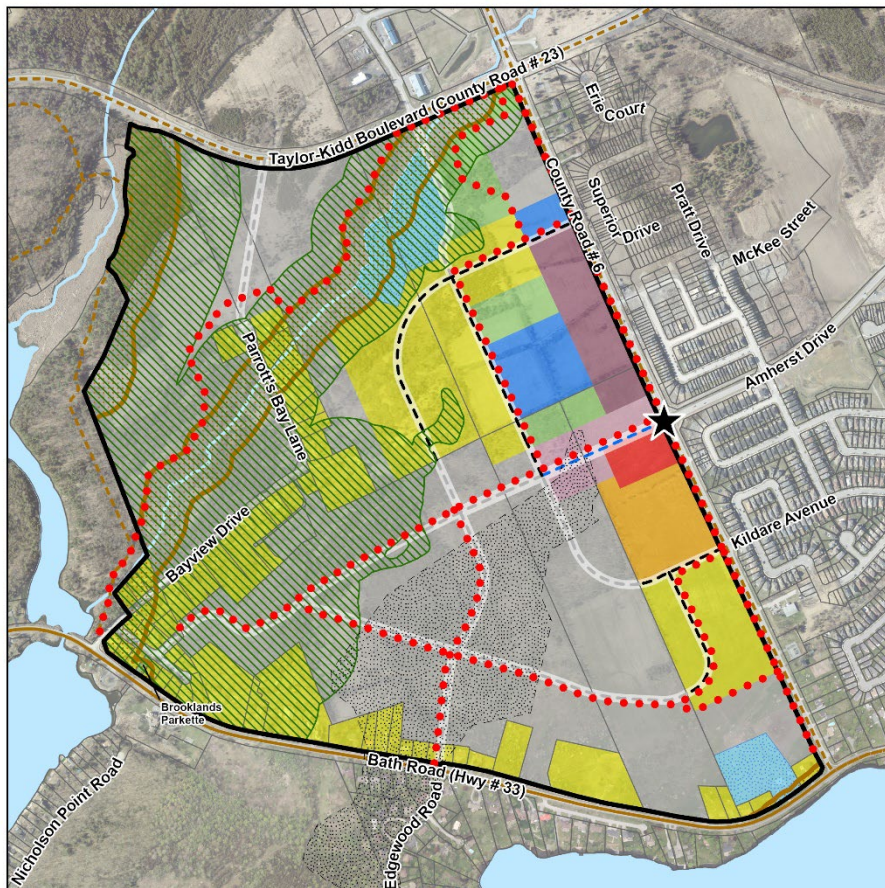


LOYALIST TOWNSHIP

SECONDARY PLAN AMHERSTVIEW WEST NOISE FEASIBILITY STUDY

JULY 02, 2024





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LOYALIST TOWNSHIP

FINAL

PROJECT NO.: 211-01353-00

DATE: JULY 02, 2024

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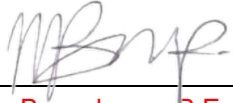
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1 INTRODUCTION

WSP Canada Inc. (WSP) was retained by Loyalist Township (the Township) to prepare a Noise Feasibility Study for the proposed Amherstview West Secondary Plan (Secondary Plan). The Secondary Plan area is located to the west of County Road 6 and the currently built-up area in Amherstview, within Loyalist Township, in the County of Lennox and Addington, in the Province of Ontario.

This report was conducted in accordance with the Ministry of Environment, Conservation and Parks (MECP) Noise Pollution Control (NPC) Publication NPC-300 “Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning” (NPC-300), dated August 2013.

1.1 SECONDARY PLAN AND SURROUNDING AREA

The Secondary Plan area (Plan Area) is bounded by:

- Existing major arterial road Taylor-Kidd Boulevard (County Road #23) to the north;
- Existing urban arterial road County Road #6 to the east;
- Existing provincial highway Bath Road (Highway #33) to the south, and;
- Rural lands to the west.

Figure 1 (pg. 14) shows the location of the Plan Area and the surrounding areas.

The Secondary Plan, Schedule A, included in **Appendix A**, designates Residential (Low, Medium, and High Density), Commercial (Mixed Use, and Highway), Institutional, Environmental Protection, Future Development Area, Stormwater Management and Parks/Open Space land uses.

1.2 PURPOSE OF STUDY

This Noise Feasibility Study assesses the impact of transportation and stationary noise sources on preexisting sensitive land uses and those introduced by the Secondary Plan. The objective is to verify compatibility of land uses and flexibility for growth in developing the community.

Transportation sources include the existing roads that bound the Plan Area, and proposed collector roads within the Secondary Plan. Stationary sources include future sources associated with the proposed medium/high density residential, commercial, and industrial land uses potential developments. There are industrial facilities and rail to the north; however, these are well separated from the Plan Area and are not considered in this report. Institutional planned land uses were deemed not noise sensitive for the purposes of the feasibility study; generally, noise sensitive institutions have non-operable windows.

2 TRANSPORTATION NOISE IMPACT

2.1 NOISE SOURCES

The future noise impact from vehicular traffic, on both planned and existing roads, was assessed for the Secondary Plan’s proposed noise sensitive land uses to determine feasibility.

ROAD TRAFFIC DATA

Since future traffic data was not available at the time of preparing this Study; for this noise feasibility study, ultimate traffic data from similar roadways was used. Such data was obtained from the City of Ottawa’s Environmental Noise Control Guideline (ENCG) based on conservative road classification and speed limits. The feasibility was established based on future sound levels as built scenario using potential ultimate data. Therefore, the current traffic data was not used in the assessment. The ultimate road traffic data used in this assessment is summarized in **Table 2-1** and roads of interest are shown in **Figure 2** (pg. 15).

Table 2-1 Summary of Ultimate Road Traffic Data

ROAD	ROAD CLASSIFICATION	ULTIMATE AADT ⁽¹⁾	DAY/NIGHT SPLIT (%)	MEDIUM TRUCK (%)	HEAVY TRUCK (%)	SPEED LIMIT (KM/H)
Taylor-Kidd Boulevard (County Road #23)	2-Lane Arterial	15,000	92/8	7	5	80
County Road #6	2-Lane Urban Arterial	15,000	92/8	7	5	80
Bath Road (Highway #33)	Highway	36,666	92/8	7	5	100
Proposed Collectors	2-Lane Major Collector	12,000	92/8	7	5	60

(1) Annual Average Daily Traffic (AADT).

2.2 NOISE GUIDELINES AND ASSESSMENT CRITERIA

Noise is recognized as a pollutant in the Environmental Protection Act, as uncontrolled noise can affect human activities. Ontario provincial noise control guidelines require that potential noise impacts be addressed in the planning of any new development. The noise assessment criteria are based on Section “Part C – Land Use Planning” of the MECP Publication NPC-300. This section of the guideline is intended to provide a common framework for land use planning authorities, developers, and consultants to address environmental noise in the land use planning process.

Table 2-2 MECP Sound Level Limits for Road Noise

AREA	TIME PERIOD	SOUND LEVEL, L _{EQ} (DBA)
Outdoor Living Area (OLA)	Daytime (0700 – 2300h)	55
Indoor Living/Dining Room	Daytime (0700 – 2300h)	45
	Nighttime (2300 – 0700h)	45
Indoor Sleeping Quarters (i.e. bedroom)	Daytime (0700 – 2300h)	45
	Nighttime (2300 – 0700h)	40

As defined in the MECP Publication NPC-300, an Outdoor Living Area (OLA) is part of noise sensitive land use intended for the quiet enjoyment of the outdoor environment. OLA can include recreational areas such as backyards, terraces, patios and common outdoor living areas associated with high-rise multi-unit buildings.

Indoor living environments considered sensitive to noise include living/dining rooms and bedrooms. These areas are represented by the building façade noise receptor locations at the plane-of-window (POW) of indoor living spaces.

2.2.1 Noise Control Requirements and Warning Clauses

The MECP Publication NPC-300 provides guidance on selecting appropriate noise control measures to achieve the sound level limits summarized in **Table 2-2**.

OUTDOOR LIVING AREA REQUIREMENTS

When the daytime outdoor sound levels exceed the objective sound level of 55 dBA by up to 5 dBA, physical noise control measures are not mandatory under the MECP policy. Noise control measure is not required only in cases where the noise control measures are not technically, economically and administratively feasible. If noise control measures are not implemented, prospective purchasers/tenants must be informed of the potential noise disturbance by means of a warning clause registered in offers/agreements of purchase and sales/leases or tenancy agreements.

If the daytime sound levels exceed the objective sound level of 55 dBA by more than 5 dB, physical noise control measures are mandatory under the MECP policy, along with a warning clause registered in offers/agreements of purchase and sales/leases or tenancy agreements. Noise control measures should be investigated in terms of technical, economic, and administrative feasibility. The warning clause will inform prospective purchasers/tenants of the potential noise disturbance if the physical noise control measures were removed.

Table 2-3 summarizes the noise control and warning clause requirements for OLAs.

Table 2-3 Outdoor Noise Control and Warning Clause Requirements

AREA	TIME PERIOD	LEQ (DBA)	POTENTIAL NOISE CONTROL	WARNING CLAUSE REQUIREMENTS
Outdoor Living Area (OLA)	Daytime (0700 – 2300h)	≤ 55	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
		> 55 and ≤ 60	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Type A required
		> 60	<ul style="list-style-type: none"> Distance setback with Soft Ground Insertion of insensitive land use between source and receptor Orientation of buildings to provide sheltered zones in rear yards Shared outdoor amenity areas Berm or barrier 	<ul style="list-style-type: none"> Type B required

INDOOR REQUIREMENTS

Noise sensitive indoor living environments include bedrooms and living/dining rooms. These areas are represented by receptors at the building façade noise at the POW. To comply with the indoor sound level criteria listed in **Table 2-2**, NPC-300 provides guidelines based on predicted sound level at the façade/POW. If the predicted sound level at the POW exceeds the applicable limits, additional considerations such as the type of ventilation; type of windows, exterior walls, and doors that can provide noise attenuation must be selected. In addition, warning clauses to inform the future occupants are also required. These warning clauses are identified as Type A to Type D.

Ventilation Requirements

Table 2-4 summarizes the requirements for ventilation and the requirement for warning clauses to inform the future occupants of the exceedance.

Table 2-4 Noise Control and Warning Clause Requirements

AREA	TIME PERIOD	EQUIVALENT SOUND LEVEL (DBA) ⁽²⁾	VENTILATION REQUIREMENTS	WARNING CLAUSE
Plane of Window ⁽¹⁾	Daytime (0700 – 2300h)	≤ 55	None	None
		> 55 and ≤ 65	Forced air heating systems with provisions for the future installation of central air conditioning	Type C required
		> 65	Central air conditioning	Type D required
	Night time (2300 – 0700h)	≤ 50	None	None
		> 50 and ≤ 60	Forced air heating systems with provisions for the future installation of central air conditioning	Type C required
		> 60	Central air conditioning	Type D required

Note:

- (1) Plane of Window of living/dining room and bedroom.
- (2) Daytime: L_{EQ 16HR}; Nighttime: L_{EQ 8-HR}.

Building Component Requirements

Table 2-5 summarizes the requirements for ventilation and the requirement for warning clauses to inform the future occupants of the exceedances.

Table 2-5 Noise Control and Warning Clause Requirements

AREA	TIME PERIOD	EQUIVALENT SOUND EXPOSURE LEVEL (DBA) ROAD ⁽²⁾	BUILDING COMPONENT REQUIREMENTS
Plane of Window ⁽¹⁾	Daytime (0700 – 2300h)	≤ 65	Building components compliant with Ontario Building Code (OBC)
		> 65	Building components designed/selected to meet Indoor Requirements
	Nighttime (2300 – 0700h)	≤ 60	Building components compliant with Ontario Building Code (OBC)
		> 60	Building components designed/selected to meet Indoor Requirements

Note:

- (1) Plane of Window of living/dining room and bedroom.
- (2) Daytime: L_{EQ 16HR}; Nighttime: L_{EQ 8-HR}.

Warning Clauses

Warning clauses referred in **Table 2-4** and **Table 2-5** are defined in **Table 2-6**. Applicable clauses are to be included in offers/agreements of purchase and sales/leases or tenancy agreements to notify prospective purchasers/tenants of the environmental concerns to make informed decisions.

Table 2-6 MECP Warning Clauses

TYPE	WARNING CLAUSES
Type A	"Purchasers/tenants are advised that sound levels due to increasing (road) (transitway) (rail) (air) traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the 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) (transitway) (rail) (air) traffic may on occasions interfere with some activities of the dwelling occupants as the sound levels exceed the Ministry of the Environment's noise criteria."
Type C	"This dwelling unit has been fitted with a forced air heating system and ducting, etc. and 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 Ministry of the Environment's noise criteria." (Note: The location and installation of the outdoor air conditioning device should be done so as to comply with noise criteria of MECP Publication NPC-216, Residential Air Conditioning Devices and thus minimize the noise impacts both on and in the immediate vicinity of the subject property.)
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 Ministry of the Environment's noise criteria."

2.3 ANALYSIS METHOD

The MECP updated their guidance requiring the use of noise prediction methods and software for determining the impacts of noise from roads and railways (Publication NPC-306 "*Methods to Determine Sound Levels Due to Road and Rail Traffic*" December 2021). The Publication NPC-306 replaces Publication NPC-206 "*Sound Levels Due to Road Traffic*", dated October 1995, which referenced the use of ORNAMENT calculation procedures. Previous noise prediction methods using STAMSON, and MECP prediction software implementation of ORNAMENT, were based on a 1995 DOS program which is a modification of the U.S. Federal Highway Administration (FHWA) FHWA-RD-77-108 algorithm to simplify calculations with inherent limitations. Based on the MECP's draft guidance, the new methods will lead to more accurate noise predictions, effective control measures and based on current science.

Although Publication NPC-306 is in circulation for comments as draft, further clarifications from the MECP to Noise Practitioners and Stakeholders suggests that the methods and software will not change. This assessment therefore uses the updated guidance set out in NPC-306 to account for complex features of the development and provide more accurate noise predictions. This is also in line with the recent trends in industry best practices which recommend the use of other enhancements and procedures in noise assessments.

In order to estimate the sound levels from the various transportation sources to the proposed residential receptors, a predictive analysis was completed using a commercially available software package Cadna/A, a computer implementation which takes into account the following:

- Source sound power levels;

- Distance attenuation;
- Source-receptor geometry;
- Screening provided by intervening structures.
- Ground and air (atmospheric) attenuation; and,
- Temperature and humidity effects on noise propagation.

The road noise sources have been included in the model using the Traffic Noise Model prediction algorithm by the Federal Highway Administration (TNM, 2004). The model was used to predict traffic noise levels at each of the building façades using Cadna/A’s building evaluation feature. To assess the potential impacts of transportation noise on the buildings, the maximum sound level on each façade were chosen and summarized in the next section. The following parameters were used in the transportation noise analysis:

- Order of Reflection: 0 (this is consistent with MECP’s noise prediction method); and,
- Ground absorption coefficients for the following: 0 for bodies of water and 0.7 for all other surfaces

The analysis method in the National Research Council (NRC) document, BPN56 “Controlling Sound Transmissions into Buildings”, dated September 1985, were used to estimate the acoustical requirements for the building components. The assessment of indoor sound levels and the acoustical requirements for building components were assessed for road noise.

2.4 TRANSPORTATION NOISE RESULTS

Future sound levels due to road traffic were predicted. The maximum sound levels are summarized in **Table 2-7**, see **Figure 2 (pg. 15)**, for representative locations of noise reception (Location ID: A to S).

Table 2-7 Summary of Predicted Sound Levels - Transportation

LOCATION ID	PROPOSED LAND USE	DAYTIME SOUND LEVEL	NIGHTTIME SOUND
		LEQ DAY (dBA)	LEVEL LEQ NIGHT (dBA)
A	Environmental Protection	60	51
B	Parks / Open Space	63	54
C	Low Density Residential	63	54
D	Low Density Residential	64	55
E	Low Density Residential	63	53
F	Parks / Open Space	61	51
G	Parks / Open Space	61	52
H	Mixed Use Commercial	62	53
I	Mixed Use Commercial	64	55
J	High Density Residential	63	54
K	Medium Density Residential	63	54
L	Low Density Residential	65	56
M	Low Density Residential	67	58

LOCATION ID	PROPOSED LAND USE	DAYTIME SOUND LEVEL LEQ DAY (dBA)	NIGHTTIME SOUND LEVEL LEQ NIGHT (dBA)
N	Low Density Residential	64	55
O	Low Density Residential	69	60
P	Low Density Residential	69	60
Q	Low Density Residential	69	60
R	Low Density Residential	66	57

As summarized in **Table 2-7** the highest daytime and nighttime sound levels of 69 dBA and 57 dBA, respectively.

2.4.1 TRANSPORTATION NOISE CONTROL REQUIREMENTS

The following discussions outline the recommendations for outdoor, building façade construction, ventilation requirements and warning clauses, to comply with the applicable noise guidelines. For any development on these lands, a noise impact study will be needed; the final layout designs will likely have living areas and buildings at a greater set back from the roadways than these representative locations, used to assess feasibility.

2.4.1.1 OUTDOOR LIVING AREA

The maximum sound level locations exceed 60 dBA in daytime predicted. If these locations are developed into outdoor living areas mitigation should be considered such as:

- Distance setback with soft ground;
- Berm or acoustic fences and/or;
- Type B warning clause will also be required if OLAs are in locations that exceed 60 as predicted in this analysis.

2.4.1.2 VENTILATION REQUIREMENTS

Based on the predicted sound levels (as presented in **Table 2-7**) select locations are greater than 60 dBA in the daytime. Therefore, central air conditioning is required for future noise sensitive developments. This will allow occupants to keep windows closed and maintain a comfortable indoor living environment.

As required by the MECP, warning clause Type D should be included in all offers of purchase and sales, and lease or rental agreements.

2.4.1.3 BUILDING REQUIREMENTS

The indoor sound level limits can be achieved by using appropriate construction assembly for exterior walls, windows and doors.

Based on the results shown in **Table 2-7**, for development in the areas of representative location A-K wall, window and door assemblies meeting the minimum requirements of the Ontario Building Code (OBC) will be sufficient to comply with the indoor sound level limits. However, for developments in the areas of representative locations L-R with predicted daytime levels of above 65 dBA building components are recommended to be designed/selected to meet the indoor requirements.

2.4.1.4 WARNING CLAUSES

All dwelling units requiring noise control measures or that may potentially be affected by the noise sources will warrant formal notification to the purchasers or occupants by means of a warning clause included in pertinent offers/agreements of purchase and sales/leases or tenancy agreements at the relevant time. For completeness these warning clauses are provided below for Township's planning purposes.

Type A

"Purchasers/tenants are advised that sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the 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) (transitway) (rail) (air) traffic may on occasions interfere with some activities of the dwelling occupants as the sound levels exceed 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 sound level limits of the Municipality and the Ministry of the Environment."

3 STATIONARY NOISE IMPACTS

The Secondary Plan’s proposed land uses will be developed and have associated stationary noise sources. This feasibility assessment assumes general noise sources to land uses to assess preliminary noise feasibility of the Plan Area’s Schedule A.

3.1 NOISE SOURCES

Commercial and medium to high density residential buildings need HVAC units to circulate air and control interior temperature. These units are acoustically significant and generally appear in noise impact studies for relevant developments. Based on secondary plan, typical buildings sizes were considered in this assessment to determine feasibility and are shown in **Figure 3 (pg.16)**, with associated HVAC noise sources. Based on building size and typical cooling capacity, HVAC units were assumed to be 20 tons for every 20000 square feet and were assumed to operated continuously at full load during the daytime and half load during the nighttime. A sample data of a 20-ton unit is provided below in **Table 3-1**.

Table 3-1 Stationary Source Sound Data

SOURCE	DESCRIPTION	OVERALL SOUND POWER LEVEL [DBA REF 10-12 W]
20 Ton HVAC Unit	York Series J20XP	92

3.2 NOISE GUIDELINES AND ASSESSMENT CRITERIA

For stationary sources, the MECP Publication NPC-300 provides criteria based on one-hour equivalent sound level. In order to comply with the noise impact from stationary sources, the predicted sound level must comply with the noise guidelines stipulated in the MECP publication, NPC-300.

NPC-300 provides sound level limits for development (or receptors) based on the acoustical environment in which the development is located. NPC-300 categorizes the acoustical environment into four classes: Class 1 (urban), Class 2 (suburban), Class 3 (rural), or Class 4 (special cases). This classification depends on the local land use and the existing ambient sound environment. **Table 3-2** summarizes the MECP exclusionary limits for Class 1, 2, 3 and 4 areas.

Table 3-2 MECP’s Exclusion Limits in dBA

PERIOD	CLASS 1		CLASS 2		CLASS 3		CLASS 4	
	PLANE OF WINDOW ⁽¹⁾	OUTDOOR POR ⁽²⁾	PLANE OF WINDOW ⁽¹⁾	OUTDOOR POR ⁽²⁾	PLANE OF WINDOW ⁽¹⁾	OUTDOOR POR ⁽²⁾	PLANE OF WINDOW ⁽¹⁾	OUTDOOR POR ⁽²⁾
Daytime (07:00 – 19:00)	50	50	50	50	45	45	60	55
Evening (19:00 – 23:00)	50	50	50	45	40	40	60	55
Nighttime (23:00 – 07:00)	45	N/A ³	45	N/A ³	40	N/A ³	55	N/A ³

Notes:

- (1) Plane of window means a point in space corresponding with the location of the centre of a window of a noise sensitive space. The noise effects assessment excludes the effect of sound reflection from the plane of the window on which it is located. In general, the plane of a window is a point used for prediction (including extrapolation), rather than measurement, of sound levels (MOE 2013).
- (2) POR means point of reception; representing a point in a receptor location as defined by the MECP.

Since the area is considered a Class 1 acoustical environment, the sound level limit corresponding to Class 1 is considered in the assessment (i.e. 50 dBA during the daytime/evening and 45 dBA during the nighttime).

3.3 ANALYSIS METHOD

A predictive analysis was performed using the commercially available software package Cadna/A, a computerized version of the algorithms contained in the ISO 9613 “Acoustics – Attenuation of Sound during Propagation Outdoors”. The Cadna/A modelling takes into account the following:

- Source sound power levels as noted in **Table 3-1**; source locations as noted in **Figure 3 (pg. 16)**;
- Geometrical divergence (distance attenuation from source to receiver);
- Barrier effects due to intervening structures (no shielding from buildings or barriers were included);
- Ground effects and atmospheric absorption (a ground absorption coefficient of 0 for bodies of water and 0.7 for other surfaces); and,
- Meteorological effects (a typical Ontario summer time meteorological condition representing 10 degrees Celsius and 70% relative humidity were used).

3.4 STATIONARY SOURCES RESULTS

Predicted sound levels due to acoustically significant stationary noise source HVAC equipment was predicted at existing and proposed noise sensitive land uses. The maximum sound levels are summarized in **Table 3-3**, see **Figure 3 (pg. 16)**, for worst-case locations of noise reception (Location ID: AA to VV).

Table 3-3 Predicted Sound Level (Steady State Sources) – Class 1 Limits

LOCATION ID	LOCATION DESCRIPTION	SOUND LEVEL DAY-EVE [DBA]	SOUND LEVEL NIGHT [DBA]	CLASS 1 LIMIT DAY-EVE / NIGHT [DBA]	MEETING THE CLASS 1 LIMITS?
AA	Parks / Open Space Land Use	46	43	50 / 45	Yes
BB	Low Density Residential Land Use	43	40	50 / 45	Yes
CC	Low Density Residential Land Use	46	43	50 / 45	Yes
DD	Parks / Open Space Land Use	52	48	50 / 45	No
EE	Low Density Residential Land Use	45	42	50 / 45	Yes
FF	Low Density Residential Land Use	45	42	50 / 45	Yes
GG	Parks / Open Space Land Use	53	50	50 / 45	No
HH	Mixed Use Commercial Building Second Storey	51	48	50 / 45	No
II	Mixed Use Commercial Building Second Storey	49	46	50 / 45	No
JJ	Mixed Use Commercial Building Second Storey	51	48	50 / 45	No
KK	High Density Residential Building Fifth Storey	53	50	50 / 45	No
LL	Medium Density Residential Building Third Storey	60	57	50 / 45	No
MM	Medium Density Residential Building Third Storey	60	57	50 / 45	No
NN	Low Density Residential Land Use	46	43	50 / 45	Yes
OO	Low Density Residential Land Use	47	44	50 / 45	Yes
PP	Existing Low Density Residential Buildings Second Storey	49	46	50 / 45	No
QQ	Existing Low Density Residential Buildings Second Storey	50	47	50 / 45	No
RR	Existing Low Density Residential Buildings Second Storey	51	48	50 / 45	No
SS	Existing Low Density Residential Buildings Second Storey	49	46	50 / 45	No
TT	Existing Low Density Residential Buildings Second Storey	49	46	50 / 45	No
UU	Existing Low Density Residential Buildings Second Storey	49	46	50 / 45	No
VV	Existing Low Density Residential Buildings Second Storey	49	46	50 / 45	No

As shown in **Table 3-3**, several representative locations indicate marginal exceedances due to introduced stationary noise sources. These HVAC sources were based on assumptions regarding potential building sizes, typical cooling capacities, and that all electromechanical units will be rooftop and outdoor. Noise impact studies of final development layouts and subsequent stationary sources will be completed to assess the potential for exceedances. For example, if these units are placed in a dedicated penthouse, this would result in a substantially lower sound level.

4 RECOMMENDATIONS AND CONCLUSIONS

The predicted sound levels from surface transportation and stationary sources were assessed separately per MECP publication NPC-300 requirements. Each noise source type was assessed at selected points of reception and their compliance with the NPC-300 requirements was evaluated.

The feasibility assessment indicated that there is potential for exceedance at future noise sensitive developments within the secondary plan area for both transportation and stationary sources. In addition, the assessment also showed marginal exceedances at the existing receptors from the future stationary sources within the Plan Areas.

Considering potential building sizes and typical cooling capacities, an assessment of the potential impact from stationary noise sources on to the surrounding receptors as well as on-site receptors was completed. The stationary source assessment indicated that there is potential for marginal exceedance at the existing receptors and potential for substantial exceedance at medium density receptors. The analysis was done with all electromechanical units located on rooftop and outdoor spaces. It is typical to have these units in dedicated penthouse, resulting in substantially lower sound levels.

It was determined that with appropriate acoustical design of the building components, suitable selection and placement of mechanical equipment (e.g. inside mechanical penthouse), it is feasible to achieve both indoor and outdoor acoustic environment compliance with the MECP guidelines.

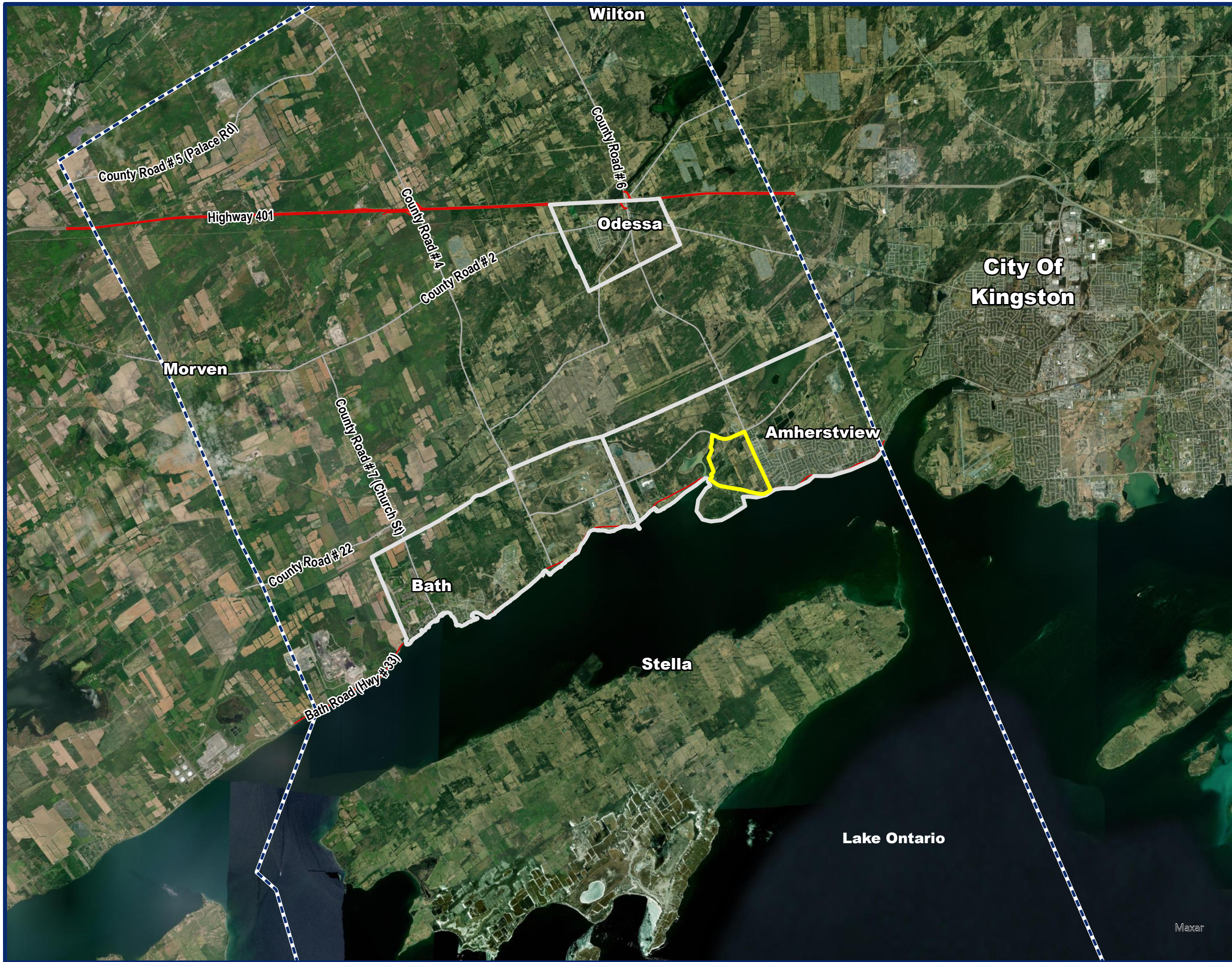
The following recommendations are offered as part of approval conditions for future noise sensitive developments:

1. Once the site plan is finalized for each noise sensitive development within the Plan Area, including building floor plan and suites layout plans (at the Site Plan Approval Stage) a site-specific noise impact study (SNIA) is to be requested from respective developers for review by the Town.
2. Noise sensitive development within Plan Area will require central air conditioning as an alternate means of open window.
3. Detailed acoustical performance requirements for exterior façade elements (i.e. exterior walls, windows and balcony doors) for each future noise sensitive development should be confirmed based on final layout plans by the SNIA.
4. The SNIA should recommend and provide suitable warning clauses to be included in pertinent Offers of Purchase or Sales and Lease or Rental Agreements.
5. The SNIA should confirm that no outdoor living area greater than 4 metres in depth is provided within the development, or if present, such area should be assessed, and noise control requirements be determined at the site plan approval stage.

It is concluded that it is feasible to develop the Plan Area in compliance with the MECP's guideline requirements. It is recommended that a site-specific noise impact assessment be requested requiring the above details for each noise sensitive development.




Figures

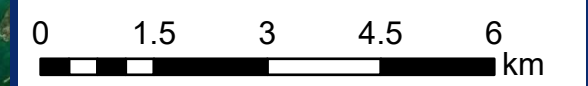




Noise Feasibility Study
Figure 1- Site Plan Location

Amherstview West Secondary Plan

-  Secondary Plan Area
-  Township Boundary
-  Provincial Highway
-  County Road
-  Settlement Areas



June 2024
 Source: Loyalist Township; LIO



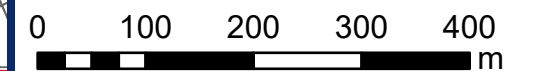
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Noise Feasibility Study
Figure 2- Transportation Noise

Amherstview West Secondary Plan

-  Secondary Plan Area
-  Representative Locations of Noise Reception
- Land Use**
-  Low Density Residential
-  Medium Density Residential
-  High Density Residential
-  Mixed Use Commercial
-  Highway Commercial
-  Institutional
-  Parks/Open Space
-  Environmental Protection
-  Municipal Stormwater Management
-  Future Development Area
-  Gateway Feature
- Existing Road Network**
-  Provincial Highway
-  Major Arterial
-  Urban Arterial
-  Urban Collector
-  Local
-  Existing Trail
- Proposed Road Network**
-  Proposed Collector
- Servicing**
-  Edgewood Municipal Drain

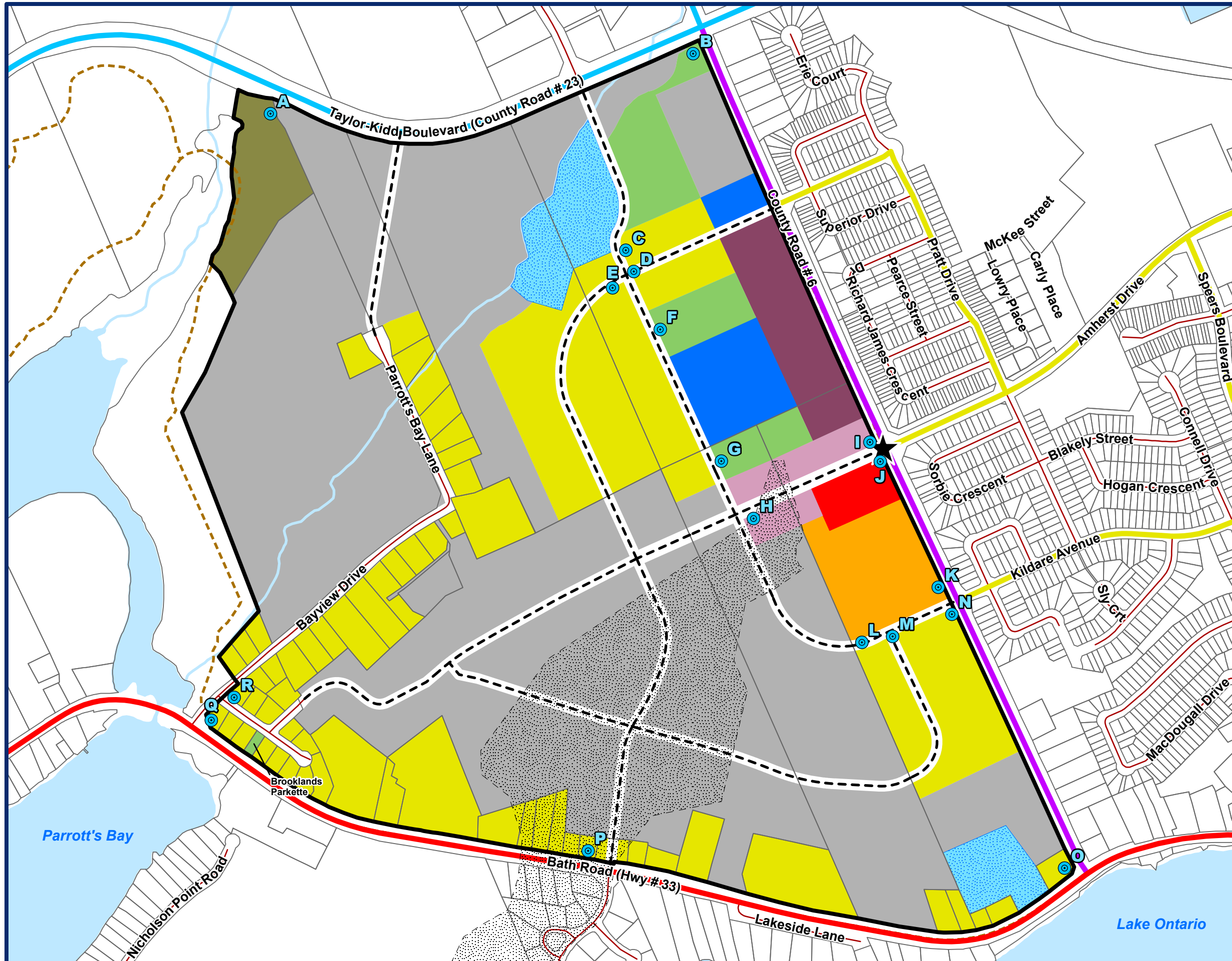


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Source: Loyalist Township; LIO



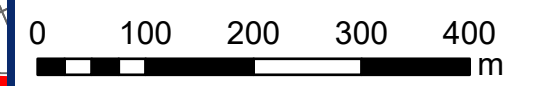
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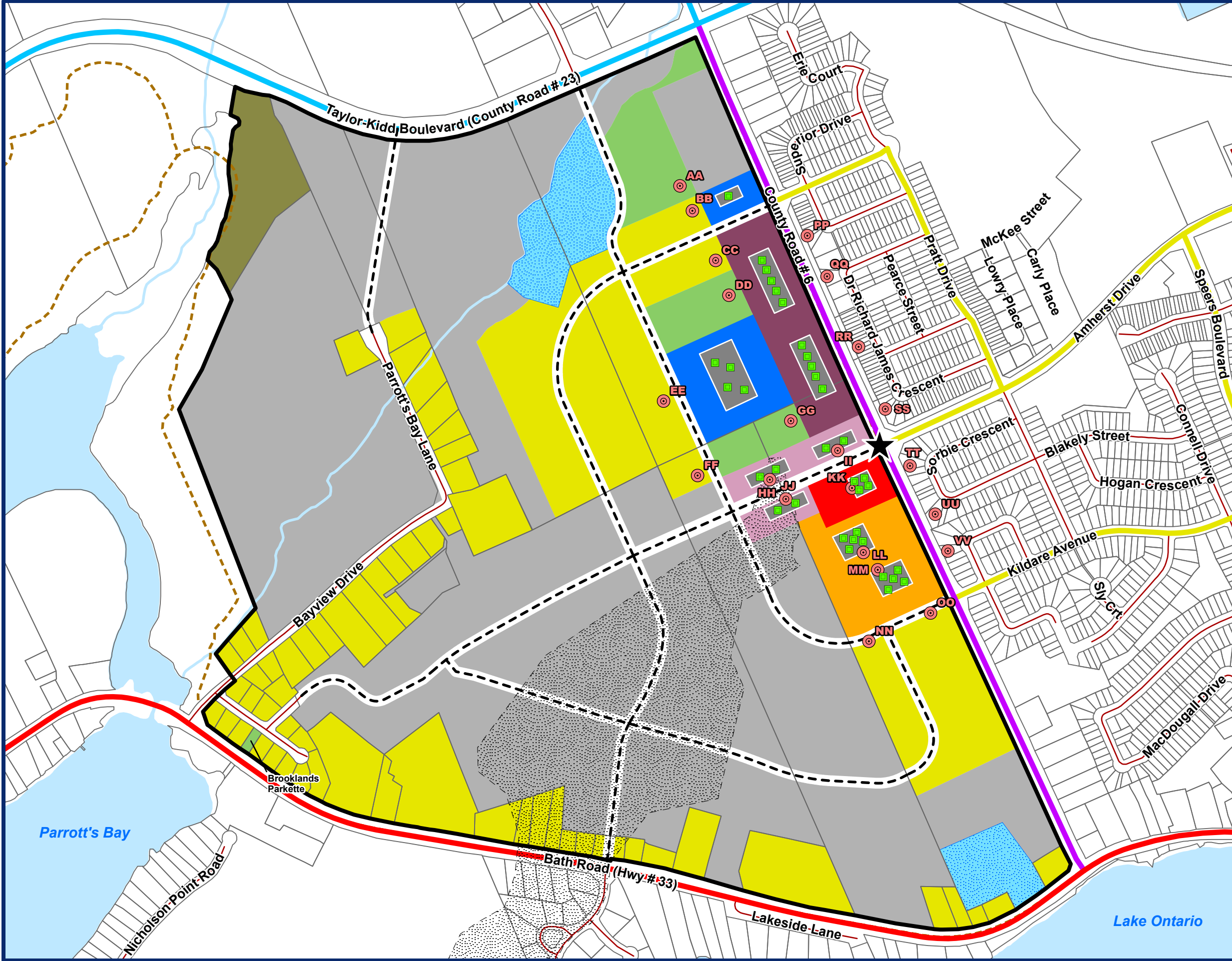
Noise Feasibility Study
Figure 3- Stationary Source Noise

Amherstview West Secondary Plan

- Secondary Plan Area
- Representative Locations of Noise Reception
- Assumed Buildings
- HVAC Equipment
- Land Use**
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Mixed Use Commercial
- Highway Commercial
- Institutional
- Parks/Open Space
- Environmental Protection
- Municipal Stormwater Management
- Future Development Area
- Gateway Feature
- Existing Road Network**
- Provincial Highway
- Major Arterial
- Urban Arterial
- Urban Collector
- Local
- Existing Trail
- Proposed Road Network**
- Proposed Collector
- Servicing**
- Edgewood Municipal Drain



June 2024
 Source: Loyalist Township; LIO



APPENDIX

A

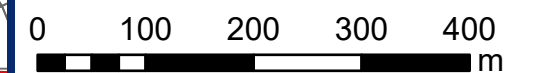
SCHEDULE A – LAND
USE PLAN



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Schedule A - Land Use Plan

Amherstview West Secondary Plan

-  Secondary Plan Area
- Land Use**
-  Low Density Residential
-  Medium Density Residential
-  High Density Residential
-  Mixed Use Commercial
-  Highway Commercial
-  Institutional
-  Parks/Open Space
-  Environmental Protection
-  Municipal Stormwater Management
-  Future Development Area
-  Gateway Feature
- Existing Road Network**
-  Provincial Highway
-  Major Arterial
-  Urban Arterial
-  Urban Collector
-  Local
-  Existing Trail
- Proposed Road Network**
-  Proposed Major Collector
-  Proposed Minor Collector
-  Potential Future Collector
-  Proposed Multi-Use Pathway
- Multi-use pathways are depicted for conceptual purposes only
- Servicing**
-  Edgewood Municipal Drain



June 2024

Source: Loyalist Township; LIO

