CITY OF HAMILTON

PUBLIC WORKS DEPARTMENT
Environment & Sustainable Infrastructure Division

TO: Mayor and Members General Issues Committee	**WARD(S) AFFECTED:** CITY WIDE
COMMITTEE DATE: October 11, 2011	
SUBJECT/REPORT NO: Waterdown Aldershot East-West Transportation Corridor - Noise and Lighting Mitigation (PW08063c) - (City Wide) (Outstanding Business List Item)	
SUBMITTED BY: Gerry Davis, CMA General Manager Public Works Department	**PREPARED BY:** Alan Kirkpatrick (905) 546-2424, Extension 4173
SIGNATURE:	

RECOMMENDATION

(a) That the issues raised by Mr. Oliver, 215 Fellowes Crescent, Waterdown, regarding mitigation of noise and street lighting related to the proposed Parkside Drive reconstruction project, be addressed during the detailed design phase of the project;

(b) That City staff continue to monitor the progress of the Ministry of the Environment's (MOE) proposed new Environmental Noise Guidelines and ensures that the proposed City Noise Assessment Policy for Roadways and Highways is in-line, where feasible, with the MOE policy and that upon finalization of the Ministry of Environment's Environmental Noise Guidelines, that the City of Hamilton's Noise Assessment Policy for Roadways and Highways be finalized and submitted to Council for consideration;

(c) That once the *Noise Assessment Policy for Roadways and Highways* is approved, it be utilized when dealing with consideration of approved noise mitigation measurers;

(d) That once the Policy for Sidewalk & Roadway Lighting previously considered by Committee and Council is approved it be utilized when dealing with methods of reducing light pollution design and mitigation measures;

(e) That the "Waterdown Aldershot East-West Transportation Corridor" be identified as completed and removed from the Outstanding Business List.

EXECUTIVE SUMMARY

This report has been prepared in response to a delegation from Mr. Oliver, 215 Fellowes Crescent, Waterdown, regarding his concerns with proposed noise and street light mitigation measures related to the proposed reconstruction of Parkside Drive. The issues raised by Mr. Oliver have been documented during the Environmental Assessment (EA) process and will be addressed during the detailed phase of the project.

Staff are working on separate policies dealing with noise and street lighting. Contained within each of the proposed new policies, information is provided to address mitigation measures for new and existing roads concerning noise and street lights.

In addition, the Ministry of the Environment (MOE) is currently in the final stages of their consultation process regarding a revised *Environmental Noise Guideline (ENG)*. The MOE guidelines are considered as a foundation of a proposed *Noise Assessment Policy for Roadways and Highways*, and therefore, it would be premature to finalize a *Noise Assessment Policy for Roadways and Highways* prior to the Ministry's guidelines being published. Ministry staff are unable to provide a defined approval timeline but suggest that the guideline could be finalized before the end of 2011, or sooner.

The staff direction for this report requests information for how to deal with mitigation of noise and street lights. Suggested mitigation measures are included in the proposed policies and therefore there is no need to provide new information but utilize the information currently being prepared for noise assessment and street lighting on City roads in the upcoming polices.

In the case of the draft *Noise Assessment Policy for Roadways and Highways*, staff have forwarded the draft policy to stakeholders in the development industry for their review and their comments will be considered when the policy is brought forward for final approval.

Issues of noise and street lighting are included in the existing Environmental Assessment (EA) processes followed by the City when undertaking projects. Based on road design and forecast traffic volumes, noise and street light levels are identified, and if recommended, mitigation measures can be considered in the capital cost of the project. Without road reconstruction, noise mitigation measures are not typically considered. In the case of street light mitigation measures for existing situations, measures are only provided in specific circumstances where a comprehensive analysis identifies the necessity. When noise or street light mitigation measures are considered, they would need to be included during capital and current budget deliberations.

Alternatives for Consideration - See Page 9

FINANCIAL / STAFFING / LEGAL IMPLICATIONS

Financial: When dealing with mitigation measures for both noise and street lighting, staff undertake a detailed review of the situation when investigating and preparing

recommendations, as these could potentially set precedent when dealing with other similar issues and could result in significant costs to the City.

In the case of new road construction/reconstruction, any costs related to the installation of approved noise or street light mitigation measures would be included in the capital cost of the project. If approved noise mitigation measures are installed, if an adjacent road is not to be reconstructed, the cost to install the measure would be included in an appropriate capital budget and considered during the budget deliberation process. A funding source for these issues will need to be determined. For noise mitigation measures owned by the City or on City property, future maintenance of the measures would also need to be taken into consideration and included in the Public Works Operations and Maintenance capital and current budget.

Staffing: N/A

Legal: Legal staff could become involved if agreements between the City and private property owners/homeowners are required to document the roles and responsibilities related to noise mitigation features.

HISTORICAL BACKGROUND

On June 23, 2010, Council approved the following staff direction:

That staff be directed to report back to the Public Works Committee on the following:

(i) A comprehensive evaluation/policy framework on existing development, relative to noise mitigation and lighting and what criteria would be involved

(ii) Policy and financial implications related to potential noise and light mitigation to benefit existing residents and areas where road infrastructure works are proposed

At the Public Works Committee meeting on June 14, 2010, Mr. Oliver, 215 Fellowes Crescent, Waterdown, provided a presentation explaining his problems and goals and provided the Committee with photos of the proximity of the back of his residence and others to Parkside Drive, and the anticipated impacts as a result of the road widening, including noise and light levels. The goal of his presentation was to mitigate the noise level growth with noise mitigation fencing, to move the roadway center back to the current center line and to mitigate light pollution from light poles on the bedroom windows and outdoor living space.

Appendix “A” of this report includes information as to how the noise and street lights will be addressed with the proposed reconstruction of Parkside Drive and to address Mr. Oliver’s identified issues.

Appendix “B” of this report includes information for the draft Acoustic Assessment of the proposed East-West Road.

The City of Hamilton has dealt with noise and street light policies related to roads with recognized design standards. The design standards for noise have been based on the Ministry of the Environment (MOE) guidelines for noise from roads. The design

standards for street lighting have been based upon accepted national and international lighting standards.

Staff have been working on a draft *Noise Assessment Policy for Roadways and Highways*, to address traffic noise control as it relates to:

- Land use planning for new residential and non-residential development (normally through Plan of Subdivision or Site Plan process)
- Road expansion projects (new construction or widening of existing City roadways)
- Site specific traffic noise problems identified in existing noise sensitive land uses (e.g. City Retrofit Program)

The Policy also outlines the standards for acceptable noise mitigation measures. A copy of the draft *Noise Assessment for City Roads* is attached as Appendix "C" of this report.

While noise levels are typically the by-product of many sources (e.g. aircraft, railways, roadway, industrial land uses, other stationary sources, etc.), the draft *Noise Assessment Policy for Roadways and Highways* only applies to traffic noise issues generated by City roads and not other sources. The policy also only deals with noise mitigation measures installed on the City's road allowance, not on private property.

The draft *Noise Assessment Policy for Roadways and Highways* is divided into three sections:

- Part A deals with New Development adjacent to City Roads
- Part B deals with changes to City roads adjacent to existing development
- Part C deals with existing development adjacent to existing City roads

Much of the noise policy is based on the Ministry of the Environment (MOE) noise standards, as they are deemed practical, defensible and relevant for the application in the City of Hamilton. The City's practice has been to utilize the MOE Noise Standard guidelines when designing roads in the City and when requiring the private sector to provide roads through subdivision agreements that the City later assumes.

The MOE are currently working through a public consultation process to update their *Environmental Noise Guidelines*. It is recommended to delay the final approvals of the draft *Noise Assessment Policy for Roadways and Highways* until the MOE has completed and published their new guidelines so that the *Noise Assessment Policy for Roadways and Highways* can be evaluated based on this document and then finalized. Ministry staff are unable to provide a defined approvals timeline but suggest that the guideline could be finalized before the end of 2011, or sooner.

In the case of the request from the Parkside Drive Citizens Group, the conditions identified in Part B of the draft *Noise Assessment Policy for Roadways and Highways* would be followed and costs related to recommended noise mitigation measures attributed to the road, would be included in the construction project. Issues of noise and street lights were also included in the Environmental Assessment (EA) process with

alternatives evaluated and solutions considered during the Phase 3 Detailed Design phase.

Noise Assessment is a standard component of an Environmental Assessment (EA) study to forecast the anticipated level of noise that may result from new projects. The EA process requires forecasting of noise typically from adjacent roadways and if the anticipated noise levels exceed that acceptable level, noise mitigation measures are recommended.

If noise mitigation measures are required, as identified through the EA process, they are included in the construction of the new roads and subdivision. If the residential development exists, the noise mitigation measures can be more difficult to address but typically include features such as trees, berms and/or noise walls.

The final decision concerning the funding and installation of an approved noise mitigation measures will be made by City Council in conjunction with the road design process.

Street Lighting Policy

Staff have completed a draft *Comprehensive Outdoor Lighting Study: and associated Policy for Sidewalk & Roadway Lighting.* A staff report dealing with a new street light policy was considered by the Public Works Committee on June 6, 2011. The Committee direction was to refer the report back to staff for further consideration.

The draft study and associated policy identified and included priorities for street lighting (sidewalk and roadway lighting) in the following order:

- Pedestrian safety (travelling on sidewalks, or parallel to roadways)
- Pedestrian-Vehicular safety (pedestrian road crossings)
- Safety & Security - Real
- Safety & Security - Perceived
- Commercial & City of Hamilton image enhancements
- Vehicular Road safety (vehicular to vehicular conflicts)

The proposed policy is intended to set the base standards for lighting in terms of where to light and to what lighting levels on roadways and sidewalks. The proposed policy is based on accepted national and international standards, but is structured to recognize that lighting is primarily for pedestrians. It will ensure consistent lighting levels, maximizing the objectives of lighting, yet minimize costs by not over-lighting areas.

POLICY IMPLICATIONS

Noise

Modifications to existing City roads (e.g. widening, intersection improvements, etc) or construction of new City road must meet the requirements of the Ontario Environmental Assessment (EA) Act. Municipal projects typically are carried out in accordance with the Municipal Class EA Process. As part of an EA Study, a noise impact assessment is normally carried out where a City road is widening or constructed adjacent to an existing

Noise Sensitive Area (NSA). A noise impact assessment must be carried out in conformity with the Ministry of the Environment (MOE) / Ministry of Transportation (MTO) Noise Protocol. The City or the consultant carrying out the EA study on behalf of the City is responsible for reviewing the potential noise impacts from the City road undertaking and identifying the need for noise mitigation as required. The determination of potential noise impacts including the justification for whether or not noise mitigation is to be provided, must be documented in a Noise Report, which is included as an appendix in the EA Report for the City road undertaking.

Noise Assessment Procedures

Consideration of potential noise problems should commence as early as possible in the planning process with the objective of providing noise mitigation while minimizing the use of noise barriers.

The method for calculating noise levels will be in accordance with the MOE Guidelines, through the use of the Ontario Road Noise Analysis Method for Environment and Transportation. The method for calculating noise levels will be in accordance with the MOE Guidelines.

Implementation and Maintenance

The location, design, and construction of the noise barrier will be undertaken by the City. The City will be responsible for the ownership and maintenance of the noise barrier on City property. This is an important matter when considering the installation of noise mitigation features with regard to the long-term maintenance aspect of this City asset.

Where it is the decision of City Council not to include noise mitigation barriers in the road undertaking, residents may consider pursuing the construction of a noise barrier through the General Manager – Public Works, in order that applicable studies can be undertaken.

Cost estimates for “typical” noise wall-style mitigation measures include:

- $200 million for a 1.8 - 2.4m wood noise fence
- $450-600 million for a 1.8 - 2.4m concrete barrier

Street Lighting

The proposed Policy for Sidewalk and Roadway Lighting provides the necessary fundamental components that will reduce the potential for light pollution issues for new or re-constructed street lighting installations. Issues related to existing installations can be evaluated and addressed based upon the policy; however mitigation strategies will vary as no specific methodology can be applied to equally remediate each instance.

Mitigation strategies that address new construction and existing installations are summarized as follows:

Application:	Light Pollution Type:	Mitigation Strategy:
New construction/re-construction:	Sky Glow	Addressed at the time of detailed design by utilizing light pollution conscious lighting design based upon the Policy for Sidewalk and Roadway Lighting and nationally accepted engineering standards. Sky Glow mitigation strategies have little impact unless applied on a large scale (City wide).
	Light Trespass	Addressed at the time of detailed design by utilizing light pollution conscious lighting design based upon the Policy for Sidewalk and Roadway Lighting and nationally accepted engineering standards.
Existing installations:	Sky Glow	Cannot be addressed on a small scale. Mitigation measures must be applied on a large scale (City-wide) through extensive reconstruction of existing street lighting infrastructure.
	Light Trespass	Evaluated on a case-by-case basis to determine causes of light trespass and determine most appropriate mitigation measures in relation to the impact on street lighting system design standards.

It is important to note that the reduction or elimination of light pollution must never take precedence over proper street lighting as public safety is of paramount importance. In some cases, the control of light pollution and the intent or street lighting may be in conflict. The primary objective should be proper lighting of the sidewalk and roadway with secondary consideration given toward the reduction of off-site impacts. Lighting the area adjacent to the road allowance (typically within or adjacent to the road allowance) can benefit a user's peripheral vision and therefore improves overall user safety by providing visibility of crossroads, driveways, and sidewalks.

If light pollution mitigation measures are required to address existing installations, a variety of different measures may be applied for remediation. Typically, these measures may include removal, relocation or replacement/upgrade of existing street lighting infrastructure. Cost estimates for the installation of a "typical" street lights are $3,800 each. Pole relocation costs are $76.00/hour. The addition of a cut-off style luminaire to distribute/direct street lighting to/away from a specific location is approximately $325 each. Other changes could include a new street light arm at approximately $650 each.

The proposed noise and street light policies currently being prepared by staff identifies infrastructure needs and appropriate planning, analysis and management of the built environment along with financial considerations that aligns with the Public Works Business Plan *"Innovate Now"* with regard to cost effective improvements to the road network and quality of life for residents.

RELEVANT CONSULTATION

Staff has been working on a draft *Noise Assessment Policy for Roadways and Highways*. A consultant has provided assistance with the technical aspects of the draft policy that takes into consideration Best Practices but also is relevant to the City of

Hamilton. Staff have also been following the process the Ministry of the Environment has been following as it updates the provincial noise policy standard. Ministry staff are unable to provide a defined approvals process but suggested that the guideline could be finalized before the end of 2011, or sooner. Planning staff recommend that the approval of the draft *Noise Assessment Policy for Roadways and Highways* and associated noise mitigation strategy it has been working on be deferred until such time that the MOE publishes their policy.

The draft noise policy will also be referred to stakeholders in the development industry for their comments.

Once approved, its intended that developers will use the *Noise Assessment Policy for Roadways and Highways* and the *Comprehensive Outdoor Light Study: Sidewalk & Roadway Lighting Policy* when undertaking road design and construction in new developments in the City as part of the development approvals process.

Noise Policy Considerations

Public Works - Engineering Services	Agree with draft *Noise Assessment Policy for Roadways and Highways* and agree with deferring finalizing the policy until the MOE have published their Environmental Noise Guideline document
Public Works - Operations & Maintenance	Agree with draft *Noise Assessment Policy for Roadways and Highways* and agree with deferring finalizing the policy until the MOE have published their Environmental Noise Guideline document. Funding sources or developer contributions into reserve accounts need to be considered for operations and maintenance of this infrastructure.
Planning and Economic Development - Development Engineering	Agree with draft *Noise Assessment Policy for Roadways and Highways* and agree with deferring finalizing the policy until the MOE have published their Environmental Noise Guideline document

Street lighting Policy Considerations

Public Works - Engineering Services	Agrees with the proposed Street lighting Policy
Public Works - Operations & Maintenance	Agrees with the proposed Street lighting Policy
Planning and Economic Development - Development Engineering	Agrees with the proposed Street lighting policy

Staff met with Councillor Partridge and discussed the issues raised by Mr. Oliver. Councillor Partridge supports this report being considered by Public Works Committee.

ANALYSIS / RATIONALE FOR RECOMMENDATION

The draft *Noise Assessment Policy for Roadways and Highways* can be utilized throughout the City and during relevant project design phases and included in related

Environmental Assessments. If traffic projections indicate that noise levels are forecast to be higher than the levels identified in the draft *Noise Assessment Policy for Roadways and Highways,* the road construction design will include approved measures to mitigate the noise to the policy/guideline level. Any approved noise mitigation features will be included in the overall capital cost of the reconstruction project.

The draft *Comprehensive Outdoor Light Study: Sidewalk & Roadway Lighting Policy Study* has been referred back to staff for further consideration.

ALTERNATIVES FOR CONSIDERATION

That Council proceeds with approving the draft *Noise Assessment Policy for Roadways and Highways* prior to the Ministry of the Environment (MOE) finalizing and documenting their Environmental Noise Guidelines.

Although City staff does not anticipate a significant change to MOE's current draft Environmental Noise Guideline presently out for public review; the City's draft *Noise Assessment Policy for Roadways and Highways* is based on the MOE guideline and it would be prudent to wait until the MOE has finalized and published their document (anticipated for later this year), so that there is no need to amend the City's policy if there is a slight change to the MOE guidelines. Not Recommended.

CORPORATE STRATEGIC PLAN

Focus Areas: 1. Skilled, Innovative and Respectful Organization, 2. Financial Sustainability, 3. Intergovernmental Relationships, 4. Growing Our Economy, 5. Social Development, 6. Environmental Stewardship, 7. Healthy Community

Financial Sustainability

- Address infrastructure deficiencies and unfunded liabilities

Growing Our Economy

- An improved customer service

Social Development

- Residents in need have access to adequate support services

Environmental Stewardship

- Reduce the impact of Hamilton's industrial, commercial Private and Public operations on the environment
- Aspiring to the highest environmental standards

APPENDICES / SCHEDULES

Appendix "A" Comments regarding Parkside Drive from Boulding Avenue to East of Robson Road

Appendix “B”	Draft Acoustic Assessment Proposed New East- West Road Corridor Class EA
Appendix “C”	Draft Noise Assessment Policy for Roadways and Highways (For Information Purposes ONLY)

Appendix "A" REPORT PW08063c
Comments regarding Parkside Drive from Boulding Avenue to east of Robson Road In the Acoustic Assessment, Proposed New East - West Road Corridor Class EA

Noise

There was no noise mitigation measures proposed on Parkside Drive.

However, it is recommended to replace the existing fence on the south side of Parkside Drive, east of Boulding Avenue, where the boulevard has been eliminated and a 2.0 sidewalk is placed directly behind the curb to mitigate property impacts. Grading operations may require the replacement of the existing wooden fence. It is recommended to replace the existing fence by a new solid wood plank fence at this section in consultation with the home owners. The type of fence will be finalized in the detail design stage.

As indicated in the June 14, 2010 report to the Public Works Committee (East-West Road Corridor (Waterdown) Class Environmental Assessment-Environmental Study Report (PW08063b)), the City of Hamilton has committed to continue to work with residents to resolve all outstanding concerns to the extent possible. As such, through additional consultation with Mr. Oliver, a property owner backing onto Parkside Drive (215 Fellowes Cres.), it was agreed that a noise attenuation fence would be recommended on Parkside Drive behind his home and others on Fellowes Crescent, and that details such as location and length would be determined during detail design.

Standard construction mitigation measures are to be implemented to minimize noise levels during construction (e.g. keep equipment in good working conditions, meet applicable City of Hamilton noise by-laws)"

Street lighting

The recommendation for Street lighting on Parkside Drive is that full illumination will be provided throughout.

"The streetscape for this area will be characterized by the continuous green of the street tree network and also the dual headed light poles with both luminaries intended to illuminate the new 1.5m wide pedestrian sidewalks that will be installed on both the north and south side of the new East-West Road. These light standards will be the same iconic light poles with decorative banners that will be used throughout the East-West Road Corridor for continuity and community identity".

The street lighting plan will be developed as part of the road detailed design work. Minimal effects are expected to adjacent residents. With respect to Mr. Oliver's lighting concerns, staff indicated that this will be addressed during the detailed design stage and if there is no need for street lights, they will not be constructed.

The noise impact of the new East-West Road Corridor project defined as Scenario 3 was assessed by comparing the predicted noise levels of the mature state of development in 2021 to that under the future no-build condition (Scenario 2). For the "future build" scenario, it was assumed that Parkside Drive's access to Highway 6 would be closed. This represents a more conservative or worst-case scenario for noise impacts at sensitive receptors along the new/improved sections of roadway than if the Parkside Drive access to Highway 6 is assumed to remain open.

For Parkside Drive between Highway 6 and the Grindstone Creek, there is a decrease in predicted sound levels in comparing the future 2021 build scenario to the future 2021 no-build scenario as volume along this segment of Parkside Drive is expected to remain the same or lower at the mature state of development of the project. Sound level reductions ranged from not perceptible (less than 3 dBA decrease) to a significant improvement (more than 10 dBA decrease) from the traffic source. Receptors along Evans Road were predicted to experience noticeable decreases (greater than 3 dBA decrease) in traffic generated noise as a result of reduced traffic volume on Evans Road at the project's mature state of development.

For the section of Parkside Drive east of Grindstone Creek that would be improved (widened from two to four lanes) in the future build scenario, a decrease in the sound levels of up to 2 dBA is predicted in comparison to the future no-build scenario. It is noted that for both the future no-build and future build scenarios that a similar future volume of traffic is predicted for this section of Parkside Drive (despite it being only a 2-lane road under the future no-build scenario). This additional traffic volume is being generated by the future development that is assumed to be in place in the Waterdown area by 2021 and would be attracted to this roadway. The decrease in the posted speed limit from 60 km/h to 50 km/h for this section of Parkside Drive (under the "Future Build" scenario) contributes to the predicted sound level reductions. Noise mitigation is not warranted for this section of Parkside Drive as there is a reduction in sound levels due to the future build scenario in comparison to the future no-build scenario, and that the predicted sound levels are less than 65 dBA.

The sound level impact from the widened Dundas Street East will decrease at receptors along this segment of the roadway due to the proposed reduced speed limit of 60 km/h from 80 kmih for sections currently with the higher speed limit. However, the predicted daytime sound levels were greater than 65 dBA which may require further investigation on the effectiveness of mitigation options.

Sound levels were predicted to increase at existing dwellings EW17 (proposed new East-West Road an Highway 6), and EW20, EW21, and EW22 (Centre Road and Northlawn Avenue), and the northeastern side of the nursing home (EW27) that will be in proximity to the new East-West Road. All increases were not considered to be perceptible except for EW22 where the increase would be noticeable (approximately 9 dBA greater). However it should be noted that the resultant daytime and night-time sound levels at EW22 were approximately 46 dBA and 40 dBA, respectively which are within the ambient sound limits defined by the MOE for a suburban area. No mitigation is recommended as the noise levels are within the MOE limits for a suburban area. However as a result of the potential increase in estimated sound levels, monitoring of the traffic

generated sound levels after the construction of the new East-West Road is recommended. In contrast to the northeastern side of the nursing home, the southeastern side modeled by EW26 was not significantly influenced by traffic noise from the new East-West Road but more so by the noise generated by traffic on Parkside Drive. EW26 therefore was
predicted to have a decrease in noise levels as a result of the project in comparison to the no-build scenario. Shielding by the building was not assumed in the assessment at EW26.

New residences in the subdivisions of Waterdown North and Upcountry urban development areas may need sound barriers to be installed to mitigate potential noise generated by traffic along new East-West Road and Centre Road, and the new north-south link between Parkside Drive and Dundas Street East serving the Upcountry area.

Hamilton

NOISE ASSESSMENT POLICY FOR ROADWAYS AND HIGHWAYS (DRAFT)

MRC

MAY 2011

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I. INTRODUCTION

Noise can be defined as being an undesirable and unwanted sound. Noise can have adverse effects on human beings through interference with speech, activity, comfort, sleep, etc. The City of Hamilton recognizes that noise from roadways and highways may affect the quality of life of affected residents. Given this, the City has developed a Noise Assessment Policy for Roadways and Highways to address traffic noise control as it relates to:

A. Land use planning for new residential and non-residential development (normally through Plan of Subdivision or Site Plan process).

B. Road expansion projects (new construction or widening of existing City roadways); and

C. Site specific traffic noise problems identified in existing noise sensitive land uses (e.g. City Retrofit Program).

The Policy also outlines the standards for acceptable noise attenuation measures.

While noise levels are typically the by-product of many sources (aircrafts, railways, roadways, and stationary noise sources), this Noise Policy only applies to traffic noise issues generated by roadways and highways.

II. DEFINITIONS AND TERMINOLOGY

The following are the pertinent definitions adopted for the purposes of the City Noise Assessment Policy:

AADT: means "Annual Average Daily Traffic" defined as the average twenty-four hour, two-way traffic for the period January 1st to December 31st.

A-weighted decibel; dBA: means a nationally and internationally standardized frequency weighing applied to the sound level (measured in decibels) spectrum to approximate the sensitivity of the human hearing mechanism as a function of frequency (pitch). The resulting value is in decibels and commonly labelled dBA.

Ambient Sound Level: means all-encompassing noise associated within a given environment and comprises a composite of sounds from many sources, other than the source of interest, near and far. It is the background sound level prior to the construction of an undertaking.

"Capital Projects": means where capital road construction projects are being undertaken on City roadways.

Class 1 Area: means an area with an acoustical environment typical of a major population centre, where the background sound level is dominated by the urban hum.

Class 2 Area: means an area with an acoustical environment that has qualities representative of both Class 1 and Class 3 Areas, and in which a low ambient sound level, normally occurring only between 23:00 and 07:00 hours in Class 1 Areas, will typically be realized as early as 19:00 hours.

Other characteristics which may indicate the presence of a Class 2 Area include:

- absence of urban hum between 19:00 and 23:00 hours;
- evening background sound level defined by natural environment and infrequent human activity; and
- no clearly audible sound from stationary sources other than from those under impact assessment.

Class 3 Area: means a rural area with an acoustical environment that is dominated by natural sounds having little or no roadway traffic, such as the following:

- a small community with less than 1000 population;
- agricultural area;
- a rural recreational area such as a cottage or a resort area; or
- a wilderness area.

"Daytime" Time Period: means the 16-hour period between 0700 and 2300 hours.

dBA: means a unit of measure to quantify noise levels See "A-Weighted sound level"

Decibel (dB) Scale: means a linear numbering scale used to define a logarithmic amplitude scale, thereby compressing a wide range of amplitude values to a small set of numbers. This system is used to compress sound pressure levels. The scale is often weighted using the "A" weighing frequency adjustments because it most closely approximates the frequency response of the average human ear.

"Development": means the creation of a new lot, a change in land use, or the construction of buildings and structures, requiring approval under the Planning Act.

First Row Receiver: means those receivers (or receptors) adjacent to a City roadway where sound level differences are imperceptible (within 3 dBA) from the noisiest receiver.

Future Ambient: means the ambient noise level projected in the future without the construction of the undertaking.

Indoor living area: means an area within the housing unit where the enjoyment of quiet conversation and sleeping is important. It includes:

- living/dining areas (assumed to be at ground level for single detached, semi-detached and townhouses);

- sleeping quarters (assumed to be on the second floor for single detached, semi-detached and townhouses, unless otherwise indicated);

- the living/dining areas and sleeping quarters for each floor of a multi-storey building.

Indoor sound level: means an estimated/calculated sound level in the central part of a room.

Leq - The Energy Equivalent Continuous Sound Level: means the constant sound level over the time period in question, that results in the same total sound energy as the actually varying sound. It must be associated with a time period. Leq is a measure of total sound energy emitted over a specified time period.

Leq (T): Leq (16 hours), Leq (8 hours): means the A-weighted level of a steady sound carrying the same total energy in the time period T as the observed fluctuating sound. The time period T is given in brackets. For the purposes of this policy, Leq (16 hours) is the equivalent sound level for the daytime period, 7:00 a.m. to 11:00 p.m. expressed on the A-weighted decibel scale (dBA). Leq (8 hours) is the equivalent sound level for the night-time period, 11:00 p.m. to 7:00 a.m. expressed on the A-weighted decibel scale (dBA).

"Night-time" Time Period: means the 8-hour period between 2300 and 0700 hours.

Noise: means any unwanted sound.

Noise Barrier: means a physical structure planned or otherwise, which is located between a noise source and a noise sensitive receptor and results in a reduction of sound level transmission from the source to the receptor. Noise barriers, in general, include walls, berms or combinations thereof.

Noise Sensitive Land Uses: means the following sensitive land uses:

- residential developments;
- seasonal residential developments;
- hospitals, nursing/retirements homes, schools, day-care centres, etc.

Official Plan (OP): means the current Official Plan in full force and effect.

Official Plan Amendment (OPA): means an approved amendment to part(s) of the current Official Plan in full force and effect

Outdoor Living Area (OLA): means part of an outdoor area easily accessible from the building and designed for the quiet enjoyment of the outdoor environment.

OLAs include, but are not limited to, the following:

- the backyard or patio within 3 metres of the rear wall of a residential unit, or the recreational area designated on the development application;

- the common outdoor area allocated for recreational purposes outside residential buildings such as apartments or condominiums;

- balconies, provided they are the only OLA for the occupant and meet all of the following conditions:

  a) Minimum depth of 4 m (or as set by the local municipality)

  b) Outside the exterior building façade

  c) Unenclosed

Paved areas for multiple dwelling residential units may not be defined as an OLA.

The minimum outdoor area recommended by MOE for noise control purposes is:

- single family - 56 square metres (600 square feet)

- semi-detached - 46 square metres (500 square feet)

- townhouse - 37 square metres (400 square feet)

Outdoor Point of Assessment: This area may be situated on any side. The usual distance from the dwelling unit wall is 3 m. The vertical height is 1.5 metres above the existing round surface. Where unknown, the side closest to the roadway should be assumed.

Points of Reception: means any point on the premises of a person where sound or vibration originating form other than those premises is received.

"Retrofit": means where capital roadway projects are being undertaken adjacent to existing residential areas that may warrant noise mitigation.

Roadway or Road: means common and public roadway, street, avenue, parkway, driveway or part of a roadway on a bridge or trestle under the jurisdiction of the City which is intended for or used by the general public for the passage of vehicles and includes the area between the lateral property lines thereof.

Sound: means:

i. a fluctuation in pressure, particle displacement or particle velocity propagated in any medium; or
ii. the auditory sensation that may be produced by (i).

Sound Level: means the sound pressure level indicated by a measurement system (e.g. sound level meter or sound level model).

Sound Pressure: means the difference between instantaneous pressure at a point in a medium during the passage of an acoustic disturbance and the prevailing pressure at the same point in the absence of that disturbance. (The medium, of interest is generally the atmosphere).

Stationary Source: means a source of sound which does not normally move from place to place and includes the premises of a person as one stationary source.

Noise Warning Clause: means a notification of or an obligation to notify a potential purchaser of an environmental noise concern.

PART A - NEW DEVELOPMENT ADJACENT TO ROADWAYS AND HIGHWAYS

A.1 Introduction

A.1.1 As required under the Ontario Planning Act, where land is proposed to be developed for a sensitive land use(s) adjacent to a noise source(s) (e.g. air traffic, highways, roadways, railways, stationary noise sources), the developer is required to prepare a Noise Study to ensure the development submission meets the Ontario Ministry of the Environment (MOE) noise assessment criteria. The objective of a Noise Study is to assess the impact of all noise sources affecting the subject lands to assist in determining the appropriate site design as it relates to MOE noise assessment and any required noise control measures. Provincial requirements and references for noise assessment for new developments are outlined in the following publications or any amendments thereof:

- Provincial Policy Statement under the Ontario Planning Act
- MOE Guideline LU-131, “Noise Assessment Criteria in Land Use Planning”
- MOE NPC-101 – Technical Definitions
- MOE NPC-102 – Instrumentation
- MOE NPC-103 – Procedures
- MOE NPC–205 - Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban)
- MOE NPC-232 – Sound Level Limits for Stationary Sources in Class 3 Areas (Rural)
- ORNAMENT, Ontario Road Noise Analysis Method for Environment and Transportation, Technical Document, MOE, ISBN 0-7729-6376, 1989.
- STEAM, Sound from Trains Environmental Analysis Method, Technical Document, MOE, ISBN 0-7729-6376-2, 1990.

Requirements for the noise assessments for new development must also adhere to the applicable policies of the Official Plan and the City of Hamilton Noise Assessment Policy for Roadways and Highways.

The City of Hamilton is responsible for reviewing and approving Noise Studies submitted for a new development to ensure that the Study and its conclusions adhere to MOE and City requirements as noted in the above publications, and any amendments thereof.

A.2 Purpose of Part A of Noise Assessment Policy Roadways and Highways

A.2.2 The purpose of Part A of the Noise Assessment Policy for Roadways and Highways is to define the noise impact details related to land use planning for new residential and other noise sensitive developments (e.g. daycare facilities, libraries, places of worship etc.) adjacent to existing or planned future Roadways and Highways. Part A describes the process of assessing noise impacts, the responsibilities of the various parties, and the procedures for implementing noise attenuation requirements for new residential and other sensitive land use developments adjacent to Roadways and Highways. In addition, Part A provides detailed requirements for the submission of a Noise Study that may apply to all types of noise sources (e.g. air traffic, railways, industrial land uses, other stationary sources, etc.).

A.2.3 Part A does not repeat the detailed information and requirements provided in the MOE's publications. Accordingly, those applying the City of Hamilton Noise Assessment Policy for Roadways and Highways should do so with reference to the MOE's documents and requirements as noted in Section A.1.1.

A.3 Scope and Responsibility

A.3.1 Part A of the Noise Assessment Policy for Roadways and Highways applies to existing or planned City arterials, parkways and expressways as defined in the City of Hamilton Official Plan and Provincial highways.

A.3.2 Part A of the Noise Assessment Policy does not apply to other noise sources such as air traffic, railways, rail yards or stationary noise sources. Where new noise sensitive development is impacted by such noise sources, the noise levels from these separate noise sources must be assessed in accordance with MOE requirements. Ultimately, the required mitigation measures shall take into account noise from all sources.

A.3.3 Part A of the Noise Assessment Policy for Roadways and Highways applies when new noise sensitive development is proposed through Official Plan and/or Zoning By-law Amendments, Plans of Subdivision, or other Planning Act applications reviewed or approved by the City.

A.3.4 The noise level criteria and attenuation measures detailed in Part A of the City Noise Assessment Policy are generally consistent with criteria established by MOE through publication LU-131 (as amended). The City policy will apply in cases where it is more specific than MOE guidelines.

A.3.5 Proponents of new noise sensitive development are, in general, responsible for:

- assessing future noise impacts on the proposal from all nearby noise sources;

- preparing development proposals which minimize the use of noise barriers, wherever possible;
- submitting the appropriate studies and information;
- ensuring that the required noise control measures are incorporated into the plans and built accordingly; and
- having a Professional Engineer qualified to provide acoustical engineering services certify that the required noise control measures have been installed in accordance with the agreements and approved plans with the City.

A.3.6 The noise consultant is responsible for obtaining current information, applying professional expertise in performing calculations, and making detailed and justified recommendations. The noise consultant must certify the report with a professional designation stamp.

A.3.7 The City is responsible for commenting on the need to assess noise impacts, reviewing noise studies to determine whether proposed noise attenuation measures are acceptable to the City and adhere to MOE requirements, and implementing such measures through appropriate conditions of approval.

In cases of multiple transportation noise sources such as rail and air traffic affecting a development application in proximity to a Roadway and/or Highway, the following procedures shall be followed:

1. The outdoor noise impact due to air traffic shall be established separately from the impact due to roadway and/or highway traffic.
2. The outdoor noise impact due to roadway, highway and rail traffic shall be combined.
3. The indoor noise impact shall be assessed separately for roadway and highway, rail and aircraft noise.

A.4 Noise Assessment Criteria

A.4.1 MOE has established sound level criteria and requirements for carrying out noise impact studies for new development through the LU-131 Guideline. The MOE criteria and requirements form the basis of the City sound level standards and policies.

A.4.2 The following MOE noise criteria will be applied when assessing the noise impact of existing or planned roadways on Noise Sensitive Land Uses proposed in any development application:

Table A-1: MOE Sound Level Criteria for Road Traffic

Receiver Category	Time Period	Road Traffic
Outdoor Living Area	0700 – 2300	Leq = 55 dBA
Indoor Living Area	0700 – 2300	Leq = 45 dBA
Indoor Living Area	2300 - 0700	Leq = 40 dBA

(Sleeping Quarters)

A.4.3 For planning applications, the MOE identifies an objective sound level of Leq 55 dBA for the Outdoor Living Area (OLA) during the day time and MOE Publication LU-131 states that "only in cases where the required physical noise control measures are proven not to be technically, economically, or administratively feasible, such as contravening local by-laws, would an excess not greater than 5 dBA above the criterion (55 dBA) be acceptable with a warning clause Type B". Given this, where it can be demonstrated that it is not feasible to achieve the MOE objective of Leq 55 dBA, the MOE objective may be increased to a maximum level of Leq 60 dBA. Accordingly, it is the City of Hamilton's objective to aim to achieve as close to the Leq 55 dBA sound level for OLA's during the day time, as technically, administratively and economically feasible. Developments with OLA noise levels above the Leq 55 dBA sound level will be assessed based on site specific circumstances and the noise consultant and/or proponent demonstrating why the Leq 55 dBA in the OLA cannot be achieved.

A.5 Noise Assessment Procedures

A.5.1 Consideration of potential noise problems should commence as early as possible in the planning process with the objective of providing noise attenuation, while minimizing the use of noise walls.

A.5.2 The method for predicting noise levels will be in accordance with the MOE Guidelines, through the use of the Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT) Technical Document, Ontario Ministry of the Environment, ISBN 0-7729-6376, 1989, or any amendment thereof.

A.5.3 When predicting the noise levels, the following points shall be adhered to in the analysis and assessment:

1. Curved roadway/highway sections, roadways/highways with varying grade elevations, 4 or more lane roadways/highways and roadways/highways with noise barriers are to be assessed on the basis of multiple segments.

2. Where noise barriers are involved in the analysis, calculations should be performed at locations not exceeding 5 lots and/or dwellings.

3. Reliable grade elevations at the receptors, barrier base elevations and roadway elevations are to be established and to be included in the study.

4. The "posted speed" limit should be used in the prediction of the noise levels.

5. All receptors that may have an outdoor noise sensitive land use component are to be identified and addressed in the study.

In all cases, consideration should be given to future sound levels, with a minimum prediction of 10 years after the construction of the development.

A.5.4 Formal Consultation Applications

A.5.4.1 Through the Formal Consultation application process, the City will identify whether a noise study is required and the potential noise sources and advise the Proponent of the technical review and submission requirements.

A.5.4.2 If the preparation of a Noise Study is identified through the Formal Consultation application process, the Proponent shall submit a Noise Study for all potentially affected lands in conjunction with the required Planning Act application(s). The Noise Study must be prepared in accordance with MOE requirements and the City of Hamilton Noise Assessment Policy. Noise Study requirements are provided in Section A.6.

A.5.5 Application for Official Plan and/or Zoning By-law Amendments

A.5.5.1 Potential noise impacts which may result from a proposed change in land use must be identified during consideration of an Official Plan and/or Zoning By-law Amendment application.

A.5.5.2 As identified through the Formal Consultation application process, the proponent must submit a Noise Study with the Official Plan and/or Zoning By-law Amendment application. The City will review and comment on the Noise Study prior to approval of the Official Plan and/or Zoning By-law Amendment.

A.5.6 Secondary Plans

A.5.6.1 Secondary Plans define land use policy for future development in a specific area and are adopted through an Official Plan Amendment. Potential noise concerns should be addressed during the development of such Plans so that the need for noise barriers and/or the issue of noise control in individual applications is eliminated or reduced.

A.5.6.2 The City will determine an acceptable community design, taking into account noise sources and policies or design guidelines concerning acceptable attenuation measures. Land use arrangements, unit types, street layout, and other measures which mitigate noise levels and reduce the future need for noise barriers will be encouraged, although it is recognized that in some circumstances a noise barrier may be appropriate.

A.5.7 Draft Plan of Subdivision Applications

A.5.7.1 As per Section A.5.4, the Proponent shall submit a Noise Study with an application for Draft Plan of Subdivision approval if identified through the Formal Consultation process or as a condition of Draft Plan approval.

A.5.7.2 The Proponent shall consider the impact of all potential noise sources on the development as a factor in determining the design of the Plan, with the objective of providing noise attenuation without the use of physical barriers.

A.5.7.3 It is recognized that, at the Draft Plan stage, some data used in the noise prediction (grades, receiver location, etc.) may require assumptions to be made, and as a result the recommended noise attenuation measures may be stated in general terms. It is the responsibility of the Proponent to ensure that the Noise Study is updated as necessary to reflect more accurate or revised information when it is available.

A.5.7.4 A condition of Draft Plan Approval may include the completion of a Noise Study which shall take into account final lot grading, drainage and other details. Implementation of any required noise attenuation measures identified through the Noise Study will be facilitated through the Subdivision Agreement.

A.5.8 Consent Applications

A.5.8.1 For consent applications involving a new noise sensitive land use, the City will determine whether there is a potential concern related to noise from roadways and/or highways.

A.5.8.2 Where a potential noise concern is identified, the City will request that a Noise Study and implementation methods be submitted as a condition of the Consent. However, where it may not be feasible to attenuate the noise levels if the Consent were granted, the City will request that a Noise Study be submitted by the Proponent prior to consideration of the Consent application. The Proponent may request deferral of the Consent Application in order to provide more detailed information to the City to demonstrate that a Noise Study should not be required.

A.5.9 Draft Plan of Condominium Applications

A.5.9.1 The need to consider noise impacts in most instances will have been identified by the City in its comments on the Site Plan application (refer to A.5.10), or prior to a Zone Change or part of a Plan of Subdivision application.

A.5.9.2 It is recognized that generally, by the time a proposal has reached the Draft Plan of Condominium stage, a Noise Study has been prepared and reviewed as part of previous approvals; however, where the need for noise warning clause(s) has determined through the Noise Study approved by the City, said warning clauses(s) shall be included in the registerable portion of the condominium agreement where applicable.

A.5.9.3 Based on site specific circumstances, the City will determine if a noise barrier(s) is to be a common element feature and in turn will be maintained by the condominium corporation.

A.5.10 Site Plan Control Applications

A.5.10.1 If not already identified as part of the development process, potential noise impacts shall be identified during consideration of a Site Plan Control application.

A.5.10.2 If identified through the Formal Consultation application process, the proponent shall submit a Noise Study with the Site Plan Control application. The City will review and comment on the Noise Study prior to final approval of the Site Plan Control application.

A.6 Noise Study Requirements

A.6.1 All Noise Studies shall be prepared by a qualified noise consultant, who upon request by the City, may be required to demonstrate the following:

- Demonstration of thorough knowledge/understanding of MOE requirements (e.g. certificate showing that the individual has successfully completed a Ministry of Environment (MOE) course in Acoustical Technology in Land Use Planning, or its equivalent);
- Sample of three substantive Noise Studies completed by the individual within the last two years, preferable for sites in the City of Hamilton, demonstrating knowledge of appropriate study content, calculation methods, and noise attenuation recommendations;
- Thorough knowledge of the Noise Assessment Policy for Roads;
- Proof that the individual is a Professional Engineer (P. Eng.), Registered Professional Planner (R.P.P.) or is an employee of a Firm that holds a Certificate of Authorization license from Professional Engineers of Ontario (PEO); and
- Proof of Professional Liability Insurance carried by the consultant in an amount satisfactory to the City, as amended from time to time.

It is the responsibility of the individual consultant to advise the City of any change in status related to the above qualifications.

A.6.2 Where the requirement for a Noise Study is identified through the Noise Assessment Procedures of Section A.5, a traffic volume forecast shall be based on a minimum forecast of 10 years after the construction of the development, with the intent being 10 years post occupancy of the homes impacted by road noise.

A.6.3 A Noise Study shall include the following:

Table A-3: Requirements for a Noise Study Report for New Development

Required Item:	Required Content:
1. Title Page	• details of proponent • location of site • development application reference number(s) for the site • "Prepared by" (including signature) • qualification to submit report (e.g. P.Eng.)
2. Table of Contents	• list of sections • list of figures and tables • list of appendices, which should include: General Procedures and Adjustments, Sample Sound Calculations, Road Traffic Data/Level of Service Volumes
3. Introduction	• purpose of study • location of site • development application reference number(s) for the site • brief description of the proposal including lot layout, lot numbers, and unit numbers • surrounding / abutting land uses • overview of physical features • identification of all potential noise sources (the noise consultant is responsible for confirming the noise sources identified by the City at the Formal Consultation Meeting and identifying any additional sources) • scaled plan showing all noise sources noted above
4. MOE Criteria	• sound level criteria as noted MOE Publication *LU-131 Noise Assessment Criteria in Land Use Planning* (for OLA's and indoor areas)
5. Detailed Noise Analysis	• all assumptions used in the Noise Study to calculate noise levels (traffic data, posted speed, # of lanes, etc.) • noise prediction method (e.g. follow MOE requirements) • a table and a concise summary of predicted noise levels for outdoor and indoor living areas at appropriate receiver locations (shown on plan) with and without noise mitigation • recommendations concerning the need for noise attenuation measures, such as, noise barriers, central air, forced heating and other building components, as required by unit/block • recommendations concerning of the need for noise warning clauses
6. Assessment of Non-Barrier Alternatives (if required)	• identification and assessment of non-barrier alternatives • rationale for proposing non-barrier methods
7. Noise Mitigation Requirements (if proposed)	• If a barrier is proposed for noise attenuation: – rationale for proposing a noise barrier instead of non-barrier alternatives

Required Item:	Required Content:
	– economic, planning and engineering justification for the use of a wall or berm – barrier height table – typical and worst-case cross-sections, at an appropriate vertical and horizontal scale, which clearly show the barrier, the noise source, the noise receiver, and property limits – cross-sections must clearly show that the proposed noise wall satisfies the "sound line measurement technique" – a plan of the area subject to noise attenuation measures, showing location of cross-sections, final grades, and elevations of the edge of pavement, noise source, noise receiver and noise attenuation features – drainage details that could effect the implementation of noise control measures – specification of the type, surface density and location of the proposed barrier – consideration of the impact on existing trees from construction of a noise wall or berm (e.g. damage to root zone, trees destroyed) and reference to a related Tree Saving Plan • If indoor noise attenuation measures are proposed: – provide building component, acoustic insulation, window glazing tables
8. Warning Clauses (if required)	• If required, provide recommendations for the inclusion of warning clauses on title (as per standard wording as provided in Section 14.1 in the MOE Publication *Noise Assessment Criteria in Land Use Planning: Requirements, Procedures and Implementation (October 1997)* or any amendment thereof.
9. Implementation Requirements	• dictated through the approval process • may entail a certification from the noise consultant that the required noise mitigation measures are in the building plans and are installed appropriately
10. Conclusions and Recommendations	• summary of all recommendations required for noise attenuation • statement indicating the feasibility of the implementation
11. Figures	• Figure – location of site • Figure – plan, subdivision/site plan • Figure – identify site in relation to noise control lines for John C. Munro Hamilton International Airport • Figure – identification of receptors, proposed mitigation (noise barriers) on subdivision plan/site plan that includes

Required Item:	Required Content:
	proposed final grading details • Figure – details of noise barrier (s) / cross-sections

A.6.4 When the need for a Noise Study is identified, a minimum of 4 copies of the noise study shall be submitted by the proponent.

A.6.5 When the Noise Study is considered acceptable by the City, the owner/applicant will be notified and the appropriate conditions will be identified by City staff through the development application approval process.

A.6.6 The recommendations of an approved Noise Study submitted prior to registration of a Plan of Subdivision will be considered relevant for 3 years. If the subdivision plan is not registered within that time, the Proponent will be responsible for re-evaluating noise levels using current data and updating the Report prior to registration.

A.7 Implementation through City Development Agreements

A.7.1 Where attenuated or unattenuated noise levels exceed the noise criteria, the owner shall acknowledge the requirement to include a Warning Clause(s) in offers to purchase or rental agreements, through a development agreement or equivalent. The wording for all Warning Clauses should adhere to the wording identified in Section 14.1 in the MOE Publication *Noise Assessment Criteria in Land Use Planning: Requirements, Procedures and Implementation (October 1997)* or any amendment thereof. Based on this MOE Publication, the standard Warning Clauses that are to be used are as follows:

Table A-4: Warning Clauses to Be Applied (as required)

TYPE A: *"Purchasers/tenants are advised that sound levels due to increasing road (rail) (air) traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the City of Hamilton's and Ministry of the Environment's noise criteria."*

TYPE B: *"Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road (rail) (air) traffic may on occasions interfere with some activities of the dwelling occupants as the sound levels exceed the City of Hamilton's and the Ministry of the Environment noise criteria."*

TYPE C: *"This dwelling unit has been fitted with a forced air heating system and the ducting, etc. was sized to accommodate central air conditioning. Installation of central air conditioning by the occupant will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the City of Hamilton's and the Ministry of the Environment's noise criteria."*

TYPE D: *"This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the City of Hamilton's and the Ministry of the Environment's noise criteria.*

The foregoing Warning Clauses may be used individually or in combination as required.

A.7.2 Where a barrier is required, the type, location and height of the barrier shall be specified in the approved engineering drawings and corresponding Development Agreement or equivalent.

A.7.3 Where specific building components are required, they shall be specified in the City Development Agreement or equivalent and at the building permit stage of the development; the noise consultant shall certify that the required specific building components have been included in the building permit drawings. In addition, where specific building components are required for a development or specific units within a development, the noise consultant shall certify that these components have been appropriately installed prior to final inspection and release for occupancy

A.8 Noise Barriers Adjacent to Roadways and Highways

Noise Barrier Specifications

A.8.1.1 Recognizing the complementary function of noise barriers (i.e. for privacy). A minimum effective noise barrier height of 1.8 m shall be required by the City, unless otherwise approved.

A.8.1.2 The following criteria shall be used to determine the location of a noise barrier unless otherwise justified:

- where the noise barrier is a wall, it shall be located entirely on private property;
- where the noise barrier is a berm or a berm/wall combination, it will be located entirely on private property, unless otherwise approved by the City;
- side slopes of berms adjacent to a roadway will have a boulevard side slope no steeper than 3:1 (horizontal:vertical) unless otherwise approved by City staff, and
- where noise attenuation structures are interrupted, such as in the case of a walkway and/or property line, staggering of the barrier and/or barrier returns are required with a minimum two to one length to opening ratio.

A.8.1.3 The materials, design and detailed location of any proposed barrier shall be to the satisfaction of the City.

A.8.1.4 Where a noise wall(s) is to be located adjacent to the Redhill Valley Parkway or the Lincoln M. Alexander Parkway, it shall be located within the City road allowance and shall be of a concrete type material.

A.8.1.5 Where a noise wall(s) is located adjacent to a Provincial highway, the noise wall shall be of a concrete type material.

A.8.1.6 All noise walls shall adhere to barrier design standards as provided in Appendix A.

Noise Barrier Construction

A.8.3.1 A noise barrier(s) shall be installed prior to occupancy to the satisfaction of the City, unless otherwise approved.

PART B – CITY ROAD UNDERTAKINGS ADJACENT TO EXISTING DEVELOPMENT

B.1 Introduction

B.1.1 Modifications to existing City roadways (e.g. widening, intersection improvements, etc.) or construction of new City roadways must meet the requirements of the Ontario Environmental Assessment (EA) Act. Municipal roadways typically are carried out in accordance with the Municipal Class EA Process, which is an approved process under the Ontario EA Act. As part of an EA Study, a noise impact assessment must be carried out where a City roadway is widening or constructed adjacent to an existing Noise Sensitive Area (NSA). A noise impact assessment must be carried out in conformity with the Ministry of the Environment (MOE) / Ministry of Transportation (MTO) Noise Protocol. The City or the consultant carrying out the EA study on behalf of the City is responsible for reviewing the potential noise impacts from the City road undertaking and identifying the need for noise mitigation as required. The determination of potential noise impacts including the justification for whether or not noise mitigation is provided, must be documented in a Noise Report, which will be included as an appendix in the EA Report for the City road undertaking.

B.2 Purpose of Part B of the Noise Assessment Policy for City Roads

B.2.1 The purpose of Part B of the Noise Assessment Policy for City Roads is to state how this policy will be implemented with respect to proposed City road undertakings adjacent to existing developments. In particular, Part B indicates the scope of application for City road undertakings, the assessment of noise levels, the types of attenuation measures to be considered and the criteria for considering a noise barrier.

B.3 Scope and Definitions

B.3.1 Proposed City road undertakings refer to proposals for the widening of an existing City road, or the construction of a new City road, adjacent to an existing developed area (i.e. already built or under Registered Plan of Subdivision) of a Noise Sensitive Area (NSA).

B.3.2 Implementation of noise control measures in connection with the widening or construction of roadways under Provincial jurisdiction will be subject to the policies of the Ministry of Transportation (MTO).

B.3.3 Noise Sensitive Areas (NSAs) that are to be assessed are defined in Section II of the Noise Assessment Policy Report for City Roads.

B.3.4 If the Canadian Environmental Assessment Act (CEAA) is triggered, then the noise impact assessment must satisfy the requirements of the CEAA review process.

B.4 Assessment of Noise Levels

B.4.1 Assessment of noise levels will be undertaken as a component of the EA Study for a City roadway.

B.4.2 Existing and projected noise levels for the Daytime (0700 to 2300 hours) period will be assessed for the existing Outdoor Living Areas (OLAs) affected by the proposed undertaking, using procedures in accordance with the MOE / MTO Noise Protocol and MOE requirements, or any amendments thereof.

B.4.3 In order to determine a noise impact, a comparison shall be made for future sound levels with and without the proposed undertaking for the OLA of NSAs. The objective for outdoor sound levels is to achieve the future ambient that would occur without the proposed improvements. The significance of a noise impact is quantified by using this objective in addition to the change in sound level above the ambient (i.e. the future sound level without the proposed improvements is compared to the future sound level with the proposed improvements).

B.4.4 If there is no existing roadway, the following ambient sound levels will be assumed for the MOE Class 1-3 Areas as defined in Section II and MOE NPC-205 and NPC-233:

- Class 1 Area (urban) – 55 dBA
- Class 2 Area (suburban) – 50 dBA
- Class 3 Area (rural) – 45 dBA

The assumed ambient sound level must be reviewed with the City for confirmation.

B.4.5 The projected noise level will be calculated using the traffic volume forecast for the 20 year planning horizon for the future ambient (i.e. without the undertaking) and with the capital road project (i.e. with the undertaking). The traffic volume forecast is to be provided by the EA proponent.

B.4.6 The method for calculating noise levels will be in accordance with the MOE Guidelines, i.e. Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT) Technical Document, Ontario Ministry of the Environment, ISBN 0-7729-6376, 1989., or any amendment thereof.

B.4.7 In connection with the implementation of capital road projects, the following shall be used as a guideline in considering mitigation of noise impacts:

Table B-1: Mitigation Effort Requirements

Change in Noise Level Above Ambient / Projected Noise Levels with Proposed Improvements	Mitigation Effort Required
0–5 dBA change when <60 dBA	- None
0-5 dBA change when ≥ 60 dBA OR >5 dBA change	- Investigate noise control measures on right-of-way. - Noise control measures, where introduced, should achieve a minimum of 5 dBA attenuation, for first row receivers. - Mitigate to ambient, as technically, economically and administratively feasible.

B.5 Noise Attenuation Measures

B.5.1 The types of noise control measures available for consideration include but are not limited to:

- location of road allowance;
- location of pavement within the road allowance;
- vertical alignment;
- pavement surface type;
- reduction of posted speeds; and
- noise barriers, which includes walls, berms or a combination thereof.

B.5.2 The noise barrier will be designed to achieve a 5 dBA or more reduction in the daytime noise level (Leq 16 hours) in the Outdoor Living Area and to reduce the projected noise level to 60 dBA or less. The proposed height, location and design to achieve these objectives will be reviewed by residents and City Council. The minimum height for the noise wall is 2.2 m and the maximum height is 3.0 m. Barrier heights beyond 3.0 m require a berm / wall combination and require confirmation by City staff.

B.5.3 The final decision concerning the funding and installation of a proposed noise barrier will be made by City Council in conjunction with the road design approval.

B.6 Noise Study Report Requirements

B.6.1 The Noise Study Report requirements for proposed City road undertakings adjacent to NSAs must include:

Table B-2: Requirements for Noise Study Report for City Road Undertakings

Required Item:	Required Content:
1. Introduction	• purpose of EA Study • location/overview of City road undertaking • purpose of noise impact assessment
2. Background	• review of adjacent NSAs to determine: – the construction date for the residential development – if a Noise Study Report for the development was prepared – if there was consideration of the proposed City road undertaking – if there are any Warning Clauses on title – if there are any noise attenuation measures provided to mitigate traffic noise from the City roadway
3. Methodology	• summary of MOE and City of Hamilton noise criteria • summary of measuring noise levels (e.g. background to noise to provide an understanding for those who may not be familiar with noise)
4. Noise Sensitive Areas	• overview of Noise Sensitive Areas (NSAs) within the study limits (include details, such as, number of adjacent houses, nature of NSAs (rural or urban), and location of the Outdoor Living Areas (OLAs). • exhibit(s) illustrating the location of the NSAs and their OLAs
5. Noise Analysis	• all assumptions used in the Noise Study to calculate noise levels (traffic data, posted speed, # of lanes, etc.) • noise prediction method (e.g. follow MOE requirements) • a table and a concise summary of projected noise levels for

Required Item:	Required Content:
	Outdoor Living Areas at appropriate receiver locations (shown on plan) before and after noise mitigation • identification of the need for noise attenuation measures, such as, noise barriers, as required by unit/block
6. Noise Mitigation Requirements (if proposed)	• If a barrier is proposed for noise attenuation: – economic, planning and engineering justification for the use of a wall or berm – barrier height table – typical and worst-case cross-sections, at an appropriate vertical and horizontal scale, which clearly show the barrier, the noise source, the noise receiver, and property limits – cross-sections must clearly show that the proposed noise wall satisfies the "sound line measurement technique" – consideration of the impact on existing trees from construction of a noise wall or berm (e.g. damage to root zone, trees destroyed) and reference to a related Tree Saving Plan
7. Conclusions and Recommendations	• summary of all conclusions from the noise analysis • summary of all recommendations required for noise attenuation • statement indicating support of the recommended implementation requirements
8. Figures	• Figure – overview of study area • Figure – location of Noise Sensitive Areas and receiver locations • Figure – location of noise barriers if proposed • Figure – cross-sections of noise barriers if proposed

B.6.2 The Noise Study Report will be included as an appendix to the EA report.

B.7 Implementation and Maintenance

B.7.1 The location, design, and construction of the noise barrier will be undertaken by the City.

B.7.2 The City will be responsible for the ownership and maintenance of the barrier.

B.7.3 If construction of the proposed undertaking does not occur within 5 years of the noise assessment, noise levels will be re-calculated and the need for a noise barrier will be re-assessed prior to construction.

B.7.4 When noise mitigation is warranted on the basis of projected noise levels exceeding 60 dBA, the mitigation may be deferred until noise levels exceed 60 dBA.

B.7.5 Where it is the decision of City Council not to include noise attenuation barriers in the road undertaking, residents may consider pursuing the construction of a noise barrier through the provisions of Part C of the Noise Assessment Policy for City Roads.

PART C - EXISTING DEVELOPMENT ADJACENT TO EXISTING CITY ROADS (CITY RETROFIT PROGRAM)

C.1 Scope

C.1.1 The purpose of Part C of the Noise Assessment Policy for City Roads is to detail how the City will respond to:

1. resident owned noise walls requiring replacement.

2. concerns raised by owners of existing noise sensitive land use about the impact of noise from an adjacent City roadway.

Part C establishes the technical criteria and priority scheme on a City-wide basis, responsibilities for costs involved, how to petition the City, construction and maintenance cost of retrofitting noise barriers.

C.1.2 Such concerns may arise as a result of increased traffic volumes, an increase in the number of heavy vehicles using the roadway, or failure of an existing noise attenuation measure.

C.1.3 In connection with severely deteriorated privately owned noise barriers that are located adjacent to the City roadways, the following process shall be used in addressing potentially unsafe situations adjacent to public areas:

a) Potential hazards shall have owners directed to correct the problem within a fixed time period.
b) Failure to comply shall result in City staff to have unsafe sections dismantled and have removed materials either disposed of or stockpiled on or adjacent to the owner's property. All costs incurred will be back charged to the homeowner via the Property Standards Act.

C.1.4 The City will participate in retrofitting noise mitigation measures along City roadways by constructing noise barriers in accordance with the technical and financial details of this Policy.

Implementation of this policy is dependent upon budget allocations and subject to prioritization of candidate sites by City Asset Management Department.

C.2 Criteria for Qualifying under the City Retrofit Program

C.2.1 Part C of Noise Assessment Policy for City Roads only applies to City road facilities as noise sources. It applies to Noise Sensitive Areas (NSAs) as defined in Section II. Part C does not

apply to other sources of noise, such as, air traffic, Provincial highways, railways and other transportation facilities that are not part of the City road system.

C.2.2 NSAs and receivers that qualify for application to the City Retrofit Program shall meet the following criteria:

1. A residential area adjacent to City arterials and parkways/expressways.

2. Reversed frontage lots or blocks including flanking units where their Outdoor Living Areas are directly exposed to traffic noise.

3. The NSA must have OLAs associated with the residential unit such as a backyard.

4. At least 5 continuous dwellings are affected.

5. Barriers must be installed on a completed block to ensure their effectiveness.

6. A petition requesting the installation of a noise attenuation barrier and signed by landowners must be submitted to the City. A Sample Petition Form is included in Appendix C. At least two-thirds of the affected property owner(s) must sign the petition to qualify for the retrofit.

7. The objective sound level for the retrofitting Policy is Leq (daytime) 60 dBA. Therefore, points of reception subject to sound levels lower than Leq (daytime) 60 dBA within the majority of OLA's will not qualify.

8. The retrofitting program objective is to reduce the existing and/or future sound levels as much as is technically, economically feasible towards the City's retrofitting objective sound level of Leq (daytime) 60 dBA.

9. If a noise barrier is to be constructed as part of the Retrofitting Policy, it must provide a minimum sound Insertion Loss (IL) of 5 dBA when averaged over the first row of receivers.

10. Where Warning Clauses have been included on title of purchase, residents acknowledged potential for elevated noise levels due to traffic. In these scenarios, residents have waived their rights for retrofit eligibility.

C.2.3 In cases where existing noise walls are ineffective due to design deficiencies, they can become candidates for the Retrofit Program if the new mitigation can achieve a benefit of at least 5 dBA over the existing noise barrier and all other existing retrofit conditions are satisfied.

C.2.4 It is not the intent of this Policy to construct retrofitting noise barriers along all City roadways. This is firstly due to budgetary limitations on the City financial resources and secondly some candidate sites may not be suitable for retrofitting due to several technical, economical and

administrative factors that may include, but are not limited to, not meeting the specified sound level criteria, site topography, physical limitations, excessive costs, etc.

C.2.5 The method for calculating noise levels will be in accordance with the MOE Guidelines, i.e. Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT) Technical Document, Ontario Ministry of the Environment, ISBN 0-7729-6376, 1989., or any amendment thereof.

C.2.6 Situations where a new City Roadway will be constructed adjacent to existing homes must then determine if noise abatement features are required. If warranted, they must be incorporated into the design as part of the Class Environmental Assessment process (see Part B of the Noise Assessment Policy for City Roads).

C.3 City Response to an Enquiry Concerning Road Noise

C.3.1 When a noise concern is initially raised by a resident through a letter or telephone call, it will be directed to Public Works Department.

C.3.2 A Public Works staff member will respond by describing the policies of the City Retrofit Program, and assisting the resident to understand whether the City Retrofit Program applies to their particular situation (see C.3.6).

C.3.3 Noise attenuation measures that could be undertaken by the City will also be considered in the context of approved operating and capital programs. These may include: re-paving, signage to avoid use of engine brakes, construction of new roads to reduce traffic on existing roads, etc. City staff will undertake to advise the resident on the feasibility of such measures within a reasonable time period.

C.3.4 If the resident chooses to pursue the complaint, details of the situation must be submitted in a written format, addressed to the Public Works Department.

C.3.5 Upon receipt of a formal complaint, it will be acknowledged by a written response from the City.

C.3.6 City staff will assess the situation to determine:

1. applicable noise source(s)
2. location and type of noise receiver
3. location, type and condition of existing noise barrier (if a barrier exists)
4. characteristics of site
5. noise-related conditions of development
6. any other pertinent information

C.3.7 The existing noise level in the OLA will be calculated based on existing average daily traffic volumes for the Daytime (0700 to 2300 hours) period, using procedures in accordance to MOE requirements.

C.3.8 If the existing noise level is 60 dBA or less, the resident will be advised that this level is within the provincial objective for the OLA, and that no further action will be taken by the City.

C.3.9 If there were noise related conditions of development that have not been satisfied or are not in compliance with City standards, the resident will be advised of this. City staff may be able to suggest a possible course of action.

C.3.10 If the existing noise level exceeds 60 dBA, the resident will be advised of these results and again advised of individual options such as a privacy fence, window improvements or air conditioning that could be undertaken by the resident. No further action would be taken by the City unless the resident reiterates that he/she wishes to pursue a noise wall option.

C.3.11 If the noise concern is raised by residents of one or more condominium corporations, it will be recommended that the corporation construct the noise wall or undertake other attenuation measures, rather than proceed under the City Retrofit Program. This will enable the condominium corporation to select the type, design and location of the noise wall.

C.4 Where Resident Pursues Noise Wall Option

C.4.1 City staff will assess and document the noise calculations and also determine the approximate noise wall height, length and cost to attenuate the Daytime (0700 to 2300 hours) noise level in the OLA by 5 dBA or more, to less than 60 dBA.

C.4.2 City staff will advise all potentially directly affected residents by mail, and arrange a meeting with residents, City staff and a City Councillor representing the subject area. The purpose of the meeting will be to:

1. describe the situation, the individual noise attenuation options available to the residents and the potential noise barrier solution;
2. outline the requirements of the City Retrofit Program, the benefiting properties, and the approximate costs;
3. discuss whether the residents are interested in a barrier;
4. determine who will represent the residents; and
5. identify the next steps.

C.4.3 If there is general agreement to proceed, City staff will notify all affected residents and establish a deadline for receiving a petition signed by at least two-thirds of the affected residents.

C.4.4 Following the response deadline, a report will be prepared for City Council, copied to the affected residents, with the results of the response, and recommending construction of the noise barrier if sufficient residents support the proposal.

C.4.5 Upon decision to proceed, City staff will contract out the design and construction of the noise barrier. All of these costs, as well as financing costs, will be cost-shared 50%/50% between the City and residents adjacent to the proposed noise barrier (e.g. first row of receivers). However, if noise analysis reveals that there is some benefit to other residents (e.g. second row of receivers) cost sharing could be 75%/25% between the City and the affected residents.

C.4.6 City staff will inform the residents of the final cost. The City will add the appropriate amount to the tax bill of each resident over a pre-determined time period.

C.4.7 Applications that satisfy retrofit criteria will be ranked, priced and submitted to Council for funding approval as part of the yearly capital budget cycle. Based on approved funding, improvements will be made based on highest ranking. If approved funding is limited, qualified applications not implemented shall be re-budgeted in the next year's budget cycle and implemented based on new rank and approved funding.

C.5 Noise Barrier Technical Criteria

C.5.1 The sound barrier must be installed on a complete block to ensure its effectiveness. Therefore, it is important that the homeowners get together as a group from block to block, or from one side of the development to the other (a discontinuous noise barrier is not as effective noise barrier).

C.5.2 Barriers will be constructed on the City's right-of-way, where feasible. Otherwise, appropriate easements will be required.

C.5.3 Where deemed necessary, each section of the noise barrier will be individually designed (location, height, extent, material) and cost estimates will be prepared accordingly.

C.5.4 It is the Policy of the City to use noise barrier walls for retrofitting purposes and not berms or berm/wall combinations. The use of berms as a base for a noise retrofitting barrier may be considered on a case-by-case basis only; where technically warranted. In such a special case, the City will not accept construction of part of the berm on City right-of-way.

C.5.5 The choice of the type of barrier material and colour will be jointly shared with the homeowners. However, the barrier material specifications will be subject to the City's specifications for noise barriers. Standards for noise walls are provided in Appendix A.

C.5.6 The cost of noise attenuation within an individual dwelling or an outdoor area that is not part of the approved points of reception will be the sole responsibility of the homeowners. Furthermore, the homeowner will be responsible for all noise abatement features required to the indoors of the dwelling building such as air conditioning, double-glazed windows, brick veneer, etc.

C.5.7 The minimum height of a noise wall for retrofit purposes is 2.2. m and the maximum height is 3.0 m from the barrier base elevation. Higher noise barrier walls may be allowed by the City subject to investigation of the aesthetics of the installation and depending on the availability of wide right-of-way and deep residential lots. In preparing the design for the noise wall, consideration shall be given to the inclusion of openings through the wall for fire protection to adjacent homes (if the hydrants are located within the City Road allowance) and openings through the wall for fire protection for vehicles using the roadway from hydrants located on adjacent local streets.

C.5.8 If required, property owners at the termination points of the noise abatement wall will be asked to register an easement to the City for the construction and maintenance of a noise wall along a side lot line. The side lot line noise wall will provide protection for the rear yard area of the adjacent property. If the landowner refuses to transfer the easement, the City will not attempt to purchase or expropriate the easement but will delete this section of wall from the noise abatement construction project.

C.6 Construction and Maintenance

C.6.1 Issues related to construction and maintenance of the retrofitting noise barriers will be subject to the following requirements:

1. The acoustic and engineering design and construction of the retrofitting noise barrier will be undertaken by the City (The City may use sub-contractors to undertake parts or all of the necessary work). The costs of any necessary engineering studies and design will be included in the overall cost of the barriers.

2. The design and material specifications for the wall shall be in accordance with the City's standards and shall be discussed with the benefiting homeowners. Standards for noise walls are provided in Appendix A.

3. Each noise wall constructed shall be in accordance with the MOE acoustical specifications and other engineering specifications acceptable to the City. The wall shall be consistent with good engineering design relating to foundation requirements, drainage, traffic sight lines and daylighting at intersecting streets.

4. Ongoing maintenance shall be the responsibility of the City in order to maintain an efficient and uniform standard with respect to the level of quality, design, barrier condition and function.

5. Consideration will be given by the City to aesthetic impacts when designing noise control measures as well as the safety and security of pedestrians.

6. The homeowners will be required to enter into an agreement with the City regarding cost sharing, maintenance of the barrier, alterations/tampering with the barrier, payment schedule, etc.

C.7 Costs and Priority

C.7.1 All costs associated with the retrofitting will be subject to the following requirements:

1. Requests for retrofitting will be received by the City and will undergo initial screening and prioritization (if all warrants for construction are met) in relation to other retrofitting requests and the budget allocated by the City for barrier retrofitting. Based on the approved funding, the cost of the approved retrofit noise mitigation will be shared equally (50%/50%) between the City and the benefiting homeowners. However, if noise analysis reveals that there is some benefit to other residents (e.g. second row of receivers) cost sharing could be 75%/25% between the City and the affected residents.

   A Funding source for the City portion will need to be established.

2. The overall cost of the residents' portion of the cost will be divided equally by the number of affected residents.

3. Retrofit requests will be dealt with on a case by case basis, prioritized based on this Policy and subsequently included in the capital budget in accordance with the availability of funding.

APPENDIX A
BARRIER DESIGN STANDARDS

CITY OF HAMILTON

BARRIER DESIGN STANDARDS

Design Barrier Design Standards to be determined prior to finalizing this policy

APPENDIX B
CITY PROCEDURE FOR RESPONDING TO NOISE ENQUIRY UNDER CITY RETROFIT PROGRAM

CITY OF HAMILTON PROCEDURES FOR RESPONSDING TO AN ENQUIRY CONCERNING ROAD NOISE

Where Noise Concern is Initially Raised by Resident(s):

1. Direct a noise concern initially raised by resident(s) through a letter or telephone call to the Public Works Department.

2. Respond to enquiry by resident(s) by describing the policies of the City Retrofit Program, and assisting the resident to understand whether the Retrofit Program applies to their particular situation. Review the Criteria for Qualifying under the City Retrofit Program as noted in Section C.2 in Noise Assessment Policy for City Roads.

3. Indicate to the resident(s) the noise attenuation measures that could be undertaken by the City in the context of approved operating and capital programs. These may include: re-paving, signage to avoid use of engine brakes, construction of new roadways to reduce traffic on existing roadways, etc. City staff to advise the resident(s) on the feasibility of such measures within a reasonable time period.

4. If resident(s) chooses to pursue the complaint, provide the details of the situation must be submitted in a written format, addressed to the Public Works Department.

5. Upon receipt of a formal complaint, acknowledge the complaint by a written response.

6. Assess the situation to determine:

    - applicable noise source(s)
    - location and type of noise receiver
    - location and type condition of existing noise barrier (if barrier exists)
    - characteristics of site
    - noise-related conditions of development
    - any other pertinent information

7. Calculate the existing noise level in the Outdoor Living Area based on existing average daily traffic volumes for the Daytime (7:00 a.m. to 11:00 p.m.) period, using procedures in accordance with MOE requirements and the City's Noise Assessment Policy.

8. If the existing noise level is 60 dBA or less, provide a written response to the resident(s) indicating that this level is within the provincial objective for outdoor sound levels, and that no further action will be taken by the City.

9. Advise the resident(s) if there were noise related conditions of development that have not been satisfied or have failed. Review possible course of actions.

10. If the existing noise level exceeds 60 dBA, provide a written response to the resident(s) indicating these results, individual options such as a privacy fence, window improvements or air conditioning that could be undertaken by the resident, and that no further action

would be taken by the City unless the resident again advises that he/she wishes to pursue a noise wall option.

11. If the noise concern is raised by residents of one or more condominium corporations, provide a written response recommending that the corporation construct the noise wall or undertake other attenuation measures, rather than proceed under the City Retrofit Program. Indicate that this will enable the condominium corporation to select the type, design and location of the noise wall.

Where Resident Pursues Noise Barrier Option:

12. Document the calculations and determine the approximate noise wall height, length and cost to attenuate the Daytime Outdoor living area noise level by 5 dBA or more, to less than 60 dBA.

13. Advise all potentially directly affected residents by mail, and arrange a meeting with residents, City staff and a City Councillor representing the subject area. At the meeting:

    - describe the situation, the individual noise attenuation options available to the residents and the potential noise barrier solution;
    - outline the City Noise Assessment Policy requirements, the benefiting properties, and the approximate costs;
    - outline the cost sharing formula and range of costs that each homeowner could expect to be included in their tax billing over a pre-determined period;
    - discuss whether the residents are interested in a barrier;
    - determine who will represent the residents; and
    - identify the next steps.

14. If there is general agreement to proceed, notify all affected residents and establish a deadline for receiving a petition signed by at least two-thirds of the affected residents.

15. Following the response deadline, prepare a report for City Council and copy the affected residents, with the results of the response, and the recommendation for the construction of the noise barrier if sufficient residents support the proposal.

16. Upon decision to proceed, contract out the design and construction of the noise barrier.

17. Inform the residents of the final cost and the residents' share of the cost. The City will add the appropriate amount to the tax bill of each resident.

18. Rank application and submit to Council for funding approval as part of the yearly capital budget cycle.

APPENDIX C
SAMPLE PETITION FORM

SAMPLE PETITION FORM
FOR REQUESTING NOISE MITIGATION MEASURES
ALONG CITY ROADS

We, the undersigned are the registered owner(s) of the property beside our names and hereby request that the City of Hamilton through Part C of the Noise Assessment Policy for City Roads undertake the construction of a noise attenuation barrier on our private properties immediately adjacent to the City Road known as…

We acknowledge that City staff may be required to enter onto our properties for the removal of any existing fencing or the clearing and grubbing of vegetation to facilitate the installation of this noise attenuation barrier. We also acknowledge that no gates will be permitted through this barrier.

As per the City Retrofit Program, we acknowledge that 50% of all costs incurred by the installation and future maintenance by the City of this barrier will be borne by the owner(s) of the properties adjacent to this wall. The exact cost will be assessed as per Part C of Noise Assessment Policy for City Roads.

We acknowledge that our share may be paid through our Local Property Taxes over a pre-determined time period or may be paid in one lump sum upon completion of the work.

OWNER (Print)	**ADDRESS**	**PHONE NO.**	**SIGNATURE (in Ink)**

NB: As per the City Noise Assessment Policy, this proposed noise attenuation barrier must be supported by at least two-thirds of the affected property owner(s) and is subject to Council's budgetary and other considerations.