August 2016

CITY OF TORONTO
PORT LANDS PLANNING

Noise and Air Quality Feasibility Study

Submitted to:
City of Toronto
City Hall, 18th Floor, East Tower
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Toronto, ON M5H 2N2

REPORT

Report Number: 1417178

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Golder Associates

Executive Summary

Golder Associates Ltd. (Golder) was retained by the City of Toronto (City) to prepare a Noise and Air Quality Feasibility (NAQF) study for the Port Lands Area in Toronto, Ontario. The primary purpose of this study was to assist City staff working in collaboration with Waterfront Toronto in determining potential adverse impacts of existing industrial emissions and port operations on the introduction of sensitive residential and non-residential uses as contemplated in Port Lands Planning Framework: Land Use Direction, adopted by City Council in July 2014, as the basis for continued planning in the Port Lands. The study will be used to identify whether there are areas in the Port Lands that would not be suitable for the introduction of sensitive uses and the optimal approach for managing adverse impacts, including but not limited to:

- separation distances;
- buffer uses between industry and sensitive uses;
- source mitigation; and
- receptor mitigation.

The Port Lands study area is located east of the downtown Toronto area and is bounded by the inner harbour to the west and south, Leslie Street to the east, and Lakeshore Boulevard East to the north. It has historically been used for a variety of heavy industrial and bulk storage uses due to its port and marine shipping facilities. Currently it accommodates a mix of commercial, industrial, film studios, open space and vacant land. Additionally, the area is still actively used for port purposes with raw materials delivered by ship for many of the industries. Golder completed a review of existing noise and air quality sources using publically available data and site specific noise monitoring data to identify the main sources of air and noise emissions to the study area and to help characterize background noise and air quality. Additionally, the City provided Golder with a built form scenario to be assessed as part of the NAQF study. This concept includes 116 buildings at a variety of heights ranging from 18-36 storeys and located in the 5 areas indicated in the land use direction plan as suitable for residential land use, pending further assessment.

Noise

In assessing noise, the Ministry of the Environment and Climate Change (MOECC) Noise Pollution Control (NPC) – 300 guideline was used. Its primary purpose is to provide sound level limits to stationary and impulsive noise sources associated with industrial facilities and to provide guidance to authorities such as municipalities and planning boards that may be used when land use planning decisions are made.

The noise assessment was carried out in four phases:

1) Existing Conditions Research and Data Collection

The existing conditions were determined using data from a long-term continuous noise monitoring programme and spot-check noise measurements. Through discussion with City of Toronto staff, monitoring locations were chosen within the study area. Long-term monitored data was logged continuously for approximately one week. To help calibrate the predictive noise model various acoustic assessments and surveys were provided for some of the facilities. Traffic data, provided by the City of Toronto – Traffic Safety Unit, was used for the assessment of

transportation noise sources. In addition, a detailed assessment was undertaken at the Lafarge Canada Inc. Polson Street facility to determine source specific noise emissions which have been incorporated into the acoustic model and used to identify potential mitigation options.

2) Modelling Mapping, Analysis of Existing Conditions

Predictive analysis was carried out using the commercially available software package Cadna/A which incorporates ISO 9613 (part 2), which is the current MOECC accepted standard used for outdoor sound propagation predictions. All industries in the Port Lands study area have the potential to operate at full capacity during night-time hours (2300 to 0700 hours). Therefore the acoustic model represents a worst-case 1 hour L_{Aeq} night-time noise level. Predicted stationary, impulsive and transportation noise level contours have been provided.

3) Future Development Concepts

The City provided a built form scenario to be assessed as part of the NAQF study. The built form scenario has been incorporated into the acoustic model to determine the noise impact from the existing noise sources. Using building evaluations, Golder has predicted the maximum noise levels over all storeys and facades of each building in the built form scenario.

4) Potential Mitigation Requirements

The Port Lands is located in a high ambient noise environment, and in Golder's opinion, meets the requirements of a Class 4 designation as defined in NPC-300 (i.e., Development of new noise sensitive areas adjacent to existing, lawfully established stationary sources). Based on the predicted noise levels, a number of buildings assessed as part of the built form scenario were identified as potentially requiring mitigation measures. A detailed analysis was carried out to determine the required sound reductions for the noise sources associated with operations at the Lafarge Canada Inc. facility to demonstrate compliance with the MOECC Class 4 night-time exclusion limit.. However, the feasibility and/or implementation of mitigation measures at this facility will require discussion and agreement with Lafarge Canada Inc.

Mitigation may be required to address receptors located on the east side of the proposed development due to industry in close proximity to the Leslie Street and Commissioners Street intersection. There are numerous industries contributing to the elevated background noise level in this area (as listed in Section 5.3.1). A detailed (site specific) noise assessment of all industries should be carried out to determine the potential noise impacts on the proposed development and identify any potential mitigation requirements. This will help identify potential compliance issues that may arise as a result of the proposed development.

The use of warning clauses in respect of noise are recommended when circumstances warrant. Noise warning clauses may be used to warn of potential annoyance due to an existing source of noise and/or to warn of excesses above the sound level limits. It is recommended that the following noise warning notifications are circulated to all future residential developments.

- "Purchasers/tenants are advised that sound levels due to the adjacent industry (facility) (utility) are required to comply with sound level limits that are protective of indoor areas and are based on the assumption that windows and exterior doors are closed. This dwelling unit has been supplied with a ventilation/air conditioning system which will allow windows and exterior doors to remain closed."

- "Purchasers are advised that due to the proximity of the Billy Bishop Toronto City Airport, sound levels associated with the operation of aircraft may at times be audible within the development."
- "Purchasers are advised that due to the proximity of the Film Studio District, sound levels associated gunfire, explosions and/or other noisy activities occurring within the film studios may at times be audible within the development."
- "Purchasers/tenants are advised that due to the proximity of the adjacent industry (facility) (utility), noise from the adjacent industry (facility) (utility) may at times be audible."

Additional noise warning notifications may be required for transportation sources which will be determined once the building layouts and locations of any outdoor areas has been finalized.

Air Quality

To assess air quality, three different approaches were taken:

1) Review of Background Monitoring Data

Golder reviewed existing air quality monitoring data from Ministry of Environment and Climate Change (MOECC) and National Air Pollution Surveillance (NAPS) network monitoring stations in representative locations across the City of Toronto to help quantify background air quality. The monitoring data was compared to Ontario Ambient Air Quality Criteria (AAQC). An AAQC is a desirable concentration of a contaminant in air, based on protection against adverse effects on health or the environment. The term "ambient" is used to reflect general air quality independent of location or source of a contaminant. AAQCs are most commonly used in environmental assessments, special studies using ambient air monitoring data, assessment of general air quality in a community and annual reporting on air quality across the province. The results indicated elevated concentrations of particulate matter (Total suspended particulate (TSP), Particulate Matter less than 10 microns in diameter (PM_{10}) and Particulate Matter less than 2.5 microns in diameter ($PM_{2.5}$)) and Benzene exceed the AAQC periodically. This is consistent with air quality in other areas of the City.

2) Ambient Air Quality Modelling

Golder used the City of Toronto airshed model to predict ambient air quality concentrations within the study area at ground level and at key elevations within each of the areas in which sensitive land uses are being assessed. This model incorporates emissions of 30 different contaminants from industrial, commercial, residential, agricultural and transportation sources to predict ambient air quality concentrations within the City of Toronto. The results of this modelling were compared to Ontario Ambient Air Quality Criteria.

Overall, the results of the modelling shows that there is a potential to exceed the ambient air quality criteria for six of the compounds considered in the study at any one of the built form scenario building locations. These compounds include fine particulate matter (both PM_{10} and $PM_{2.5}$), benzene, cadmium and hexavalent chromium. Additionally, Nitrogen oxides (as NO_2) was also indicated to be greater than the relevant AAQC at elevated locations within the study area. This suggests the presence of elevated plumes. For all other compounds, the concentrations meet the criteria and would be considered acceptable. The predicted concentrations in excess of the relevant criteria do not occur all of the time, or at all of the built form scenario building locations. The largest source of emissions to background air quality in the study area is the transportation links, in particular the Gardiner

Expressway and Don Valley Parkway, which intersect North West of the Study area. Concentrations are typically greatest in the north west of the study area, close to the Gardiner/Don Valley parkway.

3) Industry Specific O.Reg. 419 compliance Modelling

In Ontario all industrial facilities that release emissions into the atmosphere are required to document compliance with the relevant air quality regulations, in particular Ontario Regulation (O.Reg.) 419/05. O. Reg. 419/05 does not consider cumulative or background concentrations, rather it applies to individual facilities. Each individual facility must document that contaminant concentrations resulting from emission sources within their property boundary comply with O.Reg. 419/05 standards at ground-level beyond the Facility fence line and at any additional sensitive receptors. The introduction of new sensitive receptors, especially elevated receptors, may impact the level of compliance for existing industrial facilities that have been lawfully permitted to operate in the area.

A compliance assessment was completed for each of the Facilities with tall stacks located within the study area to assess the impact of the built form scenario buildings on maintaining compliance with O.Reg. 419/05. Of the 6 Facilities assessed, only PEC was identified as potentially being unable to maintain compliance with O.Reg. 419/05 at all built form scenario building locations without either at source or at receptor mitigation.

Conclusions and Recommendations

Overall the results of the air and noise assessments show that there are areas of the Port Lands which are more favourable to proposed development than others. It is identified that mitigation is likely necessary before any proposed concepts are approved. For stationary and impulsive noise source emissions the areas with greatest concern are the Villiers Island, Polson Quay, and South River areas, which lie in close proximity to the Lafarge Canada Inc. facility. Details of required noise reductions and potential mitigation to achieve compliance with the Class 4 night-time sound level limits have been provided in section 6.1. From an air quality perspective, the area of least compatibility is the Film Studio which is located in close proximity to the PEC stacks. Mitigation measures required may include:

- Restriction of building heights in identified areas;
- Restriction of air intakes/openable windows on facades ;
- NOx abatement technologies at PEC;
- Noise abatement technologies at Lafarge; and
- Stack modifications at PEC.

It should be noted however that this assessment provides a screening assessment overview of areas where residential areas are proposed. In accordance with MOECC guidelines detailed air and noise studies are required to determine the potential impacts of the proposed development and identify any potential mitigation requirements, should development be approved. As the results of this assessment are based on estimated or assumed emissions data for each industrial facility, it is recommended that each industry complete their own noise and air quality assessments using their own existing models that support their current compliance approvals, to verify the impact of a proposed development on their ability to maintain compliance with the applicable air and noise criteria and identify any potential mitigation requirements that need to be implemented.

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GLOSSARY

AAQC – Ambient Air Quality Criteria

AAR – Acoustic Assessment Report

B(a)P – Benzo(a)pyrene

CAAQS - Canadian Ambient Air Quality Standards

CEPA – Canadian Environmental protection Act

dB - Decibel

dBA – Decibel A weighting

dBAI – Decibel A weighted Impact level

EASR – Environmental Activity and Sector Registry

ECA – Environmental Compliance Approval

EEO – Environment and Energy Office

EPA -Environmental Protection Act

ESDM – Emission Summary and Dispersion Modelling

HRSG – Heat Recovery Steam Generator

L_{Aeq} - A-weighted 'equivalent continuous noise level' which is the sound pressure level of a steady sound that has, over a given time, the same energy as the fluctuating sound in question

L_{eq} - Equivalent Sound Level

L_{LM} - Logarithmic Mean Impulse Sound Level

MOECC – Ministry of Environment and Climate Change

NAAQOs - National Ambient Air Quality Objectives

NAAQS - National Ambient Air Quality Standards

NAICS - North American Industrial Classification System

NAPS – National Air Pollution Surveillance

NAQF – Noise and Air Quality Feasibility Study

NO – Nitric Oxide

NO_x – Nitrogen Oxides

NO_2 – Nitrogen Dioxide

NPC – Noise Pollution Control

NPRI — National pollutant Release Inventory

O.Reg. – Ontario Regulation

OLA – Outdoor Living Areas

PAHs – Polycyclic Aromatic Hydrocarbons

PEC – Portlands Energy Centre

PM_{10} – Particulate Matter less than 10 microns in diameter

$PM_{2.5}$– Particulate Matter less than 2.5 microns in diameter

POR – Point of Reception

POW – Plane of Window

SPM –Suspended Particulate Matter (<44 µm diameter)

TSP – Total Suspended Particulate

US EPA – United States Environmental Protection Agency

VOC – Volatile Organic Compound

1.0 INTRODUCTION

Golder Associates Ltd. (Golder) was retained by the City of Toronto (The City) to prepare a Noise and Air Quality Feasibility (NAQF) study for the Port Lands Area in Toronto, Ontario. The primary purpose of this study was to assist City staff working in collaboration with Waterfront Toronto in determining potential adverse impacts of existing industrial emissions and port operations on the introduction of sensitive residential and non-residential uses as contemplated in Port Lands Planning Framework: Land Use Direction, adopted by City Council in July 2014, as the basis for continued planning in the Port Lands. The study will be used to identify whether there are areas in the Port Lands that would not be suitable for the introduction of sensitive uses and the optimal approach for managing adverse impacts, including but not limited to:

- separation distances;
- buffer uses between industry and sensitive uses;
- source mitigation; and
- receptor mitigation.

For noise, the separation distances and buffer uses between industry and sensitive uses are defined in MOECC Guideline D-6 in terms of potential influence areas and actual influence areas (D-Series Guidelines are defined in more detail in Section 3.2). The potential influence areas should act as a 'flag', and no sensitive land uses shall be permitted within the actual or potential influence areas of Class I, II or III industrial land uses without evidence to substantiate the absence of a problem (i.e. further studies). Due to the number, location and industrial classification of the existing industry within the study area, any development within the study area will fall within a potential influence area, as such, further studies are required. Guideline D-6 states – "noise shall be addressed through Ministry Publication LU-131 (which has been superseded by NCP-300), for all situations applicable to this guideline".

The scope of work for this feasibility study has been separated out into four phases as outlined below:

- Phase 1: Background review, existing conditions research and data collection;
- Phase 2: Modelling, mapping, analysis of existing conditions;
- Phase 3: Update modelling and mapping with future development concepts; and
- Phase 4: Finalizing the NAQF study and meetings.

This report completes the NAQF study and summarizes all of the work completed under each of the four phases.

2.0 STUDY AREA

The Port Lands study area is located east of the downtown Toronto area and is bounded by the inner harbour to the west and south, Leslie Street to the east, and Lakeshore Boulevard East to the north. It covers approximately 356 hectares (880 acres) of reclaimed land and is illustrated in Figure 1.

The Port Lands area has historically been used for a variety of heavy industrial and bulk storage uses due to its port and marine shipping facilities. Currently it accommodates a mix of commercial, industrial, film studios, open space and vacant land. Additionally, the area is still actively used for port purposes with raw materials delivered by ship for many of the industries.

The area surrounding the Port Lands has a wide range of non-residential uses. In particular, the Ashbridges Bay Treatment plant borders the study area to the east and the Gardiner Expressway borders to the north, separating the study area from the nearest residential area which are approximately 250 m to the north. The introduction of residential land use to the Port Lands would create sensitive receptors at a much closer proximity than those north of the Gardiner.

Some industrial land uses are currently located on municipally owned land with short-term leases. It is assumed in the Land Use Direction, that some of these facilities, such as the salt operations south of the Ship Channel, will continue their operations into the future but on reconfigured properties. In other instances, there may be opportunities to relocate some facilities elsewhere in the Port Lands. Relocated facilities would be subject to Planning Act approvals with the necessary background studies such as detailed noise and air quality assessments. Lastly, there are some facilities that are assumed to be redevelopment sites and that will discontinue or cease to operate in the Port Lands.

LEGEND

FACILITY OF INTEREST

STUDY AREA

Figure Reference Number	Facility	Company Name	Address
1	Canroof Asphalt Plant	IKO Industries Ltd.	560 Commissioners Street
2	Portlands Energy Centre	Portlands Energy Centre LP	440 Unwin Street and 470 Unwin Avenue
3	Toronto Hydro 500 Commissioners Street	Toronto Hydro	500 Commissioners Street
4	Dufferin Concrete	St Lawrence Cement	650 Commissioners Street
5	TTC Lakeshore Garage	Toronto Transit Commission (TTC)	580 Commissioners St
6	Ashbridges Bay Wastewater Treatment Plant	City of Toronto	9 Leslie St
7	CIMCO Refrigeration	Toromont Industries	65 Villiers Street
8	Essroc – Commissioners Street	Essroc	575 Commissioners Street
9	St Marys Cement CBM Hagan 3 Plant	St. Marys Cement Inc. (Canada)	595 Commissioners Street, Unit G
10	Canada Post	Canada Post	600 Commissioners Street
11	Works and Emergency Services	City of Toronto	545 Commissioners Street
12	City of Toronto Economic Development Corporation	City of Toronto Economic Development Corporation	115 Unwin Avenue
13	Basin Transformer Station	HydroOne Networks Inc.	20 Basin Street
14	Commissioners RMC Plant	Lafarge Canada Inc./Innocon Inc.	535 Commissioners Street
15	Lafarge Polson Cement Terminal	Lafarge Canada Inc.	54 Polson Street
16	McAsphalt Asphalt Plant	McAsphalt Industries Limited	41 Basin Street
17	Port of Toronto	Toronto Port Authority	8 Unwin Avenue
19	Commissioners Street transfer Station	City of Toronto	400 Commissioners Street
20	Strada Aggregates Leslie Yard	Strada Aggregates	10 Leslie Street
21	TTC Leslie Barns LFLRV Maintenance Facility	TTC	Leslie Street and Lakeshore Boulevard Intersection
22	Outdoor Salt Storage	City of Toronto	Unwin Avenue
23	Ontario Ready Mix	Ontario Ready Mix	8 Unwin Avenue
24	Pinewood Film Studio	Pinewood Group	225 Commissioners Street
25	Greyhound Operations	Greyhound Canada Transportation Corporation	685 Lakeshore Boulevard East

0 400 800

1:15,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
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IMAGERY - ESRI WORLD IMAGERY WMS, CNES/AIRBUS DS, 0.5M, 4/26/2013
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
STUDY AREA

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-25
DESIGNED	ME
PREPARED	ME
REVIEWED	KA
APPROVED	KA

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2.1 Built Form Scenario

The City provided a built form scenario to be assessed as part of the NAQF study. This scenario includes 116 buildings at a variety of heights ranging from 18-36 storeys and located in the 5 areas indicated in the land use direction plan as suitable for residential land use, pending further assessment.

The built form scenario, provided by City Planning to Golder on April 21, 2015, has been assembled for the purposes of informing the Port Lands Noise and Air Quality Feasibility Study only. The information contained in this built form scenario is preliminary and does not represent a full planning review. It has not been subject to circulation to relevant City divisions and agencies, nor does it benefit from the background information required for precinct planning/comprehensive planning exercises or development application process. Consequently, this built form scenario shall not be interpreted to represent Toronto City Planning opinion with respect to any ongoing, current or future precinct planning process, planning framework or submission of any development applications under the *Planning Act*, which will be subject to the City's normal comprehensive review process.

Due to the quantity of residential buildings included in the built form concept (over 100), analysis of the buildings has been split into 5 different areas of interest, each of which was identified in the Port Lands Planning Framework: Land Use Direction, adopted by City Council in July 2014, as the basis for continued planning in the Port Lands as being potentially suitable for residential development. Each area is illustrated on Figure 2.

1) Villiers Island;

2) Polson Quay ;

3) South River;

4) Film Studio District West;

5) Film Studio District East.

For the purpose of identification, each building has been given a reference number to which it is referred to in both the air and noise studies. The reference numbers for each building are illustrated on Figure 3.

LEGEND

- BUILDING FOOTPRINT
- STUDY AREA

PRECINCT BOUNDARIES

- 1- VILLIERS ISLAND
- 2 - POLSON QUAY PRECINCT
- 3 - SOUTH RIVER PRECINCT
- 4 - FILM STUDIO DISTRICT WEST
- 5 - FILM STUDIO DISTRICT EAST

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REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
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CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
PRECINCT LOCATIONS

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-25
DESIGNED	ME
PREPARED	ME
REVIEWED	KA
APPROVED	KA

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LEGEND

- BUILDING FOOTPRINT
- STUDY AREA

PRECINCT BOUNDARIES

- 1- VILLIERS ISLAND
- 2 - POLSON QUAY PRECINCT
- 3 - SOUTH RIVER PRECINCT
- 4 - FILM STUDIO DISTRICT WEST
- 5 - FILM STUDIO DISTRICT EAST

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BASE DATA - MNR LIO, OBTAINED 2015
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CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
PRECINCT LOCATIONS

CONSULTANT
Golder Associates

YYYY-MM-DD	2015-08-24
DESIGNED	ME
PREPARED	ME
REVIEWED	KA
APPROVED	

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3.0 BACKGROUND REVIEW - APPLICABLE REGULATIONS AND GUIDELINES

Golder completed a review of the applicable policies, regulations and guidelines that are relevant to facilities in the study area. The following are concise summaries of each policy, regulation or guideline used for this NAQF Study.

3.1 Ontario Environmental Protection Act and Environmental Compliance Approvals

The Ontario Environmental Protection Act, R.S.O 1990 Chapter E.19 (EPA), is legislation to provide for the protection and conservation of the natural environment. The EPA regulates the discharge of contaminants into the natural environment and is administered by the Ontario Ministry of Environment and Climate Change (MOECC).

In Section 20.2 of Part II.1 of the EPA, for activities that fall under Section 9 of the EPA, requires that an approval must be obtained before installation or modification of all atmospheric emission sources (i.e., air, odour, noise and vibration). Depending on the equipment at a facility, approval for the atmospheric emission sources is granted through either the Environmental Activity and Sector Registry (EASR) or by obtaining an Environmental Compliance Approval (ECA) for the equipment by submitting an application to the MOECC in accordance with EPA Section 9.

Equipment for which an ECA is required must meet the air quality standards, as stated in Ontario Regulation 419/05 (O.Reg.419/05) to document compliance with EPA Section 9. Compliance is typically demonstrated through an Emission Summary and Dispersion Modelling (ESDM) Report (See section 3.6).

For noise emission sources, the MOECC has developed various noise screening processes, in which the nature of the facility and/or the equipment present on-site and separation distance to sensitive points of reception determines the necessity of a detailed Acoustic Assessment Report (AAR) for the facility prepared in accordance with NPC-300 (see section 3.4).

3.2 D-Series Guidelines

During the land use planning process for proposed future land uses, the MOECC has recommendations described in a set of D-Series Guidelines developed in July 1995. The D-Series Guidelines are intended to assist in minimizing potential problems due to encroachment of sensitive land uses and industrial land uses on one another.

3.2.1 Guideline D-1 – Land Use Compatibility

The MOECC's Guideline D-1 – Land Use Compatibility (Guideline D-1) provides recommended separation distances and other control measures for land use planning proposals, which have the potential to involve encroachment of incompatible land uses. These recommendations seek to prevent or minimize potential adverse effects for an existing or proposed facility, and apply only under circumstances of changes in land use proposals (i.e., future proposals). Adverse effects considered under Guideline D-1 may include:

- noise and vibration;
- visual impact;
- odour and other air emissions;
- litter, dust and other particulates; and
- other contaminants.

3.2.2 Guideline D-6 Compatibility between Industrial Facilities and Sensitive Land Uses

Guideline D-6 discusses the applicability of Guideline D-1 for industrial facilities. The purpose of Guideline D-6 is to prevent or minimize land use incompatibility between sensitive and industrial land uses through encroachment and the possibility of potential adverse effects due to normal operations of industrial facilities. This purpose is achieved by the suggestion of separation distances; however, Guideline D-6 also notes that detailed studies should be conducted to determine site-specific separation distances.

Guideline D-6 applies to proposed, committed and/or existing industrial land uses that have the potential to generate point and/or fugitive atmospheric emissions (noise, vibration, odour, dust and others) through normal operations, procedures, maintenance or storage activities, and/or from associated traffic/transportation. Guideline D-6 does not apply to non-stationary industrial facilities (e.g., mobile asphalt plant), roadways and railways (except ancillary facilities), agricultural operations, airports, or pits and quarries.

Guideline D-6 provides potential influence areas (separation distances) for three different classes of industrial land uses if an actual influence area is not available. The three different classes of industrial land uses are:

- Class I – Small scale business that is a self-contained plant or building which produces/stores a product contained to a package and has a low probability of fugitive emissions. Infrequent movement of products and/or heavy trucks. No outside storage. The facility only operates during the daytime period.
- Class II – Medium scale processing and manufacturing with occasional outputs of either point of fugitive emissions. Frequent movement of products and/or heavy trucks during the daytime hours. Outside storage of wastes or materials exists. The facility is permitted to have shift operations.
- Class III – Large scale processing or manufacturing. Frequent outputs of major annoyance with a high probability of fugitive emissions. Continuous movement of products. Outside storage of raw and finished product exists. The facility is permitted to have shift operations.

3.2.2.1 Potential and Actual Influence Area

The MOECC has identified the following potential areas of influence for each of the industrial facility classes:

- Class I: 70 metres;
- Class II: 300 metres; and
- Class III: 1000 metres.

Actual influence areas refer to overall ranges within which a potential adverse effect would occur or is experienced. These areas are site-specific for facilities. They may be defined within or beyond the potential area of influence before or after buffers have been implemented as the approach to prevent or minimize potential adverse effects.

Industrial facilities have the possibility of lowering their category classification by applying mitigative measures at the source of emissions, which would allow the reduction in the minimum separation distance.

3.2.2.2 Separation Distances

The following suggested minimum separation distances are based on MOECC studies and historical complaint data:

- Class I: 20 metres;
- Class II: 70 metres; and
- Class III: 300 metres.

Guideline D-6 recommends that there should not be incompatible land uses within the range of the minimum separation distance. The minimum separation distance is the distance between the designation, zoning or property lines of closest proposed or existing sensitive and industrial land uses.

Table 1: Summary of MOECC Identified Areas of Influence and Recommended Separation Distances

Designation	Actual Influence Areas Separation Distance (m)	Potential Influence Areas Separation Distance (m)	Minimum Separation Distance (m)
Class I (Light Industrial)	Site Specific	70	20
Class II (Medium Industrial)	Site Specific	300	70
Class III (Heavy Industrial)	Site Specific	1000	300

According to the Guideline D-6, when a change in land use is proposed within an actual or potential influence area of one of the three classes of an industrial land use, a sensitive land use should not be permitted unless evidence can prove absence of compatibility issues due to possibility of adverse effects. In cases where a sensitive land use is proposed beyond an industrial facility's influence area (potential or actual), there should be no objection to a change in land use if land use incompatibility exists.

It also should be noted that even where facilities meet the recommended separation distances specified in the Guideline D-6, an air, odour, noise and/or vibration assessment may still be required to ensure that the facility meets the applicable guidelines and regulations. Therefore, it is possible for the MOECC to recommend separation distances greater that those outlined in this guideline.

When industrial activities cannot be mitigated (reduction or minimization of potential adverse effects), the development of a new industrial facility or sensitive land use shall not be permitted.

3.3 City of Toronto Noise By-Law (Chapter 591 of the Toronto Municipal Code)

The City of Toronto Noise By-Law, *Toronto Municipal Code Chapter 591 – Noise* (By-Law) outlines various prohibitions, limitations on sound levels for some noise sources and procedures on obtaining an exemption. In regards to the sound level limits for stationary sources, the By-Law references the use of *Publication NPC-205 Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban) (October 1995)* (NPC-205) which has been replaced by NPC-300.

In addition, the By-Law identifies highway railway crossings along a specific subdivision, branch or other trackage, any railway equipment is prohibited from using whistle. The Port Lands Study area is not one of the identified locations.

3.4 Noise Pollution Control (NPC)-300

According to the Guideline D-6, a feasibility study for noise is carried out in accordance with MOECC Publication LU-131 – Noise Assessment Criteria in Land Use Planning (October 1997) (LU-131). Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning Publication NPC-300 (August 2013) (NPC-300) now replaces LU-131. NPC-300 consists of the following three sections:

- Part A – Background (Part A);
- Part B – Stationary Sources (Part B); and
- Part C – Land Use Planning (Part C).

NPC-300 provides advice, sound level limits and guidance for land use planning purposes. It is intended to provide a common framework to address noise in the land use planning process to minimize the potential conflict between proposed noise sensitive land uses and sources of noise emissions. The following is a summary of NPC-300.

3.4.1 Environmental Noise Guidelines Stationary and Transportation Sources – Approval and Planning Publication NPC-300

3.4.1.1 Land Use Planning

According to NPC-300 Part C, the MOECC has no authority under the Planning Act regarding the land use planning approval process and that its primary role is to issue approvals required by the EPA. Throughout NPC-300, it is specified that guidance be obtained from the land use planning authority and states it is the land use planning authority who is responsible for the land use planning process. Therefore, feasibility and/or detailed noise impact studies should be submitted to the land use planning authority. In addition, Part C of NPC-300 states the purpose of a noise study is to assess the impact of all noise sources affecting the proposed sensitive land use but focuses only on stationary and transportation sources of noise.

NPC-300 defines a noise sensitive land use as:

- a property of a person that accommodates a dwelling and includes a legal non-conforming residential use; or
- a property of a person that accommodates a building used for a noise sensitive commercial purpose; or
- a property of a person that accommodates and building used for a noise sensitive institutional purpose.

From a land use planning perspective, a noise sensitive land use may be comprised of spaces that are noise sensitive and spaces that are not noise sensitive. The outdoor living area (OLA) associated with a noise sensitive land use is considered a noise sensitive space.

A land use that would normally be considered noise sensitive, such as a dwelling, but is located within the property boundaries of the stationary source is not considered a noise sensitive land use'

It should be noted that park spaces are not considered a noise sensitive land use as defined by NPC-300 and are therefore not included in the assessment.

The objectives of noise studies carried out as part of the land use planning approval process are as follows;

1) to create a suitable acoustical environment for the protection of users/occupants/residents of the proposed noise sensitive land uses;

2) to protect the lawful operation of any stationary sources(s) located close to a proposed noise sensitive land use (stationary sources need to be able to maintain compliance with legal requirements of their MOECC approval, when the development of new noise sensitive land uses are introduced in their proximity);

3) to protect existing and/or formally approved transportation corridors and transportation sources of noise when the development of new noise sensitive land uses are introduced in their proximity; and

4) to create compatible land uses and avoid potential adverse effects due to noise.

The proponent of a new noise sensitive land use is identified in NPC-300 as being responsible for ensuring compliance with the applicable sound level limits and the following:

1) determining the feasibility of the project;

2) assessing outdoor and indoor acoustical environments, as appropriate;

3) investigation of feasible means of noise impact mitigation;

4) ensuring that the required noise control measures are incorporated in the development; and

5) describing the technical details and clarifying the responsibility for the implementation and maintenance, of required noise control measures.

3.4.1.2 Area Classifications

Sound level limits are defined in NPC-300 Part B and C for various acoustical environment Area Classifications. A Class 1 Area is defined as an area with an acoustical environment typical of a major population centre, where the background sound level is dominated by the activities of people, usually road traffic, often referred to as the "urban hum". A Class 3 Area is defined as a rural area with an acoustical environment that is dominated by natural sounds having little or no traffic. A Class 2 Area is defined as an area with an acoustical environment that has qualities representative of both Class 1 and Class 3 Areas.

A Class 4 Area is defined as an area or specific site that would otherwise be defined as Class 1 or 2 Areas and which:

- is an area intended for development with new noise sensitive land use(s) that are not yet built;
- is in proximity to existing, lawfully established stationary source(s); and
- has formal confirmation from the land use planning authority to proceed with the Class 4 Area Classification, which is determined during the land use planning process.

The following considerations apply to new noise sensitive land uses proposed in a Class 4 area:

- an appropriate noise impact assessment should be conducted for the land use planning authority as early as possible in the land use planning process that verifies that the applicable sound level limits will be met;
- noise control measures may be required to ensure the stationary source complies with the applicable sound level limits at the new noise sensitive land use:
- noise control measures may include receptor based noise control measures and/or source based noise control measures;
- source based noise control measures may require an MOECC approval;
- receptor based noise control measures may require agreements for noise mitigation;
- prospective purchasers should be informed that this dwelling is located in a Class 4 area through appropriate means and informed of the agreements for noise mitigation. Registration on title of the agreements for noise mitigation is recommended. Additionally, registration on title of an appropriate warning clause to notify purchasers that the applicable Class 4 area sound level limits for this dwelling are protective of indoor areas and are based on the assumption of closed windows. A sample of a suitable warning clause is included below:

"Purchasers/tenants are advised that sound levels due to the adjacent industry (facility) (utility) are required to comply with sound level limits that are protective of indoor areas and are based on the assumption that windows and exterior doors are closed. This dwelling unit has been supplied with a ventilation/air conditioning system which will allow windows and exterior doors to remain closed"

3.4.1.3 Stationary Sources

Stationary sources of noise refer to a sound that normally operates within the property line of a facility. NPC-300 provides several examples of stationary sources and how each one applies to Part B and/or Part C of NPC-300 (i.e., exemptions).

NPC-300 provides a core list of stationary sources which includes:

- aggregate extraction facilities (except blasting);
- auxiliary transportation facilities;
- commercial facilities;
- industrial facilities;
- natural gas facilities;
- repair or storage garages for public vehicles;
- routine loading and unloading facilities (truck terminals, assembly plants, commercial facilities etc.);
- solar farms / solar panel systems;
- storage, maintenance and repair facilities;
- warehousing and truck terminal facilities; and
- works yards.

NPC-300 also provides a list of sources that usually do not require an MOECC approval because most aspects of the facility are solely regulated by the federal government:

- federally-regulated railway yards;
- airport facilities;
- port facilities and marine shipping activities; and
- nuclear facilities.

NPC-300 states stationary sources will need to comply with the applicable sound level limit at the surrounding points of reception when an environmental application is submitted to the MOECC for approval. This includes when land use planning decisions result in changes to the surrounding Points of Reception (POR) and possibly impacting the stationary sources of noise ability to continue complying with the applicable sound level limits. For sound from a stationary source including Quasi-Steady Impulsive Sound but not including other impulsive sound, the sound level limit at a POR, expressed in terms of the One-Hour Equivalent Sound Level (L_{eq}) is the higher of the applicable exclusionary level limit given below in Table 2, or the background sound level for that POR. The MOECC defines exclusionary sound level limits for Plane of Window (POW) and Outdoor POR, but exclusionary sound level limits for Outdoor POR's only apply to daytime and evening (07:00 to 23:00 hours) periods as identified in Table 3 below. It should be noted that the noise assessment in Class 1, 2 and 3 areas, it is assumed the window of the POR to be open in POW assessments whereas in a Class 4 Area it is assumed that the window is closed.

Table 2: Stationary Sources - Exclusionary Sound Level Limit Values of One-Hour Equivalent Sound Level (Leq, dBA) Plane of Window of Noise Sensitive Spaces

Time of Day	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00 – 19:00	50	50	45	60
19:00 – 23:00	50	50	40	60
23:00 – 07:00	45	45	40	55

Table 3: Stationary Sources Exclusionary Sound Level Limit Values of One-Hour Equivalent Sound Level (Leq, dBA) Outdoor Points of Reception

Time of Day	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00 – 19:00	50	50	45	55
19:00 – 23:00	50	45	40	55

According to NPC-300, the respective land use planning authority should ensure the stationary sources of noise will be able to comply with the applicable sound level limits. If noise mitigation is required, the preferred option is to alter the stationary source itself and completed through a joint effort between the proponent and owner of the stationary source.

3.4.1.4 Impulsive Sources

For Impulsive sound, other than Quasi-Steady Impulsive Sound, from a stationary source, the sound level limit at a point of reception is expressed in terms of the Logarithmic Mean Impulse Sound Level (L_{LM}). The Class 4 MOECC exclusionary sound level limits for Impulsive Sound Level (L_{LM}, dBAI) are summarized in Table 4 below.

Table 4: Impulsive Sound Level Limits for Class 4 Area

Actual Number of Impulses in Period of One-Hour	Class 4 POW MOECC Exclusionary Sound Level Limit (dBAI) (07:00 – 23:00 / 23:00 – 07:00)	Class 4 Outdoor POR MOECC Exclusionary Sound Level Limit (dBAI) (07:00 – 23:00)
9 or more	60 / 55	55
7 to 8	65 / 60	60
5 to 6	70 / 65	65
4	75 / 70	70
3	80 / 75	75
2	85 / 80	80
1	90 / 85	85

3.4.1.5 Transportation Sources

Transportation sources of noise include road, rail and aircraft traffic sources. These transportation noise sources are assessed as follows;

- Outdoor noise levels due to aircraft should be established separately from the impact due to road and/or rail traffic;
- Outdoor noise levels due to road and rail should be combined; and
- Indoor noise levels should be assessed separately for road, rail and aircraft traffic.

Road and rail traffic noise sources are evaluated using commonly used prediction methods within the industry which includes a minimum 10-year prediction into the future. The road and rail traffic noise descriptors are the 16-hour daytime and the 8-hour nighttime equivalent sound level (i.e., L_{Aeq} (16) and L_{Aeq} (8)).

NPC-300 specifically addresses the following for road and rail traffic noise sources:

- sound levels at the plane of residential windows to determine ventilation requirements;
- sound levels in indoor areas to determine exterior building component requirements;
- sound levels in the outdoor living areas for exterior noise control requirements; and
- noise warning clauses.

NPC-300 has specific ventilation requirements for developments depending on the expected levels of road and rail traffic noise at the residential plane of windows, which are summarized in the Table 5 below. It should be noted that noise from train whistles are excluded for assessment of ventilation requirements.

Table 5: Road and Rail Noise Ventilation Requirements

Road and Rail Traffic Noise Level at Plane of Window		Ventilation Requirement
16-Hour Daytime L_{eq} (0700 – 2300)	**8-Hour Nighttime L_{eq} (2300 – 0700)**	
Less than 55 dBA	Less than 50 dBA	No special ventilation requirements
55 to 65 dBA	50 to 60 dBA	Forced air system with provisions for installation of air-conditioning
Greater than 65 dBA	Greater than 60 dBA	Air-conditioning is mandatory to allow windows to remain closed

Outdoor noise levels are predicted at Outdoor Living Areas (OLA) while indoor noise levels are predicted in commonly used types of indoor spaces such as a bedroom or living area. According to NPC-300, an OLA is a noise sensitive land use that is intended for the quiet enjoyment of the outdoor environment and readily accessible from the building. An OLA includes backyards, gardens, terraces or patios, unenclosed balconies or elevated terraces with a minimum depth of 4 m and common OLAs associated with high-rise multi-unit buildings. Table 6 and Table 7 below summarize the sound level limits at the OLA's and different types of indoor spaces during the applicable time period. It should be noted that noise from train whistles is included in the assessment of indoor noise requirements.

Table 6: Indoor Sound Level Limits for Road and Rail Traffic Noise

Space	Road (dBA)	Rail (dBA)
Living quarters - Living/dining areas of residences, libraries, daycare centres, etc. (Time period 16 hours; 07:00- 23:00) – L_{eq} [16 hours]	45	40
Sleeping quarters - Bedrooms of residences and hotels	40	35

Space	Road (dBA)	Rail (dBA)
Time period 8 hours; 23:00- 07:00) – L_{eq} [8 hours]		

Table 7: Outdoor Living Area Noise Control Requirements

Road and Rail Traffic Noise Level in OLA 16-Hour Daytime L_{eq} (0700 – 2300)	Noise Control Requirement
Less than 55 dBA	No noise control required
55 to 60 dBA	1) Noise controls are required to reduce OLA noise levels to 55 dBA or less OR 2) Noise controls are not required but owners/tenants must be warned about excessive noise in OLAs via a warning clause
Greater than 60 dBA	1) Noise controls are required to reduce OLA noise levels to 55 dBA or less OR 2) If noise controls are not feasible due to technical, economic or administrative reasons, no noise controls are required and owners/tenants must be warned about excessive noise in OLAs via a warning clause

In addition, NPC-300 contains sample warning clauses to inform future owners/tenants of potential noise effects due to road and rail traffic. The suggested wording of the warning clauses varies with the degree of noise impact, the ventilation requirements, and the type of noise control features included.

Aircraft noise is assessed in a detailed noise study on current Noise Exposure Forecast/Noise Exposure Projection (NEF/NEP) contours unless future contours exist, specifically outdoor areas located at or above the 25 NEF/NEP contour. The 30 NEF/NEP contour is the outdoor sound level limit and indoor aircraft sound level limits are provided and compared to calculated noise levels generated from the predicted outdoor noise levels.

3.5 Ambient Air Quality Standards - Ontario's Ambient Air Quality Criteria

The MOECC has issued guidelines related to ambient air concentrations, which are summarized in Ontario's Ambient Air Quality Criteria (AAQC). There are two sets of federal objectives and criteria: the Canadian Ambient Air Quality Standards (CAAQSs) (formerly National Ambient Air Quality Standards (NAAQS)), and the National Ambient Air Quality Objectives (NAAQOs). An AAQC is a desirable concentration of a contaminant in air, based on protection against adverse effects on health or the environment. The term "ambient" is used to reflect general air quality independent of location or source of a contaminant. AAQCs are most commonly used in environmental assessments, special studies using ambient air monitoring data, assessment of general air quality in a community and annual reporting on air quality across the province.

The NAAQOs are benchmarks that can be used to facilitate air quality management on a regional scale, and provide goals for outdoor air quality that protect public health, the environment, or aesthetic properties of the environment. The federal government has established the following levels of NAAQOs:

- the maximum Desirable level defines the long-term goal for air quality and provides a basis for an anti-degradation policy for unpolluted parts of the country and for the continuing development of control technology; and
- the maximum Acceptable level is intended to provide adequate protection against adverse effects on soil, water, vegetation, materials, animals, visibility, personal comfort, and well-being.

The CAAQSs have been developed under the Canadian Environmental Protection Act, and include standards for $PM_{2.5}$ and ozone that must be achieved by 2020. There are two phase in dates, 2015 and 2020.

A summary of the applicable Ontario and federal objectives and criteria are listed in Table 8.

Table 8: Ontario Ambient Air Quality Objectives and Criteria

PACs	Ontario Ambient Air Quality Guidelines[a]		Canadian Ambient Air Quality Standards[b]		National Ambient Air Quality Standards and Objectives[c]	
	24 hour	Annual	24 hour	Annual	24 hour	Annual
Acetaldehyde	500	—	—	—	—	—
Acrolein	0.4	—	—	—	—	—
Benzene	2.3	0.45	—	—	—	—
1,3-Butadiene	10	2	—	—	—	—
Cadmium	0.025	0.005	—	—	—	—
Carbon tetrachloride	2.4	—	—	—	—	—
Chloroform	1	0.2	—	—	—	—
Chromium (hexavalent)	0.00070	0.00014	—	—	—	—
Chromium (non hexavalent)	0.50	—	—	—	—	—
1,4-Dichlorobenzene	95	—	—	—	—	—
1,2-Dichloroethane	165	—	—	—	—	—
Dichloromethane	220	44	—	—	—	—
Ethylene dibromide	3	—	—	—	—	—
Formaldehyde	65	—	—	—	—	—
Lead	0.5	—	—	—	—	—
Manganese	0.4	—	—	—	—	—
Mercury	2	—	—	—	—	—
Nickel compounds	0.2	0.04	—	—	—	—
NO2	200		—	—	200	60/100
PAHs (as B[a]Ps)	0.00005	0.00001	—	—	—	—
$PM_{2.5}$	30 [e]	—	28/27	10/8.8	—	—
PM_{10}	50 [f]	—	—	—	—	—
Tetrachloroethylene	360	—	—	—	—	—

PACs	Ontario Ambient Air Quality Guidelines[a]		Canadian Ambient Air Quality Standards[b]		National Ambient Air Quality Standards and Objectives[c]	
	24 hour	Annual	24 hour	Annual	24 hour	Annual
Trichloroethylene	12	2.3	—	—	—	—
Suspended Particulate Matter[d]	120	60[g]	—	—	120	60/70
Vinyl Chloride	1	0.2	—	—	—	—
VOC (Anthropogenic)	—	—	—	—	—	—
VOC (Biogenic)	—	—	—	—	—	—

(a) MOECC, 2012.

(b) CAAQS published in the Canada Gazette Volume 147, No. 21 - May 25, 2013. The standards will be phased in in 2015 and 2020, with both numbers shown in the table. The larger (first) value represents the CAAQS for 2015.

(c) CCME, 1999

(d) SPM in Ontario is defined as Suspended Particulate Matter (<44 µm diameter).

(e) Compliance is based on the 98th percentile of the annual monitored data averaged over three years of measurements.

(f) Interim Ambient Air Quality Criteria (AAQC).

(g) Geometric Mean Value.

— = No guideline available.

3.6 Local Air Quality Standards - Ontario Regulation 419/05

Equipment for which an ECA is required must meet the air quality standards, as stated in O. Reg. 419/05 to document compliance with EPA Section 9. O. Reg. 419/05 sets concentration-based point of impingement limits for contaminants and requires the use of approved dispersion models to assess compliance with these limits based on the aggregate emission rate of a contaminant from the facility. A facility must be in compliance at or beyond the property line. Compliance must also be met at any on-site receptors such as daycares.

This regulation includes the documentation and dispersion modelling requirements required to be used to demonstrate compliance. The models and assessment criteria used is dependent upon the North American Industrial Classification System (NAICS) code for the facility under assessment, with the following options:

- models in appendix to O. Reg. 346/90 and the use of Schedule 2 standards; or
- advanced dispersion models such as the SCREEN3 or AERMOD models and the use of Schedule 3 standards.

All facilities must assess compliance using the advanced dispersion models and Schedule 3 standards by February 1, 2020.

In addition, Section 22 of O. Reg. 419/05 requires that all applications for an ECA contain an ESDM Report prepared in accordance with s.26 of O. Reg. 419/05. In addition, the ESDM Report must follow the guidance in the MOE document titled “Procedure for Preparing an Emission Summary and Dispersion Modelling Report,” March 2009 (PIBS 3614e03), as applicable.

4.0 EXISTING CONDITIONS RESEARCH

In order to evaluate the existing conditions in the study area, Golder conducted a review of the following data:

- ECAs and available supporting studies for facilities located within the study area; and
- Port Lands Planning Framework: Land Use Direction, adopted by City Council in July 2014, as the basis for continued planning in the Port Lands (City of Toronto, 2014).

The purpose of reviewing existing ECAs is to help identify the main sources of emission to air and noise within the study area based on the descriptions of facilities that have already been permitted by the MOECC. The Land Use Direction report was adopted by the City in 2014 and includes a review of the D-6 guidelines and how they may be applied to the study area.

4.1 Existing ECAs

Copies of ECAs are publically available on the MOECC website. Golder has obtained copies of the ECAs for each facility identified within the study area and completed a preliminary review of the sources of emissions to air and noise listed within. Table 9, below, summarises the ECAs identified and the potential sources of emissions to air and noise.

For facilities that are identified as potentially significant sources of air and noise emissions, copies of the supporting documentation have been requested. This supporting documentation may include ESDM Reports and AARs. Some of the facilities identified as having ECAs are not anticipated to be significant sources of air or noise emissions. These facilities either have only infrequently used sources (e.g. standby power generation) or the sources are not anticipated to contribute significantly to background air or noise in the study area.

Table 9: Summary of Facilities of Interest within and Surrounding the Port Lands

Figure Reference Number	Facility	Company Name	Address	ECA Reference	Description of sources requiring Approval	Comments
1	Canroof Asphalt Plant	IKO Industries Ltd.	560 Commissioners Street	9114-8LUQNU (October 25th, 2011)	Asphalt Plant	Sources of Interest include - Outdoor storage of aggregate materials, asphalt silos and tanks, asphalt mixing operations and truck traffic
2	Portlands Energy Centre	Portlands Energy Centre LP	440 Unwin Street and 470 Unwin Avenue	3947-8CTRZV (July 27th, 2011)	Power generation equipment	Sources of Interest include emissions from the 75 m stack. Was originally designed as a peaking plant but now operating more frequently.
3	Toronto Hydro 500 Commissioners Street	Toronto Hydro	500 Commissioners Street	216-8XGSPD (October 26, 2012)	Standby Power Generation	Not anticipated to be a significant source of air or noise emissions
4	Dufferin Concrete Toronto	St Lawrence Cement	650 Commissioners Street	8504-77ZPVP (June 30, 2008)	Concrete Batch Plant	Sources of Interest include - Outdoor storage of aggregate materials, batching operations, marine and truck traffic
5	Lakeshore Garage	Toronto Transit Commission (TTC)	580 Commissioners St	8760-8HVRB3 (June 27, 2011)	Combustion	Not anticipated to be a significant source of air or noise emissions
6	Ashbridges Bay Wastewater Treatment Plant	City of Toronto	9 Leslie St	8-3203-90-926 (December 16, 2005)	Wastewater Treatment Plant	Outside the study area but will be taken into consideration in the study
7	CIMCO Refrigeration	Toromont Industries	65 Villiers Street	2704-6LJPHV (January 30, 2006)	Paint Spray Booth	Short-term Lease. Likely to be relocated within the Port Lands. Not anticipated to be a significant source of air or noise emissions
8	Essroc – Commissioners Street	Essroc	575 Commissioners Street	0739-8W9R5V (July 27, 2012)	Cement Terminal	Sources of Interest include - Outdoor storage of aggregate materials, batching operations and truck traffic Note – This is the Facility that has relocated from Cherry Street

Figure Reference Number	Facility	Company Name	Address	ECA Reference	Description of sources requiring Approval	Comments
9	CBM Hagan 3 Plant	St. Marys Cement Inc. (Canada)	595 Commissioners Street, Unit G	6872-9MFNP4 (September 10, 2014)	Concrete Batch Plant	Sources of Interest include - Outdoor storage of aggregate materials, batching operations, marine and truck traffic
10	Canada Post	Canada Post	600 Commissioners Street	3940-8CCSJ3 (February 7, 2011)	Soil vapour venting system and combustion	Not anticipated to be a significant source of air or noise emissions
11	Works and Emergency Services	City of Toronto	545 Commissioners Street	*9566-7B4MD7 (February 29, 2008)*	Various exhaust systems, combustion, spray paint booth, waste management	Not anticipated to be a significant source of air or noise emissions
12	City of Toronto Economic Development Corporation	City of Toronto Economic Development Corporation	115 Unwin Avenue	4830-7FWQT6 (June 25, 2008)	Soil vapour venting system	Not anticipated to be a significant source of air or noise emissions
13	Basin Transformer Station	HydroOne Networks Inc.	20 Basin Street	4397-8MZMW3 (January 24, 2012)	Transformer Station	Not anticipated to be a significant source of air emissions

In addition to the above mentioned facilities, Golder also identified a number of facilities that may have additional emissions to air or noise but do not currently hold an ECA. These facilities may not meet the requirements of the ECA approval process or the ECA application may be awaiting MOECC approval.

Table 10: Additional Industrial Facilities within the Study Area

Figure Reference Number	Facility	Company Name	Address	Description of sources	Comments
14	Commissioners RMC Plant	Lafarge Canada Inc./Innocon Inc.	535 Commissioners Street	Concrete Batch Plant	Sources of Interest include - Outdoor storage of aggregate materials, batching operations and truck traffic
15	Lafarge Polson Cement Terminal	Lafarge Canada Inc.	54 Polson Street	Cement Terminal	Sources of Interest include - Outdoor storage of aggregate materials, marine and truck traffic
16	McAsphalt Asphalt Plant	McAsphalt Industries Limited	41 Basin Street	Asphalt Plant	Sources of Interest include - Outdoor storage of aggregate materials, asphalt silos and tanks, marine and truck traffic Materials transported by ship It is understood that this facility is likely to be relocated outside of the Film studio District.
17	Port of Toronto	Toronto Port Authority	8 Unwin Avenue	Shipping Port	Occasional outdoor storage of materials
18	Essroc Cherry Street Cement Terminal	Essroc	312 Cherry Street	Cement Terminal	This facility has ceased operations and the site is now vacant
19	Commissioners Street transfer Station	City of Toronto	400 Commissioners Street	Waste Transfer Station	Relocation of the Commissioner's Transfer Station is currently under study by the City of Toronto. Relocation options elsewhere within the Port Lands or City are being pursued For the purpose of this study, it is assumed that this facility is to be relocated outside the study area
20	Strada Aggregates Leslie Yard	Strada Aggregates	10 Leslie Street	Aggregate storage and handling	No on-site processing. Aggregates transported by marine vessels and truck
21	TTC Leslie Barns LFLRV Maintenance Facility	TTC	Leslie Street and Lakeshore Boulevard Intersection	Streetcar storage and maintenance	Under construction
22	Outdoor Salt Storage	City of Toronto	Unwin Avenue	Outdoor Road Salt Storage	Outdoor storage of materials, transported by marine vessels and trucks
23	Ontario Ready Mix	Ontario Ready Mix	8 Unwin Avenue	Concrete Batch Plant	Sources of Interest include - Outdoor storage of aggregate materials, batching operations, marine and truck traffic
24	Pinewood Film Studio	Pinewood Group	225 Commissioners Street	Film Studio	May be a source of occasional noise such as explosions during filming

Figure Reference Number	Facility	Company Name	Address	Description of sources	Comments
25	Greyhound Operations	Greyhound Canada Transportation Corporation	685 Lakeshore Boulevard East	Coach storage and maintenance	The Land Use plan identifies that this land will be repurposed for future Mixed-Use/Creative uses

Based on the review of existing ECAs, there are a large number of aggregate handling and manufacturing facilities located within the study area. Typical air emissions from this industry include fugitive dust from material handling. Noise sources associated with the industry include both processing operations and truck traffic. It is also noted that aggregate manufacturing facilities within the study area may also use ships to transport raw material and/or product.

In addition to the aggregate manufacturing facilities located within the study area, the other main facilities of interest are the Portlands Energy Centre, Ashbridges Bay Waste Water Treatment Plant and the Leslie Barns Maintenance Facility. Copies of the relevant air quality and noise studies for each of these facilities have been requested.

Many of the Industrial facilities located within the study area use marine vessels to ship product and/or raw materials as noted in the above tables. Vessel operations are typically infrequent but can occur during night time hours. Air emissions associated with port operations include fugitive dust emissions from loading and unloading operations in addition to combustion products from vessel manoeuvering and handling equipment. Noise sources would primarily include loading and unloading operations. The City has provided vessel movement data for 2013, which was evaluated as part of the NAQF

It should be noted that although Billy Bishop Toronto City Airport is located close to the study area, the NAQF does not address any potential future operations from the Airport. However, air quality and noise emissions from current operations are taken into consideration in the modelling as part of the assessment of background conditions. The Noise Exposure Forecast (NEF) contours in the study area are below the limits presented in NPC-300 and therefore warning clauses and mitigation for indoor spaces is not required. However, as a precautionary measure, it is recommended that a warning clause be included in all development agreements. A sample of a suitable warning clause is included below:

'Purchasers are advised that due to the proximity of the Billy Bishop Toronto City Airport, sound levels associated with the operation of aircraft may at times be audible within the development'

4.2 Land Use Compatibility Assessment

In 2014, the City prepared a Land Use Direction report as part of the Port Lands Planning Framework. This study included a preliminary land use compatibility assessment and the use of the MOECC D-6 Guidelines on the existing industrial uses in the Port Lands area.

The City reviewed the facilities located in the area and classified them using the D-6 Guidelines described in Section 3.2. The following facilities were identified:

Table 11: D-6 Classification of Facilities within Study Area

Class II	Lafarge Canada (Polson Quay)
	Port of Toronto
Class III	Commissioners Transfer Station
	Outdoor Bulk Salt Storage
	Canroof Asphalt Plant
	St. Marys Cement
	Lafarge Canada (East Port)

Class II	Lafarge Canada (Polson Quay)
	Port of Toronto
	Essroc
	Strada Aggregates

As a result of this assessment, setback distances were defined as displayed in Figure 4.

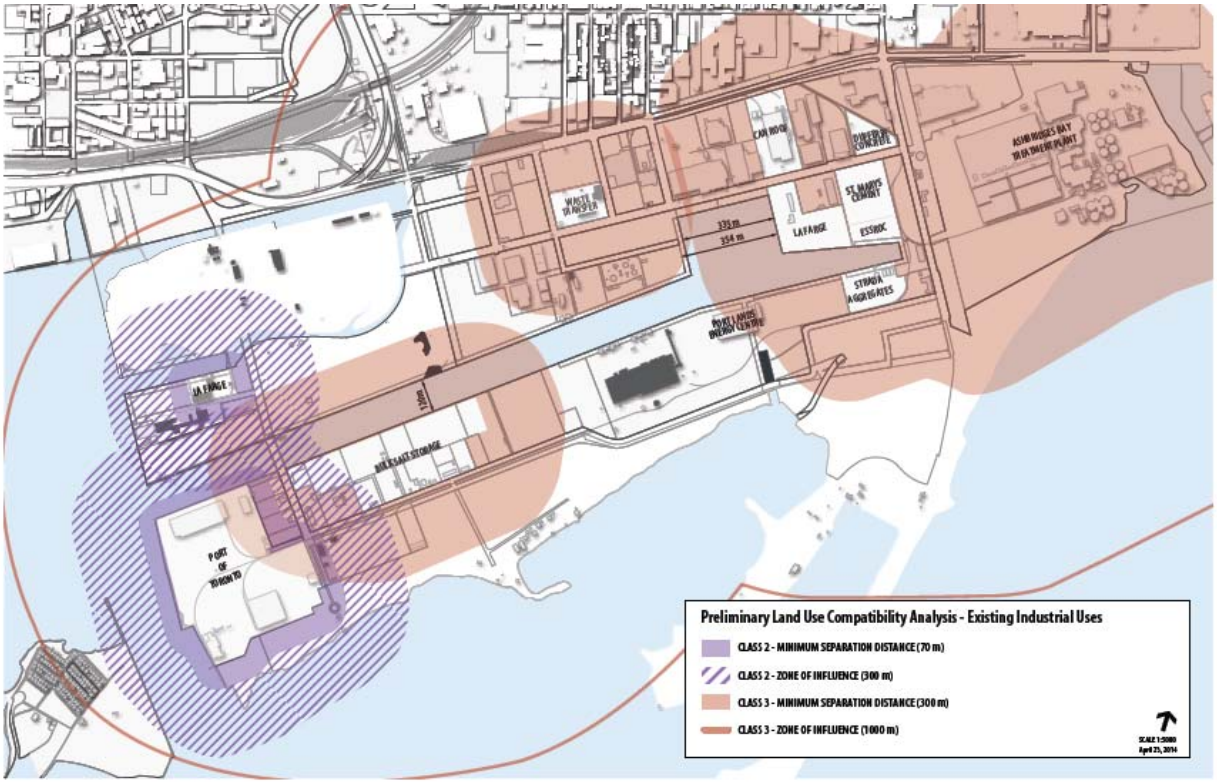

Figure 4: D-6 Assessment (City of Toronto, 2014)

The Portlands Energy Centre was not included in the assessment as a separate air and noise study has been conducted for the facility. The results of this assessment are shown on Figure 5

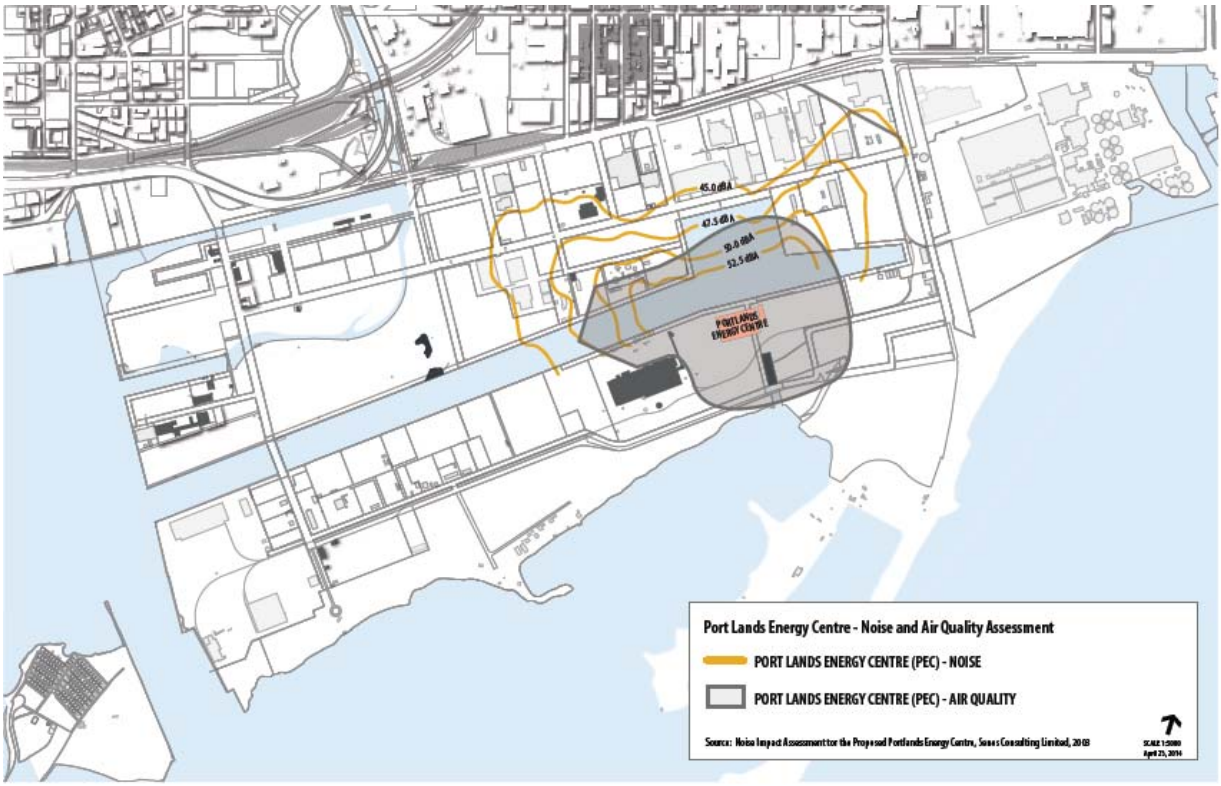

Figure 5: Portlands Energy Centre - Noise and Air Quality Assessment (City of Toronto, 2014)

Golder has reviewed the City's analysis of the facilities. As all industries in the Port Lands study area have the potential to operate at full capacity during night-time hours the Class II designation is not deemed appropriate as the Class II definition states "Frequent movement of products and/or heavy trucks during the daytime period". The Class III designation, which states "continuous movement of products", is more applicable to the industries in the Port Lands study area with the potential to operate at full capacity during night-time hours.

It is also suggested that the following facilities be added to the assessment:

- TTC - Leslie Street Barns; and
- Ashbridges Bay Waste Water Treatment Plant.

Both facilities are located outside the study area, however, it is anticipated that their zones of influence may overlap with sections of the study area.

Since the Land use compatibility assessment was completed, the relocation of the Commissioners Street Waste transfer station has gone under study by The City. For the purpose of this study, it has been assumed to be relocated outside of the study area. Additionally, the bulk storage facility is being assessed for reconfiguration to allow only indoor storage of salt. These modifications would enable classification of the facility to downgrade from a Class III to a Class II facility, reducing the relevant setback distance and zone of influence.

Due to the large number of Class III facilities in the area, many of the setback distances overlap and the zones of influence extend onto neighbouring facilities. However, emissions to air and noise are cumulative and there is potential that the setback distances identified may not be sufficient to minimize adverse effects. As a result, while the D-6 assessment provides an initial insight into land use compatibility, it is anticipated that the NAQF will provide a more cumulative and detailed assessment of the air quality and noise in the area by taking into account the combined effects of all modelled facilities and background.

In addition, the D-6 assessment does not account for the elevation of either sources or receptors. Many of the identified facilities release emissions to air through tall stacks which can facilitate dispersion and potentially reduce nuisance impacts at ground level. However, it should also be noted that the proposed residential land use could include condominium developments, which would introduce elevated receptors at the locations of openable windows, air intakes and balconies. Both the air quality and noise modelling to be completed as part of the NAQF can take into account source characteristics to predict concentrations at both elevated and ground level receptors.

5.0 NOISE

5.1 Data Collection

Golder has assessed the impact of the existing noise environment on the Port Lands study area. The existing conditions were determined using data identified in Section 4.1, from a long-term continuous noise monitoring programme and spot-check noise measurements. In addition, the following data was also used to calibrate the acoustic model:

- Cadna/A Noise Contours for TTC Leslie Barns provided by Aercoustics Engineering Limited;
- Traffic Counts provided by the City of Toronto – Traffic Safety Unit;
- Detailed noise assessment of the Lafarge Polson Street facility; and
- Measurements of salt delivery operations (marine vessel and unloading equipment)

Golder understands the film studios occasionally undertake noisy activities such as explosions and gunfire. As defined in NPC-300, infrequent operations that occur less than twice a month and emit noise for less than one half hour are not required to be included in the predictable worst case scenario. Therefore, film studio activities have not been included in the noise assessment. However, Golder has assessed the potential impact of heavy gunfire within the film studio property boundary. Data was taken from Golder's database of noise sources for an AK 4, 762 mm, SK PTR 10 PRJ weapon (referenced from the Royal Canadian Mounted Police document "Shooting Ranges and Sound"). The maximum predicted noise exposure on the surrounding buildings (in the built form scenario provided by the City) is above the allowable impulsive sound level limit for a single impulse in a Class 4 area (i.e., 85 dBAI) and has the potential to cause annoyance and/or alarm. As a precautionary measure, it is recommended that a warning clause be included in all development agreements. A sample of a suitable warning clause is included below:

'Purchasers are advised that due to the proximity of the Film Studio District, sound levels associated gunfire, explosions and/or other noisy activities occurring within the film studios may at times be audible within the development'

Predictive analysis was carried out using the commercially available software package Cadna/A. Geometrical spreading, attenuation from barriers, ground effect and air absorption was included in the analysis as determined from ISO 9613 (part 2), which is the current MOECC accepted standard used for outdoor sound propagation predictions.

To help calibrate the predictive noise model, Golder carried out a long-term continuous noise monitoring programme. This programme assisted in understanding the existing background noise levels in the site vicinity (i.e., daytime and night-time L_{Aeq}'s where L_{Aeq} is defined as the A-weighted 'equivalent continuous noise level' which is the sound pressure level of a steady sound that has, over a given time, the same energy as the fluctuating sound in question) and the MOECC's noise level limits for stationary sources (i.e., 1-hr L_{Aeq}). Through discussion with City of Toronto staff, four monitoring locations were chosen within the study area. Data was logged continuously for approximately one week between March 27, 2015 and April 2, 2015. The monitoring locations are described in Table 12 below and illustrated in Figure 6.

Table 12: Noise Monitoring Locations

Monitoring Location	Description	Approximate Monitor UTM Coordinates
ML-01	Adjacent to the Lafarge facility at 54 Polson Street. South side of street.	632931, 4833469
ML-02	Intersection at Don Roadway and Commissioners Street. Northeast corner of intersection	633499, 4834216
ML-03	McCleary Park. South of Lake Shore Blvd and west of Logan Avenue	633950, 4834636
ML-04	Between St. Marys Cement facility at 651 Commissioners Street and the Leslie Street Connection Track at 675 Commissioners Street.	634909, 4835013

LEGEND

- ATTENDED SPOT-CHECK MEASUREMENT LOCATIONS
- LONG-TERM MONITORING LOCATIONS
- STUDY AREA

0 400 800

1:12,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
IMAGERY - LAND INFORMATION TORONTO, CITY OF TORONTO. ARCIMS ORTHOIMAGERY WEB MAP SERVICE.
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
NOISE MEASUREMENT LOCATIONS

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-25
DESIGNED	ME
PREPARED	ME
REVIEWED	TG
APPROVED	KA

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	1	**6**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

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The noise monitoring results are provided in Table 13 below and represent the combined stationary and transportation noise levels.

Noise is measured in decibels (dB) which is a logarithmic scale (i.e. each 10 dB increase represents a doubling in perceived loudness). In order to reflect the frequency sensitivity of the ear, a weighting is applied across the audible hearing range. It has been shown that the A scale (dBA) corresponds most closely to the response of the ear. 0 dBA represents the lowest noise that the average person can hear, while painful sensations in the ear occur at approximately 120 to 130 dBA. A table presenting typical sound pressure levels has been provided as a reference in Appendix A.

Table 13: Noise Monitoring Results

Monitoring Location	Daytime (0700 to 2300 hours) Maximum 1 hour L_{Aeq}	Daytime (0700 to 2300 hours) Minimum 1 hour L_{Aeq}	Daytime (0700 to 2300 hours) Average 16 hour L_{Aeq}	Night-time (2300 to 0700 hours) Maximum 1 hour L_{Aeq}	Night-time (2300 to 0700 hours) Minimum 1 hour L_{Aeq}	Night-time (2300 to 0700 hours) Average 8 hour L_{Aeq}
ML-01	81	54	69	70	50	60
ML-02	69	55	63	67	52	61
ML-03	64	52	58	62	47	55
ML-04	70	48	63	62	45	54

In addition to the long-term monitoring programme, attended spot-check noise measurements were also carried out at various locations around the existing industries within the Port Lands. As part of this measurement programme, Lafarge Canada Inc. granted Golder personnel access to its facility to carry out spot-check measurements of boat unloading and general facility operations within the Polson Street Cement Terminal. Spot check measurements were carried out on May 8, 2015. This data was used to further calibrate and refine the noise prediction model. The spot-check measurement locations are described in Table 14 below and have been included in Figure 6.

Table 14: Attended Measurement Locations

Spot-Check Measurement Location	Description	Approximate Monitor UTM Coordinates
SC-01	Entrance to Portlands Energy Centre – North of Unwin Avenue	634677, 4834077
SC-02	Between Dufferin Concrete and St Marys Cement – 650/651 Commissioners Street, North side of street.	634854, 4834998
SC-03	Between Innocon Inc. and Canroof Asphalt Plant – 535/560 Commissioners Street, North side of street.	634632, 4834856
SC-04	Intersection at Bouchette Street and Basin Street. Northwest Corner of Intersection.	633956, 4834292
SC-05	Lafarge Polson Cement Terminal at 54 Polson Street – Boat Engine	632752, 4833490
SC-06	Lafarge Polson Cement Terminal at 54 Polson Street – Boat Unloading	632856, 4833555
SC-07	Lafarge Polson Cement Terminal at 54 Polson Street – Boat Unloading and Industry Operation	632892, 4833534
SC-08	39 Polson Street – Lafarge Boat and Industry Operation	632822, 4833406

SC-09	25 Polson Street – Lafarge Boat and Industry Operation	632780, 4833379
SC-10	Entrance to Green For Life facility (West of Intersection at Cherry Street and Commissioners Avenue) – Lafarge Boat and Industry Operation	632835, 4833768
SC-11	Northeast Corner of Turning Basin – Innocon and Surrounding Industry Operations	634533, 4834748
SC-12	East End of Basin Street / West Side of Turning Basin – Innocon and Surrounding Industry Operations	634311, 4834507
SC-13	Salt Storage Boat Unloading – North Side of Canal	633314, 4833583

The spot check measurement results are provided in Table 15 below:

Table 15: Attended Measurement Results

Spot-Check Measurement Location	Sound Pressure Level L_{Aeq}
SC-01	51
SC-02	68
SC-03	56
SC-04	49
SC-05	78
SC-06	78
SC-07	79
SC-08	63
SC-09	63
SC-10	68
SC-11	57
SC-12	65
SC-13	59

5.2 Modelling and Mapping

5.2.1 Class 4 Designation

The potential influence areas defined in Guideline D-6 should act as a 'flag', and no sensitive land uses shall be permitted within the actual or potential influence areas of Class I, II or III industrial land uses without evidence to substantiate the absence of a problem (i.e. further studies). As the potential influence area for Class III industrial land uses is 1000 meters, any development within the study area will fall within a potential influence area. For noise, the D-6 guideline states - noise shall be addressed through Ministry Publication LU-131 (which has been superseded by NCP-300) for all applicable situations.

NPC-300 defines applicable sound level limits for stationary sources (i.e., steady, varying and quasi-steady impulsive sound) and impulsive sources which are to be assessed separately. The Port Lands is located in a high ambient noise environment, and in Golder's opinion, meets the requirements of a Class 4 designation as defined in NPC-300 (i.e., Development of new Point(s) of Reception (PORs) adjacent to existing, lawfully established stationary sources). In assessing stationary noise sources, the MOECC has established exclusionary Plane of Window (POW) and outdoor sound level limits for Class 4 areas. For a Class 4 area, the POW limits apply to a

window that is closed. For a Class 1 to 3 classifications, the POW limits apply to a window that is open. The POW sound level limit for the noise sensitive receptors in a Class 4 area is described as follows:

> *The sound level limit at a POW POR is set as the higher of either the applicable exclusionary limit of 60 dBA in the daytime period of 07:00-19:00, 60 dBA in the evening period of 19:00-23:00 and 55 dBA in the night-time period of 23:00-07:00, or the minimum background sound level that occurs or is likely to occur during the time period corresponding to the operation of the stationary source under impact assessment.*

The outdoor sound level limit for the noise sensitive receptors in a Class 4 area is described as follows:

> *The sound level limit at an outdoor POR is set as the higher of either the applicable exclusionary limit of 55 dBA in the daytime period of 07:00-19:00 and 55 dBA in the evening period of 19:00-23:00, or the minimum background sound level that occurs or is likely to occur during the time period corresponding to the operation of the stationary source under impact assessment. In general, the outdoor POR will be protected during the night-time as a consequence of meeting the sound level limit at the adjacent POW.*

The One Hour Equivalent Sound Level (L_{Aeq}) MOECC exclusionary sound level limits for a POR in a Class 4 classification are summarized in Table 16 and Table 17 below.

Table 16: Stationary Source Sound Level Limits for Class 4 Area

Time Period	Class 4 POW MOECC Exclusionary Sound Level Limit (dBA)	Class 4 Outdoor POR MOECC Exclusionary Sound Level Limit (dBA)
Daytime (07:00 – 19:00)	60	55
Evening (19:00 – 23:00)	60	55
Night-time (23:00 – 07:00)	55	N/A

Table 17: Impulsive Source Sound Level Limits for Class 4 Area

Actual Number of Impulses in Period of One-Hour	Class 4 POW MOECC Exclusionary Sound Level Limit (dBAI) (07:00 – 23:00 / 23:00 – 07:00)	Class 4 Outdoor POR MOECC Exclusionary Sound Level Limit (dBAI) (07:00 – 23:00)
9 or more	60 / 55	55
7 to 8	65 / 60	60
5 to 6	70 / 65	65
4	75 / 70	70
3	80 / 75	75
2	85 / 80	80
1	90 / 85	85

In addition to the long term monitoring and spot check data used in determining the existing conditions (presented in Section 5.1), a detailed noise assessment was carried out at the Lafarge Polson Street facility on July 21st 2015.

Consent was granted by Lafarge Canada Inc. to obtain source specific noise data which has been incorporated into the acoustic model.

The City provided a built form scenario to be assessed as part of the NAQF study. The built form scenario has been incorporated into the acoustic model to determine the noise impact from the existing noise sources. Using building evaluations, Golder has predicted the maximum noise levels over all storeys and facades of each building in the built form scenario. The noise assessment has been limited to the study area as defined in Section 2.0 and no built form modelling or assessment of background noise or other noise sources was undertaken for areas outside of the study area.

5.2.2 Stationary Noise Sources

All industries in the Port Lands study area have the potential to operate at full capacity during night-time hours (2300 to 0700 hours). Therefore the acoustic model represents a worst-case 1 hour L_{Aeq} night-time noise level. Predicted stationary noise level contours, incorporating data from the Lafarge Polson Street facility detailed noise assessment, are shown in Figures 7 to 10. The maximum predicted noise exposures (dBA values) are displayed on each building identified on the noise level contour figures. The applicable sound level limits for stationary noise sources are presented in Section 3.4.1.3. Areas identified in the figures that are in excess of these guideline limits (e.g., 50 dBA and 60 dBA for Class 1 and Class 4 respectively for daytime hours) are out of compliance with MOECC guideline NPC-300. Due to the shielding effect of buildings and structures, noise contour grids at low elevations may not be representative of the noise impact of multi-storey condominium buildings with noise sensitive receptors at higher elevations. As such, noise contour grids have been presented for elevations at 1.5 m, 25 m, 50 m, and 100 m.

LEGEND

MAXIMUM NOISE EXPOSURE LEVEL

BUILDINGS

STUDY AREA

1.5m ELEVATION

ISO dB

- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- > 75

0 400 800

1:12,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
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IMAGERY - ESRI WORLD IMAGERY WMS, CNES/AIRBUS DS, 0.5M, 4/26/2013
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
STATIONARY NOISE SOURCES
ISO SOUND LEVEL CONTOURS (dB) 1.5m

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-25
DESIGNED	ME
PREPARED	ME
REVIEWED	TG
APPROVED	KA

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	7

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

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LEGEND

- ## MAXIMUM NOISE EXPOSURE LEVEL
- BUILDINGS
- STUDY AREA
- 25m ELEVATION
- ISO dB
  - < 45
  - 45 - 50
  - 50 - 55
  - 55 - 60
  - 60 - 65
  - 65 - 70
  - 70 - 75
  - > 75

0 400 800

1:12,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
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IMAGERY - ESRI WORLD IMAGERY WMS, CNES/AIRBUS DS, 0.5M, 4/26/2013
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
STATIONARY NOISE SOURCES
ISO SOUND LEVEL CONTOURS (dB) 25m

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-25
DESIGNED	ME
PREPARED	ME
REVIEWED	TG
APPROVED	KA

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	8

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM:
25mm
0

LEGEND

MAXIMUM NOISE EXPOSURE LEVEL

BUILDINGS

STUDY AREA

50m ELEVATION

ISO dB

- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- > 75

0 400 800

1:12,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
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PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
STATIONARY NOISE SOURCES
ISO SOUND LEVEL CONTOURS (dB) 50m

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-25
DESIGNED	ME
PREPARED	ME
REVIEWED	TG
APPROVED	KA

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	**9**

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

LEGEND

- ## MAXIMUM NOISE EXPOSURE LEVEL
- BUILDINGS
- STUDY AREA
- 100m ELEVATION

ISO dB

- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- > 75

0 400 800

1:12,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
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IMAGERY - ESRI WORLD IMAGERY WMS, CNES/AIRBUS DS, 0.5M, 4/26/2013
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
STATIONARY NOISE SOURCES
ISO SOUND LEVEL CONTOURS (dB) 100m

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-25
DESIGNED	ME
PREPARED	ME
REVIEWED	TG
APPROVED	KA

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	**10**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 0 25mm

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5.2.3 Impulsive Noise Sources

Consent was granted by Lafarge Canada Inc. to undertake a detailed noise assessment at the Polson Street Cement Terminal, which was carried out on July 21st 2015. Source specific noise data obtained during the site visit has been incorporated into the acoustic model. One of the dominant noise sources identified during the site visit was the jet pulse cleaning mechanism associated with the large dust collector located above the main loading area. As per our discussions with Lafarge during the site visit, the assessment of the jet pulse cleaning mechanism assumes 15 impulses per hour, therefore the "9 or more" criteria (i.e., 55 dBAI) is applicable.

Predicted impulsive noise level contours which display the Logarithmic Mean Impulse Sound Level (L_{LM}), are shown in Figures 11 to 14. The maximum predicted noise exposures are displayed on each building identified on the noise level contour figures. The applicable sound level limits for impulsive noise sources are presented in Section 3.4.1.4. Areas identified in the figures that are in excess of these guideline limits (e.g., 50 dBAI and 60 dBAI for 9 or more actual impulses an hour for Class 1 and Class 4 respectively for daytime hours) are out of compliance with MOECC guideline NPC-300. Due to the shielding effect of buildings and structures, noise contour grids at low elevations may not be representative of the noise impact of multi-storey condominium buildings with noise sensitive receptors at higher elevations. As such, impulsive noise contour grids have been presented for elevations at 1.5 m, 25 m, 50 m, and 100 m.

LEGEND

- ## MAXIMUM NOISE EXPOSURE LEVEL
- BUILDINGS
- STUDY AREA
- 1.5m ELEVATION

ISO dB

- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- > 75

0 400 800

1:12,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
IMAGERY - ESRI WORLD IMAGERY WMS, CNES/AIRBUS DS, 0.5M, 4/26/2013
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
IMPULSIVE NOISE SOURCES
ISO SOUND LEVEL CONTOURS (dB) 1.5m

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-25
DESIGNED	ME
PREPARED	ME
REVIEWED	TG
APPROVED	KA

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	11

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm

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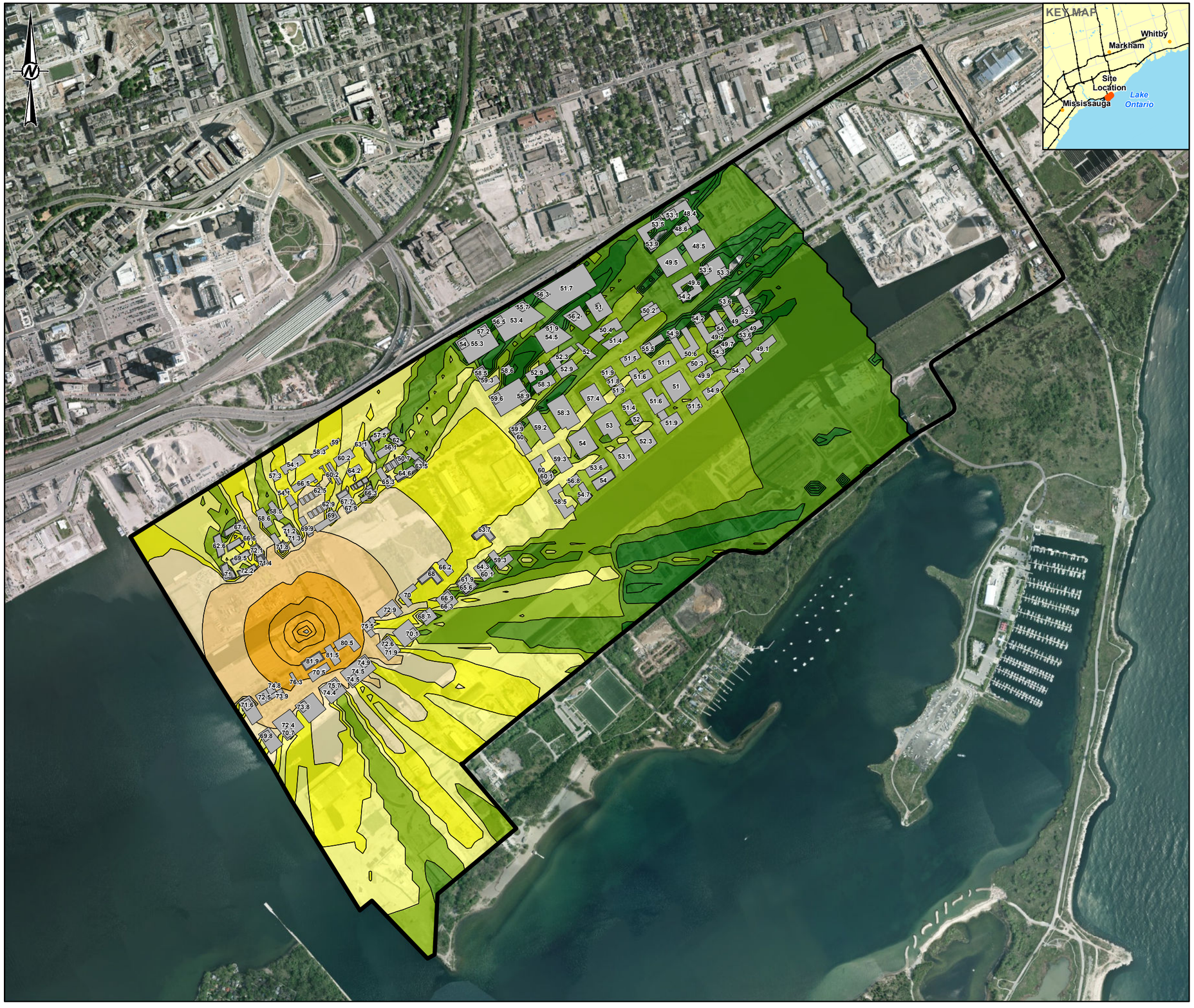

LEGEND

- ## MAXIMUM NOISE EXPOSURE LEVEL
- BUILDINGS
- STUDY AREA
- 25m ELEVATION
- ISO dB
  - < 45
  - 45 - 50
  - 50 - 55
  - 55 - 60
  - 60 - 65
  - 65 - 70
  - 70 - 75
  - > 75

0 400 800

1:12,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
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PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
IMPULSIVE NOISE SOURCES
ISO SOUND LEVEL CONTOURS (dB) 25m

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-25
DESIGNED	ME
PREPARED	ME
REVIEWED	TG
APPROVED	KA

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	12

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm

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LEGEND

- ## MAXIMUM NOISE EXPOSURE LEVEL
- BUILDINGS
- STUDY AREA
- 50m ELEVATION

ISO dB

- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- > 75

0 400 800

1:12,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
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PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
IMPULSIVE NOISE SOURCES
ISO SOUND LEVEL CONTOURS (dB) 50m

CONSULTANT
Golder Associates

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DESIGNED	ME
PREPARED	ME
REVIEWED	TG
APPROVED	KA

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	13

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

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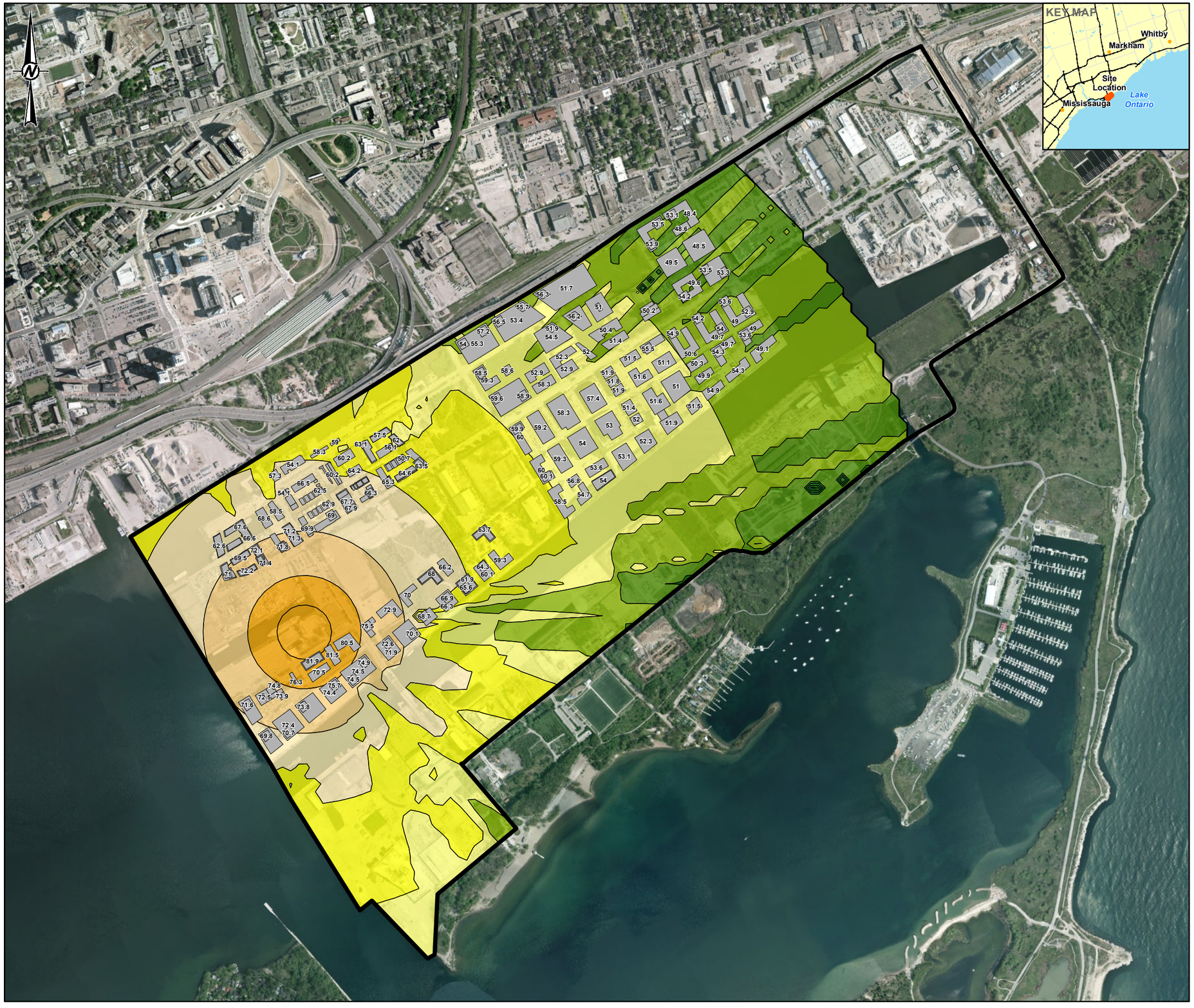

LEGEND

- ## MAXIMUM NOISE EXPOSURE LEVEL
- BUILDINGS
- STUDY AREA
- 100m ELEVATION

ISO dB

- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- > 75

0 400 800

1:12,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
IMAGERY - ESRI WORLD IMAGERY WMS, CNES/AIRBUS DS, 0.5M, 4/26/2013
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
IMPULSIVE NOISE SOURCES
ISO SOUND LEVEL CONTOURS (dB) 100m

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-25
DESIGNED	ME
PREPARED	ME
REVIEWED	TG
APPROVED	KA

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	14

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM:
ANSI B 279mm 0 25mm

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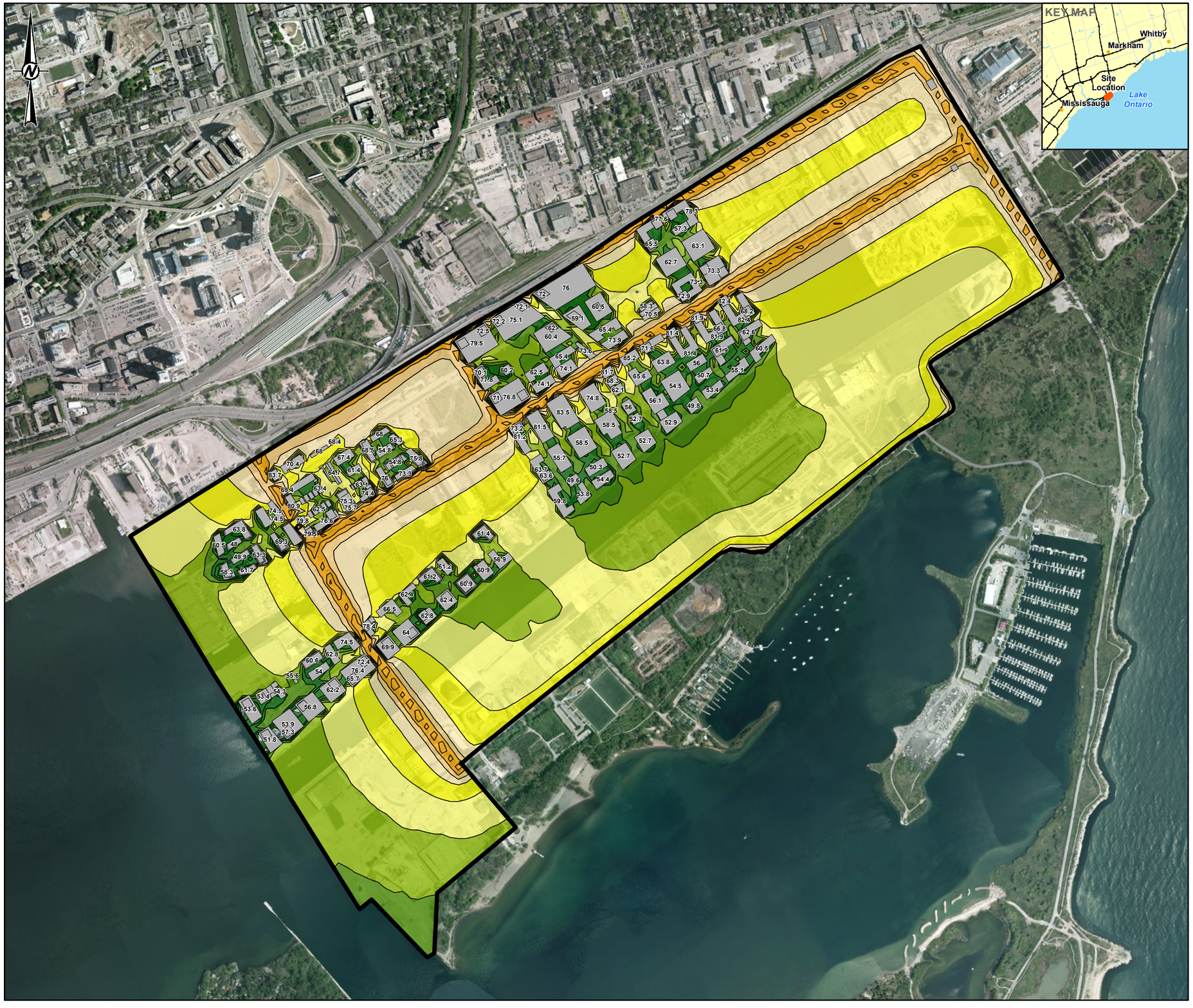
5.2.4 Transportation Sources

The assessment of road traffic noise impact is evaluated by prediction using statistically averaged traffic information. Traffic counts provided by the City of Toronto – Traffic Safety Unit were used to predict the existing road traffic noise impact using the built form scenario provided by the City and are presented in Appendix B. The breakdown of cars, medium trucks and heavy trucks has been included in the assessment. The road traffic noise assessment assigns a higher noise level to heavy vehicles (i.e. trucks), so an increase in the percentage of truck results in a greater increase in predicted noise level when compared to an increase in cars. The descriptors are the 16-hour daytime and the 8-hour night-time equivalent sound levels, L_{Aeq} (16) and L_{Aeq} (8) which take into account all vehicle types.

Predicted transportation noise level contours for existing road traffic noise, are shown in Figures 15 to 18 (daytime) and 19 to 22 (night-time). The maximum predicted noise exposures, calculated using building evaluations, are displayed on each building identified on the noise level contour figures. The applicable criteria for transportation noise sources have been presented in Section 3.4.1.5. Due to the shielding effect of buildings and structures, noise contour grids at low elevations may not be representative of the noise impact of multi-storey condominium buildings with noise sensitive receptors at higher elevations. As such, transportation noise contour grids have been presented for elevations at 1.5 m, 25 m, 50 m, and 100 m.



LEGEND

- ## MAXIMUM NOISE EXPOSURE LEVEL
- BUILDINGS
- STUDY AREA
- 1.5m ELEVATION

ISO dB

- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- > 75

0 400 800

1:12,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
IMAGERY - ESRI WORLD IMAGERY WMS, CNES/AIRBUS DS, 0.5M, 4/26/2013
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
TRANSPORTATION NOISE SOURCES - DAYTIME (16-HOUR)
ISO SOUND LEVEL CONTOURS (dB) 1.5m

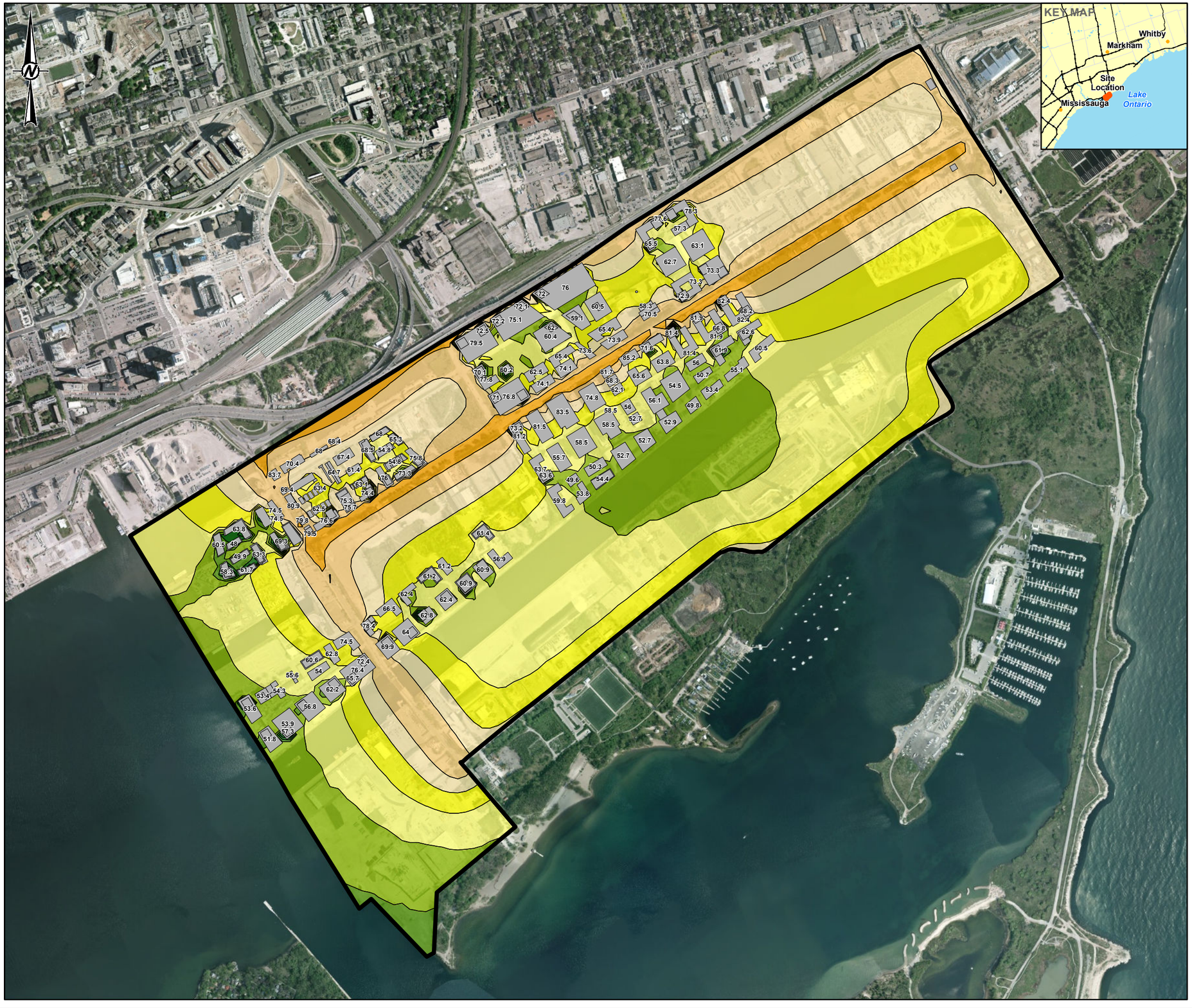
CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-25
DESIGNED	ME
PREPARED	ME
REVIEWED	TG
APPROVED	KA

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	**15**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM:
0 25mm

S:\Clients\City_of_Toronto\Port_Lands\99_PRO\1417178_Feasability_Study\40_PROD\0009_Air_Noise_Phase_4\1417178-0009-RN-0013.mxd



LEGEND

MAXIMUM NOISE EXPOSURE LEVEL

BUILDINGS

STUDY AREA

25m ELEVATION

ISO dB

- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- > 75

0 400 800

1:12,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
IMAGERY - ESRI WORLD IMAGERY WMS, CNES/AIRBUS DS, 0.5M, 4/26/2013
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
TRANSPORTATION NOISE SOURCES - DAYTIME (16-HOUR) ISO SOUND LEVEL CONTOURS (dB) 25m

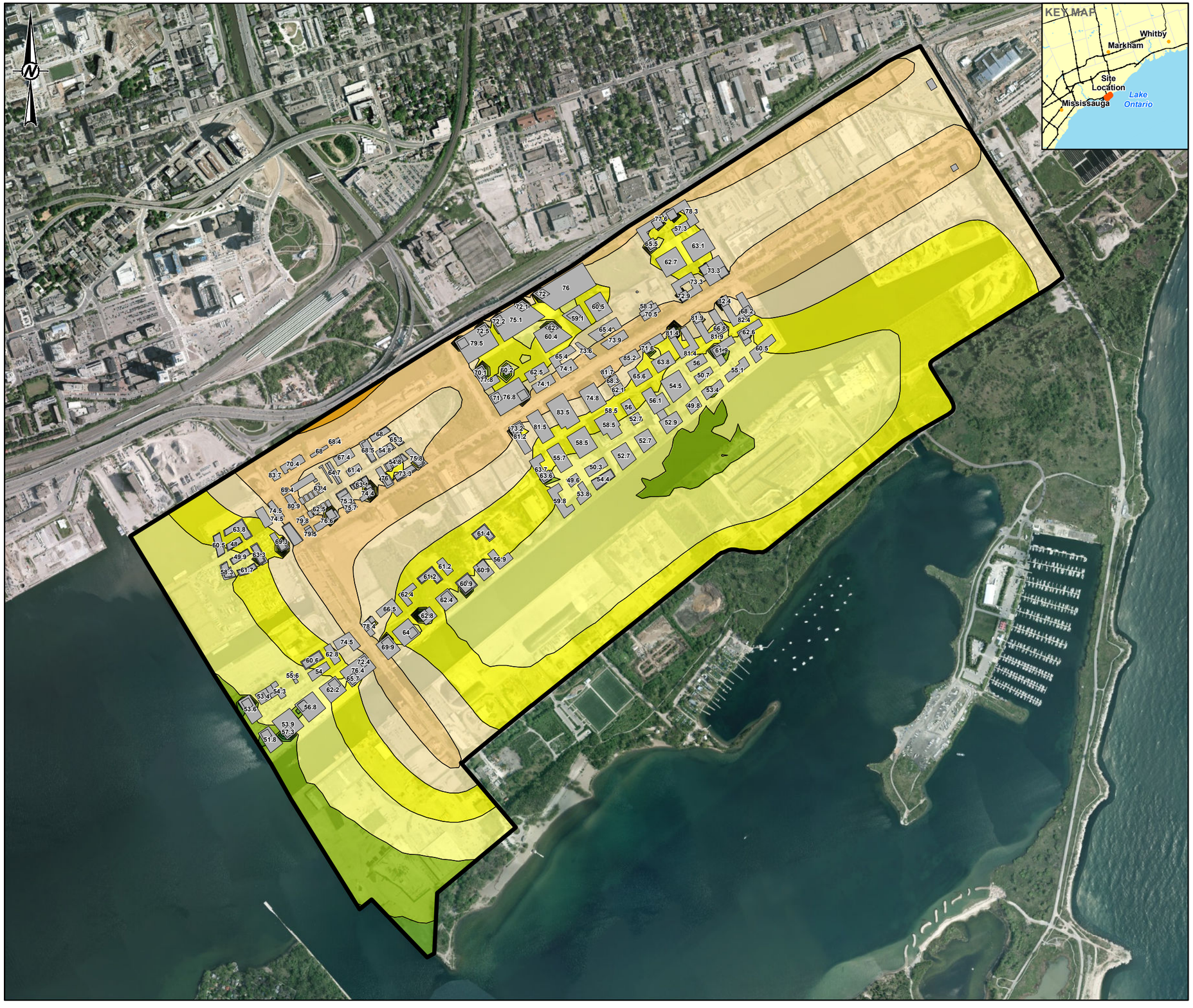
CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-25
DESIGNED	ME
PREPARED	ME
REVIEWED	TG
APPROVED	KA

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	16

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm

S:\Clients\City_of_Toronto\Port_Lands\99_PRO_f\1417178_Feasability_Study\40_PROD\0009_Air_Noise_Phase_4\1417178-0009-RN-0014.mxd



LEGEND

- ## MAXIMUM NOISE EXPOSURE LEVEL
- BUILDINGS
- STUDY AREA
- 50m ELEVATION
- ISO dB
  - < 45
  - 45 - 50
  - 50 - 55
  - 55 - 60
  - 60 - 65
  - 65 - 70
  - 70 - 75
  - > 75

0 400 800

1:12,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
IMAGERY - ESRI WORLD IMAGERY WMS, CNES/AIRBUS DS, 0.5M, 4/26/2013
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
TRANSPORTATION NOISE SOURCES - DAYTIME (16-HOUR)
ISO SOUND LEVEL CONTOURS (dB) 50m

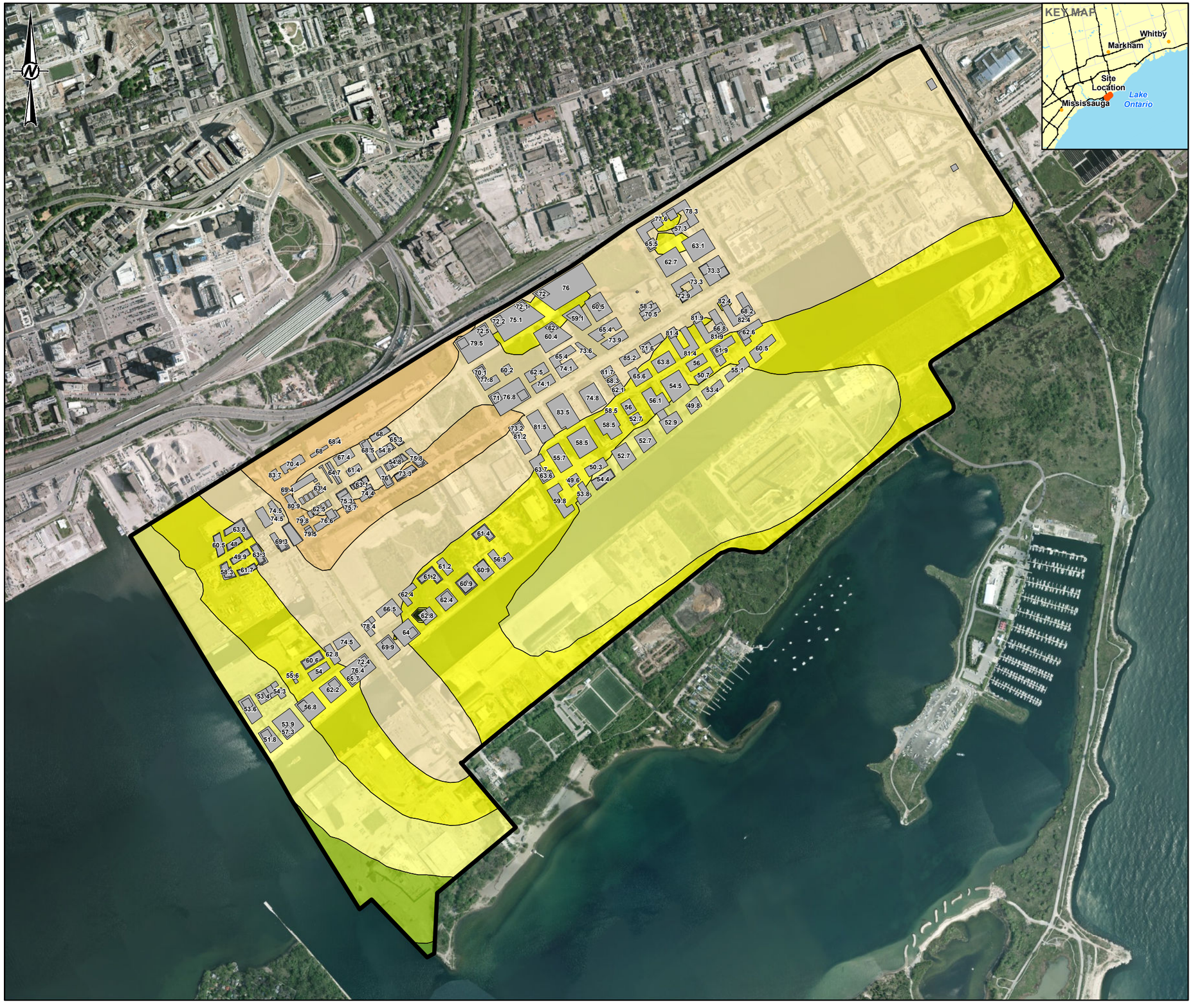
CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-25
DESIGNED	ME
PREPARED	ME
REVIEWED	TG
APPROVED	KA

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	17

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm

S:\Clients\City_of_Toronto\Port_Lands\99_PRO\1417178_Feasability_Study\40_PRO\00\009_Air_Noise_Phase_4\1417178-0009-RN-0015.mxd



LEGEND

- ## MAXIMUM NOISE EXPOSURE LEVEL
- BUILDINGS
- STUDY AREA
- 100m ELEVATION
- ISO dB
  - < 45
  - 45 - 50
  - 50 - 55
  - 55 - 60
  - 60 - 65
  - 65 - 70
  - 70 - 75
  - > 75

0 400 800

1:12,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
IMAGERY - ESRI WORLD IMAGERY WMS, CNES/AIRBUS DS, 0.5M, 4/26/2013
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
TRANSPORTATION NOISE SOURCES - DAYTIME (16-HOUR)
ISO SOUND LEVEL CONTOURS (dB) 100m

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-25
DESIGNED	ME
PREPARED	ME
REVIEWED	TG
APPROVED	KA

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	**18**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

S:\Clients\City_of_Toronto\Port_Lands\99_PRO\1417178_Feasability_Study\40_PRO\0009_Air_Noise_Phase_4\1417178-0009-RN-0016.mxd

LEGEND

- ## MAXIMUM NOISE EXPOSURE LEVEL
- BUILDINGS
- STUDY AREA
- 1.5m ELEVATION

ISO dB

- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- > 75

0 400 800

1:12,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
IMAGERY - ESRI WORLD IMAGERY WMS, CNES/AIRBUS DS, 0.5M, 4/26/2013
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
TRANSPORTATION NOISE SOURCES - NIGHT-TIME (8-HOUR) ISO SOUND LEVEL CONTOURS (dB) 1.5m

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-25
DESIGNED	ME
PREPARED	ME
REVIEWED	TG
APPROVED	KA

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	**19**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 0 25mm

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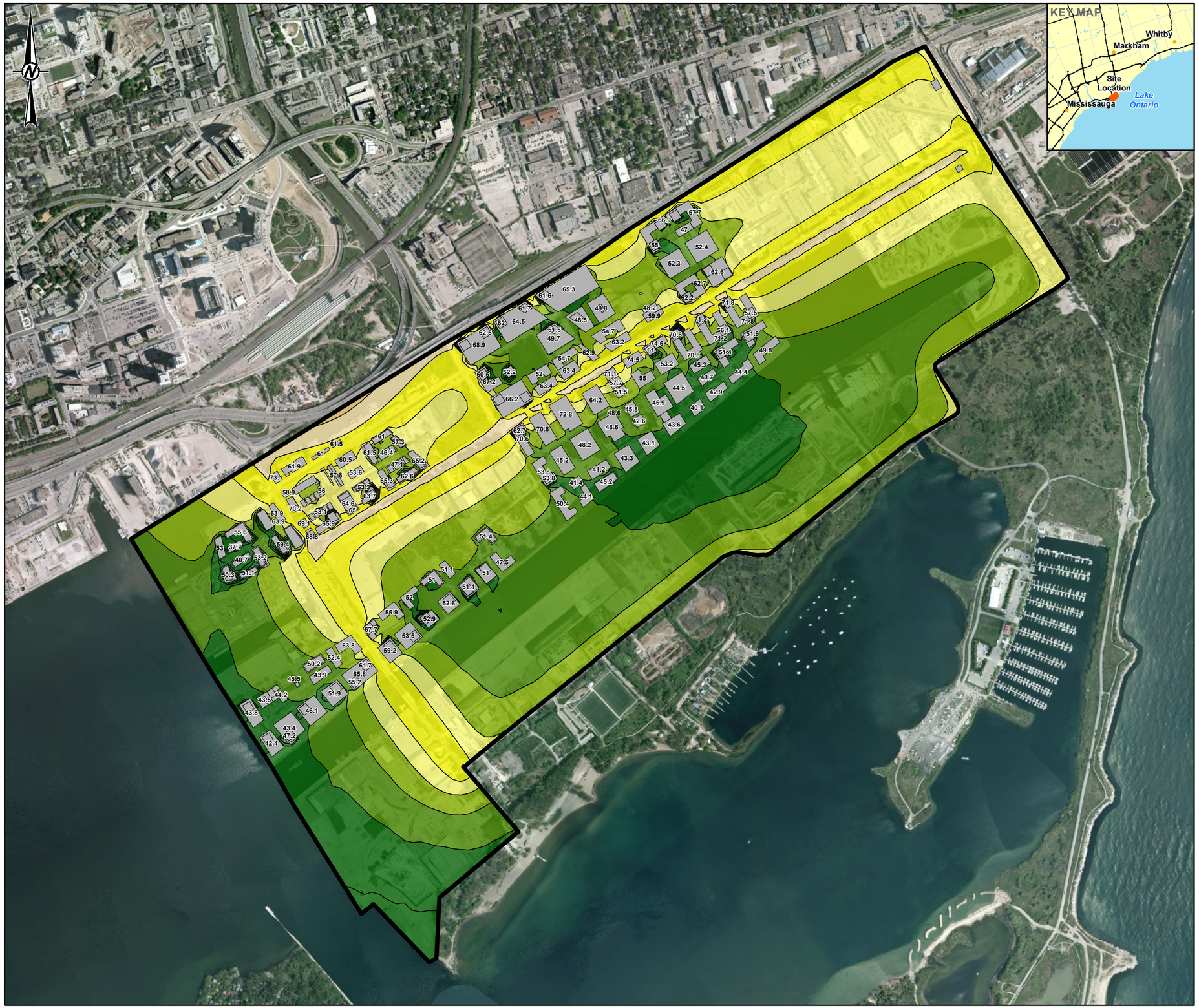

LEGEND

- ## MAXIMUM NOISE EXPOSURE LEVEL
- BUILDINGS
- STUDY AREA
- 25m ELEVATION
- ISO dB
  - < 45
  - 45 - 50
  - 50 - 55
  - 55 - 60
  - 60 - 65
  - 65 - 70
  - 70 - 75
  - > 75

0 400 800

1:12,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
IMAGERY - ESRI WORLD IMAGERY WMS, CNES/AIRBUS DS, 0.5M, 4/26/2013
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
TRANSPORTATION NOISE SOURCES - NIGHT-TIME (8-HOUR)
ISO SOUND LEVEL CONTOURS (dB) 25m

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-25
DESIGNED	ME
PREPARED	ME
REVIEWED	TG
APPROVED	KA

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	**20**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

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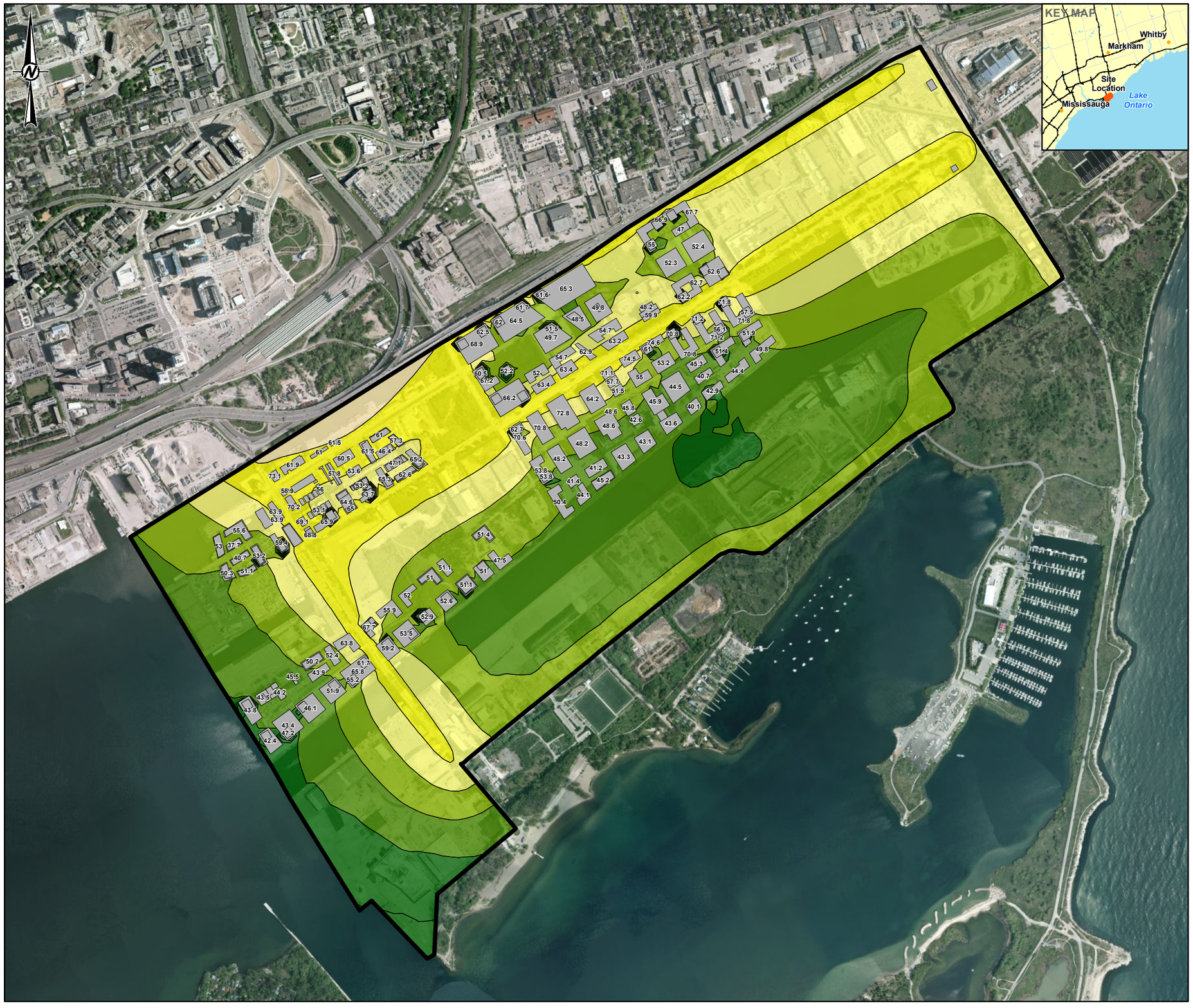


LEGEND

- ## MAXIMUM NOISE EXPOSURE LEVEL
- BUILDINGS
- STUDY AREA
- 50m ELEVATION

ISO dB

- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- > 75

0 400 800

1:12,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
IMAGERY - ESRI WORLD IMAGERY WMS, CNES/AIRBUS DS, 0.5M, 4/26/2013
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
TRANSPORTATION NOISE SOURCES - NIGHT-TIME (8-HOUR) ISO SOUND LEVEL CONTOURS (dB) 50m

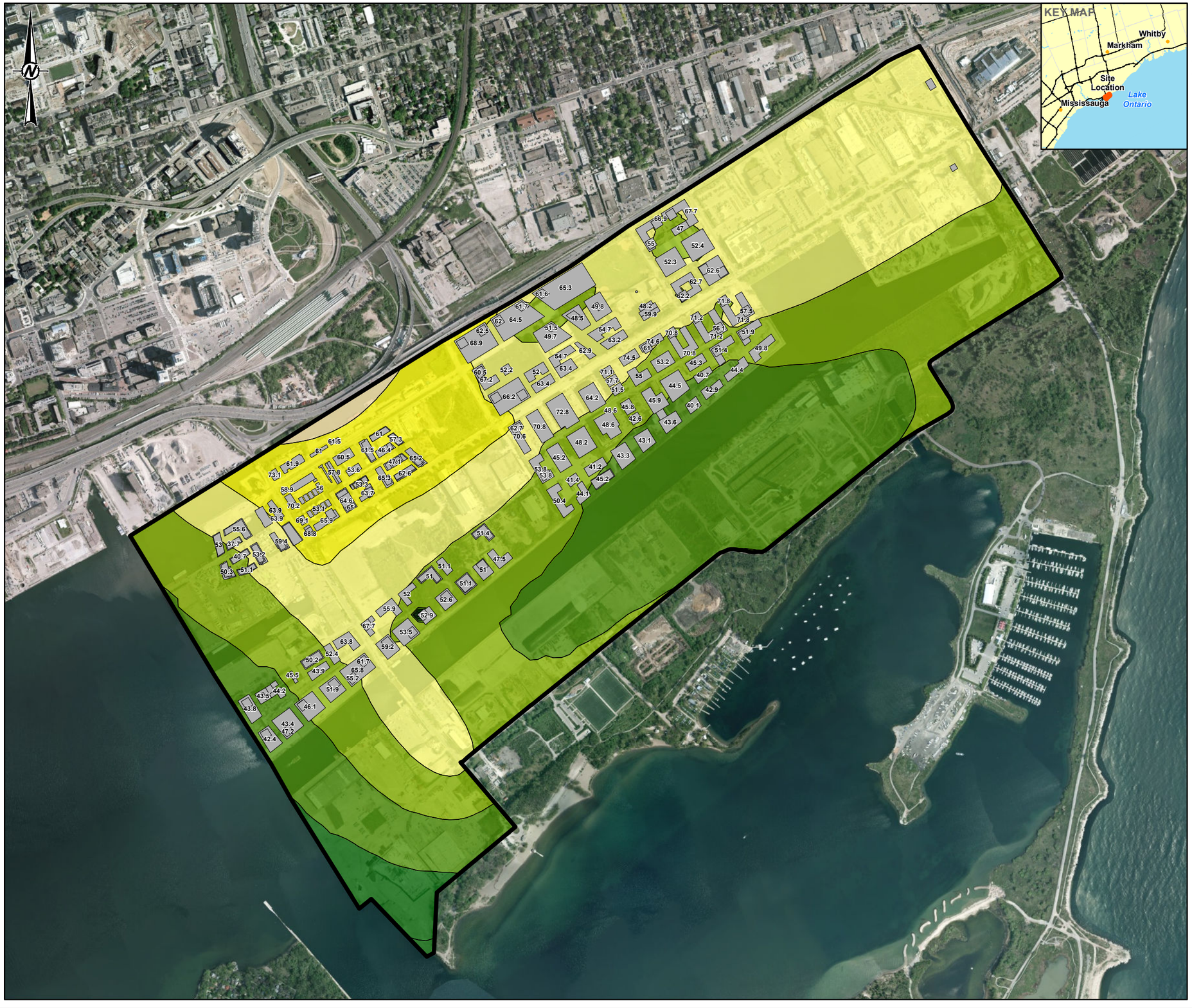
CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-25
DESIGNED	ME
PREPARED	ME
REVIEWED	TG
APPROVED	KA

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	21

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

S:\Clients\City_of_Toronto\Port_Lands\99_PRO\1417178_Feasability_Study\40_PROD\0019_Air_Noise_Phase_4\1417178-0009-RN-0019.mxd



LEGEND

MAXIMUM NOISE EXPOSURE LEVEL

BUILDINGS

STUDY AREA

100m ELEVATION

ISO dB

- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- > 75

0 400 800

1:12,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
IMAGERY - ESRI WORLD IMAGERY WMS, CNES/AIRBUS DS, 0.5M, 4/26/2013
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
TRANSPORTATION NOISE SOURCES - NIGHT-TIME (8-HOUR) ISO SOUND LEVEL CONTOURS (dB) 100m

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-25
DESIGNED	ME
PREPARED	ME
REVIEWED	TG
APPROVED	KA

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	22

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 0 25mm

S:\Clients\City_of_Toronto\Port_Lands\9b_PRO\1417178_Feasability_Study\40_PROD\0009_Air_Noise_Phase_4\1417178-0009-RN-0020.mxd

5.3 Analysis and Identification of Mitigation Measures

The objective of noise assessments conducted as part of the land use planning approval process for the development of noise sensitive land uses is to protect the lawful operation of any stationary sources located close to a proposed noise sensitive land use (stationary sources need to be able to maintain compliance with the legal requirements of the MOECC approval, when the development of new sensitive land uses are introduced in their proximity). It is considered the responsibility of the proponent of a new noise sensitive land use to ensure compliance with the applicable sound level limits. These responsibilities include:

- determining the feasibility of the project;
- assessing acoustical environments, as appropriate;
- investigation of feasible means of noise impact mitigation;
- ensuring that the required noise control measures are incorporated in the development and/or as part of the stationary source; and
- describing the technical details and clarifying the responsibility for the implementation and maintenance, of the required noise control measures.

The Port Lands is located in a high ambient noise environment, and in Golder's opinion, meets the requirements of a Class 4 designation as defined in NPC-300 (i.e., Development of New PORs adjacent to existing, lawfully established stationary sources).

5.3.1 Stationary and Impulsive Sources

Based on the predicted noise level contours for stationary sources (Figures 7 to 10) and impulsive sources (Figures 11 to 14) noise levels at a number of buildings assessed as part of the built form scenario were identified as potentially requiring mitigation measures. A summary has been provided in Table 18 below.

Table 18: Areas potentially requiring mitigation measures

Source	Time of Day	Villiers Island	Polson Quay	South River	Film Studio District West	Film Studio District East
Stationary	07:00 – 23:00	All buildings compliant with Class 4 Limits	All buildings with direct line-of-sight to Lafarge exceed Class 4 Limits	All buildings with direct line-of-sight to Lafarge and/or salt storage area exceed Class 4 Limits	Building in SW corner of district exceeds Class 4 Limits	All buildings compliant with Class 4 Limits
	23:00 – 07:00	South façade of buildings with direct line-of-sight to Lafarge exceed Class 4 Limits	All buildings exceed Class 4 Limits	All buildings exceed Class 4 Limits	South façade of buildings with direct line-of-sight to salt storage area exceed Class 4 Limits	Buildings in SE corner of district with line-of-sight to industries to the east exceed Class 4 Limits

Source	Time of Day	Villiers Island	Polson Quay	South River	Film Studio District West	Film Studio District East
Impulsive	07:00 – 23:00	All buildings exceed Class 4 Limits	All buildings exceed Class 4 Limits	All buildings exceed Class 4 Limits	All buildings compliant with Class 4 Limits	All buildings compliant with Class 4 Limits
	23:00 – 07:00	All buildings exceed Class 4 Limits	All buildings exceed Class 4 Limits	All buildings exceed Class 4 Limits	Buildings located to the west of the district	All buildings compliant with Class 4 Limits

As stated in NPC-300, where practicable, the preferred mitigation option is a reduction of noise emissions at the stationary source by modifying the design or the operation of the source, or by implementing noise control measures directly at the source. A cooperative effort on the part of the proponent and the stationary source owner is desirable.

For Villiers Island, Polson Quay and South River a detailed analysis was carried out to determine the required sound reductions for the Lafarge Canada Inc. noise sources to demonstrate compliance with the MOECC Class 4 night-time exclusion limit if no receptor-based mitigation is considered. A site layout plan showing the identified noise sources at the Lafarge facility including a table containing the source IDs and source descriptions is presented in Figure 23. Table 19 identifies each source requiring mitigation, the source elevation, and a description of potential mitigation based on the type of noise source. The feasibility of potential mitigation measures should be discussed with Lafarge Canada Inc. and the implementation of noise control measures should be specified in agreements, involving the proponent of the new noise sensitive land use, the owner of the stationary source (s) and the land use planning authority.

Please note that only noise sources requiring mitigation have been presented.

Table 19: Required noise reductions - Lafarge Canada Inc.

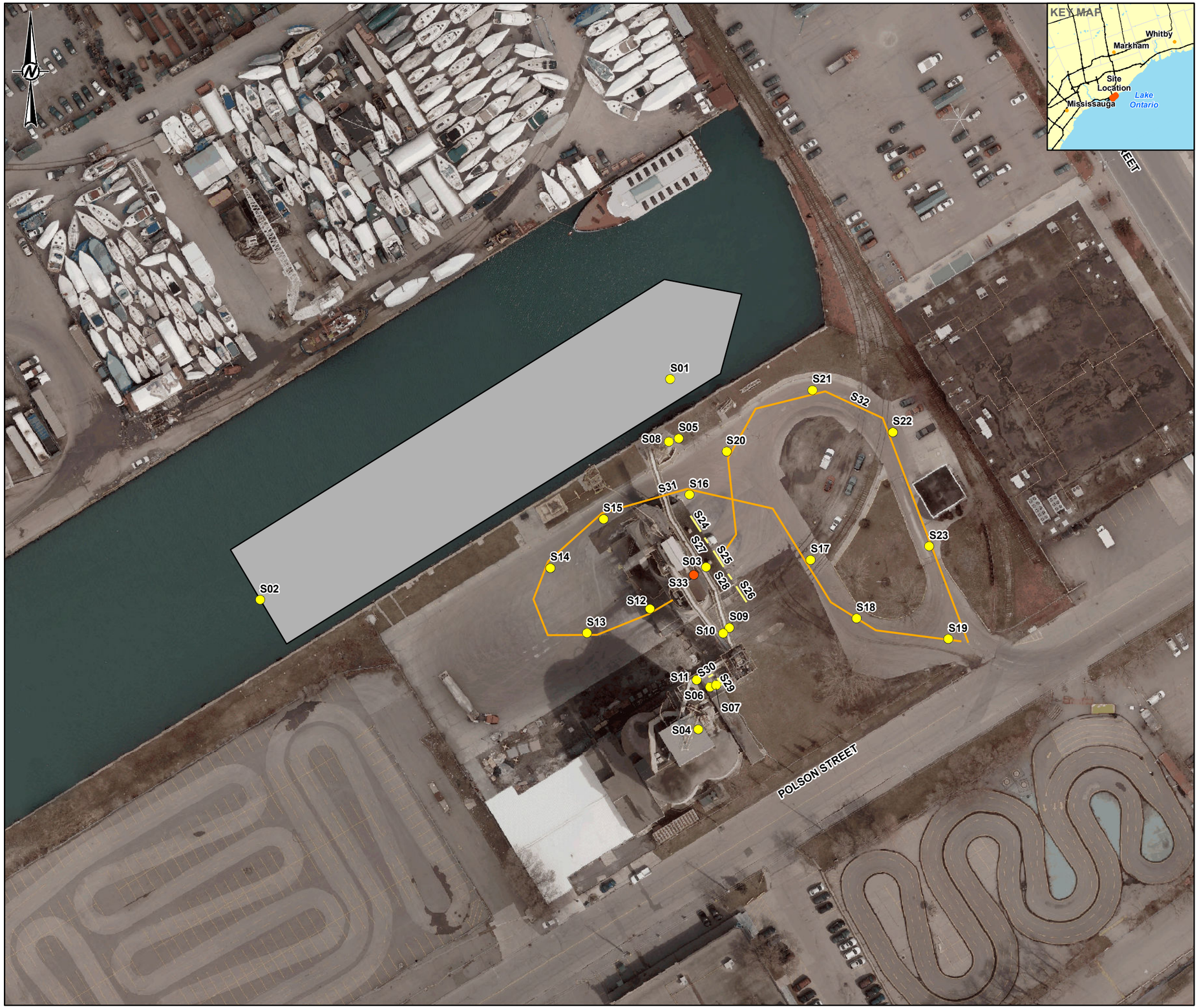
Source Name	Source ID	Elevation (m)	Required Reduction (dB) Villiers Island	Required Reduction (dB) Polson Quay	Required Reduction (dB) South River	Potential Mitigation
Boat Unload Motor	S01	1.5	10	20	15	On-site Power source with appropriate noise mitigation
Large Dust Collector Discharge	S03	26	6	20	15	Silencer
Blower Trucks	S09 to S11	2.5	5	30	20	Barrier, wing wall or enclosure
Bay Doors	S24 to S26	2.5	-	15	15	Bay doors will need to remain closed while loading and potentially upgraded
Truck Idling	S12 to S23	2.5	-	15	5	No idling policy

Figure 23. Table 19 identifies each source requiring mitigation, the source elevation, and a description of potential mitigation based on the type of noise source. The feasibility of potential mitigation measures should be discussed with Lafarge Canada Inc. and the implementation of noise control measures should be specified in agreements, involving the proponent of the new noise sensitive land use, the owner of the stationary source (s) and the land use planning authority.

Please note that only noise sources requiring mitigation have been presented.

Table 19: Required noise reductions - Lafarge Canada Inc.

Source Name	Source ID	Elevation (m)	Required Reduction (dB) Villiers Island	Required Reduction (dB) Polson Quay	Required Reduction (dB) South River	Potential Mitigation
Boat Unload Motor	S01	1.5	10	20	15	On-site Power source with appropriate noise mitigation
Large Dust Collector Discharge	S03	26	6	20	15	Silencer
Blower Trucks	S09 to S11	2.5	5	30	20	Barrier, wing wall or enclosure
Bay Doors	S24 to S26	2.5	-	15	15	Bay doors will need to remain closed while loading and potentially upgraded
Truck Idling	S12 to S23	2.5	-	15	5	No idling policy
Elevator Motors	S07 to S08	25	-	10	-	Enclosure
Small Dust Collector Discharge	S04 to S06	8	-	10	-	Silencer
Large Dust Collector Impulse	S33	26	18	27	21	Reinforce or replace existing enclosure and/or reduce number of impulses per hour



LEGEND

- POINT SOURCE
- IMPULSIVE POINT SOURCE
- LINE SOURCE
- VERTICAL AREA SOURCE
- LAFARGE BOAT

Source ID	Source Description
S01	Boat Unload Motor
S02	Boat Engine
S03	Large Dust Collector Discharge
S04	Small Dust Collector Discharge 01
S05	Small Dust Collector Discharge 02
S06	Small Dust Collector Discharge 03
S07	Elevator Motor 01
S08	Elevator Motor 02
S09	Blower Truck 01
S10	Blower Truck 02
S11	Blower Truck 03
S12 to S23	Truck Idle 01 to 12
S24	Bay Door 01
S25	Bay Door 02
S26	Bay Door 03
S27	Compressor Room Door 01
S28	Compressor Room Door 02
S29	Pump House Opening 01
S30	Pump House Opening 02
S31	Truck Movements In
S32	Truck Movements Out

0 30 60

1:1,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
IMAGERY - LAND INFORMATION TORONTO, CITY OF TORONTO. ARCIMS ORTHOIMAGERY WEB MAP SERVICE.
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
LAFARGE CANADA INC. SITE LAYOUT PLAN

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-25
DESIGNED	ME
PREPARED	ME
REVIEWED	TG
APPROVED	KA

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	**23**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

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Mitigation may also be required for receptors located on the east side of the proposed development due to industry in close proximity to the Leslie Street and Commissioners Street intersection. There are numerous industries contributing to the elevated background noise level in this area. A detailed noise assessment of the following industries should be carried out to determine the potential noise impacts on the proposed development and identify any potential mitigation requirements should the development be approved:

- Canroof Asphalt Plant;
- Dufferin Concrete;
- TTC Lakeshore Garage;
- Essroc – Commissioners Street;
- St Marys Cement (CBM);
- Commissioners RMC Plant; and
- Strada Aggregates Leslie Yard

As access to the salt storage facility was not provided due to security and health and safety reasons, noise measurements were made at a number of off-site locations. While undertaking the measurements the unloading conveyors were observed to stop operating with no corresponding reduction in noise level. This suggests the boat engine is the dominant noise source associated with unloading activities. It is recommended that a detailed noise assessment also be carried out at the salt storage facility to determine source specific mitigation requirements.

As discussed in Section 5.1, although infrequent activities associated with the film studios (such as gunfire, explosions etc.) are not required to be included in the predictable worst-case scenario, it is recommended that as a precautionary measure the film studios circulate noise warning notifications to all future residential developments for any explosions, gunfire and/or other noisy activities that are likely to cause annoyance or alarm. A sample of a suitable warning clause has been provided in Section 5.1.

5.3.2 Transportation Sources

NPC-300 specifies the following for road traffic noise sources:

- sound levels at the plane of residential windows to determine ventilation requirements;
- sound levels in indoor areas to determine exterior building component requirements;
- sound levels at the outdoor living areas for exterior noise control requirements; and
- noise warning clauses.

NPC-300 has specific ventilation requirements for developments depending on the expected levels of traffic noise at the residential plane of windows, which are summarized in Section 3.4.1.5 (Table 5).

For all buildings located in close proximity to the major transportation routes (i.e. Gardiner Expressway, Lake Shore Blvd, and Commissioners Street), the predicted traffic noise levels are greater than 65 dBA during the daytime and 60 dBA during the night-time, therefore it is expected that air-conditioning will be mandatory to allow windows to remain closed.

The indoor noise exposure guidelines can be achieved by using appropriate construction for exterior surfaces (walls and windows). The sound isolation requirements (including required STC ratings for windows) can be determined once the proposed development locations, suite layouts and wall assembly design have been finalized. The sound level limits for different types of indoor spaces during the applicable time period are summarized in Section 3.4.1.5 (Table 6).

According to NPC-300, an Outdoor Living Area (OLA) is anywhere that 'quiet' enjoyment of the outdoor environment or passive recreation is expected to occur. An OLA includes but is not limited to; backyards, gardens, terraces, patios, open balconies that are at least 4 m deep, or communal use areas such as amenity areas of apartment buildings, condominiums, group homes, campgrounds or other areas identified as being noise sensitive by the municipality such as parks. The sound level limits at the OLA's and different types of indoor spaces during the applicable time period are summarized in Section 3.4.1.5 (Table 7).

It is expected that noise controls and warning clauses will be required for OLAs associated with new noise sensitive land uses. Specific noise control requirements can be determined once the proposed development OLA locations and layouts have been finalized.

In addition, NPC-300 contains sample warning clauses to inform future owners/tenants of potential noise effects due to traffic noise. The suggested wording of the warning clauses varies with the degree of noise impact, the ventilation requirements, and the type of noise control features included.

6.0 AIR QUALITY

6.1 Data Collection

The first step in the air quality assessment was a review of available data to help quantify ambient air quality in the study area. The data sources that were reviewed include the following:

- annual emission inventory data; and
- ambient monitoring data.

Each of the above data sources is discussed in detail in the following sections. For the purpose of this study, the assessment of ambient or background air quality was focused on the City's list of Priority Air Contaminants, identified in Table 20, below.

Table 20: Priority Air Contaminants

Acetaldehyde	1,2-Dichloroethane	Particulate matter less than 2.5 microns in diameter ($PM_{2.5}$)
Acrolein	Dichloromethane	Tetrachloroethylene
Benzene	Ethylene dibromide	Total Suspended Particulate (TSP)
1,3-Butadiene	Formaldehyde	Trichloroethylene
Cadmium	Lead	Vinyl Chloride
Carbon tetrachloride	Manganese	Particulate matter less than 10 microns in diameter (PM_{10})
Chloroform	Mercury	Volatile organic compounds (VOC) (Anthropogenic)(3)
Chromium (non hexavalent)	Nickel Compounds	Volatile organic compounds (VOC) (Biogenic)(3)
Chromium (hexavalent)	Nitrogen oxides(1) (NO_X)	Ozone
1,4-Dichlorobenzene	Nitrogen dioxide(2) (NO_2)	Polycyclic aromatic hydrocarbons (PAHs) as benzo(a)pyrene(B[a]Ps)

Notes:
(1) Nitrogen oxides (NO_X) are comprised primarily of nitrogen dioxide (NO_2) and nitric oxide (NO). In the atmosphere, nitric oxide will react to form nitrogen dioxide. This reaction occurs rapidly when ozone is present, with the amount of nitric oxide reacting to form nitrogen dioxide depending on the amount of ozone available. The assessment considers the emissions of nitrogen oxide for their contribution to the predicted nitrogen dioxide concentrations.
(2) The nitrogen dioxide (NO^2) levels calculated by the model consider the concentrations due to direct emissions of nitrogen dioxide as well as the nitrogen dioxide concentrations due to reactions of nitric oxide (NO) in the atmosphere.
(3) The anthropogenic and biogenic volatile organic compound (VOC) emissions are considered in the modelling for their contribution to the concentrations of individual organic compounds for which ambient criteria are available.

6.1.1 Annual Emission Inventory Data

Under Section 46 of Canadian Environmental Protection Act (CEPA), organizations that meet certain reporting thresholds are required to submit an annual National Pollutant Release Inventory (NPRI) report to Environment Canada. The report must quantify releases to air, water, land, and material recovery of over 300 listed substances that have been determined to have the potential to cause significant environmental impact. The data is available publically for all reportable facilities across Canada.

Additionally, in January 2010, the City passed a by-law that requires facilities and businesses in the City of Toronto to annually track and report on the manufacture and release of 25 toxic chemicals listed in the by-law. All facilities are required to report to ChemTRAC if they meet the reporting criteria. The ChemTRAC thresholds are typically lower than NPRI thresholds and therefore provide a finer resolution of emission estimates, however the number of contaminants required to be reported is smaller. ChemTRAC data is also publically available.

As part of this study, all 2012 NPRI and ChemTRAC data for facilities located within the study area was reviewed and summarized below and compared against total reported data for the City (Table 21). It should be noted that this data only includes emissions from commercial and industrial facilities. Releases from transportation and residential heating are not included in these numbers but will be included in the ambient air quality modelling described in Section 6.2.1. Additionally, only contaminants with reported releases are included in the table.

Table 21: Summary of 2012 National Emissions Inventory Data for PACs from Study Area

Facility Information		Reported Annual Emissions [Tonnes/year]							
Company Name	**Facility Name**	**NO_2**	**VOC**	**TSP**	**PM_{10}**	**PM_{25}**	**Formaldehyde**	**Acetaldehyde**	**Lead**
St. Marys Cement Inc. (Canada)	CBM Portlands Plant	0.64	N/R	0.1	0.1	0.1	N/R	N/R	N/R
City of Toronto	Ashbridges Bay Treatment Plant	54.5	2.99	1.03	1.03	1.03	N/R	N/R	N/R
St. Lawrence Cement	Dufferin Concrete Toronto	0.54	N/R	1.317	1.31	0.25	N/R	N/R	N/R
IKO Industries Ltd.	Canroof Asphalt Plant[1]	3.92	2.801	11.8	11.8	9.66	N/R	N/R	N/R
Lafarge Canada Inc./ Innocon Inc.	Commissioners RMC Plant	N/R	N/R	0.07	0.07	0.07	N/R	N/R	N/R
Ontario Redimix	Toronto Port Plant	0.45	N/R	1.39	1.39	0.22	N/R	N/R	N/R
Portlands Energy Centre LP	Portlands Energy Centre	250.07	8.051	7.23	7.23	7.23	2.87	0.15	N/R
Toronto Hydro	500 Commissioners	0.52	N/R	N/R	N/R	N/R	N/R	N/R	0.002
Port Lands Total		311	14	23	23	19	3	0	0.0
City of Toronto Total Facility Emissions		1544	5537	617	503	326	10	6	0.2

N/R - Not Reported.

1. It should be noted that in the previous City of Toronto air Quality studies, it was identified that there were elevated emissions of Benzene released from the Canroof Facility. Since these studies were prepared, Canroof has removed the felt mat processing portion of their operations, which has significantly reduced benzene emissions.

The annual reporting data shows that the industries in the study area are significant contributors to criteria air contaminant emissions in the City. The study area facilities contribute over 20% of the City's total NO_2 emissions from industrial or commercial facilities and 5% of particulate emissions. The Portlands Energy centre is the largest contributor to total emissions of any of the facilities that reported in 2012.

6.1.2 Monitoring Data

In Ontario, regional air quality is monitored through a network of air quality monitoring stations operated by the MOECC and the Environment Canada National Air Pollution Surveillance Network (NAPS). Existing air quality can therefore be characterized using background air concentrations from monitoring data sources close to the study area. Two stations were identified as being potentially relevant to the study area location:

The Toronto Downtown station is maintained by the MOECC. It is located at Bay and Wellesley and is geographically the closest station to the study area. It should be noted that it is located in a downtown location and would therefore be influenced by urban canyon effects and local traffic idling at intersections

The Etobicoke South station is maintained by NAPS. It is located in an industrial area similar to the Port Lands. This station is geographically furthest from the study area, however it lies in a similar proximity to the lake and would likely experience similar lake effect impacts.

Additionally, only two stations were identified within the City of Toronto that monitor metals and VOCs, these are the Gage Station located by University of Toronto on College Street and Etobicoke West, located on Elmcrest Road.

The air monitoring data represent the combined effect of emissions from sources near each of the monitoring stations, as well as the effect of emissions transported into the region. Details of the stations are provided in Table 22 with the mean of the measured concentrations summarized in Table 23.

Table 22: Ambient Monitoring Stations

Station Name	Monitoring Period Available						Distance from Study Area
	NO	NO2	NOx	PM2.5	Metals	VOCs	
Toronto Downtown	2009–2013	2009–2013	2009–2013	2009–2013	N/A	N/A	2.5 km
Etobicoke South	2009–2013	2009–2013	2009–2013	2009–2013	N/A	N/A	13 km

Table 23: Air Quality Monitoring Data – Criteria Air Contaminants

Criteria Air Contaminant	Averaging Period	Ambient Air Quality Criteria [µg/m³]	Monitoring Data [µg/m³]	
			Toronto Downtown	Etobicoke South
SPM[1]	24-Hour	120	140.0	158.3
PM_{10}[1]	24-Hour	50	70.0	79.2
$PM_{2.5}$	24-Hour	28[2]	35.0	39.6
NO_X (reported as NO_2)	1-Hour	—	129.8	176.8
	24-Hour	200	77.8	98.7
	Annual	60[3]	28.0	35.5

Notes: 1) Estimated from $PM_{2.5}$ levels
2) CAAQS
3) NAOQO

6.1.2.1 Particulate Matter (SPM, PM_{10} and $PM_{2.5}$)

Particulate emissions occur due to anthropogenic activities, such as agricultural, industrial and transportation sources, as well as natural sources. Particulate matter is classified based on its aerodynamic particle size, primarily due to the different health effects that can be associated with the particles of different diameters. Fine particulate matter ($PM_{2.5}$) is of primary concern related as they can penetrate deep into the respiratory system and cause health impacts. In Ontario, these emissions have been demonstrating a steady decline since 2003.

For the Port Lands area, there are no monitoring data available for SPM and PM_{10}. However, an estimate of the background SPM and PM_{10} concentrations can be determined from the available $PM_{2.5}$ monitoring data. Fine particulate matter is a subset of PM_{10}, and PM_{10} is a subset of SPM. Therefore, it is reasonable to assume that the ambient concentrations of SPM will be greater than corresponding PM_{10} levels, and PM_{10} concentrations will be greater than the corresponding levels of $PM_{2.5}$. The overall levels of $PM_{2.5}$ in Canada were found to be about 50% of the PM_{10} concentrations and about 25% of the SPM concentrations. By applying this ratio, it was possible to estimate the background SPM and PM_{10} concentrations for the region.

Larger particles (i.e., SPM) can result in nuisance effects, such as soiling or reduced visibility and, therefore, must be taken into consideration as part of the study. All derived SPM and PM_{10} values are above the relevant Ontario ambient air quality criteria and NAAQOs.

6.1.2.2 NO_X and NO_2 Concentrations

NO_X is emitted in two primary forms: nitric oxide (NO) and NO_2. NO reacts with ozone in the atmosphere to form NO_2. The primary source of NO_X in the region is the combustion of fossil fuels. Emissions of NO_X result from the operation of stationary equipment such as incinerators, boilers, and generators, as well as the operation of mobile sources such as vehicles, haul trucks, and other equipment.

The presence of NO_2 in the atmosphere has known health effects (e.g., lung irritation) and environmental effects (e.g., acid precipitation, ground-level ozone formation). As a result, regulatory guideline levels are based on NO_2 emissions and concentrations. The monitored values of NO_2 are below the relevant Ontario AAQC and NAAQOs.

6.1.2.3 VOC Concentrations

The main sources of VOCs in the City are solvent use, autobody shops and dry cleaning operations. Only two of the seven Monitoring stations in the City capture VOC concentrations. All monitored values at the two stations are below the relevant Air Quality Criteria, with the exception of benzene which exceeds the relevant annual AAQC.

Table 24: Monitored VOC Concentrations

Station		Ambient Air Quality Criteria [µg/m³]		Etobicoke West Monitored Concentrations [µg/m³]		Gage Monitored Concentrations [µg/m³]	
Contaminant	**Units**	**24-hour**	**Annual**	**24-hour**	**Annual**	**24-hour**	**Annual**
Benzene	**µg/m³**	2.3	0.45	1.28	0.50	1.34	0.62
1,3-Butadiene	**µg/m³**	10	2	0.68	0.116	0.16	0.063
Carbon tetrachloride	**µg/m³**	2.4	—	0.78	0.32	0.79	0.54
Chloroform	**µg/m³**	1	0.2	0.21	0.07	0.33	0.15
1,4-Dichlorobenzene	**µg/m³**	95	—	0.24	0.06	0.98	0.14
1,2-Dichloroethane	**µg/m³**	165	—	0.12	0.04	0.14	0.08
Dichloromethane	**µg/m³**	220	44	1.61	0.25	3.93	0.67
Tetrachloroethylene	**µg/m³**	360	—	3.70	0.15	0.41	0.13
Trichloroethylene	**µg/m³**	12	2.3	0.33	0.03	0.16	0.05
Vinyl Chloride	**µg/m³**	1	0.2	0.02	0.001	0.01	0.002

6.1.2.4 Metal Concentrations

Metals are typically speciated from particulate matter emissions. Only one of the seven Monitoring stations in the City captures metals concentrations. All monitored values are below the relevant Ambient Air Quality Criteria.

Table 25: 2012 Monitored Metal Concentrations

Station		Ambient Air Quality Criteria [µg/m³]		Gage Monitored Concentration [µg/m³]	
Contaminant	**Units**	**24-hour**	**Annual**	**24-hour**	**Annual**
Cadmium	**µg/m³**	0.025	0.005	0.0170	0.0027
Chromium	**µg/m³**	0.50	—	0.0033	0.0006
Lead	**µg/m³**	0.5	—	0.0141	0.0029
Manganese	**µg/m³**	0.4	—	0.0247	0.0028
Nickel	**µg/m³**	0.2	0.04	0.0118	0.0011

6.2 Air Quality Modelling and Mapping

Two different modelling approaches were used to quantify the air quality in the study area:

1. Ambient Air Quality Assessment - An assessment of the ambient air quality at both ground level and elevated receptors introduced by the built form scenario; and
2. Ontario Regulation 419/05 Assessment - An assessment of the impacts of introducing the built form scenario on the ability of existing industries to comply with Ontario Regulation 419/05.

Each of these assessments is discussed in more detail in the following sections.

6.2.1 Ambient Air Quality Modelling

In 2011, the City of Toronto Environment and Energy Office (EEO) commissioned the development of the Toronto Airshed Model "*An All Sources Cumulative Air Quality Impact Study of South Riverdale - Leslieville – Beaches"* (Golder, 2011), which assessed the transport and dispersion of long-range, regional and local emissions on the Toronto airshed. The focus of the airshed modelling project was to determine the contribution of various local and transboundary sources on the geographical distribution of ambient air quality concentrations on the City of Toronto. This model was subsequently updated in 2014 to use more recent emissions data and to incorporate both the City's ChemTRAC database and a meteorological dataset developed specifically for the Toronto area. The compounds included in this model are those previously listed in Table 20.

As part of the NAFQ, Golder has used the updated City of Toronto airshed model to predict concentrations within the Port Lands Study Area of each of the compounds of interest. A brief description of the airshed modelling system is provided in the following section.

6.2.1.1 City of Toronto Airshed Model

The transport and dispersion of air emissions released into the atmosphere is simulated with the aid of an air quality modelling system that considers meteorology, terrain, land use and source characteristics. The CALPUFF modelling system was selected because past experience with the model has shown that it has the necessary capability to effectively model air dispersion on both local and larger regional scale, as well as incorporate the contribution of sources from beyond the region. The model's proven flexibility and capabilities of handling transboundary emissions as well as local sources and the model's robustness make it a very good system choice. CALPUFF was employed to address long-range transport of emissions from outside the City of Toronto including emissions from the United States and South Western Ontario as well as incorporating the emissions from Toronto.

6.2.1.1.1 Modelling Domain and Sources of Emissions

The emissions that can impact an airshed can come from various different sources and operations as well as from various distances. Three nested air emissions domains (referred to as Tiers) with three different grid resolution scales were used in the model (See Figure 24). The grid resolution scale in each Tier increased with proximity and significance to the study area. The Tiers are listed below:

- North East United States (Tier I – at 36km × 36 km grid resolution);
- South West Ontario (Tier II – at 12 km × 12 km grid resolution); and
- Toronto (Tier III – at 1 km × 1 km grid resolution).

Within each tier, emission sources were classified into the following groups or categories; namely:

- Industrial;
- Residential
- Commercial;
- Transportation (Road and Non-Road); and
- Biogenic and Agricultural.

The geo-referenced gridded emission inventory for Tier I (i.e., 36 km grid) was developed to account for transboundary emissions for each source category (e.g., on-road mobile sources) of non-Canadian sources that flow into the Toronto airshed. The Tier I emissions were based on the US National Emission Inventory from point (industrial), area (e.g., fugitive dust, agricultural burning) and mobile (i.e., on & off-road, aircraft, trains and marine) sources.

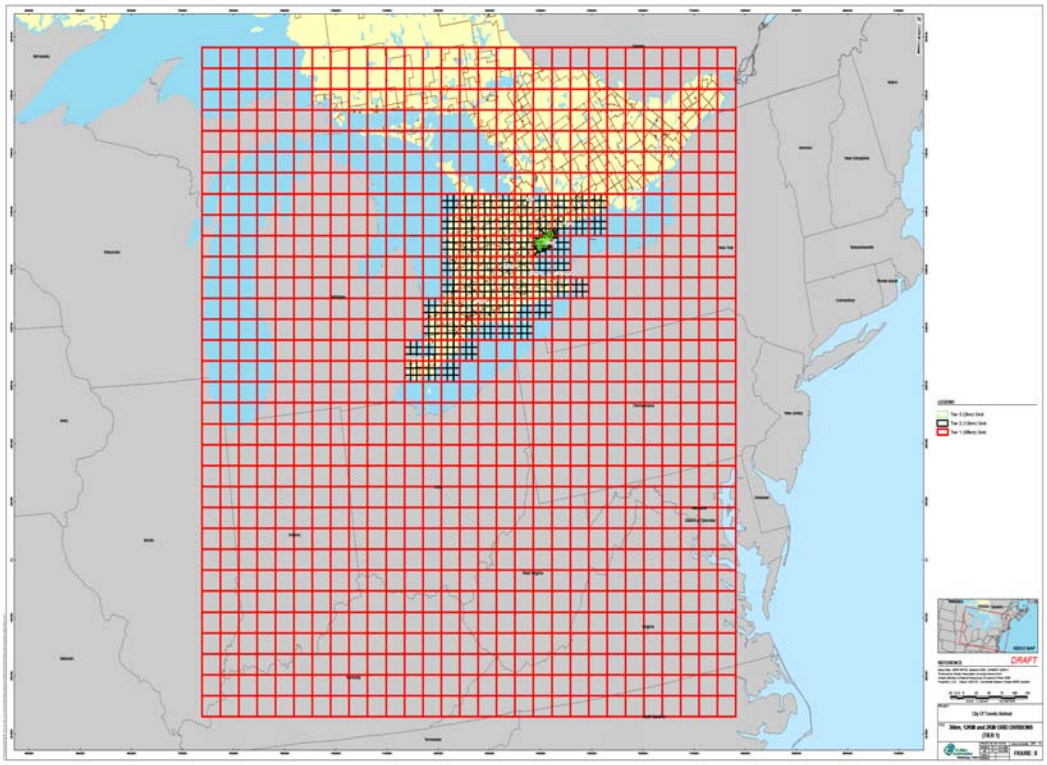


Figure 24: Modelling Domain showing the Tier I, II and III Grid Cells

The Tier II (12 km grid) and Tier III (1 km grid) emissions were developed using publically available data from Ontario and the City of Toronto. Point source emissions were built from the National Pollutant Release Inventory (NPRI). Mobile source emissions were developed from traffic data obtained from the Ontario Ministry of Transportation, City of Toronto or other municipalities and the mobile emission model MOVES. Off-road transportation emissions (i.e. airport, railroad and marine) were developed from Ontario provincial emission inventories and allocated based on activity and location. Residential and commercial emissions were based on natural gas consumption as obtained from various municipalities and natural gas combustion emission factors as well as land use data. Commercial emissions were developed from City of Toronto ChemTRAC data.

The emissions were geo-referenced and spatially allocated to populate each grid cell with an appropriate amount of emissions. In addition, each source of emissions was varied according to time of day, day of week and month of year to simulate typical activity patterns. For example, traffic emissions were varied according to traffic conditions showing higher emissions during peak rush-hours in the morning and afternoon.

6.2.1.2 Port Lands Air Quality Dispersion Modelling

The City of Toronto airshed model was used to predict maximum short-term (24-hour) and annual average ground-level concentrations at various receptor locations within the modelling domains. The model was executed in a one-way nested grid to account for the cumulative contribution from sources in the U.S. (Tier I), Ontario (Tier II) and Toronto (Tier III) (including sources located within the Port Lands) to the study area.

Tier I and Tier II model runs were executed to generate hourly concentrations over each of their respective computational grids. From these computational grids, 24-hour and annual concentrations were extracted from the grid cells that overlap with the airshed of the Port Lands as shown in Figure 24. Summing the Tier I and Tier II cells generates the background concentration that would occur if the City of Toronto did not have any emissions. These are effectively 36 km × 36 km and 12 km × 12 km overlays of background compounds that get added to Tier III. This has been carried out as part of a customized post-processing system. The contribution of the Tier III and Port Lands emissions to the airshed over the Study Area has been modelled directly onto the Study Area since it is located within the City. A discrete receptor grid of approximately 5,000 receptors has been arranged over the entire Port Lands Study Area at approximately 50 m intervals to capture the maximum concentrations that could occur.

Receptors were placed at ground level and at 30 m (approximately 10-storeys), 60 m (approximately 20 storeys) and 90 m (approximately 30 storeys) above ground level.

6.2.1.3 Meteorological Data

Meteorological data such as mixing heights, stability and winds determine the transport and dispersion of pollutants within the CALPUFF model. Hourly three-dimensional meteorological fields for 2012 were prepared using the CALMET model.

6.2.1.4 Emissions Data

Industrial emission sources located within the study area were identified in Section 4.0 of this report and include those listed in Table 26, below:

Table 26: Notable Emission Sources Located within the Study Area

Company Name	Facility Name
St. Marys Cement Inc. (Canada)	CBM Portlands Plant
City of Toronto	Ashbridges Bay Treatment Plant
St. Lawrence Cement	Dufferin Concrete Toronto
IKO Industries Ltd.	Canroof Asphalt Plant
Lafarge Canada Inc./ Innocon Inc.	Commissioners RMC Plant
Ontario Redimix	Toronto Port Plant
Portlands Energy Centre LP	Portlands Energy Centre
Toronto Hydro	Toronto Hydro - 500 Commissioners

Annual emission rates of each compound taken from 2012 NPRI data were previously summarized in Table 21. Only a limited number of the compounds to be assessed are released from the industrial facilities located within the study area on a day to day basis, however all of the compounds of interest were modelled.

6.2.1.5 Air Quality Modelling Results

The following sections contain a description of the air quality modelling results. Maximum results are provided for both 24 hour and annual averaging periods for comparison against the relevant standards presented and discussed in Table 8.

6.2.1.5.1 Maximum Ground-Level Concentrations

Air quality modelling results from the City of Toronto Airshed model consider the contributions from the Tier I, Tier II and Tier III sources, including the contributions from industrial, residential, commercial, transportations and biogenic sources in each category. In total, the model provides 365 24-hourly concentration predictions of each of the compounds of interest, at each of the 5,000 receptors within the study area, and at four separate levels extending from ground level up to a height of 90 m above the ground.

When summarizing 24-hour model predictions results across the study area, the maximum 24-hour ground-level predicted concentrations were used to identify those compounds that were predicted to currently be at, or close to, the respective AAQC within the study area. For each of the modelling receptors within the study area, 365 separate 24-hour concentrations were calculated, and the maximum 24-hour concentration represents the largest of these. The highest maximum 24-hour prediction represents the largest of the maximum 24-hour concentrations from all of the receptors within the study area. The receptor at which the highest maximum 24-hour concentration occurs could occur anywhere within the Port Lands study area, and may be located within Industrial facility property boundaries or within other sources of emissions, such as roads. If the highest of the maximum 24-hour concentration for a compound is predicted to be less than the relevant criteria, then it is reasonable that this compound would not play a significant role going forward in the analysis. As summarized in Table 27, the highest maximum 24-hour concentrations were only predicted to exceed the relevant criteria for fine particulate matter

(both PM_{10} and $PM_{2.5}$), benzene, cadmium and hexavalent chromium. In addition to the ground-level predictions for these compounds exceeding the relevant criteria, so too did the highest maximum 24-hour nitrogen dioxide (NO_2) predictions at a height of 90 m (approximately 30 storeys). The table also includes the average of the maximum predicted 24-hour concentrations and the lowest of the maximum 24-hour concentrations across the Port Land study area. By comparing the highest and average maximum 24-hour concentrations it is possible to gain and understanding about the distribution across the study area. For some of the compounds, the modelling shows a significant difference between the highest of the maximum 24-hour concentrations and the average of the maximum 24-hour concentrations, suggesting there are localized "hot spots" within the study area where the concentrations are noticeably higher than over the remainder of the study area. However, for many of the compounds within the table, the highest of the maximum 24-hour concentrations are similar to the average of the maximum 24-hour concentrations, suggesting that the concentrations for these compounds are relatively uniform over the study area and may be influenced primarily by sources from beyond the study area (i.e., elsewhere in the City, the province, or beyond Ontario). Finally, a review of the lowest maximum 24-hour concentration indicate that there are no sections of the study area where predicted concentrations of benzene, $PM_{2.5}$ and PM_{10} are not predicted to exceed the relevant criteria; however, there are areas where even the maximum 24-hour cadmium and chromium (hexavalent) meet the relevant criteria.

Table 27: Modelled 24-Hour Ground-Level Concentrations

Compounds of Interest	AAQC [µg/m³]	Highest Maximum 24-hour Concentration [µg/m³]	Average Maximum 24-hour Concentration [µg/m³]	Lowest Maximum 24-hour Concentration [µg/m³]
Acetaldehyde	500	1.81	1.57	1.35
Acrolein	0.4	0.14	0.11	0.10
Benzene	2.3	5.97	4.48	3.51
1,3-Butadiene	10	0.53	0.37	0.30
Cadmium	0.025	0.037	0.023	0.0175
Carbon tetrachloride	2.4	0.00003	0.00003	0.00003
Chloroform	1	0.01	0.01	0.01
Chromium (hexavalent)	0.0007	0.00075	0.00071	0.00065
Chromium (non hexavalent)	0.5	0.005	0.005	0.0041
1,4-Dichlorobenzene	95	0.11	0.11	0.11
1,2-Dichloroethane	165	0.00024	0.00024	0.00024
Dichloromethane	220	0.19	0.18	0.17
Ethylene dibromide	3	0.0000004	0.0000004	0.0000004
Formaldehyde	65	3.33	2.86	2.46
Lead	0.5	0.04	0.03	0.02
Manganese	0.4	0.02	0.02	0.02
Mercury	2	0.01	0.01	0.01
Nickel compounds	0.2	0.01	0.01	0.01
Nitrogen Dioxide	200	93.55	65.95	53.45
PAHs (as B[a]Ps)	—	0.020	0.013	0.011

Compounds of Interest	AAQC [µg/m³]	Highest Maximum 24-hour Concentration [µg/m³]	Average Maximum 24-hour Concentration [µg/m³]	Lowest Maximum 24-hour Concentration [µg/m³]
$PM_{2.5}$	28	75.59	48.62	34.06
PM_{10}	50	112.63	73.70	53.07
Tetrachloroethylene	360	0.37	0.35	0.35
Trichloroethylene	12	0.20	0.08	0.06
TSP	120	113.06	73.74	50.70
Vinyl Chloride	1	0.10	0.09	0.07

Note:
The shaded rows in the above table represent compounds where the highest maximum 24-hour prediction exceeds the relevant criteria somewhere within the Port Lands study area. The highest maximum 24-hour predictions for nitrogen dioxide do exceed the relevant criteria at a height of 90 m (approximately 30 storeys) within the study area.

A summary of the annual ground-level predictions showing the highest, average and lowest annual predictions across the study area are presented in Table 28, along with the relevant criteria. The results show similar patterns to the maximum 24-hour data; however, differences between the highest and average of the annual values reflects not only potential "hot spots" within the study area, but also the overlay of predominant winds that will be more noticeable in the annual data than in the maximum 24-hour predictions. The lowest of the annual concentrations meet the relevant criteria for cadmium, chromium (hexavalent) and $PM_{2.5}$, showing that these compounds are not excessive across the entire study area. However, the lowest annual benzene concentration does exceed the criteria, confirming this compound is above the annual criteria right across the study area.

Table 28: Modelled Annual Ground-Level Air Quality Concentrations

Compounds of Interest	AAQC [µg/m³]	Highest Annual Concentration [µg/m³]	Average Annual Concentration [µg/m³]	Lowest Annual Concentration [µg/m³]
Acetaldehyde	—	0.47	0.38	0.31
Acrolein	—	0.036	0.028	0.023
Benzene	0.45	1.64	1.04	0.76
1,3-Butadiene	2	0.13	0.09	0.07
Cadmium	0.005	0.011	0.007	0.004
Carbon tetrachloride	—	0.0000070	0.0000070	0.0000070
Chloroform	0.2	0.0028	0.0021	0.0018
Chromium (hexavalent)	0.00014	0.00015	0.00015	0.00014
Chromium (non hexavalent)	—	0.00104	0.00093	0.00086
1,4-Dichlorobenzene	—	0.032	0.032	0.032
1,2-Dichloroethane	—	0.0001	0.0001	0.0001
Dichloromethane	44	0.053	0.050	0.048
Ethylene dibromide	—	4.14×10^{-8}	4.14×10^{-8}	4.14E-08
Formaldehyde	—	1.06	0.73	0.59

Compounds of Interest	AAQC [µg/m³]	Highest Annual Concentration [µg/m³]	Average Annual Concentration [µg/m³]	Lowest Annual Concentration [µg/m³]
Lead	—	0.0105	0.0076	0.0065
Manganese	—	0.0044	0.0043	0.0042
Mercury	—	0.0038	0.0023	0.0018
Nickel compounds	0.04	0.0014	0.0013	0.0012
Nitrogen Dioxide	—	20.35	15.76	12.24
PAHs (as B[a]Ps)	—	0.0051	0.0033	0.0024
PM_{10}	—	31.41	17.96	11.57
$PM_{2.5}$	10	19.13	11.04	6.89
Tetrachloroethylene	—	0.10	0.10	0.10
Trichloroethylene	2.3	0.082	0.020	0.014
TSP	60	53.65	40.26	11.52
Vinyl Chloride	0.2	0.016	0.012	0.011

Note:
The shaded rows in the above table represent compounds where either the highest maximum 24-hour or highest annual predictions exceed the relevant criteria somewhere within the Port Lands study area.

Another way to view the air quality predictions is using isopleth figures, which illustrate the patterns of concentrations across the study area. The predictions of maximum 24-hour concentrations of $PM_{2.5}$, PM_{10}, benzene, cadmium, chromium (hexavalent) and nitrogen dioxide have been presented in Appendix C as Figures C1 through C6. These isopleth figures show the distribution of the maximum 24-hour concentrations across the study area, regardless of when they occurred during the year. Therefore, the figure should not be interpreted as representing the concentrations during any single day rather it shows the patterns of what the maximum 24-hour concentrations during the year could be. From these figures, it is evident that the largest source of emissions to background air quality in the study area is the transportation links, in particular the Gardiner Expressway and Don Valley Parkway, which intersect North West of the Study area. Concentrations are typically greatest in the north west of the study area, close to the Gardiner/Don Valley parkway.

A review of the ambient monitoring data presented in Section 6.1.2 indicates the measures concentrations of PM_{10}, $PM_{2.5}$ and benzene elsewhere in the City of Toronto are currently above the AAQC, which is consistent with the modelling results for the Port Lands study area for these compounds. It should be noted that the modelled concentrations in the Port Lands study area are higher than the values measured elsewhere in the City. However, these differences do not necessarily indicate that the current air quality in the Port Lands study area is worse than elsewhere in the city on account that air stations are typically cited to avoid local influences such as roadways and industrial sources while the dispersion modelling predicts concentrations at uniform points across the study area, regardless of whether they occur on or near a source.

6.2.1.5.2 Focussed Analysis of Ground-Level Concentrations

Although the maximum predicted concentrations are an important element to consider, it is also important to understand how often the concentrations in the study area are high, especially how often relevant criteria are exceeded. In order to achieve this, the evaluation focusses on the six compounds highlighted in the previous

section, at the following six receptor locations (see Figure 25) situated within areas identified in The City's Land Use Direction Plan as potentially suitable for mixed-use (including residential):

1) Polson Quay.

2) South River.

3) Villiers Island.

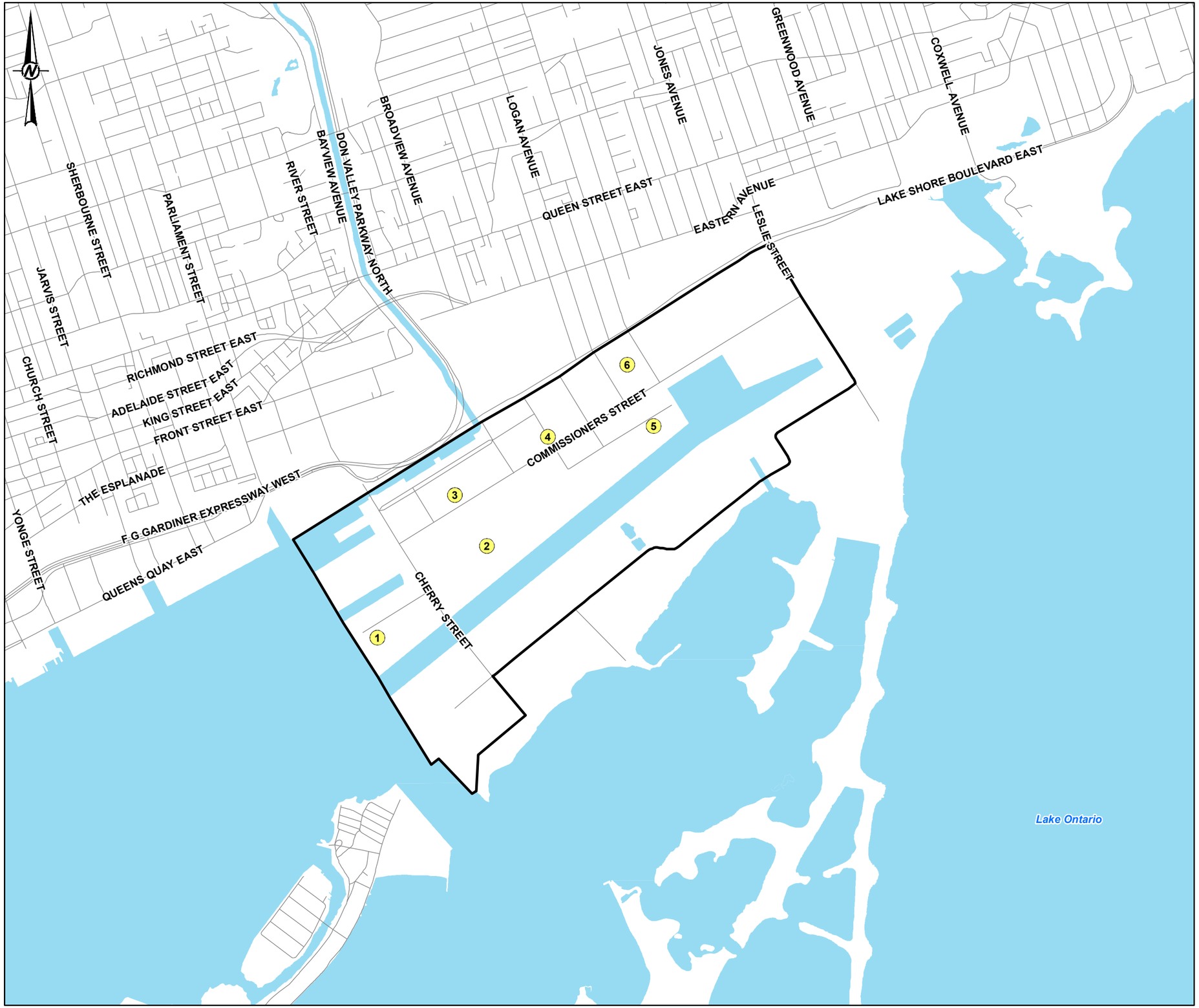
4) Film Studio District West.

5) Film Studio District South-East.

6) Film Studio District North-East.

For each of these locations, the maximum predicted 24-hour concentrations, and the frequency of predicted concentrations exceeding the relevant ambient criteria were extracted and the results summarized. The results (see Table 29) show that while the maximums and frequencies above criteria vary from receptor to receptor and compound to compound, it can generally be stated that the fine particulate concentrations exceed the ambient criteria between 5% and 11%, which is slightly higher than the percentages measured elsewhere in the City. Observations at the Toronto Downtown and Etobicoke South monitoring stations showed $PM_{2.5}$ concentrations fluctuating from year to year, with no clear trend of decreasing or increasing concentrations. The concentrations of benzene were predicted to exceed the criteria between 6% and 8% of the time, while the ground-level concentrations on chromium (hexavalent) and nitrogen dioxide were not predicted to exceed the relevant criteria at these selected receptors. Table 30 presents a similar summary for the annual ground-level concentrations; however, it was not possible to define a frequency if the AAQC values were exceeded as only a single year of meteorological data is used in the Toronto airshed model.

Another important aspect that can be determined from the modelling results is the relative importance of the emissions from the industrial sources within study area to the concentrations predicted at these selected receptors. The modelling results indicate (see Table 31) that the local industrial sources (i.e., located within the study area itself) are not the major contributor to the 24-hour ground-level concentrations, accounting for as much as 20% of fine particulate concentrations and about 16% to 18% of the chromium (hexavalent) concentrations. These local industries were not predicted to contribute the predicted benzene concentrations, contribute in a small way to the predicted cadmium levels and contribute between 20% and 42% the ground-level NO_2 concentrations. On an annual basis, the results indicate (see Table 32) a similar level of contribution from local industries, with the contribution generally being slightly lower for fine particulate than was noted for the maximum 24-hour concentrations.



LEGEND

- ROAD
- WATERBODY
- STUDY AREA
- (1) RECEPTORS SELECTED FOR FURTHER ASSESSMENT
  - 1 Polson Quay Precinct
  - 2 South River Precinct
  - 3 Villers Island Precinct
  - 4 Film Studio District West
  - 5 Film Studio District South-East
  - 6 Film Studio District North-East

0 500 1,000

1:20,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
RECEPTORS SELECTED FOR FURTHER ASSESSMENT

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-25
DESIGNED	ME
PREPARED	ME
REVIEWED	KA
APPROVED	KA

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	25

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm

Table 29: Predicted Maximum 24-hour Ground-Level Concentrations and Frequency of Exceeding Criteria at Selected Receptor Locations

Compound of Interest	Statistic	Polson Quay	South River	Villiers Island	Film Studio District West	Film Studio District South East	Film Studio District North East
$PM_{2,5}$	Maximum Ground-Level Concentration [µg/m³]	77.81	68.47	77.8	66.17	64.62	64.65
	Percentage of Times over AAQC [30 µg/m³]	9%	8%	11%	9%	6%	8%
PM_{10}	Maximum Ground-Level Concentration [µg/m³]	101.84	104.69	118.21	108.92	92.35	104.89
	Percentage of Times over AAQC [50 µg/m³]	8%	7%	10%	7%	5%	5%
Benzene	Maximum Ground-Level Concentration [µg/m³]	4.97	5.06	5.91	5.45	4.74	5.09
	Percentage of Times over AAQC [2.3 µg/m³]	7%	7%	8%	7%	6%	6%
Cadmium	Maximum Ground-Level Concentration [µg/m³]	0.019	0.021	0.026	0.025	0.019	0.023
	Percentage of Times over AAQC [0.025 µg/m³]	0%	0%	1%	0%	0%	0%
Chromium (hexavalent)	Maximum Ground-Level Concentration [µg/m³]	0.00067	0.00068	0.00069	0.00070	0.00069	0.00070
	Percentage of Times over AAQC [0.0007 µg/m³]	0%	0%	0%	0%	0%	0%
Nitrogen Dioxide (NO_2)	Maximum Ground-Level Concentration [µg/m³]	76.37	88.52	82.83	102.96	91.70	115.32
	Percentage of Times over AAQC [200 µg/m³]	0%	0%	0%	0%	0%	0%

Table 30: Predicted Annual Ground-Level Concentrations and Whether Criteria are exceeded at Receptor Locations

Compound of Interest	Statistic	Polson Quay	South River	Villiers Island	Film Studio District West	Film Studio District South East	Film Studio District North East
$PM_{2,5}$	Maximum Ground-Level Concentration [µg/m³]	12.08	12.19	14.49	13.01	10.91	11.74
	Is the Prediction above the AAQC? [10 µg/m³]	YES	YES	YES	YES	YES	YES
PM_{10}	Maximum Ground-Level Concentration [µg/m³]	19.78	19.30	23.59	20.79	17.41	18.76
	Is the Prediction above the AAQC?	N/A(1)	N/A	N/A	N/A	N/A	N/A
Benzene	Maximum Ground-Level Concentration [µg/m³]	0.91	0.87	1.05	0.91	0.78	0.81
	Is the Prediction above the AAQC? [0.45 µg/m³]	YES	YES	YES	YES	YES	YES
Cadmium	Maximum Ground-Level Concentration [µg/m³]	0.0044	0.0044	0.0059	0.0046	0.0035	0.0039
	Is the Prediction above the AAQC? [0.005 µg/m³]	NO	NO	YES	NO	NO	NO
Chromium (hexavalent)	Maximum Ground-Level Concentration [µg/m³]	0.00005	0.00005	0.00005	0.00004	0.00004	0.00004
	Is the Prediction above the AAQC? [0.00014 µg/m³]	NO	NO	NO	NO	NO	NO
Nitrogen Dioxide (NO_2)	Maximum Ground-Level Concentration [µg/m³]	15.68	16.33	18.00	18.75	16.10	18.17
	Is the Prediction above the AAQC? [60 µg/m³]	NO	NO	NO	NO	NO	NO

Note:
(1) There are currently no relevant annual ambient standards for PM_{10}.

Table 31: Predicted Maximum 24-hour Ground-Level Concentrations Showing the Relative Contributions of Local Industrial Sources at Selected Receptor Locations

Compound of Interest	Statistic	Polson Quay	South River	Villiers Island	Film Studio District West	Film Studio District South East	Film Studio District North East
$PM_{2.5}$	Maximum from only industrial sources [µg/m³]	5.46	7.69	11.02	16.11	5.1	13.29
	Maximum from all sources [µg/m³]	77.81	68.47	77.8	66.17	64.62	64.65
	Relative Contribution of Local Industries	7.0%	11.2%	14.2%	24.3%	7.9%	20.6%
PM_{10}	Maximum from only industrial sources [µg/m³]	6.42	8.48	11.89	16.93	6.49	14.49
	Maximum from all sources [µg/m³]	101.84	104.69	118.21	108.92	92.35	104.89
	Relative Contribution of Local Industries	6.3%	8.1%	10.1%	15.5%	7.0%	13.8%
Benzene	Maximum from only industrial sources [µg/m³]	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007
	Maximum from all sources [µg/m³]	4.97	5.06	5.91	5.45	4.74	5.09
	Relative Contribution of Local Industries	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cadmium	Maximum from only industrial sources [µg/m³]	0.00002	0.00002	0.00003	0.00003	0.00002	0.00003
	Maximum from all sources [µg/m³]	0.019	0.021	0.026	0.025	0.019	0.023
	Relative Contribution of Local Industries	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Chromium (hexavalent)	Maximum from only industrial sources [µg/m³]	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005
	Maximum from all sources [µg/m³]	0.00067	0.00068	0.00069	0.00070	0.00069	0.00070
	Relative Contribution of Local Industries	7.4%	7.3%	7.2%	7.2%	7.2%	7.1%
Nitrogen Dioxide (NO_2)	Maximum from only industrial sources [µg/m³]	41.47	53.62	47.93	68.06	56.80	80.42
	Maximum from all sources [µg/m³]	76.37	88.52	82.83	102.96	91.70	115.32
	Relative Contribution of Local Industries	20%	28%	35%	42%	26%	41%

Table 32: Predicted Annual Ground-Level Concentrations Showing the Relative Contributions of Local Industrial Sources at Selected Receptor Locations

Compound of Interest	Statistic	Polson Quay	South River	Villiers Island	Film Studio District West	Film Studio District South East	Film Studio District North East
$PM_{2.5}$	Maximum from only industrial sources [µg/m³]	1.22	1.52	1.69	2.22	1.73	2.33
	Maximum from all sources [µg/m³]	12.08	12.19	14.49	13.01	10.91	11.74
	Relative Contribution of Local Industries	10.1%	12.5%	11.7%	17.1%	15.9%	19.8%
PM_{10}	Maximum from only industrial sources [µg/m³]	1.5	1.87	1.95	2.49	1.99	2.6
	Maximum from all sources [µg/m³]	19.78	19.3	23.59	20.79	17.41	18.76
	Relative Contribution of Local Industries	7.6%	9.7%	8.3%	12.0%	11.4%	13.9%
Benzene	Maximum from only industrial sources [µg/m³]	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002
	Maximum from all sources [µg/m³]	0.91	0.87	1.05	0.91	0.78	0.81
	Relative Contribution of Local Industries	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cadmium	Maximum from only industrial sources [µg/m³]	0.000004	0.000005	0.000005	0.000006	0.000006	0.000008
	Maximum from all sources [µg/m³]	0.0044	0.0044	0.0059	0.0046	0.0035	0.0039
	Relative Contribution of Local Industries	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%
Chromium (hexavalent)	Maximum from only industrial sources [µg/m³]	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
	Maximum from all sources [µg/m³]	0.000138	0.000135	0.000136	0.000134	0.000132	0.000131
	Relative Contribution of Local Industries	7.3%	7.4%	7.3%	7.5%	7.6%	7.6%
Nitrogen Dioxide (NO_2)	Maximum from only industrial sources [µg/m³]	3.33	4.25	4.87	6.47	4.59	6.39

Compound of Interest	Statistic	Polson Quay	South River	Villiers Island	Film Studio District West	Film Studio District South East	Film Studio District North East
	Maximum from all sources [µg/m³]	15.68	16.33	18	18.75	16.1	18.17
	Relative Contribution of Local Industries	21.2%	26.0%	27.1%	34.5%	28.5%	35.2%

6.2.1.5.3 Analysis of Predicted Concentrations at Elevation

For each of selected receptor location, the modelled concentrations at the ground level, 30 m (approximately 10 storeys), 60 m (approximately 20 storeys) and 90 m (approximately 30 storeys) were extracted. For 5 of the 6 compounds of interest, the highest 24-hour maximum concentrations were predicted to be highest at the ground level, with lower concentrations predicted at the 30 m (10 storey) and 60 m (20 storey) heights (see Table 33). Concentrations for most compounds are higher at the 90 m (30 storey) level than they are at the 60 m (20 storey). One of the exceptions are the maximum nitrogen dioxide concentrations that are considerably higher at the 90 m (30 storey) level than at the lower levels. Another exception is the predicted maximum 24-hour $PM_{2.5}$ concentrations at the "Film Studio District South East" receptor, which are highest at the 90 m (30 storey) level. The likely cause of this pattern is the presence of the Portlands Energy Centre, the emissions from which are released from stacks that are 75 m tall. This is not unexpected as the potential influence of plumes on tall residential receptors were explicitly discussed in the air quality evaluation of that facility (SENES 2003)[1]. It should be noted that the air quality evaluation completed to support the application for the Portlands Energy Centre did not consider building taller than 20 storeys, and was completed with the information available at the time of the assessment. The current modelling uses the as-built configuration for the facility and the actual emissions reported under NPRI.

Table 33: Predicted 24-hour Concentrations at Elevation [µg/m³]

Compound of Interest	Statistic	Villiers Island	South River	Polson Quay	Film Studio District North East	Film Studio District South East	Film Studio District West
$PM_{2,5}$	30-Storeys	52.18	50.05	51.82	47.79	71.55	49.03
	20-Storeys	39.94	41.45	44.52	43.66	40.49	42.26
	10-Storeys	60.87	53.37	60.31	55.24	49.95	52.20
	Ground-level	77.81	68.47	77.80	66.17	64.62	64.65
PM_{10}	30-Storeys	74.07	73.36	76.11	72.38	75.92	68.80
	20-Storeys	65.31	67.29	71.96	70.73	65.86	68.71
	10-Storeys	81.99	82.57	92.31	86.86	77.26	82.52
	Ground-level	101.85	104.69	118.21	108.92	92.35	104.89
Benzene	30-Storeys	3.44	3.52	3.68	3.64	3.43	3.51
	20-Storeys	3.54	3.66	3.91	3.67	3.45	3.41
	10-Storeys	4.28	4.39	4.94	4.68	4.20	4.44
	Ground-level	4.97	5.06	5.91	5.45	4.74	5.09
Cadmium	30-Storeys	0.011	0.011	0.011	0.010	0.009	0.009
	20-Storeys	0.009	0.009	0.009	0.008	0.008	0.008
	10-Storeys	0.013	0.013	0.017	0.015	0.012	0.013
	Ground-level	0.019	0.021	0.026	0.025	0.019	0.023
Chromium (hexavalent)	30-Storeys	0.00057	0.00057	0.00057	0.00057	0.00056	0.00056
	20-Storeys	0.00056	0.00056	0.00056	0.00056	0.00056	0.00056
	10-Storeys	0.00061	0.00061	0.00062	0.00062	0.00062	0.00062

[1] Supporting Document 1: Air Quality Assessment for the Proposed Energy Centre. Prepared by SENES Consultants Limited. November 2003.

Compound of Interest	Statistic	Villiers Island	South River	Polson Quay	Film Studio District North East	Film Studio District South East	Film Studio District West
	Ground-level	0.00066	0.00067	0.00067	0.00068	0.00067	0.00068
Nitrogen Dioxide	30-Storeys	148.69	151.42	109.85	126.99	290.28	171.24
	20-Storeys	73.81	110.04	79.8	87.63	162.35	110.42
	10-Storeys	67.38	89.75	73.87	89.57	87.49	95.27
	Ground-level	72.8	82.64	80.15	91.61	74.73	95.46

A similar analysis was completed for the predicted annual concentrations, the results of which are presented in Table 34. The annual concentrations exhibit similar patterns to the maximum 24-hour model predictions.

Table 34: Predicted Annual Concentrations at Elevation [µg/m³]

Compound of Interest	Statistic	Villiers Island	South River	Polson Quay	Film Studio District North East	Film Studio District South East	Film Studio District West
$PM_{2,5}$	30-Storeys	10.28	10.11	9.95	9.54	12.35	9.16
	20-Storeys	7.31	7.70	8.22	8.20	8.86	7.97
	10-Storeys	9.54	9.81	11.26	10.58	9.35	9.81
	Ground-level	12.08	12.19	14.49	13.01	10.91	11.74
PM_{10}	30-Storeys	13.98	13.92	13.99	13.58	16.20	13.14
	20-Storeys	11.91	12.34	13.25	12.94	13.26	12.56
	10-Storeys	15.77	15.83	18.39	16.93	14.89	15.71
	Ground-level	19.78	19.30	23.59	20.79	17.41	18.76
Benzene	30-Storeys	0.91	0.87	1.05	0.91	0.78	0.81
	20-Storeys	0.71	0.70	0.80	0.72	0.63	0.66
	10-Storeys	0.50	0.51	0.55	0.51	0.47	0.49
	Ground-level	0.47	0.46	0.48	0.46	0.43	0.44
Cadmium	30-Storeys	0.0018	0.0019	0.0019	0.0018	0.0017	0.0017
	20-Storeys	0.0020	0.0021	0.0023	0.0022	0.0019	0.0020
	10-Storeys	0.0032	0.0033	0.0042	0.0035	0.0028	0.0030
	Ground-level	0.0044	0.0044	0.0059	0.0046	0.0035	0.0039
Chromium (hexavalent)	30-Storeys	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012
	20-Storeys	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012
	10-Storeys	0.00013	0.00013	0.00013	0.00013	0.00013	0.00013
	Ground-level	0.00014	0.00014	0.00014	0.00013	0.00013	0.00013
Nitrogen Dioxide	30-Storeys	24.79	24.54	23.51	23.75	35.11	23.49
	20-Storeys	14.89	16.07	16.4	17.58	21.93	17.93
	10-Storeys	14.74	15.65	16.76	17.86	16.93	17.55

Compound of Interest	Statistic	Villiers Island	South River	Polson Quay	Film Studio District North East	Film Studio District South East	Film Studio District West
	Ground-level	15.6	16.25	17.92	18.67	16.02	18.09

6.2.1.5.4 Overall Review of Existing Air Quality

Using the updated City of Toronto airshed model, it was possible to predict the current air concentrations across the entirety of the Port Lands Study Area at ground level and at key elevations above the ground. Overall, the result of the modelling shows that there are only five of the compounds considered in the study where predicted concentrations are in excess of the relevant ambient air quality criteria somewhere in the study area. For all other compounds, the concentrations meet the criteria and would be considered acceptable. The predicted concentrations in excess of the relevant criteria do not occur all of the time, with the 24-hour concentrations at selected locations being shown to exceed criteria less than 11% of the time.

The industries within the study area were not identified as being the primary source of elevated concentrations above criteria. At ground level, industrial sources contributed less than 20% to the maximum fine particulate ($PM_{2.5}$ and PM_{10}) and chromium (hexavalent) concentrations within the study area, and less than 1% to the maximum concentrations of benzene and cadmium. For nitrogen dioxide, the local industrial sources were predicted to contribute as much as 40% to the maximum ground-level concentrations, which were predicted to be below the relevant criteria. At higher elevations, the maximum concentrations of nitrogen dioxide were predicted to exceed the criteria, and exhibit the influence of a local elevated plume.

Overall the existing air quality in the study area would not be categorized as good as there are several compounds that will exceed the established criteria. However, this is similar to the observations from other areas of the city.

6.2.1.6 Built Form Assessment

The City of Toronto Airshed model was updated to include the built form scenario provided by the City as a series of elevated residential receptors. Receptors were placed at the corner of every building included in the built form model at 3m height intervals extending from the ground to the building roof.

Model predictions (24-hr average) were extracted for all built form receptors (all elevations) and compared to the ambient air quality criteria. For each of the modelling receptors within the study area, 365 separate 24-hour concentrations were calculated, and the maximum 24-hour concentration represents the largest of these. The highest maximum 24-hour prediction for the receptors in each area of interest was identified. These could occur at ground-level or at elevation. If the highest of the maximum 24-hour concentrations for a compound is predicted to be less than the relevant criteria, then it is reasonable that this compound would not play a significant role going forward in the analysis. As documented in Section 6.2.1.5, there are 6 compounds that exceed the relevant ambient air quality criteria somewhere within the study area (benzene, cadmium, chromium (hexavalent), Nitrogen Oxides and particulate matter finer than both 10 and 2.5 microns in diameter). However, not all compounds are exceeded at built form receptor locations within each area. The results show that generally, the highest concentrations of most compounds are found in the Villiers Island at ground-level and are likely due to the close proximity to the highways, specifically the Gardiner and Don Valley Parkway. However, this is with the exception of Nitrogen Oxides (NOx as NO_2) which is greatest at elevations greater than 21 storeys in the Film Studio East District and are likely due to the presence of elevated plumes from the Portlands Energy Centre. These results

match the findings of Section 6.2.1.5. A summary of the highest maximum predicted 24-hour concentrations for each area is provided in Table 35, below.

A summary of the annual ground-level predictions showing the highest predictions across each area are presented in Table 36, along with the relevant criteria. The results show similar patterns to the maximum 24-hour data.

Table 35: Highest Maximum 24-Hour Concentrations at Built Form Receptors in each Area of interest

Compounds of Interest	AAQC [µg/m³]	Highest Maximum 24-hour Concentration [µg/m³]				
		Villiers Island	Polson Quay	South River	Film Studio West	Film Studio East
Acetaldehyde	500	1.81	1.67	1.59	1.57	1.57
Acrolein	0.4	0.14	0.13	0.11	0.11	0.11
Benzene	2.3	5.97	5.48	4.9	4.48	4.38
1,3-Butadiene	10	0.53	0.47	0.38	0.37	0.37
Cadmium	0.025	0.037	0.024	0.023	0.023	0.021
Carbon tetrachloride	2.4	0.00003	0.00003	0.00003	0.00003	0.00003
Chloroform	1	0.01	0.01	0.01	0.01	0.01
Chromium (hexavalent)	0.0007	0.00075	0.00071	0.00071	0.00071	0.00071
Chromium (non hexavalent)	0.5	0.005	0.005	0.005	0.005	0.005
1,4-Dichlorobenzene	95	0.11	0.11	0.11	0.11	0.11
1,2-Dichloroethane	165	0.00024	0.00024	0.00024	0.00024	0.00024
Dichloromethane	220	0.19	0.18	0.18	0.18	0.18
Ethylene dibromide	3	4E-07	4E-07	4E-07	4E-07	4E-07
Formaldehyde	65	3.33	3.33	3.33	3.33	3.33
Lead	0.5	0.04	0.03	0.03	0.03	0.03
Manganese	0.4	0.02	0.02	0.02	0.02	0.02
Mercury	2	0.01	0.01	0.01	0.01	0.01
Nickel compounds	0.2	0.01	0.01	0.01	0.01	0.01
Nitrogen Oxides (as NO_2)	200	93.55	75.95	88.52	310.67	205.26
PAHs (as B[a]Ps)	—	0.02	0.013	0.013	0.013	0.013
$PM_{2.5}$	28	77.8	77.81	68.47	66.17	64.65
PM_{10}	50	112.63	101.84	104.69	108.92	92.35
Tetrachloroethylene	360	0.37	0.36	0.35	0.35	0.35
Trichloroethylene	12	0.2	0.15	0.08	0.08	0.08
TSP	120	113.06	93.74	85.62	73.74	70.74
Vinyl Chloride	1	0.1	0.1	0.09	0.09	0.09

Note: The shaded rows in the above table represent compounds where the highest maximum 24-hour prediction exceeds the relevant criteria somewhere within the precinct.

Table 36: Modelled Annual Ground-Level Air Quality Concentrations

Compounds of Interest	AAQC [µg/m³]	Highest Annual Concentration [µg/m³]				
		Villiers Island	Polson Quay	South River	Film Studio West	Film Studio East
Acetaldehyde	—	0.47	0.41	0.4	0.38	0.38
Acrolein	—	0.036	0.032	0.029	0.028	0.028
Benzene	0.45	1.64	1.35	0.87	0.91	0.81
1,3-Butadiene	2	0.13	0.11	0.09	0.09	0.09
Cadmium	0.005	0.0059	0.0044	0.0044	0.0046	0.0039
Carbon tetrachloride	—	0.000007	0.000007	0.000007	0.000007	0.000007
Chloroform	0.2	0.0028	0.0028	0.0028	0.0028	0.0028
Chromium (hexavalent)	0.00014	0.00005	0.00005	0.00005	0.00005	0.00005
Chromium (non hexavalent)	—	0.00104	0.00093	0.00093	0.00093	0.00093
1,4-Dichlorobenzene	—	0.032	0.032	0.032	0.032	0.032
1,2-Dichloroethane	—	0.0001	0.0001	0.0001	0.0001	0.0001
Dichloromethane	44	0.053	0.05	0.05	0.05	0.05
Ethylene dibromide	—	4.14×10^{-8}	4.14×10^{-8}	4.14×10^{-8}	4.14×10^{-8}	4.14×10^{-8}
Formaldehyde	—	1.06	0.73	0.73	0.73	0.73
Lead	—	0.0105	0.0076	0.0076	0.0076	0.0076
Manganese	—	0.0044	0.0043	0.0043	0.0043	0.0043
Mercury	—	0.0038	0.0023	0.0023	0.0023	0.0023
Nickel compounds	0.04	0.0014	0.0013	0.0013	0.0013	0.0013
Nitrogen Oxides (as NO_2)	—	20.35	15.76	15.76	27.82	35.76
PAHs (as B[a]Ps)	—	0.0051	0.0033	0.0033	0.0033	0.0033
$PM_{2.5}$	10	14.49	12.08	12.19	13.01	11.74
PM_{10}	—	23.59	19.78	19.3	20.79	18.76
Tetrachloroethylene	—	0.1	0.1	0.1	0.1	0.1
Trichloroethylene	2.3	0.082	0.082	0.082	0.082	0.082
TSP	60	53.65	52.15	40.26	42.35	41.17
Vinyl Chloride	0.2	0.016	0.015	0.014	0.012	0.012

Note: The shaded rows in the above table represent compounds where either the highest maximum 24-hour or highest annual predictions exceed the relevant criteria somewhere within the Port Lands study area.

A summary of the geographical distribution of concentrations in each of the 5 areas is provided in the following sections.

6.2.1.6.1 Villiers Island

The built form scenario includes a total of 37 buildings within the Villiers Island with the tallest four buildings extending to 27 storeys in the scenario (Buildings 7, 8, 29 and 30).

Within this area there are 4 compounds with predicted concentrations greater than the relevant ambient air quality criteria for either the 24-hour or annual averaging period. These include Particulate Matter (PM_{10} and $PM_{2.5}$), benzene, and cadmium. Concentrations of each of these 4 compounds are highest at ground level locations in the scenario and decrease with height. For each of these 4 compounds, concentrations are highest at buildings closest to the Highways (Buildings 16 and 17) and decrease with distance with Buildings 35 and 36 exhibiting the lowest predicted concentrations of most compounds. This correlates to the results shown in the isopleth plots contained in Appendix C.

6.2.1.6.2 Polson Quay

The built form scenario includes a total of 12 buildings in this area. The tallest building is Building 47, which extends to 31 storeys in the scenario.

Within this area there are 3 compounds with predicted concentrations greater than the relevant ambient air quality criteria for either the 24-hour or annual averaging period. These include Particulate Matter (PM_{10} and $PM_{2.5}$) and benzene. Concentrations of each of these 3 compounds are highest at ground level locations in the scenario and decrease with height. For each of these 3 compounds, concentrations are highest at buildings located in the North West Corner, closest to the downtown core (Building 39) and decrease with distance from the City centre, with Building 47 exhibiting the lowest predicted concentrations. This correlates to the results shown in the isopleth plots contained in Appendix C.

6.2.1.6.3 South River

The built form scenario includes a total of 13 buildings in this precinct. The tallest building is 54, which extends to 37 storeys in the scenario.

Within this area there are 3 compounds with predicted concentrations greater than the relevant ambient air quality criteria for either the 24-hour or annual averaging period. These include Particulate Matter (PM_{10} and $PM_{2.5}$) and benzene. Concentrations of each of these 3 compounds are highest at ground level locations in the scenario and decrease with height. The Highest concentrations occur at buildings located in the North West Corner, closest to the downtown core (Building 51) and decrease with distance away, with Building 61 exhibiting the lowest predicted concentrations. This correlates to the results shown in the isopleth plots contained in Appendix C.

6.2.1.6.4 Film Studio West

The built form scenario includes a total of 34 buildings in the Film Studio West. Several buildings in this area extend to 33 storeys in the scenario.

Within this area there are 4 compounds with predicted concentrations greater than the relevant ambient air quality criteria for either the 24-hour or annual averaging period. These include Nitrogen Oxides (as NO_2), Particulate Matter (PM_{10} and $PM_{2.5}$) and benzene. Concentrations of Particulate Matter (PM_{10} and $PM_{2.5}$) and benzene are highest at ground level locations and decrease with height. Maximum concentrations of these compounds occur in the north-west corner of this area (Building 68) and decrease with distance from the highways with the lowest concentrations experienced in the South East corner at Building 96. This correlates to the results shown in the isopleth plots contained in Appendix C.

Concentrations of Nitrogen Oxides (as NO_2) are highest at elevations of approximately 33 storeys above ground level in the scenario. The highest concentrations of nitrogen oxides (as NO_2) occur at buildings 68, 69 and 96 as these buildings have the tallest towers, extending to 33 storeys in the scenario with the maximum predicted concentrations occurring at roof level. Exceedances of the AAQC were noted at all elevated receptors greater than 25 storeys in height in the scenario. This includes buildings 67, 68, 69, 70, 95 and 96. These higher concentrations are likely due to elevated plumes from the Portlands Energy Centre.

6.2.1.6.5 Film Studio East

The built form scenario includes a total of 20 buildings in this area. Several buildings in this area extend to 33 storeys in the scenario.

Within this area there are 4 compounds with predicted concentrations greater than the relevant ambient air quality criteria for either the 24-hour or annual averaging period. These include Nitrogen Oxides (as NO_2), Particulate Matter (PM_{10} and $PM_{2.5}$) and benzene. Concentrations of Particulate Matter (PM_{10} and $PM_{2.5}$) and benzene are highest at ground level locations in the scenario and decrease with height. Maximum concentrations of these compounds occur in the north-west corner of this area (Building 113) and decrease with distance from the highways with the lowest concentrations experienced in the South East corner at Building 110. This correlates to the results shown in the isopleth plots contained in Appendix C.

Concentrations of Nitrogen Oxides (as NO_2) are highest at elevations of approximately 33 storeys above ground level. The highest concentrations of nitrogen oxides (as NO_2) occur at buildings 101, 111 and 116 as these buildings have the tallest towers, extending to 33 storeys in the scenario with the maximum predicted concentrations occurring at roof level. Exceedances were noted at all elevated receptors greater than 21 storeys in height in the scenario. This includes buildings 101, 108, 111, 113, 114 and 116. These higher concentrations are likely due to elevated plumes from the Portlands Energy Centre.

6.2.2 Compliance with Ontario Regulation 419/05.

In Ontario all industrial facilities that release emissions into the atmosphere are required to document compliance with the relevant air quality regulations, in particular Ontario Regulation (O.Reg.) 419/05. O. Reg. 419/05 does not consider cumulative or background concentrations, rather it applies to individual facilities. Each individual facility must document that contaminant concentrations resulting from emission sources within their property boundary comply with the O.Reg. 419/05 standards at ground-level beyond the Facility fence line and at sensitive receptors. The introduction of new sensitive receptors, especially elevated receptors, may impact the level of compliance for existing industrial facilities that have been lawfully permitted to operate in the area.

Low level sources comprise the majority of the industrial facilities within the study area. In general, low level sources are not buoyant and stay at low elevations. As a result, air quality impacts diminish as the distance from the source increases. For this reason, most maximum point of impingement concentrations are likely to occur at or close to the Facility boundary at ground level and are unlikely to be impacted by the introduction of new (elevated) sensitive receptors.

There are a number of facilities within the study area that have elevated stacks of sufficient height such that plumes would be isolated from the effects of the low level sources in the area and be likely to impact tall towers differently than receptors near the ground. To evaluate the potential future compliance of these facilities with the introduction of the built form scenario, dispersion modelling was used to estimate the maximum predicted concentrations at elevated receptors located on the built form scenario buildings in the Study Area.

The following industrial facilities were identified for further analysis as they have elevated stacks:

1) Portlands Energy Centre;

2) Ashbridges bay Treatment Plant;

3) Canroof Asphalt Plant;

4) Dufferin Concrete Plant

5) St Marys Cement Plant; and

6) Lafarge Polson Quay Cement Terminal

As previously mentioned, compliance with O.Reg.419/05 applies to individual facilities, as such separate air quality dispersion models were built for each of the facilities identified above. Emissions from each Facility were modelled with the aid of the AERMOD atmospheric dispersion model (version 14134) which is the preferred model to demonstrate compliance status. This model was developed by the United States Environmental Protection Agency and is one of the models approved for use by the MOECC. The required inputs for the AERMOD model include the following:

- emission rates;
- emission source physical dimensions;
- local meteorology data;
- local terrain elevation data; and
- air quality receptor location points.

Emissions data and stack parameters for each facility were taken from the existing Emission Summary and Dispersion Modelling (ESDM) reports (where available) and/or publically available data. In addition, terrain data was obtained from the MOECC website and meteorological data inputs (processed in AERMET version 14134) were obtained from the Ontario Air and Waste Management Association (AWMA).

Receptor points were located at the corner of each building included in the built-form design with elevations extending from ground level to built form scenario building height at 3m increments. The AERMOD model was then used to calculate a maximum concentration for each receptor location for each of the six industrial facilities identified above. The maximum concentrations were then compared to the relevant MOECC Schedule 3 standards listed in O. Reg. 419/05. The dispersion modelling was carried out in accordance with the MOECC's "*Air Dispersion Modelling Guideline for Ontario – Version 2.0"* dated March 2009.

A summary of the O.Reg. 419/ 05 modelling results for each facility are included in the following sections:

6.2.2.1 Portlands Energy Centre

The Portlands Energy Centre (PEC) was previously identified as having potential to push ambient concentrations above the criteria for receptors above 20 storeys high, in part due to the presence of tall stacks at this facility. PEC has two 75 m stacks located South East of the Film Studio East through which emissions from on-site natural gas combustion are released. It is currently approved to operate under Environmental Compliance Approval (ECA) reference 3947 – 8CTRZV (dated July, 2011). A copy of the current ESDM report for the PEC was provided by The City, as such it was possible to replicate the current O.Reg.419/05 modelling included in the current ECA. Nitrogen Oxides are the only significant emissions from this Facility, as per the ESDM report, therefore this was the only compound modelled.

Of the 5 areas evaluated, predicted concentrations were below the relevant 1 hour and 24 hour criteria at all locations within the Villiers Island, Polson Quay and South River areas but exceeded the 1 hour criteria within the Film District West and both the 1-hour and 24-hour criteria at the Film Studio East. A summary of the maximum 1-hour and 24-hour Point of Impingement locations at built-form receptor locations within each area is provided in Table 37.

Table 37: Summary of O.Reg 419/05 Compliance for Portlands Energy Centre in each Area of Interest

Precinct	Maximum 1-hour Concentration			Maximum 24-hour Concentration		
	O.Reg. 419/05 Standard [µg/m³]	Maximum Model Prediction [µg/m³]	Height at which Maximum Occurs (storeys)	O.Reg. 419/05 Standard [µg/m³]	Maximum Model Prediction [µg/m³]	Height at which Maximum Occurs (storeys)
Villiers Island	400	146.94	27	200	35.29	Ground
Polson Quay	400	68.59	31	200	36.61	25
South River	400	371.19	37	200	56.77	33
Film Studio West	400	1783.24	33	200	211.63	33
Film Studio East	400	1186.99	33	200	106.64	33

As mentioned above, the maximum predicted concentrations located in the Villiers Island, Polson Quay and South River are all below the relevant standards.

Of the 34 built form scenario buildings in the Film Studio West, modelled concentrations exceed the relevant criteria at 6 of these buildings. Each of these 6 built form buildings has tall towers and is located on the North

edge of this area. The maximum concentration within the Film Studio West occurs 33 storeys above grade at Building 96 and would require the PEC to achieve a 67% reduction in emissions in order to maintain compliance with O.Reg. 419/05. Table 38 presents the reduction in PEC emissions that would be required to maintain compliance with O.Reg. 419/05 should each of the 6 buildings be constructed as residential units, as per the built form model. In addition, the minimum height at which exceedance of O.Reg 419/05 occurs is also presented in the following table.

Table 38: Summary O.Reg 419/05 Compliance for Portlands Energy Centre at Film Studio West

Building Reference ID	Minimum Height at which exceedance of Schedule 3 Standards Occurs (storeys)	Reduction in PEC emissions required to achieve compliance at all heights
66	27	39%
68	25	60%
69	25	67%
70	24	14%
95	24	15%
96	24	67%

Of the 20 built form scenario buildings in the Film Studio East, modelled concentrations exceed the relevant criteria at 7 of these buildings. These 7 buildings are all located on the East edge of this area and have tall towers. The maximum modelled concentration is at Building 116 and would require approximately a 78% in reductions in order to maintain compliance if this building were to be constructed as a residential location with air intakes. Table 39 presents the reduction in PEC emissions that would be required to maintain compliance with their current ECA should each of the 7 buildings be constructed, in addition to the minimum height at which exceedance of the standards occurs.

Table 39: Summary O.Reg 419/05 Compliance for Portlands Energy Centre at Film Studio East

Building Reference ID	Minimum Height at which exceedance of Schedule 3 Standards Occurs (storeys)	Reduction in PEC emissions required to achieve compliance at all heights
101	26	76%
108	26	71%
109	20	5%
111	25	77%
113	23	72%
114	22	74%
116	27	78%

The results of the O.Reg 419/05 assessment for PEC therefore show that buildings in exceedance of certain heights within the built-form scenario would likely impact PECs compliance with O.Reg 419/05 unless additional mitigation were imposed.

6.2.2.2 Ashbridges Bay Treatment Plant

Ashbridges Bay Treatment Plant is located just outside the Study Area but includes a 183m high stack. As such, it was included in the assessment for completeness. The Facility is currently approved to operate under ECA reference 3771 – 92NP7X (dated January 2013).

A copy of the current ESDM report for the Facility was not available, therefore emission estimations and stack parameters were taken from the publically available report "Air Emissions from the Ashbridges Bay Treatment Plant" (EarthTech and Golder Associates, April 2005).

There are a large variety of contaminants that are emitted from the Ashbridges Bay Treatment Plant but for simplicity, this study focussed on those compounds with health based standards. Annual standards for benzene and benzo (a) pyrene did not come into effect until 2013, after this report was written, therefore no data was available for annual emission rates of these compounds. Additionally, these compounds are not released in sufficient quantities that they trigger NPRI reporting. As a result, annual emission rates were calculated using annual NOx emissions reported to the NPRI and the ratio of the relevant Benzo(a)pyrene and benzene emission factors to the NOx emission factor for natural gas combustion taken from the US EPA Webfire emissions database. Maximum 1-hour, 24-hour and annual predicted concentrations were modelled for 7 compounds and assessed against the relevant criteria.

All compounds were evaluated to be below the relevant criteria at all receptors evaluated. This indicates that the built form scenario is unlikely to impact compliance with O.Reg 419/05 for the Ashbridges Bay Treatment Plant. The maximum predicted concentration in each area is provided in Table 40.

Table 40: Summary of O.Reg 419/05 Compliance for Ashbridges Bay Treatment Plant in each Area of Interest

Compound	Averaging period	Schedule 3 Standard [µg/m³]	Maximum Predicted Concentration [µg/m³]				
			Villiers Island	Polson Quay	South River	Film Studio West	Film Studio East
Nitrogen Oxides	1 hour	400	11.37	10.62	12.37	18.18	15.56
	24 hour	200	0.94	0.74	0.87	1.62	1.17
Particulate Matter	24 hour	120	0.097	0.076	0.089	0.167	0.120
Arsenic	24 hour	0.3	0.00005	0.00004	0.00004	0.00008	0.00006
Benzene	24 hour	7	0.011	0.009	0.010	0.020	0.014
	Annual	0.45	0.002	0.002	0.002	0.004	0.003
Benzo(a) pyrene	Annual	0.00001	0.000000001	0.000000001	0.000000001	0.000000001	0.000000001
Cadmium	24-hour	0.025	0.004	0.003	0.004	0.007	0.005
Hydrogen Sulphide	10-minute	13	0.30	0.28	0.32	0.48	0.41
	24-hour	7	0.015	0.012	0.014	0.026	0.019
Lead	24-hour	0.5	0.001	0.001	0.001	0.002	0.001
	30-day	0.2	0.0002	0.0001	0.0002	0.0003	0.0002
Vinyl Chloride	24-hour	1	0.003	0.002	0.003	0.005	0.004

6.2.2.3 Canroof Asphalt Plant

The Canroof Asphalt Plant is located in the East Port and includes a 30m tall stack. The facility is currently approved to operate under ECA reference 9114-8LUQNU (dated October 2011).

A copy of the ESDM report for the Canroof facility was not available, therefore emissions data was taken from historic NPRI reporting data and stack parameters were taken from the latest ECA. There are many compounds emitted by the facility but this assessment focussed only on those with health and odour based standards. Only emissions of nitrogen oxides, particulate matter and total VOCs are reported to NPRI or ChemTRAC, therefore, the US EPA Webfire tool was used to speciate emissions. Of the 5 areas evaluated, predicted concentrations were below the relevant O.Reg. 419/05 standards at all of the built form scenario building receptor locations within all of the areas. The maximum predicted concentration in each area is provided in Table 41

Table 41: Summary of O.Reg 419/05 Compliance for Canroof Asphalt Plant in each Area of Interest

Compound	Averaging period	Schedule 3 Standard [µg/m³]	Maximum Predicted Concentration [µg/m³]				
			Villiers Island	Polson Quay	South River	Film Studio West	Film Studio East
Nitrogen Oxides	1 hour	400	32.63	23.14	30.54	138.81	63.58
	24 hour	200	4.88	2.10	2.41	20.65	7.49
Particulate Matter	24 hour	120	14.69	6.32	7.27	62.22	22.57
Benzene	24 hour	7	0.0018	0.0008	0.0009	0.0077	0.0028
	Annual	0.45	0.00002	0.00002	0.00002	0.00014	0.00005
Benzo (a) pyrene	Annual	0.00001	0.000001	0.000001	0.000001	0.000006	0.000002
Napthalene	10-minute	50	0.48	0.34	0.45	2.05	0.94
Ethyl Benzene	24 hour	1000	0.0098	0.0042	0.0048	0.0414	0.0150
	10-minute	1900	0.016	0.007	0.008	0.068	0.025
Xylene	24 hour	730	0.014	0.006	0.007	0.061	0.022
	10-minute	3000	0.024	0.010	0.012	0.100	0.036

The results of the modelling indicate that the built form scenario is unlikely to impact compliance with O.Reg 419/05 for the Canroof Asphalt plant Facility. It should be noted that in the previous City of Toronto air Quality studies, it was identified that there were elevated emissions of Benzene released from the Canroof Facility. Since these studies were prepared, Canroof has removed the felt mat processing portion of their operations, which has significantly reduced benzene emissions.

It is noted that the ECA contains odour conditions, although we have assessed the individual odourous contaminants, whole odour has not been modelled as no data is available on the whole odour emission rates for the facility and would require sampling to estimate. It would be recommended that Canroof complete a review of their current odour modelling to determine the impact of the built form scenario on compliance with odour emission guidelines.

6.2.2.4 Dufferin Concrete Plant

The Dufferin Concrete Plant is located east of the Film Studio East and includes seven dust collectors with stack heights greater than 20m. The Facility is currently approved to operate under ECA reference 8504-77ZPVP (dated June 2008) however, an amendment application was submitted in 2013 and is currently under review by the MOECC.

A copy of the current ESDM report for the Facility was provided by Holcim, as such it was possible to replicate the current O.Reg 419 modelling for the Facility. Total suspended particulate matter (TSP) was used to evaluate the impacts of compliance as this compound has nuisance and health issues associated with it and is typically the largest emission from concrete plants. The maximum predicted concentration of TSP in all areas was indicated to be below the relevant O.Reg 419/05 standard. This indicates that the built form scenario is unlikely to impact compliance with O.Reg 419/05 for the Dufferin Concrete plant Facility. The maximum predicted concentration in each area is provided in Table 42.

Table 42: Summary of O.Reg 419/05 Compliance for Dufferin Concrete Plant in each Area of Interest

Compound	Averaging period	Schedule 3 Standard [µg/m³]	Maximum Predicted Concentration [µg/m³]				
			Villiers Island	Polson Quay	South River	Film Studio West	Film Studio East
TSP	24 hour	120	1.09	1.13	1.46	4.46	2.77

6.2.2.5 St Marys CBM Portlands Plant

The St Marys Concrete Batching Plant is located east of the Film Studio East. The Facility is currently approved to operate under ECA reference 2353-7QBRPM (dated March 2009).

A copy of the current ESDM report was not available for the Facility, however, the ECA identifies that the Facility has a baghouse dust collector with a 7.9 m stack. Emission rates for the baghouse were calculated based on a typical emission factor of 20 mg/m³ and using the stack parameters listed in the ECA. TSP was used to evaluate the impacts of compliance as this compound has nuisance and health issues associated with it and is typically the largest emission from concrete plants. The maximum predicted concentration of TSP in all areas was indicated to be below the relevant TSP criteria listed in Schedule 3 of O.Reg 419/05. This indicates that the built form scenario is unlikely to impact compliance with O.Reg 419/05 for the Dufferin Concrete Plant. The maximum predicted concentration in each area is provided in Table 43.

Table 43: Summary of O.Reg 419/05 Compliance for St Marys CBM Plant in each Area of Interest

Compound	Averaging period	Schedule 3 Standard [µg/m³]	Maximum Predicted Concentration [µg/m³]				
			Villiers Island	Polson Quay	South River	Film Studio West	Film Studio East
TSP	24 hour	120	0.84	1.12	1.64	7.64	3.62

6.2.2.6 Lafarge Polson Cement Terminal

The Lafarge Polson Quay Cement Terminal is located adjacent to the Polson Quay and just south of the Villiers Island. It has 4 elevated stacks up to 28 m in height. The facility was previously grandfathered from the requirements to obtain an ECA, however it is understood that an ECA application has been submitted recently to the MOECC for review.

Lafarge provided data for each of the facility stacks and the corresponding emission rates for use in this modelling exercise. Total suspended particulate matter was used to evaluate the impacts of compliance with O.Reg419/05 as this compound has nuisance and health issues associated with it and is typically the largest emission from concrete plants. The maximum predicted concentration of TSP in all areas was indicated to be below the relevant O.Reg 419/05 standards. This indicates that the built form scenario is unlikely to impact compliance with O.Reg 419/05 for the Lafarge Polson Quay Cement Terminal. The maximum predicted concentration in each area is provided in Table 44.

Table 44: Summary of O.Reg 419/05 Compliance for Lafarge Polson Quay Cement Terminal in each Area of Interest

Compound	Averaging period	Schedule 3 Standard [µg/m³]	Maximum Predicted Concentration [µg/m³]				
			Villiers Island	Polson Quay	South River	Film Studio West	Film Studio East
TSP	24 hour	120	82.21	76.65	28.62	2.07	3.19

6.2.2.7 Additional Assessment

In addition to the above O.Reg. 419/05 assessment for the built form scenario, an additional compliance assessment was completed for a second scenario whereby the height of every building included in the built form scenario was increased to be consistently 90m (approximately 30 storeys). The purpose of this assessment was to evaluate the potential height limitations of each building, from a compliance perspective and to identify where mitigation would be required, either in the form of building height restriction or at source/receptor mitigation.

For this assessment, the above O.Reg. 419/05 compliance assessment was repeated for each industrial facility and the maximum predicted concentrations were extracted for each building at 3m height intervals. These values were compared to the standards listed in O.Reg 419/05 and the maximum percentage compliance was calculated for each building using the contaminant and averaging period that yields the highest or “worst-case” results. Appendix D contains compliance charts of this data for each Facility. The compliance percentage of each building at each height is then presented in the chart and colour coded such that green indicates compliance and red indicates heights of buildings where mitigation would be required to meet O.Reg. 419/05. standards. Each building is identified along the y-axis and the 3m height intervals are presented along the x-axis. Percentages greater than 100% indicate that if residential land use was permitted to occur at this location and elevation, mitigation would be required for the Industry to continue to operate lawfully. This could either be in the form of at source or at receptor mitigation.

Overall the results show that the Portlands Energy Centre would result in the greatest mitigation requirements. For example, building 110 would have to be restricted to less than 54 m in height or additional mitigation efforts would be required either at source or at receptor. The results indicate that none of the other facilities included in this screening assessment require height restriction or mitigation in order to maintain compliance.

For illustration, heat-maps are included in Appendix E. These figures show cross-sections of PEC compliance at 10 storey intervals and the buildings are colour coded according to the percentage compliance. Heat maps are also provided for Lafarge at 10-storeys and Canroof at 15 storeys as these elevations yield the highest concentrations.

6.2.3 Overall Review of Air Quality

Using the updated City of Toronto airshed model, it was possible to predict the current air quality concentrations at potentially sensitive receptor locations related to the first built form concept. Overall, the results of the modelling shows that there is a potential to exceed the air quality criteria for six of the compounds considered in the study at any one of the built form scenario building locations. For all other compounds, the concentrations meet the criteria and would be considered acceptable. The predicted concentrations in excess of the relevant criteria do not occur all of the time, as illustrated in Section 6.2.1, or at all of the built form scenario building locations. The sources of the predicted concentrations cannot be attributed primarily to local (within the study area) industrial sources as these were shown to generally contribute less than 20% towards concentrations in excess of the criteria.

Overall the existing air quality in the study area would not be categorized as good as there are several compounds that will exceed the established criteria. However, this is similar to the observations from other areas of the city.

A compliance assessment was completed for each of the Facilities with tall stacks located within the study area to assess the impact of the built form scenario buildings on maintaining compliance with O.Reg. 419/05. Of the 6 Facilities assessed, only PEC was identified as potentially being unable to maintain compliance with O.Reg. 419/05 at all built form scenario building locations without either at source or at receptor mitigation.

6.3 Analysis and Identification of Mitigation Measures

When considering mitigation measures to address air quality concerns, it is important to understand why mitigation is required as the approach and options available differ by reason. The following list the primary reasons why air quality mitigation may be required:

1. Poor air quality: If existing air quality in an area is not good, or is classified as poor, then mitigation to improve the quality of the air may be required before any proposed new developments, especially those that introduce sensitive uses such as residential, can go forward.

2. Compliance: In Ontario all industrial facilities that emit air pollution are required to document compliance with the relevant air quality regulations (in particular Ontario Regulation 419/05). The introduction of new sensitive receptors, especially elevated receptors, may impact the level of compliance for existing industrial facilities that have been lawfully permitted to operate in the area. .
3. Nuisance: In Ontario all industrial facilities that emit air pollution are required to adhere to the Environmental Protection Act that prohibits them causing an adverse effect. The introduction of new sensitive land use in an area may, in particular tall residential buildings, can result in a potential conflict between existing industries and the new land use through nuisance complaints. Although nuisance complaints may seem less important than compliance requirements, nuisance complaints can initiate regulatory enforcement actions that may be more restrictive than what a facility is permitted to do.

Based on the results of the modelling, the air quality in this area of the City, while similar to many other areas of the City, would not be classified as good. The maximum ground-level concentrations for five compounds are predicted to currently exceed the established criteria on a periodic basis. However, there does not appear to be a clear path for mitigating these issues. Industrial sources within the Port Lands study area were not identified as the primary source of concentrations in excess of the criteria, suggesting focussed at-source industrial mitigation strategies will not achieve the requisite goals. Instead, improvements in air quality sufficient to bring existing concentrations below relevant criteria strategic actions that will improve air quality within the City, as a whole. The Toronto Airshed Model was developed and updated with the objective of helping guide just such initiatives, the scope of which form parts of other project underway in the City, and are thus beyond the scope of this project.

One of the air quality related issues that was identified in this section was the presence of the elevated plumes from the Portlands Energy Centre and its potential to push ambient concentrations above the criteria for receptors above 20 storeys high. One action to mitigate this impact would be to use the model findings to identify locations within the study area where heights of building should be limited. However, this will form an important component of Phase 3 of this study where the potential built form for the area is analysed.

One of the air quality related issues that was identified in this study was the presence of the elevated plumes from the Portlands Energy Centre and its potential to push ambient concentrations above the criteria for receptors above 20 storeys high. Additionally, it was identified that the Facility may struggle to maintain compliance with O. Reg. 419/05 standards at built form scenario buildings in the Film Studio District greater than 24 storeys high without mitigation. There are two main types of mitigation that could be considered from an air quality perspective:

- At receptor mitigation; and
- At source mitigation

Each of these forms of mitigation are discussed in the following sections:

6.3.1 At Receptor Mitigation

In relation to air quality concerns, the best form of at-receptor mitigation is the removal of a locations designation as a receptor. This could mean not including openable windows or air intakes a long a particular building façade or more practically, it can mean the restriction of building heights. One action to mitigate O.Reg. 419/05 compliance issues related to PEC would be limit building heights in the Film Studio District. The results presented in Appendix A illustrate the heights at which compliance with O.Reg. 419/05 is no longer observed for each building included in the built-form scenario. For example, if building 110 was restricted to less than 54 m in height, this would reduce the likelihood of O.Reg. 419/05 compliance issues.

6.3.2 At Source Mitigation

At source- mitigation can include the reduction of emissions and/or changes in the way that emissions are released from a facility, e.g. stack modifications. A detailed stack height analysis and feasibility study would be required to assess potential stack modifications and is beyond the scope of this study.

Section 5.2.1 presented a summary of the percentage reduction in emissions at PEC that would be required to achieve compliance with O.Reg. 419/05. At built form scenario receptor locations. It is estimated that a reduction of approximately 78% would be required to achieve compliance at all buildings and elevations. The significant air quality emissions from PEC were identified to be NOx. A detailed analysis of appropriate technologies that could be implemented at PEC to achieve the required reduction in emissions is beyond the scope of this study, however, a summary of example NOx abatement technologies available is provided in Table 45, based on US EPA suggestions.

The effectiveness of any of the above technologies depends upon the combustion technology installed at the facility in question and the control methods already implemented. PEC is a natural gas fired, combined cycle facility, which uses gas turbine generator sets each equipped with a Heat Recovery Steam Generator (HRSG) and low NOx burners. This suggests that any mitigation technologies used would need to be compatible with this system and provide an additional reduction in emissions from those already achieved with the pollution control technologies already installed. It would be recommended that a detailed air quality assessment of the final proposed built form be completed before selection of any air pollution control equipment by PEC.

Table 45: Summary of NOx Abatement Technologies

Technology	Description	Cost	Reduction Potential	Additional comments
Low NOx burners	Internal staged combustion reduces NO_x emissions	High capital cost, low operating cost	70-85%	
Flue Gas Recirculation	Flue gas is recirculated, reducing the required temperature	Moderately high capital and operational costs	70-85%	
Selective Catalytic Reduction	A catalyst is located in the air flow to promote the reaction between ammonia and NOx	Very High Capital cost and high operational cost	70-90%	On-site Ammonia storage required
Selective Non-Catalytic reduction	An agent is injected to react with NOx, typically this is ammonia or Urea	Moderately high capital and operational costs	70-90%	Requires space and introduces hazardous waste through introduction of ammonia
Air Staging of Combustion	Admit air in stages to reduce required combustion temperature	Moderate cost	70-80%	
Non-Thermal Plasma Reactor (NTPR)	Reducing agent ionized or oxidant created in flow	Moderate cost	No Data available	Uses Electric power
Use of a sorbent in ducts	Using a chemical to absorb NOx or an absorber to hold it	Moderate operating cost	60-90%	Handling and storage of sorbent required
Oxygen	Pure oxygen is used instead of air to oxidise the fuel	Moderate to high cost	No Data available	On-site Oxygen storage required

NB: Information extracted from US EPA Technical Bulletin, 456/F-99-006R (1999).

7.0 CONCLUSIONS

Overall the results of the air and noise assessments show that there are areas of the Port Lands which are more favourable to proposed development than others. It is identified that mitigation is likely necessary before any proposed concepts are approved. For the purpose of this study, at source and/or at receptor mitigation were the main focus of the assessment of potential mitigation, however, such mitigation would need to be discussed with both developers and industry to assess the practicality and feasibility..

For stationary and impulsive noise source emissions the areas with greatest concern are the Villiers Island, Polson Quay, and South River, which lie in close proximity to the Lafarge Canada Inc. facility. Details of required noise reductions and potential mitigation to achieve compliance with the Class 4 night-time sound level limits have been provided in section 5.3.1.

Mitigation may also be required to address receptors located on the east and south side of the proposed development due to industry in close proximity to the Leslie Street and Commissioners Street intersection and the salt storage facility located on the south side of the ship channel.

The use of warning clauses in respect of noise are recommended when circumstances warrant. Noise warning clauses may be used to warn of potential annoyance due to an existing source of noise and/or to warn of excesses above the sound level limits. It is recommended that the following noise warning notifications are circulated to all future residential developments.

- "Purchasers/tenants are advised that sound levels due to the adjacent industry (facility) (utility) are required to comply with sound level limits that are protective of indoor areas and are based on the assumption that windows and exterior doors are closed. This dwelling unit has been supplied with a ventilation/air conditioning system which will allow windows and exterior doors to remain closed."
- "Purchasers are advised that due to the proximity of the Billy Bishop Toronto City Airport, sound levels associated with the operation of aircraft may at times be audible within the development."
- "Purchasers are advised that due to the proximity of the Film Studio District, sound levels associated gunfire, explosions and/or other noisy activities occurring within the film studios may at times be audible within the development."
- "Purchasers/tenants are advised that due to the proximity of the adjacent industry (facility) (utility), noise from the adjacent industry (facility) (utility) may at times be audible."

Additional noise warning notifications may be required for transportation sources which will be determined once the building layouts and locations of any outdoor areas has been finalized.

From an air quality perspective, the area of least compatibility is the Film Studio which is located in close proximity to the PEC stacks. Mitigation measures required may include:

- Restriction of building heights or separation distances in identified areas;
- Restriction of air intakes/openable windows on facades ;
- NOx abatement technologies at PEC;
- Noise abatement technologies at Lafarge; and

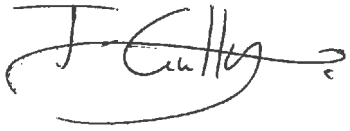
- Stack modifications at PEC.

It should be noted however that this assessment provides a screening assessment overview of areas where residential areas are proposed. In accordance with MOECC guidelines, detailed air and noise studies are required to determine the potential impacts of the proposed development and identify any potential mitigation requirements, should development be approved. As the results of this assessment are based on estimated or assumed emissions data for each industrial facility, it is recommended that each industry complete their own noise and air quality assessments using their own existing models that support their current compliance approvals, to verify the impact of a proposed development on their ability to maintain compliance with the applicable air and noise criteria and to identify any potential mitigation requirements that need to be implemented.

Report Signature Page

GOLDER ASSOCIATES LTD.

Katherine Armstrong, M.Sc.
Air Quality Specialist



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Acoustics, Noise and Vibration Specialist

Danny da Silva, B.Sc., B.A.Sc., P.Eng.
Principal

KSA/TG/Dd/ng

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APPENDIX A

Typical Sound Pressure Levels

Sound Source	Typical Sound Pressure Level (dB)
Jet Aircraft at 50 m	140
Threshold of Pain	130
Threshold of Discomfort	120
Chainsaw at 1 m	110
Disco, 1 m from speaker	100
Diesel Truck at 10 m	90
Kerbside of Busy Road	80
Vacuum Cleaner at 1 m	70
Restaurant / Department Store	60
Conversational Speech at 1 m	50
Library	40
Quiet Bedroom at Night	30
Background in TV Studio	20
Rustling Leaves	10
Threashold of Hearing	0

Average Subjective Description
Intolerable
Very Noisy
Noisy
Quiet
Very Quiet

APPENDIX B

Traffic Data

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

CHERRY ST AT VILLIERS ST

Survey Date: 2004-May-25 (Tuesday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
08:30-09:30	CAR	122	2	107	14	123	42	0	0	2	2	154	28	140	1	169	5	12	2	15	29	N	0	0	0
	TRK	65	0	60	6	66	13	2	1	0	3	65	6	61	2	69	3	4	1	3	8	S	0	0	0
AM PEAK	BUS	7	0	5	0	5	0	0	0	0	0	2	0	2	0	2	0	0	0	2	2	E	7	0	0
																						W	5	0	0
	TOTAL:	**194**	**2**	**172**	**20**	**194**	**55**	**2**	**1**	**2**	**5**	**221**	**34**	**203**	**3**	**240**	**8**	**16**	**3**	**20**	**39**				
16:15-17:15	CAR	287	1	214	12	227	37	4	0	2	6	186	25	174	2	201	3	10	0	69	79	N	1	0	0
	TRK	39	0	36	2	38	8	0	0	0	0	34	6	31	0	37	3	3	3	3	9	S	0	0	0
PM PEAK	BUS	7	0	7	0	7	2	0	0	0	0	8	2	8	0	10	0	0	0	0	0	E	2	0	0
																						W	7	0	0
	TOTAL:	**333**	**1**	**257**	**14**	**272**	**47**	**4**	**0**	**2**	**6**	**228**	**33**	**213**	**2**	**248**	**6**	**13**	**3**	**72**	**88**				
OFF HR AVG	CAR	174	3	152	20	175	45	3	0	3	6	179	25	165	2	192	6	11	1	19	31	N	0	0	0
	TRK	81	0	74	9	83	19	2	2	0	4	82	8	76	3	87	5	6	2	5	13	S	1	0	0
	BUS	7	0	5	0	5	4	0	0	0	0	6	4	5	0	9	1	1	1	2	4	E	7	0	0
																						W	4	0	0
	TOTAL:	**262**	**3**	**231**	**29**	**263**	**68**	**5**	**2**	**3**	**10**	**267**	**37**	**246**	**5**	**288**	**12**	**18**	**4**	**26**	**48**				
07:30-09:30	CAR	247	6	210	20	236	93	3	0	4	7	288	73	261	1	335	9	23	2	34	59	N	0	0	0
	TRK	127	0	119	7	126	20	3	1	0	4	106	12	101	3	116	4	5	1	5	11	S	5	0	0
2 HR AM	BUS	17	0	14	0	14	1	0	0	0	0	7	1	7	0	8	0	0	0	3	3	E	13	0	0
																						W	8	0	0
	TOTAL:	**391**	**6**	**343**	**27**	**376**	**114**	**6**	**1**	**4**	**11**	**401**	**86**	**369**	**4**	**459**	**13**	**28**	**3**	**42**	**73**				
16:00-18:00	CAR	477	2	368	20	390	64	4	0	3	7	421	44	407	2	453	4	11	0	105	116	N	1	0	0
	TRK	77	0	70	5	75	16	1	0	0	1	75	11	69	0	80	3	6	3	6	15	S	0	0	0
2 HR PM	BUS	12	0	12	0	12	7	0	0	0	0	19	7	17	0	24	1	2	1	0	3	E	10	0	0
																						W	16	0	0
	TOTAL:	**566**	**2**	**450**	**25**	**477**	**87**	**5**	**0**	**3**	**8**	**515**	**62**	**493**	**2**	**557**	**8**	**19**	**4**	**111**	**134**				
07:30-18:00	CAR	1,420	19	1,186	118	1,323	334	19	0	18	37	1,426	216	1,329	9	1,554	33	79	5	215	299	N	2	0	0
	TRK	529	0	486	48	534	113	11	10	0	21	509	55	473	13	541	25	36	12	32	80	S	7	0	0
8 HR SUM	BUS	57	0	47	0	47	22	0	0	0	0	49	22	45	0	67	3	4	3	10	17	E	52	0	0
																						W	41	0	0
	TOTAL:	**2,006**	**19**	**1,719**	**166**	**1,904**	**469**	**30**	**10**	**18**	**58**	**1,984**	**293**	**1,847**	**22**	**2,162**	**61**	**119**	**20**	**257**	**396**				

Total 8 Hour Vehicle Volume: 4,520

Total 8 Hour Bicycle Volume: 0

Total 8 Hour Intersection Volume: 4,520

Comment:

Printed On: 17 Mar, 2015 1:58:03PM

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

CHERRY ST AT COMMISSIONERS ST (PX 2143)

Survey Date: 2009-Oct-19 (Monday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
08:15-09:15	CAR	174	2	58	27	87	79	5	12	1	18	127	40	74	13	127	36	52	21	111	184	N	7	0	0
	TRK	15	0	5	4	9	10	3	5	2	10	15	1	10	4	15	10	3	6	7	16	S	10	0	0
AM PEAK	BUS	45	1	23	6	30	21	10	3	0	13	25	12	20	3	35	9	5	5	12	22	E	17	0	0
																						W	14	0	0
	TOTAL:	**234**	**3**	**86**	**37**	**126**	**110**	**18**	**20**	**3**	**41**	**167**	**53**	**104**	**20**	**177**	**55**	**60**	**32**	**130**	**222**				
16:00-17:00	CAR	245	4	186	84	274	156	12	22	4	38	244	50	158	8	216	23	82	11	47	140	N	11	0	0
	TRK	16	0	8	6	14	17	5	4	0	9	6	7	1	11	19	22	5	11	3	19	S	10	0	0
PM PEAK	BUS	21	1	8	3	12	26	3	1	0	4	9	22	5	5	32	6	4	0	10	14	E	21	0	0
																						W	23	0	0
	TOTAL:	**282**	**5**	**202**	**93**	**300**	**199**	**20**	**27**	**4**	**51**	**259**	**79**	**164**	**24**	**267**	**51**	**91**	**22**	**60**	**173**				
OFF HR AVG	CAR	198	3	135	66	204	120	14	17	3	34	231	37	151	12	200	35	77	20	49	146	N	6	0	0
	TRK	21	0	11	9	20	17	6	2	2	10	20	6	10	8	24	11	8	3	4	15	S	12	0	0
	BUS	35	1	21	13	35	31	4	5	0	9	35	13	19	6	38	12	16	5	10	31	E	25	0	0
																						W	22	0	0
	TOTAL:	**254**	**4**	**167**	**88**	**259**	**168**	**24**	**24**	**5**	**53**	**286**	**56**	**180**	**26**	**262**	**58**	**101**	**28**	**63**	**192**				
07:30-09:30	CAR	263	3	89	60	152	154	12	20	2	34	265	74	146	22	242	65	117	40	162	319	N	13	0	0
	TRK	37	1	9	6	16	24	15	13	2	30	20	5	14	10	29	20	4	9	13	26	S	18	0	0
2 HR AM	BUS	78	1	45	21	67	47	12	7	0	19	56	19	36	10	65	18	20	7	21	48	E	34	0	0
																						W	19	0	0
	TOTAL:	**378**	**5**	**143**	**87**	**235**	**225**	**39**	**40**	**4**	**83**	**341**	**98**	**196**	**42**	**336**	**103**	**141**	**56**	**196**	**393**				
16:00-18:00	CAR	492	7	360	173	540	342	34	43	4	81	457	126	307	17	450	46	146	22	98	266	N	27	0	0
	TRK	20	0	10	6	16	25	6	8	1	15	9	11	1	17	29	29	7	12	4	23	S	27	0	0
2 HR PM	BUS	32	2	12	4	18	50	5	3	0	8	15	43	10	8	61	11	5	1	15	21	E	54	0	0
																						W	69	0	0
	TOTAL:	**544**	**9**	**382**	**183**	**574**	**417**	**45**	**54**	**5**	**104**	**481**	**180**	**318**	**42**	**540**	**86**	**158**	**35**	**117**	**310**				
07:30-18:00	CAR	1,545	20	987	497	1,504	976	102	131	19	252	1,647	348	1,056	87	1,491	250	572	143	456	1,171	N	63	0	0
	TRK	142	2	64	46	112	115	44	30	10	84	108	39	56	57	152	90	42	31	34	107	S	93	0	0
8 HR SUM	BUS	250	6	142	75	223	217	33	29	0	62	208	113	121	40	274	74	87	28	75	190	E	186	0	0
																						W	175	0	0
	TOTAL:	**1,937**	**28**	**1,193**	**618**	**1,839**	**1,308**	**179**	**190**	**29**	**398**	**1,963**	**500**	**1,233**	**184**	**1,917**	**414**	**701**	**202**	**565**	**1,468**				

Total 8 Hour Vehicle Volume: 5,622

Total 8 Hour Bicycle Volume: 0

Total 8 Hour Intersection Volume: 5,622

Comment:

Printed On: 17 Mar, 2015 1:58:03PM

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

CHERRY ST AT UNWIN AVE

Survey Date: 2008-May-26 (Monday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
07:30-08:30	CAR	41	1	21	2	24	17	3	0	1	4	38	15	35	19	69	21	2	1	17	20	N	0	3	0
	TRK	62	0	5	1	6	53	5	1	0	6	4	51	4	10	65	10	0	0	52	52	S	0	6	0
AM PEAK	BUS	2	0	2	0	2	0	0	0	0	0	2	0	2	0	2	0	0	0	0	0	E	2	2	0
																						W	0	0	0
	TOTAL:	**105**	**1**	**28**	**3**	**32**	**70**	**8**	**1**	**1**	**10**	**44**	**66**	**41**	**29**	**136**	**31**	**2**	**1**	**69**	**72**				
16:00-17:00	CAR	152	1	58	8	67	70	17	0	1	18	65	62	61	5	128	7	3	1	77	81	N	0	16	0
	TRK	49	0	6	0	6	26	6	0	0	6	8	26	8	5	39	5	0	0	37	37	S	1	2	0
PM PEAK	BUS	1	0	1	0	1	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	E	7	3	0
																						W	1	0	0
	TOTAL:	**202**	**1**	**65**	**8**	**74**	**96**	**23**	**0**	**1**	**24**	**74**	**88**	**70**	**10**	**168**	**12**	**3**	**1**	**114**	**118**				
OFF HR AVG	CAR	94	1	48	7	56	47	7	0	1	8	59	40	54	11	105	13	4	1	39	44	N	0	8	0
	TRK	54	0	7	2	9	44	8	1	1	10	10	41	7	8	56	8	2	0	39	41	S	1	5	0
	BUS	3	0	3	0	3	0	0	0	0	0	3	0	3	0	3	0	0	0	0	0	E	4	1	0
																						W	2	0	0
	TOTAL:	**151**	**1**	**58**	**9**	**68**	**91**	**15**	**1**	**2**	**18**	**72**	**81**	**64**	**19**	**164**	**21**	**6**	**1**	**78**	**85**				
07:30-09:30	CAR	87	3	44	4	51	39	9	0	2	11	73	35	62	22	119	27	9	2	34	45	N	0	3	0
	TRK	114	0	8	2	10	94	15	1	0	16	7	91	7	18	116	18	0	0	91	91	S	0	8	0
2 HR AM	BUS	2	0	2	0	2	0	0	0	0	0	2	0	2	0	2	0	0	0	0	0	E	2	3	0
																						W	1	0	0
	TOTAL:	**203**	**3**	**54**	**6**	**63**	**133**	**24**	**1**	**2**	**27**	**82**	**126**	**71**	**40**	**237**	**45**	**9**	**2**	**125**	**136**				
16:00-18:00	CAR	311	2	112	15	129	131	40	0	2	42	131	116	124	11	251	15	5	2	159	166	N	0	30	0
	TRK	86	0	13	2	15	39	12	0	0	12	15	37	15	6	58	6	0	0	61	61	S	5	7	0
2 HR PM	BUS	1	0	1	0	1	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	E	14	6	0
																						W	3	0	0
	TOTAL:	**398**	**2**	**126**	**17**	**145**	**170**	**52**	**0**	**2**	**54**	**147**	**153**	**140**	**17**	**310**	**21**	**5**	**2**	**220**	**227**				
07:30-18:00	CAR	769	8	347	47	402	358	75	0	9	84	437	311	400	78	789	94	28	8	347	383	N	0	65	0
	TRK	417	0	50	11	61	307	58	3	2	63	58	293	48	56	397	56	8	0	309	317	S	10	33	0
8 HR SUM	BUS	16	0	16	0	16	0	0	0	0	0	16	0	16	0	16	0	0	0	0	0	E	30	11	0
																						W	13	0	0
	TOTAL:	**1,202**	**8**	**413**	**58**	**479**	**665**	**133**	**3**	**11**	**147**	**511**	**604**	**464**	**134**	**1,202**	**150**	**36**	**8**	**656**	**700**				

Total 8 Hour Vehicle Volume: 2,528

Total 8 Hour Bicycle Volume: 109

Total 8 Hour Intersection Volume: 2,637

Comment:

Printed On: 17 Mar, 2015 1:58:03PM

City of Toronto - Traffic Safety Unit

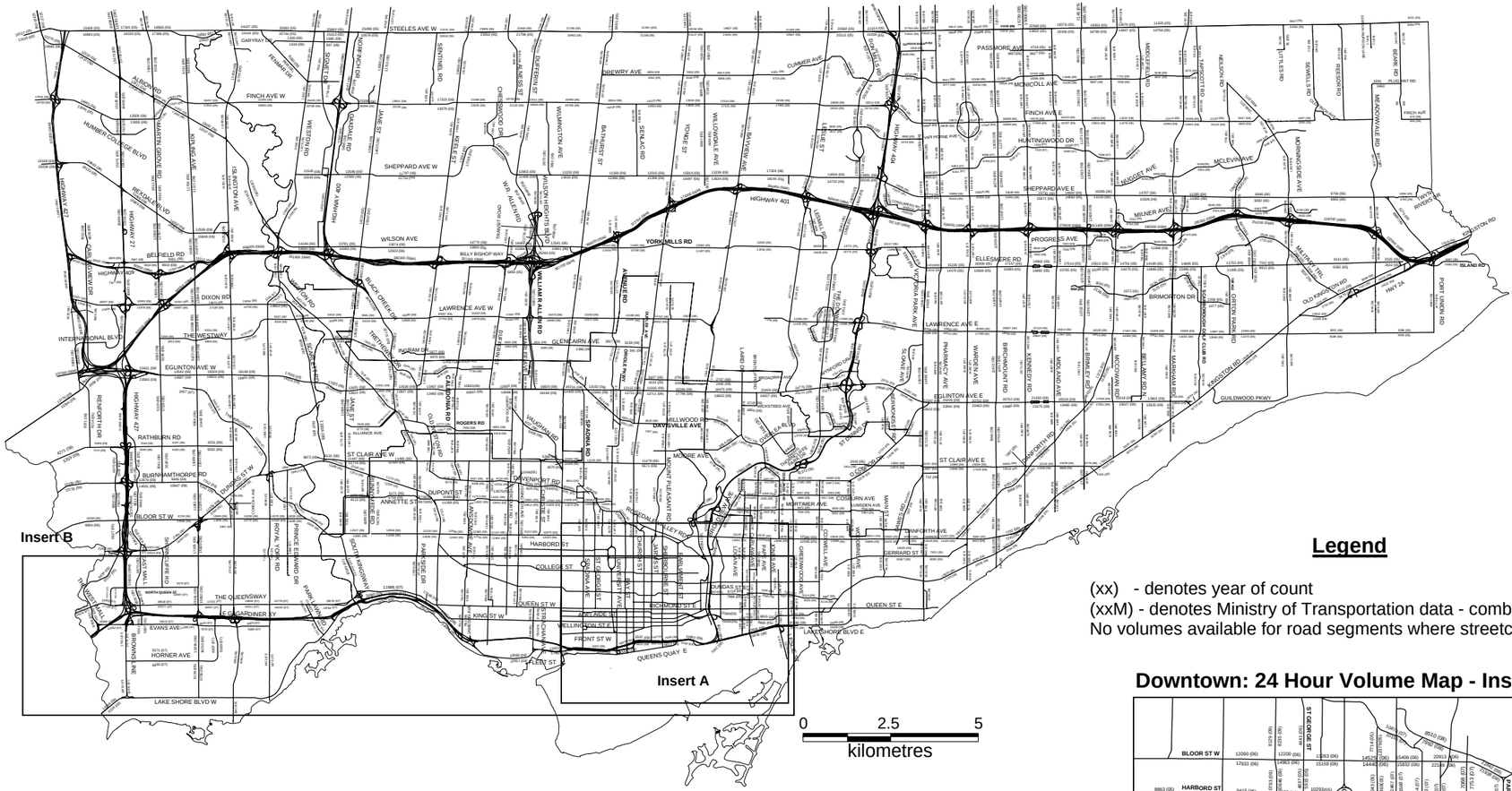
24-Hour Count Summary Report

CHERRY ST	STAT CODE	ARTERY CODE	COUNT DATE	AM PEAK	AM PEAK HOUR	PM PEAK	PM PEAK HOUR	OFF HOUR PEAK	OFF HOUR PEAK HOUR	24 HOUR Total
Northbound **Category: 24 HOUR**										
CHERRY ST N/B N OF VILLIERS ST	24017	24017	6/10/04 Thu	384	08:45 - 09:45	455	16:30 - 17:30	437	12:00 - 13:00	6,107
CHERRY N/B S OF VILLIERS ST	11837	11837	6/16/11 Thu	262	08:30 - 09:30	483	16:45 - 17:45	420	14:00 - 15:00	5,508
CHERRY ST N/B N OF UNWIN AVE	24014	24014	6/16/11 Thu	444	06:30 - 07:30	590	16:45 - 17:45	467	12:00 - 13:00	6,125
CHERRY ST N/B S OF COMMISSIONERS ST	24015	24015	6/16/11 Thu	227	09:15 - 10:15	618	17:00 - 18:00	430	13:30 - 14:30	5,522
CHERRY ST N/B S OF LAKE SHORE BLVD E TCS	20318	20318	6/16/11 Thu	319	09:00 - 10:00	477	16:45 - 17:45	440	14:30 - 15:30	6,026
			Northbound Total:	1,636		2,623		2,194		29,288
			Northbound Average:	327		525		439		5,858
Southbound **Category: 24 HOUR**										
CHERRY ST S/B N OF COMMISSIONERS ST	14900	14900	6/16/11 Thu	293	06:30 - 07:30	344	14:45 - 15:45	404	13:30 - 14:30	4,866
CHERRY ST S/B N OF POLSON ST	24016	24016	6/16/11 Thu	269	06:30 - 07:30	288	14:45 - 15:45	355	13:15 - 14:15	4,314
CHERRY ST S/B N OF UNWIN AVE	24019	24019	6/16/11 Thu	355	06:30 - 07:30	187	16:15 - 17:15	254	12:00 - 13:00	3,182
CHERRY ST S/B N OF VILLIERS ST	24018	24018	6/16/11 Thu	291	09:15 - 10:15	342	14:45 - 15:45	390	11:45 - 12:45	4,932
			Southbound Total:	1,208		1,161		1,403		17,294
			Southbound Average:	302		290		351		4,324
CHERRY ST				2,844		3,784		3,597		46,582

Comment:

Printed On: 17 Mar, 2015 2:01:46PM

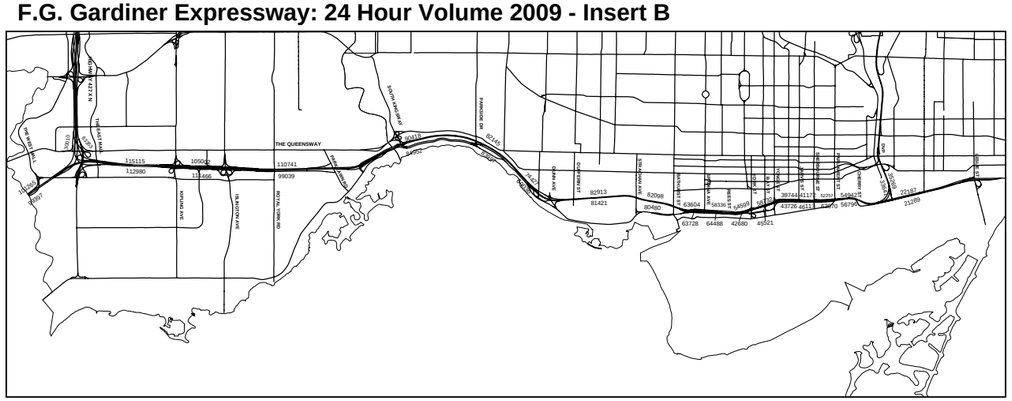
Average Weekday , 24 Hour Traffic Volume, (Most Recent Counts from 2005-2009)



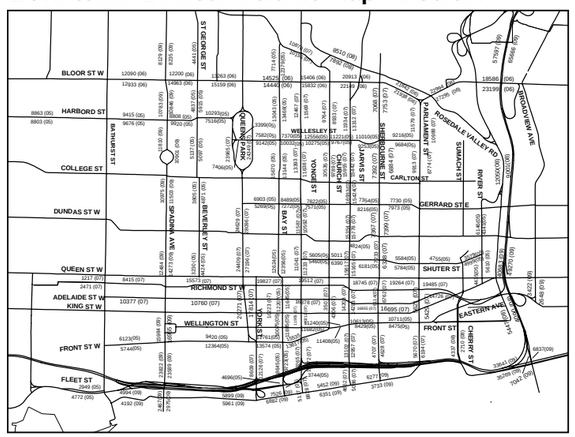
Legend

(xx) - denotes year of count
(xxM) - denotes Ministry of Transportation data - combined directional volume
No volumes available for road segments where streetcars exist

F.G. Gardiner Expressway: 24 Hour Volume 2009 - Insert B



Downtown: 24 Hour Volume Map - Insert A



TORONTO
Copywrite 2010

Transportation Services
Traffic Safety Unit
2010-9-30

City of Toronto - Traffic Safety Unit

24-Hour Count Summary Report

COMMISSIONERS ST	STAT CODE	ARTERY CODE	COUNT DATE	AM PEAK	AM PEAK HOUR	PM PEAK	PM PEAK HOUR	OFF HOUR PEAK	OFF HOUR PEAK HOUR	24 HOUR Total
Eastbound **Category: 24 HOUR**										
COMMISSIONERS ST E/B E OF DON RDWY	16398	16398	2/24/01 Sat	449	06:45 - 07:45	1,176	17:00 - 18:00	645	12:00 - 13:00	10,237
COMMISSIONERS ST E/B W OF LOGAN AVE	29786	29786	9/27/07 Thu	212	06:30 - 07:30	336	16:45 - 17:45	315	13:30 - 14:30	3,471
COMMISSIONERS ST E/B E OF CHERRY ST	14912	14912	6/16/11 Thu	171	09:15 - 10:15	327	16:30 - 17:30	298	12:45 - 13:45	3,526
COMMISSIONERS ST E/B W OF BOUCHETTE ST	31012	31012	6/16/11 Thu	243	08:15 - 09:15	447	17:00 - 18:00	345	12:00 - 13:00	4,536
COMMISSIONERS ST E/B W OF DON RDWY	31013	31013	6/16/11 Thu	189	08:15 - 09:15	346	16:45 - 17:45	312	13:30 - 14:30	3,792
COMMISSIONERS ST E/B W OF CARLAW AVE	31011	31011	4/11/13 Thu	367	09:15 - 10:15	521	17:00 - 18:00	418	11:45 - 12:45	5,045
COMMISSIONERS ST E/B W OF LOGAN AVE	35951	35951	4/11/13 Thu	543	07:45 - 08:45	485	14:45 - 15:45	496	12:30 - 13:30	5,421
COMMISSIONERS ST E/B W OF LESLIE ST	16664	16664	3/27/14 Thu	442	06:30 - 07:30	497	16:45 - 17:45	385	12:30 - 13:30	5,202
			Eastbound Total:	2,616		4,135		3,214		41,230
			Eastbound Average:	327		517		402		5,154
Westbound **Category: 24 HOUR**										
COMMISSIONERS ST W/B E OF MUNITION ST	32429	32429	9/24/09 Thu	267	08:30 - 09:30	242	17:30 - 18:30	305	10:30 - 11:30	3,596
COMMISSIONERS ST W/B E OF BOUCHETTE ST	29785	29785	6/16/11 Thu	429	07:45 - 08:45	502	14:45 - 15:45	555	14:15 - 15:15	5,996
COMMISSIONERS ST W/B E OF CHERRY ST	16395	16395	6/16/11 Thu	292	08:00 - 09:00	288	15:00 - 16:00	378	12:00 - 13:00	4,279
COMMISSIONERS ST W/B E OF DON RDWY	16400	16400	6/16/11 Thu	412	08:15 - 09:15	422	14:45 - 15:45	463	14:15 - 15:15	5,194
COMMISSIONERS ST W/B E OF CARLAW AVE	16405	16405	3/27/14 Thu	479	07:00 - 08:00	478	14:45 - 15:45	490	14:15 - 15:15	5,418
			Westbound Total:	1,879		1,932		2,191		24,483
			Westbound Average:	376		386		438		4,897
COMMISSIONERS ST				4,495		6,067		5,405		65,713

Comment:

Printed On: 17 Mar, 2015 2:24:57PM

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

CARLAW AVE AT COMMISSIONERS ST (PX 1843)

Survey Date: 2013-Apr-22 (Monday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
08:30-09:30	CAR	75	0	0	0	0	112	30	56	0	86	0	56	0	130	186	340	0	210	45	255	N	5	0	0
	TRK	28	0	0	0	0	28	7	22	0	29	0	6	0	12	18	57	0	45	21	66	S	0	2	0
AM PEAK	BUS	6	0	0	0	0	0	6	0	0	6	0	0	0	4	4	5	0	1	0	1	E	0	0	0
																						W	0	0	0
	TOTAL:	**109**	**0**	**0**	**0**	**0**	**140**	**43**	**78**	**0**	**121**	**0**	**62**	**0**	**146**	**208**	**402**	**0**	**256**	**66**	**322**				
17:00-18:00	CAR	112	0	0	0	0	463	69	368	0	437	0	95	0	84	179	212	0	128	43	171	N	2	1	0
	TRK	5	0	0	0	0	53	3	42	0	45	0	11	0	4	15	19	0	15	2	17	S	0	5	0
PM PEAK	BUS	5	0	0	0	0	2	5	2	0	7	0	0	0	6	6	7	0	1	0	1	E	0	6	0
																						W	0	0	0
	TOTAL:	**122**	**0**	**0**	**0**	**0**	**518**	**77**	**412**	**0**	**489**	**0**	**106**	**0**	**94**	**200**	**238**	**0**	**144**	**45**	**189**				
OFF HR AVG	CAR	128	0	0	0	0	131	42	74	0	116	0	57	0	82	139	202	0	120	86	206	N	2	1	0
	TRK	36	0	0	0	0	75	12	50	0	62	0	25	0	9	34	60	0	51	24	75	S	0	1	0
	BUS	3	0	0	0	0	1	3	1	0	4	0	0	0	3	3	3	0	0	0	0	E	0	1	0
																						W	0	0	0
	TOTAL:	**167**	**0**	**0**	**0**	**0**	**207**	**57**	**125**	**0**	**182**	**0**	**82**	**0**	**94**	**176**	**265**	**0**	**171**	**110**	**281**				
07:30-09:30	CAR	140	0	0	0	0	220	61	95	0	156	0	125	0	236	361	562	0	326	79	405	N	5	0	0
	TRK	66	0	0	0	0	65	25	46	0	71	0	19	0	31	50	128	0	97	41	138	S	0	4	0
2 HR AM	BUS	7	0	0	0	0	1	7	1	0	8	0	0	0	5	5	6	0	1	0	1	E	0	2	0
																						W	1	0	0
	TOTAL:	**213**	**0**	**0**	**0**	**0**	**286**	**93**	**142**	**0**	**235**	**0**	**144**	**0**	**272**	**416**	**696**	**0**	**424**	**120**	**544**				
16:00-18:00	CAR	240	0	0	0	0	674	152	522	0	674	0	152	0	177	329	425	0	248	88	336	N	7	1	0
	TRK	17	0	0	0	0	102	8	76	0	84	0	26	0	21	47	76	0	55	9	64	S	0	6	0
2 HR PM	BUS	9	0	0	0	0	2	9	2	0	11	0	0	0	10	10	14	0	4	0	4	E	4	13	0
																						W	0	0	0
	TOTAL:	**266**	**0**	**0**	**0**	**0**	**778**	**169**	**600**	**0**	**769**	**0**	**178**	**0**	**208**	**386**	**515**	**0**	**307**	**97**	**404**				
07:30-18:00	CAR	891	0	0	0	0	1,419	381	914	0	1,295	0	505	0	741	1,246	1,793	0	1,052	510	1,562	N	21	3	0
	TRK	229	0	0	0	0	467	82	323	0	405	0	144	0	88	232	445	0	357	147	504	S	0	14	0
8 HR SUM	BUS	26	0	0	0	0	5	26	5	0	31	0	0	0	28	28	34	0	6	0	6	E	5	18	0
																						W	2	0	0
	TOTAL:	**1,146**	**0**	**0**	**0**	**0**	**1,891**	**489**	**1,242**	**0**	**1,731**	**0**	**649**	**0**	**857**	**1,506**	**2,272**	**0**	**1,415**	**657**	**2,072**				

Total 8 Hour Vehicle Volume: 5,309

Total 8 Hour Bicycle Volume: 35

Total 8 Hour Intersection Volume: 5,344

Comment:

Printed On: 17 Mar, 2015 2:23:29PM

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

COMMISSIONERS ST AT SAULTER ST

Survey Date: 2008-May-01 (Thursday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
08:30-09:30	CAR	12	0	2	1	3	73	1	72	1	74	4	0	1	1	2	188	2	187	9	198	N	1	0	0
	TRK	6	0	0	0	0	31	2	27	0	29	1	4	1	0	5	107	0	107	4	111	S	0	0	0
AM PEAK	BUS	1	0	0	0	0	1	0	1	0	1	0	0	0	2	2	21	0	19	1	20	E	0	1	0
																						W	0	0	0
	TOTAL:	**19**	**0**	**2**	**1**	**3**	**105**	**3**	**100**	**1**	**104**	**5**	**4**	**2**	**3**	**9**	**316**	**2**	**313**	**14**	**329**				
16:30-17:30	CAR	16	4	1	1	6	218	10	210	3	223	5	7	1	3	11	149	1	142	5	148	N	0	2	0
	TRK	3	0	0	0	0	48	0	47	0	47	0	1	0	1	2	57	0	56	3	59	S	0	0	0
PM PEAK	BUS	1	0	0	0	0	6	0	6	0	6	0	0	0	0	0	10	0	10	1	11	E	3	3	0
																						W	18	0	0
	TOTAL:	**20**	**4**	**1**	**1**	**6**	**272**	**10**	**263**	**3**	**276**	**5**	**8**	**1**	**4**	**13**	**216**	**1**	**208**	**9**	**218**				
OFF HR AVG	CAR	15	2	2	2	6	150	4	144	2	150	4	4	0	1	5	147	2	144	9	155	N	1	0	0
	TRK	5	0	0	0	0	51	0	48	0	48	0	3	0	1	4	95	0	94	5	99	S	0	0	0
	BUS	2	0	0	0	0	3	0	3	0	3	0	0	0	1	1	8	0	7	2	9	E	1	1	0
																						W	1	0	0
	TOTAL:	**22**	**2**	**2**	**2**	**6**	**204**	**4**	**195**	**2**	**201**	**4**	**7**	**0**	**3**	**10**	**250**	**2**	**245**	**16**	**263**				
07:30-09:30	CAR	23	5	4	3	12	144	3	138	3	144	12	3	2	1	6	337	7	331	16	354	N	1	0	0
	TRK	17	0	0	0	0	49	6	40	0	46	1	9	1	0	10	180	0	180	11	191	S	0	0	0
2 HR AM	BUS	1	0	0	0	0	7	0	7	0	7	0	0	0	3	3	32	0	29	1	30	E	0	5	0
																						W	3	0	0
	TOTAL:	**41**	**5**	**4**	**3**	**12**	**200**	**9**	**185**	**3**	**197**	**13**	**12**	**3**	**4**	**19**	**549**	**7**	**540**	**28**	**575**				
16:00-18:00	CAR	26	4	2	1	7	394	16	384	5	405	8	9	1	8	18	303	2	291	8	301	N	2	2	0
	TRK	7	0	0	0	0	84	0	83	0	83	0	1	0	4	5	114	0	110	7	117	S	0	0	0
2 HR PM	BUS	1	0	0	0	0	11	0	10	0	10	0	1	0	0	1	23	0	23	1	24	E	4	5	0
																						W	29	0	0
	TOTAL:	**34**	**4**	**2**	**1**	**7**	**489**	**16**	**477**	**5**	**498**	**8**	**11**	**1**	**12**	**24**	**440**	**2**	**424**	**16**	**442**				
07:30-18:00	CAR	105	17	12	11	40	1,135	33	1,096	15	1,144	35	28	4	14	46	1,230	16	1,199	60	1,275	N	7	2	0
	TRK	45	0	0	0	0	334	6	314	0	320	1	20	1	6	27	672	0	666	39	705	S	0	0	0
8 HR SUM	BUS	8	0	0	0	0	30	0	28	0	28	0	2	0	5	7	84	0	79	8	87	E	7	15	0
																						W	34	0	0
	TOTAL:	**158**	**17**	**12**	**11**	**40**	**1,499**	**39**	**1,438**	**15**	**1,492**	**36**	**50**	**5**	**25**	**80**	**1,986**	**16**	**1,944**	**107**	**2,067**				

Total 8 Hour Vehicle Volume: 3,679

Total 8 Hour Bicycle Volume: 17

Total 8 Hour Intersection Volume: 3,696

Comment:

Printed On: 17 Mar, 2015 2:23:29PM

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

COMMISSIONERS ST AT DON RDWY (PX 1841)

Survey Date: 2012-May-16 (Wednesday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
08:15-09:15	CAR	164	0	0	3	3	80	6	45	1	52	1	32	0	17	49	191	0	174	158	332	N	0	5	0
	TRK	60	1	2	2	5	60	13	43	0	56	0	15	0	11	26	79	0	67	45	112	S	0	0	0
AM PEAK	BUS	7	0	0	0	0	5	1	4	0	5	0	1	0	1	2	11	0	10	6	16	E	0	10	0
																						W	0	4	0
	TOTAL:	**231**	**1**	**2**	**5**	**8**	**145**	**20**	**92**	**1**	**113**	**1**	**48**	**0**	**29**	**77**	**281**	**0**	**251**	**209**	**460**				
16:00-17:00	CAR	108	0	6	1	7	172	36	129	0	165	1	42	1	52	95	158	0	106	66	172	N	2	0	0
	TRK	38	0	0	0	0	84	8	51	1	60	1	33	0	19	52	80	0	61	30	91	S	3	0	0
PM PEAK	BUS	1	0	0	0	0	15	1	8	0	9	0	7	0	1	8	8	0	7	0	7	E	0	6	0
																						W	3	8	0
	TOTAL:	**147**	**0**	**6**	**1**	**7**	**271**	**45**	**188**	**1**	**234**	**2**	**82**	**1**	**72**	**155**	**246**	**0**	**174**	**96**	**270**				
OFF HR AVG	CAR	76	0	1	1	2	93	19	67	1	87	2	25	1	34	60	139	0	105	56	161	N	0	1	0
	TRK	69	1	4	4	9	93	19	59	2	80	3	30	1	23	54	89	0	65	46	111	S	1	0	0
	BUS	3	0	0	0	0	9	1	6	0	7	0	3	0	1	4	8	0	7	2	9	E	0	3	0
																						W	1	1	0
	TOTAL:	**148**	**1**	**5**	**5**	**11**	**195**	**39**	**132**	**3**	**174**	**5**	**58**	**2**	**58**	**118**	**236**	**0**	**177**	**104**	**281**				
07:30-09:30	CAR	287	0	2	4	6	125	20	73	3	96	8	48	0	26	74	324	5	298	265	568	N	0	5	0
	TRK	122	2	2	3	7	112	23	81	0	104	3	28	0	18	46	141	3	121	97	221	S	1	0	0
2 HR AM	BUS	17	0	0	0	0	13	1	10	0	11	0	3	0	1	4	21	0	20	16	36	E	0	15	0
																						W	3	6	0
	TOTAL:	**426**	**2**	**4**	**7**	**13**	**250**	**44**	**164**	**3**	**211**	**11**	**79**	**0**	**45**	**124**	**486**	**8**	**439**	**378**	**825**				
16:00-18:00	CAR	207	0	7	2	9	337	74	246	0	320	1	89	1	105	195	302	0	197	126	323	N	3	2	0
	TRK	65	0	1	0	1	160	16	97	2	115	3	63	1	33	97	137	0	104	48	152	S	3	0	0
2 HR PM	BUS	3	0	0	0	0	29	2	17	0	19	0	12	0	3	15	18	0	15	1	16	E	0	7	0
																						W	5	15	0
	TOTAL:	**275**	**0**	**8**	**2**	**10**	**526**	**92**	**360**	**2**	**454**	**4**	**164**	**2**	**141**	**307**	**457**	**0**	**316**	**175**	**491**				
07:30-18:00	CAR	797	0	13	8	21	828	170	585	6	761	14	235	3	267	505	1,180	5	913	614	1,532	N	3	11	0
	TRK	460	6	18	18	42	641	114	413	10	537	18	210	4	144	358	633	4	483	328	815	S	8	0	0
8 HR SUM	BUS	32	0	0	0	0	77	8	51	0	59	0	26	0	8	34	70	0	62	24	86	E	0	34	0
																						W	10	24	0
	TOTAL:	**1,289**	**6**	**31**	**26**	**63**	**1,546**	**292**	**1,049**	**16**	**1,357**	**32**	**471**	**7**	**419**	**897**	**1,883**	**9**	**1,458**	**966**	**2,433**				

Total 8 Hour Vehicle Volume: 4,750

Total 8 Hour Bicycle Volume: 69

Total 8 Hour Intersection Volume: 4,819

Comment:

Printed On: 17 Mar, 2015 2:23:29PM

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

CHERRY ST AT COMMISSIONERS ST (PX 2143)

Survey Date: 2009-Oct-19 (Monday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
08:15-09:15	CAR	174	2	58	27	87	79	5	12	1	18	127	40	74	13	127	36	52	21	111	184	N	7	0	0
	TRK	15	0	5	4	9	10	3	5	2	10	15	1	10	4	15	10	3	6	7	16	S	10	0	0
AM PEAK	BUS	45	1	23	6	30	21	10	3	0	13	25	12	20	3	35	9	5	5	12	22	E	17	0	0
																						W	14	0	0
	TOTAL:	**234**	**3**	**86**	**37**	**126**	**110**	**18**	**20**	**3**	**41**	**167**	**53**	**104**	**20**	**177**	**55**	**60**	**32**	**130**	**222**				
16:00-17:00	CAR	245	4	186	84	274	156	12	22	4	38	244	50	158	8	216	23	82	11	47	140	N	11	0	0
	TRK	16	0	8	6	14	17	5	4	0	9	6	7	1	11	19	22	5	11	3	19	S	10	0	0
PM PEAK	BUS	21	1	8	3	12	26	3	1	0	4	9	22	5	5	32	6	4	0	10	14	E	21	0	0
																						W	23	0	0
	TOTAL:	**282**	**5**	**202**	**93**	**300**	**199**	**20**	**27**	**4**	**51**	**259**	**79**	**164**	**24**	**267**	**51**	**91**	**22**	**60**	**173**				
OFF HR AVG	CAR	198	3	135	66	204	120	14	17	3	34	231	37	151	12	200	35	77	20	49	146	N	6	0	0
	TRK	21	0	11	9	20	17	6	2	2	10	20	6	10	8	24	11	8	3	4	15	S	12	0	0
	BUS	35	1	21	13	35	31	4	5	0	9	35	13	19	6	38	12	16	5	10	31	E	25	0	0
																						W	22	0	0
	TOTAL:	**254**	**4**	**167**	**88**	**259**	**168**	**24**	**24**	**5**	**53**	**286**	**56**	**180**	**26**	**262**	**58**	**101**	**28**	**63**	**192**				
07:30-09:30	CAR	263	3	89	60	152	154	12	20	2	34	265	74	146	22	242	65	117	40	162	319	N	13	0	0
	TRK	37	1	9	6	16	24	15	13	2	30	20	5	14	10	29	20	4	9	13	26	S	18	0	0
2 HR AM	BUS	78	1	45	21	67	47	12	7	0	19	56	19	36	10	65	18	20	7	21	48	E	34	0	0
																						W	19	0	0
	TOTAL:	**378**	**5**	**143**	**87**	**235**	**225**	**39**	**40**	**4**	**83**	**341**	**98**	**196**	**42**	**336**	**103**	**141**	**56**	**196**	**393**				
16:00-18:00	CAR	492	7	360	173	540	342	34	43	4	81	457	126	307	17	450	46	146	22	98	266	N	27	0	0
	TRK	20	0	10	6	16	25	6	8	1	15	9	11	1	17	29	29	7	12	4	23	S	27	0	0
2 HR PM	BUS	32	2	12	4	18	50	5	3	0	8	15	43	10	8	61	11	5	1	15	21	E	54	0	0
																						W	69	0	0
	TOTAL:	**544**	**9**	**382**	**183**	**574**	**417**	**45**	**54**	**5**	**104**	**481**	**180**	**318**	**42**	**540**	**86**	**158**	**35**	**117**	**310**				
07:30-18:00	CAR	1,545	20	987	497	1,504	976	102	131	19	252	1,647	348	1,056	87	1,491	250	572	143	456	1,171	N	63	0	0
	TRK	142	2	64	46	112	115	44	30	10	84	108	39	56	57	152	90	42	31	34	107	S	93	0	0
8 HR SUM	BUS	250	6	142	75	223	217	33	29	0	62	208	113	121	40	274	74	87	28	75	190	E	186	0	0
																						W	175	0	0
	TOTAL:	**1,937**	**28**	**1,193**	**618**	**1,839**	**1,308**	**179**	**190**	**29**	**398**	**1,963**	**500**	**1,233**	**184**	**1,917**	**414**	**701**	**202**	**565**	**1,468**				

Total 8 Hour Vehicle Volume: 5,622

Total 8 Hour Bicycle Volume: 0

Total 8 Hour Intersection Volume: 5,622

Comment:

Printed On: 17 Mar, 2015 2:23:29PM

City of Toronto - Traffic Safety Unit

24-Hour Count Summary Report

DON ROADWAY	STAT CODE	ARTERY CODE	COUNT DATE	AM PEAK	AM PEAK HOUR	PM PEAK	PM PEAK HOUR	OFF HOUR PEAK	OFF HOUR PEAK HOUR	24 HOUR Total
Northbound **Category: 24 HOUR**										
DON RDWY N/B S OF LAKE SHORE BLVD	15043	15043	12/14/01 Fri	299	08:30 - 09:30	307	16:00 - 17:00	359	10:00 - 11:00	3,904
DON RDWY N/B N OF LAKE SHORE BLVD	12852	12852	3/28/02 Thu	376	08:30 - 09:30	227	16:30 - 17:30	340	12:00 - 13:00	4,165
DON RDWY N/B S OF VILLIERS ST	20316	20316	9/24/09 Thu	202	07:45 - 08:45	176	14:45 - 15:45	205	14:15 - 15:15	2,742
			Northbound Total:	877		710		904		10,811
			Northbound Average:	292		237		301		3,604
Southbound **Category: 24 HOUR**										
DON RDWY S/B N OF VILLIERS ST	13043	13043	12/14/01 Fri	414	08:30 - 09:30	367	15:30 - 16:30	400	12:00 - 13:00	5,145
DON RDWY S/B N OF LAKE SHORE BLVD	12851	12851	3/28/02 Thu	414	07:15 - 08:15	420	17:30 - 18:30	505	11:00 - 12:00	6,326
DON RDWY S/B N OF COMMISSIONERS ST	20317	20317	9/24/09 Thu	132	06:30 - 07:30	133	15:00 - 16:00	161	12:45 - 13:45	1,981
			Southbound Total:	960		920		1,066		13,452
			Southbound Average:	320		307		355		4,484
DON ROADWAY				1,837		1,630		1,970		24,263

Comment:

Printed On: 17 Mar, 2015 2:15:31PM

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

DON RDWY AT LAKE SHORE BLVD (PX 208)

Survey Date: 2013-May-27 (Monday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
08:00-09:00	CAR	255	56	51	2	109	272	0	159	7	166	51	111	44	189	344	812	0	567	204	771	N	3	0	0
	TRK	70	12	33	0	45	32	0	18	4	22	17	14	13	8	35	48	0	28	37	65	S	0	26	0
AM PEAK	BUS	13	6	13	0	19	1	0	1	0	1	0	0	0	0	0	10	0	4	0	4	E	0	5	0
																						W	0	4	0
	TOTAL:	**338**	**74**	**97**	**2**	**173**	**305**	**0**	**178**	**11**	**189**	**68**	**125**	**57**	**197**	**379**	**870**	**0**	**599**	**241**	**840**				
17:00-18:00	CAR	184	25	98	1	124	741	0	456	24	480	112	284	88	185	557	460	0	250	86	336	N	7	0	0
	TRK	13	1	5	0	6	26	0	12	0	12	14	14	14	5	33	16	0	10	8	18	S	1	0	0
PM PEAK	BUS	0	1	0	0	1	4	0	4	0	4	1	0	1	2	3	3	0	0	0	0	E	9	1	0
																						W	5	10	0
	TOTAL:	**197**	**27**	**103**	**1**	**131**	**771**	**0**	**472**	**24**	**496**	**127**	**298**	**103**	**192**	**593**	**479**	**0**	**260**	**94**	**354**				
OFF HR AVG	CAR	239	38	86	8	132	420	0	203	12	215	85	209	73	82	364	295	0	175	153	328	N	1	0	0
	TRK	70	13	40	1	54	49	0	22	6	28	39	26	33	9	68	42	0	20	30	50	S	0	1	0
	BUS	3	4	2	0	6	7	0	6	1	7	3	1	2	0	3	4	0	0	1	1	E	1	1	0
																						W	0	2	0
	TOTAL:	**312**	**55**	**128**	**9**	**192**	**476**	**0**	**231**	**19**	**250**	**127**	**236**	**108**	**91**	**435**	**341**	**0**	**195**	**184**	**379**				
07:30-09:30	CAR	477	105	102	7	214	558	0	298	17	315	140	253	123	313	689	1,359	0	941	375	1,316	N	3	0	0
	TRK	123	21	59	0	80	76	0	40	10	50	54	36	44	16	96	89	0	52	64	116	S	0	47	0
2 HR AM	BUS	28	9	25	0	34	7	0	7	0	7	0	0	0	1	1	17	0	7	3	10	E	0	11	0
																						W	0	4	0
	TOTAL:	**628**	**135**	**186**	**7**	**328**	**641**	**0**	**345**	**27**	**372**	**194**	**289**	**167**	**330**	**786**	**1,465**	**0**	**1,000**	**442**	**1,442**				
16:00-18:00	CAR	360	66	179	13	258	1,415	0	815	35	850	184	587	149	359	1,095	905	0	480	181	661	N	14	0	0
	TRK	34	6	17	1	24	55	0	35	1	36	34	19	33	5	57	31	0	20	17	37	S	1	0	0
2 HR PM	BUS	0	6	0	0	6	10	0	10	0	10	2	0	2	3	5	10	0	1	0	1	E	11	6	0
																						W	5	16	0
	TOTAL:	**394**	**78**	**196**	**14**	**288**	**1,480**	**0**	**860**	**36**	**896**	**220**	**606**	**184**	**367**	**1,157**	**946**	**0**	**501**	**198**	**699**				
07:30-18:00	CAR	1,792	322	623	50	995	3,649	0	1,925	101	2,026	666	1,674	565	998	3,237	3,439	0	2,119	1,169	3,288	N	21	0	0
	TRK	436	78	234	3	315	324	0	163	35	198	244	158	209	57	424	286	0	151	202	353	S	1	52	0
8 HR SUM	BUS	40	32	33	1	66	43	0	40	2	42	10	2	8	4	14	45	0	9	7	16	E	13	22	0
																						W	6	29	0
	TOTAL:	**2,268**	**432**	**890**	**54**	**1,376**	**4,016**	**0**	**2,128**	**138**	**2,266**	**920**	**1,834**	**782**	**1,059**	**3,675**	**3,770**	**0**	**2,279**	**1,378**	**3,657**				

Total 8 Hour Vehicle Volume: 10,974

Total 8 Hour Bicycle Volume: 103

Total 8 Hour Intersection Volume: 11,077

Comment:

Printed On: 17 Mar, 2015 2:12:55PM

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

LAKE SHORE BLVD AT LESLIE ST (PX 206)

Survey Date: 2013-May-27 (Monday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
07:45-08:45	CAR	285	46	76	33	155	504	161	458	29	648	332	13	162	413	588	2,523	141	2,064	48	2,253	N	7	13	0
	TRK	37	60	25	7	92	28	9	21	32	62	53	0	13	18	31	93	8	15	3	26	S	2	9	0
AM PEAK	BUS	11	1	11	4	16	8	0	4	0	4	7	0	6	0	6	5	1	4	0	5	E	13	123	0
																						W	26	10	0
	TOTAL:	**333**	**107**	**112**	**44**	**263**	**540**	**170**	**483**	**61**	**714**	**392**	**13**	**181**	**431**	**625**	**2,621**	**150**	**2,083**	**51**	**2,284**				
17:00-18:00	CAR	708	156	350	357	863	2,223	319	1,836	18	2,173	290	30	180	178	388	904	92	570	39	701	N	22	47	0
	TRK	21	13	8	4	25	17	13	13	11	37	19	0	4	10	14	41	4	18	0	22	S	9	30	0
PM PEAK	BUS	5	0	5	0	5	0	0	0	0	0	9	0	5	1	6	3	4	2	0	6	E	6	58	0
																						W	77	174	0
	TOTAL:	**734**	**169**	**363**	**361**	**893**	**2,240**	**332**	**1,849**	**29**	**2,210**	**318**	**30**	**189**	**189**	**408**	**948**	**100**	**590**	**39**	**729**				
OFF HR AVG	CAR	481	91	204	105	400	825	223	692	36	951	323	28	190	227	445	1,007	97	689	54	840	N	18	14	0
	TRK	33	73	18	8	99	37	14	28	42	84	69	1	18	17	36	122	9	32	1	42	S	12	15	0
	BUS	5	1	5	1	7	4	0	3	0	3	6	0	5	1	6	5	1	3	0	4	E	3	34	0
																						W	70	28	0
	TOTAL:	**519**	**165**	**227**	**114**	**506**	**866**	**237**	**723**	**78**	**1,038**	**398**	**29**	**213**	**245**	**487**	**1,134**	**107**	**724**	**55**	**886**				
07:30-09:30	CAR	598	96	178	68	342	1,006	314	911	54	1,279	702	27	351	751	1,129	4,616	297	3,769	106	4,172	N	14	35	0
	TRK	69	116	40	19	175	68	23	48	81	152	121	1	28	34	63	197	12	47	6	65	S	10	26	0
2 HR AM	BUS	16	3	16	7	26	15	0	8	0	8	15	0	14	3	17	13	1	7	0	8	E	18	232	0
																						W	67	22	0
	TOTAL:	**683**	**215**	**234**	**94**	**543**	**1,089**	**337**	**967**	**135**	**1,439**	**838**	**28**	**393**	**788**	**1,209**	**4,826**	**310**	**3,823**	**112**	**4,245**				
16:00-18:00	CAR	1,400	280	631	615	1,526	4,242	683	3,552	34	4,269	556	75	329	401	805	1,806	193	1,125	86	1,404	N	53	70	0
	TRK	50	49	24	9	82	49	26	39	25	90	43	1	10	17	28	104	8	38	0	46	S	12	55	0
2 HR PM	BUS	10	1	10	0	11	5	0	5	0	5	20	0	12	1	13	6	8	4	0	12	E	11	116	0
																						W	167	249	0
	TOTAL:	**1,460**	**330**	**665**	**624**	**1,619**	**4,296**	**709**	**3,596**	**59**	**4,364**	**619**	**76**	**351**	**419**	**846**	**1,916**	**209**	**1,167**	**86**	**1,462**				
07:30-18:00	CAR	3,919	738	1,626	1,103	3,467	8,547	1,887	7,232	230	9,349	2,545	212	1,438	2,058	3,708	10,447	877	7,651	406	8,934	N	139	160	0
	TRK	246	455	134	61	650	268	103	200	274	577	441	7	110	119	236	786	57	212	9	278	S	68	142	0
8 HR SUM	BUS	44	7	44	11	62	37	0	26	0	26	57	0	45	6	51	34	12	21	0	33	E	42	483	0
																						W	515	383	0
	TOTAL:	**4,209**	**1,200**	**1,804**	**1,175**	**4,179**	**8,852**	**1,990**	**7,458**	**504**	**9,952**	**3,043**	**219**	**1,593**	**2,183**	**3,995**	**11,267**	**946**	**7,884**	**415**	**9,245**				

Total 8 Hour Vehicle Volume: 27,371

Total 8 Hour Bicycle Volume: 1,168

Total 8 Hour Intersection Volume: 28,539

Comment:

Printed On: 17 Mar, 2015 1:53:30PM

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

CARLAW AVE AT LAKE SHORE BLVD (PX 207)

Survey Date: 2012-Oct-15 (Monday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
08:15-09:15	CAR	522	62	134	9	205	699	372	676	52	1,100	238	14	146	271	431	2,664	40	2,331	16	2,387	N	14	7	0
	TRK	65	50	42	2	94	51	19	47	18	84	41	2	18	10	30	143	5	83	4	92	S	5	2	0
AM PEAK	BUS	5	0	4	0	4	2	1	2	1	4	4	0	3	1	4	1	0	0	0	0	E	36	78	0
																						W	21	8	0
	TOTAL:	**592**	**112**	**180**	**11**	**303**	**752**	**392**	**725**	**71**	**1,188**	**283**	**16**	**167**	**282**	**465**	**2,808**	**45**	**2,414**	**20**	**2,479**				
16:45-17:45	CAR	866	99	171	23	293	2,561	678	2,489	36	3,203	214	49	155	173	377	977	23	705	17	745	N	45	3	0
	TRK	13	7	4	0	11	51	9	51	9	69	26	0	17	6	23	62	0	49	0	49	S	3	5	0
PM PEAK	BUS	5	0	5	0	5	0	0	0	4	4	12	0	6	0	6	0	2	0	0	2	E	26	21	0
																						W	16	68	0
	TOTAL:	**884**	**106**	**180**	**23**	**309**	**2,612**	**687**	**2,540**	**49**	**3,276**	**252**	**49**	**178**	**179**	**406**	**1,039**	**25**	**754**	**17**	**796**				
OFF HR AVG	CAR	635	76	105	16	197	885	507	828	51	1,386	246	41	156	192	389	1,207	39	939	23	1,001	N	12	6	0
	TRK	57	30	18	2	50	83	37	78	46	161	74	3	24	21	48	165	4	114	2	120	S	8	2	0
	BUS	4	1	3	0	4	3	1	2	2	5	8	1	2	0	3	3	4	2	0	6	E	22	17	0
																						W	20	9	0
	TOTAL:	**696**	**107**	**126**	**18**	**251**	**971**	**545**	**908**	**99**	**1,552**	**328**	**45**	**182**	**213**	**440**	**1,375**	**47**	**1,055**	**25**	**1,127**				
07:30-09:30	CAR	1,113	141	307	17	465	1,420	770	1,376	106	2,252	500	27	295	547	869	5,140	99	4,452	36	4,587	N	49	17	0
	TRK	108	87	70	3	160	110	34	101	40	175	89	6	39	20	65	254	10	147	4	161	S	42	3	0
2 HR AM	BUS	8	0	7	0	7	3	1	2	1	4	6	1	5	2	8	4	0	2	0	2	E	48	154	0
																						W	44	21	0
	TOTAL:	**1,229**	**228**	**384**	**20**	**632**	**1,533**	**805**	**1,479**	**147**	**2,431**	**595**	**34**	**339**	**569**	**942**	**5,398**	**109**	**4,601**	**40**	**4,750**				
16:00-18:00	CAR	1,662	198	336	53	587	4,543	1,287	4,398	79	5,764	443	92	304	329	725	2,140	60	1,613	39	1,712	N	75	10	0
	TRK	29	16	10	3	29	96	18	91	23	132	55	2	30	17	49	142	2	109	1	112	S	17	7	0
2 HR PM	BUS	10	0	9	0	9	1	1	1	5	7	19	0	10	0	10	0	4	0	0	4	E	49	46	0
																						W	53	113	0
	TOTAL:	**1,701**	**214**	**355**	**56**	**625**	**4,640**	**1,306**	**4,490**	**107**	**5,903**	**517**	**94**	**344**	**346**	**784**	**2,282**	**66**	**1,722**	**40**	**1,828**				
07:30-18:00	CAR	5,313	643	1,061	134	1,838	9,505	4,086	9,087	387	13,560	1,926	284	1,223	1,644	3,151	12,108	316	9,821	166	10,303	N	172	50	0
	TRK	362	221	150	15	386	540	199	504	247	950	437	21	164	121	306	1,055	26	713	13	752	S	92	16	0
8 HR SUM	BUS	31	3	27	0	30	14	4	11	13	28	56	3	24	2	29	16	19	11	0	30	E	184	268	0
																						W	176	171	0
	TOTAL:	**5,706**	**867**	**1,238**	**149**	**2,254**	**10,059**	**4,289**	**9,602**	**647**	**14,538**	**2,419**	**308**	**1,411**	**1,767**	**3,486**	**13,179**	**361**	**10,545**	**179**	**11,085**				

Total 8 Hour Vehicle Volume: 31,363

Total 8 Hour Bicycle Volume: 505

Total 8 Hour Intersection Volume: 31,868

Comment:

Printed On: 17 Mar, 2015 1:53:30PM

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

LANE N OF LAKE SHORE BLVD AT MORSE ST

Survey Date: 1998-Jan-27 (Tuesday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
08:00-09:00	CAR	13	23	0	7	30	9	4	1	3	8	7	1	0	1	2	28	4	4	9	17	N	0	0	0
	TRK	0	10	0	1	11	1	0	0	0	0	0	0	0	0	0	10	0	0	0	0	S	2	2	0
AM PEAK	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	E	1	1	0
																						W	0	0	0
	TOTAL:	**13**	**33**	**0**	**8**	**41**	**10**	**4**	**1**	**3**	**8**	**7**	**1**	**0**	**1**	**2**	**38**	**4**	**4**	**9**	**17**				
16:45-17:45	CAR	13	23	0	5	28	18	7	9	4	20	9	4	0	3	7	37	5	11	6	22	N	0	0	0
	TRK	0	12	0	4	16	6	0	2	4	6	8	0	0	0	0	15	4	3	0	7	S	0	0	0
PM PEAK	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	E	0	0	0
																						W	0	0	0
	TOTAL:	**13**	**35**	**0**	**9**	**44**	**24**	**7**	**11**	**8**	**26**	**17**	**4**	**0**	**3**	**7**	**52**	**9**	**14**	**6**	**29**				
OFF HR AVG	CAR	10	13	0	6	19	13	5	6	4	15	7	1	0	1	2	19	3	5	5	13	N	0	1	0
	TRK	2	5	0	1	6	5	1	4	1	6	2	0	0	0	0	7	1	2	1	4	S	0	1	0
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	E	0	0	0
																						W	0	0	0
	TOTAL:	**12**	**18**	**0**	**7**	**25**	**18**	**6**	**10**	**5**	**21**	**9**	**1**	**0**	**1**	**2**	**26**	**4**	**7**	**6**	**17**				
07:30-09:30	CAR	19	32	0	9	41	14	7	2	4	13	8	3	0	3	6	43	4	8	12	24	N	0	0	0
	TRK	0	12	0	1	13	1	0	0	0	0	0	0	0	0	0	12	0	0	0	0	S	2	2	0
2 HR AM	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	E	1	1	0
																						W	0	0	0
	TOTAL:	**19**	**44**	**0**	**10**	**54**	**15**	**7**	**2**	**4**	**13**	**8**	**3**	**0**	**3**	**6**	**55**	**4**	**8**	**12**	**24**				
16:00-18:00	CAR	26	44	0	10	54	37	12	20	8	40	17	7	0	6	13	70	9	20	14	43	N	0	0	0
	TRK	1	21	0	7	28	10	1	3	8	12	15	0	0	0	0	27	7	6	0	13	S	0	0	0
2 HR PM	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	E	0	0	0
																						W	0	0	0
	TOTAL:	**27**	**65**	**0**	**17**	**82**	**47**	**13**	**23**	**16**	**52**	**32**	**7**	**0**	**6**	**13**	**97**	**16**	**26**	**14**	**56**				
07:30-18:00	CAR	82	127	0	42	169	99	37	45	29	111	55	12	0	14	26	189	26	48	45	119	N	0	3	0
	TRK	7	51	0	12	63	31	5	19	12	36	21	0	0	0	0	65	9	14	2	25	S	3	4	0
8 HR SUM	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	E	1	1	0
																						W	0	0	0
	TOTAL:	**89**	**178**	**0**	**54**	**232**	**130**	**42**	**64**	**41**	**147**	**76**	**12**	**0**	**14**	**26**	**254**	**35**	**62**	**47**	**144**				

Total 8 Hour Vehicle Volume: 549

Total 8 Hour Bicycle Volume: 8

Total 8 Hour Intersection Volume: 557

Comment: IN \ OUT SPECIAL STUDY

Printed On: 17 Mar, 2015 1:53:30PM

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

LAKE SHORE BLVD AT LOGAN AVE

Survey Date: 1994-Feb-02 (Wednesday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
08:00-09:00	CAR	27	0	0	27	27	263	0	236	9	245	9	0	0	40	40	1,308	0	1,268	27	1,295	N	0	0	0
	TRK	3	0	0	1	1	23	0	22	1	23	1	0	0	12	12	67	0	55	3	58	S	0	0	0
AM PEAK	BUS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	8	1	9	E	8	0	0
																						W	4	0	0
	TOTAL:	**31**	**0**	**0**	**28**	**28**	**286**	**0**	**258**	**10**	**268**	**10**	**0**	**0**	**52**	**52**	**1,383**	**0**	**1,331**	**31**	**1,362**				
17:00-18:00	CAR	29	0	0	52	52	797	0	745	66	811	66	0	0	43	43	369	0	326	29	355	N	0	0	0
	TRK	7	0	0	0	0	32	0	32	0	32	0	0	0	3	3	26	0	23	7	30	S	0	0	0
PM PEAK	BUS	0	0	0	0	0	5	0	5	0	5	0	0	0	0	0	0	0	0	0	0	E	19	0	0
																						W	0	0	0
	TOTAL:	**36**	**0**	**0**	**52**	**52**	**834**	**0**	**782**	**66**	**848**	**66**	**0**	**0**	**46**	**46**	**395**	**0**	**349**	**36**	**385**				
OFF HR AVG	CAR	24	0	0	29	29	427	0	398	17	415	17	0	0	31	31	386	0	355	24	379	N	1	0	0
	TRK	5	0	0	1	1	50	0	49	2	51	2	0	0	6	6	44	0	38	5	43	S	0	0	0
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	3	E	7	0	0
																						W	1	0	0
	TOTAL:	**29**	**0**	**0**	**30**	**30**	**477**	**0**	**447**	**19**	**466**	**19**	**0**	**0**	**37**	**37**	**433**	**0**	**396**	**29**	**425**				
07:30-09:30	CAR	49	0	0	47	47	569	0	522	31	553	31	0	0	76	76	2,206	0	2,130	49	2,179	N	1	0	0
	TRK	9	0	0	2	2	49	0	47	2	49	2	0	0	24	24	105	0	81	9	90	S	0	0	0
2 HR AM	BUS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	11	1	12	E	16	0	0
																						W	5	0	0
	TOTAL:	**59**	**0**	**0**	**49**	**49**	**618**	**0**	**569**	**33**	**602**	**33**	**0**	**0**	**100**	**100**	**2,322**	**0**	**2,222**	**59**	**2,281**				
16:00-18:00	CAR	42	0	0	76	76	1,391	0	1,315	101	1,416	101	0	0	69	69	770	0	701	42	743	N	2	0	0
	TRK	15	0	0	1	1	57	0	56	1	57	1	0	0	9	9	43	0	34	15	49	S	1	0	0
2 HR PM	BUS	0	0	0	0	0	5	0	5	0	5	0	0	0	0	0	0	0	0	0	0	E	31	0	0
																						W	1	0	0
	TOTAL:	**57**	**0**	**0**	**77**	**77**	**1,453**	**0**	**1,376**	**102**	**1,478**	**102**	**0**	**0**	**78**	**78**	**813**	**0**	**735**	**57**	**792**				
07:30-18:00	CAR	187	0	0	239	239	3,666	0	3,427	199	3,626	199	0	0	269	269	4,521	0	4,252	187	4,439	N	6	0	0
	TRK	43	0	0	6	6	303	0	297	9	306	9	0	0	58	58	324	0	266	43	309	S	1	0	0
8 HR SUM	BUS	1	0	0	0	0	6	0	6	0	6	0	0	0	0	0	21	0	21	1	22	E	76	0	0
																						W	9	0	0
	TOTAL:	**231**	**0**	**0**	**245**	**245**	**3,975**	**0**	**3,730**	**208**	**3,938**	**208**	**0**	**0**	**327**	**327**	**4,866**	**0**	**4,539**	**231**	**4,770**				

Total 8 Hour Vehicle Volume: 9,280

Total 8 Hour Bicycle Volume: 0

Total 8 Hour Intersection Volume: 9,280

Comment:

Printed On: 17 Mar, 2015 1:53:30PM

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

BOOTH AVE AT LAKE SHORE BLVD

Survey Date: 2004-Apr-27 (Tuesday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
07:30-08:30	CAR	976	0	0	0	0	339	902	339	0	1,241	2,573	0	0	41	41	641	2,573	600	74	3,247	N	3	0	0
	TRK	69	0	0	0	0	25	61	25	0	86	104	0	0	2	2	43	104	41	8	153	S	0	0	0
AM PEAK	BUS	3	0	0	0	0	1	3	1	0	4	9	0	0	0	0	2	9	2	0	11	E	4	0	0
																						W	0	0	0
	TOTAL:	**1,048**	**0**	**0**	**0**	**0**	**365**	**966**	**365**	**0**	**1,331**	**2,686**	**0**	**0**	**43**	**43**	**686**	**2,686**	**643**	**82**	**3,411**				
16:30-17:30	CAR	2,835	0	0	0	0	627	2,815	627	0	3,442	917	0	0	60	60	362	917	302	20	1,239	N	4	0	0
	TRK	48	0	0	0	0	15	43	15	0	58	49	0	0	3	3	16	49	13	5	67	S	0	0	0
PM PEAK	BUS	18	0	0	0	0	1	18	1	0	19	5	0	0	0	0	1	5	1	0	6	E	3	0	0
																						W	0	0	0
	TOTAL:	**2,901**	**0**	**0**	**0**	**0**	**643**	**2,876**	**643**	**0**	**3,519**	**971**	**0**	**0**	**63**	**63**	**379**	**971**	**316**	**25**	**1,312**				
OFF HR AVG	CAR	1,023	0	0	0	0	375	992	375	0	1,367	1,008	0	0	45	45	365	1,008	320	31	1,359	N	2	0	0
	TRK	99	0	0	0	0	40	90	40	0	130	100	0	0	3	3	36	100	33	9	142	S	0	0	0
	BUS	4	0	0	0	0	2	4	2	0	6	7	0	0	0	0	2	7	2	0	9	E	0	0	0
																						W	1	0	0
	TOTAL:	**1,126**	**0**	**0**	**0**	**0**	**417**	**1,086**	**417**	**0**	**1,503**	**1,115**	**0**	**0**	**48**	**48**	**403**	**1,115**	**355**	**40**	**1,510**				
07:30-09:30	CAR	1,912	0	0	0	0	684	1,789	684	0	2,473	4,982	0	0	88	88	1,210	4,982	1,122	123	6,227	N	7	0	0
	TRK	155	0	0	0	0	58	143	58	0	201	170	0	0	7	7	91	170	84	12	266	S	0	0	0
2 HR AM	BUS	8	0	0	0	0	3	8	3	0	11	19	0	0	0	0	5	19	5	0	24	E	4	0	0
																						W	0	0	0
	TOTAL:	**2,075**	**0**	**0**	**0**	**0**	**745**	**1,940**	**745**	**0**	**2,685**	**5,171**	**0**	**0**	**95**	**95**	**1,306**	**5,171**	**1,211**	**135**	**6,517**				
16:00-18:00	CAR	5,285	0	0	0	0	1,170	5,235	1,170	0	6,405	1,814	0	0	111	111	713	1,814	602	50	2,466	N	11	0	0
	TRK	104	0	0	0	0	37	90	37	0	127	89	0	0	6	6	33	89	27	14	130	S	0	0	0
2 HR PM	BUS	26	0	0	0	0	1	26	1	0	27	7	0	0	0	0	2	7	2	0	9	E	3	0	0
																						W	1	0	0
	TOTAL:	**5,415**	**0**	**0**	**0**	**0**	**1,208**	**5,351**	**1,208**	**0**	**6,559**	**1,910**	**0**	**0**	**117**	**117**	**748**	**1,910**	**631**	**64**	**2,605**				
07:30-18:00	CAR	11,287	0	0	0	0	3,354	10,990	3,354	0	14,344	10,828	0	0	379	379	3,381	10,828	3,002	297	14,127	N	24	0	0
	TRK	652	0	0	0	0	254	591	254	0	845	657	0	0	24	24	265	657	241	61	959	S	0	0	0
8 HR SUM	BUS	49	0	0	0	0	11	49	11	0	60	55	0	0	0	0	13	55	13	0	68	E	7	0	0
																						W	5	0	0
	TOTAL:	**11,988**	**0**	**0**	**0**	**0**	**3,619**	**11,630**	**3,619**	**0**	**15,249**	**11,540**	**0**	**0**	**403**	**403**	**3,659**	**11,540**	**3,256**	**358**	**15,154**				

Total 8 Hour Vehicle Volume: 30,806

Total 8 Hour Bicycle Volume: 0

Total 8 Hour Intersection Volume: 30,806

Comment: E/B & W/B LEFTS = TO & FROM F.G.G., W/B & E/B THRU'S = LAKE SHORE

Printed On: 17 Mar, 2015 1:53:30PM

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

CHERRY ST N AT LAKE SHORE BLVD (PX 1559)

Survey Date: 2009-Dec-01 (Tuesday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
08:00-09:00	CAR	84	0	0	0	0	398	0	317	0	317	0	81	0	182	263	996	0	814	84	898	N	13	1	0
	TRK	5	0	0	0	0	53	0	42	0	42	0	11	0	5	16	50	0	45	5	50	S	0	0	0
AM PEAK	BUS	1	0	0	0	0	10	0	8	0	8	0	2	0	0	2	5	0	5	1	6	E	10	10	0
																						W	0	0	0
	TOTAL:	**90**	**0**	**0**	**0**	**0**	**461**	**0**	**367**	**0**	**367**	**0**	**94**	**0**	**187**	**281**	**1,051**	**0**	**864**	**90**	**954**				
16:45-17:45	CAR	125	0	0	0	0	904	0	827	0	827	0	77	0	131	208	491	0	360	125	485	N	20	5	0
	TRK	6	0	0	0	0	79	0	70	0	70	0	9	0	7	16	23	0	16	6	22	S	0	0	0
PM PEAK	BUS	1	0	0	0	0	12	0	4	0	4	0	8	0	0	8	2	0	2	1	3	E	20	0	0
																						W	0	0	0
	TOTAL:	**132**	**0**	**0**	**0**	**0**	**995**	**0**	**901**	**0**	**901**	**0**	**94**	**0**	**138**	**232**	**516**	**0**	**378**	**132**	**510**				
OFF HR AVG	CAR	118	0	0	0	0	469	0	397	0	397	0	72	0	127	199	625	0	498	118	616	N	11	3	0
	TRK	5	0	0	0	0	88	0	81	0	81	0	7	0	6	13	55	0	49	5	54	S	0	0	0
	BUS	1	0	0	0	0	8	0	6	0	6	0	2	0	0	2	6	0	6	1	7	E	19	2	0
																						W	0	0	0
	TOTAL:	**124**	**0**	**0**	**0**	**0**	**565**	**0**	**484**	**0**	**484**	**0**	**81**	**0**	**133**	**214**	**686**	**0**	**553**	**124**	**677**				
07:30-09:30	CAR	162	0	0	0	0	778	0	614	0	614	0	164	0	308	472	1,754	0	1,446	162	1,608	N	25	1	0
	TRK	6	0	0	0	0	85	0	72	0	72	0	13	0	8	21	97	0	89	6	95	S	0	0	0
2 HR AM	BUS	1	0	0	0	0	17	0	13	0	13	0	4	0	0	4	17	0	17	1	18	E	31	10	0
																						W	0	0	0
	TOTAL:	**169**	**0**	**0**	**0**	**0**	**880**	**0**	**699**	**0**	**699**	**0**	**181**	**0**	**316**	**497**	**1,868**	**0**	**1,552**	**169**	**1,721**				
16:00-18:00	CAR	236	0	0	0	0	1,728	0	1,584	0	1,584	0	144	0	269	413	967	0	698	236	934	N	42	5	0
	TRK	8	0	0	0	0	147	0	128	0	128	0	19	0	19	38	75	0	56	8	64	S	0	0	0
2 HR PM	BUS	1	0	0	0	0	18	0	5	0	5	0	13	0	0	13	11	0	11	1	12	E	37	4	0
																						W	2	0	0
	TOTAL:	**245**	**0**	**0**	**0**	**0**	**1,893**	**0**	**1,717**	**0**	**1,717**	**0**	**176**	**0**	**288**	**464**	**1,053**	**0**	**765**	**245**	**1,010**				
07:30-18:00	CAR	870	0	0	0	0	4,380	0	3,784	0	3,784	0	596	0	1,085	1,681	5,221	0	4,136	870	5,006	N	111	16	0
	TRK	35	0	0	0	0	585	0	524	0	524	0	61	0	50	111	392	0	342	35	377	S	0	0	0
8 HR SUM	BUS	4	0	0	0	0	68	0	42	0	42	0	26	0	0	26	52	0	52	4	56	E	143	23	0
																						W	2	0	0
	TOTAL:	**909**	**0**	**0**	**0**	**0**	**5,033**	**0**	**4,350**	**0**	**4,350**	**0**	**683**	**0**	**1,135**	**1,818**	**5,665**	**0**	**4,530**	**909**	**5,439**				

Total 8 Hour Vehicle Volume: 11,607

Total 8 Hour Bicycle Volume: 39

Total 8 Hour Intersection Volume: 11,646

Comment:

Printed On: 17 Mar, 2015 1:53:30PM

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

CHERRY ST S AT LAKE SHORE BLVD (PX 820)

Survey Date: 2009-Nov-30 (Monday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
07:45-08:45	CAR	0	122	0	45	167	383	0	338	70	408	70	0	0	0	0	806	0	684	0	684	N	0	0	0
	TRK	0	28	0	1	29	39	0	38	36	74	36	0	0	0	0	83	0	55	0	55	S	24	0	0
AM PEAK	BUS	0	3	0	1	4	11	0	10	2	12	2	0	0	0	0	13	0	10	0	10	E	31	0	0
																						W	26	0	0
	TOTAL:	**0**	**153**	**0**	**47**	**200**	**433**	**0**	**386**	**108**	**494**	**108**	**0**	**0**	**0**	**0**	**902**	**0**	**749**	**0**	**749**				
16:15-17:15	CAR	0	265	0	60	325	643	0	583	161	744	161	0	0	0	0	593	0	328	0	328	N	0	0	0
	TRK	0	20	0	3	23	57	0	54	56	110	56	0	0	0	0	76	0	56	0	56	S	38	0	0
PM PEAK	BUS	0	6	0	2	8	20	0	18	2	20	2	0	0	0	0	15	0	9	0	9	E	40	0	0
																						W	13	0	0
	TOTAL:	**0**	**291**	**0**	**65**	**356**	**720**	**0**	**655**	**219**	**874**	**219**	**0**	**0**	**0**	**0**	**684**	**0**	**393**	**0**	**393**				
OFF HR AVG	CAR	0	151	0	36	187	387	0	351	108	459	108	0	0	0	0	576	0	425	0	425	N	0	0	0
	TRK	0	45	0	10	55	47	0	37	31	68	31	0	0	0	0	74	0	29	0	29	S	6	0	0
	BUS	0	8	0	1	9	8	0	7	4	11	4	0	0	0	0	17	0	9	0	9	E	28	0	0
																						W	2	0	0
	TOTAL:	**0**	**204**	**0**	**47**	**251**	**442**	**0**	**395**	**143**	**538**	**143**	**0**	**0**	**0**	**0**	**667**	**0**	**463**	**0**	**463**				
07:30-09:30	CAR	0	255	0	74	329	669	0	595	146	741	146	0	0	0	0	1,497	0	1,242	0	1,242	N	0	0	0
	TRK	0	80	0	5	85	72	0	67	78	145	78	0	0	0	0	169	0	89	0	89	S	24	0	0
2 HR AM	BUS	0	11	0	1	12	14	0	13	6	19	6	0	0	0	0	33	0	22	0	22	E	69	0	0
																						W	26	0	0
	TOTAL:	**0**	**346**	**0**	**80**	**426**	**755**	**0**	**675**	**230**	**905**	**230**	**0**	**0**	**0**	**0**	**1,699**	**0**	**1,353**	**0**	**1,353**				
16:00-18:00	CAR	0	424	0	116	540	1,252	0	1,136	319	1,455	319	0	0	0	0	1,011	0	587	0	587	N	0	0	0
	TRK	0	57	0	13	70	101	0	88	74	162	74	0	0	0	0	147	0	90	0	90	S	49	0	0
2 HR PM	BUS	0	13	0	3	16	30	0	27	6	33	6	0	0	0	0	34	0	21	0	21	E	66	0	0
																						W	14	0	0
	TOTAL:	**0**	**494**	**0**	**132**	**626**	**1,383**	**0**	**1,251**	**399**	**1,650**	**399**	**0**	**0**	**0**	**0**	**1,192**	**0**	**698**	**0**	**698**				
07:30-18:00	CAR	0	1,283	0	335	1,618	3,468	0	3,133	897	4,030	897	0	0	0	0	4,812	0	3,529	0	3,529	N	0	0	0
	TRK	0	315	0	57	372	360	0	303	277	580	277	0	0	0	0	610	0	295	0	295	S	95	0	0
8 HR SUM	BUS	0	56	0	8	64	74	0	66	28	94	28	0	0	0	0	133	0	77	0	77	E	248	0	0
																						W	47	0	0
	TOTAL:	**0**	**1,654**	**0**	**400**	**2,054**	**3,902**	**0**	**3,502**	**1,202**	**4,704**	**1,202**	**0**	**0**	**0**	**0**	**5,555**	**0**	**3,901**	**0**	**3,901**				

Total 8 Hour Vehicle Volume: 10,659

Total 8 Hour Bicycle Volume: 0

Total 8 Hour Intersection Volume: 10,659

Comment:

Printed On: 17 Mar, 2015 1:53:30PM

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

COMMISSIONERS ST AT LESLIE ST (PX 1844)

Survey Date: 2013-Apr-22 (Monday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
08:30-09:30	CAR	128	16	37	0	53	19	84	3	45	132	118	16	69	272	357	289	4	1	7	12	N	0	18	0
	TRK	65	19	32	0	51	6	29	4	20	53	45	2	25	23	50	44	0	2	4	6	S	0	3	0
AM PEAK	BUS	2	0	0	0	0	0	2	0	0	2	0	0	0	4	4	4	0	0	0	0	E	5	0	0
																						W	0	2	0
	TOTAL:	**195**	**35**	**69**	**0**	**104**	**25**	**115**	**7**	**65**	**187**	**163**	**18**	**94**	**299**	**411**	**337**	**4**	**3**	**11**	**18**				
17:00-18:00	CAR	743	45	193	0	238	4	513	3	89	605	159	1	63	111	175	172	7	16	37	60	N	0	31	0
	TRK	18	3	10	0	13	0	8	0	7	15	16	0	9	13	22	18	0	2	0	2	S	0	20	0
PM PEAK	BUS	6	1	1	0	2	0	5	0	1	6	1	0	0	3	3	4	0	0	0	0	E	9	0	0
																						W	3	7	0
	TOTAL:	**767**	**49**	**204**	**0**	**253**	**4**	**526**	**3**	**97**	**626**	**176**	**1**	**72**	**127**	**200**	**194**	**7**	**18**	**37**	**62**				
OFF HR AVG	CAR	238	41	108	2	151	18	108	3	62	173	159	13	92	137	242	185	5	7	22	34	N	0	11	0
	TRK	73	28	39	1	68	6	31	2	29	62	65	3	36	27	66	57	0	2	3	5	S	1	7	0
	BUS	4	0	0	0	0	0	4	0	0	4	0	0	0	5	5	5	0	0	0	0	E	3	0	0
																						W	5	1	0
	TOTAL:	**315**	**69**	**147**	**3**	**219**	**24**	**143**	**5**	**91**	**239**	**224**	**16**	**128**	**169**	**313**	**247**	**5**	**9**	**25**	**39**				
07:30-09:30	CAR	230	41	84	4	129	71	135	6	80	221	227	61	141	467	669	511	6	3	11	20	N	4	36	0
	TRK	133	41	64	1	106	14	61	7	39	107	84	6	44	37	87	83	1	5	8	14	S	0	7	0
2 HR AM	BUS	7	0	0	0	0	0	7	0	0	7	0	0	0	9	9	9	0	0	0	0	E	5	0	0
																						W	5	2	0
	TOTAL:	**370**	**82**	**148**	**5**	**235**	**85**	**203**	**13**	**119**	**335**	**311**	**67**	**185**	**513**	**765**	**603**	**7**	**8**	**19**	**34**				
16:00-18:00	CAR	1,184	77	343	0	420	6	767	4	136	907	280	2	131	226	359	330	13	27	74	114	N	0	53	0
	TRK	57	12	31	0	43	0	23	0	18	41	42	0	23	25	48	40	1	3	3	7	S	0	41	0
2 HR PM	BUS	10	2	2	0	4	0	8	0	1	9	1	0	0	10	10	12	0	0	0	0	E	10	0	0
																						W	10	18	0
	TOTAL:	**1,251**	**91**	**376**	**0**	**467**	**6**	**798**	**4**	**155**	**957**	**323**	**2**	**154**	**261**	**417**	**382**	**14**	**30**	**77**	**121**				
07:30-18:00	CAR	2,364	280	857	10	1,147	146	1,334	22	465	1,821	1,140	114	638	1,242	1,994	1,581	37	59	173	269	N	5	132	0
	TRK	480	166	252	5	423	38	206	15	172	393	384	18	210	168	396	351	2	17	22	41	S	2	76	0
8 HR SUM	BUS	31	2	2	0	4	0	29	0	2	31	2	0	0	37	37	39	0	0	0	0	E	25	1	0
																						W	35	23	0
	TOTAL:	**2,875**	**448**	**1,111**	**15**	**1,574**	**184**	**1,569**	**37**	**639**	**2,245**	**1,526**	**132**	**848**	**1,447**	**2,427**	**1,971**	**39**	**76**	**195**	**310**				

Total 8 Hour Vehicle Volume: 6,556

Total 8 Hour Bicycle Volume: 232

Total 8 Hour Intersection Volume: 6,788

Comment:

Printed On: 17 Mar, 2015 1:55:53PM

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

LESLIE ST AT UNWIN AVE

Survey Date: 2004-Jul-28 (Wednesday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
08:00-09:00	CAR	28	0	1	0	1	0	27	0	0	27	1	0	1	32	33	32	0	0	0	0	N	0	2	0
	TRK	29	0	11	0	11	0	18	0	0	18	6	0	6	16	22	16	0	0	0	0	S	1	0	0
AM PEAK	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	E	0	0	0
																						W	0	5	0
	TOTAL:	**57**	**0**	**12**	**0**	**12**	**0**	**45**	**0**	**0**	**45**	**7**	**0**	**7**	**49**	**56**	**49**	**0**	**0**	**0**	**0**				
16:00-17:00	CAR	76	2	6	0	8	0	70	0	3	73	6	0	3	43	46	45	0	0	0	0	N	0	29	0
	TRK	19	0	6	0	6	0	13	0	1	14	2	0	1	10	11	10	0	0	0	0	S	0	1	0
PM PEAK	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	E	0	0	0
																						W	0	26	0
	TOTAL:	**95**	**2**	**12**	**0**	**14**	**0**	**83**	**0**	**4**	**87**	**8**	**0**	**4**	**53**	**57**	**55**	**0**	**0**	**0**	**0**				
OFF HR AVG	CAR	40	1	3	0	4	0	37	0	1	38	4	0	3	38	41	39	0	0	0	0	N	0	16	0
	TRK	20	1	8	0	9	0	12	0	2	14	9	0	7	13	20	14	0	0	0	0	S	0	3	0
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	E	0	0	0
																						W	1	11	0
	TOTAL:	**60**	**2**	**11**	**0**	**13**	**0**	**49**	**0**	**3**	**52**	**13**	**0**	**10**	**52**	**62**	**54**	**0**	**0**	**0**	**0**				
07:30-09:30	CAR	44	0	1	0	1	0	43	0	1	44	2	0	1	66	67	66	0	0	0	0	N	0	6	0
	TRK	42	3	15	0	18	0	27	0	0	27	20	0	20	24	44	27	0	0	0	0	S	2	0	0
2 HR AM	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4	0	0	0	0	E	0	0	0
																						W	0	11	0
	TOTAL:	**86**	**3**	**16**	**0**	**19**	**0**	**70**	**0**	**1**	**71**	**22**	**0**	**21**	**94**	**115**	**97**	**0**	**0**	**0**	**0**				
16:00-18:00	CAR	129	2	6	0	8	0	123	0	4	127	8	0	4	87	91	89	0	0	0	0	N	2	73	0
	TRK	35	0	8	0	8	0	27	0	1	28	2	0	1	23	24	23	0	0	0	0	S	0	7	0
2 HR PM	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	0	0	0	0	E	0	0	0
																						W	3	63	0
	TOTAL:	**164**	**2**	**14**	**0**	**16**	**0**	**150**	**0**	**5**	**155**	**10**	**0**	**5**	**112**	**117**	**114**	**0**	**0**	**0**	**0**				
07:30-18:00	CAR	332	4	17	0	21	0	315	0	9	324	26	0	17	303	320	307	0	0	0	0	N	2	144	0
	TRK	159	7	56	0	63	0	103	0	10	113	60	0	50	100	150	107	0	0	0	0	S	3	20	0
8 HR SUM	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11	11	0	0	0	0	E	0	0	0
																						W	7	118	0
	TOTAL:	**491**	**11**	**73**	**0**	**84**	**0**	**418**	**0**	**19**	**437**	**86**	**0**	**67**	**414**	**481**	**425**	**0**	**0**	**0**	**0**				

Total 8 Hour Vehicle Volume: 1,002

Total 8 Hour Bicycle Volume: 282

Total 8 Hour Intersection Volume: 1,284

Comment:

Printed On: 17 Mar, 2015 1:55:53PM

City of Toronto - Traffic Safety Unit

24-Hour Count Summary Report

LESLIE ST	STAT CODE	ARTERY CODE	COUNT DATE	AM PEAK	AM PEAK HOUR	PM PEAK	PM PEAK HOUR	OFF HOUR PEAK	OFF HOUR PEAK HOUR	24 HOUR Total
Northbound **Category: 24 HOUR**										
LESLIE ST N/B S OF COMMISSIONERS ST	22886	22886	6/23/11 Thu	70	08:15 - 09:15	164	15:00 - 16:00	145	14:30 - 15:30	1,473
LESLIE ST N/B N OF COMMISSIONERS ST	14894	14894	4/11/13 Thu	315	09:15 - 10:15	668	17:15 - 18:15	497	14:30 - 15:30	5,753
			Northbound Total:	385		832		642		7,226
			Northbound Average:	193		416		321		3,613
Southbound **Category: 24 HOUR**										
LESLIE ST S/B N OF UNWIN AVE	14910	14910	6/23/11 Thu	142	09:15 - 10:15	167	14:45 - 15:45	215	13:45 - 14:45	1,912
LESLIE ST S/B N OF COMMISSIONERS ST	14895	14895	4/11/13 Thu	443	08:30 - 09:30	256	14:45 - 15:45	379	11:45 - 12:45	4,898
			Southbound Total:	585		423		594		6,810
			Southbound Average:	293		212		297		3,405
LESLIE ST				970		1,255		1,236		14,036

Comment:

Printed On: 17 Mar, 2015 2:11:35PM

City of Toronto - Traffic Safety Unit

24-Hour Count Summary Report

UNWIN AVE		STAT CODE	ARTERY CODE	COUNT DATE	AM PEAK	AM PEAK HOUR	PM PEAK	PM PEAK HOUR	OFF HOUR PEAK	OFF HOUR PEAK HOUR	24 HOUR Total
Eastbound	**Category: 24 HOUR**										
UNWIN AVE E/B E OF CHERRY ST		31016	31016	6/16/11 Thu	312	06:30 - 07:30	138	17:30 - 18:30	152	11:45 - 12:45	2,307
UNWIN AVE E/B W OF LESLIE ST		31014	31014	6/16/11 Thu	73	07:15 - 08:15	130	17:00 - 18:00	98	12:00 - 13:00	1,247
				Eastbound Total:	385		268		250		3,554
				Eastbound Average:	193		134		125		1,777
Westbound	**Category: 24 HOUR**										
UNWIN AVE W/B E OF CHERRY ST		31017	31017	6/16/11 Thu	133	07:30 - 08:30	260	16:45 - 17:45	179	14:15 - 15:15	2,153
UNWIN AVE W/B W OF LESLIE ST		31015	31015	6/16/11 Thu	114	06:30 - 07:30	90	17:30 - 18:30	78	11:30 - 12:30	1,151
				Westbound Total:	247		350		257		3,304
				Westbound Average:	124		175		129		1,652
UNWIN AVE					632		618		507		6,858

Comment:

Printed On: 17 Mar, 2015 2:17:59PM

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

CHERRY ST AT UNWIN AVE

Survey Date: 2008-May-26 (Monday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
07:30-08:30	CAR	41	1	21	2	24	17	3	0	1	4	38	15	35	19	69	21	2	1	17	20	N	0	3	0
	TRK	62	0	5	1	6	53	5	1	0	6	4	51	4	10	65	10	0	0	52	52	S	0	6	0
AM PEAK	BUS	2	0	2	0	2	0	0	0	0	0	2	0	2	0	2	0	0	0	0	0	E	2	2	0
																						W	0	0	0
	TOTAL:	**105**	**1**	**28**	**3**	**32**	**70**	**8**	**1**	**1**	**10**	**44**	**66**	**41**	**29**	**136**	**31**	**2**	**1**	**69**	**72**				
16:00-17:00	CAR	152	1	58	8	67	70	17	0	1	18	65	62	61	5	128	7	3	1	77	81	N	0	16	0
	TRK	49	0	6	0	6	26	6	0	0	6	8	26	8	5	39	5	0	0	37	37	S	1	2	0
PM PEAK	BUS	1	0	1	0	1	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	E	7	3	0
																						W	1	0	0
	TOTAL:	**202**	**1**	**65**	**8**	**74**	**96**	**23**	**0**	**1**	**24**	**74**	**88**	**70**	**10**	**168**	**12**	**3**	**1**	**114**	**118**				
OFF HR AVG	CAR	94	1	48	7	56	47	7	0	1	8	59	40	54	11	105	13	4	1	39	44	N	0	8	0
	TRK	54	0	7	2	9	44	8	1	1	10	10	41	7	8	56	8	2	0	39	41	S	1	5	0
	BUS	3	0	3	0	3	0	0	0	0	0	3	0	3	0	3	0	0	0	0	0	E	4	1	0
																						W	2	0	0
	TOTAL:	**151**	**1**	**58**	**9**	**68**	**91**	**15**	**1**	**2**	**18**	**72**	**81**	**64**	**19**	**164**	**21**	**6**	**1**	**78**	**85**				
07:30-09:30	CAR	87	3	44	4	51	39	9	0	2	11	73	35	62	22	119	27	9	2	34	45	N	0	3	0
	TRK	114	0	8	2	10	94	15	1	0	16	7	91	7	18	116	18	0	0	91	91	S	0	8	0
2 HR AM	BUS	2	0	2	0	2	0	0	0	0	0	2	0	2	0	2	0	0	0	0	0	E	2	3	0
																						W	1	0	0
	TOTAL:	**203**	**3**	**54**	**6**	**63**	**133**	**24**	**1**	**2**	**27**	**82**	**126**	**71**	**40**	**237**	**45**	**9**	**2**	**125**	**136**				
16:00-18:00	CAR	311	2	112	15	129	131	40	0	2	42	131	116	124	11	251	15	5	2	159	166	N	0	30	0
	TRK	86	0	13	2	15	39	12	0	0	12	15	37	15	6	58	6	0	0	61	61	S	5	7	0
2 HR PM	BUS	1	0	1	0	1	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	E	14	6	0
																						W	3	0	0
	TOTAL:	**398**	**2**	**126**	**17**	**145**	**170**	**52**	**0**	**2**	**54**	**147**	**153**	**140**	**17**	**310**	**21**	**5**	**2**	**220**	**227**				
07:30-18:00	CAR	769	8	347	47	402	358	75	0	9	84	437	311	400	78	789	94	28	8	347	383	N	0	65	0
	TRK	417	0	50	11	61	307	58	3	2	63	58	293	48	56	397	56	8	0	309	317	S	10	33	0
8 HR SUM	BUS	16	0	16	0	16	0	0	0	0	0	16	0	16	0	16	0	0	0	0	0	E	30	11	0
																						W	13	0	0
	TOTAL:	**1,202**	**8**	**413**	**58**	**479**	**665**	**133**	**3**	**11**	**147**	**511**	**604**	**464**	**134**	**1,202**	**150**	**36**	**8**	**656**	**700**				

Total 8 Hour Vehicle Volume: 2,528

Total 8 Hour Bicycle Volume: 109

Total 8 Hour Intersection Volume: 2,637

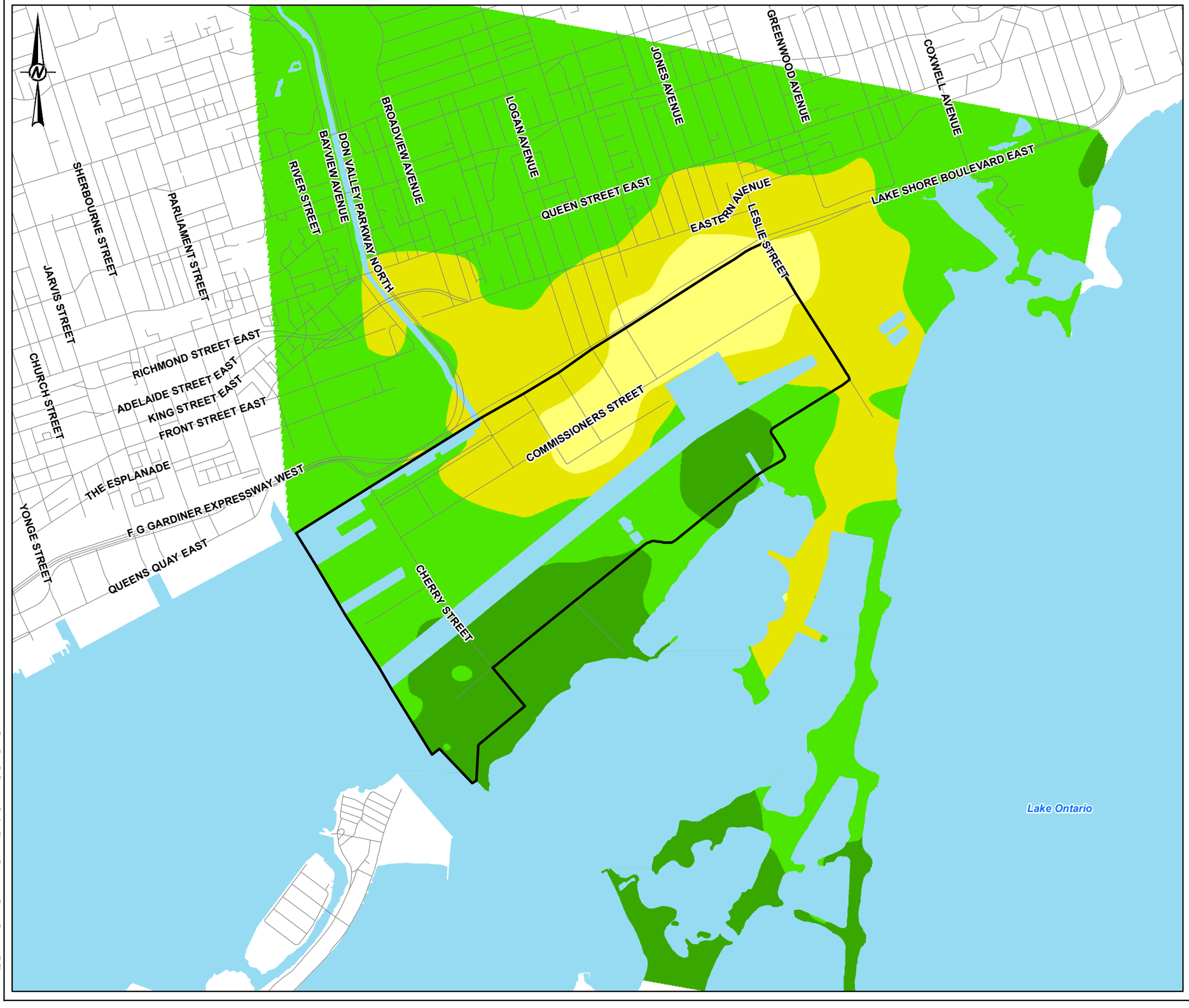
Comment:

Printed On: 17 Mar, 2015 2:16:53PM

APPENDIX C

Isopleths of Ambient Air Quality Concentrations

August 2016
Report No. 1417178



LEGEND

- ROAD
- WATERBODY
- STUDY AREA

GROUND LEVEL 24-HOUR NITROGEN DIOXIDES (µg/m³)

- 50 - 60
- 60 - 70
- 70 - 80
- > 100
- 24-HOUR NITROGEN DIOXIDES AAQC STANDARD 200 µg/m³

0 500 1,000

1:20,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
GROUND LEVEL 24-HOUR NITROGEN DIOXIDES (µg/m³)

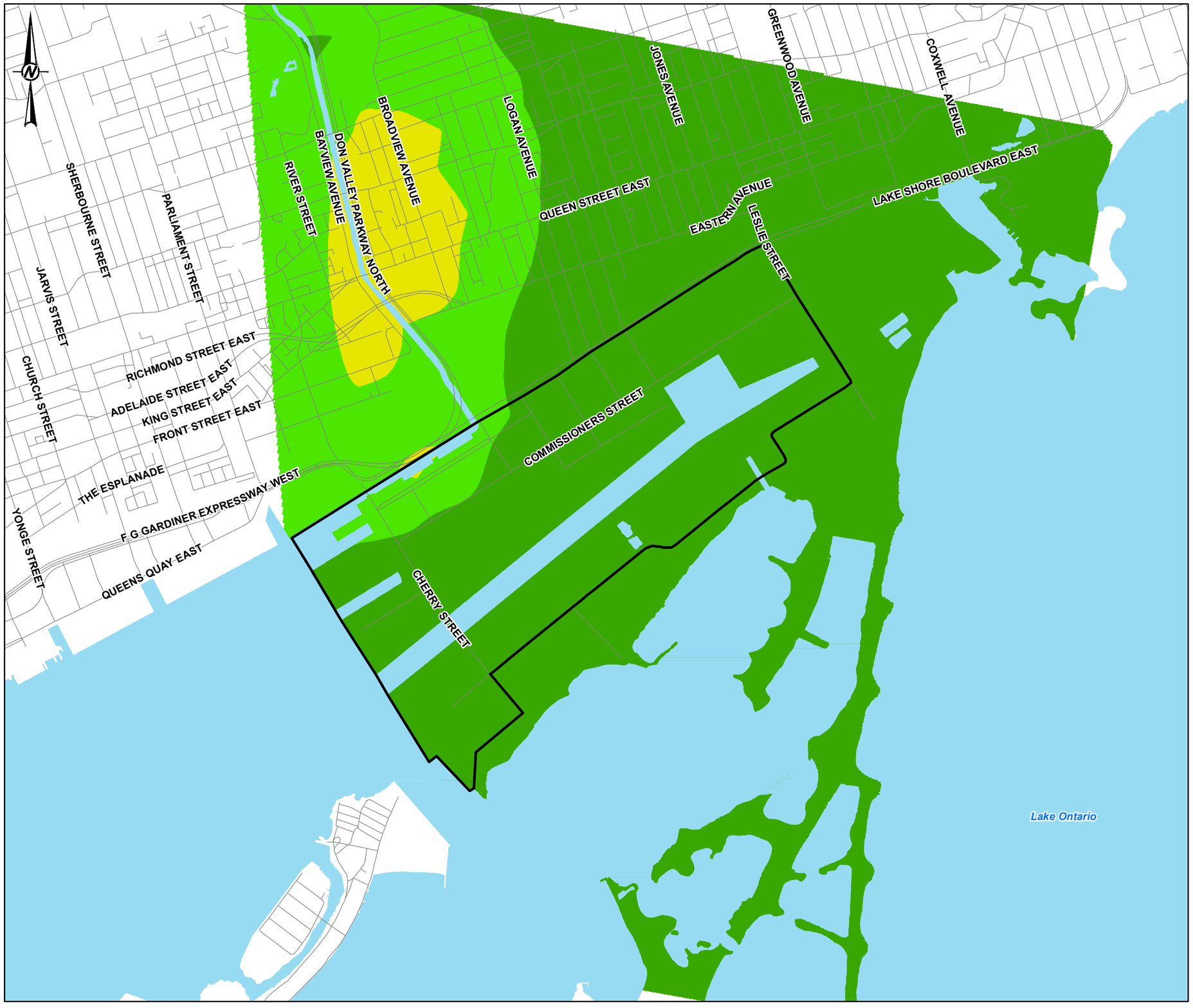
CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-25
DESIGNED	ME
PREPARED	ME
REVIEWED	KA
APPROVED	KA

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	**C1**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

S:\Clients\City_of_Toronto\Port_Lands\9b_PRO\1417178_Feasability_Study\40_PROD\0009_Air_Noise_Phase_4\1417178-0009-RN-0022.mxd



LEGEND

- ROAD
- WATERBODY
- STUDY AREA

GROUND LEVEL 24-HOUR PM2.5 (µg/m³)

- 50 - 60
- 60 - 70
- 70 - 80
- > 100
- 24-HOUR PM2.5 AAQC STANDARD 30 µg/m³

0 500 1,000

1:20,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
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PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
GROUND LEVEL 24-HOUR PM2.5 (µg/m³)

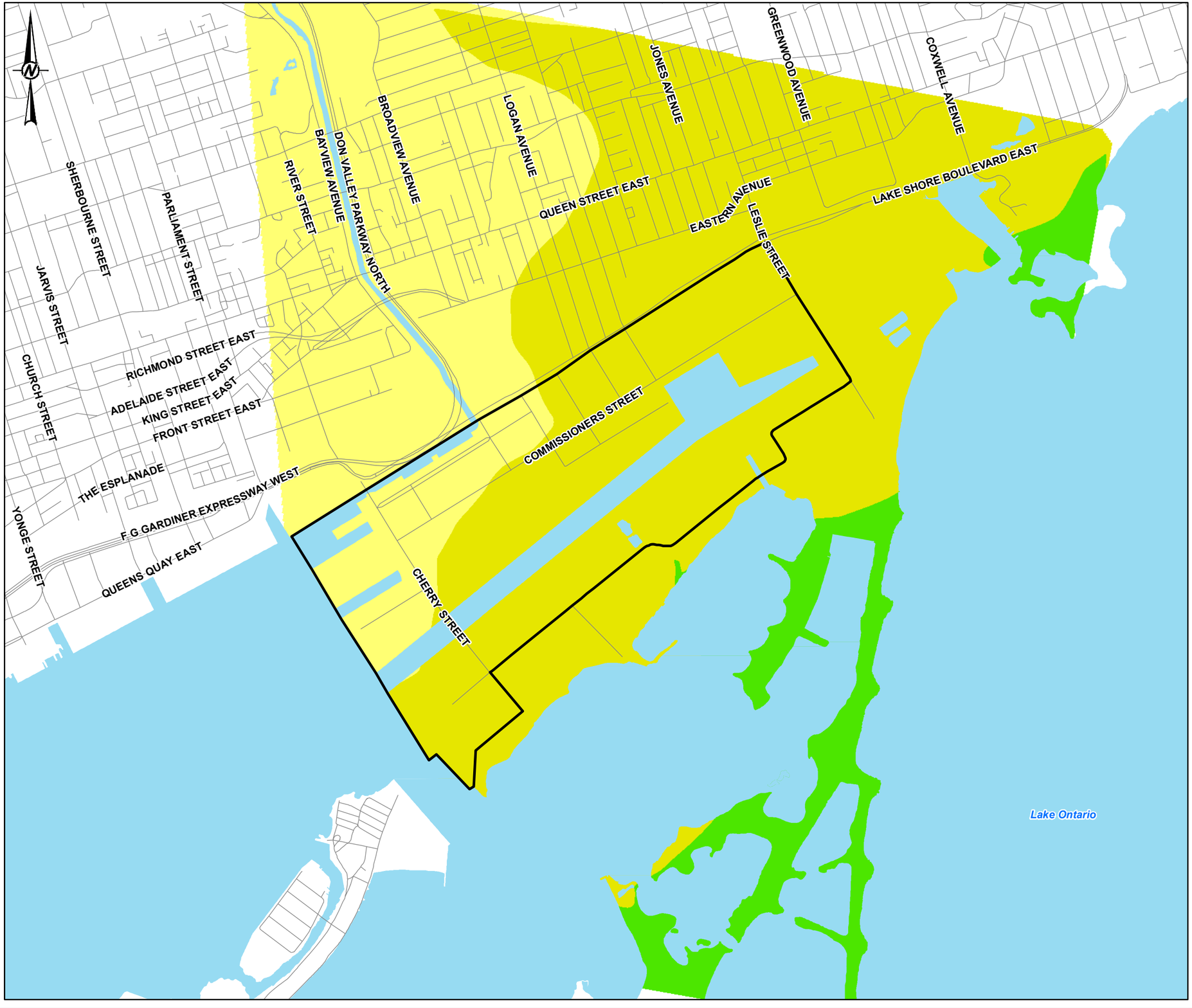
CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-25
DESIGNED	ME
PREPARED	ME
REVIEWED	KA
APPROVED	KA

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	1	**C2**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

S:\Clients\City_of_Toronto\Port_Lands\99_PRO\1417178_Feasability_Study\40_PROD\0009_Air_Noise_Phase_4\1417178-0009-RN-0023.mxd



LEGEND

- ROAD
- WATERBODY
- STUDY AREA

GROUND LEVEL 24-HOUR BENZENE (µg/m³)

- < 3
- 3 - 4
- 4 - 5
- > 5
- 24-HOUR BENZENE AAQC STANDARD 2.3 µg/m³

0 500 1,000

1:20,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
GROUND LEVEL 24-HOUR BENZENE (µg/m³)

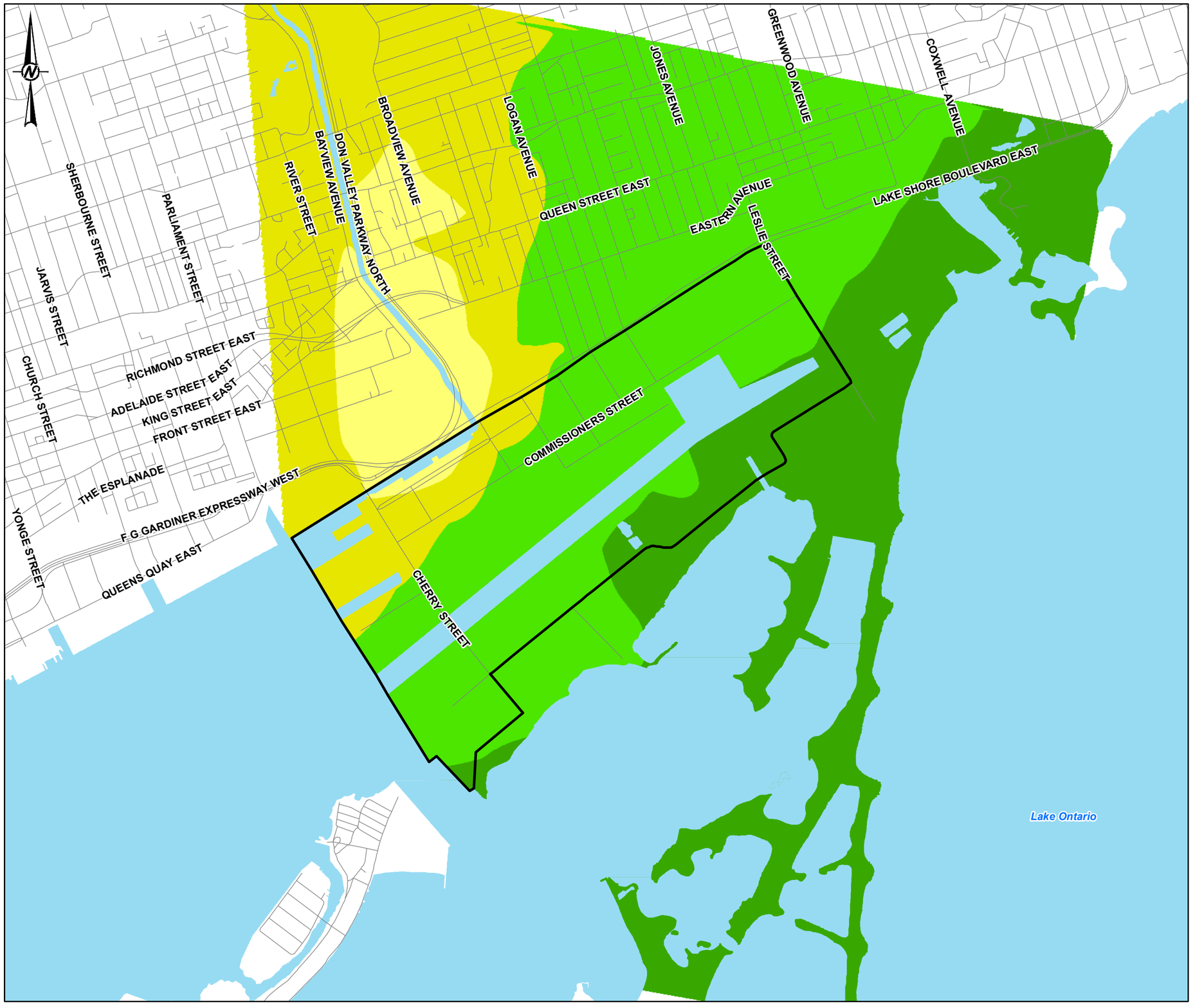
CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-25
DESIGNED	ME
PREPARED	ME
REVIEWED	KA
APPROVED	KA

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	**C3**

S:\Clients\City_of_Toronto\Port_Lands\9b_PRO\1417178_Feasability_Study\40_PROD\0009_Air_Noise_Phase_4\1417178-0009-RN-0024.mxd

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm



LEGEND

- ROAD
- WATERBODY
- STUDY AREA

GROUND LEVEL 24-HOUR PM_{10} (µg/m³)

<VALUE>

- < 70
- 70 - 85
- 85 - 100
- > 100
- 24-HOUR PM_{10} AAQC STANDARD 30 µg/m³

0 500 1,000

1:20,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
GROUND LEVEL 24-HOUR PM_{10} (µg/m³)

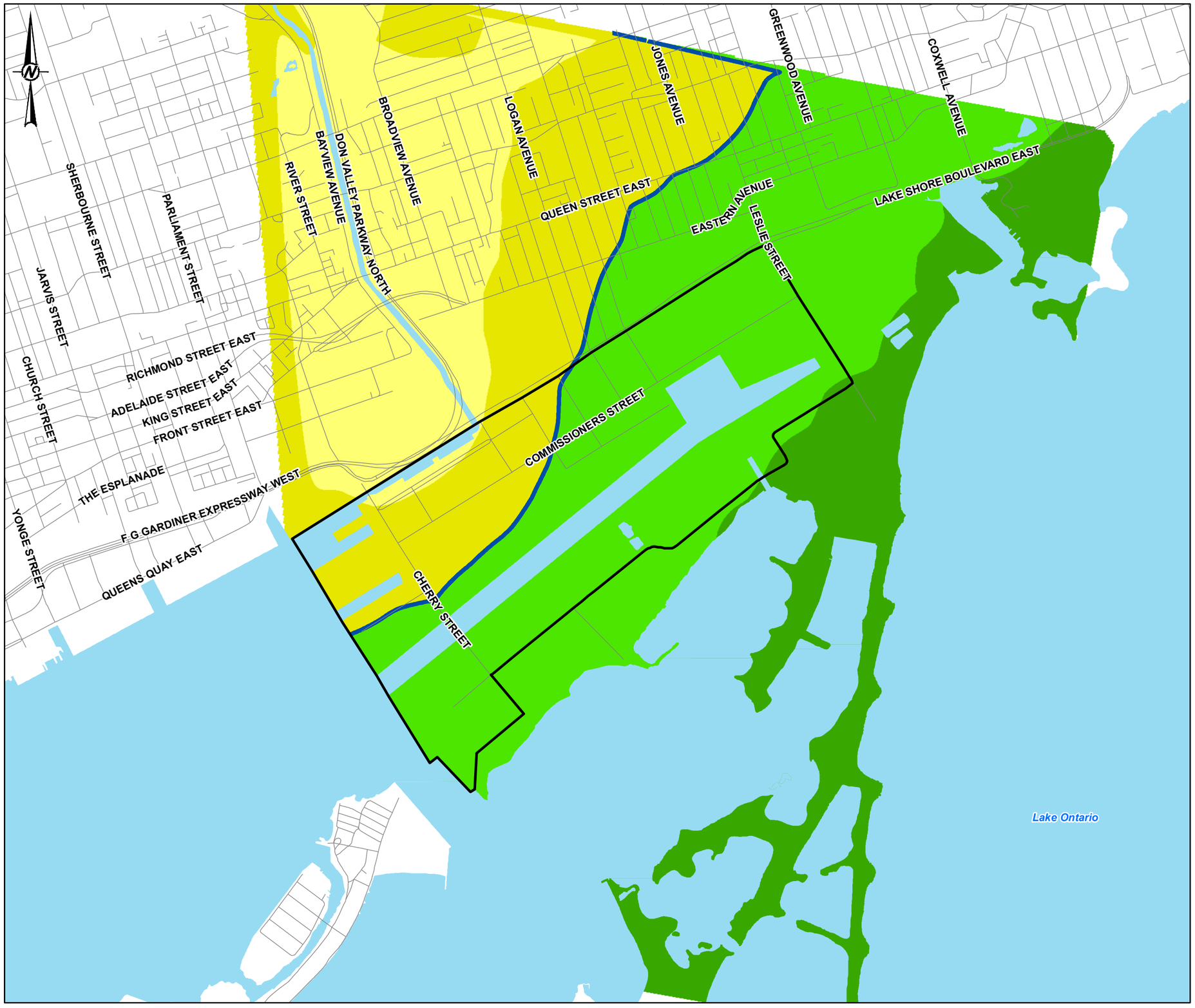
CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-25
DESIGNED	ME
PREPARED	ME
REVIEWED	KA
APPROVED	KA

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	**C4**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

S:\Clients\City_of_Toronto\Port_Lands\99_PRO\A1417178_Feasability_Study\40_PROD\0009_Air_Noise_Phase_4\1417178-0009-RN-0025.mxd



LEGEND

- ROAD
- WATERBODY
- STUDY AREA

GROUND LEVEL 24-HOUR CADMIUM (µg/m³)

- 0.01 - 0.02
- 0.02 - 0.025
- 0.025 - 0.03
- 0.03 - 0.04
- 24-HOUR CADMIUM AAQC STANDARD 0.025 µg/m³

0 500 1,000

1:20,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
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ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
GROUND LEVEL 24-HOUR CADMIUM (µg/m³)

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-26
DESIGNED	ME
PREPARED	ME
REVIEWED	KA
APPROVED	KA

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	**C5**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 0 25mm

S:\Clients\City_of_Toronto\Port_Lands\99_PROJ\1417178_Feasability_Study\40_PROD\0009_Air_Noise_Phase_4\1417178-0009-RN-0026.mxd

APPENDIX D

Ontario Regulation 419/05 Compliance by Height

Percentage of PEC compliance for each building footprint within the study domain

(i.e. <100% means that PEC would be in compliance with MOECC limits at this height and location, >100% implies there is potential for PEC to not achieve compliance at this height and location without additional mitigation)

	Height above Grade (m)																													
Building Number	0	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60	63	66	69	72	75	78	81	84	87	90
1	13%	13%	13%	13%	13%	13%	13%	12%	12%	12%	12%	12%	12%	12%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	14%	14%	17%	22%	29%	36%	44%
2	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	14%	15%	19%	25%	33%	42%	52%	64%
3	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	14%	14%	14%	14%	14%	14%	15%	21%	27%	35%	44%	56%	69%
4	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	14%	14%	14%	15%	19%	25%	33%	42%	52%	65%
5	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	14%	14%	14%	16%	21%	27%	35%	44%	54%
6	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	14%	14%	14%	14%	14%	15%	17%	22%	27%	34%
7	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	14%	14%	14%	14%	14%	17%	23%	30%	38%	47%	59%
8	13%	13%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	15%	15%	15%	20%	26%	34%	43%	54%	67%
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10	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	15%	15%	15%	15%	15%	17%	22%	29%	38%	49%	61%	76%
11	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	15%	15%	15%	15%	15%	16%	22%	29%	37%	48%	60%	75%
12	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	15%	15%	15%	15%	15%	15%	15%	15%	15%	16%	20%	27%	35%	45%	57%	70%
13	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	16%	16%	17%	23%	30%	39%	50%	63%	79%
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17	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	17%	22%	29%	37%	47%	59%	73%	88%	106%
18	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	16%	16%	16%	16%	20%	27%	34%	43%	54%	67%	81%	97%
19	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	16%	16%	16%	16%	16%	17%	17%	20%	26%	32%	40%	50%	63%	79%
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21	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	16%	16%	16%	16%	16%	16%	16%	17%	18%	24%	31%	41%	53%	67%	83%
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23	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	17%	17%	18%	23%	30%	39%	49%	62%	76%	92%	111%
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29	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	17%	17%	17%	17%	17%	17%	17%	18%	18%	19%	19%	26%	35%	46%	59%	75%	94%
30	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	18%	18%	18%	18%	19%	19%	21%	28%	36%	45%	57%	70%	86%	103%
31	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	17%	17%	17%	17%	17%	17%	17%	17%	18%	18%	18%	20%	26%	34%	43%	55%	69%	86%	104%	126%
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33	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	18%	18%	18%	18%	18%	19%	20%	27%	35%	46%	58%	73%	90%	110%	133%
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35	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	19%	19%	19%	20%	20%	20%	21%	26%	33%	42%	53%	66%	81%	98%
36	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	19%	19%	19%	19%	19%	19%	20%	20%	21%	21%	27%	36%	46%	59%	74%	92%	113%	136%
37	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	18%	18%	18%	18%	18%	19%	19%	19%	23%	29%	36%	46%	59%	75%	92%	113%	136%
38	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%
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41	15%	15%	15%	15%	15%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%
42	16%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	16%	16%	16%	16%	16%	16%	16%	16%	16%
43	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%
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45	17%	17%	17%	17%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	17%	17%	17%	17%	17%	17%	17%	17%	18%	18%	18%	18%	18%	18%	19%
46	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	17%	17%	17%	17%	17%	17%	17%	18%
47	17%	17%	17%	17%	17%	17%	17%	16%	16%	16%	17%	17%	17%	17%	17%	17%	17%	17%	17%	18%	18%	18%	18%	18%	18%	19%	19%	19%	19%	19%	20%
48	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	18%	18%	18%	18%	18%	19%	19%	19%	19%	19%	19%	19%	20%
49	18%	18%	18%	18%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	18%	18%	18%	18%	18%	18%	18%	19%	19%	19%	19%	19%	20%	20%	20%	20%	21%
50	18%	18%	18%	18%	17%	17%	17%	17%	17%	17%	17%	17%	17%	18%	18%	18%	18%	18%	18%	18%	19%	19%	19%	19%	20%	20%	20%	21%	21%	21%	21%
51	19%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	19%	19%	19%	19%	19%	20%	20%	20%	20%	21%	21%	21%	22%	22%	22%
52	19%	19%	19%	18%	18%	18%	18%	18%	18%	18%	18%	18%	19%	19%	19%	19%	19%	19%	20%	20%	20%	21%	21%	21%	22%	22%	22%	23%	23%	23%	24%
53	19%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	19%	19%	19%	19%	20%	20%	20%	20%	21%	21%	21%	22%	22%	23%	23%	23%
54	19%	19%	19%	18%	18%	18%	18%	18%	18%	18%	18%	18%	19%	19%	19%	19%	19%	20%	20%	20%	21%	21%	21%	22%	22%	23%	23%	24%	24%	24%	25%
55	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	20%	20%	20%	21%	21%	21%	22%	22%	23%	23%	23%	24%	24%	25%	25%	26%
56	20%	20%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	20%	20%	20%	20%	21%	21%	21%	22%	22%	23%	23%	24%	24%	25%	25%	26%	27%	27%	28%
57	20%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	20%	20%	20%	20%	21%	21%	22%	22%	23%	23%	24%	24%	25%	25%	26%	26%	27%	27%
58	20%	20%	19%	19%	19%	19%	19%	19%	19%	19%	19%	20%	20%	20%	21%	21%	21%	22%	22%	23%	23%	24%	25%	25%	26%	26%	27%	28%	28%	29%	30%
59	20%	20%	19%	19%	19%	19%	19%	19%	19%	19%	19%	20%	20%	20%	20%	21%	21%	22%	22%	22%	23%	23%	24%	25%	25%	26%	26%	27%	28%	28%	29%
60	20%	20%	20%	19%	19%	19%	19%	19%	19%	19%	20%	20%	20%	21%	21%	21%	22%	23%	23%	24%	24%	25%	26%	27%	27%	28%	29%	30%	30%	31%	32%
61	20%	20%	19%	19%	19%	19%	19%	19%	19%	19%	20%	20%	20%	21%	21%	22%	23%	23%	24%	25%	25%	26%	27%	28%	29%	30%	31%	32%	33%	34%	35%
62	20%	19%	19%	19%	19%	19%	19%	19%	19%	19%	20%	20%	20%	21%	21%	22%	22%	23%	24%	24%	25%	26%	27%	28%	29%	29%	30%	31%	32%	33%	34%
63	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	23%	23%	23%	24%	25%	26%	27%	29%	30%	32%	33%	35%	37%	38%	40%	42%	44%	46%	48%
64	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	23%	23%	24%	24%	25%	25%	26%	27%	28%	29%	30%	32%	33%	34%	46%	61%	80%	104%	132%
65	21%	21%	21%	21%	21%	21%	21%	21%	21%	22%	22%	22%	22%	22%	23%	23%	24%	25%	25%	26%	27%	28%	29%	34%	45%	58%	75%	95%	119%	147%	179%
66	23%	23%	23%	23%	23%	23%	23%	23%	23%	24%	24%	24%	24%	25%	25%	26%	26%	27%	27%	28%	30%	39%	49%	61%	75%	92%	112%	133%	158%	184%	213%
67	23%	23%	23%	23%	23%	23%	23%	23%	23%	23%	23%	23%	24%	24%	24%	24%	25%	25%	26%	26%	26%	33%	41%	51%	64%	78%	94%	112%	132%	154%	178%
68	23%	23%	22%	22%	22%	22%	22%	22%	22%	22%	22%	23%	23%	23%	23%	24%	24%	26%	32%	39%	48%	58%	69%	83%	97%	114%	132%	151%	171%	193%	216%
69	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	23%	23%	23%	24%	24%	26%	32%	40%	48%	59%	71%	85%	101%	119%	139%	160%	183%	208%	233%
70	23%	23%	23%	23%	23%	23%	23%	23%	23%	24%	24%	24%	25%	26%	26%	27%	27%	30%	37%	46%	57%	69%	83%	99%	117%	137%	159%	183%	208%	235%	263%
71	24%	23%	23%	23%	23%	23%	23%	24%	24%	24%	25%	25%	26%	26%	27%	28%	29%	29%	30%	31%	32%	35%	44%	55%	68%	84%	101%	121%	143%	168%	194%
72	24%	23%	23%	23%	23%	23%	23%	24%	24%	25%	25%	26%	26%	27%	28%	29%	30%	31%	32%	40%	50%	61%	74%	89%	106%	125%	147%	170%	195%	222%	250%
73	23%	22%	22%	22%	22%	22%	22%	22%	22%	23%	23%	23%	23%	24%	24%	25%	26%	27%	28%	29%	30%	31%	39%	49%	60%	74%	89%	107%	127%	148%	171%
74	24%	23%	23%	23%	23%	23%	23%	24%	24%	24%	25%	25%	25%	26%	27%	27%	28%	29%	30%	31%	33%	41%	52%	65%	80%	98%	119%	143%	169%	198%	229%
75	23%	23%	22%	22%	22%	22%	22%	22%	22%	23%	23%	23%	24%	24%	25%	26%	26%	27%	28%	29%	30%	31%	32%	33%	35%	37%	47%	63%	83%	108%	137%
76	24%	24%	23%	23%	23%	23%	23%	23%	24%	24%	24%	25%	26%	26%	27%	28%	29%	30%	31%	32%	34%	35%	37%	39%	42%	55%	72%	91%	115%	142%	173%
77	23%	23%	22%	22%	22%	22%	22%	22%	22%	23%	23%	23%	24%	24%	25%	25%	26%	28%	29%	30%	32%	33%	35%	36%	38%	40%	41%	42%	44%	45%	47%
78	23%	23%	22%	22%	22%	22%	22%	22%	22%	23%	23%	23%	24%	24%	25%	26%	26%	28%	29%	31%	32%	34%	35%	37%	39%	41%	43%	45%	48%	50%	52%
79	24%	24%	24%	24%	24%	24%	24%	24%	24%	24%	25%	25%	26%	26%	27%	28%	29%	30%	32%	34%	36%	38%	40%	42%	44%	47%	49%	51%	53%	55%	58%
80	24%	24%	24%	24%	24%	24%	24%	24%	24%	24%	25%	25%	25%	26%	27%	28%	29%	30%	32%	33%	35%	37%	40%	42%	44%	46%	48%	50%	52%	54%	63%
81	26%	25%	25%	25%	25%	25%	25%	25%	25%	26%	26%	27%	28%	28%	30%	31%	33%	34%	36%	38%	40%	42%	45%	48%	51%	54%	57%	60%	70%	91%	116%
82	25%	24%	24%	24%	24%	24%	24%	24%	25%	25%	26%	27%	27%	28%	30%	31%	32%	34%	35%	37%	39%	42%	44%	46%	54%	71%	92%	117%	148%	183%	224%
83	24%	24%	23%	23%	24%	24%	24%	24%	25%	25%	26%	27%	27%	29%	30%	31%	32%	34%	35%	36%	38%	42%	53%	67%	83%	102%	123%	148%	175%	205%	237%
84	24%	24%	23%	24%	24%	24%	25%	25%	26%	27%	28%	29%	30%	31%	33%	34%	36%	38%	40%	42%	44%	46%	57%	71%	88%	109%	134%	163%	195%	231%	271%
85	25%	24%	24%	24%	23%	24%	24%	25%	26%	26%	27%	28%	30%	31%	32%	33%	35%	38%	40%	42%	44%	46%	49%	56%	71%	88%	109%	134%	162%	193%	228%
86	26%	26%	25%	25%	25%	25%	26%	26%	27%	28%	28%	30%	31%	32%	34%	35%	37%	38%	40%	43%	46%	49%	52%	55%	57%	60%	64%	68%	82%	107%	137%
87	26%	25%	25%	24%	24%	25%	25%	26%	27%	28%	29%	30%	32%	35%	37%	40%	44%	47%	50%	54%	57%	61%	65%	68%	73%	77%	81%	85%	91%	95%	100%
88	24%	23%	23%	23%	23%	24%	25%	26%	27%	28%	30%	31%	33%	35%	37%	40%	42%	44%	48%	51%	55%	58%	62%	65%	68%	86%	110%	139%	172%	210%	253%
89	23%	23%	23%	23%	24%	24%	25%	26%	27%	28%	29%	31%	32%	34%	36%	39%	41%	44%	48%	51%	54%	57%	61%	64%	74%	95%	119%	148%	182%	220%	263%
90	23%	23%	23%	23%	23%	23%	23%	24%	24%	25%	26%	28%	29%	31%	33%	35%	38%	40%	43%	45%	48%	57%	71%	88%	108%	131%	157%	187%	219%	255%	295%
91	23%	23%	23%	23%	23%	23%	23%	23%	24%	25%	25%	26%	27%	28%	30%	31%	32%	34%	36%	45%	55%	67%	80%	96%	113%	133%	154%	179%	205%	233%	263%
92	23%	23%	23%	23%	23%	23%	23%	23%	23%	24%	24%	25%	27%	28%	29%	31%	32%	34%	39%	48%	59%	71%	86%	102%	121%	142%	165%	190%	219%	252%	288%
93	23%	23%	23%	22%	22%	22%	22%	23%	23%	23%	23%	24%	25%	26%	27%	28%	29%	32%	40%	49%	60%	73%	88%	105%	124%	146%	169%	195%	222%	251%	281%
94	21%	21%	21%	21%	21%	21%	21%	21%	22%	22%	22%	22%	23%	23%	23%	24%	25%	32%	39%	48%	58%	70%	83%	99%	116%	136%	158%	181%	207%	234%	262%
95	22%	22%	21%	21%	21%	21%	21%	21%	21%	21%	22%	22%	22%	23%	24%	24%	25%	29%	36%	44%	54%	66%	79%	95%	112%	131%	153%	177%	203%	230%	259%
96	19%	19%	19%	19%	19%	19%	20%	20%	20%	20%	20%	20%	20%	21%	21%	21%	26%	32%	40%	49%	60%	72%	86%	102%	119%	139%	160%	183%	208%	233%	260%
97	24%	24%	24%	24%	24%	24%	24%	25%	25%	26%	29%	31%	34%	38%	41%	45%	49%	52%	57%	62%	67%	73%	79%	86%	92%	97%	103%	108%	114%	122%	130%
98	25%	25%	25%	25%	25%	25%	25%	26%	27%	29%	31%	34%	37%	40%	43%	47%	51%	54%	58%	62%	66%	71%	75%	81%	86%	90%	95%	101%	127%	165%	210%
99	24%	24%	24%	24%	24%	24%	24%	25%	26%	28%	29%	31%	32%	34%	37%	41%	45%	49%	53%	57%	62%	66%	71%	76%	80%	87%	114%	148%	187%	234%	287%
100	23%	23%	23%	22%	22%	23%	23%	24%	24%	25%	26%	27%	28%	30%	32%	34%	37%	39%	42%	44%	47%	55%	70%	88%	108%	132%	160%	190%	225%	263%	303%
101	24%	24%	24%	24%	24%	24%	24%	25%	26%	27%	28%	30%	32%	34%	37%	40%	44%	48%	53%	57%	62%	67%	72%	77%	82%	92%	119%	151%	189%	233%	283%
102	25%	25%	25%	25%	25%	25%	25%	25%	26%	28%	30%	33%	36%	39%	42%	46%	50%	55%	62%	69%	76%	84%	92%	99%	107%	115%	122%	130%	136%	142%	195%
103	25%	25%	25%	25%	25%	25%	25%	26%	26%	29%	32%	35%	39%	43%	48%	53%	59%	64%	70%	77%	86%	95%	104%	114%	123%	132%	141%	149%	157%	163%	169%
104	25%	25%	24%	24%	25%	25%	25%	25%	26%	28%	32%	36%	41%	46%	52%	58%	65%	72%	79%	87%	94%	101%	110%	120%	130%	140%	150%	159%	167%	174%	180%
105	22%	22%	22%	22%	22%	23%	23%	24%	25%	27%	31%	36%	41%	48%	54%	61%	69%	77%	87%	97%	110%	128%	147%	166%	187%	206%	226%	244%	260%	274%	285%
106	23%	22%	22%	23%	23%	23%	23%	24%	25%	28%	31%	35%	39%	43%	47%	52%	58%	63%	70%	79%	89%	99%	109%	120%	131%	142%	153%	163%	173%	181%	188%
107	25%	25%	24%	24%	24%	24%	25%	25%	26%	28%	30%	32%	35%	39%	43%	47%	53%	59%	65%	71%	76%	82%	87%	95%	103%	110%	119%	128%	149%	194%	247%
108	25%	25%	24%	24%	25%	25%	25%	26%	26%	28%	31%	34%	37%	40%	44%	49%	56%	64%	72%	81%	90%	99%	110%	122%	133%	144%	154%	162%	171%	182%	192%
109	22%	22%	22%	22%	22%	22%	23%	24%	25%	27%	31%	35%	40%	45%	51%	58%	66%	75%	84%	96%	109%	121%	133%	147%	163%	178%	191%	203%	220%	234%	246%
110	19%	19%	19%	19%	20%	20%	20%	21%	22%	24%	28%	33%	39%	48%	57%	66%	77%	92%	107%	122%	143%	163%	184%	208%	230%	253%	277%	298%	313%	331%	374%
111	24%	24%	24%	24%	24%	24%	24%	25%	25%	25%	26%	28%	29%	31%	32%	35%	38%	40%	43%	46%	50%	54%	61%	77%	97%	120%	146%	177%	211%	249%	294%
112	23%	22%	22%	22%	22%	22%	22%	22%	23%	23%	24%	24%	25%	26%	27%	29%	31%	33%	35%	42%	53%	66%	81%	99%	120%	143%	170%	199%	231%	264%	300%
113	21%	20%	20%	20%	20%	20%	20%	21%	21%	21%	22%	22%	23%	24%	26%	27%	30%	37%	46%	56%	68%	81%	97%	114%	134%	155%	178%	203%	230%	257%	286%
114	21%	21%	21%	21%	21%	21%	21%	21%	22%	22%	23%	23%	24%	25%	26%	28%	31%	39%	48%	58%	71%	85%	101%	119%	140%	162%	186%	212%	240%	274%	309%
115	24%	23%	23%	23%	23%	23%	23%	23%	24%	24%	25%	26%	27%	29%	30%	32%	33%	35%	37%	40%	48%	60%	75%	91%	111%	133%	159%	187%	217%	259%	308%
116	25%	25%	24%	24%	25%	25%	25%	25%	25%	26%	26%	29%	31%	33%	36%	39%	41%	44%	47%	50%	54%	58%	62%	67%	83%	106%	134%	168%	206%	251%	304%

Percentage of Canroof compliance for each building footprint within the study domain

(i.e. <100% means that Canroof would be in compliance with MOECC limits at this height and location, >100% implies there is potential for Canroof to not achieve compliance at this height and location without additional mitigation)

	Height above Grade (m)																													
Building Number	0	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60	63	66	69	72	75	78	81	84	87	90
1	4%	4%	4%	4%	4%	4%	4%	5%	5%	5%	6%	7%	7%	8%	9%	9%	9%	8%	7%	6%	5%	4%	3%	3%	3%	2%	2%	2%	2%	2%	2%
2	4%	4%	4%	4%	4%	4%	4%	5%	5%	5%	6%	7%	7%	8%	9%	9%	9%	8%	7%	6%	5%	4%	3%	3%	3%	2%	2%	2%	2%	2%	2%
3	4%	4%	4%	4%	4%	4%	5%	5%	5%	6%	6%	7%	8%	9%	9%	9%	9%	9%	8%	6%	5%	4%	4%	3%	3%	2%	2%	2%	2%	2%	2%
4	4%	4%	4%	4%	4%	4%	4%	5%	5%	6%	6%	7%	8%	8%	9%	9%	9%	8%	7%	6%	5%	4%	4%	3%	3%	2%	2%	2%	2%	2%	2%
5	4%	4%	4%	4%	4%	4%	4%	5%	5%	6%	6%	7%	8%	9%	9%	9%	9%	9%	8%	6%	5%	4%	4%	3%	3%	2%	2%	2%	2%	2%	2%
6	4%	4%	4%	4%	4%	4%	4%	5%	5%	6%	6%	7%	8%	9%	9%	9%	9%	9%	8%	6%	5%	4%	4%	3%	3%	2%	2%	2%	2%	2%	2%
7	4%	4%	4%	4%	4%	4%	5%	5%	5%	6%	6%	7%	8%	9%	9%	10%	9%	9%	8%	7%	5%	4%	4%	3%	3%	2%	2%	2%	2%	2%	2%
8	5%	4%	4%	4%	4%	5%	5%	5%	5%	6%	7%	8%	8%	9%	10%	10%	10%	9%	8%	7%	6%	5%	4%	3%	3%	2%	2%	2%	2%	2%	2%
9	5%	4%	4%	4%	4%	5%	5%	5%	5%	6%	7%	7%	8%	9%	10%	10%	10%	9%	8%	7%	5%	4%	4%	3%	3%	2%	2%	2%	2%	2%	2%
10	5%	5%	4%	4%	5%	5%	5%	5%	6%	6%	7%	8%	8%	9%	10%	10%	10%	9%	8%	7%	6%	5%	4%	3%	3%	3%	2%	2%	2%	2%	2%
11	5%	5%	4%	4%	5%	5%	5%	5%	6%	6%	7%	8%	9%	10%	10%	11%	10%	10%	8%	7%	6%	5%	4%	3%	3%	3%	2%	2%	2%	2%	2%
12	5%	5%	5%	5%	5%	5%	5%	5%	6%	6%	7%	8%	9%	10%	11%	11%	11%	10%	9%	7%	6%	5%	4%	3%	3%	3%	2%	2%	2%	2%	2%
13	5%	5%	5%	5%	5%	5%	5%	5%	6%	6%	7%	8%	9%	10%	10%	11%	11%	10%	9%	7%	6%	5%	4%	3%	3%	3%	2%	2%	2%	2%	2%
14	5%	5%	5%	5%	5%	5%	5%	5%	6%	6%	7%	8%	9%	10%	10%	11%	10%	10%	8%	7%	6%	5%	4%	3%	3%	3%	2%	2%	2%	2%	2%
15	5%	5%	5%	5%	5%	5%	5%	5%	6%	6%	7%	8%	9%	9%	10%	10%	10%	9%	8%	7%	6%	5%	4%	3%	3%	3%	2%	2%	2%	2%	2%
16	5%	5%	5%	5%	5%	5%	5%	5%	6%	6%	7%	8%	8%	9%	10%	10%	10%	9%	8%	7%	5%	4%	4%	3%	3%	3%	2%	2%	2%	2%	2%
17	5%	5%	5%	5%	5%	5%	5%	6%	6%	7%	7%	8%	9%	10%	11%	11%	10%	10%	8%	7%	6%	5%	4%	3%	3%	3%	3%	2%	2%	2%	2%
18	5%	5%	5%	5%	5%	5%	5%	6%	6%	7%	7%	8%	9%	10%	11%	11%	11%	10%	9%	7%	6%	5%	4%	3%	3%	3%	3%	2%	2%	2%	2%
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100	18%	16%	16%	15%	15%	15%	16%	16%	17%	19%	22%	26%	32%	38%	43%	44%	41%	35%	27%	21%	16%	13%	11%	9%	8%	8%	7%	6%	6%	6%	5%
101	19%	18%	18%	17%	17%	17%	18%	18%	19%	21%	24%	28%	34%	40%	45%	46%	43%	36%	29%	22%	17%	14%	12%	10%	9%	8%	8%	7%	7%	6%	6%
102	18%	18%	17%	17%	16%	16%	17%	17%	18%	19%	21%	25%	30%	35%	40%	43%	41%	36%	29%	22%	17%	13%	11%	10%	9%	8%	8%	7%	7%	6%	6%
103	18%	17%	17%	16%	16%	16%	16%	17%	17%	19%	21%	25%	30%	36%	42%	44%	43%	37%	29%	22%	17%	13%	11%	10%	9%	8%	7%	7%	6%	6%	6%
104	18%	17%	17%	16%	16%	16%	16%	16%	17%	19%	21%	25%	31%	37%	43%	45%	43%	37%	29%	22%	17%	13%	11%	10%	9%	8%	7%	7%	6%	6%	6%
105	23%	22%	21%	21%	20%	20%	20%	21%	21%	23%	26%	31%	38%	46%	53%	55%	52%	44%	34%	25%	19%	15%	13%	11%	10%	9%	9%	8%	8%	7%	7%
106	23%	22%	21%	20%	20%	20%	20%	21%	21%	23%	26%	31%	38%	46%	53%	57%	54%	46%	35%	26%	20%	16%	13%	12%	10%	10%	9%	8%	8%	7%	7%
107	24%	23%	22%	21%	21%	21%	21%	22%	23%	25%	28%	32%	38%	45%	51%	55%	52%	45%	35%	26%	20%	16%	14%	12%	11%	10%	9%	8%	8%	7%	7%
108	30%	29%	27%	27%	26%	26%	27%	27%	28%	30%	33%	39%	48%	59%	70%	74%	69%	57%	43%	32%	25%	20%	17%	14%	13%	12%	11%	10%	9%	9%	8%
109	30%	29%	28%	27%	26%	26%	26%	26%	27%	29%	33%	39%	48%	59%	69%	73%	68%	56%	42%	31%	24%	19%	16%	14%	13%	12%	11%	10%	9%	9%	8%
110	32%	30%	29%	28%	28%	28%	28%	28%	29%	31%	34%	41%	50%	60%	70%	73%	68%	57%	43%	32%	25%	20%	17%	15%	13%	12%	11%	11%	10%	9%	9%
111	25%	24%	23%	22%	22%	22%	23%	23%	24%	26%	30%	36%	45%	56%	64%	67%	62%	51%	39%	28%	22%	17%	14%	12%	11%	10%	9%	9%	8%	7%	7%
112	26%	25%	24%	23%	23%	23%	23%	24%	25%	27%	31%	37%	45%	55%	63%	65%	60%	50%	38%	28%	21%	17%	14%	13%	11%	10%	10%	9%	8%	8%	7%
113	28%	27%	26%	25%	25%	25%	25%	26%	27%	29%	33%	39%	48%	58%	66%	68%	62%	51%	39%	29%	23%	18%	16%	14%	13%	11%	11%	10%	9%	9%	8%
114	36%	35%	34%	33%	33%	32%	33%	33%	35%	37%	42%	50%	62%	76%	88%	91%	82%	67%	50%	37%	28%	23%	19%	17%	15%	14%	13%	12%	11%	10%	10%
115	34%	32%	31%	30%	30%	30%	30%	31%	32%	34%	39%	46%	58%	72%	84%	87%	79%	64%	48%	35%	26%	21%	17%	15%	14%	13%	12%	11%	10%	9%	9%
116	32%	30%	29%	28%	28%	28%	28%	29%	31%	33%	38%	46%	58%	73%	85%	88%	80%	64%	48%	35%	26%	21%	17%	15%	13%	12%	11%	10%	9%	9%	8%

Percentage of lafarge (Polson Quay) compliance for each building footprint within the study domain

(i.e. <100% means that Lafarge (Polson Quay) would be in compliance with MOECC limits at this height and location, >100% implies there is potential for PEC to not achieve compliance at this height and location without additional mitigation)

	Height above Grade (m)																														
Building Number	0	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60	63	66	69	72	75	78	81	84	87	90
1	5%	5%	5%	5%	5%	4%	4%	4%	4%	4%	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
2	4%	4%	4%	4%	4%	4%	4%	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%
3	4%	4%	4%	4%	4%	4%	4%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
4	4%	4%	4%	4%	4%	4%	4%	4%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%
5	5%	5%	5%	5%	5%	5%	4%	4%	4%	4%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%
6	6%	6%	6%	6%	6%	5%	5%	5%	4%	4%	4%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
7	6%	6%	6%	6%	6%	5%	5%	5%	4%	4%	4%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
8	4%	4%	4%	4%	4%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%
9	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%
10	3%	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
11	4%	4%	4%	4%	4%	4%	4%	4%	4%	3%	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%
12	4%	4%	4%	4%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%
13	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
14	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%
15	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
16	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
17	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
18	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
19	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
20	5%	5%	5%	5%	4%	4%	4%	4%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
21	8%	8%	8%	8%	7%	7%	6%	6%	5%	4%	4%	4%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
22	8%	8%	7%	7%	7%	6%	6%	5%	5%	4%	4%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
23	5%	5%	5%	5%	5%	4%	4%	4%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
24	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
25	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
26	5%	5%	5%	5%	5%	4%	4%	4%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
27	6%	6%	6%	6%	5%	5%	5%	4%	4%	4%	3%	3%	3%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
28	7%	7%	6%	6%	6%	6%	5%	5%	4%	4%	3%	3%	3%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
29	5%	5%	5%	5%	5%	5%	4%	4%	4%	4%	3%	3%	3%	3%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%
30	4%	4%	4%	4%	4%	4%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%
31	5%	5%	5%	5%	5%	5%	4%	4%	4%	3%	3%	3%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
32	5%	5%	5%	5%	4%	4%	4%	4%	4%	3%	3%	3%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%
33	4%	4%	4%	4%	4%	4%	4%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%
34	4%	4%	3%	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
35	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%
36	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%
37	3%	3%	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%
38	5%	5%	5%	5%	6%	5%	5%	4%	4%	4%	4%	4%	4%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
39	5%	5%	5%	6%	6%	6%	5%	6%	6%	7%	10%	8%	6%	5%	4%	4%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
40	6%	6%	6%	6%	19%	15%	10%	8%	10%	21%	40%	21%	20%	11%	6%	4%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
41	4%	4%	5%	6%	6%	6%	5%	4%	4%	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
42	9%	9%	9%	9%	9%	9%	9%	9%	9%	8%	8%	8%	8%	8%	7%	7%	7%	7%	7%	6%	6%	6%	6%	6%	6%	6%	5%	5%	5%	5%	5%
43	4%	4%	5%	7%	18%	15%	8%	7%	8%	13%	40%	40%	16%	16%	14%	11%	7%	6%	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
44	13%	13%	13%	13%	26%	32%	13%	15%	14%	11%	11%	16%	11%	10%	10%	10%	9%	9%	9%	9%	9%	8%	8%	8%	8%	8%	8%	7%	7%	7%	7%
45	10%	10%	10%	10%	10%	10%	10%	9%	9%	9%	9%	9%	8%	8%	8%	8%	8%	7%	7%	7%	7%	7%	6%	6%	6%	6%	6%	6%	6%	6%	6%
46	11%	11%	11%	11%	11%	11%	11%	10%	10%	10%	10%	10%	9%	9%	9%	9%	9%	8%	8%	8%	8%	8%	7%	7%	7%	7%	7%	7%	7%	7%	7%
47	6%	6%	6%	5%	5%	5%	5%	5%	7%	22%	33%	26%	17%	7%	4%	4%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
48	10%	10%	10%	10%	23%	25%	15%	9%	9%	27%	58%	55%	31%	12%	10%	7%	7%	7%	7%	7%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	5%
49	11%	11%	13%	34%	68%	33%	15%	8%	11%	44%	92%	59%	34%	13%	6%	5%	5%	4%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	2%	2%
50	9%	9%	8%	8%	8%	7%	7%	6%	6%	7%	7%	6%	5%	5%	4%	3%	3%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
51	11%	11%	12%	29%	46%	25%	13%	8%	7%	7%	7%	6%	5%	4%	4%	3%	3%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%
52	8%	9%	9%	9%	9%	8%	8%	7%	6%	6%	5%	5%	4%	4%	3%	3%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%
53	7%	7%	7%	7%	7%	7%	6%	6%	5%	5%	4%	4%	4%	3%	3%	3%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
54	6%	6%	6%	6%	5%	5%	5%	5%	4%	4%	4%	3%	3%	3%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%
55	7%	6%	6%	6%	6%	6%	6%	5%	5%	5%	4%	4%	4%	3%	3%	3%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%
56	5%	5%	5%	5%	5%	5%	5%	4%	4%	4%	4%	3%	3%	3%	3%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%
57	4%	4%	4%	4%	4%	4%	4%	4%	4%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%
58	4%	4%	4%	4%	4%	4%	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%
59	4%	4%	4%	4%	4%	4%	4%	4%	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%
60	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%
61	3%	3%	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%
62	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%
63	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%
64	3%	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%
65	3%	3%	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%
66	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%
67	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%
68	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%
69	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
70	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
71	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
72	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
73	3%	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%
74	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%
75	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%
76	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%
77	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%
78	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
79	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%
80	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
81	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
82	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
83	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%
84	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%
85	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%
86	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
87	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
88	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
89	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
90	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
91	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%
92	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%
93	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
94	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
95	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
96	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
97	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
98	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
99	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%
100	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
101	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%
102	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
103	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
104	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
105	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
106	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
107	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%
108	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%
109	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
110	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
111	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
112	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
113	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
114	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
115	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
116	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Percentage of St Marys Cenment compliance for each building footprint within the study domain

(i.e. <100% means that St Marys Cement would be in compliance with MOECC limits at this height and location, >100% implies there is potential for St Marys Cement to not achieve compliance at this height and location without additional mitigation)

	Height above Grade (m)																														
Building Number	**0**	**3**	**6**	**9**	**12**	**15**	**18**	**21**	**24**	**27**	**30**	**33**	**36**	**39**	**42**	**45**	**48**	**51**	**54**	**57**	**60**	**63**	**66**	**69**	**72**	**75**	**78**	**81**	**84**	**87**	**90**
1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
7	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
10	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
11	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
12	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
13	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
14	0%	0%	0%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
15	0%	0%	0%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
16	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
17	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
18	0%	0%	0%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
19	0%	0%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
20	0%	0%	0%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
21	0%	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
22	0%	0%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
23	0%	0%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
24	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
25	0%	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
26	0%	0%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
27	0%	0%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
28	0%	0%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
29	0%	0%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
30	0%	0%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
31	0%	0%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
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113	2%	3%	3%	3%	3%	2%	2%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
114	3%	3%	4%	4%	3%	3%	2%	2%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
115	3%	4%	4%	4%	3%	3%	2%	2%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
116	3%	4%	5%	4%	4%	3%	2%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Percentage of Ashbridges Bay Treatment Plant compliance for each building footprint within the study domain

(i.e. <100% means that Ashbridges Bay Treatment Plant would be in compliance with MOECC limits at this height and location, >100% implies there is potential for Ashbridges Bay Treatment Plant to not achieve compliance at this height and location without additional mitigation)

	Height above Grade (m)																														
Building Number	**0**	**3**	**6**	**9**	**12**	**15**	**18**	**21**	**24**	**27**	**30**	**33**	**36**	**39**	**42**	**45**	**48**	**51**	**54**	**57**	**60**	**63**	**66**	**69**	**72**	**75**	**78**	**81**	**84**	**87**	**90**
1	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
2	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
3	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
4	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
5	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
6	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
7	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
8	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
9	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
10	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
11	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
12	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
13	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
14	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
15	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
16	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
17	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
18	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
19	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
20	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
21	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
22	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
23	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
24	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
25	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
26	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
27	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
28	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
29	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
30	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
31	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
32	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
33	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
34	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
35	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
36	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
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38	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
39	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
40	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
41	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
42	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
43	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
44	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
45	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
46	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
47	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
48	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
49	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
50	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
51	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
52	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
53	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
54	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
55	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
56	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
57	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
58	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
59	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
60	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
61	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
62	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	0%
63	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
64	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
65	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
66	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
67	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
68	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
69	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
70	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
71	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
72	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
73	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
74	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
75	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
76	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
77	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
78	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
79	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
80	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
81	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
82	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
83	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
84	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
85	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
86	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
87	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
88	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
89	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
90	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
91	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
92	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
93	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
94	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
95	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
96	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
97	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
98	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
99	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
100	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
101	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
102	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
103	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
104	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
105	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
106	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
107	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
108	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
109	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
110	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
111	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
112	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
113	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
114	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
115	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
116	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%

Percentage of Holcim compliance for each building footprint within the study domain

(i.e. <100% means that Holcim would be in compliance with MOECC limits at this height and location, >100% implies there is potential for Holcim to not achieve compliance at this height and location without additional mitigation)

	Height above Grade (m)																														
Building Number	**0**	**3**	**6**	**9**	**12**	**15**	**18**	**21**	**24**	**27**	**30**	**33**	**36**	**39**	**42**	**45**	**48**	**51**	**54**	**57**	**60**	**63**	**66**	**69**	**72**	**75**	**78**	**81**	**84**	**87**	**90**
1	0%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2	0%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4	0%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
5	0%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
7	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
8	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
10	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
11	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
12	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
13	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
14	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
15	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
16	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
17	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
18	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
19	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
20	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
21	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
22	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
23	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
24	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
25	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
26	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
27	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
28	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
29	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
30	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
31	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
32	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
33	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
34	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
35	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
36	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
37	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
38	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
39	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
40	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
41	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
42	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
43	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
44	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
45	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
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47	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
48	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
49	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
50	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
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53	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
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60	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
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73	1%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
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77	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
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84	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
85	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
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95	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
96	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
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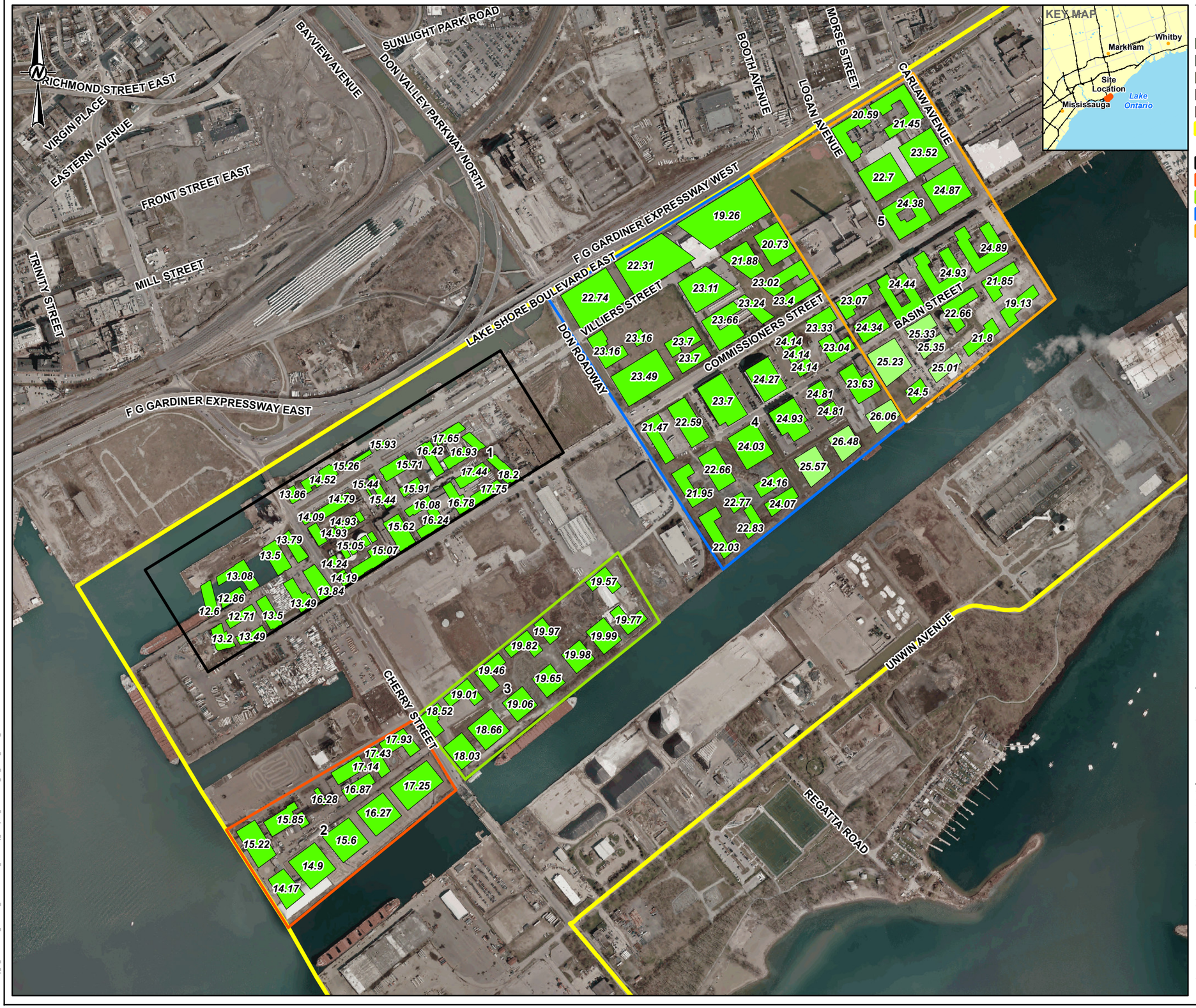
APPENDIX E

Air Quality Heat Maps

August 2016
Report No. 1417178



LEGEND

PERCENTAGE OF PEC O.REG.419/05 COMPLIANCE AT GROUND LEVEL

- < 25%
- 25% - 50%
- 50% - 75%
- 75% - 100%
- > 100%
- STUDY AREA

PRECINCT BOUNDARIES

- 1- VILLIERS ISLAND
- 2 - POLSON QUAY PRECINCT
- 3 - SOUTH RIVER PRECINCT
- 4 - FILM STUDIO DISTRICT WEST
- 5 - FILM STUDIO DISTRICT EAST

0 200 400

1:8,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
IMAGERY - ESRI WORLD IMAGERY WMS, CNES/AIRBUS DS, 0.5M, 4/26/2013
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
PERCENTAGE OF PEC O.REG.419/05 COMPLIANCE AT GROUND LEVEL

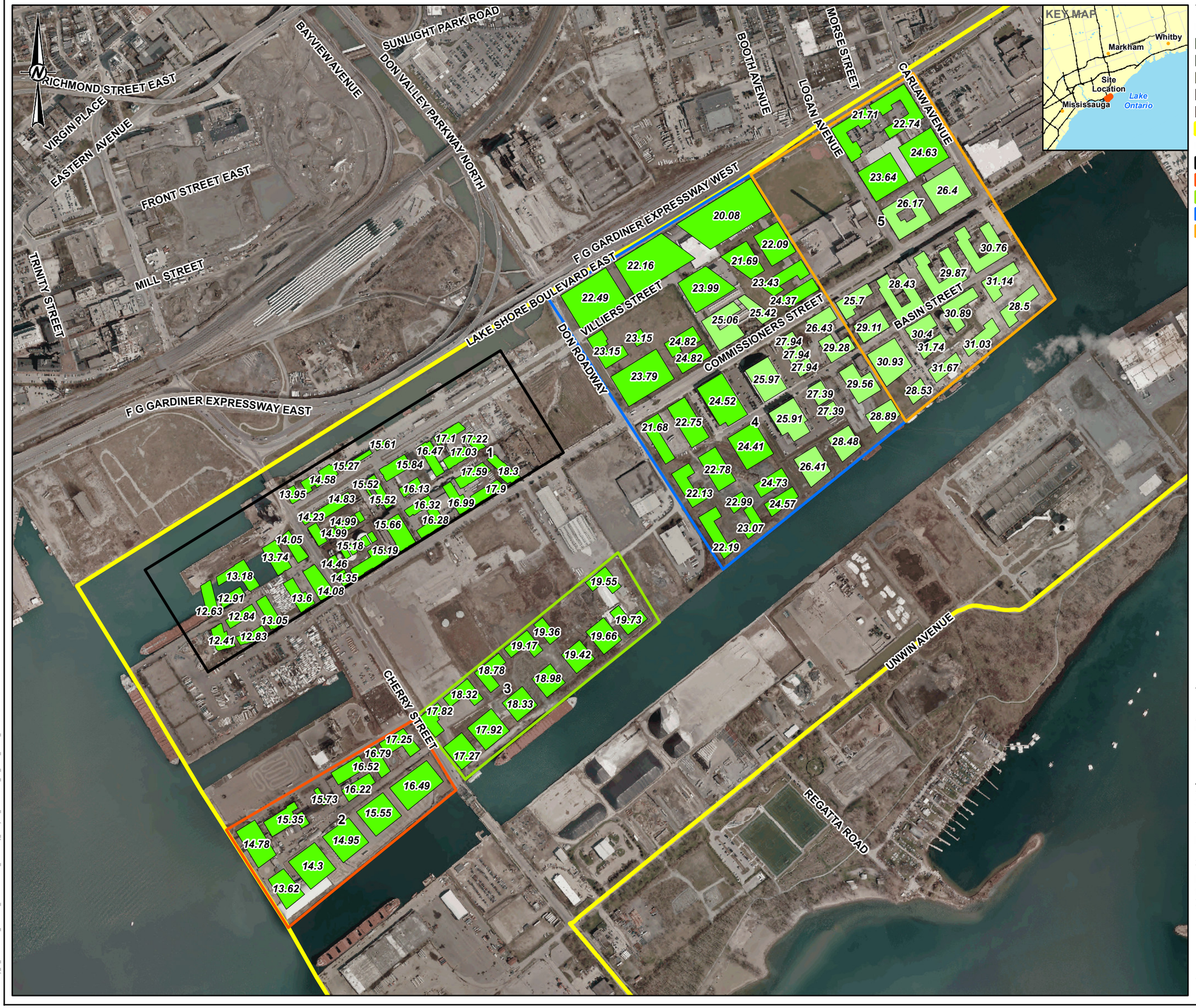
CONSULTANT
Golder Associates

YYYY-MM-DD	2015-12-18
DESIGNED	ME
PREPARED	ME
REVIEWED	KA
APPROVED	

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	**E1**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm

S:\Clients\City_of_Toronto\Port_Lands\99_PRO\1417178_Feasability_Study\40_PROD\0009_Air_Noise_Phase_4\1417178-0009-RN-0027.mxd



LEGEND

PERCENTAGE OF PEC O.REG.419/05 COMPLIANCE AT 10 STOREYS

- < 25%
- 25% - 50%
- 50% - 75%
- 75% - 100%
- > 100%
- STUDY AREA

PRECINCT BOUNDARIES

- 1- VILLIERS ISLAND
- 2 - POLSON QUAY PRECINCT
- 3 - SOUTH RIVER PRECINCT
- 4 - FILM STUDIO DISTRICT WEST
- 5 - FILM STUDIO DISTRICT EAST

0 200 400

1:8,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
IMAGERY - ESRI WORLD IMAGERY WMS, CNES/AIRBUS DS, 0.5M, 4/26/2013
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
PERCENTAGE OF PEC O.REG.419/05 COMPLIANCE AT 10 STOREYS

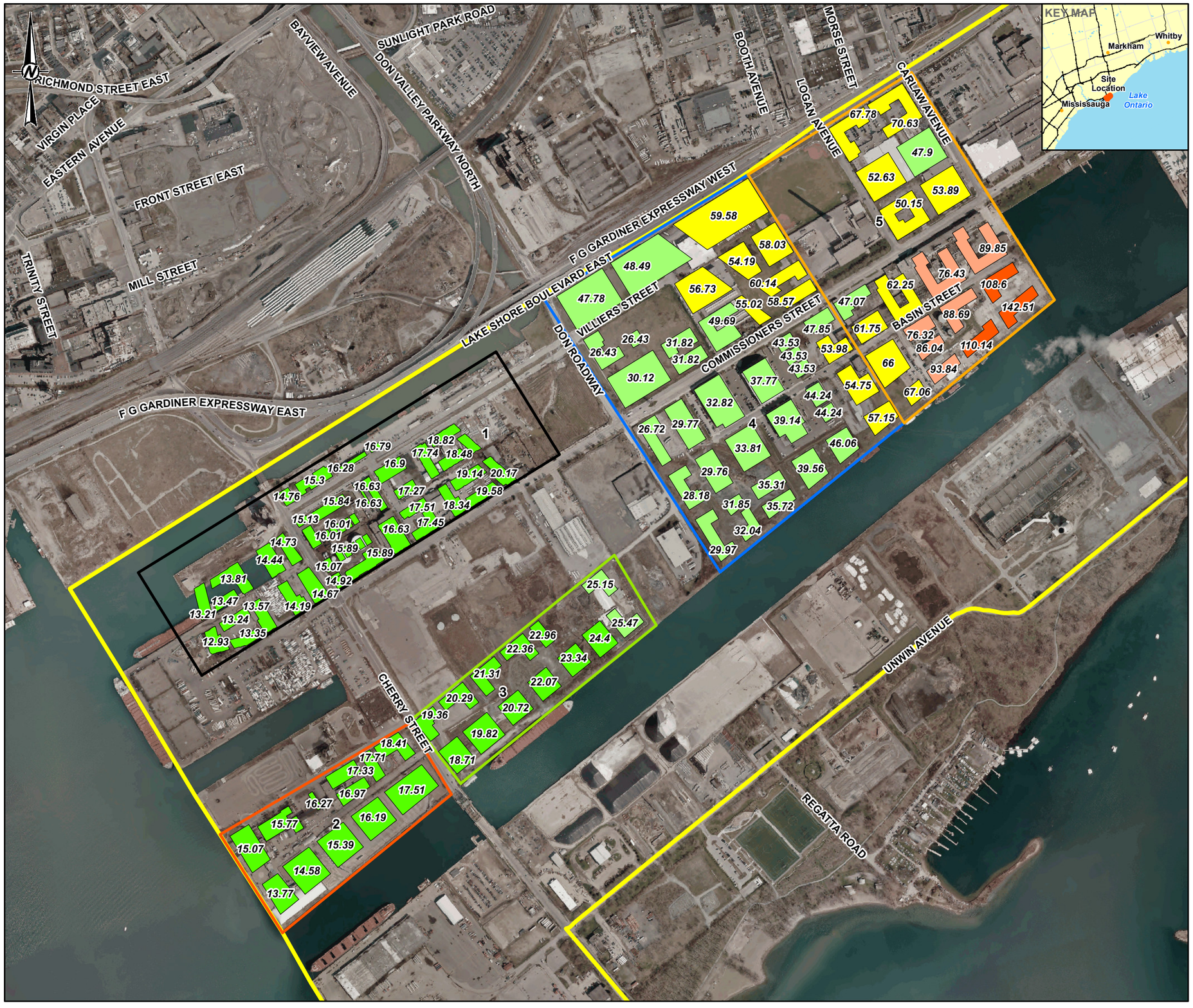
CONSULTANT
Golder Associates

YYYY-MM-DD	2015-12-18
DESIGNED	ME
PREPARED	ME
REVIEWED	KA
APPROVED	

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	**E2**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm

S:\Clients\City_of_Toronto\Port_Lands\99_PRO\1417178_Feasability_Study\40_PROD\0009_Air_Noise_Phase_4\1417178-0009-RN-0028.mxd



LEGEND

PERCENTAGE OF PEC O.REG.419/05 COMPLIANCE AT 20 STOREYS

- < 25%
- 25% - 50%
- 50% - 75%
- 75% - 100%
- > 100%
- STUDY AREA

PRECINCT BOUNDARIES

- 1- VILLIERS ISLAND
- 2 - POLSON QUAY PRECINCT
- 3 - SOUTH RIVER PRECINCT
- 4 - FILM STUDIO DISTRICT WEST
- 5 - FILM STUDIO DISTRICT EAST

0 200 400

1:8,000 METRES

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
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PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
PERCENTAGE OF PEC O.REG.419/05 COMPLIANCE AT 20 STOREYS

CONSULTANT
Golder Associates

YYYY-MM-DD	2015-12-18
DESIGNED	ME
PREPARED	ME
REVIEWED	KA
APPROVED	

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	**E3**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm

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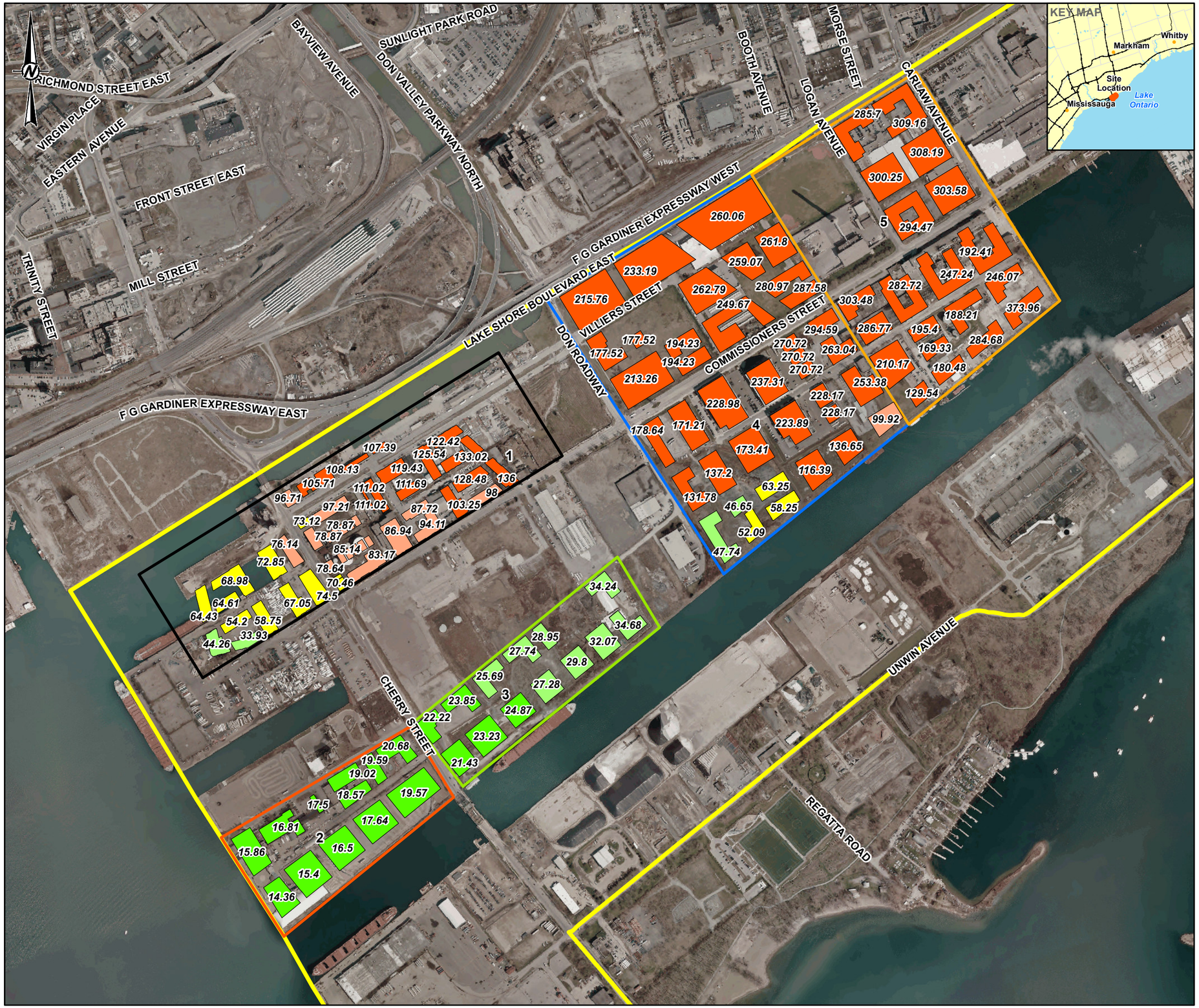

REFERENCE(S)

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PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
PERCENTAGE OF PEC O.REG.419/05 COMPLIANCE AT 30 STOREYS

CONSULTANT
Golder Associates

YYYY-MM-DD	2015-12-18
DESIGNED	ME
PREPARED	ME
REVIEWED	KA
APPROVED	

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	**E4**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

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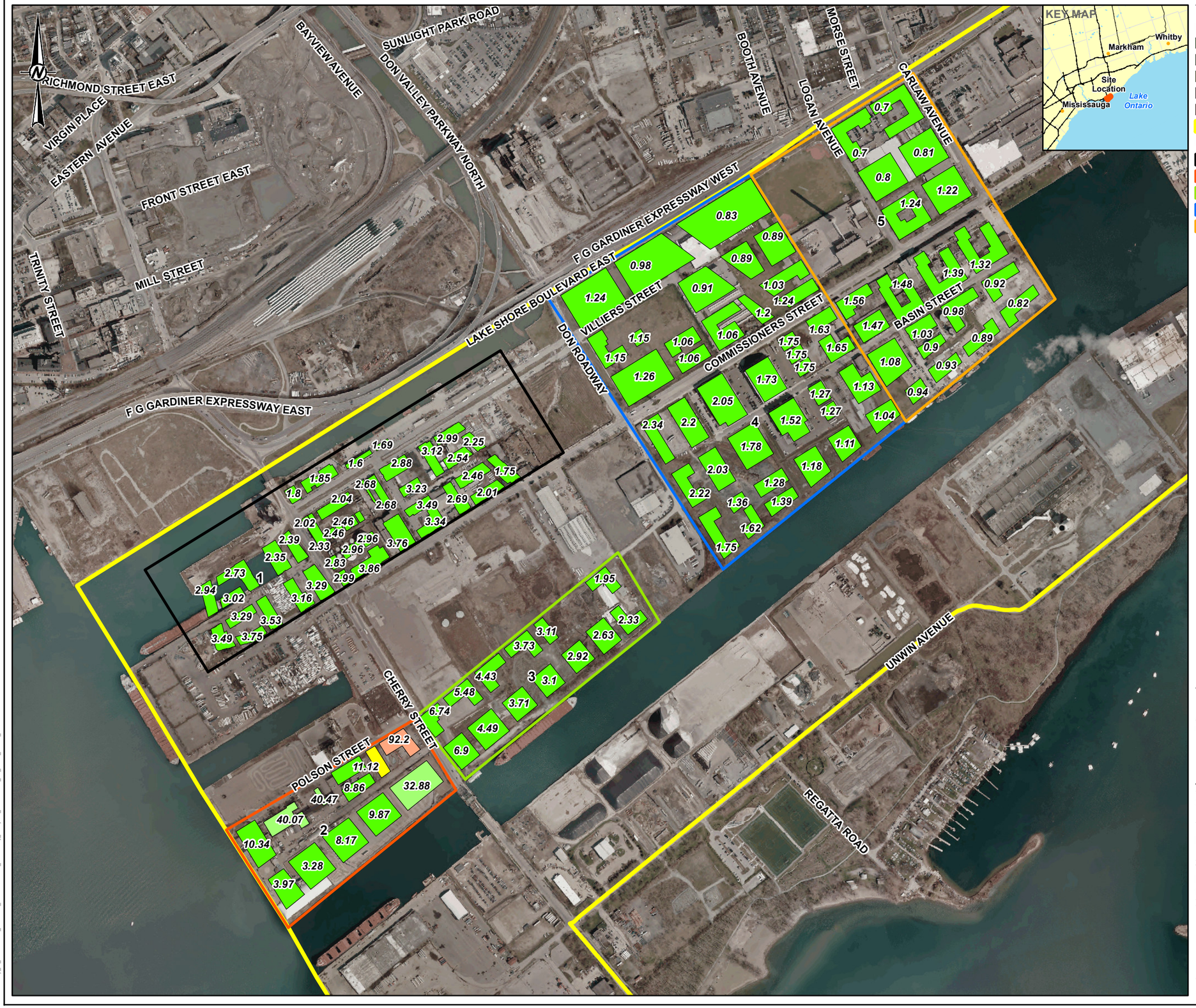

LEGEND

PERCENTAGE OF LAFARGE O.REG.419/05 COMPLIANCE AT 10 STOREYS

- < 25%
- 25% - 50%
- 50% - 75%
- 75% - 100%
- > 100%
- STUDY AREA

PRECINCT BOUNDARIES

- 1- VILLIERS ISLAND
- 2 - POLSON QUAY PRECINCT
- 3 - SOUTH RIVER PRECINCT
- 4 - FILM STUDIO DISTRICT WEST
- 5 - FILM STUDIO DISTRICT EAST

0 200 400

1:8,000 METRES

REFERENCE(S)

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PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
PERCENTAGE OF LAFARGE O.REG.419/05 COMPLIANCE AT 10 STOREYS

CONSULTANT
Golder Associates

YYYY-MM-DD	2015-12-18
DESIGNED	ME
PREPARED	ME
REVIEWED	KA
APPROVED	

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	**E5**

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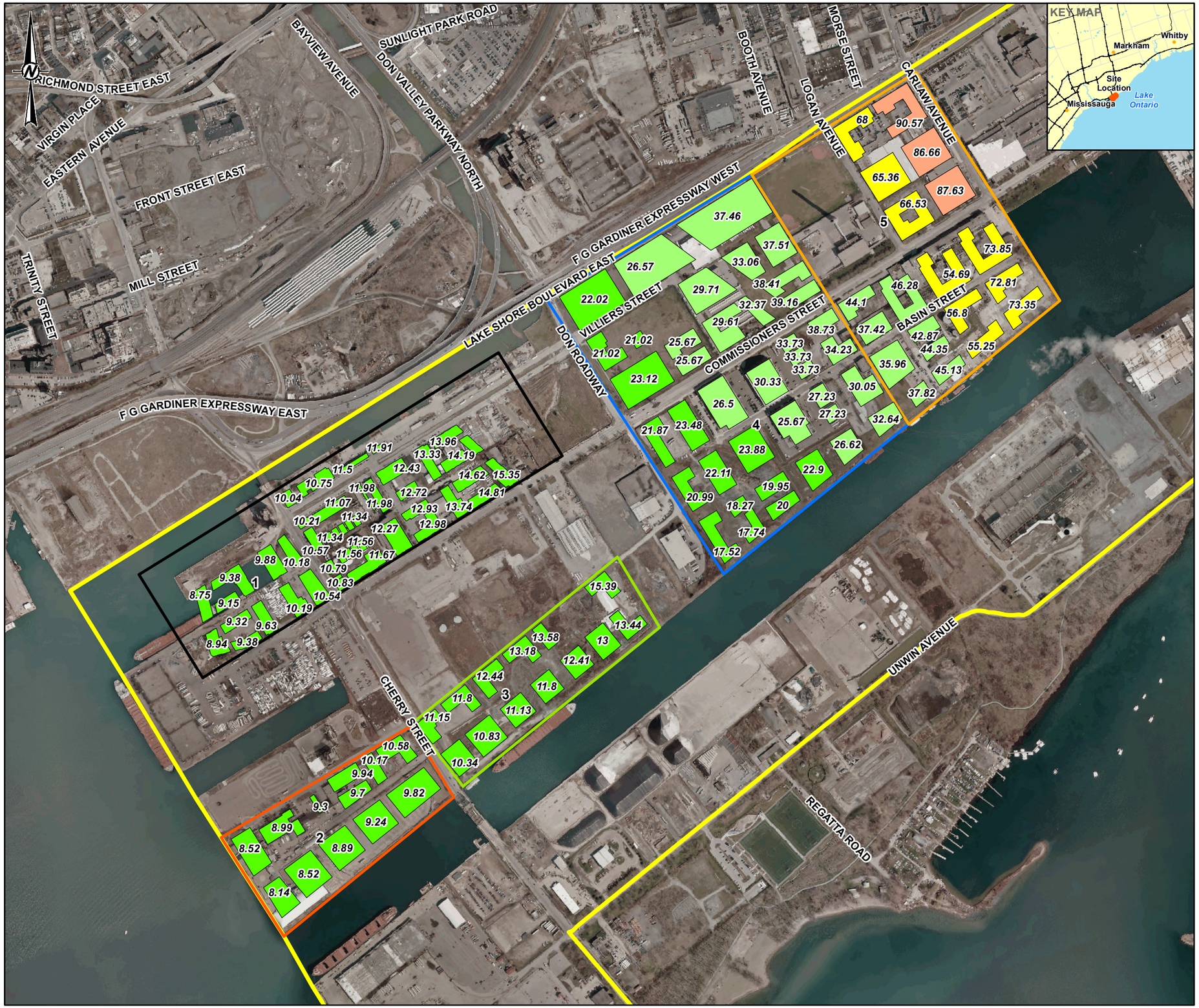
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm



LEGEND

PERCENTAGE OF CANROOF O.REG.419/05 COMPLIANCE AT GROUND LEVEL

- < 25%
- 25% - 50%
- 50% - 75%
- 75% - 100%
- > 100%
- STUDY AREA

PRECINCT BOUNDARIES

- 1- VILLIERS ISLAND
- 2 - POLSON QUAY PRECINCT
- 3 - SOUTH RIVER PRECINCT
- 4 - FILM STUDIO DISTRICT WEST
- 5 - FILM STUDIO DISTRICT EAST

0 200 400

1:8,000 METRES

REFERENCE(S)

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PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17

CLIENT
CITY OF TORONTO

PROJECT
PORT LANDS NAQF STUDY

TITLE
PERCENTAGE OF CANROOF O.REG.419/05 COMPLIANCE AT GROUND LEVEL

CONSULTANT
Golder Associates

YYYY-MM-DD	2015-12-18
DESIGNED	ME
PREPARED	ME
REVIEWED	KA
APPROVED	

PROJECT NO.	CONTROL	REV.	FIGURE
1417178	-	-	**E6**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM:
25mm
0

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As a global, employee-owned organisation with over 50 years of experience, Golder Associates is driven by our purpose to engineer earth's development while preserving earth's integrity. We deliver solutions that help our clients achieve their sustainable development goals by providing a wide range of independent consulting, design and construction services in our specialist areas of earth, environment and energy.

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