



INFORMATION REPORT

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| TO: | Chair and Members Public Works Committee |
| COMMITTEE DATE: | May 30, 2016 |
| SUBJECT/REPORT NO: | Feasibility Study Respecting the Installation of Sound Barriers on the North Side of Mud Street (PW16034) - (Ward 9) (Outstanding Business List Item) |
| WARD(S) AFFECTED: | Ward 9 |
| PREPARED BY: | Robert Richarz (905) 546-2424, Extension 2159 Peter Wobschall (905) 546-2424, Extension 4819 |
| SUBMITTED BY: | Robert Norman, BLA, OALA, CSLA Director, Strategic Planning Public Works Department |
| SIGNATURE: | |

Council Direction

At its November 13, 2013 meeting, Council approved Item 10.3 of Public Works Committee Report 13-013:

“Whereas the on/off ramps of the Redhill Valley Parkway and the Lincoln Alexander Parkway lead to Mud Street at Winterberry Drive; and whereas there are no sound barriers on the north side of Mud Street to just west of Paramount Alliance Church; That staff be directed to do a feasibility study of installing sound barriers in this area and report back to the Public Works Committee with consideration being given to the cost and funding sources.”

Information

This report responds to the motion to determine the feasibility of installing sound barriers on Mud Street near the interchange of the Lincoln M. Alexander Parkway and the Red Hill Valley Parkway in Ward 9.

The subject area is approximately 800 metres in length and is located on the north side of Mud Street West, between Winterberry Drive and Paramount Drive. The site is bounded to the north by Valley View Phase 2 and 3 Subdivisions, to the east by Paramount Drive Alliance Church, to the south by Mud Street West, and to the west by Winterberry Drive, as shown in Appendix A. There is an existing private wooden noise barrier fence installed by the developer approximately two metres in height along the

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rear lot lines of the residential properties backing on to Mud Street. In addition, between the fence and the road, there is a short earth berm extending between Winterberry Drive to Paramount Drive's Alliance Church property, which was created during the realignment of Mud Street in 1999. The height of the berm ranges from approximately 0.5 metres below, to 2.5 metres above finished grade of the road along its entire length. The length of the berm that is below the finished grade of the road is approximately forty metres in length, with the remaining 750+ metres at approximately 0.5 to 2.5 metres above the finished grade of the road.

Noise Assessments, 2002 & 2007

The following section provides a summary of the noise assessments that were conducted as part of the development application for the Valley View Phases 1, 2 and Phase 3.

The target for noise attenuation is 55 - 60 dBA, consistent with the MOECC criteria for the noise sensitive outdoor living areas (i.e. the rear yard). Indoors do not fall under the requirement for noise attenuation, however, that is covered by the Residential Development Standard. Public Works staff verified that the requirements for sound attenuation were included on the development applications, and that associated berm and fence structures were implemented onsite as directed. These include:

- The installation of new wooden fences and the use of existing berms as sound barriers
- Dwellings were built with the capacity to retrofit air conditioning units, or supplied with air conditioning units (to keep windows closed and noise out of indoor living spaces)
- Warning clauses on title to advise purchasers/tenants that "...sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling occupants"

Noise Assessment, 2015

In the fall of 2015, staff from the Public Works Department retained dBA Environmental Services Inc. ("Consultant") to investigate existing noise controls and determine if additional controls are necessary through analysis of present-day traffic noise levels using both the STAMSON prediction model and in-field noise measurement monitors. Monitored noise levels are determined by installing a sound level meter device within the rear yards of properties in the study area.

With regard to the existing sound barriers, the Consultant concluded:

"Predicted mitigated daytime noise levels, as calculated and assessed in accordance with MOE guidelines and procedures, indicate no exceedance with the criterion for outdoor amenity space and therefore, no further mitigation measures are required."

The results correlate well with the previous noise studies from 2002 and 2007 and verify that the noise mitigation measures that were implemented during the subdivision development are adequate and in compliance with City and MOECC guidelines.

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During the second phase of the study, the Consultant monitored actual noise levels at rear yard locations backing onto Mud Street West.

Although each location presented monitored noise levels 2-3 dB greater than the modelled predicted values, it should be noted that the sound level meters are not only measuring traffic noise but noise from all sources; e.g. birds, planes, general urban hum over the course of the measurement period. Notwithstanding, the increase is considered minor and would be just audible to the average person.

As it relates to traffic noise, some of the increase can be directly attributed to vehicles travelling over the posted speed limit of 70 km/hr. The Consultant explains: "The most common increase of traffic noise levels is the speed of vehicles. Vehicles on Mud Street West are restricted to 70 km/hr. An increase of 10 km from vehicles can increase the noise levels by 1-2 dba. Vehicles exiting the Red Hill Parkway and LINC at times are exiting at speeds well over 70 km and continuing to maintain speeds over the current posted speed to Upper Paramount Road where there is a red light photo camera."

The Consultant further explains that "road conditions and winter tires can add approximately 1-2 dBA to current noise levels due to the temperature of the road and use of winter tires in cold weather". The Consultant further comments that "...to increase the traffic noise by 3 dBA with the current posted speed of 70 km, the current traffic would have to double in volume."

Note that an increase in noise levels of 2-3 dB is considered to be just audible to the average person.

Variations of Sound Barriers within Immediate Area

There are three variations of sound barriers within the immediate vicinity of Winterberry and Mud Streets. On the north-east corner of the intersection, a two metre wooden fence was erected as the sound barrier of the Valley View Phase 1 and 2 developments. Travelling eastwards on the north-side of Mud Street, the wooden fence transitions to the earthen berm that was created during the Mud Street road work; which also acts as the sound barrier for the Valley View Phase 3 development. A Durisol wall (engineered pre-cast wall panel system) was erected as the sound barrier to the development on the south-side of Mud Street. The result is that three different sound barrier systems can be viewed within the immediate area.

Sound barriers are a component of a development plan that is submitted to the municipality for approval. Developers need only to meet the Ministry's guidelines for sound mitigation and are not required to use similar materials or designs used in neighbouring developments; the only requirement is that the barrier meets the Provincial guidelines and reduce traffic noise in outdoor living areas as much as is technically, economically, and administratively practical. Therefore, it is possible to have differently designed, yet effective, sound barriers within close proximity if each is submitted within different development applications.

Conclusions of the Noise Assessment, 2015

The Consultant has confirmed that:

1. Using the STAMSON computer model, existing noise mitigation along Mud Street West adhere to City and MOECC standards
2. Measured noise levels are marginally higher than the STAMSON model results and while there is a slight exceedance of the 60dB criteria it can attributed to observed traffic speeds above the posted limit, but also other non-traffic related factors (urban hum).

Notwithstanding the results of the November 2015 study, if noise levels generated from Mud Street West were above acceptable levels, a solution could be to construct a higher and more robust sound barrier to replace the existing fence (similar to barriers abutting the LINC).

At approximately 800 metres in length and at a height of between four and five metres, overall average daily noise levels could be reduced. Compared to human scale, a wall of this size would have significant visual impact. The capital investment required to undertake this is estimated between \$720,000 and \$900,000 (\$900-\$1,125 per linear metre). This range is only a high level estimate derived from Public Works' Engineering Services Division and external sources.

The estimate does not include potential costs associated with geotechnical investigation, traffic control requirements, and surveying work which would have to be developed through a more detailed design exercise.

There is no identified funding source available for such a project and if pursued, would have to be brought forward through the Capital Budget process for Council's consideration.

It is important to note that an exception to the City's established standard practice and policy with regard to noise mitigation may have wider implications across the City.

It is technically feasible to construct another sound barrier; however the costs and the aesthetics are prohibitive and likely undesirable.

The Consultant concludes (excerpt from Traffic Noise Monitoring Study "Mud Street West between Winterberry Drive & Paramount Drive Hamilton Ontario", February 2016 report):

"This traffic noise study has detailed traffic noise impact relative to the existing residential properties rear yard Outdoor Living Areas (OLA's) and confirmed that the existing noise control measures implemented have satisfied the MOE guidelines while satisfying the City of Hamilton, Public Works Department."