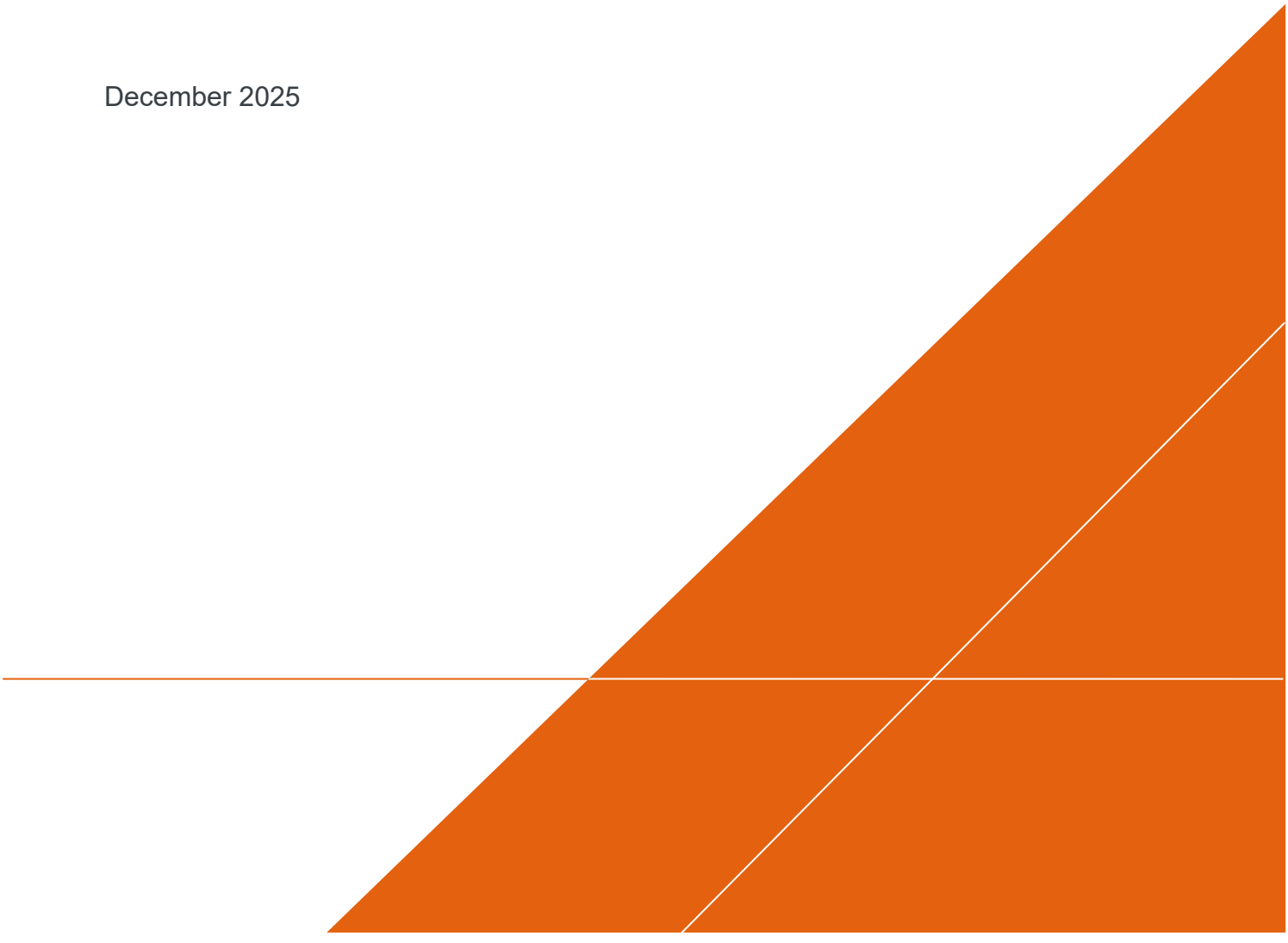
City of Brampton

AIR QUALITY IMPACT ASSESSMENT

Intermodal Drive and Watermain Extension to Gorewood Drive Municipal Class Environmental Assessment

December 2025



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Intermodal Drive and Watermain Extension to Gorewood Drive Municipal Class Environmental Assessment

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1	0	30 March, 2025	Draft	Wasef Jamil
2	1	22 December 2025	Final	Wasef Jamil

EXECUTIVE SUMMARY

City of Brampton has retained Arcadis Professional Services to undertake and complete the necessary studies to evaluate and validate the extension of Intermodal Drive to Gorewood Drive. The project shall be completed as a Schedule "B" Class Environmental Assessment in accordance with the requirements of the MEA Class Environmental Assessment Study.

The following Air Quality Impact Assessment has been prepared in support of the Municipal Class Environmental Assessment (MCEA) Study. The purpose of the AQIA (the Study) is to determine potential air quality impacts generated during construction and operation of the proposed "Intermodal Drive to Gorewood Drive (the "Project").

The modelling results shows that the predicted concentrations of most air contaminants can comply with the standards as set out in Ambient Air Quality Criteria (AAQC) / Canadian Ambient Air Quality Standards (CAAQS) except Benzene and Benzo[a]pyrene (Bap). However, it should be noted that the ambient background concentrations of these two (2) air contaminants in the region are already in an exceedance status of the criteria even without the Project. Section 5 show that air quality impacts contributed from the Project can be considered reasonably negligible.

Based on the findings of this AQIA, Arcadis concludes that the Project has net positive impacts to the Region and is beneficial in support of meeting the overall objective.

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TABLES

APPENDICES

ACRONYMS AND ABBREVIATIONS

µg/m³	Micrograms per Cubic Metre
AADT	Annual Average Daily Traffic
AAQC	Ambient Air Quality Criteria
Arcadis	Arcadis Canada Inc.
AQIA	Air Quality Impact Assessment
BaP	Benzo(a)pyrene
CAAQS	Canadian Ambient Air Quality Standards
CAC	Criteria Air Contaminants
CCME	Canadian Council of the Ministers of the Environment
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CH_4	Methane
CWS	Canada-Wide Standard
ECCC	Environment and Climate Change Canada
g/h	grams per hour
GHG	greenhouse gas
GWP	global warming potential
g/VKT	Grams per Vehicle Kilometre Travelled
MECP	Ontario Ministry of the Environment, Conservation and Parks
MOVES	Motor Vehicle Emissions Simulator
MTO	Ontario Ministry of Transportation
NAPS	National Air Pollution Surveillance program
N_2O	Nitrous oxide
NO_2	Nitrogen dioxide
NO_x	Nitrogen oxides
PAH	Polycyclic aromatic hydrocarbons
PM_{10}	Particulate matter less than 10 microns
$PM_{2.5}$	Particulate matter less than 2.5 microns
ppb	parts per billion
RVP	Reid Vapour Pressure
SO_2	Sulphur dioxide

SCR	Selective Catalytic Reduction
U.S. EPA	United States Environmental Protection Agency
VKT	Vehicle Kilometres Travelled
VMT	Vehicle Miles Travelled
VOCs	Volatile organic compounds

1 INTRODUCTION

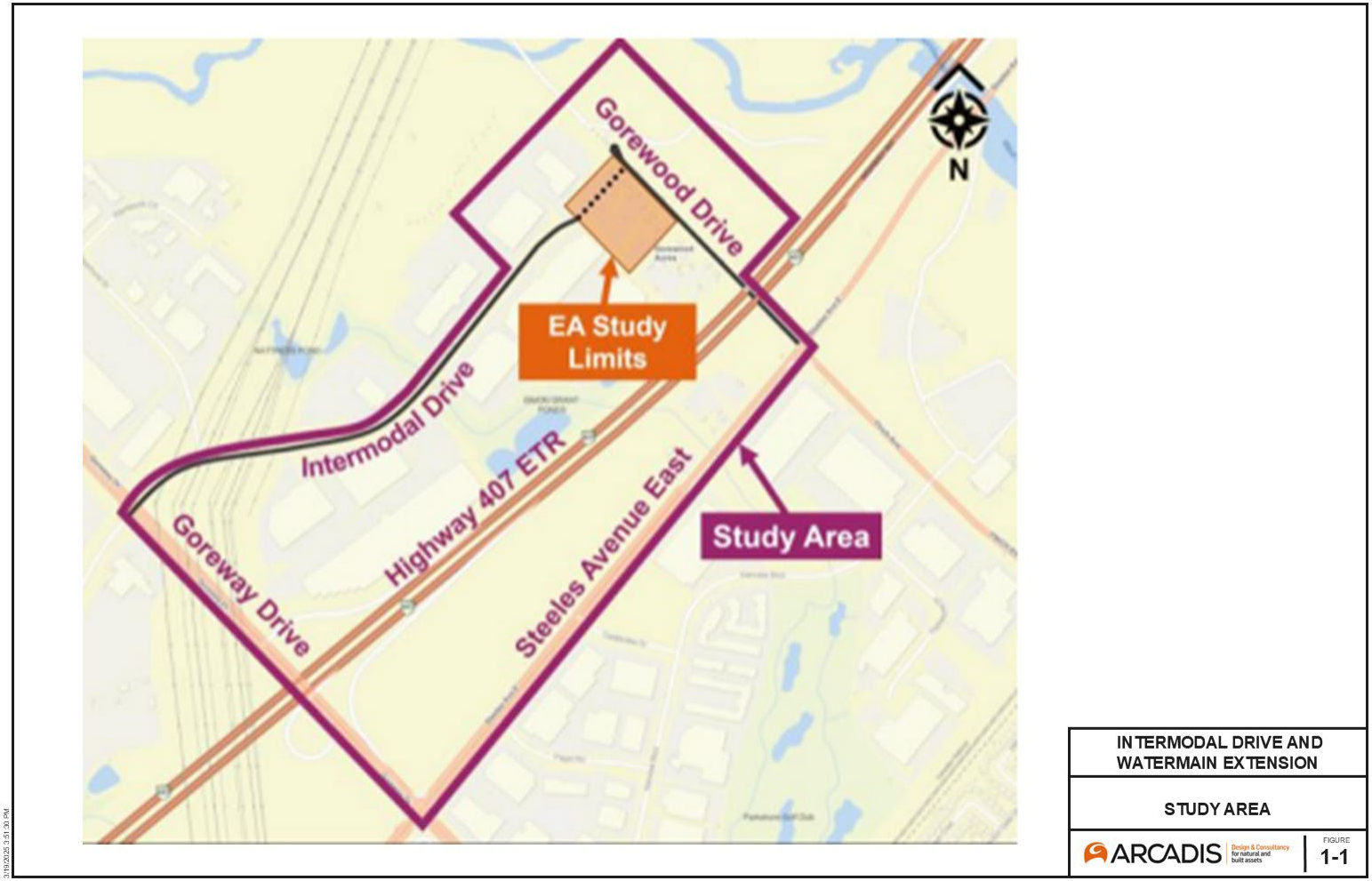
1.1 Project Description

The City of Brampton (the City) has initiated a Municipal Class Environmental Assessment (EA) Study for the extension of Intermodal Drive and Region of Peel watermain to Gorewood Drive (the Project). The recently adopted Brampton Plan (2023) and the Airport Intermodal Secondary Plan (Area 4) identify the easterly extension of Intermodal Drive as a future east-west Collector Road traversing the upper midblock Gorewood properties and connecting to Gorewood Drive. The EA study will include evaluating capacity and active transportation needs, potential safety and operational issues towards achieving Vision Zero, population/employment growth and travel demand management. Arcadis Canada Inc., (Arcadis) was retained by the City of Brampton to complete the Air Quality Impact Assessment (AQIA) in support of this Project. The purpose of the AQIA is to determine potential air quality impacts generated during construction and operation of the Project and to recommend appropriate mitigation measures for any issues identified.

Several road alignment alternatives, namely the initial screening. Alt. 4A, 4B, 4D, 4F & 4G were considered by the City, after careful evaluation, the City has selected the Alt 4G (Figure 1-2) as the preferred alternative (Build Scenario). The following figure provides the outline of the proposed Project, Figure 1-1. The Study Area air quality modelling domain is a 5 km x 5 km square and is illustrated in Figure 1-3.

This AQIA being completed under a work plan that was developed at the onset of the project, was forwarded to the City of Brampton for review and approval.

Figure 1-1 Intermodal Drive Extension Study Area



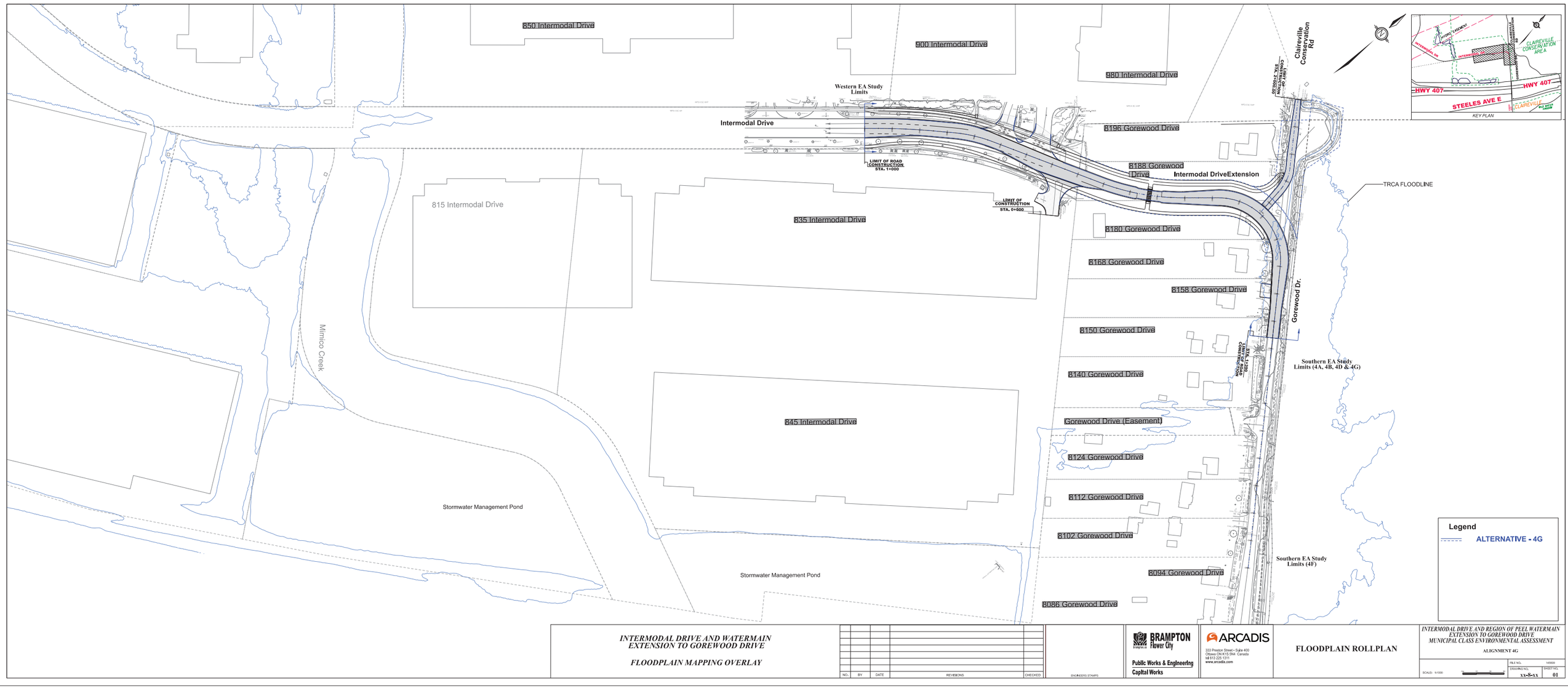
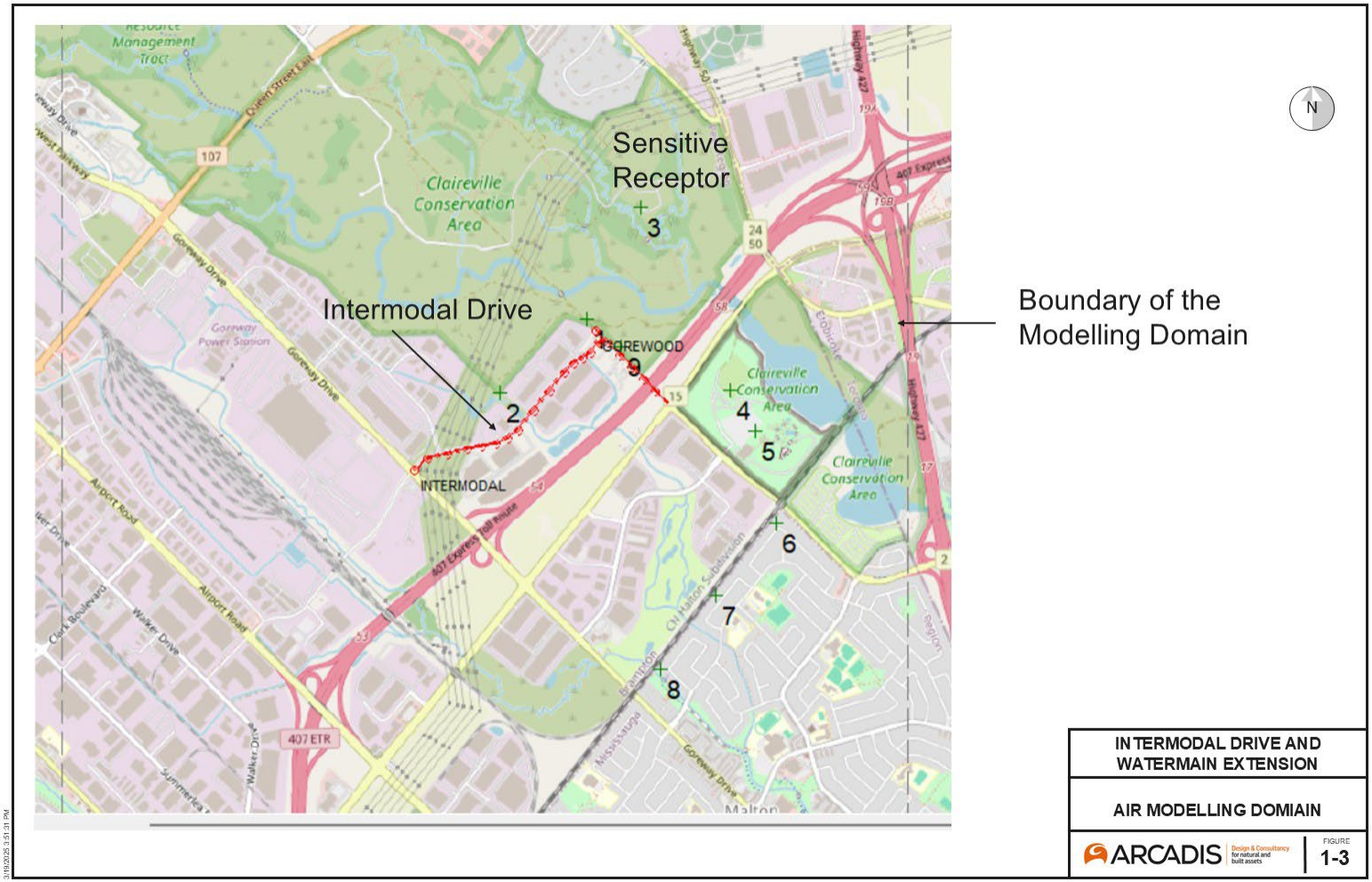


Figure 1-2: Preferred Alternative (4G)

Figure 1- 3 Air Quality Modelling Domain



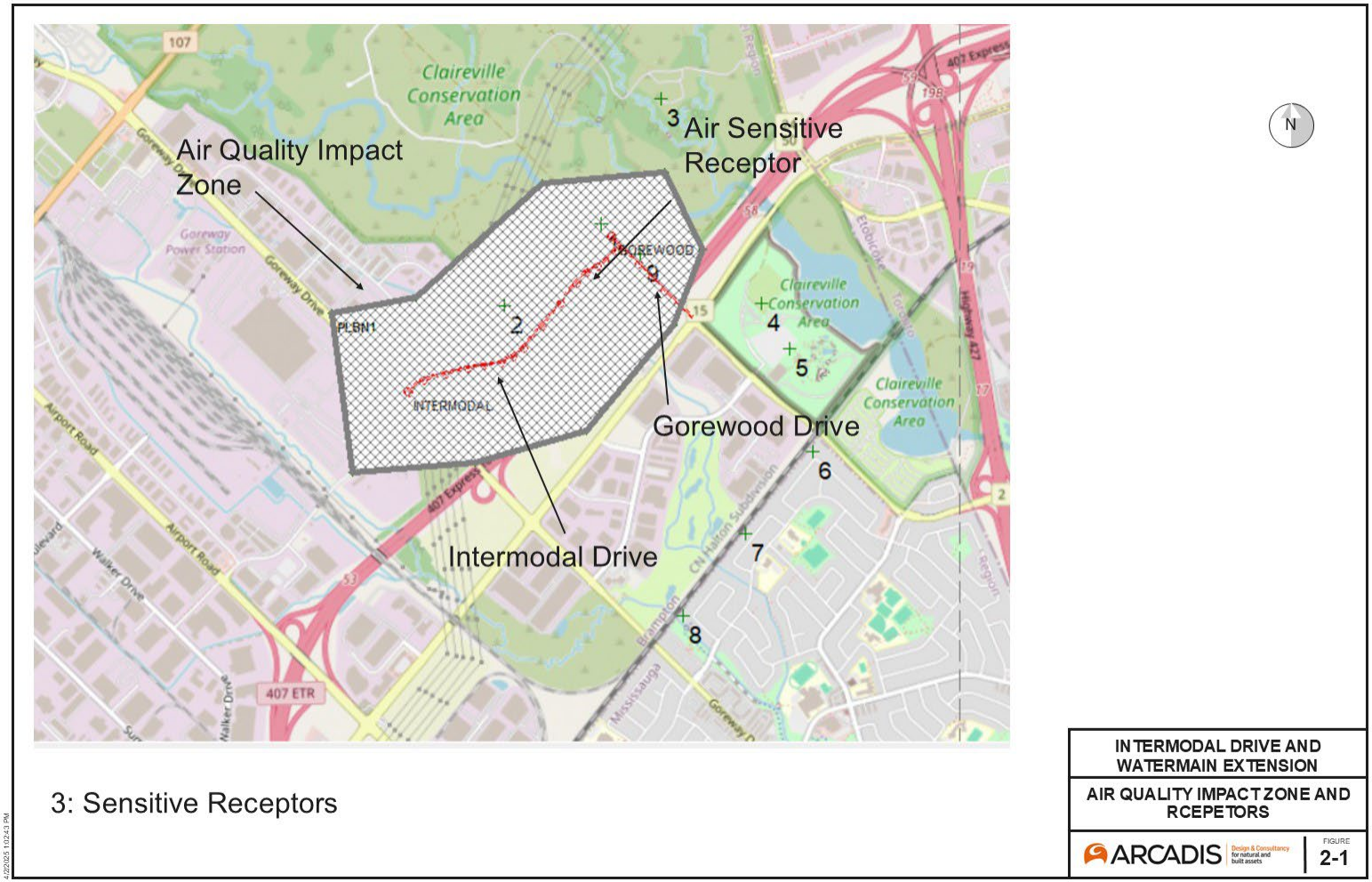
2 STUDY AREA DESCRIPTION

The Study Area is located at an industrial setting surrounded by warehouses and industrial facilities such as aggregate supplier, recycling center, scrap metal dealer, trailer supply store, and distribution centers.

The nearest residential area is about 1.5 kilometers southeast from the Study Area along Wildfern Drive. The Einfahrt zum Indian Line Campground is also located at about 1.5 kilometers southeast from the study area. These two residential receptors are outside the air quality impacts zone.

Sensitive air quality receptors include the Claireville Conservation area, recreational facilities like the TRCA's Etobicoke Field Study Centre, the iRange Toronto Golf Driving Range and the Wet 'n' Wild Toronto Water Park. Sensitive receptors identified, and the air quality impact zone of the Study is illustrated in Figure 2-1.

Figure 2- 1 Air Quality Impact Assessment Zone Along the Proposed Roadway



3 AIR QUALITY IMPACT ASSESSMENT METHODOLOGY

3.1 Ambient Air Quality Criteria

The Ontario Ministry of the Environment, Conservation and Parks (MECP) has developed Ambient Air Quality Criteria (AAQC) as a measure to protect outdoor air quality. An AAQC is a desirable concentration based on the protection against adverse effects on health and/or the environment and is meant to be used to assess general or "ambient" air quality conditions from all sources. As a result, the addition of a background contribution (i.e., sources other than project-related activities) is required before comparing to an AAQC.

The purpose of this assessment is to evaluate the potential effects of the Project on ambient air quality. Therefore, the model-predicted concentrations were added to local background concentrations and compared with the applicable AAQCs. Details about the selected criteria for each air contaminant of concern are provided in the sections below.

3.1.1 Fine Particulate Matter ($PM_{2.5}$) and Particulate Matter (PM_{10})

Particulate matter less than 2.5 microns ($PM_{2.5}$) is known as "respirable" particulate since the particles are generally small enough to be drawn in and deposited into the deepest portions of the lungs. In particular, many studies have indicated that airborne $PM_{2.5}$ is associated with various adverse health effects in people who have compromised respiratory systems from conditions such as asthma, chronic pneumonia and cardiovascular disease. Anthropogenic sources, such as combustion of fossil fuels like diesel, tend to be the largest contributor to $PM_{2.5}$ levels in the environment.

Footnote 8 of *Ontario's Ambient Air Quality Criteria* (AAQC) document (MECP, 2020) presents an ambient air quality guide for decision making for $PM_{2.5}$ of 30 µg/m^3 (24-hour average), which is based on the Canadian Council of the Ministers of the Environment (CCME) Canada-Wide Standard (CWS) for fine particulate matter (CCME, 2000). However, the CCME has since replaced the CWS with a Canadian Ambient Air Quality Standards (CAAQS) which was officially enacted under the *Canadian Environmental Protection Act* on May 25, 2013 (CCME, 2012). The 24-hour $PM_{2.5}$ CWS has been revised to a CAAQS of 28 µg/m³ (effective in 2015) and to 27 µg/m³ (effective in 2020). The CCME has also established an annual $PM_{2.5}$ CAAQS for 2015 (10.0 µg/m³) and for 2020 (8.8 µg/m³).

The new standards are considered in this assessment in lieu of the current CWS for $PM_{2.5}$ identified in the MECP AAQC document. Since the operational life of the Project will extend beyond the aforementioned reference year of 2020, the 2020 CAAQS were applied in this assessment.

Particulate matter less than 10 microns (PM_{10}) is considered the filterable size particulate; however, it has its own health effects and therefore was included in this assessment.

Table 3-1 below presents the $PM_{2.5}$ and PM_{10} ambient air quality criteria used in this assessment.

Table 3-1 Particulate Matter Ambient Air Quality Assessment Criteria/Standards

Pollutant	Averaging Period	Source	Air Quality
$PM_{2.5}$	24-hour	CAAQS	27 µg/m^3 [a]
	Annual	CAAQS	8.8 µg/m^3 [b]
PM_{10}	24-hour	AAQC	50 µg/m^3

Notes:
[a] The 2020 CAAQS for 24-hour $PM_{2.5}$ is based on the 98th percentile of 24-hour average concentrations, averaged over 3 consecutive years (CCME 2012).
[b] The 2020 CAAQS for annual $PM_{2.5}$ is based on the 3 consecutive years average of the average annual concentrations (CCME 2012).

3.1.2 Criteria Air Contaminants

Criteria air contaminants (CACs) including nitrogen oxides (NO_x), sulphur dioxides (SO_2) and CO are considered common pollutants released into the air by activities such as the combustion of fossil fuels. Ozone is a CAC related to transportation; however, it is considered a secondary pollutant since it is formed through the photochemical reactions between NO_x and Volatile organic compounds (VOCs) directly emitted from transportation sources. Although Ozone has not been included in this assessment, the primary pollutants, including the Ozone precursors, have all been assessed as part of this study.

Nitrogen dioxide (NO_2) is a reddish brown, highly reactive gas that can be formed during high-temperature combustion in the presence of air. NO_x is the sum of NO, NO_2 and other oxides of nitrogen that play a major role in the formation of ozone. NO_2 has adverse health effects at much lower concentrations than NO. Consequently, the Ontario AAQC is based on the health effects of NO_2. The AAQC for NO_2 is 400 µg/m^3 for a 1-hour averaging period and 200 µg/m^3 for a 24-hour averaging period. There is currently no annual AAQC established for NO_2. In November 2017, the CCME announced new 1-hour and annual average CAAQS for NO_2. The 1-hour standard is 60 ppb or 113 µg/m^3 (effective from 2020) and 42 ppb or 79 µg/m^3 (effective from 2025). The annual standard for 2020 is 17 ppb or 32 µg/m^3 (effective from 2020) and 12 ppb or 22.6 µg/m^3 (effective from 2025). The 1-hour CAAQS for NO_2 are more stringent than the AAQC. Since the operational life of the Project will extend beyond 2025, the 2025 CAAQS were applied in this assessment.

Sulphur dioxide (SO_2) is a colourless gas that smells like burnt matches. It can be oxidized to sulphur trioxide, which in the presence of water vapour, is readily transformed to sulphuric acid mist. SO_2 can be oxidized to form acid aerosols, and is a precursor of particulate sulphates, which are one of the main components of respirable particulates in the atmosphere. The AAQC for SO_2 24-hour averaging period is 275 µg/m^3, and 55 µg/m^3 for an annual averaging period. In October 2016, the CCME officially enacted new 1-hour and annual average CAAQS for SO_2 which are more stringent than the current AAQCs. The 1-hour SO_2 CAAQS is 70 ppb or 193 µg/m^3 (effective in 2020) and 65 ppb or 179 µg/m^3 (effective from

2025). The CCME has also established an annual SO_2 CAAQS for 2020 (5.0 ppb or 14 µg/m^3) and for 2025 (4.0 ppb or 11 µg/m^3). The 2025 CAAQS were applied in this assessment. In March 2018, the MECP updated AAQC for SO_2 that will take effect on July 1, 2023. The AAQC are 100 µg/m^3 and 10 µg/m^3 for the 1-hour and annual averaging periods, respectively. Since the 1-hour criteria is more stringent than the CAAQS, results of this assessment were also assessed against this standard.

Carbon monoxide (CO) is a colourless, odourless gas, formed when hydrocarbon-based fuels are not completely combusted. It is a component of motor vehicle exhaust, with high concentrations of CO generally occurring in areas with heavy traffic congestion. The AAQC for CO is 36,200 µg/m^3 for a 1-hour averaging period and 15,700 µg/m^3 for an 8-hour averaging period.

The ambient air quality criteria used in this assessment for criteria air contaminants are summarized in Table 3-2.

Table 3-2 Ambient Air Quality Assessment Criteria for NO_2, SO_2 and CO

Pollutant	Ambient Air Quality Assessment Criteria (µg/m^3)			
	Annual	24-hour	8-hour	1-hour
NO_2	22.6[b] (CAAQS)	200 (AAQC)	--	79 [a] (CAAQS)
SO_2	10[c,d] (AAQC, CAAQS)	275 (AAQC)	--	100[c] (AAQC)
CO	--	--	15,700 (AAQC)	36,200 (AAQC)

Notes:
[a] The 2025 CAAQS is based on the 3-year average of the annual 98th percentile of the NO_2 daily maximum 1-hour average concentrations (CCME 2017).
[b] The 2025 CAAQS is based on the arithmetic average over a single calendar year of all 1-hour average NO_2 concentrations (CCME 2017).
[c] The annual and 1-hour AAQC for SO_2 will take effect on July 1, 2023 (MECP 2018).
[d] The 2025 CAAQS is based on the arithmetic average over a single calendar year of all 1-hour average SO_2 concentrations (CCME 2016).

3.1.3 Volatile Organic Compounds

Volatile organic compounds (VOCs) are defined technically as organic compounds having a saturation vapour pressure greater than 0.1 mm of mercury at 25 degrees Celsius (°C) and standard atmospheric pressure. Certain VOCs warrant special concern because they are capable of being transported very long distances in the atmosphere and play an important role in the formation of ground-level ozone and fine particulates. As part of this assessment, six (6) typical VOCs that are emitted from vehicles were included: acetaldehyde, acrolein, benzene, 1-3-butadiene, formaldehyde, and benzo(a)pyrene, which is a key representative of polycyclic aromatic hydrocarbons (PAHs).

The ambient air quality criteria used in this assessment for each of these VOCs are presented in Table 3-3.

Table 3-3 Ambient Air Quality Criteria for Selected VOCs

Pollutant	Ambient Air Quality Criteria (µg/m³)		
	Annual	24-hour	1-hour
Acetaldehyde	--	500	--
Acrolein	--	0.4	4.5
Benzene	0.45	2.3	--
1-3 Butadiene	2	10	--
Formaldehyde	--	65	--
Benzo(a)pyrene	1.0E-05	5.0E-05	--

3.1.4 Greenhouse Gases

Fossil fuel combustion is the main source of GHG emissions related to this Project, which results in emissions of carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). For a given mixture of different GHGs, the carbon dioxide equivalent (CO_2e) is the unit of measure used to describe the amount of CO_2 that would have the same global warming potential as a mixture of GHGs when measured over a time period (typically a 100-year period). The CO_2e for a gas is calculated by multiplying the mass of the gas by its global warming potential (GWP). For example, the GWP for CH_4 over 100 years is 21 and for N_2O is 310 (IPCC, 2023). This means that the emission of 1 tonne of CH_4 is equivalent, in its warming potential, to the emission of 25 tonnes of CO_2, and the emission of 1 tonne of N_2O is equivalent to the emission of 298 tonnes of CO_2. There are no ambient air quality criteria for greenhouse gases.

3.2 Dispersion Modelling

In accordance with the work plan developed in consultation with the City of Brampton, an air quality assessment was conducted for the Baseline Condition (2024) and the Build Scenario (with Intermodal Drive Extension) and No Build Scenario (without Intermodal Drive Extension) in horizon year 2051. The work plan was developed in accordance with the Ontario Ministry of Transportation guidance document "*Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects" (MTO, 2020)*."

The assessment estimated the net change in pollutant emissions due to the Project in the transportation corridor for each pollutant of concern: carbon monoxide (CO), nitrogen dioxide (NO_2), sulphur dioxide (SO_2), volatile organic compounds (VOCs) (including 1,3-butadiene, acrolein, acetaldehyde, benzene, and formaldehyde), benzo(a)pyrene, which is a key representative of polycyclic aromatic hydrocarbons (PAHs), particulate matter less than 10 microns (PM_{10}), and particulate matter less than 2.5 microns ($PM_{2.5}$). To evaluate the potential impact of the Project on ambient air quality, the AERMOD V22112 model was used to predict concentrations for those contaminants of concern. Model-predicted concentrations were added

to local background concentrations and compared to applicable provincial and/or federal ambient air quality criteria. The air quality criteria used for this assessment are outlined in Section 3.1.

Where there are estimated increases in emissions due to the Project, their significance relative to emissions incurred on the corridor in the future reference year was estimated. As established by MTO, an increase of more than 10% is deemed significant. However, it should be noted that due to the road extension, the worst-impacted receptors in the Build and No-Build Scenarios are not always the same.

In addition to modelling air contaminants of concern, the change in greenhouse gas (GHG) emissions was also evaluated following the assessment approach outlined in MTO's "*Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects" (MTO, 2020).* The effects of the Project on climate change are considered and the assessment follows the draft guidance for the *"Consideration of Climate Change in Environmental Assessment in Ontario*" (MOECC, 2016). Details of the complete GHG and climate change assessment methodology are provided in Section 6.

3.3 Emission Inventory

To assess the impact on air quality from the presence of the proposed roadway, an GHG emissions inventory for the Project in future year 2024 and 2051, was completed.

This AQIA estimated the number of vehicle-kilometers travelled (VKT) within the study area incurred by private passenger vehicles (cars and light trucks) as well as heavy vehicles such as transport trucks. Based on the VKT estimates, emissions for GHG of concern were estimated including CH_4, N_2O, and CO_2. Emissions were estimated for future build conditions in year 2024 and 2051.

3.4 Tailpipe Emissions

The vehicular exhaust emission rates were estimated for the Future Build scenarios. Emission factors were obtained by running the U.S. EPA MOVES3.1 model. The model output provided emission factors in grams per vehicle-kilometer travelled (g/VKT) for all contaminants of concern. All expected technological and regulatory changes affecting future emissions are built into the model, in order to generate the most representative emission factors possible. MOVES3.1 inputs parameters used in this assessment are provided in Appendix A.

All contaminants of concern considered in this study are emitted in vehicle exhaust. Additionally, particulate matter (PM_{10} and $PM_{2.5}$) is emitted from the roadway surface as a result of tire/brake wear, and re-suspension of surface dust by: (1) the action of the tires on the surface; and (2) the wake created by the passing of the vehicle. Both tailpipe and mechanically generated fractions of PM_{10} and $PM_{2.5}$ were included in this study. Tailpipe emissions from vehicles are a function of many variables. Some of the more important parameters are listed below:

- age of the vehicle (newer vehicles emit less);

- number of kilometers which the vehicle has driven;
- emission control equipment;
- type of fuel (gasoline, diesel);
- Reid Vapour Pressure (RVP) of gasoline used (adjusted seasonally);
- ambient air temperature;
- vehicle speed;
- type of vehicle (car, light truck, heavy truck, bus, etc.).

Vehicular emissions are generally estimated by using emission factors in units of mass of contaminant emitted per vehicle, per distance travelled. To obtain a mass emission rate for a particular road section, the length of the road section is multiplied by the number of vehicles using that section to obtain the total VKT. The VKT are then multiplied by the appropriate emission factors.

Table 3-4 and 3-5 summarizes the final criteria air contaminants and GHG vehicular exhaust emission factors used in the future reference year 2024 and 2051 for vehicle speed at 50 kph. Units of the emission factors are in g/VKT.

Table 3-4 Tailpipe Emission Factors for Passenger Vehicle and Heavy Vehicle at Year 2024 and 2051

Year	Speed (km/h)	Private Passenger Vehicle (g/VKT)										
		PM_{10}*	$PM_{2.5}$*	CO	NOx	SO_2	1,3-Butadiene	Acetaldehyde	Acrolein	Benzene	Formaldehyde	Benzo[a]pyrene**
2024	50	3.52E-02	6.58E-03	1.97E+00	1.02E-01	4.07E-03	8.36E-05	4.08E-04	4.08E-04	1.81E-03	7.01E-04	9.43E-07
2051	50	3.38E-02	5.34E-03	7.84E-01	1.64E-02	2.56E-03	0***	1.32E-04	1.45E-05	8.97E-04	2.83E-04	3.67E-07
Year	Speed (km/h)	Trucks (g/VKT)										
		PM_{10}*	$PM_{2.5}$*	CO	NOx	SO_2	1,3-Butadiene	Acetaldehyde	Acrolein	Benzene	Formaldehyde	Benzo[a]pyrene**
2024	50	1.65E-01	5.62E-02	2.80E+00	1.87E+00	1.90E-03	2.69E-04	4.04E-03	4.42E-04	2.59E-03	6.48E-03	4.83E-06
2051	50	1.34E-01	2.44E-02	1.75E+00	1.29E+00	1.75E-03	0.00E+00	2.08E-03	8.47E-05	8.78E-04	2.13E-03	6.18E-07

Year	Speed (km/h)	Composited Emission Factors for this Project **** (g/VKT)										
		PM_{10}*	$PM_{2.5}$*	CO	NOx	SO_2	1,3-Butadiene	Acetaldehyde	Acrolein	Benzene	Formaldehyde	Benzo[a]pyrene**
2024	50	9.11E-02	2.79E-02	2.33E+00	8.61E-01	2.11E-05	1.63E-04	1.97E-03	2.12E-04	2.15E-03	3.19E-03	2.58E-06
2051	50	7.69E-02	1.35E-02	1.20E+00	5.62E-01	1.75E-05	0***	9.69E-04	4.47E-05	8.89E-04	1.08E-03	4.75E-07

Table 3-5 Tailpipe GHG Emission Factors for Cars and Heavy Vehicles at Year 2024 and 2051

Year	Speed (km/h)	Passenger Cars (g/VKT)			
		CH4	N2O	Atmospheric CO_2	CO_2e*
2024	50	4.52E-03	1.29E-03	2.00E+02	2.00E+02
2051	50	2.77E-03	9.14E-04	1.57E+02	1.57E+02
Year	Speed (km/h)	Heavy Trucks (g/VKT)			
		CH4	N2O	Atmospheric CO_2	CO_2e*
2024	50	1.74E-02	3.10E-03	8.01E+02	8.03E+02
2051	50	1.76E-02	2.43E-03	6.80E+02	6.82E+02

Year	Speed (km/h)	Composited Emission Factors (g/VKT)			
		CH4	N2O	Atmospheric CO_2	CO_2e*
2024	50	1.01E-02	2.07E-03	4.58E+02	4.59E+02
2051	50	9.13E-03	1.56E-03	3.82E+02	3.83E+02

* Assumes the following global warming potentials: CH_4 = 21 and N_2O = 310

3.5 Mechanically Generated Dust Emissions

Emission factors for re-suspended particulate (PM_{10} and $PM_{2.5}$) created by vehicles travelling along Intermodal Drive and Gorewood Drive were included in the assessment area were estimated using the methodology contained in Chapter 13.2.1 of the U.S. EPA's AP-42 document.

Equation 7.1 from Chapter 13.2.1 was used to estimate emissions:

$$E_i = k * (sL)^{0.91} * (W)^{1.02}$$

Where:

E_i = particulate emission factor (g/VKT)
k= particulate size multiplier (g/km)
sL = silt loading factor (g/m^2)
W = average vehicle weight (tons)

The emission factors calculated for re-suspended $PM_{2.5}$ and PM_{10} are summarized in Table 3-6 as shown below for different scenarios in the assessment.

Table 3-6 Summary of Annual Re-suspended Particulate Matter Emissions

Contaminant	Scenario/Year	ADT Category	Particulate Size Multiplier (g/VKT)[ii]	Average Vehicle Weight (tons)[iii]	Silt loading (g/m^2)	Re-Suspended PM (g/VKT)i
PM_{10}	2024	5,000 -10,000	0.62	12.4	0.06	0.6249
$PM_{2.5}$	2024		0.15	12.4	0.06	0.1512
PM_{10}	2051 NB		0.62	12.4	0.06	0.6249
$PM_{2.5}$	2051 NB		0.15	12.4	0.06	0.1512
PM_{10}	2051 BD		0.62	12.4	0.06	0.6249
$PM_{2.5}$	2051 BD		0.15	12.4	0.06	0.1512

Notes:

(i) Equation 13.2.1 USEPA AP-42 Chapter 13

(ii) Particle size parameters are from AP-42 Chapter 13

(iiI) Assume average gross weight of cars and heavy vehicle is 2.8 and 22 tons respectively. Source: (Highway 407 Transitway AQIA, MTO December 2016)

3.6 Air Dispersion Modelling

Local air quality impacts are characterized by concentrations of contaminants emitted from the sources within the study area. These concentrations will vary spatially and temporarily in response to changing atmospheric conditions (wind speed, wind direction, temperature, atmospheric stability and mixing height) and the amount of pollutant emitted. To calculate the concentration at a given location, an atmospheric dispersion model is used. The model takes the emissions from a source and disperses them into the surrounding atmosphere, typically using historical hourly meteorological data from a local weather station.

To assess the impact on air quality within the study area, air dispersion modelling was completed using the Ministry of Transportation (MTO) recommended air dispersion model, as provided in the guidance document, *Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects* (MTO, 2020).

Local air quality impacts related to the Project emissions were assessed for eleven (11) pollutants and resulting concentrations were obtained for three different scenarios.

3.6.1 AERMOD

AERMOD is a steady-state plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain. Roadways are modelled as Line Area Source in AERMOD.

Modelling air quality impacts from signalized traffic intersections is one of the major capabilities of the CAL3QHC/R model. However, there is no signalized traffic intersections in the Study Area and significant traffic delay is not expected to occur. As a result, the AERMOD model was used instead of CAL3QHC/R in this AQIA.

3.7 Meteorological Data

MECP processed 5-year (2018-2022) site-specified meteorological dataset for were used in the assessment.

3.8 Terrain Data

The recommended terrain file “cdem_dem_030M.tif” was downloaded from MECP’s website and was used in the Study.

3.9 Air Quality Sensitive/Critical Receptors

Usually, receptors within 500-meter radius (Air Quality Impact Zone) from the Project will be assessed. The is no identified critical receptors such as hospital, retirement home, and childcare facility within the Study area. As presented in Table 3-7, only three (3) sensitive (residential or recreational use) receptors (namely

R1, R2 and R9) are within 500-meter radius of identified. There are several receptors located outside the Air Quality Impact Zone but maybe of interest to the public. Therse receptors are the iRange Toronto Golf Driving Range, the Wet 'n' Wild Toronto Water Park and the Einfahrt zum Indian Line Campground and residential area along the railroad track to the east of Route 407. These receptors are also included in the assessment and modelling results are presented in Appendix C.

Table 3-7 Identified Air Sensitive Receptor in the Study Area

Receptor ID	X Coordinate	Y Coordinate	Sensitive Receptor Locations	Distance From the Project (m)*
R1	608420	4844697	Claireville Conservation Area Gorewood Private Road Entrance	100
R2	607911	4844261	Claireville Conservation Area West Side	200
R3	608740	4845357	TRCA's Etobicoke Field Study Centre	800
R4	609270	4844278	iRange Toronto Golf Driving Range	830
R5	609419	4844033	Wet 'n' Wild Toronto Water Park	1080
R6	609545	4843490	Residential area east of 407 and Einfahrt zum Indian Line Campground	1530
R7	609185	4843060	Residential area east of 407	1660
R8	608858	4842627	Residential area east of 407	1920
R9	608626.5	4844535.4	Claireville Conservation Area NE Side	150

*Only R1, R2 and R9 are within the 500-meter Air Quality Impact Zones

3.10 NO_x to NO_2 Conversion

NO_x emissions are composed of nitric oxide (NO) and nitrogen dioxide (NO_2), with adverse health effects resulting from NO_2 at much lower concentrations than NO. Once NO is emitted to the atmosphere it begins to react with other contaminants (primarily ground-level ozone – O_3) to produce NO_2. Depending on the amount of ozone present, only a portion of NO_x will be converted to NO_2. However, for the purpose of this assessment, it has been conservatively assumed that all NO_x will be converted to NO_2.

3.11 Existing Background Air Quality

Ambient background concentrations used in the air quality assessment represent the cumulative contribution of upwind sources such as industrial facilities, other roadways and transboundary pollution that are not included in the modelling. It is important to add background concentrations to modelled concentrations in order to assess the combined effect of all sources at a specific receptor location.

The MECP measures air contaminants at various locations throughout Ontario, and reports on the state of Ontario's air quality on an annual basis. A review of MECP monitoring stations in Ontario was undertaken to identify the monitoring stations that would be most representative of the Study Area and provide a conservative cumulative assessment. Data was obtained for the most recent consecutive five years available from the nearest representative monitoring stations in the Study Area. The 90th percentile values are considered conservative as they represent values that will only be exceeded 10% of the time under adverse meteorological conditions.

Environment and Climate Change Canada (ECCC) measures air contaminants at various locations throughout Canada, including Ontario, through its National Air Pollution Surveillance program (NAPS). Since not a single monitoring station measure all contaminants of interest in the Study, the ambient background air quality data were selected from three (3) representative stations, these include Brampton Station (NAPS ID 060450), Toronto Station at 125 Resources Road (NAPS ID 060430), Toronto Station at 401W - 125 Resources Road (NAPS ID 060438), Toronto West (NAPS ID 060438)

Table 3-8 outlines the monitoring stations considered for the study of Existing Conditions for the Project. Furthermore, Table 3-8 also summarizes the background data used, i.e., the 90th percentile concentrations of contaminants considered in this assessment. Table 3-8 shows that most ambient background concentration are below the AAQC/ CAAQS Standard except annual average Benzene, 24-hour average and annual average BaP.

Table 3-8 Summary of Monitoring Stations and Ambient Background Air Quality Conditions

					90th Percentile Concentrations (µg/m^3)								
Contaminant	Averaging Period (hr)	NAPS Station	Station ID	Data Source	2017	2018	2019	2020	2021	2022	Maximum	AAQC/ CAAQS Standard (µg/m^3)	% of Criteria
NO_2	1	BRAMPTON	60450	NAPS	37	36	38	30	29	ND	38	79	48%
	24	BRAMPTON	60450	NAPS	31	30	31	25	25	ND	31	200	16%
	Annual	BRAMPTON	60450	NAPS	15	15	12	13	12	ND	15	22.6	68%
CO	1	TORONTO	60438	NAPS	618	595	595	527	595	ND	618	36200	2%
	8	TORONTO	60438	NAPS	561	572	572	458	572	ND	572	15700	4%
PM_{10}[1]	24	BRAMPTON	60450	NAPS	22	24	24	20	22	ND	24	50	48%
$PM_{2.5}$	24	BRAMPTON	60450	NAPS	12.0	13.0	13.0	11.0	12.0	ND	13	27	48%
	Annual	BRAMPTON	60450	NAPS	6.95	7.30	4.17	7.00	7.17	ND	7	9	83%
SO_2	1	TORONTO	60430	NAPS	2.35	2.09	1.31	1.05	1.31	ND	2.4	100	2%
	24	TORONTO	60430	NAPS	2.35	2.35	1.57	1.31	1.57	ND	2.4	275	1%
	Annual	TORONTO	60430	NAPS	1.39	0.84	0.71	0.50	0.63	ND	1.4	10	14%
Acetaldehyde[3 7]	24	TORONTO	60438	NAPS	ND	2.609	3.022	ND	ND	ND	3.0	500	1%
Acrolein[2 4 6]	1	TORONTO	60438	NAPS	ND	0.15	ND	ND	ND	ND	0.15	4.5	3%
	24	TORONTO	60438	NAPS	ND	0.061	ND	ND	ND	ND	0.06	0.4	15%
Benzene[3 6]	24	TORONTO	60438	NAPS	0.98	0.80	0.64	ND	0.70	0.63	0.98	2.30	43%
	Annual	TORONTO	60438	NAPS	0.68	0.64	0.51	ND	0.55	0.46	0.68	0.45	150%
Benzo(a)pyrene[5 6]	24	TORONTO	60438	NAPS	5.4E-05	1.3E-04	1.1E-04	ND	6.7E-05	1.1E-04	1.3E-04	0.00005	264%
	Annual	TORONTO	60438	NAPS	2.9E-05	9.3E-05	7.4E-05	ND	5.1E-05	5.2E-05	9.3E-05	0.00001	934%
Formaldehyde [2 6]	24	TORONTO	60438	NAPS	ND	2.4	2.9	ND	ND	ND	2.9	65	4%
1,3-Butadiene[3 6]	24	TORONTO	60438	NAPS	0.110	0.081	0.072	ND	0.080	0.076	0.11	10	1%
	Annual	TORONTO	60438	NAPS	0.070	0.065	0.053	ND	0.059	0.050	0.07	2	4%

Notes:

ND: No data or not enough data

Pollutants concentrations exceed relevant criteria are highlighted in RED.

[1] PM_{10} is not measured all National Air Pollution Surveillance (NAPS) Stations, and its concentrations are calculated by dividing $PM_{2.5}$ concentrations to a ratio of 0.54.

Source: Estimation of historical annual $PM_{2.5}$ exposures for health effects assessment", Atmospheric Environment Journal Issue 38, (2004)"

[2] Data from Station ID 60438 were used from 2018 to 2020 for Carbonyls such as Acetaldehyde, Acrolein and Formaldehyde.

Ontario has no data for Acetaldehyde and Formaldehyde in 2020 and 2021

[3] Only 2 months of measured data is available at all stations for Benzene and 1,3-Butadienein in 2020

[4] 1-hr Acrolein concentrations were not measured and calculated follow the MECP's methodology per the MECP's "Procedure for Preparing an Emission Summary and Dispersion Modelling Report" Acrolein was not measured in Ontario from 2019 to 2022

[5] Only 1.5 months of measured data is available for Benzo(a)pyrene in 2020

[6] VOCs, Carbonyl and PAH are measured every six days or more. Data gaps were filled by the 90th percentile of the existing data. Data between 2018 to 2021 were from Station ID 06438

Raw data are collected from National Air Pollution Surveillance (NAPS) stations and processed by Arcadis. Not a single station measures all air contaminants, if a particular contaminant is not measured at the nearest station, data from the most representative station were used. The most recent five years data are from 2017 to 2022.

Monitored data from monitoring stations selected in the AECOM's Final Environmental Condition Report were used. However, if measured data is not available from these selected stations, the most representative station with available data were used.

The ambient concentrations of benzene (annual average) and benzo(a)pyrene currently exceed their respective AAQCs. The stations are considered representative of ambient air within the Study Area due to their proximity and data availability. Ambient air quality was estimated using 90th percentile ambient pollutant concentrations for appropriate time averaging periods. Gaps of six (6) days or more in raw background data measurements were filled using the 90th percentile of the existing data set for each station. For each contaminant, the selected background concentrations the maximum values measured from 2018 to 2022. It should be noted that historical monitoring data for PM_{10} are not available at any of these selected monitoring stations. As a result, PM_{10} background data were calculated using $PM_{2.5}$ monitoring data and a correlation factor of 0.54.

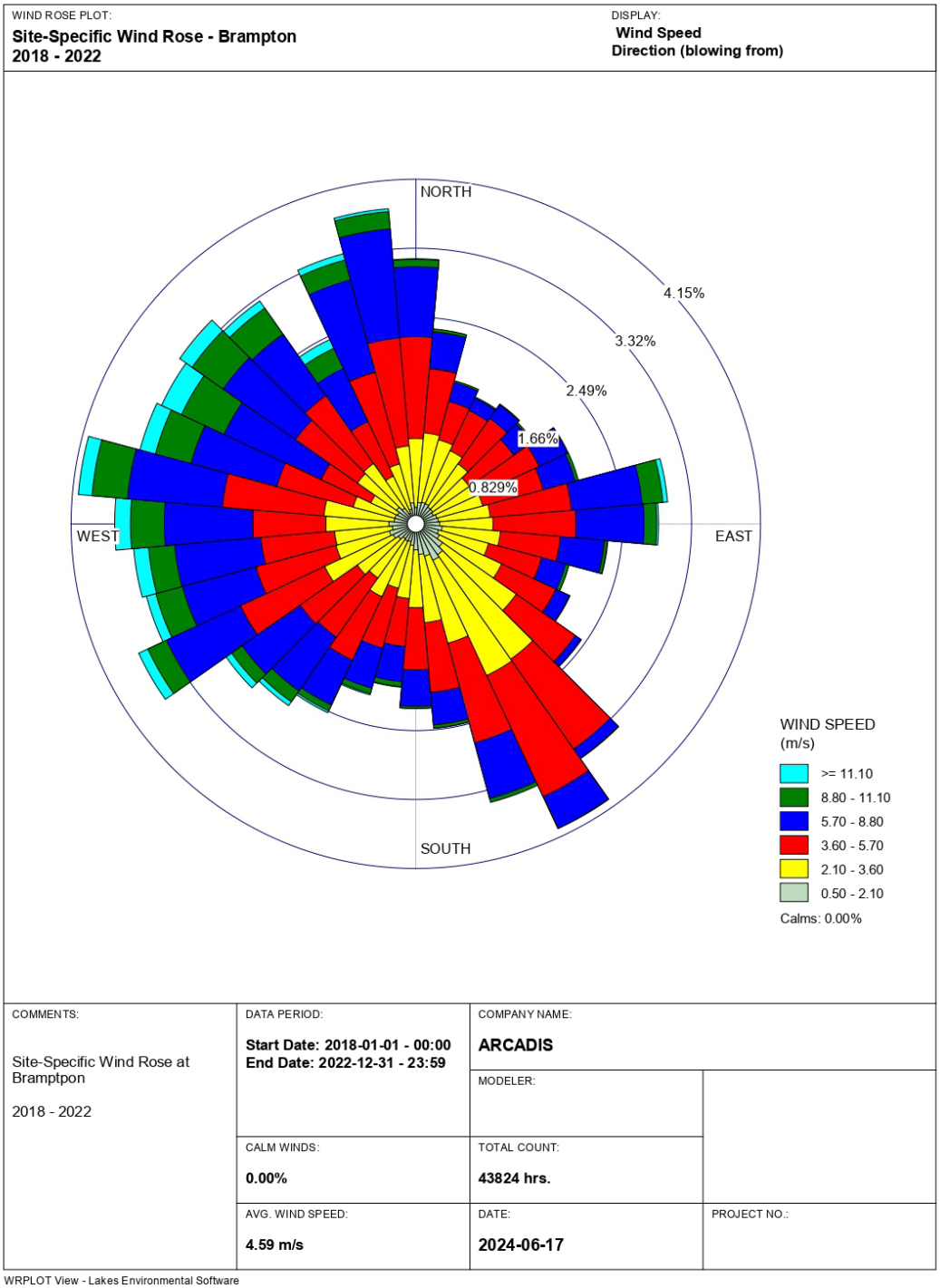
3.12 Meteorological Conditions

The dispersion modelling uses a 5-year (2018 to 2022) site-specific meteorological dataset prepared by the Ministry of the Environment, Conservation and Parks (MECP) with wind-sector dependent land use specific to the site identified in the Air Quality Assessment. The upper air and surface data are from the U.S. National Weather Service's Buffalo and the NAV Canada's Toronto international airport stations respectively, with missing data filled with those of the MECP prognostic dataset for the Toronto international airport station from the advanced research version of the Weather Research and Forecasting (WRF-ARW) model.

The site-specific meteorological data referenced as the Toronto international airport data is a reasonable reflection of the meteorological conditions for the proposed modelling assessment.

The frequency distribution of hourly surface wind speed and direction from the dataset presented in the form of a wind rose (i.e., a graphical representation of the frequency of winds from each direction) is presented on Figure 3-1. The average wind speed was 4.59 m/s.

Figure 3-1 Site-Specific Wind Data during the Period 2018 to 2022 (wind blowing from)



4 IMPACT ASSESSMENT

To assess the impact of the Project on air quality within the Study Area, the maximum predicted pollutant concentrations due to the traffic along the Intermodal Drive in calendar year 2024 and 2051 were compared against the applicable criteria and standards.

As identified in Section 3, three (3) sensitive receptor was chosen to represent the air quality impacts in the Baseline and Future scenarios,

4.1 Description of Assessment Scenarios

The potential air quality impacts associated with the Project were assessed by predicting air contaminant concentrations under three scenarios: Baseline (2024) and Future No-Build, and Future-Build in horizon years, 2051. Descriptions and assumptions used in each of the assessment scenarios are detailed in the following sections.

Baseline 2024, Future No-Build and Future Build (2051)

Year 2024 is chosen as the Baseline Conditions. The differences in the two future scenarios are the number of vehicles in the Build and No-Build scenario, the length of Intermodal Drive and Gorewood Drive.

The modelled tailpipes emission rates for the contaminants of concern generally decreases from year 2024 to 2051. But the rates of decrease are various among the contaminants. For example, emissions rates of CH_4 at 50 km/h vehicle speed decreased by 17% while the emission rates of N_2O decreased by 24%, in comparison. At the same time, the AADT of the Intermodal Drive and Gorewood Drive increased from 10,400 to 16,500 as provided in Table 4-1. This explains why CO_{2eq} increased by 53% from 2024 Baseline Scenario to 2051 Build Scenario.

Table 4-1 Annual Average Daily Traffic Volumes (AADT) for Intermodal Drive and Gorewood Drive

Future Horizon Year	AADT	EB Split	WB Split
2024 Baseline	10,400	50%	50%
2051 Build	16,500	50%	50%

5 RESULTS OF AIR QUALITY IMPACT ASSESSMENT

This section discusses both operational and construction phase air quality impacts for the Project. However, air quality impact from construction activity is expected to be temporary in nature and unlikely to have long-lasting effects on the proposed road extension and therefore discussed qualitatively in Section 6.1. Air quality mitigation measures during operational and construction phase are discussed in Section 7.1 and 7.2 respectively.

5.1 Construction Air Quality Impacts

This section discusses potential air quality impacts during construction phase of the Project qualitatively. The primary air quality concern from construction activities is dust generation due to material processing and combustion emissions from the operations of heavy construction equipment and vehicles.

The construction activities associated with the Project include the construction of bus stop, platforms, bus lanes and walkways. Major air emissions associated with construction include fugitive dust and construction vehicles and equipment tailpipe emissions. The sources are summarized below.

Sources of Construction Dust (PM_{10} and $PM_{2.5}$) include:

- Road Surfaces: Dust from roads and access areas generated by haulage trucks and other mobile machinery movements during dry and windy conditions;
- Site Preparation: Bulk earthwork operations, such as excavation, rock breaking and clearing of vegetation i.e., disturbance of any dry material;
- Fabrication Processes: Emissions from dry work on concrete such as blasting, crushing, jackhammering, grinding, boring holes, sandblasting, polishing and sawing;
- Material Handling and Transfer Operations: Loading and unloading of construction materials to and from trucks;
- Storage Piles: Stockpiling of materials including material placement and removal;
- Windy Conditions and Exposed Surfaces: Wind erosion of stockpiles and dried mud tracking roads and other exposed and disturbed areas; and
- Demolition and Deconstruction: Demolition of concrete and masonry facilities.

Sources of air emissions from construction equipment/vehicle include:

- Diesel-powered construction equipment exhaust;
- On-site diesel generators exhaust;
- Construction vehicles exhaust.

Activities involving the mobilization and handling of soils, or materials with contaminant constituents require specific mitigation measures to ensure the impact to ambient air quality and human health is controlled.

Potential impacts can also be driven by atmospheric conditions as weather plays a significant role in dust generation during construction activities. Wind and dry conditions (i.e., low precipitation or low moisture content materials) contribute to the generation of dust during construction activities which can migrate off-site and affect overall air quality beyond a typical study area. In addition, during the warmer months of the year the heat and sunlight can react with gases and fine particles in the air around the Project which may contribute to the local air quality background concentrations.

Although wet weather conditions may serve to suppress dust generation during construction, the associated increased potential for erosion of soils during wet conditions create conditions that contribute to dust generating potential once dry conditions return. For example, increased transport of mud onto streets or, creation of ruts that increase the surface area of disturbed areas thus resulting in greater dust generation potential under dry conditions.

Air quality could also be potentially impacted by exhaust emissions from excavation equipment and haulage trucks; and exhaust emissions from stationary combustion equipment, including generators. Such exhaust emissions are typical CACs that are combustion by-products, i.e., diesel particulate matter (DPM), NO_x, SO_x and CO. Emissions resulting from combustions of diesel fuel can also include VOCs and PAHs which are expected to be in relatively negligible amounts. It should be noted that these listed emissions are of temporary in nature and the sources are removed once construction is complete. Hence, the effects of these emissions are localized in nature, and it is unlikely that such activities will add to the local air quality burden. Regardless, construction related impacts on air quality still need to be managed with mitigation measures and discussions are presented in Section 7.1 of this report.

5.2 Baseline and Build Scenarios Air Quality Impacts

5.2.1 AERMOD Modelling Results

The maximum cumulative predicted concentrations at the worst-impacted receptors for all scenarios are summarized in Table 5-1. Maximum modelling results for each scenario are presented in Table 5-2 to 5-4. Detailed modelling results are at each receptor are presented in Appendix C.

Table 5-1 Cumulative Modelling Results at the Worst Impacted Air Sensitive Receptor for All Scenarios

Contaminant	Averaging Period	Ambient Background Concentrations (µg/m^3)	Cumulative Concentrations in 2024 (include Background Concentrations)	Cumulative Concentrations in 2051 No Build (Background Concentrations Included)	Cumulative Concentrations in 2051 Build (Background Concentrations included)	AAQC/CAAQS Standard (µg/m^3)	2051 Build Cumulative Concentrations as % of the Criteria	2051 Build Worst Impact Receptors
NO_2	1-hr	38	59.6	54.4	67.9	79	86%	R9
	24-hr	31	35.4	34.4	38.1	200	19%	R9
	Annual	15	16.1	15.9	16.7	22.6	74%	R9
CO	1-hr	618	677.1	645.6	682.5	36200	2%	R9
	8-hr	572	593.4	582.2	604.6	15700	4%	R9
SO_2	1-hr	2.4	2.4	2.4	2.4	50	5%	R9
	24-hr	2.4	2.4	2.4	2.4	27	9%	R9
	Annual	1.4	1.4	1.4	1.4	9	15%	R9
PM_{10}	24-hr	24	27.5	28.0	32.6	100	33%	R9
$PM_{2.5}$	24-hr	13	13.9	13.9	15.0	275	5%	R9
	Annual	7	7.4	7.5	7.7	10	77%	R9
Acetaldehyde	24-hr	3	3.0	3.0	3.0	500	1%	R9
Acrolein	1-hr	0.1	0.2	0.2	0.2	4.5	3%	R9
	24-hr	0.1	0.1	0.1	0.1	0.4	15%	R9
Benzene	24-hr	0.98	1.0	1.0	1.0	2.3	43%	R9
	Annual	0.68	0.7	0.7	0.7	0.45	151%	R9
Benzo(a)pyrene	24-hr	1.3E-04	1.4E-04	1.3E-04	1.4E-04	5.0E-05	276%	R9
	Annual	9.3E-05	9.6E-05	9.4E-05	9.5E-05	1.0E-05	946%	R9
Formaldehyde	24-hr	2.9	2.9	2.9	2.9	65	4%	R9
1,3-Butadiene	24-hr	0.1	0.1	0.1	0.1	10	1%	NA
	Annual	0.1	0.1	0.1	0.1	2	4%	NA

Table 5-2 Modelling Results at the Worst Impacted Air Sensitive Receptor for the 2024 Baseline Scenario

Contaminant	Averaging Period	Maximum Predicted Concentration in 2024 (µg/m³)	Maximum Predicted Concentration as a percentage of the Criteria	Ambient Background Concentrations (µg/m³)	Cumulative Concentrations in 2024 (Background Concentrations included)	AAQC/CAAQS Standard (µg/m³)	2024 Cumulative Concentrations as % of the Criteria	Worst Impact Receptors
NO_2	1-hr	22	28%	38	59.6	79	75%	R1
	24-hr	4	2%	31	35.4	200	18%	R2
	Annual	0.7	3%	15	16.1	22.6	71%	R2
CO	1-hr	59	0.2%	618	677.1	36200	2%	R1
	8-hr	21	0.1%	572	593.4	15700	4%	R2
SO_2	1-hr	0.00	0.0%	2.4	2.4	50	5%	R1
	24-hr	0.00	0.0%	2.4	2.4	27	9%	R2
	Annual	0.00	0.0%	1.4	1.4	9	15%	R2
PM_{10}	24-hr	3	3%	24	27.5	100	28%	R2
$PM_{2.5}$	24-hr	1	0.3%	13	13.9	275	5%	R2
	Annual	0.1	1%	7.3	7.4	10	74%	R2
Acetaldehyde	24-hr	9.5E-03	0.002%	3	3.0	500	1%	R2
Acrolein	1-hr	5.4E-03	0.1%	0.15	0.2	4.5	3%	R1
	24-hr	1.0E-03	0.3%	0.06	0.1	0.4	16%	R2
Benzene	24-hr	1.0E-02	0.4%	0.98	1.0	2.3	43%	R2
	Annual	1.7E-03	0.4%	0.68	0.7	0.45	151%	R2
Benzo(a)pyrene	24-hr	1.2E-05	25%	1.3E-04	0.0	5.0E-05	289%	R2
	Annual	2.1E-06	21%	9.3E-05	0.0	1.0E-05	955%	R2
Formaldehyde	24-hr	0.0154	0.02%	2.9	2.9	65	4%	R2
1,3-Butadiene	24-hr	1.0E-02	0.10%	0.1	0.1	10	1%	R2
	Annual	1.7E-03	0.09%	0.1	0.1	2	4%	R2

Table 5-3 Modelling Results at the Worst Impacted Air Sensitive Receptor for the 2051 No-Build Scenario

Contaminant	Averaging Period	Maximum Predicted Concentration in 2051 N0 Build (µg/m^3)	Maximum Predicted Concentration as a percentage of the Criteria	Ambient Background Concentrations (µg/m^3)	Cumulative Concentrations in 2051 No Build (Background Concentrations included)	AAQC/CAAQS Standard (µg/m^3)	2051 Cumulative Concentrations as % of the Criteria	Worst Impact Receptors
NO_2	1-hr	17	21%	38	54.4	79	69%	R1
	24-hr	3	2%	31	34.4	200	17%	R2
	Annual	0.5	2%	15	15.9	22.6	70%	R2
CO	1-hr	27	0.1%	618	645.6	36200	2%	R1
	8-hr	10	0.1%	572	582.2	15700	4%	R2
SO_2	1-hr	0.00	0.0%	2.4	2.4	50	5%	R1
	24-hr	0.00	0.0%	2.4	2.4	27	9%	R2
	Annual	0.00	0.0%	1.4	1.4	9	15%	R2
PM_{10}	24-hr	4	4%	24	28.0	100	28%	R2
$PM_{2.5}$	24-hr	1	0%	13	13.9	275	5%	R2
	Annual	0.2	2%	7.3	7.5	10	75%	R2
Acetaldehyde	24-hr	5.4E-03	0.0011%	3	3.0	500	1%	R2
Acrolein	1-hr	1.3E-03	0.0%	0.15	0.2	4.5	3%	R1
	24-hr	2.5E-04	0.1%	0.06	0.1	0.4	15%	R2
Benzene	24-hr	5.0E-03	0.2%	0.98	1.0	2.3	43%	R2
	Annual	8.4E-04	0.2%	0.68	0.7	0.45	150%	R2
Benzo(a)pyrene	24-hr	2.7E-06	5.3%	1.3E-04	0.0	5.0E-05	270%	R2
	Annual	4.5E-07	4%	9.3E-05	0.0	1.0E-05	939%	R2
Formaldehyde	24-hr	0.0060	0.0%	2.9	2.9	65	4%	R2
1,3-Butadiene	24-hr	0.0E+00	0.0%	0.1	0.1	10	1%	NA
	Annual	0.0E+00	0.0%	0.1	0.1	2	4%	NA

Table 5-4 Modelling Results at the Worst Impacted Air Sensitive Receptor for the 2051 Build Scenario

Contaminant	Averaging Period	Maximum Predicted Concentration in 2051 Build (µg/m^3)	Maximum Predicted Concentration as a percentage of the Criteria	Ambient Background Concentrations (µg/m^3)	Cumulative Concentrations in 2051 Build (Background Concentrations included)	AAQC/CAAQS Standard (µg/m^3)	2051 Build Cumulative Concentrations as % of the Criteria	Worst Impact Receptors
NO_2	1-hr	30	38%	38	67.9	79	86%	R9
	24-hr	7	3%	31	38.1	200	19%	R9
	Annual	1	6%	15	16.7	22.6	74%	R9
CO	1-hr	64	0.2%	618	682.5	36200	2%	R9
	8-hr	32	0.2%	572	604.6	15700	4%	R9
SO_2	1-hr	0.00	0.0%	2.4	2.4	50	5%	R9
	24-hr	0.00	0.0%	2.4	2.4	27	9%	R9
	Annual	0.00	0.0%	1.4	1.4	9	15%	R9
PM_{10}	24-hr	9	9%	24	32.6	100	33%	R9
$PM_{2.5}$	24-hr	2	0.7%	13	15.0	275	5%	R9
	Annual	0.4	4%	7.3	7.7	10	77%	R9
Acetaldehyde	24-hr	0.0118	0.0024%	3	3.0	500	1%	R9
Acrolein	1-hr	2.4E-03	0.053%	0.15	0.2	4.5	3%	R9
	24-hr	5.4E-04	0.1%	0.06	0.1	0.4	15%	R9
Benzene	24-hr	1.1E-02	0.5%	0.98	1.0	2.3	43%	R9
	Annual	2.1E-03	0.5%	0.68	0.7	0.45	151%	R9
Benzo(a)pyrene	24-hr	5.8E-06	11.6%	1.3E-04	1.4E-04	5.0E-05	276%	R9
	Annual	1.1E-06	11.3%	9.3E-05	9.5E-05	1.0E-05	946%	R9
Formaldehyde	24-hr	0.0131	0.0%	2.9	2.9	65	4%	R9
1,3-Butadiene	24-hr	0.0E+00	0.0%	0.1	0.1	10	1%	NA
	Annual	0.0E+00	0.0%	0.1	0.1	2	4%	NA

The predicted concentrations for most contaminants at all scenarios are below the AAQC/CAAQS Standard except annual average Benzene, 24-hour average and annual average Benzo(a)pyrene (BaP). In fact, the exceedances are due to high ambient background concentrations in the region and relatively stringent criteria. As discussed in Section 3.11, ambient levels of Benzene and BaP are already exceeded the AAQC Standard even without the Project. In the 2051 Build Scenario, Table 5-4 shows that the Project only contributes 11.6% and 11.3% of the 24 hour and annual BaP respectively. After including the background concentrations, the cumulative BaP concentration is 276% (24-hour average) and 946% (annual average) of the of the AAQC Standard.

The predicted NO_2 (one-hour average) without background concentration in the 2051 Build Scenario is 38% of the CAAQS Standard. This relatively high predicted NO_2 concentration is due to the fact that all NO_x emitted from tailpipe exhausts are conservatively assumed to be converted to NO_2.

5.3 GHG Emission Inventory in 2024 and 2051

A GHG emission inventory for Baseline and 2051 Build Scenarios is compiled and presented Table 5-5.

Table 5-5 GHG Emission Inventory for year 2024 and Year 2051 (Tonnes Per Year)

	GHG Produced from Traffic per Year (tonnes)			
Year	CH_4	N_2O	Atmospheric CO_2	CO_2e*
2024	0.06468	1.3E-02	2,944.4	2.95E+03
2051	0.10776	1.8E-02	4,509.1	4.52E+03

*Assumes the following global warming potentials: CH4 = 25 and N2O = 298

5.4 Greenhouse Gases

Greenhouse gas emissions were calculated using the CO_{2e} emission factors, which were generated in MOVES (see Table 3-4), and annual VKT for each vehicle type and road segment. The total annual quantities of CO_{2e} released (in tonnes) for each assessment scenario and percent change between scenarios are summarized in Table 5-6.

Table 5-6 Annual CO_2e Emissions Year 2024 and 2051 (Build)

Assessment Scenario	Total CO_2e Emissions (tonnes/year)	% Change from 2024 to 2051
2024	2.95E+03	-
2051 (Build)	4.52E+03	+53%

The predicted CO_{2e} is shown to increase by approximately 53% in the Future Build scenario from year 2024. The decrease in GHG emission rates between 2024 and 2051 are not enough to offset the increase in number of vehicles, and the increase in CO_{2e} as a result. It should be noted that the GHG assessment is based worst-case assumption, electric vehicles are not assumed in emission rates development. The 2051 emissions are expected to be much lower than 2024.

According to ECCC's 2020 National Inventory Report, Ontario's total GHG emissions were 165,000 kilo-tonnes (kt) in 2018 (ECCC, 2020) of which almost 37.8% was due to the transport sector. Although the Project is expected to increase emissions of GHG in the specific study area when compared future horizon year, the incremental CO_2e increase in the Future Build in future horizon year 2051 is estimated to be about 0.003% of the 2018 Ontario total (see Table 5-7).

Table 5-7 Comparing Annual CO_2e Emissions in Different Scenarios with Ontario's Inventory

Scenario	Year	Total CO_2e (kilo-tonnes)	% of Ontario Total
Ontario Total	2018	165,000	-
Ontario Transport Sector	2018	62,400	37.8%
Future Build 2051	2051	4.5	0.003% (1)

(1) Assuming no change in Ontario's total emissions

6 MITIGATION OF AIR QUALITY IMPACTS

For the mitigation of air quality impacts resulting from the construction and operation phases of the Project, the sections below discuss the proposed mitigation measures.

6.1 Construction Phase Mitigation and Monitoring Activities

High temperatures and wind have the potential to cause the release and dispersion of particulate emissions more so than other meteorological conditions. Therefore, construction activities that are likely to cause the release of particulates will be avoided under such conditions. If elimination or avoidance is not possible, residents within the immediate vicinity will be notified of the potential for particulate emissions during construction activities or high wind and high temperature scenarios. There are several best management practices publication, including the renowned ECCC publication "Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities" (Cheminfo Services Inc., 2005) and the MECP's "Management Approaches for Industrial Fugitive Dust Sources Technical Bulletin" (MECP, 2017) provide several practical mitigation measures for the reduction of fugitive emissions during construction activities. As per these best management practices, mitigation measures will be for the development of an Air Quality Management Plan (AQMP) and be implemented during construction activities to reduce any adverse air quality impact that may occur. Mitigation of road dust, as recommended in the ECCC document, includes the use of wind barriers (i.e., solid barriers, or trees and shrubs), water spraying and/or non-chloride dust suppressants, equipment washing, and limiting the exposed area which may be a source of dust.

The appendix of the AQMP will include an Air Quality Monitoring Plan. Details about monitoring procedures and requirements during construction phase will be provided in the plan. The planning and siting of the air quality monitoring stations and meteorological tower will be chosen in accordance with the MECP's publication, *The Operations Manual for Air Quality monitoring in Ontario* (MECP, 2019).

Prior to initiating ambient air quality monitoring activities, the Air Quality Management Plan and Air Quality Monitoring Plan should be submitted to the Ministry of Transportation for review, comments and approval.

The monitoring program should measure, at a minimum, real-time data for particulate matter i.e. $PM_{2.5}$ and PM_{10}, including meteorological parameters as per the guidance provided in the "Ontario Ministry of Transportation document, Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects" (MTO, 2020).

The air quality monitoring program will establish the baseline air quality condition at AQIA study area prior to the commencement of the construction activities, in consultation with MTO, the number of air quality monitors and specific duration, which at a minimum, two (2) weeks of baseline monitoring program will be established at the AQIA study area.

Upon completion of baseline monitoring for the specified duration, the 24-hour averaged period data will be compared against the ambient air quality background data from the ECCC's National Air Pollution Surveillance (NAPS) Program monitoring stations in close proximity to the Project for the specified

monitoring duration period. This evaluation will be done for verification of data quality and consistency with what is expected at the Project corridor, and to check if there is enough measured data to show weekly and daily variabilities in particulate concentrations.

During the demolition and construction phases, air quality monitoring will be performed by using a combination of daily handheld metering and autonomous air quality monitoring devices.

An air quality digital web-platform dashboard, specific to the Project, should also be developed specifically for the implementation of the monitoring component of the AQMP. The dashboard should at a minimum provide visual representation and assessment of monitoring data on a daily basis from multiple data points, including graphical trends using historical PM measurement data as the project progresses. Trigger, Action and Threshold Air Quality Level will be developed to alert site supervisor, environmental manager, air quality specialist and MTO if the concentrations of any monitored contaminant exceed these levels. Reporting should follow the approved AQMP protocol and include the following information at a minimum:

- daily air quality monitored results;
- events in which there were elevated air quality concentrations of measured parameters that exceed the criteria, and
- follow-up activities and mitigation measures implemented as a result of elevated air quality parameters.

The digital platform should be capable of generating these real-time alerts to specific stakeholders through e-mail notifications.

Potential construction air quality impacts, mitigation measures, and monitoring requirements are summarized in Table 6-1.

Table 6-1 Air Quality Impacts, Mitigation Measures, and Monitoring During Construction Phase

Potential Air Quality Impacts	Mitigation Measures	Monitoring Activities
Construction Dust	A Construction Phase Air Quality Management Plan (AQMP) should be developed and provide site staff with air quality mitigation measures for the Project. The ECCC's "Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities" (Cheminfo Services Inc., 2005) and the MECP's "Management Approaches for Industrial Fugitive Dust Sources Technical Bulletin" (MECP, 2017) should be used as the guides when developing the AQMP. The air quality mitigation measures outlined in the AQMP should include but not limited to: • Seeding, paving, covering, wetting disturbed soil surfaces. • Using wind screens or fences. • Covering truckloads of dust-producing material. • Reducing traffic speeds especially on unpaved surfaces. • Using of vehicle wheel and body washing facilities at the exit points of the site. • Reducing aggregate/sand drop height. • Only allowing wet cutting of concrete block, concrete, and/or asphalt surfaces. • Stop work activities temporarily during high wind conditions. • Following mitigation measures provided in Environment Canada's "Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities" and the Ministry of Environment, Conservation and	Construction air quality monitoring activities will be conducted in accordance with the AQMP and Air Quality Monitoring Plan requirements, which may include: • Installing on-site meteorological and air quality (dust) monitoring station to monitor real-time conditions. • The siting of the air quality monitoring stations and meteorological tower should be chosen in accordance with "The Operations Manual for Air Quality monitoring in Ontario", published by the Ontario Ministry of Environment, Conservation and Parks in May 2019. • Define Trigger, Action and Threshold Dust Level and develop Actions Plan to respond to these elevated dust conditions. • Develop an Air Quality Incident, Complaint and Response Protocol

Potential Air Quality Impacts	Mitigation Measures	Monitoring Activities
	Parks' "Technical Bulletin Management Approaches for Industrial Fugitive Dust Sources" (MECP, 2017). • Following mitigation measures from Environment Canada's Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (Cheminfo Services Inc., 2005).	• Report daily monitoring results, weather conditions, incidents, and mitigation activities
Tailpipe Emissions from Construction Equipment and Vehicles	The AQMP will also provide construction equipment/vehicle emissions mitigation measures. These include: • Construction equipment and vehicles must be complied with Canada most stringent emissions standards. • Construction equipment and vehicles should be regularly inspected, maintained and repaired to minimize exhaust emissions. • Excessive idling of vehicles and equipment (greater than five minutes) should be minimized and/or strictly adhering to municipal by-law on idling policies. • Using alternative-fuel or electric equipment where feasible, • Using solar panel, where appropriate, to supply electricity instead of on-site diesel generators. • Develop and implement a construction Traffic Management Plans (TMPs). Examples of traffic management techniques may include the following: - using traffic control officers and flaggers, - using temporary signage and variable message displays, - notifying the public of construction-related traffic congestion, - designating construction staging areas and worker parking areas; and - designating construction truck routes.	No monitoring activity is applicable to tailpipe emissions from construction equipment and vehicles.

6.2 Operational Phase Mitigation

For the traffic phase, alternatively often also referred to as the operation phase, there are many fuel and technology pathways available to reduce vehicle tailpipe emissions. Switching from fossil to alternative fuels such as electric, natural gas or dimethyl ether can remove or reduce tailpipe emissions. Furthermore, alternate option exists such as blending of biological-based fuels i.e., biodiesel or hydrogenation-derived renewable diesel with conventional petroleum-based diesel.

7 CONCLUSION

An air quality assessment for year 2024 and 2051 was completed for the Project. The air quality impacts of the proposed Project were evaluated with detailed air dispersion modelling. Estimated concentrations of all pollutants of concern were shown to be below their corresponding ambient air quality criteria and standards, except 24-hour and annual average of Benzene and benzo(a)pyrene which have background concentrations already above their respective the AAQC limits. The project's contribution to the cumulative concentration of benzene and benzo(a) pyrene are thus insignificant. For example, the 24-hour Benzene and benzo(a)pyrene are 0.5% and 11.6% of respective AAQC limits.

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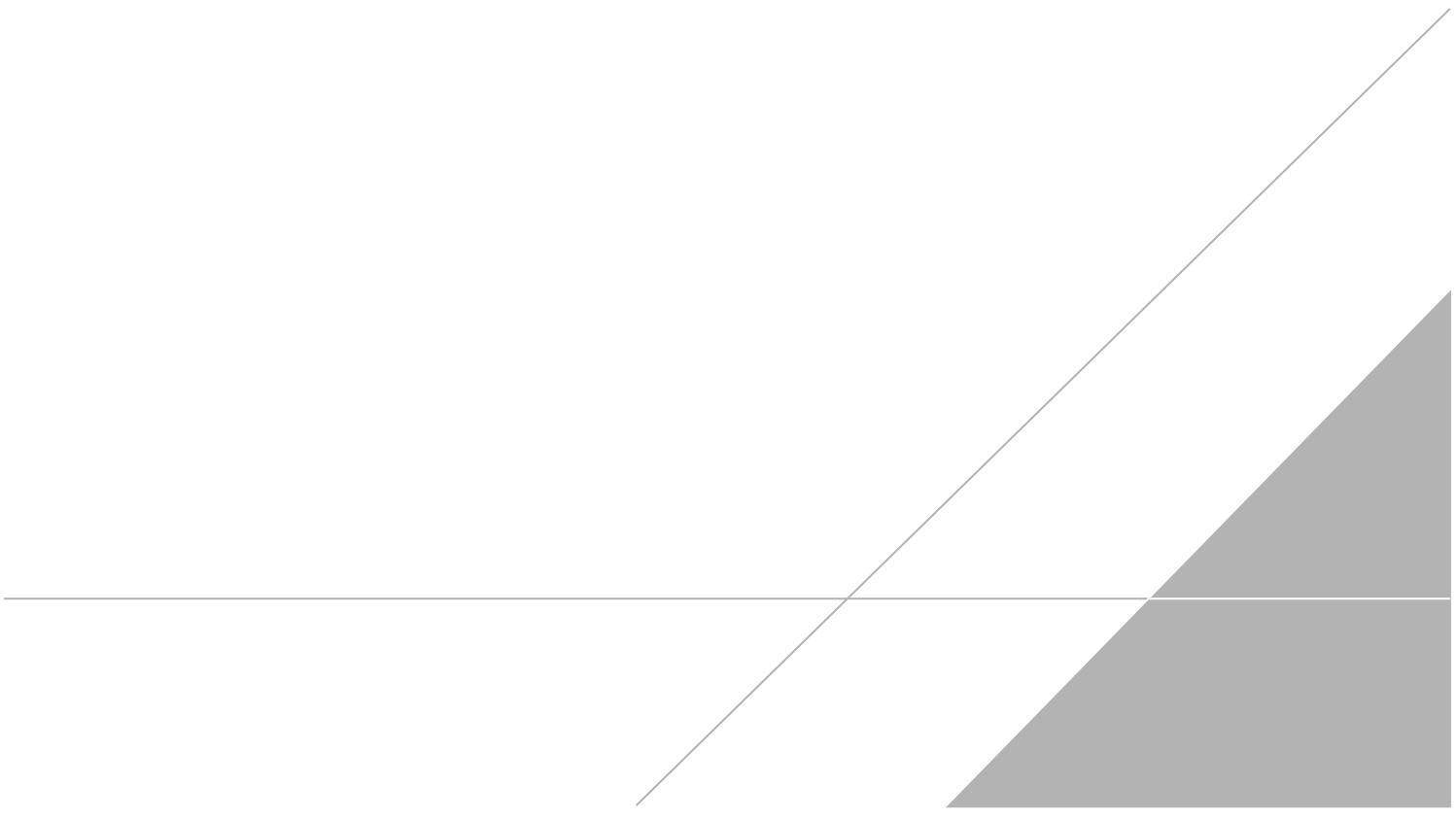
APPENDIX A
MOVES3.1 Input Parameters



Summary of MOVES3.1 Model Inputs

As noted in Section 4.3.4, vehicle emission factors developed for the purposes of this air quality assessment were based on the U.S. EPA's Motor Vehicle Emission Simulator (MOVES) model. The U.S. EPA introduced MOVES in 2010 as a replacement emission inventory tool to the MOBILE6.2 model.

For this assessment, emission factors were developed for cars and trucks MOVES3.1 and Niagara County, New York State as the geographic surrogate for exhaust emissions.

The future horizon year 2024 and 2051 were based on county-level MOVES runs using the "emission rates" calculation mode. In general, Chapter 5 of the MOVES User Guide "Generate Emission Rates for County Scale Analyses" was followed. When running MOVES3.1 in the "emission rates" mode, many of the same inputs needed to run MOVES in "inventory" mode are required in order for the model to run in "emission rates" mode. However, not all inputs are actually used by the model in the calculation of emission rates. As a result, much of the default data available for Wayne County, Michigan could be used as input to MOVES3.1 without impacting the results.

1. Of this list, fuel supply information is the only data input that can directly affect the emission rates calculations. However, recent fuel supply data is not readily available for Ontario and as a result, default fuel information for Wayne County, Michigan was used as a surrogate. Since Canada's on-road vehicle and engine emissions regulations[1] are closely aligned with U.S. emissions regulations, the differences in fuel and engine characteristics are considered minor enough so as not to affect emission estimates to a level that would materially impact results and conclusions of this report. E85 fuel were reassigned to gasoline as E85 flex-fuel cars and fueling stations are not readily available in the Ontario as they are in the United States. Vehicle Emissions Inspection and Maintenance (I/M) program information was not used in this assessment. A summary of the primary MOVES3.1 input parameters is provided in Table A-1.

Rate per distance tables were generated by MOVES3.1, which provide hourly emission factors for each pollutant by month, vehicle type, speed and road type. For each future horizon year, the maximum emission factors for each vehicle type and speed bin were calculated.

Vehicle types in MOVES3.1 are Motorcycle, Passenger Car, Passenger Truck, Light Commercial Truck, Transit Bus, School Bus, Refuse Truck, Single Unit Short-haul Truck, Single Unit Long-haul Truck, Motor Home, Combination Short-haul Truck, Combination Long-haul Truck. These vehicle types were assigned as Car, Medium Truck and Medium Truck and Bus when calculating the composited emission rates.

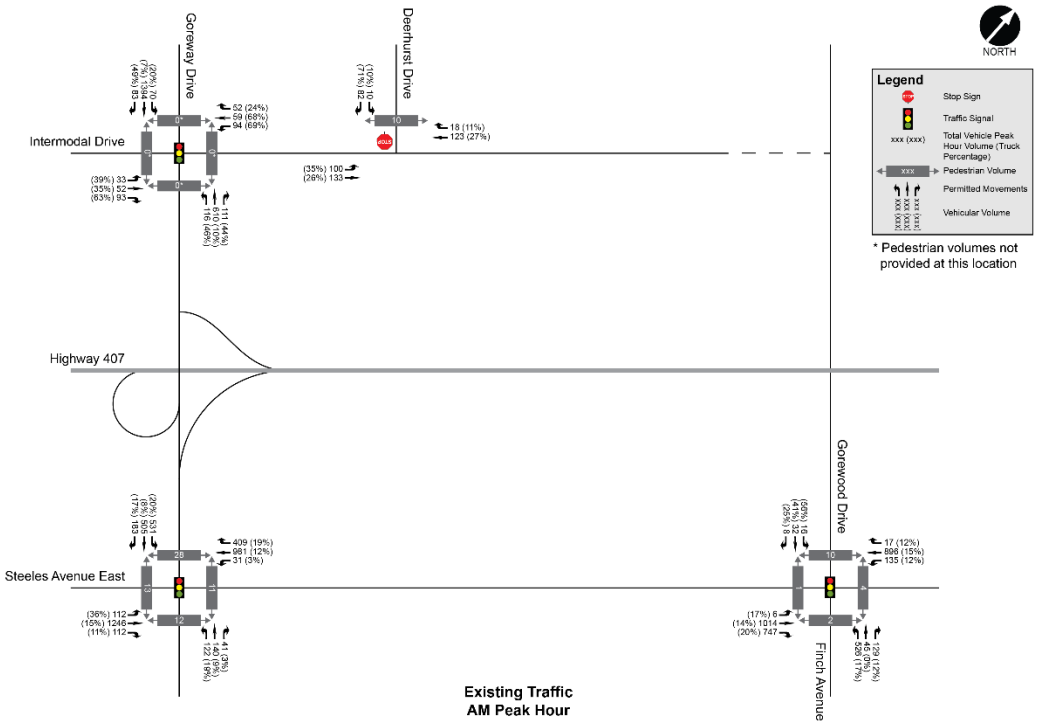
[1] Government of Canada. On-Road Vehicle and Engine Emission Regulations SOR/2003-2.

Table A-1 MOVES Input Parameters

MOVES Source Type ID	MOVES Source Type Name
Scale	County Domain
Calculation Mode	Emission Rates
Years	2024, 2051
Months	January and July
Geographical Bounds	Niagara County, New York
Fuel	Default fuel mix (E85 reassigned to Gasoline)
Source Use Types	21, 31, 32, 41, 42, 43, 51, 52, 53, 54, 61, 62
Contaminants	NO_x, CO, SO_2, $PM_{2.5}$, PM_{10}, Acetaldehyde, Acrolein, Benzene, 1,3-butadiene, Formaldehyde, Benzo(a)pyrene
Speed Distribution	MOVES Default
Vehicle Age Distribution	MOVES Default

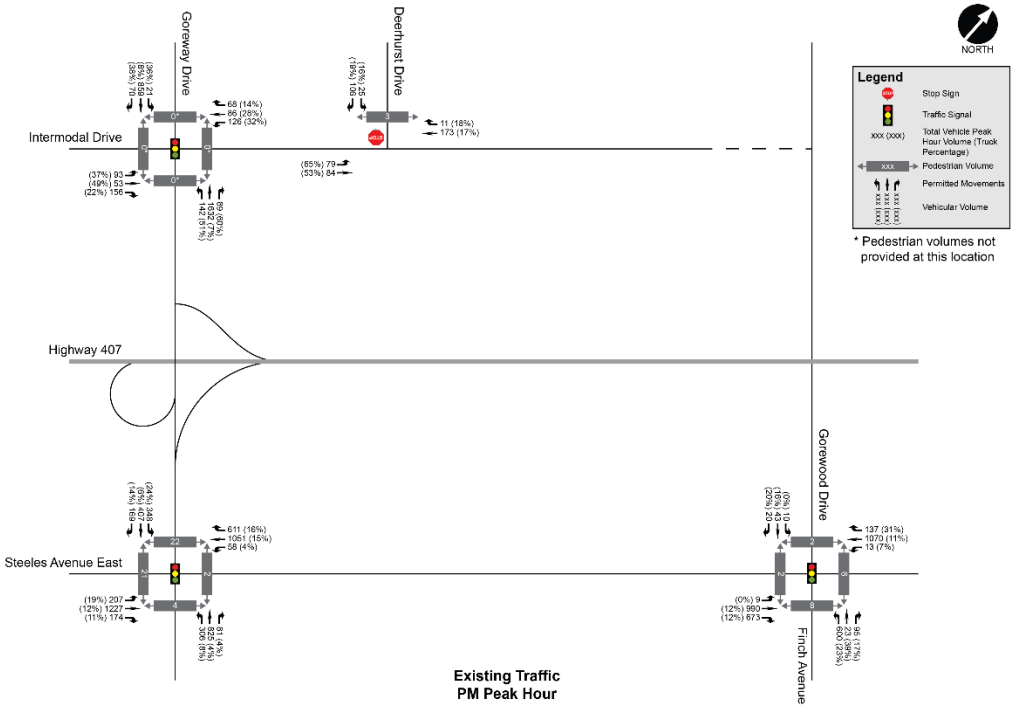
APPENDIX B
Schematic Road Alignment Diagram and Traffic Data

2024 AM Traffic



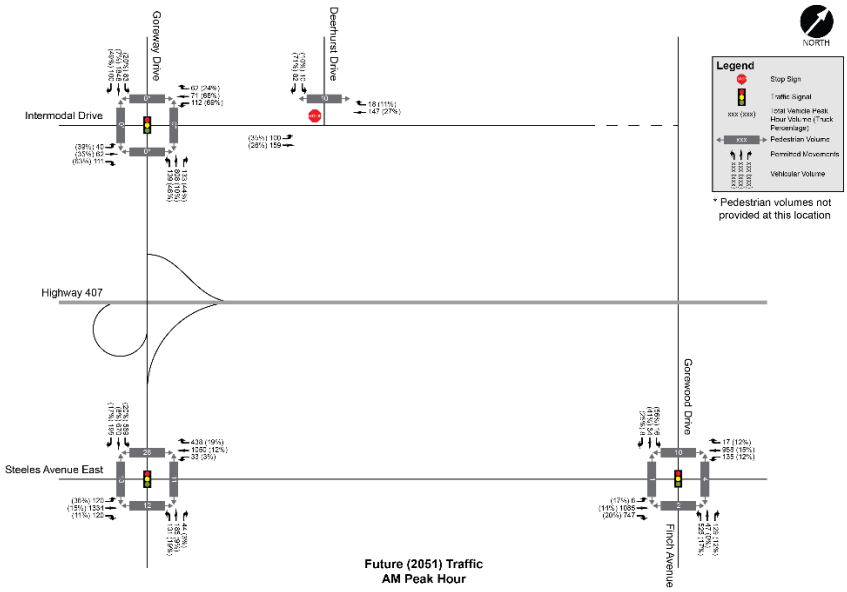
Existing Traffic
AM Peak Hour

2024 PM Traffic

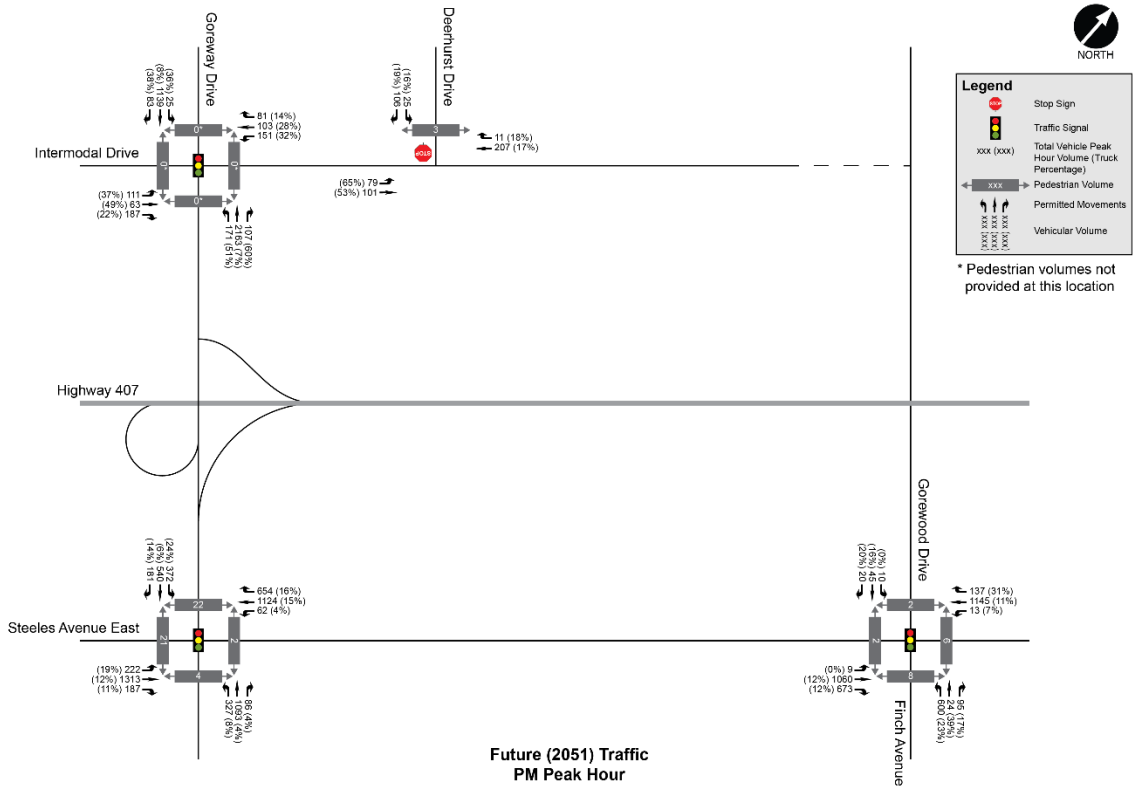


Existing Traffic
PM Peak Hour

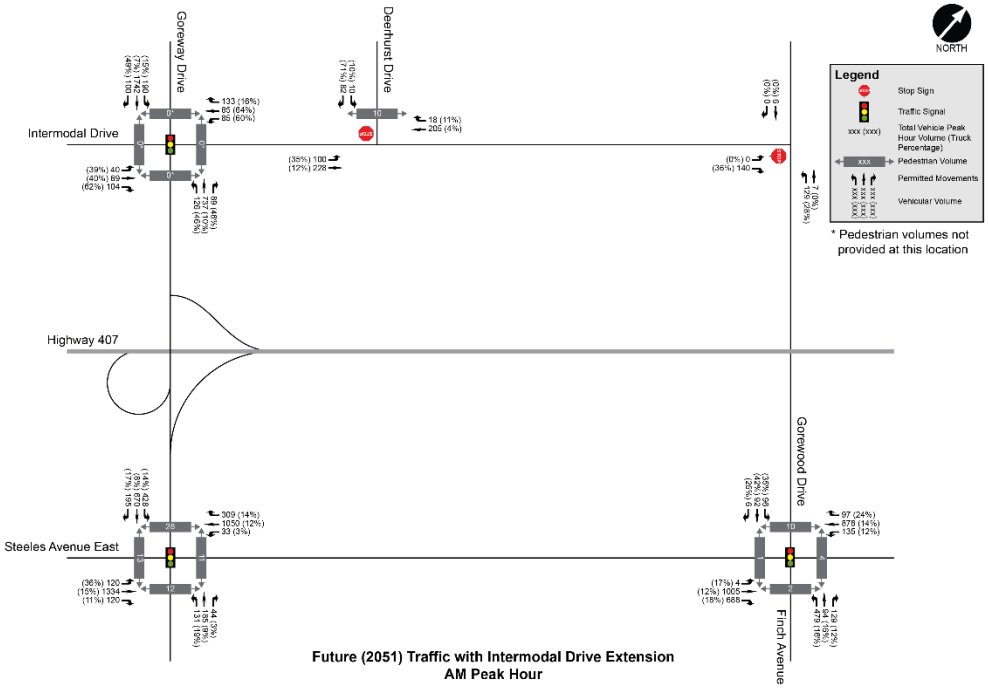
2051 No Build AM Traffic



2051 No Build PM Traffic

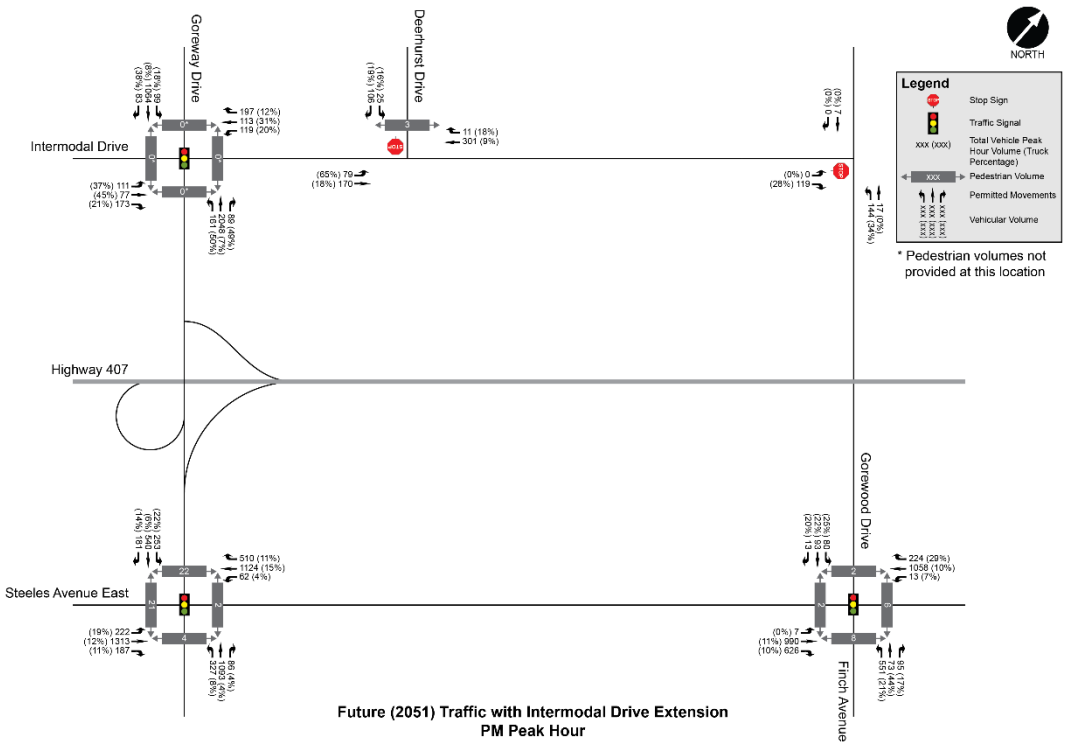


2051 Build AM Traffic



Future (2051) Traffic with Intermodal Drive Extension
AM Peak Hour

2051 Build PM Traffic



Future (2051) Traffic with Intermodal Drive Extension
PM Peak Hour

APPENDIX C

Detailed Modelling Results at Each Receptor

2051 Build Alternative 4G - Air Dispersion Modelling Results

Sensitive Receptor Summary

C:\Wallace Project folder\145609 Extension of Intermodal Drive to Go
2051 ACET Updated September 2025

ACET - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	0.00994	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	0.00785	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.00205	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.00192	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2022-01-24, 24
24-HR	1ST	0.00173	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.00116	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.00094	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.00065	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	0.01178	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2022-01-24, 24

Sensitive Receptor Summary

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2051 Acrolein Updated September 2025

ACROLEIN - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	0.00216	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 7
1-HR	1ST	0.00136	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2018-12-31, 5
1-HR	1ST	0.00088	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 7
1-HR	1ST	0.00059	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-01-01, 4
1-HR	1ST	0.00052	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2021-01-25, 7
1-HR	1ST	0.00035	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 22
1-HR	1ST	0.00028	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 23
1-HR	1ST	0.00023	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2018-02-19, 22
1-HR	1ST	0.00239	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2019-01-14, 9
24-HR	1ST	0.00046	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	0.00036	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.00009	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.00009	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2022-01-24, 24
24-HR	1ST	0.00008	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.00005	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.00004	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.00003	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	0.00054	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2022-01-24, 24

Sensitive Receptor Summary

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2051 Benzene Updated September 2025

BENZENE - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	0.00913	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	0.00722	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.00188	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.00176	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2022-01-24, 24
24-HR	1ST	0.00159	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.00107	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.00086	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.00060	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	0.01082	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2022-01-24, 24
ANNUAL		0.00099	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	
ANNUAL		0.00116	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	
ANNUAL		0.00011	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	
ANNUAL		0.00015	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	
ANNUAL		0.00011	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	
ANNUAL		0.00007	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	
ANNUAL		0.00006	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	
ANNUAL		0.00005	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	
ANNUAL		0.00211	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	

Sensitive Receptor Summary

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2051 BaP Updated September 2025 x10000

BAP - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	0.04876	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	0.03853	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.01005	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.00940	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2022-01-24, 24
24-HR	1ST	0.00849	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.00570	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.00461	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.00318	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	0.05777	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2022-01-24, 24
ANNUAL		0.00527	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	
ANNUAL		0.00620	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	
ANNUAL		0.00057	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	
ANNUAL		0.00081	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	
ANNUAL		0.00057	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	
ANNUAL		0.00038	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	
ANNUAL		0.00034	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	
ANNUAL		0.00027	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	
ANNUAL		0.01126	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	

Sensitive Receptor Summary

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2051 CO Updated September 2025

CO - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	57.96141	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 7
1-HR	1ST	36.43536	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2018-12-31, 5
1-HR	1ST	23.57713	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 7
1-HR	1ST	15.87880	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-01-01, 4
1-HR	1ST	13.83357	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2021-01-25, 7
1-HR	1ST	9.40189	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 22
1-HR	1ST	7.63697	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 23
1-HR	1ST	6.07342	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2018-02-19, 22
1-HR	1ST	64.23705	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2019-01-14, 9
8-HR	1ST	21.30941	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2018-12-18, 24
8-HR	1ST	19.29410	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2018-12-31, 8
8-HR	1ST	5.19256	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2018-02-04, 8
8-HR	1ST	4.65025	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2022-01-24, 8
8-HR	1ST	4.92729	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 8
8-HR	1ST	2.99970	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 8
8-HR	1ST	3.11399	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
8-HR	1ST	2.16905	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-03-22, 8
8-HR	1ST	32.12519	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2018-10-14, 8

Sensitive Receptor Summary

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2051 Formaldehyde Updated September 2025

FORMALDE - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	0.01104	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	0.00872	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.00228	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.00213	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2022-01-24, 24
24-HR	1ST	0.00192	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.00129	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.00104	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.00072	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	0.01308	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2022-01-24, 24

Sensitive Receptor Summary

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2051 NOx Updated September 2025

NOX - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	27.13878	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 7
1-HR	1ST	17.05981	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2018-12-31, 5
1-HR	1ST	11.03932	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 7
1-HR	1ST	7.43478	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-01-01, 4
1-HR	1ST	6.47716	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2021-01-25, 7
1-HR	1ST	4.40217	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 22
1-HR	1ST	3.57579	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 23
1-HR	1ST	2.84371	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2018-02-19, 22
1-HR	1ST	30.07712	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2019-01-14, 9
24-HR	1ST	5.77057	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	4.55997	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	1.18984	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	1.11201	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2022-01-24, 24
24-HR	1ST	1.00428	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.67424	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.54608	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.37678	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	6.83824	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2022-01-24, 24
ANNUAL		0.62374	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	
ANNUAL		0.73408	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	

Sensitive Receptor Summary

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2051 NOx Updated September 2025

NOX - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
ANNUAL		0.06781	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	
ANNUAL		0.09588	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	
ANNUAL		0.06780	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	
ANNUAL		0.04467	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	
ANNUAL		0.03968	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	
ANNUAL		0.03254	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	
ANNUAL		1.33236	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	

Sensitive Receptor Summary

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2051 PM10 Updated September 2025

PM10 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	7.20529	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	5.69387	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	1.48568	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	1.38840	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2022-01-24, 24
24-HR	1ST	1.25392	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.84191	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.68187	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.47047	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	8.53728	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2022-01-24, 24

Sensitive Receptor Summary

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2051 PM2.5 Updated September 2025

PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	1.69076	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	1.33606	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.34862	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.32581	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2022-01-24, 24
24-HR	1ST	0.29425	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.19755	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.16000	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.11040	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	2.00351	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2022-01-24, 24
ANNUAL		0.18275	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	
ANNUAL		0.21508	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	
ANNUAL		0.01987	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	
ANNUAL		0.02809	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	
ANNUAL		0.01987	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	
ANNUAL		0.01309	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	
ANNUAL		0.01163	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	
ANNUAL		0.00953	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	
ANNUAL		0.39036	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	

Sensitive Receptor Summary

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2051 SO2 Updated September 2025

SO2 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	0.00084	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 7
1-HR	1ST	0.00053	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2018-12-31, 5
1-HR	1ST	0.00034	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 7
1-HR	1ST	0.00023	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-01-01, 4
1-HR	1ST	0.00020	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2021-01-25, 7
1-HR	1ST	0.00014	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 22
1-HR	1ST	0.00011	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 23
1-HR	1ST	0.00009	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2018-02-19, 22
1-HR	1ST	0.00094	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2019-01-14, 9
24-HR	1ST	0.00018	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	0.00014	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.00004	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.00003	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2022-01-24, 24
24-HR	1ST	0.00003	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.00002	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.00002	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.00001	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	0.00021	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2022-01-24, 24
ANNUAL		0.00002	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	
ANNUAL		0.00002	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	

Sensitive Receptor Summary

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2051 SO2 Updated September 2025

SO2 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
ANNUAL		0.00000	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	
ANNUAL		0.00000	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	
ANNUAL		0.00000	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	
ANNUAL		0.00000	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	
ANNUAL		0.00000	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	
ANNUAL		0.00000	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	
ANNUAL		0.00004	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	

2051 No Build Scenario - Air Dispersion Modelling Results

Sensitive Receptor Summary

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No Build ACETALDHYDE Updated September 2025

ACETALDH - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	0.00383	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	0.00543	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.00093	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.00068	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-12-05, 24
24-HR	1ST	0.00073	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.00083	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.00061	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.00047	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	0.00315	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2018-10-14, 24

Sensitive Receptor Summary

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No Build ARCOLEIN Updated September 2025

ACROLEIN - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	0.00132	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 7
1-HR	1ST	0.00071	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2019-01-27, 3
1-HR	1ST	0.00045	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 9
1-HR	1ST	0.00030	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2021-12-04, 1
1-HR	1ST	0.00022	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2018-01-31, 2
1-HR	1ST	0.00025	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2018-01-01, 4
1-HR	1ST	0.00022	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2022-01-20, 23
1-HR	1ST	0.00018	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2022-01-16, 3
1-HR	1ST	0.00095	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2021-02-07, 1
24-HR	1ST	0.00018	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	0.00025	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.00004	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.00003	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-12-05, 24
24-HR	1ST	0.00003	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.00004	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.00003	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.00002	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	0.00015	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2018-10-14, 24

Sensitive Receptor Summary

C:\Wallace Project folder\145609 Extension of Intermodal Drive to Go
No Build Benzene Updated September 2025

BENZENE - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	0.00351	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	0.00498	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.00085	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.00062	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-12-05, 24
24-HR	1ST	0.00067	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.00076	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.00056	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.00043	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	0.00289	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2018-10-14, 24
ANNUAL		0.00029	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	
ANNUAL		0.00084	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	
ANNUAL		0.00005	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	
ANNUAL		0.00006	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	
ANNUAL		0.00005	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	
ANNUAL		0.00004	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	
ANNUAL		0.00004	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	
ANNUAL		0.00003	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	
ANNUAL		0.00023	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	

Sensitive Receptor Summary

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No Build BaP Updated September 2025 x10000

BAP - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	0.01879	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	0.02664	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.00455	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.00334	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-12-05, 24
24-HR	1ST	0.00359	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.00407	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.00300	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.00230	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	0.01546	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2018-10-14, 24
ANNUAL		0.00153	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	
ANNUAL		0.00449	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	
ANNUAL		0.00029	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	
ANNUAL		0.00034	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	
ANNUAL		0.00028	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	
ANNUAL		0.00022	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	
ANNUAL		0.00021	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	
ANNUAL		0.00017	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	
ANNUAL		0.00124	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	

Sensitive Receptor Summary

C:\Wallace Project folder\145609 Extension of Intermodal Drive to Go
No Build CO

CO - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	27.28812	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 7
1-HR	1ST	14.60339	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2019-01-27, 3
1-HR	1ST	9.42158	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 9
1-HR	1ST	6.29000	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2021-12-04, 1
1-HR	1ST	4.65550	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2018-01-31, 2
1-HR	1ST	5.17020	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2018-01-01, 4
1-HR	1ST	4.50055	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2022-01-20, 23
1-HR	1ST	3.68340	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2022-01-16, 3
1-HR	1ST	19.75988	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2021-02-07, 1
8-HR	1ST	6.68753	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2018-02-04, 8
8-HR	1ST	9.71692	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2018-12-31, 8
8-HR	1ST	1.99553	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2018-01-21, 8
8-HR	1ST	1.63181	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-12-05, 8
8-HR	1ST	1.44703	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 8
8-HR	1ST	1.69023	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 8
8-HR	1ST	1.60964	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
8-HR	1ST	1.11878	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
8-HR	1ST	8.97957	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2018-10-14, 8
24-HR	1ST	3.66363	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	5.19351	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24

Sensitive Receptor Summary

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No Build CO

CO - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	0.88669	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.65039	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-12-05, 24
24-HR	1ST	0.69978	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.79441	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.58508	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.44829	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	3.01425	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2018-10-14, 24
ANNUAL		0.29850	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	
ANNUAL		0.87509	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	
ANNUAL		0.05644	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	
ANNUAL		0.06597	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	
ANNUAL		0.05454	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	
ANNUAL		0.04195	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	
ANNUAL		0.04054	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	
ANNUAL		0.03332	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	
ANNUAL		0.24256	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	

Sensitive Receptor Summary

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No Build Formaldehyde Updated September 2025

FORMALDE - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	0.00426	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	0.00603	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.00103	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.00076	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-12-05, 24
24-HR	1ST	0.00081	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.00092	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.00068	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.00052	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	0.00350	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2018-10-14, 24

Sensitive Receptor Summary

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No Build PM10 Updated September 2025

PM10 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	2.77750	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	3.93735	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.67222	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.49308	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-12-05, 24
24-HR	1ST	0.53053	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.60226	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.44357	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.33986	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	2.28519	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2018-10-14, 24

Sensitive Receptor Summary

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No Build PM2.5 Updated September 2025

PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	0.65186	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	0.92406	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.15777	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.11572	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-12-05, 24
24-HR	1ST	0.12451	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.14135	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.10410	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.07976	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	0.53631	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2018-10-14, 24
ANNUAL		0.05311	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	
ANNUAL		0.15570	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	
ANNUAL		0.01004	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	
ANNUAL		0.01174	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	
ANNUAL		0.00970	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	
ANNUAL		0.00746	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	
ANNUAL		0.00721	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	
ANNUAL		0.00593	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	
ANNUAL		0.04316	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	

Sensitive Receptor Summary

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No Build SO2 Updated September 2025

SO2 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	0.00052	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 7
1-HR	1ST	0.00028	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2019-01-27, 3
1-HR	1ST	0.00018	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 9
1-HR	1ST	0.00012	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2021-12-04, 1
1-HR	1ST	0.00009	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2018-01-31, 2
1-HR	1ST	0.00010	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2018-01-01, 4
1-HR	1ST	0.00008	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2022-01-20, 23
1-HR	1ST	0.00007	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2022-01-16, 3
1-HR	1ST	0.00037	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2021-02-07, 1
24-HR	1ST	0.00007	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	0.00010	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.00002	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.00001	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-12-05, 24
24-HR	1ST	0.00001	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.00001	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.00001	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.00001	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	0.00006	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2018-10-14, 24
ANNUAL		0.00001	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	
ANNUAL		0.00002	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	

Sensitive Receptor Summary

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No Build SO2 Updated September 2025

SO2 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
ANNUAL		0.00000	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	
ANNUAL		0.00000	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	
ANNUAL		0.00000	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	
ANNUAL		0.00000	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	
ANNUAL		0.00000	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	
ANNUAL		0.00000	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	
ANNUAL		0.00000	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	

2024 Baseline Scenario - Air Dispersion Modelling Results

Sensitive Receptor Summary

C:\Wallace Project folder\145609 Extension of Intermodal Drive to Go
Exsinting 1-3 BUT Updated September 2025

1,3-BUTA - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	0.00055	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	0.00079	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.00013	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.00010	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-12-05, 24
24-HR	1ST	0.00011	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.00012	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.00009	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.00007	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	0.00046	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2018-10-14, 24
ANNUAL		0.00005	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	
ANNUAL		0.00013	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	
ANNUAL		0.00001	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	
ANNUAL		0.00001	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	
ANNUAL		0.00001	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	
ANNUAL		0.00001	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	
ANNUAL		0.00001	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	
ANNUAL		0.00001	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	
ANNUAL		0.00004	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	

Sensitive Receptor Summary

C:\Wallace Project folder\145609 Extension of Intermodal Drive to Go
Exsinting ACETALDHYDE Updated September 2025

ACETALDH - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	0.00670	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	0.00949	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.00162	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.00119	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-12-05, 24
24-HR	1ST	0.00128	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.00145	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.00107	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.00082	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	0.00551	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2018-10-14, 24

Sensitive Receptor Summary

C:\Wallace Project folder\145609 Extension of Intermodal Drive to Go
Exsinting Benzene Updated September 2025

BENZENE - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	0.00729	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	0.01034	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.00176	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.00129	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-12-05, 24
24-HR	1ST	0.00139	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.00158	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.00116	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.00089	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	0.00600	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2018-10-14, 24
ANNUAL		0.00059	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	
ANNUAL		0.00174	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	
ANNUAL		0.00011	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	
ANNUAL		0.00013	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	
ANNUAL		0.00011	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	
ANNUAL		0.00008	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	
ANNUAL		0.00008	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	
ANNUAL		0.00007	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	
ANNUAL		0.00048	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	

Sensitive Receptor Summary

C:\Wallace Project folder\145609 Extension of Intermodal Drive to Go
Existing Acrolein Updated September 2025

ACROLEIN - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	0.00536	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 7
1-HR	1ST	0.00287	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2019-01-27, 3
1-HR	1ST	0.00185	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 9
1-HR	1ST	0.00124	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2021-12-04, 1
1-HR	1ST	0.00091	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2018-01-31, 2
1-HR	1ST	0.00102	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2018-01-01, 4
1-HR	1ST	0.00088	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2022-01-20, 23
1-HR	1ST	0.00072	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2022-01-16, 3
1-HR	1ST	0.00388	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2021-02-07, 1
24-HR	1ST	0.00072	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	0.00102	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.00017	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.00013	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-12-05, 24
24-HR	1ST	0.00014	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.00016	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.00011	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.00009	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	0.00059	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2018-10-14, 24

Sensitive Receptor Summary

C:\Wallace Project folder\145609 Extension of Intermodal Drive to Go
CO Updated September 2025

CO - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	58.84261	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 7
1-HR	1ST	31.48996	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2019-01-27, 3
1-HR	1ST	20.31619	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 9
1-HR	1ST	13.56342	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2021-12-04, 1
1-HR	1ST	10.03887	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2018-01-31, 2
1-HR	1ST	11.14873	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2018-01-01, 4
1-HR	1ST	9.70474	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2022-01-20, 23
1-HR	1ST	7.94268	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2022-01-16, 3
1-HR	1ST	42.60912	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2021-02-07, 1
8-HR	1ST	14.42063	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2018-02-04, 8
8-HR	1ST	20.95303	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2018-12-31, 8
8-HR	1ST	4.30305	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2018-01-21, 8
8-HR	1ST	3.51874	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-12-05, 8
8-HR	1ST	3.12029	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 8
8-HR	1ST	3.64472	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 8
8-HR	1ST	3.47094	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
8-HR	1ST	2.41247	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
8-HR	1ST	19.36305	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2018-10-14, 8

Sensitive Receptor Summary

C:\Wallace Project folder\145609 Extension of Intermodal Drive to Go
Exsinting Forma Updated September 2025

FORMALDE - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	0.01083	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	0.01535	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.00262	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.00192	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-12-05, 24
24-HR	1ST	0.00207	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.00235	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.00173	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.00132	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	0.00891	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2018-10-14, 24

Sensitive Receptor Summary

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Existing BaP Updated September 2025 x10000

BAP - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	0.08770	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	0.12432	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.02123	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.01557	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-12-05, 24
24-HR	1ST	0.01675	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.01902	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.01401	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.01073	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	0.07216	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2018-10-14, 24
ANNUAL		0.00715	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	
ANNUAL		0.02095	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	
ANNUAL		0.00135	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	
ANNUAL		0.00158	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	
ANNUAL		0.00131	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	
ANNUAL		0.00100	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	
ANNUAL		0.00097	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	
ANNUAL		0.00080	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	
ANNUAL		0.00581	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	

Sensitive Receptor Summary

C:\Wallace Project folder\145609 Extension of Intermodal Drive to Go
CO Updated September 2025

NOX - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	21.77602	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 7
1-HR	1ST	11.65356	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2019-01-27, 3
1-HR	1ST	7.51846	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 9
1-HR	1ST	5.01945	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2021-12-04, 1
1-HR	1ST	3.71511	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2018-01-31, 2
1-HR	1ST	4.12584	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2018-01-01, 4
1-HR	1ST	3.59146	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2022-01-20, 23
1-HR	1ST	2.93937	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2022-01-16, 3
1-HR	1ST	15.76846	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2021-02-07, 1
24-HR	1ST	2.92359	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	4.14444	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.70758	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.51901	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-12-05, 24
24-HR	1ST	0.55843	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.63394	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.46690	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.35774	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	2.40538	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2018-10-14, 24
ANNUAL		0.23820	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	
ANNUAL		0.69833	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	

Sensitive Receptor Summary

C:\Wallace Project folder\145609 Extension of Intermodal Drive to Go
Exsting NOX Updated September 2025

NOX - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	21.77602	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 7
1-HR	1ST	11.65356	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2019-01-27, 3
1-HR	1ST	7.51846	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 9
1-HR	1ST	5.01945	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2021-12-04, 1
1-HR	1ST	3.71511	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2018-01-31, 2
1-HR	1ST	4.12584	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2018-01-01, 4
1-HR	1ST	3.59146	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2022-01-20, 23
1-HR	1ST	2.93937	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2022-01-16, 3
1-HR	1ST	15.76846	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2021-02-07, 1
24-HR	1ST	2.92359	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	4.14444	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.70758	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.51901	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-12-05, 24
24-HR	1ST	0.55843	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.63394	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.46690	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.35774	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	2.40538	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2018-10-14, 24
ANNUAL		0.23820	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	
ANNUAL		0.69833	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	

Sensitive Receptor Summary

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Exsting NOX Updated September 2025

NOX - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
ANNUAL		0.04504	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	
ANNUAL		0.05265	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	
ANNUAL		0.04353	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	
ANNUAL		0.03347	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	
ANNUAL		0.03235	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	
ANNUAL		0.02659	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	
ANNUAL		0.19356	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	

Sensitive Receptor Summary

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Existing PM10 Updated September 2025 x10000

PM10 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	2.43057	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	3.44554	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.58826	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.43149	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-12-05, 24
24-HR	1ST	0.46426	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.52704	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.38816	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.29741	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	1.99975	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2018-10-14, 24

Sensitive Receptor Summary

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Existing PM25 Updated September 2025 x10000

PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	0.60834	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	0.86237	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.14723	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.10800	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-12-05, 24
24-HR	1ST	0.11620	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.13191	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.09715	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.07444	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	0.50051	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2018-10-14, 24
ANNUAL		0.04957	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	
ANNUAL		0.14531	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	
ANNUAL		0.00937	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	
ANNUAL		0.01095	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	
ANNUAL		0.00906	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	
ANNUAL		0.00696	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	
ANNUAL		0.00673	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	
ANNUAL		0.00553	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	
ANNUAL		0.04028	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	

Sensitive Receptor Summary

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Existing SO2 Updated September 2025

SO2 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	0.00053	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 7
1-HR	1ST	0.00029	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2019-01-27, 3
1-HR	1ST	0.00018	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 9
1-HR	1ST	0.00012	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2021-12-04, 1
1-HR	1ST	0.00009	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2018-01-31, 2
1-HR	1ST	0.00010	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2018-01-01, 4
1-HR	1ST	0.00009	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2022-01-20, 23
1-HR	1ST	0.00007	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2022-01-16, 3
1-HR	1ST	0.00039	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2021-02-07, 1
24-HR	1ST	0.00007	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	2021-01-24, 24
24-HR	1ST	0.00010	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	2022-10-31, 24
24-HR	1ST	0.00002	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	2021-01-24, 24
24-HR	1ST	0.00001	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	2018-12-05, 24
24-HR	1ST	0.00001	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	2022-01-24, 24
24-HR	1ST	0.00002	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	2022-01-24, 24
24-HR	1ST	0.00001	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	2021-12-19, 24
24-HR	1ST	0.00001	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	2021-12-19, 24
24-HR	1ST	0.00006	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	2018-10-14, 24
ANNUAL		0.00001	ug/m^3	1	608420.30	4844696.90	170.17	0.00	170.17	
ANNUAL		0.00002	ug/m^3	2	607910.80	4844260.70	177.00	0.00	177.00	

Sensitive Receptor Summary

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Existing SO2 Updated September 2025

SO2 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
ANNUAL		0.00000	ug/m^3	3	608740.00	4845357.00	177.13	0.00	177.13	
ANNUAL		0.00000	ug/m^3	4	609270.00	4844278.00	170.31	0.00	170.31	
ANNUAL		0.00000	ug/m^3	5	609419.00	4844033.00	174.40	0.00	174.40	
ANNUAL		0.00000	ug/m^3	6	609545.00	4843490.00	170.00	0.00	170.00	
ANNUAL		0.00000	ug/m^3	7	609185.00	4843060.00	170.00	0.00	170.00	
ANNUAL		0.00000	ug/m^3	8	608858.00	4842627.00	168.85	0.00	168.85	
ANNUAL		0.00000	ug/m^3	9	608626.50	4844535.40	172.00	0.00	172.00	

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