safety aid to pedestrians who are blind and visually impaired. APS is a type of tone emitting equipment that can be mounted on pedestrian signal heads at a signalized intersection to audibly identify when a Walk indication is provided for a specified direction. The Transportation Association of Canada (TAC) have developed technical guidelines and best practices for the uniform application of APS devices in Canada. In Toronto, the APS tones are consistent with TAC's recommended practice. The tones emulate two different bird sounds; a "cuckoo" for the north-south pedestrian crosswalk and a "peep-peep" for the east-west pedestrian crosswalk.

In Toronto, the opinions of local organizations which represent the blind community (e.g. CNIB, Canada Council of the Blind, access and advocacy groups, mobility instructors, etc.) are solicited directly via an APS Advisory Group. The APS Advisory Group, chaired by Mr. Garnett Martin, is responsible for intersection selection and public education while the City's Transportation Services staff are responsible for the procurement, operational assessment, design, installation, activation, testing and maintenance of APS.

Since the beginning of the APS program in 1997, the City has installed APS at 40 signalized intersections and will be completing installation at approximately 14 to 18 signalized intersections this year. The APS Advisory Group reports that there is a backlog of approximately 100 requests for APS installation at additional intersections.

B. Noise Mitigation Efforts

The City's current APS system does not have a hand-held receiver that decodes a signal and delivers a message to the user. Although this technology exists in at least one other type of APS system, the APS Advisory Group and City of Toronto staff have not pursued it because the benefits of the system would likely be limited to only a few pedestrians with hand-held receivers. The broader population of visually impaired pedestrians would not likely benefit from this type of system.

With the current system, concerns about noise levels are addressed by two separate techniques:
(i) automatic volume adjustment; and
(ii) pushbutton activated operation.

The APS system automatically adjusts its volume level to the ambient sound levels. During peak traffic conditions, it reaches its maximum volume, while overnight it drops to its lowest volume level. All intersections equipped with APS have this feature and the maximum and minimum volume limits are fine-tuned by staff in the field.

Pushbutton activated operation also significantly reduces the sound impact to adjacent land uses by emitting the APS tones only when the user depresses and holds the pedestrian pushbutton for three seconds. The criteria used by City staff to decide when to use pushbutton activated operation is the presence of any sound-sensitive land use within 100 metres of the proposed installation. Residential land use is of particular concern. In these instances, the APS operation will be pushbutton activated. Currently the APS system is pushbutton activated at 29 (72%) of the 40 signalized intersections. At the remaining 11 (28%) of the 40 signalized intersections, the APS system is in constant operation (i.e. the APS tones are emitted with each Walk signal during every traffic signal cycle).

Although it is feasible to install pushbutton activated operation at all intersections equipped with APS, the cost of doing this is significant. Based on the City's experience with APS and the number of poles required, the costs for additional pushbuttons, poles, pole bases, duct and wiring can increase installation costs by 75% to 150%. Therefore, the City has adopted a cost-effective approach towards the installation of pushbutton activated operation.

In addition, staff are continuously monitoring for new developments in APS technology to identify any new products which would enhance current noise mitigation measures.

Conclusions:

The City of Toronto has an Audible Pedestrian Signals (APS) installation program that serves the needs of visually impaired pedestrians at signalized intersections. Concerns about noise levels are addressed by two separate techniques. The APS automatically adjusts its volume level to the ambient sound levels and pushbutton activation of the APS significantly reduces the sound impact on adjacent land uses.

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