Appendix J

AIR QUALITY IMPACT ASSESSMENT REPORT

VMC
Schedule 'C' Class Environmental Assessment (EA) Studies for the Extensions of Interchange Way and Millway Avenue

Air Quality Impact Assessment Report

DRAFT
May 2025

DOWNTOWN vaughan METROPOLITAN CENTRE

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1 Introduction

The City of Vaughan is currently undertaking the Vaughan Metropolitan Centre (VMC) Schedule 'C' Municipal Class Environmental Assessment (MCEA) study for the proposed extensions of Interchange Way from Commerce Street to Creditstone Road, and Millway Avenue from Highway 7 to Interchange Way. WSP is also assisting the City in updating the Transportation Master Plan (TMP) to confirm transportation needs, supportive policies, and a phasing strategy to 2041 with a focus on street connectivity, accessibility, and support for multi-modal mobility (i.e., walking, cycling, transit, ride share). As part of the Environmental Assessment to extend Interchange Way and Millway Avenue, an Air Quality Impact Assessment (AQIA) is required to evaluate the impact of the Project on traffic related air pollution (TRAP) concentrations in the Study Area.

This AQIA will evaluate existing air quality conditions following the guidance of the Ontario Ministry of the Environment, Conservation and Parks (MECP) Central Region Draft Document "Traffic Related Air Pollution: Mitigation Strategies and Municipal Class Environmental Assessment Air Quality Impact Assessment Protocol" (MECP Protocol).

The length of new road construction for the Project is less than 2 km, which falls under a Category #3 Qualitative Air Quality Impact Assessment (AQIA) as outlined in the MECP Protocol. A qualitative AQIA is also undertaken for projects which are expected to result in minimal air quality impacts. A qualitative AQIA, as outlined in the MECP Protocol, provides a summary of the existing local air quality conditions and nearby sensitive receptors, a discussion of potential air quality impacts that could arise from the Project including during construction, and potential mitigation measures that could be implemented if required. A qualitative assessment does not require contaminant modelling and as a result modelling has not been completed as part of this report.

Accordingly, the main objectives of the AQIA are as follows:

— Define the Study Area;
— Identify sensitive and critical receptors in the Study Area;
— Establish existing conditions in the Study Area;

- Compare the existing ambient air quality data in the vicinity of the Project to applicable provincial air quality thresholds;
- Identify emission sources from surrounding industrial activities;
- Discuss potential air quality impacts that could arise from the Project during construction and operations; and,
- Discuss potential mitigation measures, if required.

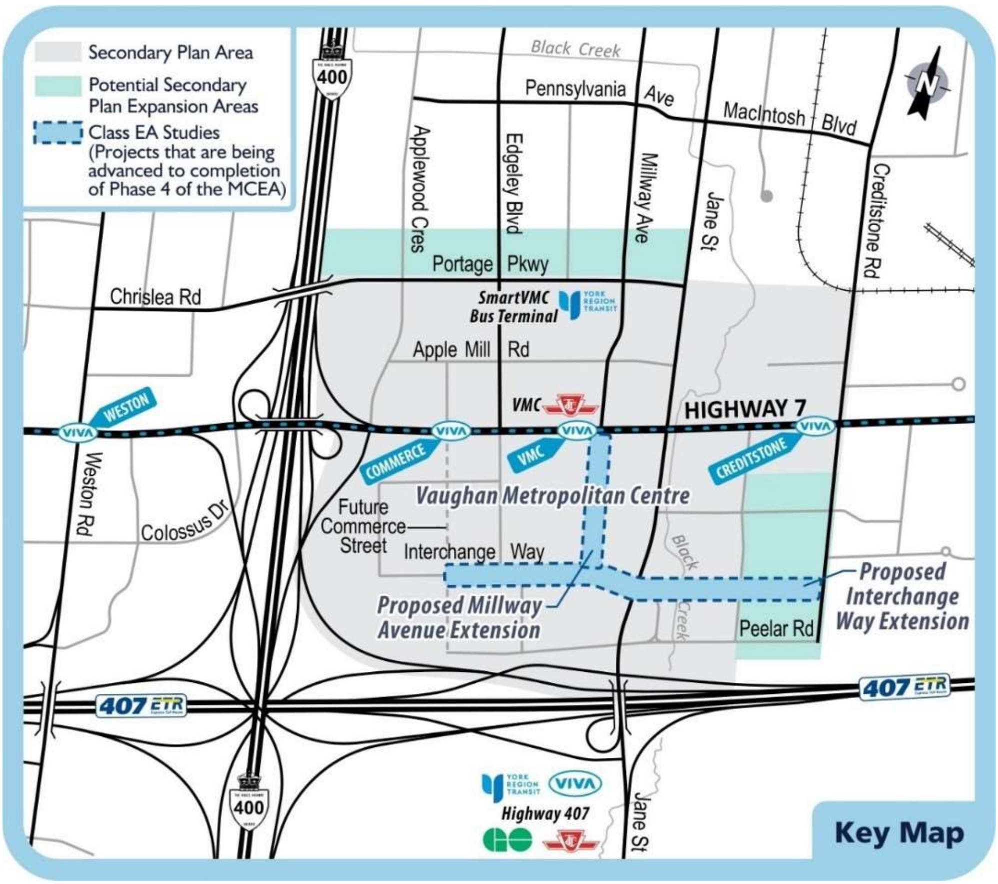

Figure 1-1 Study Area

The Study Area, as shown in Figure 1-1, Interchange Way is located east of Highway 400 and extends to west of Creditstone Road, and Millway Avenue from just south of Highway 7 to Interchange Way.

The preferred alternative designs have been outlined for each segment of the Project and are further described in Section 1.1 and Section 1.2. The preferred alternative for Interchange Way was reassessed after the second Public Information Centre (PIC) held on December 5, 2023, resulting in some minor design changes further described in Section 1.2. As a result, the updated preferred alternative for Interchange Way is referred to as the modified preferred alternative in this report.

1.1 Project Description

Proposed works within the Study Area include the widening of Interchange Way from two to four lanes, an extension of Interchange Way east of Jane Street to Creditstone Road, and the construction of a new Millway Avenue extension from north of Interchange Way to south of Highway 7. Millway Avenue will be classified as a Special Collector Road, serving as a mobility hub with adjacent retail, commercial, transit, high-density residential, and public spaces. Interchange Way will be classified as a Major Collector Road, with multi-modal transportation prioritized through the accommodation of transit and pedestrian/cycling infrastructure.

The improvements will include the following features:

- Widening of Interchange Way from two to four lanes with a center median barrier;
- New 2-meter-wide raised cycle tracks on both sides along Interchange Way and Millway Avenue;
- Decorative paving at intersections at both Interchange Way and Millway Avenue;
- Re-alignment of Black Creek and new Interchange Way overpass, completed under a separate project (Black Creek Renewal Project);
- Drainage and stormwater management improvements;
- Illumination improvements and relocation of impacted utilities; and,
- Potential for decorative paving at intersections and transit stops, to respect broader VMC character.

Further information on the preferred alternatives chosen for the Project is provided in Section 1.2.

1.2 Preferred Alternatives

As described in Section 1.1, The Millway Avenue preferred alternative design includes the construction of a new roadway extension spanning from north of Interchange Way to south of Highway 7 and will include approximately 400 m of new road. The preferred alternative design for Millway Avenue and an outline of the road design is provided below in Figure 1-2.

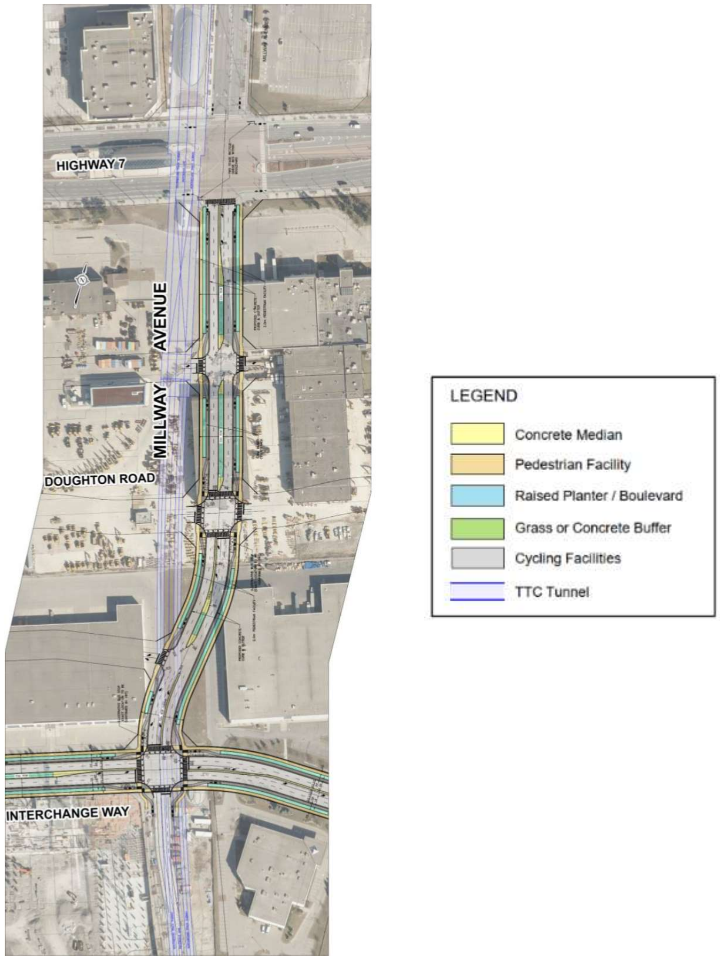

Figure 1-2 Alternative Design for Millway Avenue

As described in Section 1.1, the modified preferred alternative design for Interchange Way includes the widening of the road from two to four lanes with a center median barrier, as well as an extension of Interchange Way from east of Jane Street to Creditstone Road. The new extension of Interchange Way spans approximately 500 m. The proposed length of road widening along Interchange Way is approximately 750 m. The modified preferred alternative design for Interchange Way is provided below in Figure 1-3. Modifications to the design include the following:

- Alignment shifts the north-south local road 130 m west of Maplecrete Road
- Alignment is shifted approximately 5 m south of the previously assessed preferred alternative (Option 2)
- Alignment maintains an acceptable intersection angle at Interchange Way and Maplecrete Road
- Straight alignment is maintained along Interchange Way east of Maplecrete Road

Figure 1-3 Modified Preferred Alternative Design for Interchange Way

Preferred alternatives were selected based on stakeholder comments and City intentions for park space as per the VMC Secondary Plan. The modified preferred alternative also provides adjacent properties more equitable development opportunities.

2 Sensitive and Critical Receptors

As outlined in the MECP Protocol, sensitive and critical receptors within a 300 m radius of the Project were identified in the assessment. Sensitive receptors are residences and critical receptors include hospitals, retirement homes, childcare centres and other similar institutional buildings. The area surrounding the Project is comprised primarily of commercial, industrial, and employment uses. Seven (7) sensitive receptors have been identified within the Study Area of the Project including condominiums, townhouses, and hotels. All condominiums appear to be constructed within the last two years based on imagery available at the time of this report. The group of townhouses identified also appear to be built within the last two years based on imagery available at the time of this report.

— Residences:
  - Three (3) hotels are located within 300 m of the Study Area,
  - One (1) group of townhouses are located within 300 m of the Study Area, and;
  - A total of three (3) condominium properties are located within 300 m of the Study Area.

The location of sensitive receptors is shown in Figure 2-1.

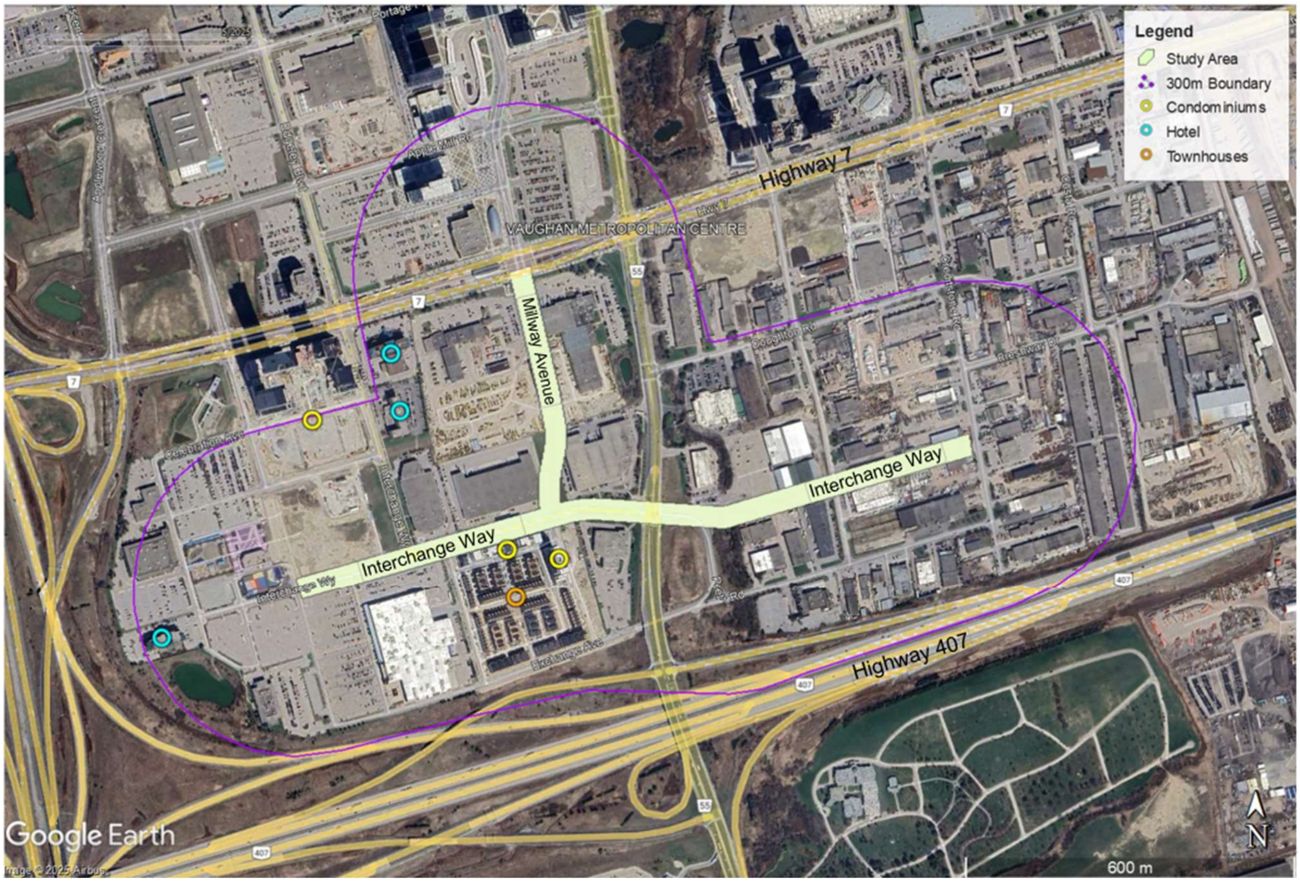

Figure 2-1 Location of Surrounding Sensitive Receptors

3 Background Air Quality

The background air quality in the Study Area has been described by considering regional concentrations based on publicly available monitoring data. The background air quality represents the existing conditions of air quality before the implementation of the Project. Sources contributing to the existing air quality conditions include industrial activities, roadways, long-range transboundary air pollution, and small regional sources.

This section discusses the selection of contaminants considered in the assessment, applicable guidelines for this assessment, selection of the monitoring stations, and comparison of the selected data to the applicable Ambient Air Quality Criteria (AAQC).

3.1 Criteria Air Contaminants

The assessment of existing air quality in the Study Area focused on criteria air contaminants (CACs), compounds that are expected to be released from mobile sources, and contaminants which are generally accepted as indicators of changing air quality. These compounds are emitted from fuel combustion from vehicles travelling on roadways. The criteria air contaminants (CACs) for this project include:

- Particulate matter less than 10 microns in diameter (PM_{10});
- Particulate matter less than 2.5 microns in diameter ($PM_{2.5}$);
- Total suspended particulates (TSP);
- Nitrogen oxides, expressed as nitrogen dioxide (NO_2);
- Carbon monoxide (CO);
- Benzo(a)pyrene (B(a)P); and,
- Selected volatile organic compounds (VOCs), including benzene, 1-3 butadiene, formaldehyde, acetaldehyde, and acrolein.

3.2 Air Quality Indicators

The MECP has issued guidelines related to ambient air concentrations, which are summarized in Ontario's Ambient Air Quality Criteria (AAQC) (MECP, 2020). The federal objectives and criteria are presented in the Canadian Ambient Air Quality Standards (CAAQS).

The Ontario AAQC lists desirable concentrations of contaminants in air, based on protection against adverse effects on health and/or the environment. AAQCs are developed by the MECP and have varying time weighted averaging periods (e.g., annual, 24 h, one hour, and 10 minutes) appropriate for the adverse effect that they are intended to protect against (i.e., acute or chronic). The adverse effects considered may be related to health, odour, vegetation, soiling, visibility, and/or corrosion. AAQCs may be changed from time to time based on the state-of-the-science for a contaminant (MECP, 2020).

The CAAQS are specifically health-based air quality objectives for pollutant concentrations in outdoor air. Under the Air Quality Management System, Environment and Climate Change Canada (ECCC) and Health Canada established air quality standards for fine particulate matter. The CAAQS were established by the Federal government and include a long-term (annual) target for fine particulate matter (Environment Canada, 2013). Applicable standards include the 2020 CAAQS standards for $PM_{2.5}$. Additional CAAQS for NO_2 are to be implemented by 2025.

The AAQC and CAAQS are collectively referred to as "air quality indicators" in this AQIA. Table 3-1 summarizes the air quality indicators related to the contaminants of concern used in this AQIA. A value above an air quality indicator does not indicate a concern but is used to describe the air quality qualitatively.

Table 3-1 Applicable Air Quality Indicators

Contaminant of Concern	Averaging Time	Ontario Ambient Air Quality Criteria (µg/m³) [A]	Canadian Ambient Air Quality Standards (µg/m³)	Project Criteria
PM_{10}	24 h	50	-	50
$PM_{2.5}$	24 h	27	27 [C]	27
	Annual	8.8	8.8	8.8
TSP	24 h	120	-	120
	Annual	60	-	60
NO_2	1 h	-	79.0 [D]	79.0 [D]
	24 h	200	-	200
	Annual	-	22.6	22.6 [D]
CO	1 h	36,200	-	15,000
	8 h	15,700	-	6,000
Acrolein	1 h	4.5	-	4.5
	24 h	0.4	-	0.4
Benzene	24 h	2.3	-	2.3
	Annual	0.45	-	0.45
1,3-Butadiene	24 h	10	-	10
	Annual	2	-	2
Acetaldehyde	30 min	500	-	500
	24 h	500	-	500
Formaldehyde	24 h	65	-	65
Benzo(a)pyrene	24 h	5.00E-05	-	0.00005

Contaminant of Concern	Averaging Time	Ontario Ambient Air Quality Criteria (μg/m³) [A]	Canadian Ambient Air Quality Standards (μg/m³)	Project Criteria
	Annual	1.00E-05	-	0.00001

Notes: [A] MECP 2020 Ontario's Ambient Air Quality Criteria
[B] CCME 1999 Canadian National Ambient Air Quality Objectives
[C] CAAQS published in the Canada Gazette Volume 15, No. 49 — December 9, 2017. Final standard phase of 2020 used.
[D] CAAQS published in Canada Gazette Volume 151, No. 43 – October 28, 2017. Final standard phase of 2025 used.

The air quality indicators represent desirable levels of contaminants in ambient air and are not enforceable within any jurisdiction; they represent indicators of ambient air quality provincially and nationally. The air quality indicator value for each contaminant and its applicable averaging period are used to assess air quality.

The applicable averaging periods for the contaminants are based on 30-minute, 1-hour, 8-hour, 24-hour, and annual exposure periods. The averaging periods for each contaminant are based on adverse impacts to human health, flora, or fauna. The limiting effects are indicated within the AAQC (MECP, 2020). As previously mentioned, CAAQS indicator values are based on adverse impacts to human health only.

3.3 Ambient Monitoring Stations

The concentrations of the selected contaminants for this assessment resulting from background sources were estimated by analyzing historical monitoring data from ECCC National Air Pollution Surveillance (NAPS) stations and the MECP air monitoring stations in the vicinity of the Project. Consideration was given to assess the representativeness of the data for the station selected for use in this assessment. Publicly available data was obtained from these stations for the latest available years and excludes data that has not been through rigorous quality assurance and quality control (QA/QC) or may have been influenced by COVID-19, as such, 2019 is the most recent year of data presented in this assessment.

Prevailing wind direction (showing the direction the winds are "blowing from") for the Project area is shown in Figure 3-1 based on meteorological data from ECCC Station #54239 located at the Buttonville Airport in Toronto, Ontario.

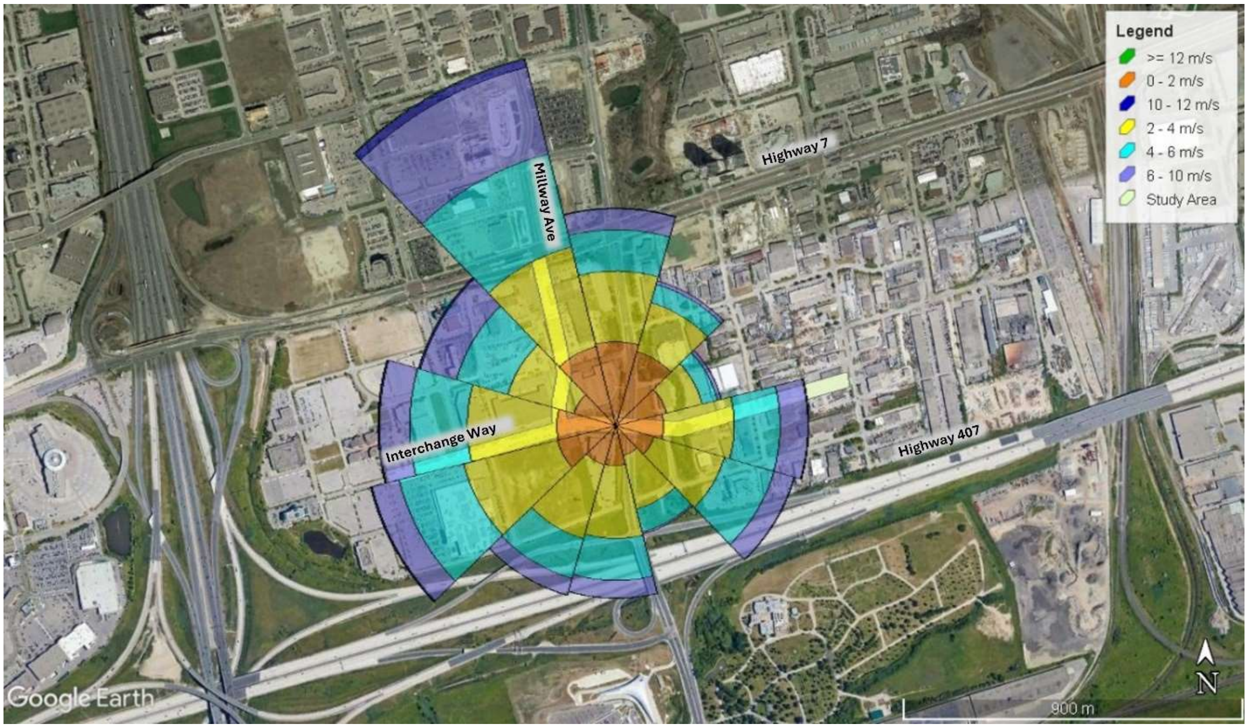

Figure 3-1 Toronto-Buttonville A Wind Rose

WSP reviewed the ambient air monitoring data from stations in Ontario and selected the Toronto West and Windsor West stations for this assessment to cover the air quality indicators retained for this assessment. More than one station was required due to some contaminants not being measured at closer ambient air monitoring stations. The location of the selected stations is presented in Figure 3-2.

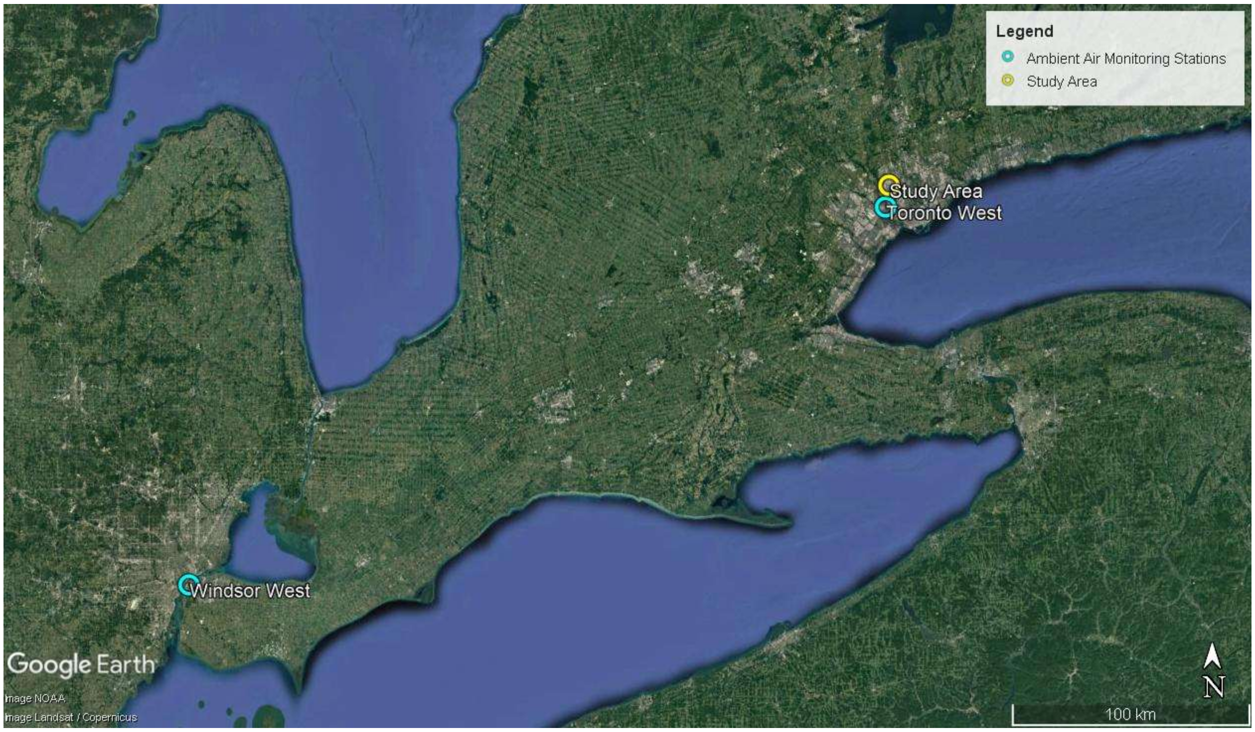

Figure 3-2 Location of Ambient Monitoring Stations

The availability of data varies for each contaminant based on accessibility to quality assured data from ECCC and the MECP. The station information and period of analysis are listed in Table 3-2. Data from the Toronto West station was used for PM_{10}, $PM_{2.5}$, TSP, NO_X, CO, and B(a)P. Data was extracted from the Windsor West station for the volatile organic compounds (VOCs). The Toronto West station was selected as the station proximity to the Project site, data availability, and as the station is located in a similar geographic region with similar local land use. For VOCs, the Windsor West station was used since only a few stations have data for these contaminants, Windsor West being the closest station to the Project site.

Table 3-2 Air Monitoring Stations and Data Availability for Selected Contaminants

Station Name	NAPS Station ID	Data Available							Years of Data[1]	Distance from Project (km)	Direction from Project
		$PM_{2.5}$	CO	NO_x	B(a)P	Benzene, 1,3-butadiene	Acetaldehyde, Formaldehyde	Acrolein			
Toronto West	60430	Y	Y	Y	Y	N	N	N	2015-2019	9	S
Windsor West	60211	Y	N	Y	N	Y	Y	Y	2006-2010, 2009-2013	333	SW

Notes: **Bold** characters show which station data was used for each contaminant.
[1] Due to data availability, the data from 2006-2010 was used in the assessment for acrolein, acetaldehyde, and formaldehyde and 2009-2013 was used for benzene and 1,3-butadiene.

Background concentrations for each contaminant were obtained from the stations listed in Table 3-2 summarizes background concentrations in the area of the Project and provides an explanation of each threshold.

Table 3-3 Summary of Ambient Background Concentrations within the Study Area

Contaminant	Averaging Period	Background Concentration (µg/m^3)	Air Quality Threshold (µg/m^3)	Explanation for Threshold	% of Threshold
PM_{10}[1]	24 h	31	50	3-year average of the most recent consecutive annual 98th percentile of the daily 24-hour average concentrations (2017-2019) - converted from $PM_{2.5}$	62%

Contaminant	Averaging Period	Background Concentration (µg/m³)	Air Quality Threshold (µg/m³)	Explanation for Threshold	% of Threshold
$PM_{2.5}$	24 h	18	27	3-year average of the most recent consecutive annual 98th percentile of the daily 24-hour average concentrations (2017 - 2019)	67%
	Annual	7	8.8	3-year average of the most recent consecutive annual average of all 1-hour concentrations (2017 - 2019)	80%
TSP[2]	24 h	61	120	3-year average of the most recent consecutive annual 98th percentile of the daily 24-hour average concentrations (2017-2019) - converted from $PM_{2.5}$	51%
	Annual	25	60	3-year average of the most recent consecutive annual average of all 1-hour concentrations (2017 - 2019) - converted from $PM_{2.5}$	42%
NO_x (expressed as NO_2)	1 h	76	79	3-year average of the most recent consecutive annual 98th percentile of the daily maximum 1-hour average concentrations (2017 - 2019)	96%

Contaminant	Averaging Period	Background Concentration (µg/m^3)	Air Quality Threshold (µg/m^3)	Explanation for Threshold	% of Threshold
	24 h	45	200	5-year average of 90th percentile (2015 - 2019)	23%
	Annual	29	22.6	The average over a single calendar year of all 1-hour averages between 2015 - 2019	128%
CO	1 h	406	15,000	5-year average of 90th percentile (2015 - 2019)	3%
	8 h	368	6,000	5-year average of 90th percentile (2015 - 2019)	6%
Acrolein	1 h	0.19	4.5	The 5-year average of 90th percentile 24-hour concentrations converted to a 1-hour averaging period (2006 - 2010)	4%
	24 h	0.08	0.4	5-year average of 90th percentile (2006 - 2010)	20%
Benzene	24 h	0.97	2.3	5-year average of 90th percentile (2009 - 2013)	42%
	Annual	0.13	0.45	The 5-year average of 24-hour concentrations converted to an annual averaging period over 2009 - 2013	29%
1,3-Butadiene	24 h	0.09	10	5-year average of 90th percentile (2009 - 2013)	1%

Contaminant	Averaging Period	Background Concentration (µg/m³)	Air Quality Threshold (µg/m³)	Explanation for Threshold	% of Threshold
	Annual	0.01	2	The 5-year average of 24-hour concentrations converted to an annual averaging period over 2009 - 2013	1%
Acetaldehyde	30 min	5.03	500	The 5-year average of 90th percentile 24-hour concentrations converted to a 30 min averaging period over 2006 - 2010	1%
	24 h	1.70	500	5-year average of 90th percentile (2006 - 2010)	<1%
Formaldehyde	24 h	3.06	65	5-year average of 90th percentile (2006 - 2010)	5%
Benzo(a)pyrene	24 h	9.18E-05	5.00E-05	3-year average of 90th percentile (2016 - 2018)	184%
	Annual	9.28E-06	1.00E-05	The 3-year average of 24-hour concentrations converted to an annual averaging period over 2016 - 2018	93%

Notes: [1] $PM_{10} = PM_{2.5} / 0.6$. References: Lall et al., 2004 ("Estimation of historical annual PM2.5 exposures for health effects assessment", published in the Journal of Atmospheric Environment)
[2] $TSP = PM_{2.5} / 0.3$. Reference: Lall et al., 2004 ("Estimation of historical annual PM2.5 exposures for health effects assessment". published in the Journal of Atmospheric Environment)

As shown in **Table 3-3**, concentrations of NO_X (annual) and benzo(a)pyrene (24-hour) are above the applicable air quality thresholds. These contaminants often exceed air quality thresholds in urban areas in proximity to highways. There are various highways surrounding the Project which can contribute to elevated values. Highway 400, Highway 7 and Highway 407 span around the Project location on the west, north, and south sides, respectively. Roadways typically only have a localized influence on air quality and predicted concentrations decline within a very short distance from the road edge. Roadway emissions can also be expected to decrease in the future due to the increased use of electric vehicles or public transport. Road improvements as part of the Project are also designed to include pedestrian/cycling infrastructure which can also help to decrease emissions.

3.4 Surrounding Industrial Facilities

Nearby industrial and commercial facilities have the potential to impact existing air quality conditions surrounding the Study Area. Ten (10) facilities have been identified within 2 km of the Study Area which may contribute to existing air quality conditions. These facilities have been identified based on National Pollutant Release Inventory (NPRI) data from 2019 and are shown in Table 3-4. Publicly available data was obtained from these facilities for the latest available years and excludes data that has not been through rigorous quality assurance and quality control (QA/QC) or may have been influenced by COVID-19. As a result, data from the year 2019 is presented in this assessment.

Table 3-4 Summary of Surrounding Industrial Releases

Facility	Description of the industrial facility	NO_x	CO	VOC	TSP	PM_{10}	$PM_{2.5}$
		(Tonnes/Year)					
Rochester Aluminum Smelting Canada Limited	Non-ferrous Metal Foundries (except Die-Casting)	—	—	—	—	4.93	4.26
CIF Lab Solutions LP	Other General-Purpose Machinery Manufacturing	—	—	37.27	—	—	—
St. Joseph Printing	Printing	—	—	13.86	—	—	—

Facility	Description of the industrial facility	NO_x (Tonnes/Year)	CO	VOC	TSP	PM_{10}	$PM_{2.5}$
Décor-Rest Furniture Ltd.	Household Furniture Manufacturing	—	—	19.06	—	—	—
Valley Metal Finishing (1983) Ltd.	Coating and Engraving Manufacturing	—	—	143.16	—	—	—
Weston Bakeries Ltd./Weston Bakeries Concord	Bakeries and Tortilla Manufacturing	—	—	16.04	—	—	—
LT Custom Furnishings Inc.	Office Furniture (including Fixtures) Manufacturing	—	—	17.16	—	—	—
Magna Exteriors Inc./Rollstampt 90 Snidercroft Rd	Motor Vehicle Parts Manufacturing	—	—	297.87	—	—	—
York University - Keele Campus	University	57.75	—	—	—	1.01	1.01
Energi Fenestration Solutions, Ltd.	Plastic Product Manufacturing	—	—	—	—	1.22	0.46
Total Emissions		57.75	—	544.42	—	7.17	5.74
Ontario Total Emissions		69091	78309	48541	49689	23892	10695
% of Study Area Emissions to Ontario Total		0.08%	—	1.12%	—	0.03%	0.05%

3.5 Local Emission Sources

The Project is located near multiple industrial facilities within a 2 km radius, as outlined in Table 3-4. In addition to industrial facilities, the Project is located near multiple high-traffic roadways. The main sources of emissions close to the Project are anticipated to be industrial facilities and traffic from vehicles travelling on Highway 400, Highway 7, and Highway 407.

3.6 Project Emissions

The Project involves road improvements including new road construction and road widening. The preferred alternative design for Millway Avenue and the modified preferred alternative design for Interchange Way were reviewed for potential Project related air emissions. Since the Project road extensions are less than 2 km in length and the road widening from two lanes to four lanes is less than 1 km in length, the Project is expected to have minimal impacts to local air quality and surrounding sensitive receptors. The addition of traffic lanes and roadways from the Project build are expected to alleviate traffic congestion on surrounding roadways, help to reduce idling and slower moving traffic particularly during peak hours, and disperse emissions. The design of the Project also incorporates pedestrian/cycling infrastructure which can also help to decrease emissions throughout the area. Increased use of electric vehicles or public transport is also anticipated to reduce emissions in the future for the area.

It is assumed that emissions from construction operations will be managed through best management practices for construction operations and monitoring and mitigation requirements will be considered as part of the special provisions written to the construction tender documents. As a result, air quality impacts during construction are expected to be temporary and should be managed through a construction Air Quality Management Plan (AQMP), as outlined in Section 4.

4 Construction and Operation Mitigation

During construction there is potential for air quality impacts to occur; however, these impacts are expected to be temporary and can be minimize with the implementation of an AQMP. Construction related air quality impacts may arise from construction vehicle emissions and the emissions of dust within the specific areas of construction. Construction activities that have the potential to generate dust include the following:

- TSP, PM_{10}, and $PM_{2.5}$ resulting from:
  - Stockpiling of soils and other friable material;
  - Granular material loading and unloading activities;
  - Transportation of soils and other friable materials via dump trucks;
  - Soil excavation and filling activities;
  - Movement of heavy and light vehicles on paved and unpaved roads;
  - Mixing processes
  - Paving of roadways; and,
  - Cutting of concrete.
- Emissions resulting from the combustion engines of construction equipment.

Air emissions from construction activities can be managed through following the recommendations outlined in the ECCC guidance document "Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities", dated March 2005. The AQMP should ensure that dust and other emissions from construction and demolition activities do not impact surrounding environmentally sensitive areas such as aquatic habitats and fisheries, terrestrial vegetation, and faunal communities, as well as residential properties in proximity to work areas.

To minimize air quality impacts during construction, an AQMP must be developed to address construction equipment vehicle exhaust, potential traffic disruptions and congestion, fugitive dust, and odour. Potential mitigation measures that may be incorporated in the AQMP include:

- Dust suppression measures (e.g., application of water wherever appropriate, or the use of approved non-chloride chemical dust suppressants, where the application of water is not suitable);
- Use of dump trucks with retractable covers for the transport of soils and other friable materials;
- Minimize the number of loadings and unloading of soils and other friable materials;
- Minimize drop heights, use enclosed chutes, and cover bins for debris associated with deconstruction of affected structures;
- Washing of equipment and/use of mud mats where practical at construction site exits to limit the migration of soil and dust off-site;
- Stockpiling of soil and other friable materials in locations that are less exposed to wind (e.g., protected from the wind by suitable barriers or wind fences/screens, or covered when long-term storage is required) and away from sensitive receptors to the extent possible;
- Reduction of unnecessary traffic and implementation of speed limits;
- Permanent stabilization of exposed soil areas with non-erodible material (e.g., stone or vegetation) as soon as practicably possible after construction in the affected area is completed;
- Ensuring that all construction vehicles, machinery, and equipment are equipped with current emission controls, which are in a state of good repair; and,
- Dust-generating activities should be minimized during conditions of high wind.

In addition to the AQMP, construction activities should be monitored by a qualified environmental inspector who will review the effectiveness of the mitigation measures and construction best management practices to confirm they are functioning as intended. If mitigation is found to not be effective, revised mitigation measures designed to improve effectiveness should be implemented. Dust levels should be monitored daily by the contractor and frequently by the environmental inspector to assess the effectiveness of dust suppression measures and adjust as required. Monitoring should continue throughout the construction phase until activities are complete. A complaint response protocol should be established for nuisance effects, such as dust, for residents to provide feedback. Regular inspections of dust emissions should be carried out by the contractor (frequency to be defined prior to Project construction) to confirm dust control watering frequency and rates are adequate for control. Contractors and the environmental inspectors should monitor the site for wind direction and weather conditions to ensure that high-risk dust generating activities are reduced when the wind is blowing consistently towards nearby sensitive receptors. The Site Supervisor should also monitor for visible fugitive dust and take action to determine and correct the cause. Specific details regarding monitoring should be included in the AQMP. During the operation, dust should be managed through best management practices and routine maintenance of roadways.

5 Conclusion

Existing air quality conditions indicate that concentrations of NOx (annual) and benzo(a)pyrene (24-hour) are above the applicable air quality thresholds in the Project area. These contaminants often exceed air quality thresholds in urban areas in proximity to highways. Highway 400, Highway 7, and Highway 407 span around the Project location on the west, north, and south sides, respectively. Roadways typically only have a localized influence on air quality and predicted concentrations decline within a very short distance from the road edge.

The preferred alternative design for Millway Avenue and the modified preferred alternative design for Interchange Way were reviewed for potential Project related air emissions. The design changes to the preferred alternative design for Interchange way were minor and therefore do not alter the results of the AQIA completed for the previous alternative design. As a result of the length of new road construction for the Project, a qualitative AQIA was completed as outlined in the MECP Protocol. The Project itself is anticipated to be a relatively minor source when compared to other larger sources within the area and is necessary to help alleviate congestion. The Project is expected to alleviate traffic congestion on surrounding roadways, help to reduce idling and slower moving traffic particularly during peak hours, and disperse emissions. The design of the Project also incorporates pedestrian/cycling infrastructure which can also help to decrease emissions throughout the area. Increased use of electric vehicles or public transport is also anticipated to reduce emissions in the future for the area. With proposed mitigation efforts during construction no substantial impact to air quality is expected.

During construction, dust impacts should be mitigated by implementing a construction AQMP as discussed in Section 4. During the operation, dust should be managed through best management practices and routine maintenance of roadways.