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Appendix B2

Ontario Line Project

Final Environmental Conditions Report – Air Quality Qualitative Assessment

Metrolinx

Air Quality Qualitative Assessment Environmental Conditions Report

Ontario Line Project

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Executive Summary

ES.1 Project Overview and Study Purpose

Metrolinx, an agency of the Province of Ontario, is proceeding with the planning and development of the Ontario Line, extending from Exhibition/Ontario Place to the Ontario Science Centre in the City of Toronto. AECOM Canada Limited (AECOM) was retained by Metrolinx and Infrastructure Ontario to complete an Environmental Conditions Report for the proposed Ontario Line Project (the Project).

The Project is a new approximately 16-kilometre subway line with connections to Line 1 (Yonge-University) subway service at Osgoode and Queen Stations, Line 2 (Bloor-Danforth) subway service at Pape Station, and Line 5 (Eglinton Crosstown) light rail transit service at the future Science Centre Station. Fifteen stations are proposed, with additional connections to three GO Transit lines (Lakeshore East, Lakeshore West and Stouffville), and the Queen, King, Bathurst, Spadina, Harbourfront, and Gerrard/Carlton streetcar routes. The Project will reduce crowding on Line 1 and provide connections to new high-order rapid transit neighbourhoods. The Project will be constructed in a dedicated right-of-way with a combination of elevated (i.e., above existing rail corridor/roadway), tunnelled (i.e., underground), and at-grade (i.e., at grade with existing rail corridor) segments at various locations.

For the purpose of this Air Quality Qualitative Assessment Environmental Conditions Report, the Project has been divided into three segments:

- Ontario Line West (from Exhibition/Ontario Place to Osgoode Station);
- Ontario Line South (from Osgoode Station to Pape Station); and
- Ontario Line North (from Pape Station to the Ontario Science Centre).

This Report supports the Environmental Conditions Report prepared for the Project in accordance with Section 4 of Ontario Regulation 341/20: Ontario Line Project. The purpose of this Report is to:

- Document the existing air quality conditions from all relevant contributing sources of criteria air contaminants and greenhouse gases within the Study Area;
- Provide a preliminary description of the potential impacts that the Project might have on the environment that have been identified to date;
- Describe potential measures for mitigating negative impacts; and

- Identify anticipated next steps for Project advancement, including recommendations for further investigations to be completed as part of a future Environmental Impact Assessment Report.

Refer to **Section 1** of this Report for more information related to the Project purpose and detailed study area description.

ES.2 Methodology

The existing air quality conditions were investigated by studying the following:

- Existing road traffic emissions from bus, passenger vehicle and rail;
- Background air quality concentrations from representative air quality monitoring data;
- Contributions from identified industrial sources located within proximity of the Study Areas;
- Recorded meteorological conditions representative of conditions within the Study Areas; and
- Location of identified sensitive and critical receptors within proximity of the Study Areas.

The existing air quality conditions within the Ontario Line Study Areas are represented by background monitoring data from the National Air Pollution Surveillance Program, collected and averaged from 2011 to 2017 (Environment and Climate Change Canada, 2019a). At the time of preparation of this air quality qualitative assessment (May 2020), 2017 was the most recent available complete set of annual data from the National Air Pollution Surveillance Program for most contaminants, with the exception of Benzene and 1,3-Butadiene which was only available from 2011 to 2014, and benzo(a)pyrene which was only available from 2011 to 2015 (Environment and Climate Change Canada, 2019a).

This assessment was conducted as a desktop study and does not contain data from on-site ambient air monitoring data, nor results from dispersion modelling of the local traffic or industrial sources.

ES.3 Existing Air Quality Conditions

This Report outlines the individual assessment of each Study Area and describes the existing air quality conditions and potential contributions from local sources which may have an impact on the existing air quality levels within each Study Area.

The average monitored concentrations, annual contributions of criteria air contaminants and greenhouse gases from traffic, bus and rail, and industrial sources of air quality contribution for each Study Area are summarized in **Table ES-1**.

Table ES-1: Summary of Ontario Line Existing Air Quality Conditions

Study Area	Ambient Monitored Criteria Air Contaminant Concentrations	Annual Emissions of Criteria Air Contaminant / Greenhouse Gas from Traffic and Rail	Industrial Sources of Significant Criteria Air Contaminant / Greenhouse Gas Contribution (1)
Ontario Line West	▪ NO_2 one hour and 24-hour monitored levels are 49.50 μg/m^3 and 41.75 μg/m^3 respectively. Monitored levels 12% and 21% of Ambient Air Quality Criteria thresholds. ▪ NO_2 one hour and annual monitored level are 44% and 83% of the Canadian Ambient Air Quality Standards threshold at 49.50 μg/m^3 and 26.68 μg/m^3, respectively. ▪ CO one hour and eight hour monitored levels are 446 and 419 μg/m^3 respectively, 1% and 3% of their respective Ambient Air Quality Criteria thresholds. ▪ SO_2 one hour, 30 minutes and annual monitored levels are 5.51 μg/m^3, 6.70 μg/m^3, and 1.84 μg/m^3 respectively. Monitored levels are less than 3% of all Ambient Air Quality Criteria threshold and 18% of Canadian Ambient Air Quality Standards thresholds. ▪ PM_{10} 24 hour monitored level is 25.73 μg/m^3, 51% of Canadian Ambient Air Quality Standards thresholds.	▪ 40,528 tonnes of greenhouse gas (CO2e), ▪ 63.7 tonnes of NOx, ▪ 242 tonnes of CO, ▪ 0.259 tonnes of SO_2, and ▪ 9.14 tonnes of particulate matter (PM10 & PM2.5).	▪ Spray paint and paint mixing (Technicolour Creative, Open Studio, etc.) ▪ Manufacturing (Dominium Diamond, THESL, Canroof Corp. Nestle Canada, etc.) ▪ Sugar manufacturing (Redpath Sugar Ltd.) ▪ Energy (Enwave Energy Corp., City of Toronto, Portlands Energy Centre) ▪ Concrete batching (Ontario Redimix, Dufferin Concrete) Rubber manufacturing (National Rubber Technologies Corp.)

Study Area	Ambient Monitored Criteria Air Contaminant Concentrations	Annual Emissions of Criteria Air Contaminant / Greenhouse Gas from Traffic and Rail	Industrial Sources of Significant Criteria Air Contaminant / Greenhouse Gas Contribution (1)
	▪ $PM_{2.5}$ 24 hour and annual monitored levels are 13.89 and 7.94 μg/m^3 respectively, 51% and 90% of their respective Canadian Ambient Air Quality Standards thresholds.		
Ontario Line South	▪ NO_2 one hour and 24-hour monitored levels are 49.50 μg/m^3 and 41.75 μg/m^3 respectively. Monitored levels 12% and 21% of Ambient Air Quality Criteria thresholds. ▪ NO_2 one hour and annual monitored level are 44% and 83% of the Canadian Ambient Air Quality Standards threshold at 49.50 μg/m^3 and 26.68 μg/m^3, respectively. ▪ CO one hour and eight hour monitored levels are 446 and 419 μg/m^3 respectively, 1% and 3% of their respective Ambient Air Quality Criteria thresholds. ▪ SO_2 one hour, 30 minutes and annual monitored levels are 5.51 μg/m^3, 6.70 μg/m^3, and 1.84 μg/m^3 respectively. Monitored levels are less than 3% of all Ambient Air Quality Criteria threshold and 18% of Canadian Ambient Air Quality Standards thresholds.	▪ 46,891 tonnes of greenhouse gas (CO2e), ▪ 66.6 tonnes of NOx, ▪ 240 tonnes of CO, ▪ 0.262 tonnes of SO_2, and ▪ 13.33 tonnes of particulate matter (PM10 & PM2.5)	▪ Fuel storage (Imperial Oil) ▪ Printing operations (Optium Inc.) ▪ Manufacturing (Celestica, Wrigley Canada, Siltech, Corp., Dominion Diamond, etc.) ▪ Spray painting operations (Centennial Centre for Science and Technology, Publicis, Auto Collision Centres) ▪ Printing operations (Teamimage Inc.) ▪ Rock cutting (De Beers Canada Inc.) ▪ Ready mix concrete batching (Innocon Inc.)

Study Area	Ambient Monitored Criteria Air Contaminant Concentrations	Annual Emissions of Criteria Air Contaminant / Greenhouse Gas from Traffic and Rail	Industrial Sources of Significant Criteria Air Contaminant / Greenhouse Gas Contribution (1)
	▪ PM_{10} 24 hour monitored level is 25.73 μg/m^3, 51% of Canadian Ambient Air Quality Standards thresholds. ▪ $PM_{2.5}$ 24 hour and annual monitored levels are 13.89 and 7.94 μg/m^3 respectively, 51% and 90% of their respective Canadian Ambient Air Quality Standards thresholds.		
Ontario Line North	▪ NO_2 one hour and 24-hour monitored levels are 49.50 μg/m^3 and 41.75 μg/m^3 respectively. Monitored levels 12% and 21% of Ambient Air Quality Criteria thresholds. ▪ NO_2 one hour and annual monitored level are 44% and 83% of the Canadian Ambient Air Quality Standards threshold at 49.50 μg/m^3 and 26.68 μg/m^3, respectively. ▪ CO one hour and eight hour monitored levels are 446 and 419 μg/m^3 respectively, 1% and 3% of their respective Ambient Air Quality Criteria thresholds. ▪ SO_2 one hour, 30 minutes and annual monitored levels are 5.51 μg/m^3, 6.70 μg/m^3, and 1.84 μg/m^3 respectively. Monitored levels are	▪ 11,864 tonnes of greenhouse gases (CO2e); ▪ 18.5 tonnes of NOx; ▪ 64.4 tonnes of CO; ▪ 0.086 tonnes of SO_2; and ▪ 5.00 tonnes of particulate matter (PM10 & PM2.5).	▪ Paint spray operations (JMAC Productions, Auto Collision Centre, etc.), ▪ Coffee roasting (Balzac's Coffee), ▪ Rubber Product Manufacturing (National Rubber Technologies) ▪ Manufacturing (Double D Cup, Dominium Diamond Marketing Corp.) ▪ Electric Power Generation (Portlands Energy Centre, Toronto Hydro Electric System Limited) ▪ Cement and Concrete Manufacturing (Dufferin Concrete, Ontario Remix) ▪ Petroleum and Coal Manufacturing (Canroof Corporation) ▪ Sugar Manufacturing (Redpath Sugar) ▪ Wastewater and Waste Collection

Study Area	Ambient Monitored Criteria Air Contaminant Concentrations	Annual Emissions of Criteria Air Contaminant / Greenhouse Gas from Traffic and Rail	Industrial Sources of Significant Criteria Air Contaminant / Greenhouse Gas Contribution (1)
	less than 3% of all Ambient Air Quality Criteria threshold and 18% of Canadian Ambient Air Quality Standards thresholds. ▪ PM_{10} 24 hour monitored level is 25.73 $\mu g/m^3$, 51% of Canadian Ambient Air Quality Standards thresholds. ▪ $PM_{2.5}$ 24 hour and annual monitored levels are 13.89 and 7.94 $\mu g/m^3$ respectively, 51% and 90% of their respective Canadian Ambient Air Quality Standards thresholds.		(City of Toronto)

Note: (1) Industrial Sources are located within 5 kilometres of each Study Area for large emitters (i.e., listed within the National Pollutant Release Inventory) to capture general contribution to the local airshed. The Ministry of the Environment, Conservation and Parks defines the required modelling area for industrial facilities to be 5 kilometres from the nearest point of emission (Section 14, O. Reg. 419/05).

The results of the Air Quality Qualitative Assessment for the Project show that background air quality levels are predominantly below the Provincial and Federal thresholds; however, there are significant exceedances for benzo(a)pyrene and benzene. These existing background concentration exceedances are representative of concentration levels prior to the COVID-19 pandemic and are common in high-density urban environments.

The regional meteorological data representative of the Ontario Line Study Area suggest that wind blows from the northeast/east direction within the Ontario Line West and Ontario Line South Study Areas and from the north/northwest direction within the Ontario Line North Study Area.

The assessment found that the Ontario Line South Study Area had the highest emission amounts of criteria air contaminants and greenhouse gases, followed by the Ontario Line West Study Area. The Ontario Line North Study Area was found to have the lowest emission amounts of criteria air contaminants and greenhouse gases.

ES.4 Preliminary Potential Impacts, Mitigation Measures and Monitoring Activities

Preliminary potential impacts, mitigation measures, and monitoring activities are outlined in **Section 5** of this Report.

Construction-related impacts (i.e., creation of vapours and particulate) are of a temporary nature. Mitigation measures include, but are not limited to:

- Monitor for dust and air quality parameters during construction to identify if any additional mitigation is required.
- Schedule construction related activities to avoid overlapping construction activities where possible.
- Minimize the number of machines operating in any one area at any given point in time.
- Implement all applicable best practices identified in Environment Canada’s Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities document (Cheminfo Services Inc., 2005), where practical.

Dust and air quality parameters will be monitored during construction to identify if any additional mitigation is required.

Since the Ontario Line trains will be powered by electricity, no impacts of train operations to air quality are anticipated. Operation of other Project components, such as the maintenance and storage facility, does have the potential to result in air quality

impacts. These impacts will be assessed as part of the Environmental Impact Assessment Report.

ES.5 Future Studies

As Project planning and design advance, an air quality impact assessment will be completed as part of the Environmental Impact Assessment Report, which may include a quantitative assessment. A quantitative assessment typically includes a detailed emissions assessment and dispersion modelling in order to determine any impacts from either construction or operation on the local air quality from the proposed Project operations and construction. Any future modelled quantitative Environmental Impact Assessments will require site-specific meteorological data from the Ministry of the Environment, Conservation and Parks' Environmental Monitoring and Reporting Branch.

Prior to construction, an Air Quality Management Plan will be developed which may include, but not be limited to, the following:

- Baseline local air quality assessment, as required;
- Air quality impact mitigation measures; and
- Monitoring and reporting protocol.

ES.6 Permits and Approvals

Environmental Compliance Approvals from the Ministry of the Environment, Conservation and Parks may be required for Mobile Activity (e.g., concrete crushing) (Ministry of the Environment, Conservation and Parks, 2020b). In addition, facilities having equipment or operating practices which are not exempt under Ontario Regulation 524/98 are required to apply for either an Environmental Compliance Approval or to the Environmental Activity and Sector Registry. This may apply to the maintenance and storage facility and will be reviewed as Project planning and design advance.

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1. Introduction

1.1 Project Overview

Metrolinx, an agency of the Province of Ontario, is proceeding with the planning and development of the Ontario Line, extending from Exhibition/Ontario Place to the Ontario Science Centre in the City of Toronto. AECOM Canada Limited (AECOM) was retained by Metrolinx and Infrastructure Ontario to complete an Environmental Conditions Report for the proposed Ontario Line Project (the Project). This Air Quality Qualitative Assessment Environmental Conditions Report (this Report) is one of several environmental conditions reports prepared for the Project. The purpose of this Report is described in **Section 1.2**.

The Project is a new approximately 16-kilometre subway line with connections to Line 1 (Yonge-University) subway service at Osgoode and Queen Stations, Line 2 (Bloor-Danforth) subway service at Pape Station, and Line 5 (Eglinton Crosstown) light rail transit service at the future Science Centre Station. Fifteen stations are proposed, with additional connections to three GO Transit lines (Lakeshore East, Lakeshore West and Stouffville), and the Queen, King, Bathurst, Spadina, Harbourfront, and Gerrard/Carlton streetcar routes. The Project will reduce crowding on Line 1 and provide connections to new high-order rapid transit neighbourhoods. The Project will be constructed in a dedicated right-of-way with a combination of elevated (i.e., above existing rail corridor/roadway), tunnelled (i.e., underground), and at-grade (i.e., at grade with existing rail corridor) segments at various locations.

For the purpose of this Report, the Ontario Line Study Area has been divided into three segments:

- Ontario Line West (from Exhibition/Ontario Place to Osgoode Station);
- Ontario Line South (from Osgoode Station to Pape Station); and
- Ontario Line North (from Pape Station to the Ontario Science Centre).

The Ontario Line West, Ontario Line South, and Ontario Line North Study Areas are further described in **Section 1.3** and are shown in **Figure 1-1**, **Figure 1-2** and **Figure 1-3**.

1.2 Purpose of this Report

The purpose of this Report is to:

- Determine the baseline existing air quality conditions from all contributing sources of criteria air contaminants from vehicle exhausts and greenhouse gases;
- Provide a preliminary description of the potential impacts that the Project might have on the environment that have been identified to date;
- Describe potential measures for mitigating negative impacts; and
- Identify anticipated next steps for Project advancement, including recommendations for further investigations to be completed as part of a future Environmental Impact Assessment Report.

This Report outlines the individual assessment of each Study Area and describes the existing air quality conditions and potential contributions from local sources which may have an impact on the existing air quality levels within each Study Area. This assessment was conducted as a desktop study and does not contain data from on-site ambient air monitoring data, nor results from dispersion modelling of the local traffic or industrial sources.

This Report has been prepared in accordance with Ontario Regulation 341/20: Ontario Line Project and contains the information outlined in **Table 1-1**.

Table 1-1: Report Contents in accordance with Ontario Regulation 341/20: Ontario Line Project

Reg. Section	Requirement	Report Section
Section 4(3)4	A description of the local environmental conditions in the area studied in respect of the Ontario Line Project.	**Sections 3 & 4**
Section 4(3)6	A preliminary description of the potential impacts that the Ontario Line Project might have on the environment that have been identified to date and an indication of how those impacts will be studied and described in further detail in the environmental impact assessment report.	**Section 5**
Section 4(3)7	A description of any potential measures for	**Section 5**

Reg. Section	Requirement	Report Section
	mitigating any negative impacts that the Ontario Line Project might have on the environment.	
Section 4(3)8	A description of the future studies that will be carried out as part of the environmental impact assessment report to determine potential impacts to the environment caused by the Ontario Line Project and the potential measures for mitigating any negative impacts in respect of them.	**Section 6**
Section 4(3)9	A preliminary list of the potential municipal, provincial, federal or other approvals or permits that may be required for the Ontario Line Project.	**Section 6**

1.3 Study Area

The Ontario Line Study Area was established based on the representative alignment reflected in the Ontario Line Initial Business Case (Metrolinx and Infrastructure Ontario, 2019). A buffer was applied to the representative alignment delineating a sufficiently sized area to comprehensively characterize existing environmental conditions and allow for flexibility in detailed route planning.

For readability and for the purposes of this Report, the Ontario Line Study Area has been divided into three segments, which are described in the following sections.

1.3.1 Ontario Line West

The Ontario Line West Study Area approximate boundaries are Dufferin Street in the west, Osgoode Station in the east, Queen Street West in the north, and the Gardiner Expressway in the south. The Ontario Line West Study Area is shown in **Figure 1-1**.

1.3.2 Ontario Line South

The Ontario Line South Study Area approximate boundaries are Osgoode Station in the west, Pape Avenue in the east, Pape Station in the north, and the Toronto waterfront and Lakeshore Boulevard East in the south. The Ontario Line South Study Area is shown in **Figure 1-2**.

1.3.3 Ontario Line North

The Ontario Line North Study Area approximate boundaries are the Canadian Pacific rail tracks in the west, Don Mills Road in the east, Pape Station in the south, and Barber Greene Road / Green Belt Drive (north of Eglinton Avenue East) in the north. The Ontario Line North Study Area is shown in **Figure 1-3**.

Figure 1-1: Ontario Line West Study Area

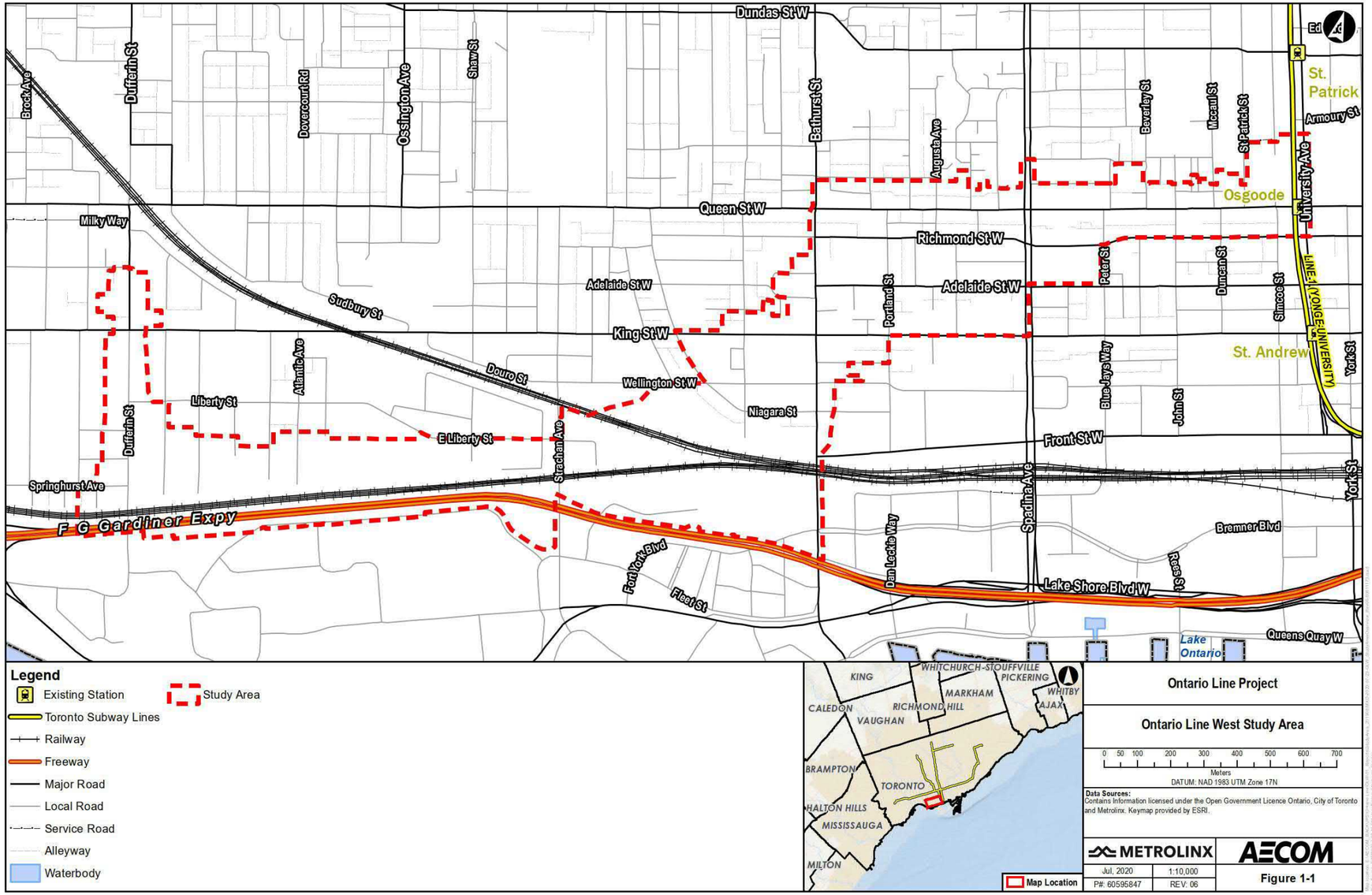


Figure 1-2: Ontario Line South Study Area

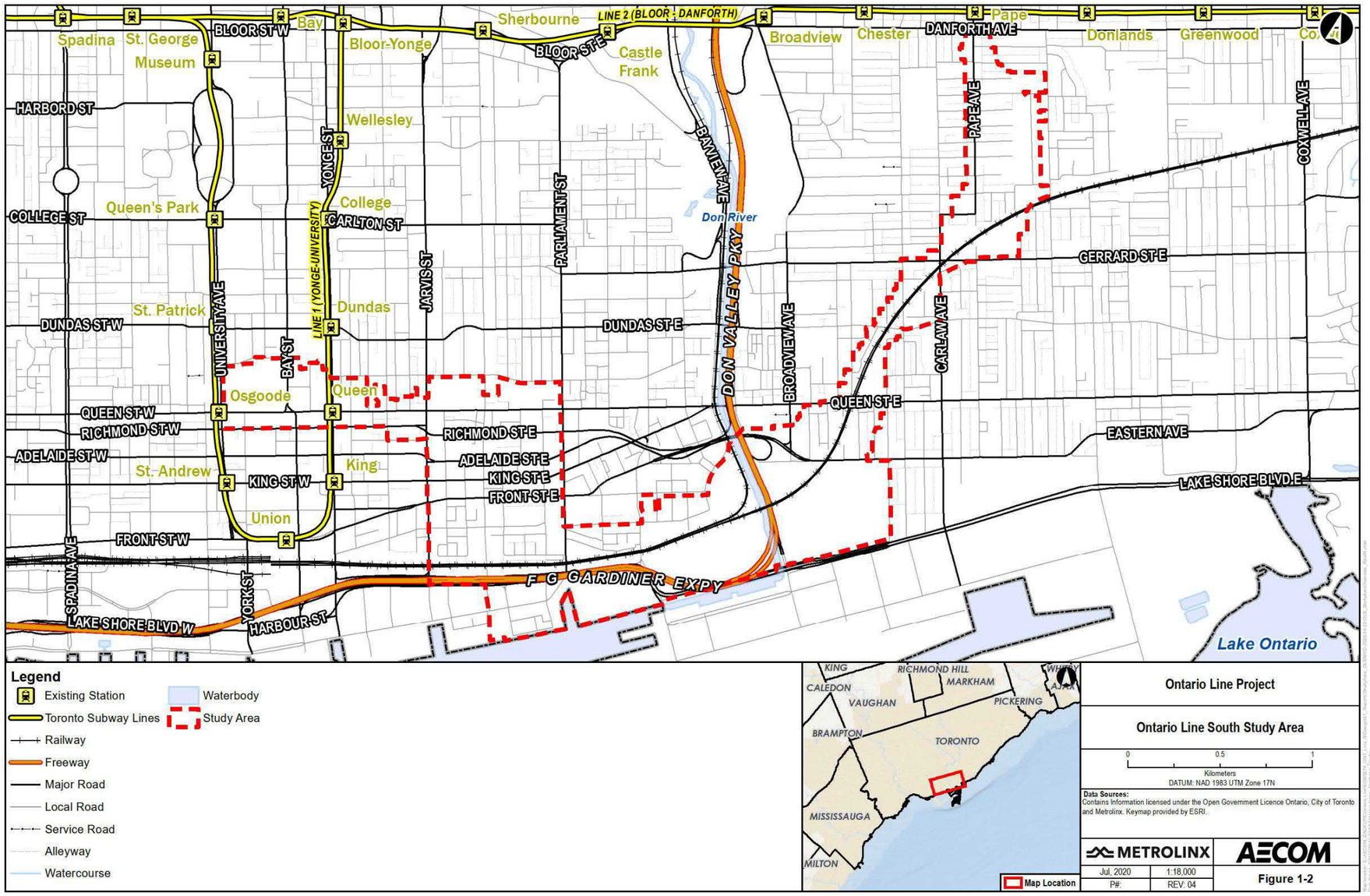
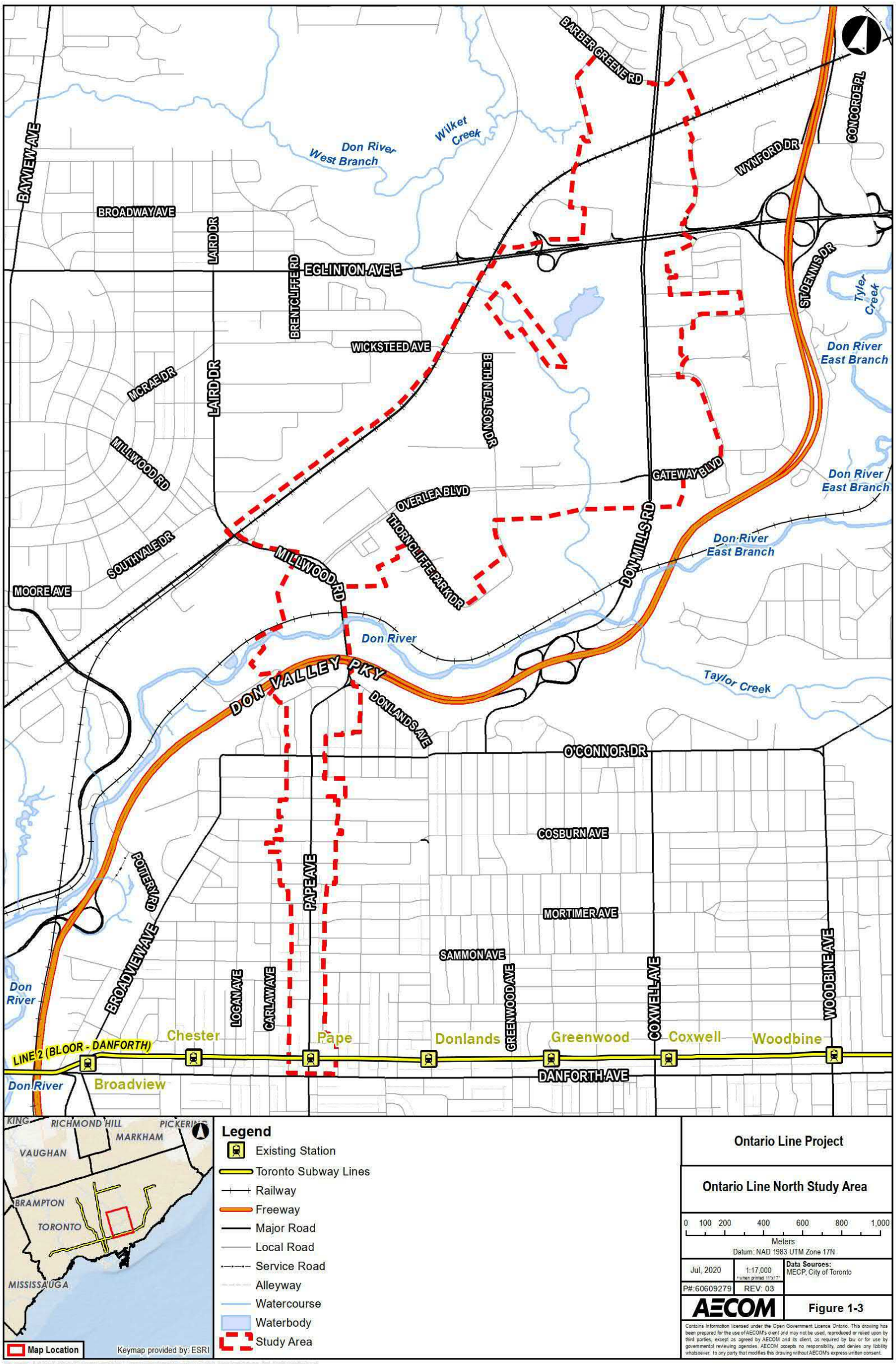


Figure 1-3: Ontario Line North Study Area



2. Methodology

The overall objective of the Air Quality Qualitative Assessment is to determine the existing levels of air quality Criteria Air Contaminants and greenhouse gases present within each Ontario Line Study Area and identify the major contributors of air quality conditions within each Study Area.

The existing air quality conditions were investigated by studying the following:

- Existing road traffic emissions from bus, passenger vehicle, and rail;
- Background air quality concentrations from representative air quality monitoring data;
- Contributions from identified industrial sources located within proximity of the Study Areas;
- Recorded meteorological conditions representative of conditions within the Study Areas; and
- Location of identified sensitive and critical receptors within proximity of the Study Areas.

All potential sources of vehicular emissions, diesel rail emissions and industrial emissions were identified within each of the three Ontario Line Study Area segments: Ontario Line West, Ontario Line South, and Ontario Line North. These sources were identified as significant air emission sources which would contribute to the overall air quality conditions within each Study Area segment, as defined in **Section 2.1**.

Significant air emission sources are those sources which would contribute directly to the local air quality within the Study Area. Impacts from local vehicular emissions and diesel rail emissions contribute directly to local air quality, being released close to ground level, while industrial sources contribute more generally to the local air shed with specific stack-based emissions designed for maximum dispersion.

A conservative high-level emission inventory was established based on the following data sources:

- Publicly available data, including Environment and Climate Change Canada's National Pollutant Release Inventory (Environment and Climate Change Canada, 2020a), Ministry of the Environment, Conservation and Parks' Access Environment Database for Environmental Compliance Approvals

(Ministry of the Environment, Conservation and Parks, 2020a), Toronto Transit Commission scheduling (**Appendix D1**), and GO Transit train and bus scheduling (**Appendix D2**);

- Traffic data provided by the City of Toronto (**Appendix D3**); and
- Previously established GO Train rail locomotive emission data and highway traffic data from the Union Station Rail Corridor East Enhancements Transit Project Assessment Process Air Quality Assessment Report (AECOM, 2018).

Existing sensitive and critical receptors were selected in each Study Area, by distance from the proposed Ontario Line alignment. Where no immediate sensitive or critical receptor existed within the Study Areas, the closest receptor outside the boundaries of the Study Area was selected as representative of the air quality level in the Study Area. According to the Ministry of Transportation's Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects document, sensitive receptors included all permanent locations of residence (i.e., detached housing, apartments and condos, etc.) and critical receptors included health care facilities, educational institutions, childcare facilities, or nursing/long-term care facilities (Ministry of Transportation, 2020).

The background air quality concentrations within the Ontario Line Study Area were determined from existing air quality monitoring station data from the National Air Pollution Surveillance Program (Environment and Climate Change Canada, 2019a). Five years of existing data sets were analysed from stations within the region, and the complete data set from the closest station or most representative station for each contaminant of concern was selected to represent the background air quality for the Ontario Line Study Area.

Meteorological data, including wind speed and wind direction, from the nearest representative meteorological stations (Toronto Pearson Airport and Toronto City Centre), were also selected to provide the predominant wind direction and wind speed frequency in the region. This provides a more informed understanding of the potential for sensitive and critical receptors to be impacted within the Study Area.

The following sections outline the identification of the Study Area, sources of air quality contaminants for all conditions of assessment, identified sensitive and critical receptors, Federal and Provincial standards and guidelines applicable to the air quality contaminants, the methodology used to provide a qualitative assessment of each condition of assessment, and all assumptions made within the assessment.

2.1 Study Area and Representative Receptors

The Ontario Line West, Ontario Line South, and Ontario Line North Study Areas are shown in **Appendix A**. Representative receptors were selected within this Study Area, determined by distance from the proposed Ontario Line alignment, as shown in **Figure 2-1**, **Figure 2-2**, and **Figure 2-3**. Where no immediate sensitive or critical receptor existed within the Study Area, the closest receptor outside the boundaries of the Study Area was selected as representative of the air quality level in the Study Area.

Table 2-1 outlines the representative sensitive and/or critical receptors identified within or adjacent to Ontario Line West Study Area. The receptor locations within the Ontario Line West Study Area are also shown in **Figure 2-1**.

Table 2-1: Ontario Line West Representative Receptors

Receptor ID	Address	Critical / Sensitive	Description
WCR1	20 Brant Street (Alpha Alternative Junior School)	Critical	School
WCR2	20 Brant Street (Oasis Alternative Secondary School)	Critical	School
WCR3	95 Bellevue Avenue	Critical	School
WCR4	127 Portland Street	Critical	School
WCR5	626 King Street West	Critical	School
WCR6	828 Richmond Street West	Critical	School
WCR7	1209 King Street West	Critical	School
WCR8	222 Niagara Street	Critical	School
WCR9	20 Portugal Square	Critical	School
WCR10	33 Phoebe Street	Critical	School
WCR11	36 Spencer Avenue	Critical	Retirement Home
WCR12	122 Tyndall Avenue	Critical	Nursing home
WCR13	399 Bathurst Street	Critical	Hospital
WCR14	30 The Queensway	Critical	Hospital
WCR15	135 Sherbourne Street	Critical	Health Services
WCR16	218 Richmond Street West	Critical	Day Care Centre
WCR17	20 Brant Street	Critical	Day Care Centre
WCR18	477 Richmond Street West	Critical	College
WCR19	34 Bathurst Street	Critical	Child Care Centre
WCR20	180 Simcoe Street, Suite 102	Critical	Child Care Centre
WR1	11 St Patrick Square	Sensitive	Detached Housing
WR2	170 John Street	Sensitive	Apartments/

Receptor ID	Address	Critical / Sensitive	Description
			Condo
WR3	13 Phoebe St	Sensitive	Apartments/ Condo
WR4	16 Cameron Street	Sensitive	Detached Housing
WR5	17 Augusta Avenue	Sensitive	Detached Housing
WR6	29 Wolseley Street	Sensitive	Townhouse
WR7	81 Wolseley Street	Sensitive	Townhouse
WR8	7 Springhurst Avenue	Sensitive	Detached Housing
WR9	8 Springhurst Avenue	Sensitive	Townhouse
WR10	7 Thorburn Avenue	Sensitive	Townhouse
WR11	8 Thorburn Avenue	Sensitive	Townhouse
WR12	15 Temple Avenue	Sensitive	Townhouse
WR13	16 Temple Avenue	Sensitive	Townhouse
WR14	200 Dufferin Street	Sensitive	Apartments/ Condo
WR15	300 Dufferin Street	Sensitive	Apartments/ Condo
WR16	334 Dufferin Street	Sensitive	Townhouse
WR17	11 Portugal Square	Sensitive	Townhouse
WR18	575 Adelaide Street West	Sensitive	Apartments/ Condo
WR19	330 Richmond Street West	Sensitive	Apartments/ Condo
WR20	36 Bathurst Street	Sensitive	Apartments/ Condo
WR21	Wellington and Stanley Terrace	Sensitive	Apartments/ Condo Under Construction
WR22	Ordnance Street	Sensitive	Apartments/ Condo Under Construction
WR23	Strachan Avenue and East Liberty Street	Sensitive	Apartments/ Condo Under Construction
WR24	720 King Street West	Sensitive	Apartments/ Condo
WR25	60 Bathurst Street	Sensitive	Apartments/ Condo
WR26	57 Niagara Street	Sensitive	Detached Housing

Receptor ID	Address	Critical / Sensitive	Description
WR27	165 Dufferin Street	Sensitive	Apartments/ Condo
WR28	219 Dufferin Street	Sensitive	Apartments/ Condo
WR29	5 Hannah Avenue	Sensitive	Apartments/ Condo
WR30	75 East Liberty Street	Sensitive	Apartments/ Condo
WR31	57 East Liberty Street	Sensitive	Apartments/ Condo
WR32	24 Tecumseth Street	Sensitive	Townhouses
WR33	642 Wellington Street West	Sensitive	Townhouses
WR34	801 Niagara Street	Sensitive	Apartments/ Condo
WR35	753 King Street West	Sensitive	Apartments/ Condo
WR36	741 King Street West	Sensitive	Apartments/ Condo
WR37	55 Tecumseth Street	Sensitive	Townhouses
WR38	600 Wellington Street West	Sensitive	Townhouses
WR39	52 Tecumseth Street	Sensitive	Townhouses
WR40	705 King Street West	Sensitive	Apartments/ Condo
WR41	570 Wellington Street West	Sensitive	Townhouses
WR42	29 Tecumseth Street	Sensitive	Detached housing
WR43	64 Niagara Street	Sensitive	Apartments/ Condo
WR44	85 Niagara Street	Sensitive	Apartments/ Condo and Detached Housing
WR45	54 Bathurst Street	Sensitive	Apartments/ Condo
WR46	51 Bathurst Street	Sensitive	Apartments/ Condo
WR47	13 Beverly Street	Sensitive	Apartments/ Condo
WR48	150 John Street	Sensitive	Apartments/ Condo
WR49	155 John Street	Sensitive	Apartments/ Condo
WR50	32 Stewart Lofts	Sensitive	Apartments/ Condo

Receptor ID	Address	Critical / Sensitive	Description
WR51	7 Adelaide Place	Sensitive	Townhouses
WR52	140 Bathurst Street	Sensitive	Apartments/ Condo
WR53	19 Brant Street	Sensitive	Apartments/ Condo
WR54	461 Adelaide St West	Sensitive	Apartments/ Condo
WR55	132 Portland Street	Sensitive	Detached housing
WR56	544 Richmond Street West	Sensitive	Townhouses and apartments
WR57	500 Richmond Street West	Sensitive	Townhouses
WR58	438 Richmond Street West	Sensitive	Apartments/ Condo
WR59	52 Camden Street	Sensitive	Apartments/ Condo
WR60	At Adelaide Street and Brant Street East Bound	Sensitive	Apartments/ Condo
WR61	413 Adelaide Street West	Sensitive	Apartments/ Condo
WR62	215 Queen Street West	Sensitive	Apartments/ Condo
WR63	394 Queen Street West	Sensitive	Apartments/ Condo
WR64	608 Richmond Street West	Sensitive	Apartments/ Condo

Figure 2-1: Receptor Locations within the Ontario Line West Study Area

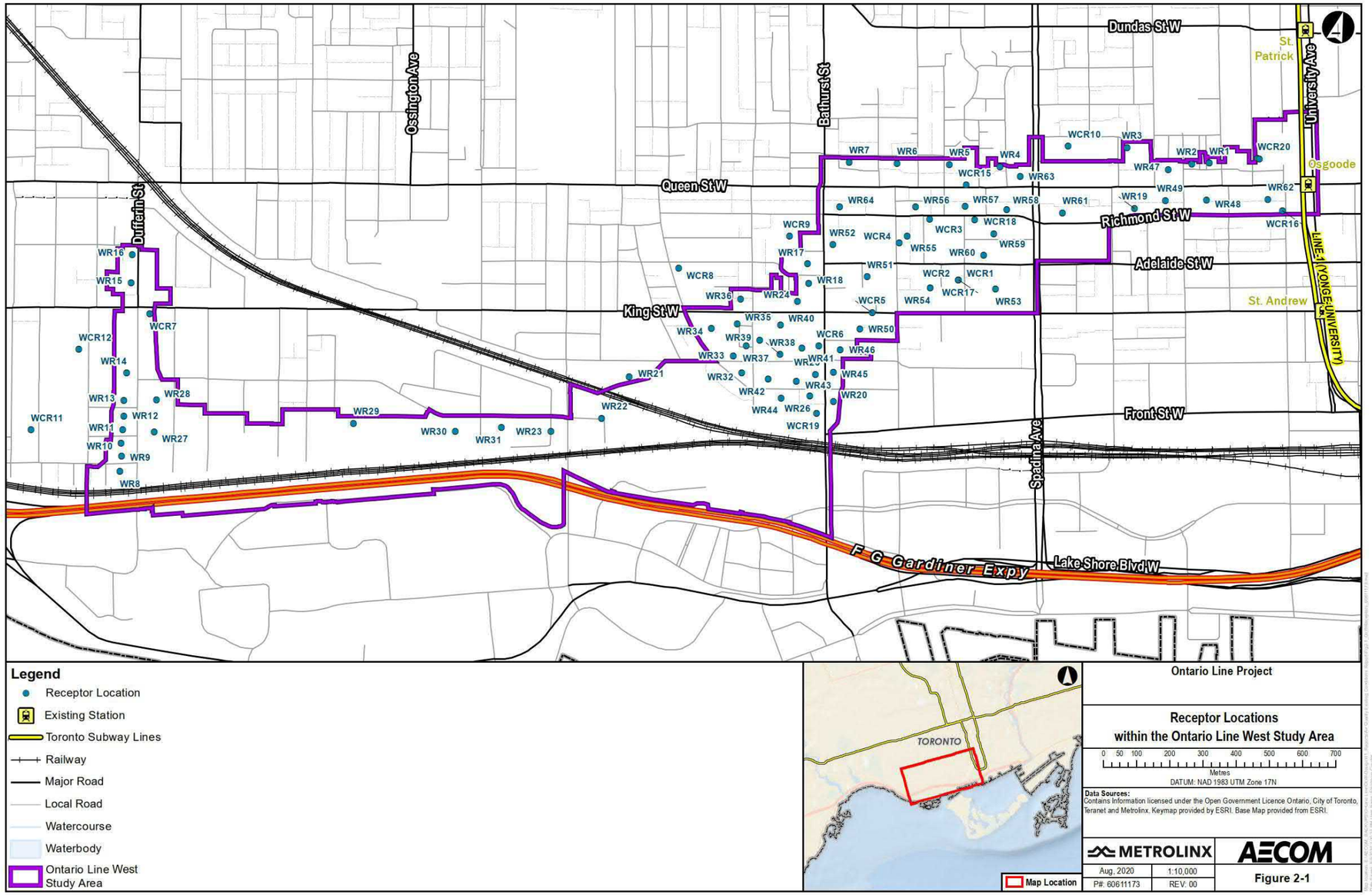


Table 2-2 outlines the representative sensitive and/or critical receptors identified within or adjacent to Ontario Line South Study Area. The receptor locations within the Ontario Line South Study Area are also shown in **Figure 2-2**.

Table 2-2: Ontario Line South Representative Receptors

Receptor ID	Address	Critical / Sensitive	Receptor Description
SCR1	123 Strathcona Avenue	Critical	Public School
SCR2	21 Boultbee Avenue	Critical	Public School
SCR3	220 Langley Avenue	Critical	Public School
SCR4	842 Gerrard Street East	Critical	Child Care Centre
SCR5	85 Lower Jarvis Street	Critical	Public School
SCR6	341 King Street East	Critical	College
SCR7	193 King Street East	Critical	College
SCR8	200 King Street East	Critical	College
SCR9	61 Queen Street East	Critical	Hospital
SCR10	260 Richmond Street East	Critical	College
SCR11	30 Bond Street	Critical	Hospital
SCR12	180 Simcoe Street, Suite 102[1]	Critical	Child Care Centre
SR1	669 Pape Avenue	Sensitive	Apartments/ Condo
SR2	619 Pape Avenue	Sensitive	Separated Housing
SR3	525 Pape Avenue	Sensitive	Separated Housing
SR4	469 Pape Avenue	Sensitive	Separated Housing
SR5	38 Blake Street	Sensitive	Apartments/ Condo
SR6	8 Egan Avenue	Sensitive	Separated Housing
SR7	444 Logan Avenue	Sensitive	Apartments/ Condo
SR8	374 Logan Avenue	Sensitive	Separated Housing
SR9	855 Queen Street East	Sensitive	Apartments/ Condo
SR10	132 Eastern Avenue	Sensitive	Apartments/ Condo
SR11	90 Broadview Avenue	Sensitive	Apartments/ Condo
SR12	40 Rolling Mills Road	Sensitive	Apartments/ Condo
SR13	15 Merchants' Wharf	Sensitive	Apartments/ Condo
SR14	12 Bonnycastle Street	Sensitive	Apartments/ Condo
SR15	25 Mill Street	Sensitive	Apartments/ Condo
SR16	90 Distillery Lane	Sensitive	Apartments/ Condo
SR17	43 Lower Jarvis Street	Sensitive	Separated Housing

[1] 180 Simcoe Street, Suite 102 is located in the Ontario Line West Study Area and is identified as a critical receptor in **Table 2-1** and **Table 2-2**. Due to its close proximity to the west boundary of the Ontario Line South Study Area, the child care centre should be considered when assessing future impacts relative to both the Ontario Line West and Ontario Line South Study Areas.

Receptor ID	Address	Critical / Sensitive	Receptor Description
SR18	55 Tom Longboat Lane	Sensitive	Apartments/ Condo
SR19	222 The Esplanade	Sensitive	Apartments/ Condo
SR20	11 Lower Sherbourne	Sensitive	Apartments/ Condo
SR21	105 Front Street East	Sensitive	Apartments/ Condo
SR22	35 Jarvis Street	Sensitive	Apartments/ Condo
SR23	400 Adelaide Street	Sensitive	Apartments/ Condo
SR24	130 George Street	Sensitive	Apartments/ Condo
SR25	63 Lombard Street	Sensitive	Apartments/ Condo
SR26	127 Queen Street East	Sensitive	Apartments/ Condo
SR27	25 Mutual Street	Sensitive	Apartments/ Condo
SR28	114 Sherbourne Street	Sensitive	Apartments/ Condo
SR29	299 Shuter Street	Sensitive	Apartments/ Condo

Figure 2-2: Receptor Locations within the Ontario Line South Study Area

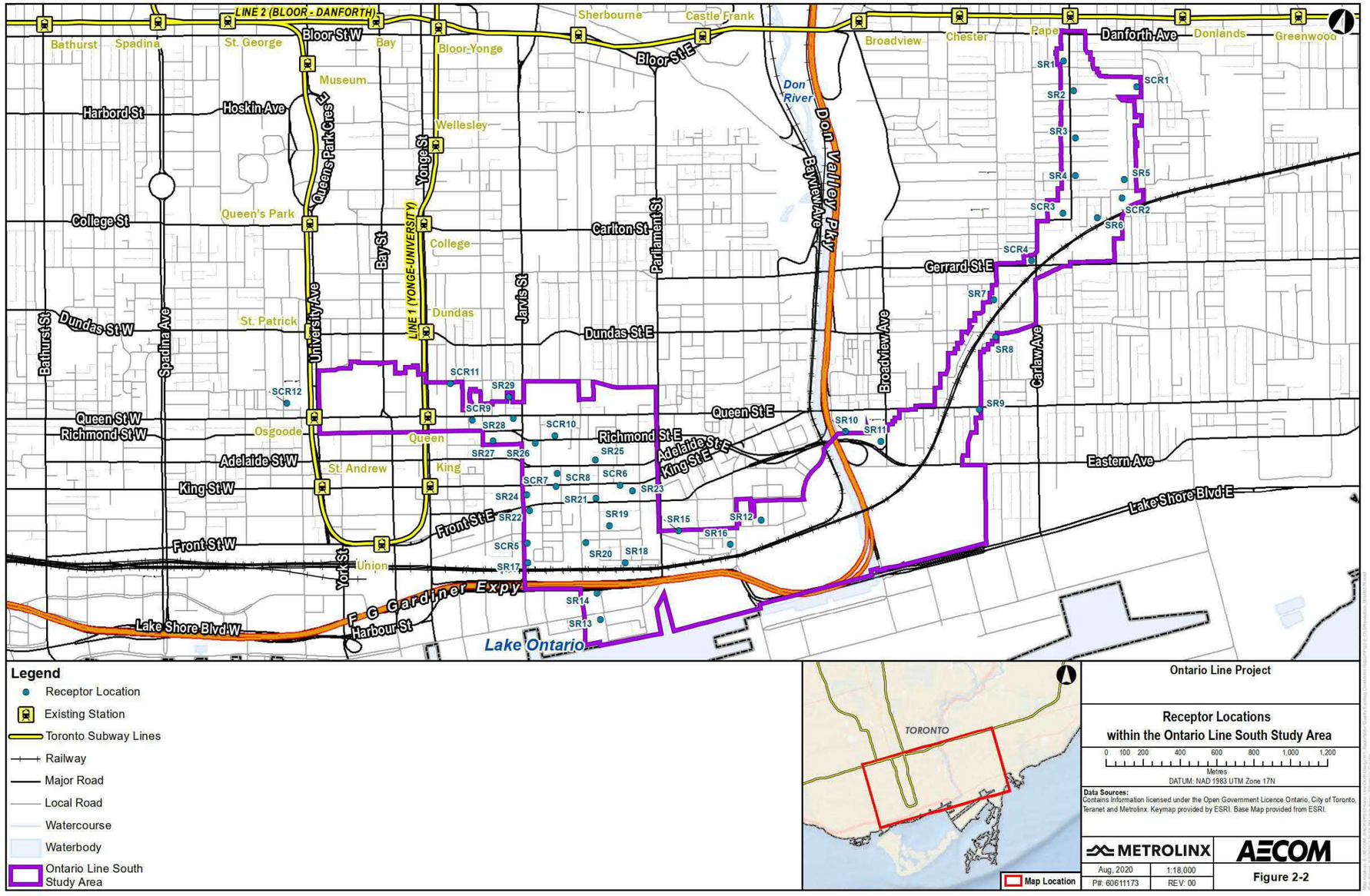


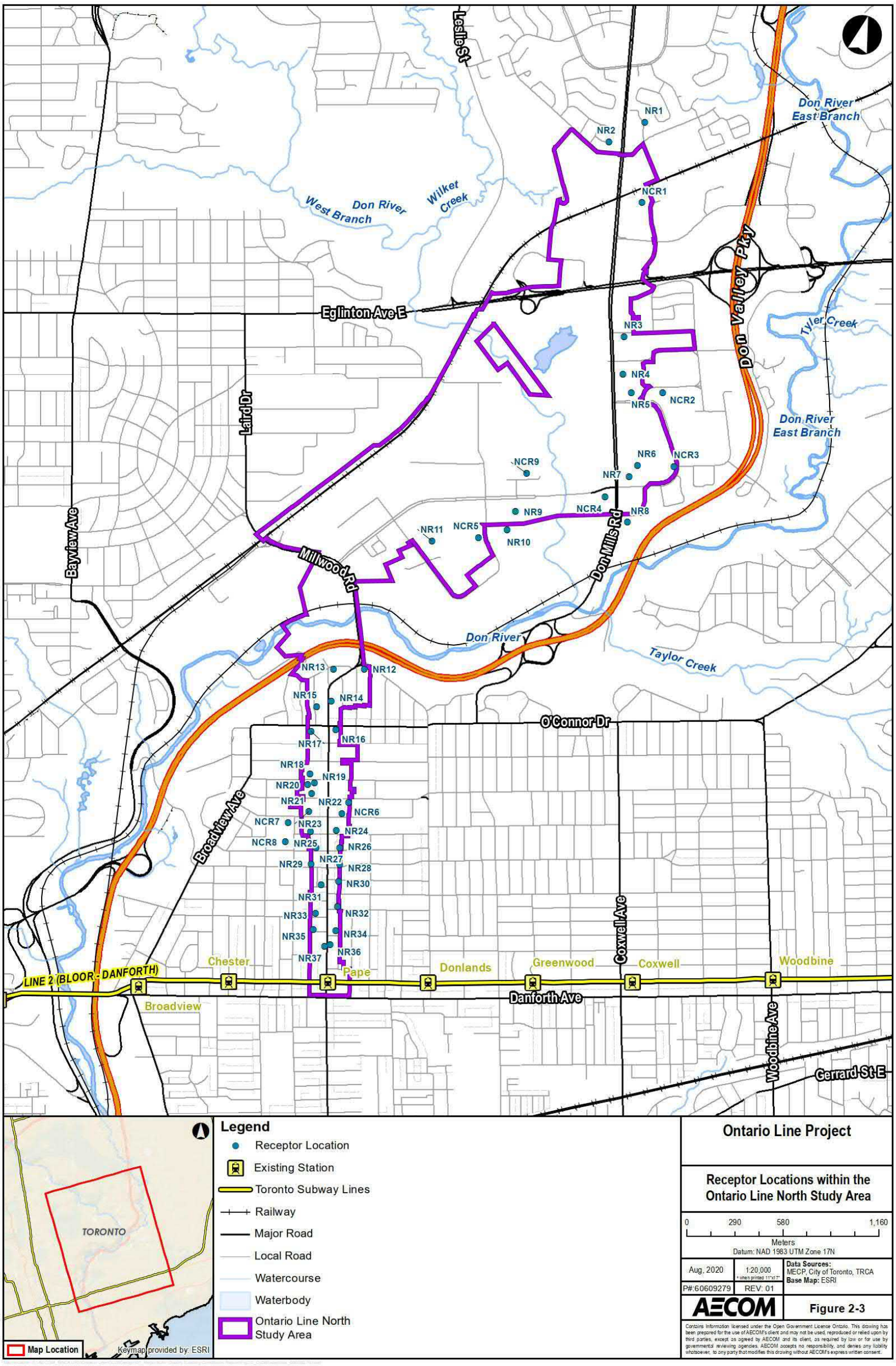
Table 2-3 outlines the representative sensitive and/or critical receptors identified within or adjacent to Ontario Line North Study Area. The receptor locations within the Ontario Line North Study Area are also shown in **Figure 2-3**.

Table 2-3: Ontario Line North Representative Receptors

Receptor ID	Address	Critical / Sensitive	Receptor Description
NCR1	50 Gervais Drive	Critical	College
NCR4	9 Grenoble Drive	Critical	School
NCR5	55 Gateway Boulevard	Critical	School
NCR6	135 Overlea Boulevard	Critical	College
NCR7	80 Thorncliffe Park Drive	Critical	School
NR1	123 Cosburn Avenue	Sensitive	Day Care Centre
NR3	115 Gowan Avenue	Sensitive	School
NR4	994 Carlaw Avenue	Sensitive	School
NR5	131 The Heights Drive	Sensitive	Apartments/Condo
NR6	1-29 Redwing Place	Sensitive	Separated Housing
NR9	7 Rochefort Drive	Sensitive	Apartments/Condo
NR10	7 St. Dennis Drive	Sensitive	Apartments/Condo
NR11	200 Gateway Boulevard	Sensitive	Apartments/Condo
NR13	725 Don Mills Road	Sensitive	Apartments/Condo
NR14	715 Don Mills Road	Sensitive	Apartments/Condo
NR15	701 Don Mills Road	Sensitive	Apartments/Condo
NR16	14 William Morgan Drive, #10	Sensitive	Apartments (retirement residence)
NR18	85 Thorncliffe Park Drive	Sensitive	Apartments/Condo
NR19	79 Thorncliffe Park Drive	Sensitive	Apartments/Condo
NR20	18 Thorncliffe Park Drive	Sensitive	Apartments/Condo
NR23	1361 Pape Avenue	Sensitive	Separated Housing
NR24	157 Hopedale Avenue	Sensitive	Separated Housing
NR25	1295 Pape Avenue	Sensitive	Separated Housing
NR26	17 Stanhope Avenue	Sensitive	Separated Housing
NR27	131 O'Connor Drive	Sensitive	Separated Housing
NR28	17 Hassard Avenue	Sensitive	Separated Housing
NR29	100 Gamble Avenue	Sensitive	Apartments/Condo
NR30	95 Gamble Avenue	Sensitive	Apartments/Condo
NR31	85 Gamble Avenue	Sensitive	Apartments/Condo
NR32	100 Cosburn Avenue	Sensitive	Apartments/Condo
NR33	150A Gowan Avenue	Sensitive	Separated Housing
NR34	130 Gowan Avenue	Sensitive	Apartments/Condo

Receptor ID	Address	Critical / Sensitive	Receptor Description
NR35	172 Floyd Avenue	Sensitive	Separated Housing
NR36	148 Floyd Avenue	Sensitive	Separated Housing
NR37	210 Westwood Avenue	Sensitive	Separated Housing
NCR1	194 Westwood Avenue	Sensitive	Separated Housing
NCR2	218 Mortimer Avenue	Sensitive	Separated Housing
NCR3	190 Mortimer Avenue	Sensitive	Separated Housing
NCR4	5 Kings Park Boulevard	Sensitive	Separated Housing
NCR5	12 Macphail Avenue	Sensitive	Separated Housing
NCR6	6 Aldwych Avenue	Sensitive	Separated Housing
NCR7	230 Browning Avenue	Sensitive	Separated Housing
NCR9	62 Muriel Avenue	Sensitive	Separated Housing
NR1	179 Gough Avenue	Sensitive	Separated Housing
NR2	803 Pape Avenue	Sensitive	Separated Housing
NR3	782 Pape Avenue	Sensitive	Separated Housing

Figure 2-3: Receptor Locations within the Ontario Line North Study Area



2.2 Assessment of Contaminants

Based on recommendations within the Ministry of Transportation's Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects (Ministry of Transportation, 2020), this assessment included the following criteria air contaminants from vehicle emissions:

1. Nitrogen dioxide, NO_2 (assessed over 1-hour, 24-hour, and annual averaging periods);
2. Carbon monoxide, CO (assessed over 1-hour and 8-hour averaging periods);
3. Sulphur Dioxide, SO_2 (assessed over 1-hour, 24-hour, and annual averaging period);
4. Particulate matter (<10 microns), PM_{10} (assessed over 24-hour and annual averaging periods);
5. Particulate matter (<2.5 microns), $PM_{2.5}$ (assessed over 24-hour and annual averaging periods);
6. Acetaldehyde (assessed over 24-hour averaging period);
7. Acrolein (assessed over 1-hour and 24-hour averaging periods);
8. Benzene (assessed over 24-hour and annual averaging periods);
9. Benzo(a) pyrene, B(a)P (assessed over 24-hour and annual averaging periods);
10. Formaldehyde (assessed over 24-hour averaging period); and
11. 1,3-butadiene (assessed over 24-hour and annual averaging periods).

Emissions of the coarse fraction of particulates (PM_{10}) are emitted mostly from tire wear, brake wear, and road dust fugitives, whereas the fine fraction ($PM_{2.5}$) is mostly attributed to vehicle emission exhausts.

The United States Environmental Protection Agency has established emission standards for nitrogen oxides ($NO_X = NO_2 + NO$), HC, CO and particulate matter for locomotives. The Canadian federal Locomotive Emissions Regulations under the Railway Safety Act align with those of the United States Environmental Protection Agency.

In addition to the above, impacts of pollutants contributing to the regional greenhouse gas levels were considered. The pollutants associated with greenhouse gas levels for

the quantitative impact assessment will include carbon dioxide, nitrous oxide and methane.

2.3 Relevant Air Quality Guidelines

The applicable standards for criteria air contaminants are established by the Ministry of the Environment, Conservation and Parks and Canadian Council of Ministers of the Environment as the Ambient Air Quality Criteria (Ministry of the Environment, 2012) and Canadian Ambient Air Quality Standards (Canadian Council of Ministers of the Environment, 2012), respectively, as illustrated in **Table 2-4**.

Table 2-4: Summary of Applicable Guidelines and Standards

Criteria Air Contaminant	Source of Standard	Averaging Period	Air Quality Threshold Value (µg/m^3)
NO_2	Ambient Air Quality Criteria	One hour	400
NO_2	Ambient Air Quality Criteria	24 hours	200
NO_2 (1)	Canadian Ambient Air Quality Standards	One hour (2020)	113
NO_2 (1)	Canadian Ambient Air Quality Standards	Annual (2020)	32
NO_2 (1)	Canadian Ambient Air Quality Standards	One hour (2025)	78
NO_2 (1)	Canadian Ambient Air Quality Standards	Annual (2025)	22
CO	Ambient Air Quality Criteria	One hour	36,200
CO	Ambient Air Quality Criteria	Eight hours	15,700
SO_2 (2)	Ambient Air Quality Criteria	10-minute	180
SO_2 (2)	Ambient Air Quality Criteria	One hour	100
SO_2 (2)	Ambient Air Quality Criteria	Annual	10
SO_2 (3)	Canadian Ambient Air Quality Standards	One hour (2020)	183
SO_2 (3)	Canadian Ambient Air Quality Standards	Annual (2020)	13
SO_2 (3)	Canadian Ambient Air Quality Standards	One hour (2025)	170
SO_2 (3)	Canadian Ambient Air Quality Standards	Annual (2025)	10

Criteria Air Contaminant	Source of Standard	Averaging Period	Air Quality Threshold Value (µg/m^3)
PM_{10} (4)	Ambient Air Quality Criteria	24 hours	50
$PM_{2.5}$ (5)	Canadian Ambient Air Quality Standards	24 hours (2020)	27
$PM_{2.5}$ (5)	Canadian Ambient Air Quality Standards	Annual	8.8
Acetaldehyde	Ambient Air Quality Criteria	30-minute	500
Acetaldehyde	Ambient Air Quality Criteria	24 hours	500
Acrolein	Ambient Air Quality Criteria	One hour	4.5
Acrolein	Ambient Air Quality Criteria	24 hours	0.4
Benzene	Ambient Air Quality Criteria	24 hours	2.3
Benzene	Ambient Air Quality Criteria	Annual	0.45
Benzo(a)pyrene	Ambient Air Quality Criteria	24 hours	0.00005
Benzo(a)pyrene	Ambient Air Quality Criteria	Annual	0.00001
1,3-Butadiene	Ambient Air Quality Criteria	24 hours	10
1,3-Butadiene	Ambient Air Quality Criteria	Annual	2
Formaldehyde	Ambient Air Quality Criteria	24 hours	65

Notes: (1) The Canadian Ambient Air Quality Standards Air Quality threshold for nitrogen dioxide is based on the three-year average of the annual 98th percentile of the daily maximum one-hour average concentrations.

(2) The Ambient Air Quality Standards for SO_2 was updated by the Ministry of the Environment and Climate Change in March 2018 in the document Ontario Air Standards for Sulphur Dioxide (SO_2) published by the Technical Assessment and Standards Development Branch (Ministry of the Environment and Climate Change, 2018).

(3) The Canadian Ambient Air Quality Standards Air Quality threshold for sulphur dioxide is based on the three-year average of the annual 99th percentile of the daily maximum one-hour average concentrations.

(4) The value of 50 µg/m^3 (24 hr) is an interim Ambient Air Quality Criteria and is provided as a guide for decision making.

(5) The Air Quality threshold for fine particulate ($PM_{2.5}$) is based on the 98th percentile ambient measurement (24-hour), annually averaged over three years.

Ambient Air Quality Criteria are acceptable effects-based levels in ambient air. Thresholds are set based on the “limiting effect” and are the lowest concentrations at which an adverse effect may be experienced. Effects considered may be health, odour, vegetation, soiling, visibility, corrosion or others and thresholds have variable averaging times appropriate for the effect that they are intended to protect against. Ambient Air Quality Criteria are used for assessing general air quality and the potential for causing an adverse effect. They are set at levels below which adverse health and/or environmental effects are not expected. If a contaminant has more than one Ambient Air Quality Criteria, all must be used for assessment purposes as each represents a different type of effect linked to a particular averaging period.

The Canadian Council of Ministers of the Environment has developed Canada-wide standards for a variety of contaminants. These standards are developed jointly by various provincial jurisdictions based on a scientific and risk-based approach. Standards are presented to the Ministers along with a timetable for implementation and monitoring and public reporting programs. Ministers are responsible for implementing the standards within their own jurisdictions and promote consistency across the country.

Recently, the Canadian Council of Ministers of the Environment has developed new standards for $PM_{2.5}$, NO_2 and SO_2, under the Canadian Ambient Air Quality Standards. The Canadian Ambient Air Quality Standards are established as voluntary objectives under the Canadian Environmental Protection Act, 1999.

2.4 Qualitative Assessment Methodology

The Air Quality Qualitative Assessment is based on a review of contaminant contributions from the following sources:

1. Vehicular traffic emissions from the main roadways within each Study Area;
2. Toronto Transit Commission and GO Bus route emissions within each Study Area;
3. GO Train diesel train emissions within each Study Area; and
4. Industrial sources with significant emissions within each Study Area.

An emission inventory for each Study Area segment is presented as both a visual identification of the different types of local sources of emissions and their comparative contributions on a gram per second basis (from vehicular traffic and train emissions). An annual summary of greenhouse gas contributions and the

representative criteria air contaminants contributions from NO_X and particulate matter (PM_{10} and $PM_{2.5}$) is also provided in **Section 4**.

The contributions of contaminants from traffic sources and industrial sources are considered representative of major contributions to local air quality. The representative concentrations of local air quality were taken from the closest National Air Pollution Surveillance air quality monitoring stations (Environment and Climate Change Canada, 2019a).

2.4.1 Existing Ambient Air Quality Methodology

The existing ambient air quality conditions were based on publicly available historical data from ambient air quality monitoring stations within Ontario. The most recent data available at the time of preparation of this air quality qualitative assessment (May 2020) was utilized. The following National Air Pollution Surveillance air quality monitoring stations were selected as representative of the ambient air quality of the Study Areas:

- Toronto West (National Air Pollution Surveillance ID 60430);
- Toronto Downtown (National Air Pollution Surveillance ID 60433);
- Gage Institute Station (National Air Pollution Surveillance ID 60427); and
- Roadside Wallberg (University of Toronto) Station (National Air Pollution Surveillance ID 60439).

These stations are located nearest to the Study Areas and monitored (in combination) all relevant contaminants for the assessment, since one station is unable to monitor all contaminants. Where multiple stations were found to monitor a common contaminant, the closest representative station was selected for the assessment. **Figure 2-4** presents the locations of the four air quality monitoring stations relative to the Ontario Line Study Area. Details related to these air quality monitoring stations are provided in **Table 2-5**.

Figure 2-4: Location of Ambient Air Quality National Air Pollution Surveillance Monitoring Stations within the Study Area

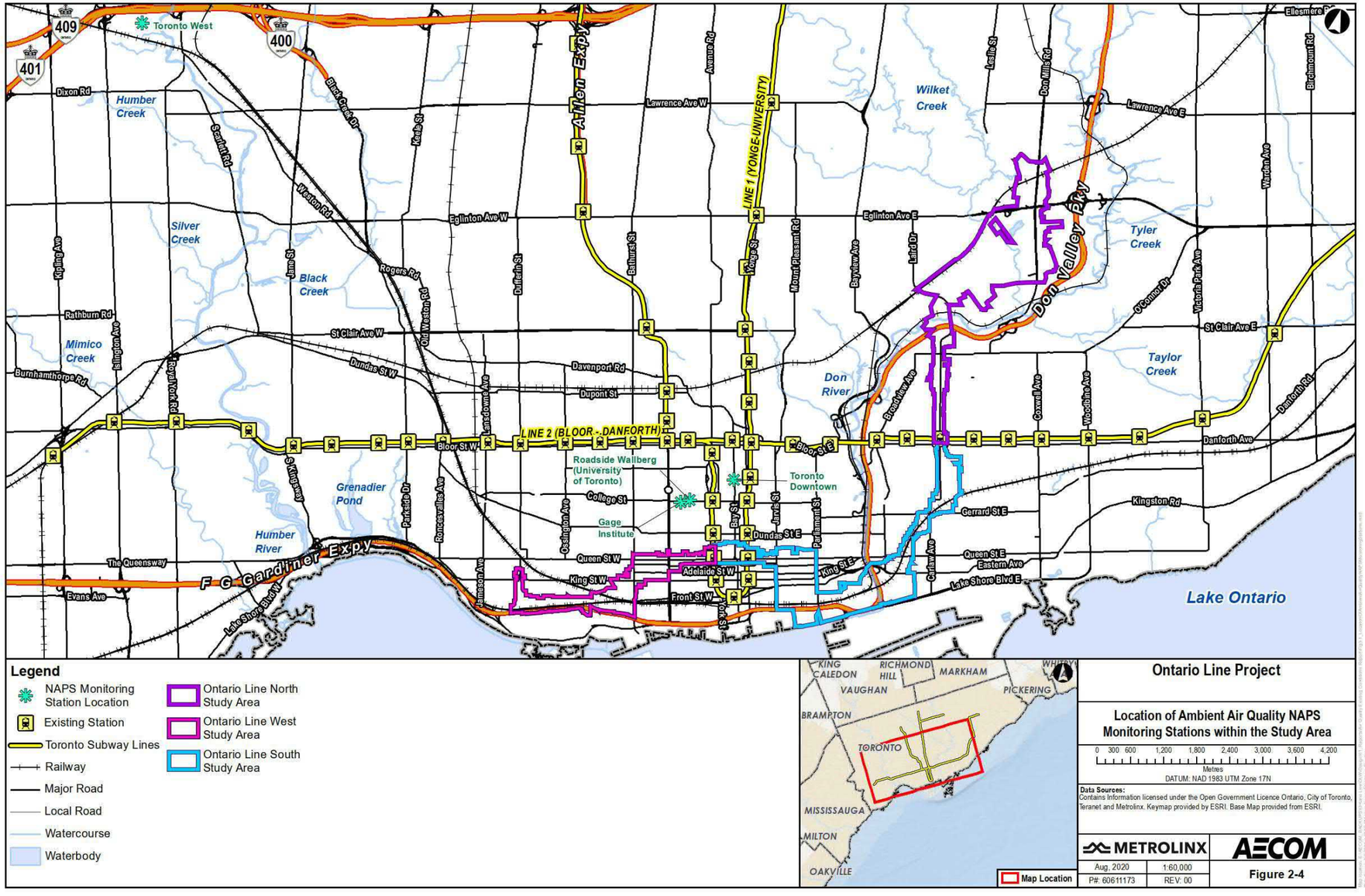


Table 2-5: Air Quality National Air Pollution Surveillance Monitoring Stations' Information

Station Information	Toronto West	Toronto Downtown	Gage Institute	Roadside Wallberg (University of Toronto)
National Air Pollution Surveillance No.	60430	60433	60427	60439
Address	125 Resources Road, Toronto	Bay and Wellesley Street, Toronto	223 College Street, Toronto	200 College Street, Toronto
Year of Data Available	2011 - 2017	2011 - 2017	2011 - 2014	2014 - 2017
Latitude	43.7094	43.66417	43.6582	43.6590
Longitude	-79.5435	-79.38722	-79.3972	-79.3954
Station Type	Urban	Urban	Urban	Urban
Pollutants Measured	CO, SO_2	NO_2, $PM_{2.5}$	1,3-Butadiene, Benzene, Benzo(a)pyrene - 2011 – 2014	Formaldehyde, Acetaldehyde, Acrolein

One-hour, eight-hour, and 24-hour ambient concentrations for the contaminants were obtained from the 90th percentile of hourly measurements from the representative air quality monitoring stations (the average value was calculated from the available years). The 90th percentile of available background data was used following the methodology outlined in the Ministry of Transportation's Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects (Ministry of Transportation, 2020).

Annual ambient concentrations for the contaminants were obtained from the mean measurements from the representative air quality monitoring station (the average value was calculated from the available years).

2.4.2 Traffic Assessment Methodology

Existing turning movement count data at several key intersections within the Study Area were provided by Metrolinx and the City of Toronto with data spanning from 2017 to 2019. These data sets were both used in conjunction to develop accurate traffic data for the major road networks within the Study Areas.

An annual growth rate of 1% was applied to the averaged turning movement count and fifteen-minute count traffic data to determine the traffic volume prediction for the 2019

Existing Conditions traffic conditions, where only previous years' data was available (2017 or 2018). This growth rate is based on the following factors:

- The immediate lands within and adjacent to the Ontario Line Study Area are generally well built-out; and
- Development of new residential or new business within each Study Area segment between the years of 2017 to 2019 assumed to be minimal.

Existing Toronto Transit Commission Bus Service Summary data were provided for May 2019. This data, in conjunction with the Toronto Transit Commission Service bus route maps, was used to determine the number of buses travelling per day along the defined routes within each Ontario Line Study Area segment. Existing GO Service bus schedules were obtained from GO Transit and used to develop a daily GO bus traffic count within each Ontario Line Study Area segment (GO Transit, 2020).

The Ontario Traffic Manual Book 12 – Traffic Signals (Ministry of Transportation, 2012) was referenced in order to estimate appropriate annual averaged daily traffic volumes from AM Peak and PM Peak service volumes as provided within the turning movement counts and Toronto Transit Commission service levels (Toronto Transit Commission, 2019).

The raw data and data summary tables for traffic volumes, vehicle speeds, and Toronto Transit Commission/GO bus service levels are provided in **Appendix D**.

2.4.3 Emission Inventory Assessment Methodology

The vehicular emissions were estimated using the United States Environmental Protection Agency emissions modelling software MOVES 2014b. This software provides emission rates for a wide variety of source types (i.e., passenger cars, motorcycles, long-haul trucks, etc.), speed bins, road types, and emission types (i.e., running emissions, idling emissions, tire wear, brake wear, etc.). Emission rates were developed for all criteria air contaminants and greenhouse gas compounds from passenger vehicle, heavy truck and transit bus source types.

MOVES 2014b calculates emissions from mobile sources using a variety of factors: time span, geographic bounds, vehicle type, road type, and emission or process type. The time span calculates emission using default fleet composition and fuel criteria specific to a pre-selected year, month, hour, and weekday/weekend profile. Fleet composition and fuel criteria are also specific to geographic location, with default database data provided for each county in the United States. For Canada, the closest United States County to the Study Areas is expected to provide fleet and fuel characteristics as close of a match

as possible; therefore, Niagara County in New York State was selected. Since MOVES 2014b is developed in the United States, Canadian-specific county data are not available. It is typical for Canadian air quality transportation environmental assessment projects to assume a similar vehicle fleet and fuel characteristics to that of the closest United States based county. This approach has been accepted by the Ministry of the Environment, Conservation and Parks for previously submitted assessments for other transportation projects.

There are thirteen vehicle types and five fuel types in MOVES 2014b. The various vehicle types encompass passenger vehicles (motorcycles, cars and trucks), light, medium and heavy commercial trucks; buses (intercity, transit, and school), and other vehicle types such as refuse trucks and motor homes. The fuels include diesel, gasoline, electricity, compressed natural gas (for transit buses only), and ethanol (E-85) fuel. The percentage of E-85 fuel used by the Project fleet was eliminated in emissions estimation for this Project as flex-fuel cars and fuelling stations are not readily available in Ontario as they are in the United States.

Emissions in MOVES 2014b are divided into four major categories:

- Running emissions;
- Start emissions;
- Evaporative emissions; and
- Particulate emissions from brake wear and tire wear.

Vehicular emissions from the project were estimated using the MOVES2014b County Scale methodology. An averaged 24-hour emission profile was generated for each pollutant, for each vehicle. The maximum emissions from January and July were compared and the higher of the two was used in for the emissions assessment, to capture the worst-case emissions from both the coldest (January) and warmest (July) ambient temperatures.

Evaporative emissions include the following sub-categories: evaporative permeation, fuel vapour venting, fuel leaks, refuelling displacement vapour loss, refuelling spillage loss, vapour loss during running emissions, and vapour loss during idling. All types of evaporative emissions were included within the calculated MOVES 2014b running emission factor used in the assessment.

To develop an emission inventory for all vehicle combustion within the Study Areas, the emission rates for running vehicles developed from MOVES2014b in grams per vehicle kilometre traveled (g/VKT) was multiplied by the daily number of vehicles travelling

along each traffic segment and the length, in kilometres, of that segment to determine a gram per day (g/day) emission rate from that particular segment of road, or bus route.

The input data required to run MOVES 2014b in County Scale and Project Scale are presented in **Table 2-6**. Vehicle emission modelling was limited to internal combustion engine exhaust emissions (tailpipe exhaust only). Where deemed appropriate for the Study Area, MOVES default data was used. The default data used was from Niagara County (New York), United States of America, given the relative proximity to the Study Area.

Table 2-6: MOVES2014a Input Data

Parameter	Input	Reference
Scale	County Scale & Project Scale	-
Representative County	Niagara County, New York	-
Calculation Type	Emission Rates & Inventory	-
Years of Evaluation	2019	-
Month of Evaluation	January and July	-
Temperature ˚C	Full set of average hourly temperatures, by month (January or July)	Environment and Climate Change Canada's climate data from January/July 2019 (Environment and Climate Change Canada, 2020b). Toronto Pearson Airport location.
Humidity	Full set of average hourly humidity readings, by month (January or July)	Environment and Climate Change Canada's climate data from January/July 2019 (Environment and Climate Change Canada, 2020b). Toronto Pearson Airport location.
Fuel Types	Default fuel mix (E85 reassigned to Gasoline)	MOVES2014a Default
Vehicle Types	Source IDs 11, 21, 31, 32, 41, 42, 43, 51, 52, 53, 61, 62	-
Vehicle Age Distribution	MOVES2014b Default	United States Environmental Protection Agency

The applicable emissions factors for all vehicle classes generated by MOVES 2014b, running as County Scale, for the existing conditions (2019) with appropriate speed bins for the Study Area are summarized in **Appendix F**.

The emission factors output by MOVES 2014b were used to calculate representative daily emission rate in grams per day (g/day). The individual vehicle type emissions from MOVES 2014b were combined to create a representative vehicle emission for three

classes of vehicle: cars (Source ID 11, 21, 31, and 32), trucks (Source ID 43, 51, 52, 53, 61, and 62), and transit buses (Source ID 41 and 42). The vehicle fraction for each source type is shown in **Table 2-7**.

Table 2-7: Source Type Fraction Summary

Description	Fraction ID	Category ID	Source Type ID	2019 Fraction
Passenger/Light duty vehicles	C 11	C	11	0.035
Passenger/Light duty vehicles	C 21	C	21	0.523
Passenger/Light duty vehicles	C 31	C	31	0.353
Passenger/Light duty vehicles	C 32	C	32	0.090
Heavy Vehicles & School Buses	T 43	T	43	0.0540
Heavy Vehicles & School Buses	T 51	T	51	0.017
Heavy Vehicles & School Buses	T 52	T	52	0.552
Heavy Vehicles & School Buses	T 53	T	53	0.023
Heavy Vehicles & School Buses	T 54	T	54	0.139
Heavy Vehicles & School Buses	T 61	T	61	0.099
Heavy Vehicles & School Buses	T 62	T	62	0.116
Buses: (Toronto Transit Commission, GO)	B 41	B	41	0.212
Buses: (Toronto Transit Commission, GO)	B 42	B	42	0.788

2.4.3.1 Greenhouse Gas Emissions

Mobile vehicles emit the following greenhouse gases in significant amounts:

- Carbon dioxide (CO_2);
- Methane (CH_4); and
- Nitrous oxide (N_2O).

Total greenhouse gas emissions were calculated using a combination of MOVES 2014b emission rates and total annual vehicle usage projections for the project sources of air quality contaminant emissions. MOVES 2014b is capable of calculating atmospheric carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) emissions varying with vehicle class, speed, and emission process type (i.e., running emissions, starting emissions, etc.). Annual total greenhouse gas emissions were calculated by combining the grams per second (g/s) emission rates derived from MOVES 2014b County Scale output for each of the greenhouse gas pollutants with the projected annual source vehicle usage to extrapolate an annual emission.

Individual greenhouse gases have differing abilities to absorb heat in the atmosphere. These varying heat absorption properties are quantified by an individual global warming potential factor for each contaminant which converts the mass of a greenhouse gas to the representative equivalent mass of CO_2 ($CO_{2\ eq}$). The global warming potential factors are calculated based on the amount of heat trapping potential that would result from the emission of 1 kilogram of a given greenhouse gas to the emission of 1 kilogram of CO_2. Global warming potentials for various greenhouse gas compounds are defined in Environment and Climate Change Canada's Technical Guidance on Reporting Greenhouse Gas Emissions document (Environment and Climate Change Canada, 2019b), summarized for compounds of interest below in **Table 2-8**.

Table 2-8: Greenhouse Gas 100-year Gas Warming Potential

Greenhouse Gas	100-year Global Warming Potential
Carbon dioxide (CO_2)	1
Methane (CH_4)	28
Nitrous oxide (N_2O)	265

2.4.4 Locomotive Emission Assessment Methodology

The United States Environmental Protection Agency has established emission standards for locomotives. In 2017, the Locomotive Emissions Regulations came into force under the Railway Safety Act. These Canadian federal regulations were purposefully designed to align with the locomotive emissions standards of the United States Environmental Protection Agency.

Prominent locomotive emissions are from NO_X, CO, particulate matter, and hydrocarbons. Hydrocarbons include carbon-hydrogen based contaminants, including volatile organics. Locomotive emissions of these contaminants and contaminant groups were estimated using the United States Environmental Protection Agency emission standards for line-haul locomotives. The applicability of the standards depends on the date the locomotive was manufactured, as follows:

- Tier 0 standards apply to locomotive engines originally manufactured from 1973 to 1992;
- Tier 1 standards apply to locomotive engines originally manufactured from 1993 to 2004;
- Tier 2 standards apply to locomotive engines originally manufactured from 2005 to 2011;

- Tier 3 standards apply to locomotive engines originally manufactured from 2012 to 2014; and
- Tier 4 standards apply to locomotive engines manufactured since 2015.

For this assessment, it was assumed that all GO locomotive traction and Head end-power engines comply with Tier 2 emission standards. In 2018, sixteen new Tier 4 locomotives were received and underwent commissioning testing prior to entering into service (Metrolinx, 2020). However, given the relatively low percentage of the GO locomotive fleet which is currently operating at Tier 4 emissions, it is conservatively assumed that the rail emissions for all trains are from Tier 2 diesel locomotives.

The emission calculation methodology followed the same methodology employed for the Union Station Rail Corridor East Enhancements Transit Project Assessment Process Air Quality Assessment Report (AECOM, 2018). The GO train emissions of criteria air contaminants and greenhouse gases were quantified by employing route-specific duty cycles and engine-specific emission factors and fuel consumption rates by engine notch settings (provided by Metrolinx for the Union Station Rail Corridor East Enhancements Transit Project Assessment Process Air Quality Assessment Report). Tier 2 locomotive notch-specific emissions from the United States Environmental Protection Agency standards for line-haul locomotives (United States Environmental Protection Agency, 2009) are shown in **Table 2-9**.

Table 2-9: Line Haul Emission Standards (g/bhp-hr)

Tier(1)	PM(2)	HC	NOX	CO
Uncontrolled	0.32	0.48	13.0	1.28
Tier 0	0.32	0.48	8.6	1.28
Tier 0+	0.20	0.30	7.20	1.28
Tier 1	0.32	0.47	6.70	1.28
Tier 1+	0.20	0.29	6.70	1.28
Tier 2	0.18	0.26	4.95	1.28
Tier 2+ and Tier 3	0.08	0.13	4.95	1.28
Tier 4	0.015	0.04	1.00	1.28

Notes: (1) "+" indicates that these are the revised standards in 40 CFR Park 10333.
(2) It was assumed all particulate matter for non-road engines was $PM_{2.5}$.

Table 2-10 presents the emission rates derived from MP40 Tier 2 locomotive emission rates provided by Metrolinx for the Union Station Rail Corridor East Enhancements Transit Project Assessment Process Air Quality Assessment Report (AECOM, 2018). This table matches the Tier 2 Emission Rates presented in Table 5: Go Transit MP40 Tier 2 and Tier 4 Emission Rates of the Union Station Rail Corridor

East Enhancements Transit Project Assessment Process Air Quality Assessment Report (AECOM, 2018).

Table 2-10: Line Haul Emission Standards (g/bhp-hr)

Notch	RPM(1)	BHP(1)	Fuel Rate (L/s)	HC (g/s)	CO (g/s)	NOX (g/s)	$PM_{2.5}$ (g/s)
Idle	266	15.4	0.037	0.006	0.192	0.210	0.0027
DB	626	99.7	0.049	0.011	0.303	0.294	0.0036
1	266	216.4	0.046	0.006	0.194	0.300	0.0030
2	343	439.5	0.055	0.007	0.200	0.355	0.0032
3	488	988.1	0.083	0.010	0.199	0.512	0.0040
4	626	1460.0	0.110	0.012	0.213	0.547	0.0044
5	728	1912.3	0.134	0.013	0.221	0.577	0.0051
6	728	2911.6	0.178	0.017	0.234	0.833	0.0064
7	818	3683.2	0.213	0.018	0.247	1.004	0.0078
8	903	4245.0	0.235	0.022	0.271	1.182	0.0093

Note: (1) RPM and BHP values are for traction engine only.

2.5 Assumptions

The traffic data and other qualitative assessment inputs contained within this Report are based on the best available data and methodologies. In general, predictions of this nature are inherently best estimates only and are associated with uncertainties due to variability in several key inputs. With the project being in the early design development stages, there are a few key areas of uncertainty present within the available data which may impact the presented results. During the preparation of this qualitative assessment methodology, the following assumptions were made:

1. Eight Hour Turning Movement Counts were used to estimate Annual Average Daily Traffic in the defined segments in the area. An average between the two closest Turning Movement counts were used to estimate the traffic for each road segment. Where no data was available for a road segment, the nearest intersection(s) data was used.

2. Ontario Traffic Manual Book 12 – Traffic Signals (Ministry of Transportation, 2012) was referenced to estimate appropriate annual averaged daily traffic volumes from AM Peak and PM Peak service volumes as provided within the turning movement counts and Toronto Transit Commission service levels (Toronto Transit Commission, 2019).

3. Annual growth rate of previous year's recorded traffic data was assumed to be 1% within all Study Areas to estimate a consistent 2019 existing

conditions inventory. This is due to the assumption that immediate lands within each Study Area are generally well built-out, and increased traffic burden from additional population growth and employment within the 2017 to 2019 timeframe was assumed to be minimal.

4. Unless posted, inter-city speed limits were adapted from City of Toronto's Warrants for All-Way 'Stop' Sign Control Report (City of Toronto, 2002) and were assigned 40 kilometres per hour.

5. Existing Toronto Transit Commission schedules and GO Bus schedules for weekdays were used to determine both route locations and total daily bus and locomotive counts within all Study Areas.

6. GO Transit rail emission rates were assumed to be consistent with the Union Station Rail Corridor East Enhancements Transit Project Assessment Process Air Quality Assessment Report (AECOM, 2018), **Table 5** in **Section 2.3.1.1** for PM40 Tier 2 and Tier 4 locomotives, with Tier 2 locomotive emission factors at the weighted average notch level (notch 4) engine setting being conservatively selected to represent the existing fleet.

7. Additional rail emissions from VIA Rail and Canadian National rail were excluded from the assessment. As per the Union Station Rail Corridor East Enhancements Transit Project Assessment Process Air Quality Assessment Report (AECOM, 2018), the Canadian National rail daily traffic was estimated to be 1 train during the night-time hours, and the number of VIA trains travelling within the Union station corridor was estimated to be 32 trains per day. This was considered to be a relatively low number of operating trains in comparison to the GO rail operations.

8. The Toronto Transit Commission has plans for converting their bus fleet to fully electric buses by an estimated date of 2040 (Toronto Transit Commission, n.d.). The fleet currently includes 60 electric buses. For the purposes of this assessment, all buses will be assumed to be diesel for conservatism.

9. Facilities with National Pollutant Release Inventory reports or Ministry of the Environment, Conservation and Parks' Environmental Compliance Approvals located outside but near the Study Areas were included in the assessment. The assumption was made that these facilities are likely to impact air quality within the Study Area and have been included in the report.

10. At locations along the alignment where no receptors existed within the Study Area, the nearest critical and sensitive receptors outside the Study Area boundary were included within the assessment.

11. It was generally assumed that the existing ambient air quality from National Air Pollution Surveillance air quality monitoring stations would be representative of the current conditions present in all Study Areas.

3. Existing Background Conditions

3.1 Existing Ambient Air Quality

Relevant ambient air quality data collected at the four National Air Pollution Surveillance air quality monitoring stations (Environment and Climate Change Canada, 2019a) is summarized in **Appendix C**. Representative data for all criteria air contaminants were identified as follows for the averaging period combinations. The background concentrations for each contaminant were compared to the applicable Provincial and Federal standards for all applicable time averaging periods and percentile concentrations, as shown in **Table 3-1**.

Table 3-1: Comparison of Background Ambient Air Quality Data to Standards

Criteria Air Contaminant	Station ID	Averaging Period	Years	Average of Background Data (µg/m³)	Statistical Measure	Standard Threshold (µg/m³)	Standard Source	% of Standard Threshold
NO_2	60433	One hour	2013-2017	49.50	90th Percentile	400	Ambient Air Quality Criteria	12%
NO_2	60433	One hour	2013-2017	49.50	90th Percentile	113	Canadian Ambient Air Quality Standards	44%
NO_2	60433	24 hours	2013-2017	41.75	90th Percentile	200	Ambient Air Quality Criteria	21%
NO_2	60433	Annual	2013-2017	26.68	Mean	32	Canadian Ambient Air Quality Standards	83%
CO	60430	One hour	2013-2017	446	90th Percentile	36,200	Ambient Air Quality Criteria	1%
CO	60430	8 hours	2013-2017	419	90th Percentile	15,700	Ambient Air Quality Criteria	3%
SO_2 (2)	60430	30-min.	2013-2017	6.70	90th Percentile	180	Ambient Air Quality Criteria	4%
SO_2	60430	One hour	2013-2017	5.51	90th Percentile	100	Ambient Air Quality Criteria	6%
SO_2	60430	Annual	2013-2017	1.84	Mean	10	Canadian Ambient Air Quality	18%

Criteria Air Contaminant	Station ID	Averaging Period	Years	Average of Background Data (µg/m³)	Statistical Measure	Standard Threshold (µg/m³)	Standard Source	% of Standard Threshold
							Standards	
PM_{10} (3)	60433	24 hours	2013-2017	25.78	90th Percentile	50	Ambient Air Quality Criteria	51%
$PM_{2.5}$	60433	24 hours	2013-2017	13.89	90th Percentile	27	Canadian Ambient Air Quality Standards	51%
$PM_{2.5}$	60433	Annual	2013-2017	7.94	Mean	8.8	Canadian Ambient Air Quality Standards	90%
Acetaldehyde (4)	60439	30-min.	2014-2017	5.00	90th Percentile	500	Ambient Air Quality Criteria	1%
Acetaldehyde	60439	24 hours	2014-2017	1.69	90th Percentile	500	Ambient Air Quality Criteria	0%
Acrolein (5)	60439	One hour	2014-2017	0.17	90th Percentile	4.5	Ambient Air Quality Criteria	4%
Acrolein	60439	24 hours	2014-2017	0.07	90th Percentile	0.4	Ambient Air Quality Criteria	17%
Benzene	60435	24 hours	2011-2014	0.92	90th Percentile	2.3	Ambient Air Quality Criteria	40%
Benzene	**60435**	**Annual**	**2011-2014**	**0.61**	**90th Percentile**	**0.45**	**Ambient Air Quality Criteria**	**134%**
Benzo(a)-pyrene	**60427 60439**	**24 hours**	**2011-2015**	**1.21E-04**	**90th Percentile**	**0.00005**	**Ambient Air Quality Criteria**	**242%**
Benzo(a)-pyrene	**60427 60439**	**Annual**	**2011-2015**	**6.72E-05**	**90th Percentile**	**0.00001**	**Ambient Air Quality Criteria**	**672%**
1,3-Butadiene	60435	24 hours	2011-2014	0.10	90th Percentile	10	Ambient Air Quality Criteria	1%
1,3-Butadiene	60435	Annual	2011-2014	0.06	90th Percentile	2	Ambient Air Quality Criteria	3%
Formaldehyde	60439	24 hours	2014-2017	3.16	90th Percentile	65	Ambient Air Quality Criteria	5%

Notes: (1) Exceedances of the Ambient Air Quality Criteria and Canadian Ambient Air Quality Standards are shown in red.

(2) Concentrations of sulphur dioxide (SO_2) are measured on an hourly basis, background concentrations for the 30-minute averaging period have been converted using the Ministry of the Environment, Conservation and Parks' conversion factor where $C_{0.5hr} = C_{1hr} \times (1hr/0.5hr)^{0.28}$.

(3) PM_{10} was not included in National Air Pollution Surveillance air quality monitoring station measurements, and therefore was estimated using PM2.5 measurements, assuming a ratio of 1 μg/m3 PM10 per 0.54 μg/m3 of PM2.5 as per Lall et al. publication in Atmospheric Environment, Estimation of historical annual $PM_{2.5}$ exposures for health effects assessment (Lall et al., 2004).

(4) Concentrations of acetaldehyde are measured on a 24 hour basis, background concentrations for the 30-minute averaging period have been converted using the Ministry of the Environment, Conservation and Parks' conversion factor where $C_{0.5hr} = C_{24hr} \times (24hr/0.5hr)^{0.28}$.

(5) Concentrations of acrolein are measured on a 24 hour basis, background concentrations for the hourly averaging period have been converted using the Ministry of the Environment, Conservation and Parks' conversion factor where $C_{1hr} = C_{24hr} \times (1hr/24hr)^{0.28}$.

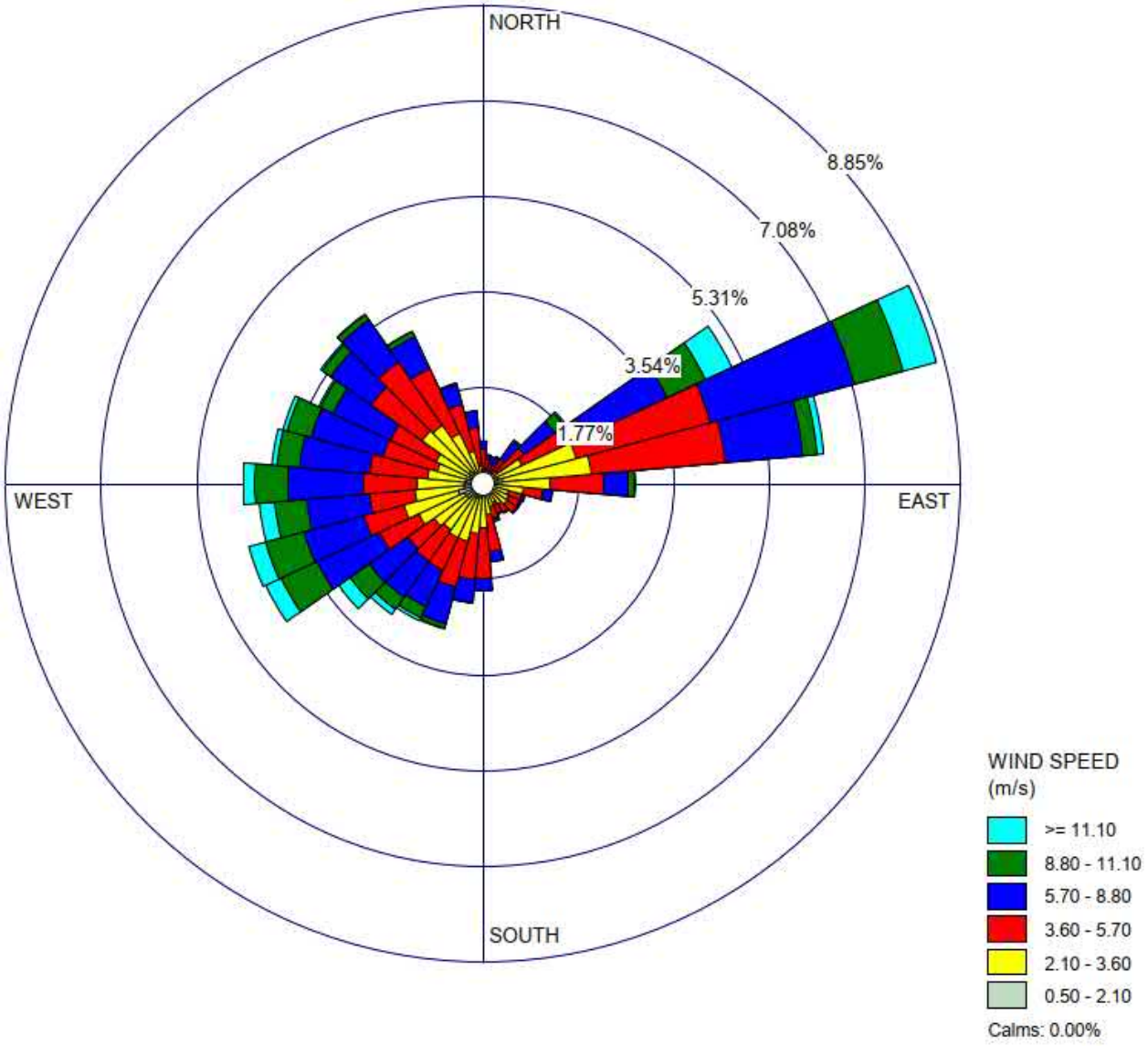
3.2 Meteorological Conditions

The local air quality from both ambient conditions and contributions from traffic and transit activities are affected by the local and regional meteorological conditions. Predominant wind speeds and wind directions within the Study Areas will determine the likely areas of most common impacts, and the potential areas of greatest impact. Higher impact conditions from traffic emissions are created from low speed surface air movement towards a nearby receptor. Local surface station meteorological data can be used to anticipate areas of high probability impact.

The closest representative meteorological station for this project was identified as the Toronto City Centre station located on Toronto Island (Station ID 71265). This station captures the meteorological effects from Lake Ontario which are expected to affect the Ontario Line West and Ontario Line South Study Areas. The wind rose for the five-year meteorological period (2015-2019) showing the wind direction (blowing from) and wind speed is presented in **Figure 3-1**. The wind rose shows that the predominant wind direction is from the northeast.

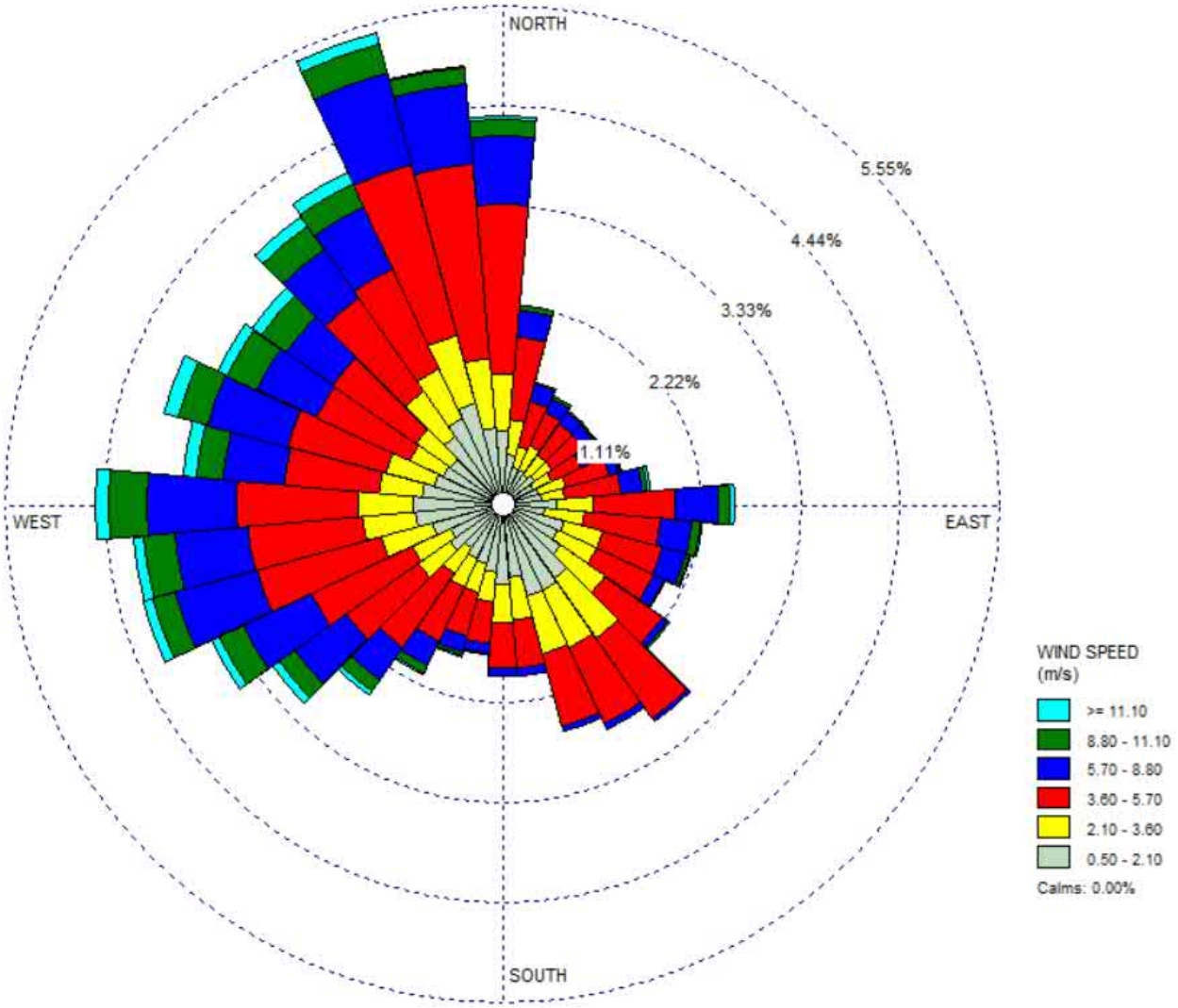
Any future modelled quantitative Environmental Impact Assessments will require site-specific meteorological data from the Ministry of the Environment, Conservation and Parks' Environmental Monitoring and Reporting Branch.

Figure 3-1: Wind Rose Representative of Ontario Line West and Ontario Line South Meteorological Conditions



The secondary representative meteorological station for this project was identified as the station located at Toronto Pearson International Airport (Station ID 61587). This station captures the meteorological effects from further inland within the Toronto area, expected to affect the Ontario Line North Study Area. The wind rose for the five-year meteorological period (1996-2000) sourced from the Ministry of the Environment, Conservation and Parks pre-processed AERMET output files for the Toronto Urban area is presented in **Figure 3-2**. The wind rose shows that the predominant wind direction is from the northwest, and the west. It also shows a low-windspeed predominance from the southwest.

Figure 3-2: Wind Rose Representative of Ontario Line North Meteorological Conditions



4. Air Quality Qualitative Existing Conditions Assessment

4.1 Ontario Line West

4.1.1 Traffic Assessment

Existing Conditions within the Ontario Line West Study Area were assessed. Main traffic flow through the Ontario Line West Study Area followed Queen Street West, Spadina Avenue, King Street West, Bathurst Road, Liberty Street, Dufferin Street, Lakeshore Boulevard and the Queensway Expressway. Traffic within the Study Area was divided into 37 distinct road segments. Annual Average Daily Traffic volumes for each individual traffic source are presented in **Table B-13** in **Appendix B**.

Turning movement counts data from intersections within the Ontario Line West Study Area were provided by Metrolinx (**Appendix D**). The turning movement count data was used to estimate Annual Average Daily Traffic volumes for the road segments within the Study Area. Annual Average Daily Traffic data was standardized to 2019, with prior year data being scaled to 2019 based on a 1% annual growth rate.

The traffic data for the Queensway Expressway was taken from the Union Station Rail Corridor East Enhancements Transit Project Assessment Process Air Quality Assessment Report (AECOM, 2018) (**Appendix E**).

Bus traffic through the Ontario Line West Study Area was assessed by examination of the 2019 Toronto Transit Commission service summary and existing GO Service bus schedules. Ten Toronto Transit Commission bus routes travel through the Ontario Line South Study Area and four GO bus routes travel through the Ontario Line West Study Area via the Queensway Expressway. Annual Average Daily Traffic volume for each bus route is provided in **Table B-14** in **Appendix B**.

The Ontario Traffic Manual Book 12 – Traffic Signals (Ministry of Transportation, 2012) was referenced to estimate appropriate annual averaged daily traffic volumes from AM Peak and PM Peak service volumes as provided within the Toronto Transit Commission service levels (Toronto Transit Commission, 2019).

Existing GO Service train schedules were sourced from GO Transit and used to develop a daily GO rail service within the Ontario Line West Study Area (GO Transit, 2020).

Appendix D provides a summary of GO Service raw data including the scheduling data which was used for the assessment. Rail Daily Travel Summary for Ontario Line West is summarized in **Table B-15** in **Appendix B**.

4.1.2 Emission Inventory

4.1.2.1 Traffic Emissions

The emission rates of criteria air contaminants from the Ontario Line West Study Area were derived from MOVES 2014b output in grams per vehicle kilometre travelled (g/VKT) combined with the number of vehicles travelling daily on a given road and the distance travelled for that particular road segment.

The daily representative vehicle counts for each traffic segment are described in **Section 4.1.1**. The daily emissions from traffic for each traffic segment are shown in **Table B-16** in **Appendix B**.

The summary of all traffic emission sources contributes the following daily emissions of criteria air contaminants:

- 103,658 grams per day of NO_X;
- 657,269 grams per day of CO;
- 703 grams per day of SO_2; and
- 21,889 grams per day of particulate matter (PM_{10} + $PM_{2.5}$).

4.1.2.2 Bus Emissions

The emission rates of criteria air contaminants from the Ontario Line West Study Area were derived from MOVES 2014b output in grams per vehicle kilometre travelled (g/VKT) combined with the number of buses travelling per day on a given road and the distance travelled for that particular road segment.

The transit schedules and daily bus volumes for each bus route are described in **Section 4.1.1**. The daily emissions from each bus route are shown in **Table B-17** in **Appendix B**.

The summary of all bus route emission sources contributes the following daily emissions of criteria air contaminants:

- 4,174 grams per day of NO_X;
- 1,762 grams per day of CO;

- 6.78 grams per day of SO_2; and
- 483 grams per day of particulate matter (PM_{10} + $PM_{2.5}$).

4.1.2.3 Rail Emissions

The emission rates of criteria air contaminants from the Ontario Line West Study Area were derived from the United States Environmental Protection Agency Tier 2 Line Haul emission standards (§1033.101) for locomotives (gram per bhp-hr) combined with notch-specific engine output for each locomotive travelling along the rail corridors within the Study Area. These emission standards are aligned under Canada's Locomotive Emissions Regulations (SOR/2017-121). Emissions of sulphur dioxide were calculated assuming a 15 ppm diesel fuel sulphur content, as per Sulphur in Diesel Fuel Regulations (SOR/2002-254).

The transit schedules used to determine the rail volumes presented in each source are described in **Section 4.1.1**. The daily emissions from each rail route are shown in **Table B-18** in **Appendix B**.

The summary of all rail emission sources contributes the following daily emissions of criteria air contaminants:

- 66,677 grams per day of NO_X;
- 5,246 grams per day of CO;
- 0.112 grams per day of SO_2; and
- 2,673 grams per day of particulate matter (PM_{10} + $PM_{2.5}$).

4.1.2.4 Annual Ontario Line West Emissions

Annual emissions of both criteria air contaminants and greenhouse gases were calculated for the Ontario Line West Study Area. The daily traffic, bus, and rail volumes were conservatively multiplied for each day of the year to determine the annual emission from all sources. The annual emissions of criteria air contaminants and greenhouse gases are shown in **Table 4-1**.

Table 4-1: Annual Emissions of Criteria Air Contaminants and Greenhouse Gases from Ontario Line West

Emission Source	Greenhouse Gas (CO2e) (tonnes/ year)	NOX (tonnes/ year)	CO (tonnes/ year)	SO2 (tonnes/ year)	HC(1) (tonnes/ year)	PM(2) (tonnes/ year)
Traffic	37,273	37.8	240	0.257	-	7.99
Bus	305	1.52	0.643	0.002	-	0.176
Rail	2,950	24,3	1.91	0.00004	1.99	0.976
Total	**40,528**	**63.7**	**242**	**0.259**	**1.99**	**9.14**

Notes: (1) HC represents hydrocarbons emitted from rail activities. These emissions may encompass any volatile organics or other carbon-based emissions from diesel locomotive combustion.

(2) PM represents a combination of PM_{10} and $PM_{2.5}$ emissions from rail, bus, and traffic engine combustion.

4.1.3 Industry Summary

In addition to the emission inventory outlined in **Section 4.1.2** the industries surrounding and within the Ontario Line West Study Area were identified to be able to understand the larger sources of industrial emission which impact the local air quality. It is assumed that the monitored ambient air quality levels reflect the contribution of local industry impacts within the wider Toronto airshed for all Ontario Line Study Areas, therefore individual identified industries within and near the Ontario Line West Study Area are not included within the emission inventory.

Industrial Sources are located within 5 kilometres of each Study Area for large emitters (i.e. listed within the National Pollutant Release Inventory) to capture general contribution to the local airshed. The Ministry of the Environment, Conservation and Parks defines the required modelling area for industrial facilities to be 5 kilometres from the nearest point of emission (Section 14, O. Reg. 419/05).

Table 4-2 displays the existing industry within and near to the Ontario Line West Study Area, obtained from the National Pollution Release Inventory (Environment and Climate Change Canada, 2020a). The location of these industries relative to the Ontario Line South Study Area presented in **Figure 4-1**.

Table 4-2: National Pollution Release Inventory Listing of Industry – Ontario Line West

Industry ID	Company	Address	Criteria Air Pollutants (release to air)
N1	City of Toronto	1116 King Street West	PM2.5, PM10, TSP
N2	Enwave Energy Corporation	0 - 120 Pearl Street	PM2.5, PM10, CO, NOx
N3	Redpath Sugar Ltd	95 Queen's Quay East	PM2.5, PM10, TSP, CO, NOx, SO2, VOCs, Isopropyl Alcohol
N4	Enwave Energy Corporation	0 - 95 Walton Street	PM2.5, PM10, CO, NOx
N5	The Governing Council of the University of Toronto	27 King's College Circle Road	PM2.5, PM10, CO, NOx
N6	Mondelez Canada Inc	277 Gladstone Avenue	PM2.5, PM10
N7	Ontario Redimix	8 Unwin Avenue	PM10
N8	National Rubber Technologies Corp	99 Commissioners Street	Zinc
N9	City of Toronto	433 Eastern Avenue	PM2.5, PM10, TSP
N10	Portlands Energy Centre LP	470 Unwin Avenue	PM2.5, PM10, CO, NOx
N11	City of Toronto	400 Commissioner Street	PM2.5, PM10, TSP
N12	THESL	500 Commissioners Street	Lead
N13	Canroof Corporation Inc.	560 Commissioners Street	PM2.5, PM10, CO
N14	Dufferin Concrete	650 Commissioners Street	PM10
N15	City of Toronto	843 Eastern Avenue	PM2.5, PM10, TSP
N16	Nestle Canada Inc., Sterling Road Factory	72 Sterling Road	PM2.5, PM10
N17	John E. Goudey Mfg. Ltd.	21 Primrose Avenue	VOCs, Isopropyl alcohol, Methanol, MEK, Toluene, Xylene
N18	KN Rubber LLC	35 Cawthra Avenue	Zinc

Table 4-3 shows the existing Ministry of the Environment, Conservation and Parks' Environmental Compliance Approvals listings for air quality sources form industry within the Ontario Line West Study Area. **Figure 4-1** displays the location of the industries listed within **Table 4-2** and **Table 4-3**.

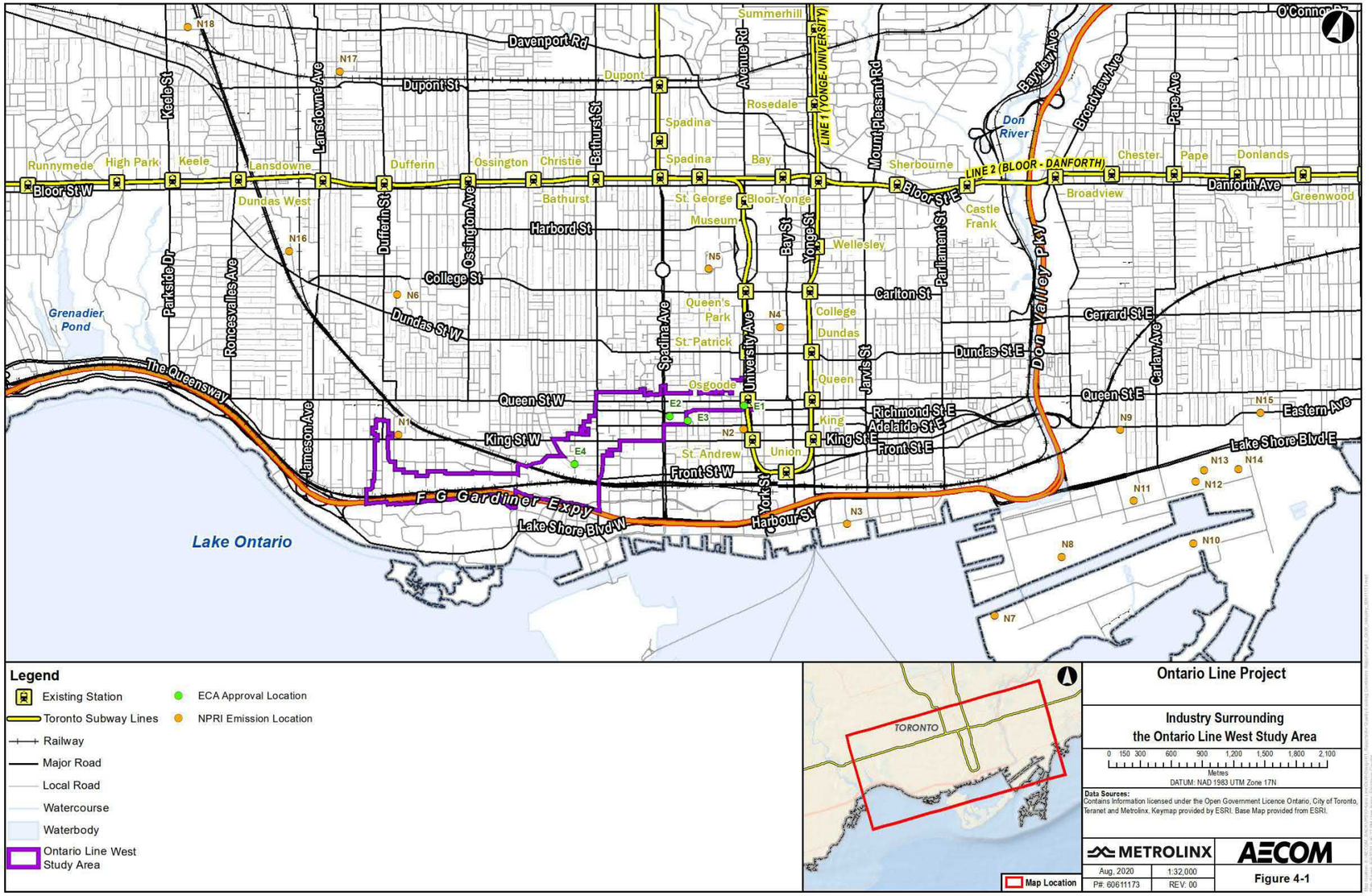
Table 4-3: Environmental Compliance Approvals Listing of Industry – Ontario Line West

Industry ID	Company	Address	Description of Operations
E1	Dominium Diamond Marketing Corporation	250 University Avenue	Wet scrubber (acids, sodium hydroxide)
E2	Open Studio	401 Richmond Street West	Chewing gum manufacturing (VOCs)

Industry ID	Company	Address	Description of Operations
E3	Technicolor Creative Services Ontario Inc.	111 Peter Street, Suite 900	Spray mixing operations (VOCs)
E4	Quality Meat Packers Limited (1)	2 Tecumseth Street	Wet scrubber (VOCs)

Note: (1) Quality Meat Packers Limited closed in 2014, no longer contributing VOCs to airshed.

Figure 4-1: Industry Surrounding the Ontario Line West Study Area



4.2 Ontario Line South

4.2.1 Traffic Assessment

Existing conditions of the Ontario Line South Study Area were assessed. The Study Area comprised 81 unique road traffic sources. Notable vehicle sources included those from Lakeshore Boulevard, Gardiner Expressway, Parliament Street, Sherbourne Street, Jarvis Street, Adelaide Street, Queen Street and Richmond Street West. These traffic sources were comprised of a mixture between passenger vehicles and heavy truck vehicles. The annual average daily traffic volumes for each individual traffic source are presented in **Table B-1** in **Appendix B**.

Turning movement count data from multiple prominent intersections within the Study Area were provided by Metrolinx (**Appendix D**). The turning movement count data was recorded in 15-minute intervals primarily from 8:00 to 17:00, between 2017 and 2019. Data obtained prior to 2019 was integrated with a 1% conversion factor representing a conservative annual growth rate. In addition, 24 hour turning movement count data from two key intersections were used to estimate relative traffic volumes for road networks during times when traffic data was missing or incomplete (e.g., late evening and overnight).

The traffic data for the Queensway Expressway was taken from the Union Station Rail Corridor East Enhancements Transit Project Assessment Process Air Quality Assessment Report (AECOM, 2018) (**Appendix E**).

Existing conditions of the Ontario Line South Study Area bus traffic sources were assessed. Prominent bus routes included Route 72, Route 75, Route 121, and Route 142. Existing Toronto Transit Commission Service Summary data from 2019 was provided and used to determine the number of buses travelling per day along the defined routes within the Study Area. The bus service data is available in **Appendix D**. The annual average daily traffic for each bus route is provided in **Table B-2** in **Appendix B**.

The Ontario Traffic Manual Book 12 – Traffic Signals (Ministry of Transportation, 2012) was referenced to be able to estimate appropriate annual averaged daily traffic volumes from AM Peak and PM Peak service volumes as provided within the Toronto Transit Commission service levels (Toronto Transit Commission, 2019).

Three GO Transit rail routes were included within the Ontario Line South Study Area: the Lakeshore East, Richmond Hill, and Stouffville GO lines. Train data gathered from the GO Transit website was used to determine the number of rail trips per day along the

Lines (GO Transit, 2020). Input provided by Metrolinx for the Union Station Rail Corridor East Enhancements Transit Project Assessment Process Air Quality Assessment Report (AECOM, 2018) for non-revenue rail trips along all three corridors was also included. It is important to note that adjusted operations were in place during the assessment of the rail lines; it was assumed that adjusted routes made by buses would represent GO train rail trips.

The daily train travel per day for the GO Transit Lakeshore East, Richmond Hill, and Stouffville GO lines are presented in **Table B-3** in **Appendix B**.

4.2.2 Emission Inventory

4.2.2.1 Traffic Emissions

The emission rates of criteria air contaminants from the Ontario Line South Study Area were derived from MOVES 2014b output in grams per vehicle kilometre travelled (g/VKT) combined with the number of vehicles travelling daily on a given road and the distance travelled for that particular road segment.

The daily representative vehicle counts for each traffic segment are described in **Section 4.2.1**. The daily emissions from traffic for each traffic segment are shown in **Table B-4** in **Appendix B**.

The summary of all traffic emission sources contributes the following daily emissions of criteria air contaminants:

- 101,994 grams per day of NO_X;
- 649,077 grams per day of CO;
- 713 grams per day of SO_2; and
- 34,567 grams per day of PM_{10} + $PM_{2.5}$.

4.2.2.2 Bus Emissions

The emission rates of criteria air contaminants from the Ontario Line South Study Area were derived from MOVES 2014b output in grams per vehicle kilometre travelled (g/VKT) combined with the number of buses travelling per day on a given road and the distance travelled for each road segment.

The transit schedules and daily bus volumes for each bus route are described in **Section 4.2.1**. The daily emissions from each bus route are shown in **Table B-5**

The summary of all bus route emission sources contributes the following daily criteria air contaminants:

- 3,039 grams per day of NO_X;
- 1,280 grams per day of CO;
- 4.77 grams per day of SO_2; and
- 456 grams per day of particulate matter (PM_{10} + $PM_{2.5}$).

4.2.2.3 Rail Emissions

The emission rates of criteria air contaminants from the Ontario Line South Study Area were derived from the United States Environmental Protection Agency Tier 2 Line Haul emission standards (§1033.101) for locomotives (gram per bhp-hr) combined with notch-specific engine output for each locomotive travelling along the rail corridors within the Study Area. These emission standards are aligned under Canada's Locomotive Emissions Regulations (SOR/2017-121). Emissions of sulphur dioxide were calculated assuming a 15 ppm diesel fuel sulphur content, as per Sulphur in Diesel Fuel Regulations (SOR/2002-254).

The transit schedules used to determine the rail volumes presented in each source are described in **Section 4.2.1**. The daily emissions from each rail route are shown in **Table B-6**.

The summary of all rail emission sources contributes the following daily emissions of criteria air contaminants:

- 77,523 grams per day of NO_X;
- 6,100 grams per day of CO;
- 0.130 grams per day of SO_2; and
- 1,489 grams per day of particulate matter (PM_{10} + $PM_{2.5}$).

4.2.2.4 Annual Ontario Line South Emissions

Annual emissions of both criteria air contaminants and greenhouse gases were calculated for the Ontario Line South Study Area. The daily traffic, bus, and rail volumes were conservatively multiplied for each day of the year to determine the annual emission from all sources. The annual emissions of criteria air contaminants and greenhouse gases are shown in **Table 4-4**.

Table 4-4: Annual Emissions of Criteria Air Contaminants and Greenhouse Gases from Ontario Line South

Emission Source	Greenhouse Gases (CO2e) (tonnes/year)	NOx (tonnes/ year)	CO (tonnes/ year)	SO_2 (tonnes/ year)	HC(1) (tonnes/ year)	PM(1) (tonnes/ year)
Traffic	43,246	37.2	237	0.260	-	12.6
Bus	215	1.11	0.467	0.002	-	0.166
Rail	3,430	28.3	2.23	0.00005	0.784	0.544
Total	**46,891**	**66.6**	**240**	**0.262**	**0.784**	**13.33**

Notes: (1) HC represents hydrocarbons emitted from rail activities. These emissions may encompass any volatile organics or other carbon-based emissions from diesel locomotive combustion.
(2) PM represents a combination of PM_{10} and $PM_{2.5}$ emissions from rail, bus, and traffic engine combustion.

4.2.3 Industry Summary

In addition to the emission inventory outlined in **Section 4.2.2,** the industries within close proximity to the Ontario Line South Study Area were identified to understand the larger sources of industrial emission which impact the local air quality. It is assumed that the monitored ambient air quality levels reflect the contribution of local industry impacts within the wider Toronto airshed for all Ontario Line Study Areas, therefore individual identified industries within and near the Ontario Line South Study Area are not included within the emission inventory.

Industrial Sources are located within 5 kilometres of each Study Area for large emitters (i.e. listed within the National Pollutant Release Inventory) to capture general contribution to the local airshed. The Ministry of the Environment, Conservation and Parks defines the required modelling area for industrial facilities to be 5 kilometres from the nearest point of emission (Section 14, O. Reg. 419/05).

Table 4-5 displays the existing industry within and near to the Ontario Line South Study Area, as per the National Pollution Release Inventory (Environment and Climate Change Canada, 2020a). The location of these industries relative to the Ontario Line South Study Area presented in **Figure 4-2**.

Table 4-5: National Pollution Release Inventory Listing of Industries – Ontario Line South

Industry ID	Company	Address	Criteria Air Pollutants (release to air)
N1	City of Toronto	843 Eastern Avenue	PM2.5, PM10, TSP
N2	Dufferin Concrete	650 Commissioners Street	PM10

Industry ID	Company	Address	Criteria Air Pollutants (release to air)
N3	Canroof Corporation Inc.	560 Commissioners Street	PM2.5, 10 and carbon monoxide
N4	THESL	500 Commissioners Street	Lead
N5	Portlands Energy Centre LP	470 Unwin Avenue	PM2.5 and 10. Carbon monoxide, nitrogen oxides (expressed as nitrogen dioxide)
N6	City of Toronto	400 Commissioner Street	PM2.5, PM10, TSP
N7	City of Toronto	433 Eastern Avenue	PM2.5, 10 and total
N8	National Rubber Technologies Corp.	99 Commissioners Street	Zinc
N9	Ontario Redimix	8 Unwin Avenue	PM10
N10	Redpath Sugar Ltd	95 Queen's Quay East	Hydrochloric Acid, Isopropyl Alcohol
N11	Enwave Energy Corporation	0 - 95 Walton Street	PM2.5, PM10, CO, NOx
N12	Enwave Energy Corporation	0 - 120 Pearl Street	PM2.5, PM10, CO, NOx
N13	The Governing Council of the University of Toronto	27 King's College Circle Road	PM2.5, PM10, CO, NOx
N14	City of Toronto	1116 King Street West	PM2.5, PM10, TSP
N15	Mondelez Canada Inc	277 Gladstone Ave	PM2.5, PM10
N16	John E. Goudey Mfg. Ltd.	21 Primrose Ave	VOCs, Isopropyl alcohol, Methanol, MEK, Toluene, Xylene
N17	Nestle Canada Inc., Sterling Road Factory	72 Sterling Road	PM2.5, PM10

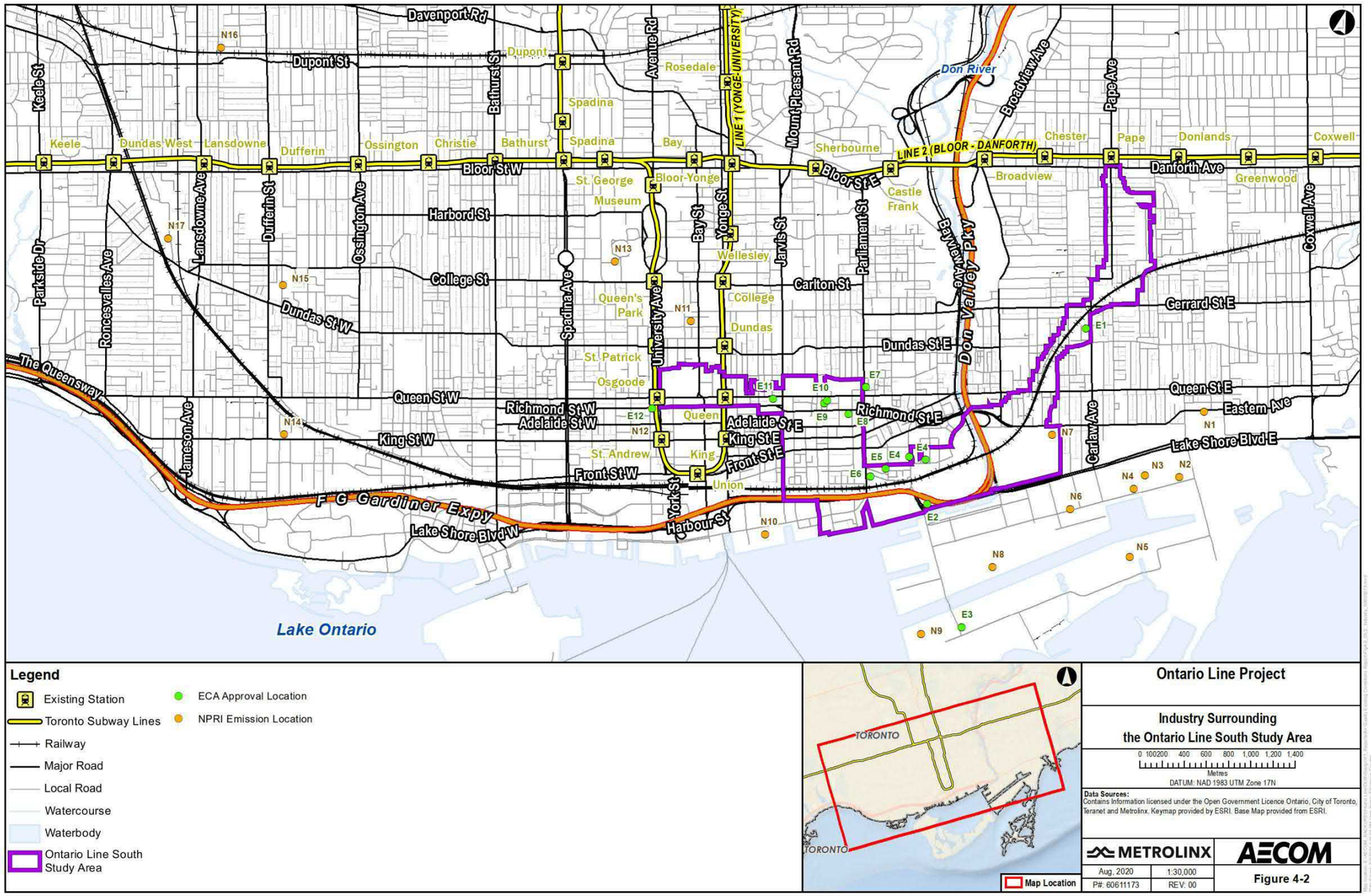
Table 4-6 shows the existing Ministry of the Environment, Conservation and Parks' Environmental Compliance Approvals listings for air quality sources from industry within the Ontario Line South Study Area. Any facilities emitting combustion products from comfort heating, emergency generators, or boilers under 10,000,000 kilojoules per hour were excluded from this list. **Figure 4-2** displays the location of the industries listed within **Table 4-3**.

Table 4-6: Environmental Compliance Approvals Listing of Industry – Ontario Line South

Industry ID	Company	Address	Description of Operations
E1	JMAC Productions Ltd.	388 Carlaw Avenue	Spray paint operations (VOCs)
E2	Toronto Waterfront Revitalization Corporation - Cherry Street Stormwater	480 Lake Shore Boulevard East	Soil vapour mitigation system (VOCs)

Industry ID	Company	Address	Description of Operations
	Facility		
E3	2018500 Ontario Inc "Battlefield Equipment Rentals"	151 Cherry Street Toronto, Ontario	Spray paint operations (VOCs)
E4	EllisDon Ledcor PAAV Inc.	170 Mill Street Building #3 of Block 11, West Donlands	Soil vapour mitigation system (VOCs)
E4	EllisDon Ledcor PAAV Inc.	425 Cherry Street Building #2 of Block 14, West Donlands	Soil vapour mitigation system (VOCs)
E5	Balzac's Coffee Ltd.	55 Mill Street	Coffee Roasting (combustion, VOCs)
E6	4073720 Canada Inc. operating as DD Autobahn Collision Centre	37 Parliament Street, No. 2	Spray paint operations (VOCs)
E7	Sobeys Ontario	197 Front Street	Mold/casting operations, metal work & soldering, and Spray paint operations (heavy metals, VOCs)
E8	Double D Cup	102 Berkley Street/53 Ontario Street	Spray paint operations (VOCs)
E9	Centre Auto Collision	354 Richmond Street East and 12 Brigden Place	Spray paint operations (VOCs)
E10	Downtown Collision Centre	257 Queen Street East	Spray paint operations (VOCs)
E11	Publicis Toronto Inc	111 Queen Street East	Spray paint operations (VOCs)
E12	Dominion Diamond Marketing Corporation	250 University Avenue	Wet scrubber (acids, sodium hydroxide)

Figure 4-2: Industry Surrounding the Ontario Line South Study Area



4.3 Ontario Line North

4.3.1 Traffic Assessment

Existing Conditions within the Ontario Line North Study Area were assessed. Main traffic flow through the Ontario Line North Study Area followed Don Mills Road south of the Green Belt Drive/ Barber Greene road interchange to Overlea Boulevard, Overlea Boulevard to west to Millwood Road, Millwood Road south to Pape Avenue and Pape Avenue south to Danforth Avenue. Traffic within the Study Area was divided into 29 distinct road segments. The annual average daily traffic volumes for each individual traffic source are presented in **Table B-13** in **Appendix B**.

Turning movement counts data from intersections within the Ontario Line North Study Area were provided by Metrolinx (**Appendix D**). The turning movement count data was used to estimate annual average daily traffic volumes for the road segments within the Study Area. Annual average daily traffic data was standardized to 2019, with prior year data being scaled to 2019 based on a 1% annual growth rate. Data for the intersection of Don Mills Road and Overlea Boulevard was available from 2020 and was used without adjustment.

The Ontario Traffic Manual Book 12 – Traffic Signals (Ministry of Transportation, 2012) was referenced to be able to estimate appropriate annual averaged daily traffic volumes from AM Peak and PM Peak service volumes as provided within the turning movement counts.

Bus traffic through the Ontario Line North Study Area was assessed by examination of the 2019 Toronto Transit Commission Service Summary. Ten bus routes travel through the Study Area. The annual average daily transit volume for each bus route is provided in **Table B-14** in **Appendix B**.

The Ontario Traffic Manual Book 12 – Traffic Signals (Ministry of Transportation, 2012) was referenced to be able to estimate appropriate annual averaged daily traffic volumes from AM Peak and PM Peak service volumes as provided within the Toronto Transit Commission service levels (Toronto Transit Commission, 2019).

The Richmond Hill GO Transit rail line was included in the assessment of the Ontario Line North Study Area. Train data gathered from the GO Transit website was used to determine the number of rail trips per day along the Richmond Hill GO line (GO Transit, 2020). Input provided by Metrolinx for the Union Station Rail Corridor East Enhancements Transit Project Assessment Process Air Quality Assessment Report (AECOM, 2018) for non-revenue rail trips along the Richmond Hill GO line was also

included. It is important to note that adjusted operations were in place during the assessment of the rail lines; it was assumed that adjusted routes made by buses would represent GO train rail trips. Scheduling for Canadian National trains was assumed to be approximately 1 train per day from Metrolinx for the Union Station Rail Corridor East Enhancements Transit Project Assessment Process Air Quality Assessment Report (AECOM, 2018). No public scheduling data was available for Canadian Pacific trains and as such, a 1 train per day assumption was also undertaken. Due to the low volume of daily train scheduling, Canadian National and Canadian Pacific trains were expected to have a relatively low emission potential compared to the GO train service line and were excluded.

Rail Daily Travel Summary for Ontario Line North is provided in **Table B-15** in **Appendix B**.

4.3.2 Emission Inventory

4.3.2.1 Traffic Emissions

The emission rates of criteria air contaminants from the Ontario Line North Study Area were derived from MOVES 2014b output in grams per vehicle kilometre travelled (g/VKT) combined with the number of vehicles travelling daily on a given road and the distance travelled for that particular road segment.

The daily representative vehicle counts for each traffic segment are described in **Section 4.3.1**. The daily emissions from traffic for each traffic segment are shown in **Table B-16** in **Appendix B**.

The summary of all traffic emission sources contributes the following daily emissions of criteria air contaminants:

- 41,314 grams per day of NO_X;
- 173,060 grams per day of CO;
- 221 grams per day of SO_2; and
- 12,510 grams per day of particulate matter (PM_{10} + $PM_{2.5}$).

4.3.2.2 Bus Emissions

The emission rates of criteria air contaminants from the Ontario Line North Study Area were derived from MOVES 2014b output in grams per vehicle kilometre travelled

(g/VKT) combined with the number of buses travelling per day on a given road and the distance travelled for that particular road segment.

The transit schedules and daily bus volumes for each bus route are described in **Section 4.3.1**. The daily emissions from each bus route are shown in **Table B-17** in **Appendix B**.

The summary of all bus route emission sources contributes the following daily emissions of criteria air contaminants:

- 8,158 grams per day of NO_X;
- 3,499 grams per day of CO;
- 13.2 grams per day of SO_2; and
- 1,174 grams per day of particulate matter (PM_{10} + $PM_{2.5}$).

4.3.2.3 Rail Emissions

The emission rates of criteria air contaminants from the Ontario Line North Study Area were derived from the United States Environmental Protection Agency Tier 2 Line Haul emission standards (§1033.101) for locomotives (gram per bhp-hr) combined with notch-specific engine output for each locomotive travelling along the rail corridors within the Study Area. These emission standards are aligned under Canada's Locomotive Emissions Regulations (SOR/2017-121). Emissions of sulphur dioxide were calculated assuming a 15 ppm diesel fuel sulphur content, as per Sulphur in Diesel Fuel Regulations (SOR/2002-254).

The transit schedules used to determine the rail volumes presented in each source are described in **Section 4.3.1**. The daily emissions from each rail route are shown in **Table B-18**.

The summary of all rail emission sources contributes the following daily emissions of criteria air contaminants:

- 1,085 grams per day of NO_X;
- 85 grams per day of CO;
- 0.002 grams per day of SO_2; and
- 21 grams per day of particulate matter (PM_{10} + $PM_{2.5}$).

4.3.2.4 Annual Ontario Line North Emissions

Annual emissions of both criteria air contaminants and greenhouse gases were calculated for the Ontario Line North Study Area. The daily traffic, bus, and rail volumes were conservatively multiplied for each day of the year to determine the annual emission from all sources. The annual emissions of criteria air contaminants and greenhouse gases are shown in **Table 4-7**.

Table 4-7: Annual Emissions of Criteria Air Contaminants and Greenhouse Gases from Ontario Line North

Emission Source	Greenhouse Gases (CO2e) (tonnes/year)	NOx (tonnes/ year)	CO (tonnes/ year)	SO_2 (tonnes/ year)	HC(1) (tonnes/ year)	PM 2) (tonnes/ year)
Traffic	11,219	15.1	63.1	0.081	-	4.56
Bus	597	2.98	1.28	0.005	-	0.429
Rail	48	0.396	0.031	0.000001	0.011	0.008
Total	11,864	18.5	64.4	0.086	0.011	5.00

Notes: (1) HC represents hydrocarbons emitted from rail activities. These emissions may encompass any volatile organics or other carbon-based emissions from diesel locomotive combustion.
(2) PM represents a combination of PM_{10} and $PM_{2.5}$ emissions from rail, bus, and traffic engine combustion.

4.3.3 Industry Summary

In addition to the emission inventory outlined in **Section 4.3.2** the industries surrounding and within the Ontario Line North Study Area were identified to understand the larger sources of industrial emission which impact the local air quality. It is assumed that the monitored ambient air quality levels reflect the contribution of local industry impacts within the wider Toronto airshed for all Ontario Line Study Areas, therefore individual identified industries within and near the Ontario Line North Study Area are not included within the emission inventory.

Industrial Sources are located within 5 kilometres of each Study Area for large emitters (i.e. listed within the National Pollutant Release Inventory) to capture general contribution to the local airshed. The Ministry of the Environment, Conservation and Parks defines the required modelling area for industrial facilities to be 5 kilometres from the nearest point of emission (Section 14, O. Reg. 419/05).

Table 4-8 displays the existing industry within and near to the Ontario Line North Study Area, as per the National Pollution Release Inventory (Environment and Climate

Change Canada, 2020a). The location of these industries relative to the Ontario Line North Study Area presented in **Figure 4-3**.

Table 4-8: National Pollution Release Inventory Listing of Industry – Ontario Line North

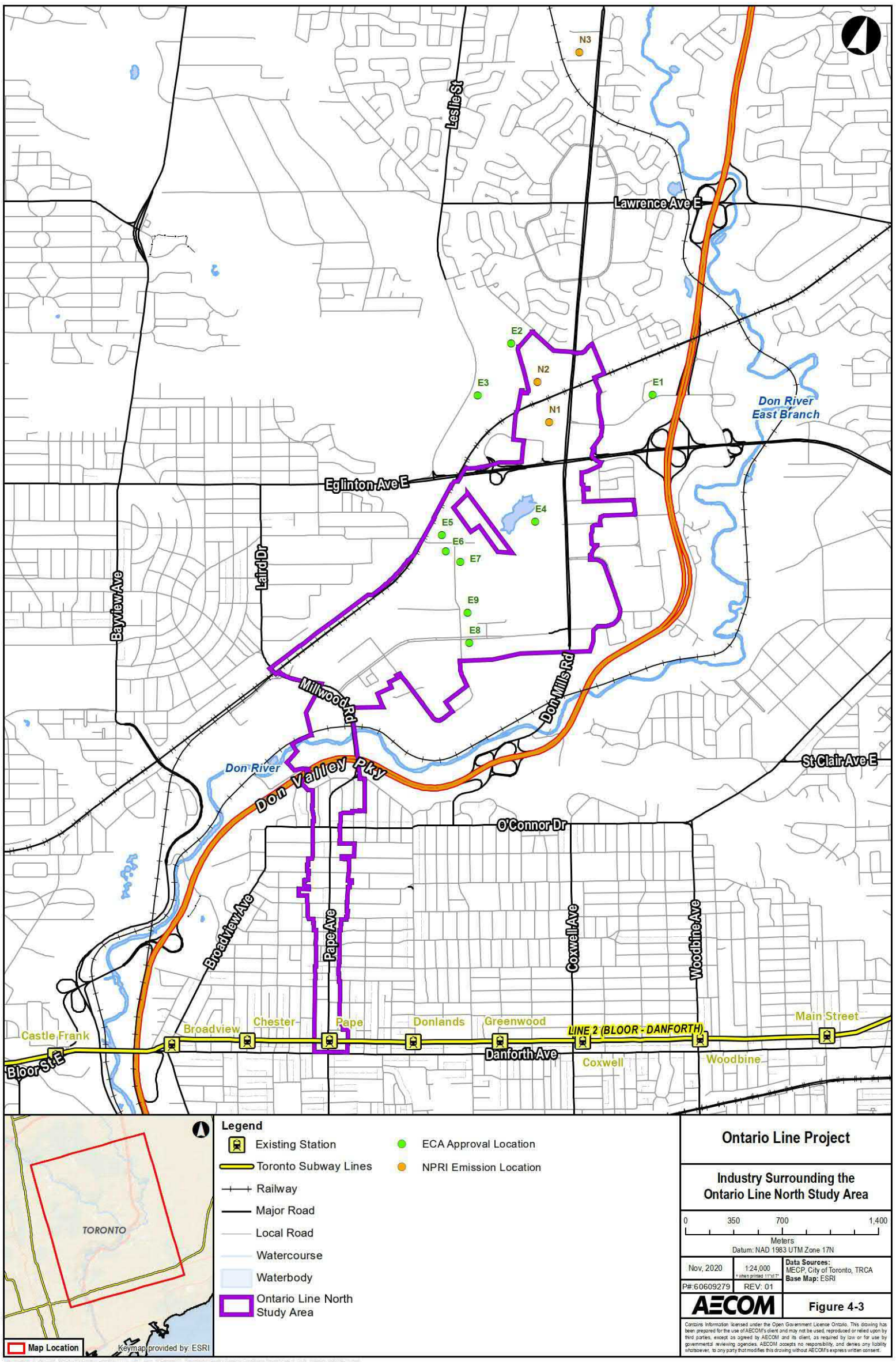
Industry ID	Company	Address	Criteria Air Pollutants (release to air)
N1	Celestica Toronto Site	844 Don Mills Road	Lead
N2	WESCAM - APS	17 Prince Andrew Place	Chromium, lead, manganese, nickel and trichloroethylene
N3	RR Donnelley – MIL	180 Bond Avenue	Volatile organic compounds

Table 4-9 shows the existing Ministry of the Environment, Conservation and Parks' Environmental Compliance Approvals listings for air quality sources form industry within the Ontario Line North Study Area. Any facilities emitting combustion products from comfort heating, emergency generators, or boilers under 10,000,000 kilojoules per hour were excluded from this list. **Figure 4-3** displays the location of the industries listed within **Table 4-8** and **Table 4-9**.

Table 4-9: Environmental Compliance Approvals Listing of Industry – Ontario Line North

Industry ID	Company	Address	Description of Operations
E1	Imperial Oil Limited	90 Wynford Drive	Fuel storage (VOCs)
E2	Optium Inc.	58 Prince Andrew Place	Printing operations (VOCs)
E3	Wrigley Canada Inc.	1123 Leslie Street	Chewing gum manufacturing (VOCs)
E4	The Centennial Centre for Science and Technology	770 Don Mills Road	Spray paint operations (VOCs)
E5	RPM Canada Investment Company	20 Wicksteed Avenue	Caulking, waterproofing, coating operations (VOCs)
E6	Siltech Corporation	225 Wicksteed Avenue	Fumehoods, combustion, storage tanks (combustion products, VOCs)
E7	Innocon Inc.	45 Beth Nealson Drive	Ready mix concrete batching (Particulates, VOCs)
E8	De Beers Canada Inc.	65 Overlea Boulevard	Rock cutting and coating (Particulates, VOCs)
E9	Teaminage Inc.	115 Thorncliffe Drive	Printing operations (VOCs)

Figure 4-3: Industry Surrounding the Ontario Line North Study Area



5. Preliminary Potential Impacts, Mitigation Measures and Monitoring Activities

In accordance with Sections 4(3)(6) and 4(3)(7) of Ontario Regulation 341/20: Ontario Line Project, this section provides a preliminary overview of potential impacts, mitigation measures, and monitoring activities associated with the Project.

See **Table 5-1** and **Table 5-2** for a list of preliminary potential impacts, mitigation measures, and monitoring activities to be further assessed and evaluated as part of the Project Early Works Report and/or Environmental Impact Assessment Report, as per Sections 8 and 15 of Ontario Regulation 341/20: Ontario Line Project, respectively.

Since the Ontario Line trains will be powered by electricity, no impacts of train operations to air quality are anticipated. Operation of other Project components, such as the maintenance and storage facility, does have the potential to result in air quality impacts. These impacts will be assessed as part of the Environmental Impact Assessment Report.

Table 5-1: Preliminary Potential Impacts, Mitigation Measures and Monitoring Activities During Construction

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Construction Air Quality	Construction related air quality impacts (i.e., creation of vapours and particulate) are of a temporary nature and not likely to result in significant effects. Potential air quality impacts could include effects from diesel combustion and particulate emissions	▪ Schedule construction related activities to avoid overlapping construction activities where possible. ▪ Minimize the number of machines operating in any one area at any given point in time. ▪ Implement all applicable best practices identified in Environment Canada's Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities document (Cheminfo Services Inc., 2005), where practical. ▪ Implement mitigation measures from Environment Canada's Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (Cheminfo Services Inc., 2005) and the Ministry of the Environment, Conservation and Parks' Technical Bulletin Management Approaches for Industrial Fugitive Dust Sources (Ministry of the Environment and Climate Change, 2017).	▪ Monitor for dust and air quality parameters during construction to identify if any additional mitigation is required.

Table 5-2: Preliminary Potential Impacts, Mitigation Measures and Monitoring Activities During Operations

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Operations Air Quality	Impacts from electric trains operations are not anticipated; however, operation of other Project components (e.g., maintenance and storage facility) may result in air quality impacts	▪ Specific mitigation measures will be established in a future operations impact assessment, to be completed as part of the Environmental Impact Assessment Report.	▪ Specific monitoring activities will be established in a future operations impact assessment, to be completed as part of the Environmental Impact Assessment Report.

6. Future Studies

As noted in **Section 5**, Metrolinx will complete Early Works Report(s) and/or Environmental Impact Assessment Report based on the advanced Project design. Preparation of these reports may necessitate additional air quality studies in areas that may not have been included in this Report but are identified as potentially impacted as the Project design is advanced. If required, these studies will be conducted and described in the Early Works Report(s) and/or Environmental Impact Assessment Report.

Any future modelled quantitative Environmental Impact Assessments will require site-specific meteorological data from the Ministry of the Environment, Conservation and Parks' Environmental Monitoring and Reporting Branch.

Prior to construction, an Air Quality Management Plan will be developed which may include, but not be limited to, the following:

- Baseline local air quality assessment, as required;
- Air quality impact mitigation measures; and
- Monitoring and reporting protocol.

7. Permits and Approvals

Environmental Compliance Approvals from the Ministry of the Environment, Conservation and Parks may be required for Mobile Activity (e.g., concrete crushing) (Ministry of the Environment, Conservation and Parks, 2020b). In addition, facilities having equipment or operating practices which are not exempt under Ontario Regulation 524/98 are required to apply for either an Environmental Compliance Approval or to the Environmental Activity and Sector Registry. This may apply to the maintenance and storage facility and will be reviewed as Project planning and design advance.

8. Conclusions and Recommendations

The results of the Air Quality Qualitative Assessment for the Project show that background air quality levels are predominantly below the Provincial and Federal thresholds; however, there are significant exceedances for benzo(a)pyrene and benzene. These existing background concentration exceedances are representative of concentration levels prior to the COVID-19 pandemic and are common in high-density urban environments.

The average monitored concentrations, annual contributions of criteria air contaminants and greenhouse gases from traffic, bus and rail, and industrial sources of air quality contribution for each Study Area are summarized in **Table 8-1**.

The regional meteorological data representative of the Ontario Line Study Area suggest that wind blows from the northeast/east direction within the Ontario Line West and Ontario Line South Study Areas and from the north/northwest direction within the Ontario Line North Study Area.

The assessment found that the Ontario Line South Study Area had the highest emission amounts of criteria air contaminants and greenhouse gases, followed by the Ontario Line West Study Area. The Ontario Line North Study Area was found to have the lowest emission amounts of criteria air contaminants and greenhouse gases.

Table 8-1: Summary of Ontario Line Existing Air Quality Conditions

Study Area	Ambient Monitored Criteria Air Contaminant Concentrations	Annual Emissions of Criteria Air Contaminant / Greenhouse Gas from Traffic and Rail	Industrial Sources of Significant Criteria Air Contaminant / Greenhouse Gas Contribution (1)
Ontario Line West	▪ NO_2 one hour and 24-hour monitored levels are 49.50 μg/m^3 and 41.75 μg/m^3 respectively. Monitored levels 12% and 21% of Ambient Air Quality Criteria thresholds. ▪ NO_2 one hour and annual monitored level are 44% and 83% of the Canadian Ambient Air Quality Standards threshold at 49.50 μg/m^3 and 26.68 μg/m^3, respectively. ▪ CO one hour and eight hour monitored levels are 446 and 419 μg/m^3 respectively, 1% and 3% of their respective Ambient Air Quality Criteria thresholds. ▪ SO_2 one hour, 30 minutes and annual monitored levels are 5.51 μg/m^3, 6.70 μg/m^3, and 1.84 μg/m^3 respectively. Monitored levels are less than 3% of all Ambient Air Quality Criteria threshold and 18% of Canadian Ambient Air Quality Standards thresholds. ▪ PM_{10} 24 hour monitored level is 25.73 μg/m^3, 51% of Canadian Ambient Air Quality Standards	▪ 40,528 tonnes of greenhouse gas (CO2e), ▪ 63.7 tonnes of NOx, ▪ 242 tonnes of CO, ▪ 0.259 tonnes of SO_2, and ▪ 9.14 tonnes of particulate matter (PM10 & PM2.5).	▪ Spray paint and paint mixing (Technicolour Creative, Open Studio, etc.) ▪ Manufacturing (Dominium Diamond, THESL, Canroof Corp. Nestle Canada, etc.) ▪ Sugar manufacturing (Redpath Sugar Ltd.) ▪ Energy (Enwave Energy Corp., City of Toronto, Portlands Energy Centre) ▪ Concrete batching (Ontario Redimix, Dufferin Concrete) Rubber manufacturing (National Rubber Technologies Corp.)

Study Area	Ambient Monitored Criteria Air Contaminant Concentrations	Annual Emissions of Criteria Air Contaminant / Greenhouse Gas from Traffic and Rail	Industrial Sources of Significant Criteria Air Contaminant / Greenhouse Gas Contribution (1)
	thresholds. ▪ $PM_{2.5}$ 24 hour and annual monitored levels are 13.89 and 7.94 μg/m^3 respectively, 51% and 90% of their respective Canadian Ambient Air Quality Standards thresholds.		
Ontario Line South	▪ NO_2 one hour and 24-hour monitored levels are 49.50 μg/m^3 and 41.75 μg/m^3 respectively. Monitored levels 12% and 21% of Ambient Air Quality Criteria thresholds. ▪ NO_2 one hour and annual monitored level are 44% and 83% of the Canadian Ambient Air Quality Standards threshold at 49.50 μg/m^3 and 26.68 μg/m^3, respectively. ▪ CO one hour and eight hour monitored levels are 446 and 419 μg/m^3 respectively, 1% and 3% of their respective Ambient Air Quality Criteria thresholds. ▪ SO_2 one hour, 30 minutes and annual monitored levels are 5.51 μg/m^3, 6.70 μg/m^3, and 1.84 μg/m^3 respectively. Monitored levels are less than 3% of all Ambient Air	▪ 46,891 tonnes of greenhouse gas (CO2e), ▪ 66.6 tonnes of NOx, ▪ 240 tonnes of CO, ▪ 0.262 tonnes of SO_2, and ▪ 13.33 tonnes of particulate matter (PM10 & PM2.5)	▪ Fuel storage (Imperial Oil) ▪ Printing operations (Optium Inc.) ▪ Manufacturing (Celestica, Wrigley Canada, Siltech, Corp., Dominion Diamond, etc.) ▪ Spray painting operations (Centennial Centre for Science and Technology, Publicis, Auto Collision Centres) ▪ Printing operations (Teamimage Inc.) ▪ Rock cutting (De Beers Canada Inc.) ▪ Ready mix concrete batching (Innocon Inc.)

Study Area	Ambient Monitored Criteria Air Contaminant Concentrations	Annual Emissions of Criteria Air Contaminant / Greenhouse Gas from Traffic and Rail	Industrial Sources of Significant Criteria Air Contaminant / Greenhouse Gas Contribution (1)
	Quality Criteria threshold and 18% of Canadian Ambient Air Quality Standards thresholds. ▪ PM_{10} 24 hour monitored level is 25.73 μg/m^3, 51% of Canadian Ambient Air Quality Standards thresholds. ▪ $PM_{2.5}$ 24 hour and annual monitored levels are 13.89 and 7.94 μg/m^3 respectively, 51% and 90% of their respective Canadian Ambient Air Quality Standards thresholds.		
Ontario Line North	▪ NO_2 one hour and 24-hour monitored levels are 49.50 μg/m^3 and 41.75 μg/m^3 respectively. Monitored levels 12% and 21% of Ambient Air Quality Criteria thresholds. ▪ NO_2 one hour and annual monitored level are 44% and 83% of the Canadian Ambient Air Quality Standards threshold at 49.50 μg/m^3 and 26.68 μg/m^3, respectively. ▪ CO one hour and eight hour monitored levels are 446 and 419 μg/m^3 respectively, 1% and 3% of their respective Ambient Air	▪ 11,864 tonnes of greenhouse gases (CO2e); ▪ 18.5 tonnes of NOx; ▪ 64.4 tonnes of CO; ▪ 0.086 tonnes of SO_2; and ▪ 5.00 tonnes of particulate matter (PM10 & PM2.5).	▪ Paint spray operations (JMAC Productions, Auto Collision Centre, etc.), ▪ Coffee roasting (Balzac's Coffee), ▪ Rubber Product Manufacturing (National Rubber Technologies) ▪ Manufacturing (Double D Cup, Dominium Diamond Marketing Corp.) ▪ Electric Power Generation (Portlands Energy Centre, Toronto Hydro Electric System Limited) ▪ Cement and Concrete Manufacturing (Dufferin Concrete, Ontario Remix) ▪ Petroleum and Coal Manufacturing

Study Area	Ambient Monitored Criteria Air Contaminant Concentrations	Annual Emissions of Criteria Air Contaminant / Greenhouse Gas from Traffic and Rail	Industrial Sources of Significant Criteria Air Contaminant / Greenhouse Gas Contribution (1)
	Quality Criteria thresholds. ▪ SO_2 one hour, 30 minutes and annual monitored levels are 5.51 μg/m^3, 6.70 μg/m^3, and 1.84 μg/m^3 respectively. Monitored levels are less than 3% of all Ambient Air Quality Criteria threshold and 18% of Canadian Ambient Air Quality Standards thresholds. ▪ PM_{10} 24 hour monitored level is 25.73 μg/m^3, 51% of Canadian Ambient Air Quality Standards thresholds. ▪ $PM_{2.5}$ 24 hour and annual monitored levels are 13.89 and 7.94 μg/m^3 respectively, 51% and 90% of their respective Canadian Ambient Air Quality Standards thresholds.		(Canroof Corporation) ▪ Sugar Manufacturing (Redpath Sugar) ▪ Wastewater and Waste Collection (City of Toronto)

Note: (1) Industrial Sources are located within 5 kilometres of each Study Area for large emitters (i.e., listed within the National Pollutant Release Inventory) to capture general contribution to the local airshed. The Ministry of the Environment, Conservation and Parks defines the required modelling area for industrial facilities to be 5 kilometres from the nearest point of emission (Section 14, O. Reg. 419/05).

9. References

AECOM, 2018:
Union Station Rail Corridor East Enhancements Transit Project Assessment Process – Air Quality Assessment Report. Prepared for Metrolinx.

Canadian Council of Ministers of the Environment, 2012:
Guidance Document on Achievement Determination Canadian Ambient Air Quality Standards for Fine Particulate Matter and Ozone (PN 1483 978-1-896997-91-9 PDF). Winnipeg, MB: Canadian Council of Ministers of the Environment. Available: https://www.ccme.ca/files/Resources/air/aqms/pn_1483_gdad_eng.pdf

Cheminfo Services Inc., 2005:
Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities. Prepared for Environment Canada. Available: http://www.bv.transports.gouv.qc.ca/mono/1173259.pdf

City of Toronto, 2002:
Warrants for All-Way 'Stop' Sign Control Report. Available: https://www.toronto.ca/legdocs/2002/agendas/council/cc020730/wks9rpt/cl010.pdf

City of Toronto, 2020:
Zoning By-law 569-2013, as amended. Interactive map. Accessed May 2020. Available: http://map.toronto.ca/maps/map.jsp?app=ZBL_CONSULT

Environment and Climate Change Canada, 2019a:
National Air Pollution Surveillance Program. Available: https://www.canada.ca/en/environment-climate-change/services/air-pollution/monitoring-networks-data/national-air-pollution-program.html

Environment and Climate Change Canada, 2019b:
Technical Guidance on Reporting Greenhouse Gas Emissions. Available: http://publications.gc.ca/collections/collection_2020/eccc/En81-29-2019-eng.pdf

Environment and Climate Change Canada, 2020a:

National Pollutant Release Inventory. Available: https://www.canada.ca/en/services/environment/pollution-waste-management/national-pollutant-release-inventory.html

Environment and Climate Change Canada, 2020b:
Past Weather and Climate. Historical Data. Available: https://climate.weather.gc.ca/historical_data/search_historic_data_e.html

GO Transit, 2020:
Full Schedules. Accessed May 2020. Available: https://www.gotransit.com/en/trip-planning/seeschedules/full-schedules

Lall, R., Kendall, M., Ito, K., and Thurston, G.D., 2004:
Estimation of historical annual $PM_{2.5}$ exposures for health effects assessment. Atmospheric Environment 38 (2004), 5217-5226. Available: https://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/display.files/fileID/13226

Metrolinx and Infrastructure Ontario, 2019:
Ontario Line Initial Business Case. Available: http://www.metrolinx.com/en/regionalplanning/projectevaluation/benefitscases/20190725_Ontario_Line_IBC.PDF

Metrolinx, 2020:
Projects and Programs: GO Transit. Accessed May 2020. Available: http://www.metrolinx.com/en/projectsandprograms/gotransit/gotransit.aspx

Ministry of the Environment and Climate Change, 2018:
Ontario Air Standards for Sulphur Dioxide (SO_2). Available: https://prod-environmental-registry.s3.amazonaws.com/2018-03/SO2%20Decision%20Document%20%28March%202018%29_0.pdf

Ministry of the Environment and Climate Change, 2018:
Procedure for Preparing an Emission Summary and Dispersion Modelling Report. Guideline A-10. Version 4.1. Available: https://files.ontario.ca/books/20180309_moecc_65_emission_aoda_en-aoda.pdf

Ministry of the Environment, Conservation and Parks, 2012:
Ontario's Ambient Air Quality Criteria (PIBS # 6570e01). Toronto, ON: Standards Development Branch. Available: http://www.airqualityontario.com/downloads/AmbientAirQualityCriteria.pdf

Ministry of the Environment, Conservation and Parks, 2020a:
Access Environment – environmental approvals and registrations. Accessed May 2020. Available: https://www.ontario.ca/page/list-environmental-approvals-and-registrations

Ministry of the Environment, Conservation and Parks, 2020b:
Guide to applying for environmental compliance approval. Available: https://www.ontario.ca/document/guide-applying-environmental-compliance-approval/general-requirement-all-applications

Ministry of Transportation, 2012:
Ontario Traffic Manual. Book 12 – Traffic Signals. St. Catharines, ON. Traffic Office. Available: https://www.library.mto.gov.on.ca/SydneyPLUS/Sydney/Portal/default.aspx?component=AAAAIY&record=59cabe78-8aaf-4347-95ab-d6c066099015

Ministry of Transportation, 2020:
Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects. Available: https://prod-environmental-registry.s3.amazonaws.com/2020-07/AQGHG%20Guide%20%28May%202020%29.pdf

Toronto Transit Commission, 2019:
Service Summary: May 12, 2019 to June 22, 2019. Accessed May 2020. Available: https://www.ttc.ca/PDF/Transit_Planning/Service%20Summary_2019-05-12.pdf

Toronto Transit Commission, n.d.:
TTC Green Initiatives. Accessed May 2020. Available: https://www.ttc.ca/Riding_the_TTC/green_initiatives.jsp

United States Environmental Protection Agency, 2009:
Emission Factors for Locomotives. Available: https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P100500B.TXT

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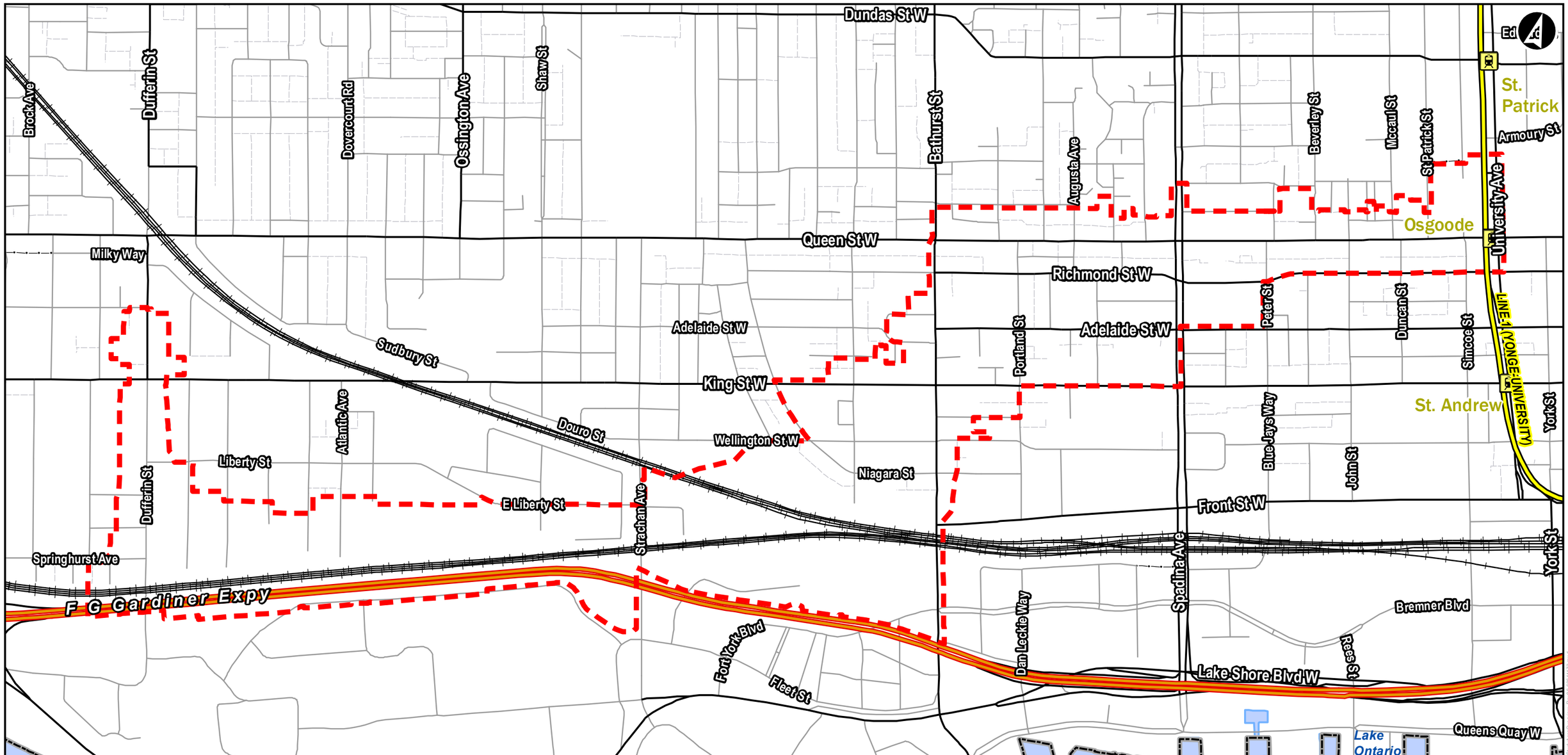
Appendix A

Study Area Figures



Legend

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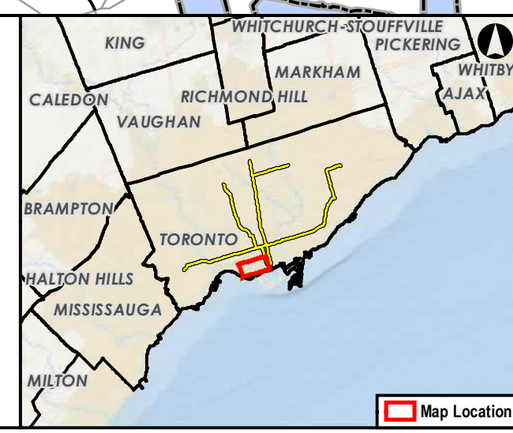
- Study Area
- Toronto Subway Lines
- Railway
- Freeway
- Major Road
- Local Road
- Service Road
- Alleyway
- Waterbody



Ontario Line Project

Ontario Line West Study Area

0 50 100 200 300 400 500 600 700
Meters
DATUM: NAD 1983 UTM Zone 17N

Data Sources:
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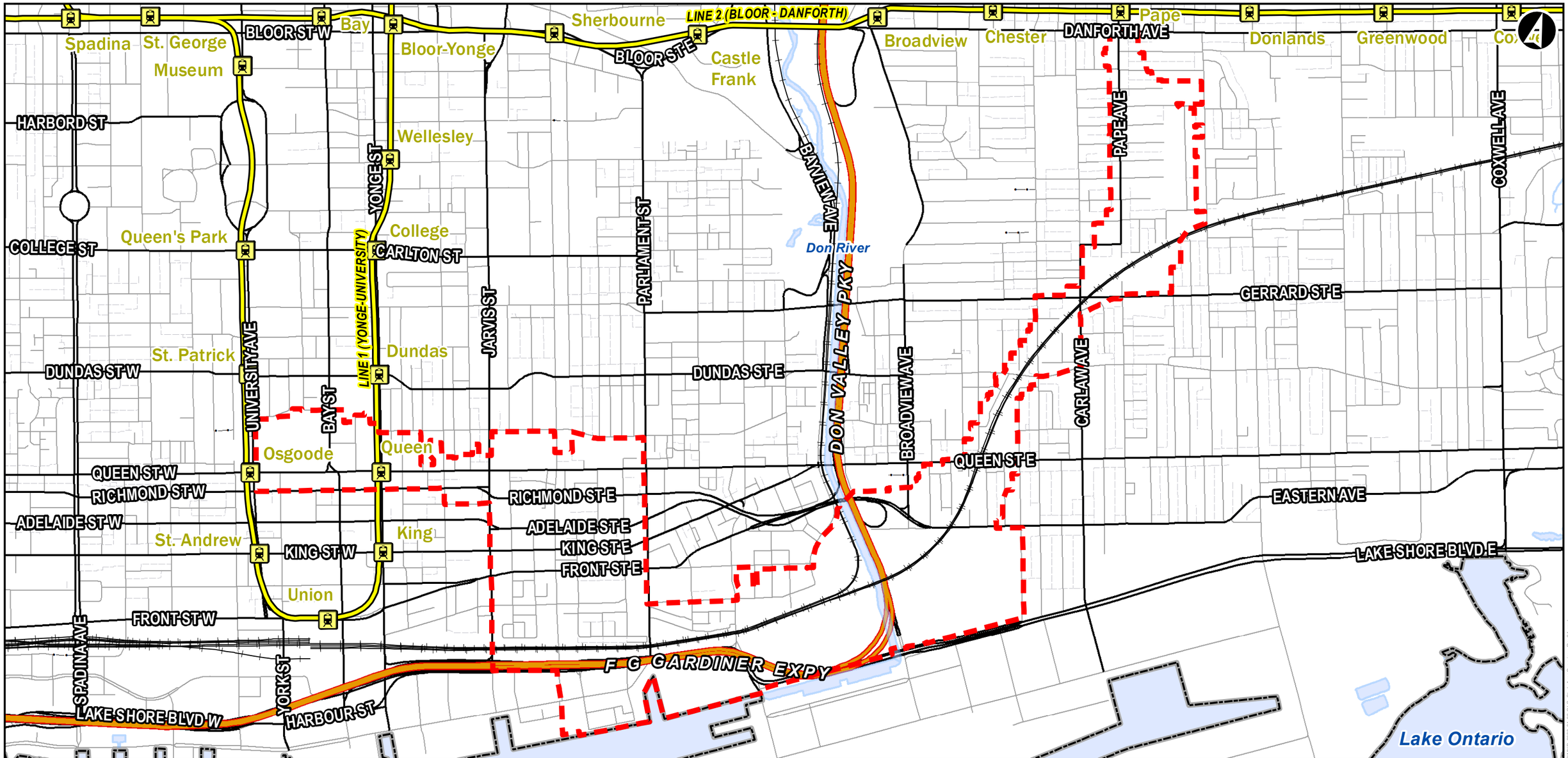
Figure A1



Legend

- Existing Station
- Toronto Subway Lines
- Railway
- Freeway
- Major Road
- Local Road
- Service Road
- Alleyway
- Watercourse
- Waterbody
- Study Area

Ontario Line Project

Ontario Line South Study Area

0 0.5 1
Kilometers
DATUM: NAD 1983 UTM Zone 17N

Data Sources:
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Jul, 2020	1:18,000
P#:	REV: 04

Figure A2

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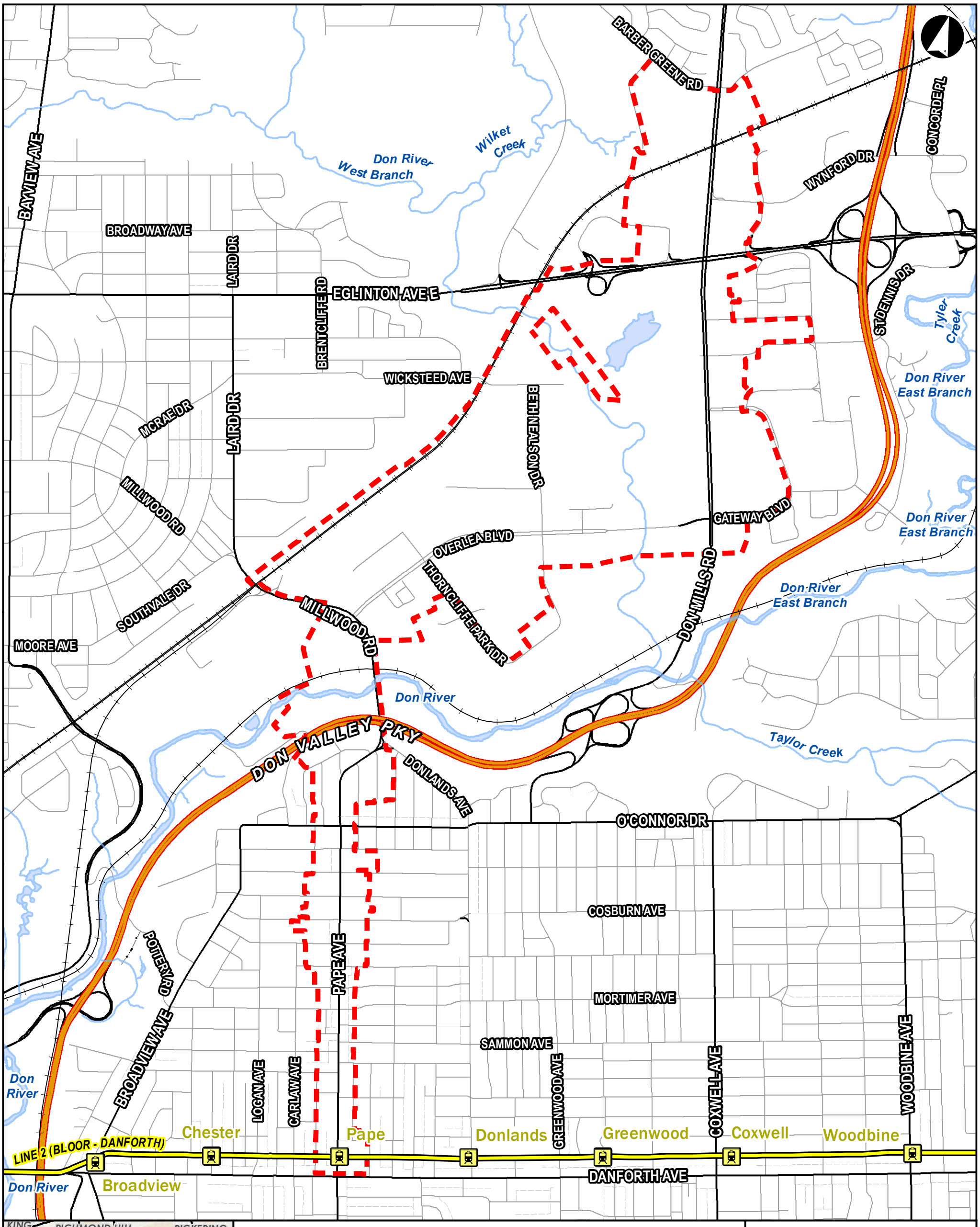

Ontario Line Project

Ontario Line North Study Area

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Meters
Datum: NAD 1983 UTM Zone 17N

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P#:60609279	REV: 03	

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Figure A3

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Appendix B

Qualitative Assessment Summary Tables

Table B-1: Road Traffic AADT Summary for Ontario Line South

Traffic Segment ID	Traffic Segment Description	Speed Limit [km/hr]	Vehicle Type	AADT
OLS1	Pape Ave between Danforth Ave. and Harcourt Ave.	40	CAR	10003
			TRK	72
OLS2	Pape Ave between Harcourt Ave. and Strathcona Ave.	40	CAR	10003
			TRK	72
OLS3	Pape Ave between Strathcona Ave. and Riverdale Ave.	40	CAR	10092
			TRK	80
OLS4	Pape Ave between Riverdale Ave. and Riverdale Shopping Centre	40	CAR	10092
			TRK	80
OLS5	Pape Ave between Gerrard Shopping Centre Entrance-Gerrard St. E	40	CAR	3361
			TRK	0
OLS6	Jones Ave between Harcourt Ave and Boultbee Ave.	40	CAR	8381
			TRK	760
OLS7	Gerrard St. E between Logan Ave and Marjorey Ave.	40	CAR	17587
			TRK	9049
OLS8	Carlaw Ave between Riverdale Ave and Gerrard St E.	40	CAR	14116
			TRK	144
OLS9	Carlaw Ave between Gerrard St. E and Dundas St E.	40	CAR	11474
			TRK	104
OLS10	Dundas St. E between De Grassi St and Logan Ave.	40	CAR	16948
			TRK	144
OLS11	Dundas St. E. between Logan Ave. and Carlaw Ave.	40	CAR	16948
			TRK	144
OLS12	Queen St. E. between Broadview Ave. and Booth Ave.	40	CAR	12025
			TRK	1536
OLS13	Broadview Ave. between Queen St. E and Eastern Ave.	50	CAR	7432
			TRK	120
OLS14	Eastern Ave. between Bayview Ave. and Broadview Ave	50	CAR	10768
			TRK	168
OLS15	Eastern Ave. between Broadview Ave. and Booth Ave.	50	CAR	12025

Traffic Segment ID	Traffic Segment Description	Speed Limit [km/hr]	Vehicle Type	AADT
			TRK	1536
OLS16	Lakeshore Blvd. between Sherbourne St. and Parliament St.	50	CAR	20157
			TRK	884
OLS17	Lakeshore Blvd. between Parliament St. and Cherry St.	50	CAR	20157
			TRK	884
OLS18	Lakeshore Blvd. between Cherry St. and Booth Ave.	50	CAR	20157
			TRK	884
OLS19	Booth Ave. between Lakeshore Blvd and Paisley Ave	50	CAR	12807
			TRK	128
OLS20	Gardiner Expy between Eastern Ave. and Jarvis St.	90	CAR	43139
			TRK	2725
OLS21	Bayview Ave./Mill St. between Eastern Ave and Lawren Harris Square	50	CAR	6356
			TRK	636
OLS22	Bayview Ave./Mill St. between Lawren Harris Square and Front St. E.	50	CAR	6356
			TRK	636
OLS23	Bayview Ave./Mill St. between Front St. E. and Bayview Ave./Mill St.	50	CAR	6356
			TRK	636
OLS24	Bayview Ave./Mill St. between Bayview Ave./Mill St. and Cherry	50	CAR	2496
			TRK	160
OLS25	Bayview Ave./Mill St. between Cherry and Parliament	30	CAR	2452
			TRK	160
OLS26	Front St. E. between Cherry St and Rolling Mills Rd	40	CAR	5680
			TRK	544
OLS27	Front St. E. between Rolling Mills Rd and Bayview Ave.	40	CAR	5680
			TRK	544
OLS28	Parliament St. between Shutter St and Queen St E.	50	CAR	9880
			TRK	380
OLS29		50	CAR	9596

Traffic Segment ID	Traffic Segment Description	Speed Limit [km/hr]	Vehicle Type	AADT
	Parliament St. between Queen St. E. and Richmond St. E.		TRK	604
OLS30	Parliament St. between Richmond St. E. and Adelaide St. E.	50	CAR	9596
			TRK	604
OLS31	Parliament St. between Adelaide St. E. and King St. E.	50	CAR	9172
			TRK	1000
OLS32	Parliament St. between King St. E. and Front St. E.	50	CAR	9172
			TRK	1000
OLS33	Parliament St. between Front St. E. and Lakeshore Blvd.	50	CAR	12884
			TRK	1180
OLS34	Sherbourne St. between Shutter St and Queen St. E.	40	CAR	8828
			TRK	140
OLS35	Sherbourne St. between Queen St. E. and Richmond St.	40	CAR	8080
			TRK	332
OLS36	Sherbourne St. between Richmond St and Adelaide St. E.	40	CAR	8080
			TRK	332
OLS37	Sherbourne St. between Adelaide St E. and King St. E.	40	CAR	8504
			TRK	624
OLS38	Sherbourne St. between King St E. and Front St. E.	40	CAR	8504
			TRK	624
OLS39	Sherbourne St. between Front St E. and The Esplanade	40	CAR	7112
			TRK	572
OLS40	Sherbourne St. between The Esplanade and Lakeshore Blvd.	40	CAR	6210
			TRK	340
OLS41	Jarvis St. between Shutter St and Queen St E.	40	CAR	7159
			TRK	144
OLS42	Jarvis St. between Queen St. E. and Richmond St. E.	40	CAR	14714
			TRK	388
OLS43	Jarvis St. between Richmond St. E. and Adelaide St. E.	40	CAR	17299
			TRK	636
OLS44	Jarvis St. between Adelaide St. E. and King St. E.	40	CAR	18033
			TRK	1164
OLS45	Jarvis St. between King St E. and Front St. E	40	CAR	17364
			TRK	1524
OLS46	Jarvis St. between Front St and The Esplanade	40	CAR	16708
			TRK	1392

Traffic Segment ID	Traffic Segment Description	Speed Limit [km/hr]	Vehicle Type	AADT
OLS47	Pape Ave between Harcourt Ave. and Strathcona Ave.	40	CAR	16992
			TRK	1360
OLS48	Front St. E. between Jarvis St and George St.	40	CAR	14512
			TRK	516
OLS49	Front St. E. between George St. and Sherbourne St.	40	CAR	9687
			TRK	140
OLS50	Front St. E. between Sherbourne St. and Princess St.	40	CAR	9687
			TRK	140
OLS51	Front St. E. between Princess St. and Berkely St.	40	CAR	16634
			TRK	588
OLS52	Front St. E. between Berkeley St. and Parliament St.	40	CAR	16634
			TRK	588
OLS53	Adelaide St. E. between Jarvis St. and George St.	40	CAR	16364
			TRK	736
OLS54	Adelaide St. E. between George St. and Sherbourne St.	40	CAR	16292
			TRK	952
OLS55	Adelaide St. E. between Sherbourne St. and Berkeley St.	40	CAR	16572
			TRK	1004
OLS56	Adelaide St. E. between Berkeley Street and Parliament St.	40	CAR	17352
			TRK	928
OLS57	Richmond St. E. between Jarvis St. and George St.	40	CAR	16289
			TRK	184
OLS58	Richmond St. E. between George St. and Sherbourne St.	40	CAR	16292
			TRK	952
OLS59	Richmond St. E. between Sherbourne St. and Berkeley St.	40	CAR	16572
			TRK	1004
OLS60	Richmond St. E. between Berkeley St. and Parliament St.	40	CAR	17352
			TRK	928
OLS61	Queen St. W. between St. Patricks St and University Ave.	40	CAR	15423
			TRK	608
OLS62	Queen St. W. between University Ave. and York St.	40	CAR	16289
			TRK	184
OLS63	Queen St. W. between York St. and Bay St.	40	CAR	17024
			TRK	624
OLS64	Queen St. W. between Bay St. and Yonge St.	40	CAR	17024
			TRK	624

Traffic Segment ID	Traffic Segment Description	Speed Limit [km/hr]	Vehicle Type	AADT
OLS65	Queen St. E. between Yonge St. and Victoria St.	40	CAR	15422
			TRK	372
OLS66	Queen St. E. between Victoria St. and Church St.	40	CAR	15281
			TRK	208
OLS67	Queen St. E. between Church St. and Jarvis St.	40	CAR	15281
			TRK	208
OLS68	Queen St. E. between Jarvis St. and Sherbourne St.	40	CAR	13901
			TRK	188
OLS69	Queen St. E. between Sherbourne St. and Parliament St.	40	CAR	10568
			TRK	172
OLS70	Shutter St. between Jarvis St. and Sherbourne St.	40	CAR	9785
			TRK	128
OLS71	Shutter St. between Sherbourne St. and Parliament St.	40	CAR	7918
			TRK	100
OLS72	Richmond St. W. between University Ave. and York St.	40	CAR	7998
			TRK	132
OLS73	Richmond St. W. between York St. and Bay St.	40	CAR	10262
			TRK	240
OLS74	Richmond St. W. between Bay St. and Yonge St.	40	CAR	10262
			TRK	242
OLS75	Richmond St. W. between Yonge St. and Victoria St.	40	CAR	10262
			TRK	240
OLS76	Richmond St. W. between Victoria St. and Church St.	40	CAR	10189
			TRK	172
OLS77	Richmond St. W. between Church St. and Jarvis St.	40	CAR	10189
			TRK	172
OLS78	Yonge St. between Shutter St. and Queen St.	40	CAR	9296
			TRK	468
OLS79	Yonge St. between Queen St. E. and Richmond St.	40	CAR	12864
			TRK	712
OLS80	University Ave. between Armoury St and Queen St. W.	40	CAR	35168
			TRK	2352
OLS81	University Ave. between Queen St. W. and Richmond St. W.	40	CAR	32704
			TRK	1844

Table B-2: Transit Bus AADT Summary for Ontario Line South

Bus Route	Bus Route Description	Speed Limit [km/hr]	Vehicle Type	AADT
Route 72	Along Pape Avenue, Riverdale Ave, Carlaw Ave past Gerrard, Carlaw Ave past Dundas.	40	Bus	72
Route 65	Parliament at Shutter to Parliament at Front to Front at Princess to Princess at The Esplanade to The Esplanade at Berkeley to Berkeley at Front	40	Bus	28
Route 121AD	Mill St. at Cherry to Mill St. at Parliament to Parliament at Front St. to Front St at Berkeley, to Berkeley at The Esplanade, to the Esplanade at Jarvis St. Route 121D: Mill at Cherry St. to Cherry St at Lakeshore Blvd.	30	Bus	56
Route 75	Sherbourne St at Shutter St to Sherbourne St at Queens Quay East, to Queens Quay E at Lower Jarvis St., to Lower Jarvis St at The Esplanade, to Lower Sherbourne at the Esplanade.	40	Bus	56
Expres s Route 141	Shuter St at Jarvis St to Adelaide at Jarvis St., if travelling SB then Adelaide at George to George at King to King at University. If travelling NB, at Jarvis at King, continue North up Jarvis.	40	Bus	24
Route 72BC	Lakeshore at Cherry to Lakeshore at Parliament, to Queens Quay E at Lower Jarvis St.	60	Bus	72
Route 83	Jones Ave at Harcourt to Jones Ave at Boultbee Ave.	40	Bus	24
Route 506	Gerrard St at Logan to Gerrard St at Marjory Ave.	40	Bus	32
Expres s Route 143	Eastern Ave. at Booth Ave to Eastern Ave. at Bayview Ave.	50	Bus	28
Route9 7B	Shuter St at Yonge St to Richmond St at Yonge St.	40	Bus	32
Route 142	University Ave. at Armoury St. to University Ave. at Richmond St.	40	Bus	24

Table B-3: Rail Daily Travel Summary for Ontario Line South

Rail Route	Rail Corridor Description	Notch Level*	Fuel Type	No. of Trains per Day
GO Lakeshore East	Between Union Station and Danforth Station	4	Diesel	85
GO Richmond Hill Line	Between Union Station and Oriole Station	4	Diesel	16
GO Stouffville Line	Between Union Station and Danforth Station	4	Diesel	32

* Note: assumed maximum locomotive notch speed for both most conservative emission profile and also most efficient engine diesel fuel usage.

Table B-4: Traffic Daily Emissions for Ontario Line South

Traffic Segment ID	Traffic Segment Description	NO_X (g/day)	CO (g/day)	SO_2 (g/day)	PM_{10} (g/day)	$PM_{2.5}$ (g/day)
OLS1	Pape Ave between Danforth Ave. and Harcourt Ave.	2.96E+02	3.12E+03	3.10E+00	1.40E+02	2.84E+01
OLS2	Pape Ave between Harcourt Ave. and Strathcona Ave.	2.96E+02	3.12E+03	3.10E+00	1.40E+02	2.84E+01
OLS3	Pape Ave between Strathcona Ave. and Riverdale Ave.	9.06E+02	9.44E+03	9.40E+00	4.24E+02	8.67E+01
OLS4	Pape Ave between Riverdale Ave. and Riverdale Shopping Centre	3.02E+02	3.15E+03	3.13E+00	1.41E+02	2.89E+01
OLS5	Pape Ave between Gerrard Shopping Centre Entrance-Gerrard St. E	5.01E+01	5.76E+02	5.62E-01	2.52E+01	4.96E+00
OLS6	Jones Ave between Harcourt Ave and Boultbee Ave.	1.96E+03	1.10E+04	1.29E+01	6.06E+02	1.57E+02
OLS7	Gerrard St. E between Logan Ave and Marjorey Ave.	1.47E+04	3.58E+04	6.02E+01	3.03E+03	1.03E+03
OLS8	Carlaw Ave between Riverdale Ave and Gerrard St E.	8.73E+02	8.86E+03	8.87E+00	4.01E+02	8.27E+01

Table B-4: Traffic Daily Emissions for Ontario Line South

Traffic Segment ID	Traffic Segment Description	NO_X (g/day)	CO (g/day)	SO_2 (g/day)	PM_{10} (g/day)	$PM_{2.5}$ (g/day)
OLS9	Carlaw Ave between Gerrard St. E and Dundas St E.	6.43E+02	6.61E+03	6.60E+00	2.98E+02	6.12E+01
OLS10	Dundas St. E between De Grassi St and Logan Ave.	8.00E+02	8.28E+03	8.25E+00	3.72E+02	7.63E+01
OLS11	Dundas St. E. between Logan Ave. and Carlaw Ave.	6.00E+02	6.21E+03	6.19E+00	2.79E+02	5.72E+01
OLS12	Queen St. E. between Broadview Ave. and Booth Ave.	2.78E+03	1.33E+04	1.65E+01	7.85E+02	2.16E+02
OLS13	Broadview Ave. between Queen St. E and Eastern Ave.	3.35E+02	3.25E+03	3.12E+00	1.26E+02	2.81E+01
OLS14	Eastern Ave. between Bayview Ave. and Broadview Ave	7.05E+02	6.87E+03	6.59E+00	2.65E+02	5.92E+01
OLS15	Eastern Ave. between Broadview Ave. and Booth Ave.	2.68E+03	1.29E+04	1.54E+01	6.54E+02	1.92E+02
OLS16	Lakeshore Blvd. between Sherbourne St. and Parliament St.	1.97E+03	1.48E+04	1.52E+01	6.24E+02	1.54E+02
OLS17	Lakeshore Blvd. between Parliament St. and Cherry St.	2.86E+03	2.15E+04	2.21E+01	9.07E+02	2.24E+02
OLS18	Lakeshore Blvd. between Cherry St. and Booth Ave.	6.00E+03	4.52E+04	4.64E+01	1.90E+03	4.71E+02
OLS19	Booth Ave. between Lakeshore Blvd and Paisley Ave	2.27E+03	2.36E+04	2.23E+01	8.95E+02	1.95E+02
OLS20	Gardiner Expy between Eastern Ave. and Jarvis St.	2.72E+04	1.63E+05	1.75E+02	3.04E+03	1.23E+03
OLS21	Bayview Ave./Mill St. between Eastern Ave and Lawren Harris Square	3.60E+02	1.95E+03	2.23E+00	9.36E+01	2.63E+01
OLS22	Bayview Ave./Mill St. between Lawren Harris Square and Front St. E.	3.60E+02	1.95E+03	2.23E+00	9.36E+01	2.63E+01
OLS23	Bayview Ave./Mill St. between Front St. E. and Bayview Ave./Mill St.	2.25E+02	1.22E+03	1.39E+00	5.85E+01	1.65E+01

Table B-4: Traffic Daily Emissions for Ontario Line South

Traffic Segment ID	Traffic Segment Description	NO_X (g/day)	CO (g/day)	SO_2 (g/day)	PM_{10} (g/day)	$PM_{2.5}$ (g/day)
OLS24	Bayview Ave./Mill St. between Bayview Ave./Mill St. and Cherry	2.69E+02	1.76E+03	1.89E+00	7.83E+01	2.04E+01
OLS25	Bayview Ave./Mill St. between Cherry and Parliament	3.22E+02	2.26E+03	2.40E+00	1.17E+02	2.91E+01
OLS26	Front St. E. between Cherry St and Rolling Mills Rd	3.94E+02	2.15E+03	2.55E+00	1.20E+02	3.15E+01
OLS27	Front St. E. between Rolling Mills Rd and Bayview Ave.	3.73E+02	2.04E+03	2.42E+00	1.14E+02	2.99E+01
OLS28	Parliament St. between Shutter St and Queen St E.	3.49E+02	2.75E+03	2.79E+00	1.14E+02	2.77E+01
OLS29	Parliament St. between Queen St. E. and Richmond St. E.	3.16E+02	2.08E+03	2.23E+00	9.22E+01	2.40E+01
OLS30	Parliament St. between Richmond St. E. and Adelaide St. E.	3.16E+02	2.08E+03	2.23E+00	9.22E+01	2.40E+01
OLS31	Parliament St. between Adelaide St. E. and King St. E.	3.39E+02	1.76E+03	2.04E+00	8.61E+01	2.46E+01
OLS32	Parliament St. between King St. E. and Front St. E.	4.74E+02	2.46E+03	2.86E+00	1.21E+02	3.44E+01
OLS33	Parliament St. between Front St. E. and Lakeshore Blvd.	1.90E+03	1.07E+04	1.21E+01	5.05E+02	1.40E+02
OLS34	Sherbourne St. between Shutter St and Queen St. E.	3.10E+02	2.95E+03	3.00E+00	1.36E+02	2.88E+01
OLS35	Sherbourne St. between Queen St. E. and Richmond St.	2.54E+02	1.93E+03	2.07E+00	9.52E+01	2.20E+01
OLS36	Sherbourne St. between Richmond St and Adelaide St. E.	2.73E+02	2.07E+03	2.23E+00	1.02E+02	2.37E+01
OLS37	Sherbourne St. between Adelaide St E. and King St. E.	2.67E+02	1.64E+03	1.87E+00	8.74E+01	2.19E+01
OLS38	Sherbourne St. between King St E. and Front St. E.	2.67E+02	1.64E+03	1.87E+00	8.74E+01	2.19E+01

Table B-4: Traffic Daily Emissions for Ontario Line South

Traffic Segment ID	Traffic Segment Description	NO_X (g/day)	CO (g/day)	SO_2 (g/day)	PM_{10} (g/day)	$PM_{2.5}$ (g/day)
OLS39	Sherbourne St. between Front St E. and The Esplanade	3.75E+02	2.21E+03	2.56E+00	1.20E+02	3.05E+01
OLS40	Sherbourne St. between The Esplanade and Lakeshore Blvd.	5.40E+02	3.72E+03	4.10E+00	1.90E+02	4.56E+01
OLS41	Jarvis St. between Shutter St and Queen St E.	2.64E+02	2.41E+03	2.47E+00	1.12E+02	2.42E+01
OLS42	Jarvis St. between Queen St. E. and Richmond St. E.	3.66E+02	3.15E+03	3.28E+00	1.50E+02	3.29E+01
OLS43	Jarvis St. between Richmond St. E. and Adelaide St. E.	5.18E+02	4.08E+03	4.33E+00	1.99E+02	4.54E+01
OLS44	Jarvis St. between Adelaide St. E. and King St. E.	6.33E+02	4.09E+03	4.60E+00	2.14E+02	5.26E+01
OLS45	Jarvis St. between King St E. and Front St. E	7.16E+02	4.07E+03	4.76E+00	2.24E+02	5.78E+01
OLS46	Jarvis St. between Front St and The Esplanade	7.81E+02	4.54E+03	5.27E+00	2.47E+02	6.34E+01
OLS47	Pape Ave between Harcourt Ave. and Strathcona Ave.	1.71E+03	1.01E+04	1.17E+01	5.48E+02	1.40E+02
OLS48	Front St. E. between Jarvis St and George St.	3.30E+02	2.62E+03	2.78E+00	1.28E+02	2.90E+01
OLS49	Front St. E. between George St. and Sherbourne St.	3.70E+02	3.58E+03	3.62E+00	1.64E+02	3.45E+01
OLS50	Front St. E. between Sherbourne St. and Princess St.	1.76E+02	1.70E+03	1.72E+00	7.81E+01	1.64E+01
OLS51	Front St. E. between Princess St. and Berkeley St.	8.27E+02	6.57E+03	6.97E+00	3.20E+02	7.26E+01
OLS52	Front St. E. between Berkeley St. and Parliament St.	4.13E+02	3.29E+03	3.49E+00	1.60E+02	3.63E+01
OLS53	Adelaide St. E. between Jarvis St. and George St.	4.50E+02	3.31E+03	3.59E+00	1.65E+02	3.87E+01
OLS54	Adelaide St. E. between George St. and Sherbourne St.	9.60E+02	6.45E+03	7.16E+00	3.32E+02	8.06E+01

Table B-4: Traffic Daily Emissions for Ontario Line South

Traffic Segment ID	Traffic Segment Description	NO_X (g/day)	CO (g/day)	SO_2 (g/day)	PM_{10} (g/day)	$PM_{2.5}$ (g/day)
OLS55	Adelaide St. E. between Sherbourne St. and Berkeley St.	1.56E+03	1.03E+04	1.15E+01	5.36E+02	1.31E+02
OLS56	Adelaide St. E. between Berkeley Street and Parliament St.	5.15E+02	3.57E+03	3.93E+00	1.82E+02	4.36E+01
OLS57	Richmond St. E. between Jarvis St. and George St.	2.84E+02	2.84E+03	2.86E+00	1.29E+02	2.68E+01
OLS58	Richmond St. E. between George St. and Sherbourne St.	9.58E+02	6.43E+03	7.14E+00	3.32E+02	8.04E+01
OLS59	Richmond St. E. between Sherbourne St. and Berkeley St.	1.51E+03	1.00E+04	1.12E+01	5.20E+02	1.27E+02
OLS60	Richmond St. E. between Berkeley St. and Parliament St.	5.14E+02	3.57E+03	3.93E+00	1.82E+02	4.36E+01
OLS61	Queen St. W. between St. Patrick St and University Ave.	6.20E+02	4.77E+03	5.10E+00	2.35E+02	5.40E+01
OLS62	Queen St. W. between University Ave. and York St.	4.26E+02	4.27E+03	4.28E+00	1.94E+02	4.02E+01
OLS63	Queen St. W. between York St. and Bay St.	9.44E+02	7.43E+03	7.90E+00	3.63E+02	8.27E+01
OLS64	Queen St. W. between Bay St. and Yonge St.	9.44E+02	7.43E+03	7.90E+00	3.63E+02	8.27E+01
OLS65	Queen St. E. between Yonge St. and Victoria St.	3.13E+02	2.75E+03	2.84E+00	1.30E+02	2.83E+01
OLS66	Queen St. E. between Victoria St. and Church St.	5.21E+02	5.09E+03	5.14E+00	2.33E+02	4.88E+01
OLS67	Queen St. E. between Church St. and Jarvis St.	5.76E+02	5.63E+03	5.68E+00	2.57E+02	5.39E+01
OLS68	Queen St. E. between Jarvis St. and Sherbourne St.	7.98E+02	7.80E+03	7.87E+00	3.56E+02	7.47E+01
OLS69	Queen St. E. between Sherbourne St. and Parliament St.	8.25E+02	7.83E+03	7.96E+00	3.61E+02	7.65E+01
OLS70	Shutter St. between Jarvis St. and Sherbourne St.	5.58E+02	5.48E+03	5.53E+00	2.50E+02	5.23E+01

Table B-4: Traffic Daily Emissions for Ontario Line South

Traffic Segment ID	Traffic Segment Description	NO_X (g/day)	CO (g/day)	SO_2 (g/day)	PM_{10} (g/day)	$PM_{2.5}$ (g/day)
OLS71	Shutter St. between Sherbourne St. and Parliament St.	5.89E+02	5.81E+03	5.85E+00	2.65E+02	5.53E+01
OLS72	Richmond St. W. between University Ave. and York St.	2.08E+02	1.97E+03	2.00E+00	9.08E+01	1.93E+01
OLS73	Richmond St. W. between York St. and Bay St.	5.77E+02	5.10E+03	5.27E+00	2.40E+02	5.23E+01
OLS74	Richmond St. W. between Bay St. and Yonge St.	4.13E+02	3.65E+03	3.77E+00	1.72E+02	3.74E+01
OLS75	Richmond St. W. between Yonge St. and Victoria St.	2.06E+02	1.82E+03	1.88E+00	8.57E+01	1.87E+01
OLS76	Richmond St. W. between Victoria St. and Church St.	5.03E+02	5.04E+03	5.06E+00	2.29E+02	4.75E+01
OLS77	Richmond St. W. between Church St. and Jarvis St.	3.98E+02	3.75E+03	3.82E+00	1.73E+02	3.68E+01
OLS78	Yonge St. between Shutter St. and Queen St.	4.87E+02	3.45E+03	3.78E+00	1.75E+02	4.15E+01
OLS79	Yonge St. between Queen St. E. and Richmond St.	3.51E+02	2.41E+03	2.66E+00	1.23E+02	2.96E+01
OLS80	University Ave. between Armoury St and Queen St. W.	2.84E+03	1.80E+04	2.03E+01	9.48E+02	2.35E+02
OLS81	University Ave. between Queen St. W. and Richmond St. W.	8.97E+02	6.11E+03	6.76E+00	3.13E+02	7.56E+01

Table B-5: Bus Daily Emissions for Ontario Line South

Bus Route ID	Bus Route Description	NO_X (g/day)	CO (g/day)	SO_2 (g/day)	PM_{10} (g/day)	$PM_{2.5}$ (g/day)
OLST1	Along Pape Avenue, Riverdale Ave, Carlaw Ave past Gerrard, Carlaw Ave past Dundas.	5.30E+02	2.24E+02	8.36E-01	5.49E+01	2.39E+01
OLST2	Jones Ave at Harcourt to Jones Ave at Boultbee	1.74E+02	7.34E+01	2.74E-01	1.80E+01	7.83E+00
OLST3	Gerrard St at Logan to Gerrard St at Marjory Ave.	3.97E+02	1.61E+02	5.95E-01	4.47E+01	1.86E+01
OLST4	University Ave. at Armoury St. to University Ave. at Richmond St.	4.16E+02	1.76E+02	6.57E-01	4.32E+01	1.88E+01
OLST5	Parliament at Shutter to Parliament at Front to Front at Princess to Princess at The Esplanade to The Esplanade at Berkeley to Berkeley at Front	1.82E+02	7.71E+01	2.88E-01	1.89E+01	8.24E+00
OLST6	Mill St. at Cherry to Mill St. at Parliament to Parliament at Front St. to Front St at Berkeley, to Berkeley at The Esplanade, to the Esplanade at Jarvis St. Route 121D: Mill at Cherry St. to Cherry St at Lakeshore Blvd.	1.01E+03	4.28E+02	1.60E+00	1.05E+02	4.57E+01

Table B-6: Rail Daily Emissions for Ontario Line South

Rail Route	Rail Route Description	NO_X (g/day)	CO (g/day)	HC [1] (g/day)	PM (g/day)	SO2 (g/day)
GO Lakeshore East Line	Between Union Station and Danforth Station	45131	3551	1250	867	0.076
GO Richmond Hill Line	Between Union Station and Oriole Station	7248	570	201	139	0.042
GO Stouffville Line	Between Union Station and Danforth Station	25144	1978	697	483	0.012

Notes: (1) HC represents hydrocarbons emitted from rail activities. These emissions may encompass any volatile organics or other carbon-based emissions from diesel locomotive combustion.

Table B-7: Road Traffic AADT Summary for Ontario Line North

Traffic Segment ID	Traffic Segment Description	Speed Limit [km/hr]	Vehicle Type	AADT
OLNS1	Don Mills Rd (Green Belt Drive/ Barber Greene Rd. to Eglington Ave. East)	50	Car	21412
			Truck	996
OLNS2	Don Mills Rd (Eglington Ave. East to Gateway Blvd. N)	60	Car	21412
			Truck	996
OLNS3	Don Mills Rd (Gateway N Blvd. to Gateway Blvd./ Overlea Blvd.)	40	Car	19220
			Truck	852
OLNS4	Overlea Blvd. (Don Mills Rd to Thorncliffe Park E)	50	Car	11594
			Truck	329
OLNS5	Overlea Blvd. (Thorncliffe Park E to Thorncliffe Park W)	50	Car	9308
			Truck	119
OLNS6	Overlea Blvd. (Thorncliffe Park W to Millwood Rd)	50	Car	8359
			Truck	101
OLNS7	Millwood Rd (Overlea Blvd. to Donlands Ave/Pape Ave)	50	Car	15284
			Truck	180
OLNS8	Pape Ave (Millwood Rd/Donlands Ave to O'Connor Dr.)	40	Car	6490
			Truck	80
OLNS9	Pape Ave (O'Connor Dr. to Cosburn Ave)	40	Car	6778
			Truck	75
OLNS10	Pape Ave (Cosburn Ave to Floyd Ave)	40	Car	7971
			Truck	96
OLNS11	Pape Ave (Floyd Ave to Mortimer Ave)	40	Car	7441
			Truck	126
OLNS12	Pape Ave (Mortimer Ave to Pape Station)	40	Car	7039
			Truck	159
OLNS13	Pape Ave (Pape Station to Danforth Ave)	40	Car	7039
			Truck	159
OLNS14	Gateway N Blvd. (Don Mills to edge of Study Area)	40	Car	264

Traffic Segment ID	Traffic Segment Description	Speed Limit [km/hr]	Vehicle Type	AADT
			Truck	16
OLNS15	Gateway S Blvd (Don Mills/Overlea to edge of Study Area)	40	Car	10336
			Truck	436
OLNS16	Don Mills Rd (Overlea/Gateway South to edge of Study Area)	60	Car	15848
			Truck	684
OLNS17	Beth Nealson Dr (Overlea North to Wicksteed ave)	40	Car	3579
			Truck	81
OLNS18	Thorncliffe E Blvd. (Overlea South to edge of Study Area)	40	Car	4194
			Truck	16
OLNS19	Thorncliffe W Blvd. (Overlea South to edge of Study Area)	40	Car	2541
			Truck	48
OLNS20	Thorncliffe W Blvd. (Overlea North to Banigan Dr.)	40	Car	3018
			Truck	28
OLNS21	Millwood Rd (Overlea to edge of Study Area)	50	Car	16960
			Truck	250
OLNS22	O'Connor Dr. (Pape East to edge of Study Area)	40	Car	5778
			Truck	37
OLNS23	O'Connor Dr. (Pape West to edge of Study Area)	40	Car	5725
			Truck	33
OLNS24	Cosburn Ave (Pape East to edge of Study Area)	40	Car	3623
			Truck	29
OLNS25	Cosburn Ave (Pape West to edge of Study Area)	40	Car	3052
			Truck	29
OLNS26	Floyd Ave (Pape East to edge of Study Area)	40	Car	637
			Truck	4
OLNS27	Floyd Ave (Pape West to edge of Study Area)	30	Car	547
			Truck	12

Traffic Segment ID	Traffic Segment Description	Speed Limit [km/hr]	Vehicle Type	AADT
OLNS28	Mortimer Ave (Pape East to edge of Study Area)	40	Car	6361
			Truck	45
OLNS29	Mortimer Ave (Pape West to edge of Study Area)	40	Car	6643
			Truck	61

Table B-8: Transit Bus AADT Summary for Ontario Line North

Bus Route	Bus Route Description	Speed Limit [km/hr]	Vehicle Type	AADT
TTC Route 8	Route travels on O'Connor Dr. crossing Study Area at Pape Ave	40	Bus	8
TTC Route 25	Route follows Study Area Don mills Rd south to Danforth: Don Mills Rd south to Overlea Blvd to Millwood Rd to Pape Ave	50	Bus	176
TTC Route 34	Route travels on Don Mills Rd North of Eglington to Wynford Dr	50	Bus	252
TTC Route 56	Route travels on Millwood Rd	50	Bus	56
TTC Route 62	Route travels on Mortimer Ave route crossing Study Area at Pape Ave	40	Bus	28
TTC Route 72	Route travels north concluding at Pape Station	40	Bus	72
TTC Route 87	Route travels on Cosburn Ave and crosses Study Area at Pape Ave	40	Bus	84
TTC Route 88	Route travels on Millwood Rd (north of Overlea Blvd), Overlea Blvd, Thorncliffe Park Dr W and Beth Nealson Dr within Study Area	40	Bus	76
TTC Route 100	Route travels east/west on Gateway Blvd S and Overlea Blvd then southbound on Millwood Rd and Pape Ave prior to east/west travel on O'Connor Drive	40	Bus	128
TTC Route 144	Route travels on Don Mills Rd south of St. Dennis Dr	40	Bus	56

Table B-9: Rail Daily Travel Summary for Ontario Line North

Rail Route	Rail Corridor Description	Notch Level*	Fuel Type	No. of Trains per Day
GO Richmond Hill Line	Between Union Station and Oriole Station	4	Diesel	16

* Note: assumed maximum locomotive notch speed for both most conservative emission profile and also most efficient engine diesel fuel usage.

Table B-10: Traffic Daily Emissions for Ontario Line North

Traffic Segment ID	Traffic Segment Description	NO_X (g/day)	CO (g/day)	SO_2 (g/day)	PM_{10} (g/day)	$PM_{2.5}$ (g/day)
OLNS1	Don Mills Rd between Green Belt Drive/Barber Greene Rd and Eglington Ave East	3.91E+03	2.88E+04	2.98E+01	1.23E+03	3.07E+02
OLNS2	Don Mills Rd between Eglington Ave East and Gateway Blvd N	2.49E+04	3.15E+04	7.83E+01	3.50E+03	1.49E+03
OLNS3	Don Mills Rd between Gateway N Blvd and Gateway Blvd/Overlea Blvd.)	2.36E+03	1.75E+04	1.89E+01	8.73E+02	2.05E+02
OLNS4	Overlea Blvd. (Don Mills Rd to Thorncliffe Park E)	1.79E+03	1.54E+04	1.52E+01	6.20E+02	1.47E+02
OLNS5	Overlea Blvd (Thorncliffe Park E to Thorncliffe Park W)	8.97E+02	9.02E+03	8.58E+00	3.46E+02	7.69E+01
OLNS6	Overlea Blvd (Thorncliffe Park W to Millwood Rd)	5.72E+02	5.80E+03	5.51E+00	2.22E+02	4.91E+01
OLNS7	Millwood Rd (Overlea Blvd to Donlands Ave/Pape Ave)	1.50E+03	1.53E+04	1.45E+01	5.84E+02	1.29E+02
OLNS8	Pape Ave (Millwood Rd/ Donlands Ave to O'Connor Dr)	5.11E+02	5.06E+03	5.10E+00	2.31E+02	4.85E+01
OLNS9	Pape Ave (O'Connor Dr to Cosburn Ave)	5.14E+02	5.16E+03	5.18E+00	2.35E+02	4.90E+01
OLNS10	Pape Ave (Cosburn Ave to Floyd Ave)	2.99E+02	2.97E+03	2.99E+00	1.36E+02	2.84E+01
OLNS11	Pape Ave (Floyd Ave to Mortimer Ave)	2.56E+02	2.42E+03	2.46E+00	1.12E+02	2.39E+01
OLNS12	Pape Ave (Mortimer Ave to Pape Station)	9.13E+02	8.13E+03	8.38E+00	3.83E+02	8.37E+01

Table B-10: Traffic Daily Emissions for Ontario Line North

Traffic Segment ID	Traffic Segment Description	NO_X (g/day)	CO (g/day)	SO_2 (g/day)	PM_{10} (g/day)	$PM_{2.5}$ (g/day)
OLNS13	Pape Ave (Pape Station to Danforth Ave)	1.63E+02	1.46E+03	1.50E+00	6.85E+01	1.50E+01
OLNS14	Gateway N Blvd (Don Mills to edge of Study Area)	1.17E+01	7.73E+01	8.62E-02	4.01E+00	9.83E-01
OLNS15	Gateway S Blvd (Don Mills/Overlea to edge of Study Area)	4.88E+02	3.68E+03	3.95E+00	1.82E+02	4.26E+01
OLNS16	Don Mills Rd (Overlea/Gateway South to edge of Study Area)	5.38E+02	4.00E+03	4.11E+00	1.46E+02	3.81E+01
OLNS17	Beth Nealson Dr (Overlea North to Wicksteed Ave)	4.85E+02	4.32E+03	4.45E+00	2.03E+02	4.45E+01
OLNS18	Thorncliffe E Blvd. (Overlea South to edge of Study Area)	1.02E+02	1.12E+03	1.11E+00	4.99E+01	1.01E+01
OLNS19	Thorncliffe W Blvd. (Overlea South to edge of Study Area)	7.54E+01	6.97E+02	7.12E-01	3.24E+01	7.00E+00
OLNS20	Thorncliffe W Blvd. (Overlea North to Banigan Dr)	7.95E+01	8.15E+02	8.14E-01	3.68E+01	7.64E+00
OLNS21	Millwood (Overlea to edge of Study Area)	4.19E+02	4.12E+03	3.94E+00	1.59E+02	3.57E+01
OLNS22	O'Connor Dr (Pape East to edge of Study Area)	5.96E+01	6.46E+02	6.04E-01	2.43E+01	5.23E+00
OLNS23	O'Connor Dr (Pape West to edge of Study Area)	1.17E+02	1.25E+03	1.24E+00	5.58E+01	1.14E+01
OLNS24	Cosburn Ave (Pape East to edge of Study Area)	7.62E+01	7.93E+02	7.90E-01	3.57E+01	7.36E+00
OLNS25	Cosburn Ave (Pape West to edge of Study Area)	8.06E+01	8.25E+02	8.24E-01	3.73E+01	7.74E+00
OLNS26	Floyd Ave (Pape East to edge of Study Area)	1.21E+01	1.28E+02	1.27E-01	5.75E+00	1.18E+00
OLNS27	Floyd Ave (Pape West to edge of Study Area)	1.79E+01	1.79E+02	1.73E-01	8.13E+00	1.83E+00
OLN28	Mortimer Ave (Pape East to edge of Study Area)	7.12E+01	7.49E+02	7.44E-01	3.36E+01	6.90E+00
OLN29	Mortimer Ave (Pape West to edge of Study Area)	1.09E+02	1.12E+03	1.12E+00	5.07E+01	1.05E+01

Table B-11: Bus Daily Emissions for Ontario Line North `

Bus Route ID	Bus Route Description	NO_X (g/day)	CO (g/day)	SO_2 (g/day)	PM_{10} (g/day)	$PM_{2.5}$ (g/day)
OLNT1	Route 8 – O'Connor Drive across Pape Ave	6.61E+00	2.80E+00	1.04E-02	6.85E-01	2.98E-01
OLNT2	Route 25 – Don Mills Rd South from Barber Green to Danforth Ave via Overlea Blvd, Millwood Rd and Pape Ave.	4.60E+03	1.99E+03	7.56E+00	4.50E+02	2.02E+02
OLNT3	Route 34 – Don Mills Rd north of Eglington to Wynford Dr	7.92E+02	3.42E+02	1.30E+00	7.75E+01	3.47E+01
OLNT4	Route 56 – Millwood Rd	1.72E+02	7.41E+01	2.82E-01	1.68E+01	7.52E+00
OLNT5	Route 62 - Mortimer Ave across Pape Ave	1.97E+01	8.32E+00	3.10E-02	2.04E+00	8.88E-01
OLNT6	Route 72 – Pape Ave between Pape Station and Danforth Ave	3.57E+01	1.51E+01	5.63E-02	3.70E+00	1.61E+00
OLNT7	Route 87 – Cosburn Ave across Pape Ave	1.01E+02	4.26E+01	1.59E-01	1.04E+01	4.54E+00
OLNT8	Route 88 – Millwood Rd south from edge of Study Area to Overlea Blvd, to Throncliffe Park Dr. W to Beth Nealson Dr.	4.02E+02	1.70E+02	6.34E-01	4.17E+01	1.81E+01
OLNT9	Route 100 – Gateway Blvd S, Overlea Blvd, Millwood Road, Pape Ave, and O'Connor Dr (west of Pape Ave)	1.71E+03	7.25E+02	2.70E+00	1.78E+02	7.74E+01
OLNT10	Route 144 – Don Mills Rd south of St. Dennis Dr.	3.19E+02	1.35E+02	5.04E-01	3.31E+01	1.44E+01

Table B-12: Rail Daily Emissions for Ontario Line North

Rail Route	Rail Route Description	NO_X (g/day)	CO (g/day)	HC [1] (g/day)	PM (g/day)	SO2 (g/day)
GO Richmond Hill Line	Between Union Station and Oriole Station	1323	104	37	25	0.002

Notes: (1) HC represents hydrocarbons emitted from rail activities. These emissions may encompass any volatile organics or other carbon-based emissions from diesel locomotive combustion.

Table B-13: Road Traffic AADT Summary for Ontario Line West

Traffic Segment ID	Traffic Segment Description	Speed Limit [km/hr]	Vehicle Type	AADT
OLW1	Queen St, University-St Patrick	40	Car	7875
			Truck	298
OLW2	Queen St, St Patrick-John St	40	Car	8066
			Truck	137
OLW3	Queen St, John St-Peter	40	Car	7796
			Truck	175
OLW4	Queen St, Peter-Spadina Ave	40	Car	8345
			Truck	162
OLW5	Queen St, Spadina Ave-Augusta	40	Car	8345
			Truck	162
OLW6	Queen St, Augusta-Portland	40	Car	7373
			Truck	164
OLW7	Queen St, Portland-Bathurst	40	Car	7564
			Truck	197
OLW8	Queen St, Bathurst-Tecumseth	40	Car	7564
			Truck	197
OLW9	Queen St, Tecumseth-Niagara	40	Car	7564
			Truck	197
OLW10	Spadina Ave, Phoebe-Queen W	40	Car	9512
			Truck	480
OLW11	Spadina Ave, Queen W-Richmond	40	Car	9512

Traffic Segment ID	Traffic Segment Description	Speed Limit [km/hr]	Vehicle Type	AADT
			Truck	480
OLW12	Spadina Ave, Richmond-Adelaide	40	Car	9512
			Truck	480
OLW13	Spadina Ave, Adelaide-King	40	Car	9596
			Truck	502
OLW14	University Ave, Bulwer-Queen	40	Car	17536
			Truck	920
OLW15	University Ave, Queen-Richmond	40	Car	16782
			Truck	828
OLW16	Richmond St, University-Duncan-John	40	Car	6370
			Truck	350
OLW17	Richmond St, John-Peter-Spadina-Brant-Portland-Bathurst	30	Car	6210
			Truck	224
OLW18	Adelaide St W, Peter-Spadina	40	Car	9496
			Truck	274
OLW19	Adelaide St W, Spadina-Brant	40	Car	6664
			Truck	220
OLW20	Adelaide St W, Brant-Portland	40	Car	6716
			Truck	242
OLW21	Adelaide St W, Portland-Bathurst	40	Car	5412
			Truck	204
OLW22	King St W, Spadina-Portland	40	Car	3626
			Truck	99
OLW23	King St W, Portland-Bathurst-Niagara	40	Car	6312
			Truck	139
OLW24	Bathurst St, Wolseley-Queen W-Richmond-Adelaide	40	Car	8580
			Truck	508
OLW25	Bathurst St, Adelaide-King W-Niagara-Front W-Fort York	40	Car	9926
			Truck	430

Traffic Segment ID	Traffic Segment Description	Speed Limit [km/hr]	Vehicle Type	AADT
OLW26	Bathurst St, Front W-Fort York-Lakeshore (Fleet)	40	Car	8668
			Truck	423
OLW27	Tecumseth St, Whitaker Ave-Niagara St	30	Car	#N/A
			Truck	#N/A
OLW28	Wellington, Portland St-Niagara St	30	Car	#N/A
			Truck	#N/A
OLW29	Strachan Ave, Fleet St-E Liberty St	40	Car	10438
			Truck	180
OLW30	E Liberty St, Strachan Ave. – Hannah Ave	40	Car	3508
			Truck	53
OLW31	Dufferin St., Melbourne-King-Liberty	40	Car	6322
			Truck	166
OLW32	Dufferin St., Liberty-Saskatchewan	40	Car	7244
			Truck	166
OLW33	King St W, Mowat-Dufferin-Tyndall	40	Car	#N/A
			Truck	#N/A
OLW34	E-Liberty St, Mowat Ave and Dufferin St.	40	Car	2775
			Truck	24
OLW35	King St W., Roncesvalles Ave. – Sorauren - Dowling Ave.	40	Car	5952
			Truck	60
OLW36	Queensway, Glendale Ave – Roncesvalles Ave.	60	Car	9568
			Truck	208
OLW37	Gardiner Expressway, Spadina Interchange-Kingsway Interchange	90	Car	78457
			Truck	5008

Table B-14: Transit Bus AADT Summary for Ontario Line West

Bus Route	Bus Route Description	Speed Limit [km/hr]	Vehicle Type	AADT
TTC Route 142 Express	University Ave and Queen St intersection towards South in the study area	40	Bus	24
TTC Route 145 Express	At King St between Spadina Ave and Bathurst, At Bathurst between King St and Lake Shore Blvd, At Lake Shore Blvd between Bathurst St and west end of the study area	40	Bus	24
TTC Route 63	At Stratchan Ave between King St and Liberty St on the study area border	40	Bus	168
TTC Route 929	At Dufferin St between Dufferin Gate loop (north of Gardiner) and Queen St in the study area	40	Bus	92
TTC Route 29	At Dufferin St between Dufferin Gate loop (north of Gardiner) and Queen St in the study area	40	Bus	144
TTC Route 143 Express	At King St between Spadina Ave and Bathurst, At Spadina between King and Adelaide St, At Adelaide between Spadina and Bathurst	40	Bus	28
TTC Route 121	At Fort York Blvd between Bathurst and Lake Shore Blvd on the study area border	40	Bus	56
TTC Route 141	At King St between Spadina Ave and Bathurst, At Spadina between King and Adelaide St, At Adelaide between Spadina and Bathurst	40	Bus	24
TTC Route 144	At King St between Spadina Ave and Bathurst, At Spadina between King and Adelaide St, At Adelaide between Spadina and Bathurst	40	Bus	56
GO Lakeshore West Line	Between Union and Exhibition Stations	90	Bus	5
GO Kitchener Line	Between Union and Exhibition Stations	90	Bus	29
GO Milton Line	Between Union and Exhibition Stations	90	Bus	107
GO Barrie Line	Between Union and Exhibition Stations	90	Bus	41

Table B-15: Rail Daily Travel Summary for Ontario Line West

Rail Route	Rail Corridor Description	Notch Level*	Fuel Type	No. of Trains per Day
GO Lakeshore West Line	Between Union Station and Exhibition Station	4	Diesel	42
GO Kitchener Line	Between Union Station and Bloor Station	4	Diesel	30
GO Milton Line	Between Union Station and Kipling Station	4	Diesel	8
GO Barrie Line	Between Union Station and Downsview Park Station	4	Diesel	12
UP Express	Between Union Station and Bloor Station	4	Diesel	82

* Note: assumed maximum locomotive notch speed for both most conservative emission profile and also most efficient engine diesel fuel usage.

Table B-16: Traffic Daily Emissions for Ontario Line West

Traffic Segment ID	Traffic Segment Description	NO_X (g/day)	CO (g/day)	SO_2 (g/day)	PM_{10} (g/day)	$PM_{2.5}$ (g/day)
OLW1	Queen St, University-St Patrick	321.5	2504.1	2.7	122.9	28.3
OLW2	Queen St, St Patrick-John St	307.4	2895.2	2.9	134.0	28.7
OLW3	Queen St, John St-Peter	316.2	2822.5	2.9	132.7	29.0
OLW4	Queen St, Peter-Spadina Ave	358.4	3293.4	3.4	153.5	33.2
OLW5	Queen St, Spadina Ave-Augusta	436.4	4009.3	4.1	186.9	40.4
OLW6	Queen St, Augusta-Portland	213.4	1906.4	2.0	89.6	19.6
OLW7	Queen St, Portland-Bathurst	319.3	2754.4	2.9	130.9	29.0
OLW8	Queen St, Bathurst-Tecumseth	319.3	2754.4	2.9	130.9	29.0
OLW9	Queen St, Tecumseth-Niagara	425.7	3672.5	3.8	174.5	38.6
OLW10	Spadina Ave, Phoebe-Queen W	362.6	2569.7	2.8	130.3	31.1
OLW11	Spadina Ave, Queen W-Richmond	241.7	1713.2	1.9	86.8	20.7
OLW12	Spadina Ave, Richmond-Adelaide	314.3	2227.1	2.4	112.9	26.9
OLW13	Spadina Ave, Adelaide-King	371.6	2599.7	2.9	132.4	31.8

Table B-16: Traffic Daily Emissions for Ontario Line West

Traffic Segment ID	Traffic Segment Description	NO_X (g/day)	CO (g/day)	SO_2 (g/day)	PM_{10} (g/day)	$PM_{2.5}$ (g/day)
OLW14	University Ave, Bulwer-Queen	362.6	2534.4	2.8	129.1	31.0
OLW15	University Ave, Queen-Richmond	464.6	3319.1	3.6	167.8	39.9
OLW16	Richmond St, University-Duncan-John	638.6	4389.1	4.8	224.9	54.3
OLW17	Richmond St, John-Peter-Spadina-Brant-Portland-Bathurst	1600.6	14037.4	14.0	666.1	156.3
OLW18	Adelaide St W, Peter-Spadina	452.5	3804.1	4.0	182.2	40.7
OLW19	Adelaide St W, Spadina-Brant	317.0	2570.3	2.7	124.5	28.2
OLW20	Adelaide St W, Brant-Portland	314.2	2484.3	2.6	121.3	27.8
OLW21	Adelaide St W, Portland-Bathurst	257.3	2007.1	2.1	98.5	22.7
OLW22	King St W, Spadina-Portland	318.0	2709.6	2.8	129.2	28.8
OLW23	King St W, Portland-Bathurst-Niagara	776.6	6960.2	7.2	326.9	71.3
OLW24	Bathurst St, Wolseley-Queen W-Richmond-Adelaide	796.8	5324.0	5.9	275.6	67.3
OLW25	Bathurst St, Adelaide-King W-Niagara-Front W-Fort York	1752.2	13084.4	14.1	651.4	152.4
OLW26	Bathurst St, Front W-Fort York-Lakeshore (Fleet)	1151.4	8253.6	9.0	416.7	99.0
OLW27	Tecumseth St, Whitaker Ave-Niagara St	#N/A	#N/A	#N/A	#N/A	#N/A
OLW28	Wellington, Portland St-Niagara St	#N/A	#N/A	#N/A	#N/A	#N/A
OLW29	Strachan Ave, Fleet St-E Liberty St	645.9	6068.5	6.2	281.1	60.2
OLW30	E Liberty St, Strachan Ave. – Hannah Ave	453.5	4363.4	4.4	200.7	42.6
OLW31	Dufferin St., Melbourne-King-Liberty	510.0	4386.8	4.6	208.6	46.2
OLW32	Dufferin St., Liberty-Saskatchewan	731.3	6498.8	6.7	306.0	67.0
OLW33	King St W, Mowat-Dufferin-Tyndall	#N/A	#N/A	#N/A	#N/A	#N/A
OLW34	E-Liberty St, Mowat Ave and Dufferin St.	49.9	514.9	0.5	23.2	4.8

Table B-16: Traffic Daily Emissions for Ontario Line West

Traffic Segment ID	Traffic Segment Description	NO_X (g/day)	CO (g/day)	SO_2 (g/day)	PM_{10} (g/day)	$PM_{2.5}$ (g/day)
OLW35	King St W, Roncesvalles Ave. – Sorauren - Dowling Ave.	524.8	5331.9	5.3	241.6	50.2
OLW36	Queensway, Glendale Ave – Roncesvalles Ave.	713.2	6293.0	6.2	213.8	52.2
OLW37	Gardiner Expressway, Spadina Interchange-Kingsway Interchange	86576.7	517173.7	556.6	9715.7	3967.4

Table B-17: Bus Daily Emissions for Ontario Line West

Bus Route ID	Bus Route Description	NO_X (g/day)	CO (g/day)	SO_2 (g/day)	PM_{10} (g/day)	$PM_{2.5}$ (g/day)
TTC Route 142 Express	University Ave and Queen St intersection towards South in the study area	10.9	4.6	0.0	1.1	0.5
TTC Route 145 Express	At King St between Spadina Ave and Bathurst, At Bathurst between King St and Lake Shore Blvd, At Lake Shore Blvd between Bathurst St and west end of the study area	232.0	98.1	0.4	24.0	10.5
TTC Route 63	At Stratchan Ave between King St and Liberty St on the study area border	361.0	152.6	0.6	37.4	16.3
TTC Route 929	At Dufferin St between Dufferin Gate loop (north of Gardiner) and Queen St in the study area	349.7	147.9	0.6	36.2	15.8
TTC Route 29	At Dufferin St between Dufferin Gate loop (north of Gardiner) and Queen St in the study area	547.4	231.4	0.9	56.7	24.7
TTC Route	At King St between Spadina Ave and	215.2	91.0	0.3	22.3	9.7

Table B-17: Bus Daily Emissions for Ontario Line West

Bus Route ID	Bus Route Description	NO_X (g/day)	CO (g/day)	SO_2 (g/day)	PM_{10} (g/day)	$PM_{2.5}$ (g/day)
143 Express	Bathurst, At Spadina between King and Adelaide St, At Adelaide between Spadina and Bathurst					
TTC Route 121	At Fort York Blvd between Bathurst and Lake Shore Blvd on the study area border	215.2	91.0	0.3	22.3	9.7
TTC Route 141	At King St between Spadina Ave and Bathurst, At Spadina between King and Adelaide St, At Adelaide between Spadina and Bathurst	184.4	78.0	0.3	19.1	8.3
TTC Route 144	At King St between Spadina Ave and Bathurst, At Spadina between King and Adelaide St, At Adelaide between Spadina and Bathurst	430.4	182.0	0.7	44.6	19.4
GO Lakeshore West Line	Between Union and Exhibition Stations	44.7	18.8	0.1	1.7	1.1
GO Kitchener Line	Between Union and Exhibition Stations	259.4	109.2	0.4	9.9	6.7
GO Milton Line	Between Union and Exhibition Stations	957.1	402.8	1.6	36.7	24.6
GO Barrie Line	Between Union and Exhibition Stations	366.7	154.3	0.6	14.1	9.4

Table B-18: Rail Daily Emissions for Ontario Line West

Rail Route	Rail Route Description	NO_X (g/day)	CO (g/day)	HC [1] (g/day)	PM (g/day)	SO2 (g/day)
GO Lakeshore West Line	Between Union Station and Exhibition Station	47,538	3,740	5,761,890	1,905	0.080
GO Kitchener Line	Between Union Station and Bloor Station	5,803	456	703,396	232	0.010
GO Milton Line	Between Union Station and Kipling Station	1,126	88	136,490	45	0.002
GO Barrie Line	Between Union Station and Downsview Park Station	1,633	128	198,029	65	0.003
UP Express	Between Union Station and Bloor Station	10,575	832	1,281,745	423	0.018

Notes: (1) HC represents hydrocarbons emitted from rail activities. These emissions may encompass any volatile organics or other carbon-based emissions from diesel locomotive combustion.

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Appendix C

Ambient Air Data

Metrolinx – Ontario Line Existing Conditions

Air Quality Existing Conditions Qualitative Report - Appendix C

Contaminant	NAPS Station ID	Units	1-hour 90th percentile							8-hour 90th percentile						
			2011	2012	2013	2014	2015	2016	2017	2011	2012	2013	2014	2015	2016	2017
Acrolein	60439	µg/m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acetaldehyde	60439	µg/m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Formaldehyde	60439	µg/m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	60427	µg/m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	60435		-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Butadiene	60427	µg/m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	60435		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	60427	ng/m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	60435		-	-	-	-	-	-	-	-	-	-	-	-	-	-
	60439		-	-	-	-	-	-	-	-	-	-	-	-	-	-
	60430		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen Dioxide	60410	ppb	30.00	27.00	26.00	27.00	28.00	25.00	23.00	26.95	24.75	23.45	24.63	25.71	23.04	21.00
	60421		30.00	27.40	25.00	26.00	26.00	25.00	ND	27.75	25.08	22.88	24.10	24.20	23.75	ND
	60428		25.00	25.00	20.00	24.00	23.00	23.00	ND	23.21	22.93	18.78	22.55	20.45	21.08	ND
	60430		34.00	31.00	30.00	31.00	31.00	31.00	28.00	31.01	27.88	27.25	28.88	28.56	27.50	25.74
	60433		27.00	25.00	24.00	25.00	25.00	25.00	24.00	25.26	22.88	22.58	23.25	22.63	22.25	22.45
	60434		21.00	20.00	19.00	19.00	19.00	19.00	17.00	19.25	18.25	17.50	17.25	17.51	16.95	15.50
	60435		33.00	32.00	32.00	32.00	33.00	30.00	30.00	30.75	29.81	29.39	28.92	29.63	27.00	27.38
	60450		ND	ND	ND	ND	ND	6.00	20.00	ND	ND	ND	ND	ND	4.45	17.94
	60438		ND	ND	ND	ND	ND	ND	31.00	ND	ND	ND	ND	ND	ND	28.75
	60440		ND	ND	ND	ND	ND	ND	22.00	ND	ND	ND	ND	ND	ND	20.35
	60429		ND	20.10	ND	ND	ND	ND	ND	ND	17.30	ND	ND	ND	ND	ND
Carbon monoxide	60430	ppm	0.30	0.40	0.36	0.37	0.36	0.36	0.35	0.31	0.36	0.35	0.36	0.35	0.34	0.34
	60438		ND	ND	ND	ND	ND	ND	0.54	ND	ND	ND	ND	ND	ND	0.49
	60440		ND	ND	ND	ND	ND	ND	0.33	ND	ND	ND	ND	ND	ND	0.31
Sulphur dioxide	60430	ppb	3.00	2.00	1.00	1.00	2.00	1.00	1.00	2.75	1.75	1.38	1.50	1.87	1.25	1.00
	60434		2.00	2.00	2.00	3.00	3.00	2.00	ND	2.50	1.63	1.63	2.50	2.50	1.79	ND
	60450		ND	ND	ND	ND	ND	32.00	ND	ND	ND	ND	ND	ND	31.41	ND
	60438		ND	ND	ND	ND	ND	ND	1.00	ND	ND	ND	ND	ND	ND	0.75
	60440		ND	ND	ND	ND	ND	ND	0.00	ND	ND	ND	ND	ND	ND	0.38
Fine partiulate ($PM_{2.5}$)	60410	µg/m3	14.00	14.00	16.00	17.00	17.00	13.00	14.00	13.20	13.19	15.50	16.64	17.00	12.88	13.25
	60421		17.00	16.00	16.00	17.00	18.00	14.00	ND	16.60	14.88	15.50	16.63	18.00	14.25	ND
	60428		13.00	13.00	17.00	18.00	18.00	14.00	ND	12.25	12.14	16.09	16.88	17.24	13.13	ND
	60430		15.00	15.00	18.00	17.00	17.00	13.00	14.00	13.75	13.63	16.63	16.25	17.00	12.84	13.59
	60433		14.00	14.00	16.00	17.00	17.00	13.00	14.00	12.75	13.38	15.66	16.00	16.08	12.99	13.88
	60434		13.00	13.00	16.00	16.00	17.00	14.00	14.00	12.63	12.38	15.00	15.63	16.63	13.75	13.24
	60435		15.00	15.00	18.00	19.00	19.00	15.00	16.00	13.75	13.86	17.38	17.95	18.36	14.25	15.00
	60438		ND	ND	ND	ND	ND	ND	17.00	ND	ND	ND	ND	ND	ND	15.80
	60440		ND	ND	ND	ND	ND	ND	15.00	ND	ND	ND	ND	ND	ND	13.63
	60450		ND	ND	ND	ND	ND	ND	13.00	ND	ND	ND	ND	ND	ND	12.94
	60429		ND	12.70	ND	ND	ND	ND	ND	ND	9.20	ND	ND	ND	ND	ND

Note: "ND" represents stations and years where there was not enough data to calculate a completed data set

Metrolinx – Ontario Line Existing Conditions

Air Quality Existing Conditions Qualitative Report - Appendix C

Contaminant	NAPS Station ID	Units	24-hour 90th percentile							Annual Average						
			2011	2012	2013	2014	2015	2016	2017	2011	2012	2013	2014	2015	2016	2017
Acrolein	60439	µg/m3	ND	ND	ND	0.07	0.07	0.07	0.04	ND	ND	ND	0.04	0.05	0.03	0.02
Acetaldehyde	60439	µg/m3	ND	ND	ND	1.53	1.99	1.65	0.84	ND	ND	ND	0.88	1.15	0.91	0.68
Formaldehyde	60439	µg/m3	ND	ND	ND	2.80	3.80	2.60	1.14	ND	ND	ND	1.68	2.25	1.42	0.91
Benzene	60427	µg/m3	0.90	0.98	0.92	0.80	ND	ND	ND	0.59	0.62	0.61	0.59	ND	ND	ND
	60435		0.71	0.87	0.86	0.77	0.66	0.76	0.72	0.57	0.51	0.51	0.48	0.52	0.45	0.47
1,3-Butadiene	60427	µg/m3	0.10	0.11	0.09	0.07	ND	ND	ND	0.06	0.06	0.05	0.04	ND	ND	ND
	60435		0.07	0.08	0.07	0.06	0.07	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03
Benzo(a)pyrene	60427	ng/m3	0.15	0.13	0.10	0.07	ND	ND	ND	0.09	0.08	0.06	0.04	ND	ND	ND
	60435		0.21	ND	ND	ND	ND	ND	ND	0.09	ND	ND	ND	ND	ND	ND
	60439		ND	ND	ND	ND	0.12	ND	ND	ND	ND	ND	ND	0.07	ND	ND
	60430		ND	ND	ND	ND	ND	0.09	ND	ND	ND	ND	ND	ND	0.05	ND
Nitrogen Dioxide	60410	ppb	23.36	21.90	21.09	22.98	22.86	20.09	18.85	15.21	14.04	13.61	14.24	13.89	12.12	11.46
	60421		25.81	23.75	21.41	21.33	22.39	21.98	ND	15.40	13.44	12.90	13.43	12.94	11.97	ND
	60428		20.53	20.37	17.21	20.28	20.53	20.04	ND	11.26	10.38	9.03	10.60	9.91	9.70	ND
	60430		27.97	25.13	23.43	25.94	25.69	23.88	23.14	19.10	16.29	16.13	17.07	16.57	15.74	14.96
	60433		23.31	20.63	20.00	20.83	21.13	20.75	20.19	14.92	13.36	13.45	14.00	13.35	13.35	12.99
	60434		17.14	15.95	15.87	15.44	16.17	14.65	13.88	10.56	9.63	9.49	9.22	9.15	8.62	7.98
	60435		26.83	25.54	25.42	25.06	26.44	24.56	23.43	18.40	16.52	16.96	16.81	16.72	14.69	15.47
	60450		ND	ND	ND	ND	ND	4.36	16.64	ND	ND	ND	ND	ND	4.36	8.19
	60438		ND	ND	ND	ND	ND	ND	26.86	ND	ND	ND	ND	ND	ND	17.91
	60440		ND	ND	ND	ND	ND	ND	18.28	ND	ND	ND	ND	ND	ND	10.49
	60429		ND	14.67	ND	ND	ND	ND	ND	ND	14.67	ND	ND	ND	ND	ND
Carbon monoxide	60430	ppm	0.30	0.34	0.33	0.33	0.33	0.32	0.34	0.20	0.26	0.25	0.26	0.25	0.25	0.25
	60438		ND	ND	ND	ND	ND	ND	0.45	ND	ND	ND	ND	ND	ND	0.33
	60440		ND	ND	ND	ND	ND	ND	0.30	ND	ND	ND	ND	ND	ND	0.22
Sulphur dioxide	60430	ppb	2.53	1.65	1.25	1.46	1.86	1.21	1.00	1.54	0.58	0.48	0.74	1.02	0.64	0.46
	60434		2.25	1.44	1.71	2.28	2.39	1.78	ND	1.29	0.58	0.70	1.28	1.06	1.04	ND
	60450		ND	ND	ND	ND	ND	29.82	ND	ND	ND	ND	ND	ND	29.82	ND
	60438		ND	ND	ND	ND	ND	ND	0.63	ND	ND	ND	ND	ND	ND	0.22
	60440		ND	ND	ND	ND	ND	ND	0.42	ND	ND	ND	ND	ND	ND	0.13
Fine partiulate ($PM_{2.5}$)	60410	µg/m3	12.01	12.23	15.75	15.56	15.43	12.25	12.38	6.16	6.25	8.16	8.92	8.45	7.03	7.41
	60421		15.54	14.46	14.90	15.40	16.95	12.92	ND	7.72	7.26	8.29	9.22	9.36	7.35	ND
	60428		12.11	11.83	15.08	15.76	16.17	11.86	ND	5.97	5.69	8.50	8.91	8.42	6.83	ND
	60430		12.60	13.13	15.71	14.57	16.18	12.02	12.03	6.92	7.05	8.76	9.06	8.52	6.99	7.41
	60433		11.99	13.02	15.56	14.83	15.20	11.67	12.88	6.24	6.41	8.25	8.67	8.38	6.98	7.38
	60434		11.64	11.86	15.00	14.58	16.02	12.79	12.58	6.03	5.98	7.87	8.65	8.51	7.22	6.85
	60435		12.65	13.23	16.99	16.07	17.56	13.27	13.97	6.73	6.65	9.36	9.81	9.44	8.06	8.17
	60438		ND	ND	ND	ND	ND	ND	14.53	ND	ND	ND	ND	ND	ND	9.22
	60440		ND	ND	ND	ND	ND	ND	12.54	ND	ND	ND	ND	ND	ND	7.36
	60450		ND	ND	ND	ND	ND	ND	11.62	ND	ND	ND	ND	ND	ND	6.98
	60429		ND	7.92	ND	ND	ND	ND	ND	ND	7.92	ND	ND	ND	ND	ND

Note: "ND" represents stations and years where there was not enough data to calculate a completed data set

Metrolinx – Ontario Line Existing Conditions

Air Quality Existing Conditions Qualitative Report - Appendix C

Contaminant	Units	NAPS Station ID	CCME 98th percentile of 1-hour Daily Max							CCME 1-hour (3-year average)
			2011	2012	2013	2014	2015	2016	2017	
Acrolein	µg/m3	60439	-	-	-	-	-	-	-	-
Acetaldehyde	µg/m3	60439	-	-	-	-	-	-	-	-
Formaldehyde	µg/m3	60439	-	-	-	-	-	-	-	-
Benzene	µg/m3	60427	-	-	-	-	-	-	-	-
		60435	-	-	-	-	-	-	-	-
1,3-Butadiene	µg/m3	60427	-	-	-	-	-	-	-	-
		60435	-	-	-	-	-	-	-	-
Benzo(a)pyrene	ng/m3	60427	-	-	-	-	-	-	-	-
		60435	-	-	-	-	-	-	-	-
		60439	-	-	-	-	-	-	-	-
		60430	-	-	-	-	-	-	-	-
Nitrogen Dioxide	ppb	60410	50.72	45.76	47.72	57.00	54.72	52.74	44.72	54.82
		60421	51.00	49.00	48.72	53.72	49.72	47.70	ND	51.48
		60428	51.72	47.76	44.48	53.00	49.72	47.00	ND	51.48
		60430	56.00	51.70	56.72	59.76	55.76	52.70	50.00	57.49
		60433	48.74	44.74	47.16	50.78	48.00	47.00	43.00	49.17
		60434	46.00	38.56	42.48	48.72	47.74	42.00	36.00	47.49
		60435	59.74	61.00	62.72	66.74	64.76	56.00	50.00	64.74
		60450	ND	ND	ND	ND	ND	6.00	41.78	Not Enough Data
		60438	ND	ND	ND	ND	ND	ND	50.56	Not Enough Data
		60440	ND	ND	ND	ND	ND	ND	44.44	Not Enough Data
		60429	ND	28.00	ND	ND	ND	ND	ND	Not Enough Data
Carbon monoxide	ppm	60430	0.90	1.07	0.91	1.01	0.92	0.99	0.93	1.02
		60438	ND	ND	ND	ND	ND	ND	1.13	Not Enough Data
		60440	ND	ND	ND	ND	ND	ND	0.68	Not Enough Data
Sulphur dioxide	ppb	60430	12.00	10.36	10.72	9.00	12.00	8.00	7.00	11.57
		60434	17.82	13.00	21.00	15.00	14.53	17.48	ND	18.77
		60450	ND	ND	ND	ND	ND	32.00	ND	Not Enough Data
		60438	ND	ND	ND	ND	ND	ND	7.00	Not Enough Data
		60440	ND	ND	ND	ND	ND	ND	6.00	Not Enough Data
Fine partiulate ($PM_{2.5}$)	µg/m3	60410	30.72	31.70	42.48	42.00	42.44	29.74	29.72	42.31
		60421	37.00	32.00	40.00	42.96	39.72	31.00	ND	40.89
		60428	30.00	31.20	46.00	48.72	47.00	33.72	ND	47.24
		60430	35.74	35.00	44.86	43.72	39.76	29.70	36.72	42.78
		60433	32.72	31.70	42.76	37.72	38.72	28.70	32.00	39.73
		60434	30.00	28.78	40.60	41.44	38.74	32.00	32.72	40.26
		60435	38.00	34.76	46.34	49.48	47.60	35.00	35.84	47.81
		60438	ND	ND	ND	ND	ND	ND	44.56	Not Enough Data
		60440	ND	ND	ND	ND	ND	ND	35.72	Not Enough Data
		60450	ND	ND	ND	ND	ND	ND	33.34	Not Enough Data
		60429	ND	13.00	ND	ND	ND	ND	ND	Not Enough Data

Note: "ND" represents stations and years where there was not enough data to calculate a completed data set

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Appendix D

Traffic Data and Bus Service Inputs

- Appendix D1. TTC Service Map & Schedules
- Appendix D2. GO Bus/Rail Map & Schedules
- Appendix D3. Turning Movement Counts (City of Toronto)

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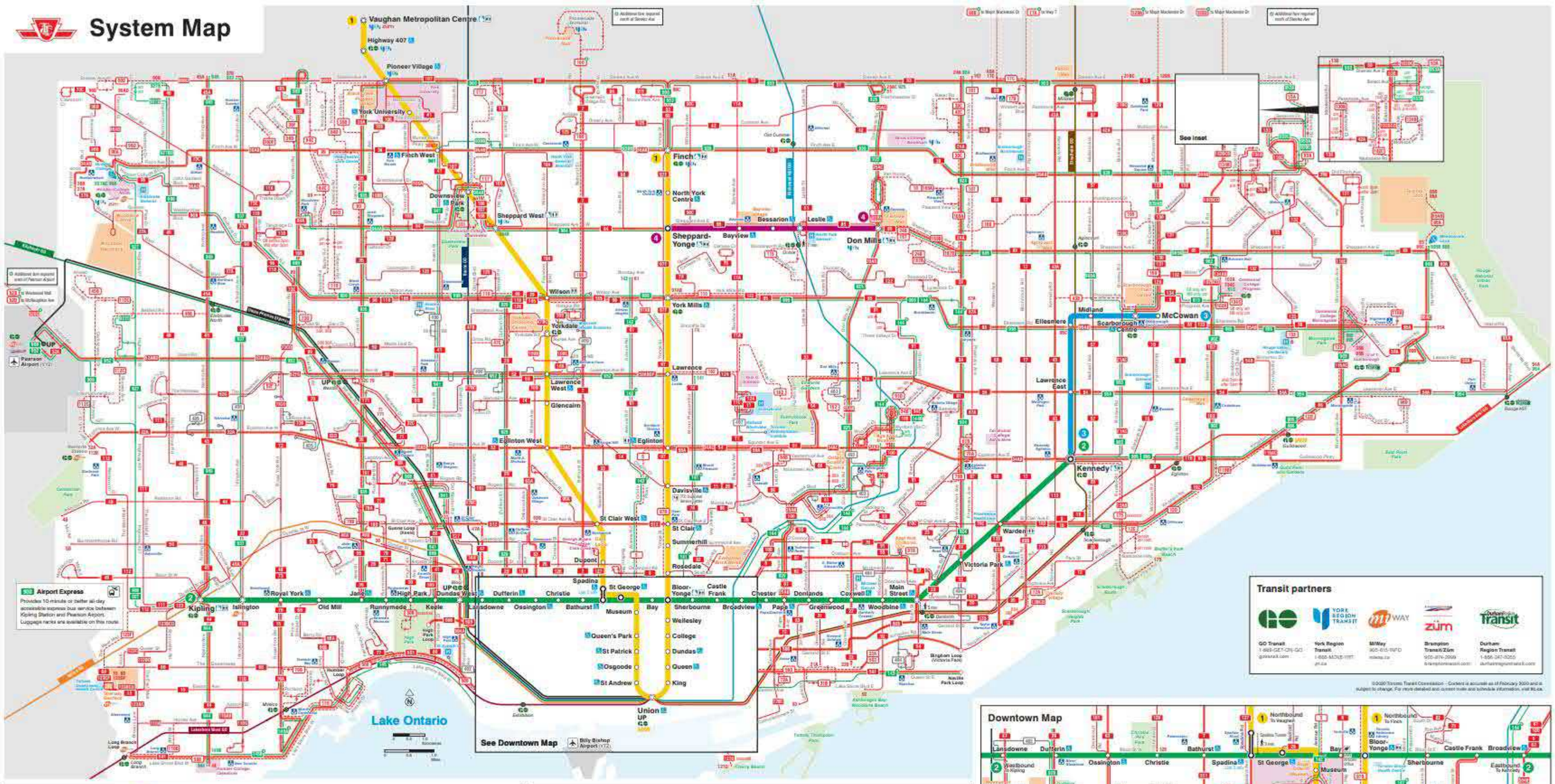
Appendix D1.
TTC Service Map & Schedules

System Map



Transit partners

GO Transit
York Region Transit
MiWay
Brampton Transit/Züm
Durham Region Transit

Subway

Subway lines

Regular station

Interchange station

Intermodal station

Accessible station

Washroom

Streetcars and buses

Direction of travel
Routing details
Route number
Branches
Additional fare required
Terminus point
Seasonal service

Local service

Ten-Minute Network

Regular service

Limited service

Network service

Express Network

Community Bus

Blue Night Network

Map symbols

Streetcar loop

Commuter rail station

Airport

Hospital

Toronto Public Library

Health care

Point of interest

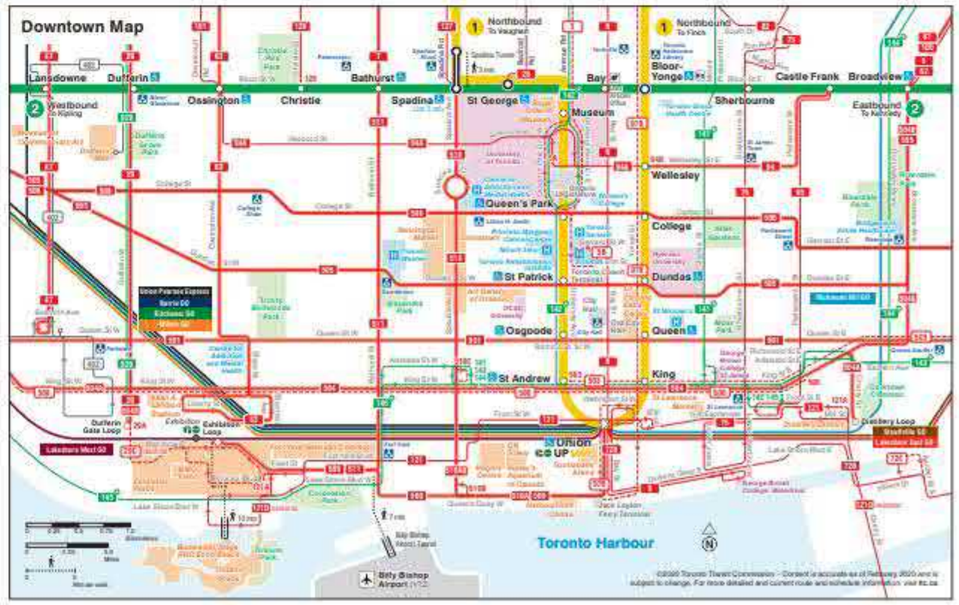
Transportation/government

Post-secondary school

Park

Access Hub

Additional fare required



Ontario Line South (OLS)
Air Quality Assessment - Existing Conditions
Metrolinx, May 2020

Table D3-1: TTC Service Summary - Route 72 Pape

Time Period	Vehicle Type	2019 No. of Vehicles	2019 Service Interval (min'sec")
AM Peak	BUS	9	5'59"
PM Peak		9	6'41"
AHV		4.5	-
AADT		72	-

Table D3-2: TTC Service Summary - Route 83 Jones

Time Period	Vehicle Typ	2019 No. of Vehicles	2019 Service Interval (min'sec")
AM Peak	BUS	3	12'40"
PM Peak		3	12'40"
AHV		1.5	-
AADT		24	-

Table D3-3: TTC Service Summary - Route 506 Carlton

Time Period	Vehicle Type	2019 No. of Vehicles	2019 Service Interval (min'sec")
AM Peak	BUS	8	5'10"
PM Peak		0	5'40"
AHV		2	-
AADT		32	-

Table D3-4: TTC Service Summary - Route 501 Queen

Time Period	Vehicle Typ	2019 No. of Vehicles	2019 Service Interval (min'sec")
AM Peak	BUS	--	--
PM Peak		--	--
AHV		-	-
AADT		-	-

Table D3-5: TTC Service Summary - Route 142 Downtown/Avenue Rd Express

Time Period	Vehicle Type	2019 No. of Vehicles	2019 Service Interval (min'sec")
AM Peak	BUS	3	30'00"
PM Peak		3	30'00"
AHV		1.5	-
AADT		24	-

Table D3-6: TTC Service Summary - Route 65 Parliament

Time Period	Vehicle Typ	2019 No. of Vehicles	2019 Service Interval (min'sec")
AM Peak	BUS	3	13'00"
PM Peak		4	11'00"
AHV		1.75	-
AADT		28	-

Table D3-7: TTC Service Summary - Route 121AD Fort-York Esplanade

Time Period	Vehicle Type	2019 No. of Vehicles	2019 Service Interval (min'sec")
AM Peak	BUS	7	13'00"
PM Peak		7	18'00"
AHV		3.5	-
AADT		56	-

Table D3-8: TTC Service Summary - Route 75 Sherbourne

Time Period	Vehicle Typ	2019 No. of Vehicles	2019 Service Interval (min'sec")
AM Peak	BUS	8	5'15"
PM Peak		6	8'00"
AHV		3.5	-
AADT		56	-

Table D3-9: TTC Service Summary - Route 97B Yonge

Time Period	Vehicle Type	2019 No. of Vehicles	2019 Service Interval (min'sec")
AM Peak	BUS	4	30'00
PM Peak		4	30'00
AHV		2	-
AADT		32	-

Table D3-10: TTC Service Summary - Route 141 Downtown

Time Period	Vehicle Typ	2019 No. of Vehicles	2019 Service Interval (min'sec")
AM Peak	BUS	4	
PM Peak		2	
AHV		1.5	-
AADT		24	-

Ontario Line South (OLS)
Air Quality Assessment - Existing Conditions
Metrolinx, May 2020

Table D3-11: TTC Service Summary - Route 504A Dundas West Stn - Disteillery Loop

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
AM Peak	BUS	--	5'15
PM Peak		--	6'00
AHV		-	-
AADT		-	-

Table D3-12: TTC Service Summary - Route 504B Broadvie

Time Period	Vehicle Typ	2019	
		No. of Vehicles	Service Interval (min'sec")
AM Peak	BUS	--	5'15"
PM Peak		--	6'00"
AHV		-	-
AADT		-	-

Table D3-13: TTC Service Summary - Route 508

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
AM Peak	BUS	--	--
PM Peak		--	--
AHV		-	-
AADT		-	-

Table D3-14: TTC Service Summary - Route 72B Pape Stn -

Time Period	Vehicle Typ	2019	
		No. of Vehicles	Service Interval (min'sec")
AM Peak	BUS	9	5'59"
PM Peak		9	6'41"
AHV		4.5	-
AADT		72	-

Table D3-15: TTC Service Summary - Express Route 143 Downtown/Beach Express

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
AM Peak	BUS	4	15'00"
PM Peak		3	25'00"
AHV		1.75	-
AADT		28	-

Table D3-16: TTC Service Summary - Route 8 Broadview

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
AM Peak	BUS	1	30'00"
PM Peak		1	30'00"
AHV		0.5	-
AADT		8	-

Table D3-17: TTC Service Summary - Route 25 Don

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
AM Peak	BUS	20	
PM Peak		24	
AHV		11	-
AADT		176	-

Table D3-18: TTC Service Summary - Route 34 Eglington East

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
AM Peak	BUS	31	3'08"
PM Peak		32	3'12"
AHV		15.75	-
AADT		252	-

Table D3-19: TTC Service Summary - Route 56 Leas

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
AM Peak	BUS	7	9'30"
PM Peak		7	9'00"
AHV		3.5	-
AADT		56	-

Table D3-20: TTC Service Summary - Route 62 Mortimer

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
AM Peak	BUS	3	15'00"
PM Peak		4	13'30"
AHV		1.75	-
AADT		28	-

Table D3-21: TTC Service Summary - Route 72 Pape

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
AM Peak	BUS	9	5'59"
PM Peak		9	6'41"
AHV		4.5	-
AADT		72	-

Table D3-22: TTC Service Summary - Route 87 Cosburn

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
AM Peak	BUS	11	5'00"
PM Peak		10	5'30"
AHV		5.25	-
AADT		84	-

Table D3-23: TTC Service Summary - Route 88 Sout

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
AM Peak	BUS	10	5'30"
PM Peak		9	6'00"
AHV		4.75	-
AADT		76	-

Table D3-24: TTC Service Summary - Route 100 Flemington Park

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
AM Peak	BUS	20	3'30"
PM Peak		12	6'00"
AHV		8	-
AADT		128	-

Table D3-25: TTC Service Summary - Route 144 Dov

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
AM Peak	BUS	9	9 trips total
PM Peak		5	20'00"
AHV		3.5	-
AADT		56	-

Table D3-26: TTC Service Summary - Route 300 Bloor-Danforth

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
Overnight	BUS	16	10'00"
PM Peak			
AHV		4	-
AADT		64	-

Table D3-27: TTC Service Summary - Route 303

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
AM Peak	BUS		
PM Peak			
AHV		0	-
AADT		0	-

Table D3-28: TTC Service Summary - Route 322 Eglington West

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
Overnight	BUS	2	30'00"
PM Peak			
AHV		0.5	-
AADT		8	-

Table D3-29: TTC Service Summary - Route 354 Law

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
Overnight	BUS	8	9'00"
PM Peak			
AHV		2	-
AADT		32	-

Table D3-30: TTC Service Summary - Route 142 Downtown / Avenue Rd Express

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
AM Peak	BUS	3	30' 00"
PM Peak		3	30' 00"
AHV		1.5	-
AADT		24	-

Table D3-31: TTC Service Summary - Route 145 Downt

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
AM Peak	BUS	3	
PM Peak		3	
AHV		1.5	-
AADT		24	-

Table D3-32: TTC Service Summary - Route 63 Ossington

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
AM Peak	BUS	22	3' 15"
PM Peak		20	4' 00"
AHV		10.5	-
AADT		168	-

Table D3-33: TTC Service Summary - Route 929 Duffer

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
AM Peak	BUS	11	8' 45"
PM Peak		12	10' 00"
AHV		5.75	-
AADT		92	-

Table D3-34: TTC Service Summary - Route 29 Dufferin

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
AM Peak	BUS	16	7' 45"
PM Peak		20	7' 30"
AHV		9	-
AADT		144	-

Table D3-35: TTC Service Summary - Route 143 Downt

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
AM Peak	BUS	4	15' 00"
PM Peak		3	25' 00"
AHV		1.75	-
AADT		28	-

Table D3-36: TTC Service Summary - Route 121 Fort York-Esplanade

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
AM Peak	BUS	7	13' 00"
PM Peak		7	18' 00"
AHV		3.5	-
AADT		56	-

Table D3-37: TTC Service Summary - Route 141 Downt

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
AM Peak	BUS	3	30' 00"
PM Peak		3	30' 00"
AHV		1.5	-
AADT		24	-

Table D3-38: TTC Service Summary - Route 144 Downtown Mt Pleasant Express

Time Period	Vehicle Type	2019	
		No. of Vehicles	Service Interval (min'sec")
AM Peak	BUS	9	
PM Peak		5	20' 00"
AHV		3.5	-
AADT		56	-

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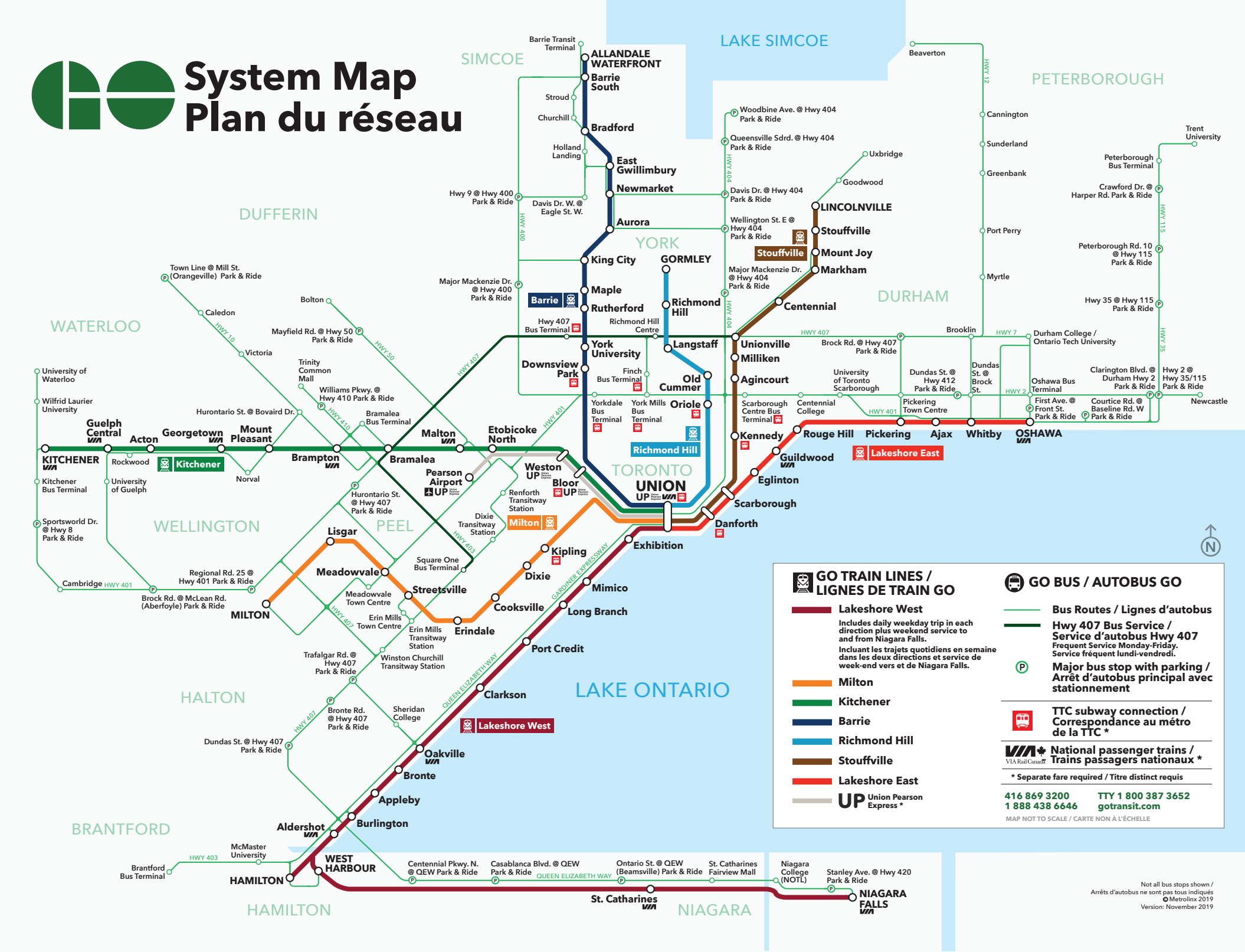
Appendix D2.
GO Bus/Rail Map & Schedules

System Map
Plan du réseau



GO TRAIN LINES / LIGNES DE TRAIN GO

- **Lakeshore West**
  Includes daily weekday trip in each direction plus weekend service to and from Niagara Falls.
  Incluant les trajets quotidiens en semaine dans les deux directions et service de week-end vers et de Niagara Falls.
- **Milton**
- **Kitchener**
- **Barrie**
- **Richmond Hill**
- **Stouffville**
- **Lakeshore East**
- **UP** Union Pearson Express *

GO BUS / AUTOBUS GO

- **Bus Routes / Lignes d'autobus**
- **Hwy 407 Bus Service / Service d'autobus Hwy 407**
  Frequent Service Monday-Friday.
  Service fréquent lundi-vendredi.
- **Major bus stop with parking / Arrêt d'autobus principal avec stationnement**
- **TTC subway connection / Correspondance au métro de la TTC ***
- **VIA Rail Canada National passenger trains / Trains passagers nationaux ***

* Separate fare required / Titre distinct requis

416 869 3200 **TTY 1 800 387 3652**
1 888 438 6646 **gotransit.com**

MAP NOT TO SCALE / CARTE NON À L'ÉCHELLE

Not all bus stops shown /
Arrêts d'autobus ne sont pas tous indiqués
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Version: November 2019

65 BARRIE

Barrie - Bradford - East Gwillimbury - Newmarket - Aurora - King City - Maple - Toronto

Bus Trips - Horaire des autobus Train Trips - Horaire des trains

S Trip serves Newmarket GO Stn. from bus stop on Davis Dr. - Les autobus desservent la gare GO Newmarket à partir de l'arrêt situé sur la rue Davis.

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

SOUTHBOUND / EN DIRECTION SUD

Route Number Numéro du trajet	Trip Number Numéro du parcours	Exception	Barrie 69 Dp Barrie Transit Terminal	Barrie 69 Dp Allandale Waterfront GO	Barrie 68 Barrie South GO	Innisfil 68 Yonge St. @ Victoria St.	Innisfil 67 Yonge St. @ 4th Line	Bradford 65 Barrie St. @ Holland St. W	Bradford 65 Dp Bradford GO	Bradford 65 Yonge St. @ Queen St.	East Gwillimbury 44 East Gwillimbury GO	Newmarket 64 s Newmarket GO	Aurora 63 Aurora GO	Aurora 63 Wellington St. E. @ Hwy. 404	King City 62 Dp King City GO	Vaughan 61 Maple GO	Vaughan 61 Rutherford GO	North York 19 York University GO	North York 19 Downsview Park GO	Toronto 2 Ar Union Station
65	65060										04 20	04 25	04 40	04 46	→	→	→	→	→	05 20
63	63060														k04 55	05 05	05 15	→	→	05 55
65C	65072												05 10	05 16	→	→	→	→	→	05 50
65B	65070										05 00	05 05	→	→	→	→	→	→	→	05 50
68B	68130		04 09	04 14	04 26	04 30	04 37	04 51	04 55	05 04	05 14									
	6902			04 53	05 01	→	→	→	05 21	→	05 30	05 34	05 42	→	05 52	05 59	06 03	→	06 12	06 33
68B	68150		04 58	05 03	05 15	05 19	05 26	05 40	05 44	05 53	06 03↓									
	6606			06 13	06 21	→	→	→	06 41	→	06 50	06 54	07 02	→	07 12	07 19	07 23	→	07 32	07 53
68B	68220		05 58	06 03	06 15	06 19	06 26	06 40	06 44	06 53	07 03↓									
	6608			07 13	07 21	→	→	→	07 41	→	07 50	07 54	08 02	→	08 12	08 19	08 23	→	08 32	08 53
68	68350		07 02	07 07	07 19	07 23	07 30	07 45	07 49	07 58	08 12	08 18	08 38↓							
65F	65350												08 43h	→	k09 03	09 13	09 23	→	→	09 53
68	68420		08 04	08 09	08 21	08 25	08 32	08 47	08 51	09 00	09 14	09 20	09 40↓							
65F	65420												09 45h	→	k10 05	10 15	10 25	→	→	10 55
68	68460		09 06	09 11	09 26	09 30	09 37	09 52	09 56	10 05	10 15	10 21	10 46↓							
65F	65460												10 51h	→	11 11	11 21	11 31	→	→	12 01
68	68500		10 06	10 11	10 26	10 30	10 37	10 52	10 56	11 05	11 15	11 21	11 46↓							
65F	65500												11 51h	→	12 11	12 21	12 31	→	→	13 01
68	68550		11 06	11 11	11 26	11 30	11 37	11 52	11 56	12 05	12 15	12 21	12 46↓							
65F	65550												12 51h	→	13 11	13 21	13 31	→	→	14 01
68	68580		12 06	12 11	12 26	12 30	12 37	12 52	12 56	13 05	13 15	13 21	13 46↓							
65F	65580												13 51h	→	14 11	14 21	14 31	→	→	15 01
68	68610		13 06	13 11	13 26	13 30	13 37	13 52	13 56	14 05	14 15	14 21	14 46↓							
65F	65610												14 51h	→	15 11	15 21	15 31	→	→	16 01
68	68640		14 06	14 11	14 26	14 30	14 37	14 52	14 56	15 05	15 15	15 21	15 46							
	6024												16 02	→	16 12	16 19	16 23	→	16 32	16 53
68B	68680		14 45	14 50	15 05	15 09	15 16	15 31	15 35	15 44	15 55↓									
65	65620										16 00h	16 06	16 24	16 32	→	→	→	→	→	17 25
68B	68730		15 40	15 45	16 00	16 04	16 11	16 26	16 30	16 42	16 55↓									
65	65670										17 00h	17 06	17 24	17 32	→	→	→	→	→	18 25
68B	68760		16 40	16 45	17 00	17 04	17 11	17 26	17 30	17 42	17 55↓									
65	65710										18 00h	18 06	18 21	18 29	→	→	→	→	→	19 15
68B	68810		17 45	17 50	18 05	18 09	18 16	18 31	18 35	18 44	18 55↓									
65	65750										19 00h	19 06	19 21	19 29	→	→	→	→	→	20 05
	6032												20 02	→	20 12	20 19	20 23	→	20 32	20 53
68	68840		19 06	19 11	19 26	19 30	19 37	19 52	19 56	20 05	20 15	20 21	20 46							
65F	65820												21 01h	→	21 21	21 31	21 41	→	→	22 11
68	68870		20 06	20 11	20 26	20 30	20 37	20 52	20 56	21 05	21 15	21 21	21 46↓							
	6036												22 02	→	22 12	22 19	22 23	→	22 32	22 53
68B	68900		21 26	21 31	21 43	21 47	21 54	22 08	22 12	22 21	22 30									
65	65860										22 35h	22 41	22 55	23 01	→	→	→	→	→	23 35
68B	68930		21 55	22 00	22 12	22 16	22 23	22 37	22 41	22 50	23 00↓									
65	65880										23 05h	23 11	23 25	23 31	→	→	→	→	→	00 05
63	63910														00 17	00 27	00 37	→	→	01 17
65	65910										00 05	00 10	00 25	00 31	→	→	→	→	→	01 05

65 BARRIE

Barrie - Bradford - East Gwillimbury - Newmarket - Aurora - King City - Maple - Toronto

Bus Trips - Horaire des autobus | Train Trips - Horaire des trains

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

NORTHBOUND / EN DIRECTION NORD

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Exception	Toronto 2 Dp Union Station	North York 19 Downsview Park GO	North York 19 York University GO	Vaughan 61 Rutherford GO	Vaughan 61 Maple GO	King City 62 King City GO	Aurora 63 Wellington St. E. @ Hwy. 404	Aurora 63 Aurora GO	Newmarket 64 s Newmarket GO	East Gwillimbury 44 East Gwillimbury GO	East Gwillimbury 65 Yonge St. @ Mount Albert Rd.	Bradford 65 Bradford GO	Bradford 65 Barrie St. @ Doctors Ln.	Innisfil 67 Yonge St. @ Kilarney Beach Rd.	Barrie 68 Yonge St. @ Victoria St.	Barrie 68 Barrie South GO	Barrie 69 Allandale Waterfront GO	Barrie 69 Ar Barrie Transit Terminal
68	68021									06 10	06 22	06 30	06 36	06 46	06 50	07 02	07 10	07 15	07 25	07 35
65	65031		06 10	→	→	→	→	→	06 42	06 50	07 02	07 15↓								
68B	68031											07 40h	07 46	07 56	08 00	08 12	08 20	08 25	08 35	08 45
65	65141		07 10	→	→	→	→	→	07 47	07 57	08 11	08 30↓								
68B	68101											08 35h	08 41	08 51	08 55	09 07	09 15	09 20	09 30	09 40
65	65171		07 40	→	→	→	→	→	08 22	08 32	08 48	09 05								
63	63201		08 05	→	→	08 35	08 45	k08 55												
65	65201		08 10	→	→	→	→	→	08 52	09 02	09 18	09 35↓								
68B	68171											09 40h	09 46	09 56	10 00	10 12	10 20	10 25	10 35	10 45
65	65241		08 40	→	→	→	→	→	09 22	09 32	09 48	10 05								
65F	65251		09 05	→	→	09 35	09 45	k09 55	→	10 15										
65F	65261		09 45	→	→	10 15	10 25	10 35	→	10 55										
68	68251									1101h	11 13	11 21	11 27	11 39	11 43	11 55	12 03	12 08	12 21	12 31
65F	65291		10 45	→	→	11 15	11 25	11 35	→	11 55										
68	68291									12 01h	12 13	12 21	12 27	12 39	12 43	12 55	13 03	13 08	13 21	13 31
65F	65321		11 45	→	→	12 15	12 25	12 35	→	12 55										
68	68321									13 01h	13 13	13 21	13 27	13 39	13 43	13 55	14 03	14 08	14 21	14 31
65F	65351		12 45	→	→	13 15	13 25	13 35	→	13 55										
68	68351									14 01h	14 13	14 21	14 27	14 39	14 43	14 55	15 03	15 08	15 21	15 31
65F	65421		13 45	→	→	14 15	14 25	14 35	→	14 55										
68	68421									15 01h	15 13	15 21	15 27	15 39	15 43	15 55	16 03	16 08	16 21	16 31
	6023		15 00	15 19	→	15 29	15 33	15 41	→	15 51										
68	68461									16 01h	16 13	16 21	16 27	16 39	16 43	16 55	17 03	17 08	17 21	17 31
	6625		16 00	16 19	→	16 29	16 33	16 41	→	16 51	16 58	17 02	→	17 11	→	→	→	17 31	17 41	
68B	68531											17 58h	18 06	18 16	18 20	18 32	18 40	18 45	18 58	19 08
	6627		17 00	17 19	→	17 29	17 33	17 41	→	17 51	17 58	18 02	→	18 11	→	→	→	18 31	18 41	
68B	68601											18 53h	19 01	19 11	19 15	19 27	19 35	19 40	19 53	20 03
	6629		18 00	18 19	→	18 29	18 33	18 41	→	18 51	18 58	19 02	→	19 11	→	→	→	19 31	19 41	
	6031		19 00	19 19	→	19 29	19 33	19 41	→	19 51										
68	68711									20 01	20 13	20 21	20 27	20 39	20 43	20 55	21 03	21 08	21 21	21 31
65	65721		20 00	→	→	→	→	→	20 42	20 52	21 08	21 25								
68B	68721											21 30	21 36	21 46	21 50	22 02	22 10	22 15	22 25	22 35
	6035		21 00	21 19	→	21 29	21 33	21 41	→	21 51										
68	68761									22 01	22 13	22 21	22 27	22 37	22 40	22 51	22 58	23 02	23 12	23 21
65	65801		22 00	→	→	→	→	→	22 42	22 52	23 08	23 25								
68B	68801											23 30	23 36	23 46	23 49	24 00	24 07	24 11	24 21	24 30
	65843		23 05	→	→	→	→	→	23 37	23 45										
68	68831									24 01	24 13	24 21	24 27	24 37	24 40	24 51	24 58	25 02	25 12	25 21
63	63861		23 20	→	→	23 50	00 00	k00 15												
65	65881		00 10	→	→	→	→	→	00 42	00 50	01 02	01 10								
63	63891		00 20	→	→	00 50	01 00	k01 15												
65	65911		01 10	→	→	→	→	→	01 42	01 50	02 02	02 10								
63	63921		01 20	→	→	01 50	02 00	k02 10												
65	65941		02 10	→	→	→	→	→	02 42	02 50	03 02	03 10								
63	63951		02 20	→	→	02 50	03 00	k03 10												

65 BARRIE

Barrie - Bradford - East Gwillimbury - Newmarket - Aurora - Toronto

Bus Trips - Horaire des autobus

Saturday and Sunday
Samedi et dimanche

SOUTHBOUND / EN DIRECTION SUD

Route Number Nombre d'itinéraire	Trip Number N° du trajet	Zone→	Exception	Barrie 69 Dp Barrie Transit Terminal	Barrie 69 Dp Allandale Waterfront GO	Barrie 68 Barrie South GO	Innisfil 68 Yonge St. @ Victoria St.	Innisfil 67 Yonge St. @ 4th Line	Bradford 65 Barrie St. @ Holland St. W	Bradford 65 Dp Bradford GO	Bradford 65 Yonge St. @ Queen St.	East Gwillimbury 44 East Gwillimbury GO	Newmarket 64 Newmarket GO	Aurora 63 Aurora GO	Aurora 63 Wellington St. E. @ Hwy. 404	King City 62 King City GO	Vaughan 61 Maple GO	Vaughan 61 Rutherford GO	North York 19 Downsview Park GO	Toronto 2 Ar Union Station
65	65130											05 50	05 55	06 10	06 16	→	→	→	→	06 50
63	63160															06 35	06 45	06 55	→	07 35
65	65190											06 50	06 55	07 10	07 16	→	→	→	→	07 50
63	63220															07 35	07 45	07 55	→	08 35
68	68240			06 40	06 45	06 57	07 01	07 08	07 22	07 26	07 35	07 45	07 50	08 05↓						
65C	65240													08 10**h**	08 16	→	→	→	→	08 55
63	63260															08 35	08 45	08 55	→	09 35
68B	68260			07 40	07 45	07 57	08 01	08 08	08 22	08 26	08 35	08 45								
65	65260											0850**h**	08 55	09 10	09 16	→	→	→	→	09 55
68B	68300			08 18	08 23	08 35	08 39	08 46	09 00	09 04	09 13	09 23↓								
65E	65300											09 28**h**	09 33	09 45	→	10 05	10 15	10 25	→	10 55
68B	68330			09 18	09 23	09 35	09 39	09 46	10 00	10 04	10 13	10 23↓								
65E	65330											10 28**h**	10 33	10 45	→	11 05	11 15	11 25	→	11 55
68B	68380			10 28	10 33	10 45	10 49	10 56	11 10	11 14	11 23	11 33↓								
65E	65380											11 38**h**	11 43	11 55	→	12 15	12 25	12 35	→	13 05
68	68430			11 16	11 21	11 33	11 37	11 44	11 58	12 02	12 11	12 21	12 28	12 46↓						
65F	65430													12 51**h**	→	13 11	13 21	13 31	→	14 01
68	68490			12 16	12 21	12 33	12 37	12 44	12 58	13 02	13 11	13 21	13 28	1346↓						
65F	65490													13 51**h**	→	14 11	14 21	14 31	→	15 01
68	68560			13 16	13 21	13 33	13 37	13 44	13 58	14 02	14 11	14 21	14 28	1446↓						
65F	65560													14 51**h**	→	15 11	15 21	15 31	→	16 01
68	68580			14 16	14 21	14 33	14 37	14 44	14 58	15 02	15 11	15 21	15 28	15 46						
65F	65580													15 51**h**	→	16 11	16 21	16 31	→	17 01
68B	68640			15 33	15 38	15 50	15 54	16 01	16 15	16 19	16 28	1643↓								
65E	65640											1648**h**	16 53	17 05	→	17 25	17 35	17 45	→	18 15
68	68690			16 36	16 41	16 53	16 57	17 04	17 18	17 22	17 31	17 41	17 48	18 06↓						
65F	65690													18 11**h**	→	18 31	18 41	18 51	→	19 21
68	68740			17 36	17 41	17 53	17 57	18 04	18 18	18 22	18 31	18 41	18 48	19 06↓						
65F	65730													19 11**h**	→	19 31	19 41	19 51	→	20 21
68	68790			18 36	18 41	18 53	18 57	19 04	19 18	19 22	19 31	19 41	19 48	20 06↓						
65F	65790													20 11**h**	→	20 31	20 41	20 51	→	21 21
68B	68820			19 58	20 03	20 15	20 19	20 26	20 40	20 44	20 53	21 03↓								
65E	65810											21 08**h**	21 13	21 25	→	21 45	21 55	22 05	→	22 35
68	68850			21 01	21 06	21 18	21 22	21 29	21 43	21 47	21 56	22 06	22 11	22 26↓						
65F	65840													2231**h**	→	22 51	23 01	23 11	→	23 41
68B	68880			22 15	22 20	22 32	22 36	22 43	22 57	23 01	23 10	23 20								
65	65880											2325**h**	23 30	23 45	23 51	→	→	→	→	00 25
65	65910											00 25	00 30	00 45	00 51	→	→	→	→	01 25

65 BARRIE

Toronto - Aurora - Newmarket - East Gwillimbury - Bradford - Barrie

Bus Trips - Horaire des autobus

h Trip holds for connection from bus - Le départ de l'autobus est retardé pour assurer la connexion de l'autobus

s GO Bus services GO Station from bus stop on street. - Les autobus GO desservent la gare à partir de l'arrêt situé sur la rue.

Saturday and Sunday
Samedi et dimanche

NORTHBOUND / EN DIRECTION NORD

Route Number Nombre d'itinéraire	Trip Number N° du trajet	Exception	Toronto 2 Dp **Union Station**	North York 19 **Downsview Park GO**	Vaughan 61 **Rutherford GO**	Vaughan 61 **Maple GO**	King City 62 **King City GO**	Aurora 63 **Wellington St. E. @ Hwy. 404**	Aurora 63 **Aurora GO**	Newmarket 64 **s Newmarket GO**	East Gwillimbury 44 **East Gwillimbury GO**	East Gwillimbury 65 **Yonge St. @ Mount Albert Rd.**	Bradford 65 Dp **Bradford GO**	Bradford 65 **Barrie St. @ John St. E.**	Innisfil 67 **Yonge St. @ Kilarney Beach Rd.**	Barrie 68 **Yonge St. @ Victoria St.**	Barrie 68 **Barrie South GO**	Barrie 69 Dp **Allandale Waterfront GO**	Barrie 69 Ar **Barrie Transit Terminal**
65C	65141		07 10	→	→	→	→	07 42	07 55										
68	68101								0800**h**	08 12	08 20	08 26	08 36	08 39	08 52	08 59	09 03	09 12	09 25
65C	65201		08 10	→	→	→	→	08 42	08 55↓										
68	68201								0900**h**	09 12	09 20	09 26	09 36	09 39	09 52	09 59	10 03	10 12	10 25
63	63231		08 50	→	09 30	09 40	09 55												
65C	65241		09 10	→	→	→	→	09 42	09 55										
68	68241								1000**h**	10 12	10 20	10 26	10 36	10 39	10 52	10 59	11 03	11 12	11 25
63	63271		09 50	→	10 30	10 40	10 55												
65C	65281		10 10	→	→	→	→	10 44	11 00										
68	68281								1105**h**	11 17	11 25	11 31	11 43	11 47	11 59	12 07	12 12	12 25	12 35
65C	65301		10 40	→	→	→	→	11 14	11 30										
63	63331		10 50	→	11 30	11 40	11 55												
65E	65331		11 20	→	11 50	12 00	12 10	→	12 30	12 42	12 47								
68B	68331										12 52**h**	13 00	13 10	13 14	13 26	13 34	13 39	13 52	14 02
65F	65381		12 45	→	13 15	13 25	13 35	→	13 55										
68	68381								1359**h**	14 11	14 19	14 25	14 37	14 41	14 53	15 01	15 06	15 19	15 29
65F	65431		13 45	→	14 15	14 25	14 35	→	14 55										
68	68431								1459**h**	15 11	15 19	15 25	15 37	15 41	15 53	16 01	16 06	16 19	16 29
65F	65491		14 45	→	15 15	15 25	15 35	→	15 55↓										
68	68491								1559**h**	16 11	16 19	16 25	16 37	16 41	16 53	17 01	17 06	17 19	17 29
65F	65501		15 45	→	16 15	16 25	16 35	→	16 55↓										
68	68501								1659**h**	17 11	17 19	17 25	15 06h	17 41	17 53	18 01	18 06	18 19	18 29
65E	65561		16 50	→	17 20	17 30	17 40	→	18 00	18 12	1817↓								
68B	68561										1822**h**	18 30	16 06h	18 44	18 56	19 04	19 09	19 22	19 32
65F	65641		18 04	→	18 34	18 44	18 54	→	19 14										
68	68641								1919**h**	19 31	19 39	19 45	19 57	20 01	20 13	20 21	20 26	20 39	20 49
65F	65691		19 04	→	19 34	19 44	19 54	→	20 14										
68	68691								2019**h**	20 31	20 39	20 45	18 26h	20 59	21 11	21 19	21 24	21 34	21 44
65F	65741		20 04	→	20 34	20 44	20 54	→	21 14										
68	68741								2119h	21 31	21 39	21 45	19 26h	21 59	22 11	22 19	22 24	22 34	22 44
65E	65771		21 10	→	21 40	21 50	22 00	→	22 20	22 32	22 37↓								
68B	68771										2242**h**	22 48	20 26h	23 01	23 12	23 19	23 23	23 33	23 42
65E	65811		22 20	→	22 50	23 00	23 10	→	23 30	23 42	23 47↓								
68B	68811										2352**h**	23 58	24 08	24 11	24 22	24 29	00 33	00 43	00 52
65E	65861		23 20	→	23 50	24 00	24 10	→	24 30	24 42	24 47↓								
68B	68861										0052**h**	00 58	01 08	01 11	01 22	01 29	01 33	01 43	01 52
65	65881		00 10	→	→	→	→	00 42	00 50	01 02	01 10								
63	63891		00 20	→	00 55	01 05	01 15												
65	65911		01 10	→	→	→	→	01 42	01 50	02 02	02 10								
63	63921		01 20	→	01 55	02 05	02 15												
65	65941		02 10	→	→	→	→	02 42	02 50	03 02	03 10								
63	63951		02 20	→	02 55	03 05	03 15												

31 KITCHENER

Kitchener - Guelph - Acton - Georgetown - Brampton - Toronto

Bus Trips - Horaire des autobus

Train Trips - Horaire des trains

Monday to Friday (except holidays)

Du lundi au vendredi (sauf les jours fériés)

EASTBOUND EN DIRECTION EST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone →	Kitchener 27 Dp Kitchener GO	Kitchener 27 Kitchener Bus Terminal	Guelph 39 University of Guelph	Guelph 39 Guelph Central GO	Rockwood 38 Alma St. @ Inkerman St.	Acton 37 S Acton GO	Georgetown 35 Main St. S. @ George St.	Georgetown 35 Georgetown GO	Georgetown 35 Guelph St. @ King St.	Brampton 34 Mount Pleasant GO	Brampton 33 Main St. N @ Bovaird Dr. W.	Brampton 33 Brampton GO	Brampton 33 Shopper's World	Brampton 22 Hurontario St. @ Hwy. 407	Brampton 33 Steeles Ave. E. @ First Gulf Blvd.	Brampton 32 Bramalea GO	Mississauga 31 Malton GO	North York 5 D Keele St. @ Hwy. 401	North York 5 Yorkdale Bus Terminal	North York 5 Ar York Mills Bus Terminal	Etobicoke 4 Etobicoke North GO	Toronto 4 Weston GO	Toronto 2 Bloor GO	Toronto 2 Ar Union Station
31E	31020									04 05	04 12	04 20	04 26	04 35	04 39	→	04 44	04 50	05 00	→	→	→	→	→	→	05 30
31F	31030									04 40	04 47	04 55	05 01	05 10	05 14	→	05 19	→	→	→	→	→	→	→	→	05 50
31L	31040																	05 10	05 20	→	→	→	→	→	→	05 50
33E	33050									04 55	05 02	05 10	05 18	05 30	05 36	05 40	→	→	→	06 00	06 05	06 15				
	3900	04 35	→	→	04 57	→	05 13	→		05 29	→	05 38	→	05 45	→	→	→	05 54	06 00	→	→	→	06 06	06 12	06 20	06 32
33	33080			04 42	04 47	05 00	05 11	05 23		05 32	05 40	05 50	05 58	06 10	06 18	06 25	→	→	→	06 50	06 55	07 05				
30	30020	04 39	04 44	→	→	→	→	→		→	→	→	→	→	→	→	→	05 39↓								
33E	33110									06 00	06 08	06 18	06 27	06 40	06 48	06 55	→	→	→	07 25	07 30	07 40				
33E	33142									06 30	06 38	06 48	06 57	07 10	07 18	07 25	→	→	→	07 55	08 05	08 15				
	3902	05 45	→	→	06 07	→	06 23	→		06 39	→	06 48	→	06 55	→	→	→	07 05	07 11	→	→	→	07 17	07 23	07 31	07 43
33C	33140			05 54	06 04	06 17	06 28	06 40		06 49																
33E	33170									07 00	07 08	07 18	07 27	07 40	07 48	07 56	→	→	→	08 30	08 40	08 50				
33	33200			06 30	06 40	06 53	07 04	07 18		07 30	07 38	07 50↓	07 59	08 15	08 23	08 31	→	→	→	09 05	09 15	09 25				
	3408											08 00	→	08 07	→	→	→	08 14	08 21	→	→	→	08 27	08 32	08 39	08 51
	3806	07 15	→	→	07 37	→	07 53	→		08 09	→	08 18	→	08 25	→	→	→	08 35	08 41	→	→	→	08 47	08 53	09 01	09 13
33	33240			07 25	07 35	07 48	07 59	08 13		08 25	08 33	08 45↓	08 54	09 10	09 18	09 25	→	→	→	09 50	10 00	10 10				
	3410											09 00	→	09 07	→	→	→	09 14	09 21	→	→	→	09 27	09 32	09 39	09 51
33	33280			08 20	08 30	08 43	08 54	09 08		09 20	09 28	09 40↓	09 49	10 05	10 13	10 20	→	→	→	10 45	10 50	11 00				
30	30230	08 39	08 46	→	→	→	→	→		→	→	→	→	→	→	→	→	09 54↓								
	3412											10 00	→	10 07	→	→	→	10 14	10 21	→	→	→	10 27	10 32	10 39	10 51
33	33320			09 30	09 40	09 53	10 04	10 16		10 25	10 33	10 45↓	10 54	11 10	11 18	11 25	→	→	→	11 50	11 55	12 05				
30	30270	09 34	09 41	→	→	→	→	→		→	→	→	→	→	→	→	→	10 59↓								
	3414											11 00	→	11 07	→	→	→	11 14	11 21	→	→	→	11 27	11 32	11 39	11 51
33	33360			10 30	10 40	10 53	11 04	11 16		11 25	11 33	11 45↓	11 54	12 10	12 16	12 22	→	→	→	12 45	12 50	13 00				
30	30310	10 34	10 41	→	→	→	→	→		→	→	→	→	→	→	→	→	11 59↓								
	3416											12 00	→	12 07	→	→	→	12 14	12 21	→	→	→	12 27	12 32	12 39	12 51
33	33400			11 30	11 40	11 53	12 04	12 16		12 25	12 33	12 45↓	12 54	13 10	13 16	13 22	→	→	→	13 45	13 50	14 00				
30	30350	11 34	11 41	→	→	→	→	→		→	→	→	→	→	→	→	→	12 59↓								

31 KITCHENER

Kitchener - Guelph - Acton - Georgetown - Brampton - Toronto

Bus Trips - Horaire des autobus

Train Trips - Horaire des trains

Monday to Friday (except holidays)

Du lundi au vendredi (sauf les jours fériés)

EASTBOUND EN DIRECTION EST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone →	Kitchener 27 Dp	Kitchener 27	Guelph 39	Guelph 39	Rockwood 38	Acton 37	Georgetown 35	Georgetown 35	Georgetown 35	Brampton 34	Brampton 33	Brampton 33	Brampton 33	Brampton 33	Brampton 22	Brampton 33	Brampton 32	Mississauga 31	North York 5	North York 5	North York 5 Ar	Etobicoke 4	Toronto 4	Toronto 2	Toronto 2 Ar
			Kitchener GO	Kitchener Bus Terminal	University of Guelph	Guelph Central GO	Alma St. @ Inkerman St.	S Acton GO	Main St. S. @ George St.	Georgetown GO	Guelph St. @ King St.	Mount Pleasant GO	Main St. N @ Bovaird Dr. W.	Brampton GO	Shopper's World	Hurontario St. @ Hwy. 407	Steeles Ave. E. @ First Gulf Blvd.	Bramalea GO	Malton GO	D Keele St. @ Hwy. 401	Yorkdale Bus Terminal	York Mills Bus Terminal	Etobicoke North GO	Weston GO	Bloor GO	Union Station
	3418											13 00	→	13 07	→	→	→	13 14	13 21	→	→	→	13 27	13 32	13 39	13 51
33	33440				12 30	12 40	12 53	13 04	13 16	13 25	13 33	13 45↓	13 54	14 10	14 16	14 22	→	→	→	14 45	14 50	15 05				
30	30390		12 34	12 41	→	→	→	→	→	→	→	→	→	→	→	→	→	13 59↓								
	3420											14 00	→	14 07	→	→	→	14 14	14 21	→	→	→	14 27	14 32	14 39	14 51
33	33480				13 30	13 40	13 53	14 04	14 16	14 25	14 33	14 45↓	14 54	15 10	15 18	15 25	→	→	→	15 50	15 55	16 10				
30	30430		13 34	13 41	→	→	→	→	→	→	→	→	→	→	→	→	→	14 59↓								
	3422											15 00	→	15 07	→	→	→	15 14	15 21	→	→	→	15 27	15 32	15 39	15 51
33	33530				14 25	14 35	14 48	14 59	15 11	15 23	15 31	15 45↓	15 54	16 10	16 18	16 25	→	→	→	16 55	17 00	17 20				
30	30460		14 39	14 46	→	→	→	→	→	→	→	→	→	→	→	→	→	15 59↓								
	3424											16 00	→	16 07	→	→	→	16 14	16 21	→	→	→	16 27	16 32	16 39	16 51
31J	31570													16 35**b**	16 43	→	16 50	→	→	→	→	→	→	→	→	17 50
33A	33580													16 40	16 48	16 55	→	→	→	17 25	17 30	17 50				
31L	31580																	16 45	16 55	→	→	→	→	→	→	17 50
30	30540		15 50	15 57	→	→	→	→	→	→	→	→	→	→	→	→	→	17 10↓								
31L	31610																	17 15**h**	17 25	→	→	→	→	→	→	18 20
33A	33640													17 40	17 48	17 55	→	→	→	18 25	18 30	18 45				
31B	31620				15 39	15 49	16 03	16 17	16 32	16 44	16 52	17 04	17 15	17 29	17 37	→	17 44	17 59↓								
30	30590		16 34	16 41	→	→	→	→	→	→	→	→	→	→	→	→	→	17 59↓								
	3428											18 00	→	18 07	→	→	→	18 14	18 21	→	→	→	18 27	18 32	18 39	18 51
31B	31662				16 44	16 54	17 08	17 22	17 37	17 49	17 57	18 09	18 20	18 34	18 42	→	18 49	18 59↓								
30	30660		17 39	17 46	→	→	→	→	→	→	→	→	→	→	→	→	→	18 59↓								
	3430											19 00	→	19 07	→	→	→	19 14	19 21	→	→	→	19 27	19 32	19 39	19 51
33A	33680													18 40	18 48	18 55	→	→	→	19 20	19 25	19 40				
33	33710				17 25	17 35	17 49	18 00	18 15	18 25	18 33	18 45	18 55	19 10	19 16	19 22	→	→	→	19 45	19 50	20 00				
30	30680		18 25	18 32	→	→	→	→	→	→	→	→	→	→	→	→	→	19 40↓								
31H	31712													19 25	19 30	→	19 35	19 45**h**	19 55	→	→	→	→	→	→	20 30
	3432											20 00	→	20 07	→	→	→	20 14	20 21	→	→	→	20 27	20 32	20 39	20 51
33	33750				18 30	18 40	18 54	19 05	19 17	19 27	19 35	19 45	19 55	20 10↓	20 16	20 22	→	→	→	20 45	20 50	21 00				
30	30720		19 30	19 37	→	→	→	→	→	→	→	→	→	→	→	→	→	20 40↓								
31H	31760													20 35**h**	20 40	→	20 45	20 50**h**	21 00	→	→	→	→	→	→	21 35
33E	33790									20 30	20 38	20 45	20 55	21 10↓	21 15	21 20	→	→	→	21 40	21 45	21 55				
31H	31800													21 35**h**	21 40	→	21 45	21 50	22 00	→	→	→	→	→	→	22 35
33	33820				20 30	20 40	20 54	21 05	21 17	21 27	21 35	21 45 ↓	21 55	22 10	22 15	22 20	→	→	→	22 40	22 45	22 55				
31H	31840													22 35**b**	22 40	→	22 45	22 50	23 00	→	→	→	→	→	→	23 30
30	30830		22 10	22 15	→	→	→	→	→	→	→	→	→	→	→	→	→	23 15↓								
31E	31850									22 30	22 37	22 45	22 51	23 05	23 10	→	23 15	23 20**h**	23 30	→	→	→	→	→	→	00 00
33A	33850													23 10	23 15	23 20	→	→	→	23 40	23 45	23 55				
31E	31880									23 30	23 37	23 45	23 51	00 05	00 10	→	00 15	00 20	00 30	→	→	→	→	→	→	01 00
33A	33890													00 10	00 15	00 20	→	→	→	00 40	00 45	00 55				
31E	31910									00 30	00 37	00 45	00 51	01 05	01 10	→	01 15	01 20	01 30	→	→	→	→	→	→	02 00

31 KITCHENER

Kitchener - Guelph - Acton - Georgetown - Brampton - Toronto

Bus Trips - Horaire des autobus | Train Trips - Horaire des trains

Monday to Friday (except holidays)

Du lundi au vendredi (sauf les jours fériés)

WESTBOUND EN DIRECTION OUEST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→	Toronto 2 Dp	Toronto 2	Toronto 4	Etobicoke 4	North York 5	North York 5	North York 5	Mississauga 31	Brampton 32	Brampton 33	Brampton 22	Brampton 33	Brampton 33	Brampton 33	Brampton 34	Georgetown 35	Georgetown 35	Georgetown 35	Acton 37	Rockwood 38	Guelph 39	Guelph 39	Kitchener 27	Kitchener 27 Ar
			Union Station	**Bloor GO**	**Weston GO**	**Etobicoke North GO**	**York Mills Bus Terminal**	**Yorkdale Bus Terminal**	**Keele St. @ Hwy. 401**	**Malton GO**	**Bramalea GO**	**Steeles Ave. E @ Rutherford Road S.**	**Hurontario St. @ Hwy. 407**	**Shopper's World**	**Brampton GO**	**Bovaird Dr. W. @ Hurontario St.**	**Mount Pleasant GO**	**Guelph St. @ King St.**	**Georgetown GO**	**Main St. S. @ Cross St.**	**s Acton GO**	**Alma St. @ Inkerman St.**	**s Guelph Central GO**	**University of Guelph**	**Kitchener Bus Terminal**	**Kitchener GO**
33D	33081														06 15	06 22	06 30	06 36	06 46	06 53	07 05	07 17	07 35	07 45		
31	31101		05 50	→	→	→	→	→	→	06 15	06 25↓	06 32	→	06 35	06 45	06 51	07 05	07 10	07 20	07 27	07 40	07 52	08 10	08 20		
30	30101										06 30**h**	→	→	→	→	→	→	→	→	→	→	→	→	→	07 27	07 35
31	31151		06 20	→	→	→	→	→	→	06 45	07 00↓	07 07	→	07 12	07 25**b**	07 31	07 45	07 50	08 05	08 12	08 25	08 37	08 55	09 05		
30	30131										07 05**h**	→	→	→	→	→	→	→	→	→	→	→	→	→	08 07	08 15
33A	33151						06 30	06 40	06 45	→	→	→	07 05	07 10	07 20											
	3505		06 43	06 53	06 59	07 04	→	→	→	07 10	07 17↓	→	→	→	07 24	→	07 32									
30	30171										07 40**h**	→	→	→	→	→	→	→	→	→	→	→	→	→	08 47	08 55
33A	33211						07 30	07 42	07 47	→	→	→	08 10	08 15	08 30											
31	31221		07 20	→	→	→	→	→	→	08 00	08 15↓	08 22	→	08 27	08 40	08 46	09 00	09 05	09 20	09 27	09 40	09 52	10 10	10 20		
30	30211										08 20**h**	→	→	→	→	→	→	→	→	→	→	→	→	→	09 27	09 35
	3507		07 53	08 03	08 09	08 14	→	→	→	08 20	08 27	→	→	→	08 34	→	08 42									
30	30231										08 50**h**	→	→	→	→	→	→	→	→	→	→	→	→	→	09 52	10 00
	3509		08 53	09 03	09 09	09 14	→	→	→	09 20	09 27↓	→	→	→	09 34	→	09 42↓									
33	33261						08 30	08 42	08 47	→	→	→	09 10	09 15	09 30	09 37	09 54**h**	10 00	10 10	10 17	10 29	10 39	10 59	11 09		
30	30261										09 39**h**	→	→	→	→	→	→	→	→	→	→	→	→	→	10 41	10 49
33B	33291						09 30	09 40	09 45	→	→	→	10 05	10 10	10 20	10 27	10 40									
	3511		09 53	10 03	10 09	10 14	→	→	→	10 20	10 27↓	→	→	→	10 34	→	10 42↓									
30	30301										10 32**h**	→	→	→	→	→	→	→	→	→	→	→	→	→	11 34	11 42
33F	33293																10 47**h**	10 53	11 03	11 10	11 22	11 32	11 52	12 02		
33B	33331						10 30	10 40	10 45	→	→	→	11 05	11 10	11 20	11 27	11 40									
	3513		10 53	11 03	11 09	11 14	→	→	→	11 20	11 27↓	→	→	→	11 34	→	11 42↓									
30	30341										11 37**h**	→	→	→	→	→	→	→	→	→	→	→	→	→	12 39	12 47
33F	33333																11 52**h**	11 58	12 08	12 15	12 27	12 37	12 57	13 07		
33B	33371						11 30	11 40	11 45	→	→	→	12 10	12 15	12 25	12 32	12 45									
	3515		11 53	12 03	12 09	12 14	→	→	→	12 20	12 27↓	→	→	→	12 34	→	12 42↓									
30	30381										12 37**h**	→	→	→	→	→	→	→	→	→	→	→	→	→	13 39	13 47
33F	33373																12 52**h**	12 58	13 08	13 15	13 27	13 37	13 57	14 07		
	3517		12 53	13 03	13 09	13 14	→	→	→	13 20	13 27	→	→	→	13 34	→	13 42↓									
33	33411						12 30	12 40	12 45	→	→	→	13 10	13 15	13 30	13 37	13 52**h**	13 58	14 08	14 15	14 27	14 37	14 57	15 12		
	3519		13 53	14 03	14 09	14 14	→	→	→	14 20	14 27↓	→	→	→	14 34	→	14 42↓									
30	30461										14 37**h**	→	→	→	→	→	→	→	→	→	→	→	→	→	15 44	15 52
33	33451						13 30	13 40	13 45	→	→	→	14 10	14 15	14 30	14 37	14 52**h**	14 58	15 12	15 19	15 32	15 42	16 02	16 17		

31 KITCHENER

Kitchener - Guelph - Acton - Georgetown - Brampton - Toronto

Bus Trips - Horaire des autobus | Train Trips - Horaire des trains

Monday to Friday (except holidays)

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WESTBOUND EN DIRECTION OUEST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→	Toronto 2 Dp	Toronto 2	Toronto 4	Etobicoke 4	North York 5	North York 5	North York 5	Mississauga 31	Brampton 32	Brampton 33	Brampton 22	Brampton 33	Brampton 33	Brampton 33	Brampton 34	Georgetown 35	Georgetown 35	Georgetown 35	Acton 37	Rockwood 38	Guelph 39	Guelph 39	Kitchener 27	Kitchener 27 Ar
			Union Station	**Bloor GO**	**Weston GO**	**Etobicoke North GO**	**York Mills Bus Terminal**	**Yorkdale Bus Terminal**	**Keele St. @ Hwy. 401**	**Malton GO**	**Bramalea GO**	**Steeles Ave. E @ Rutherford Road S.**	**Hurontario St. @ Hwy. 407**	**Shopper's World**	**Brampton GO**	**Bovaird Dr. W. @ Hurontario St.**	**Mount Pleasant GO**	**Guelph St. @ King St.**	**Georgetown GO**	**Main St. S. @ Cross St.**	**Acton GO**	**Alma St. @ Inkerman St.**	**Guelph Central GO**	**University of Guelph**	**Kitchener Bus Terminal**	**Kitchener GO**
	3521		14 53	15 03	15 09	15 14	→	→	→	15 20	15 27↓	→	→	→	15 34	→	15 42↓									
30	30511										15 37**h**	→	→	→	→	→	→	→	→	→	→	→	→	→	16 49	16 57
33	33501						14 30	14 42	14 47	→	→	→	15 15	15 20	15 35	15 42	15 55**h**	16 01	16 15	16 22	16 35	16 45	17 05	17 20		
33E	33541						15 00	15 12	15 17	→	→	→	15 45	15 50	16 05	16 12	16 25	16 31	16 45							
	3923		15 53	16 03	16 09	16 14	→	→	→	16 20	16 27	→	→	→	16 34	→	16 42	→	16 52↓	→	17 07	→	17 22	→	→	17 47
33C	33543																		17 02**h**	17 09	17 22	17 32	17 52	18 07		
	3525		16 53	17 03	17 09	17 14	→	→	→	17 20	17 27↓	→	→	→	17 34	→	17 42↓									
33	33601						16 00	16 12	16 17	→	→	→	16 50	16 55	17 15	17 22	17 50**h**	17 56	18 10	18 15	18 27	18 38	18 55	19 10		
30	30601										17 37**h**	→	→	→	→	→	→	→	→	→	→	→	→	→	18 34	18 42
33E	33641						16 30	16 42	16 47	→	→	→	17 20	17 25	17 45	17 52	18 05	18 11	18 25							
	3827		17 35	17 45	17 53	17 59	→	→	→	18 06	18 14	→	→	→	18 23	→	18 31	→	18 43	→	18 58	→	19 13	→	→	19 38
	3527		17 53	18 03	18 09	18 14	→	→	→	18 20	18 27	→	→	→	18 34	→	18 42↓									
33	33681						17 10	17 22	17 27	→	→	→	18 00	18 05	18 25	18 32	18 45	18 51	19 10**h**	19 15	19 27	19 38	19 55	20 05		
33E	33691						17 30	17 42	17 47	→	→	→	18 20	18 25	18 45	18 52	19 05	19 11	19 25							
	3529		18 53	19 03	19 09	19 14	→	→	→	19 20	19 27	→	→	→	19 34	→	19 42↓									
33	33721						18 30	18 40	18 45	→	→	→	19 10	19 15	19 30	19 37	19 50	19 56	20 10**h**	20 15	20 27	20 38	20 55	21 05		
31E	31711		19 20	→	→	→	→	→	→	19 50	20 05	20 10	→	20 14	20 30	20 36	20 50	20 55	21 10							
	3931		19 53	20 03	20 09	20 14	→	→	→	20 20	20 27↓	→	→	→	20 34	→	20 42	→	20 52	→	21 07	→	21 22	→	→	21 47
30	30761										20 37**h**	→	→	→	→	→	→	→	→	→	→	→	→	→	21 34	21 42
33E	33761						19 30	19 40	19 45	→	→	→	20 05	20 10	20 25	20 32	20 52**h**	20 58	21 12							
31E	31753		20 20	→	→	→	→	→	→	20 47	21 02	21 07	→	21 11	21 25	21 31	21 43	21 48	22 00							
33B	33791						20 30	20 40	20 45	→	→	→	21 05	21 10	21 25	21 32	21 45									
30	30801										21 37	→	→	→	→	→	→	→	→	→	→	→	→	→	22 34	22 42
33F	33793																21 52**h**	21 58	22 12	22 17	22 29	22 40	22 57	23 07		
31E	31793		21 20	→	→	→	→	→	→	21 47	22 02	22 07	→	22 11	22 25	22 31	22 43	22 48	23 00							
33A	33831						21 30	21 40	21 45	→	→	→	22 05	22 10	22 20											
31E	31837		22 20	→	→	→	→	→	→	22 47	23 02	23 07	→	23 11	23 25	23 31	23 43	23 48	00 00							
33A	33861						22 30	22 40	22 45	→	→	→	23 05	23 10	23 20											
31F	31881		23 20	→	→	→	→	→	→	→	→	23 47	→	23 51	00 00	00 06	00 18	00 23	00 35							
31N	31891		23 30	→	→	→	→	→	→	23 55	**c**00 05															
30	30873										00 10**h**	→	→	→	→	→	→	→	→	→	→	→	→	→	01 02	01 10
33A	33891						23 30	23 40	23 45	→	→	→	00 05	00 10	00 20											
31A	31901		23 50	→	→	→	→	→	→	→	→	00 17	→	00 21	00 30	00 36	00 45	00 50	01 00	01 05	01 17**S**	01 28	01 40	01 50		
31N	31911		00 00	→	→	→	→	→	→	00 25	**c**00 35															
33A	33921						00 30	00 40	00 45	→	→	→	01 05	01 09	01 15											
31E	31921		00 30	→	→	→	→	→	→	00 55	01 05	01 10	→	01 14	01 20	01 26**D**	01 35**D**	01 40**D**	01 50**D**							
33A	33951						01 30	01 40	01 45	→	→	→	02 05	02 09	02 15											
31E	31951		01 30	→	→	→	→	→	→	01 55	02 05	02 10	→	02 14	02 20	02 26**D**	02 35**D**	02 40**D**	02 50**D**							
31E	31961		02 30	→	→	→	→	→	→	02 55	03 05	03 10	→	03 14	03 20	03 25**D**	03 30**D**	03 35**D**	03 45**D**							

31 KITCHENER

Guelph - Georgetown - Brampton - Toronto

Bus Trips - Horaire des autobus

GO Bus service is accessible to passengers using mobility devices at this location.
- Service d'autobus GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.

Parking Available - Stationnement disponible

S GO Bus services GO Station from bus stop on street. - Les autobus GO desservent la gare à partir de l'arrêt situé sur la rue.

Saturday and Sunday
Samedi et dimanche

EASTBOUND / EN DIRECTION EST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone →	Guelph 39 Dp	Guelph 39	Rockwood 38	Acton 37	Georgetown 35	Georgetown 35	Georgetown 35	Brampton 34	Brampton 33	Brampton 33	Brampton 33	Brampton 33	Brampton 32	Mississauga 31	Toronto 2 Ar
			University of Guelph	Guelph Central GO	Alma St. @ Inkerman St.	S Acton GO	Main St. S. @ George St.	Georgetown GO	Guelph St. @ King St.	Mount Pleasant GO	Main St. N @ Bovaird Dr. W.	Brampton GO	Shopper's World	Steeles Ave. E. @ First Gulf Blvd.	Bramalea GO	Malton GO	Union Station Bus Terminal
31E	31090							05 00	05 07	05 12	05 19	05 30	05 35	05 40	05 45	05 55	06 20
31E	31150							06 00	06 07	06 12	06 19	06 30	06 35	06 40	06 45	06 55	07 20
31F	31202							07 00	07 07	07 12	07 19	07 30	07 35	07 40	→	→	08 10
31L	31210														07 45	07 55	08 25
31A	31242	07 00	07 10	07 23	07 34	07 46	07 55	08 03	08 10	08 17	08 30	08 35	08 40	→	→	09 15
31L	31250														08 45	08 55	09 25
31F	31292							08 55	09 03	09 10	09 17	09 30	09 35	09 40	→	→	10 20
31L	31300														09 45	09 55	10 25
31A	31332	08 55	09 05	09 18	09 29	09 41	09 50	09 58	10 06	10 15	10 30	10 35	10 45	→	→	11 30
31L	31340														10 45	10 55	11 30
31F	31372							10 50	10 58	11 06	11 15	11 30	11 35	11 45	→	→	12 30
31L	31380														11 45	11 55	12 35
31A	31412	10 55	11 05	11 18	11 29	11 41	11 50	11 58	12 06	12 15	12 30	12 35	12 45	→	→	13 30
31L	31420														12 45	12 55	13 35
31F	31452							12 50	12 58	13 06	13 15	13 30	13 35	13 45	→	→	14 30
31L	31460														13 45	13 55	14 35
31A	31492	12 50	13 00	13 13	13 24	13 38	13 50	13 58	14 06	14 15	14 30	14 35	14 45	→	→	15 30
31L	31510														14 45	14 55	15 35
31F	31552							14 50	14 58	15 06	15 15	15 30	15 35	15 45	→	→	16 30
31L	31570														15 45	15 55	16 35
31A	31612	14 50	15 00	15 13	15 24	15 38	15 50	15 58	16 06	16 15	16 30	16 35	16 45	→	→	17 30
31L	31630														16 45	16 55	17 35
31F	31672							16 50	16 58	17 06	17 15	17 30	17 35	17 45	→	→	18 30
31L	31680														17 45	17 55	18 35
31A	31712	16 50	17 00	17 13	17 24	17 38	17 50	17 58	18 06	18 15	18 30	18 35	18 40	→	→	19 25
31L	31720														18 45	18 55	19 35
31F	31742							18 50	18 58	19 06	19 15	19 30	19 35	19 40	→	→	20 20
31L	31750														19 45	19 55	20 30
31A	31782	19 00	19 10	19 23	19 34	19 46	19 55	20 03	20 10	20 18	20 30	20 35	20 40	→	→	21 20
31L	31790														20 45	20 55	21 30
31E	31830							20 55	21 03	21 10	21 18	21 30	21 35	21 40	21 50	22 00	22 30
31	31860	21 00	21 10	21 23	21 34	21 46	21 55	22 03	22 10	22 18	22 30	22 35	22 40	22 45	22 55	23 25
31E	31890							23 00	23 07	23 12	23 19	23 30	23 35	23 40	23 45	23 55	00 25
31E	31920							00 00	00 07	00 12	00 19	00 30	00 35	00 40	00 45	00 55	01 25

31 KITCHENER

Guelph - Georgetown - Brampton - Toronto

Bus Trips - Horaire des autobus

GO Bus service is accessible to passengers using mobility devices at this location.
- Service d'autobus GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.

Parking Available - Stationnement disponible

D Stops to discharge passengers on request ONLY. - Arrêt sur demande SEULEMENT.

S GO Bus services GO Station from bus stop on street. - Les autobus GO desservent la gare à partir de l'arrêt situé sur la rue.

Saturday and Sunday
Samedi et dimanche

WESTBOUND / EN DIRECTION OUEST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→	Toronto 2 Dp	Mississauga 31	Brampton 32	Brampton 33	Brampton 33	Brampton 33	Brampton 33	Brampton 34	Georgetown 35	Georgetown 35	Georgetown 35	Acton 37	Rockwood 38	Guelph 39	Guelph 39 Ar
			Union Station Bus Terminal	**Malton GO**	**Bramalea GO**	**Steeles Ave. E @ Rutherford Road S.**	**Shopper's World**	**Brampton GO**	**Bovaird Dr. W. @ Hurontario St.**	**Mount Pleasant GO**	**Guelph St. @ King St.**	**Georgetown GO**	**Main St. S. @ Cross St.**	**S Acton GO**	**Alma St. @ Inkerman St.**	**S Guelph Central GO**	**University of Guelph**
31	31161		07 30	07 55	08 05	08 10	08 14	08 25	08 31	08 40	08 45	08 55	09 03	09 16	09 28	09 45	10 00
31L	31221		08 30	08 55	09 05												
31F	31233		08 50	→	→	09 15	09 19	09 30	09 36	09 45	09 50	10 05					
31L	31261		09 30	09 55	10 10												
31A	31273		09 50	→	→	10 17	10 21	10 35	10 41	10 50	10 55	11 05	11 13	11 26	11 38	11 55	12 10
31F	31313		10 50	→	→	11 17	11 21	11 35	11 41	11 50	11 55	12 10					
31L	31331		11 00	11 27	11 45												
31A	31353		11 50	→	→	12 22	12 26	12 40	12 46	12 55	13 00	13 10	13 18	13 31	13 43	14 00	14 15
31L	31361		12 00	12 27	12 45												
31F	31393		12 50	→	→	13 22	13 26	13 40	13 46	13 55	14 00	14 15					
31L	31391		13 00	13 27	13 45												
31A	31433		13 50	→	→	14 24	14 28	14 45	14 52	15 02	15 08	15 20	15 28	15 41	15 53	16 10	16 25
31L	31441		14 00	14 27	14 45												
31F	31473		14 50	→	→	15 24	15 28	15 45	15 52	16 02	16 08	16 25					
31L	31481		15 00	15 27	15 45												
31A	31533		15 50	→	→	16 24	16 28	16 45	16 52	17 02	17 08	17 20	17 28	17 41	17 53	18 10	18 25
31L	31541		16 00	16 27	16 45												
31F	31593		16 50	→	→	17 24	17 28	17 45	17 52	18 02	18 08	18 25					
31L	31601		17 00	17 30	17 50												
31A	31653		17 50	→	→	18 24	18 28	18 45	18 52	19 02	19 08	19 20	19 28	19 41	19 53	20 10	20 25
31L	31661		18 00	18 32	18 50												
31F	31693		18 50	→	→	19 22	19 26	19 40	19 47	19 57	20 03	20 20					
31L	31701		19 00	19 27	19 45												
31L	31721		19 30	19 57	20 15												
31A	31733		19 50	→	→	20 22	20 26	20 40	20 46	20 55	21 00	21 11	21 18	21 31	21 43	22 00	22 15
31L	31761		20 30	20 55	21 10												
31F	31773		20 50	→	→	21 20	21 24	21 35	21 41	21 50	21 55	22 10					
31L	31801		21 30	21 55	22 10												
31A	31813		21 50	→	→	22 20	22 24	22 35	22 41	22 50	22 55	23 06	23 13	23 26	23 38	23 55	00 05
31L	31831		22 30	22 55	23 10												
31F	31841		22 50	→	→	23 20	23 24	23 35	23 41	23 50	23 55	00 10					
31	31861		23 30	23 55	00 05	00 10	00 14	00 25	00 31	00 40	00 45	00 56	01 03	01 16	01 28	01 45	01 55
31E	31891		00 30	00 55	01 05	01 10	01 14	01 20	D01 26	D01 35	D01 40	D01 55					
31E	31951		02 30	02 55	03 05	03 10	03 14	03 20	D03 26	D03 35	D03 40	D03 50					

09 LAKESHORE EAST

Newcastle - Bowmanville - Oshawa - Whitby - Ajax - Pickering - Toronto

Bus Trips - Horaire des autobus

Train Trips - Horaire des trains

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

WESTBOUND / EN DIRECTION OUEST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Newcastle 97 Dp King Ave. E. @ Beaver St. S.	Newcastle 97 Hwy. 2 @ Hwy. 35/115	Bowmanville 96 King St. E. @ Liberty St.	Bowmanville 96 Clarington Blvd. @ Durham Hwy. 2 (P&R)	Bowmanville 96 Waverly Rd. @ Baseline Rd.	Courtice 95 Courtice Rd. @ Baseline Rd.	Courtice 95 Durham Hwy. 2 @ Courtice Rd.	Oshawa 94 Bond St. W. @ Centre St. N.	Oshawa 94 Stevenson Rd. S. @ Cartier Ave.	Oshawa 94 First Ave. @ Front St.	Oshawa 94 Ar Oshawa GO
	Zone→											
90B	90001											
90	90021	04 32	04 35	04 42	04 49	→	→	04 57	05 10	05 15	→	05 22
90A	90031	05 12	05 15	05 22	05 29	→	→	05 37	→	→	05 49	05 57
91	91041	05 33	05 36	05 43	05 50	05 54	06 01	→	→	→	→	06 18
90	90061	05 37	05 40	05 47	05 54	→	→	06 02	06 15	06 20	→	06 27
90A	90081	06 08	06 11	06 18	06 25	→	→	06 33	→	→	06 46	06 58
91	91081	06 33	06 36	06 43	06 50	06 54	07 01	→	→	→	→	07 18
90	90091	06 32	06 35	06 42	06 49	→	→	06 57	07 12	07 17	→	07 27
90A	90111	07 07	07 10	07 17	07 24	→	→	07 32	→	→	07 45	07 57
91	91111	07 31	07 34	07 41	07 48	07 52	07 59	→	→	→	→	08 16
90	90121	07 31	07 34	07 41	07 48	→	→	07 56	08 11	08 16	→	08 26
90A	90131	07 58	08 02	08 09	08 18	→	→	08 26	→	→	08 41	08 53
90	90141	08 23	08 27	08 34	08 43	→	→	08 51	09 06	09 11	→	09 23
90	90171	09 28	09 31	09 38	09 45	→	→	09 53	10 08	10 13	→	10 23
90	90201	10 23	10 27	10 34	10 43	→	→	10 51	11 06	11 11	→	11 23
90	90241	11 23	11 27	11 34	11 43	→	→	11 51	12 06	12 11	→	12 23
90	90281	12 23	12 27	12 34	12 43	→	→	12 51	13 06	13 11	→	13 23
90	90321	13 21	13 25	13 32	13 41	→	→	13 49	14 04	14 09	→	14 21
90	90411	14 21	14 25	14 32	14 41	→	→	14 49	15 04	15 09	→	15 21
90	90461	15 18	15 22	15 29	15 38	→	→	15 46	16 01	16 06	→	16 18
90	90511	15 56	16 00	16 07	16 16	→	→	16 24	16 39	16 44	→	16 56
90	90571	16 26	16 30	16 37	16 46	→	→	16 54	17 09	17 14	→	17 26
90	90651	17 28	17 31	17 38	17 45	→	→	17 53	18 08	18 13	→	18 23
90	90731	18 33	18 36	18 43	18 50	→	→	18 58	19 11	19 16	→	19 23
90	90791	19 33	19 36	19 43	19 50	→	→	19 58	20 11	20 16	→	20 23
90	90841	20 33	20 36	20 43	20 50	→	→	20 58	21 11	21 16	→	21 23
90	90871	21 33	21 36	21 43	21 50	→	→	21 58	22 11	22 16	→	22 23
90	90901	22 33	22 36	22 43	22 50	→	→	22 58	23 11	23 16	→	23 23

Transfer/Correspondances / Trip Number/Numéro du parcours	Oshawa 94 Dp Oshawa GO	Whitby 93 Whitby GO	Ajax 92 Ajax GO	Pickering 91 Pickering GO	Scarborough 9 Rouge Hill GO	Scarborough 8 Guildwood GO	Scarborough 8 Eglinton GO	Scarborough 6 Scarborough GO	Toronto 6 Danforth GO	Toronto 2 Ar Union Station
	04 00	04 08	04 18	04 26	→	→	→	→	→	05 00
9003	05 10	05 15	05 22	05 27	05 34	05 41	05 46	05 51	05 56	06 10
9203	05 40	05 45	05 52	05 57	06 04	06 11	06 16	06 21	06 26	06 40
9005	06 10	06 15	06 22	06 27	06 34	06 41	06 46	06 51	06 56	07 10
9205	06 40	06 45	06 52	06 57	07 04	07 11	07 16	07 21	07 26	07 40
9007	07 10	07 15	07 22	07 27	07 34	07 41	07 46	07 51	07 56	08 10
9207	07 40	07 45	07 52	07 57	08 04	08 11	08 16	08 21	08 26	08 40
9209	08 40	08 45	08 52	08 57	09 04	09 11	09 16	09 21	09 26	09 40
9211	09 40	09 45	09 52	09 57	10 04	10 11	10 16	10 21	10 26	10 40
9213	10 40	10 45	10 52	10 57	11 04	11 11	11 16	11 21	11 26	11 40
9215	11 40	11 45	11 52	11 57	12 04	12 11	12 16	12 21	12 26	12 40
9217	12 40	12 45	12 52	12 57	13 04	13 11	13 16	13 21	13 26	13 40
9219	13 40	13 45	13 52	13 57	14 04	14 11	14 16	14 21	14 26	14 40
9221	14 40	14 45	14 52	14 57	15 04	15 11	16 16	15 21	15 26	15 40
9223	15 40	15 45	15 52	15 57	16 04	16 11	16 16	16 21	16 26	16 40
9225	16 40	16 45	16 52	16 57	17 04	17 11	17 16	17 21	17 26	17 40
9227	17 40	17 45	17 52	17 57	18 04	18 11	18 16	18 21	18 26	18 40
9229	18 40	18 45	18 52	18 57	19 04	19 11	19 16	19 21	19 26	19 40
9231	19 40	19 45	19 52	19 57	20 04	20 11	20 16	20 21	20 26	20 40
9233	20 40	20 45	20 52	20 57	21 04	21 11	21 16	21 21	21 26	21 40
9235	21 40	21 45	21 52	21 57	22 04	22 11	22 16	22 21	22 26	22 40
9237	22 40	22 45	22 52	22 57	23 04	23 11	23 16	23 21	23 26	23 40
9239	23 40	23 45	23 52	23 57	00 04	00 11	00 16	00 21	00 26	00 40

09 LAKESHORE EAST

Toronto - Pickering - Ajax - Whitby - Oshawa - Bowmanville - Newcastle

Bus Trips - Horaire des autobus | Train Trips - Horaire des trains

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

EASTBOUND / EN DIRECTION EST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone →	Toronto 2 Dp	Toronto 6	Scarborough 6	Scarborough 8	Scarborough 8	Scarborough 9	Pickering 91	Ajax 92	Whitby 93	Oshawa 94 Ar
			Union Station	Danforth GO	Scarborough GO	Eglinton GO	Guildwood GO	Rouge Hill GO	Pickering GO	Ajax GO	Whitby GO	Oshawa GO
90C	90052		05 30	→	→	→	→	→	06 00	06 07	06 15	06 25
90	9002		06 13	06 24	06 30	06 35	06 40	06 46	06 54	06 59	07 06	07 13
90	9004		07 13	07 24	07 30	07 35	07 40	07 46	07 54	07 59	08 06	08 13
90	9006		08 13	08 24	08 30	08 35	08 40	08 46	08 54	08 59	09 06	09 13
90	9008		09 13	09 24	09 30	09 35	09 40	09 46	09 54	09 59	10 06	10 13
90	9010		10 13	10 24	10 30	10 35	10 40	10 46	10 54	10 59	11 06	11 13
90	9012		11 13	11 24	11 30	11 35	11 40	11 46	11 54	11 59	12 06	12 13
90	9014		12 13	12 24	12 30	12 35	12 40	12 46	12 54	12 59	13 06	13 13
90	9016		13 13	13 24	13 30	13 35	13 40	13 46	13 54	13 59	14 06	14 13
90	9018		14 13	14 24	14 30	14 35	14 40	14 46	14 54	14 59	15 06	15 13
90	9020		15 13	15 24	15 30	15 35	15 40	15 46	15 54	15 59	16 06	16 13
90A	9220		15 43	15 54	16 00	16 05	16 10	16 16	16 24	16 29	16 36	16 43
	9022		16 13	16 24	16 30	16 35	16 40	16 46	16 54	16 59	17 06	17 13
90A	9222		16 43	16 54	17 00	17 05	17 10	17 16	17 24	17 29	17 36	17 43
	9024		17 13	17 24	17 30	17 35	17 40	17 46	17 54	18 59	18 06	18 13
90												
90A	9224		17 43	17 54	18 00	18 05	18 10	18 16	18 24	18 29	18 36	18 43
91	9026		18 13	18 24	18 30	18 35	18 40	18 46	18 54	18 59	19 06	19 13
90												
90A												
90	9028		19 13	19 24	19 30	19 35	19 40	19 46	19 54	19 59	20 06	20 13
90	9030		20 13	20 24	20 30	20 35	20 40	20 46	20 54	20 59	21 06	21 13
90	9032		21 13	21 24	21 30	21 35	21 40	21 46	21 54	21 59	22 06	22 13
90	9034		22 13	22 24	22 30	22 35	22 40	22 46	22 54	22 59	23 06	23 13
90	9036		23 13	23 24	23 30	23 35	23 40	23 46	23 54	23 59	00 06	00 13
90	9038		00 13	00 24	00 30	00 35	00 40	00 46	00 54	00 59	01 06	01 13
	9238		00 43	00 54	01 00	01 05	01 10	01 16	01 24	01 29	01 36	01 43
90B	90980		01 20	→	→	→	→	→	D01 50	D01 57	D02 05	D02 15
90B	90990		02 20	→	→	→	→	→	D02 50	D02 57	D03 05	D03 15

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Transfer/Correspondances / Trip Number/Numéro du parcours	Oshawa 94 Dp	Oshawa 94	Oshawa 94	Oshawa 94	Courtice 95	Courtice 95	Bowmanville 96	Bowmanville 96	Bowmanville 96	Newcastle 97	Newcastle 97 Ar
			Oshawa GO	First Ave. @ Front St.	Stevenson Rd. S. @ Cartier Ave.	King St. E. @ Centre St. N.	Durham Hwy. 2 @ Courtice Rd.	Courtice Rd. @ Baseline Rd.	Waverly Rd. @ Baseline Rd.	Clarington Blvd. @ Durham Hwy. 2 (P&R)	King St. E. @ Liberty St.	Hwy. 2 @ Hwy. 35/115	King Ave. E. @ Beaver St. S.
90C	90052	→	06 25	→	06 29	06 35	06 47	→	→	06 56	07 01	07 09	07 15
90	9002	90220	07 19	→	07 23	07 29	07 43	→	→	07 52	07 58	08 03	08 09
90	9004	90340	08 24	→	08 28	08 34	08 48	→	→	08 57	09 03	09 08	09 14
90	9006	90380	09 24	→	09 28	09 34	09 48	→	→	09 57	10 03	10 08	10 14
90	9008	90430	10 23	→	10 27	10 33	10 47	→	→	10 56	11 02	11 07	11 13
90	9010	90480	11 24	→	11 29	11 35	11 49	→	→	11 58	12 05	12 13	12 19
90	9012	90520	12 24	→	12 29	12 35	12 49	→	→	12 58	13 05	13 13	13 19
90	9014	90560	13 22	→	13 27	13 33	13 47	→	→	13 56	14 03	14 11	14 17
90	9016	90600	14 22	→	14 27	14 33	14 49	→	→	14 58	15 05	15 13	15 22
90	9018	90640	15 19	→	15 24	15 30	15 46	→	→	15 55	16 02	16 10	16 19
90	9020	90680	16 21	→	16 29	16 36	16 52	→	→	17 01	17 07	17 15	17 21
90A	9220	90690	16 56	17 04	→	→	17 22	→	→	17 31	17 37	17 45	17 51
	9022	90710	17 17	→	17 25	17 32	17 48	→	→	17 57	18 03	18 11	18 17
		91720	17 16	→	→	→	→	17 28	17 38	17 44	17 49	17 56	18 06
90A	9222	90730	17 45	17 53	→	→	18 11	→	→	18 20	18 26	18 34	18 40
	9024	91740	18 16	→	→	→	→	18 28	18 38	18 44	18 49	18 56	19 06
90		90750	18 16	→	18 22	18 28	18 43	→	→	18 52	18 56	19 05	19 11
90A	9224	90770	18 47	18 57	→	→	19 14	→	→	19 23	19 28	19 36	19 42
91	9026	91780	19 16	→	→	→	→	19 28	19 36	19 43	19 46	19 53	20 01
90		90800	19 22	→	19 26	19 32	19 44	→	→	19 53	19 58	20 06	20 12
90A		90810	19 49	19 57	→	→	20 11	→	→	20 20	20 25	20 33	20 39
90	9028	90830	20 23	→	20 27	20 33	20 45	→	→	20 54	20 59	21 07	21 13
90	9030	90860	21 19	→	21 23	21 29	21 40	→	→	21 48	21 52	21 58	22 04
90	9032	90890	22 19	→	22 23	22 29	22 40	→	→	22 48	22 52	22 58	23 04
90	9034	90920	23 19	→	23 23	23 29	23 40	→	→	23 48	23 52	23 58	00 04
90	9036	90950	00 19	→	00 23	00 29	00 40	→	→	00 48	00 52	00 58	01 04
90	9038	90970	01 19	→	01 23	01 29	01 40	→	→	01 48	01 52	01 58	02 04
	9238												
90B	90980												
90B	90990												

09 LAKESHORE EAST

Newcastle - Bowmanville - Oshawa - Whitby - Ajax - Pickering - Toronto

Bus Trips - Horaire des autobus | Train Trips - Horaire des trains

Saturday and Sunday
Samedi et dimanche

WESTBOUND / EN DIRECTION OUEST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→	Newcastle 97 Dp King Ave. E. @ Beaver St. S.	Newcastle 97 Hwy. 2 @ Hwy. 35/115	Bowmanville 96 King St. E. @ Liberty St.	Bowmanville 96 Clarington Blvd. @ Durham Hwy. 2 (P&R)	Courtice 95 Durham Hwy. 2 @ Courtice Rd.	Oshawa 94 Bond St. W. @ Centre St. N.	Oshawa 94 Stevenson Rd. S. @ Cartier Ave.	Oshawa 94 Ar Oshawa GO	Transfer/Correspondances Trip Number/Numéro du parcours	Oshawa 94 Dp Oshawa GO	Whitby 93 Whitby GO	Ajax 92 Ajax GO	Pickering 91 Pickering GO	Scarborough 9 Rouge Hill GO	Scarborough 8 Guildwood GO	Scarborough 8 Eglinton GO	Scarborough 6 Scarborough GO	Toronto 6 Danforth GO	Toronto 2 Ar Union Station
90B	90001											04 45	04 52	05 01	05 08	→	→	→	→	→	05 40
90B	90011											05 35	05 42	05 51	05 58	→	→	→	→	→	06 30
											9005	06 10	06 15	06 22	06 27	06 34	06 41	06 46	06 51	06 56	07 10
90	90051		05 41	05 44	05 50	05 56	06 04	06 15	06 19	06 26											
90	90091		06 36	06 39	06 46	06 53	07 01	07 14	07 19	07 26	9207	07 40	07 45	07 52	07 57	08 04	08 11	08 16	08 21	08 26	08 40
90	90121		07 36	07 39	07 46	07 53	08 01	08 14	08 19	08 26	9209	08 40	08 45	08 52	08 57	09 04	09 11	09 16	09 21	09 26	09 40
90	90141		08 36	08 39	08 46	08 53	09 01	09 14	09 19	09 26	9211	09 40	09 45	09 52	09 57	10 04	10 11	10 16	10 21	10 26	10 40
90	90171		09 36	09 39	09 46	09 53	10 01	10 14	10 19	10 26	9213	10 40	10 45	10 52	10 57	11 04	11 11	11 16	11 21	11 26	11 40
90	90201		10 36	10 39	10 46	10 53	11 01	11 14	11 19	11 26	9215	11 40	11 45	11 52	11 57	12 04	12 11	12 16	12 21	12 26	12 40
90	90241		11 31	11 34	11 41	11 48	11 56	12 11	12 16	12 26	9217	12 40	12 45	12 52	12 57	13 04	13 11	13 16	13 21	13 26	13 40
90	90281		12 31	12 34	12 41	12 48	12 56	13 11	13 16	13 26	9219	13 40	13 45	13 52	13 57	14 04	14 11	14 16	14 21	14 26	14 40
90	90321		13 31	13 34	13 41	13 48	13 56	14 11	14 16	14 26	9221	14 40	14 45	14 52	14 57	15 04	15 11	15 16	15 21	15 26	15 40
90	90411		14 31	14 34	14 41	14 48	14 56	15 11	15 16	15 26	9223	15 40	15 45	15 52	15 57	16 04	16 11	16 16	16 21	16 26	16 40
90	90491		15 36	15 39	15 46	15 53	16 01	16 14	16 19	16 26	9225	16 40	16 45	16 52	16 57	17 04	17 11	17 16	17 21	17 26	17 40
90	90571		16 36	16 39	16 46	16 53	17 01	17 14	17 19	17 26	9227	17 40	17 45	17 52	17 57	18 04	18 11	18 16	18 21	18 26	18 40
90	90651		17 36	17 39	17 46	17 53	18 01	18 14	18 19	18 26	9229	18 40	18 45	18 52	18 57	19 04	19 11	19 16	19 21	19 26	19 40
90	90731		18 36	18 39	18 46	18 53	19 01	19 14	19 19	19 26	9231	19 40	19 45	19 52	19 57	20 04	20 11	20 16	20 21	20 26	20 40
90	90791		19 36	19 39	19 46	19 53	20 01	20 14	20 19	20 26	9233	20 40	20 45	20 52	20 57	21 04	21 11	21 16	21 21	21 26	21 40
90	90841		20 36	20 39	20 46	20 53	21 01	21 14	21 19	21 26	9235	21 40	21 45	21 52	21 57	22 04	22 11	22 16	22 21	22 26	22 40
90	90871		21 36	21 39	21 46	21 53	22 01	22 14	22 19	22 26	9237	22 40	22 45	22 52	22 57	23 04	23 11	23 16	23 21	23 26	23 40
90	90901		22 36	22 39	22 46	22 53	23 01	23 14	23 19	23 26	9239	23 40	23 45	23 52	23 57	00 04	00 11	00 16	00 21	00 26	00 40

09 LAKESHORE EAST

Toronto - Pickering - Ajax - Whitby - Oshawa - Bowmanville - Newcastle

Bus Trips - Horaire des autobus | Train Trips - Horaire des trains

Saturday and Sunday
Samedi et dimanche

EASTBOUND / EN DIRECTION EST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→	Toronto 2 Dp	Toronto 6	Scarborough 6	Scarborough 8	Scarborough 8	Scarborough 9	Pickering 91	Ajax 92	Whitby 93	Oshawa 94 Ar
			Union Station	Danforth GO	Scarborough GO	Eglinton GO	Guildwood GO	Rouge Hill GO	Pickering GO	Ajax GO	Whitby GO	Oshawa GO
90C	90220		06 20	→	→	→	→	→	06 50	06 57	07 05	07 15
90	9004		07 13	07 24	07 30	07 35	07 40	07 46	07 54	07 59	08 06	08 13
90	9006		08 13	08 24	08 30	08 35	08 40	08 46	08 54	08 59	09 06	09 13
90	9008		09 13	09 24	09 30	09 35	09 40	09 46	09 54	09 59	10 06	10 13
90	9010		10 13	10 24	10 30	10 35	10 40	10 46	10 54	10 59	11 06	11 13
90	9012		11 13	11 24	11 30	11 35	11 40	11 46	11 54	11 59	12 06	12 13
90	9014		12 13	12 24	12 30	12 35	12 40	12 46	12 54	12 59	13 06	13 13
90	9016		13 13	13 24	13 30	13 35	13 40	13 46	13 54	13 59	14 06	14 13
90	9018		14 13	14 24	14 30	14 35	14 40	14 46	14 54	14 59	15 06	15 13
90	9020		15 13	15 24	15 30	15 35	15 40	15 46	15 54	15 59	16 06	16 13
90	9022		16 13	16 24	16 30	16 35	16 40	16 46	16 54	16 59	17 06	17 13
90	9024		17 13	17 24	17 30	17 35	17 40	17 46	17 54	17 59	18 06	18 13
90	9026		18 13	18 24	18 30	18 35	18 40	18 46	18 54	18 59	19 06	19 13
90	9028		19 13	19 24	19 30	19 35	19 40	19 46	19 54	19 59	20 06	20 13
90	9030		20 13	20 24	20 30	20 35	20 40	20 46	20 54	20 59	21 06	21 13
90	9032		21 13	21 14	21 30	21 35	21 40	21 46	21 54	21 59	22 06	22 13
90	9034		22 13	22 24	22 30	22 35	22 40	22 46	22 54	22 59	23 06	23 13
90	9036		23 13	23 24	23 30	23 35	23 40	23 46	23 54	23 59	00 06	00 13
90												
	9238		00 43	00 54	01 00	01 05	01 10	01 16	01 24	01 29	01 36	01 43
90B	90980		01 20	→	→	→	→	→	D01 50	D01 57	D02 05	D02 15
90B	90990		02 20	→	→	→	→	→	D02 50	D02 57	D03 05	D03 15

Transfer/Correspondances / Trip Number/Numéro du parcours	Oshawa 94 Dp	Oshawa 94	Oshawa 94	Courtice 95	Bowmanville 96	Bowmanville 96	Newcastle 97	Newcastle 97 Ar
	Oshawa GO	Stevenson Rd. S. @ Cartier Ave.	King St. E. @ Centre St. N.	Durham Hwy. 2 @ Courtice Rd.	Clarington Blvd. @ Durham Hwy. 2 (P&R)	King St. E. @ Liberty St.	Hwy. 2 @ Hwy. 35/115	King Ave. E. @ Beaver St. S.
→	07 15	07 19	07 25	07 36	07 44	07 48	07 53	08 00
90280	08 16	08 20	08 26	08 40	08 49	08 54	08 59	09 06
90380	09 16	09 20	09 26	09 40	09 49	09 54	09 59	10 06
90430	10 16	10 20	10 26	10 40	10 49	10 54	10 59	11 06
90480	11 16	11 20	11 26	11 40	11 49	11 54	11 59	12 06
90520	12 16	12 20	12 26	12 40	12 49	12 54	12 59	13 06
90560	13 16	13 20	13 26	13 40	13 49	13 54	13 59	14 06
90600	14 16	14 20	14 26	14 40	14 49	14 54	14 59	15 06
90640	15 16	15 22	15 28	15 42	15 51	15 56	16 04	16 11
90680	16 16	16 22	16 28	16 42	16 51	16 56	17 04	17 11
90720	17 16	17 20	17 26	17 40	17 49	17 54	17 59	18 06
90750	18 16	18 20	18 26	18 40	18 49	18 54	18 59	19 06
90800	19 16	19 20	19 26	19 40	19 49	19 54	19 59	20 06
90830	20 16	20 20	20 26	20 40	20 49	20 54	20 59	21 06
90860	21 16	21 20	21 26	21 37	21 45	21 49	21 54	22 01
90890	22 16	22 20	22 26	22 37	22 45	22 49	22 54	23 01
90920	23 16	23 20	23 26	23 37	23 45	23 49	23 54	00 01
90950	00 16	00 20	00 26	00 37	00 45	00 49	00 54	01 01
90970	01 16	01 20	01 26	01 37	01 45	01 49	01 54	02 01

01 LAKESHORE WEST

Hamilton - Burlington - Oakville - Mississauga - Toronto

Bus Trips - Horaire des autobus | Train Trips

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

EASTBOUND / EN DIRECTION EST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→	Hamilton 18 Dp West Harbour GO	Hamilton 18 Dp Hamilton GO Centre	Hamilton 18 King St. W. & Dundurn St. N.	Burlington 17 Ar Aldershot GO	Transfer - Correspondances / Trip Number/Numéro du parcours	Burlington 17 Dp Aldershot GO	Burlington 16 Burlington GO	Burlington 15 Appleby GO	Oakville 14 Bronte GO	Oakville 13 Oakville GO	Mississauga 12 Clarkson GO	Mississauga 10 Port Credit GO	Etobicoke 59 Long Branch GO	Etobicoke 79 Mimico GO	Toronto 2 Exhibition GO	Toronto 2 Ar Union Station
18G	18020			04 15	04 19	04 30	→	04 30	04 40	→	→	04 55↓	→	→	→	→	→	05 25
18H	18022											04 55**h**	05 05	05 15	→	→	→	05 40
18	18040			04 33	04 37	04 48	1002	05 05	05 11	05 17	05 22	05 28	05 35	05 41	05 47	05 54	06 00	06 10
18	18090			05 33	05 37	05 48	1004	06 05	06 11	06 17	06 22	06 28	06 35	06 41	06 47	06 54	07 00	07 10
	1804			06 20	→	06 35	→	06 35	06 41	06 47	06 52	06 58	07 05	07 11	07 17	07 24	07 30	07 40
18	18170			06 31	06 35	06 46	1006	07 05	07 11	07 17	07 22	07 28	07 35	07 41	07 47	07 54	08 00	08 10
	1806			07 20	→	07 35	→	07 35	07 41	07 47	07 52	07 58	08 05	08 11	08 17	08 24	08 30	08 40
18	18250			07 29	07 36	07 46	1008	08 05	08 11	08 17	08 22	08 28	08 35	08 41	08 47	08 54	09 00	09 10
18	18340			08 34	08 41	08 51	1010	09 05	09 11	09 17	09 22	09 28	09 35	09 41	09 47	09 54	10 00	10 10
18	18400			09 36	09 43	09 51	1012	10 05	10 11	10 17	10 22	10 28	10 35	10 41	10 47	10 54	11 00	11 10
18	18440			10 31	10 38	10 46	1014	11 05	11 11	11 17	11 22	11 28	11 35	11 41	11 47	11 54	12 00	12 10
18	18490			11 31	11 38	11 46	1016	12 05	12 11	12 17	12 22	12 28	12 35	12 41	12 47	12 54	13 00	13 10
18	18530			12 31	12 38	12 46	1018	13 05	13 11	13 17	13 22	13 28	13 35	13 41	13 47	13 54	14 00	14 10
18	18570			13 31	13 38	13 46	1020	14 05	14 11	14 17	14 22	14 28	14 35	14 41	14 47	14 54	15 00	15 10
18	18610			14 28	14 35	14 43	1022	15 05	15 11	15 17	15 22	15 28	15 35	15 41	15 47	15 54	16 00	16 10
18	18650			15 29	15 39	15 46	1024	16 05	16 11	16 17	16 22	16 28	16 35	16 41	16 47	16 54	17 00	17 10
18	18690			16 29	16 39	16 46	1026	17 05	17 11	17 17	17 22	17 28	17 35	17 41	17 47	17 54	18 00	18 10
18	18730			17 29	17 39	17 46	1028	18 05	18 11	18 17	18 22	18 28	18 35	18 41	18 47	18 54	19 00	19 10
18	18770			18 31	18 38	18 46	1030	19 05	19 11	19 17	19 22	19 28	19 35	19 41	19 47	19 54	20 00	20 10
18	18810			19 31	19 38	19 46	1032	20 05	20 11	20 17	20 22	20 28	20 35	20 41	20 47	20 54	21 00	21 10
18	18840			20 31	20 38	20 46	1034	21 05	21 11	21 17	21 22	21 28	21 35	21 41	21 47	21 54	22 00	22 10
18	18870			21 31	21 38	21 46	1036	22 05	22 11	22 17	22 22	22 28	22 35	22 41	22 47	22 54	23 00	23 10
18	18920			23 01	23 08	23 16	1238	23 35	23 41	23 47	23 52	23 58	00 05	00 11	00 17	00 24	00 30	00 40
18	18930			23 31	23 38	23 46	1490	00 01	→	→	→	→	→	→	00 30			
							1494	01 01	→	→	→	→	→	→	01 30			
							1498	02 01	→	→	→	→	→	→	02 30			

01 LAKESHORE WEST

Toronto - Mississauga - Oakville - Burlington - Hamilton

Bus Trips - Horaire des autobus | Train Trips - Horaire des trains

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

WESTBOUND / EN DIRECTION OUEST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→	Toronto 2 Dp	Toronto 2	Etobicoke 79	Etobicoke 59	Mississauga 10	Mississauga 12	Oakville 13	Oakville 14	Burlington 15	Burlington 16	Burlington 17 Ar	Transfer -Correspondances / Trip Number/Numéro du parcours	Burlington 17 Dp	Hamilton 18	Hamilton 18 Ar	Hamilton 18 Ar
			Union Station	Exhibition GO	Mimico GO	Long Branch GO	Port Credit GO	Clarkson GO	Oakville GO	Bronte GO	Appleby GO	Burlington GO	Aldershot GO		Aldershot GO	Main St. W. @ Longwood Rd. S.	Hamilton GO Centre	West Harbour GO
18C	18051		05 30	→	→	→	05 48	06 00	06 12	06 23	06 33	06 45	06 55	→	06 55	07 02	07 15	
18	1203		06 43	06 50	06 58	07 04	07 09	07 16	07 23	07 29	07 35	07 41	07 48	18091	07 59**h**	08 09	08 19	
18	1205		07 43	07 50	07 58	08 04	08 09	08 16	08 23	08 29	08 35	08 41	08 48	18141	09 04**h**	09 11	09 21	
18	1207		08 43	08 50	08 58	09 04	09 09	09 16	09 23	09 29	09 35	09 41	09 48	18171	10 04**h**	10 11	10 21	
18	1209		09 43	09 50	09 58	10 04	10 09	10 16	10 23	10 29	10 35	10 41	10 48	18201	10 59**h**	11 06	11 16	
18	1211		10 43	10 50	10 58	11 04	11 09	11 16	11 23	11 29	11 35	11 41	11 48	18241	11 59**h**	12 06	12 16	
18E	1213		11 43	11 50	11 58	12 04	12 09	12 16	12 23	12 29	12 35	12 41	12 48	18281	12 59**h**	13 06	13 16	**D**13 26
18E	1215		12 43	12 50	12 58	13 04	13 09	13 16	13 23	13 29	13 35	13 41	13 48	18331	13 59**h**	14 06	14 16	**D**14 26
18E	1217		13 43	13 50	13 58	14 04	14 09	14 16	14 23	14 29	14 35	14 41	14 48	18411	14 59**h**	15 06	15 19	**D**15 29
18E	1219		14 43	14 50	14 58	15 04	15 09	15 16	15 23	15 29	15 35	15 41	15 48	18491	15 59**h**	16 06	16 19	**D**16 29
18	1221		15 43	15 50	15 58	16 04	16 09	16 16	16 23	16 29	16 35	16 41	16 48	18571	16 56**h**	17 08	17 20	
	1823		16 13	16 20	16 28	16 34	16 39	16 46	16 53	16 59	17 05	17 11	17 18	→	17 18	→	17 35	
18	1223		16 43	16 50	16 58	17 04	17 09	17 16	17 23	17 29	17 35	17 41	17 48	18641	17 56**h**	18 08	18 20	
	1825		17 13	17 20	17 28	17 34	17 39	17 46	17 53	17 59	18 05	18 11	18 18	→	18 18	→	18 35	
18	1225		17 43	17 50	17 58	18 04	18 09	18 16	18 23	18 29	18 35	18 41	18 48	18721	18 56**h**	19 03	19 13	**D**19 18
18E	1227		18 43	18 50	18 58	19 04	19 09	19 16	19 23	19 29	19 35	19 41	19 48	18781	19 59**h**	20 06	20 16	**D**20 21
18E	1229		19 43	19 50	19 58	20 04	20 09	20 16	20 23	20 29	20 35	20 41	20 48	18841	20 59**h**	21 06	21 14	**D**21 19
18E	1231		20 43	20 50	20 58	21 04	21 09	21 16	21 23	21 29	21 35	21 41	21 48	18871	21 59**h**	22 06	22 14	**D**22 19
18	1233		21 43	21 50	21 58	22 04	22 09	22 16	22 23	22 29	22 35	22 41	22 48	18901	22 59**h**	23 06	23 14	
18	1235		22 43	22 50	22 58	23 04	23 09	23 16	23 23	23 29	23 35	23 41	23 48	18921	23 59**h**	00 06	00 14	
18	1237		23 43	23 50	23 58	00 04	00 09	00 16	00 23	00 29	00 35	00 41	00 48	18941	00 59**h**	01 06	01 14	
18	1239		00 43	00 50	00 58	01 04	01 09	01 16	01 23	01 29	01 35	01 41	01 48	18961	01 59**h**	02 06	02 14	
18C	18971		01 30	→	→	→	01 48	01 58	02 07	02 15	02 25	02 33	02 43	→	02 43	**D**02 50	**D**03 00	
18C	18991		02 30	→	→	→	02 48	02 58	03 07	03 15	03 25	03 33	03 43	→	03 43	**D**03 50	**D**04 00	

01 LAKESHORE WEST

Hamilton - Burlington - Oakville - Mississauga - Toronto

Bus Trips - Horaire des autobus

Train Trips - Horaire des trains

Saturday and Sunday
Samedi et dimanche

EASTBOUND / EN DIRECTION EST

Route Number Numéro du trajet	Trip Number Numéro du parcours	Zone→ Hamilton 18 Dp Hamilton GO Centre	Hamilton 18 King St. W. & Dundurn St. N.	Burlington 17 Ar Aldershot GO	Transfer -Correspondances Trip Number/Numéro du parcours	Burlington 17 Dp Aldershot GO	Burlington 16 Burlington GO	Burlington 15 Appleby GO	Oakville 14 Bronte GO	Oakville 13 Oakville GO	Mississauga 12 Clarkson GO	Mississauga 10 Port Credit GO	Etobicoke 59 Long Branch GO	Etobicoke 79 Mimico GO	Toronto 2 Exhibition GO	Toronto 2 Ar Union Station
18B	18050	04 30	04 37	04 45	→	04 45	04 55	→	→	05 10	05 20	05 30	→	→	→	05 55
18B	18090	05 30	05 37	05 45	→	05 45	05 55	→	→	06 10	06 20	06 30	→	→	→	06 55
18	18100	06 01	06 08	06 16	1204	06 35	06 41	06 47	06 52	06 58	07 05	07 11	07 17	07 24	07 30	07 40
18	18170	06 31	06 38	06 46	1006	07 35	07 11	07 17	07 22	07 28	07 35	07 41	07 47	07 54	08 00	08 10
18	18250	07 31	07 38	07 46	1008	08 05	08 11	08 17	08 22	08 28	08 35	08 41	08 47	08 54	09 00	09 10
18	18340	08 31	08 38	08 46	1010	09 05	09 11	09 17	09 22	09 28	09 35	09 41	09 47	09 54	10 00	10 10
18	18400	09 31	09 38	09 46	1012	10 05	10 11	10 17	10 22	10 28	10 35	10 41	10 47	10 54	11 00	11 10
18	18440	10 31	10 38	10 46	1014	11 05	11 11	11 17	11 22	11 28	11 35	11 41	11 47	11 54	12 00	12 10
18	18490	11 31	11 38	11 46	1016	12 05	12 11	12 17	12 22	12 28	12 35	12 41	12 47	12 54	13 00	13 10
18	18530	12 31	12 38	12 46	1018	13 05	13 11	13 17	13 22	13 28	13 35	13 41	13 47	13 54	14 00	14 10
18	18570	13 31	13 38	13 46	1020	14 05	14 11	14 17	14 22	14 28	14 35	14 41	14 47	14 54	15 00	15 10
18	18610	14 31	14 38	14 46	1022	15 05	15 11	15 17	15 22	15 28	15 35	15 41	15 47	15 54	16 00	16 10
18	18650	15 31	15 38	15 46	1024	16 05	16 11	16 17	16 22	16 28	16 35	16 41	16 47	16 54	17 00	17 10
18	18690	16 31	16 38	16 46	1026	17 05	17 11	17 17	17 22	17 28	17 35	17 41	17 47	17 54	18 00	18 10
18	18730	17 31	17 38	17 46	1028	18 05	18 11	18 17	18 22	18 28	18 35	18 41	18 47	18 54	19 00	19 10
18	18770	18 31	18 38	18 46	1030	19 05	19 11	19 17	19 22	19 28	19 35	19 41	19 47	19 54	20 00	20 10
18	18810	19 31	19 38	19 46	1032	20 05	20 11	20 17	20 22	20 28	20 35	20 41	20 47	20 54	21 00	21 10
18	18840	20 31	20 38	20 46	1034	21 05	21 11	21 17	21 22	21 28	21 35	21 41	21 47	21 54	22 00	22 10
18	18870	21 31	21 38	21 46	1036	22 05	22 11	22 17	22 22	22 28	22 35	22 41	22 47	22 54	23 00	23 10
18	18920	23 01	23 08	23 16	1238	23 35	23 41	23 47	23 52	23 58	00 05	00 11	00 17	00 24	00 30	00 40
18	18930	23 31	23 38	23 46	1490	00 01	→	→	→	→	→	→	00 30			
					1494	01 01	→	→	→	→	→	→	01 30			
					1498	02 01	→	→	→	→	→	→	02 30			

01 LAKESHORE WEST

Toronto - Mississauga - Oakville - Burlington - Hamilton

Bus Trips - Horaire des autobus

Train Trips - Horaire des trains

Saturday and Sunday
Samedi et dimanche

WESTBOUND / EN DIRECTION OUEST

Route Number Numéro du trajet	Trip Number Numéro du parcours	Exception 1	Toronto 2 Dp Union Station	Toronto 2 Exhibition GO	Etobicoke 79 Mimico GO	Etobicoke 59 Long Branch GO	Mississauga 10 Port Credit GO	Mississauga 12 Clarkson GO	Oakville 13 Oakville GO	Oakville 14 Bronte GO	Burlington 15 Appleby GO	Burlington 16 Burlington GO	Burlington 17 Ar Aldershot GO	Transfer -Correspondances Trip Number/Numero du parcours	Burlington 17 Dp Aldershot GO	Hamilton 18 Main St. W. @ Longwood Rd. S	Hamilton 18 Ar Hamilton GO Centre
18	1203		06 43	06 50	06 58	07 04	07 09	07 16	07 23	07 29	07 35	07 41	07 48	18081	07 59**h**	08 06	08 14
18	1205		07 43	07 50	07 58	08 04	08 09	08 16	08 23	08 29	08 35	08 41	08 48	18131	08 59**h**	09 06	09 14
18	1207		08 43	08 50	08 58	09 04	09 09	09 16	09 23	09 29	09 35	09 41	09 48	18171	09 59**h**	10 06	10 14
18	1209		09 43	09 50	09 58	10 04	10 09	10 16	10 23	10 29	10 35	10 41	10 48	18201	10 59**h**	11 06	11 14
18	1211		10 43	10 50	10 58	11 04	11 09	11 16	11 23	11 29	11 35	11 41	11 48	18241	11 59**h**	12 06	12 14
18	1213		11 43	11 50	11 58	12 04	12 09	12 16	12 23	12 29	12 35	12 41	12 48	18281	12 59**h**	13 07	13 16
18	1215		12 43	12 50	12 58	13 04	13 09	13 16	13 23	13 29	13 35	13 41	13 48	18331	13 59**h**	14 07	14 16
18	1217		13 43	13 50	13 58	14 04	14 09	14 16	14 23	14 29	14 35	14 41	14 48	18411	14 59**h**	15 07	15 16
18	1219		14 43	14 50	14 58	15 04	15 09	15 16	15 23	15 29	15 35	15 41	15 48	18491	15 59**h**	16 07	16 16
18	1221		15 43	15 50	15 58	16 04	16 09	16 16	16 23	16 29	16 35	16 41	16 48	18541	16 59**h**	17 07	17 16
18	1223		16 43	16 50	16 58	17 04	17 09	17 16	17 23	17 29	17 35	17 41	17 48	18641	17 59**h**	18 07	18 16
18	1225		17 43	17 50	17 58	18 04	18 09	18 16	18 23	18 29	18 35	18 41	18 48	18721	18 59**h**	19 06	19 16
18	1227		18 43	18 50	18 58	19 04	19 09	19 16	19 23	19 29	19 35	19 41	19 48	18781	19 59**h**	20 06	20 16
18	1229		19 43	19 50	19 58	20 04	20 09	20 16	20 23	20 29	20 35	20 41	20 48	18841	20 59**h**	21 06	21 16
18	1231		20 43	20 50	20 58	21 04	21 09	21 16	21 23	21 29	21 35	21 41	21 48	18871	21 59**h**	22 06	22 14
18	1233		21 43	21 50	21 58	22 04	22 09	22 16	22 23	22 29	22 35	22 41	22 48	18901	22 59**h**	23 06	23 14
18	1235		22 43	22 50	22 58	23 04	23 09	23 16	23 23	23 29	23 35	23 41	23 48	18931	23 59**h**	00 06	00 14
18	1237		23 43	23 50	23 58	00 04	00 09	00 16	00 23	00 29	00 35	00 41	00 48	18961	00 59**h**	01 06	01 14
18	1239		00 43	00 50	00 58	01 04	01 09	01 16	01 23	01 29	01 35	01 41	01 48	18981	01 59**h**	02 06	02 14
18C	18991		01 30	→	→	→	01 48	01 58	02 07	02 15	02 25	02 33	02 43	→	02 43	**D**02 50	**D**03 00
18C	18999		02 30	→	→	→	02 48	02 58	03 07	03 15	03 25	03 33	03 43	→	03 43	**D**03 50	**D**04 00

21 MILTON

Milton - Meadowvale - Mississauga - Toronto

Bus Trips - Horaire des autobus | Train Trips - Horaire des trains

GO Bus service is accessible to passengers using mobility devices at this location.
- Service d'autobus GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.

GO Train & GO Bus service is accessible to passengers using mobility devices at this location.
- Les services de trains et d'autobus GO sont accessibles aux utilisateurs d'un appareil d'aide à la mobilité à cet endroit.

Parking Available - Stationnement disponible

D Stops to discharge passengers on request ONLY. - Arrêt sur demande SEULEMENT.

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

EASTBOUND / EN DIRECTION EST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Exception	Milton 24 Dp — Milton GO	Mississauga 23 — Lisgar GO	Mississauga 22 — Derry Rd. W. @ Ninth Line	Mississauga 22 — Aquitane Ave. @ Meadowvale Town Centre Circle	Mississauga 22 — Meadowvale GO	Mississauga 21 — Streetsville GO	Mississauga 40 — Erindale GO	Mississauga 20 — Square One	Mississauga 11 — Cooksville GO	Mississauga 11 — Dixie GO	Etobicoke 3 — Kipling GO	Toronto 2 Ar — Union Station
21T	21060								05 10	→	05 20	→	→	05 40
21B	21062		04 50	→	05 01	05 05	05 15	→	→	→	→	→	→	05 45
21E	21072			05 00	→	→	→	05 15	→	→	→	→	→	05 50
21H	21090									05 45	05 55	06 05	→	06 40
21G	21092								05 55	→	→	→	→	06 35
21B	21104		05 30	→	05 41	05 45	05 55	→	→	→	→	→	→	06 40
	2704		06 00	06 08	→	→	06 13	06 19	06 24	→	06 29	06 34	06 40	07 00
	2714		07 00	07 08	→	→	07 13	07 19	07 24	→	07 29	07 34	07 40	08 00
	2722		07 45	07 53	→	→	07 58	08 04	08 09	→	08 14	08 19	08 25	08 45
	2728		08 30	08 38	→	→	08 43	08 49	08 54	→	08 59	09 04	09 10	09 30
21K	21276									09 05	→	→	→	10 00
21L	21280										09 25	→	→	10 10
21M	21286											09 40	→	10 15
21C	21294						09 25	→	→	→	→	→	→	10 20
21J	21290									09 35	09 45	→	→	10 25
21B	21284		09 00	→	09 14	09 21	09 30	→	→	→	→	→	→	10 25
21E	21282			09 10	→	→	→	09 25	→	→	→	→	→	10 25
21G	21292								09 40	→	→	→	→	10 30
21H	21300									09 45	09 55	10 05	→	10 40
21B	21304		09 20	→	09 34	09 41	09 50	→	→	→	→	→	→	10 40
21E	21302			09 40	→	→	→	09 55	→	→	→	→	→	10 55
21J	21310									10 05	10 15	→	→	10 55
21H	21320									10 20	10 30	10 40	→	11 15
21G	21336								10 40	→	→	→	→	11 25
21B	21344		10 20	→	10 34	10 41	10 50	→	→	→	→	→	→	11 35

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

EASTBOUND / EN DIRECTION EST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Exception	Milton GO (Zone 24, Dp)	Lisgar GO (Mississauga, Zone 23)	Derry Rd. W. @ Ninth Line (Mississauga, Zone 22)	Aquitane Ave. @ Meadowvale Town Centre Circle (Mississauga, Zone 22)	Meadowvale GO (Mississauga, Zone 22)	Streetsville GO (Mississauga, Zone 21)	Erindale GO (Mississauga, Zone 40)	Square One (Mississauga, Zone 20)	Cooksville GO (Mississauga, Zone 11)	Dixie GO (Mississauga, Zone 11)	Kipling GO (Etobicoke, Zone 3)	Union Station (Toronto, Zone 2, Ar)
21H	21340									10 50	11 00	11 10	→	11 45
21D	21352			10 40	→	→	→	10 57	11 15	→	→	→	→	12 00
21H	21360									11 20	11 30	11 40	→	12 15
21B	21384		11 20	→	11 34	11 41	11 50	→	→	→	→	→	→	12 35
21D	21392			11 40	→	→	→	11 57	12 15	→	→	→	→	13 00
21H	21400									12 20	12 32	12 45	→	13 20
21B	21424		12 20	→	12 34	12 41	12 50	→	→	→	→	→	→	13 35
21D	21432			12 40	→	→	→	12 57	13 15	→	→	→	→	14 00
21H	21440									13 20	13 32	13 45	→	14 20
21B	21464		13 20	→	13 34	13 41	13 50	→	→	→	→	→	→	14 35
21D	21472			13 40	→	→	→	13 57	14 15	→	→	→	→	15 00
21H	21490									14 20	14 32	14 45	→	15 20
21B	21514		14 20	→	14 34	14 41	14 50	→	→	→	→	→	→	15 40
21D	21532			14 40	→	→	→	14 57	15 15	→	→	→	→	16 05
21H	21550									15 20	15 32	15 45	→	16 20
21B	21604		15 20	→	15 34	15 41	15 50	→	→	→	→	→	→	16 45
21D	21602			15 40	→	→	→	15 57	16 15	→	→	→	→	17 10
21H	21610									16 20	16 32	16 45	→	17 30
21B	21664		16 20	→	16 34	16 41	16 50	→	→	→	→	→	→	17 55
21D	21662			16 40	→	→	→	16 59	17 20	→	→	→	→	18 20
21H	21670									17 20	17 32	17 45	→	18 35
21B	21702		17 20	→	17 34	17 41	17 50	→	→	→	→	→	→	18 55
21D	21692			17 40	→	→	→	17 59	18 20	→	→	→	→	19 20
21H	21700									18 20	18 32	18 45	→	19 30
21N	21742		18 20	→	18 34	18 41	18 50	19 00	19 15	→	→	→	→	20 00
21H	21740									19 25	19 35	19 45	→	20 20
21	21780		19 20	→	19 34	19 41	19 50	20 00	20 15	20 30	20 40	20 50	→	21 15
21	21820		20 25	→	20 36	20 40	20 50	21 00	21 15	21 25	21 35	21 45	→	22 15
21	21850		21 25	→	21 36	21 40	21 50	22 00	22 15	22 25	22 35	22 45	→	23 15
21	21880		22 25	→	22 36	22 40	22 50	22 58	23 11	23 20	23 30	23 40	→	00 00
21	21920		23 30	→	23 40	23 43	23 50	23 58	00 11	00 20	00 30	00 40	→	01 00
21	21940		00 30	→	00 40	00 43	00 50	00 58	01 11	01 20	01 30	01 40	→	02 00

21 MILTON

Milton - Meadowvale - Mississauga - Toronto

Bus Trips - Horaire des autobus

Train Trips - Horaire des trains

GO Bus service is accessible to passengers using mobility devices at this location.
- Service d'autobus GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.

GO Train & GO Bus service is accessible to passengers using mobility devices at this location.
- Les services de trains et d'autobus GO sont accessibles aux utilisateurs d'un appareil d'aide à la mobilité à cet endroit.

Parking Available - Stationnement disponible

Fri Trip operates on Fridays ONLY. If Friday is a holiday the trip operates on the Thursday before the holiday.
- Service offert les vendredis SEULEMENT ou les jeudis précédant un vendredi férié.

D Stops to discharge passengers on request ONLY. - Arrêt sur demande SEULEMENT.

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

WESTBOUND / EN DIRECTION OUEST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Exception	Toronto 2 Dp Union Station	Etobicoke 3 Kipling GO	Mississauga 11 Dixie GO	Mississauga 11 Cooksville GO	Mississauga 20 Square One	Mississauga 40 Erindale GO	Mississauga 21 Streetsville GO	Mississauga 22 Meadowvale GO	Mississauga 22 Aquitaine Ave. @ Formentera Ave. Meadowvale Town Centre	Mississauga 22 Derry Rd. W. @ Ninth Line	Mississauga 23 Lisgar GO	Milton 24 Ar Milton GO
21H	21071		05 50	→	06 05	06 12	06 30							
21	21091		06 20	→	06 37	06 47	07 05	07 12	07 27	07 40	07 42	07 48	→	08 10
21H	21151		07 20	→	07 45	07 57	08 20							
21N	21153		07 20	→	→	→	→	08 05	08 20	08 35	08 37	08 43	→	09 05
21H	21211		08 20	→	08 50	09 02	09 25							
21N	21213		08 20	→	→	→	→	09 05	09 20	09 35	09 37	09 43	→	10 05
21H	21251		09 20	→	09 40	09 52	10 15							
21N	21253		09 20	→	→	→	→	09 50	10 05	10 20	10 22	10 28	→	10 50
21H	21291		10 20	→	10 37	10 47	11 10							
21N	21293		10 20	→	→	→	→	10 50	11 05	11 20	11 22	11 28	→	11 50
21H	21331		11 20	→	11 37	11 47	12 10							
21D	21333		11 20	→	→	→	→	11 50	12 05	→	→	→	12 30	
21B	21345		11 30	→	→	→	→	→	→	12 10	12 12	12 18	→	12 40
21H	21371		12 20	→	12 45	12 57	13 20							
21D	21373		12 20	→	→	→	→	12 50	13 05	→	→	→	13 30	
21B	21385		12 30	→	→	→	→	→	→	13 10	13 12	13 18	→	13 40
21D	21413		13 20	→	→	→	→	13 55	14 10	→	→	→	14 35	
21H	21421		13 30	→	13 55	14 07	14 30							
21B	21425		13 30	→	→	→	→	→	→	14 10	14 12	14 18	→	14 40
21D	21453		14 20	→	→	→	→	15 00	15 15	→	→	→	15 45	
21B	21465		14 30	→	→	→	→	→	→	15 25	15 27	15 33	→	16 00
21H	21461		14 30	→	15 00	15 12	15 35							
21H	21471		14 50	→	15 20	15 32	16 00							
21D	21473		14 55	→	→	→	→	15 45	16 00	→	→	→	16 30	
21B	21485		15 00	→	→	→	→	→	→	15 55	15 57	16 03	→	16 30
	2705		15 40	15 58	16 03	16 08	→	16 14	16 19	16 25	→	→	16 30	16 38
	2713		16 40	16 58	17 03	17 08	→	17 14	17 19	17 25	→	→	17 30	17 38
	2721		17 40	17 58	18 03	18 08	→	18 14	18 19	18 25	→	→	18 30	18 38
	2729		19 10	19 28	19 33	19 38	→	19 44	19 49	19 55	→	→	20 00	20 08

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

WESTBOUND / EN DIRECTION OUEST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours (Zone→)	Exception	Toronto 2 Dp Union Station	Etobicoke 3 Kipling GO	Mississauga 11 Dixie GO	Mississauga 11 Cooksville GO	Mississauga 20 Square One	Mississauga 40 Erindale GO	Mississauga 21 Streetsville GO	Mississauga 22 Meadowvale GO	Mississauga 22 Aquitaine Ave. @ Formentera Ave. Mississauga Meadowvale Town Centre	Mississauga 22 Derry Rd. W. @ Ninth Line	Mississauga 23 Lisgar GO	Milton 24 Ar Milton GO
21E	21713		19 25	→	→	→	→	→	20 05	→	→	→	20 30	
21B	21725		19 30	→	→	→	→	→	→	20 10	20 12	20 18	→	20 40
21H	21711		19 35	→	20 00**D**	20 12	20 35							
21D	21723		19 40	→	→	→	→	20 15	20 30	→	→	→	20 55	
21B	21735		19 45	→	→	→	→	→	→	20 25	20 27	20 33	→	20 55
21J	21731		19 50	→	→	20 17	20 40							
21D	21733		19 55	→	→	→	→	20 30	20 45	→	→	→	21 10	
21B	21745		20 00	→	→	→	→	→	→	20 40	20 42	20 48	→	21 10
21J	21751		20 20	→	→	20 42	21 05							
21D	21755		20 25	→	→	→	→	20 55	21 10	→	→	→	21 35	
21B	21757		20 30	→	→	→	→	→	→	21 05	21 07	21 13	→	21 35
21H	21761		20 35	→	20 55	21 07	21 30							
21D	21773		20 55	→	→	→	→	21 25	21 40	→	→	→	22 05	
21H	21771		20 50	→	21 07	21 17	21 40							
21H	21781		21 05	→	21 22	21 32	21 55							
21B	21795		21 20	→	→	→	→	→	→	21 55	21 57	22 03	→	22 25
21D	21803		21 25	→	→	→	→	21 55	22 10	→	→	→	22 30	
21H	21801		21 35	→	21 52	22 02	22 25							
21H	21811		21 50	→	22 07	22 17	22 40							
21H	21831		22 20	→	22 37	22 47	23 05							
21D	21833		22 25	→	→	→	→	22 55	23 10	→	→	→	23 30	
21B	21835		22 30	→	→	→	→	→	→	23 05	23 07	23 13	→	23 35
21H	21861		23 20	→	23 37	23 47	00 05							
21D	21863		23 20	→	→	→	→	23 50	00 05	→	→	→	00 25	
21B	21865		23 30	→	→	→	→	→	→	00 05	00 07	00 11	→	00 30
21H	21891		00 20	→	00 37	00 47	01 05							
21N	21893		00 20	→	→	→	→	00 50	01 02	01 10	01 12	01 16	→	01 35
21N	21923		01 20	→	→	→	→	01 50	02 02	02 10	02 12	02 16	→	02 35
21H	21921		01 20	→	01 35	01 42	02 00							
21	21951		02 20	→	02 35	02 42	03 00	03 05	03 17	03 25	03 27	03 31	→	03 45

21 MILTON

Milton - Meadowvale - Mississauga - Toronto

Bus Trips - Horaire des autobus

GO Bus service is accessible to passengers using mobility devices at this location.
- Service d'autobus GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.

Parking Available - Stationnement disponible

Saturday
Samedi

EASTBOUND / EN DIRECTION EST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→	Milton 24 Dp Milton GO	Mississauga 22 Derry Rd. W. @ Ninth Line	Mississauga 22 Aquitane Ave. @ Meadowvale Town Centre Circle	Mississauga 22 Dp Meadowvale GO	Mississauga 21 Streetsville GO	Mississauga 40 Erindale GO	Mississauga 20 Square One	Mississauga 11 Cooksville GO	Toronto 2 Ar Union Station Bus Terminal
21B	21104		05 30	05 41	05 45	05 55	→	→	→	→	06 30
21P	21132					05 55	06 05	06 20	06 30	06 40	07 10
21B	21164		06 30	06 41	06 45	06 55	→	→	→	→	07 30
21P	21192					06 55	07 05	07 20	07 30	07 40	08 10
21B	21224		07 30	07 41	07 45	07 55	→	→	→	→	08 30
21P	21240					07 55	08 05	08 20	08 30	08 40	09 10
21B	21264		08 30	08 41	08 45	08 55	→	→	→	→	09 35
21P	21280					08 55	09 05	09 20	09 30	09 40	10 15
21B	21304		09 25	09 37	09 42	09 50	→	→	→	→	10 35
21P	21320					09 55	10 05	10 20	10 35	10 45	11 25
21B	21344		10 25	10 38	10 43	10 55	→	→	→	→	11 40
21P	21360					10 55	11 05	11 20	11 35	11 45	12 25
21B	21384		11 25	11 38	11 43	11 55	→	→	→	→	12 45
21P	21400					11 55	12 05	12 20	12 35	12 45	13 30
21B	21424		12 25	12 38	12 43	12 55	→	→	→	→	13 45
21P	21440					12 55	13 05	13 20	13 35	13 45	14 30
21B	21464		13 25	13 38	13 43	13 55	→	→	→	→	14 45
21P	21490					13 55	14 05	14 20	14 35	14 45	15 35
21B	21514		14 25	14 38	14 43	14 55	→	→	→	→	15 45
21P	21550					14 55	15 05	15 20	15 35	15 45	16 35
21B	21574		15 25	15 38	15 43	15 55	→	→	→	→	16 45
21P	21610					15 55	16 05	16 20	16 35	16 45	17 35
21B	21634		16 25	16 38	16 43	16 55	→	→	→	→	17 45
21P	21660					16 55	17 05	17 20	17 35	17 45	18 35
21B	21684		17 25	17 38	17 43	17 55	→	→	→	→	18 45
21P	21700					17 55	18 05	18 20	18 35	18 45	19 35
21B	21724		18 25	18 38	18 43	18 55	→	→	→	→	19 40
21P	21740					18 55	19 05	19 20	19 35	19 45	20 25
21B	21764		19 25	19 38	19 43	19 55	→	→	→	→	20 35
21P	21780					19 55	20 05	20 20	20 35	20 45	21 20
21B	21804		20 30	20 41	20 45	20 55	→	→	→	→	21 35
21P	21820					20 55	21 05	21 20	21 35	21 45	22 15
21A	21850		21 30	21 41	21 45	21 55	22 05	22 20	22 30	22 40	23 10
21A	21880		22 35	22 46	22 50	23 00	23 08	23 21	23 30	23 40	00 10
21A	21910		23 35	23 45	23 48	23 55	00 03	00 16	00 25	00 35	01 00
21A	21930		00 35	00 45	00 48	00 55	01 03	01 16	01 25	01 35	02 00

21 MILTON

Milton - Meadowvale - Mississauga - Toronto

Bus Trips - Horaire des autobus

GO Bus service is accessible to passengers using mobility devices at this location.
- Service d'autobus GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.

Parking Available - Stationnement disponible

Saturday
Samedi

WESTBOUND / EN DIRECTION OUEST

Route Number Numéro du trajet	Trip Number Numéro du parcours	Zone→ Toronto 2 Dp Union Station Bus Terminal	Mississauga 11 Cooksville GO	Mississauga 20 Square One	Mississauga 40 Erindale GO	Mississauga 21 Streetsville GO	Mississauga 22 Ar Meadowvale GO	Aquitaine Ave. @ 22 Ave Formentera Meadowvale Town Centre	Mississauga 22 Derry Rd. W. @ Ninth Line	Milton 24 Ar Milton GO
21P	21153	07 20	07 42	07 55	08 02	08 15	08 30			
21B	21195	08 00	→	→	→	→	08 35	08 37	08 43	09 00
21P	21211	08 20	08 42	08 55	09 02	09 15	09 30			
21B	21245	09 00	→	→	→	→	09 35	09 37	09 43	10 00
21P	21251	09 20	09 42	10 00	10 07	10 20	10 35			
21B	21285	10 00	→	→	→	→	10 35	10 37	10 43	11 05
21P	21291	10 20	10 42	11 05	11 12	11 25	11 40			
21B	21325	11 00	→	→	→	→	11 40	11 42	11 48	12 10
21P	21331	11 20	11 47	12 10	12 17	12 30	12 45			
21B	21365	12 00	→	→	→	→	12 45	12 47	12 53	13 15
21P	21371	12 20	12 47	13 10	13 17	13 30	13 45			
21B	21405	13 00	→	→	→	→	13 45	13 47	13 53	14 15
21P	21411	13 20	13 47	14 15	14 22	14 35	14 50			
21B	21445	14 00	→	→	→	→	14 45	14 47	14 53	15 15
21P	21451	14 20	14 47	15 15	15 22	15 35	15 50			
21B	21485	15 00	→	→	→	→	15 45	15 47	15 53	16 15
21P	21501	15 20	15 47	16 15	16 22	16 35	16 50			
21B	21545	16 00	→	→	→	→	16 50	16 52	16 58	17 20
21P	21561	16 20	16 47	17 15	17 22	17 35	17 50			
21B	21605	17 00	→	→	→	→	17 50	17 52	17 58	18 20
21P	21621	17 20	17 47	18 15	18 22	18 35	18 50			
21B	21665	18 00	→	→	→	→	18 50	18 52	18 58	19 20
21P	21671	18 20	18 47	19 15	19 22	19 35	19 50			
21B	21705	19 00	→	→	→	→	19 45	19 47	19 53	20 15
21P	21711	19 20	19 47	20 10	20 17	20 30	20 45			
21B	21745	20 00	→	→	→	→	20 40	20 42	20 48	21 10
21P	21751	20 20	20 42	21 05	21 12	21 25	21 40			
21B	21785	21 00	→	→	→	→	21 40	21 42	21 48	22 10
21P	21791	21 20	21 42	22 00	22 07	22 20	22 35			
21B	21825	22 00	→	→	→	→	22 35	22 37	22 43	23 05
21P	21831	22 20	22 42	23 00	23 07	23 20	23 30			
21B	21855	23 00	→	→	→	→	23 35	23 37	23 41	00 00
21P	21861	23 20	23 42	00 00	00 07	00 20	00 30			
21B	21885	00 00	→	→	→	→	00 35	00 37	00 41	01 00
21P	21891	00 20	00 42	01 00	01 07	01 20	01 30			
21B	21915	01 00	→	→	→	→	01 30	01 32	01 36	01 55
21P	21923	01 20	01 40	01 55	02 02	02 15	02 25			
21A	21951	02 20	02 40	02 50	02 57	03 10	03 20	03 22	03 26	03 45

21 MILTON

Milton - Meadowvale - Mississauga - Toronto

Bus Trips - Horaire des autobus

GO Bus service is accessible to passengers using mobility devices at this location.

- Service d'autobus GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.

Parking Available - Stationnement disponible

Sunday
Dimanche

EASTBOUND / EN DIRECTION EST

Route Number Numéro du trajet	Trip Number Numéro du parcours	Milton 24 Dp Milton GO	Mississauga 22 Derry Rd. W. @ Ninth Line	Mississauga 22 Aquitane Ave. @ Meadowvale Town Centre Circle	Mississauga 22 Dp Meadowvale GO	Mississauga 21 Streetsville GO	Mississauga 40 Erindale GO	Mississauga 20 Square One	Mississauga 11 Cooksville GO	Toronto 2 Ar Union Station Bus Terminal
21A	21130	05 30	05 41	05 45	05 55	06 05	06 20	06 30	06 40	07 05
21A	21190	06 30	06 41	06 45	06 55	07 05	07 20	07 30	07 40	08 10
21B	21224	07 30	07 41	07 45	07 55	→	→	→	→	08 30
21P	21240				07 55	08 05	08 20	08 30	08 40	09 10
21B	21264	08 30	08 41	08 45	08 55	→	→	→	→	09 35
21P	21280				08 55	09 05	09 20	09 30	09 40	10 15
21B	21304	09 25	09 37	09 42	09 50	→	→	→	→	10 35
21P	21320				09 55	10 05	10 20	10 35	10 45	11 25
21B	21344	10 25	10 38	10 43	10 55	→	→	→	→	11 40
21P	21360				10 55	11 05	11 20	11 35	11 45	12 25
21B	21384	11 25	11 38	11 43	11 55	→	→	→	→	12 45
21P	21400				11 55	12 05	12 20	12 35	12 45	13 30
21B	21424	12 25	12 38	12 43	12 55	→	→	→	→	13 45
21P	21440				12 55	13 05	13 20	13 35	13 45	14 30
21B	21464	13 25	13 38	13 43	13 55	→	→	→	→	14 45
21P	21490				13 55	14 05	14 20	14 35	14 45	15 35
21B	21514	14 25	14 38	14 43	14 55	→	→	→	→	15 45
21P	21550				14 55	15 05	15 20	15 35	15 45	16 35
21B	21574	15 25	15 38	15 43	15 55	→	→	→	→	16 45
21P	21610				15 55	16 05	16 20	16 35	16 45	17 35
21B	21634	16 25	16 38	16 43	16 55	→	→	→	→	17 45
21P	21660				16 55	17 05	17 20	17 35	17 45	18 35
21B	21684	17 25	17 38	17 43	17 55	→	→	→	→	18 45
21P	21700				17 55	18 05	18 20	18 35	18 45	19 35
21B	21724	18 25	18 38	18 43	18 55	→	→	→	→	19 40
21P	21740				18 55	19 05	19 20	19 35	19 45	20 25
21B	21764	19 25	19 38	19 43	19 55	→	→	→	→	20 35
21P	21780				19 55	20 05	20 20	20 35	20 45	21 20
21B	21804	20 30	20 41	20 45	20 55	→	→	→	→	21 35
21P	21820				20 55	21 05	21 20	21 35	21 45	22 15
21A	21850	21 30	21 41	21 45	21 55	22 05	22 20	22 30	22 40	23 10
21A	21880	22 35	22 46	22 50	23 00	23 08	23 21	23 30	23 40	00 10
21A	21910	23 35	23 45	23 48	23 55	00 03	00 16	00 25	00 35	01 00
21A	21930	00 35	00 45	00 48	00 55	01 03	01 16	01 25	01 35	02 00

21 MILTON

Milton - Meadowvale - Mississauga - Toronto

Bus Trips - Horaire des autobus

GO Bus service is accessible to passengers using mobility devices at this location.
- Service d'autobus GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.

Parking Available - Stationnement disponible

Sunday
Dimanche

WESTBOUND / EN DIRECTION OUEST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→ Toronto 2 Union Station Bus Terminal Dp	Mississauga 11 Cooksville GO	Mississauga 20 Square One	Mississauga 40 Erindale GO	Mississauga 21 Streetsville GO	Mississauga 22 Meadowvale GO Ar	Aquitaine Ave. @ Formentera Ave 22 Meadowvale Town Centre	Mississauga 22 Derry Rd. W. @ Ninth Line	Milton 24 Milton GO Ar
21A	21151	07 20	07 42	07 55	08 02	08 15	08 30	08 32	08 38	08 55
21P	21211	08 20	08 42	08 55	09 02	09 15	09 30			
21B	21245	09 00	→	→	→	→	09 35	09 37	09 43	10 00
21P	21251	09 20	09 42	10 00	10 07	10 20	10 35			
21B	21285	10 00	→	→	→	→	10 35	10 37	10 43	11 05
21P	21291	10 20	10 42	11 05	11 12	11 25	11 40			
21B	21325	11 00	→	→	→	→	11 40	11 42	11 48	12 10
21P	21331	11 20	11 47	12 10	12 17	12 30	12 45			
21B	21365	12 00	→	→	→	→	12 45	12 47	12 53	13 15
21P	21371	12 20	12 47	13 10	13 17	13 30	13 45			
21B	21405	13 00	→	→	→	→	13 45	13 47	13 53	14 15
21P	21411	13 20	13 47	14 15	14 22	14 35	14 50			
21B	21445	14 00	→	→	→	→	14 45	14 47	14 53	15 15
21P	21451	14 20	14 47	15 15	15 22	15 35	15 50			
21B	21485	15 00	→	→	→	→	15 45	15 47	15 53	16 15
21P	21501	15 20	15 47	16 15	16 22	16 35	16 50			
21B	21545	16 00	→	→	→	→	16 50	16 52	16 58	17 20
21P	21561	16 20	16 47	17 15	17 22	17 35	17 50			
21B	21605	17 00	→	→	→	→	17 50	17 52	17 58	18 20
21P	21621	17 20	17 47	18 15	18 22	18 35	18 50			
21B	21665	18 00	→	→	→	→	18 50	18 52	18 58	19 20
21P	21671	18 20	18 47	19 15	19 22	19 35	19 50			
21B	21705	19 00	→	→	→	→	19 45	19 47	19 53	20 15
21P	21711	19 20	19 47	20 10	20 17	20 30	20 45			
21B	21745	20 00	→	→	→	→	20 40	20 42	20 48	21 10
21P	21751	20 20	20 42	21 05	21 12	21 25	21 40			
21B	21785	21 00	→	→	→	→	21 40	21 42	21 48	22 10
21P	21791	21 20	21 42	22 00	22 07	22 20	22 35			
21B	21825	22 00	→	→	→	→	22 35	22 37	22 43	23 05
21P	21831	22 20	22 42	23 00	23 07	23 20	23 30			
21B	21855	23 00	→	→	→	→	23 35	23 37	23 41	00 00
21P	21861	23 20	23 42	00 00	00 07	00 20	00 30			
21B	21885	00 00	→	→	→	→	00 35	00 37	00 41	01 00
21P	21891	00 20	00 42	01 00	01 07	01 20	01 30			
21B	21915	01 00	→	→	→	→	01 30	01 32	01 36	01 55
21A	21921	01 20	01 40	01 55	02 02	02 15	02 25	02 27	02 31	02 50
21A	21951	02 20	02 40	02 50	02 57	03 10	03 20	03 22	03 26	03 45

61

Route number
Nombre d'itinéraire

Richmond Hill

CONTACT US

1-888-438-6646
416-869-3200
TTY/ATS:
1-800-387-3652

gotransit.com/schedules

@GOtransitRH
@GOtransitBus

See Something?
Say Something.
24/7 Transit Safety Dispatch:
1-877-297-0642

prestocard.ca

Sign-up for email or text alerts/ Inscrivez-vous pour recevoir des alertes par courriel ou message texte.
gotransit.com/OnTheGO

05-12-2018

Richmond Hill

GO Train and Bus Schedule/
Horaire des trains et des autobus GO

METROLINX

RH 61

- Gormley GO
- Richmond Hill GO
- Langstaff GO
- Old Cummer GO
- Oriole GO
- Union Station

Daily / Quotidiennement
Includes GO Bus routes 61 / Inclut les routes 61 d'autobus GO

Effective / À partir de:
5 JANUARY JANVIER **2019**

How to read our schedules

Step 1
Find the station or terminal you are departing from. Stops are listed across the top in the order they are served.

Step 2
The upper left corner tells you what day the schedule is for and the direction of travel.

Step 3
Look across the rows for available departure times.

Step 4
Not all trains or buses stop at every station. If you see → the train or bus will not stop at that station.

Comment lire nos horaires

Étape 1
Trouvez votre gare ou terminus de départ. La liste des arrêts est donnée en haut dans l'ordre dans lequel ils sont desservis.

Étape 2
Le coin supérieur gauche vous indique le jour pour lequel l'horaire est donné et la direction de circulation.

Étape 3
Regardez dans les rangées pour obtenir les heures de départ offertes.

Étape 4
Les trains ou les autobus ne s'arrêtent pas tous à chaque gare. Si vous voyez le symbole → le train ou l'autobus ne s'arrêtera pas à cette gare.

Legend/Légende

Train trips/Horaire des trains

Bus trips/Horaire des autobus

→ Trip does not serve this location. Trajet ne sert pas cette station.

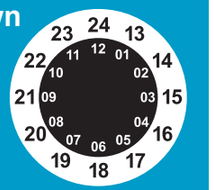
GO Train service is accessible to passengers using mobility devices at this location./ Service de trains GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.

GO Train & GO Bus service is accessible to passengers using mobility devices at this location. Les services de trains et d'autobus GO sont accessibles aux utilisateurs d'un appareil d'aide à la mobilité à cet endroit.

P Parking available./ Stationnement disponible.

Schedule times shown in 24-hour clock

Indications selon un système horaire de 24 heures



Midnight to noon
00 01 - 12 00

Noon to midnight
12 01 - 24 00

De minuit à midi:
00 01 - 12 00

De midi à minuit:
12 01 - 24 00

Notes

h Trip holds for connection./ Le départ de l'autobus est retardé pour assurer la correspondance.

Bicycles

1. Bicycles are not allowed in Union Station or on-board trains during morning rush hour (6:30-9:30) and evening rush hour (15:30-18:30), Monday to Friday.

2. Foldable bicycles are allowed on-board trains at all times.

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

SOUTHBOUND / EN DIRECTION SUD

Route Number / Nombre d'itinéraire	Trip Number / N° de trajet	Richmond Hill 62 Dp Gormley GO	Richmond Hill 61 Richmond Hill GO	Thornhill 60 Langstaff GO	North York 5 Old Cummer GO	North York 5 Oriole GO	Toronto 2 Ar Union Station
61D	61060		05 10	05 22	→	→	05 50
61C	61092	05 20	05 35	→	→	→	06 05
61D	61090		05 40	05 52	→	→	06 20
	5104	06 15	06 25	06 31	06 39	06 44	07 11
	5304	06 45	06 55	07 01	07 09	07 14	07 41
	5106	07 15	07 25	07 31	07 39	07 44	08 13
	5306	07 45	07 55	08 01	08 09	08 14	08 43
	5108	08 15	08 25	08 31	08 39	08 44	09 13
61F	61280	09 00					09 50
61A	61282		09 15	→	→	→	10 00
61A	61284	09 00	09 20	→	→	→	10 05
61B	61286			09 25	→	→	10 05
61C	61320	10 05	10 20	→	→	→	11 00
61B	61322			10 35	→	→	11 10
61	61360	11 05	11 20	11 35	→	→	12 10
61	61400	12 05	12 20	12 35	→	→	13 10
61	61440	13 05	13 20	13 35	→	→	14 10
61	61490	14 05	14 20	14 35	→	→	15 10

NORTHBOUND / EN DIRECTION NORD

Route Number / Nombre d'itinéraire	Trip Number / N° de trajet	Toronto 2 Dp Union Station	North York 5 Oriole GO	North York 5 Old Cummer GO	Thornhill 60 Langstaff GO	Richmond Hill 61 Richmond Hill GO	Richmond Hill 62 Ar Gormley GO
61	61261	09 40	→	→	10 05	10 20	10 40
61	61301	10 40	→	→	11 05	11 20	11 40
61	61341	11 40	→	→	12 10	12 25	12 45
61	61381	12 40	→	→	13 10	13 25	13 45
61	61421	13 40	→	→	14 10	14 30	14 50
61	61441	14 10	→	→	14 45	15 05	15 25
	5423	15 10	15 35	15 39	15 47	15 57↓	
61E	61491					16 05**h**	16 25
	5325	16 30	16 55	16 59	17 07	17 15	17 30
	5127	17 00	17 25	17 29	17 37	17 46	18 01
	5327	17 30	17 55	18 00	18 08	18 17	18 32
	5129	18 00	18 25	18 30	18 38	18 46	19 01
	5131	19 00	19 25	19 29	19 36	19 43	19 58
	5433	20 00	20 24	20 28	20 36	20 48↓	
61E	61741					20 56**h**	21 11
61B	61761	20 40	→	→	21 10		
61C	61771	20 45	→	→	→	21 15	21 35
61	61781	21 10	→	→	21 35	21 50	22 10
61	61801	21 40	→	→	22 05	22 20	22 40
61	61841	22 40	→	→	23 05	23 20	23 40
61	61871	23 40	→	→	00 05	00 15	00 30
61	61901	00 40	→	→	01 05	01 15	01 30
61	61931	01 40	→	→	02 05	02 15	02 30
61	61961	02 40	→	→	03 05	03 15	03 30

Vélos

1. Les vélos ne sont pas autorisés dans la gare Union ou à bord des trains du lundi au vendredi, pendant l'heure de pointe (6:30-9:30) et pendant l'heure de pointe du soir (15:30-18:30).

2. Les vélos pliables sont permis à bord des trains en tout temps.

For the latest schedule information and updates, please visit gotransit.com./ Pour consulter les horaires les plus récents et les mises à jour, veuillez visiter gotransit.com.

71 STOUFFVILLE

Uxbridge - Stouffville - Markham - Scarborough - Toronto

Train Trips - Horaire des trains Bus Trips - Horaire des autobus

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

SOUTHBOUND / EN DIRECTION SUD

Route Number Numéro du trajet	Zone→ Trip Number Numéro du parcours	Exception	Uxbridge 76 Dp Railway St. @ Albert St.	Goodwood 75 Hwy. 47 @ Front St.	Stouffville 74 Ar Lincolnville GO	Transfer/Correspondances Trip Number/Numéro du parcours	Stouffville 74 Dp Lincolnville GO	Stouffville 74 Stouffville GO S	Markham 73 Dp Mount Joy GO	Markham 72 Markham GO S	Markham 72 Centennial GO S	Markham 71 Unionville GO	Scarborough 70 Milliken GO	Scarborough 7 Agincourt GO	Scarborough 77 Kennedy GO	Scarborough 6 Scarborough GO	Toronto 6 Danforth GO	Toronto 2 Ar Union Station
71	71050		04 25	04 36	04 45	→	04 45	04 51	05 05	05 09	05 13	05 20	→	→	→	→	→	05 50
	7603						05 14	05 21	05 31	05 36	05 41	05 46	05 54	06 01	06 08	→	→	06 27
70B	70060		05 49	06 00	06 09	7605	06 14	06 21	06 31	06 36	06 41	06 46	06 54	07 01	07 08	→	→	07 27
70B	70110		06 38	06 49	06 58	7607	07 14	07 21	07 31	07 36	07 41	07 46	07 54	08 01	08 08	→	→	08 27
70D	70160		07 36	07 47	07 56	→	07 56	08 02	08 16↓									
	7509								08 31	08 36	08 41	08 46	08 54	09 01	09 08	→	→	09 27
70D	70220		08 36	08 47	08 56	→	08 56	09 02	09 16↓									
	7511								09 31	09 36	09 41	09 46	09 54	10 01	10 08	→	→	10 27
70D	70260		09 36	09 47	09 56	→	09 56	10 02	10 16↓									
	7513								10 31	10 36	10 41	10 46	10 54	11 01	11 08	→	→	11 27
70D	70300		10 36	10 47	10 56	→	10 56	11 02	11 16↓									
	7515								11 31	11 36	11 41	11 46	11 54	12 01	12 08	→	→	12 27
70D	70340		11 36	11 47	11 56	→	11 56	12 02	12 16↓									
	7517								12 31	12 36	12 41	12 46	12 54	13 01	13 08	→	→	13 27
70D	70380		12 36	12 47	12 56	→	12 56	13 02	13 16↓									
	7519								13 31	13 36	13 41	13 46	13 54	14 01	14 08	→	→	14 27
70D	70420		13 36	13 47	13 56	→	13 56	14 02	14 16↓									
	7521								14 31	14 36	14 41	14 46	14 54	15 01	15 08	→	→	15 27
70D	70460		14 36	14 47	14 56	→	14 56	15 02	15 16↓									
	7523								15 31	15 36	15 41	15 46	15 54	16 01	16 08	→	→	16 27
70D	70620		15 35	15 48	15 55	→	15 55	16 01	1615↓									
	7525								16 31	16 36	16 41	16 46	16 54	17 01	17 08	→	→	17 27
70D	70670		16 35	16 48	16 55	→	16 55	17 01	17 15↓									
	7527								17 31	17 36	17 41	17 46	17 54	18 01	18 08	→	→	18 27
70F	70710						18 00	18 06	18 20↓									
	7529								18 31	18 36	18 41	18 46	18 54	19 01	19 08	→	→	19 27
71	71750		18 45	18 58	19 05	→	19 05	19 11	19 25	19 30	19 36	19 45	→	→	→	→	→	20 15
71	71780		19 45	19 58	20 05	→	20 05	20 11	20 25	20 30	20 36	20 45	→	→	→	→	→	21 15
71	71790		20 45	20 58	21 05	→	21 05	21 11	21 25	21 30	21 36	21 45	→	→	→	→	→	22 15
71	71810		21 45	21 58	22 05	→	22 05	22 11	22 25	22 30	22 36	22 45	→	→	→	→	→	23 15
71C	71840						23 05	23 11	23 25	23 30	23 36	23 45	→	→	→	→	→	24 15
71C	71900						00 10	00 16	00 30	00 34	00 38	00 45	→	→	→	→	→	01 10
71C	71910						01 10	01 16	01 30	01 34	01 38	01 45	→	→	→	→	→	02 10

71 STOUFFVILLE

Uxbridge - Stouffville - Markham - Scarborough - Toronto

Train Trips - Horaire des trains Bus Trips - Horaire des autobus

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

NORTHBOUND / EN DIRECTION NORD

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→	Toronto 2 Dp Union Station	Toronto 6 Danforth GO	Scarborough 6 Scarborough GO	Scarborough 77 Kennedy GO	Scarborough 7 Agincourt GO	Scarborough 70 Milliken GO	Markham 71 Unionville GO	Markham 72 Centennial GO	Markham 72 Markham GO	Markham 73 Mount Joy GO	Stouffville 74 Stouffville GO	Stouffville 74 Ar Lincolnville GO	Transfer/Correspondances Trip Number/Numéro du parcours	Stouffville 74 Dp Lincolnville GO	Goodwood 75 Hwy. 47 @ Front St.	Uxbridge 76 Ar Railway St. @ Albert St.
71C	71111		06 40	→	→	→	→	→	07 05	07 12	07 17	07 25	07 37	07 50				
	7406		07 15	→	→	07 32	07 40	07 47	07 54	07 59	08 04	08 08↓						
70D	70171											08 18h	08 30	08 40	→	08 40	08 46	09 05
	7408		08 15	→	→	08 32	08 40	08 47	08 54	08 59	09 04	09 08↓						
70D	70221											09 18h	09 30	09 40				
	7410		09 15	→	→	09 32	09 40	09 47	09 54	09 59	10 04	10 08↓						
70D	70261											10 28h	10 40	10 50	→	10 50	10 56	11 10
	7412		10 15	→	→	10 32	10 40	10 47	10 54	10 59	11 04	11 08↓						
70D	70331											11 16**h**	11 29	11 39	→	11 39	11 45	12 01
	7414		11 15	→	→	11 32	11 40	11 47	11 54	11 59	12 04	12 08↓						
70D	70371											12 16**h**	12 29	12 39	→	12 39	12 45	13 01
	7416		12 15	→	→	12 32	12 40	12 47	12 54	12 59	13 04	13 08↓						
70D	70411											13 16**h**	13 29	13 39	→	13 39	13 45	14 01
	7418		13 15	→	→	13 32	13 40	13 47	13 54	13 59	14 04	14 08↓						
70D	70451											14 16**h**	14 29	14 39	→	14 39	14 45	15 01
	7420		14 15	→	→	14 32	14 40	14 47	14 54	14 59	15 04	15 08↓						
70D	70491											15 16**h**	15 29	15 39	→	15 39	15 45	16 01
	7422		15 15	→	→	15 32	15 40	15 47	15 54	15 59	16 04	16 08↓						
70D	70571											16 16h	16 29	16 39	→	16 39	16 45	17 01
70B	7424		16 15	→	→	16 32	16 40	16 47	16 54	16 59	17 04	17 08↓						
70F	70641											17 23**h**	17 36	17 46	→	17 46**h**	17 52	18 06
	7426		17 15	→	→	17 32	17 40	17 47	17 54	17 59	18 04	18 08↓						
70D	70691											18 16**h**	18 29	18 39	→	18 39	18 45	19 01
	7728		18 15	→	→	18 32	18 40	18 47	18 54	18 59	19 04	19 08	19 17	19 28				
70D	70721											19 16**h**	19 29	19 39	→	19 39	19 45	20 01
71	71761		19 15	→	→	→	→	→	19 45	19 52	19 57	20 03	20 15	20 25	→	20 25	20 31	20 50
	7732		20 15	→	→	20 32	20 40	20 47	20 54	20 59	21 04	21 08	21 17	21 28↓				
70B	70781													21 38**h**	→	21 38	21 44	21 58
	7734		21 15	→	→	21 32	21 40	21 47	21 54	21 59	22 04	22 08	22 17	22 28				
71	71811		21 50	→	→	→	→	→	22 20	22 27	22 32	22 38	22 50	23 00	→	23 00	23 06	23 25
71	71841		22 50	→	→	→	→	→	23 20	23 27	23 32	23 38	23 50	24 00	→	00 00	00 06	00 25
71C	71871		23 45	→	→	→	→	→	00 10	00 15	00 20	00 25	00 35	00 45				
70B	70891													00 46**h**	→	00 46**h**	00 52	01 06
71C	71901		00 40	→	→	→	→	→	01 05	01 10	01 15	01 20	01 30	01 40				
71C	71931		01 40	→	→	→	→	→	02 03	02 08	02 12	02 16	02 25	02 35				
71C	71961		02 40	→	→	→	→	→	03 03	03 08	03 12	03 16	03 25	03 35				

71 STOUFFVILLE

Uxbridge - Stouffville - Markham - Toronto

Train Trips - Horaire des trains

Bus Trips - Horaire des autobus

Saturday and Sunday
Samedi et dimanche

SOUTHBOUND / EN DIRECTION SUD

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→ Uxbridge 76 Dp **Railway St. @ Albert St.**	Goodwood 75 **Hwy. 47 @ Front St.**	Stouffville 74 Ar **Lincolnville GO**	Transfer/Correspondances / Trip Number/Numéro du parcours	Stouffville 74 Ar **Lincolnville GO**	Stouffville 74 **Stouffville GO** S	Markham 73 **Mount Joy GO**	Markham 72 **Markham GO** S	Markham 72 **Centennial GO** S	Markham 71 **Unionville GO**	Scarborough 70 **Milliken GO**	Scarborough 7 **Agincourt GO**	Scarborough 77 **Kennedy GO**	Toronto 2 Ar **Union Station**
71	71140	05 45	05 58	06 05	→	06 05	06 11	06 25	06 29	06 33	06 40	→	→	→	07 10
	7607					07 14	07 21	07 31	07 36	07 41	07 46	07 54	08 01	08 08	08 27
70B	70160	07 39	07 52	07 59	7609	08 14	08 21	08 31	08 36	08 41	08 46	08 54	09 01	09 08	09 27
	7611					09 14	09 21	09 31	09 36	09 41	09 46	09 54	10 01	10 08	10 27
70D	70260	09 36	09 49	09 56	→	09 56	10 02	10 16↓							
	7513							10 31	10 36	10 41	10 46	10 54	11 01	11 08	11 27
70F	70310					10 56	11 02	11 16↓							
	7515							11 31	11 36	11 41	11 46	11 54	12 01	12 08	12 27
70D	70340	11 36	11 49	11 56	→	11 56	12 02	12 16↓							
	7517							12 31	12 36	12 41	12 46	12 54	13 01	13 08	13 27
70F	70390					12 56	13 02	13 16↓							
	7519							13 31	13 36	13 41	13 46	13 54	14 01	14 08	14 27
70D	70420	13 36	13 49	13 56	→	13 56	14 02	14 16↓							
	7521							14 31	14 36	14 41	14 46	14 54	15 01	15 08	15 27
70F	70470					14 56	15 02	15 16↓							
	7523							15 31	15 36	15 41	15 46	15 54	16 01	16 08	16 27
70D	70510	15 36	15 49	15 56	→	15 56	16 02	16 16↓							
	7525							16 31	16 36	16 41	16 46	16 54	17 01	17 08	17 27
70F	70590					16 56	17 02	17 16↓							
	7527							17 31	17 36	17 41	17 46	17 54	18 01	18 08	18 27
70D	70630	17 36	17 49	17 56	→	17 56	18 02	18 16↓							
	7529							18 31	18 36	18 41	18 46	18 54	19 01	19 08	19 27
70F	70690					18 56	19 02	19 16↓							
	7531							19 31	19 36	19 41	19 46	19 54	20 01	20 08	20 27
70D	70720	19 36	19 49	19 56	→	19 56	20 02	20 16↓							
	7533							20 31	20 36	20 41	20 46	20 54	21 01	21 08	21 27
70F	70770					20 56	21 02	21 16↓							
	7535							21 31	21 36	21 41	21 46	21 54	22 01	22 08	22 27
70D	70780	21 36	21 49	21 56	→	21 56	22 02	22 16↓							
	7537							22 31	22 36	22 41	22 46	22 54	23 01	23 08	23 27
71C	71880					23 10	23 16	23 30	23 34	23 38	23 45	→	→	→	00 15
71C	71900					00 10	00 16	00 30	00 34	00 38	00 45	→	→	→	01 10
71C	71910					01 10	01 16	01 30	01 34	01 38	01 45	→	→	→	02 10

71 STOUFFVILLE

Uxbridge - Stouffville - Markham - Toronto

Train Trips - Horaire des trains

Bus Trips - Horaire des autobus

Saturday and Sunday
Samedi et dimanche

NORTHBOUND / EN DIRECTION NORD

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→	Toronto 2 Dp	Scarborough 77	Scarborough 7	Scarborough 70	Markham 71	Markham 72	Markham 72	Markham 73	Stouffville 74	Stouffville 74 Ar	Transfer/Correspondances Trip Number/Numéro du parcours	Stouffville 74 Ar	Goodwood 75	Uxbridge 76 Ar
			Union Station	**Kennedy GO**	**Agincourt GO**	**Milliken GO**	**Unionville GO**	**Centennial GO**	**Markham GO**	**Mount Joy GO**	**Stouffville GO**	**Lincolnville GO**		**Lincolnville GO**	**Hwy. 47 @ Front St.**	**Railway St. @ Albert St.**
					P	P	P	P	P	P	P	P		P		
								S	S		S					
71	71171		07 40	→	→	→	08 05	08 11	08 15	08 20	08 32	08 40	→	08 40	08 46	09 05
	7410		09 15	09 32	09 40	09 47	09 54	09 59	10 04	10 08↓						
70D	70291									10 16**h**	10 29	10 39	→	10 39	10 45	11 01
	7412		10 15	10 32	10 40	10 47	10 54	10 59	11 04	11 08↓						
70F	70331									11 16**h**	11 29	11 39				
	7414		11 15	11 32	11 40	11 47	11 54	11 59	12 04	12 08↓						
70D	70371									12 16**h**	12 29	12 39	→	12 39	12 45	13 01
	7416		12 15	12 32	12 40	12 47	12 54	12 59	13 04	13 08↓						
70F	70411									13 16**h**	13 29	13 39				
	7418		13 15	13 32	13 40	13 47	13 54	13 59	14 04	14 08↓						
70D	70451									14 16**h**	14 29	14 39	→	14 39	14 45	15 01
	7420		14 15	14 32	14 40	14 47	14 54	14 59	15 04	15 08↓						
70F	70491									15 16**h**	15 29	15 39				
	7422		15 15	15 32	15 40	15 47	15 54	15 59	16 04	16 08↓						
70D	70551									16 16**h**	16 29	16 39	→	16 39	16 45	17 01
	7424		16 15	16 32	16 40	16 47	16 54	16 59	17 04	17 08↓						
70F	70611									17 16**h**	17 29	17 39				
	7426		17 15	17 32	17 40	17 47	17 54	17 59	18 04	18 08↓						
70D	70671									18 16**h**	18 29	18 39	→	18 39	18 45	19 01
	7428		18 15	18 32	18 40	18 47	18 54	18 59	19 04	19 08↓						
70F	70711									19 16**h**	19 29	19 39				
	7430		19 15	19 32	19 40	19 47	19 54	19 59	20 04	20 08↓						
70D	70751									20 16**h**	20 28	20 36	→	20 36	20 42	20 56
	7432		20 15	20 32	20 40	20 47	20 54	20 59	21 04	21 08↓						
70F	70791									21 16**h**	21 28	21 36				
	7434		21 15	21 32	21 40	21 47	21 54	21 59	22 04	22 08↓						
70D	70821									22 16**h**	22 28	22 36	→	22 36	22 42	22 56
	7736		22 15	22 32	22 40	22 47	22 54	22 59	23 04	23 08	23 17	23 28				
70B	7738		23 15	23 32	23 40	23 47	23 54	23 59	00 04	00 08	00 17	00 28	70891	00 36**h**	00 42	00 56
	7740		00 15	00 32	00 40	00 47	00 54	00 59	01 04	01 08	01 17	01 28				
71C	71901		00 45	→	→	→	01 10	01 15	01 20	01 25	01 35	01 45				
71C	71931		01 40	→	→	→	02 03	02 08	02 12	02 16	02 25	02 35				
71C	71961		02 40	→	→	→	03 03	03 08	03 12	03 16	03 25	03 35				

AECOM Imagine it. Delivered.

Appendix D3.
Turning Movement Counts (City of Toronto)

Table D3-1: TMC Traffic Dat: PAPE AVE AT STRATHCONA AVE

		October 25, 2018 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: OLS1, OLS2	ID: --	ID: OLS3, OLS-	ID: --
7:45	CAR	44	0	0	0	3	0	68	0	0	0	7	2	119	0	117	0
	TRK	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0
	BUS	2	0	0	0	0	0	2	0	0	0	1	0	5	0	4	0
8:00	CAR	52	0	0	0	2	5	77	0	0	0	7	1	141	0	132	0
	TRK	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
	BUS	2	0	0	0	0	0	3	0	0	0	0	0	5	0	5	0
8:15	CAR	63	0	0	0	6	3	97	0	0	0	7	2	170	0	168	0
	TRK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BUS	1	0	0	0	0	0	3	0	0	0	0	1	4	0	5	0
8:30	CAR	58	0	0	0	3	5	83	0	0	0	8	5	154	0	149	0
	TRK	1	0	0	0	1	0	0	0	0	0	0	0	1	0	2	0
	BUS	2	0	0	0	0	1	2	0	0	0	0	0	5	0	4	0
8:45	CAR	65	0	0	0	5	4	102	0	0	0	11	16	182	0	188	0
	TRK	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
	BUS	4	0	0	0	0	0	4	0	0	0	2	0	10	0	8	0
9:00	CAR	64	0	0	0	6	2	109	0	0	0	9	10	184	0	189	0
	TRK	1	0	0	0	1	0	2	0	0	0	0	0	3	0	4	0
	BUS	4	0	0	0	0	0	3	0	0	0	2	5	9	0	12	0
9:15	CAR	69	0	0	0	5	2	101	0	0	0	3	5	175	0	180	0
	TRK	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
	BUS	5	0	0	0	0	0	4	0	0	0	0	0	9	0	9	0
9:30	CAR	57	0	0	0	3	1	91	0	0	0	2	4	151	0	155	0
	TRK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BUS	3	0	0	0	0	0	4	0	0	0	0	0	7	0	7	0
10:15	CAR	58	0	0	0	1	4	47	0	0	0	2	1	111	0	107	0
	TRK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BUS	2	0	0	0	0	0	3	0	0	0	0	0	5	0	5	0
10:30	CAR	64	0	0	0	3	3	45	0	0	0	3	2	115	0	114	0
	TRK	1	0	0	0	0	0	1	0	0	0	0	0	2	0	2	0
	BUS	2	0	0	0	0	0	3	0	0	0	0	0	5	0	5	0
10:45	CAR	48	0	0	0	3	7	69	0	0	0	4	1	128	0	121	0
	TRK	1	0	0	0	0	0	1	0	0	0	0	0	2	0	2	0
	BUS	2	0	0	0	0	0	3	0	0	0	0	0	5	0	5	0
11:00	CAR	53	0	0	0	0	0	58	0	0	0	1	6	112	0	117	0
	TRK	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
	BUS	2	0	0	0	0	0	2	0	0	0	0	0	4	0	4	0
11:15	CAR	53	0	0	0	2	4	62	0	0	0	4	2	123	0	119	0
	TRK	0	0	0	0	0	0	2	0	0	0	0	0	2	0	2	0
	BUS	3	0	0	0	0	0	1	0	0	0	0	0	4	0	4	0
11:30	CAR	51	0	0	0	3	1	61	0	0	0	4	2	117	0	117	0
	TRK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BUS	3	0	0	0	0	0	2	0	0	0	0	0	5	0	5	0
11:45	CAR	61	0	0	0	6	4	64	0	0	0	5	3	134	0	134	0
	TRK	2	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0
	BUS	1	0	0	0	0	0	2	0	0	0	0	0	3	0	3	0
12:00	CAR	69	0	0	0	5	3	60	0	0	0	4	2	136	0	136	0
	TRK	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0
	BUS	2	0	0	0	0	0	3	0	0	0	1	0	6	0	5	0
13:15	CAR	69	0	0	0	5	9	62	0	0	0	6	1	146	0	137	0
	TRK	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
	BUS	4	0	0	0	0	0	3	0	0	0	0	0	7	0	7	0
13:30	CAR	66	0	0	0	2	7	61	0	0	0	8	2	142	0	131	0
	TRK	2	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0
	BUS	1	0	0	0	0	0	3	0	0	0	0	0	4	0	4	0
13:45	CAR	63	0	0	0	1	7	52	0	0	0	4	3	126	0	119	0
	TRK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BUS	2	0	0	0	1	0	1	0	0	0	0	0	3	0	4	0
14:00	CAR	57	0	0	0	4	4	59	0	0	0	3	2	123	0	122	0
	TRK	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
	BUS	3	0	0	0	0	0	3	0	0	0	0	0	6	0	6	0
14:15	CAR	56	0	0	0	3	6	56	0	0	0	5	3	123	0	118	0
	TRK	1	0	0	0	0	0	1	0	0	0	0	0	2	0	2	0
	BUS	1	0	0	0	0	0	2	0	0	0	0	0	3	0	3	0
14:30	CAR	60	0	0	0	2	3	69	0	0	0	5	8	137	0	139	0
	TRK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BUS	3	0	0	0	0	0	3	0	0	0	0	1	6	0	7	0
14:45	CAR	61	0	0	0	4	5	69	0	0	0	4	6	139	0	140	0
	TRK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BUS	3	0	0	0	0	0	4	0	0	0	0	0	7	0	7	0
15:00	CAR	64	0	0	0	3	4	72	0	0	0	5	5	145	0	144	0
	TRK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BUS	4	0	0	0	0	0	3	0	0	0	0	0	7	0	7	0
16:15	CAR	76	0	0	0	9	5	63	0	0	0	8	4	152	0	152	0
	TRK	3	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0
	BUS	1	0	0	0	0	0	4	0	0	0	0	0	5	0	5	0
16:30	CAR	80	0	0	0	6	3	70	0	0	0	5	3	158	0	159	0
	TRK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BUS	2	0	0	0	0	0	3	0	0	0	0	0	5	0	5	0
16:45	CAR	81	0	0	0	7	3	60	0	0	0	0	0	144	0	148	0
	TRK	2	0	0	0	0	0	1	0	0	0	0	0	3	0	3	0
	BUS	2	0	0	0	0	0	5	0	0	0	0	0	7	0	7	0
17:00	CAR	78	0	0	0	4	0	58	0	0	0	4	6	140	0	146	0
	TRK	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
	BUS	4	0	0	0	0	0	4	0	0	0	0	0	8	0	8	0
17:15	CAR	82	0	0	0	6	2	62	0	0	0	3	7	149	0	157	0
	TRK	0	0	0	0	0	0	2	0	0	0	0	0	2	0	2	0
	BUS	2	0	0	0	0	0	4	0	0	0	0	0	6	0	6	0
17:30	CAR	78	0	0	0	5	2	69	0	0	0	6	4	155	0	156	0
	TRK	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
	BUS	3	0	0	0	0	0	5	0	0	0	0	0	8	0	8	0
17:45	CAR	83	0	0	0	8	1	59	0	0	0	4	3	147	0	153	0
	TRK	2	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0
	BUS	3	0	0	0	0	0	4	0	0	0	0	0	7	0	7	0
18:00	CAR	80	0	0	0	9	3	67	0	0	0	7	3	157	0	159	0
	TRK	2	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0
	BUS	3	0	0	0	0	0	4	0	0	0	0	0	7	0	7	0
AM PEAK (8:30-9:30)	CAR	256	0	0	0	19	13	395	0	0	0	31	36	695	0	706	0
	TRK	2	0	0	0	2	0	4	0	0	0	0	0	6	0	8	0
PM PEAK (16:15-17:15)	CAR	315	0	0	0	26	11	251	0	0	0	17	13	594	0	605	0
	TRK	6	0	0	0	0	0	1	0	0	0	0	0	7	0	7	0
AHV (Average Hourly Vol.)	CAR	142.75	0	0	0	11.25	6	161.5	0	0	0	12	12.25	322.25	0	327.75	0
	TRK	2	0	0	0	0.5	0	1.25	0	0	0	0	0	3.25	0	3.75	0
AADT (An. Avg. Daily Traffic)	CAR	2284	0	0	0	180	96	2584	0	0	0	192	196	5156	0	5244	0
	TRK	32	0	0	0	8	0	20	0	0	0	0	0	52	0	60	0

Ontario Line South
Air Quality Qualitative Assessment
Metrolinx, May 2020

Table D3-2: TMC Traffic Dat: BOULTBEE AVE AT JONES AVE

		Feb-23-2017 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: OLS6	ID: --	ID: --	ID: --
7:45	CAR	37	1	8	0	3	2	54	8	6	0	3	6	96	7	100	16
	TRK	4	0	0	0	0	0	2	1	0	0	0	1	6	0	7	1
	BUS	2	0	1	0	0	0	1	0	0	0	0	0	3	0	3	1
8:00	CAR	31	6	2	1	8	3	49	3	7	1	2	4	85	15	92	7
	TRK	4	3	0	0	1	1	6	1	0	0	1	3	12	3	14	1
	BUS	2	0	0	0	0	1	1	1	0	0	0	0	4	0	3	1
8:15	CAR	47	8	6	1	7	10	75	10	2	0	4	10	136	11	139	17
	TRK	2	1	0	0	0	1	3	1	0	0	0	1	6	1	6	1
	BUS	1	0	5	0	1	1	0	0	0	0	0	0	2	0	2	5
8:30	CAR	52	5	8	0	4	6	63	15	3	4	1	6	122	12	125	27
	TRK	4	0	2	0	2	0	7	0	0	0	1	0	12	0	13	2
	BUS	2	0	1	0	3	0	3	0	0	0	0	0	5	0	8	1
8:45	CAR	87	3	22	1	11	9	59	9	6	4	3	7	158	14	164	36
	TRK	4	1	1	0	2	0	7	1	2	0	0	0	11	3	13	2
	BUS	2	0	1	0	3	1	2	0	0	0	0	0	5	0	7	1
9:00	CAR	85	5	22	0	13	8	64	7	5	3	2	5	159	13	167	32
	TRK	5	1	1	0	2	1	5	1	1	0	1	1	12	2	13	2
	BUS	3	1	2	0	2	0	3	0	0	0	0	0	6	1	8	2
9:15	CAR	73	4	18	2	11	6	59	8	3	2	1	3	139	11	146	30
	TRK	6	2	1	0	1	2	8	2	1	0	0	1	16	3	16	3
	BUS	3	0	1	0	2	0	3	0	0	0	0	0	6	0	8	1
9:30	CAR	70	4	6	0	6	3	52	5	1	1	2	2	127	6	130	12
	TRK	7	1	1	1	1	0	4	1	0	0	1	0	12	2	12	3
	BUS	3	1	0	0	1	1	2	0	0	0	0	0	6	1	6	0
10:15	CAR	29	1	4	1	2	3	14	2	3	1	0	4	46	6	49	8
	TRK	5	0	0	0	2	2	4	3	0	1	1	0	12	1	11	4
	BUS	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1	1
10:30	CAR	39	1	9	1	5	6	8	2	0	0	0	3	53	2	55	12
	TRK	6	1	0	0	1	1	1	0	0	0	0	0	8	1	8	0
	BUS	1	0	1	0	1	0	0	0	0	0	0	0	1	0	2	1
10:45	CAR	45	2	7	0	6	7	11	2	0	1	0	2	63	3	64	10
	TRK	5	0	1	0	1	0	2	0	0	0	0	0	7	0	8	1
	BUS	2	0	0	0	1	0	1	0	0	0	0	0	3	0	4	0
11:00	CAR	39	1	5	1	4	4	13	3	1	1	0	2	56	4	58	10
	TRK	7	0	2	0	1	2	2	1	0	0	0	1	11	0	11	3
	BUS	3	0	1	0	1	0	2	0	0	0	1	0	6	0	6	1
11:15	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
11:30	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
11:45	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
12:00	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
13:15	CAR	66	2	3	0	4	5	53	4	2	1	2	1	126	5	124	8
	TRK	7	1	1	0	1	1	4	0	0	0	0	1	12	1	13	1
	BUS	0	1	0	0	1	0	2	0	0	0	0	0	2	1	3	0
13:30	CAR	70	1	4	0	5	2	57	5	2	1	1	2	130	4	134	10
	TRK	6	0	1	0	1	1	4	0	0	0	0	0	11	0	11	1
	BUS	3	0	1	0	1	0	3	0	0	0	0	0	6	0	7	1
13:45	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
14:00	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
14:15	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
14:30	CAR	38	2	6	0	6	9	40	9	2	0	0	4	87	4	88	15
	TRK	4	1	4	0	0	1	11	1	0	0	0	1	16	1	16	5
	BUS	1	0	1	0	0	0	1	0	0	0	0	0	2	0	2	1
14:45	CAR	53	3	9	0	4	8	41	6	1	0	0	6	102	4	104	15
	TRK	6	0	1	0	1	1	12	0	0	0	0	0	19	0	19	1
	BUS	3	0	1	0	1	1	2	0	0	0	0	0	6	0	6	1
15:00	CAR	73	2	10	0	9	11	56	1	5	0	0	2	140	7	140	11
	TRK	10	0	4	0	1	2	6	1	0	0	0	2	18	0	19	5
	BUS	1	0	1	0	2	0	1	0	0	0	0	0	2	0	4	1
16:15	CAR	61	3	11	0	10	15	63	11	4	0	1	3	140	7	137	22
	TRK	9	1	0	0	1	0	10	1	0	0	0	1	19	1	21	1
	BUS	4	0	2	0	2	1	2	1	0	0	0	0	7	0	8	3
16:30	CAR	73	6	9	0	8	11	57	8	3	0	2	4	143	9	142	17
	TRK	11	0	0	0	1	1	7	1	1	1	0	1	19	2	20	2
	BUS	3	0	1	0	0	1	2	1	0	0	0	0	6	0	5	2
16:45	CAR	82	4	13	0	11	10	51	12	6	0	1	3	144	10	147	25
	TRK	10	0	1	0	1	0	5	2	0	0	0	0	15	0	16	3
	BUS	3	0	0	0	1	0	2	0	1	0	0	0	5	1	6	0
17:00	CAR	78	3	10	1	9	15	59	9	5	0	0	0	152	9	146	20
	TRK	7	1	2	0	1	2	4	1	0	0	0	0	13	1	12	3
	BUS	4	0	1	0	1	0	2	0	0	0	0	0	6	0	7	1
17:15	CAR	85	5	8	0	7	12	63	6	4	1	0	2	160	10	157	15
	TRK	11	0	2	0	0	1	4	0	0	0	0	0	16	0	15	2
	BUS	3	0	1	0	0	1	2	0	0	0	0	0	6	0	5	1
17:30	CAR	72	4	13	0	8	11	58	6	4	1	0	3	141	9	141	20
	TRK	9	0	1	0	1	1	5	0	0	0	0	0	15	0	15	1
	BUS	4	0	1	0	1	0	2	1	1	0	0	0	6	1	7	2
17:45	CAR	75	5	10	0	6	9	63	6	3	0	2	2	149	8	146	16
	TRK	6	0	2	0	1	0	5	0	0	0	0	1	11	0	13	2
	BUS	3	1	1	0	0	0	2	0	0	0	0	0	5	1	5	1
18:00	CAR	81	3	8	0	9	13	57	8	3	1	4	2	155	7	149	17
	TRK	8	0	1	0	1	0	6	0	1	0	1	0	15	1	15	1
	BUS	4	0	0	0	1	1	2	0	0	0	0	0	7	0	7	0
AM PEAK (8:30-9:30)	CAR	297	17	70	3	39	29	245	39	17	13	7	21	578	50	602	125
	TRK	19	4	5	0	7	3	27	4	4	0	2	2	51	8	55	9
PM PEAK (14:30-15:30)	CAR	318	18	40	1	35	48	230	35	18	1	3	9	599	38	592	77
	TRK	39	1	5	0	3	4	20	4	1	1	0	1	63	3	63	10
AHV	CAR	153.75	8.75	27.5	1	18.5	19.25	118.75	18.5	8.75	3.5	2.5	7.5	294.25	22	298.5	50.5
(Average Hourly Vol.)	TRK	14.5	1.25	2.5	0	2.5	1.75	11.75	2	1.25	0.25	0.5	0.75	28.5	2.75	29.5	4.75
AADT	CAR	2460	140	440	16	296	308	1900	296	140	56	40	120	4708	352	4776	808
(An. Avg. Daily Traffic)	TRK	232	20	40	0	40	28	188	32	20	4	8	12	456	44	472	76

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Table D3-3: TMC Traffic Dat: GERRARD ST AT PAPE AVE (PX 371)

		Jan-02-2018 (Tuesday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: OLS5	ID: --	ID: --	ID:--
7:45	CAR	7	7	1	41	1	10	3	3	1	81	1	2	21	130	13	126
	TRK	0	0	0	1	0	1	0	1	0	0	0	0	1	1	0	2
	BUS	0	0	0	6	0	0	0	0	0	3	0	0	0	9	0	9
8:00	CAR	7	2	5	32	1	8	3	4	0	111	0	3	18	145	14	152
	TRK	0	0	0	1	0	0	0	0	0	2	0	0	0	3	0	3
	BUS	0	0	0	4	0	0	0	0	0	2	0	0	0	6	0	6
8:15	CAR	4	2	4	61	0	10	3	5	1	118	1	5	18	182	12	188
	TRK	0	0	0	1	0	0	0	0	1	1	0	0	0	2	0	1
	BUS	0	0	0	4	1	0	0	0	0	1	0	0	0	5	1	5
8:30	CAR	7	5	6	53	1	11	4	3	3	101	0	8	22	162	20	163
	TRK	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1
	BUS	0	0	0	5	0	0	1	0	0	4	0	0	1	9	1	9
8:45	CAR	6	5	8	56	6	12	3	7	4	116	2	8	23	181	23	187
	TRK	1	0	0	1	0	0	0	0	0	1	0	1	1	2	2	2
	BUS	0	0	0	4	1	1	0	1	0	4	0	0	1	8	1	9
9:00	CAR	12	2	2	64	10	18	2	6	7	118	2	8	34	191	32	190
	TRK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BUS	1	1	0	6	0	0	0	0	0	4	0	0	1	11	1	10
9:15	CAR	9	7	2	69	8	16	2	4	4	124	1	6	28	204	25	199
	TRK	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	BUS	0	0	0	6	0	0	0	0	0	4	0	0	0	10	0	10
9:30	CAR	6	3	2	65	3	7	3	2	2	118	2	4	18	188	16	187
	TRK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BUS	0	0	0	5	0	0	0	0	0	3	0	0	0	8	0	8
10:15	CAR	8	3	1	72	6	30	9	14	7	63	1	6	48	145	29	150
	TRK	0	0	0	1	0	0	0	0	0	1	0	0	0	2	0	2
	BUS	0	0	0	5	0	0	0	1	0	2	0	0	0	7	0	8
10:30	CAR	13	8	4	87	3	26	5	14	0	74	2	7	46	169	28	179
	TRK	0	1	0	2	0	0	0	0	0	1	0	0	0	4	0	3
	BUS	0	0	0	4	0	0	0	1	0	3	0	0	0	7	0	8
10:45	CAR	16	7	3	84	3	32	8	19	13	79	3	5	59	183	32	185
	TRK	0	0	0	1	0	0	0	0	0	0	0	1	0	1	1	1
	BUS	0	0	0	4	0	0	0	0	0	2	0	0	0	6	0	6
11:00	CAR	15	7	1	73	6	32	4	16	5	91	3	3	54	176	28	181
	TRK	0	0	0	1	0	0	0	0	0	1	0	0	0	2	0	2
	BUS	0	0	0	3	0	0	0	0	0	4	0	0	0	7	0	7
11:15	CAR	10	4	6	93	5	34	5	12	3	91	0	1	49	191	21	202
	TRK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BUS	0	0	0	2	0	0	0	0	0	3	0	0	0	5	0	5
11:30	CAR	17	13	10	85	2	35	9	15	6	82	1	7	62	186	35	192
	TRK	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	2
	BUS	0	0	0	3	0	0	0	0	0	5	0	0	0	8	0	8
11:45	CAR	15	10	9	84	4	37	6	13	3	88	2	5	60	185	30	194
	TRK	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
	BUS	0	1	0	5	0	0	0	0	0	3	0	0	0	9	0	8
12:00	CAR	12	9	6	89	5	33	4	11	3	83	3	3	52	184	24	189
	TRK	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1
	BUS	0	0	0	5	0	0	0	0	0	2	0	0	0	7	0	7
13:15	CAR	20	6	5	88	3	22	14	24	6	104	2	12	58	204	49	221
	TRK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BUS	0	0	0	3	0	0	0	1	0	3	0	0	0	6	0	7
13:30	CAR	16	11	5	100	1	28	10	18	9	100	5	13	59	220	40	223
	TRK	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1
	BUS	0	0	0	3	0	0	0	0	1	0	0	0	0	4	0	3
13:45	CAR	18	12	5	103	2	23	11	21	11	123	2	14	54	249	45	252
	TRK	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
	BUS	0	0	0	4	0	0	0	0	0	3	0	0	0	7	0	7
14:00	CAR	15	16	5	107	4	30	15	26	10	117	1	14	61	250	48	255
	TRK	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1
	BUS	0	0	0	2	0	0	0	1	0	2	0	0	0	4	0	5
14:15	CAR	13	17	4	110	2	27	19	26	8	104	4	8	63	239	42	244
	TRK	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
	BUS	0	0	0	3	0	0	0	2	0	3	0	0	0	6	0	8
14:30	CAR	16	13	2	111	3	22	15	16	15	90	2	11	55	229	45	219
	TRK	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
	BUS	0	0	0	4	0	0	0	0	0	6	0	0	0	10	0	10
14:45	CAR	10	15	4	108	2	24	12	23	13	107	3	9	49	243	33	242
	TRK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BUS	0	0	0	3	0	0	0	0	0	4	0	0	0	7	0	7
15:00	CAR	12	12	3	115	3	20	16	21	17	103	6	8	54	247	39	242
	TRK	0	0	0	0	0	0	2	0	0	1	0	0	2	1	2	1
	BUS	0	0	0	3	0	0	0	1	0	3	0	0	0	6	0	7
16:15	CAR	11	15	3	132	2	16	11	18	6	108	4	10	42	261	34	261
	TRK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BUS	0	0	0	5	0	0	0	0	0	3	0	0	0	8	0	8
16:30	CAR	15	11	5	136	4	19	16	22	9	113	3	16	53	269	51	276
	TRK	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1
	BUS	0	0	0	4	0	0	0	0	0	4	0	0	0	8	0	8
16:45	CAR	14	9	4	145	2	14	10	23	12	106	3	11	41	272	37	278
	TRK	0	0	0	1	0	0	0	0	0	1	0	0	0	2	0	2
	BUS	0	0	0	4	0	0	0	0	0	2	0	0	0	6	0	6
17:00	CAR	18	8	2	148	3	20	7	22	10	109	5	6	50	275	34	281
	TRK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BUS	0	0	0	5	0	0	0	0	0	4	0	0	0	9	0	9
17:15	CAR	14	7	2	138	2	17	9	17	5	102	4	7	44	252	32	259
	TRK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BUS	0	0	0	4	0	0	1	1	0	3	0	0	1	7	1	8
17:30	CAR	10	7	3	152	3	15	12	18	5	97	3	12	40	261	37	270
	TRK	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
	BUS	0	0	0	5	0	0	0	0	0	4	0	0	0	9	0	9
17:45	CAR	15	6	2	154	4	22	16	14	5	95	4	6	57	260	41	265
	TRK	0	0	0	2	0	0	0	0	0	2	0	0	0	4	0	4
	BUS	0	1	0	5	0	0	0	0	0	3	0	0	0	9	0	8
18:00	CAR	12	5	4	154	5	14	8	15	5	103	3	7	37	267	32	276
	TRK	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1
	BUS	0	1	0	5	0	0	0	0	0	4	1	0	1	10	0	9
AM PEAK (10:45-11:45)	CAR	58	31	20	335	16	133	26	62	27	343	7	16	224	736	116	760
	TRK	0	0	0	4	0	0	0	0	0	1	0	1	0	5	1	5
PM PEAK (16:15-17:15)	CAR	58	43	14	561	11	69	44	85	37	436	15	43	186	1077	156	1096
	TRK	0	0	0	1	0	0	0	0	0	2	0	0	0	3	0	3
AHV (Average Hourly Vol.)	CAR	29	18.5	8.5	224	6.75	50.5	17.5	36.75	16	194.75	5.5	14.75	102.5	453.25	68	464
	TRK	0	0	0	1.25	0	0	0	0	0	0.75	0	0.25	0	2	0.25	2
AADT (An. Avg. Daily Traffic)	CAR	464	296	136	3584	108	808	280	588	256	3116	88	236	1640	7252	1088	7424
	TRK	0	0	0	20	0	0	0	0	0	12	0	4	0	32	4	32

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Table D3-4: TMC Traffic Dat: CARLAW AVE AT SIMPSON AVE

		Jun-13-2018 (Wednesday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: OLS8	ID: --	ID: OLS19	ID: --
7:45	CAR	35	0	4	0	0	0	105	5	0	0	0	0	140	0	140	9
	TRK	1	0	0	0	0	0	2	0	0	0	0	0	3	0	3	0
	BUS	2	0	0	0	0	0	2	1	0	0	0	0	4	0	4	1
8:00	CAR	53	0	3	0	1	0	117	14	0	0	0	0	170	0	171	17
	TRK	1	0	0	0	0	0	3	0	0	0	0	0	4	0	4	0
	BUS	2	0	0	0	0	0	2	0	0	0	0	0	4	0	4	0
8:15	CAR	70	0	6	0	0	0	120	20	0	0	0	0	190	0	190	26
	TRK	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
	BUS	2	0	0	0	0	0	4	0	0	0	0	0	6	0	6	0
8:30	CAR	54	0	5	0	1	0	126	23	0	0	0	0	180	0	181	28
	TRK	1	0	1	0	0	0	3	1	0	0	0	0	4	0	4	2
	BUS	2	0	0	0	0	0	3	0	0	0	0	0	5	0	5	0
8:45	CAR	95	0	8	0	1	0	152	46	0	0	0	0	247	0	248	54
	TRK	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
	BUS	2	0	0	0	0	0	2	0	0	0	0	0	4	0	4	0
9:00	CAR	71	0	10	0	3	0	173	26	0	0	0	0	244	0	247	36
	TRK	0	0	1	0	0	0	4	1	0	0	0	0	4	0	4	2
	BUS	1	0	0	0	0	0	2	0	0	0	0	0	3	0	3	0
9:15	CAR	55	0	6	0	1	0	146	24	0	0	0	0	201	0	202	30
	TRK	2	0	0	0	0	0	2	1	0	0	0	0	4	0	4	1
	BUS	2	0	0	0	0	0	1	0	0	0	0	0	3	0	3	0
9:30	CAR	55	0	6	0	0	0	116	8	0	0	0	0	171	0	171	14
	TRK	0	0	0	0	0	0	2	0	0	0	0	0	2	0	2	0
	BUS	2	0	0	0	0	0	3	0	0	0	0	0	5	0	5	0
10:15	CAR	64	0	5	0	0	2	121	12	0	0	0	0	187	0	185	17
	TRK	3	0	0	0	0	0	1	1	0	0	0	0	4	0	4	1
	BUS	2	0	0	0	0	0	3	0	0	0	0	0	5	0	5	0
10:30	CAR	63	0	6	0	1	2	114	12	0	0	0	0	179	0	178	18
	TRK	2	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0
	BUS	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
10:45	CAR	80	0	7	0	2	0	123	9	0	0	0	0	203	0	205	16
	TRK	1	0	0	0	0	0	5	0	0	0	0	0	6	0	6	0
	BUS	2	0	0	0	0	0	3	0	0	0	0	0	5	0	5	0
11:00	CAR	65	0	11	0	2	0	109	7	0	0	0	0	174	0	176	18
	TRK	2	0	0	0	0	0	6	0	0	0	0	0	8	0	8	0
	BUS	1	0	0	0	0	0	3	0	0	0	0	0	4	0	4	0
11:15	CAR	73	0	6	0	3	0	96	8	0	0	0	0	169	0	172	14
	TRK	2	0	0	0	0	0	1	0	0	0	0	0	3	0	3	0
	BUS	3	0	0	0	0	0	2	0	0	0	0	0	5	0	5	0
11:30	CAR	68	0	0	0	2	1	116	9	0	0	0	0	185	0	186	9
	TRK	3	0	0	0	0	0	5	1	0	0	0	0	8	0	8	1
	BUS	1	0	0	0	0	0	1	0	0	0	0	0	2	0	2	0
11:45	CAR	74	0	5	0	0	3	101	5	0	0	0	0	178	0	175	10
	TRK	4	0	0	0	0	0	7	0	0	0	0	0	11	0	11	0
	BUS	1	0	0	0	0	0	1	0	0	0	0	0	2	0	2	0
12:00	CAR	63	0	3	0	1	0	112	10	0	0	0	0	175	0	176	13
	TRK	0	0	0	0	0	0	2	0	0	0	0	0	2	0	2	0
	BUS	3	0	0	0	0	0	1	0	0	0	0	0	4	0	4	0
13:15	CAR	84	0	7	0	1	2	102	15	0	0	0	0	188	0	187	22
	TRK	3	0	0	0	0	0	1	0	0	0	0	0	4	0	4	0
	BUS	3	0	0	0	0	0	2	0	0	0	0	0	5	0	5	0
13:30	CAR	67	0	3	0	1	0	110	11	0	0	0	0	177	0	178	14
	TRK	2	0	0	0	0	0	2	0	0	0	0	0	4	0	4	0
	BUS	2	0	0	0	0	0	1	0	0	0	0	0	3	0	3	0
13:45	CAR	81	0	5	0	2	0	113	15	0	0	0	0	194	0	196	20
	TRK	1	0	0	0	0	0	5	2	0	0	0	0	6	0	6	2
	BUS	1	0	0	0	0	0	2	0	0	0	0	0	3	0	3	0
14:00	CAR	103	0	1	0	0	0	115	11	0	0	0	0	218	0	218	12
	TRK	4	0	0	0	0	0	2	0	0	0	0	0	6	0	6	0
	BUS	2	0	0	0	0	0	1	0	0	0	0	0	3	0	3	0
14:15	CAR	92	0	3	0	2	2	113	6	0	0	0	0	207	0	207	9
	TRK	1	0	0	0	0	0	3	0	0	0	0	0	4	0	4	0
	BUS	2	0	0	0	0	0	1	0	0	0	0	0	3	0	3	0
14:30	CAR	94	0	7	0	2	0	110	4	0	0	0	0	204	0	206	11
	TRK	2	0	0	0	0	0	2	0	0	0	0	0	4	0	4	0
	BUS	1	0	0	0	0	0	2	0	0	0	0	0	3	0	3	0
14:45	CAR	71	0	6	0	0	0	105	10	0	0	0	0	176	0	176	16
	TRK	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
	BUS	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
15:00	CAR	102	0	10	0	0	1	113	9	0	0	0	0	216	0	215	19
	TRK	2	0	0	0	0	0	1	0	0	0	0	0	3	0	3	0
	BUS	2	0	0	0	0	0	1	0	0	0	0	0	3	0	3	0
16:15	CAR	121	0	8	0	0	2	117	14	0	0	0	0	240	0	238	22
	TRK	2	0	0	0	0	0	2	0	0	0	0	0	4	0	4	0
	BUS	0	0	0	0	0	0	3	0	0	0	0	0	3	0	3	0
16:30	CAR	103	0	8	0	1	1	104	12	0	0	0	0	208	0	208	20
	TRK	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
	BUS	3	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0
16:45	CAR	119	0	8	0	2	1	112	16	0	0	0	0	232	0	233	24
	TRK	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
	BUS	3	0	0	0	0	0	3	0	0	0	0	0	6	0	6	0
17:00	CAR	117	0	14	0	2	1	122	12	0	0	0	0	240	0	241	26
	TRK	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
	BUS	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
17:15	CAR	114	0	14	0	1	1	129	13	0	0	0	0	244	0	244	27
	TRK	2	0	0	0	0	0	2	0	0	0	0	0	4	0	4	0
	BUS	2	0	0	0	0	0	2	0	0	0	0	0	4	0	4	0
17:30	CAR	138	0	11	0	0	0	103	17	0	0	0	0	241	0	241	28
	TRK	1	0	0	0	0	0	1	0	0	0	0	0	2	0	2	0
	BUS	1	0	0	0	0	0	2	0	0	0	0	0	3	0	3	0
17:45	CAR	110	0	10	0	2	2	121	20	0	0	0	0	233	0	233	30
	TRK	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
	BUS	3	0	0	0	0	0	1	0	0	0	0	0	4	0	4	0
18:00	CAR	103	0	9	0	2	3	142	16	0	0	0	0	248	0	247	25
	TRK	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
	BUS	0	0	0	0	0	0	3	0	0	0	0	0	3	0	3	0
AM PEAK	CAR	275	0	29	0	6	0	597	119	0	0	0	0	872	0	878	148
	TRK	3	0	2	0	0	0	10	3	0	0	0	0	13	0	13	5
PM PEAK	CAR	479	0	49	0	5	4	475	62	0	0	0	0	958	0	959	111
	TRK	3	0	0	0	0	0	5	0	0	0	0	0	8	0	8	0
AHV (Average Hourly Vol.)	CAR	188.5	0	19.5	0	2.75	1	268	45.25	0	0	0	0	457.5	0	459.25	64.75
	TRK	1.5	0	0.5	0	0	0	3.75	0.75	0	0	0	0	5.25	0	5.25	1.25
AADT (An. Avg. Daily Traffic)	CAR	3016	0	312	0	44	16	4288	724	0	0	0	0	7320	0	7348	1036
	TRK	24	0	8	0	0	0	60	12	0	0	0	0	84	0	84	20

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Table D3-5: TMC Traffic Dat: CARLAW AVE AT GERRARD ST (PX 372)

		Sep-20-2018 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: OLS19	): OLS7, OLS	ID: OLS9	ID: OLS10
7:45	CAR	32	10	10	29	6	9	69	24	5	129	5	37	115	173	144	192
	TRK	1	1	0	2	0	0	0	1	0	1	1	0	2	4	1	4
	BUS	1	0	0	4	0	0	2	0	0	2	0	0	3	6	3	6
8:00	CAR	46	9	11	27	7	8	79	23	11	160	11	28	144	207	160	221
	TRK	0	1	0	1	1	0	0	0	0	1	1	0	1	3	1	2
	BUS	2	0	0	4	0	0	2	0	0	6	0	0	4	10	4	10
8:15	CAR	37	18	10	44	8	5	92	26	14	156	17	40	151	232	177	236
	TRK	0	1	2	2	0	0	0	0	0	2	1	0	1	5	0	6
	BUS	2	0	0	3	0	0	2	0	0	4	0	0	4	7	4	7
8:30	CAR	32	10	12	48	13	5	91	27	10	192	17	50	145	260	186	279
	TRK	0	1	0	2	0	0	0	0	0	1	1	2	1	4	2	3
	BUS	2	0	0	3	0	0	3	0	0	4	1	0	6	7	5	7
8:45	CAR	45	18	9	45	13	4	88	21	26	190	30	35	167	279	181	265
	TRK	2	1	1	0	0	0	0	0	0	0	0	0	2	1	2	1
	BUS	2	0	0	2	0	0	3	0	0	2	1	0	6	4	5	4
9:00	CAR	41	17	9	43	18	9	105	16	24	177	28	28	183	261	192	245
	TRK	0	0	2	1	1	0	0	1	0	3	0	0	0	4	1	7
	BUS	2	0	0	3	0	0	2	0	0	5	0	0	4	8	4	8
9:15	CAR	44	15	10	29	14	9	104	30	17	135	25	34	182	196	196	204
	TRK	0	0	0	2	2	0	1	0	0	3	0	0	1	5	3	5
	BUS	3	0	0	3	0	0	3	1	0	4	0	0	6	7	6	8
9:30	CAR	39	11	13	46	13	9	75	19	23	139	22	29	145	219	156	217
	TRK	1	2	0	1	0	2	2	0	0	1	0	0	5	4	3	2
	BUS	2	0	0	5	0	0	1	0	0	3	0	1	3	8	4	8
10:15	CAR	45	10	7	51	14	10	56	19	24	88	27	19	138	173	134	165
	TRK	3	0	1	2	2	0	0	1	1	3	0	0	3	6	5	7
	BUS	2	0	0	1	0	0	2	0	0	1	0	0	4	2	4	2
10:30	CAR	44	17	12	47	3	10	65	18	23	71	23	18	142	158	130	148
	TRK	1	0	0	0	0	0	6	1	0	2	0	0	7	2	7	3
	BUS	2	0	0	4	0	0	2	0	0	2	0	0	4	6	4	6
10:45	CAR	31	22	4	67	12	10	55	27	31	81	20	15	116	201	113	179
	TRK	1	1	1	1	0	0	3	0	0	0	0	0	4	2	4	2
	BUS	1	0	0	3	0	0	2	1	0	2	0	0	3	5	3	6
11:00	CAR	41	16	5	58	14	11	62	16	29	60	26	19	140	163	136	139
	TRK	0	0	0	2	0	1	1	0	0	1	0	1	2	3	2	3
	BUS	3	0	0	4	0	0	1	0	0	4	0	0	4	8	4	8
11:15	CAR	41	17	10	66	9	13	52	11	18	84	31	21	137	185	123	171
	TRK	1	1	0	0	0	0	3	0	0	0	0	0	4	1	4	0
	BUS	2	0	0	4	0	0	3	0	0	1	0	0	5	5	5	5
11:30	CAR	33	14	6	70	6	10	66	20	20	74	25	15	134	178	120	170
	TRK	4	0	0	4	2	0	3	0	1	1	1	0	8	6	9	5
	BUS	1	0	0	3	0	0	1	0	0	3	0	0	2	6	2	6
11:45	CAR	57	26	5	78	14	7	67	25	25	85	21	17	152	214	155	193
	TRK	2	1	3	2	0	0	5	2	1	2	1	2	8	6	9	9
	BUS	2	0	0	1	0	0	2	0	0	3	0	0	4	4	4	4
12:00	CAR	45	23	8	65	16	20	61	14	27	77	25	18	151	192	140	164
	TRK	1	2	0	3	2	0	2	0	0	0	0	2	3	5	7	3
	BUS	2	0	0	3	0	0	1	0	0	3	0	0	3	6	3	6
13:15	CAR	52	22	10	68	6	14	57	15	30	83	37	14	160	203	129	176
	TRK	3	0	1	1	0	1	0	0	1	1	0	0	4	3	3	3
	BUS	2	0	0	3	0	0	3	0	0	3	0	0	5	6	5	6
13:30	CAR	40	17	9	75	18	10	59	15	38	92	34	14	143	222	131	191
	TRK	2	0	1	3	0	1	4	1	0	1	0	1	7	4	7	6
	BUS	2	0	0	4	0	1	2	0	0	3	0	0	5	7	4	7
13:45	CAR	56	29	7	83	12	13	62	18	36	76	26	16	157	224	146	184
	TRK	0	0	0	1	1	0	3	1	0	0	0	3	3	1	7	2
	BUS	1	0	0	2	0	0	2	0	0	4	0	0	3	6	3	6
14:00	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
14:15	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
14:30	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
14:45	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
15:00	CAR	56	12	9	98	11	21	67	22	26	79	19	16	163	215	150	208
	TRK	4	3	1	2	0	0	2	3	0	0	0	2	6	5	8	6
	BUS	1	0	0	2	0	0	2	0	0	2	0	0	3	4	3	4
16:15	CAR	79	15	9	116	11	20	68	21	34	83	25	19	192	248	177	229
	TRK	1	0	0	0	3	0	0	0	1	0	1	1	2	1	5	0
	BUS	2	0	0	1	0	0	1	0	0	2	0	0	3	3	3	3
16:30	CAR	70	15	15	114	13	16	66	10	33	80	29	14	181	242	163	219
	TRK	3	0	0	1	0	0	2	0	0	1	1	0	6	2	5	2
	BUS	1	0	0	4	0	0	3	0	0	3	0	0	4	7	4	7
16:45	CAR	65	13	9	127	14	17	69	16	32	62	31	18	182	234	166	214
	TRK	1	0	0	0	0	0	1	0	1	1	0	1	2	2	3	1
	BUS	1	0	0	2	0	0	1	0	0	3	0	0	2	5	2	5
17:00	CAR	76	10	15	159	12	21	62	17	28	91	32	13	191	288	163	282
	TRK	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
	BUS	3	0	0	1	0	0	2	0	0	1	0	0	5	2	5	2
17:15	CAR	75	32	22	148	15	25	84	14	32	77	30	16	214	289	190	261
	TRK	0	2	0	1	1	0	0	0	0	0	0	0	0	3	1	1
	BUS	1	0	0	4	0	0	3	0	0	1	0	0	4	5	4	5
17:30	CAR	86	17	26	145	13	19	67	26	26	97	33	14	205	285	180	294
	TRK	0	0	0	1	0	1	2	0	0	1	0	0	3	2	2	2
	BUS	1	0	0	3	0	0	3	0	0	4	0	0	4	7	4	7
17:45	CAR	83	16	16	157	18	13	71	16	37	59	37	11	204	269	183	248
	TRK	1	0	0	0	0	1	2	3	0	0	1	1	5	0	4	3
	BUS	4	0	0	1	0	0	2	0	0	3	0	0	6	4	6	4
18:00	CAR	108	18	22	136	16	18	69	15	22	73	37	14	232	249	207	246
	TRK	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
	BUS	2	0	0	2	0	0	3	0	0	3	0	0	5	5	5	5
AM PEAK (8:30-9:30)	CAR	155	63	40	180	52	23	376	90	74	715	92	153	646	1032	736	1025
	TRK	2	3	5	5	1	0	0	1	0	6	2	2	4	14	5	17
PM PEAK (17:00-18:00)	CAR	320	75	79	609	58	78	284	73	123	324	132	54	814	1131	716	1085
	TRK	2	2	0	2	1	2	4	3	0	1	1	1	9	5	8	6
AHV	CAR	118.75	34.5	29.75	197.25	27.5	25.25	165	40.75	49.25	259.75	56	51.75	365	540.75	363	527.5
(Average Hourly Vol.)	TRK	1	1.25	1.25	1.75	0.5	0.5	1	1	0	1.75	0.75	0.75	3.25	4.75	3.25	5.75
AADT	CAR	1900	552	476	3156	440	404	2640	652	788	4156	896	828	5840	8652	5808	8440
(An. Avg. Daily Traffic)	TRK	16	20	20	28	8	8	16	16	0	28	12	12	52	76	52	92

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Table D3-6: TMC Traffic Dat: QUEEN ST E AT SAULTER ST

		Aug-03-2017 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: --	: OLS12, OLS	ID: --	OLS12, OLS
7:45	CAR	0	2	0	29	1	0	0	0	0	79	0	0	0	110	1	108
	TRK	0	0	0	3	0	0	0	0	0	10	0	1	0	13	1	13
	BUS	0	0	0	5	0	0	0	0	0	9	0	0	0	14	0	14
8:00	CAR	0	0	0	29	1	0	0	0	0	95	0	1	0	124	2	124
	TRK	0	0	0	5	0	0	0	0	0	11	0	0	0	16	0	16
	BUS	0	0	0	11	0	0	0	0	0	8	0	0	0	19	0	19
8:15	CAR	0	0	1	43	1	0	0	0	0	112	0	1	0	155	2	156
	TRK	0	0	0	6	0	0	0	0	0	11	0	2	0	17	2	17
	BUS	0	0	0	4	0	0	0	0	0	7	0	0	0	11	0	11
8:30	CAR	0	0	0	50	0	0	0	0	0	128	0	1	0	178	1	178
	TRK	0	0	0	6	1	0	0	0	0	11	0	1	0	17	2	17
	BUS	0	0	0	9	0	0	0	0	0	10	0	0	0	19	0	19
8:45	CAR	0	1	3	51	2	0	0	0	0	132	0	2	0	184	4	186
	TRK	0	1	0	15	0	0	0	0	0	9	0	1	0	25	1	24
	BUS	0	0	0	8	0	0	0	0	0	12	0	0	0	20	0	20
9:00	CAR	0	3	4	46	4	0	0	0	0	121	0	1	0	170	5	171
	TRK	0	0	0	8	0	0	0	0	0	13	0	0	0	21	0	21
	BUS	0	0	0	7	0	0	0	0	0	10	0	0	0	17	0	17
9:15	CAR	0	2	2	57	3	0	0	0	0	127	0	0	0	186	3	186
	TRK	0	1	0	9	1	0	0	0	0	15	0	1	0	25	2	24
	BUS	0	0	0	10	0	0	0	0	0	12	0	0	0	22	0	22
9:30	CAR	0	2	4	62	3	0	0	0	0	122	0	1	0	186	4	188
	TRK	0	1	0	7	0	0	0	0	0	10	0	0	0	18	0	17
	BUS	0	0	0	6	0	0	0	0	0	8	0	0	0	14	0	14
10:15	CAR	0	1	2	50	0	0	0	0	0	72	0	3	0	123	3	124
	TRK	0	0	1	12	1	0	0	0	0	10	0	2	0	22	3	23
	BUS	0	0	0	7	0	0	0	0	0	8	0	0	0	15	0	15
10:30	CAR	0	2	2	61	1	0	0	0	0	67	0	3	0	130	4	130
	TRK	0	0	0	13	0	0	0	0	0	11	0	2	0	24	2	24
	BUS	0	0	0	8	0	0	0	0	0	7	0	0	0	15	0	15
10:45	CAR	0	1	0	54	0	0	0	0	0	68	0	2	0	123	2	122
	TRK	0	1	1	13	0	0	0	0	0	15	0	0	0	29	0	29
	BUS	0	0	0	7	0	0	0	0	0	5	0	0	0	12	0	12
11:00	CAR	0	0	0	67	2	0	0	0	0	73	0	5	0	140	7	140
	TRK	0	1	0	12	1	0	0	0	0	14	0	1	0	27	2	26
	BUS	0	0	0	9	0	0	0	0	0	10	0	0	0	19	0	19
11:15	CAR	0	1	0	63	1	0	0	0	0	77	0	3	0	141	4	140
	TRK	0	0	0	14	0	0	0	0	0	13	0	0	0	27	0	27
	BUS	0	0	0	6	0	0	0	0	0	4	0	0	0	10	0	10
11:30	CAR	0	3	1	58	1	0	0	0	0	80	0	3	0	141	4	139
	TRK	0	1	0	10	2	0	0	0	0	10	0	1	0	21	3	20
	BUS	0	0	0	8	0	0	0	0	0	8	0	0	0	16	0	16
11:45	CAR	0	2	0	64	1	0	0	0	0	84	0	2	0	150	3	148
	TRK	0	0	0	12	0	0	0	0	0	14	0	1	0	26	1	26
	BUS	0	0	0	8	0	0	0	0	0	7	0	0	0	15	0	15
12:00	CAR	0	2	1	69	2	0	0	0	0	81	0	2	0	152	4	151
	TRK	0	0	0	10	1	0	0	0	0	12	0	1	0	22	2	22
	BUS	0	0	0	8	0	0	0	0	0	7	0	0	0	15	0	15
13:15	CAR	0	5	5	78	2	0	0	0	0	79	0	2	0	162	4	162
	TRK	0	0	1	18	1	0	0	0	0	10	0	0	0	28	1	29
	BUS	0	0	0	5	0	0	0	0	0	3	0	0	0	8	0	8
13:30	CAR	0	0	0	24	1	0	0	0	0	68	0	3	0	92	4	92
	TRK	0	1	0	4	0	0	0	0	0	19	0	0	0	24	0	23
	BUS	0	0	0	3	0	0	0	0	0	9	0	0	0	12	0	12
13:45	CAR	0	4	1	58	3	0	0	0	0	65	0	1	0	127	4	124
	TRK	0	0	0	14	0	0	0	0	0	23	0	0	0	37	0	37
	BUS	0	0	1	6	0	0	0	0	0	6	0	0	0	12	0	13
14:00	CAR	0	2	1	75	3	0	0	0	0	61	0	1	0	138	4	137
	TRK	0	0	0	15	0	0	0	0	0	13	0	1	0	28	1	28
	BUS	0	0	0	10	0	0	0	0	0	8	0	0	0	18	0	18
14:15	CAR	0	4	0	54	2	0	0	0	0	77	0	1	0	135	3	131
	TRK	0	0	1	17	0	0	0	0	0	11	0	2	0	28	2	29
	BUS	0	0	0	4	0	0	0	0	0	8	0	0	0	12	0	12
14:30	CAR	0	2	1	78	1	0	0	0	0	72	0	1	0	152	2	151
	TRK	0	0	0	17	2	0	0	0	0	15	0	0	0	32	2	32
	BUS	0	0	0	8	0	0	0	0	0	6	0	0	0	14	0	14
14:45	CAR	0	2	0	85	2	0	0	0	0	80	0	2	0	167	4	165
	TRK	0	0	0	16	0	0	0	0	0	12	0	1	0	28	1	28
	BUS	0	0	0	9	0	0	0	0	0	8	0	0	0	17	0	17
15:00	CAR	0	1	1	91	2	0	0	0	0	77	0	2	0	169	4	169
	TRK	0	1	1	14	0	0	0	0	0	10	0	1	0	25	1	25
	BUS	0	0	0	10	0	0	0	0	0	8	0	0	0	18	0	18
16:15	CAR	0	2	2	98	3	0	0	0	0	83	0	2	0	183	5	183
	TRK	0	0	0	11	0	0	0	0	0	15	0	0	0	26	0	26
	BUS	0	0	0	8	0	0	0	0	0	7	0	0	0	15	0	15
16:30	CAR	0	6	1	95	3	0	0	0	0	79	0	0	0	180	3	175
	TRK	0	1	0	15	0	0	0	0	0	16	0	0	0	32	0	31
	BUS	0	0	0	7	0	0	0	0	0	7	0	0	0	14	0	14
16:45	CAR	0	3	0	105	5	0	0	0	0	86	0	2	0	194	7	191
	TRK	0	0	1	16	1	0	0	0	0	20	0	1	0	36	2	37
	BUS	0	0	0	8	0	0	0	0	0	6	0	0	0	14	0	14
17:00	CAR	0	3	1	119	5	0	0	0	0	91	0	1	0	213	6	211
	TRK	0	1	0	14	0	0	0	0	0	16	0	0	0	31	0	30
	BUS	0	1	0	10	0	0	0	0	0	10	0	0	0	21	0	20
17:15	CAR	0	2	0	127	4	0	0	0	0	79	0	0	0	208	4	206
	TRK	0	0	0	16	1	0	0	0	0	15	0	0	0	31	1	31
	BUS	0	0	0	8	0	0	0	0	0	8	0	0	0	16	0	16
17:30	CAR	0	2	2	132	2	0	0	0	0	81	0	1	0	215	3	215
	TRK	0	0	1	13	1	0	0	0	0	15	0	1	0	28	2	29
	BUS	0	0	0	7	0	0	0	0	0	6	0	0	0	13	0	13
17:45	CAR	0	4	0	120	3	0	0	0	0	75	0	1	0	199	4	195
	TRK	0	1	0	15	0	0	0	0	0	12	0	0	0	28	0	27
	BUS	0	0	0	9	0	0	0	0	0	9	0	0	0	18	0	18
18:00	CAR	0	1	2	119	3	0	0	0	0	84	0	2	0	204	5	205
	TRK	0	0	1	12	0	0	0	0	0	14	0	0	0	26	0	27
	BUS	0	0	0	9	0	0	0	0	0	6	0	0	0	15	0	15
AM PEAK (8:45-9:45)	CAR	0	8	13	216	12	0	0	0	0	502	0	4	0	726	16	731
	TRK	0	3	0	39	1	0	0	0	0	47	0	2	0	89	3	86
PM PEAK (16:45-17:45)	CAR	0	10	3	483	16	0	0	0	0	337	0	4	0	830	20	823
	TRK	0	1	2	59	3	0	0	0	0	66	0	2	0	126	5	127
AHV (Average Hourly Vol.)	CAR	0	4.5	4	174.75	7	0	0	0	0	209.75	0	2	0	389	9	388.5
	TRK	0	1	0.5	24.5	1	0	0	0	0	28.25	0	1	0	53.75	2	53.25
AADT (An. Avg. Daily Traffic)	CAR	0	72	64	2796	112	0	0	0	0	3356	0	32	0	6224	144	6216
	TRK	0	16	8	392	16	0	0	0	0	452	0	16	0	860	32	852

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Table D3-7: TMC Traffic Dat: BROADVIEW AVE AT QUEEN ST (PX 543)

		Feb-28-2019 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: --	ID:--	ID: OLS13	ID: OLS14
7:45	CAR	15	8	13	19	5	0	29	4	7	64	11	1	55	98	50	100
	TRK	2	0	2	1	2	0	0	0	0	1	0	0	2	2	4	4
	BUS	0	0	0	8	0	4	0	2	0	4	2	0	6	12	0	14
8:00	CAR	31	7	12	23	10	0	41	8	7	86	8	0	80	123	82	129
	TRK	2	0	0	0	0	1	1	0	0	0	0	0	4	0	3	0
	BUS	0	0	0	7	0	2	0	5	0	6	1	0	3	13	0	18
8:15	CAR	27	4	11	28	16	0	47	5	1	112	12	0	86	145	90	156
	TRK	1	2	1	2	1	1	0	0	0	4	0	0	2	8	2	7
	BUS	0	0	0	6	0	0	0	3	0	8	0	0	0	14	0	17
8:30	CAR	20	5	19	37	12	2	46	5	6	102	12	0	80	150	78	163
	TRK	0	0	0	1	0	0	2	0	0	0	0	0	2	1	2	1
	BUS	1	0	0	6	0	1	0	5	0	5	0	0	2	11	1	16
8:45	CAR	49	4	16	35	17	2	65	3	9	97	13	0	129	145	131	151
	TRK	0	0	2	0	1	0	0	0	0	6	1	0	1	6	1	8
	BUS	0	0	0	4	0	0	0	3	0	7	1	0	1	11	0	14
9:00	CAR	24	8	9	29	8	0	63	11	13	124	11	1	98	174	96	173
	TRK	2	0	0	2	1	0	0	0	0	2	0	0	2	4	3	4
	BUS	0	0	0	7	0	4	0	1	0	7	0	0	4	14	0	15
9:15	CAR	35	10	8	30	7	1	50	10	3	93	13	0	99	136	92	141
	TRK	1	1	1	0	1	0	2	0	0	4	0	0	3	5	4	5
	BUS	0	0	0	6	0	2	0	1	0	8	0	0	2	14	0	15
9:30	CAR	30	7	15	38	15	4	38	7	6	64	6	2	78	115	85	124
	TRK	2	0	2	3	1	0	0	1	0	0	1	0	3	3	3	6
	BUS	0	0	0	13	0	2	0	4	0	4	0	0	2	17	0	21
10:15	CAR	34	5	11	38	17	3	39	7	9	48	6	3	82	100	93	104
	TRK	0	0	0	1	5	0	1	0	0	1	1	0	2	2	6	2
	BUS	0	0	0	8	0	1	0	2	1	3	0	0	1	12	0	13
10:30	CAR	33	10	17	24	17	5	31	4	6	42	7	3	76	82	84	87
	TRK	1	0	1	2	2	0	0	0	0	1	0	0	1	3	3	4
	BUS	0	0	0	8	0	3	0	3	1	10	0	0	3	19	0	21
10:45	CAR	33	8	13	44	19	6	29	8	4	53	12	4	80	109	85	118
	TRK	1	0	0	4	1	1	2	0	0	0	1	0	5	4	4	4
	BUS	0	0	0	8	0	1	0	1	0	6	0	0	1	14	0	15
11:00	CAR	24	8	12	34	12	8	29	10	8	42	8	7	69	92	72	98
	TRK	3	0	0	3	0	0	1	0	1	3	1	0	5	7	4	6
	BUS	0	0	0	5	0	0	0	4	0	3	0	0	0	8	0	12
11:15	CAR	28	9	18	48	20	3	28	9	7	56	13	7	72	120	83	131
	TRK	1	1	1	4	1	0	2	0	0	2	1	0	4	7	4	7
	BUS	0	0	0	5	0	4	0	0	0	7	0	0	4	12	0	12
11:30	CAR	37	5	19	33	13	7	32	10	17	50	7	2	83	105	84	112
	TRK	1	0	1	2	2	0	0	0	0	1	0	0	1	3	3	4
	BUS	0	0	0	7	0	0	0	1	3	3	0	0	0	13	0	11
11:45	CAR	31	11	20	42	17	8	43	13	11	47	9	9	91	111	100	122
	TRK	1	1	3	2	0	0	1	1	0	3	0	0	2	6	2	9
	BUS	0	0	0	5	0	2	0	3	2	6	0	0	2	13	0	14
12:00	CAR	26	11	17	50	12	5	37	9	11	42	20	5	88	114	80	118
	TRK	1	1	2	0	0	0	2	0	0	3	0	0	3	4	3	5
	BUS	0	0	0	4	0	3	0	1	0	2	0	0	3	6	0	7
13:15	CAR	46	5	18	42	19	11	27	8	13	44	14	4	98	104	96	112
	TRK	0	0	0	2	2	0	1	1	1	1	1	1	2	4	4	4
	BUS	0	0	0	3	0	2	0	2	0	5	0	0	2	8	0	10
13:30	CAR	27	9	24	33	19	9	33	15	9	61	15	6	84	112	85	133
	TRK	0	0	2	1	0	0	0	1	1	2	0	1	0	4	1	6
	BUS	0	0	0	3	0	2	0	2	0	5	0	0	2	8	0	10
13:45	CAR	35	10	17	48	22	7	33	3	15	37	12	2	87	110	92	105
	TRK	1	1	0	1	0	0	3	1	0	0	0	0	4	2	4	2
	BUS	0	0	0	6	0	1	0	2	0	7	0	0	1	13	0	15
14:00	CAR	35	8	20	56	16	7	30	5	11	49	14	7	86	124	88	130
	TRK	2	0	2	0	0	0	2	0	2	1	0	0	4	3	4	3
	BUS	0	0	0	5	0	3	0	2	1	6	1	0	4	12	0	13
14:15	CAR	39	10	22	52	21	8	33	8	8	47	13	2	93	117	95	129
	TRK	1	0	1	1	1	1	4	0	0	2	0	1	6	3	7	4
	BUS	0	0	0	8	0	2	0	1	0	2	0	0	2	10	0	11
14:30	CAR	33	8	14	44	18	6	37	7	11	41	10	4	86	104	92	106
	TRK	1	0	1	1	2	0	4	1	1	1	0	0	5	3	7	4
	BUS	0	0	0	2	0	2	0	2	1	5	0	0	2	8	0	9
14:45	CAR	34	11	20	53	13	6	35	8	13	43	15	12	90	120	94	124
	TRK	2	0	0	1	1	1	1	1	1	2	0	2	4	4	6	4
	BUS	0	0	0	7	0	2	0	3	0	4	1	0	3	11	0	14
15:00	CAR	51	9	18	48	9	8	20	8	11	45	8	5	87	113	85	119
	TRK	1	1	0	1	0	0	0	0	0	0	1	1	2	2	2	1
	BUS	0	0	0	3	0	3	0	1	0	7	0	0	3	10	0	11
16:15	CAR	61	17	14	96	21	3	40	8	9	59	16	4	120	181	126	177
	TRK	1	0	0	2	0	0	0	0	1	2	0	0	1	5	1	4
	BUS	0	0	0	3	0	3	0	3	0	5	0	0	3	8	0	11
16:30	CAR	98	16	8	94	16	3	33	9	15	45	13	1	147	170	148	156
	TRK	1	0	0	0	0	0	0	1	0	5	0	0	1	5	1	6
	BUS	0	0	0	6	0	0	0	1	0	8	1	0	1	14	0	15
16:45	CAR	80	17	14	102	14	2	33	6	15	41	15	0	130	175	127	163
	TRK	2	2	0	3	1	1	0	0	0	0	0	0	3	5	3	3
	BUS	0	0	0	6	0	2	0	3	0	4	0	0	2	10	0	13
17:00	CAR	95	30	7	126	19	4	26	3	14	58	15	0	140	228	140	194
	TRK	1	0	0	1	0	2	3	0	1	1	0	0	6	3	4	2
	BUS	0	0	0	3	0	2	0	2	0	10	0	0	2	13	0	15
17:15	CAR	88	31	15	107	12	1	24	4	13	57	17	0	130	208	124	183
	TRK	2	0	0	2	0	0	0	0	1	0	0	0	2	3	2	2
	BUS	0	0	0	6	0	2	0	1	0	7	0	0	2	13	0	14
17:30	CAR	107	34	14	120	9	3	36	11	23	57	15	0	161	234	152	202
	TRK	0	1	0	0	0	0	0	0	1	0	1	0	1	2	0	0
	BUS	0	0	0	6	0	1	0	3	0	6	0	0	1	12	0	15
17:45	CAR	89	16	14	90	20	2	21	14	18	50	20	2	132	174	132	168
	TRK	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1
	BUS	0	0	0	6	0	3	1	2	0	5	0	0	4	11	1	13
18:00	CAR	104	35	16	107	21	3	32	9	22	53	21	2	160	217	159	185
	TRK	1	0	0	3	2	0	0	0	0	0	2	0	3	3	3	3
	BUS	0	0	0	5	0	2	0	1	0	5	0	0	2	10	0	11
AM PEAK (8:15-9:15)	CAR	120	21	55	129	53	4	221	24	29	435	48	1	393	614	395	643
	TRK	3	2	3	5	3	1	2	0	0	12	1	0	7	19	8	20
PM PEAK (17:00-18:00)	CAR	379	111	50	443	60	10	107	32	68	222	67	2	563	844	548	747
	TRK	3	1	0	3	0	2	4	0	3	2	1	0	10	9	7	5
AHV	CAR	124.75	33	26.25	143	28.25	3.5	82	14	24.25	164.25	28.75	0.75	239	364.5	235.75	347.5
(Average Hourly Vol.)	TRK	1.5	0.75	0.75	2	0.75	0.75	1.5	0	0.75	3.5	0.5	0	4.25	7	3.75	6.25
AADT	CAR	1996	528	420	2288	452	56	1312	224	388	2628	460	12	3824	5832	3772	5560
(An. Avg. Daily Traffic)	TRK	24	12	12	32	12	12	24	0	12	56	8	0	68	112	60	100

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Table D3-8: TMC Traffic Dat: CHERRY ST AT MILL ST

		Aug-22-2019 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: OLS23	ID: OLS24	ID: --	ID: OLS25
7:45	CAR	18	0	1	5	4	3	23	55	1	14	0	36	44	20	81	75
	TRK	2	0	0	1	1	2	5	0	1	0	0	2	9	2	10	1
	BUS	3	0	1	0	0	0	4	0	0	0	0	0	7	0	7	1
8:00	CAR	18	0	3	20	1	3	27	2	1	15	0	37	48	36	83	40
	TRK	3	0	3	4	2	1	5	0	1	0	0	5	9	5	15	7
	BUS	2	0	2	0	0	0	4	0	0	0	0	0	6	0	6	2
8:15	CAR	17	0	5	8	4	3	40	6	2	12	2	36	62	22	97	31
	TRK	4	0	1	0	1	0	0	0	1	0	0	5	4	1	10	1
	BUS	2	0	1	0	0	0	4	0	0	0	0	0	6	0	6	1
8:30	CAR	8	0	8	19	9	10	37	5	3	16	1	57	56	38	111	48
	TRK	4	0	2	0	1	2	5	0	1	0	0	1	11	1	11	2
	BUS	2	0	1	0	0	0	3	0	0	0	0	1	5	0	6	1
8:45	CAR	24	0	7	12	7	8	50	5	1	18	2	55	84	31	136	42
	TRK	3	0	2	1	0	0	7	0	0	0	0	2	10	1	12	3
	BUS	3	0	1	0	0	0	4	0	0	1	0	0	7	1	7	2
9:00	CAR	24	0	7	20	8	5	43	7	1	18	1	65	73	39	140	52
	TRK	5	0	2	0	1	1	5	0	1	1	0	9	11	2	20	3
	BUS	4	0	2	0	0	0	6	0	0	0	0	0	10	0	10	2
9:15	CAR	20	0	6	8	9	7	56	5	3	13	3	47	86	24	132	32
	TRK	4	0	0	2	3	2	0	0	1	2	1	3	7	5	10	4
	BUS	3	0	1	0	0	0	4	0	0	1	0	0	7	1	7	2
9:30	CAR	29	0	9	12	5	9	46	4	3	12	2	42	86	27	122	37
	TRK	6	0	1	1	0	1	9	0	0	9	1	9	17	10	24	11
	BUS	3	0	0	0	0	0	3	0	0	0	0	0	6	0	6	0
10:15	CAR	16	0	1	12	2	7	42	3	1	6	1	21	66	19	81	22
	TRK	7	0	1	1	0	2	11	0	0	2	0	4	20	3	22	4
	BUS	4	0	1	0	1	0	3	0	0	0	0	0	7	0	8	1
10:30	CAR	18	0	6	17	8	4	38	2	2	3	0	22	60	22	86	28
	TRK	3	1	1	3	0	3	5	0	0	0	1	2	12	4	10	4
	BUS	1	0	0	0	0	0	4	0	0	0	0	0	5	0	5	0
10:45	CAR	12	0	3	10	5	6	32	10	1	9	2	11	52	20	60	32
	TRK	6	0	2	0	0	0	9	0	0	0	0	3	15	0	18	2
	BUS	3	0	1	0	0	0	3	0	0	0	0	2	6	0	8	1
11:00	CAR	10	0	4	12	6	9	39	9	2	7	0	21	58	21	76	32
	TRK	3	0	0	3	1	0	4	0	0	0	1	4	8	3	12	3
	BUS	1	0	0	1	0	0	4	0	0	0	0	0	5	1	5	1
11:15	CAR	25	0	5	8	11	3	41	4	1	3	0	28	69	12	105	20
	TRK	8	0	0	1	2	0	7	0	0	0	0	3	15	1	20	1
	BUS	3	0	2	0	0	0	3	0	0	0	0	0	6	0	6	2
11:30	CAR	18	0	4	12	10	12	61	4	3	10	3	36	94	25	125	30
	TRK	5	0	0	0	2	2	11	1	1	1	0	8	18	2	26	2
	BUS	1	0	1	0	0	0	2	0	0	0	0	0	3	0	3	1
11:45	CAR	16	0	1	14	5	6	67	5	3	7	1	31	90	24	119	27
	TRK	5	0	1	3	1	1	9	0	1	2	0	3	15	6	18	6
	BUS	2	0	1	0	0	0	4	0	0	0	0	0	6	0	6	1
12:00	CAR	10	1	11	11	10	11	75	6	1	10	1	35	97	23	130	38
	TRK	4	0	1	1	3	1	5	2	0	1	1	11	11	2	23	5
	BUS	2	0	1	0	0	0	1	0	0	0	0	0	3	0	3	1
13:15	CAR	21	0	3	9	8	4	48	2	7	9	1	16	74	25	93	23
	TRK	5	0	0	1	1	0	7	0	1	0	0	6	12	2	19	1
	BUS	4	0	1	0	0	0	5	0	0	0	0	0	9	0	9	1
13:30	CAR	13	1	4	15	12	13	43	8	2	8	1	23	70	26	91	35
	TRK	4	0	1	3	3	1	5	0	0	1	0	6	10	4	18	5
	BUS	2	0	0	0	0	0	1	0	0	0	0	0	3	0	3	0
13:45	CAR	11	1	5	14	12	11	35	8	7	6	3	21	60	28	79	33
	TRK	6	0	0	0	1	2	8	0	0	2	0	7	16	2	22	2
	BUS	2	0	1	0	0	0	4	0	0	0	0	0	6	0	6	1
14:00	CAR	17	0	7	12	4	6	56	9	2	7	4	19	83	21	96	35
	TRK	5	0	2	5	1	0	18	1	0	1	0	4	23	6	28	9
	BUS	2	0	1	0	1	0	2	0	0	0	0	0	4	0	5	1
14:15	CAR	23	1	5	10	15	9	38	5	4	15	3	27	73	30	103	35
	TRK	3	0	0	1	1	0	13	0	0	1	0	7	16	2	24	2
	BUS	0	0	0	0	0	1	3	0	0	0	0	1	4	0	4	0
14:30	CAR	16	0	3	16	9	7	58	2	1	5	1	38	82	22	121	26
	TRK	3	0	1	3	1	1	7	1	0	0	0	8	11	3	19	5
	BUS	2	0	1	0	0	0	4	0	0	0	0	0	6	0	6	1
14:45	CAR	24	0	5	19	10	8	77	4	3	8	2	38	111	30	149	36
	TRK	2	0	1	1	1	0	12	0	1	0	1	10	15	2	25	2
	BUS	2	0	1	0	0	2	2	0	0	0	0	0	6	0	4	1
15:00	CAR	23	0	2	20	6	9	97	6	5	5	1	24	130	30	150	33
	TRK	6	1	0	1	4	2	14	0	0	0	0	6	22	2	30	1
	BUS	3	0	1	0	0	0	2	0	0	0	0	0	5	0	5	1
16:15	CAR	26	2	6	31	6	12	94	10	5	5	2	31	134	43	157	52
	TRK	4	1	0	0	0	0	12	0	1	0	0	4	16	2	20	0
	BUS	2	0	0	0	0	0	4	0	0	1	0	0	6	1	6	1
16:30	CAR	17	0	10	35	11	10	101	8	6	7	0	28	128	48	157	60
	TRK	4	0	0	3	0	0	12	0	0	1	0	6	16	4	22	4
	BUS	2	0	0	0	0	0	4	0	0	0	0	0	6	0	6	0
16:45	CAR	25	0	6	31	10	14	82	11	5	5	0	28	121	41	145	53
	TRK	1	0	0	1	0	3	11	0	1	1	0	5	15	3	17	2
	BUS	3	0	3	0	0	0	3	0	0	0	0	0	6	0	6	3
17:00	CAR	25	2	7	35	12	10	90	6	4	6	1	38	126	47	165	54
	TRK	2	0	0	2	0	0	4	0	1	1	0	5	6	4	11	3
	BUS	2	0	1	0	0	0	1	0	0	0	0	0	3	0	3	1
17:15	CAR	29	2	5	32	9	18	78	5	1	11	2	41	127	46	157	53
	TRK	2	0	1	1	1	0	13	0	1	1	0	3	15	3	19	3
	BUS	5	0	1	0	0	0	3	0	0	0	0	0	8	0	8	1
17:30	CAR	25	0	3	27	19	8	93	3	0	14	1	40	127	41	177	47
	TRK	2	0	0	2	1	1	11	0	0	0	1	2	15	2	16	2
	BUS	1	0	0	0	0	0	2	0	0	0	0	0	3	0	3	0
17:45	CAR	30	1	5	30	6	9	103	12	3	17	0	37	142	51	176	64
	TRK	2	1	1	1	1	3	8	0	0	1	0	4	13	3	15	3
	BUS	2	0	0	0	0	0	2	0	0	0	0	0	4	0	4	0
18:00	CAR	44	1	7	37	17	7	87	6	1	9	3	45	141	48	193	59
	TRK	1	0	1	0	0	1	3	1	1	0	0	4	5	1	8	2
	BUS	2	0	0	0	0	0	4	0	0	0	0	0	6	0	6	0
AM PEAK (8:45-9:45)	CAR	97	0	29	52	29	29	195	21	8	61	8	209	329	121	530	163
	TRK	18	0	5	4	4	4	21	0	2	12	2	23	45	18	66	21
PM PEAK (17:00-18:00)	CAR	109	5	20	124	46	45	364	26	8	48	4	156	522	185	675	218
	TRK	8	1	2	6	3	4	36	0	2	3	1	14	49	12	61	11
AHV	CAR	51.5	1.25	12.25	44	18.75	18.5	139.75	11.75	4	27.25	3	91.25	212.75	76.5	301.25	95.25
(Average Hourly Vol.)	TRK	6.5	0.25	1.75	2.5	1.75	2	14.25	0	1	3.75	0.75	9.25	23.5	7.5	31.75	8
AADT	CAR	824	20	196	704	300	296	2236	188	64	436	48	1460	3404	1224	4820	1524
(An. Avg. Daily Traffic)	TRK	104	4	28	40	28	32	228	0	16	60	12	148	376	120	508	128

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Table D3-9: TMC Traffic Dat: CHERRY ST AT FRONT ST E

		Aug-22-2019 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: --	: OLS26, OLS	ID: OLS23	ID: --
7:45	CAR	16	3	3	8	2	4	22	12	0	23	1	6	43	34	46	46
	TRK	2	1	1	0	0	1	6	0	0	0	1	0	10	1	8	1
	BUS	2	0	0	2	2	0	1	0	0	1	0	0	3	3	5	3
8:00	CAR	9	7	4	10	3	1	22	9	0	32	2	5	34	49	39	55
	TRK	3	1	0	0	1	0	3	0	0	2	0	1	6	3	8	2
	BUS	3	0	0	0	0	0	5	0	0	0	0	0	8	0	8	0
8:15	CAR	17	4	4	10	4	2	32	8	0	32	6	6	57	46	59	54
	TRK	2	0	1	1	0	0	1	1	0	0	0	0	3	1	3	3
	BUS	3	0	0	0	1	0	3	0	0	0	0	0	6	0	7	0
8:30	CAR	14	2	4	17	4	0	34	5	0	43	1	9	49	62	61	69
	TRK	2	0	1	0	0	0	5	0	0	0	0	1	7	0	8	1
	BUS	3	0	0	0	1	0	2	0	0	0	0	0	5	0	6	0
8:45	CAR	19	5	5	10	2	3	47	12	0	35	2	9	71	50	77	62
	TRK	0	0	1	1	2	0	3	0	0	0	0	0	3	1	5	2
	BUS	2	0	0	0	1	0	3	0	0	0	0	0	5	0	6	0
9:00	CAR	22	6	6	12	2	0	49	5	0	32	0	7	71	50	80	55
	TRK	5	2	0	1	0	0	4	0	0	1	0	2	9	4	11	2
	BUS	4	0	1	0	1	0	5	0	0	0	0	0	9	0	10	1
9:15	CAR	24	3	6	19	6	0	52	13	2	26	6	6	82	50	88	64
	TRK	7	0	0	1	0	0	1	0	0	1	0	0	8	2	8	2
	BUS	3	0	0	0	1	0	2	0	0	0	0	0	5	0	6	0
9:30	CAR	25	3	12	13	4	3	46	10	0	29	2	5	76	45	80	64
	TRK	3	1	1	1	1	0	5	1	0	0	1	2	9	2	11	3
	BUS	4	0	0	0	2	0	2	0	0	0	0	0	6	0	8	0
10:15	CAR	18	6	3	13	5	0	38	4	0	17	3	9	59	36	70	37
	TRK	5	0	0	2	2	0	3	0	0	0	0	2	8	2	12	2
	BUS	1	0	1	0	1	0	3	0	0	0	0	0	4	0	5	1
10:30	CAR	12	5	1	13	6	1	34	8	0	10	3	3	50	28	55	32
	TRK	4	1	3	1	0	0	4	0	0	2	1	0	9	4	8	6
	BUS	2	0	0	0	0	0	3	0	0	0	0	0	5	0	5	0
10:45	CAR	15	3	3	12	4	2	26	12	0	9	5	6	48	24	51	36
	TRK	3	2	1	3	2	0	3	0	0	2	2	1	8	7	9	6
	BUS	3	0	0	0	1	0	2	0	0	0	0	0	5	0	6	0
11:00	CAR	17	1	5	9	5	3	37	14	0	15	1	6	58	25	65	43
	TRK	1	2	0	0	0	0	6	0	1	3	2	0	9	6	7	3
	BUS	1	0	0	0	1	0	2	0	0	0	0	0	3	0	4	0
11:15	CAR	19	2	7	13	4	4	50	11	0	14	3	3	76	29	76	45
	TRK	3	2	1	3	0	0	2	1	0	0	1	2	6	5	7	5
	BUS	3	0	0	0	0	0	4	0	0	0	0	0	7	0	7	0
11:30	CAR	25	5	6	7	5	4	59	9	0	14	0	5	88	26	94	36
	TRK	3	2	1	0	0	0	8	0	0	0	0	0	11	2	11	1
	BUS	2	0	0	0	1	0	1	0	0	0	0	0	3	0	4	0
11:45	CAR	14	2	6	16	8	5	64	10	0	16	5	9	88	34	95	48
	TRK	4	1	2	0	3	0	5	1	0	2	1	1	10	3	13	5
	BUS	2	0	0	0	1	0	2	0	0	0	0	0	4	0	5	0
12:00	CAR	21	1	3	14	7	3	71	10	0	18	0	6	95	33	105	45
	TRK	5	0	0	1	0	0	2	0	0	0	0	0	7	1	7	1
	BUS	2	0	0	0	0	0	2	0	0	0	0	0	4	0	4	0
13:15	CAR	11	7	4	11	10	1	38	5	0	17	8	7	58	35	66	37
	TRK	2	0	1	1	2	0	6	0	0	0	1	0	9	1	10	2
	BUS	4	0	0	0	1	0	4	0	0	0	0	0	8	0	9	0
13:30	CAR	17	5	6	13	5	4	41	9	1	17	4	11	66	36	74	45
	TRK	4	0	0	0	0	0	3	1	0	0	0	0	7	0	7	1
	BUS	1	0	0	0	1	0	0	0	0	0	0	0	1	0	2	0
13:45	CAR	18	6	3	17	5	2	46	5	0	16	2	4	68	39	73	41
	TRK	4	1	0	2	0	0	4	0	0	0	0	1	8	3	9	2
	BUS	3	0	0	0	1	0	3	0	0	0	0	0	6	0	7	0
14:00	CAR	13	4	12	17	13	3	52	6	0	9	2	7	70	30	85	44
	TRK	3	0	1	3	1	0	10	1	0	2	0	1	13	5	15	7
	BUS	2	0	0	0	1	0	0	0	0	0	0	0	2	0	3	0
14:15	CAR	26	4	7	25	12	0	36	8	0	12	1	4	63	41	78	52
	TRK	0	0	0	1	0	0	6	1	0	1	0	1	6	2	7	3
	BUS	4	0	0	0	0	0	3	0	0	0	0	0	7	0	7	0
14:30	CAR	11	2	7	22	5	2	46	8	1	16	4	11	63	41	73	53
	TRK	0	2	0	2	1	0	5	0	0	0	0	0	5	4	6	2
	BUS	2	0	0	1	1	0	3	0	0	0	0	0	5	1	6	1
14:45	CAR	25	4	4	10	9	4	64	2	0	9	6	12	99	23	110	25
	TRK	1	1	1	1	0	0	7	0	0	0	1	4	9	2	12	2
	BUS	2	0	0	1	0	0	1	0	0	0	0	0	3	1	3	1
15:00	CAR	20	3	8	21	12	1	95	3	1	15	1	9	117	40	136	47
	TRK	4	2	0	0	1	0	6	0	0	0	2	3	12	2	14	0
	BUS	2	0	1	0	0	0	1	0	0	0	0	0	3	0	3	1
16:15	CAR	24	11	3	28	9	8	91	9	0	20	10	12	133	59	136	60
	TRK	1	1	1	1	0	0	6	0	0	0	0	0	7	2	7	2
	BUS	3	0	0	0	2	0	3	0	0	0	0	0	6	0	8	0
16:30	CAR	19	9	8	30	16	3	97	2	0	18	7	14	126	57	146	58
	TRK	2	1	0	0	1	0	4	0	0	0	1	1	7	1	8	0
	BUS	2	0	0	1	2	0	2	0	0	0	0	0	4	1	6	1
16:45	CAR	19	8	4	37	15	3	70	8	0	15	4	9	96	60	113	64
	TRK	1	1	1	0	0	0	9	0	0	0	0	1	10	1	11	1
	BUS	3	0	0	0	1	0	2	0	0	0	0	0	5	0	6	0
17:00	CAR	16	8	9	45	16	3	68	5	0	20	5	7	92	73	107	79
	TRK	1	0	0	1	0	0	6	0	0	1	0	0	7	2	7	2
	BUS	2	0	0	1	0	0	2	0	0	0	0	0	4	1	4	1
17:15	CAR	29	10	10	46	17	3	72	6	0	22	4	16	108	78	134	84
	TRK	1	0	0	1	1	0	5	0	0	0	0	1	6	1	8	1
	BUS	4	1	0	0	0	0	3	0	0	0	0	0	7	1	7	0
17:30	CAR	19	10	6	55	19	4	64	6	0	16	5	17	92	81	119	83
	TRK	4	1	0	1	1	1	7	0	0	0	0	1	12	2	13	1
	BUS	1	0	0	0	0	0	6	0	0	0	0	0	7	0	7	0
17:45	CAR	13	14	4	56	14	5	88	10	0	22	2	12	108	92	127	92
	TRK	2	0	0	0	2	0	5	0	0	0	0	1	7	0	10	0
	BUS	2	0	0	0	1	0	1	0	0	0	0	0	3	0	4	0
18:00	CAR	35	15	12	37	19	4	60	3	0	11	10	12	109	63	126	63
	TRK	0	0	0	0	0	0	4	0	0	0	0	0	4	0	4	0
	BUS	3	0	0	0	0	0	4	0	0	0	0	0	7	0	7	0
AM PEAK (8:45-9:45)	CAR	90	17	29	54	14	6	194	40	2	122	10	27	300	195	325	245
	TRK	15	3	2	4	3	0	13	1	0	2	1	4	29	9	35	9
PM PEAK (17:00-18:00)	CAR	77	42	29	202	66	15	292	27	0	80	16	52	400	324	487	338
	TRK	8	1	0	3	4	1	23	0	0	1	0	3	32	5	38	4
AHV (Average Hourly Vol.)	CAR	41.75	14.75	14.5	64	20	5.25	121.5	16.75	0.5	50.5	6.5	19.75	175	129.75	203	145.75
	TRK	5.75	1	0.5	1.75	1.75	0.25	9	0.25	0	0.75	0.25	1.75	15.25	3.5	18.25	3.25
AADT (An. Avg. Daily Traffic)	CAR	668	236	232	1024	320	84	1944	268	8	808	104	316	2800	2076	3248	2332
	TRK	92	16	8	28	28	4	144	4	0	12	4	28	244	56	292	52

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Table D3-10: TMC Traffic Dat: PARLIAMENT ST AT QUEEN ST (PX 246)

		Feb-28-2019 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: OLS28	ID: --	ID: OLS29	ID: OLS69
7:45	CAR	23	1	5	31	1	2	28	2	3	20	1	0	54	55	52	58
	TRK	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
	BUS	1	0	0	2	0	0	1	0	0	5	0	0	2	7	2	7
8:00	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
8:15	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
8:30	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
8:45	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
9:00	CAR	59	11	10	47	5	0	63	8	4	91	14	0	136	153	127	156
	TRK	8	0	1	3	0	0	6	0	1	4	0	0	14	8	14	8
	BUS	1	0	0	7	0	0	1	0	1	3	0	0	2	11	2	10
9:15	CAR	85	10	16	39	7	6	96	20	1	105	13	0	200	155	188	180
	TRK	6	3	0	1	0	0	4	2	0	3	0	0	10	7	10	6
	BUS	1	0	0	7	0	0	2	0	0	5	0	0	3	12	3	12
9:30	CAR	79	10	10	38	7	11	54	4	7	77	15	0	159	132	140	129
	TRK	5	0	0	1	0	0	5	0	3	1	2	0	12	5	10	2
	BUS	2	0	0	6	0	0	1	0	0	3	0	0	3	9	3	9
10:15	CAR	65	10	15	56	10	4	57	8	5	55	14	1	140	126	133	134
	TRK	3	0	0	4	0	0	4	0	0	1	0	0	7	5	7	5
	BUS	4	0	0	3	0	0	1	0	0	2	0	0	5	5	5	5
10:30	CAR	74	13	10	56	2	6	44	13	6	27	13	0	137	102	120	106
	TRK	9	1	0	2	0	0	4	0	0	0	0	0	13	3	13	2
	BUS	1	0	0	9	1	0	1	0	0	8	0	0	2	17	3	17
10:45	CAR	78	15	5	40	3	11	58	18	7	47	12	0	159	109	139	110
	TRK	8	0	0	2	1	0	4	0	0	0	0	0	12	2	13	2
	BUS	1	0	0	4	0	0	2	0	0	9	0	0	3	13	3	13
11:00	CAR	76	11	12	42	11	6	55	12	10	37	9	0	146	100	142	103
	TRK	7	0	0	1	0	0	3	1	2	1	0	0	10	4	10	3
	BUS	1	0	0	6	0	0	1	0	0	5	0	0	2	11	2	11
11:15	CAR	64	8	11	44	8	12	48	13	6	38	7	0	131	96	120	106
	TRK	5	0	2	2	1	0	3	0	2	1	0	0	8	5	9	5
	BUS	1	0	0	4	0	0	1	0	0	6	0	0	2	10	2	10
11:30	CAR	72	12	14	54	3	6	40	6	3	36	4	0	122	105	115	110
	TRK	4	0	1	1	0	0	2	0	0	2	0	0	6	3	6	4
	BUS	2	0	0	6	0	0	1	0	0	3	0	0	3	9	3	9
11:45	CAR	66	15	13	56	5	6	67	16	8	31	9	0	148	110	138	116
	TRK	3	0	0	0	0	1	5	0	1	1	1	0	10	2	8	1
	BUS	1	0	0	4	0	0	1	0	0	7	0	0	2	11	2	11
12:00	CAR	74	12	9	60	5	4	61	11	8	31	14	0	153	111	140	111
	TRK	2	0	0	0	0	0	7	0	0	2	1	0	10	2	9	2
	BUS	1	0	0	4	0	0	1	0	0	3	0	0	2	7	2	7
13:15	CAR	65	18	9	58	6	8	37	11	10	28	10	0	120	114	108	106
	TRK	6	2	0	2	1	0	7	0	0	0	0	0	13	4	14	2
	BUS	2	0	0	4	0	0	2	0	0	3	0	0	4	7	4	7
13:30	CAR	90	17	6	63	7	7	52	16	10	36	11	0	160	126	149	121
	TRK	4	0	0	2	0	1	2	1	1	1	1	0	8	4	6	4
	BUS	1	0	0	5	0	0	1	0	0	7	0	0	2	12	2	12
13:45	CAR	65	11	14	60	11	12	53	9	9	39	6	0	136	119	129	122
	TRK	5	0	1	3	0	0	9	0	0	0	1	0	15	3	14	4
	BUS	3	0	0	4	0	0	2	0	0	5	0	0	5	9	5	9
14:00	CAR	70	11	10	53	2	6	69	15	7	38	6	1	151	109	142	116
	TRK	4	0	0	0	1	0	7	0	0	1	0	0	11	1	12	1
	BUS	1	0	0	9	0	0	1	1	0	7	0	0	2	16	2	17
14:15	CAR	69	16	10	65	1	7	62	18	8	39	12	0	150	128	132	132
	TRK	5	1	0	0	0	0	7	0	0	1	0	0	12	2	12	1
	BUS	1	0	0	4	0	0	1	0	0	5	0	0	2	9	2	9
14:30	CAR	66	12	8	56	7	7	55	15	7	32	7	0	135	107	128	111
	TRK	5	1	2	1	0	0	9	0	1	0	1	1	15	3	15	3
	BUS	1	0	0	5	0	0	1	0	0	3	0	0	2	8	2	8
14:45	CAR	85	16	8	63	6	10	63	11	7	29	4	0	162	115	154	111
	TRK	3	2	0	2	0	0	5	0	0	1	1	0	9	5	8	3
	BUS	1	0	0	3	0	0	3	1	0	3	0	0	4	6	4	7
15:00	CAR	81	11	10	71	9	10	65	14	6	35	10	1	166	123	156	130
	TRK	6	0	0	1	1	0	5	0	1	0	0	0	11	2	12	1
	BUS	1	0	0	3	0	0	2	0	1	5	0	0	3	9	3	8
16:15	CAR	93	17	10	108	12	1	72	10	7	48	13	0	179	180	177	176
	TRK	2	0	0	3	0	0	6	0	0	3	0	0	8	6	8	6
	BUS	2	0	0	6	0	0	1	0	0	5	1	0	4	11	3	11
16:30	CAR	102	9	6	101	11	1	68	12	8	31	12	0	183	149	181	150
	TRK	3	1	0	0	0	0	6	0	0	2	0	0	9	3	9	2
	BUS	1	0	0	5	0	0	2	0	0	1	0	0	3	6	3	6
16:45	CAR	80	4	4	120	8	0	64	13	10	43	5	0	149	177	152	180
	TRK	1	0	0	1	0	0	2	0	2	1	1	0	4	4	3	2
	BUS	1	0	0	3	0	0	2	0	0	6	0	0	3	9	3	9
17:00	CAR	83	5	5	116	15	3	56	9	6	31	11	0	153	158	154	161
	TRK	0	0	0	2	0	0	0	0	0	1	0	0	0	3	0	3
	BUS	2	0	0	4	0	0	1	0	0	7	0	0	3	11	3	11
17:15	CAR	90	11	6	118	8	0	67	9	8	48	16	0	173	185	165	181
	TRK	1	0	1	0	0	0	3	0	0	0	0	0	4	0	4	1
	BUS	1	0	0	3	0	0	0	0	0	6	0	0	1	9	1	9
17:30	CAR	97	14	7	129	10	0	69	7	13	41	14	3	180	197	179	184
	TRK	1	0	0	1	0	0	3	0	0	1	0	0	4	2	4	2
	BUS	0	0	0	8	0	0	0	0	0	5	0	0	0	13	0	13
17:45	CAR	89	11	6	150	6	4	68	10	4	52	10	0	171	217	163	218
	TRK	2	0	0	2	1	0	0	0	0	0	0	0	2	2	3	2
	BUS	0	0	0	6	0	0	3	0	0	4	0	0	3	10	3	10
18:00	CAR	82	11	10	124	18	0	64	12	6	41	11	0	157	182	164	187
	TRK	2	0	0	3	0	0	5	1	0	0	0	0	7	3	7	4
	BUS	2	0	0	2	0	0	1	0	0	3	0	0	3	5	3	5
AM PEAK (10:15-11:15)	CAR	293	49	42	194	26	27	214	51	28	166	48	1	582	437	534	453
	TRK	27	1	0	9	1	0	15	1	2	2	0	0	42	14	43	12
PM PEAK (17:00-18:00)	CAR	359	41	24	513	39	7	260	35	31	172	51	3	677	757	661	744
	TRK	4	0	1	5	1	0	6	0	0	2	0	0	10	7	11	8
AHV (Average Hourly Vol.)	CAR	163	22.5	16.5	176.75	16.25	8.5	118.5	21.5	14.75	84.5	24.75	1	314.75	298.5	298.75	299.25
	TRK	7.75	0.25	0.25	3.5	0.5	0	5.25	0.25	0.5	1	0	0	13	5.25	13.5	5
AADT (An. Avg. Daily Traffic)	CAR	2608	360	264	2828	260	136	1896	344	236	1352	396	16	5036	4776	4780	4788
	TRK	124	4	4	56	8	0	84	4	8	16	0	0	208	84	216	80

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Table D3-12: TMC Traffic Dat: ADELAIDE ST AT PARLIAMENT ST (PX 214)

		Apr-11-2019 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: OLS29, 30	ID: --	ID: --	ID: --
7:45	CAR	23	2	0	146	17	13	47	0	4	0	0	0	83	152	87	146
	TRK	14	0	0	7	3	1	3	0	0	0	0	0	18	7	20	7
	BUS	2	0	0	2	0	0	2	0	0	0	0	0	4	2	4	2
8:00	CAR	56	3	0	154	26	17	58	0	5	0	0	0	131	162	140	154
	TRK	6	0	0	7	1	6	6	0	0	0	0	0	18	7	13	7
	BUS	2	0	0	1	1	0	1	0	0	0	0	0	3	1	4	1
8:15	CAR	58	5	0	151	17	14	62	0	6	0	0	0	134	162	137	151
	TRK	12	0	0	10	2	2	6	0	2	0	0	0	20	12	20	10
	BUS	2	0	0	2	0	0	1	0	0	0	0	0	3	2	3	2
8:30	CAR	61	6	0	168	24	24	53	0	10	0	0	0	138	184	138	168
	TRK	15	1	0	16	3	2	5	0	0	0	0	0	22	17	23	16
	BUS	2	0	0	3	0	1	1	0	0	0	0	0	4	3	3	3
8:45	CAR	57	5	0	156	21	21	68	0	9	0	0	0	146	170	146	156
	TRK	13	0	0	10	2	3	8	0	1	0	0	0	24	11	23	10
	BUS	2	0	0	1	0	0	1	0	0	0	0	0	3	1	3	1
9:00	CAR	62	4	0	158	21	20	63	0	7	0	0	0	145	169	146	158
	TRK	8	0	0	11	4	2	7	0	0	0	0	0	17	11	19	11
	BUS	2	0	0	4	0	0	2	0	0	0	0	0	4	4	4	4
9:15	CAR	50	7	0	147	19	27	67	0	6	0	0	0	144	160	136	147
	TRK	12	2	0	8	2	0	4	0	0	0	0	0	16	10	18	8
	BUS	1	0	0	1	0	0	1	0	0	0	0	0	2	1	2	1
9:30	CAR	55	5	0	212	17	12	55	0	6	0	0	0	122	223	127	212
	TRK	9	1	0	12	1	3	9	0	1	0	0	0	21	14	19	12
	BUS	1	0	0	3	0	0	2	0	0	0	0	0	3	3	3	3
10:15	CAR	63	4	0	137	19	18	39	0	6	0	0	0	120	147	121	137
	TRK	19	1	0	17	4	1	7	0	1	0	0	0	27	19	30	17
	BUS	2	0	0	0	0	0	1	0	0	0	0	0	3	0	3	0
10:30	CAR	49	11	0	138	19	15	48	0	9	0	0	0	112	158	116	138
	TRK	13	2	0	19	0	1	6	0	3	0	0	0	20	24	19	19
	BUS	3	0	0	0	0	0	1	0	0	0	0	0	4	0	4	0
10:45	CAR	68	7	0	139	16	12	45	0	7	0	0	0	125	153	129	139
	TRK	12	0	0	23	5	2	7	0	3	0	0	0	21	26	24	23
	BUS	1	0	0	0	0	0	2	0	0	0	0	0	3	0	3	0
11:00	CAR	58	7	0	142	24	14	38	0	12	0	0	0	110	161	120	142
	TRK	9	2	0	16	2	5	9	0	2	0	0	0	23	20	20	16
	BUS	4	0	0	1	0	0	1	0	0	0	0	0	5	1	5	1
11:15	CAR	55	10	0	158	18	15	35	0	7	0	0	0	105	175	108	158
	TRK	15	0	0	17	3	2	12	0	4	0	0	0	29	21	30	17
	BUS	1	0	0	1	0	0	1	0	0	0	0	0	2	1	2	1
11:30	CAR	67	6	0	136	28	18	50	0	11	0	0	0	135	153	145	136
	TRK	9	0	0	9	6	3	11	0	4	0	0	0	23	13	26	9
	BUS	2	0	0	0	0	0	1	0	0	0	0	0	3	0	3	0
11:45	CAR	52	4	0	149	12	13	46	0	9	0	0	0	111	162	110	149
	TRK	10	1	0	11	4	1	3	0	1	0	0	0	14	13	17	11
	BUS	2	0	0	0	0	0	1	0	0	0	0	0	3	0	3	0
12:00	CAR	55	8	0	154	17	11	46	0	7	0	0	0	112	169	118	154
	TRK	9	1	0	18	3	2	6	0	2	0	0	0	17	21	18	18
	BUS	1	0	0	0	0	0	1	0	0	0	0	0	2	0	2	0
13:15	CAR	57	10	0	185	13	13	58	0	5	0	0	0	128	200	128	185
	TRK	13	0	0	17	3	3	7	0	3	0	0	0	23	20	23	17
	BUS	2	0	0	0	0	0	1	0	0	0	0	0	3	0	3	0
13:30	CAR	57	6	0	173	17	21	50	0	12	0	0	0	128	191	124	173
	TRK	6	0	0	14	3	0	8	0	0	0	0	0	14	14	17	14
	BUS	0	0	0	0	0	0	2	0	0	0	0	0	2	0	2	0
13:45	CAR	56	7	0	172	18	18	43	0	2	0	0	0	117	181	117	172
	TRK	5	0	0	15	2	1	3	0	4	0	0	0	9	19	10	15
	BUS	1	0	0	0	0	0	1	0	0	0	0	0	2	0	2	0
14:00	CAR	53	9	0	195	23	22	45	0	12	0	0	0	120	216	121	195
	TRK	13	1	0	13	2	2	7	0	1	0	0	0	22	15	22	13
	BUS	1	0	0	0	0	0	1	0	0	0	0	0	2	0	2	0
14:15	CAR	63	7	0	208	14	19	50	0	8	0	0	0	132	223	127	208
	TRK	5	1	0	27	2	0	11	0	3	0	0	0	16	31	18	27
	BUS	1	0	0	0	0	0	1	0	0	0	0	0	2	0	2	0
14:30	CAR	59	7	0	216	22	13	54	0	8	0	0	0	126	231	135	216
	TRK	9	0	0	25	3	2	9	0	0	0	0	0	20	25	21	25
	BUS	1	0	0	0	0	0	1	0	0	0	0	0	2	0	2	0
14:45	CAR	64	5	0	174	28	13	44	0	9	0	0	0	121	188	136	174
	TRK	6	1	0	26	6	0	14	0	0	0	0	0	20	27	26	26
	BUS	1	0	0	0	1	0	1	0	0	0	0	0	2	0	3	0
15:00	CAR	86	10	0	184	17	14	40	0	9	0	0	0	140	203	143	184
	TRK	8	1	0	20	6	1	6	0	0	0	0	0	15	21	20	20
	BUS	4	0	0	0	0	0	3	0	0	0	0	0	7	0	7	0
16:15	CAR	90	4	0	245	34	20	72	0	7	0	0	0	182	256	196	245
	TRK	10	1	0	21	6	4	11	0	0	0	0	0	25	22	27	21
	BUS	2	0	0	0	0	0	1	0	0	0	0	0	3	0	3	0
16:30	CAR	100	7	0	217	33	22	55	0	8	0	0	0	177	232	188	217
	TRK	8	1	0	19	1	0	7	0	2	0	0	0	15	22	16	19
	BUS	3	0	0	0	0	0	3	0	0	0	0	0	6	0	6	0
16:45	CAR	86	11	0	268	25	13	67	0	9	0	0	0	166	288	178	268
	TRK	6	1	0	16	4	2	11	0	0	0	0	0	19	17	21	16
	BUS	2	0	0	2	0	1	2	0	0	0	0	0	5	2	4	2
17:00	CAR	64	11	0	309	35	18	82	0	4	0	0	0	164	324	181	309
	TRK	3	1	0	7	6	1	3	0	0	0	0	0	7	8	12	7
	BUS	1	0	0	2	0	0	1	0	0	0	0	0	2	2	2	2
17:15	CAR	91	8	0	293	35	23	71	0	13	0	0	0	185	314	197	293
	TRK	3	0	0	12	3	0	3	0	0	0	0	0	6	12	9	12
	BUS	1	0	0	2	0	0	1	0	0	0	0	0	2	2	2	2
17:30	CAR	120	1	0	286	33	21	53	0	4	0	0	0	194	291	206	286
	TRK	3	0	0	9	1	1	1	0	1	0	0	0	5	10	5	9
	BUS	3	0	0	0	0	0	3	0	0	0	0	0	6	0	6	0
17:45	CAR	68	8	0	294	35	16	47	0	8	0	0	0	131	310	150	294
	TRK	2	0	0	8	2	1	2	0	2	0	0	0	5	10	6	8
	BUS	1	0	0	0	0	0	1	0	0	0	0	0	2	0	2	0
18:00	CAR	100	5	0	281	48	20	50	0	3	0	0	0	170	289	198	281
	TRK	0	1	0	11	1	1	3	0	1	0	0	0	4	13	4	11
	BUS	1	0	0	2	0	0	1	0	0	0	0	0	2	2	2	2
AM PEAK (8:45-9:45)	CAR	224	21	0	673	78	80	253	0	28	0	0	0	557	722	555	673
	TRK	42	3	0	41	9	8	28	0	2	0	0	0	78	46	79	41
PM PEAK (16:45-17:45)	CAR	361	31	0	1156	128	75	273	0	30	0	0	0	709	1217	762	1156
	TRK	15	2	0	44	14	4	18	0	1	0	0	0	37	47	47	44
AHV (Average Hourly Vol.)	CAR	146.25	13	0	457.25	51.5	38.75	131.5	0	14.5	0	0	0	316.5	484.75	329.25	457.25
	TRK	14.25	1.25	0	21.25	5.75	3	11.5	0	0.75	0	0	0	28.75	23.25	31.5	21.25
AADT (An. Avg. Daily Traffic)	CAR	2340	208	0	7316	824	620	2104	0	232	0	0	0	5064	7756	5268	7316
	TRK	228	20	0	340	92	48	184	0	12	0	0	0	460	372	504	340

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Table D3-13: TMC Traffic Dat: FRONT ST AT PARLIAMENT ST (PX 244)

		Aug-22-2019 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: OLS32	ID: --	ID:	OLS51, OLS
7:45	CAR	37	11	8	31	6	5	26	5	12	164	2	13	70	218	82	208
	TRK	8	1	2	2	0	0	6	0	1	13	1	1	15	17	15	17
	BUS	0	0	1	2	0	1	0	1	1	1	0	0	1	4	0	5
8:00	CAR	49	32	8	45	6	4	40	10	6	138	4	21	97	221	116	201
	TRK	13	3	2	5	1	0	6	0	0	7	1	0	20	15	20	14
	BUS	0	0	1	1	0	1	1	1	0	0	0	0	2	1	1	3
8:15	CAR	47	26	16	48	4	5	40	12	8	197	7	24	99	279	115	273
	TRK	10	1	0	3	1	0	5	1	1	9	0	2	15	14	18	13
	BUS	0	0	1	1	0	1	1	1	0	0	0	0	2	1	1	3
8:30	CAR	42	26	18	52	7	6	64	7	16	212	7	33	119	306	146	289
	TRK	6	0	2	1	0	0	6	0	1	9	1	1	13	11	13	12
	BUS	1	1	2	1	0	2	0	1	0	0	0	0	3	2	1	4
8:45	CAR	53	18	16	57	6	3	51	15	13	180	5	27	112	268	137	268
	TRK	12	3	2	3	0	0	5	1	0	9	0	2	17	15	19	15
	BUS	1	0	1	1	0	1	0	1	0	0	0	0	2	1	1	3
9:00	CAR	52	18	22	66	8	7	57	10	13	181	13	47	129	278	164	279
	TRK	10	3	0	2	2	0	6	1	2	7	2	1	18	14	19	10
	BUS	2	0	2	1	0	1	0	2	0	1	0	0	3	2	2	6
9:15	CAR	64	33	21	78	4	10	34	7	12	167	8	44	116	290	146	273
	TRK	5	4	3	4	0	0	8	1	2	7	2	1	15	17	14	15
	BUS	0	1	2	2	0	1	1	2	0	0	0	0	2	3	1	6
9:30	CAR	65	26	16	44	5	9	52	10	13	162	6	19	132	245	141	232
	TRK	11	5	2	3	1	2	8	0	1	8	0	1	21	17	21	13
	BUS	0	0	0	1	0	1	0	1	0	0	0	0	1	1	0	2
10:15	CAR	49	26	14	62	10	16	48	13	6	105	5	11	118	199	118	194
	TRK	8	2	0	3	3	0	8	0	2	7	1	2	17	14	21	10
	BUS	1	0	1	1	0	1	0	1	0	0	0	0	2	1	1	3
10:30	CAR	55	25	20	71	5	4	38	9	8	82	11	15	108	186	113	182
	TRK	10	0	5	4	2	1	18	1	0	9	0	1	29	13	31	19
	BUS	0	0	1	1	0	1	0	1	0	1	0	0	1	2	0	4
10:45	CAR	37	24	10	60	9	5	41	6	10	77	8	19	91	171	106	153
	TRK	10	5	0	5	1	1	5	4	1	5	1	2	17	16	18	14
	BUS	0	0	1	2	0	1	1	2	0	1	0	0	2	3	1	6
11:00	CAR	49	36	10	52	4	15	59	12	9	88	15	13	138	185	125	162
	TRK	5	3	0	7	2	0	11	1	0	14	0	1	16	24	19	22
	BUS	1	0	0	2	0	1	2	1	0	0	0	0	4	2	3	3
11:15	CAR	58	23	17	60	8	12	60	10	7	93	7	28	137	183	154	180
	TRK	8	4	1	9	0	1	11	3	1	6	0	1	20	20	20	19
	BUS	0	0	1	3	0	1	0	1	0	0	0	0	1	3	0	5
11:30	CAR	62	21	12	62	8	8	46	8	8	119	6	38	122	210	154	201
	TRK	6	3	1	8	0	0	13	0	1	10	1	6	20	22	25	19
	BUS	0	0	1	4	0	1	0	1	0	1	0	0	1	5	0	7
11:45	CAR	53	33	14	82	11	10	59	14	9	117	11	27	133	241	150	227
	TRK	8	8	3	11	1	1	6	1	1	10	0	4	15	30	19	25
	BUS	0	0	1	2	0	2	0	1	0	1	0	0	2	3	0	5
12:00	CAR	43	20	15	72	16	9	77	7	14	112	8	22	137	218	158	206
	TRK	2	3	0	3	2	3	7	1	0	7	2	3	14	13	14	11
	BUS	1	0	0	0	0	1	0	1	0	0	0	0	2	0	1	1
13:15	CAR	60	26	8	63	8	14	70	11	13	86	11	10	155	188	148	168
	TRK	6	4	0	7	2	0	11	2	2	3	1	4	18	16	23	12
	BUS	0	0	0	2	1	2	0	1	0	0	0	0	2	2	1	3
13:30	CAR	60	22	14	75	12	5	54	13	11	83	10	22	129	191	148	185
	TRK	7	6	2	8	4	0	7	2	0	6	0	1	14	20	19	18
	BUS	1	0	1	2	0	1	0	1	0	0	0	1	2	2	2	4
13:45	CAR	54	23	13	69	6	12	63	16	13	65	3	17	132	170	140	163
	TRK	3	0	3	14	1	0	14	6	2	7	0	1	17	23	19	30
	BUS	1	0	1	3	0	1	0	1	0	0	0	1	2	3	2	5
14:00	CAR	51	18	5	87	6	9	57	12	9	80	7	14	124	194	128	184
	TRK	6	3	0	7	4	1	8	2	1	7	0	0	15	18	18	16
	BUS	0	0	0	4	0	1	0	1	0	0	0	0	1	4	0	5
14:15	CAR	51	31	12	87	14	9	54	11	13	83	11	13	125	214	132	193
	TRK	7	3	1	5	2	2	9	4	1	1	2	1	20	10	19	11
	BUS	0	0	1	1	0	1	0	2	0	0	0	1	1	1	1	4
14:30	CAR	52	31	10	82	10	6	79	17	10	120	24	6	161	243	147	229
	TRK	4	4	1	6	2	3	8	2	0	6	2	1	17	16	15	15
	BUS	0	0	1	3	0	1	0	1	0	1	0	0	1	4	0	6
14:45	CAR	57	35	26	77	12	9	82	9	10	106	13	37	161	228	188	218
	TRK	4	4	0	10	1	2	16	3	1	5	0	1	22	20	22	18
	BUS	0	0	1	1	0	1	1	1	0	1	0	1	2	2	2	4
15:00	CAR	60	27	19	116	19	10	61	10	4	107	13	22	144	254	162	252
	TRK	7	3	1	13	2	0	11	1	1	5	0	0	18	22	20	20
	BUS	0	1	1	1	0	2	2	1	0	0	0	0	4	2	2	3
16:15	CAR	63	31	24	109	18	10	66	13	13	79	7	31	146	232	178	225
	TRK	6	0	0	6	1	0	7	0	1	6	0	1	13	13	15	12
	BUS	1	1	0	3	0	1	0	2	0	0	0	0	2	4	1	5
16:30	CAR	72	42	18	120	13	11	57	14	14	89	9	27	149	265	169	241
	TRK	3	2	0	5	1	1	8	0	1	6	1	2	13	14	14	11
	BUS	0	0	0	3	0	1	0	1	0	0	0	0	1	3	0	4
16:45	CAR	74	41	21	159	17	12	53	6	13	111	5	22	144	324	166	297
	TRK	4	2	0	4	1	1	7	0	1	3	0	2	12	10	14	7
	BUS	0	1	0	2	0	2	0	2	0	0	0	0	2	3	0	4
17:00	CAR	60	37	11	141	20	14	62	12	10	104	9	37	145	292	179	268
	TRK	1	3	0	6	3	0	4	1	1	4	0	0	5	14	8	11
	BUS	0	1	3	3	0	1	0	1	0	0	0	0	1	4	0	7
17:15	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
17:30	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
17:45	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
18:00	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
AM PEAK (8:30-9:30)	CAR	211	95	77	253	25	26	206	39	54	740	33	151	476	1142	593	1109
	TRK	33	10	7	10	2	0	25	3	5	32	5	5	63	57	65	52
PM PEAK (16:15-17:15)	CAR	269	151	74	529	68	47	238	45	50	383	30	117	584	1113	692	1031
	TRK	14	7	0	21	6	2	26	1	4	19	1	5	43	51	51	41
AHV	CAR	120	61.5	37.75	195.5	23.25	18.25	111	21	26	280.75	15.75	67	265	563.75	321.25	535
(Average Hourly Vol.)	TRK	11.75	4.25	1.75	7.75	2	0.5	12.75	1	2.25	12.75	1.5	2.5	26.5	27	29	23.25
AADT	CAR	1920	984	604	3128	372	292	1776	336	416	4492	252	1072	4240	9020	5140	8560
(An. Avg. Daily Traffic)	TRK	188	68	28	124	32	8	204	16	36	204	24	40	424	432	464	372

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Table D3-14: TMC Traffic Dat: MILL ST AT PARLIAMENT ST (PX 1894)

		Aug-22-2019 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: OLS33	ID: --	ID:OLS33	ID: OLS25
7:45	CAR	52	8	0	0	0	0	43	0	2	0	15	16	110	10	111	0
	TRK	7	0	0	0	0	0	10	0	0	0	0	0	17	0	17	0
	BUS	1	0	0	0	0	0	0	0	0	0	1	0	2	0	1	0
8:00	CAR	84	17	0	0	0	0	58	0	7	0	15	17	157	24	159	0
	TRK	14	2	0	0	0	0	6	0	0	0	0	0	20	2	20	0
	BUS	0	1	0	0	0	0	1	0	0	0	1	0	2	1	1	0
8:15	CAR	86	10	0	0	0	0	60	0	9	0	17	19	163	19	165	0
	TRK	10	1	0	0	0	0	8	0	0	0	1	1	19	1	19	0
	BUS	0	0	0	0	0	0	1	0	0	0	1	0	2	0	1	0
8:30	CAR	78	15	0	0	0	0	81	0	9	0	20	25	179	24	184	0
	TRK	12	0	0	0	0	0	10	0	1	0	1	1	23	1	23	0
	BUS	4	0	0	0	0	0	0	0	0	0	1	0	5	0	4	0
8:45	CAR	81	8	0	0	0	0	57	0	9	0	14	26	152	17	164	0
	TRK	18	1	0	0	0	0	7	0	0	0	1	0	26	1	25	0
	BUS	1	0	0	0	0	0	0	0	0	0	2	0	3	0	1	0
9:00	CAR	93	15	0	0	0	0	77	0	8	0	25	18	195	23	188	0
	TRK	13	1	0	0	0	0	10	0	2	0	1	1	24	3	24	0
	BUS	2	0	0	0	0	0	0	0	0	0	1	0	3	0	2	0
9:15	CAR	113	11	0	0	0	0	71	0	8	0	23	9	207	19	193	0
	TRK	17	0	0	0	0	0	10	0	2	0	2	0	29	2	27	0
	BUS	1	0	0	0	0	0	1	0	0	0	2	1	4	0	3	0
9:30	CAR	94	6	0	0	0	0	61	0	6	0	17	10	172	12	165	0
	TRK	16	0	0	0	0	0	9	0	0	0	1	0	26	0	25	0
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	CAR	81	17	0	0	0	0	55	0	8	0	15	14	151	25	150	0
	TRK	12	1	0	0	0	0	10	0	0	0	0	2	22	1	24	0
	BUS	1	0	0	0	0	0	0	0	0	0	1	0	2	0	1	0
10:30	CAR	75	16	0	0	0	0	59	0	7	0	15	8	149	23	142	0
	TRK	15	2	0	0	0	0	22	0	0	0	1	0	38	2	37	0
	BUS	0	0	0	0	0	0	1	0	0	0	1	0	2	0	1	0
10:45	CAR	58	12	0	0	0	0	55	0	7	0	19	10	132	19	123	0
	TRK	10	0	0	0	0	0	12	0	0	0	2	2	24	0	24	0
	BUS	0	0	0	0	0	0	1	0	0	0	2	0	3	0	1	0
11:00	CAR	77	18	0	0	0	0	66	0	9	0	19	16	162	27	159	0
	TRK	10	2	0	0	0	0	14	0	1	0	1	0	25	3	24	0
	BUS	1	1	0	0	0	0	2	0	0	0	1	0	4	1	3	0
11:15	CAR	77	12	0	0	0	0	70	0	10	0	21	8	168	22	155	0
	TRK	9	2	0	0	0	0	10	0	1	0	0	1	19	3	20	0
	BUS	0	0	0	0	0	0	1	0	0	0	2	0	3	0	1	0
11:30	CAR	76	21	0	0	0	0	75	0	15	0	27	11	178	36	162	0
	TRK	10	1	0	0	0	0	17	0	0	0	1	0	28	1	27	0
	BUS	1	0	0	0	0	0	0	0	0	0	2	0	3	0	1	0
11:45	CAR	80	17	0	0	0	0	86	0	11	0	14	9	180	28	175	0
	TRK	17	4	0	0	0	0	13	0	1	0	0	2	30	5	32	0
	BUS	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0
12:00	CAR	82	13	0	0	0	0	100	0	14	0	18	10	200	27	192	0
	TRK	7	0	0	0	0	0	11	0	0	0	1	4	19	0	22	0
	BUS	1	0	0	0	0	0	0	0	0	0	1	0	2	0	1	0
13:15	CAR	70	17	0	0	0	0	68	0	15	0	19	9	157	32	147	0
	TRK	12	0	0	0	0	0	17	0	0	0	0	0	29	0	29	0
	BUS	0	0	0	0	0	0	2	0	0	0	1	0	3	0	2	0
13:30	CAR	74	23	0	0	0	0	77	0	15	0	24	9	175	38	160	0
	TRK	12	2	0	0	0	0	11	0	0	0	2	0	25	2	23	0
	BUS	1	0	0	0	0	0	1	0	0	0	2	0	4	0	2	0
13:45	CAR	73	16	0	0	0	0	81	0	10	0	18	9	172	26	163	0
	TRK	9	1	0	0	0	0	15	0	0	0	1	0	25	1	24	0
	BUS	0	0	0	0	0	0	1	0	0	0	2	0	3	0	1	0
14:00	CAR	85	16	0	0	0	0	60	0	9	0	10	11	155	25	156	0
	TRK	8	1	0	0	0	0	9	0	0	0	0	0	17	1	17	0
	BUS	1	1	0	0	0	0	0	0	0	0	1	0	2	1	1	0
14:15	CAR	87	17	0	0	0	0	63	0	15	0	23	17	173	32	167	0
	TRK	8	1	0	0	0	0	11	0	0	0	3	2	22	1	21	0
	BUS	0	0	0	0	0	0	1	0	0	0	2	0	3	0	1	0
14:30	CAR	69	14	0	0	0	0	91	0	15	0	19	8	179	29	168	0
	TRK	9	4	0	0	0	0	11	0	1	0	0	0	20	5	20	0
	BUS	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0
14:45	CAR	97	16	0	0	0	0	108	0	11	0	15	16	220	27	221	0
	TRK	17	0	0	0	0	0	17	0	2	0	1	0	35	2	34	0
	BUS	0	0	0	0	0	0	2	0	0	0	1	0	3	0	2	0
15:00	CAR	90	24	0	0	0	0	115	0	9	0	17	10	222	33	215	0
	TRK	5	2	0	0	0	0	14	0	0	0	0	0	19	2	19	0
	BUS	1	2	0	0	0	0	2	0	0	0	1	0	4	2	3	0
16:15	CAR	85	29	0	0	0	0	96	0	12	0	19	15	200	41	196	0
	TRK	4	4	0	0	0	0	10	0	0	0	0	0	14	4	14	0
	BUS	1	0	0	0	0	0	0	0	0	0	1	1	2	0	2	0
16:30	CAR	105	26	0	0	0	0	101	0	10	0	23	13	229	36	219	0
	TRK	2	4	0	0	0	0	13	0	1	0	0	0	15	5	15	0
	BUS	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
16:45	CAR	107	27	0	0	0	0	94	0	13	0	25	12	226	40	213	0
	TRK	9	0	0	0	0	0	9	0	0	0	0	1	18	0	19	0
	BUS	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0
17:00	CAR	74	40	0	0	0	0	101	0	19	0	24	17	199	59	192	0
	TRK	5	2	0	0	0	0	6	0	1	0	0	0	11	3	11	0
	BUS	0	0	0	0	0	0	1	0	0	0	6	0	7	0	1	0
17:15	CAR	111	25	0	0	0	0	117	0	10	0	15	20	243	35	248	0
	TRK	3	1	0	0	0	0	3	0	0	0	0	1	6	1	7	0
	BUS	0	0	0	0	0	0	1	0	0	0	2	0	3	0	1	0
17:30	CAR	109	29	0	0	0	0	98	0	13	0	18	22	225	42	229	0
	TRK	7	1	0	0	0	0	8	0	0	0	0	1	15	1	16	0
	BUS	1	0	0	0	0	0	1	0	0	0	2	0	4	0	2	0
17:45	CAR	115	39	0	0	0	0	135	0	13	0	26	20	276	52	270	0
	TRK	4	3	0	0	0	0	7	0	0	0	1	1	12	3	12	0
	BUS	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
18:00	CAR	106	39	0	0	0	0	114	0	20	0	32	20	252	59	240	0
	TRK	4	0	0	0	0	0	11	0	0	0	0	1	15	0	16	0
	BUS	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
AM PEAK (8:30-9:30)	CAR	365	49	0	0	0	0	286	0	34	0	82	78	733	83	729	0
	TRK	60	2	0	0	0	0	37	0	5	0	5	2	102	7	99	0
PM PEAK (17:00-18:00)	CAR	409	133	0	0	0	0	451	0	55	0	83	79	943	188	939	0
	TRK	19	7	0	0	0	0	24	0	1	0	1	3	44	8	46	0
AHV (Average Hourly Vol.)	CAR	193.5	45.5	0	0	0	0	184.25	0	22.25	0	41.25	39.25	419	67.75	417	0
	TRK	19.75	2.25	0	0	0	0	15.25	0	1.5	0	1.5	1.25	36.5	3.75	36.25	0
AADT (An. Avg. Daily Traffic)	CAR	3096	728	0	0	0	0	2948	0	356	0	660	628	6704	1084	6672	0
	TRK	316	36	0	0	0	0	244	0	24	0	24	20	584	60	580	0

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Table D3-15: TMC Traffic Dat: SHERBOURNE ST AT SHUTER ST (PX 319)

		Jun-13-2018 (Wednesday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: --	ID: OLS71	): OLS34, OLS	ID: OLS70
7:45	CAR	41	8	1	33	6	3	36	15	0	68	7	4	87	109	87	117
	TRK	8	0	0	2	0	0	2	0	0	1	0	1	10	3	11	3
	BUS	1	0	0	0	0	1	2	0	0	1	0	0	4	1	3	1
8:00	CAR	48	7	1	40	5	9	55	17	0	79	6	7	118	126	115	137
	TRK	0	2	0	2	0	1	0	1	0	2	0	0	1	6	0	5
	BUS	4	0	0	0	0	1	3	0	0	0	1	0	9	0	7	0
8:15	CAR	58	6	0	49	6	9	51	7	1	79	4	4	122	135	119	135
	TRK	0	0	0	1	0	0	2	0	0	0	0	0	2	1	2	1
	BUS	2	0	0	2	0	0	4	0	0	0	0	0	6	2	6	2
8:30	CAR	73	9	3	31	6	12	55	6	0	86	7	2	147	126	136	126
	TRK	3	1	0	0	0	1	3	0	0	0	0	0	7	1	6	0
	BUS	3	0	0	0	0	0	1	0	0	1	0	0	4	1	4	1
8:45	CAR	68	7	2	45	8	11	72	11	0	105	8	5	159	157	153	163
	TRK	4	0	0	0	0	0	1	1	0	5	1	0	6	5	5	6
	BUS	2	0	0	0	0	0	2	0	0	1	0	0	4	1	4	1
9:00	CAR	80	7	3	40	11	6	65	15	2	76	8	9	159	125	165	134
	TRK	4	0	0	1	1	0	0	0	1	2	0	0	4	4	5	3
	BUS	2	0	0	1	0	0	3	0	0	0	0	0	5	1	5	1
9:15	CAR	64	4	7	50	14	7	47	10	6	91	4	9	122	151	134	158
	TRK	5	0	1	0	0	0	2	2	0	0	0	0	7	0	7	3
	BUS	2	0	0	0	0	0	2	0	0	1	0	0	4	1	4	1
9:30	CAR	61	8	5	42	9	12	49	5	4	86	5	6	127	140	125	138
	TRK	1	0	1	2	0	1	0	2	1	1	0	1	2	4	2	6
	BUS	3	0	0	0	0	0	3	0	0	0	0	0	6	0	6	0
10:15	CAR	70	10	9	32	8	8	55	12	4	49	9	4	142	95	137	102
	TRK	6	1	0	0	0	1	2	0	1	1	0	1	9	3	9	1
	BUS	2	0	0	0	0	0	3	0	0	0	0	0	5	0	5	0
10:30	CAR	47	12	8	40	5	2	80	7	5	44	6	4	135	101	136	99
	TRK	3	0	1	3	0	0	2	0	1	6	0	0	5	10	5	10
	BUS	3	0	0	0	0	0	2	0	0	0	0	0	5	0	5	0
10:45	CAR	54	7	5	28	8	8	45	6	6	55	7	2	114	96	109	94
	TRK	2	0	0	1	0	0	4	0	0	2	0	0	6	3	6	3
	BUS	2	0	0	0	0	0	3	0	0	0	0	0	5	0	5	0
11:00	CAR	56	8	10	42	12	7	58	11	8	49	10	8	131	107	134	112
	TRK	0	2	0	2	0	0	5	1	1	5	0	1	5	10	6	8
	BUS	1	0	0	0	0	0	3	0	0	1	0	0	4	1	4	1
11:15	CAR	55	6	10	27	11	6	68	7	7	47	3	2	132	87	136	91
	TRK	5	0	0	0	0	2	5	0	1	3	0	0	12	4	10	3
	BUS	3	0	0	0	0	0	1	0	0	0	0	0	4	0	4	0
11:30	CAR	52	4	8	38	5	9	60	11	7	33	8	2	129	82	119	90
	TRK	3	1	0	3	0	0	5	0	0	2	0	0	8	6	8	5
	BUS	1	0	0	0	0	0	2	0	0	0	0	0	3	0	3	0
11:45	CAR	39	9	5	36	10	7	80	4	9	42	9	7	135	96	136	87
	TRK	2	1	0	1	0	0	3	0	0	1	0	0	5	3	5	2
	BUS	3	0	0	0	0	1	4	0	0	0	0	0	8	0	7	0
12:00	CAR	56	10	4	64	6	13	62	12	7	47	8	3	139	128	127	127
	TRK	2	0	0	2	0	0	4	0	0	3	0	0	6	5	6	5
	BUS	2	0	0	0	0	0	2	0	0	0	0	0	4	0	4	0
13:15	CAR	61	13	4	61	10	14	83	10	12	43	5	8	163	129	162	118
	TRK	0	0	0	0	0	1	4	0	0	1	0	0	5	1	4	1
	BUS	2	0	0	0	0	0	2	0	0	0	0	0	4	0	4	0
13:30	CAR	43	11	7	59	16	15	59	8	8	47	8	5	125	125	123	121
	TRK	0	1	0	0	0	1	3	0	1	1	0	0	4	3	3	1
	BUS	2	0	0	0	0	0	2	0	0	0	0	0	4	0	4	0
13:45	CAR	64	8	6	64	11	8	61	5	4	42	8	5	141	118	141	117
	TRK	1	0	0	0	0	1	1	0	0	2	0	0	3	2	2	2
	BUS	3	0	0	0	0	0	1	0	0	0	0	0	4	0	4	0
14:00	CAR	68	7	5	59	10	25	75	9	4	33	10	5	178	103	158	106
	TRK	1	0	0	3	0	1	0	0	0	0	0	0	2	3	1	3
	BUS	0	0	0	0	0	0	2	0	0	0	0	0	2	0	2	0
14:15	CAR	46	5	5	65	14	11	60	5	10	38	13	12	130	118	132	113
	TRK	0	1	0	0	1	1	3	0	0	1	0	0	4	2	4	1
	BUS	4	0	0	0	0	0	3	0	0	0	0	0	7	0	7	0
14:30	CAR	64	13	2	63	13	15	57	8	16	33	10	4	146	125	138	106
	TRK	1	2	1	0	0	0	2	0	0	2	0	0	3	4	3	3
	BUS	4	0	0	0	0	0	2	0	0	0	0	0	6	0	6	0
14:45	CAR	61	11	4	69	7	11	59	12	15	31	10	10	141	126	137	116
	TRK	1	0	1	0	1	0	3	0	0	2	0	0	4	2	5	3
	BUS	1	0	0	1	0	1	3	0	0	0	0	0	5	1	4	1
15:00	CAR	68	7	2	95	10	15	69	5	9	30	9	8	161	141	155	132
	TRK	2	0	0	3	0	1	3	0	0	2	0	0	6	5	5	5
	BUS	3	0	0	0	0	2	2	0	0	0	1	0	8	0	5	0
16:15	CAR	60	15	2	114	14	11	76	10	3	39	11	2	158	171	152	165
	TRK	1	0	0	0	0	0	2	0	0	1	0	0	3	1	3	1
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	CAR	56	10	0	91	18	12	63	5	4	29	5	7	136	134	144	125
	TRK	1	0	0	0	1	0	5	0	0	1	0	0	6	1	7	1
	BUS	2	0	1	0	0	0	4	0	0	0	0	0	6	0	6	1
16:45	CAR	47	13	4	114	16	5	74	19	0	45	6	4	132	172	141	182
	TRK	1	0	1	2	0	0	1	0	0	1	0	0	2	3	2	4
	BUS	1	0	0	0	0	0	1	0	0	0	0	0	2	0	2	0
17:00	CAR	60	13	2	119	16	14	80	5	1	42	3	3	157	175	159	168
	TRK	0	0	0	1	0	0	1	0	0	0	0	0	1	1	1	1
	BUS	2	0	0	0	0	0	2	0	0	1	0	0	4	1	4	1
17:15	CAR	70	8	3	112	22	9	69	10	2	25	4	1	152	147	162	150
	TRK	0	0	0	1	0	0	3	0	0	0	0	0	3	1	3	1
	BUS	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
17:30	CAR	81	10	3	106	24	19	85	17	2	31	9	10	194	149	200	157
	TRK	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	BUS	1	0	0	0	0	0	1	0	0	0	0	0	2	0	2	0
17:45	CAR	64	14	3	125	23	8	69	7	1	40	10	4	151	180	160	175
	TRK	0	0	0	1	0	0	0	0	0	0	0	1	0	1	1	1
	BUS	2	0	0	0	0	0	1	0	0	0	0	0	3	0	3	0
18:00	CAR	78	6	4	135	24	7	90	13	7	53	6	15	181	201	207	205
	TRK	3	0	0	2	0	0	1	0	0	0	0	0	4	2	4	2
	BUS	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
AM PEAK (8:45-9:45)	CAR	273	26	17	177	42	36	233	41	12	358	25	29	567	573	577	593
	TRK	14	0	2	3	1	1	3	5	2	8	1	1	19	13	19	18
PM PEAK (17:00-18:00)	CAR	275	45	11	462	85	50	303	39	6	138	26	18	654	651	681	650
	TRK	0	0	1	3	0	0	4	0	0	0	0	1	4	3	5	4
AHV (Average Hourly Vol.)	CAR	137	17.75	7	159.75	31.75	21.5	134	20	4.5	124	12.75	11.75	305.25	306	314.5	310.75
	TRK	3.5	0	0.75	1.5	0.25	0.25	1.75	1.25	0.5	2	0.25	0.5	5.75	4	6	5.5
AADT (An. Avg. Daily Traffic)	CAR	2192	284	112	2556	508	344	2144	320	72	1984	204	188	4884	4896	5032	4972
	TRK	56	0	12	24	4	4	28	20	8	32	4	8	92	64	96	88

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Table D3-16: TMC Traffic Dat: QUEEN ST AT SHERBOURNE ST (PX 257)

		Feb-28-2019 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: OLS34	ID: OLS69	): OLS35, OLS	ID: OLS68
7:45	CAR	53	9	6	49	2	6	41	6	5	73	5	2	105	136	98	134
	TRK	4	2	1	2	0	0	2	0	0	0	0	0	6	4	6	3
	BUS	4	0	0	6	0	0	3	0	0	3	0	0	7	9	7	9
8:00	CAR	47	7	9	48	4	5	45	6	5	96	6	4	103	156	100	159
	TRK	3	0	0	2	0	0	2	0	0	1	0	0	5	3	5	3
	BUS	3	0	0	5	0	0	2	0	0	4	0	0	5	9	5	9
8:15	CAR	33	8	9	42	3	7	40	6	10	118	10	4	90	178	80	175
	TRK	1	2	0	1	0	0	1	0	0	5	0	0	2	8	2	6
	BUS	2	0	0	3	0	0	4	0	0	6	0	0	6	9	6	9
8:30	CAR	54	11	11	45	3	6	44	13	5	122	8	4	112	183	105	191
	TRK	2	0	0	0	0	0	1	0	0	0	0	0	3	0	3	0
	BUS	5	0	0	5	0	0	2	0	0	3	0	0	7	8	7	8
8:45	CAR	49	7	10	33	6	3	42	10	6	88	3	4	97	134	101	141
	TRK	0	1	0	0	1	0	2	0	1	1	0	0	2	3	3	1
	BUS	2	0	0	6	0	0	2	0	0	8	0	0	4	14	4	14
9:00	CAR	39	9	11	34	7	5	55	9	8	101	13	7	112	152	108	155
	TRK	2	0	1	2	0	0	1	0	0	4	0	0	3	6	3	7
	BUS	2	0	0	5	0	0	5	0	0	5	0	0	7	10	7	10
9:15	CAR	63	8	10	47	6	12	46	16	8	118	19	5	140	181	120	191
	TRK	0	0	0	1	0	0	1	0	0	3	0	1	1	4	2	4
	BUS	2	0	0	10	0	0	2	0	0	5	0	0	4	15	4	15
9:30	CAR	69	8	9	37	5	11	57	9	6	68	10	3	147	119	134	123
	TRK	1	0	0	0	0	0	3	0	0	0	0	1	4	0	5	0
	BUS	5	0	0	5	0	0	1	0	0	2	0	0	6	7	6	7
10:15	CAR	48	11	9	49	2	6	43	8	11	53	10	5	107	124	98	119
	TRK	3	0	0	1	0	0	0	0	0	0	0	1	3	1	4	1
	BUS	2	0	0	3	0	0	3	0	0	4	0	0	5	7	5	7
10:30	CAR	53	14	7	42	4	16	45	8	13	46	7	1	121	115	103	103
	TRK	4	1	1	3	0	0	1	0	0	0	0	1	5	4	6	4
	BUS	3	0	0	8	1	0	4	0	0	9	0	0	7	17	8	17
10:45	CAR	49	7	5	57	5	11	34	5	10	54	11	4	105	128	92	121
	TRK	2	0	1	1	0	0	3	0	0	0	0	0	5	1	5	2
	BUS	2	0	0	5	0	0	6	0	0	7	0	0	8	12	8	12
11:00	CAR	46	12	7	52	4	12	46	4	7	48	4	8	108	119	104	111
	TRK	3	0	0	3	2	0	2	0	0	1	0	0	5	4	7	4
	BUS	3	0	0	5	0	0	3	0	0	4	2	0	8	9	6	9
11:15	CAR	51	12	12	45	6	11	43	9	12	47	7	9	112	116	109	113
	TRK	0	1	0	0	0	0	2	1	0	2	0	0	2	3	2	3
	BUS	3	0	0	5	0	0	1	0	0	7	0	0	4	12	4	12
11:30	CAR	56	8	7	55	7	8	47	2	10	41	13	5	124	114	115	105
	TRK	2	0	0	2	0	0	6	0	0	2	1	0	9	4	8	4
	BUS	0	0	0	5	0	0	3	0	0	4	0	0	3	9	3	9
11:45	CAR	48	9	8	44	7	10	39	9	14	40	9	2	106	107	96	101
	TRK	1	0	0	1	0	0	2	0	1	2	0	0	3	4	3	3
	BUS	4	0	0	5	0	0	2	0	0	5	0	0	6	10	6	10
12:00	CAR	52	6	6	45	6	6	46	3	14	39	6	2	110	104	106	93
	TRK	1	0	0	2	0	0	2	1	0	1	0	0	3	3	3	4
	BUS	1	0	0	3	0	0	1	0	0	3	0	0	2	6	2	6
13:15	CAR	50	9	3	62	5	10	57	5	13	38	6	2	123	122	114	108
	TRK	0	2	0	2	0	0	2	0	1	0	0	0	2	5	2	2
	BUS	1	0	0	4	0	0	3	0	1	4	0	0	4	9	4	8
13:30	CAR	50	13	7	56	8	12	45	4	9	43	11	7	118	121	110	110
	TRK	2	0	0	1	0	0	3	1	0	1	1	0	6	2	5	3
	BUS	4	0	0	5	0	0	2	0	0	6	0	0	6	11	6	11
13:45	CAR	46	11	2	55	8	12	43	4	14	42	8	8	109	122	105	103
	TRK	3	0	0	2	0	0	2	0	0	1	0	0	5	3	5	3
	BUS	1	0	0	4	0	0	0	0	0	5	0	0	1	9	1	9
14:00	CAR	46	5	3	52	4	7	42	6	9	48	10	7	105	114	99	109
	TRK	3	1	1	0	0	0	4	0	1	0	0	0	7	2	7	1
	BUS	0	0	0	10	0	0	4	0	0	6	1	0	5	16	4	16
14:15	CAR	53	7	4	70	3	10	51	5	9	43	5	6	119	129	113	122
	TRK	3	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0
	BUS	5	0	0	1	0	0	1	0	0	4	0	0	6	5	6	5
14:30	CAR	47	3	5	62	7	3	53	5	13	34	10	10	113	112	117	106
	TRK	1	1	0	0	0	0	4	0	1	3	0	0	5	5	5	3
	BUS	1	0	0	8	0	0	1	0	0	3	0	0	2	11	2	11
14:45	CAR	62	3	7	56	7	6	66	7	5	40	10	5	144	104	140	110
	TRK	2	0	0	2	0	0	1	0	0	0	1	0	4	2	3	2
	BUS	2	0	0	3	0	0	3	0	0	3	1	0	6	6	5	6
15:00	CAR	52	10	6	76	8	13	73	11	12	36	12	2	150	134	135	129
	TRK	2	0	0	2	0	1	2	0	0	0	0	0	5	2	4	2
	BUS	1	0	0	3	0	0	2	0	0	6	0	0	3	9	3	9
16:15	CAR	64	1	4	98	5	10	68	13	20	49	6	2	148	168	139	164
	TRK	1	0	0	0	0	2	2	0	0	2	0	0	5	2	3	2
	BUS	2	0	0	6	0	0	1	0	0	3	0	0	3	9	3	9
16:30	CAR	69	5	7	104	12	13	61	9	12	37	7	4	150	158	146	157
	TRK	2	0	0	0	1	0	2	0	0	3	0	0	4	3	5	3
	BUS	2	0	0	6	0	0	2	0	0	2	0	0	4	8	4	8
16:45	CAR	57	18	10	122	7	6	58	8	9	47	12	8	133	196	130	187
	TRK	3	1	0	1	0	0	3	0	0	0	1	1	7	2	7	1
	BUS	1	0	0	3	0	0	2	0	0	5	0	0	3	8	3	8
17:00	CAR	51	14	12	106	6	15	64	11	19	32	14	6	144	171	127	161
	TRK	2	0	0	3	0	0	3	0	0	1	0	0	5	4	5	4
	BUS	3	0	0	5	0	0	2	0	0	8	0	0	5	13	5	13
17:15	CAR	65	10	6	122	3	8	78	7	16	49	8	12	159	197	158	184
	TRK	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1
	BUS	1	0	0	4	0	0	1	0	0	5	0	0	2	9	2	9
17:30	CAR	53	13	8	137	3	11	62	7	17	53	8	5	134	220	123	205
	TRK	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
	BUS	1	0	0	8	0	0	2	0	0	6	0	0	3	14	3	14
17:45	CAR	61	10	7	144	10	12	70	8	18	52	9	6	152	224	147	211
	TRK	0	0	0	6	0	1	1	0	0	0	0	0	2	6	1	6
	BUS	2	0	0	4	0	0	1	0	0	3	0	0	3	7	3	7
18:00	CAR	63	10	4	121	10	14	67	6	14	42	4	2	148	187	142	173
	TRK	0	0	0	0	0	0	1	0	0	0	0	2	1	0	3	0
	BUS	2	0	0	1	0	0	2	0	0	4	0	0	4	5	4	5
AM PEAK (8:30-9:30)	CAR	205	35	42	159	22	26	187	48	27	429	43	20	461	650	434	678
	TRK	4	1	1	3	1	0	5	0	1	8	0	1	9	13	11	12
PM PEAK (17:00-18:00)	CAR	230	47	33	509	22	46	274	33	70	186	39	29	589	812	555	761
	TRK	2	0	0	10	0	1	5	0	0	2	0	0	8	12	7	12
AHV	CAR	108.75	20.5	18.75	167	11	18	115.25	20.25	24.25	153.75	20.5	12.25	262.5	365.5	247.25	359.75
(Average Hourly Vol.)	TRK	1.5	0.25	0.25	3.25	0.25	0.25	2.5	0	0.25	2.5	0	0.25	4.25	6.25	4.5	6
AADT	CAR	1740	328	300	2672	176	288	1844	324	388	2460	328	196	4200	5848	3956	5756
(An. Avg. Daily Traffic)	TRK	24	4	4	52	4	4	40	0	4	40	0	4	68	100	72	96

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Table D3-17: TMC Traffic Dat: ADELAIDE ST AT SHERBOURNE ST (PX 255)

		Apr-11-2019 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	D: OLS35, OLS	ID: OLS55	ID: OLS37	ID: OLS54
7:45	CAR	56	5	0	164	9	26	39	0	15	0	0	0	121	184	104	164
	TRK	6	1	0	11	1	3	3	0	0	0	0	0	12	12	10	11
	BUS	4	0	0	2	0	0	3	0	0	0	0	0	7	2	7	2
8:00	CAR	47	9	0	174	5	12	42	0	13	0	0	0	101	196	94	174
	TRK	9	0	0	15	1	2	3	0	1	0	0	0	14	16	13	15
	BUS	3	0	0	3	0	0	3	0	0	0	0	0	6	3	6	3
8:15	CAR	52	6	0	170	13	14	36	0	13	0	0	0	102	189	101	170
	TRK	6	1	0	12	1	1	7	0	0	0	0	0	14	13	14	12
	BUS	3	0	0	2	0	0	3	0	0	0	0	0	6	2	6	2
8:30	CAR	43	10	0	215	10	19	33	0	17	0	0	0	95	242	86	215
	TRK	7	1	0	19	2	1	3	0	0	0	0	0	11	20	12	19
	BUS	3	0	0	3	0	0	3	0	0	0	0	0	6	3	6	3
8:45	CAR	59	11	0	174	9	20	36	0	14	0	0	0	115	199	104	174
	TRK	5	2	0	10	2	1	4	0	0	0	0	0	10	12	11	10
	BUS	1	0	0	2	0	0	3	0	0	0	0	0	4	2	4	2
9:00	CAR	48	9	0	182	5	14	48	0	19	0	0	0	110	210	101	182
	TRK	10	1	0	10	2	2	4	0	1	0	0	0	16	12	16	10
	BUS	6	0	0	4	0	0	3	0	0	0	0	0	9	4	9	4
9:15	CAR	60	5	0	194	11	17	43	0	10	0	0	0	120	209	114	194
	TRK	9	1	0	8	1	1	2	0	2	0	0	0	12	11	12	8
	BUS	3	0	0	1	0	0	2	0	0	0	0	0	5	1	5	1
9:30	CAR	57	13	0	257	13	23	48	0	11	0	0	0	128	281	118	257
	TRK	4	1	0	15	0	2	4	0	0	0	0	0	10	16	8	15
	BUS	2	0	0	3	0	0	4	0	0	0	0	0	6	3	6	3
10:15	CAR	47	14	0	171	11	32	44	0	13	0	0	0	123	198	102	171
	TRK	4	3	0	17	1	2	5	0	2	0	0	0	11	22	10	17
	BUS	2	0	0	0	0	0	3	0	0	0	0	0	5	0	5	0
10:30	CAR	49	9	0	170	15	12	31	0	11	0	0	0	92	190	95	170
	TRK	10	2	0	14	2	3	5	0	3	0	0	0	18	19	17	14
	BUS	5	0	0	0	0	0	3	0	0	0	0	0	8	0	8	0
10:45	CAR	61	14	0	174	10	21	33	0	11	0	0	0	115	199	104	174
	TRK	8	2	0	25	3	1	6	0	3	0	0	0	15	30	17	25
	BUS	3	0	0	0	1	0	3	0	0	0	0	0	6	0	7	0
11:00	CAR	46	14	0	163	18	31	44	0	7	0	0	0	121	184	108	163
	TRK	5	3	0	21	4	0	7	0	3	0	0	0	12	27	16	21
	BUS	1	0	0	1	0	0	4	0	0	0	0	0	5	1	5	1
11:15	CAR	59	6	0	204	13	26	41	0	18	0	0	0	126	228	113	204
	TRK	8	3	0	19	2	2	4	0	1	0	0	0	14	23	14	19
	BUS	4	0	0	1	0	0	2	0	0	0	0	0	6	1	6	1
11:30	CAR	52	6	0	154	12	15	42	0	15	0	0	0	109	175	106	154
	TRK	3	0	0	15	2	0	6	0	1	0	0	0	9	16	11	15
	BUS	2	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0
11:45	CAR	47	11	0	166	14	17	46	0	12	0	0	0	110	189	107	166
	TRK	7	2	0	17	3	0	10	0	2	0	0	0	17	21	20	17
	BUS	1	0	0	0	0	0	4	0	0	0	0	0	5	0	5	0
12:00	CAR	44	8	0	168	18	21	50	0	15	0	0	0	115	191	112	168
	TRK	8	0	0	20	5	5	6	0	2	0	0	0	19	22	19	20
	BUS	4	0	0	0	0	0	2	0	0	0	0	0	6	0	6	0
13:15	CAR	59	6	0	191	9	18	43	0	10	0	0	0	120	207	111	191
	TRK	2	0	0	22	3	0	7	0	1	0	0	0	9	23	12	22
	BUS	0	0	0	0	0	0	3	0	0	0	0	0	3	0	3	0
13:30	CAR	43	8	0	205	17	20	39	0	14	0	0	0	102	227	99	205
	TRK	5	1	0	16	1	2	7	0	1	0	0	0	14	18	13	16
	BUS	3	0	0	0	0	0	1	0	0	0	0	0	4	0	4	0
13:45	CAR	53	12	0	179	14	16	33	0	15	0	0	0	102	206	100	179
	TRK	4	0	0	16	1	1	5	0	4	0	0	0	10	20	10	16
	BUS	1	0	0	0	0	0	2	0	0	0	0	0	3	0	3	0
14:00	CAR	49	4	0	227	24	16	62	0	20	0	0	0	127	251	135	227
	TRK	1	0	0	17	1	1	3	0	0	0	0	0	5	17	5	17
	BUS	2	0	0	0	0	0	4	0	0	0	0	0	6	0	6	0
14:15	CAR	51	10	0	237	18	21	59	0	17	0	0	0	131	264	128	237
	TRK	6	2	0	22	2	1	6	0	4	0	0	0	13	28	14	22
	BUS	5	0	0	0	0	0	1	0	0	0	0	0	6	0	6	0
14:30	CAR	59	7	0	214	20	13	68	0	12	0	0	0	140	233	147	214
	TRK	3	0	0	28	1	1	9	0	3	0	0	0	13	31	13	28
	BUS	1	0	0	0	0	0	1	0	0	0	0	0	2	0	2	0
14:45	CAR	53	7	0	190	20	16	52	0	17	0	0	0	121	214	125	190
	TRK	3	3	0	27	3	1	8	0	1	0	0	0	12	31	14	27
	BUS	3	0	0	1	0	0	4	0	0	0	0	0	7	1	7	1
15:00	CAR	51	10	0	175	19	22	69	0	21	0	0	0	142	206	139	175
	TRK	2	1	0	29	5	2	7	0	0	0	0	0	11	30	14	29
	BUS	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
16:15	CAR	67	14	0	266	15	16	53	0	17	0	0	0	136	297	135	266
	TRK	7	1	0	22	0	0	5	0	0	0	0	0	12	23	12	22
	BUS	4	0	0	0	1	0	3	0	0	0	0	0	7	0	8	0
16:30	CAR	60	16	0	265	17	8	61	0	24	0	0	0	129	305	138	265
	TRK	5	1	0	20	1	0	2	0	1	0	0	0	7	22	8	20
	BUS	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	0
16:45	CAR	76	8	0	275	9	11	70	0	21	0	0	0	157	304	155	275
	TRK	3	0	0	19	3	0	7	0	1	0	0	0	10	20	13	19
	BUS	3	0	0	2	0	0	4	0	0	0	0	0	7	2	7	2
17:00	CAR	63	8	0	321	8	12	74	0	18	0	0	0	149	347	145	321
	TRK	2	0	0	10	0	1	0	0	2	0	0	0	3	12	2	10
	BUS	1	0	0	2	0	0	2	0	0	0	0	0	3	2	3	2
17:15	CAR	86	10	0	280	13	10	73	0	22	0	0	0	169	312	172	280
	TRK	0	2	0	14	3	0	2	0	0	0	0	0	2	16	5	14
	BUS	0	0	0	2	0	0	3	0	0	0	0	0	3	2	3	2
17:30	CAR	57	12	0	305	22	13	67	0	20	0	0	0	137	337	146	305
	TRK	3	2	0	11	0	0	3	0	0	0	0	0	6	13	6	11
	BUS	6	0	0	0	0	0	0	0	0	0	0	0	6	0	6	0
17:45	CAR	71	6	0	303	22	14	73	0	24	0	0	0	158	333	166	303
	TRK	1	1	0	11	2	1	1	0	2	0	0	0	3	14	4	11
	BUS	2	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0
18:00	CAR	78	11	0	309	13	20	75	0	29	0	0	0	173	349	166	309
	TRK	2	0	0	11	1	0	1	0	1	0	0	0	3	12	4	11
	BUS	1	0	0	2	0	0	5	0	0	0	0	0	6	2	6	2
AM PEAK (8:45-9:45)	CAR	224	38	0	807	38	74	175	0	54	0	0	0	473	899	437	807
	TRK	28	5	0	43	5	6	14	0	3	0	0	0	48	51	47	43
PM PEAK (17:00-18:00)	CAR	277	36	0	1209	65	49	287	0	84	0	0	0	613	1329	629	1209
	TRK	6	5	0	46	5	2	6	0	4	0	0	0	14	55	17	46
AHV (Average Hourly Vol.)	CAR	125.25	18.5	0	504	25.75	30.75	115.5	0	34.5	0	0	0	271.5	557	266.5	504
	TRK	8.5	2.5	0	22.25	2.5	2	5	0	1.75	0	0	0	15.5	26.5	16	22.25
AADT (An. Avg. Daily Traffic)	CAR	2004	296	0	8064	412	492	1848	0	552	0	0	0	4344	8912	4264	8064
	TRK	136	40	0	356	40	32	80	0	28	0	0	0	248	424	256	356

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Table D3-18: TMC Traffic Dat: LOWER SHERBOURNE ST AT THE ESPLANADE (PX 1441)

		Aug-22-2019 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: OLS39	ID: --	ID: OLS40	ID: --
7:45	CAR	25	5	12	7	0	2	14	4	1	14	1	2	42	27	41	37
	TRK	5	2	1	0	0	0	2	1	1	1	3	2	10	4	9	3
	BUS	0	0	0	3	0	3	2	0	0	2	0	0	5	5	2	5
8:00	CAR	33	10	18	2	3	2	29	5	1	7	5	9	69	20	74	32
	TRK	1	0	0	1	0	0	3	0	0	2	1	0	5	3	4	3
	BUS	0	0	0	1	0	2	3	0	0	1	0	0	5	2	3	2
8:15	CAR	41	12	14	8	1	4	33	18	1	22	4	5	82	43	80	62
	TRK	6	0	0	0	2	0	5	0	0	0	0	0	11	0	13	0
	BUS	0	0	0	1	0	3	3	0	0	1	0	0	6	2	3	2
8:30	CAR	35	10	12	10	2	2	29	12	1	17	0	9	66	38	75	51
	TRK	4	0	0	0	0	0	4	0	0	1	0	1	8	1	9	1
	BUS	0	0	0	2	0	2	1	0	0	0	0	0	3	2	1	2
8:45	CAR	32	16	11	7	2	7	27	11	1	20	2	5	68	44	66	49
	TRK	3	0	0	3	0	0	2	0	0	1	0	1	5	4	6	4
	BUS	0	0	0	0	0	2	2	0	0	2	0	0	4	2	2	2
9:00	CAR	46	11	15	17	2	3	24	16	3	19	5	5	78	50	77	67
	TRK	4	0	0	2	1	0	5	0	0	1	0	1	9	3	11	3
	BUS	1	0	0	1	0	3	2	0	0	1	0	0	6	2	3	2
9:15	CAR	43	19	11	17	3	4	27	13	2	13	2	7	76	51	80	54
	TRK	7	0	0	1	0	0	6	0	3	0	0	1	13	4	14	1
	BUS	0	0	0	2	0	1	1	0	0	1	0	0	2	3	1	3
9:30	CAR	48	18	7	20	4	5	25	10	2	26	6	8	84	66	85	63
	TRK	5	0	0	0	0	1	4	0	1	0	0	0	10	1	9	0
	BUS	1	0	0	1	0	4	4	0	0	1	0	0	9	2	5	2
10:15	CAR	38	9	7	17	3	11	19	10	1	15	4	6	72	42	66	49
	TRK	3	1	0	1	1	0	3	0	0	1	0	1	6	3	8	2
	BUS	1	0	0	0	0	2	3	0	0	1	0	0	6	1	4	1
10:30	CAR	33	3	11	13	1	4	28	15	1	12	5	8	70	29	70	51
	TRK	5	0	1	1	3	0	11	0	1	1	1	1	17	3	20	3
	BUS	0	0	0	1	0	3	2	0	0	0	0	0	5	1	2	1
10:45	CAR	34	6	7	17	1	5	24	5	0	14	5	8	68	37	67	43
	TRK	5	0	0	1	0	1	3	1	0	2	0	2	9	3	10	4
	BUS	0	0	0	1	0	2	2	0	0	1	0	0	4	2	2	2
11:00	CAR	39	4	12	10	4	4	21	10	0	14	2	5	66	28	69	46
	TRK	5	1	1	2	2	1	4	0	1	1	0	1	10	5	12	4
	BUS	0	0	0	1	0	3	3	0	0	0	0	0	6	1	3	1
11:15	CAR	35	8	7	13	5	7	45	14	2	11	0	11	87	34	96	45
	TRK	3	0	1	1	0	0	7	0	1	2	0	0	10	4	10	4
	BUS	0	0	0	1	0	1	1	0	0	1	0	0	2	2	1	2
11:30	CAR	50	6	4	11	5	5	42	12	9	13	5	7	102	39	104	40
	TRK	5	0	0	1	1	0	5	0	1	0	0	1	10	2	12	1
	BUS	0	0	0	0	0	3	3	0	0	1	0	0	6	1	3	1
11:45	CAR	53	2	14	18	4	3	32	11	0	12	1	9	89	32	98	55
	TRK	10	5	1	2	2	0	7	0	1	4	1	1	18	12	20	7
	BUS	0	0	0	1	0	1	1	0	0	1	0	0	2	2	1	2
12:00	CAR	60	8	12	18	3	6	44	9	3	18	2	10	112	47	117	57
	TRK	6	0	1	1	0	2	3	0	0	2	0	1	11	3	10	4
	BUS	0	0	0	1	0	1	2	0	0	0	0	0	3	1	2	1
13:15	CAR	29	4	5	15	5	10	43	7	1	10	2	6	84	30	83	37
	TRK	4	2	0	2	1	0	10	1	0	0	0	0	14	4	15	3
	BUS	0	1	0	0	0	1	1	0	0	1	0	0	2	2	1	1
13:30	CAR	23	4	2	13	1	9	35	8	2	13	2	6	69	32	65	36
	TRK	5	0	1	0	0	0	3	3	0	2	0	0	8	2	8	6
	BUS	0	0	0	1	0	1	0	0	0	1	0	0	1	2	0	2
13:45	CAR	29	11	5	14	2	10	42	6	3	0	2	4	83	28	77	25
	TRK	3	1	1	0	2	0	5	1	0	0	1	0	9	1	10	2
	BUS	0	0	0	1	0	2	4	0	0	1	0	0	6	2	4	2
14:00	CAR	37	9	5	14	3	6	40	7	9	8	2	7	85	40	87	34
	TRK	2	1	1	0	1	0	8	0	0	1	0	0	10	2	11	2
	BUS	0	0	0	1	0	1	0	0	0	0	0	0	1	1	0	1
14:15	CAR	37	5	6	15	5	10	37	5	7	7	1	10	85	34	89	33
	TRK	6	1	0	2	0	1	11	0	0	1	1	1	19	4	18	3
	BUS	0	0	0	0	0	1	2	0	0	1	0	0	3	1	2	1
14:30	CAR	40	5	5	13	4	5	51	12	4	4	0	5	96	26	100	34
	TRK	5	0	0	2	1	0	12	3	0	0	0	0	17	2	18	5
	BUS	0	0	0	2	1	3	1	0	0	1	0	0	4	3	2	3
14:45	CAR	46	10	12	15	13	12	44	6	7	11	6	12	108	43	115	44
	TRK	4	0	0	1	1	0	7	1	0	1	0	0	11	2	12	3
	BUS	0	0	0	0	0	1	0	0	0	1	0	1	1	1	1	1
15:00	CAR	46	9	17	11	8	9	50	14	2	14	4	3	109	36	107	56
	TRK	8	1	0	1	0	2	8	1	0	1	0	0	18	3	16	3
	BUS	0	0	0	0	0	0	2	0	0	1	0	0	2	1	2	1
16:15	CAR	54	6	11	18	12	8	49	13	3	15	3	7	114	42	122	57
	TRK	1	1	0	2	1	1	4	1	0	5	0	1	6	8	7	8
	BUS	0	0	0	0	0	1	4	1	1	0	0	0	5	1	4	1
16:30	CAR	68	7	13	21	13	4	59	18	5	17	2	6	133	50	146	69
	TRK	2	0	0	2	1	1	1	0	0	0	0	0	4	2	4	2
	BUS	0	0	0	2	0	1	2	0	0	0	0	0	3	2	2	2
16:45	CAR	56	11	11	26	7	4	54	8	7	22	4	13	118	66	130	67
	TRK	2	0	0	1	2	0	1	0	0	0	0	0	3	1	5	1
	BUS	1	0	0	1	0	2	0	0	0	1	0	0	3	2	1	2
17:00	CAR	50	10	9	24	8	6	42	18	0	30	3	12	101	64	112	81
	TRK	2	0	2	2	0	0	2	2	0	1	1	1	5	3	5	7
	BUS	1	0	0	0	0	2	1	0	0	3	0	0	4	3	2	3
17:15	CAR	47	7	15	20	9	7	45	13	5	24	1	12	100	56	113	72
	TRK	2	0	1	1	0	0	1	0	0	1	1	2	4	2	5	3
	BUS	1	0	0	0	0	0	1	0	0	0	0	0	2	0	2	0
17:30	CAR	50	10	10	30	11	2	25	4	5	16	4	14	81	61	100	60
	TRK	2	0	0	0	0	0	2	0	0	1	0	1	4	1	5	1
	BUS	0	0	0	0	0	2	1	0	0	1	0	0	3	1	1	1
17:45	CAR	50	14	11	23	13	9	25	3	5	37	5	11	89	79	99	74
	TRK	3	0	0	1	0	1	0	0	0	3	0	0	4	4	3	4
	BUS	0	0	1	1	0	0	1	0	0	0	0	0	1	1	1	2
18:00	CAR	60	7	7	23	10	8	34	0	3	33	7	12	109	66	116	63
	TRK	4	1	0	2	0	1	1	0	0	0	0	1	6	3	6	2
	BUS	0	0	0	1	0	1	2	0	0	0	0	0	3	1	2	1
AM PEAK (8:45-9:45)	CAR	169	64	44	61	11	19	103	50	8	78	15	25	306	211	308	233
	TRK	19	0	0	6	1	1	17	0	4	2	0	3	37	12	40	8
PM PEAK (16:15-17:15)	CAR	228	34	44	89	40	22	204	57	15	84	12	38	466	222	510	274
	TRK	7	1	2	7	4	2	8	3	0	6	1	2	18	14	21	18
AHV (Average Hourly Vol.)	CAR	99.25	24.5	22	37.5	12.75	10.25	76.75	26.75	5.75	40.5	6.75	15.75	193	108.25	204.5	126.75
	TRK	6.5	0.25	0.5	3.25	1.25	0.75	6.25	0.75	1	2	0.25	1.25	13.75	6.5	15.25	6.5
AADT (An. Avg. Daily Traffic)	CAR	1588	392	352	600	204	164	1228	428	92	648	108	252	3088	1732	3272	2028
	TRK	104	4	8	52	20	12	100	12	16	32	4	20	220	104	244	104

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Table D3-19: TMC Traffic Dat: JARVIS ST AT QUEEN ST (PX 6)

		Aug-16-2018 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID:OLS41	OLS58, OLS	ID: OLS41	ID: OLS66
7:45	CAR	66	8	0	53	16	0	127	17	1	90	1	0	194	152	209	160
	TRK	4	1	0	2	0	0	4	0	0	2	1	0	9	5	8	4
	BUS	1	0	0	4	0	0	1	0	0	4	0	0	2	8	2	8
8:00	CAR	90	23	0	48	11	0	121	24	0	112	3	0	214	183	222	184
	TRK	6	0	0	1	0	0	2	1	0	2	1	0	9	3	8	4
	BUS	0	0	0	5	0	0	0	0	0	6	0	0	0	11	0	11
8:15	CAR	85	24	0	60	16	0	115	11	0	140	4	0	204	224	216	211
	TRK	6	2	0	1	0	0	4	0	0	2	0	0	10	5	10	3
	BUS	0	0	0	7	0	0	1	0	0	5	0	0	1	12	1	12
8:30	CAR	96	12	1	62	16	1	140	15	0	139	4	0	241	213	252	217
	TRK	2	2	0	1	0	0	3	0	0	1	0	0	5	4	5	2
	BUS	1	0	0	5	0	0	0	0	0	5	0	0	1	10	1	10
8:45	CAR	96	22	0	56	19	0	139	8	0	132	3	0	238	210	254	196
	TRK	7	0	0	2	3	0	1	0	0	4	0	0	8	6	11	6
	BUS	0	0	0	6	0	0	1	0	0	7	0	0	1	13	1	13
9:00	CAR	113	17	0	70	17	0	115	14	0	153	4	0	232	240	245	237
	TRK	5	3	0	1	0	0	3	0	0	2	0	0	8	6	8	3
	BUS	1	0	0	5	0	0	2	0	0	5	0	0	3	10	3	10
9:15	CAR	100	33	1	70	22	1	114	11	0	102	3	1	218	205	237	184
	TRK	7	0	0	1	1	0	1	1	0	2	0	0	8	3	9	4
	BUS	0	0	0	6	0	0	1	0	0	4	0	0	1	10	1	10
9:30	CAR	97	27	0	86	10	1	135	12	1	110	4	1	237	224	243	208
	TRK	4	1	0	1	1	0	3	0	0	1	0	0	7	3	8	2
	BUS	0	0	0	5	1	0	1	0	0	4	0	0	1	9	2	9
10:15	CAR	85	22	1	60	23	2	87	14	1	77	5	4	179	160	199	152
	TRK	5	0	0	1	1	1	5	0	0	1	0	2	11	2	13	2
	BUS	0	0	0	3	0	0	0	0	0	4	0	0	0	7	0	7
10:30	CAR	85	18	0	72	18	7	110	8	0	74	3	2	205	164	215	154
	TRK	5	1	0	3	3	0	7	0	0	1	1	0	13	5	15	4
	BUS	0	0	0	2	0	0	0	0	0	3	0	0	0	5	0	5
10:45	CAR	78	22	1	93	18	6	111	12	3	55	6	3	201	173	210	161
	TRK	6	0	0	3	1	0	3	0	0	0	1	1	10	3	11	3
	BUS	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	4
11:00	CAR	93	36	1	60	15	5	101	15	0	56	5	5	204	152	214	132
	TRK	2	0	0	5	1	0	5	0	0	2	1	0	8	7	8	7
	BUS	0	0	0	4	0	0	0	0	0	4	0	0	0	8	0	8
11:15	CAR	81	26	4	70	14	0	112	13	0	63	4	1	197	159	208	150
	TRK	2	0	0	2	1	0	3	0	0	3	0	0	5	5	6	5
	BUS	0	0	0	6	0	0	0	0	0	4	0	0	0	10	0	10
11:30	CAR	74	25	2	62	9	7	104	10	1	45	2	3	187	133	190	119
	TRK	5	1	0	3	0	1	6	0	0	1	1	0	13	5	11	4
	BUS	1	0	1	8	0	0	0	0	0	3	0	0	1	11	1	12
11:45	CAR	101	20	2	75	15	4	98	11	0	79	1	5	204	174	219	167
	TRK	5	0	0	2	1	0	6	0	0	5	0	0	11	7	12	7
	BUS	0	0	0	2	0	0	0	0	0	1	0	0	0	3	0	3
12:00	CAR	83	25	0	78	20	2	106	15	0	79	4	5	195	182	214	172
	TRK	5	0	0	1	1	0	6	0	0	1	1	0	12	2	12	2
	BUS	0	0	0	2	0	0	0	0	0	1	0	0	0	3	0	3
13:15	CAR	81	38	2	80	17	5	86	15	2	62	6	4	178	182	188	159
	TRK	7	0	0	3	0	0	8	0	0	0	0	0	15	3	15	3
	BUS	0	0	0	3	0	0	0	0	0	2	0	0	0	5	0	5
13:30	CAR	77	15	0	79	13	2	113	7	1	61	2	3	194	156	206	147
	TRK	6	1	0	9	1	1	3	0	0	3	0	0	10	13	10	12
	BUS	0	0	0	3	0	0	0	0	0	6	0	0	0	9	0	9
13:45	CAR	81	20	1	85	17	7	99	8	2	62	4	2	191	169	199	156
	TRK	1	0	0	1	0	0	3	0	0	1	0	0	4	2	4	2
	BUS	0	0	0	5	0	0	0	0	0	4	0	0	0	9	0	9
14:00	CAR	77	32	0	74	18	5	108	15	1	54	3	1	193	161	204	143
	TRK	1	0	0	3	0	0	4	0	0	2	0	0	5	5	5	5
	BUS	1	0	0	5	0	0	0	0	0	3	0	0	1	8	1	8
14:15	CAR	101	25	3	104	21	5	98	14	0	72	4	3	208	201	223	193
	TRK	1	0	0	6	1	0	3	0	0	0	0	0	4	6	5	6
	BUS	0	0	0	4	0	0	0	0	0	4	0	0	0	8	0	8
14:30	CAR	101	26	0	90	20	4	103	8	0	64	2	2	210	180	226	162
	TRK	4	0	0	5	1	0	3	1	0	2	0	0	7	7	8	8
	BUS	0	0	0	4	0	0	0	0	0	3	0	0	0	7	0	7
14:45	CAR	99	36	4	113	16	2	96	10	0	43	5	2	202	192	213	170
	TRK	3	2	0	1	2	0	6	0	0	0	0	0	9	3	11	1
	BUS	0	0	0	2	0	0	0	0	0	7	0	0	0	9	0	9
15:00	CAR	101	40	0	114	20	6	92	13	1	77	3	1	202	232	214	204
	TRK	3	0	1	2	0	0	2	0	0	0	0	0	5	2	5	3
	BUS	0	0	0	3	0	0	0	0	0	4	0	0	0	7	0	7
16:15	CAR	106	40	0	143	28	0	87	4	0	54	3	0	196	237	221	201
	TRK	1	0	0	2	0	0	2	0	0	0	0	0	3	2	3	2
	BUS	1	0	0	3	0	0	0	0	0	4	0	0	1	7	1	7
16:30	CAR	86	27	2	152	9	1	91	9	2	83	3	0	181	264	186	246
	TRK	1	1	0	0	0	0	2	0	0	0	0	0	3	1	3	0
	BUS	0	0	0	5	0	0	0	0	0	7	0	0	0	12	0	12
16:45	CAR	122	39	2	157	20	2	92	5	0	56	4	1	220	252	235	220
	TRK	1	0	0	1	0	0	3	0	0	5	0	0	4	6	4	6
	BUS	0	0	0	3	0	0	0	0	0	4	0	0	0	7	0	7
17:00	CAR	100	38	0	179	17	2	100	9	0	81	3	0	205	298	217	269
	TRK	2	1	0	1	0	0	1	0	0	1	0	0	3	3	3	2
	BUS	0	0	0	3	0	0	0	0	0	6	0	0	0	9	0	9
17:15	CAR	123	27	0	166	11	3	110	13	0	83	1	1	237	276	245	262
	TRK	0	2	0	2	0	0	2	0	0	0	0	0	2	4	2	2
	BUS	0	0	0	10	0	0	1	0	0	5	0	0	1	15	1	15
17:30	CAR	112	38	0	175	8	0	99	15	1	109	13	0	224	323	219	299
	TRK	2	0	0	1	1	1	1	1	0	0	0	0	4	1	4	2
	BUS	0	0	0	5	0	0	0	0	0	4	0	0	0	9	0	9
17:45	CAR	115	21	4	159	4	0	87	6	0	109	7	0	209	289	206	278
	TRK	2	0	0	3	0	0	2	0	0	0	0	0	4	3	4	3
	BUS	1	0	0	4	0	0	0	0	0	3	0	0	1	7	1	7
18:00	CAR	114	32	0	146	4	0	100	11	0	68	5	0	219	246	218	225
	TRK	0	0	0	5	0	0	1	1	0	3	0	0	1	8	1	9
	BUS	0	0	0	7	0	0	0	0	0	7	0	0	0	14	0	14
AM PEAK (8:45-9:45)	CAR	406	99	1	282	68	2	503	45	1	497	14	2	925	879	979	825
	TRK	23	4	0	5	5	0	8	1	0	9	0	0	31	18	36	15
PM PEAK (17:00-18:00)	CAR	450	124	4	679	40	5	396	43	1	382	24	1	875	1186	887	1108
	TRK	6	3	0	7	1	1	6	1	0	1	0	0	13	11	13	9
AHV	CAR	214	55.75	1.25	240.25	27	1.75	224.75	22	0.5	219.75	9.5	0.75	450	516.25	466.5	483.25
(Average Hourly Vol.)	TRK	7.25	1.75	0	3	1.5	0.25	3.5	0.5	0	2.5	0	0	11	7.25	12.25	6
AADT	CAR	3424	892	20	3844	432	28	3596	352	8	3516	152	12	7200	8260	7464	7732
(An. Avg. Daily Traffic)	TRK	116	28	0	48	24	4	56	8	0	40	0	0	176	116	196	96

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Table D3-20: TMC Traffic Dat: JARVIS ST AT RICHMOND ST (PX 5)

		Aug-16-2018 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: OLS42	ID: OLS57	ID: OLS43	OLS76, OLS
7:45	CAR	62	0	19	0	0	0	98	29	0	312	12	40	172	312	200	360
	TRK	5	0	3	0	0	0	4	0	0	10	0	2	9	10	11	13
	BUS	1	0	0	0	0	0	1	1	0	3	0	0	2	3	2	4
8:00	CAR	100	0	24	0	0	0	102	33	0	326	12	61	214	326	263	383
	TRK	6	0	2	0	0	0	2	0	0	6	0	0	8	6	8	8
	BUS	0	0	1	0	0	0	0	0	0	2	0	0	0	2	0	3
8:15	CAR	92	0	17	0	0	0	106	27	0	314	12	57	210	314	255	358
	TRK	7	0	0	0	0	0	3	1	0	1	2	2	12	1	12	2
	BUS	0	0	0	0	0	0	0	1	0	4	0	0	0	4	0	5
8:30	CAR	97	0	15	0	0	0	128	40	0	312	12	59	237	312	284	367
	TRK	1	0	2	0	0	0	5	0	0	9	2	0	8	9	6	11
	BUS	1	0	0	0	0	0	0	0	0	3	1	1	2	3	2	3
8:45	CAR	101	0	19	0	0	0	125	29	0	318	5	60	231	318	286	366
	TRK	8	0	3	0	0	0	2	0	0	4	0	2	10	4	12	7
	BUS	2	0	0	0	0	0	0	1	0	4	0	0	2	4	2	5
9:00	CAR	122	0	26	0	0	0	98	28	0	267	12	60	232	267	280	321
	TRK	3	0	0	0	0	0	5	0	0	4	6	1	14	4	9	4
	BUS	1	0	0	0	0	0	1	0	0	1	0	0	2	1	2	1
9:15	CAR	108	0	26	0	0	0	111	26	0	256	18	47	237	256	266	308
	TRK	9	0	2	0	0	0	2	0	0	6	1	0	12	6	11	8
	BUS	0	0	0	0	0	0	1	1	0	4	0	0	1	4	1	5
9:30	CAR	102	0	32	0	0	0	112	40	0	228	14	54	228	228	268	300
	TRK	2	0	1	0	0	0	1	2	0	4	1	0	4	4	3	7
	BUS	2	0	1	0	0	0	1	1	0	0	0	0	3	0	3	2
10:15	CAR	85	0	34	0	0	0	87	21	0	213	17	30	189	213	202	268
	TRK	6	0	1	0	0	0	7	2	0	6	2	4	15	6	17	9
	BUS	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1
10:30	CAR	85	0	40	0	0	0	111	17	0	174	19	37	215	174	233	231
	TRK	3	0	3	0	0	0	4	5	0	5	3	0	10	5	7	13
	BUS	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	0
10:45	CAR	91	0	38	0	0	0	110	20	0	191	17	35	218	191	236	249
	TRK	7	0	2	0	0	0	5	2	0	7	0	0	12	7	12	11
	BUS	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0	2
11:00	CAR	111	0	38	0	0	0	98	17	0	218	11	39	220	218	248	273
	TRK	5	0	0	0	0	0	4	3	0	7	0	0	9	7	9	10
	BUS	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1
11:15	CAR	96	0	35	0	0	0	104	20	0	206	15	28	215	206	228	261
	TRK	1	0	2	0	0	0	2	1	0	8	0	2	3	8	5	11
	BUS	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0	2
11:30	CAR	98	0	31	0	0	0	102	9	0	213	10	42	210	213	242	253
	TRK	4	0	3	0	0	0	6	0	0	8	2	2	12	8	12	11
	BUS	2	0	2	0	0	0	0	0	0	0	0	0	2	0	2	2
11:45	CAR	105	0	43	0	0	0	100	10	0	219	13	38	218	219	243	272
	TRK	7	0	1	0	0	0	4	2	0	6	2	1	13	6	12	9
	BUS	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
12:00	CAR	100	0	37	0	0	0	101	16	0	194	20	37	221	194	238	247
	TRK	3	0	1	0	0	0	5	3	0	4	3	2	11	4	10	8
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15	CAR	96	0	29	0	0	0	90	4	0	195	14	29	200	195	215	228
	TRK	8	0	2	0	0	0	9	0	0	9	0	0	17	9	17	11
	BUS	0	0	3	0	0	0	1	0	0	1	0	0	1	1	1	4
13:30	CAR	84	0	34	0	0	0	116	8	0	177	10	41	210	177	241	219
	TRK	5	0	3	0	0	0	1	3	0	2	4	2	10	2	8	8
	BUS	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	3
13:45	CAR	86	0	46	0	0	0	105	15	0	193	14	32	205	193	223	254
	TRK	1	0	0	0	0	0	4	0	0	4	0	0	5	4	5	4
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00	CAR	98	0	44	0	0	0	111	15	0	195	13	36	222	195	245	254
	TRK	1	0	1	0	0	0	3	0	0	6	0	3	4	6	7	7
	BUS	1	0	2	0	0	0	0	0	0	1	0	0	1	1	1	3
14:15	CAR	107	1	34	0	0	0	105	18	0	186	22	20	234	187	232	238
	TRK	1	0	0	0	0	0	4	0	0	6	0	1	5	6	6	6
	BUS	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0	2
14:30	CAR	112	0	30	0	0	0	99	25	0	219	15	31	226	219	242	274
	TRK	3	0	1	0	0	0	3	0	0	5	1	0	7	5	6	6
	BUS	0	0	0	0	0	0	1	0	0	2	0	0	1	2	1	2
14:45	CAR	127	0	24	0	0	0	95	23	0	235	15	33	237	235	255	282
	TRK	5	0	2	0	0	0	6	0	0	3	2	3	13	3	14	5
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00	CAR	126	0	31	0	0	0	86	18	0	222	12	21	224	222	233	271
	TRK	3	0	2	0	0	0	2	0	0	9	0	0	5	9	5	11
	BUS	0	0	1	0	0	0	0	0	0	2	0	0	0	2	0	3
16:15	CAR	117	0	34	0	0	0	101	16	0	264	16	15	234	264	233	314
	TRK	2	0	0	0	0	0	2	0	0	4	1	1	5	4	5	4
	BUS	1	0	2	0	0	0	0	0	0	2	0	0	1	2	1	4
16:30	CAR	106	0	29	0	0	0	82	18	0	231	23	22	211	231	210	278
	TRK	2	0	1	0	0	0	2	0	0	1	1	0	5	1	4	2
	BUS	0	0	1	0	0	0	0	0	0	3	0	0	0	3	0	4
16:45	CAR	126	0	30	0	0	0	83	25	0	249	35	20	244	249	229	304
	TRK	2	0	1	0	0	0	0	4	0	4	0	0	2	4	2	9
	BUS	0	0	2	0	0	0	0	0	0	3	0	0	0	3	0	5
17:00	CAR	107	0	29	0	0	0	84	24	0	274	29	22	220	274	213	327
	TRK	3	0	0	0	0	0	3	0	0	2	0	0	6	2	6	2
	BUS	0	0	1	0	0	0	0	0	0	4	0	0	0	4	0	5
17:15	CAR	126	0	24	0	0	0	69	31	0	217	24	23	219	217	218	272
	TRK	0	0	1	0	0	0	3	1	0	6	0	0	3	6	3	8
	BUS	0	0	2	0	0	0	0	1	0	2	0	0	0	2	0	5
17:30	CAR	125	0	34	0	0	0	73	23	0	209	16	16	214	209	214	266
	TRK	2	0	0	0	0	0	1	0	0	2	0	1	3	2	4	2
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	CAR	120	0	33	0	0	0	76	24	0	201	24	29	220	201	225	258
	TRK	1	0	1	0	0	0	3	0	0	2	0	0	4	2	4	3
	BUS	1	0	0	0	0	0	0	0	0	2	0	0	1	2	1	2
18:00	CAR	107	0	31	0	0	0	66	24	0	222	19	22	192	222	195	277
	TRK	0	0	0	0	0	0	1	1	0	2	0	0	1	2	1	3
	BUS	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
AM PEAK (8:00-9:00)	CAR	390	0	75	0	0	0	461	129	0	1270	41	237	892	1270	1088	1474
	TRK	22	0	7	0	0	0	12	1	0	20	4	4	38	20	38	28
PM PEAK (16:15-17:15)	CAR	456	0	122	0	0	0	350	83	0	1018	103	79	909	1018	885	1223
	TRK	9	0	2	0	0	0	7	4	0	11	2	1	18	11	17	17
AHV	CAR	211.5	0	49.25	0	0	0	202.75	53	0	572	36	79	450.25	572	493.25	674.25
(Average Hourly Vol.)	TRK	7.75	0	2.25	0	0	0	4.75	1.25	0	7.75	1.5	1.25	14	7.75	13.75	11.25
AADT	CAR	3384	0	788	0	0	0	3244	848	0	9152	576	1264	7204	9152	7892	10788
(An. Avg. Daily Traffic)	TRK	124	0	36	0	0	0	76	20	0	124	24	20	224	124	220	180

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Table D3-21: TMC Traffic Dat: ADELAIDE ST AT JARVIS ST (PX 4)

		Apr-09-2019 (Tuesday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: OLS43	ID: OLS53	ID: OLS44	ID: --
7:45	CAR	139	9	0	147	14	8	143	0	22	0	0	0	290	178	296	147
	TRK	10	3	0	14	3	1	8	0	2	0	0	0	19	19	21	14
	BUS	1	0	0	1	0	1	0	0	0	0	0	0	2	1	1	1
8:00	CAR	129	13	0	179	15	16	144	0	22	0	0	0	289	214	288	179
	TRK	12	4	0	11	1	0	8	0	1	0	0	0	20	16	21	11
	BUS	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	2
8:15	CAR	132	13	0	164	21	14	148	0	18	0	0	0	294	195	301	164
	TRK	13	0	0	12	2	0	10	0	1	0	0	0	23	13	25	12
	BUS	0	0	0	2	0	1	0	0	0	0	0	0	1	2	0	2
8:30	CAR	163	10	0	165	24	13	145	0	30	0	0	0	321	205	332	165
	TRK	11	1	0	7	1	1	9	0	2	0	0	0	21	10	21	7
	BUS	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
8:45	CAR	146	17	0	148	27	14	131	0	32	0	0	0	291	197	304	148
	TRK	16	1	0	5	1	1	7	0	0	0	0	0	24	6	24	5
	BUS	0	0	0	3	0	1	0	0	0	0	0	0	1	3	0	3
9:00	CAR	174	14	0	154	27	20	137	0	25	0	0	0	331	193	338	154
	TRK	11	3	0	10	1	1	6	0	1	0	0	0	18	14	18	10
	BUS	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0	3
9:15	CAR	160	13	0	168	20	15	142	0	31	0	0	0	317	212	322	168
	TRK	12	3	0	12	0	0	12	0	0	0	0	0	24	15	24	12
	BUS	0	0	0	4	0	0	0	0	0	0	0	0	0	4	0	4
9:30	CAR	115	16	0	173	24	18	148	0	29	0	0	0	281	218	287	173
	TRK	11	1	0	10	0	0	6	0	0	0	0	0	17	11	17	10
	BUS	0	0	0	3	0	1	0	0	0	0	0	0	1	3	0	3
10:15	CAR	131	21	0	151	28	20	118	0	22	0	0	0	269	194	277	151
	TRK	8	2	0	22	2	3	11	0	0	0	0	0	22	24	21	22
	BUS	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
10:30	CAR	120	12	0	156	26	23	113	0	26	0	0	0	256	194	259	156
	TRK	15	2	0	15	1	0	7	0	2	0	0	0	22	19	23	15
	BUS	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
10:45	CAR	133	12	0	139	20	21	100	0	29	0	0	0	254	180	253	139
	TRK	15	0	0	14	2	2	9	0	3	0	0	0	26	17	26	14
	BUS	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
11:00	CAR	109	15	0	155	25	22	142	0	32	0	0	0	273	202	276	155
	TRK	15	1	0	17	1	0	8	0	4	0	0	0	23	22	24	17
	BUS	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
11:15	CAR	127	19	0	139	21	16	120	0	22	0	0	0	263	180	268	139
	TRK	18	4	0	9	3	0	17	0	8	0	0	0	35	21	38	9
	BUS	2	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0
11:30	CAR	111	13	0	190	26	23	115	0	39	0	0	0	249	242	252	190
	TRK	16	1	0	17	2	2	12	0	4	0	0	0	30	22	30	17
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	CAR	115	17	0	176	20	15	133	0	23	0	0	0	263	216	268	176
	TRK	12	0	0	18	5	1	12	0	1	0	0	0	25	19	29	18
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	CAR	114	14	0	141	22	14	145	0	36	0	0	0	273	191	281	141
	TRK	8	0	0	12	3	0	12	0	2	0	0	0	20	14	23	12
	BUS	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
13:15	CAR	114	11	0	165	27	17	104	0	31	0	0	0	235	207	245	165
	TRK	15	1	0	14	3	2	16	0	3	0	0	0	33	18	34	14
	BUS	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
13:30	CAR	115	9	0	178	26	22	129	0	28	0	0	0	266	215	270	178
	TRK	10	0	0	21	2	0	19	0	2	0	0	0	29	23	31	21
	BUS	0	0	0	0	0	0	2	0	0	0	0	0	2	0	2	0
13:45	CAR	115	14	0	172	23	22	136	0	28	0	0	0	273	214	274	172
	TRK	9	1	0	20	3	1	14	0	3	0	0	0	24	24	26	20
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00	CAR	109	21	0	181	19	26	117	0	26	0	0	0	252	228	245	181
	TRK	11	0	0	21	2	1	19	0	3	0	0	0	31	24	32	21
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15	CAR	123	24	0	198	21	23	117	0	32	0	0	0	263	254	261	198
	TRK	8	4	0	28	1	1	13	0	0	0	0	0	22	32	22	28
	BUS	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
14:30	CAR	111	15	0	218	24	15	138	0	37	0	0	0	264	270	273	218
	TRK	9	1	0	20	2	1	16	0	4	0	0	0	26	25	27	20
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45	CAR	139	12	0	203	30	16	108	0	35	0	0	0	263	250	277	203
	TRK	10	0	0	26	1	0	18	0	3	0	0	0	28	29	29	26
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00	CAR	131	16	0	208	15	22	86	0	37	0	0	0	239	261	232	208
	TRK	4	0	0	26	3	0	19	0	4	0	0	0	23	30	26	26
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	CAR	115	19	0	250	17	32	77	0	22	0	0	0	224	291	209	250
	TRK	7	4	0	15	0	0	9	0	1	0	0	0	16	20	16	15
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	CAR	135	17	0	284	20	40	67	0	30	0	0	0	242	331	222	284
	TRK	9	0	0	15	0	1	2	0	0	0	0	0	12	15	11	15
	BUS	1	0	0	2	1	1	0	0	0	0	0	0	2	2	2	2
16:45	CAR	126	25	0	283	15	48	70	0	35	0	0	0	244	343	211	283
	TRK	4	0	0	18	0	0	7	0	4	0	0	0	11	22	11	18
	BUS	1	0	0	4	0	0	0	0	0	0	0	0	1	4	1	4
17:00	CAR	138	17	0	256	17	44	71	0	31	0	0	0	253	304	226	256
	TRK	5	1	0	6	0	0	7	0	3	0	0	0	12	10	12	6
	BUS	0	0	0	1	0	1	0	0	0	0	0	0	1	1	0	1
17:15	CAR	156	22	0	283	17	53	69	0	36	0	0	0	278	341	242	283
	TRK	7	1	0	6	0	0	7	0	2	0	0	0	14	9	14	6
	BUS	0	0	0	2	0	1	0	0	0	0	0	0	1	2	0	2
17:30	CAR	142	15	0	285	12	47	47	0	44	0	0	0	236	344	201	285
	TRK	4	0	0	9	2	0	5	0	0	0	0	0	9	9	11	9
	BUS	0	0	0	1	0	0	1	0	0	0	0	0	1	1	1	1
17:45	CAR	146	24	0	250	13	42	70	0	51	0	0	0	258	325	229	250
	TRK	4	0	0	7	1	1	4	0	0	0	0	0	9	7	9	7
	BUS	0	0	0	1	0	1	0	0	0	0	0	0	1	1	0	1
18:00	CAR	145	16	0	285	19	45	89	0	55	0	0	0	279	356	253	285
	TRK	3	0	0	10	1	1	1	0	1	0	0	0	5	11	5	10
	BUS	0	0	0	1	0	2	0	0	0	0	0	0	2	1	0	1
AM PEAK (8:30-9:30)	CAR	643	54	0	635	98	62	555	0	118	0	0	0	1260	807	1296	635
	TRK	50	8	0	34	3	3	34	0	3	0	0	0	87	45	87	34
PM PEAK (16:30-17:30)	CAR	555	81	0	1106	69	185	277	0	132	0	0	0	1017	1319	901	1106
	TRK	25	2	0	45	0	1	23	0	9	0	0	0	49	56	48	45
AHV	CAR	299.5	33.75	0	435.25	41.75	61.75	208	0	62.5	0	0	0	569.25	531.5	549.25	435.25
(Average Hourly Vol.)	TRK	18.75	2.5	0	19.75	0.75	1	14.25	0	3	0	0	0	34	25.25	33.75	19.75
AADT	CAR	4792	540	0	6964	668	988	3328	0	1000	0	0	0	9108	8504	8788	6964
(An. Avg. Daily Traffic)	TRK	300	40	0	316	12	16	228	0	48	0	0	0	544	404	540	316

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Table D3-22: TMC Traffic Dat: JARVIS ST AT KING ST (PX 3)

		May-02-2019 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: OLS44	ID: --	ID: OLS45	ID: --
7:45	CAR	116	0	0	0	2	0	152	1	1	2	11	13	279	3	283	3
	TRK	17	0	0	0	0	0	10	0	0	0	1	0	28	0	27	0
	BUS	1	0	0	8	0	0	0	0	0	8	0	0	1	16	1	16
8:00	CAR	110	2	1	2	5	0	148	8	0	3	11	12	269	7	275	14
	TRK	18	0	0	0	3	0	18	0	0	0	0	1	36	0	40	0
	BUS	0	0	0	5	0	0	0	0	0	8	0	0	0	13	0	13
8:15	CAR	152	6	0	0	5	0	188	2	0	2	9	6	349	8	351	4
	TRK	15	0	0	0	1	0	9	1	0	1	0	7	24	1	32	2
	BUS	1	0	0	8	0	0	1	0	0	9	0	0	2	17	2	17
8:30	CAR	150	6	0	0	1	0	169	7	0	2	22	20	341	8	340	9
	TRK	14	1	0	2	0	0	11	1	0	1	0	2	25	4	27	4
	BUS	0	0	0	7	0	0	1	0	0	6	0	0	1	13	1	13
8:45	CAR	116	4	0	1	5	0	146	3	0	3	34	31	296	8	298	7
	TRK	12	1	0	0	2	0	13	0	0	1	1	0	26	2	27	1
	BUS	0	0	0	7	0	0	0	0	0	7	0	0	0	14	0	14
9:00	CAR	132	8	0	3	6	0	172	6	0	8	41	34	345	19	344	17
	TRK	13	1	0	0	1	0	9	1	0	1	3	3	25	2	26	2
	BUS	0	0	0	4	0	0	0	0	0	5	0	0	0	9	0	9
9:15	CAR	116	10	0	5	6	0	162	5	0	3	29	20	307	18	304	13
	TRK	11	2	0	1	1	0	9	0	0	1	1	1	21	4	22	2
	BUS	0	0	0	6	0	0	0	0	0	5	0	0	0	11	0	11
9:30	CAR	139	13	0	5	6	0	168	10	0	1	14	13	321	19	326	16
	TRK	18	0	1	1	0	0	12	0	0	1	0	4	30	2	34	3
	BUS	1	0	0	8	0	0	1	0	0	5	0	0	2	13	2	13
10:15	CAR	130	9	1	1	3	0	145	7	1	4	12	19	287	15	297	13
	TRK	9	3	0	0	2	0	10	0	0	1	2	1	21	4	22	1
	BUS	0	0	0	6	0	0	0	0	0	3	0	0	0	9	0	9
10:30	CAR	143	7	0	4	14	0	139	6	0	1	20	7	302	12	303	11
	TRK	14	3	0	0	1	0	9	1	0	2	2	1	25	5	25	3
	BUS	0	0	0	5	0	0	1	0	0	5	0	0	1	10	1	10
10:45	CAR	126	8	1	2	6	0	137	5	0	1	21	16	284	11	285	9
	TRK	17	1	1	0	1	0	17	0	0	0	0	0	34	1	35	1
	BUS	0	0	0	4	0	0	0	0	0	5	0	0	0	9	0	9
11:00	CAR	132	6	0	5	6	0	127	8	0	0	9	10	268	11	275	13
	TRK	16	0	0	0	2	0	23	0	0	0	1	1	40	0	42	0
	BUS	2	0	0	5	0	0	1	0	0	4	0	0	3	9	3	9
11:15	CAR	120	3	0	5	2	0	149	3	0	4	17	14	286	12	285	12
	TRK	12	2	0	1	1	0	29	1	0	1	0	2	41	4	44	3
	BUS	1	0	0	4	0	0	0	0	0	4	0	1	1	8	2	8
11:30	CAR	124	4	0	2	5	0	150	5	0	4	10	9	284	10	288	11
	TRK	11	4	0	0	1	0	15	0	0	1	3	0	29	5	27	1
	BUS	1	0	0	4	0	0	0	0	0	4	0	0	1	8	1	8
11:45	CAR	121	5	0	6	12	0	163	2	1	2	14	6	298	14	302	10
	TRK	7	5	0	0	2	0	15	1	0	0	0	0	22	5	24	1
	BUS	0	0	0	5	0	0	0	0	0	6	0	0	0	11	0	11
12:00	CAR	131	10	0	6	8	0	161	8	0	5	17	10	309	21	310	19
	TRK	13	2	0	1	2	0	15	2	0	4	2	0	30	7	30	7
	BUS	0	0	0	4	0	0	0	0	0	2	0	0	0	6	0	6
13:15	CAR	124	5	1	4	9	0	166	2	0	7	13	7	303	16	306	14
	TRK	11	0	0	5	2	0	17	0	0	1	1	2	29	6	32	6
	BUS	3	0	0	8	0	0	0	0	0	5	0	0	3	13	3	13
13:30	CAR	102	9	0	3	7	0	149	8	0	6	9	8	260	18	266	17
	TRK	17	0	0	0	1	0	14	1	0	1	1	0	32	1	32	2
	BUS	0	0	0	2	0	0	0	0	0	3	0	1	0	5	1	5
13:45	CAR	126	12	0	8	7	0	165	3	0	2	12	9	303	22	307	13
	TRK	14	1	0	1	4	0	16	2	0	3	0	2	30	5	36	6
	BUS	0	0	0	7	0	0	0	0	0	5	0	0	0	12	0	12
14:00	CAR	120	7	0	3	15	0	143	4	0	1	18	11	281	11	289	8
	TRK	16	2	0	2	2	0	16	0	0	0	0	0	32	4	34	2
	BUS	0	0	0	5	0	0	0	0	0	5	0	0	0	10	0	10
14:15	CAR	141	6	1	5	6	1	171	2	0	7	11	2	324	18	320	15
	TRK	13	1	0	0	2	0	16	0	0	2	1	1	30	3	32	2
	BUS	0	0	0	4	0	0	0	0	0	7	0	0	0	11	0	11
14:30	CAR	113	8	1	3	17	1	146	1	0	2	6	6	266	13	282	7
	TRK	13	1	0	0	2	0	9	0	0	1	0	1	22	2	25	1
	BUS	0	0	0	3	0	0	0	0	0	5	0	1	0	8	1	8
14:45	CAR	127	6	0	8	10	0	101	1	1	4	10	7	238	19	245	13
	TRK	12	0	0	2	0	0	14	0	0	1	0	0	26	3	26	3
	BUS	1	0	0	4	0	0	0	0	0	5	0	0	1	9	1	9
15:00	CAR	130	1	0	1	11	0	82	3	1	4	8	6	220	7	229	8
	TRK	8	0	0	1	0	0	11	0	0	0	0	1	19	1	20	1
	BUS	0	0	0	4	0	0	0	0	0	4	0	0	0	8	0	8
16:15	CAR	140	3	1	5	9	0	92	0	0	4	16	11	248	12	252	10
	TRK	6	0	0	5	3	0	9	0	0	0	0	0	15	5	18	5
	BUS	2	0	0	2	0	0	0	0	0	7	0	0	2	9	2	9
16:30	CAR	117	4	0	4	12	0	63	2	0	3	27	4	207	11	196	9
	TRK	10	0	0	0	2	0	9	0	0	0	0	0	19	0	21	0
	BUS	1	0	0	9	0	0	0	0	0	8	0	0	1	17	1	17
16:45	CAR	126	4	1	3	18	0	48	9	0	4	18	8	192	11	200	17
	TRK	7	0	0	1	1	0	10	1	0	1	0	1	17	2	19	3
	BUS	0	0	0	5	0	0	0	0	0	6	0	0	0	11	0	11
17:00	CAR	130	2	0	5	16	0	72	3	0	6	17	7	219	13	225	14
	TRK	8	0	0	1	1	0	5	1	0	0	0	0	13	1	14	2
	BUS	0	0	0	3	0	0	1	0	0	4	0	0	1	7	1	7
17:15	CAR	153	7	1	3	12	0	61	4	1	1	19	10	233	12	236	9
	TRK	5	0	0	0	1	0	6	0	0	0	0	1	11	0	13	0
	BUS	0	0	0	7	0	1	0	0	0	10	0	0	1	17	0	17
17:30	CAR	159	7	0	3	15	0	62	3	0	4	30	11	251	14	247	10
	TRK	6	0	0	2	1	0	7	0	0	0	0	0	13	2	14	2
	BUS	0	0	0	6	0	0	0	0	0	6	0	0	0	12	0	12
17:45	CAR	118	7	0	6	19	0	82	4	0	6	20	19	220	19	238	16
	TRK	7	0	0	0	0	0	10	0	0	0	1	0	18	0	17	0
	BUS	0	0	0	6	0	0	0	0	0	4	0	0	0	10	0	10
18:00	CAR	125	4	0	5	20	0	91	6	0	2	40	16	256	11	252	13
	TRK	4	1	0	4	0	0	2	0	0	2	1	1	7	7	7	6
	BUS	0	0	0	6	0	0	0	0	0	7	0	0	0	13	0	13
AM PEAK (8:15-9:15)	CAR	550	24	0	4	17	0	675	18	0	15	106	91	1331	43	1333	37
	TRK	54	3	0	2	4	0	42	3	0	4	4	12	100	9	112	9
PM PEAK (13:30-14:30)	CAR	489	34	1	19	35	1	628	17	0	16	50	30	1168	69	1182	53
	TRK	60	4	0	3	9	0	62	3	0	6	2	3	124	13	134	12
AHV (Average Hourly Vol.)	CAR	259.75	14.5	0.25	5.75	13	0.25	325.75	8.75	0	7.75	39	30.25	624.75	28	628.75	22.5
	TRK	28.5	1.75	0	1.25	3.25	0	26	1.5	0	2.5	1.5	3.75	56	5.5	61.5	5.25
AADT (An. Avg. Daily Traffic)	CAR	4156	232	4	92	208	4	5212	140	0	124	624	484	9996	448	10060	360
	TRK	456	28	0	20	52	0	416	24	0	40	24	60	896	88	984	84

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Table D3-23: TMC Traffic Dat: FRONT ST E AT LOWER JARVIS ST & JARVIS ST (PX 2)

		Aug-22-2019 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: OLS45	ID: OLS48	ID: OLS46	ID: --
7:45	CAR	86	10	8	37	9	4	143	22	3	129	4	30	237	179	268	196
	TRK	15	0	3	5	3	1	11	1	1	9	1	1	28	15	30	18
	BUS	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	2
8:00	CAR	102	4	12	41	14	7	142	13	8	117	3	16	254	170	274	183
	TRK	17	3	1	4	2	0	12	0	0	12	0	2	29	19	33	17
	BUS	0	0	0	1	0	0	0	0	0	2	0	0	0	3	0	3
8:15	CAR	89	14	7	37	18	8	156	22	9	116	7	26	260	176	289	182
	TRK	13	2	1	3	2	0	9	1	1	6	1	1	23	12	25	11
	BUS	0	0	0	2	0	1	0	0	0	3	0	0	1	5	0	5
8:30	CAR	104	6	11	31	4	10	145	18	3	133	7	28	266	173	281	193
	TRK	10	0	1	2	1	0	10	2	0	5	0	1	20	7	22	10
	BUS	0	0	0	1	0	0	0	0	0	2	0	1	0	3	1	3
8:45	CAR	99	8	17	40	15	5	153	17	7	118	3	23	260	173	290	192
	TRK	16	2	0	2	2	0	6	0	0	10	0	2	22	14	26	12
	BUS	1	0	0	2	0	0	0	0	1	1	0	0	1	4	1	3
9:00	CAR	97	9	13	54	12	11	164	18	6	106	8	32	280	175	305	191
	TRK	9	1	1	3	1	1	10	1	0	4	1	0	21	8	20	9
	BUS	0	0	0	0	0	0	0	0	0	2	0	2	0	2	2	2
9:15	CAR	123	17	9	51	13	9	165	21	3	117	5	16	302	188	317	198
	TRK	16	0	2	0	0	0	11	1	0	8	1	2	28	8	29	11
	BUS	0	0	0	2	0	0	1	0	0	3	0	0	1	5	1	5
9:30	CAR	103	14	21	47	12	11	177	16	6	93	5	12	296	160	304	177
	TRK	14	3	2	3	1	1	13	2	1	11	0	0	28	18	28	18
	BUS	0	0	1	2	0	0	2	0	0	1	0	0	2	3	2	4
10:15	CAR	100	13	21	55	15	11	142	20	8	81	5	10	258	157	267	177
	TRK	13	2	2	2	1	1	10	2	0	5	2	6	26	9	30	11
	BUS	0	0	0	2	0	2	1	0	0	1	0	2	3	3	3	3
10:30	CAR	102	10	16	63	12	8	161	19	12	73	5	12	276	158	287	171
	TRK	16	3	2	2	2	1	13	1	0	6	1	1	31	11	32	11
	BUS	0	0	0	0	0	0	2	0	0	1	0	0	2	1	2	1
10:45	CAR	99	14	20	49	13	11	155	22	4	64	3	16	268	131	283	155
	TRK	20	0	3	6	2	0	15	1	1	8	0	0	35	15	37	18
	BUS	1	0	0	0	1	0	1	0	0	1	0	2	2	1	5	1
11:00	CAR	109	15	10	53	16	10	141	17	9	61	12	12	272	138	278	141
	TRK	13	1	2	1	1	1	14	1	0	11	0	0	28	13	28	15
	BUS	0	0	0	2	1	0	0	0	0	0	0	0	0	2	1	2
11:15	CAR	92	13	8	42	13	6	114	22	6	85	4	7	216	146	226	157
	TRK	9	3	3	4	1	1	12	2	0	5	0	1	22	12	23	14
	BUS	0	0	0	2	1	0	0	0	0	1	0	0	0	3	1	3
11:30	CAR	87	11	8	53	7	14	108	24	3	92	7	16	216	159	218	177
	TRK	12	0	2	8	7	1	14	1	0	9	0	0	27	17	33	20
	BUS	0	0	0	2	0	0	0	0	0	1	0	0	0	3	0	3
11:45	CAR	93	15	15	71	20	11	106	27	4	83	4	15	214	173	234	196
	TRK	12	3	1	5	1	1	11	1	1	8	0	0	24	17	24	15
	BUS	0	0	0	1	1	0	0	0	0	1	0	0	0	2	1	2
12:00	CAR	96	11	12	60	15	11	111	21	6	58	5	9	223	135	231	151
	TRK	13	3	9	7	3	0	11	3	1	10	0	1	24	21	28	29
	BUS	0	0	0	0	0	1	0	0	0	1	0	0	1	1	0	1
13:15	CAR	113	16	9	55	14	10	150	13	5	72	5	13	278	148	290	149
	TRK	10	3	1	4	1	1	15	3	1	5	0	0	26	13	26	13
	BUS	1	0	0	1	1	0	0	0	0	0	0	0	1	1	2	1
13:30	CAR	119	12	14	58	14	12	134	25	5	83	7	15	272	158	282	180
	TRK	11	0	1	8	0	1	10	1	1	5	1	2	23	14	23	15
	BUS	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
13:45	CAR	98	16	11	51	6	16	120	16	7	67	8	20	242	141	244	145
	TRK	7	3	4	6	1	1	10	2	1	9	0	1	18	19	19	21
	BUS	0	0	0	2	1	0	0	0	0	0	0	0	0	2	1	2
14:00	CAR	109	18	19	59	9	7	130	20	5	74	9	11	255	156	259	172
	TRK	5	1	2	12	1	5	15	0	0	8	0	2	25	21	23	22
	BUS	0	0	0	2	1	0	0	0	0	0	0	0	0	2	1	2
14:15	CAR	108	15	23	68	18	10	107	14	10	73	4	15	229	166	248	178
	TRK	8	1	0	6	1	1	16	0	2	3	0	1	25	12	26	9
	BUS	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	1
14:30	CAR	114	12	12	54	5	20	90	24	7	87	4	10	228	160	219	177
	TRK	5	0	2	7	1	0	22	2	1	9	2	1	29	17	29	20
	BUS	0	0	0	1	0	0	1	0	0	1	0	0	1	2	1	2
14:45	CAR	90	9	8	60	8	10	83	15	5	92	6	12	189	166	193	175
	TRK	6	1	1	3	1	2	15	2	2	5	3	1	26	11	23	11
	BUS	2	0	0	2	0	0	1	0	0	0	0	0	3	2	3	2
15:00	CAR	82	10	6	74	12	8	70	15	6	117	10	4	170	207	168	212
	TRK	4	1	0	6	0	1	13	1	0	6	0	1	18	13	18	13
	BUS	1	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1
16:15	CAR	89	11	13	63	6	13	69	10	6	104	6	4	177	184	168	190
	TRK	6	2	0	1	0	2	5	0	0	8	0	0	13	11	11	9
	BUS	0	0	0	2	0	0	0	0	0	2	0	0	0	4	0	4
16:30	CAR	78	8	15	107	7	16	57	8	7	108	7	1	158	230	143	238
	TRK	8	1	2	3	0	0	5	1	0	10	0	0	13	14	13	16
	BUS	0	0	0	1	0	1	0	0	0	0	0	0	1	1	0	1
16:45	CAR	100	19	16	94	8	4	48	22	2	124	5	6	157	239	162	256
	TRK	4	2	0	2	0	1	5	0	0	6	0	0	10	10	9	8
	BUS	2	0	0	1	2	0	0	0	0	1	0	0	2	2	4	2
17:00	CAR	110	13	14	111	4	14	64	18	3	130	6	7	194	257	185	273
	TRK	9	1	0	3	1	0	6	0	0	7	0	1	15	11	17	10
	BUS	0	0	0	3	0	0	0	0	0	1	0	0	0	4	0	4
17:15	CAR	109	18	10	99	6	6	38	20	7	107	3	7	156	231	160	236
	TRK	3	0	0	1	0	0	3	0	0	8	0	1	6	9	7	9
	BUS	0	0	0	1	0	0	0	0	0	3	0	0	0	4	0	4
17:30	CAR	97	13	7	86	7	16	43	12	8	103	3	3	159	210	150	208
	TRK	4	0	0	0	0	1	2	0	0	3	0	0	7	3	6	3
	BUS	0	0	0	2	0	0	0	0	1	1	1	0	1	4	0	3
17:45	CAR	113	17	17	106	6	13	110	19	1	127	3	11	239	251	240	269
	TRK	3	0	1	2	0	1	1	0	0	3	1	0	6	5	4	6
	BUS	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1
18:00	CAR	98	15	22	82	8	25	40	8	4	111	4	12	167	212	158	223
	TRK	4	1	1	3	0	0	3	1	0	2	0	1	7	6	8	7
	BUS	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0	2
AM PEAK (8:45-9:45)	CAR	422	48	60	192	52	36	659	72	22	434	21	83	1138	696	1216	758
	TRK	55	6	5	8	4	2	40	4	1	33	2	4	99	48	103	50
PM PEAK (13:15-14:15)	CAR	439	62	53	223	43	45	534	74	22	296	29	59	1047	603	1075	646
	TRK	33	7	8	30	3	8	50	6	3	27	1	5	92	67	91	71
AHV (Average Hourly Vol.)	CAR	215.25	27.5	28.25	103.75	23.75	20.25	298.25	36.5	11	182.5	12.5	35.5	546.25	324.75	572.75	351
	TRK	22	3.25	3.25	9.5	1.75	2.5	22.5	2.5	1	15	0.75	2.25	47.75	28.75	48.5	30.25
AADT (An. Avg. Daily Traffic)	CAR	3444	440	452	1660	380	324	4772	584	176	2920	200	568	8740	5196	9164	5616
	TRK	352	52	52	152	28	40	360	40	16	240	12	36	764	460	776	484

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Table D3-24: TMC Traffic Dat: "LOWER JARVIS ST AT THE ESPLANADE (PX 1392)"

		Aug-22-2019 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	D: OLS46, OLS4	ID: --	ID: --	ID: --
7:45	CAR	123	7	10	7	13	2	176	16	0	20	3	12	304	34	324	53
	TRK	19	0	2	1	1	0	11	2	0	2	1	0	31	3	31	7
	BUS	0	3	0	2	1	0	0	0	0	2	0	0	0	7	1	4
8:00	CAR	109	9	17	3	19	3	152	16	1	26	4	11	268	39	291	62
	TRK	12	0	1	1	0	2	14	2	0	1	1	0	29	2	26	5
	BUS	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0
8:15	CAR	106	16	14	6	21	4	172	18	1	43	4	25	286	66	324	81
	TRK	13	1	1	0	3	1	9	1	0	1	0	0	23	2	25	3
	BUS	0	2	0	1	1	0	0	0	0	1	0	0	0	4	1	2
8:30	CAR	121	12	19	8	12	4	145	24	2	37	8	20	278	59	298	88
	TRK	14	0	1	0	5	0	13	0	0	1	1	0	28	1	32	2
	BUS	0	2	0	2	0	0	0	0	0	1	0	0	0	5	0	3
8:45	CAR	122	5	10	7	15	4	170	19	0	42	3	16	299	54	323	78
	TRK	13	3	4	0	1	0	8	2	1	3	0	1	21	7	23	9
	BUS	1	3	0	0	0	0	0	0	0	2	0	0	1	5	1	2
9:00	CAR	117	20	15	4	10	6	180	27	2	35	4	17	307	61	324	81
	TRK	15	2	4	0	1	0	10	5	0	0	0	0	25	2	26	9
	BUS	0	2	0	1	0	0	1	0	0	1	0	0	1	4	1	2
9:15	CAR	140	11	16	10	18	3	173	14	3	24	4	18	320	48	349	64
	TRK	12	0	2	1	2	1	13	4	0	0	0	0	26	1	27	7
	BUS	0	2	0	2	0	0	1	0	0	1	0	0	1	5	1	3
9:30	CAR	122	14	11	15	14	4	177	10	0	25	6	11	309	54	324	61
	TRK	18	2	0	0	3	0	12	2	0	0	1	0	31	2	33	2
	BUS	1	3	0	2	0	0	3	0	0	1	0	0	4	6	4	3
10:15	CAR	144	17	12	11	14	6	144	10	0	25	10	18	304	53	320	58
	TRK	17	2	3	0	2	0	20	1	0	0	0	0	37	2	39	4
	BUS	0	1	0	1	0	0	0	0	0	0	0	1	0	2	1	1
10:30	CAR	129	19	14	8	22	4	161	7	1	24	3	26	297	52	338	53
	TRK	20	1	1	3	3	1	15	0	1	1	1	0	37	6	38	5
	BUS	0	3	0	0	0	0	0	0	0	0	0	0	0	3	0	0
10:45	CAR	136	21	13	11	22	6	147	8	5	14	5	16	294	51	321	46
	TRK	21	2	1	1	1	0	13	3	1	2	3	3	37	6	38	7
	BUS	1	2	0	1	0	0	1	0	0	0	0	1	2	3	3	1
11:00	CAR	120	14	13	11	20	4	150	7	3	24	2	17	276	52	307	55
	TRK	14	3	1	2	4	1	17	2	0	0	1	2	33	5	37	5
	BUS	0	3	0	1	0	0	0	0	0	0	0	0	0	4	0	1
11:15	CAR	99	13	15	14	0	4	111	5	1	27	12	12	226	55	222	61
	TRK	7	0	2	1	12	1	13	3	0	4	1	0	22	5	32	10
	BUS	0	1	0	1	0	0	1	0	0	0	0	1	1	2	2	1
11:30	CAR	103	17	10	10	12	8	104	17	1	19	6	15	221	47	234	56
	TRK	13	1	3	2	0	1	18	3	0	0	0	0	32	3	31	8
	BUS	0	2	0	1	0	0	0	0	0	1	0	0	0	4	0	2
11:45	CAR	117	13	15	7	16	5	141	10	4	12	7	19	270	36	293	44
	TRK	13	0	2	3	1	1	8	1	1	2	0	0	22	6	22	8
	BUS	0	1	0	1	0	0	1	0	0	0	0	0	1	2	1	1
12:00	CAR	108	18	19	10	16	8	148	11	3	29	8	21	272	60	293	69
	TRK	14	0	0	0	1	0	15	3	0	2	2	2	31	2	32	5
	BUS	0	2	0	1	0	0	0	0	0	1	0	0	0	4	0	2
13:15	CAR	120	19	10	11	21	2	168	9	3	13	4	14	294	46	323	43
	TRK	8	2	0	0	1	1	14	1	0	2	2	1	25	4	24	3
	BUS	1	1	0	0	1	0	1	0	0	0	0	0	2	1	3	0
13:30	CAR	119	18	11	11	20	4	163	5	1	14	4	16	290	44	318	41
	TRK	8	1	0	0	0	1	13	2	0	0	0	5	22	1	26	2
	BUS	0	1	0	1	0	0	1	0	0	1	0	0	1	3	1	2
13:45	CAR	114	18	11	13	18	5	140	8	1	13	0	20	259	45	292	45
	TRK	11	0	0	1	4	0	13	0	0	0	0	2	24	1	30	1
	BUS	0	2	0	1	0	0	1	0	0	1	0	0	1	4	1	2
14:00	CAR	140	15	3	10	17	0	150	4	0	15	2	16	292	40	323	32
	TRK	3	1	2	3	3	1	14	3	0	1	0	2	18	5	22	9
	BUS	0	1	0	1	0	0	1	0	0	0	0	0	1	2	1	1
14:15	CAR	130	18	13	21	29	6	120	7	0	14	1	20	257	53	299	55
	TRK	9	0	4	2	2	1	13	0	0	0	0	0	23	2	24	6
	BUS	0	1	0	1	0	0	1	0	0	1	0	0	1	3	1	2
14:30	CAR	125	17	9	10	15	7	105	3	1	12	3	21	240	40	266	34
	TRK	6	0	0	2	4	0	14	1	0	2	0	1	20	4	25	5
	BUS	0	3	0	2	0	0	1	0	1	1	0	0	1	7	1	3
14:45	CAR	118	19	15	20	29	7	74	8	4	17	5	26	204	60	247	60
	TRK	8	0	1	3	3	2	17	0	1	0	0	2	27	4	30	4
	BUS	0	1	0	0	0	0	1	0	0	1	0	0	1	2	1	1
15:00	CAR	88	14	11	18	26	3	83	5	0	16	2	26	176	48	223	50
	TRK	5	1	0	1	2	1	8	0	0	2	0	1	14	4	16	3
	BUS	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
16:15	CAR	85	10	11	17	14	5	83	1	1	5	3	26	176	33	208	34
	TRK	3	3	1	1	2	1	5	0	0	3	0	0	9	7	10	5
	BUS	0	1	0	1	0	0	0	0	0	0	0	0	0	2	0	1
16:30	CAR	95	6	8	34	26	10	74	2	0	11	6	22	185	51	217	55
	TRK	9	0	0	2	1	1	4	0	0	0	0	1	14	2	15	2
	BUS	1	1	0	2	0	0	0	0	0	0	0	0	1	3	1	2
16:45	CAR	107	13	10	28	31	13	60	2	0	21	4	27	184	62	225	61
	TRK	5	0	1	2	1	1	5	0	0	0	0	0	11	2	11	3
	BUS	2	2	0	1	0	0	0	0	0	0	0	0	2	3	2	1
17:00	CAR	107	13	11	24	23	15	74	2	1	27	3	21	199	65	225	64
	TRK	8	0	1	1	1	0	9	0	0	1	0	1	17	2	19	3
	BUS	0	2	0	1	0	0	0	0	0	3	0	0	0	6	0	4
17:15	CAR	110	13	11	26	14	16	49	0	0	10	1	15	176	49	188	47
	TRK	3	0	0	0	0	0	5	0	0	0	0	1	8	0	9	0
	BUS	0	1	0	0	0	0	0	0	0	1	0	0	0	2	0	1
17:30	CAR	110	16	9	33	7	5	50	3	0	11	3	16	168	60	183	56
	TRK	5	0	0	1	0	0	3	0	0	0	0	1	8	1	9	1
	BUS	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
17:45	CAR	128	24	13	25	10	17	25	3	1	10	4	18	174	60	181	51
	TRK	4	2	0	0	2	0	3	0	0	2	0	0	7	4	9	2
	BUS	0	1	0	1	0	0	0	0	0	1	0	0	0	3	0	2
18:00	CAR	114	17	15	14	14	4	62	0	1	9	1	9	181	41	199	38
	TRK	6	1	0	1	0	0	1	0	0	0	1	2	8	2	9	1
	BUS	0	0	0	1	0	0	3	0	0	0	1	0	4	1	3	1
AM PEAK (8:45-9:45)	CAR	501	50	52	36	57	17	700	70	5	126	17	62	1235	217	1320	284
	TRK	58	7	10	1	7	1	43	13	1	3	1	1	103	12	109	27
PM PEAK (13:15-14:15)	CAR	493	70	35	45	76	11	621	26	5	55	10	66	1135	175	1256	161
	TRK	30	4	2	4	8	3	54	6	0	3	2	10	89	11	102	15
AHV (Average Hourly Vol.)	CAR	248.5	30	21.75	20.25	33.25	7	330.25	24	2.5	45.25	6.75	32	592.5	98	644	111.25
	TRK	22	2.75	3	1.25	3.75	1	24.25	4.75	0.25	1.5	0.75	2.75	48	5.75	52.75	10.5
AADT (An. Avg. Daily Traffic)	CAR	3976	480	348	324	532	112	5284	384	40	724	108	512	9480	1568	10304	1780
	TRK	352	44	48	20	60	16	388	76	4	24	12	44	768	92	844	168

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Table D3-25: TMC Traffic Dat: FREDERICK ST AT FRONT ST E

		Dec-06-2017 (Wednesday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: --	r: OLS49, 50,	ID: --	LS48, OLS4
7:45	CAR	2	3	0	59	1	5	2	0	2	146	8	6	17	210	11	205
	TRK	0	0	1	1	0	0	0	0	1	5	3	0	3	7	0	7
	BUS	0	0	0	3	0	0	0	0	0	2	0	0	0	5	0	5
8:00	CAR	1	4	1	60	2	5	2	5	3	175	9	5	17	242	10	241
	TRK	0	0	0	5	0	0	0	0	0	2	0	0	0	7	0	7
	BUS	0	0	0	2	0	1	0	0	0	2	1	0	2	4	0	4
8:15	CAR	1	6	2	72	0	7	1	9	1	170	3	9	12	249	11	253
	TRK	0	0	0	1	0	1	0	0	0	2	0	1	1	3	1	3
	BUS	0	0	0	4	0	0	0	0	0	2	0	0	0	6	0	6
8:30	CAR	4	6	1	64	0	6	3	5	2	198	13	6	26	270	13	268
	TRK	0	0	0	2	0	0	0	0	0	2	0	0	0	4	0	4
	BUS	0	2	0	3	0	0	1	0	0	3	1	0	2	8	1	6
8:45	CAR	1	8	2	48	0	4	3	7	1	189	6	5	14	246	9	246
	TRK	0	0	0	3	0	0	0	1	0	9	0	0	0	12	0	13
	BUS	0	0	0	4	0	0	0	0	0	3	0	0	0	7	0	7
9:00	CAR	1	5	0	70	2	4	3	4	2	190	4	10	12	267	16	264
	TRK	0	0	0	3	0	0	0	0	1	5	0	0	0	9	0	8
	BUS	0	1	0	2	0	0	0	0	0	1	2	0	2	4	0	3
9:15	CAR	2	8	3	74	2	2	1	3	2	160	2	8	7	244	13	240
	TRK	0	0	0	4	0	0	0	1	0	5	0	0	0	9	0	10
	BUS	0	0	0	2	0	0	0	0	0	1	0	0	0	3	0	3
9:30	CAR	2	4	0	80	2	4	1	5	0	151	7	7	14	235	12	236
	TRK	0	0	0	1	0	0	0	0	0	4	1	0	1	5	0	5
	BUS	0	0	0	3	0	0	0	0	0	1	1	0	1	4	0	4
10:15	CAR	4	1	0	59	3	3	0	6	2	109	5	4	12	171	11	174
	TRK	1	1	0	2	0	0	0	0	0	5	0	0	1	8	1	7
	BUS	0	0	0	5	0	0	0	0	0	3	0	0	0	8	0	8
10:30	CAR	4	6	2	71	5	6	2	5	2	92	1	0	13	171	11	170
	TRK	0	1	1	7	0	0	0	0	0	4	1	1	1	12	1	12
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	CAR	1	3	1	61	1	4	0	9	1	91	3	3	8	156	5	162
	TRK	0	0	0	1	1	0	0	0	1	4	5	1	5	6	2	5
	BUS	0	0	0	1	0	0	0	0	0	1	1	0	1	2	0	2
11:00	CAR	1	0	2	77	0	3	0	9	4	97	6	1	10	178	2	185
	TRK	0	0	0	0	0	1	0	0	0	6	2	1	3	6	1	6
	BUS	0	0	0	1	0	0	0	0	0	1	0	0	0	2	0	2
11:15	CAR	1	4	3	62	1	5	2	7	1	92	3	0	11	159	4	164
	TRK	0	0	0	3	0	1	0	0	0	1	1	0	2	4	0	4
	BUS	0	0	0	3	1	0	0	0	0	2	0	0	0	5	1	5
11:30	CAR	1	2	2	66	3	4	1	6	2	77	7	3	13	147	8	151
	TRK	1	0	0	3	0	0	0	0	1	3	0	0	1	7	1	6
	BUS	0	0	0	2	0	0	1	0	0	1	0	0	1	3	1	3
11:45	CAR	2	1	2	73	1	7	0	9	3	76	5	2	14	153	5	160
	TRK	0	0	0	5	0	1	0	1	0	4	0	0	1	9	0	10
	BUS	0	0	0	2	0	0	0	0	0	2	0	0	0	4	0	4
12:00	CAR	1	2	0	70	3	3	0	4	4	106	9	0	13	182	4	180
	TRK	0	0	0	3	0	0	0	0	1	3	2	0	2	7	0	6
	BUS	0	1	0	4	0	0	0	0	0	1	0	0	0	6	0	5
13:15	CAR	1	11	4	65	0	2	2	4	5	94	4	6	9	175	9	167
	TRK	0	0	1	4	0	0	0	0	1	1	2	0	2	6	0	6
	BUS	0	0	0	4	0	0	0	0	0	2	0	0	0	6	0	6
13:30	CAR	2	5	1	65	3	3	4	6	4	105	3	2	12	179	11	177
	TRK	0	0	1	1	0	0	0	0	0	0	1	0	1	1	0	2
	BUS	0	0	0	2	0	0	0	0	0	2	0	0	0	4	0	4
13:45	CAR	1	1	4	85	4	3	3	7	3	91	2	2	9	180	10	187
	TRK	0	0	0	7	0	0	0	0	0	1	2	0	2	8	0	8
	BUS	0	1	0	1	0	1	0	0	0	2	0	0	1	4	0	3
14:00	CAR	4	4	1	66	1	1	2	3	0	107	4	3	11	177	10	177
	TRK	0	0	0	4	0	0	0	1	1	3	2	0	2	8	0	8
	BUS	0	0	0	3	0	0	0	0	0	1	0	1	0	4	1	4
14:15	CAR	2	8	4	91	1	6	1	9	1	91	6	3	15	191	7	195
	TRK	0	0	0	3	0	0	0	0	1	0	1	0	1	4	0	3
	BUS	0	1	0	1	0	1	0	0	0	2	0	1	1	4	1	3
14:30	CAR	2	5	2	84	3	2	2	10	2	94	2	2	8	185	9	190
	TRK	0	0	0	5	0	1	0	0	0	3	0	0	1	8	0	8
	BUS	0	0	0	3	0	1	0	0	0	1	0	0	1	4	0	4
14:45	CAR	2	6	4	100	2	2	1	11	5	116	6	3	11	227	8	231
	TRK	0	0	0	2	0	0	2	0	1	3	1	0	3	6	2	5
	BUS	0	0	0	1	0	1	0	0	0	2	0	0	1	3	0	3
15:00	CAR	3	4	0	90	0	8	1	6	3	112	2	1	14	209	5	208
	TRK	0	0	0	2	0	1	0	1	0	2	1	0	2	4	0	5
	BUS	0	0	0	5	0	0	1	0	0	1	0	0	1	6	1	6
16:15	CAR	0	5	0	134	2	7	2	8	5	120	2	4	11	264	8	262
	TRK	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0	1
	BUS	0	0	0	0	0	1	0	0	0	5	0	2	1	5	2	5
16:30	CAR	1	16	1	139	3	4	1	4	2	124	6	9	12	281	14	268
	TRK	0	0	0	2	0	0	0	0	0	1	0	1	0	3	1	3
	BUS	0	0	0	2	0	0	0	0	0	4	1	0	1	6	0	6
16:45	CAR	0	11	0	147	1	6	1	12	4	133	7	8	14	295	10	292
	TRK	0	0	0	2	0	0	0	0	1	0	0	0	0	3	0	2
	BUS	0	0	0	2	0	2	0	0	0	4	0	0	2	6	0	6
17:00	CAR	1	10	3	144	1	4	0	8	4	134	5	4	10	292	6	289
	TRK	0	0	0	2	0	0	0	0	0	4	0	0	0	6	0	6
	BUS	0	0	0	5	0	1	0	0	0	2	0	1	1	7	1	7
17:15	CAR	1	10	3	178	0	2	3	5	2	122	8	4	14	312	8	308
	TRK	0	0	1	1	0	0	0	0	0	1	0	0	0	2	0	3
	BUS	0	0	0	1	0	1	0	0	0	3	0	2	1	4	2	4
17:30	CAR	3	7	1	185	1	5	3	7	2	120	5	5	16	314	12	313
	TRK	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	2
	BUS	0	0	0	2	0	2	0	0	0	5	0	1	2	7	1	7
17:45	CAR	4	17	3	169	2	7	1	10	4	143	10	2	22	333	9	325
	TRK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BUS	0	0	0	3	0	1	0	0	0	2	0	0	1	5	0	5
18:00	CAR	3	11	1	178	1	4	0	4	3	146	8	3	15	338	7	329
	TRK	0	0	0	5	0	0	1	0	0	1	0	0	1	6	1	6
	BUS	0	0	0	5	0	2	0	0	0	4	0	3	2	9	3	9
AM PEAK (8:15-9:15)	CAR	7	25	5	254	2	21	10	25	6	747	26	30	64	1032	49	1031
	TRK	0	0	0	9	0	1	0	1	1	18	0	1	1	28	1	28
PM PEAK (17:00-18:00)	CAR	9	44	10	676	4	18	7	30	12	519	28	15	62	1251	35	1235
	TRK	0	0	1	3	0	0	0	0	0	7	0	0	0	10	0	11
AHV (Average Hourly Vol.)	CAR	4	17.25	3.75	232.5	1.5	9.75	4.25	13.75	4.5	316.5	13.5	11.25	31.5	570.75	21	566.5
	TRK	0	0	0.25	3	0	0.25	0	0.25	0.25	6.25	0	0.25	0.25	9.5	0.25	9.75
AADT (An. Avg. Daily Traffic)	CAR	64	276	60	3720	24	156	68	220	72	5064	216	180	504	9132	336	9064
	TRK	0	0	4	48	0	4	0	4	4	100	0	4	4	152	4	156

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Table D3-26: TMC Traffic Dat: ADELAIDE ST AT GEORGE ST (PX 1963)

		Apr-11-2019 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: --	ID: OLS54	ID: --	ID: OLS53
7:45	CAR	13	7	0	182	7	7	16	0	10	0	0	0	36	199	36	182
	TRK	0	1	0	14	1	0	1	0	1	0	0	0	1	16	2	14
	BUS	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	2
8:00	CAR	6	6	0	187	6	7	11	0	11	0	0	0	24	204	23	187
	TRK	1	0	0	19	1	0	0	0	0	0	0	0	1	19	2	19
	BUS	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0	3
8:15	CAR	12	9	0	178	12	6	6	0	9	0	0	0	24	196	30	178
	TRK	0	0	0	13	0	0	2	0	0	0	0	0	2	13	2	13
	BUS	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0	3
8:30	CAR	13	4	0	208	11	6	12	0	10	0	0	0	31	222	36	208
	TRK	1	1	0	19	1	0	2	0	1	0	0	0	3	21	4	19
	BUS	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	2
8:45	CAR	6	2	0	190	12	7	8	0	10	0	0	0	21	202	26	190
	TRK	0	0	0	14	0	0	0	0	0	0	0	0	0	14	0	14
	BUS	0	0	0	1	0	0	0	0	1	0	0	0	0	2	0	1
9:00	CAR	5	2	0	173	11	10	12	0	18	0	0	0	27	193	28	173
	TRK	0	0	0	19	0	0	1	0	1	0	0	0	1	20	1	19
	BUS	0	0	0	4	0	0	0	0	0	0	0	0	0	4	0	4
9:15	CAR	11	5	0	212	15	5	13	0	22	0	0	0	29	239	39	212
	TRK	0	0	0	12	2	1	0	0	0	0	0	0	1	12	2	12
	BUS	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
9:30	CAR	7	8	0	239	9	8	13	0	13	0	0	0	28	260	29	239
	TRK	2	0	0	15	0	0	0	0	0	0	0	0	2	15	2	15
	BUS	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0	3
10:15	CAR	3	6	0	185	14	8	10	0	13	0	0	0	21	204	27	185
	TRK	0	0	0	21	2	1	0	0	1	0	0	0	1	22	2	21
	BUS	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
10:30	CAR	12	2	0	178	16	11	4	0	15	0	0	0	27	195	32	178
	TRK	0	1	0	20	1	1	2	0	2	0	0	0	3	23	3	20
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	CAR	10	6	0	180	9	6	11	0	13	0	0	0	27	199	30	180
	TRK	2	1	0	29	2	1	1	0	2	0	0	0	4	32	5	29
	BUS	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
11:00	CAR	8	9	0	188	9	7	11	0	11	0	0	0	26	208	28	188
	TRK	0	0	0	24	0	0	0	0	1	0	0	0	0	25	0	24
	BUS	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
11:15	CAR	12	18	0	196	5	6	9	0	16	0	0	0	27	230	26	196
	TRK	0	2	0	21	1	0	2	0	0	0	0	0	2	23	3	21
	BUS	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
11:30	CAR	7	5	0	165	8	12	8	0	9	0	0	0	27	179	23	165
	TRK	0	1	0	13	0	1	1	0	0	0	0	0	2	14	1	13
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	CAR	6	18	0	172	22	15	16	0	15	15	15	15	52	220	59	187
	TRK	1	0	0	18	0	0	0	0	0	0	0	0	1	18	1	18
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	CAR	8	8	0	179	20	14	14	0	14	14	14	14	50	215	56	193
	TRK	2	1	0	26	1	0	0	0	0	0	0	0	2	27	3	26
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15	CAR	5	5	0	195	13	9	8	0	9	9	9	9	31	218	35	204
	TRK	1	0	0	20	1	0	0	0	0	0	0	0	1	20	2	20
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30	CAR	3	7	0	225	9	8	8	0	8	8	8	8	27	248	28	233
	TRK	0	0	0	15	0	1	0	0	1	1	1	1	2	17	1	16
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45	CAR	8	7	0	198	11	7	7	0	7	7	7	7	29	219	33	205
	TRK	1	0	0	15	0	0	0	0	0	0	0	0	1	15	1	15
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00	CAR	8	6	0	255	18	6	11	0	6	6	6	6	31	273	43	261
	TRK	0	0	0	19	1	2	1	0	2	2	2	2	5	23	4	21
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15	CAR	8	6	0	255	20	9	5	0	9	9	9	9	31	279	42	264
	TRK	1	0	0	28	2	0	2	0	0	0	0	0	3	28	5	28
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30	CAR	10	3	0	225	22	12	9	0	15	0	0	0	31	243	41	225
	TRK	0	0	0	25	0	0	1	0	3	0	0	0	1	28	1	25
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45	CAR	8	5	0	218	19	3	14	0	11	0	0	0	25	234	41	218
	TRK	1	0	0	23	1	0	0	0	2	0	0	0	1	25	2	23
	BUS	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
15:00	CAR	8	5	0	205	19	9	13	0	16	0	0	0	30	226	40	205
	TRK	1	0	0	34	1	2	1	0	3	0	0	0	4	37	3	34
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	CAR	8	15	0	276	16	10	25	0	19	0	0	0	43	310	49	276
	TRK	0	0	0	19	0	2	3	0	4	0	0	0	5	23	3	19
	BUS	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
16:30	CAR	10	7	0	265	18	3	27	0	17	0	0	0	40	289	55	265
	TRK	1	0	0	19	0	0	3	0	1	0	0	0	4	20	4	19
	BUS	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
16:45	CAR	18	3	0	275	27	6	30	0	15	0	0	0	54	293	75	275
	TRK	0	0	0	15	1	0	1	0	1	0	0	0	1	16	2	15
	BUS	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
17:00	CAR	9	7	0	330	23	9	35	0	21	0	0	0	53	358	67	330
	TRK	0	0	0	9	0	1	4	0	1	0	0	0	5	10	4	9
	BUS	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	2
17:15	CAR	24	8	0	288	29	10	39	0	16	0	0	0	73	312	92	288
	TRK	0	1	0	8	0	0	1	0	3	0	0	0	1	12	1	8
	BUS	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	2
17:30	CAR	18	5	0	311	32	3	36	0	19	0	0	0	57	335	86	311
	TRK	1	0	0	7	0	1	3	0	0	0	0	0	5	7	4	7
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	CAR	22	6	0	301	16	6	15	0	28	0	0	0	43	335	53	301
	TRK	1	0	0	9	0	0	1	0	2	0	0	0	2	11	2	9
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	CAR	12	8	0	322	19	8	16	0	24	0	0	0	36	354	47	322
	TRK	0	1	0	9	0	0	0	0	0	0	0	0	0	10	0	9
	BUS	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	2
AM PEAK	CAR	29	17	0	814	47	30	46	0	63	0	0	0	105	894	122	814
	TRK	2	0	0	60	2	1	1	0	1	0	0	0	4	61	5	60
PM PEAK (17:00-18:00)	CAR	73	26	0	1230	100	28	125	0	84	0	0	0	226	1340	298	1230
	TRK	2	1	0	33	0	2	9	0	6	0	0	0	13	40	11	33
AHV (Average Hourly Vol.)	CAR	25.5	10.75	0	511	36.75	14.5	42.75	0	36.75	0	0	0	82.75	558.5	105	511
	TRK	1	0.25	0	23.25	0.5	0.75	2.5	0	1.75	0	0	0	4.25	25.25	4	23.25
AADT (An. Avg. Daily Traffic)	CAR	408	172	0	8176	588	232	684	0	588	0	0	0	1324	8936	1680	8176
	TRK	16	4	0	372	8	12	40	0	28	0	0	0	68	404	64	372

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Table D3-27: TMC Traffic Dat: "ADELAIDE ST AT BERKELEY ST (PX 1964).pdf"

		April 11, 2019 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: --	ID: OLS56	ID: --	ID: OLS55
7:45	CAR	5	4	0	169	10	9	2	0	1	0	0	0	16	174	17	169
	TRK	0	0	0	11	1	0	1	0	1	0	0	0	1	12	2	11
	BUS	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	2
8:00	CAR	4	6	0	184	10	9	8	0	3	0	0	0	21	193	22	184
	TRK	0	0	0	15	2	2	1	0	0	0	0	0	3	15	3	15
	BUS	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	2
8:15	CAR	9	7	0	179	15	12	4	0	4	0	0	0	25	190	28	179
	TRK	0	0	0	12	3	1	0	0	2	0	0	0	1	14	3	12
	BUS	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0	3
8:30	CAR	9	7	0	211	15	12	5	0	4	0	0	0	26	222	29	211
	TRK	1	1	0	21	0	1	0	0	0	0	0	0	2	22	1	21
	BUS	0	0	0	4	0	0	0	0	0	0	0	0	0	4	0	4
8:45	CAR	8	7	0	163	14	21	11	0	13	0	0	0	40	183	33	163
	TRK	1	0	0	13	1	0	1	0	1	0	0	0	2	14	3	13
	BUS	0	0	0	1	0	0	1	0	0	0	0	0	1	1	1	1
9:00	CAR	14	9	0	187	20	17	15	0	6	0	0	0	46	202	49	187
	TRK	0	1	0	17	1	0	0	0	0	0	0	0	0	18	1	17
	BUS	0	0	0	4	0	0	0	0	0	0	0	0	0	4	0	4
9:15	CAR	18	7	0	186	20	16	18	0	4	0	0	0	52	197	56	186
	TRK	1	0	0	11	1	0	0	0	0	0	0	0	1	11	2	11
	BUS	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
9:30	CAR	18	4	0	240	11	20	9	0	12	0	0	0	47	256	38	240
	TRK	1	1	0	15	1	3	0	0	0	0	0	0	4	16	2	15
	BUS	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0	3
10:15	CAR	11	2	0	169	11	21	2	0	3	0	0	0	34	174	24	169
	TRK	0	0	0	21	1	1	1	0	1	0	0	0	2	22	2	21
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	CAR	16	2	0	173	16	19	4	0	3	0	0	0	39	178	36	173
	TRK	1	0	0	17	3	2	0	0	1	0	0	0	3	18	4	17
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	CAR	13	6	0	161	13	18	4	0	5	0	0	0	35	172	30	161
	TRK	0	1	0	29	2	3	0	0	0	0	0	0	3	30	2	29
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	CAR	10	13	0	165	7	23	5	0	8	0	0	0	38	186	22	165
	TRK	1	0	0	24	0	2	0	0	1	0	0	0	3	25	1	24
	BUS	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
11:15	CAR	11	7	0	194	8	15	3	0	3	0	0	0	29	204	22	194
	TRK	1	0	0	22	0	5	1	0	1	0	0	0	7	23	2	22
	BUS	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
11:30	CAR	9	4	0	168	13	14	4	0	4	0	0	0	27	176	26	168
	TRK	0	1	0	17	1	1	1	0	1	0	0	0	2	19	2	17
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	CAR	16	3	0	163	7	28	5	0	6	0	0	0	49	172	28	163
	TRK	1	0	0	18	0	0	1	0	0	0	0	0	2	18	2	18
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	CAR	14	2	0	171	12	16	11	0	9	0	0	0	41	182	37	171
	TRK	1	0	0	24	0	0	0	0	0	0	0	0	1	24	1	24
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15	CAR	8	8	0	195	11	11	3	0	7	0	0	0	22	210	22	195
	TRK	1	1	0	21	0	2	0	0	0	0	0	0	3	22	1	21
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30	CAR	6	5	0	196	9	15	7	0	4	0	0	0	28	205	22	196
	TRK	0	0	0	16	0	0	2	0	1	0	0	0	2	17	2	16
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45	CAR	8	8	0	187	13	17	8	0	8	0	0	0	33	203	29	187
	TRK	2	2	0	16	1	2	0	0	0	0	0	0	4	18	3	16
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00	CAR	13	4	0	236	16	11	7	0	6	0	0	0	31	246	36	236
	TRK	0	0	0	15	1	0	0	0	2	0	0	0	0	17	1	15
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15	CAR	18	1	0	249	10	16	5	0	3	0	0	0	39	253	33	249
	TRK	1	0	0	24	1	1	1	0	1	0	0	0	3	25	3	24
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30	CAR	9	4	0	222	8	7	7	0	10	0	0	0	23	236	24	222
	TRK	0	1	0	32	1	3	1	0	2	0	0	0	4	35	2	32
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45	CAR	11	5	0	199	11	12	9	0	10	0	0	0	32	214	31	199
	TRK	1	0	0	30	0	1	0	0	3	0	0	0	2	33	1	30
	BUS	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
15:00	CAR	6	3	0	202	12	13	10	0	6	0	0	0	29	211	28	202
	TRK	2	0	0	25	3	5	2	0	0	0	0	0	9	25	7	25
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	CAR	13	3	0	289	15	13	6	0	12	0	0	0	32	304	34	289
	TRK	0	2	0	25	2	0	0	0	1	0	0	0	0	28	2	25
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	CAR	13	6	0	262	11	18	9	0	11	0	0	0	40	279	33	262
	TRK	0	0	0	20	1	1	1	0	0	0	0	0	2	20	2	20
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	CAR	12	5	0	289	23	10	10	0	11	0	0	0	32	305	45	289
	TRK	0	1	0	20	1	0	0	0	1	0	0	0	0	22	1	20
	BUS	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0	3
17:00	CAR	17	10	0	337	14	14	11	0	10	0	0	0	42	357	42	337
	TRK	0	0	0	12	0	1	0	0	1	0	0	0	1	13	0	12
	BUS	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	2
17:15	CAR	18	10	0	317	12	12	13	0	18	0	0	0	43	345	43	317
	TRK	0	0	0	15	1	1	0	0	0	0	0	0	1	15	1	15
	BUS	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	2
17:30	CAR	12	9	0	331	14	11	10	0	9	0	0	0	33	349	36	331
	TRK	0	0	0	9	0	0	1	0	1	0	0	0	1	10	1	9
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	CAR	16	7	0	316	10	13	9	0	7	0	0	0	38	330	35	316
	TRK	2	1	0	12	0	0	0	0	0	0	0	0	2	13	2	12
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	CAR	13	7	0	323	16	15	8	0	5	0	0	0	36	335	37	323
	TRK	0	1	0	11	0	0	0	0	0	0	0	0	0	12	0	11
	BUS	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	2
AM PEAK (8:45-9:45)	CAR	58	27	0	776	65	74	53	0	35	0	0	0	185	838	176	776
	TRK	3	2	0	56	4	3	1	0	1	0	0	0	7	59	8	56
PM PEAK (17:00-18:00)	CAR	63	36	0	1301	50	50	43	0	44	0	0	0	156	1381	156	1301
	TRK	2	1	0	48	1	2	1	0	2	0	0	0	5	51	4	48
AHV (Average Hourly Vol.)	CAR	30.25	15.75	0	519.25	28.75	31	24	0	19.75	0	0	0	85.25	554.75	83	519.25
	TRK	1.25	0.75	0	26	1.25	1.25	0.5	0	0.75	0	0	0	3	27.5	3	26
AADT (An. Avg. Daily Traffic)	CAR	484	252	0	8308	460	496	384	0	316	0	0	0	1364	8876	1328	8308
	TRK	20	12	0	416	20	20	8	0	12	0	0	0	48	440	48	416

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Table D3-28: TMC Traffic Dat: QUEEN ST AT ST PATRICK ST (PX 2087)

		Dec-18-2018 (Tuesday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: --	ID: OLS61	ID: --	ID: --
7:45	CAR	0	0	0	103	0	25	0	7	9	61	27	0	52	173	0	171
	TRK	0	0	0	1	0	2	0	1	0	1	0	0	2	2	0	3
	BUS	0	0	0	6	0	0	0	0	0	7	0	0	0	13	0	13
8:00	CAR	0	0	0	96	0	29	0	6	6	75	41	0	70	177	0	177
	TRK	0	0	0	5	0	1	0	1	1	1	1	0	2	7	0	7
	BUS	0	0	0	4	0	0	0	0	0	3	0	0	0	7	0	7
8:15	CAR	0	0	0	96	0	26	0	8	13	99	27	0	53	208	0	203
	TRK	0	0	0	3	0	0	0	1	0	2	0	0	0	5	0	6
	BUS	0	0	0	8	0	0	0	0	0	5	0	0	0	13	0	13
8:30	CAR	0	0	0	116	0	29	0	13	20	76	36	0	65	212	0	205
	TRK	0	0	0	4	0	1	0	0	0	0	3	0	4	4	0	4
	BUS	0	0	0	5	0	0	0	0	0	4	0	0	0	9	0	9
8:45	CAR	0	0	0	130	0	25	0	13	18	93	38	0	63	241	0	236
	TRK	0	0	0	2	0	0	0	0	0	2	1	0	1	4	0	4
	BUS	0	0	0	4	0	0	0	0	0	2	0	0	0	6	0	6
9:00	CAR	0	0	0	125	0	28	0	15	19	94	29	0	57	238	0	234
	TRK	0	0	0	3	0	0	0	0	0	3	1	0	1	6	0	6
	BUS	0	0	0	7	0	0	0	0	0	5	0	0	0	12	0	12
9:15	CAR	0	0	0	122	0	36	0	7	14	92	33	0	69	228	0	221
	TRK	0	0	0	2	0	0	0	0	0	1	1	0	1	3	0	3
	BUS	0	0	0	8	0	0	0	0	0	5	0	0	0	13	0	13
9:30	CAR	0	0	0	118	0	32	0	11	21	91	16	0	48	230	0	220
	TRK	0	0	0	2	0	2	0	0	3	1	1	0	3	6	0	3
	BUS	0	0	0	6	0	0	0	0	0	3	0	0	0	9	0	9
10:15	CAR	0	0	0	104	0	14	0	4	9	103	18	0	32	216	0	211
	TRK	0	0	0	4	0	2	0	1	1	3	0	0	2	8	0	8
	BUS	0	0	0	6	0	0	0	0	0	6	0	0	0	12	0	12
10:30	CAR	0	0	0	85	0	14	0	6	11	82	14	0	28	178	0	173
	TRK	0	0	0	4	0	1	0	2	2	2	0	0	1	8	0	8
	BUS	0	0	0	6	0	0	0	0	0	5	0	0	0	11	0	11
10:45	CAR	0	0	0	91	0	16	0	11	16	87	14	0	30	194	0	189
	TRK	0	0	0	2	0	0	0	1	2	5	1	0	1	9	0	8
	BUS	0	0	0	4	0	0	0	0	0	4	0	0	0	8	0	8
11:00	CAR	0	0	0	77	0	20	0	9	14	79	13	0	33	170	0	165
	TRK	0	0	0	2	0	1	0	0	0	2	0	0	1	4	0	4
	BUS	0	0	0	7	0	0	0	0	0	4	0	0	0	11	0	11
11:15	CAR	0	0	0	102	0	12	0	12	16	83	15	0	27	201	0	197
	TRK	0	0	0	6	0	0	0	0	1	2	0	0	0	9	0	8
	BUS	0	0	0	7	0	0	0	0	0	4	0	0	0	11	0	11
11:30	CAR	0	0	0	81	0	16	0	11	24	95	29	0	45	200	0	187
	TRK	0	0	0	5	0	1	0	2	0	4	0	0	1	9	0	11
	BUS	0	0	0	6	0	0	0	0	0	3	0	0	0	9	0	9
11:45	CAR	0	0	0	90	0	21	0	12	12	94	12	0	33	196	0	196
	TRK	0	0	0	2	0	0	0	1	0	2	1	0	1	4	0	5
	BUS	0	0	0	5	0	0	0	0	0	5	0	0	0	10	0	10
12:00	CAR	0	0	0	93	0	17	0	12	15	89	11	0	28	197	0	194
	TRK	0	0	0	7	0	1	0	0	1	6	0	0	1	14	0	13
	BUS	0	0	0	4	0	0	0	0	0	4	0	0	0	8	0	8
13:15	CAR	0	0	0	88	0	17	0	18	14	73	20	0	37	175	0	179
	TRK	0	0	0	2	0	0	0	0	2	3	0	0	0	7	0	5
	BUS	0	0	0	5	0	0	0	0	0	3	0	0	0	8	0	8
13:30	CAR	0	0	0	84	0	25	0	21	12	72	15	0	40	168	0	177
	TRK	0	0	0	3	0	2	0	1	0	6	0	0	2	9	0	10
	BUS	0	0	0	7	0	0	0	0	0	2	0	0	0	9	0	9
13:45	CAR	0	0	0	79	0	16	0	14	21	74	12	0	28	174	0	167
	TRK	0	0	0	1	0	0	0	0	0	4	0	0	0	5	0	5
	BUS	0	0	0	3	0	0	0	0	0	3	0	0	0	6	0	6
14:00	CAR	0	0	0	86	0	19	0	18	17	68	6	0	25	171	0	172
	TRK	0	0	0	4	0	1	0	0	0	1	4	0	5	5	0	5
	BUS	0	0	0	5	0	0	0	0	0	6	0	0	0	11	0	11
14:15	CAR	0	0	0	87	0	10	0	16	20	84	10	0	20	191	0	187
	TRK	0	0	0	2	0	1	0	1	0	5	1	0	2	7	0	8
	BUS	0	0	0	6	0	0	0	0	0	5	0	0	0	11	0	11
14:30	CAR	0	0	0	86	0	17	0	16	21	93	19	0	36	200	0	195
	TRK	0	0	0	5	0	0	0	1	0	2	1	0	1	7	0	8
	BUS	0	0	0	5	0	0	0	0	0	4	0	0	0	9	0	9
14:45	CAR	0	0	0	83	0	14	0	9	22	81	6	0	20	186	0	173
	TRK	0	0	0	2	0	0	0	2	1	1	1	0	1	4	0	5
	BUS	0	0	0	6	0	0	0	0	0	5	0	0	0	11	0	11
15:00	CAR	0	0	0	100	0	13	0	21	20	100	15	0	28	220	0	221
	TRK	0	0	0	1	0	0	0	1	0	1	0	0	0	2	0	3
	BUS	0	0	0	6	0	0	0	0	0	2	0	0	0	8	0	8
16:15	CAR	0	0	0	105	0	14	0	26	17	107	15	0	29	229	0	238
	TRK	0	0	0	1	0	0	0	1	0	3	1	0	1	4	0	5
	BUS	0	0	0	5	0	0	0	0	0	6	0	0	0	11	0	11
16:30	CAR	0	0	0	105	0	15	0	22	17	122	13	0	28	244	0	249
	TRK	0	0	0	4	0	0	0	0	1	2	0	0	0	7	0	6
	BUS	0	0	0	4	0	0	0	0	0	4	0	0	0	8	0	8
16:45	CAR	0	0	0	106	0	17	0	23	16	110	7	0	24	232	0	239
	TRK	0	0	0	1	0	0	0	1	0	1	0	0	0	2	0	3
	BUS	0	0	0	3	0	0	0	0	0	2	0	0	0	5	0	5
17:00	CAR	0	0	0	104	0	18	0	25	23	143	11	0	29	270	0	272
	TRK	0	0	0	2	0	1	0	0	0	1	0	0	1	3	0	3
	BUS	0	0	0	5	0	0	0	0	0	4	0	0	0	9	0	9
17:15	CAR	0	0	0	120	0	12	0	32	20	168	5	0	17	308	0	320
	TRK	0	0	0	0	0	1	0	0	0	2	0	0	1	2	0	2
	BUS	0	0	0	3	0	0	0	0	0	4	0	0	0	7	0	7
17:30	CAR	0	0	0	103	0	10	0	16	16	135	19	0	29	254	0	254
	TRK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BUS	0	0	0	6	0	0	0	0	0	3	0	0	0	9	0	9
17:45	CAR	0	0	0	131	0	10	0	20	20	153	9	0	19	304	0	304
	TRK	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	1
	BUS	0	0	0	3	0	0	0	0	0	4	0	0	0	7	0	7
18:00	CAR	0	0	0	124	0	24	0	20	20	120	12	0	36	264	0	264
	TRK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BUS	0	0	0	3	0	0	0	0	0	4	0	0	0	7	0	7
AM PEAK (8:45-9:45)	CAR	0	0	0	495	0	121	0	46	72	370	116	0	237	937	0	911
	TRK	0	0	0	9	0	2	0	0	3	7	4	0	6	19	0	16
PM PEAK (17:00-18:00)	CAR	0	0	0	458	0	50	0	93	79	599	44	0	94	1136	0	1150
	TRK	0	0	0	2	0	2	0	0	0	4	1	0	3	6	0	6
AHV (Average Hourly Vol.)	CAR	0	0	0	238.25	0	42.75	0	34.75	37.75	242.25	40	0	82.75	518.25	0	515.25
	TRK	0	0	0	2.75	0	1	0	0	0.75	2.75	1.25	0	2.25	6.25	0	5.5
AADT (An. Avg. Daily Traffic)	CAR	0	0	0	3812	0	684	0	556	604	3876	640	0	1324	8292	0	8244
	TRK	0	0	0	44	0	16	0	0	12	44	20	0	36	100	0	88

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Table D3-29: TMC Traffic Dat: ADELAIDE ST AT GEORGE ST (PX 1963)

		Apr-11-2019 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: --	ID: --	ID: --	ID: --
7:45	CAR	13	7	0	182	7	7	16	0	10	0	0	0	36	199	36	182
	TRK	0	1	0	14	1	0	1	0	1	0	0	0	1	16	2	14
	BUS	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	2
8:00	CAR	6	6	0	187	6	7	11	0	11	0	0	0	24	204	23	187
	TRK	1	0	0	19	1	0	0	0	0	0	0	0	1	19	2	19
	BUS	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0	3
8:15	CAR	12	9	0	178	12	6	6	0	9	0	0	0	24	196	30	178
	TRK	0	0	0	13	0	0	2	0	0	0	0	0	2	13	2	13
	BUS	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0	3
8:30	CAR	13	4	0	208	11	6	12	0	10	0	0	0	31	222	36	208
	TRK	1	1	0	19	1	0	2	0	1	0	0	0	3	21	4	19
	BUS	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	2
8:45	CAR	6	2	0	190	12	7	8	0	10	0	0	0	21	202	26	190
	TRK	0	0	0	14	0	0	0	0	0	0	0	0	0	14	0	14
	BUS	0	0	0	1	0	0	0	0	1	0	0	0	0	2	0	1
9:00	CAR	5	2	0	173	11	10	12	0	18	0	0	0	27	193	28	173
	TRK	0	0	0	19	0	0	1	0	1	0	0	0	1	20	1	19
	BUS	0	0	0	4	0	0	0	0	0	0	0	0	0	4	0	4
9:15	CAR	11	5	0	212	15	5	13	0	22	0	0	0	29	239	39	212
	TRK	0	0	0	12	2	1	0	0	0	0	0	0	1	12	2	12
	BUS	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
9:30	CAR	7	8	0	239	9	8	13	0	13	0	0	0	28	260	29	239
	TRK	2	0	0	15	0	0	0	0	0	0	0	0	2	15	2	15
	BUS	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0	3
10:15	CAR	3	6	0	185	14	8	10	0	13	0	0	0	21	204	27	185
	TRK	0	0	0	21	2	1	0	0	1	0	0	0	1	22	2	21
	BUS	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
10:30	CAR	12	2	0	178	16	11	4	0	15	0	0	0	27	195	32	178
	TRK	0	1	0	20	1	1	2	0	2	0	0	0	3	23	3	20
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	CAR	10	6	0	180	9	6	11	0	13	0	0	0	27	199	30	180
	TRK	2	1	0	29	2	1	1	0	2	0	0	0	4	32	5	29
	BUS	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
11:00	CAR	8	9	0	188	9	7	11	0	11	0	0	0	26	208	28	188
	TRK	0	0	0	24	0	0	0	0	1	0	0	0	0	25	0	24
	BUS	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
11:15	CAR	12	18	0	196	5	6	9	0	16	0	0	0	27	230	26	196
	TRK	0	2	0	21	1	0	2	0	0	0	0	0	2	23	3	21
	BUS	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
11:30	CAR	7	5	0	165	8	12	8	0	9	0	0	0	27	179	23	165
	TRK	0	1	0	13	0	1	1	0	0	0	0	0	2	14	1	13
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	CAR	6	18	0	172	22	15	16	0	15	15	15	15	52	220	59	187
	TRK	1	0	0	18	0	0	0	0	0	0	0	0	1	18	1	18
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	CAR	8	8	0	179	20	14	14	0	14	14	14	14	50	215	56	193
	TRK	2	1	0	26	1	0	0	0	0	0	0	0	2	27	3	26
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15	CAR	5	5	0	195	13	9	8	0	9	9	9	9	31	218	35	204
	TRK	1	0	0	20	1	0	0	0	0	0	0	0	1	20	2	20
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30	CAR	3	7	0	225	9	8	8	0	8	8	8	8	27	248	28	233
	TRK	0	0	0	15	0	1	0	0	1	1	1	1	2	17	1	16
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45	CAR	8	7	0	198	11	7	7	0	7	7	7	7	29	219	33	205
	TRK	1	0	0	15	0	0	0	0	0	0	0	0	1	15	1	15
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00	CAR	8	6	0	255	18	6	11	0	6	6	6	6	31	273	43	261
	TRK	0	0	0	19	1	2	1	0	2	2	2	2	5	23	4	21
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15	CAR	8	6	0	255	20	9	5	0	9	9	9	9	31	279	42	264
	TRK	1	0	0	28	2	0	2	0	0	0	0	0	3	28	5	28
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30	CAR	10	3	0	225	22	12	9	0	15	0	0	0	31	243	41	225
	TRK	0	0	0	25	0	0	1	0	3	0	0	0	1	28	1	25
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45	CAR	8	5	0	218	19	3	14	0	11	0	0	0	25	234	41	218
	TRK	1	0	0	23	1	0	0	0	2	0	0	0	1	25	2	23
	BUS	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
15:00	CAR	8	5	0	205	19	9	13	0	16	0	0	0	30	226	40	205
	TRK	1	0	0	34	1	2	1	0	3	0	0	0	4	37	3	34
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	CAR	8	15	0	276	16	10	25	0	19	0	0	0	43	310	49	276
	TRK	0	0	0	19	0	2	3	0	4	0	0	0	5	23	3	19
	BUS	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
16:30	CAR	10	7	0	265	18	3	27	0	17	0	0	0	40	289	55	265
	TRK	1	0	0	19	0	0	3	0	1	0	0	0	4	20	4	19
	BUS	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
16:45	CAR	18	3	0	275	27	6	30	0	15	0	0	0	54	293	75	275
	TRK	0	0	0	15	1	0	1	0	1	0	0	0	1	16	2	15
	BUS	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
17:00	CAR	9	7	0	330	23	9	35	0	21	0	0	0	53	358	67	330
	TRK	0	0	0	9	0	1	4	0	1	0	0	0	5	10	4	9
	BUS	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	2
17:15	CAR	24	8	0	288	29	10	39	0	16	0	0	0	73	312	92	288
	TRK	0	1	0	8	0	0	1	0	3	0	0	0	1	12	1	8
	BUS	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	2
17:30	CAR	18	5	0	311	32	3	36	0	19	0	0	0	57	335	86	311
	TRK	1	0	0	7	0	1	3	0	0	0	0	0	5	7	4	7
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	CAR	22	6	0	301	16	6	15	0	28	0	0	0	43	335	53	301
	TRK	1	0	0	9	0	0	1	0	2	0	0	0	2	11	2	9
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	CAR	12	8	0	322	19	8	16	0	24	0	0	0	36	354	47	322
	TRK	0	1	0	9	0	0	0	0	0	0	0	0	0	10	0	9
	BUS	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	2
AM PEAK (8:45-9:45)	CAR	29	17	0	814	47	30	46	0	63	0	0	0	105	894	122	814
	TRK	2	0	0	60	2	1	1	0	1	0	0	0	4	61	5	60
PM PEAK (17:00-18:00)	CAR	73	26	0	1230	100	28	125	0	84	0	0	0	226	1340	298	1230
	TRK	2	1	0	33	0	2	9	0	6	0	0	0	13	40	11	33
AHV (Average Hourly Vol.)	CAR	25.5	10.75	0	511	36.75	14.5	42.75	0	36.75	0	0	0	82.75	558.5	105	511
	TRK	1	0.25	0	23.25	0.5	0.75	2.5	0	1.75	0	0	0	4.25	25.25	4	23.25
AADT (An. Avg. Daily Traffic)	CAR	408	172	0	8176	588	232	684	0	588	0	0	0	1324	8936	1680	8176
	TRK	16	4	0	372	8	12	40	0	28	0	0	0	68	404	64	372

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Table D3-30: TMC Traffic Dat: QUEEN ST AT UNIVERSITY AVE (PX 80)

		Jun-12-2019 (Wednesday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: OLS80	ID: --	ID: OLS81	ID: OLS61
7:45	CAR	177	5	0	54	8	0	349	18	0	85	9	0	535	144	534	157
	TRK	21	0	0	7	6	0	15	3	0	6	1	0	37	13	42	16
	BUS	3	0	0	1	0	0	3	0	0	1	0	0	6	2	6	2
8:00	CAR	185	5	0	54	8	0	338	20	0	83	9	0	532	142	531	157
	TRK	14	1	0	9	1	0	19	4	0	6	2	0	35	16	34	19
	BUS	2	0	0	1	0	0	1	0	0	0	0	0	3	1	3	1
8:15	CAR	211	4	0	69	13	0	370	26	0	124	27	0	608	197	594	219
	TRK	17	1	0	4	2	0	12	1	0	6	1	0	30	11	31	11
	BUS	1	0	0	0	0	0	4	0	0	0	0	0	5	0	5	0
8:30	CAR	193	6	0	58	12	0	358	32	0	118	18	0	569	182	563	208
	TRK	9	0	0	6	2	1	16	3	0	7	2	0	28	13	27	16
	BUS	3	0	0	0	0	0	1	0	0	1	0	0	4	1	4	1
8:45	CAR	177	6	0	52	24	0	359	36	0	152	21	0	557	210	560	240
	TRK	11	0	0	5	1	0	14	2	0	8	4	0	29	13	26	15
	BUS	3	0	0	2	0	0	3	0	0	2	1	0	7	4	6	4
9:00	CAR	185	7	0	93	30	0	342	29	0	128	0	0	527	228	557	250
	TRK	8	0	0	7	3	0	18	5	0	6	1	0	27	13	29	18
	BUS	2	0	0	1	0	0	2	1	0	0	1	0	5	1	4	2
9:15	CAR	185	3	0	96	33	0	343	27	0	134	41	0	569	233	561	257
	TRK	10	0	0	7	2	0	16	1	0	11	0	0	26	18	28	19
	BUS	4	0	0	1	0	0	3	1	0	1	1	0	8	2	7	3
9:30	CAR	237	5	0	77	29	0	293	31	0	111	25	0	555	193	559	219
	TRK	14	1	0	5	2	0	16	4	0	7	4	0	34	13	32	16
	BUS	3	1	0	1	0	0	6	0	0	3	0	0	9	5	9	4
10:15	CAR	252	8	0	44	15	0	224	25	0	104	21	0	497	156	491	173
	TRK	21	0	0	6	3	0	22	2	0	6	2	0	45	12	46	14
	BUS	2	0	0	2	0	0	5	0	0	1	1	0	8	3	7	3
10:30	CAR	273	7	0	53	11	1	241	29	0	97	21	0	536	157	525	179
	TRK	10	0	0	6	1	0	25	2	0	8	0	0	35	14	36	16
	BUS	1	0	0	0	0	0	2	0	0	0	1	0	4	0	3	0
10:45	CAR	255	7	0	50	15	0	267	22	0	107	26	0	548	164	537	179
	TRK	18	1	0	6	0	0	16	7	0	11	2	0	36	18	34	24
	BUS	1	0	0	1	0	0	3	0	0	0	0	0	4	1	4	1
11:00	CAR	239	6	0	55	12	0	273	26	0	105	38	0	550	166	524	186
	TRK	23	1	0	4	4	0	35	9	0	9	4	0	62	14	62	22
	BUS	4	1	0	1	0	0	1	0	0	1	3	0	8	3	5	2
11:15	CAR	253	7	0	43	19	1	246	24	0	103	46	0	546	153	518	170
	TRK	17	0	0	9	3	2	29	4	0	13	3	0	51	22	49	26
	BUS	4	0	0	0	0	0	4	1	0	0	0	0	8	0	8	1
11:30	CAR	253	11	0	64	26	0	252	27	0	107	54	0	559	182	531	198
	TRK	19	0	0	8	4	0	24	7	0	7	3	0	46	15	47	22
	BUS	4	0	0	0	0	0	4	0	0	2	2	0	10	2	8	2
11:45	CAR	235	9	0	61	20	0	282	31	0	91	45	0	562	161	537	183
	TRK	17	0	0	15	6	0	26	5	0	5	6	0	49	20	49	25
	BUS	4	0	0	0	0	0	8	0	0	0	0	0	12	0	12	0
12:00	CAR	275	8	0	56	18	0	288	26	0	105	46	0	609	169	581	187
	TRK	18	0	0	16	3	0	33	4	0	11	1	0	52	27	54	31
	BUS	3	0	0	1	1	0	5	1	0	0	1	0	9	1	9	2
13:15	CAR	255	7	0	51	18	0	263	28	0	93	40	0	558	151	536	172
	TRK	8	0	0	15	1	0	31	5	0	7	6	0	45	22	40	27
	BUS	2	0	0	0	0	0	1	0	0	0	0	0	3	0	3	0
13:30	CAR	232	5	0	47	18	0	294	11	0	101	38	0	564	153	544	159
	TRK	21	1	0	8	3	0	28	3	0	8	6	0	55	17	52	19
	BUS	5	0	0	0	0	0	2	0	0	1	0	0	7	1	7	1
13:45	CAR	241	8	0	51	14	0	226	19	0	86	39	0	506	145	481	156
	TRK	15	0	0	7	6	0	35	3	0	10	3	0	53	17	56	20
	BUS	5	0	0	1	0	0	2	0	0	1	0	0	7	2	7	2
14:00	CAR	254	1	0	47	15	0	287	13	0	73	36	0	577	121	556	133
	TRK	5	0	0	3	2	0	34	4	0	12	2	0	41	15	41	19
	BUS	6	0	0	0	0	0	2	0	0	0	1	0	9	0	8	0
14:15	CAR	215	9	0	53	16	0	287	22	0	110	47	0	549	172	518	185
	TRK	18	0	0	11	3	0	32	4	0	10	5	0	55	21	53	25
	BUS	2	0	0	0	0	0	3	0	0	0	0	0	5	0	5	0
14:30	CAR	261	8	0	58	22	0	191	20	0	95	49	0	501	161	474	173
	TRK	6	0	0	8	3	0	24	2	0	8	2	0	32	16	33	18
	BUS	5	0	0	0	0	0	1	0	0	0	0	0	6	0	6	0
14:45	CAR	204	8	0	67	25	0	218	23	0	109	50	0	472	184	447	199
	TRK	9	0	0	8	2	0	35	5	0	8	1	0	45	16	46	21
	BUS	4	0	0	0	0	0	3	0	0	1	0	0	7	1	7	1
15:00	CAR	213	4	0	48	26	0	361	26	0	108	36	0	610	160	600	182
	TRK	6	1	0	5	2	0	27	2	0	13	2	0	35	19	35	20
	BUS	0	0	0	0	0	0	3	0	0	0	1	0	4	0	3	0
16:15	CAR	276	5	0	74	9	0	211	34	0	117	26	0	513	196	496	225
	TRK	12	0	0	2	1	0	17	4	0	5	1	0	30	7	30	11
	BUS	5	0	0	1	0	0	2	0	0	0	0	0	7	1	7	1
16:30	CAR	290	2	0	81	11	0	247	28	0	115	24	0	561	198	548	224
	TRK	5	1	0	9	2	0	16	3	0	5	4	0	25	15	23	17
	BUS	5	0	0	0	0	0	3	0	0	0	0	0	8	0	8	0
16:45	CAR	258	8	0	74	24	0	264	23	0	127	21	1	543	209	547	224
	TRK	13	0	0	7	0	0	16	4	0	4	0	0	29	11	29	15
	BUS	4	0	0	0	0	0	3	2	0	0	0	0	7	0	7	2
17:00	CAR	295	9	0	75	24	0	234	31	0	117	30	0	559	201	553	223
	TRK	10	0	0	4	3	0	19	2	0	9	1	0	30	13	32	15
	BUS	1	0	0	1	0	0	3	0	0	0	0	0	4	1	4	1
17:15	CAR	288	4	0	60	8	0	211	26	0	91	30	0	529	155	507	177
	TRK	2	0	0	5	1	0	12	3	0	7	3	0	17	12	15	15
	BUS	4	0	0	1	0	0	5	0	0	0	2	0	11	1	9	1
17:30	CAR	296	9	0	84	11	0	218	40	0	97	27	0	541	190	525	221
	TRK	2	0	0	3	1	0	19	2	0	1	1	0	22	4	22	6
	BUS	2	0	0	2	0	0	5	0	0	0	1	0	8	2	7	2
17:45	CAR	324	4	0	81	16	0	193	19	0	88	33	0	550	173	533	188
	TRK	3	0	0	3	2	0	13	4	0	2	1	0	17	5	18	9
	BUS	2	0	0	1	0	0	5	0	0	3	1	0	8	4	7	4
18:00	CAR	335	7	0	89	11	0	212	19	0	98	39	0	586	194	558	206
	TRK	7	0	0	3	1	0	7	2	0	3	0	0	14	6	15	8
	BUS	5	0	0	0	0	0	2	1	0	2	1	0	8	2	7	3
AM PEAK (8:45-9:45)	CAR	784	21	0	318	116	0	1337	123	0	525	87	0	2208	864	2237	966
	TRK	43	1	0	24	8	0	64	12	0	32	9	0	116	57	115	68
PM PEAK (16:15-17:15)	CAR	1119	24	0	304	68	0	956	116	0	476	101	1	2176	804	2144	896
	TRK	40	1	0	22	6	0	68	13	0	23	6	0	114	46	114	58
AHV (Average Hourly Vol.)	CAR	475.75	11.25	0	155.5	46	0	573.25	59.75	0	250.25	47	0.25	1096	417	1095.25	465.5
	TRK	20.75	0.5	0	11.5	3.5	0	33	6.25	0	13.75	3.75	0	57.5	25.75	57.25	31.5
AADT (An. Avg. Daily Traffic)	CAR	7612	180	0	2488	736	0	9172	956	0	4004	752	4	17536	6672	17524	7448
	TRK	332	8	0	184	56	0	528	100	0	220	60	0	920	412	916	504

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Table D3-31: TMC Traffic Dat: QUEEN ST AT YONGE ST (PX 34)

		May-15-2019 (Wednesday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: OLS78	ID: OLS65	ID: OLS79	S63, OLS64,
7:45	CAR	110	1	0	71	0	0	73	0	0	154	0	0	183	226	183	225
	TRK	8	0	0	12	0	0	10	0	0	7	0	0	18	19	18	19
	BUS	0	0	0	5	0	0	3	0	0	6	0	0	3	11	3	11
8:00	CAR	127	0	0	75	0	0	94	0	0	144	0	0	221	219	221	219
	TRK	8	0	0	4	0	0	8	1	0	5	0	0	16	9	16	10
	BUS	1	0	0	4	0	0	0	0	0	7	0	0	1	11	1	11
8:15	CAR	110	0	0	76	1	1	82	0	0	155	0	0	193	231	193	231
	TRK	10	0	1	6	0	0	6	1	0	7	0	0	16	13	16	15
	BUS	1	0	0	5	0	0	1	0	0	5	0	0	2	10	2	10
8:30	CAR	120	1	0	79	0	0	60	2	0	157	0	0	180	237	180	238
	TRK	11	0	0	2	0	0	10	0	0	1	1	0	22	3	21	3
	BUS	1	0	0	2	0	0	0	0	0	6	0	0	1	8	1	8
8:45	CAR	101	0	0	90	0	0	55	2	0	180	0	0	156	270	156	272
	TRK	5	1	0	3	0	0	5	0	0	7	1	0	11	11	10	10
	BUS	0	0	0	7	0	0	1	0	0	9	0	0	1	16	1	16
9:00	CAR	99	3	0	87	0	0	56	0	0	207	0	0	155	297	155	294
	TRK	7	0	0	6	0	0	6	0	0	13	0	0	13	19	13	19
	BUS	2	0	0	5	0	0	0	0	0	2	0	0	2	7	2	7
9:15	CAR	114	1	1	76	1	0	57	1	1	135	0	0	171	213	172	213
	TRK	9	0	0	4	0	0	2	0	0	5	0	0	11	9	11	9
	BUS	0	0	0	9	0	0	1	0	0	7	0	0	1	16	1	16
9:30	CAR	105	0	1	99	1	0	58	0	0	129	0	0	163	228	164	229
	TRK	7	0	0	5	0	0	4	0	0	7	1	0	12	12	11	12
	BUS	1	0	0	5	0	0	2	0	0	9	0	0	3	14	3	14
10:15	CAR	117	0	0	82	0	0	36	1	0	94	1	1	154	176	154	177
	TRK	12	0	0	10	1	0	7	0	0	5	0	0	19	15	20	15
	BUS	2	0	0	3	0	0	1	0	0	7	0	0	3	10	3	10
10:30	CAR	112	2	1	76	2	0	57	0	0	93	1	1	170	171	172	170
	TRK	12	0	0	8	0	0	4	0	0	8	0	0	16	16	16	16
	BUS	1	0	0	4	0	0	3	0	0	4	0	0	4	8	4	8
10:45	CAR	106	4	0	85	1	0	52	0	0	102	0	0	158	191	159	187
	TRK	8	0	0	8	0	0	7	1	0	3	0	0	15	11	15	12
	BUS	2	0	0	6	0	0	2	0	0	4	0	0	4	10	4	10
11:00	CAR	106	1	0	71	0	1	54	0	0	89	2	0	163	161	160	160
	TRK	8	0	0	7	0	0	13	0	0	10	0	0	21	17	21	17
	BUS	3	0	0	8	0	0	0	0	0	5	0	0	3	13	3	13
11:15	CAR	106	0	0	78	0	0	68	0	0	74	1	0	175	152	174	152
	TRK	10	0	1	7	0	0	17	0	0	4	0	0	27	11	27	12
	BUS	0	0	0	7	0	0	1	0	0	9	0	0	1	16	1	16
11:30	CAR	110	2	0	89	1	0	84	1	0	104	0	0	194	195	195	194
	TRK	10	1	0	8	0	0	11	1	0	8	0	0	21	17	21	17
	BUS	1	0	0	3	0	0	1	0	0	5	0	0	2	8	2	8
11:45	CAR	98	0	0	52	0	0	69	0	0	69	0	0	167	121	167	121
	TRK	5	0	0	11	0	0	7	0	0	6	0	0	12	17	12	17
	BUS	1	0	0	5	0	0	0	0	0	6	0	0	1	11	1	11
12:00	CAR	97	0	0	78	0	0	80	4	0	105	2	0	179	183	177	187
	TRK	9	0	1	7	1	1	9	0	0	11	0	0	19	18	19	19
	BUS	1	0	0	4	0	0	2	0	0	4	0	0	3	8	3	8
13:15	CAR	96	1	0	94	2	0	67	1	0	71	0	0	163	166	165	166
	TRK	10	0	0	6	0	0	4	0	0	8	0	0	14	14	14	14
	BUS	2	0	0	4	0	0	0	0	0	4	0	0	2	8	2	8
13:30	CAR	117	0	0	86	0	1	62	0	0	81	0	0	180	167	179	167
	TRK	11	0	0	5	0	0	4	0	0	5	0	0	15	10	15	10
	BUS	0	0	0	3	0	1	1	0	0	5	0	0	2	8	1	8
13:45	CAR	99	1	0	62	0	0	79	0	0	91	0	0	178	154	178	153
	TRK	10	0	0	6	0	0	6	0	1	5	0	0	16	12	16	11
	BUS	1	0	0	1	0	0	1	0	0	6	0	0	2	7	2	7
14:00	CAR	128	0	0	96	1	0	47	0	0	93	0	0	175	189	176	189
	TRK	14	0	0	11	0	0	6	0	0	6	0	0	20	17	20	17
	BUS	0	0	0	6	0	0	0	0	0	4	0	0	0	10	0	10
14:15	CAR	77	0	0	105	2	0	75	0	0	98	0	0	152	203	154	203
	TRK	5	0	0	4	0	0	6	1	0	6	0	0	11	10	11	11
	BUS	1	0	0	8	0	0	0	0	0	6	0	0	1	14	1	14
14:30	CAR	95	0	0	78	0	1	57	0	0	91	0	0	153	169	152	169
	TRK	7	0	0	8	0	0	14	0	0	7	0	0	21	15	21	15
	BUS	0	0	0	2	0	0	1	0	0	6	0	0	1	8	1	8
14:45	CAR	120	0	0	96	0	0	84	0	0	118	0	2	204	214	206	214
	TRK	11	0	1	7	0	0	5	0	0	8	1	0	17	15	16	16
	BUS	2	0	0	3	0	0	0	0	0	7	0	0	2	10	2	10
15:00	CAR	110	1	1	78	0	0	93	0	1	129	0	0	203	209	203	208
	TRK	7	0	0	6	0	0	5	0	0	6	0	0	12	12	12	12
	BUS	2	0	0	3	0	0	2	0	0	5	0	0	4	8	4	8
16:15	CAR	92	3	0	126	0	0	87	2	0	143	0	0	179	272	179	271
	TRK	8	0	0	4	0	0	4	0	0	7	0	0	12	11	12	11
	BUS	1	0	0	6	0	0	1	0	0	5	0	0	2	11	2	11
16:30	CAR	107	1	0	119	0	0	90	1	0	120	0	0	197	240	197	240
	TRK	7	0	0	6	0	0	5	0	0	4	0	0	12	10	12	10
	BUS	1	0	0	5	0	0	1	0	0	6	0	0	2	11	2	11
16:45	CAR	130	0	0	121	1	0	91	1	0	123	0	0	221	244	222	245
	TRK	5	1	0	5	1	0	4	0	0	5	0	0	9	11	10	10
	BUS	3	0	0	3	0	0	0	0	0	2	0	0	3	5	3	5
17:00	CAR	115	1	0	172	0	1	68	0	0	141	0	0	184	314	183	313
	TRK	5	0	0	4	0	0	2	0	0	4	0	0	7	8	7	8
	BUS	0	0	0	4	0	0	0	0	0	5	0	0	0	9	0	9
17:15	CAR	117	1	0	152	1	0	98	1	0	105	0	0	215	258	216	258
	TRK	3	0	0	3	0	0	4	0	0	7	0	0	7	10	7	10
	BUS	2	0	0	5	0	0	2	0	0	6	0	0	4	11	4	11
17:30	CAR	119	0	0	159	1	2	88	0	0	110	0	0	209	269	208	269
	TRK	4	1	0	3	0	0	4	0	0	6	0	0	8	10	8	9
	BUS	2	0	0	4	1	0	0	0	0	7	0	0	2	11	3	11
17:45	CAR	145	0	0	148	0	0	106	1	0	104	0	0	251	252	251	253
	TRK	1	0	0	1	0	0	3	0	0	3	0	0	4	4	4	4
	BUS	2	0	0	5	0	0	1	0	0	4	0	0	3	9	3	9
18:00	CAR	121	2	1	136	0	1	102	1	0	110	0	0	224	248	223	248
	TRK	7	0	0	3	0	0	3	0	0	3	0	0	10	6	10	6
	BUS	4	0	0	5	0	0	1	0	0	4	0	0	5	9	5	9
AM PEAK (8:15-9:15)	CAR	430	4	0	332	1	1	253	4	0	699	0	0	684	1035	684	1035
	TRK	33	1	1	17	0	0	27	1	0	28	2	0	62	46	60	47
PM PEAK (17:00-18:00)	CAR	496	2	0	631	2	3	360	2	0	460	0	0	859	1093	858	1093
	TRK	13	1	0	11	0	0	13	0	0	20	0	0	26	32	26	31
AHV	CAR	231.5	1.5	0	240.75	0.75	1	153.25	1.5	0	289.75	0	0	385.75	532	385.5	532
(Average Hourly Vol.)	TRK	11.5	0.5	0.25	7	0	0	10	0.25	0	12	0.5	0	22	19.5	21.5	19.5
AADT	CAR	3704	24	0	3852	12	16	2452	24	0	4636	0	0	6172	8512	6168	8512
(An. Avg. Daily Traffic)	TRK	184	8	4	112	0	0	160	4	0	192	8	0	352	312	344	312

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Table D3-32: TMC Traffic Dat: QUEEN ST AT VICTORIA ST (PX 28)

		Jun-14-2017 (Wednesday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: --	ID: OLS66	ID: --	ID: OLS65
7:45	CAR	21	14	5	58	9	0	31	6	3	81	13	0	65	156	61	150
	TRK	0	0	0	1	1	0	2	0	0	2	1	1	3	3	4	3
	BUS	0	0	0	6	0	0	0	0	0	5	0	0	0	11	0	11
8:00	CAR	26	8	6	52	15	0	15	2	7	104	10	0	51	171	56	164
	TRK	0	0	1	3	1	0	1	0	1	0	0	0	1	4	2	4
	BUS	0	0	0	7	0	0	0	0	0	5	0	0	0	12	0	12
8:15	CAR	29	6	6	60	13	0	23	7	5	132	15	0	67	203	65	205
	TRK	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1
	BUS	0	0	0	7	0	0	1	0	0	9	0	0	1	16	1	16
8:30	CAR	22	9	11	59	8	0	35	7	10	118	8	0	65	196	65	195
	TRK	3	0	0	4	3	0	3	0	0	4	1	0	7	8	9	8
	BUS	0	1	0	6	0	0	0	0	1	3	0	0	0	11	0	9
8:45	CAR	26	7	10	77	14	0	33	6	10	120	17	0	76	214	73	213
	TRK	0	0	0	1	0	0	1	0	0	1	1	0	2	2	1	2
	BUS	0	0	0	5	0	0	0	0	0	10	0	0	0	15	0	15
9:00	CAR	29	8	7	62	19	0	41	5	5	159	11	1	81	234	90	233
	TRK	1	0	0	2	0	0	0	1	0	5	1	0	2	7	1	8
	BUS	0	0	0	8	0	0	1	0	0	3	0	0	1	11	1	11
9:15	CAR	30	11	7	70	17	0	31	7	8	122	13	0	74	211	78	206
	TRK	0	0	0	3	0	0	1	1	0	1	0	0	1	4	1	5
	BUS	0	0	0	7	0	0	0	0	0	11	0	0	0	18	0	18
9:30	CAR	22	7	8	88	13	0	26	7	8	108	12	2	60	211	63	211
	TRK	0	0	0	2	0	0	4	1	1	7	1	0	5	10	4	10
	BUS	0	0	0	5	0	0	0	0	0	5	0	0	0	10	0	10
10:15	CAR	24	13	9	73	19	0	25	6	9	76	12	0	61	171	68	164
	TRK	0	1	0	3	2	0	5	0	0	5	0	0	5	9	7	8
	BUS	0	0	0	9	0	0	0	0	0	4	0	0	0	13	0	13
10:30	CAR	19	13	11	66	17	0	24	10	13	61	14	2	57	153	62	148
	TRK	2	1	0	1	0	0	1	0	0	5	1	0	4	7	3	6
	BUS	0	0	0	6	0	0	0	0	0	6	0	0	0	12	0	12
10:45	CAR	15	15	2	68	15	0	36	6	11	59	8	0	59	153	66	135
	TRK	3	2	0	0	1	0	1	0	1	3	1	0	5	6	5	3
	BUS	0	0	0	6	0	0	1	0	0	6	0	0	1	12	1	12
11:00	CAR	31	18	5	47	15	1	17	11	5	63	13	0	62	133	63	126
	TRK	3	0	0	2	2	0	0	0	0	2	1	0	4	4	5	4
	BUS	0	0	0	1	0	0	0	0	0	7	1	0	1	8	0	8
11:15	CAR	21	13	7	66	10	0	24	7	9	59	20	0	65	147	55	139
	TRK	0	1	0	4	1	0	2	0	0	1	0	0	2	6	3	5
	BUS	0	0	0	9	0	0	0	0	0	6	0	0	0	15	0	15
11:30	CAR	32	16	9	85	14	0	26	10	3	44	19	0	77	148	72	148
	TRK	1	2	0	6	1	0	0	1	0	1	1	0	2	9	2	8
	BUS	0	0	0	7	0	0	0	0	0	7	0	0	0	14	0	14
11:45	CAR	26	17	7	84	19	1	31	13	11	62	19	1	77	174	77	166
	TRK	1	1	0	0	1	0	1	1	0	4	0	0	2	5	3	5
	BUS	0	0	0	9	0	0	0	0	0	7	0	0	0	16	0	16
12:00	CAR	21	10	4	86	15	2	30	8	5	57	14	0	67	158	66	155
	TRK	2	1	0	4	2	0	2	1	0	4	3	0	7	9	6	9
	BUS	0	0	0	3	0	1	0	0	0	3	0	0	1	6	0	6
13:15	CAR	22	13	6	93	17	3	29	6	12	66	15	0	69	184	68	171
	TRK	0	0	1	5	1	0	2	0	0	3	0	0	2	8	3	9
	BUS	0	0	0	7	0	0	0	0	0	6	0	0	0	13	0	13
13:30	CAR	20	12	7	91	17	1	15	14	7	64	13	0	49	174	52	176
	TRK	0	1	0	1	2	0	1	2	0	2	2	0	3	4	3	5
	BUS	0	0	0	4	1	0	0	0	0	5	0	0	0	9	1	9
13:45	CAR	20	8	4	101	11	2	14	9	8	50	14	0	50	167	45	164
	TRK	1	0	0	3	3	0	2	0	0	5	1	0	4	8	6	8
	BUS	0	0	0	10	0	0	0	0	0	5	0	0	0	15	0	15
14:00	CAR	24	8	12	91	16	0	27	8	9	62	5	2	56	170	69	173
	TRK	2	0	0	4	1	0	0	2	0	3	1	0	3	7	3	9
	BUS	0	0	0	5	0	0	0	0	0	4	0	0	0	9	0	9
14:15	CAR	20	16	6	92	18	1	39	13	6	63	11	0	71	177	77	174
	TRK	1	0	0	3	1	0	1	1	1	1	0	0	2	5	3	5
	BUS	0	0	0	5	0	0	0	0	0	10	0	0	0	15	0	15
14:30	CAR	25	9	10	108	23	2	36	15	6	77	13	0	76	200	84	210
	TRK	0	0	0	5	1	0	0	1	0	4	1	0	1	9	1	10
	BUS	0	0	0	6	0	0	0	0	0	6	1	0	1	12	0	12
14:45	CAR	24	7	8	101	23	0	22	7	6	68	14	0	60	182	69	184
	TRK	1	0	0	5	4	0	1	1	0	2	0	0	2	7	6	8
	BUS	0	0	0	5	0	0	0	0	0	3	0	0	0	8	0	8
15:00	CAR	16	5	7	88	17	3	23	11	3	67	14	0	56	163	56	173
	TRK	1	0	1	2	0	0	0	0	0	5	1	0	2	7	1	8
	BUS	0	0	0	5	0	0	1	0	0	8	0	0	1	13	1	13
16:15	CAR	31	10	7	101	18	2	38	15	7	65	9	1	80	183	88	188
	TRK	0	0	0	0	1	0	0	0	0	2	0	0	0	2	1	2
	BUS	0	0	0	5	0	0	0	0	0	7	0	0	0	12	0	12
16:30	CAR	29	13	7	153	15	2	30	9	7	58	16	0	77	231	74	227
	TRK	1	0	0	3	1	0	2	0	0	2	1	0	4	5	4	5
	BUS	0	1	0	8	0	0	0	0	0	4	0	0	0	13	0	12
16:45	CAR	24	11	12	109	10	1	36	11	10	61	5	0	66	191	70	193
	TRK	0	0	0	2	1	0	0	0	2	2	0	0	0	6	1	4
	BUS	0	0	0	4	0	0	0	0	0	8	0	0	0	12	0	12
17:00	CAR	39	9	11	147	20	0	35	15	8	83	13	0	87	247	94	256
	TRK	2	0	1	1	0	0	3	0	0	0	0	0	5	1	5	2
	BUS	0	0	0	8	0	0	0	0	0	4	0	0	0	12	0	12
17:15	CAR	32	11	18	133	19	0	32	25	9	82	9	0	73	235	83	258
	TRK	0	2	0	0	0	0	0	0	0	3	0	0	0	5	0	3
	BUS	0	0	0	4	0	0	1	0	0	6	0	0	1	10	1	10
17:30	CAR	43	16	14	143	26	3	24	7	9	74	14	0	84	242	93	238
	TRK	0	0	0	0	0	0	1	0	2	2	0	0	1	4	1	2
	BUS	0	0	0	3	0	0	2	0	0	6	0	0	2	9	2	9
17:45	CAR	36	18	12	145	17	2	23	11	5	73	6	0	67	241	76	241
	TRK	0	1	0	1	1	1	0	0	0	2	0	0	1	4	1	3
	BUS	0	0	0	4	0	0	0	0	0	7	0	0	0	11	0	11
18:00	CAR	55	16	20	156	18	2	37	16	8	78	12	0	106	258	110	270
	TRK	0	1	0	0	1	0	0	0	0	1	1	0	1	2	1	1
	BUS	0	0	0	6	0	0	0	0	0	4	0	0	0	10	0	10
AM PEAK (8:45-9:45)	CAR	107	33	32	297	63	0	131	25	31	509	53	3	291	870	304	863
	TRK	1	0	0	8	0	0	6	3	1	14	3	0	10	23	7	25
PM PEAK (17:00-18:00)	CAR	150	54	55	568	82	5	114	58	31	312	42	0	311	965	346	993
	TRK	2	3	1	2	1	1	4	0	2	7	0	0	7	14	7	10
AHV (Average Hourly Vol.)	CAR	64.25	21.75	21.75	216.25	36.25	1.25	61.25	20.75	15.5	205.25	23.75	0.75	150.5	458.75	162.5	464
	TRK	0.75	0.75	0.25	2.5	0.25	0.25	2.5	0.75	0.75	5.25	0.75	0	4.25	9.25	3.5	8.75
AADT (An. Avg. Daily Traffic)	CAR	1028	348	348	3460	580	20	980	332	248	3284	380	12	2408	7340	2600	7424
	TRK	12	12	4	40	4	4	40	12	12	84	12	0	68	148	56	140

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Table D3-33: TMC Traffic Dat: PARLIAMENT ST AT SHUTER ST (PX 247)

		Jun-13-2018 (Wednesday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: --	ID: --	ID: OLS28	ID: OLS71
7:45	CAR	54	8	19	33	2	4	47	6	2	53	2	19	107	96	122	111
	TRK	4	0	1	0	1	0	0	0	0	1	0	1	4	1	6	2
	BUS	1	0	1	0	0	0	1	0	0	0	0	0	2	0	2	1
8:00	CAR	56	10	26	31	2	5	51	10	4	54	3	9	115	99	118	121
	TRK	4	0	2	2	1	0	4	1	0	0	0	0	8	2	9	5
	BUS	3	0	0	0	0	0	2	1	0	1	0	1	5	1	6	2
8:15	CAR	54	10	17	33	9	7	55	12	2	72	3	8	119	117	126	134
	TRK	4	0	0	0	1	0	2	1	0	0	0	0	6	0	7	1
	BUS	2	0	1	0	2	0	1	0	0	0	0	1	3	0	6	1
8:30	CAR	56	11	15	30	2	3	59	13	4	72	4	18	122	117	135	130
	TRK	7	3	1	0	0	0	2	0	0	1	0	0	9	4	9	2
	BUS	4	0	1	0	0	0	2	0	0	0	0	0	6	0	6	1
8:45	CAR	50	7	22	28	12	9	57	18	2	83	8	12	124	120	131	151
	TRK	3	2	2	1	0	0	4	1	1	0	0	0	7	4	7	4
	BUS	4	0	1	0	0	0	1	0	1	0	0	0	5	1	5	1
9:00	CAR	61	15	33	29	9	9	66	18	6	57	4	13	140	107	149	137
	TRK	6	0	0	1	0	0	2	1	0	2	0	0	8	3	8	4
	BUS	2	0	0	1	0	0	3	1	0	0	0	0	5	1	5	2
9:15	CAR	71	10	30	40	6	10	66	21	7	81	10	19	157	138	162	172
	TRK	2	0	0	0	1	0	4	1	0	0	0	0	6	0	7	1
	BUS	1	0	1	0	0	0	2	0	0	0	0	0	3	0	3	1
9:30	CAR	63	13	19	38	3	11	56	16	3	70	6	11	136	124	133	143
	TRK	2	0	1	1	0	1	0	0	0	1	2	0	5	2	2	3
	BUS	1	0	0	0	0	0	3	0	0	0	0	0	4	0	4	0
10:15	CAR	56	10	30	23	5	5	49	12	5	26	4	5	114	64	115	91
	TRK	2	0	4	0	0	1	2	0	0	0	0	1	5	0	5	4
	BUS	2	0	2	0	0	0	1	0	0	0	0	0	3	0	3	2
10:30	CAR	65	12	27	32	8	8	67	7	2	37	4	11	144	83	151	103
	TRK	1	5	3	0	1	2	3	1	1	1	0	0	6	7	5	5
	BUS	1	0	0	0	0	0	1	0	0	0	0	0	2	0	2	0
10:45	CAR	60	7	28	28	6	7	77	14	3	38	3	11	147	76	154	108
	TRK	5	1	2	0	0	0	5	1	0	3	0	0	10	4	10	6
	BUS	1	0	1	0	0	0	1	0	0	0	0	0	2	0	2	1
11:00	CAR	80	12	20	40	8	7	57	12	4	34	4	11	148	90	156	106
	TRK	3	1	4	1	2	0	4	0	1	1	0	0	7	4	9	6
	BUS	4	0	0	0	0	0	1	1	1	0	0	0	5	1	5	1
11:15	CAR	66	9	12	23	4	11	51	10	4	30	8	9	136	66	130	75
	TRK	2	1	2	1	0	0	3	0	0	0	0	2	5	2	7	3
	BUS	2	0	0	0	0	0	2	0	0	0	0	0	4	0	4	0
11:30	CAR	47	9	19	25	8	6	48	8	4	20	6	9	107	58	112	72
	TRK	7	2	2	1	4	0	2	0	0	0	1	1	10	3	14	3
	BUS	2	0	0	0	0	0	1	0	0	0	0	0	3	0	3	0
11:45	CAR	68	6	17	30	10	11	71	18	2	33	1	12	151	71	161	98
	TRK	6	0	1	0	0	0	6	0	1	2	0	2	12	3	14	3
	BUS	2	0	0	0	0	0	3	0	0	0	0	0	5	0	5	0
12:00	CAR	72	8	17	58	11	5	73	12	5	30	3	8	153	101	164	117
	TRK	3	1	2	2	0	0	6	2	1	0	0	1	9	4	10	6
	BUS	5	0	0	0	0	0	3	0	0	0	0	1	8	0	9	0
13:15	CAR	59	9	17	52	19	9	55	13	3	36	7	8	130	100	141	118
	TRK	3	0	2	1	1	0	6	2	0	0	0	1	9	1	11	5
	BUS	2	0	0	0	0	0	1	0	0	0	0	0	3	0	3	0
13:30	CAR	60	13	19	49	6	9	55	13	3	34	1	7	125	99	128	115
	TRK	4	1	2	1	0	0	3	1	0	0	0	1	7	2	8	4
	BUS	2	0	0	0	0	0	2	0	0	0	0	0	4	0	4	0
13:45	CAR	55	20	18	56	9	9	55	11	9	42	2	8	121	127	127	127
	TRK	2	0	2	0	0	0	6	1	0	0	0	1	8	0	9	3
	BUS	2	0	0	0	0	0	1	0	0	0	0	0	3	0	3	0
14:00	CAR	80	11	15	47	6	12	78	12	5	32	4	18	174	95	182	106
	TRK	4	0	0	2	0	1	4	1	0	0	0	0	9	2	8	3
	BUS	1	0	0	0	0	0	2	0	0	0	0	0	3	0	3	0
14:15	CAR	62	17	22	53	13	16	74	13	8	26	1	8	153	104	157	114
	TRK	2	0	1	1	0	0	4	0	0	0	0	1	6	1	7	2
	BUS	2	0	0	0	0	0	4	0	0	0	0	0	6	0	6	0
14:30	CAR	61	14	12	66	11	13	65	13	10	30	3	10	142	120	147	121
	TRK	4	1	1	1	0	0	2	2	0	2	1	1	7	4	7	6
	BUS	1	0	0	0	0	0	3	0	0	0	0	0	4	0	4	0
14:45	CAR	57	12	13	51	16	18	62	14	3	28	3	4	140	94	139	106
	TRK	4	0	2	0	1	1	4	0	0	0	0	0	9	0	9	2
	BUS	4	0	0	1	0	0	0	0	0	0	0	0	4	1	4	1
15:00	CAR	70	8	13	84	14	13	67	12	3	33	6	22	156	128	173	142
	TRK	3	0	2	0	2	1	3	0	0	0	0	0	7	0	8	2
	BUS	1	0	0	0	0	0	2	1	0	0	0	0	3	0	3	1
16:15	CAR	86	12	27	86	24	13	56	11	4	29	2	18	157	131	184	153
	TRK	1	0	1	0	0	0	3	2	1	0	0	1	4	1	5	3
	BUS	1	0	0	0	0	0	2	0	0	0	0	0	3	0	3	0
16:30	CAR	58	11	9	72	11	11	47	15	4	18	6	11	122	105	127	114
	TRK	2	0	0	0	1	0	4	0	0	0	0	0	6	0	7	0
	BUS	2	0	0	0	0	0	1	0	0	0	0	0	3	0	3	0
16:45	CAR	56	11	15	95	10	26	62	16	5	34	4	11	148	145	139	160
	TRK	1	1	0	1	0	0	1	2	0	1	1	0	3	3	2	4
	BUS	3	0	0	0	0	0	2	0	0	0	0	0	5	0	5	0
17:00	CAR	93	13	23	34	27	66	64	10	4	10	1	6	224	61	190	77
	TRK	0	0	0	0	1	0	2	0	0	0	0	0	2	0	3	0
	BUS	2	0	0	0	0	0	1	0	0	0	0	0	3	0	3	0
17:15	CAR	91	2	17	0	42	69	65	22	1	0	0	0	225	3	198	39
	TRK	3	0	0	0	3	0	1	0	0	0	0	0	4	0	7	0
	BUS	2	0	0	0	0	0	1	0	0	0	0	0	3	0	3	0
17:30	CAR	77	0	29	0	32	84	67	25	4	0	2	0	230	4	176	54
	TRK	3	0	1	0	0	0	3	0	0	0	0	0	6	0	6	1
	BUS	3	0	0	0	0	0	2	0	0	0	0	0	5	0	5	0
17:45	CAR	68	1	27	0	38	77	66	32	2	0	1	0	212	3	172	59
	TRK	1	0	0	0	1	0	1	1	0	0	1	0	3	0	3	1
	BUS	2	0	0	0	0	0	2	0	0	0	0	0	4	0	4	0
18:00	CAR	89	0	39	0	55	68	38	29	1	0	1	1	196	1	183	68
	TRK	1	0	0	0	0	1	0	0	0	0	0	0	2	0	1	0
	BUS	4	0	0	0	0	0	1	0	0	0	0	0	5	0	5	0
AM PEAK (8:45-9:45)	CAR	245	45	104	135	30	39	245	73	18	291	28	55	557	489	575	603
	TRK	13	2	3	3	1	1	10	3	1	3	2	0	26	9	24	12
PM PEAK (16:15-17:15)	CAR	293	47	74	287	72	116	229	52	17	91	13	46	651	442	640	504
	TRK	4	1	1	1	2	0	10	4	1	1	1	1	15	4	17	7
AHV (Average Hourly Vol.)	CAR	134.5	23	44.5	105.5	25.5	38.75	118.5	31.25	8.75	95.5	10.25	25.25	302	232.75	303.75	276.75
	TRK	4.25	0.75	1	1	0.75	0.25	5	1.75	0.5	1	0.75	0.25	10.25	3.25	10.25	4.75
AADT (An. Avg. Daily Traffic)	CAR	2152	368	712	1688	408	620	1896	500	140	1528	164	404	4832	3724	4860	4428
	TRK	68	12	16	16	12	4	80	28	8	16	12	4	164	52	164	76

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Table D3-34: TMC Traffic Dat: RICHMOND ST AT UNIVERSITY AVE (PX 79)

		Jun-12-2019 (Wednesday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: OLS81	ID: OLS72	ID: --	ID: --
7:45	CAR	144	0	14	0	0	0	330	25	0	155	32	60	506	155	534	194
	TRK	15	0	1	0	0	0	14	6	0	15	3	4	32	15	33	22
	BUS	1	0	0	0	0	0	3	1	0	6	1	1	5	6	5	7
8:00	CAR	152	0	9	0	0	0	304	39	0	150	38	61	494	150	517	198
	TRK	12	0	0	0	0	0	25	2	0	21	6	6	43	21	43	23
	BUS	1	0	0	0	0	0	0	0	0	8	1	2	2	8	3	8
8:15	CAR	184	0	8	0	0	0	336	34	0	136	38	57	558	136	577	178
	TRK	10	0	0	0	0	0	11	4	0	9	1	4	22	9	25	13
	BUS	1	0	0	0	0	0	1	1	0	3	3	0	5	3	2	4
8:30	CAR	137	0	7	0	0	0	306	49	0	122	35	47	478	122	490	178
	TRK	10	0	1	0	0	0	16	1	0	23	1	4	27	23	30	25
	BUS	2	0	0	0	0	0	1	0	0	5	3	0	6	5	3	5
8:45	CAR	158	0	16	0	0	0	310	20	0	104	28	20	496	104	488	140
	TRK	13	0	0	0	0	0	16	2	0	22	0	1	29	22	30	24
	BUS	1	0	1	0	0	0	2	0	0	6	0	3	3	6	6	7
9:00	CAR	171	0	12	0	0	0	324	39	0	94	26	28	521	94	523	145
	TRK	9	0	2	0	0	0	22	2	0	12	2	4	33	12	35	16
	BUS	1	0	0	0	0	0	1	1	0	7	1	4	3	7	6	8
9:15	CAR	217	0	10	0	0	0	317	46	0	114	27	22	561	114	556	170
	TRK	12	0	2	0	0	0	16	1	0	13	3	3	31	13	31	16
	BUS	5	0	0	0	0	0	1	1	0	7	2	1	8	7	7	8
9:30	CAR	220	0	16	0	0	0	278	52	0	90	33	37	531	90	535	158
	TRK	9	0	2	0	0	0	17	1	0	31	10	5	36	31	31	34
	BUS	3	0	0	0	0	0	4	1	0	8	0	2	7	8	9	9
10:15	CAR	233	0	39	0	0	0	195	37	0	86	33	35	461	86	463	162
	TRK	19	0	5	0	0	0	24	4	0	16	8	14	51	16	57	25
	BUS	2	0	0	0	0	0	2	0	0	0	0	1	4	0	5	0
10:30	CAR	257	0	19	0	0	0	237	31	0	120	43	42	537	120	536	170
	TRK	7	0	1	0	0	0	22	4	0	27	5	7	34	27	36	32
	BUS	1	0	0	0	0	0	2	0	0	2	0	3	3	2	6	2
10:45	CAR	241	0	16	0	0	0	229	50	0	78	35	47	505	78	517	144
	TRK	10	0	4	0	0	0	15	3	0	23	7	8	32	23	33	30
	BUS	1	0	0	0	0	0	3	0	0	3	0	1	4	3	5	3
11:00	CAR	213	0	24	0	0	0	249	32	0	103	40	32	502	103	494	159
	TRK	21	0	2	0	0	0	32	5	0	23	0	11	53	23	64	30
	BUS	3	0	0	0	0	0	1	0	0	2	0	0	4	2	4	2
11:15	CAR	225	0	17	0	0	0	227	36	0	90	43	37	495	90	489	143
	TRK	15	0	1	0	0	0	27	9	0	25	3	14	45	25	56	35
	BUS	3	0	1	0	0	0	4	0	0	1	1	2	8	1	9	2
11:30	CAR	223	0	18	0	0	0	249	42	0	69	30	32	502	69	504	129
	TRK	12	0	2	0	0	0	31	3	0	26	6	9	49	26	52	31
	BUS	4	0	0	0	0	0	3	0	0	2	0	2	7	2	9	2
11:45	CAR	239	0	15	0	0	0	252	44	0	83	35	34	526	83	525	142
	TRK	9	0	3	0	0	0	25	3	0	19	3	5	37	19	39	25
	BUS	3	0	0	0	0	0	5	1	0	0	0	1	8	0	9	1
12:00	CAR	253	0	23	0	0	0	253	41	0	52	31	23	537	52	529	116
	TRK	19	0	2	0	0	0	27	8	0	21	4	8	50	21	54	31
	BUS	4	0	0	0	0	0	4	0	0	1	0	2	8	1	10	1
13:15	CAR	210	0	22	0	0	0	234	39	0	81	31	33	475	81	477	142
	TRK	12	0	3	0	0	0	27	9	0	12	10	7	49	12	46	24
	BUS	1	0	0	0	0	0	2	1	0	2	1	1	4	2	4	3
13:30	CAR	208	0	17	0	0	0	263	51	0	83	42	42	513	83	513	151
	TRK	17	0	1	0	0	0	25	6	0	13	1	13	43	13	55	20
	BUS	7	0	0	0	0	0	1	0	0	2	0	1	8	2	9	2
13:45	CAR	209	0	25	0	0	0	213	28	0	80	32	39	454	80	461	133
	TRK	9	0	0	0	0	0	33	4	0	21	4	2	46	21	44	25
	BUS	2	0	0	0	0	0	1	1	0	3	0	1	3	3	4	4
14:00	CAR	228	0	28	0	0	0	242	35	0	109	37	45	507	109	515	172
	TRK	4	0	0	0	0	0	26	6	0	24	0	6	30	24	36	30
	BUS	4	0	0	0	0	0	2	1	0	0	1	2	7	0	8	1
14:15	CAR	197	0	17	0	0	0	249	27	0	114	32	29	478	114	475	158
	TRK	12	0	2	0	0	0	25	2	0	11	1	1	38	11	38	15
	BUS	3	0	0	0	0	0	2	1	0	1	0	1	5	1	6	2
14:30	CAR	240	0	28	0	0	0	181	33	0	87	38	47	459	87	468	148
	TRK	5	0	0	0	0	0	24	3	0	20	2	3	31	20	32	23
	BUS	3	0	0	0	0	0	2	0	0	1	0	2	5	1	7	1
14:45	CAR	196	0	17	0	0	0	219	35	0	138	31	45	446	138	460	190
	TRK	16	0	3	0	0	0	37	6	0	18	0	4	53	18	57	27
	BUS	3	0	0	0	0	0	2	1	0	0	1	1	6	0	6	1
15:00	CAR	184	0	23	0	0	0	312	59	0	75	33	38	529	75	534	157
	TRK	11	0	2	0	0	0	23	1	0	17	0	3	34	17	37	20
	BUS	0	0	0	0	0	0	3	1	0	1	0	3	3	1	6	2
16:15	CAR	246	0	28	0	0	0	168	53	0	174	55	47	469	174	461	255
	TRK	10	0	0	0	0	0	7	2	0	11	0	0	17	11	17	13
	BUS	4	0	0	0	0	0	0	2	0	6	2	4	6	6	8	8
16:30	CAR	249	0	20	0	0	0	221	56	0	156	44	40	514	156	510	232
	TRK	3	0	1	0	0	0	6	2	0	6	4	3	13	6	12	9
	BUS	5	0	0	0	0	0	1	2	0	0	0	0	6	0	6	2
16:45	CAR	229	0	11	0	0	0	235	65	0	206	35	44	499	206	508	282
	TRK	4	0	1	0	0	0	8	4	0	7	3	1	15	7	13	12
	BUS	1	0	0	0	0	0	6	0	0	0	1	0	8	0	7	0
17:00	CAR	230	0	18	0	0	0	221	58	0	224	41	39	492	224	490	300
	TRK	6	0	0	0	0	0	7	2	0	10	3	3	16	10	16	12
	BUS	1	0	0	0	0	0	1	1	0	5	0	2	2	5	4	6
17:15	CAR	223	0	26	0	0	0	176	70	0	179	32	32	431	179	431	275
	TRK	2	0	0	0	0	0	6	1	0	11	2	1	10	11	9	12
	BUS	0	0	0	0	0	0	4	1	0	4	1	2	5	4	6	5
17:30	CAR	252	0	16	0	0	0	205	62	0	197	31	33	488	197	490	275
	TRK	3	0	2	0	0	0	9	2	0	9	1	4	13	9	16	13
	BUS	1	0	0	0	0	0	4	0	0	3	1	1	6	3	6	3
17:45	CAR	273	0	19	0	0	0	191	69	0	216	47	31	511	216	495	304
	TRK	1	0	0	0	0	0	6	2	0	9	0	1	7	9	8	11
	BUS	1	0	0	0	0	0	5	0	0	6	0	2	6	6	8	6
18:00	CAR	261	0	39	0	0	0	206	49	0	160	58	41	525	160	508	248
	TRK	7	0	0	0	0	0	7	1	0	11	3	4	17	11	18	12
	BUS	3	0	0	0	0	0	1	1	0	5	1	1	5	5	5	6
AM PEAK (7:45-8:45)	CAR	617	0	38	0	0	0	1276	147	0	563	143	225	2036	563	2118	748
	TRK	47	0	2	0	0	0	66	13	0	68	11	18	124	68	131	83
PM PEAK (16:15-17:15)	CAR	954	0	77	0	0	0	845	232	0	760	175	170	1974	760	1969	1069
	TRK	23	0	2	0	0	0	28	10	0	34	10	7	61	34	58	46
AHV	CAR	392.75	0	28.75	0	0	0	530.25	94.75	0	330.75	79.5	98.75	1002.5	330.75	1021.75	454.25
(Average Hourly Vol.)	TRK	17.5	0	1	0	0	0	23.5	5.75	0	25.5	5.25	6.25	46.25	25.5	47.25	32.25
AADT	CAR	6284	0	460	0	0	0	8484	1516	0	5292	1272	1580	16040	5292	16348	7268
(An. Avg. Daily Traffic)	TRK	280	0	16	0	0	0	376	92	0	408	84	100	740	408	756	516

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Table D3-35: TMC Traffic Dat: RICHMOND ST AT YORK ST (PX 74)

		Jan-18-2017 (Wednesday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: --	ID: --	ID: --	ID: OLS72
7:45	CAR	50	0	22	0	0	0	0	3	0	141	23	0	73	141	50	166
	TRK	0	0	1	0	0	0	0	0	0	11	1	0	1	11	0	12
	BUS	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	4
8:00	CAR	44	0	28	0	0	0	0	3	0	160	24	0	68	160	44	191
	TRK	2	0	0	0	0	0	0	0	0	6	0	0	2	6	2	6
	BUS	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	4
8:15	CAR	55	0	32	0	0	0	0	4	0	157	27	0	82	157	55	193
	TRK	3	0	1	0	0	0	0	0	0	5	0	0	3	5	3	6
	BUS	0	0	1	0	0	0	0	0	0	5	0	0	0	5	0	6
8:30	CAR	58	0	29	0	0	0	0	7	0	152	23	0	81	152	58	188
	TRK	0	0	3	0	0	0	0	0	0	2	0	0	0	2	0	5
	BUS	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1
8:45	CAR	58	0	45	0	0	0	0	5	0	178	27	0	85	178	58	228
	TRK	0	0	1	0	0	0	0	0	0	5	0	0	0	5	0	6
	BUS	1	0	0	0	0	0	0	0	0	5	0	0	1	5	1	5
9:00	CAR	70	0	48	0	0	0	0	5	0	175	32	0	102	175	70	228
	TRK	3	0	0	0	0	0	0	0	0	8	1	0	4	8	3	8
	BUS	0	0	1	0	0	0	0	0	0	4	0	0	0	4	0	5
9:15	CAR	61	0	36	0	0	0	0	11	0	190	27	0	88	190	61	237
	TRK	1	0	3	0	0	0	0	0	0	7	0	0	1	7	1	10
	BUS	1	0	1	0	0	0	0	0	0	2	0	0	1	2	1	3
9:30	CAR	80	0	44	0	0	0	0	7	0	176	12	0	92	176	80	227
	TRK	1	0	1	0	0	0	0	0	0	7	1	0	2	7	1	8
	BUS	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1
10:15	CAR	57	0	40	0	0	0	0	6	0	148	22	0	79	148	57	194
	TRK	1	0	3	0	0	0	0	0	0	6	0	0	1	6	1	9
	BUS	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
10:30	CAR	49	0	36	0	0	0	0	10	0	139	27	0	76	139	49	185
	TRK	2	0	2	0	0	0	0	0	0	7	1	0	3	7	2	9
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	CAR	52	0	38	0	0	0	0	6	0	147	15	0	67	147	52	191
	TRK	1	0	1	0	0	0	0	0	0	9	0	0	1	9	1	10
	BUS	2	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0
11:00	CAR	38	0	45	0	0	0	0	5	0	146	18	0	56	146	38	196
	TRK	1	0	1	0	0	0	0	0	0	5	1	0	2	5	1	6
	BUS	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
11:15	CAR	50	0	38	0	0	0	0	8	0	153	21	0	71	153	50	199
	TRK	1	0	2	0	0	0	1	0	0	3	0	0	2	3	2	5
	BUS	2	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0
11:30	CAR	45	0	29	0	0	0	0	4	0	162	16	0	61	162	45	195
	TRK	2	0	0	0	0	0	0	0	0	7	0	0	2	7	2	7
	BUS	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	2
11:45	CAR	49	0	41	0	0	0	0	3	0	144	14	0	63	144	49	188
	TRK	1	0	1	0	0	0	0	0	0	5	1	0	2	5	1	6
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	CAR	52	0	32	0	0	0	0	7	0	151	20	0	72	151	52	190
	TRK	1	0	1	0	0	0	0	0	0	4	0	0	1	4	1	5
	BUS	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1
13:15	CAR	52	0	44	0	0	0	0	10	0	120	23	0	75	120	52	174
	TRK	0	0	1	0	0	0	1	0	0	5	0	0	1	5	1	6
	BUS	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1
13:30	CAR	41	0	42	0	0	0	0	7	0	144	22	0	63	144	41	193
	TRK	1	0	2	0	0	0	0	0	0	7	1	0	2	7	1	9
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45	CAR	43	0	35	0	0	0	0	5	0	160	19	0	62	160	43	200
	TRK	1	0	1	0	0	0	0	0	0	4	1	0	2	4	1	5
	BUS	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
14:00	CAR	50	0	40	0	0	0	0	3	0	149	16	0	66	149	50	192
	TRK	0	0	3	0	0	0	0	0	0	9	0	0	0	9	0	12
	BUS	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1
14:15	CAR	61	0	32	0	0	0	0	8	0	152	20	0	81	152	61	192
	TRK	1	0	1	0	0	0	0	0	0	6	0	0	1	6	1	7
	BUS	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	2
14:30	CAR	45	0	48	0	0	0	0	6	0	143	12	0	57	143	45	197
	TRK	0	0	2	0	0	0	1	0	0	7	1	0	2	7	1	9
	BUS	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1
14:45	CAR	54	0	39	0	0	0	0	9	0	150	30	0	84	150	54	198
	TRK	1	0	2	0	0	0	0	0	0	6	0	0	1	6	1	8
	BUS	1	0	0	0	0	0	0	0	0	2	0	0	1	2	1	2
15:00	CAR	48	0	47	0	0	0	0	15	0	157	20	0	68	157	48	219
	TRK	1	0	0	0	0	0	0	0	0	5	1	0	2	5	1	5
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	CAR	45	0	52	0	0	0	0	8	0	181	9	0	54	181	45	241
	TRK	1	0	1	0	0	0	0	0	0	4	1	0	2	4	1	5
	BUS	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	5
16:30	CAR	42	0	71	0	0	0	0	11	0	209	18	0	60	209	42	291
	TRK	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	4
	BUS	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1
16:45	CAR	48	0	74	0	0	0	0	6	0	219	15	0	63	219	48	299
	TRK	0	0	2	0	0	0	0	0	0	3	0	0	0	3	0	5
	BUS	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	3
17:00	CAR	46	0	70	0	0	0	0	11	0	208	8	0	54	208	46	289
	TRK	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1
	BUS	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	3
17:15	CAR	50	0	76	0	0	0	0	9	0	209	16	0	66	209	50	294
	TRK	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	5
	BUS	0	0	0	0	0	0	0	0	0	2	1	0	1	2	0	2
17:30	CAR	67	0	82	0	0	0	0	13	0	165	11	0	78	165	67	260
	TRK	0	0	1	0	0	0	0	0	0	2	0	0	0	2	0	3
	BUS	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	3
17:45	CAR	52	0	72	0	0	0	0	14	0	231	23	0	75	231	52	317
	TRK	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1
	BUS	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	2
18:00	CAR	69	0	74	0	0	0	0	13	0	203	21	0	90	203	69	290
	TRK	0	0	0	0	0	0	0	0	0	2	1	0	1	2	0	2
	BUS	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	3
AM PEAK (8:45-9:45)	CAR	269	0	173	0	0	0	0	28	0	719	98	0	367	719	269	920
	TRK	5	0	5	0	0	0	0	0	0	27	2	0	7	27	5	32
PM PEAK (17:00-18:00)	CAR	215	0	300	0	0	0	0	47	0	813	58	0	273	813	215	1160
	TRK	1	0	1	0	0	0	0	0	0	9	0	0	1	9	1	10
AHV (Average Hourly Vol.)	CAR	121	0	118.25	0	0	0	0	18.75	0	383	39	0	160	383	121	520
	TRK	1.5	0	1.5	0	0	0	0	0	0	9	0.5	0	2	9	1.5	10.5
AADT (An. Avg. Daily Traffic)	CAR	1936	0	1892	0	0	0	0	300	0	6128	624	0	2560	6128	1936	8320
	TRK	24	0	24	0	0	0	0	0	0	144	8	0	32	144	24	168

Ontario Line South
Air Quality Qualitative Assessment
Metrolinx, May 2020

Table D3-36: TMC Traffic Dat: RICHMOND ST AT VICTORIA ST (PX 27)

		Jun-15-2017 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: --	: OLS76, OLS	ID: --	ID: OLS75
7:45	CAR	24	0	8	0	0	0	12	13	0	258	18	11	54	258	47	279
	TRK	0	0	1	0	0	0	2	1	0	12	0	1	2	12	3	14
	BUS	0	0	0	0	0	0	0	0	0	6	0	0	0	6	0	6
8:00	CAR	20	0	19	0	0	0	13	16	0	301	21	6	54	301	39	336
	TRK	2	0	2	0	0	0	1	0	0	5	0	0	3	5	3	7
	BUS	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	4
8:15	CAR	24	0	29	0	0	0	18	11	0	303	24	8	66	303	50	343
	TRK	0	0	2	0	0	0	1	1	0	10	0	2	1	10	3	13
	BUS	0	0	0	0	0	0	0	1	0	5	0	0	0	5	0	6
8:30	CAR	27	0	28	0	0	0	17	22	0	322	17	6	61	322	50	372
	TRK	1	0	3	0	0	0	1	5	0	3	1	0	3	3	2	11
	BUS	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	4
8:45	CAR	21	0	23	0	0	0	23	20	0	276	27	6	71	276	50	319
	TRK	1	0	1	0	0	0	0	1	0	8	0	0	1	8	1	10
	BUS	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	4
9:00	CAR	26	0	21	0	0	0	27	22	0	295	21	10	74	295	63	338
	TRK	0	0	1	0	0	0	1	0	0	9	0	0	1	9	1	10
	BUS	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	5
9:15	CAR	31	0	28	0	0	0	23	20	0	289	26	6	80	289	60	337
	TRK	1	0	1	0	0	0	0	1	0	4	0	0	1	4	1	6
	BUS	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	4
9:30	CAR	22	0	24	0	0	0	17	20	0	244	21	9	60	244	48	288
	TRK	0	0	5	0	0	0	2	2	0	9	0	0	2	9	2	16
	BUS	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0	2
10:15	CAR	19	0	25	0	0	0	20	25	0	195	31	4	70	195	43	245
	TRK	0	0	1	0	0	0	3	3	0	10	1	1	4	10	4	14
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	CAR	29	0	21	0	0	0	13	24	0	213	21	5	63	213	47	258
	TRK	3	0	6	0	0	0	1	1	0	17	1	0	5	17	4	24
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	CAR	19	0	19	0	0	0	21	28	0	210	15	14	55	210	54	257
	TRK	3	0	2	0	0	0	1	1	0	9	2	0	6	9	4	12
	BUS	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
11:00	CAR	24	0	21	0	0	0	14	20	0	207	32	23	70	207	61	248
	TRK	0	0	5	0	0	0	1	1	0	13	2	0	3	13	1	19
	BUS	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1
11:15	CAR	19	0	24	0	0	0	20	16	0	191	27	12	66	191	51	231
	TRK	0	0	4	0	0	0	1	0	0	9	1	0	2	9	1	13
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	CAR	26	0	14	0	0	0	20	21	0	160	29	16	75	160	62	195
	TRK	1	0	2	0	0	0	0	2	0	10	0	0	1	10	1	14
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	CAR	22	0	17	0	0	0	23	22	0	223	23	12	68	223	57	262
	TRK	0	0	2	0	0	0	1	2	0	10	1	1	2	10	2	14
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	CAR	17	0	20	0	0	0	22	23	0	210	21	12	60	210	51	253
	TRK	3	0	3	0	0	0	1	1	0	8	1	0	5	8	4	12
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15	CAR	25	0	21	0	0	0	20	25	0	192	16	14	61	192	59	238
	TRK	0	0	2	0	0	0	2	0	0	4	1	0	3	4	2	6
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30	CAR	16	0	23	0	0	0	23	15	0	160	21	10	60	160	49	198
	TRK	0	0	4	0	0	0	1	3	0	5	0	0	1	5	1	12
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45	CAR	14	0	19	0	0	0	12	13	0	185	22	14	48	185	40	217
	TRK	1	0	1	0	0	0	3	2	0	12	0	0	4	12	4	15
	BUS	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	2
14:00	CAR	19	0	15	0	0	0	18	22	0	199	24	11	61	199	48	236
	TRK	2	0	1	0	0	0	0	1	0	14	0	1	2	14	3	16
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15	CAR	22	0	23	0	0	0	38	23	0	181	21	11	81	181	71	227
	TRK	1	0	2	0	0	0	2	0	0	10	1	0	4	10	3	12
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30	CAR	18	0	17	0	0	0	33	24	0	196	25	14	76	196	65	237
	TRK	0	0	0	0	0	0	1	1	0	3	0	1	1	3	2	4
	BUS	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1
14:45	CAR	8	0	15	0	0	0	23	25	0	202	28	13	59	202	44	242
	TRK	0	0	2	0	0	0	1	2	0	9	1	0	2	9	1	13
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00	CAR	16	0	15	0	0	0	21	20	0	202	18	10	55	202	47	237
	TRK	1	0	2	0	0	0	0	1	0	9	0	1	1	9	2	12
	BUS	0	0	0	0	0	0	1	0	0	2	0	0	1	2	1	2
16:15	CAR	31	0	17	0	0	0	46	25	0	212	18	12	95	212	89	254
	TRK	0	0	1	0	0	0	0	1	0	7	0	0	0	7	0	9
	BUS	0	0	0	0	0	0	0	0	0	2	0	1	0	2	1	2
16:30	CAR	19	0	22	0	0	0	25	26	0	272	21	7	65	272	51	320
	TRK	0	0	1	0	0	0	0	2	0	2	1	0	1	2	0	5
	BUS	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1	1
16:45	CAR	28	0	24	0	0	0	22	34	0	278	21	7	71	278	57	336
	TRK	0	0	1	0	0	0	1	2	0	3	0	0	1	3	1	6
	BUS	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	4
17:00	CAR	29	0	25	0	0	0	23	28	0	267	29	9	81	267	61	320
	TRK	4	0	2	0	0	0	1	2	0	2	0	0	5	2	5	6
	BUS	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	3
17:15	CAR	36	0	23	0	0	0	28	24	0	253	27	8	91	253	72	300
	TRK	1	0	2	0	0	0	1	0	0	4	0	0	2	4	2	6
	BUS	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	4
17:30	CAR	45	0	20	0	0	0	21	23	0	197	24	7	90	197	73	240
	TRK	0	0	2	0	0	0	0	1	0	1	0	0	0	1	0	4
	BUS	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	2
17:45	CAR	35	0	18	0	0	0	24	26	0	241	25	6	84	241	65	285
	TRK	1	0	0	0	0	0	1	0	0	3	0	0	2	3	2	3
	BUS	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	4
18:00	CAR	52	0	18	0	0	0	35	20	0	220	38	9	125	220	96	258
	TRK	1	0	0	0	0	0	0	1	0	4	0	0	1	4	1	5
	BUS	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1
AM PEAK (8:15-9:15)	CAR	98	0	101	0	0	0	85	75	0	1196	89	30	272	1196	213	1372
	TRK	2	0	7	0	0	0	3	7	0	30	1	2	6	30	7	44
PM PEAK (16:30-17:30)	CAR	112	0	94	0	0	0	98	112	0	1070	98	31	308	1070	241	1276
	TRK	5	0	6	0	0	0	3	6	0	11	1	0	9	11	8	23
AHV	CAR	52.5	0	48.75	0	0	0	45.75	46.75	0	566.5	46.75	15.25	145	566.5	113.5	662
(Average Hourly Vol.)	TRK	1.75	0	3.25	0	0	0	1.5	3.25	0	10.25	0.5	0.5	3.75	10.25	3.75	16.75
AADT	CAR	840	0	780	0	0	0	732	748	0	9064	748	244	2320	9064	1816	10592
(An. Avg. Daily Traffic)	TRK	28	0	52	0	0	0	24	52	0	164	8	8	60	164	60	268

Ontario Line South
Air Quality Qualitative Assessment
Metrolinx, May 2020

Table D3-37: LAKE SHORE BLVD AT LOWER SHERBOURNE ST & SHERBOURNE ST (PX 203)

		Sep-07-2017 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: OLS40	ID: OLS16	ID: --	ID: OLS16
7:45	CAR	0	0	1	68	20	35	15	32	6	165	19	1	69	239	36	266
	TRK	0	0	0	11	3	0	0	0	0	21	1	0	1	32	3	32
	BUS	0	0	0	0	0	0	3	1	0	2	0	0	3	2	3	3
8:00	CAR	0	0	0	60	9	33	11	15	5	200	16	0	60	265	20	275
	TRK	0	0	0	6	2	0	1	0	0	12	0	0	1	18	3	18
	BUS	0	0	0	0	0	0	2	0	0	1	0	0	2	1	2	1
8:15	CAR	0	0	0	61	7	39	20	24	5	177	23	3	82	243	30	262
	TRK	0	0	0	2	0	1	2	1	2	15	0	0	3	19	2	18
	BUS	0	0	0	0	0	0	5	1	0	2	0	0	5	2	5	3
8:30	CAR	0	0	1	52	20	34	18	28	9	223	33	4	85	284	42	304
	TRK	0	0	0	4	2	2	2	1	1	11	0	0	4	16	4	16
	BUS	0	0	0	0	0	0	2	0	0	1	0	0	2	1	2	1
8:45	CAR	0	0	0	55	27	32	7	18	0	238	37	4	76	293	38	311
	TRK	0	0	0	3	0	0	1	1	1	18	1	0	2	22	1	22
	BUS	0	0	0	1	0	0	4	0	1	3	0	0	4	5	4	4
9:00	CAR	0	0	0	70	16	50	12	20	5	215	31	2	93	290	30	305
	TRK	0	0	0	7	3	0	0	2	0	25	2	0	2	32	3	34
	BUS	0	0	0	0	0	0	4	0	0	2	0	0	4	2	4	2
9:15	CAR	0	0	0	73	17	48	18	40	9	198	40	0	106	280	35	311
	TRK	0	0	0	14	1	0	4	2	4	6	1	0	5	24	5	22
	BUS	0	0	0	0	0	0	2	0	0	2	0	0	2	2	2	2
9:30	CAR	0	0	0	74	9	40	16	29	6	176	25	1	81	256	26	279
	TRK	0	0	0	6	2	3	1	1	0	12	1	0	5	18	3	19
	BUS	0	0	0	0	0	0	2	0	0	2	0	0	2	2	2	2
10:15	CAR	0	0	0	75	13	50		26	6	145	13	1	63	226	14	246
	TRK	0	0	0	5	2	1	2	1	2	22	1	0	4	29	4	28
	BUS	0	0	0	1	0	0	1	0	0	0	0	0	1	1	1	1
10:30	CAR	0	0	2	57	9	23	21	22	12	133	17	1	61	202	31	214
	TRK	0	0	0	11	2	1	1	1	1	26	0	0	2	38	3	38
	BUS	0	0	0	1	0	0	6	0	0	1	0	0	6	2	6	2
10:45	CAR	1	0	1	79	11	27	14	20	5	160	12	4	54	244	30	260
	TRK	0	0	0	8	2	1	2	1	1	23	2	0	5	32	4	32
	BUS	0	0	0	1	0	0	2	0	0	0	0	0	2	1	2	1
11:00	CAR	0	0	0	79	9	32	21	19	8	146	15	2	68	233	32	244
	TRK	0	0	1	11	3	2	2	0	0	11	1	0	5	22	5	23
	BUS	0	0	0	1	0	0	3	0	0	1	0	0	3	2	3	2
11:15	CAR	0	0	0	68	7	27	20	22	5	141	22	1	69	214	28	231
	TRK	0	0	0	11	3	3	0	2	0	19	2	0	5	30	3	32
	BUS	0	0	0	2	1	0	3	0	0	1	0	0	3	3	4	3
11:30	CAR	0	0	0	61	4	26	15	41	5	159	21	4	62	225	23	261
	TRK	1	0	0	8	2	3	5	0	3	18	1	0	10	29	8	26
	BUS	0	0	0	1	0	0	2	0	0	0	0	0	2	1	2	1
11:45	CAR	1	0	1	63	8	34	17	30	4	159	18	0	70	226	26	253
	TRK	0	0	0	16	1	1	2	1	2	18	1	0	4	36	3	35
	BUS	0	0	0	1	0	0	2	0	0	1	0	0	2	2	2	2
12:00	CAR	0	0	0	84	10	27	15	45	2	140	22	0	64	226	25	269
	TRK	0	0	0	12	0	0	1	1	1	26	0	0	1	39	1	39
	BUS	0	0	0	0	0	0	3	0	0	2	0	0	3	2	3	2
13:15	CAR	2	0	1	45	7	18	31	38	11	153	21	1	72	209	41	237
	TRK	0	0	1	21	1	2	0	1	0	17	1	0	3	38	1	40
	BUS	0	0	0	2	0	0	1	0	0	1	0	0	1	3	1	3
13:30	CAR	0	0	0	55	4	16	17	38	6	140	12	0	45	201	21	233
	TRK	0	0	0	14	4	1	1	3	1	18	3	0	5	33	5	35
	BUS	0	0	0	0	0	0	3	0	0	1	0	0	3	1	3	1
13:45	CAR	0	1	0	56	2	38	23	49	9	152	12	3	73	218	28	257
	TRK	0	1	0	6	0	2	2	1	2	14	0	0	4	23	2	21
	BUS	0	0	0	0	0	0	2	0	0	2	0	0	2	2	2	2
14:00	CAR	2	0	1	64	4	17	17	45	6	143	15	1	51	213	24	253
	TRK	0	0	0	16	3	0	1	2	1	22	1	0	2	39	4	40
	BUS	0	0	0	0	0	0	2	0	0	0	0	0	2	0	2	0
14:15	CAR	0	1	0	50	7	16	17	48	8	187	16	2	49	246	26	285
	TRK	0	0	0	6	1	2	5	2	3	23	1	0	8	32	6	31
	BUS	0	0	0	0	0	0	2	0	0	0	0	0	2	0	2	0
14:30	CAR	1	2	2	71	7	24	20	41	12	170	24	4	69	255	32	284
	TRK	0	0	0	9	1	0	6	1	4	14	1	0	7	27	7	24
	BUS	0	0	0	1	0	0	1	0	0	0	0	0	1	1	1	1
14:45	CAR	0	1	1	60	3	24	23	49	10	151	12	2	59	222	28	261
	TRK	0	0	1	7	5	1	5	2	3	25	1	0	7	35	10	35
	BUS	0	0	0	0	0	0	2	0	0	3	0	0	2	3	2	3
15:00	CAR	0	0	1	62	4	23	28	59	11	188	21	1	72	261	33	310
	TRK	0	0	0	4	3	1	3	3	2	28	0	0	4	34	6	35
	BUS	0	0	0	0	0	0	2	0	0	2	0	0	2	2	2	2
16:15	CAR	1	0	0	95	0	26	17	39	6	176	30	6	74	277	24	310
	TRK	0	0	0	5	0	0	0	2	0	6	0	0	0	11	0	13
	BUS	0	0	0	0	0	0	2	0	0	0	0	0	2	0	2	0
16:30	CAR	0	0	0	94	6	31	35	49	11	161	36	13	102	266	54	304
	TRK	0	0	0	2	0	1	1	1	0	6	0	0	2	8	1	9
	BUS	0	0	0	1	0	0	4	0	0	0	0	2	4	1	6	1
16:45	CAR	1	0	3	117	10	37	29	36	11	150	27	5	94	278	45	306
	TRK	0	0	0	1	2	0	3	0	0	6	1	0	4	7	5	7
	BUS	0	0	0	0	0	1	0	0	0	4	0	0	1	4	0	4
17:00	CAR	0	0	0	134	7	34	38	55	15	151	36	6	108	300	51	340
	TRK	0	0	0	2	1	0	0	1	0	8	0	0	0	10	1	11
	BUS	0	0	0	0	0	0	2	0	0	0	0	0	2	0	2	0
17:15	CAR	1	0	0	111	3	37	40	59	13	188	24	9	102	312	53	358
	TRK	0	0	0	5	2	0	2	1	2	9	0	0	2	16	4	15
	BUS	0	0	0	0	0	0	4	0	0	0	0	0	4	0	4	0
17:30	CAR	1	0	2	103	6	43	37	67	16	189	39	8	120	308	52	361
	TRK	0	0	0	0	0	1	0	2	0	5	0	0	1	5	0	7
	BUS	0	0	0	0	0	0	1	0	0	0	1	0	2	0	1	0
17:45	CAR	1	0	0	121	6	37	26	55	13	207	34	6	98	341	39	383
	TRK	0	0	0	1	0	0	0	0	0	3	0	0	0	4	0	4
	BUS	0	0	0	0	0	0	2	0	0	0	0	0	2	0	2	0
18:00	CAR	1	0	0	120	1	51	25	41	10	189	26	6	103	319	33	350
	TRK	0	0	0	1	1	0	0	0	0	4	0	0	0	5	1	5
	BUS	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
AM PEAK (8:30-9:30)	CAR	0	0	1	250	80	164	55	106	23	874	141	10	360	1147	145	1231
	TRK	0	0	0	28	6	2	7	6	6	60	4	0	13	94	13	94
PM PEAK (17:00-18:00)	CAR	3	0	2	469	22	151	141	236	57	735	133	29	428	1261	195	1442
	TRK	0	0	0	8	3	1	2	4	2	25	0	0	3	35	5	37
AHV	CAR	0.75	0	0.75	179.75	25.5	78.75	49	85.5	20	402.25	68.5	9.75	197	602	85	668.25
(Average Hourly Vol.)	TRK	0	0	0	9	2.25	0.75	2.25	2.5	2	21.25	1	0	4	32.25	4.5	32.75
AADT	CAR	12	0	12	2876	408	1260	784	1368	320	6436	1096	156	3152	9632	1360	10692
(An. Avg. Daily Traffic)	TRK	0	0	0	144	36	12	36	40	32	340	16	0	64	516	72	524

Ontario Line South
Air Quality Qualitative Assessment
Metrolinx, May 2020

Table D3-38: LAKE SHORE BLVD AT LOWER SHERBOURNE ST & SHERBOURNE ST (PX 203)

		Sep-07-2017 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: OLS40	ID: --	ID: --	ID: --
7:45	CAR	0	0	1	68	20	35	15	32	6	165	19	1	69	239	36	266
	TRK	0	0	0	11	3	0	0	0	0	21	1	0	1	32	3	32
	BUS	0	0	0	0	0	0	3	1	0	2	0	0	3	2	3	3
8:00	CAR	0	0	0	60	9	33	11	15	5	200	16	0	60	265	20	275
	TRK	0	0	0	6	2	0	1	0	0	12	0	0	1	18	3	18
	BUS	0	0	0	0	0	0	2	0	0	1	0	0	2	1	2	1
8:15	CAR	0	0	0	61	7	39	20	24	5	177	23	3	82	243	30	262
	TRK	0	0	0	2	0	1	2	1	2	15	0	0	3	19	2	18
	BUS	0	0	0	0	0	0	5	1	0	2	0	0	5	2	5	3
8:30	CAR	0	0	1	52	20	34	18	28	9	223	33	4	85	284	42	304
	TRK	0	0	0	4	2	2	2	1	1	11	0	0	4	16	4	16
	BUS	0	0	0	0	0	0	2	0	0	1	0	0	2	1	2	1
8:45	CAR	0	0	0	55	27	32	7	18	0	238	37	4	76	293	38	311
	TRK	0	0	0	3	0	0	1	1	1	18	1	0	2	22	1	22
	BUS	0	0	0	1	0	0	4	0	1	3	0	0	4	5	4	4
9:00	CAR	0	0	0	70	16	50	12	20	5	215	31	2	93	290	30	305
	TRK	0	0	0	7	3	0	0	2	0	25	2	0	2	32	3	34
	BUS	0	0	0	0	0	0	4	0	0	2	0	0	4	2	4	2
9:15	CAR	0	0	0	73	17	48	18	40	9	198	40	0	106	280	35	311
	TRK	0	0	0	14	1	0	4	2	4	6	1	0	5	24	5	22
	BUS	0	0	0	0	0	0	2	0	0	2	0	0	2	2	2	2
9:30	CAR	0	0	0	74	9	40	16	29	6	176	25	1	81	256	26	279
	TRK	0	0	0	6	2	3	1	1	0	12	1	0	5	18	3	19
	BUS	0	0	0	0	0	0	2	0	0	2	0	0	2	2	2	2
10:15	CAR	0	0	0	75	13	50		26	6	145	13	1	63	226	14	246
	TRK	0	0	0	5	2	1	2	1	2	22	1	0	4	29	4	28
	BUS	0	0	0	1	0	0	1	0	0	0	0	0	1	1	1	1
10:30	CAR	0	0	2	57	9	23	21	22	12	133	17	1	61	202	31	214
	TRK	0	0	0	11	2	1	1	1	1	26	0	0	2	38	3	38
	BUS	0	0	0	1	0	0	6	0	0	1	0	0	6	2	6	2
10:45	CAR	1	0	1	79	11	27	14	20	5	160	12	4	54	244	30	260
	TRK	0	0	0	8	2	1	2	1	1	23	2	0	5	32	4	32
	BUS	0	0	0	1	0	0	2	0	0	0	0	0	2	1	2	1
11:00	CAR	0	0	0	79	9	32	21	19	8	146	15	2	68	233	32	244
	TRK	0	0	1	11	3	2	2	0	0	11	1	0	5	22	5	23
	BUS	0	0	0	1	0	0	3	0	0	1	0	0	3	2	3	2
11:15	CAR	0	0	0	68	7	27	20	22	5	141	22	1	69	214	28	231
	TRK	0	0	0	11	3	3	0	2	0	19	2	0	5	30	3	32
	BUS	0	0	0	2	1	0	3	0	0	1	0	0	3	3	4	3
11:30	CAR	0	0	0	61	4	26	15	41	5	159	21	4	62	225	23	261
	TRK	1	0	0	8	2	3	5	0	3	18	1	0	10	29	8	26
	BUS	0	0	0	1	0	0	2	0	0	0	0	0	2	1	2	1
11:45	CAR	1	0	1	63	8	34	17	30	4	159	18	0	70	226	26	253
	TRK	0	0	0	16	1	1	2	1	2	18	1	0	4	36	3	35
	BUS	0	0	0	1	0	0	2	0	0	1	0	0	2	2	2	2
12:00	CAR	0	0	0	84	10	27	15	45	2	140	22	0	64	226	25	269
	TRK	0	0	0	12	0	0	1	1	1	26	0	0	1	39	1	39
	BUS	0	0	0	0	0	0	3	0	0	2	0	0	3	2	3	2
13:15	CAR	2	0	1	45	7	18	31	38	11	153	21	1	72	209	41	237
	TRK	0	0	1	21	1	2	0	1	0	17	1	0	3	38	1	40
	BUS	0	0	0	2	0	0	1	0	0	1	0	0	1	3	1	3
13:30	CAR	0	0	0	55	4	16	17	38	6	140	12	0	45	201	21	233
	TRK	0	0	0	14	4	1	1	3	1	18	3	0	5	33	5	35
	BUS	0	0	0	0	0	0	3	0	0	1	0	0	3	1	3	1
13:45	CAR	0	1	0	56	2	38	23	49	9	152	12	3	73	218	28	257
	TRK	0	1	0	6	0	2	2	1	2	14	0	0	4	23	2	21
	BUS	0	0	0	0	0	0	2	0	0	2	0	0	2	2	2	2
14:00	CAR	2	0	1	64	4	17	17	45	6	143	15	1	51	213	24	253
	TRK	0	0	0	16	3	0	1	2	1	22	1	0	2	39	4	40
	BUS	0	0	0	0	0	0	2	0	0	0	0	0	2	0	2	0
14:15	CAR	0	1	0	50	7	16	17	48	8	187	16	2	49	246	26	285
	TRK	0	0	0	6	1	2	5	2	3	23	1	0	8	32	6	31
	BUS	0	0	0	0	0	0	2	0	0	0	0	0	2	0	2	0
14:30	CAR	1	2	2	71	7	24	20	41	12	170	24	4	69	255	32	284
	TRK	0	0	0	9	1	0	6	1	4	14	1	0	7	27	7	24
	BUS	0	0	0	1	0	0	1	0	0	0	0	0	1	1	1	1
14:45	CAR	0	1	1	60	3	24	23	49	10	151	12	2	59	222	28	261
	TRK	0	0	1	7	5	1	5	2	3	25	1	0	7	35	10	35
	BUS	0	0	0	0	0	0	2	0	0	3	0	0	2	3	2	3
15:00	CAR	0	0	1	62	4	23	28	59	11	188	21	1	72	261	33	310
	TRK	0	0	0	4	3	1	3	3	2	28	0	0	4	34	6	35
	BUS	0	0	0	0	0	0	2	0	0	2	0	0	2	2	2	2
16:15	CAR	1	0	0	95	0	26	17	39	6	176	30	6	74	277	24	310
	TRK	0	0	0	5	0	0	0	2	0	6	0	0	0	11	0	13
	BUS	0	0	0	0	0	0	2	0	0	0	0	0	2	0	2	0
16:30	CAR	0	0	0	94	6	31	35	49	11	161	36	13	102	266	54	304
	TRK	0	0	0	2	0	1	1	1	0	6	0	0	2	8	1	9
	BUS	0	0	0	1	0	0	4	0	0	0	0	2	4	1	6	1
16:45	CAR	1	0	3	117	10	37	29	36	11	150	27	5	94	278	45	306
	TRK	0	0	0	1	2	0	3	0	0	6	1	0	4	7	5	7
	BUS	0	0	0	0	0	1	0	0	0	4	0	0	1	4	0	4
17:00	CAR	0	0	0	134	7	34	38	55	15	151	36	6	108	300	51	340
	TRK	0	0	0	2	1	0	0	1	0	8	0	0	0	10	1	11
	BUS	0	0	0	0	0	0	2	0	0	0	0	0	2	0	2	0
17:15	CAR	1	0	0	111	3	37	40	59	13	188	24	9	102	312	53	358
	TRK	0	0	0	5	2	0	2	1	2	9	0	0	2	16	4	15
	BUS	0	0	0	0	0	0	4	0	0	0	0	0	4	0	4	0
17:30	CAR	1	0	2	103	6	43	37	67	16	189	39	8	120	308	52	361
	TRK	0	0	0	0	0	1	0	2	0	5	0	0	1	5	0	7
	BUS	0	0	0	0	0	0	1	0	0	0	1	0	2	0	1	0
17:45	CAR	1	0	0	121	6	37	26	55	13	207	34	6	98	341	39	383
	TRK	0	0	0	1	0	0	0	0	0	3	0	0	0	4	0	4
	BUS	0	0	0	0	0	0	2	0	0	0	0	0	2	0	2	0
18:00	CAR	1	0	0	120	1	51	25	41	10	189	26	6	103	319	33	350
	TRK	0	0	0	1	1	0	0	0	0	4	0	0	0	5	1	5
	BUS	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
AM PEAK (8:30-9:30)	CAR	0	0	1	250	80	164	55	106	23	874	141	10	360	1147	145	1231
	TRK	0	0	0	28	6	2	7	6	6	60	4	0	13	94	13	94
PM PEAK (17:00-18:00)	CAR	3	0	2	469	22	151	141	236	57	735	133	29	428	1261	195	1442
	TRK	0	0	0	8	3	1	2	4	2	25	0	0	3	35	5	37
AHV (Average Hourly Vol.)	CAR	0.75	0	0.75	179.75	25.5	78.75	49	85.5	20	402.25	68.5	9.75	197	602	85	668.25
	TRK	0	0	0	9	2.25	0.75	2.25	2.5	2	21.25	1	0	4	32.25	4.5	32.75
AADT (An. Avg. Daily Traffic)	CAR	12	0	12	2876	408	1260	784	1368	320	6436	1096	156	3152	9632	1360	10692
	TRK	0	0	0	144	36	12	36	40	32	340	16	0	64	516	72	524

Ontario Line South
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Table D3-39: TMC Traffic Dat: GERRARD ST AT MARJORY AVE (PX 1698)

		May-15-2017 (Monday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: --	ID: --	ID: --	ID: OLS7
7:45	CAR	0	7	11	108	0	0	0	0	0	145	2	0	2	260	0	264
	TRK	0	0	0	5	0	0	0	0	0	3	0	0	0	8	0	8
	BUS	0	0	0	4	0	0	0	0	0	5	0	0	0	9	0	9
8:00	CAR	0	6	9	113	0	0	0	0	0	158	2	0	2	277	0	280
	TRK	0	0	0	7	0	0	0	0	0	5	0	0	0	12	0	12
	BUS	0	0	0	6	0	0	0	0	0	6	0	0	0	12	0	12
8:15	CAR	0	7	8	114	0	0	0	0	0	148	1	0	1	269	0	270
	TRK	0	0	0	8	0	0	0	0	0	4	0	0	0	12	0	12
	BUS	0	0	0	8	0	0	0	0	0	6	0	0	0	14	0	14
8:30	CAR	3	10	13	98	0	0	0	0	0	159	1	0	4	267	3	270
	TRK	0	0	0	11	0	0	0	0	0	9	0	0	0	20	0	20
	BUS	0	0	0	7	0	0	0	0	0	6	0	0	0	13	0	13
8:45	CAR	0	6	9	95	0	0	0	0	0	174	3	0	3	275	0	278
	TRK	0	0	0	4	0	0	0	0	0	9	0	0	0	13	0	13
	BUS	0	0	0	5	0	0	0	0	0	6	0	0	0	11	0	11
9:00	CAR	0	6	7	73	0	0	0	0	0	157	3	0	3	236	0	237
	TRK	0	0	0	3	0	0	0	0	0	7	0	0	0	10	0	10
	BUS	0	0	0	6	0	0	0	0	0	11	0	0	0	17	0	17
9:15	CAR	0	6	6	68	0	1	0	1	1	149	2	0	3	224	0	224
	TRK	0	0	0	4	0	0	0	0	0	4	0	0	0	8	0	8
	BUS	0	0	0	4	0	0	0	0	0	7	0	0	0	11	0	11
9:30	CAR	0	8	7	62	0	1	0	1	0	161	1	0	2	231	0	231
	TRK	0	0	0	3	0	0	0	0	0	3	0	0	0	6	0	6
	BUS	0	0	0	3	0	0	0	0	0	4	0	0	0	7	0	7
10:15	CAR	0	6	6	69	0	0	0	0	0	114	3	0	3	189	0	189
	TRK	0	0	0	5	0	0	0	0	0	2	0	0	0	7	0	7
	BUS	0	0	0	4	0	0	0	0	0	3	0	0	0	7	0	7
10:30	CAR	0	4	5	70	0	0	0	0	0	153	2	0	2	227	0	228
	TRK	0	0	0	4	0	0	0	0	0	4	0	0	0	8	0	8
	BUS	0	0	0	6	0	0	0	0	0	3	0	0	0	9	0	9
10:45	CAR	0	8	7	71	0	2	0	0	0	139	2	0	4	218	0	217
	TRK	0	0	0	6	0	0	0	0	0	3	0	0	0	9	0	9
	BUS	0	0	0	3	0	0	0	0	0	5	0	0	0	8	0	8
11:00	CAR	0	8	10	68	0	0	0	0	0	141	3	0	3	217	0	219
	TRK	0	0	0	7	0	0	0	0	0	2	0	0	0	9	0	9
	BUS	0	0	0	3	0	0	0	0	0	4	0	0	0	7	0	7
11:15	CAR	0	6	6	70	0	0	0	1	1	148	2	0	2	225	0	225
	TRK	0	0	0	6	0	0	0	0	0	1	0	0	0	7	0	7
	BUS	0	0	0	3	0	0	0	0	0	4	0	0	0	7	0	7
11:30	CAR	0	5	5	62	0	1	0	9	6	129	6	0	7	202	0	205
	TRK	0	0	0	5	0	0	0	0	0	3	0	0	0	8	0	8
	BUS	0	0	0	3	0	0	0	0	0	3	0	0	0	6	0	6
11:45	CAR	0	5	7	70	0	0	0	0	0	144	3	0	3	219	0	221
	TRK	0	0	0	10	0	0	0	0	0	3	0	0	0	13	0	13
	BUS	0	0	0	5	0	0	0	0	0	3	0	0	0	8	0	8
12:00	CAR	0	5	6	64	0	2	0	0	0	135	2	0	4	204	0	205
	TRK	0	0	0	4	0	0	0	0	0	5	0	0	0	9	0	9
	BUS	0	0	0	3	0	0	0	0	0	3	0	0	0	6	0	6
13:15	CAR	0	3	5	107	0	2	0	0	0	131	6	0	8	241	0	243
	TRK	0	0	0	5	0	0	0	0	0	4	0	0	0	9	0	9
	BUS	0	0	0	5	0	0	0	0	0	5	0	0	0	10	0	10
13:30	CAR	0	5	4	92	0	2	0	2	0	145	4	0	6	242	0	243
	TRK	0	0	0	6	0	0	0	0	0	6	0	0	0	12	0	12
	BUS	0	0	0	4	0	0	0	0	0	5	0	0	0	9	0	9
13:45	CAR	0	9	8	97	0	0	0	0	1	112	1	0	1	219	0	217
	TRK	0	0	0	4	0	0	0	0	0	5	0	0	0	9	0	9
	BUS	0	0	0	3	0	0	0	0	0	4	0	0	0	7	0	7
14:00	CAR	0	4	6	102	0	2	0	0	0	109	2	0	4	215	0	217
	TRK	0	0	0	7	0	0	0	0	0	5	0	0	0	12	0	12
	BUS	0	0	0	3	0	0	0	0	0	5	0	0	0	8	0	8
14:15	CAR	0	8	9	110	0	0	0	2	2	117	3	0	3	237	0	238
	TRK	0	0	0	6	0	0	0	0	0	4	0	0	0	10	0	10
	BUS	0	0	0	5	0	0	0	0	0	4	0	0	0	9	0	9
14:30	CAR	0	4	7	87	0	8	0	0	0	26	1	0	9	117	0	120
	TRK	0	0	0	6	0	0	0	0	0	1	0	0	0	7	0	7
	BUS	0	0	0	4	0	0	0	0	0	1	0	0	0	5	0	5
14:45	CAR	0	6	6	84	0	0	0	0	0	103	5	0	5	193	0	193
	TRK	0	0	0	7	0	0	0	0	0	6	0	0	0	13	0	13
	BUS	0	0	0	7	0	0	0	0	0	10	0	0	0	17	0	17
15:00	CAR	1	5	7	75	0	0	0	0	0	140	3	0	4	220	1	222
	TRK	0	0	0	8	0	0	0	0	0	8	0	0	0	16	0	16
	BUS	0	0	0	4	0	0	0	0	0	8	0	0	0	12	0	12
16:15	CAR	0	3	2	172	0	4	0	1	0	102	9	0	13	277	0	277
	TRK	0	0	0	7	0	0	0	0	0	6	0	0	0	13	0	13
	BUS	0	0	0	6	0	0	0	0	0	6	0	0	0	12	0	12
16:30	CAR	0	4	5	174	0	0	0	2	0	92	2	0	2	270	0	273
	TRK	0	0	0	5	0	0	0	0	0	6	0	0	0	11	0	11
	BUS	0	0	0	5	0	0	0	0	0	7	0	0	0	12	0	12
16:45	CAR	0	5	6	169	0	0	0	4	2	113	8	0	8	289	0	292
	TRK	0	0	0	6	0	0	0	0	0	6	0	0	0	12	0	12
	BUS	0	0	0	7	0	0	0	0	0	4	0	0	0	11	0	11
17:00	CAR	12	8	23	181	0	4	0	3	2	110	6	0	22	301	12	317
	TRK	5	0	18	7	0	0	0	0	0	8	0	0	5	15	5	33
	BUS	11	2	24	7	0	0	0	0	0	7	0	0	11	16	11	38
17:15	CAR	0	8	10	171	0	3	0	0	0	98	4	0	7	277	0	279
	TRK	0	0	0	5	0	0	0	0	0	4	0	0	0	9	0	9
	BUS	0	0	0	6	0	0	0	0	0	6	0	0	0	12	0	12
17:30	CAR	0	3	2	161	0	0	0	2	2	96	3	0	3	262	0	261
	TRK	0	0	0	9	0	0	0	0	0	5	0	0	0	14	0	14
	BUS	0	0	0	7	0	0	0	0	0	7	0	0	0	14	0	14
17:45	CAR	0	2	1	163	0	0	0	6	4	97	5	0	5	266	0	267
	TRK	0	0	0	7	0	0	0	0	0	4	0	0	0	11	0	11
	BUS	0	0	0	5	0	0	0	0	0	7	0	0	0	12	0	12
18:00	CAR	0	3	2	166	0	2	0	3	2	110	6	0	8	281	0	281
	TRK	0	0	0	8	0	0	0	0	0	5	0	0	0	13	0	13
	BUS	0	0	0	6	0	0	0	0	0	4	0	0	0	10	0	10
AM PEAK (8:00-9:00)	CAR	3	29	39	420	0	0	0	0	0	639	7	0	10	1088	3	1098
	TRK	0	0	0	30	0	0	0	0	0	27	0	0	0	57	0	57
PM PEAK (16:15-17:15)	CAR	12	20	36	696	0	8	0	10	4	417	25	0	45	1137	12	1159
	TRK	5	0	18	25	0	0	0	0	0	26	0	0	5	51	5	69
AHV	CAR	3.75	12.25	18.75	279	0	2	0	2.5	1	264	8	0	13.75	556.25	3.75	564.25
(Average Hourly Vol.)	TRK	1.25	0	4.5	13.75	0	0	0	0	0	13.25	0	0	1.25	27	1.25	31.5
AADT	CAR	60	196	300	4464	0	32	0	40	16	4224	128	0	220	8900	60	9028
(An. Avg. Daily Traffic)	TRK	20	0	72	220	0	0	0	0	0	212	0	0	20	432	20	504

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Table D3-40: TMC Traffic Dat: SHUTER ST AT YONGE ST (PX 35)

		Oct-17-2019 (Thursday)															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Typ	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	ID: --	ID: --	ID: --	ID:
7:45	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
8:00	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
8:15	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
8:30	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
8:45	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
9:00	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
9:15	CAR													0	0	0	0
	TRK													0	0	0	0
	BUS													0	0	0	0
9:30	CAR	80	28	5	3	0	0	86	2	12	37	28	18	194	80	184	47
	TRK	8	4	1	0	0	0	7	0	3	1	7	6	22	8	21	2
	BUS	1	0	0	0	0	0	2	0	0	0	1	0	4	0	3	0
10:15	CAR	68	29	2	8	0	0	74	4	15	27	16	21	158	79	163	41
	TRK	13	4	0	0	0	0	10	0	5	2	7	1	30	11	24	2
	BUS	0	0	0	0	0	0	1	0	0	0	1	0	2	0	1	0
10:30	CAR	87	27	4	8	1	0	63	1	15	18	30	16	180	68	167	31
	TRK	9	5	0	0	0	0	11	0	7	0	3	1	23	12	21	0
	BUS	1	0	0	0	0	0	1	0	1	0	0	0	2	1	2	0
10:45	CAR	66	23	0	6	0	0	61	5	16	23	23	33	150	68	160	34
	TRK	10	5	0	0	0	0	10	0	3	0	4	2	24	8	22	0
	BUS	1	0	0	0	0	0	3	0	0	0	0	0	4	0	4	0
11:00	CAR	64	23	3	8	2	0	66	2	11	19	26	18	156	61	150	32
	TRK	10	9	0	0	0	0	13	0	3	1	5	2	28	13	25	1
	BUS	1	1	0	0	0	0	1	0	0	0	0	0	2	1	2	0
11:15	CAR	79	25	5	18	0	0	50	1	12	30	25	26	154	85	155	54
	TRK	12	3	0	0	0	0	8	0	3	0	4	1	24	6	21	0
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	CAR	80	25	3	15	1	0	41	1	8	23	19	27	140	71	149	42
	TRK	17	5	0	0	0	0	3	0	7	0	6	2	26	12	22	0
	BUS	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0
11:45	CAR	67	15	4	13	2	1	88	3	16	18	28	35	184	62	192	38
	TRK	13	4	0	0	0	0	9	0	7	0	8	0	30	11	22	0
	BUS	0	0	0	0	0	0	2	0	0	0	1	0	3	0	2	0
12:00	CAR	73	20	5	20	1	0	69	3	13	30	28	25	170	83	168	58
	TRK	15	3	0	0	0	0	3	0	2	0	3	2	21	5	20	0
	BUS	1	1	0	0	0	0	0	0	0	0	1	0	2	1	1	0
13:15	CAR	77	33	2	23	0	0	52	1	17	27	28	26	157	100	155	53
	TRK	13	2	0	0	0	0	8	0	4	0	5	3	26	6	24	0
	BUS	1	0	0	0	0	0	0	0	0	0	1	0	2	0	1	0
13:30	CAR	82	23	4	18	0	2	64	3	18	25	20	32	168	84	178	50
	TRK	6	1	0	0	0	0	5	0	3	1	9	2	20	5	13	1
	BUS	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
13:45	CAR	70	24	1	24	4	1	76	3	28	20	24	34	171	96	184	48
	TRK	4	3	0	0	0	0	10	0	1	1	4	2	18	5	16	1
	BUS	0	0	0	0	0	0	4	0	0	0	1	0	5	0	4	0
14:00	CAR	96	23	5	29	3	0	67	1	15	17	21	25	184	84	191	52
	TRK	8	4	1	0	0	0	7	0	1	0	3	2	18	5	17	1
	BUS	0	1	0	0	0	0	1	0	0	0	1	0	2	1	1	0
14:15	CAR	87	24	3	42	3	0	55	1	18	9	27	34	169	93	179	55
	TRK	9	5	0	0	0	0	6	0	0	0	1	1	16	5	16	0
	BUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30	CAR	83	28	2	28	0	0	63	4	15	19	33	23	179	90	169	53
	TRK	7	3	0	0	0	0	9	0	1	1	1	1	17	5	17	1
	BUS	1	0	0	0	0	0	1	0	0	0	0	0	2	0	2	0
14:45	CAR	81	29	2	17	1	0	56	2	15	12	26	23	163	73	161	33
	TRK	5	1	0	0	0	0	3	0	4	0	4	0	12	5	8	0
	BUS	2	0	0	0	0	0	1	0	0	0	3	0	6	0	3	0
15:00	CAR	90	29	3	25	3	0	62	2	16	10	30	35	182	80	190	40
	TRK	9	2	0	0	0	0	8	0	3	0	2	5	19	5	22	0
	BUS	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
16:15	CAR	91	27	3	38	2	1	62	5	21	12	24	18	178	98	173	58
	TRK	9	3	0	0	0	0	3	0	0	0	5	1	17	3	13	0
	BUS	2	0	0	0	0	0	2	0	0	0	1	0	5	0	4	0
16:30	CAR	83	18	3	34	4	0	66	2	26	16	26	17	175	94	170	55
	TRK	5	2	0	0	0	0	3	0	2	0	0	2	8	4	10	0
	BUS	1	0	0	0	0	0	0	0	0	0	2	0	3	0	1	0
16:45	CAR	105	32	4	49	1	1	60	1	22	16	24	13	190	119	179	70
	TRK	3	1	0	0	0	0	2	0	2	0	3	1	8	3	6	0
	BUS	2	1	0	0	0	0	0	0	0	0	0	0	2	1	2	0
17:00	CAR	95	30	3	40	0	0	49	2	19	17	31	18	175	106	162	62
	TRK	3	3	0	0	0	0	6	0	0	0	3	1	12	3	10	0
	BUS	3	0	0	0	0	0	1	0	0	0	0	0	4	0	4	0
17:15	CAR	86	21	3	46	0	3	69	2	25	18	35	11	193	110	166	69
	TRK	1	2	0	0	0	0	2	0	2	0	0	0	3	4	3	0
	BUS	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
17:30	CAR	94	25	0	37	2	0	77	2	23	16	21	21	192	101	194	55
	TRK	3	0	0	0	0	0	6	0	0	0	1	0	10	0	9	0
	BUS	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
17:45	CAR	102	29	4	43	2	0	72	2	17	16	23	17	197	105	193	65
	TRK	2	1	1	0	0	0	2	1	2	0	2	0	6	3	4	2
	BUS	2	0	0	0	0	0	2	0	0	0	0	0	4	0	4	0
18:00	CAR	108	30	6	39	1	1	56	2	24	21	35	19	200	114	184	68
	TRK	5	2	0	0	0	0	1	0	1	0	1	1	7	3	7	0
	BUS	1	0	0	0	0	0	3	0	0	0	0	0	4	0	4	0
AM PEAK	CAR	290	88	15	54	5	1	245	7	47	90	98	106	634	279	646	166
	TRK	52	21	0	0	0	0	33	0	20	1	23	5	108	42	90	1
PM PEAK	CAR	380	108	10	172	3	4	255	7	89	67	111	63	750	436	701	256
	TRK	10	6	0	0	0	0	16	0	4	0	7	2	33	10	28	0
AHV	CAR	167.5	49	6.25	56.5	2	1.25	125	3.5	34	39.25	52.25	42.25	346	178.75	336.75	105.5
(Average Hourly Vol.)	TRK	15.5	6.75	0	0	0	0	12.25	0	6	0.25	7.5	1.75	35.25	13	29.5	0.25
AADT	CAR	2680	784	100	904	32	20	2000	56	544	628	836	676	5536	2860	5388	1688
(An. Avg. Daily Traffic)	TRK	248	108	0	0	0	0	196	0	96	4	120	28	564	208	472	4

Table D3-41: Gardiner Expressway Traffic Data

Road Segment	AADT	% Medium Truck	% Heavy Truck	Speed (km/h)
DVP SB_Offramp to	16463	2	4	30
DVP NB_Onramp From	10351	2	4	30
DVP SB TO FGG WB	32614	2	4	60
FGG EB TO DVP NB	33319	2	4	60
FGG WB, Midblock	55539	2	4	90
FGG EB, Midblock	56582	2	4	90
FGG WB, Midblock	51781	2	4	90
FGG EB, Midblock	55111	2	4	90
FGG WB, Midblock	53355	2	4	90
FGG EB, Midblock	47138	2	4	90
Ramp FGG WB to	2995	2	4	50
Ramp Lake Shore Blvd EB	7236	2	4	50
FGG WB, Midblock	41616	2	4	90
FGG EB, Midblock	47002	2	4	90
Ramp FGG WB to Lake	8874	2	4	50
Ramp FGG WB to Yonge	3787	2	4	50
FGG WB, Midblock	42322	2	4	90
FGG EB, Midblock	42997	2	4	90
Ramp Jarvis St SB to	17908	2	4	50
Ramp Bay St NB to FGG	4499	2	4	50
Midblock Eastern Ave. to	30504	2	4	90
Midblock Don Roadway to	30234	2	4	90
FGG WB, Midblock Lower	50124	2	4	90
FGG EB, Midblock Jarvis	43215	2	4	90
FGG WB, Midblock Yonge	43231	2	4	90
FGG EB, Midblock Bay to	39407	2	4	90

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Table D3-42: TMC Traffic Data: "Don Mill RD at GateWay N BLVD (PX1389).pdf"

		2019															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right				
AM PEAK (7:45 - 8:45)	CAR	14	1280	80	1	3	4	132	1325	11	135	9	123	2729	224	2744	37
	TRK	0	54	8	2	0	0	12	78	3	16	1	11	145	21	148	4
	BUS	0	21	2	0	0	0	1	24	0	1	0	2	47	3	46	0
PM PEAK (17:00 - 18:00)	CAR	6	1335	99	3	6	14	155	1159	12	156	5	127	2624	265	2664	29
	TRK	0	62	2	0	0	0	2	39	0	4	0	3	104	4	105	0
	BUS	0	23	0	0	0	0	1	21	0	0	0	1	45	1	44	0
8 HOUR SUMMARY (7:30 - 18:00)	CAR	63	8407	462	56	33	64	1058	8302	65	1145	50	999	17764	1603	17918	211
	TRK	3	578	41	17	5	2	68	563	12	63	8	98	1256	122	1206	28
	BUS	8	139	3	13	1	10	5	149	10	3	3	8	309	12	301	22
AHV (Average Hourly Vol.)	CAR	5	653.75	44.75	1	2.25	4.5	71.75	621	5.75	72.75	3.5	62.5	1338.25	122.25	1352	16.5
	TRK	0	29	2.5	0.5	0	0	3.5	29.25	0.75	5	0.25	3.5	62.25	6.25	63.25	1
	BUS	0	11	0.5	0	0	0	0.5	11.25	0	0.25	0	0.75	23	1	22.5	0
AADT (An. Avg. Daily Traffic)	CAR	80	10460	716	16	36	72	1148	9936	92	1164	56	1000	21412	1956	21632	264
	TRK	0	464	40	8	0	0	56	468	12	80	4	56	996	100	1012	16
	BUS	0	176	8	0	0	0	8	180	0	4	0	12	368	16	360	0

Table D3-43: TMC Traffic Data: "Don Mill RD at GATEWAY BLVD S & OVERLEA BLVD (PX 620).pdf"

		2020															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right				
AM PEAK (8:15 - 9:15)	CAR	156	666	94	456	181	200	38	831	416	275	309	181	2134	622	1972	1062
	TRK	17	14	3	30	7	19	5	66	35	14	22	2	112	37	113	81
	BUS	3	1	4	19	19	5	0	5	18	3	22	0	25	45	14	62
PM PEAK (17:00 - 18:00)	CAR	173	848	236	424	533	266	58	752	552	124	264	44	2068	1091	1990	1522
	TRK	8	25	2	8	2	5	1	27	14	1	4	1	61	9	58	28
	BUS	0	1	0	15	14	1	0	0	17	0	11	1	17	25	2	42
8 HOUR SUMMARY (7:30 - 18:00)	CAR	1331	7830	1074	3042	2430	1714	331	4965	3607	1295	1806	517	16354	5641	15804	9174
	TRK	149	215	38	157	49	132	24	386	277	60	77	11	769	188	793	552
	BUS	18	18	11	130	137	26	8	30	155	7	111	4	182	267	81	421
AHV (Average Hourly Vol.)	CAR	82.25	378.5	82.5	220	178.5	116.5	24	395.75	242	99.75	143.25	56.25	1050.5	428.25	990.5	646
	TRK	6.25	9.75	1.25	9.5	2.25	6	1.5	23.25	12.25	3.75	6.5	0.75	43.25	11.5	42.75	27.25
	BUS	0.75	0.5	1	8.5	8.25	1.5	0	1.25	8.75	0.75	8.25	0.25	10.5	17.5	4	26
AADT (An. Avg. Daily Traffic)	CAR	1316	6056	1320	3520	2856	1864	384	6332	3872	1596	2292	900	16808	6852	15848	10336
	TRK	100	156	20	152	36	96	24	372	196	60	104	12	692	184	684	436
	BUS	12	8	16	136	132	24	0	20	140	12	132	4	168	280	64	416

Table D3-44: TMC Traffic Data: "OVERLEA BLVD at THORNCLIFFE PARK DR & E TCS (PX 679).pdf"

		2018															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right				
AM PEAK (8:00 - 9:00)	CAR	56	102	356	49	407	80	185	49	22	253	481	253	453	1429	484	966
	TRK	1	0	3	1	6	1	12	0	1	1	7	7	8	28	2	15
	BUS	2	9	9	0	36	14	3	5	0	4	38	1	15	86	32	76
PM PEAK (17:00 - 18:00)	CAR	77	84	242	64	691	66	253	139	88	265	566	146	433	1752	554	1422
	TRK	1	0	3	2	6	0	13	1	2	1	5	9	12	27	2	14
	BUS	10	5	0	0	28	0	0	3	1	1	31	0	8	59	9	70
8 HOUR SUMMARY (7:30 - 18:00)	CAR	497	609	2034	548	4032	388	1548	649	569	1710	3915	1277	3083	11529	3356	9013
	TRK	8	3	30	17	82	10	166	14	15	23	72	129	163	350	50	177
	BUS	19	29	30	0	213	57	12	31	3	11	227	8	68	482	128	462
AHV (Average Hourly Vol.)	CAR	33.25	46.5	149.5	28.25	274.5	36.5	109.5	47	27.5	129.5	261.75	99.75	221.5	795.25	259.5	597
	TRK	0.5	0	1.5	0.75	3	0.25	6.25	0.25	0.75	0.5	3	4	5	13.75	1	7.25
	BUS	3	3.5	2.25	0	16	3.5	0.75	2	0.25	1.25	17.25	0.25	5.75	36.25	10.25	36.5
AADT (An. Avg. Daily Traffic)	CAR	532	744	2392	452	4392	584	1752	752	440	2072	4188	1596	3544	12724	4152	9552
	TRK	8	0	24	12	48	4	100	4	12	8	48	64	80	220	16	116
	BUS	48	56	36	0	256	56	12	32	4	20	276	4	92	580	164	584

Table D3-45: TMC Traffic Data: "OVERLEA BLVD at THORNCLIFFE PARK W DR (PX 680).pdf"

		2018															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right				
AM PEAK (8:00 - 9:00)	CAR	206	70	57	113	409	82	78	42	87	32	350	126	351	894	226	1052
	TRK	0	0	0	2	12	4	1	0	5	0	7	2	4	20	4	24
	BUS	18	0	1	1	56	8	0	0	0	3	39	0	1	96	11	113
PM PEAK (17:00 - 18:00)	CAR	189	64	60	99	626	170	132	103	103	66	508	130	396	1326	403	1426
	TRK	0	1	3	1	3	0	2	0	0	7	2	1	3	10	8	5
	BUS	3	1	0	0	22	14	1	0	0	1	38	3	4	61	16	63
8 HOUR SUMMARY (7:30 - 18:00)	CAR	1338	463	430	822	3803	961	912	445	770	424	3168	948	2678	8313	2293	9079
	TRK	17	5	16	20	77	16	23	2	22	20	50	24	51	166	43	166
	BUS	81	3	2	3	277	54	1	2	0	9	248	5	13	528	68	606
AHV (Average Hourly Vol.)	CAR	98.75	33.5	29.25	53	258.75	63	52.5	36.25	47.5	24.5	214.5	64	186.75	555	157.25	619.5
	TRK	0	0.25	0.75	0.75	3.75	1	0.75	0	1.25	1.75	2.25	0.75	1.75	7.5	3	7.25
	BUS	5.25	0.25	0.25	0.25	19.5	5.5	0.25	0	0	1	19.25	0.75	1.25	39.25	6.75	44
AADT (An. Avg. Daily Traffic)	CAR	1580	536	468	848	4140	1008	840	580	760	392	3432	1024	2988	8880	2516	9912
	TRK	0	4	12	12	60	16	12	0	20	28	36	12	28	120	48	116
	BUS	84	4	4	4	312	88	4	0	0	16	308	12	20	628	108	704

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Table D3-46: TMC Traffic Data: "MILLWOOD RD AT OVERLEA BLVD (PX 687).pdf"

		2018															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right				
AM PEAK (8:00 - 9:00)	CAR	0	1114	396	0	0	0	284	584	0	318	0	291	1989	680	2016	0
	TRK	0	17	5	0	0	0	11	21	0	3	0	6	44	16	41	0
	BUS	0	6	55	0	0	0	8	7	0	51	0	7	20	63	64	0
PM PEAK (17:00 - 18:00)	CAR	0	694	474	0	0	0	506	1142	0	452	0	373	2209	980	2288	0
	TRK	0	9	3	0	0	0	2	8	0	1	0	1	18	5	18	0
	BUS	0	6	28	0	0	0	8	8	0	37	0	4	18	36	51	0
8 HOUR SUMMARY (7:30 - 18:00)	CAR	0	5738	3162	0	0	0	2806	5367	0	2623	0	2623	13728	5968	13728	0
	TRK	0	138	46	0	0	0	68	158	0	31	0	31	327	114	327	0
	BUS	0	38	281	0	0	0	46	38	0	300	0	300	376	327	376	0
AHV (Average Hourly Vol.)	CAR	0	452	217.5	0	0	0	197.5	431.5	0	192.5	0	166	1049.5	415	1076	0
	TRK	0	6.5	2	0	0	0	3.25	7.25	0	1	0	1.75	15.5	5.25	14.75	0
	BUS	0	3	20.75	0	0	0	4	3.75	0	22	0	2.75	9.5	24.75	28.75	0
AADT (An. Avg. Daily Traffic)	CAR	0	7232	3480	0	0	0	3160	6904	0	3080	0	2656	16792	6640	17216	0
	TRK	0	104	32	0	0	0	52	116	0	16	0	28	248	84	236	0
	BUS	0	48	332	0	0	0	64	60	0	352	0	44	152	396	460	0

Table D3-47: TMC Traffic Data: "DONLANDS AVE AT MILLWOOD RD & PAPE AVE (PX 642).pdf"

		2017															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right				
AM PEAK (8:00 - 9:00)	CAR	0	435	7	0	0	0	425	386	0	0	0	910	1731	432	821	0
	TRK	0	5	0	0	0	0	4	10	0	0	0	8	23	4	15	0
	BUS	0	49	0	0	0	0	8	45	0	0	0	7	101	8	94	0
PM PEAK (16:45 - 17:45)	CAR	0	444	15	0	0	0	846	504	0	0	0	551	1499	861	948	0
	TRK	0	2	0	0	0	0	4	3	0	0	0	2	7	4	5	0
	BUS	0	35	0	0	0	0	6	36	0	0	0	5	76	6	71	0
8 HOUR SUMMARY (7:30 - 18:00)	CAR	0	3124	105	0	0	0	3868	2879	0	0	0	4503	10506	3973	6003	0
	TRK	0	63	3	0	0	0	60	58	0	0	0	70	191	63	121	0
	BUS	0	270	1	0	0	0	44	275	0	0	0	37	582	45	545	0
AHV (Average Hourly Vol.)	CAR	0	219.75	5.5	0	0	0	317.75	222.5	0	0	0	365.25	807.5	323.25	442.25	0
	TRK	0	1.75	0	0	0	0	2	3.25	0	0	0	2.5	7.5	2	5	0
	BUS	0	21	0	0	0	0	3.5	20.25	0	0	0	3	44.25	3.5	41.25	0
AADT (An. Avg. Daily Traffic)	CAR	0	3516	88	0	0	0	5084	3560	0	0	0	5844	12920	5172	7076	0
	TRK	0	28	0	0	0	0	32	52	0	0	0	40	120	32	80	0
	BUS	0	336	0	0	0	0	56	324	0	0	0	48	708	56	660	0

Table D3-48: TMC Traffic Data: "O'CONNOR DR AT PAPE AVE (PX 442).pdf"

		2017															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right				
AM PEAK (8:15 - 9:15)	CAR	21	290	154	115	225	14	13	232	151	148	323	15	652	715	684	720
	TRK	2	4	2	1	2	0	0	6	0	1	0	0	11	4	11	4
	BUS	1	28	3	14	5	0	0	31	16	0	2	0	73	10	59	24
PM PEAK (16:45 - 17:45)	CAR	13	273	175	157	316	10	12	309	156	216	198	21	760	701	808	683
	TRK	0	3	2	2	3	0	0	3	1	1	0	0	8	5	7	4
	BUS	1	26	0	10	3	0	0	25	10	1	6	0	61	9	52	20
8 HOUR SUMMARY (7:30 - 18:00)	CAR	101	1960	1306	1022	1758	100	68	1762	940	1335	1775	100	4844	4907	5157	4574
	TRK	6	39	31	22	54	1	2	28	22	20	30	1	90	117	88	112
	BUS	2	188	23	84	27	1	0	189	93	8	33	0	461	83	386	155
AHV (Average Hourly Vol.)	CAR	8.5	140.75	82.25	68	135.25	6	6.25	135.25	76.75	91	130.25	9	353	354	373	350.75
	TRK	0.5	1.75	1	0.75	1.25	0	0	2.25	0.25	0.5	0	0	4.75	2.25	4.5	2
	BUS	0.5	13.5	0.75	6	2	0	0	14	6.5	0.25	2	0	33.5	4.75	27.75	11
AADT (An. Avg. Daily Traffic)	CAR	136	2252	1316	1088	2164	96	100	2164	1228	1456	2084	144	5648	5664	5968	5612
	TRK	8	28	16	12	20	0	0	36	4	8	0	0	76	36	72	32
	BUS	8	216	12	96	32	0	0	224	104	4	32	0	536	76	444	176

Table D3-49: TMC Traffic Data: "COSBURN AVE AT PAPE AVE (PX 669).pdf"

		2017															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right				
AM PEAK (8:00 - 9:00)	CAR	8	362	70	49	115	21	23	403	36	119	204	40	854	412	905	363
	TRK	1	6	0	0	1	1	0	10	0	3	3	0	16	4	20	5
	BUS	0	33	2	0	13	0	1	29	0	1	13	0	62	29	63	26
PM PEAK (17:00 - 18:00)	CAR	21	418	102	66	244	38	39	455	29	87	91	37	976	476	998	385
	TRK	0	2	1	0	1	0	0	1	0	0	1	0	3	3	3	2
	BUS	0	26	0	0	9	0	0	27	0	0	9	0	53	18	53	18
8 HOUR SUMMARY (7:30 - 18:00)	CAR	102	2874	614	348	1079	202	209	3083	228	606	833	265	6570	2735	6765	2242
	TRK	5	61	5	4	14	3	6	52	3	7	16	1	118	41	123	38
	BUS	0	192	3	0	61	0	1	192	0	2	63	0	384	128	386	124
AHV (Average Hourly Vol.)	CAR	7.25	195	43	28.75	89.75	14.75	15.5	214.5	16.25	51.5	73.75	19.25	457.5	222	475.75	187
	TRK	0.25	2	0.25	0	0.5	0.25	0	2.75	0	0.75	1	0	4.75	1.75	5.75	1.75
	BUS	0	14.75	0.5	0	5.5	0	0.25	14	0	0.25	5.5	0	28.75	11.75	29	11
AADT (An. Avg. Daily Traffic)	CAR	116	3120	688	460	1436	236	248	3432	260	824	1180	308	7320	3552	7612	2992
	TRK	4	32	4	0	8	4	0	44	0	12	16	0	76	28	92	28
	BUS	0	236	8	0	88	0	4	224	0	4	88	0	460	188	464	176

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Table D3-50: TMC Traffic Data: "FLOYD AVE AT PAPE AVE (PX 2001).pdf"

		2017															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right				
AM PEAK (8:15 - 9:15)	CAR	14	395	17	23	10	10	16	473	22	15	28	33	924	71	893	74
	TRK	0	9	0	0	0	0	0	10	2	0	0	1	20	0	19	2
	BUS	0	34	0	0	0	0	0	39	0	0	0	1	74	0	73	0
PM PEAK (16:30 - 17:30)	CAR	10	529	35	23	13	16	23	487	23	20	14	41	1080	85	1052	60
	TRK	0	1	0	1	0	0	1	1	1	0	0	1	4	1	2	1
	BUS	1	38	0	0	0	0	0	28	0	0	0	0	66	0	66	1
8 HOUR SUMMARY (7:30 - 18:00)	CAR	86	3195	224	124	61	64	185	3444	135	132	81	259	7022	551	6835	363
	TRK	1	60	3	3	0	1	2	61	6	1	1	3	127	6	123	8
	BUS	1	213	1	2	0	2	0	214	0	0	0	1	430	1	429	1
AHV (Average Hourly Vol.)	CAR	6	231	13	11.5	5.75	6.5	9.75	240	11.25	8.75	10.5	18.5	501	39	486.25	33.5
	TRK	0	2.5	0	0.25	0	0	0.25	2.75	0.75	0	0	0.5	6	0.25	5.25	0.75
	BUS	0.25	18	0	0	0	0	0	16.75	0	0	0	0.25	35	0	34.75	0.25
AADT (An. Avg. Daily Traffic)	CAR	96	3696	208	184	92	104	156	3840	180	140	168	296	8016	624	7780	536
	TRK	0	40	0	4	0	0	4	44	12	0	0	8	96	4	84	12
	BUS	4	288	0	0	0	0	0	268	0	0	0	4	560	0	556	4

Table D3-51: TMC Traffic Data: "MORTIMER AVE AT PAPE AVE (PX 664).pdf"

		2017															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right				
AM PEAK (8:15 - 9:15)	CAR	53	364	60	53	202	34	25	385	76	64	471	26	828	758	847	802
	TRK	1	6	0	2	1	0	0	9	1	0	1	0	17	2	15	4
	BUS	0	31	0	0	3	0	1	29	0	0	5	0	60	9	60	8
PM PEAK (16:00 - 17:00)	CAR	57	420	78	65	456	58	28	365	74	35	239	24	874	801	878	826
	TRK	0	13	0	0	5	1	0	9	2	1	4	2	24	9	24	11
	BUS	0	24	0	0	4	0	0	24	0	1	3	0	48	7	49	7
8 HOUR SUMMARY (7:30 - 18:00)	CAR	389	2854	505	414	2228	363	178	2703	520	308	2202	211	6182	5113	6228	5339
	TRK	9	72	5	6	27	6	1	57	4	5	23	3	138	56	140	63
	BUS	0	192	0	0	25	0	2	187	0	1	26	1	380	53	380	51
AHV (Average Hourly Vol.)	CAR	27.5	196	34.5	29.5	164.5	23	13.25	187.5	37.5	24.75	177.5	12.5	425.5	389.75	431.25	407
	TRK	0.25	4.75	0	0.5	1.5	0.25	0	4.5	0.75	0.25	1.25	0.5	10.25	2.75	9.75	3.75
	BUS	0	13.75	0	0	1.75	0	0.25	13.25	0	0.25	2	0	27	4	27.25	3.75
AADT (An. Avg. Daily Traffic)	CAR	440	3136	552	472	2632	368	212	3000	600	396	2840	200	6808	6236	6900	6512
	TRK	4	76	0	8	24	4	0	72	12	4	20	8	164	44	156	60
	BUS	0	220	0	0	28	0	4	212	0	4	32	0	432	64	436	60

Table D3-52: TMC Traffic Data: "PAPE AVE AT STRATHCONA.pdf"

		2018															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right				
AM PEAK (8:15 - 9:15)	CAR	0	256	0	13	0	19	0	395	0	36	0	31	695	0	706	0
	TRK	0	2	0	0	0	2	0	4	0	0	0	0	6	0	8	0
	BUS	0	15	0	1	0	0	0	13	0	5	0	4	33	0	33	0
PM PEAK (17:00 - 18:00)	CAR	0	323	0	8	0	28	0	257	0	17	0	20	608	0	625	0
	TRK	0	5	0	0	0	0	0	2	0	0	0	0	7	0	7	0
	BUS	0	11	0	0	0	0	0	17	0	0	0	0	28	0	28	0
8 HOUR SUMMARY (7:30 - 18:00)	CAR	0	2063	0	112	0	134	0	2202	0	124	0	158	4535	0	4523	0
	TRK	0	22	0	1	0	3	0	13	0	1	0	0	36	0	39	0
	BUS	0	81	0	1	0	1	0	99	0	7	0	6	187	0	188	0
AHV (Average Hourly Vol.)	CAR	0	144.75	0	5.25	0	11.75	0	163	0	13.25	0	12.75	325.75	0	332.75	0
	TRK	0	1.75	0	0	0	0.5	0	1.5	0	0	0	0	3.25	0	3.75	0
	BUS	0	6.5	0	0.25	0	0	0	7.5	0	1.25	0	1	15.25	0	15.25	0
AADT (An. Avg. Daily Traffic)	CAR	0	2316	0	84	0	188	0	2608	0	212	0	204	5212	0	5324	0
	TRK	0	28	0	0	0	8	0	24	0	0	0	0	52	0	60	0
	BUS	0	104	0	4	0	0	0	120	0	20	0	16	244	0	244	0

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Table D3-53: Queen St at University Ave.pdf

		2019															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	ID: OLW1	ID: OLW2	ID: OLW3	ID: OLW4
AM PEAK (8:30 - 9:30)	CAR	0	784	21	0	318	116	0	1337	123	0	525	87	2208	864	2237	966
	TRK	0	43	1	0	24	8	0	64	12	0	32	9	116	57	115	68
	BUS	0	12	1	0	5	0	0	14	2	0	6	3	29	12	26	13
PM PEAK (16:00 - 17:00)	CAR	0	1119	24	0	304	68	0	956	116	1	476	101	2176	804	2144	896
	TRK	0	40	1	0	22	6	0	68	13	0	23	6	114	46	114	58
	BUS	0	15	0	0	2	0	0	11	2	0	0	0	26	2	26	4
8 HOUR SUMMARY (7:30 - 18:00)	CAR	0	7822	202	2	2019	561	0	8742	811	1	3379	1012	17578	5600	17126	6209
	TRK	0	389	8	3	221	76	0	701	115	0	239	74	1167	468	1166	575
	BUS	0	101	2	0	19	1	0	100	7	0	20	18	219	41	202	46
AHV (Average Hourly Vol.)	CAR	0	475.75	11.25	0	155.5	46	0	573.25	59.75	0.25	250.25	47	1096	417	1095.25	465.5
	TRK	0	20.75	0.5	0	11.5	3.5	0	33	6.25	0	13.75	3.75	57.5	25.75	57.25	31.5
	BUS	0	6.75	0.25	0	1.75	0	0	6.25	1	0	1.5	0.75	13.75	3.5	13	4.25
AADT (An. Avg. Daily Traffic)	CAR	0	7612	180	0	2488	736	0	9172	956	4	4004	752	17536	6672	17524	7448
	TRK	0	332	8	0	184	56	0	528	100	0	220	60	920	412	916	504
	BUS	0	108	4	0	28	0	0	100	16	0	24	12	220	56	208	68

Table D3-54: Queen St at St. Patrik St.pdf

		2018															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	ID: --	ID: --	ID: --	ID: --
AM PEAK (8:15 - 9:15)	CAR	0	0	0	118	493	0	71	0	48	0	355	136	254	919	0	896
	TRK	0	0	0	1	11	0	0	0	0	0	6	6	7	17	0	17
	BUS	0	0	0	0	24	0	0	0	0	0	16	0	0	40	0	40
PM PEAK (16:45 - 17:45)	CAR	0	0	0	50	458	0	79	0	115	0	599	44	94	1136	0	1172
	TRK	0	0	0	2	2	0	0	0	2	0	4	1	3	6	0	8
	BUS	0	0	0	0	17	0	0	0	0	0	15	0	0	32	0	32
8 HOUR SUMMARY (7:30 - 18:00)	CAR	0	0	0	611	3220	0	553	0	504	0	3096	567	1178	6869	0	6820
	TRK	0	0	0	18	82	0	15	0	20	0	70	19	37	167	0	172
	BUS	0	0	0	0	168	0	0	0	0	0	130	0	0	298	0	298
AHV (Average Hourly Vol.)	CAR	0	0	0	42	237.75	0	37.5	0	40.75	0	238.5	45	87	513.75	0	517
	TRK	0	0	0	0.75	3.25	0	0	0	0.5	0	2.5	1.75	2.5	5.75	0	6.25
	BUS	0	0	0	0	10.25	0	0	0	0	0	7.75	0	0	18	0	18
AADT (An. Avg. Daily Traffic)	CAR	0	0	0	672	3804	0	600	0	652	0	3816	720	1392	8220	0	8272
	TRK	0	0	0	12	52	0	0	0	8	0	40	28	40	92	0	100
	BUS	0	0	0	0	164	0	0	0	0	0	124	0	0	288	0	288

Table D3-55: John St at Queen St.pdf

		2018															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	ID: --	ID: --	ID: --	ID: --
AM PEAK (8:15 - 9:15)	CAR	58	47	97	6	569	60	20	71	8	49	286	13	137	972	227	921
	TRK	1	3	3	0	15	0	0	2	0	1	10	1	6	28	6	26
	BUS	0	0	1	0	21	0	0	0	0	0	18	0	0	40	0	39
PM PEAK (16:45 - 17:45)	CAR	91	59	68	13	421	36	24	69	25	51	440	15	156	953	215	977
	TRK	2	0	0	0	7	1	0	1	0	1	8	0	1	15	3	17
	BUS	0	0	1	0	14	0	0	0	0	4	18	1	1	33	4	32
8 HOUR SUMMARY (7:30 - 18:00)	CAR	547	406	583	82	3001	323	127	390	103	412	2449	108	986	6160	1531	6100
	TRK	24	21	29	2	102	14	6	10	6	12	99	6	39	236	57	231
	BUS	1	0	7	0	144	0	0	0	0	29	139	1	1	290	29	284
AHV (Average Hourly Vol.)	CAR	37.25	26.5	41.25	4.75	247.5	24	11	35	8.25	25	181.5	7	73.25	481.25	110.5	474.5
	TRK	0.75	0.75	0.75	0	5.5	0.25	0	0.75	0	0.5	4.5	0.25	1.75	10.75	2.25	10.75
	BUS	0	0	0.5	0	8.75	0	0	0	0	1	9	0.25	0.25	18.25	1	17.75
AADT (An. Avg. Daily Traffic)	CAR	596	424	660	76	3960	384	176	560	132	400	2904	112	1172	7700	1768	7592
	TRK	12	12	12	0	88	4	0	12	0	8	72	4	28	172	36	172
	BUS	0	0	8	0	140	0	0	0	0	16	144	4	4	292	16	284

Table D3-56:Peter St at Queen St.pdf

		2017															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	ID: --	ID: --	ID: --	ID: --
AM PEAK (8:30 - 9:30)	CAR	25	0	109	0	571	62	0	0	0	85	270	0	0	950	147	866
	TRK	4	0	4	0	15	4	0	0	0	4	6	0	0	25	8	25
	BUS	0	0	0	0	20	0	0	0	0	0	21	0	0	41	0	41
PM PEAK (17:00 - 18:00)	CAR	69	0	132	0	418	52	0	0	0	131	442	0	0	992	183	929
	TRK	1	0	3	0	6	1	0	0	0	2	9	0	0	18	3	16
	BUS	0	0	0	0	14	0	0	0	0	0	18	0	0	32	0	32
8 HOUR SUMMARY (7:30 - 18:00)	CAR	313	0	843	0	3344	394	0	0	0	736	2555	0	0	6742	1130	6212
	TRK	20	0	36	0	100	32	0	0	0	57	118	0	0	254	89	238
	BUS	0	0	3	0	141	0	0	0	0	0	140	0	0	284	0	281
AHV (Average Hourly Vol.)	CAR	23.5	0	60.25	0	247.25	28.5	0	0	0	54	178	0	0	485.5	82.5	448.75
	TRK	1.25	0	1.75	0	5.25	1.25	0	0	0	1.5	3.75	0	0	10.75	2.75	10.25
	BUS	0	0	0	0	8.5	0	0	0	0	0	9.75	0	0	18.25	0	18.25
AADT (An. Avg. Daily Traffic)	CAR	376	0	964	0	3956	456	0	0	0	864	2848	0	0	7768	1320	7180
	TRK	20	0	28	0	84	20	0	0	0	24	60	0	0	172	44	164
	BUS	0	0	0	0	136	0	0	0	0	0	156	0	0	292	0	292

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Table D3-57: Augusta Ave at Queen St

		2018															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	ID: --	ID: --	ID: --	ID: --
AM PEAK (8:30 - 9:30)	CAR	30	20	22	31	666	44	67	40	4	25	351	26	117	1106	129	1051
	TRK	2	0	1	3	15	1	0	1	0	2	12	1	5	28	4	29
	BUS	0	0	0	1	19	0	0	0	0	0	18	0	1	37	0	37
PM PEAK (17:00 - 18:00)	CAR	113	58	20	39	365	21	43	27	20	32	784	50	174	1212	138	1282
	TRK	1	0	1	1	1	1	0	1	0	0	9	0	2	11	2	11
	BUS	0	0	0	0	13	0	0	0	0	0	9	0	0	22	0	22
8 HOUR SUMMARY (7:30 - 18:00)	CAR	324	257	162	285	3293	223	320	216	121	249	3322	337	1095	7097	945	7060
	TRK	10	6	7	11	80	9	7	5	2	6	97	12	34	191	26	189
	BUS	0	0	0	1	122	0	0	0	0	0	120	3	4	242	0	242
AHV (Average Hourly Vol.)	CAR	35.75	19.5	10.5	17.5	257.75	16.25	27.5	16.75	6	14.25	283.75	19	72.75	579.5	66.75	583.25
	TRK	0.75	0	0.5	1	4	0.5	0	0.5	0	0.5	5.25	0.25	1.75	9.75	1.5	10
	BUS	0	0	0	0.25	8	0	0	0	0	0	6.75	0	0.25	14.75	0	14.75
AADT (An. Avg. Daily Traffic)	CAR	572	312	168	280	4124	260	440	268	96	228	4540	304	1164	9272	1068	9332
	TRK	12	0	8	16	64	8	0	8	0	8	84	4	28	156	24	160
	BUS	0	0	0	4	128	0	0	0	0	0	108	0	4	236	0	236

Table D3-58: Portland St at Queen St W

		2017															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	ID: --	ID: --	ID: --	ID: --
AM PEAK (8:30 - 9:30)	CAR	66	0	33	0	437	68	0	0	0	55	212	0	0	682	123	715
	TRK	6	0	5	0	8	2	0	0	0	0	12	0	0	25	2	26
	BUS	0	0	0	0	20	0	0	0	0	0	22	0	0	42	0	42
PM PEAK (16:00 - 17:00)	CAR	157	0	26	0	278	34	0	0	0	43	318	0	0	622	77	753
	TRK	2	0	1	0	6	2	0	0	0	1	9	0	0	16	3	17
	BUS	0	0	0	0	13	0	0	0	0	0	16	0	0	29	0	29
8 HOUR SUMMARY (7:30 - 18:00)	CAR	664	0	286	0	2440	344	0	0	0	326	2161	0	0	4887	670	5265
	TRK	35	0	16	0	91	14	0	0	0	18	130	0	0	237	32	256
	BUS	1	0	0	0	137	0	0	0	0	0	139	0	0	276	0	277
AHV (Average Hourly Vol.)	CAR	55.75	0	14.75	0	178.75	25.5	0	0	0	24.5	132.5	0	0	326	50	367
	TRK	2	0	1.5	0	3.5	1	0	0	0	0.25	5.25	0	0	10.25	1.25	10.75
	BUS	0	0	0	0	8.25	0	0	0	0	0	9.5	0	0	17.75	0	17.75
AADT (An. Avg. Daily Traffic)	CAR	892	0	236	0	2860	408	0	0	0	392	2120	0	0	5216	800	5872
	TRK	32	0	24	0	56	16	0	0	0	4	84	0	0	164	20	172
	BUS	0	0	0	0	132	0	0	0	0	0	152	0	0	284	0	284

Table D3-59: Niagra St at Queen St

		2018															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	ID: --	ID: --	ID: --	ID: --
AM PEAK (8:00 - 9:00)	CAR	23	0	98	0	625	111	0	0	0	57	363	0	0	1086	168	1011
	TRK	0	0	2	0	19	2	0	0	0	0	12	0	0	33	2	31
	BUS	1	0	0	0	16	0	0	0	0	0	11	0	0	27	0	28
PM PEAK (16:45 - 17:45)	CAR	51	0	76	0	342	60	0	0	0	65	758	0	0	1176	125	1151
	TRK	3	0	0	0	4	0	0	0	0	2	17	0	0	21	2	24
	BUS	0	0	0	0	13	0	0	0	0	0	16	0	0	29	0	29
8 HOUR SUMMARY (7:30 - 18:00)	CAR	252	0	626	0	3306	644	0	0	0	365	3762	0	0	7694	1009	7320
	TRK	7	0	9	0	82	19	0	0	0	14	117	0	0	208	33	206
	BUS	1	0	0	0	95	1	0	0	0	1	102	0	0	197	2	198
AHV (Average Hourly Vol.)	CAR	18.5	0	43.5	0	241.75	42.75	0	0	0	30.5	280.25	0	0	565.5	73.25	540.5
	TRK	0.75	0	0.5	0	5.75	0.5	0	0	0	0.5	7.25	0	0	13.5	1	13.75
	BUS	0.25	0	0	0	7.25	0	0	0	0	0	6.75	0	0	14	0	14.25
AADT (An. Avg. Daily Traffic)	CAR	296	0	696	0	3868	684	0	0	0	488	4484	0	0	9048	1172	8648
	TRK	12	0	8	0	92	8	0	0	0	8	116	0	0	216	16	220
	BUS	4	0	0	0	116	0	0	0	0	0	108	0	0	224	0	228

Table D3-60: Spadina Ave and Adelaide St

		2019															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	ID: --	ID: --	ID: --	ID: --
AM PEAK (8:00 - 9:00)	CAR	0	648	217	116	832	110	132	488	0	0	0	0	1252	1181	1246	832
	TRK	0	44	9	6	37	7	8	27	0	0	0	0	77	54	78	37
	BUS	0	17	0	0	1	0	0	16	0	0	0	0	33	1	33	1
PM PEAK (17:00 - 18:00)	CAR	0	487	135	122	626	96	1121	517	0	0	0	0	1126	1882	1100	626
	TRK	0	16	5	2	10	0	3	25	0	0	0	0	43	18	41	10
	BUS	0	15	1	0	2	0	0	14	0	0	0	0	29	3	29	2
8 HOUR SUMMARY (7:30 - 18:00)	CAR	0	3732	1121	772	4966	784	919	3974	0	0	0	0	8478	7006	8490	4966
	TRK	0	320	98	50	271	72	59	343	0	0	0	0	713	428	735	271
	BUS	0	133	6	0	7	2	3	134	0	0	0	0	267	16	269	7
AHV (Average Hourly Vol.)	CAR	0	283.75	88	59.5	364.5	51.5	313.25	251.25	0	0	0	0	594.5	765.75	586.5	364.5
	TRK	0	15	3.5	2	11.75	1.75	2.75	13	0	0	0	0	30	18	29.75	11.75
	BUS	0	8	0.25	0	0.75	0	0	7.5	0	0	0	0	15.5	1	15.5	0.75
AADT (An. Avg. Daily Traffic)	CAR	0	4540	1408	952	5832	824	5012	4020	0	0	0	0	9512	12252	9384	5832
	TRK	0	240	56	32	188	28	44	208	0	0	0	0	480	288	476	188
	BUS	0	128	4	0	12	0	0	120	0	0	0	0	248	16	248	12

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Table D3-61: King St at Spadina Ave

		2019															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	ID: --	ID: --	ID: --	ID: --
AM PEAK (7:30 - 8:30)	CAR	44	653	17	1	6	42	1	442	20	0	4	17	1113	28	1137	74
	TRK	1	46	1	0	1	7	0	29	2	0	3	1	76	5	82	7
	BUS	0	11	0	0	19	0	0	12	0	0	20	4	27	39	23	39
PM PEAK (17:00 - 18:00)	CAR	71	600	18	1	12	101	0	691	51	2	22	47	1339	52	1394	156
	TRK	3	15	1	0	2	4	0	39	2	0	4	2	56	7	58	11
	BUS	0	17	0	0	17	0	0	11	0	0	18	0	28	35	28	35
8 HOUR SUMMARY (7:30 - 18:00)	CAR	421	4472	183	7	88	564	6	4592	282	7	134	250	9321	411	9635	925
	TRK	17	256	23	1	18	66	1	406	25	1	23	20	683	65	729	83
	BUS	0	126	0	0	138	0	0	134	0	0	138	9	269	276	260	276
AHV (Average Hourly Vol.)	CAR	28.75	313.25	8.75	0.5	4.5	35.75	0.25	283.25	17.75	0.5	6.5	16	613	20	632.75	57.5
	TRK	1	15.25	0.5	0	0.75	2.75	0	17	1	0	1.75	0.75	33	3	35	4.5
	BUS	0	7	0	0	9	0	0	5.75	0	0	9.5	1	13.75	18.5	12.75	18.5
AADT (An. Avg. Daily Traffic)	CAR	460	5012	140	8	72	572	4	4532	284	8	104	256	9808	320	10124	920
	TRK	16	244	8	0	12	44	0	272	16	0	28	12	528	48	560	72
	BUS	0	112	0	0	144	0	0	92	0	0	152	16	220	296	204	296

Table D3-62: Richmond St at University Ave

		2019															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	ID: --	ID: --	ID: --	ID: --
AM PEAK (7:30 - 8:30)	CAR	38	617	0	0	0	0	0	1276	147	225	563	143	2036	563	2118	748
	TRK	2	47	0	0	0	0	0	66	13	18	68	11	124	68	131	83
	BUS	0	5	0	0	0	0	0	5	2	3	22	8	18	22	13	24
PM PEAK (16:00 - 17:00)	CAR	77	954	0	0	0	0	0	845	232	170	760	175	1974	760	1969	1069
	TRK	2	23	0	0	0	0	0	28	10	7	34	10	61	34	58	46
	BUS	0	11	0	0	0	0	0	8	5	6	11	3	22	11	25	16
8 HOUR SUMMARY (7:30 - 18:00)	CAR	617	6902	0	0	0	0	0	7932	1406	1239	3925	1166	16000	3925	16073	5948
	TRK	43	324	0	0	0	0	0	616	111	163	536	96	1036	536	1103	690
	BUS	2	75	0	0	0	0	0	74	19	49	100	21	170	100	198	121
AHV (Average Hourly Vol.)	CAR	28.75	392.75	0	0	0	0	0	530.25	94.75	98.75	330.75	79.5	1002.5	330.75	1021.75	454.25
	TRK	1	17.5	0	0	0	0	0	23.5	5.75	6.25	25.5	5.25	46.25	25.5	47.25	32.25
	BUS	0	4	0	0	0	0	0	3.25	1.75	2.25	8.25	2.75	10	8.25	9.5	10
AADT (An. Avg. Daily Traffic)	CAR	460	6284	0	0	0	0	0	8484	1516	1580	5292	1272	16040	5292	16348	7268
	TRK	16	280	0	0	0	0	0	376	92	100	408	84	740	408	756	516
	BUS	0	64	0	0	0	0	0	52	28	36	132	44	160	132	152	160

Table D3-63: John St at Richmond St

		2017															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	ID: --	ID: --	ID: --	ID: --
AM PEAK (8:30 - 9:30)	CAR	37	161	0	0	0	0	1	105	45	37	480	49	315	481	303	562
	TRK	7	10	0	0	0	0	0	4	1	1	22	2	16	22	15	30
	BUS	0	0	0	0	0	0	0	0	0	0	14	0	0	14	0	14
PM PEAK (16:15 - 17:15)	CAR	59	140	0	0	0	0	0	117	41	92	860	40	297	860	349	960
	TRK	2	5	0	0	0	0	0	2	0	2	23	0	7	23	9	25
	BUS	0	0	0	0	0	0	0	8	0	0	9	0	8	9	8	9
8 HOUR SUMMARY (7:30 - 18:00)	CAR	354	1141	0	0	0	0	2	807	315	445	4538	401	2349	4540	2393	5207
	TRK	42	63	0	0	0	0	0	28	7	15	177	12	103	177	106	226
	BUS	0	3	0	0	0	0	0	30	1	1	49	4	37	49	34	50
AHV (Average Hourly Vol.)	CAR	24	75.25	0	0	0	0	0.25	55.5	21.5	32.25	335	22.25	153	335.25	163	380.5
	TRK	2.25	3.75	0	0	0	0	0	1.5	0.25	0.75	11.25	0.5	5.75	11.25	6	13.75
	BUS	0	0	0	0	0	0	0	2	0	0	5.75	0	2	5.75	2	5.75
AADT (An. Avg. Daily Traffic)	CAR	384	1204	0	0	0	0	4	888	344	516	5360	356	2448	5364	2608	6088
	TRK	36	60	0	0	0	0	0	24	4	12	180	8	92	180	96	220
	BUS	0	0	0	0	0	0	0	32	0	0	92	0	32	92	32	92

Table D3-64: Adelaide St at Peter St

		2019															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	ID: --	ID: --	ID: --	ID: --
AM PEAK (8:30 - 9:30)	CAR	0	149	91	135	931	107	61	110	0	0	0	0	394	1083	366	931
	TRK	0	12	3	7	50	10	5	12	0	0	0	0	31	58	34	50
	BUS	0	0	0	0	1	0	13	1	0	0	0	0	1	14	1	1
PM PEAK (17:00 - 18:00)	CAR	0	166	100	83	754	74	85	159	0	0	0	0	408	939	399	754
	TRK	0	6	1	3	15	2	6	5	0	0	0	0	14	22	13	15
	BUS	0	0	0	0	2	0	6	0	0	0	0	0	0	8	0	2
8 HOUR SUMMARY (7:30 - 18:00)	CAR	0	1111	752	603	5943	599	580	980	0	0	0	0	2694	7275	2690	5943
	TRK	0	114	62	41	336	77	67	70	0	0	0	0	225	465	261	336
	BUS	0	3	3	0	8	0	35	6	0	0	0	0	9	46	9	8
AHV (Average Hourly Vol.)	CAR	0	78.75	47.75	54.5	421.25	45.25	36.5	67.25	0	0	0	0	200.5	505.5	191.25	421.25
	TRK	0	4.5	1	2.5	16.25	3	2.75	4.25	0	0	0	0	11.25	20	11.75	16.25
	BUS	0	0	0	0	0.75	0	4.75	0.25	0	0	0	0	0.25	5.5	0.25	0.75
AADT (An. Avg. Daily Traffic)	CAR	0	1260	764	872	6740	724	584	1076	0	0	0	0	3208	8088	3060	6740
	TRK	0	72	16	40	260	48	44	68	0	0	0	0	180	320	188	260
	BUS	0	0	0	0	12	0	76	4	0	0	0	0	4	88	4	12

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Table D3-65: ADELAIDE ST AT BRANT ST

		2019															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	ID: --	ID: --	ID: --	ID: --
AM PEAK (8:15 - 9:15)	CAR	0	20	22	31	979	77	61	39	0	0	0	0	90	1062	136	979
	TRK	0	6	5	5	43	8	6	4	0	0	0	0	15	54	18	43
	BUS	0	0	0	0	3	0	0	0	0	0	0	0	0	3	0	3
PM PEAK (17:00 - 18:00)	CAR	0	60	61	39	688	26	63	27	0	0	0	0	126	812	113	688
	TRK	0	1	0	3	9	1	0	1	0	0	0	0	5	9	3	9
	BUS	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	2
8 HOUR SUMMARY (7:30 - 18:00)	CAR	0	231	361	257	5637	308	483	253	0	0	0	0	741	6481	792	5637
	TRK	0	27	28	330	330	31	33	20	0	0	0	0	377	391	78	330
	BUS	0	0	0	10	10	0	0	0	0	0	0	0	10	10	0	10
AHV (Average Hourly Vol.)	CAR	0	20	20.75	17.5	416.75	25.75	31	16.5	0	0	0	0	54	468.5	62.25	416.75
	TRK	0	1.75	1.25	2	13	2.25	1.5	1.25	0	0	0	0	5	15.75	5.25	13
	BUS	0	0	0	0	1.25	0	0	0	0	0	0	0	0	1.25	0	1.25
AADT (An. Avg. Daily Traffic)	CAR	0	320	332	280	6668	412	496	264	0	0	0	0	864	7496	996	6668
	TRK	0	28	20	32	208	36	24	20	0	0	0	0	80	252	84	208
	BUS	0	0	0	0	20	0	0	0	0	0	0	0	0	20	0	20

Table D3-66: ADELAIDE ST AT PORTLAND ST

		2019															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	ID: --	ID: --	ID: --	ID: --
AM PEAK (8:30 - 9:30)	CAR	0	73	123	30	727	42	131	90	0	0	0	0	193	981	205	727
	TRK	0	9	17	7	36	5	4	12	0	0	0	0	28	57	26	36
	BUS	0	0	0	0	3	0	0	0	0	0	0	0	0	3	0	3
PM PEAK (17:00 - 18:00)	CAR	0	95	116	41	560	62	34	158	0	0	0	0	294	710	315	560
	TRK	0	3	4	5	7	3	1	4	0	0	0	0	12	12	10	7
	BUS	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	2
8 HOUR SUMMARY (7:30 - 18:00)	CAR	0	642	879	266	4606	365	450	767	0	0	0	0	1675	5935	1774	4606
	TRK	0	67	73	43	252	48	34	63	0	0	0	0	173	359	178	252
	BUS	0	0	0	1	12	0	0	0	0	0	0	0	1	12	0	12
AHV (Average Hourly Vol.)	CAR	0	42	59.75	17.75	321.75	26	41.25	62	0	0	0	0	121.75	422.75	130	321.75
	TRK	0	3	5.25	3	10.75	2	1.25	4	0	0	0	0	10	17.25	9	10.75
	BUS	0	0	0	0	1.25	0	0	0	0	0	0	0	0	1.25	0	1.25
AADT (An. Avg. Daily Traffic)	CAR	0	672	956	284	5148	416	660	992	0	0	0	0	1948	6764	2080	5148
	TRK	0	48	84	48	172	32	20	64	0	0	0	0	160	276	144	172
	BUS	0	0	0	0	20	0	0	0	0	0	0	0	0	20	0	20

Table D3-67: ADELAIDE ST AT BATHURST ST

		2019															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	ID: --	ID: --	ID: --	ID: --
AM PEAK (8:30 - 9:30)	CAR	0	491	502	0	0	0	321	428	0	0	0	0	919	823	919	0
	TRK	0	49	30	0	0	0	16	37	0	0	0	0	86	46	86	0
	BUS	0	20	1	0	0	0	1	19	0	0	0	0	39	2	39	0
PM PEAK (17:00 - 18:00)	CAR	0	591	375	0	0	0	221	635	0	0	0	0	1226	596	1226	0
	TRK	0	13	8	0	0	0	5	28	0	0	0	0	41	13	41	0
	BUS	0	23	2	0	0	0	0	20	0	0	0	0	43	2	43	0
8 HOUR SUMMARY (7:30 - 18:00)	CAR	0	3719	3012	0	0	0	2004	4012	0	0	0	0	7731	5016	7731	0
	TRK	0	317	196	0	0	0	128	298	0	0	0	0	615	324	615	0
	BUS	0	155	11	0	0	0	1	152	0	0	0	0	307	12	307	0
AHV (Average Hourly Vol.)	CAR	0	270.5	219.25	0	0	0	135.5	265.75	0	0	0	0	536.25	354.75	536.25	0
	TRK	0	15.5	9.5	0	0	0	5.25	16.25	0	0	0	0	31.75	14.75	31.75	0
	BUS	0	10.75	0.75	0	0	0	0.25	9.75	0	0	0	0	20.5	1	20.5	0
AADT (An. Avg. Daily Traffic)	CAR	0	4328	3508	0	0	0	2168	4252	0	0	0	0	8580	5676	8580	0
	TRK	0	248	152	0	0	0	84	260	0	0	0	0	508	236	508	0
	BUS	0	172	12	0	0	0	4	156	0	0	0	0	328	16	328	0

Table D3-68: King St at Portland St

		2017															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	ID: --	ID: --	ID: --	ID: --
AM PEAK (8:15 - 9:15)	CAR	28	183	74	125	399	38	18	51	35	35	275	22	381	766	307	737
	TRK	0	4	1	2	8	0	0	3	2	0	6	4	13	15	7	16
	BUS	0	0	0	0	25	0	0	0	1	0	26	0	0	51	0	52
PM PEAK (17:00 - 18:00)	CAR	45	99	54	46	268	35	19	113	52	100	445	59	317	786	347	810
	TRK	2	3	2	0	6	0	0	2	2	2	8	1	6	16	7	18
	BUS	0	0	0	0	21	0	0	0	0	0	24	0	0	45	0	45
8 HOUR SUMMARY (7:30 - 18:00)	CAR	257	994	482	513	2507	278	125	538	316	404	2412	281	2326	5526	2214	5492
	TRK	9	50	23	9	73	10	7	22	11	21	78	20	101	181	103	171
	BUS	0	0	0	2	162	0	0	1	2	2	184	2	5	346	3	348
AHV (Average Hourly Vol.)	CAR	18.25	70.5	32	42.75	166.75	18.25	9.25	41	21.75	33.75	180	20.25	174.5	388	163.5	386.75
	TRK	0.5	1.75	0.75	0.5	3.5	0	0	1.25	1	0.5	3.5	1.25	4.75	7.75	3.5	8.5
	BUS	0	0	0	0	11.5	0	0	0	0.25	0	12.5	0	0	24	0	24.25
AADT (An. Avg. Daily Traffic)	CAR	292	1128	512	684	2668	292	148	656	348	540	2880	324	2792	6208	2616	6188
	TRK	8	28	12	8	56	0	0	20	16	8	56	20	76	124	56	136
	BUS	0	0	0	0	184	0	0	0	4	0	200	0	0	384	0	388

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Table D3-69: Bathurst St at Fort York Blvd

		2018															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	ID: --	ID: --	ID: --	ID: --
AM PEAK (8:00 - 9:00)	CAR	16	765	24	287	212	50	63	283	117	25	89	208	1543	388	1123	434
	TRK	0	41	2	9	1	2	2	14	6	2	4	7	71	9	59	11
	BUS	0	22	0	2	6	0	0	20	0	0	4	2	46	10	42	10
PM PEAK (16:15 - 17:15)	CAR	22	523	20	201	157	30	202	398	326	16	90	125	1247	469	967	595
	TRK	0	5	0	2	1	0	3	8	6	1	1	1	16	5	14	8
	BUS	1	13	0	4	5	0	0	19	0	0	4	0	36	9	32	10
8 HOUR SUMMARY (7:30 - 18:00)	CAR	141	4481	210	1656	1095	342	857	2649	1519	156	698	1100	9886	2860	7628	3453
	TRK	5	322	7	53	23	15	16	115	60	19	18	54	544	64	471	106
	BUS	1	140	0	18	34	0	2	143	2	0	33	5	306	69	283	70
AHV (Average Hourly Vol.)	CAR	9.5	322	11	122	92.25	20	66.25	170.25	110.75	10.25	44.75	83.25	697.5	214.25	522.5	257.25
	TRK	0	11.5	0.5	2.75	0.5	0.5	1.25	5.5	3	0.75	1.25	2	21.75	3.5	18.25	4.75
	BUS	0.25	8.75	0	1.5	2.75	0	0	9.75	0	0	2	0.5	20.5	4.75	18.5	5
AADT (An. Avg. Daily Traffic)	CAR	152	5152	176	1952	1476	320	1060	2724	1772	164	716	1332	11160	3428	8360	4116
	TRK	0	184	8	44	8	8	20	88	48	12	20	32	348	56	292	76
	BUS	4	140	0	24	44	0	0	156	0	0	32	8	328	76	296	80

Table D3-70: Bathurst St at Fleet

		2019															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	ID: --	ID: --	ID: --	ID: --
AM PEAK (7:45 - 8:45)	CAR	1	394	0	365	0	0	0	345	31	0	0	0	1104	0	739	32
	TRK	0	48	0	21	0	0	0	22	2	0	0	0	91	0	70	2
	BUS	9	0	0	13	0	10	0	2	12	0	0	0	15	0	12	21
PM PEAK (17:00 - 18:00)	CAR	1	465	0	327	0	0	0	327	43	0	0	0	1119	0	792	44
	TRK	0	19	0	12	0	0	0	16	5	0	0	0	47	0	35	5
	BUS	8	0	0	14	0	8	0	1	11	0	0	0	15	0	9	19
8 HOUR SUMMARY (7:30 - 18:00)	CAR	16	3148	0	2146	0	0	0	2609	345	0	0	0	7903	0	5757	361
	TRK	1	319	0	169	0	0	0	240	40	0	0	0	728	0	559	41
	BUS	67	8	0	152	0	67	0	8	75	0	0	0	168	0	83	142
AHV (Average Hourly Vol.)	CAR	0.5	214.75	0	173	0	0	0	168	18.5	0	0	0	555.75	0	382.75	19
	TRK	0	16.75	0	8.25	0	0	0	9.5	1.75	0	0	0	34.5	0	26.25	1.75
	BUS	4.25	0	0	6.75	0	4.5	0	0.75	5.75	0	0	0	7.5	0	5.25	10
AADT (An. Avg. Daily Traffic)	CAR	8	3436	0	2768	0	0	0	2688	296	0	0	0	8892	0	6124	304
	TRK	0	268	0	132	0	0	0	152	28	0	0	0	552	0	420	28
	BUS	68	0	0	108	0	72	0	12	92	0	0	0	120	0	84	160

Table D3-71: EAST LIBERTY ST AT ORDNANCE ST & STRACHAN AVE

		2017															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	ID: --	ID: --	ID: --	ID: --
AM PEAK (8:00 - 9:00)	CAR	241	466	7	196	0	300	5	311	107	0	1	4	977	13	1077	349
	TRK	2	1	4	2	0	1	0	2	1	12	0	0	5	4	16	3
	BUS	0	3	0	0	1	1	0	2	15	2	0	0	5	1	8	16
PM PEAK (16:30 - 17:30)	CAR	237	521	0	175	0	197	1	530	193	2	0	5	1231	1	1250	430
	TRK	1	7	5	0	0	0	1	3	3	3	0	0	10	6	13	4
	BUS	0	0	0	0	0	0	0	1	14	0	0	0	1	0	1	14
8 HOUR SUMMARY (7:30 - 18:00)	CAR	1662	3335	30	1058	1	1615	20	2952	1098	20	10	20	7365	61	7922	2771
	TRK	10	44	63	2	0	6	2	27	7	76	1	3	76	66	153	18
	BUS	3	7	0	2	1	2	1	10	110	2	0	0	19	2	21	114
AHV (Average Hourly Vol.)	CAR	119.5	246.75	1.75	92.75	0	124.25	1.5	210.25	75	0.5	0.25	2.25	552	3.5	581.75	194.75
	TRK	0.75	2	2.25	0.5	0	0.25	0.25	1.25	1	3.75	0	0	3.75	2.5	7.25	1.75
	BUS	0	0.75	0	0	0.25	0.25	0	0.75	7.25	0.5	0	0	1.5	0.25	2.25	7.5
AADT (An. Avg. Daily Traffic)	CAR	1912	3948	28	1484	0	1988	24	3364	1200	8	4	36	8832	56	9308	3116
	TRK	12	32	36	8	0	4	4	20	16	60	0	0	60	40	116	28
	BUS	0	12	0	0	4	4	0	12	116	8	0	0	24	4	36	120

Table D3-72: FLEET ST AT MANITOBA DR & STRACHAN AVE

		2018															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	ID: --	ID: --	ID: --	ID: --
AM PEAK (7:45 - 8:45)	CAR	20	396	4	159	54	8	56	519	15	53	59	203	1277	173	976	148
	TRK	3	26	1	2	1	2	3	22	1	2	3	2	52	8	52	8
	BUS	3	3	0	0	26	0	0	0	0	0	19	0	3	45	3	48
PM PEAK (17:00 - 18:00)	CAR	7	589	5	139	29	9	108	651	16	27	19	161	1540	161	1276	71
	TRK	1	0	0	0	2	0	0	8	0	0	0	0	8	2	8	3
	BUS	2	0	3	0	24	0	0	0	0	0	17	0	0	44	0	43
8 HOUR SUMMARY (7:30 - 18:00)	CAR	88	3250	30	726	222	101	517	3731	135	272	202	1119	8826	971	7354	647
	TRK	22	210	1	14	11	17	14	150	9	22	6	20	394	32	399	48
	BUS	26	5	3	0	177	0	0	1	0	0	143	2	8	323	6	346
AHV (Average Hourly Vol.)	CAR	6.75	246.25	2.25	74.5	20.75	4.25	41	292.5	7.75	20	19.5	91	704.25	83.5	563	54.75
	TRK	1	6.5	0.25	0.5	0.75	0.5	0.75	7.5	0.25	0.5	0.75	0.5	15	2.5	15	2.75
	BUS	1.25	0.75	0.75	0	12.5	0	0	0	0	0	9	0	0.75	22.25	0.75	22.75
AADT (An. Avg. Daily Traffic)	CAR	108	3940	36	1192	332	68	656	4680	124	320	312	1456	11268	1336	9008	876
	TRK	16	104	4	8	12	8	12	120	4	8	12	8	240	40	240	44
	BUS	20	12	12	0	200	0	0	0	0	0	144	0	12	356	12	364

Ontario Line West
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Metrolinx, May 2020

Table D3-73: EAST LIBERTY ST AT HANNA AVE & LIBERTY ST

		2018															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	ID: --	ID: --	ID: --	ID: --
AM PEAK (8:30 - 9:30)	CAR	61	5	43	53	159	92	18	7	32	49	241	29	94	461	153	493
	TRK	0	1	2	2	3	2	1	1	1	1	5	2	6	11	5	9
	BUS	0	0	0	0	1	0	0	0	0	0	14	0	0	15	0	15
PM PEAK (16:45 - 17:45)	CAR	57	22	64	54	269	60	19	11	30	26	137	36	123	489	119	493
	TRK	0	0	0	1	5	1	1	0	0	0	2	0	1	8	1	7
	BUS	0	0	0	0	0	0	0	0	0	0	12	0	0	12	0	12
8 HOUR SUMMARY (7:30 - 18:00)	CAR	475	109	276	371	1283	523	122	77	267	264	1242	238	795	2923	973	3267
	TRK	14	7	8	10	27	15	5	4	11	12	91	5	26	131	38	143
	BUS	0	0	0	0	1	0	0	0	0	0	101	0	0	102	0	102
AHV (Average Hourly Vol.)	CAR	29.5	6.75	26.75	26.75	107	38	9.25	4.5	15.5	18.75	94.5	16.25	54.25	237.5	68	246.5
	TRK	0	0.25	0.5	0.75	2	0.75	0.5	0.25	0.25	0.25	1.75	0.5	1.75	4.75	1.5	4
	BUS	0	0	0	0	0.25	0	0	0	0	0	6.5	0	0	6.75	0	6.75
AADT (An. Avg. Daily Traffic)	CAR	472	108	428	428	1712	608	148	72	248	300	1512	260	868	3800	1088	3944
	TRK	0	4	8	12	32	12	8	4	4	4	28	8	28	76	24	64
	BUS	0	0	0	0	4	0	0	0	0	0	104	0	0	108	0	108

Table D3-74: DUFFERIN ST AT MELBOURNE AVE

		2017															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	ID: --	ID: --	ID: --	ID: --
AM PEAK (8:15 - 9:15)	CAR	14	223	19	20	1	43	15	479	8	21	1	14	736	36	766	24
	TRK	0	12	1	2	0	1	0	15	1	0	0	1	30	1	28	1
	BUS	0	18	0	0	0	0	0	18	0	0	0	0	36	0	36	0
PM PEAK (16:00 - 17:00)	CAR	2	503	19	10	0	15	19	350	15	23	1	24	887	39	891	18
	TRK	0	4	0	0	0	0	0	8	0	0	0	0	12	0	12	0
	BUS	0	22	0	0	0	0	0	20	0	0	0	0	42	0	42	0
8 HOUR SUMMARY (7:30 - 18:00)	CAR	70	2347	91	100	3	154	70	2617	82	102	7	95	5159	171	5220	162
	TRK	0	100	1	5	1	6	0	122	3	1	0	2	229	2	229	4
	BUS	0	156	0	1	0	0	0	159	0	0	0	0	316	0	315	0
AHV (Average Hourly Vol.)	CAR	4	181.5	9.5	7.5	0.25	14.5	8.5	207.25	5.75	11	0.5	9.5	405.75	18.75	414.25	10.5
	TRK	0	4	0.25	0.5	0	0.25	0	5.75	0.25	0	0	0.25	10.5	0.25	10	0.25
	BUS	0	10	0	0	0	0	0	9.5	0	0	0	0	19.5	0	19.5	0
AADT (An. Avg. Daily Traffic)	CAR	64	2904	152	120	4	232	136	3316	92	176	8	152	6492	300	6628	168
	TRK	0	64	4	8	0	4	0	92	4	0	0	4	168	4	160	4
	BUS	0	160	0	0	0	0	0	152	0	0	0	0	312	0	312	0

Table D3-75: DUFFERIN ST AT LIBERTY ST

		2018															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	ID: --	ID: --	ID: --	ID: --
AM PEAK (8:30 - 9:30)	CAR	1	206	398	4	0	5	77	369	0	171	0	52	631	475	751	1
	TRK	0	10	4	0	0	0	0	18	0	1	0	2	30	4	29	0
	BUS	0	19	0	0	0	0	0	23	0	0	0	0	42	0	42	0
PM PEAK (16:30 - 17:30)	CAR	0	354	153	4	3	1	56	321	0	366	0	146	825	212	1042	3
	TRK	0	4	2	0	0	0	0	6	0	2	0	2	12	2	12	0
	BUS	0	13	0	0	0	0	0	16	0	0	0	0	29	0	29	0
8 HOUR SUMMARY (7:30 - 18:00)	CAR	1	2141	1736	23	6	18	505	2590	0	1905	0	622	5376	2247	6654	7
	TRK	0	94	33	1	0	0	6	124	0	42	0	26	245	39	260	0
	BUS	0	150	0	0	0	0	0	152	0	1	0	0	302	0	303	0
AHV (Average Hourly Vol.)	CAR	0.25	140	137.75	2	0.75	1.5	33.25	172.5	0	134.25	0	49.5	364	171.75	448.25	1
	TRK	0	3.5	1.5	0	0	0	0	6	0	0.75	0	1	10.5	1.5	10.25	0
	BUS	0	8	0	0	0	0	0	9.75	0	0	0	0	17.75	0	17.75	0
AADT (An. Avg. Daily Traffic)	CAR	4	2240	2204	32	12	24	532	2760	0	2148	0	792	5824	2748	7172	16
	TRK	0	56	24	0	0	0	0	96	0	12	0	16	168	24	164	0
	BUS	0	128	0	0	0	0	0	156	0	0	0	0	284	0	284	0

Table D3-76: KING ST AT QUEEN ST & RONCESVALLES AVE

		2019															
		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			SUM NORTH	SUM EAST	SUM SOUTH	SUM WEST
Time Period	Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	ID: --	ID: --	ID: --	ID: --
AM PEAK (8:15 - 9:15)	CAR	176	92	16	1	458	717	33	58	57	2	311	71	222	818	869	1002
	TRK	2	3	0	0	18	10	2	2	4	0	5	4	9	25	15	29
	BUS	1	12	0	0	16	0	0	16	0	0	10	1	29	26	28	27
PM PEAK (16:45 - 17:45)	CAR	387	187	14	0	374	345	53	85	109	2	520	65	337	961	619	1390
	TRK	5	0	0	0	0	0	0	0	3	0	15	1	1	15	0	23
	BUS	2	9	0	0	13	0	0	9	0	0	13	0	18	26	18	28
8 HOUR SUMMARY (7:30 - 18:00)	CAR	1746	928	115	19	2553	2587	326	545	704	19	2380	576	2068	5374	4079	7383
	TRK	31	28	1	1	67	33	9	6	24	1	68	23	58	145	68	190
	BUS	9	81	0	0	100	5	0	84	1	0	105	1	166	205	170	215
AHV (Average Hourly Vol.)	CAR	140.75	69.75	7.5	0.25	208	265.5	21.5	35.75	41.5	1	207.75	34	139.75	444.75	372	598
	TRK	1.75	0.75	0	0	4.5	2.5	0.5	0.5	1.75	0	5	1.25	2.5	10	3.75	13
	BUS	0.75	5.25	0	0	7.25	0	0	6.25	0	0	5.75	0.25	11.75	13	11.5	13.75
AADT (An. Avg. Daily Traffic)	CAR	2252	1116	120	4	3328	4248	344	572	664	16	3324	544	2236	7116	5952	9568
	TRK	28	12	0	0	72	40	8	8	28	0	80	20	40	160	60	208
	BUS	12	84	0	0	116	0	0	100	0	0	92	4	188	208	184	220

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Appendix E

Union Station Rail Corridor (USRC) East Enhancements Transit Project Assessment Process (TPAP) Air Quality Assessment (2018)

Metrolinx

Union Station Rail Corridor (USRC) East Enhancements Transit Project Assessment Process (TPAP) Air Quality Assessment

Final

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Executive Summary

In 2008, Metrolinx, an agency of the Province of Ontario, adopted the Regional Transportation Plan (RTP) called 'The Big Move' which provides the vision, goals and objectives for the future development of the regional transportation network within the Greater Toronto and Hamilton Area (GTHA). The RTP identifies the need for increased and improved transit service in the GTHA over a 25 year period and outlines priority transit initiatives which would provide significant improvements to the GTHA transportation network.

As part of the RTP, Metrolinx has proposed expansion and modifications within the eastern portion of the Union Station Rail Corridor (USRC) east of Yonge Street to the existing mainline (Track E1) leading to the Bala and Belleville subdivisions south of Eastern Avenue (approximately Mile 0.35E to Mile 1.51E). The environmental effects of the project will be assessed following the Transit Project Assessment Process (TPAP), as prescribed in Ontario Regulation 231/08 under the *Environmental Assessment Act*. As part of the TPAP, an Environmental Project Report (EPR) will be prepared for public review.

The purpose of the USRC East Enhancements Project is to provide additional mainline track capacity, increased train storage capacity and increased track speed capabilities along the east side of the USRC. This project will facilitate infrastructure improvements to support the planned increases in train and passenger volumes in the USRC as part of the transformational Regional Express Rail (RER) program.

Local air quality impacts were assessed by estimating contaminant concentrations at representative sensitive and critical receptors within the Study Area. Two scenarios were investigated:

- Current/Existing Conditions (year 2016); and,
- Future Build Conditions (year 2025) with Electrification – Proposed infrastructure with the proposed mix of electric / diesel trains at RER service levels (in accordance with data provided by Metrolinx – refer to Section 2.5).

Local air quality impacts were determined by comparing predicted modelled concentrations combined with actual background ambient levels at representative sensitive receptors (education, healthcare and day care facilities, places of worship, and residences in the project area) of CO, NO_2, SO_2, $PM_{2.5}$ VOCs, and PAH's to established standards or guidelines. In order to estimate the contaminant concentrations at sensitive and critical receptors, air dispersion modelling was conducted using the AERMOD model. AERMOD is an advanced Gaussian dispersion model which has been identified

by the Ontario Ministry of the Environment and Climate Change (MOECC) as one of the approved models under O.Reg. 419/05. AERMOD is an advanced steady-state plume model that has the ability to include building cavity downwash, source emission rates, terrain and meteorological data to predict contaminant concentrations at sensitive receptors.

The Exposure Assessment was limited to inhalation. The main Exposure Assessment has been conducted through a “Comprehensive Analysis”. This type of analysis combines actual/measured meteorological, air quality obtained from MOECC, and traffic data/projections to estimate exposure by dispersion modelling over five years for which meteorological and air quality data are available. The study also included a “Predictable Worst-Case Analysis” as a way to model the highest pollutant concentrations of any day over all the possible meteorological conditions of the 5-year meteorological dataset.

The modelling was conducted in such a way as to determine the different contributions from each train service in operation within the Study Area (CN, VIA, GO). Road traffic emissions were modelled through emission factors generated using U.S. Environmental Protection Agency (EPA) MOVES2014a. MOVES2014a (Motor Vehicle Emissions Simulator) is the U.S. EPA latest program for estimating vehicle emissions. MOVES2014a is a vehicle emissions model approved by the MOECC and the model of choice for estimating vehicle emissions in North America.

Regional air quality was assessed by examining the project related contribution to the provincial and national emissions of critical pollutants that contribute to the formation of smog. In addition, the project’s impact on climate change was assessed by examining the project related contribution to Greenhouse Gas (GHG) emissions relative to Ontario GHG reduction targets.

A range of predicted pollutant concentrations were determined through modelling using the “Predictable Worst-Case Analysis” approach (as specifically described in Section 2.5), including background air quality levels, under the two scenarios evaluated at all sensitive and critical receptors within the Study Area.

The “Predictable Worst-Case Analysis” approach was designed as a way to model the highest pollutant concentrations of any day over all the possible meteorological conditions of the 5-year meteorological dataset. The modelling revealed that for all gaseous pollutants regulated for the 1-hour averaging time, as well as for $PM_{2.5}$ regulated for the 24-hour averaging time, maximum cumulative concentrations (including background levels) are below their corresponding air quality threshold.

A range of predicted pollutant concentration was completed through modelling using the “Comprehensive Analysis” approach, including 90th percentile background air quality

levels, under the two scenarios evaluated at all sensitive and critical receptors within the Study Area.

In all cases, maximum concentrations are below air quality threshold levels with exceptions of:

- For the Current (2016) scenario: acrolein (24-hr), benzene (annual), benzo(a)pyrene (24-hr and annual), and $PM_{2.5}$ (annual); and,
- For the Future Build (2025) scenario: benzene (annual), benzo(a)pyrene (24-hr and annual), and $PM_{2.5}$ (annual).

Regarding the "comprehensive analysis" approach, the main findings of the air quality assessment study are outlined below:

- For all scenarios and all contaminants, with the exceptions of acrolein (24-hr), benzene(annual), benzo(a)pyrene(24-hr, annual), $PM_{2.5}$ (annual) for the current scenario; and benzene(annual), benzo(a)pyrene(24-hr, annual), $PM_{2.5}$ (annual) for the Future Build (2025) scenario, the maximum cumulative concentrations are below their respective air quality threshold. The reason for most exceedances is the significant contribution of background concentration to the total concentrations for contaminants showing exceedance. It should be noted that for each pollutant, the 90th percentile background concentrations was used to represent background air quality levels as a conservative approach. In the case of exceedances for the BaP pollutant, the roadway source group has been contributing to 89% of the highest cumulative concentration.
- The Future Build (2025) scenario shows reduction in predicted contaminant concentration relative to the current (2016) scenario for all contaminants analyzed.
- For 24-hr average NO_2, GO train emissions contribute 4.7% to the highest cumulative concentration for the Future Build (2025) scenario.
- For 24-hr average $PM_{2.5}$, GO train emissions contribute 0.7% to the highest cumulative concentration for the Future Build (2025) scenario.
- For 24-hr average acrolein, GO train emissions contribute 0.2% to the highest cumulative concentration for the Future Build (2025) scenario.
- For 24-hr average benzene, GO train emissions contribute 0.1% to the highest cumulative concentration for the Future Build (2025) scenario.
- For 24-h average benzo(a)pyrene, GO train emissions contribute only 0.04% to the cumulative concentration for the Future Build (2025) scenario.

- For 24-hr average benzo(a)pyrene it was found that the 24-hr benzo(a)pyrene cumulative concentrations exceed the 24-hr benzo(a)pyrene air quality threshold of 0.00005 µg/m^3 at all times for all scenarios evaluated. This is also the case for the annual average of 0.00001 µg/m^3.
- Regional impact analysis shows that relative to the Current scenario, the Future Build (2025) scenario will result in a decrease in emissions for all pollutants analyzed and GHGs. In addition, the projects related emissions are very small compared with latest Ontario and National rail transportation emissions for 2014 and 2015, whether it's regarding pollutants or GHGs.

Construction related air quality impacts (i.e., creation of vapours and particulate) are of a temporary nature and not likely to pose a major risk to human health. The air quality impacts of construction related activities can be effectively mitigated by following recommendation in Section 6. In addition to the highlighted recommendations, it is further recommended that mitigation measures detailed in *"Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (March 2005)"* prepared by Cheminfo for Environment Canada be implemented, where practical.

In summary, the results of the modelled scenarios suggest that the Future Build (2025) scenario emissions from locomotives are significantly less than Current scenario emissions which are primarily due to the future electrification of most of the train traffic passing on the USRC corridor, and that the remaining diesel locomotives will all be meeting Tier 4 standards in the future.

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  - 24-HR AVG NO_2
  - 24-HR AVG $PM_{2.5}$

Glossary

Glossary Name	Definition
1,3-Butadiene	A colourless gas with mild aromatic or gasoline odour at room temperature. Exposure to 1,3-butadiene by inhalation in humans can result in irritation of the eyes, nasal passages, throat and lungs.
1-hour Average	The average concentration for a 1-hour period.
24-hour Average	The average concentration for a 24-hour period.
90th Percentile	The 90th percentile of a set of data are the value for which 90% of the data points are smaller.
Acrolein	Colourless liquid with a strong smell. Acrolein may be formed from the breakdown of certain pollutants in outdoor air or from the burning of organic matter including tobacco, or fuels such as gasoline or oil. Acute (short-term) inhalation exposure may result in upper respiratory tract irritation and congestion.
AERMOD	An advanced steady-state plume dispersion model that has the ability to include building cavity downwash, source emission rates, terrain and meteorological data to predict contaminant ground level concentration.
Ambient Air Quality Criteria (AAQC)	An AAQC is a desirable concentration of a contaminant in air, based on protection against adverse effects on health or the environment. The adverse effects considered may be health, odour vegetation, soiling, visibility, corrosion or other effects.
Area Sources	Sources of pollution which emit a contaminant from a specified area. Evaporations from a large spill of volatile liquids are an example of an area source.
Benzene	A colourless member of the VOCs (volatile organic compounds) family. It is used widely by the chemical industry, and is also found in tobacco smoke, vehicle emissions, and gasoline fumes. Exposure to benzene may increase the risk of developing cancer.
Benzo(a)Pyrene (BaP)	A member of the polycyclic aromatic hydrocarbons (PAH).

Glossary Name	Definition
Canadian Council of Ministers of the Environment (CCME)	The CCME is a group comprised of the environment ministers from the federal, provincial and territorial governments. The CCME seeks to achieve positive environmental results, focusing on issues that are Canada-wide in scope and that require collective attention by a number of governments.
Carbon Dioxide equivalent (CO_2e)	A unit of measurement that defines, for a given amount of greenhouse gas (GHGs), the amount of carbon dioxide (CO_2) that would have the same global warming potential (GWP), when measured over a specified timescale.
Carbon Monoxide (CO)	A colourless, odourless, poisonous gas produced when carbon-containing substances such as coal, oil, gasoline, wood, or natural gas do not burn completely. CO can cause angina in people with heart disease.
Combustion	Burning, or rapid oxidation, of waste or other fuel material accompanied by the release of exhaust gases and energy in the form of heat and light.
Concentration	The amount of a pollutant in the air at a given location.
Digital Elevation Model (DEM)	A digital model of a terrain's surface. The DEMs are used as an input for dispersion modelling.
Dispersion Modelling	Atmospheric dispersion modelling is the mathematical simulation of how contaminants disperse in the atmosphere.
Duty Cycle	A locomotive's duty cycle is the profile of the different engine throttle settings (e.g., Idle) as a percentage of daily engine operating time.
Emissions	Contaminant exhausted from a unit or source into the atmosphere.
Emission Factors	A measure of the average amount of a contaminant discharged into the atmosphere by a specific process. Emission factors are expressed as the weight of the contaminant divided by a unit weight, volume, distance or duration of process.
Emission Rates	The weight of a contaminant emitted per unit time (e.g., g/hour).

Glossary Name	Definition
Exceedance	Predicted ground-level concentration for a contaminant which is greater than the corresponding regulatory standard for that contaminant.
Formaldehyde	A colourless and strong-smelling gas that is harmful when inhaled. It's mainly used as a disinfectant and preservative, and in making other compounds (e.g., resins).
Global Warming Potential (GWP)	An estimate of how much a greenhouse gas can contribute to global warming. Each greenhouse gas has a different ability to trap heat, or global warming potential. To determine how powerful a greenhouse gas is, the gas in question is compared to the global warming potential of carbon dioxide (which, by definition, is 1). On a unit mass basis, the GWP of methane and nitrous oxide trap 23 and 296 times more heat respectively than carbon dioxide. The heat-trapping ability of several ozone-depleting substances is thousands of times more than that of carbon dioxide.
Ground-Level Ozone (O_3)	A colourless and highly irritating gas, and a primary component of smog and is formed by the reaction of volatile organic compounds (VOCs) and nitrogen oxides (NOx) in the presence of sunlight and warm temperatures. Ground-level ozone is harmful to human health and the environment.
Greenhouse Gases (GHG)	Several important gases in the earth's atmosphere that absorb and emit infrared radiation in the wavelength range emitted by Earth. The most abundant GHG's are: carbon dioxide, methane, nitrous oxide, ozone, other trace gases and water vapour. In excessive concentrations GHGs contribute to global climate change. The six greenhouse gases included under the Kyoto Protocol are: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulphur hexafluoride (SF_6), hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs).
Head End Power (HEP)	In rail transport, head-end power is the power distribution system on a passenger train. The HEP provides electricity to passenger cars for the purposes of lighting, heating/cooling, etc.
Hydrocarbons(HC)	Organic compounds consisting entirely of hydrogen and carbon. They may be emitted into the air by natural sources (e.g., trees) and as a result of fossil and vegetative fuel combustion, fuel volatilization and solvent use. Hydrocarbons are a major contributor to smog.

Glossary Name	Definition
Motor Vehicles Emission Simulator (MOVES2014)	The U.S. EPA's latest program for estimating vehicle emissions due to tailpipe and crankcase emissions, fuel evaporation, and brake and tire wear.
Nitrogen Oxides (NOx)	A generic term for a group of highly reactive gases containing nitrogen and oxygen. NOx includes nitric oxide (NO) and nitrogen dioxide (NO_2) gases. The primary sources are motor vehicles, electric utilities, and other industrial, commercial and residential sources that burn fuels. NOx cause a wide variety of health and environmental impacts, including bronchial congestion and scarring of the lungs. They also react with volatile organic compounds when it's sunny and warm, producing ground-level ozone.
Ontario Regulation 419/05 (O.Reg 419)	Ontario Regulation 419: Air Pollution-Local Air Quality under the *Environmental Protection Act* is the primary regulatory tool for assessing industrial air emissions. O.Reg 419 contains air standards for contaminants that are intended to protect local air quality and are legal requirements which emitters in Ontario must meet.
Ozone Limiting Method (OLM)	A method used to calculate the conversion of nitric oxide (NO) to nitrogen dioxide (NO_2).
Particulate Matter (PM)	Tiny solid or liquid particles that are suspended in air. Particulate matter is produced from a wide variety of sources — natural and human-caused, large and small. They are comprised of directly emitted particles, and secondary particles formed in the atmosphere through interactions of directly emitted pollutants such as sulphur oxides, nitrogen oxides, ammonia, and volatile organic compounds.
Point Sources	Single, stationary sources of pollution, such as a stack or vent.
Polycyclic Aromatic Hydrocarbons (PAHs)	A family of chemicals that are primary by-products of incomplete combustion. PAHs can make breathing more difficult and cause cancer.
Prime Mover	In locomotives, the prime mover is the engine that is the source of power for its propulsion.
Receptors	The points, defined in the dispersion model that represent the physical locations at which the dispersion model will predict contaminant concentration.

Glossary Name	Definition
Smog	Yellow-brown haze that is a mixture of pollutants, mainly ground-level ozone and particulate matter.
Soak Time	The duration of time a vehicle's engine is at rest prior to being started.
Volatile Organic Compounds (VOC's)	Organic compounds that high vapour pressure (low boiling point) at room temperature. VOC's contribute to the formation of smog.

Symbol	Unit of Measure
Bhp	Brake Horsepower (unit measurement of power)
ppm	Parts per million (unit measurement of concentration)
µg	Micrograms (unit measurement of concentration)
$\mu g/m^3$	Micrograms per cubic metre (unit measurement of concentration)
km	Kilometre (unit measurement of length)
µm	Micron(unit measurement of length)

1. Introduction

In 2008, Metrolinx, an agency of the Province of Ontario, adopted the Regional Transportation Plan (RTP) called 'The Big Move' which provides the vision, goals and objectives for the future development of the regional transportation network within the Greater Toronto and Hamilton Area (GTHA). The RTP identifies the need for increased and improved transit service in the GTHA over a 25 year period and outlines priority transit initiatives which would provide significant improvements to the GTHA transportation network.

As part of the RTP, Metrolinx has proposed expansion and modifications within the eastern portion of the Union Station Rail Corridor (USRC) east of Yonge Street to west of the Corktown Common Park (approximately Mile 0.35E to Mile 1.51E). The environ mental effects of the Project have been assessed following the Transit Project Assessment Process (TPAP), as prescribed in Ontario Regulation 231/08 under the *Environmental Assessment Act*. As part of the TPAP, this Environmental Project Report (EPR) has been prepared for public review.

The purpose of the USRC East Enhancements Transit Project is to provide additional mainline track capacity, increased train storage capacity and increased track speed capabilities along the east side of the USRC. This project will facilitate infrastructure improvements to support the planned increases in train and passenger volumes in the USRC as part of the transformational Regional Express Rail (RER) program.

The USRC East Enhancements Transit Project includes the following components:

- **Provision of a north track (E0)**: track modifications to extend the North Service Track from east of Lower Jarvis Street Bridge (approximately Mile 0.6E) through Cherry Street Bridge where it will connect to the existing mainline (Track E1) leading to the Bala and Belleville subdivisions. The new track will require extensions to the northern sections of the bridges over Lower Sherbourne Street, Parliament Street and Cherry Street with associated retaining and supporting structures.
- **Provision of new south tracks (E7 and E8)**: construction of two new south tracks (E7 and E8) starting west of Lower Jarvis Street (approximately Mile 0.35E) connecting the existing Tracks 13 and 14 in Union Station to future track realignments connecting west of Parliament Street (approximately Mile 0.9E) to the existing Don Yard. The new E7 and E8 tracks will require extensions to the southern sections of the bridges over Lower Jarvis Street

and Lower Sherbourne Street and associated retaining and supporting structures.

- **Wilson Yard Layover Facility**: construction of up to five new storage tracks and reconfiguration of the existing three tracks (i.e., up to eight storage tracks in total) at the Wilson Yard Layover Facility for additional storage and layover capacity for GO trains.

During the pre-TPAP consultation on this Project, concerns were raised by Toronto and Region Conservation Authority (TRCA) regarding the potential negative impacts of the originally proposed extension of Track E0 to the Flood Protection Landform (FPL) in the Corktown Common area. The FPL was constructed by the TRCA as part of the Lower Don River West Remedial Flood Protection Project to protect sections of downtown Toronto from flood waters associated with the Don River. The USRC East Enhancements Transit Project intersects with the FPL through the following activities:

- Constructing the retaining wall through the Corktown Common area and extending the Lower Don River Trail Pedestrian Underpass to support the new Track E0;
- Relocating the multi-use trail; and
- Temporary construction staging area.

A Geotechnical Assessment has been completed as part of this Project and the soils in this area are found to be not compatible for typical retaining wall construction. Due to the poor conditions and depth of bed rock, piling of at least 30 m would be required to safely construct the retaining wall in order to support rail loading. This construction method is expected to result in significant disturbances to the FPL and the floodplain in the Corktown Common area.

To avoid impacts to the FPL, Metrolinx has decided to reduce the length of the proposed Track E0 by approximately 600 m (the new turnout is placed at Mile 1.51E). This change to the design would still enable Metrolinx to achieve its service levels as part of the planned RER program.

As a result of this change to the project, extending the Lower Don River Trail Pedestrian Underpass (Bala Underpass) and other associated improvements in the Corktown Common area are no longer part of the USRC East Enhancements Project.

An air quality impact assessment was conducted for the operational stages of the Project to determine the air quality and GHG impacts. The relevant assessment guidelines and methodology are outlined in this report, along with predicted air impacts and a discussion on requirements for mitigation.

1.1 Approach

The Study Area is within the eastern portion of the USRC east of Yonge Street to the existing mainline (Track E1) leading to the Bala and Belleville subdivisions south of Eastern Avenue (approximately Mile 0.35E to Mile 1.51E). The Study Area for the purposes of the air quality assessment is defined as a 300 m radius on each side of the railway (**Figure 1**). The spatial extent of the Study Area was selected to encompass potential project air quality impacts. It includes the layer of air near the earth's surface, known as the troposphere, which extends from the surface to approximately 10 km in altitude.

The following two scenarios were investigated in this air quality study:

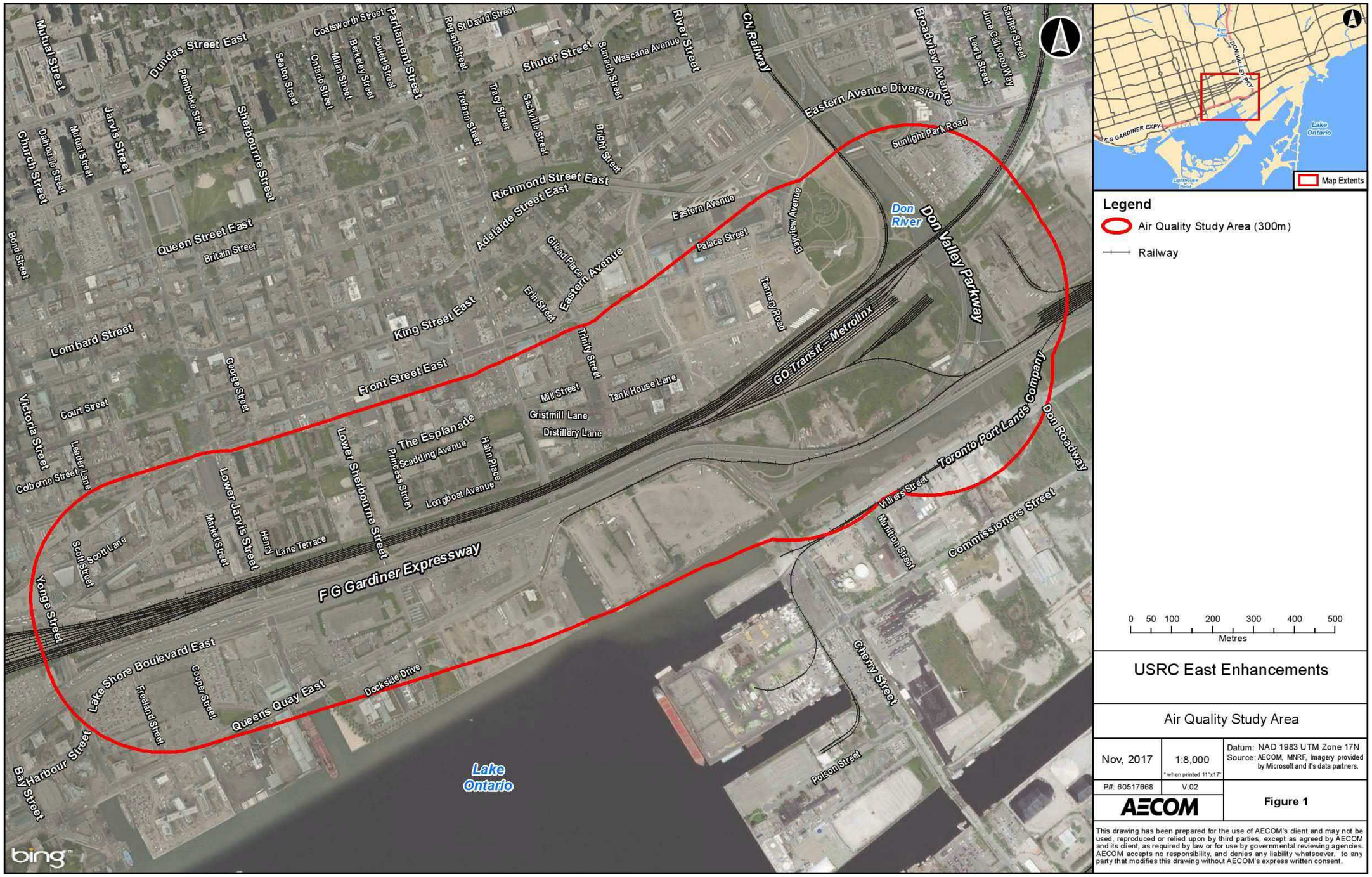
- **Current/Existing Conditions (year 2016)**; and,
- **Future "Build" Conditions (year 2025) with Electrification** – Proposed infrastructure with the proposed mix of electric / diesel trains at RER service levels (in accordance with data provided by Metrolinx).

Electrification is a fully funded project and has been committed to by the Province as part of its plans for RER service in the GTHA. If the Province's plans to provide electrified RER service is significantly delayed or otherwise changed, Metrolinx will commit to undertaking a review of the assumptions made in this study.

Local air quality impacts were determined by comparing predicted modelled concentrations combined with actual background ambient levels at representative sensitive receptors (education, healthcare and day care facilities, places of worship, and residences in the project area) of CO, NO_2, SO_2, $PM_{2.5}$ VOCs, and PAH's to established standards or guidelines. In order to estimate the contaminant concentrations at sensitive and critical receptors, air dispersion modelling was conducted using the AERMOD model. AERMOD is an advanced Gaussian dispersion model which has been identified by the Ontario Ministry of the Environment and Climate Change (MOECC) as one of the approved models under O.Reg. 419/05. AERMOD is an advanced steady-state plume model that has the ability to include building cavity downwash, source emission rates, terrain and meteorological data to predict contaminant concentration at sensitive receptors.

The Exposure Assessment was limited to inhalation. The main Exposure Assessment has been conducted through a "Comprehensive Analysis". This type of analysis combines actual/measured meteorological, air quality obtained from MOECC, and traffic data/projections to estimate exposure by dispersion modelling over five years for which meteorological and air quality data are available. The typical scenario will be represented by the predicted mean concentration levels based on the comprehensive

Figure 1: Air Quality Study Area



analysis. It represents the average concentrations that are experienced at any receptors. The maximum concentration obtained by the comprehensive analysis will show the highest concentration modelled when the predicted service levels are modelled against realistic sets of 24-hour distribution of atmospheric conditions. This would represent a “realistic” worst-case scenario.

The study includes a “Predictable Worst-Case Analysis” as a way to model the highest pollutant concentrations of any day over all the possible meteorological conditions of the 5-year meteorological dataset (refer to Section 2.5). This approach was designed to meet the requirement of the “Credible Worst-Case Analysis” based on Ministry of Transportation (MTO) guidelines.

The modelling was conducted in such a way as to determine the different contributions from each train service in operation within the Study Area (CN, VIA, GO). Road traffic emissions were modelled through emission factors generated using U.S. EPA MOVES2014a. MOVES2014a (Motor Vehicle Emissions Simulator) is the U.S. EPA latest program for estimating vehicle emissions. MOVES2014a is a vehicle emissions model approved by the MOECC and the model of choice for estimating vehicle emissions in North America. MOVES modelling was performed for January and July for each pollutant, and the maximum of both months was selected and used for dispersion modelling over the entire 5-year meteorological period as a worst-case emission rate and to simplify modelling (i.e., one pollutant might use a winter emission rate and another might use a summer emission rate).

Background contaminant concentrations from MOECC and National Air Pollution Surveillance (NAPS) air quality monitoring stations located closest to the Study Area were added to the modelling results to determine the cumulative concentration of contaminants of concern at sensitive and critical receptors within the Study Area.

The modelling results were compared to Provincial Ambient Air Quality Criteria (AAQC) and Federal Ambient Air Quality Standards (CAAQS). In addition, the Project’s impact on climate change was assessed by examining the Project related contribution to GHG emissions relative to Ontario Greenhouse Gas reduction targets. The air pollutants of interest are: NO_2, $PM_{2.5}$, CO, SO_2, formaldehyde, acetaldehyde, benzene, 1,3-butadiene, acrolein and benzo(a)pyrene. As well, GHG emissions are of interest and represented as CO_2-equivalent calculated from the combination of CO_2, CH_4 and N_2O by using the Intergovernmental Panel on Climate Change (IPCC) global warming potentials. These air pollutants are associated with the operation of diesel locomotives and on-road vehicles.

Regional Air Quality and Greenhouse Gas (AQ & GHG) emission impacts were assessed with a burden analysis as total annual emissions comparisons between the two scenarios of study. In addition, best practices to minimize emissions from construction activity are presented in this report.

1.2 Relevant Air Quality Guidelines

The maximum predicted concentrations at sensitive receptors in this study were compared with the corresponding standards, criteria, and guidelines:

- MOECC AAQC; and,
- Proposed Canadian Ambient Air Quality Standards (CAAQS).

A summary of standards proposed for the Air Quality Assessment is shown below in **Table 1**. Where multiple sources of standards are available, the most stringent values are shown.

Table 1: Summary of Applicable Guidelines and Standards

Contaminant	Source of Standard	Averaging Period (hr)	Air Quality Threshold Value (µg/m^3)
NO_2	AAQC	1	400
	AAQC	24	200
CO	AAQC	1	36,200
	AAQC	8	15,700
SO_2	AAQC	1	690
	AAQC	24	275
	AAQC	Annual	55
$PM_{2.5}$	CAAQS	24	27[1]
	CAAQS	Annual	8.8
Acetaldehyde	AAQC	24	500
Acrolein	AAQC	1	4.5
	AAQC	24	0.4
Benzene	AAQC	24	2.3
	AAQC	Annual	0.45
1,3-Butadiene	AAQC	24	10
	AAQC	Annual	2
Formaldehyde	AAQC	24	65
Benzo(a)pyrene	AAQC	24	0.00005
	AAQC	Annual	0.00001

Note: 1. This standard is based on the 98th percentile ambient measurement (24-hour), annually averaged over three years. The $PM_{2.5}$ standards are proposed (2020) standards established under Canadian Ambient Air Quality Standards. The CAAQS are voluntary objectives.

AAQCs are acceptable effects-based levels in ambient air. Limits are set based on the "limiting effect" and are the lowest concentrations at which an adverse effect may be experienced. Effects considered may be health, odour, vegetation, soiling, visibility, corrosion or others and limits have variable averaging times appropriate for the effect that they are intended to protect against. AAQCs are used for assessing general air quality and the potential for causing an adverse effect. They are set at levels below which adverse health and/or environmental effects are not expected. If a contaminant has more than one AAQC, all must be used for assessment purposes as each represents a different type of effect linked to a particular averaging period.

The Canadian Council of Ministers of the Environment (CCME) has developed Canada-wide standards for a variety of contaminants. These standards are developed jointly by various provincial jurisdictions based on a scientific and risk-based approach. Standards are presented to the Ministers along with a timetable for implementation and monitoring and public reporting programs. Ministers are responsible for implementing the standards within their own jurisdictions and promote consistency across the country.

Recently, the CCME has developed new standards for fine particulate matter ($PM_{2.5}$), under the CAAQ. The CAAQ's are established as voluntary objectives under the *Canadian Environmental Protection Act, 1999*.

In November 2017, the Canadian Council of the Ministers of Environment (CCME) issued new Canadian Ambient Air Quality Standards (CAAQS) for NO_2 and SO_2. This happened after the Air Quality Study Work Plan of this Project was submitted to and reviewed by MOECC and after the draft final report was completed. This Final Report addresses the scope and implications of the new standards in Section 5.2.

1.3 Existing Ambient Air Quality

The baseline ambient air quality was based on publicly available historical data from ambient air quality monitoring stations within Ontario (Refer to **Appendix A**). Data utilized were the latest publicly available at the time of this air quality assessment (March 27, 2017). It was assumed that the historic ambient air quality will be the same for the Future Build scenario. The following sources were used for extracting 5-year air quality data:

- For CO, $PM_{2.5}$, NO_2 and SO_2, data was obtained from the MOECC website for years 2011 to 2015[1] from stations Toronto East, Toronto West and Toronto Downtown;

1. MOECC, Historic Air Pollutant Data: http://airqualityontario.com/history/index.php

- For formaldehyde, acetaldehyde and acrolein, data was obtained from the NAPS network on the Environment Canada website[2] for years 2002 to 2006 from station Toronto Perth (# 60418); and,
- For benzene, 1-3-Butadiene and benzo(a)pyrene, data was obtained from the NAPS network on the Environment Canada website for years 2008 to 2012 from station Toronto College Street (# 60427).

Ambient monitoring data were utilized as follows for CO, $PM_{2.5}$, NO_2, SO_2, formaldehyde, acetaldehyde, benzene, 1,3-butadiene, acrolein and benzo(a)pyrene, in relation to the pollutants/averaging period combinations listed in **Table 1:**

- 1 hour, 8 hour, and 24 hour ambient concentrations for the contaminants were obtained from the 90th percentile of hourly measurements from the representative AQ monitoring stations (the average value was calculated over the available years).
- Annual ambient concentrations for the contaminants were obtained from the mean measurements from the representative AQ monitoring station (the average value was calculated over the available years).

Details of the Air Quality monitoring stations closest to the Study Area are provided in **Table 2**.

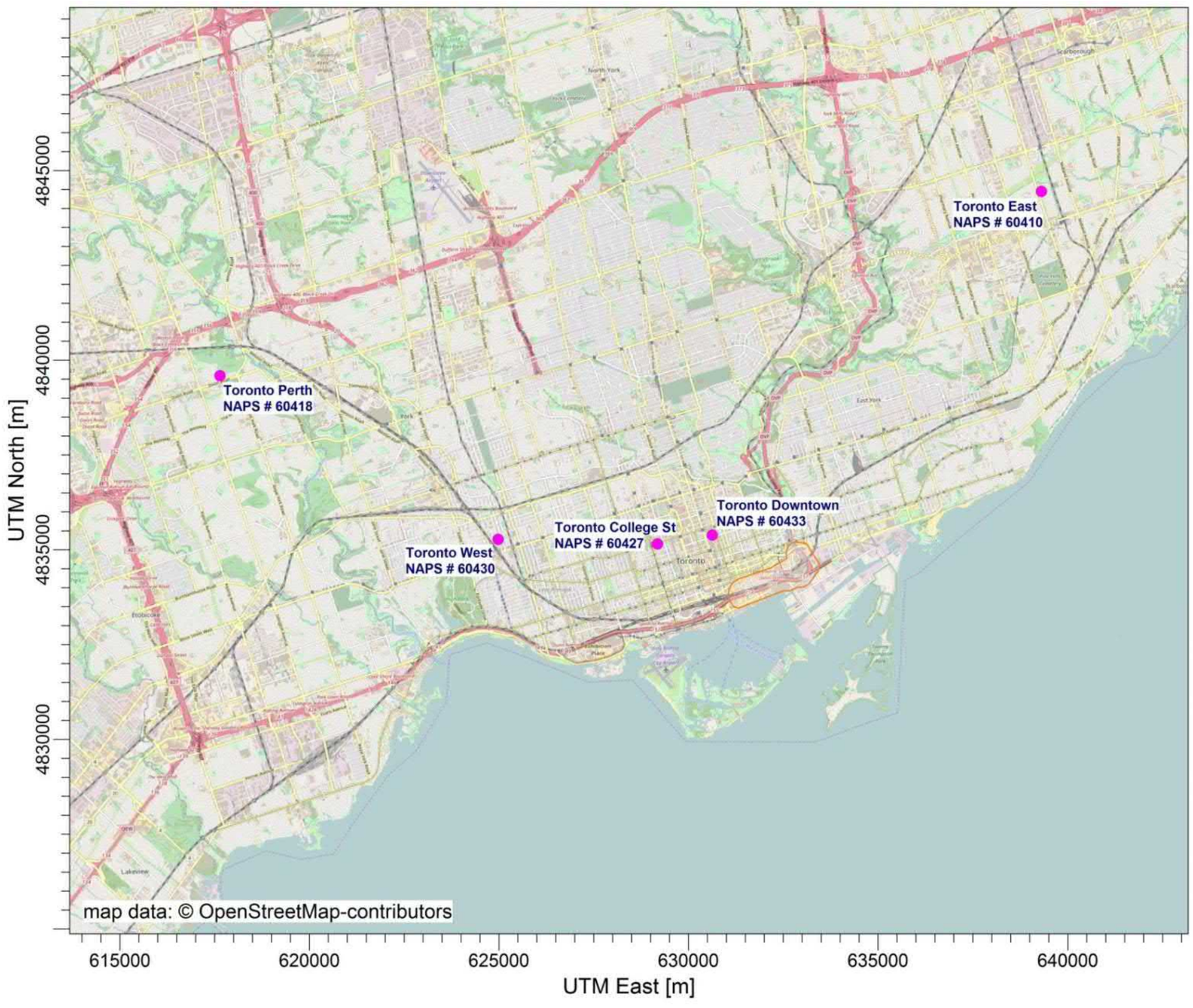
Figure 2 presents the locations of the five air quality monitoring stations relative to the Study Area.

2. Environment Canada, NAPS Monitoring Results: http://www.ec.gc.ca/rnspa-naps/default.asp?lang=En&n=8BA86647-1

Table 2: GTA AQ Monitoring Stations Information

Station Name:	NAPS Number:	Address:	Latitude:	Longitude:	Station Type:	Height of Air Intake:	Elevation ASL:	Pollutants Measured	Years Available
Toronto College St	60427	223 College St., Toronto, ON	43.65	-79.39	Urban	9 m	122 m	Benzene and 1,3-Butadiene and Benzo(a)Pyrene	2008-2012
Toronto East	60410	Kennedy Rd. and Lawrence Ave, Toronto, ON	43.74	-79.27	Urban	4 m	172 m	NOx, NO, NO2, PM2.5 and Ozone	2011-2015
Toronto West	60430	125 Resources Rd., Toronto, ON	43.70	-79.54	Urban	8 m	149 m	CO	2011-2015
Toronto Downtown	60433	Bay St. and Wellesley St. W., Toronto, ON	43.66	-79.38	Urban	8 m	107 m	NOx, NO, NO2, CO, PM2.5 and Ozone	2011-2015
Toronto Perth	60418	Perth/Ruskin (Junction Triangle), Toronto, ON	43.66	-79.45	Urban	-	-	Formaldehyde, Acetaldehyde and Acrolein	2002-2006

Figure 2: Air Quality Monitoring Station Location Map



LEGEND:

- NAPS Air Quality Monitoring Station
- Air Quality Study Area

DATE:

2017-04-05

SCALE: 1:166 313

0 5 km

AECOM

PROJECT NO.:

60517668

AERMOD View - Lakes Environmental Software

1.3.1 Chemical Transformation of Nitrogen Oxides

The Ozone Limiting Method was used to estimate short-term NO_2 concentration resulting from emissions of NOx. **Table 3** outlines the ozone background concentrations.

Table 3: Ozone Background Concentrations

Contaminant	Averaging Period	90th percentile Ambient Concentration Measured (ppb)
Ozone	1-hour	43.0
	24-hour	38.1
	Annual	26.6

It is assumed that the rate of conversion of NO to NO_2 is controlled by the availability of ozone. The 1-hour and 24-hour concentration of NOx predicted by the model were compared to the 90th percentile ozone background levels as measured by the Toronto West, Toronto Downtown and Toronto East air quality monitoring stations from 2011 to 2015. The largest 90th percentile was used from the value calculated at each of the three stations.

A factor of 0.10 was assumed for the thermal conversion of NOx to NO_2. If the remaining concentration of NOx was less than the 90th percentile ozone concentration, then it was assumed that 100% of the NOx is transformed to NO_2 as per the following equation:

$$\text{If } 0.90\ NO_X\ (ppb) < \text{Ozone (ppb), then } NO_2\ (ppb) = NOx\ (ppb)$$

However, if the concentration of NOx is greater than 90th percentile ozone concentration, then ozone is the limiting factor as per the following Equation:

$$\text{If } 0.90\ NO_X\ (ppb) > \text{Ozone (ppb), then } NO_2\ (ppb) = 0.1\ NOx\ (ppb) + \text{Ozone (ppb)}$$

2. Methodology

2.1 Modelling Scenarios

The air quality assessment includes a period of close to ten years for the following two scenarios:

- **Current/Existing Conditions (year 2016)**; and,
- **Future "Build" Conditions (year 2025) with Electrification** – Proposed infrastructure with the proposed mix of electric / diesel trains at RER service levels (in accordance with data provided by Metrolinx).

Normally a 10-year post-construction horizon would be used for environmental assessments, but the future train volume data provided are based on year 2025. The credible worst-case scenario is based on maximum service goals consistent with the planned infrastructure and safety standards. The future service volumes account for anticipated ridership demands and infrastructure constraints; therefore it is considered to be a credible worst-case scenario. The operating conditions for this scenario are highly predictable due to the necessity to adhere to maximum speed limits, and strict safety and operational standards.

2.2 Emissions Sources

The following emissions sources were assessed:

- Mobile GO Transit Diesel Locomotives;
- Idling GO Transit Locomotives at the Don Yard and Wilson Yard;
- CN and VIA Locomotives; and,
- Road traffic on key public roads (Gardiner Expressway, Don Valley Parkway, Lower Jarvis Street, Lower Sherbourne Street, Parliament Street, Cherry Street) within the Study Area.

2.3 Emission Factors

2.3.1 Locomotives

The U.S. EPA has established emission standards for oxides of nitrogen (NOx), hydrocarbons (HC), carbon monoxide (CO) and particulate matter for locomotives.

Locomotive emissions were estimated using the U.S. EPA emissions standards. These standards include several sets of emissions standards termed Tier 0, Tier 1, Tier 2, Tier 3, and Tier 4. The applicability of the standards depends on the date the locomotive was manufactured, as follows:

- Tier 0 standards apply to locomotive engines originally manufactured from 1973 to 1992;
- Tier 1 standards apply to locomotives and locomotive engines originally manufactured from 1993 to 2004;
- Tier 2 standards apply to locomotives and locomotive engines originally manufactured from 2005 to 2011;
- Tier 3 standards apply to locomotives and locomotive engines manufactured from 2012 to 2014; and,
- Tier 4 standards apply to locomotives and locomotive engines manufactured since 2015.

For the Current scenario, it was assumed that all GO locomotive traction and Head end-power (HEP) engines comply with Tier 2 emission standards. It should be noted that the current Metrolinx fleet includes a mix of engine types (Tier 2 to Tier 4), with the majority being Tier 2. All GO locomotives have been modelled as Tier 2 engines. The Future Build scenario assumed electrification of the Lakeshore East and Stouffville train lines (some non-revenue trips are modelled as diesel trains) while the Richmond Hill train line remained diesel. All diesel trains modelled for the Future Build scenario are considered Tier 4.

2.3.1.1 GO Trains

GO train emissions of criteria air contaminants (CAC) and GHGs were quantified by employing route-specific duty-cycles and engine-specific emission factors and fuel consumption rates by engine notch settings (provided by Metrolinx). This method was applied to the traction engine(s) and the HEP engine(s). Metrolinx provided emission factors for the MP40 Tier 2 locomotives down to the individual notch levels of this specific model, showing the emissions in relation to the engine power requirement for a specific level of effort.

As discussed in Section 2.4, notch-based emission factors were used in relation to event recorder data on specific portions of the railway. It was not possible to obtain notch-specific emission factors for future Tier 4 locomotives. Therefore, for Tier 4 locomotives, notch-specific emission factors were calculated based on Tier 2 data, by

multiplying actual emission factors by Tier4/Tier2 ratios from U.S. EPA standards for line-haul locomotives (refer to **Table 4**).

Table 4: Line Haul Emission Standards (g/bhp-hr)

Emission Standard	$PM_{2.5}$[1]	HC	NO_x	CO
Uncontrolled	0.32	0.48	13.00	1.28
Tier 0	0.32	0.48	8.6	1.28
Tier 0+	0.20	0.30	7.20	1.28
Tier 1	0.32	0.47	6.70	1.28
Tier 1+	0.20	0.29	6.70	1.28
Tier 2	0.18	0.26	4.95	1.28
Tier2+ and Tier3	0.08	0.13	4.95	1.28
Tier 4	0.015	0.04	1.00	1.28

Source: http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P100500B.TXT

Note 1: It was assumed all particulate matter for non-road engines was $PM_{2.5}$.
+ Indicates that these are the revised standards in 40 CFR PART 10333

In addition the following assumptions were made to a calculate emissions for Tier 4 locomotives:

- It was assumed that total power and fuel consumption of locomotives would be the same as Tier 2;
- The HEP engines would be operating at 50% power; and,
- The HEP engines would also be Tier 2.

Table 5 presents the emission rates derived from the MP40 Tier 2 locomotives emission rates provided by Metrolinx. For each notch level, they show the sum of the traction engine with the HEP engine operating at 50% power. The fuel rate shown in the table is also the combined fuel consumption of both engines. The Rotation Per Minute (RPM) and Brake Horse Power (BHP) power shown as reference are those of the traction engine only. Train trips to be modelled as part electrification for the Future Build scenario are considered as being non-emitting.

Table 5: GO Transit MP40 Tier 2 and Tier 4 Emission Rates

NOTCH	RPM[1]	BHP[1]	Fuel Rate (g/s)	Fuel Rate (L/s)	HC (g/s) Tier 2	HC (g/s) Tier 4	CO (g/s) Tier 2	CO (g/s) Tier 4	NO_x (g/s) Tier 2	NO_x (g/s) Tier 4	$PM_{2.5}$ (g/s) Tier 2	$PM_{2.5}$ (g/s) Tier 4
IDLE	266	15.4	32.2	0.037	0.041	0.006	0.192	0.192	1.037	0.210	0.033	0.0027
DB	626	99.7	42.8	0.049	0.071	0.011	0.303	0.303	1.456	0.294	0.043	0.0036
1	266	216.4	39.8	0.046	0.041	0.006	0.194	0.194	1.485	0.300	0.036	0.0030
2	343	439.5	48.3	0.055	0.046	0.007	0.200	0.200	1.756	0.355	0.039	0.0032
3	488	988.1	72.8	0.083	0.064	0.010	0.199	0.199	2.535	0.512	0.048	0.0040
4	626	1460.0	96.4	0.110	0.075	0.012	0.213	0.213	2.707	0.547	0.052	0.0044
5	728	1912.3	117.2	0.134	0.085	0.013	0.221	0.221	2.856	0.577	0.062	0.0051
6	728	2911.6	155.8	0.178	0.110	0.017	0.234	0.234	4.123	0.833	0.076	0.0064
7	818	3683.2	186.0	0.213	0.116	0.018	0.247	0.247	4.972	1.004	0.094	0.0078
8	903	4245.0	206.0	0.235	0.140	0.022	0.271	0.271	5.849	1.182	0.112	0.0093

Note: 1: RPM and BHP values are for traction engine only.

2.3.1.2 VIA Rail and CN Trains

VIA Rail and CN emission factors were calculated using the same approach above. As notch-specific emission factors were not available for those services, they were calculated based on current and projected Tier levels of the two rail services for Current and Future Build scenarios.

With a mix of F40PH-2 and P42DC locomotives, VIA Rail has been completing its rebuilding program for F40 locomotives [29], in order to achieve full Tier 0 specifications for its fleet. As this rebuilding program has been completed recently, modelling has been conducted with the assumption that standards for VIA Rail locomotives will stay the same at Tier 0 for Current and Future Build scenarios.

CN's Tier level determination was based on the five most recently available "Locomotive Emissions Monitoring Program" yearly reports from 2008 to 2012 as published by Railway Association of Canada (RAC). For each of the yearly reports, RAC presents a table showing the distribution of Canada's fleet into each of the US EPA Tier level standards. An emission profile for each of the pollutants was calculated for each of the yearly reports from 2008 to 2012. It was then possible to draw linear trends from 2008 to 2012 in order to extrapolate to 2016 (Current scenario), and to 2025 (Future Build scenario). Notch-specific emission factors were finally calculated from this composite Tier projection using the ratio method described above. As it will be seen in later sections, CN Tier calculations should not have a strong effect on final results because of the low volume of CN trains within the Study Area combined with its off-peak schedule.

2.3.2 Roads

Mobile vehicle emissions were estimated through emission factors generated using US EPA MOVES2014a. MOVES (Motor Vehicle Emissions Simulator) is the U.S. EPA latest program for estimating vehicle emissions.

This model was used to generate composite emission factors (i.e., grams of pollutant emitted per second) for NO_2, SO_2 CO, $PM_{2.5}$, BaP, and HC's. MOVES modelling was performed in "Emission Rates" mode for January and July for each pollutant, and the maximum of both months was selected and used for dispersion modelling over the entire 5-year meteorological period as a worst-case emission rate and to simplify modelling (i.e., one pollutant might use a winter emission rate and another might use a summer emission rate). MOVES2014a generates emissions factors based on vehicle type, vehicle mix, road type, traffic volume, vehicle age and vehicle speed. Average vehicle travel speeds were extracted from the MTO's iCorridor website. As a conservative assumption, the $PM_{2.5}$ emission rates used within the modelling is the sum of MOVES' pollutants ID 110, 116 and 117 (respectively "Primary Exhaust $PM_{2.5}$ Total", "Primary $PM_{2.5}$ Brakewear Particulate" and "Primary $PM_{2.5}$ Tirewear Particulate").

The input data required to run MOVES2014a are presented in **Table 6**. Vehicle emission modelling was limited to internal combustion engine exhaust emissions (tailpipe exhaust only). Where default data included in MOVES2014a were deemed appropriate for the Study Area, the MOVES default data have been used. The default data used were from Niagara County (New York), USA given the relative proximity to the Study Area.

Table 6: MOVES2014a Input Data

Input Category	Parameter	Input	Reference
External Conditions	*Scale*	County Scale	-
	Calculation Type	Emission Rates	-
	Years of Evaluation	2016, 2025	-
	Month of Evaluation	January and July	-
	Temperature ˚C	Full set of average hourly and monthly temperatures	Environment Canada weather (January 2014). Toronto Pearson
	Humidity	Full set of average hourly and monthly humidity readings	Environment Canada weather (January 2014). Toronto Pearson

Input Category	Parameter	Input	Reference
Fuel Options	*Fuel Types*	Default fuel mix (E85 reassigned to Gasoline)	MOVES2014a Default
Vehicles	*Vehicle Types*	All vehicle types	-
Vehicle Fleet Characteristics	*Vehicle Age Distribution*	MOVES2014a Default	U.S. EPA

The assumptions used to estimate roads emission rates are described in Section 2.4.1.3. Further MOVES2014a input/output details are provided in **Appendix B**, along with the traffic data used for the modelling.

2.3.3 Emissions Factors

The maximum and minimum emission rates (g/hour) and the time this occurs broken down by locomotive source are provided in **Table 7**. A range of the emission rates (minimum and maximum) were provided to help illustrate the wide potential variability due to different operating conditions such as engine notch setting and segment length and train volume rates (schedule).

Independently of the train volume rates, **Table 8** presents the total amount of pollutants emitted by one GO train passing through the complete study area for each of the four trip types. With the time required for one trip reaching less than 15 minutes, the total amount emitted by one train would be distributed over one hour for modelling purposes (modelling is conducted on an hourly basis). The emission rates calculated that way would only represent an average notch non-specific figure. Modelling conducted for this study was instead applied on geographically referenced areas by segmenting the total path of the trains into representative segments, as described in the next section. Derived using the same methodology, **Table 9** shows the diesel fuel consumption for any one train for each of the four trip types used throughout the modelling as being representative of all the running train services. To be noted about **Table 9**, disparities between directions (eastbound vs westbound) of a specific service can be explained by the average level of effort accomplished by the locomotive's engine; for example, compare the average notch level for Lakeshore East Eastbound vs Lakeshore East Westbound by referring to **Table 10**.

Table 7: Maximum and Minimum Emission Rates

Group of Sources	Scenarios	Pollutant Emissions (g/hour) HC MIN	Pollutant Emissions (g/hour) HC MAX	Pollutant Emissions (g/hour) CO MIN	Pollutant Emissions (g/hour) CO MAX	Pollutant Emissions (g/hour) NO_x MIN	Pollutant Emissions (g/hour) NO_x MAX	Pollutant Emissions (g/hour) SO_2 MIN	Pollutant Emissions (g/hour) SO_2 MAX	Pollutant Emissions (g/hour) $PM_{2.5}$ MIN	Pollutant Emissions (g/hour) $PM_{2.5}$ MAX	Pollutant Emissions (g/hour) BaP MIN	Pollutant Emissions (g/hour) BaP MAX	Hour of Max Emissions (2)
GO	Current	0.123	0.454	0.577	2.013	3.11	12.61	0.0029	0.0117	0.099	0.366	0.435	1.608	15, 16
	Future Build	0.013	0.041	0.385	1.177	0.419	1.612	0.0019	0.0076	0.005	0.018	0.024	0.077	8, 16
VIA / CN	Current	0.006	0.030	0.016	0.051	0.20	1.09	0.0001	0.0006	0.005	0.024	0.023	0.104	9, 17, 18
	Future Build	0.006	0.030	0.016	0.051	0.200	1.090	0.0001	0.0006	0.005	0.024	0.023	0.104	9, 17, 18
Roads	Current	0.080	1.099	1.395	23.880	0.42	5.12	0.0041	0.0534	0.016	0.195	3.714	43.017	17
	Future Build	0.028	0.377	0.794	14.026	0.118	1.455	0.0014	0.0189	0.007	0.085	1.134	13.632	17

Note: 1. HC-Hydrocarbons, NOx- Nitrogen Oxides, CO-Carbon Monoxide, SO_2-Sulfur Dioxide, BaP-Benzo(a)Pyrene
2. The hour during which maximum emission rates are experienced (xx:00).
3. For some sources, the maximum or minimum emission rate occurs more than one hour over the 24 hourly profiles.

Table 8: Emissions per GO Transit Train for Each Trip and Trip Direction

Scenario	Tier Level	Service	Direction	Emissions per GO Transit Train (g/train) HC	Emissions per GO Transit Train (g/train) CO	Emissions per GO Transit Train (g/train) NO_X	Emissions per GO Transit Train (g/train) SO_2	Emissions per GO Transit Train (g/train) $PM_{2.5}$	Emissions per GO Transit Train (g/train) BaP
Current	Tier 2	Lakeshore East Stouffville	Eastbound	23.0	62.9	921	0.91	18.7	0.000082
	Tier 2	Lakeshore East Stouffville	Westbound	12.6	57.8	415	0.35	10.5	0.000046
	Tier 2	Richmond Hill	Eastbound	27.2	72.4	1082	1.08	22.0	0.000097
	Tier 2	Richmond Hill	Westbound	55.9	209	1562	1.46	38.6	0.000170
Future Build	Tier 4	Lakeshore East Stouffville	Eastbound	3.54	62.9	186	0.91	1.56	0.000007
	Tier 4	Lakeshore East Stouffville	Westbound	1.94	57.8	83.8	0.35	0.87	0.000004
	Tier 4	Richmond Hill	Eastbound	4.18	72.4	219	1.08	1.83	0.000008
	Tier 4	Richmond Hill	Westbound	8.60	209	315	1.46	3.22	0.000014

Table 9: Diesel Fuel Consumption per GO Transit Train for Each Trip and Trip Direction

Service	Direction	Diesel Fuel Consumption (kg/train)	Diesel Fuel Consumption (Litres/train)
Lakeshore East Stouffville	Eastbound	30.5	34.8
	Westbound	11.6	13.2
Richmond Hill	Eastbound	36.1	41.2
	Westbound	48.6	55.6

2.4 Dispersion Modelling

Local air quality impacts were assessed by estimating contaminant concentrations at representative sensitive and critical receptors within the Study Area. In order to estimate the contaminant concentrations on sensitive and critical receptors, air dispersion modelling was conducted using the AERMOD model. AERMOD is an advanced steady-state plume model that has the ability to include building cavity downwash, source emission rates, terrain and meteorological data to predict contaminant concentration at sensitive receptors. The main inputs to the AERMOD model are described in detail in **Appendix C** and summarized in Section 2.4.1.

In the model, mobile locomotives and road traffic were represented by volume sources while idling trains at the Don Yard and Wilson Yard were represented by point sources.

Duty cycles and geographical segmentation were calculated from four event recorder data files obtained from Metrolinx with the assumptions of them being representative of a typical weekday.

- **Lakeshore East and Stouffville GO services:**
  - L618 - 716 – Eastbound
  - L618 - 731 – Westbound
- **Richmond Hill GO service:**
  - L654 - 833 – Eastbound
  - L608 - 834 – Westbound

Emission rates for each rail segment were calculated based on the number, speed, duty cycle, and load factor of locomotives at each specific location on the rail corridor. There is a duty cycle for the traction engines (prime mover) and another for the HEP engines. Emission rates were calculated for the traction engines and HEP engines for westbound and eastbound at each notch setting. Locomotive specifications and emissions factors were provided by Metrolinx for GO trains. Further details with respect to dispersion model inputs are provided below.

2.4.1 Dispersion Modelling Input Data

2.4.1.1 Mobile Locomotives

As a first step, co-ordinates for the centerline of all tracks of the full railway were extracted from a CAD files showing Current and Future Build scenarios. Then, the roadway tool of the Lakes-AERMOD interface was used to draw a single line of volume sources to encompass the full length of the rail and the average width of the full set of tracks. This resulted in a set of 148 volume sources for Lakeshore East or Stouffville GO services, and of 185 volume sources for the Richmond Hill GO service.

One copy of the same set of volume sources was setup, identified and grouped, for each of the train services (GO, CN, VIA), in order to be able to calculate the contributions of the services, for a total of 548 volume sources.

Event recorder data files were provided by Metrolinx with instructions as to how to interpret the various fields, with each of the four files representing how the train is performing at any given point in time (regarding the engine's duty cycle, brakes and speed for example). Each recorder data file shows a complete set of time-based recordings for thousands of such recordings. The time-based event recorder files were then converted into traveled-distance-based event recorder files, to further convert each recording to geographical co-ordinates by correlation to a georeferenced CAD file using INDEX/MATCH Excel formulas. With each recording now associated with a single geographical co-ordinate and to a specific notch level, it was possible to regroup recordings into more unified segments to "simplify" the event recorder data files prior to modelling. **Table 10** presents a summary of the segments for the four event recorder files.

As shown in the table, segmentation of the four different event recorder data files could not be grouped using similar common segments because the locomotives are not behaving in the same manner at a given geographical point depending on its direction or whether it is a Lakeshore East or a Richmond Hill service train.

Notch levels represent the level of effort accomplished by the locomotive at any given moment. From the lower effort to the higher effort, IDLE is the lower followed by DB (Dynamic Brake), and then from 1 to 8, with 8 being the locomotive operating at maximum engine power. The notch level has no direct link with the speed; a train going down a slope could achieve full speed while running IDLE or at notch 1 or 2. Similarly, a train starting its acceleration could be operating at notch 8 while it's still at low speed.

From a modelling computation time standpoint, it was unrealistic to further multiply the number of volume sources to specifically assign one recorder data file per set of volume sources (sources were already tripled in number to separate GO, CN, and VIA). In order to simply, formulas were developed to determine the closest rail modelling volume source at the end of each segment and, depending on the number of volume sources covering a segment, to distribute the emissions among those sources based on the schedule and directions linked to the different recorder data files. A sample calculation for per-volume source emission rate attribution has been included in **Appendix D**.

GO Trains

Detailed GO Transit hourly schedules for both Current and Future Build scenarios were provided by Metrolinx and are included in **Appendix E**, which includes the proposed mix of electric and diesel trains with RER service levels. **Table 11** presents a summary of the modelled GO trains.

Table 10: Summary of Segmentation for the Four Event Recorder Files

Segment Number	Segment Length (metres) Lakeshore East and Stouffville services Eastbound	Segment Length (metres) Lakeshore East and Stouffville services Westbound	Segment Length (metres) Richmond Hill Service Eastbound	Segment Length (metres) Richmond Hill Service Westbound	Representative Segment Notch Level Lakeshore East and Stouffville services Eastbound	Representative Segment Notch Level Lakeshore East and Stouffville services Westbound	Representative Segment Notch Level Richmond Hill Service Eastbound	Representative Segment Notch Level Richmond Hill Service Westbound
1	194	392	194	218	2	IDLE	2	DB
2	562	332	562	354	1	DB	1	8
3	716	378	716	105	8	1	8	IDLE
4	105	375	105	296	1	2	1	3
5	112	580	112	484	IDLE	2	IDLE	8
6	83	208	83	580	1	1	1	2
7	126	356	130	208	2	IDLE	IDLE	1
8	137	105	55	356	3	1	DB	IDLE
9	143	55	47	105	4	IDLE	IDLE	1
10	143	308	61	55	8	1	2	IDLE
11	107	101	1164	308	4	IDLE	8	1
12	820	59		101	8	1	-	IDLE
13	-	-	-	59	-	-	-	1

Table 11: Summary of GO Service Levels for Modelled Scenarios

Values	GO Train Service	Direction	Engine Technology	Daily Train Trips (Revenue + Equipment trips)
Values for Current Conditions (2016)	Lakeshore East and Stouffville	Westbound	Diesel Tier 2	78
		Eastbound	Diesel Tier 2	76
	Richmond Hill	Westbound	Diesel Tier 2	8
		Eastbound	Diesel Tier 2	8
			Total =	***170***
Values for 2025 Future Build	Lakeshore East and Stouffville	Eastbound	Diesel Tier 4	13
			Electric	171
		Westbound	Diesel Tier 4	13
			Electric	171
	Richmond Hill	Eastbound	Diesel Tier 4	12
			Electric	0
		Westbound	Diesel Tier 4	12
			Electric	0
			Total =	***392***

VIA and CN Trains

VIA schedules were obtained using May 8, 2017 schedules from VIA Rail website (**Appendix E**). With CN trains having a schedule of one train per night and considering the difficulty in obtaining exact schedules, CN trains were conservatively assigned a rate of one from 23:00 to 0:00. The rationale for this choice of hours was that it was more conservative for modelling purposes because it was the hour of the night for which the simultaneous GO schedule was the highest.

As precise projections of train rates were unavailable for VIA and CN services, the 2012 Locomotive Emissions Monitoring Program (LEM) yearly report, as published by Railway Association of Canada [27], was used. For CN, this report states an average annual increase of 2.4% regarding “revenue tonne-kilometres” (RTK). As part of the report’s own definition: “This term refers to the product of the weight (in tonnes) of revenue commodities handled and the distance (in kilometers) transported. […]”. The 2012 RTK number was projected to 2015 and then to 2025 to calculate a 2025/2016 ratio of 1.238. Future schedule for CN was therefore kept the same as current.

For VIA, the LEM report presents a total increase of only 6.2% from 1990 to 2012 regarding passenger-km data, an average annual increase of only 0.282%, for a 2025/2016 ratio of only 1.026. On the 32 daily VIA trains in 2016, this represents an increase of less than 1 train, therefore, future schedule for VIA has been kept the same as current.

2.4.1.2 Idling Locomotives

Part of the USRC East Enhancements Project includes construction of up to five tracks and reconfiguration of existing three tracks at the Wilson Yard, which is located directly south of the existing ten tracks at Don Yard for additional storage and layover capacity for GO trains.

Point sources have been laid out to take into account idling locomotives into the modelling at UTM co-ordinates shown in **Table 12**. For each yard, two (2) point sources have been situated at each side (western side and eastern side). The point sources have been located at the northern rail track of each yard, to be conservatively closer to the nearby sensitive receptors. However many tracks were determined to be active at each yard, the total emission rates were summed together and distributed evenly between the two point sources. This permitted locating the sources closer to receptors while simplifying the modelling. Each point source has been designed using the parameters listed in **Table 13** as suggested by Metrolinx (Metrolinx, August 2015).

Table 12: Co-ordinates of Point Sources for Idling Locomotives at Don Yard

Station	Modelling ID	Co-ordinates (UTM) X(m)	Co-ordinates (UTM) Y(m)
Don Yard	P_DON_1	632650	4834368
	P_DON_2	632945	4834589
Wilson Yard	P_WIL_1	632781	4834377
	P_WIL_2	633043	4834561

Table 13: Point Source Parameters for Idling Locomotives at Don Yard

Parameter	Value
Release Height	4.72 m
Exhaust Velocity	5.60 m/s
Exit Diameter	0.5 m
Exit Temperature	422 K

At layover facilities, such as the proposed Wilson Yard, evaporative emissions, re-entrained dust and other potential emissions are negligible. This is because trains move at very low speeds and therefore, the already very small re-entrained dust emissions from trains are even smaller at the layover facilities. Diesel engines have exceedingly small evaporative emissions, largely due to the very low volatility of diesel fuel. For this reason the US EPA has not issued any evaporative emission standards for diesel powered locomotive engines. There are only exhaust emission standards for these engines.

Metrolinx has provided the following hypotheses for Don Yard and Wilson Yard idling data to be integrated into modelling:

- Wilson Yard will be modelled as 24-hour continuous idling on its three tracks for the Current scenario, and as 24-hour continuous idling on its eight tracks for the Future Build scenario;
- Traffic at Don Yard will be projected from its Current scenario idling data to its Future Build scenario numbers using a factor of 2.306 (Running train trips in 2025 / Running train trips in 2016 = 392/170); and,
- Among the 392 running train trips for 2025, 50 trips are conducted using diesel trains, which represents 12.8% of the trips. As a conservative assumption for modelling the Future Build scenario, idling data projected for

2025 has been modelled as 25% diesel to account for possible daily variations of train technologies.

Table 14 below presents the Current and Future Build scenarios' idling data and the Future scenario's idling activities modelled as diesel using the above assumptions.

Table 14: Idling Data Utilized for Modelling of Don Yard and Wilson Yard Activities

Yard	Hour of the Day	Idling Time Current (2016) (in minutes)	Idling Time Future Build (2025) (in minutes)	Idling Time Modelled as Diesel Future Build (2025) (in minutes)
Don Yard	07:00 to 08:00	87	201	50
	08:00 to 09:00	118	272	68
	09:00 to 10:00	95	219	55
	13:00 to 14:00	40	92	23
	14:00 to 15:00	135	311	78
	15:00 to 16:00	395	911	228
	16:00 to 17:00	330	761	190
Wilson Yard	Every hours of the day	180 (3 tracks X 60)	480 (8 tracks X 60)	120

2.4.1.3 Road Network

Base maps for the road network in an image format were obtained to designate roadway links within the Study Area. The base maps were used to develop the location and length of road links and segments within AERMOD. The emissions of the road traffic estimated using the US EPA MOVES2014a model were input into the dispersion model.

The road traffic volume data for the Gardiner Expressway (FGG) and Don Valley Parkway (DVP) were provided by the City of Toronto. The data were supplemented with assumptions for missing segments based on the volumes for adjacent segments and an annual growth factor of 1% applied to estimate current (2017) volumes. The proportions of medium and heavy trucks were estimated based on nearby highways. The data used for the assessment are summarized in **Table 15** below, where AADT is the annual average daily (24-hr) traffic volume.

Table 15: Road Traffic Data

Road Segment	AADT	% Medium Truck	% Heavy Truck	Speed (km/h)
DVP SB_Offramp to Eastern WB	16463	2	4	30
DVP NB_Onramp From Eastern WB	10351	2	4	30
DVP SB TO FGG WB	32614	2	4	60
FGG EB TO DVP NB	33319	2	4	60
FGG WB, Midblock between Cherry St and DVP ramp	55539	2	4	90
FGG EB, Midblock between Cherry St and DVP ramp	56582	2	4	90
FGG WB, Midblock between Parliament and Cherry St	51781	2	4	90
FGG EB, Midblock between Parliament and Cherry St	55111	2	4	90
FGG WB, Midblock between Small street and Lower Sherbourne	53355	2	4	90
FGG EB, Midblock between Small street and Lower Sherbourne	47138	2	4	90
Ramp FGG WB to Sherbourne St	2995	2	4	50
Ramp Lake Shore Blvd EB to FGG EB east of Jarvis St	7236	2	4	50
FGG WB, Midblock between Freeland and Jarvis	41616	2	4	90
FGG EB, Midblock between Freeland and Jarvis	47002	2	4	90
Ramp FGG WB to Lake Shore WB	8874	2	4	50
Ramp FGG WB to Yonge St NB	3787	2	4	50
FGG WB, Midblock between Yonge and Freeland	42322	2	4	90
FGG EB, Midblock between Yonge and Freeland	42997	2	4	90
Ramp Jarvis St SB to FGG WB	17908	2	4	50
Ramp Bay St NB to FGG EB	4499	2	4	50
Midblock Eastern Ave. to Don Roadway	30504	2	4	90
Midblock Don Roadway to Eastern Ave.	30234	2	4	90
FGG WB, Midblock Lower Sherbourne to Jarvis	50124	2	4	90
FGG EB, Midblock Jarvis to Lower Sherbourne	43215	2	4	90
FGG WB, Midblock Yonge to Bay	43231	2	4	90
FGG EB, Midblock Bay to Yonge	39407	2	4	90

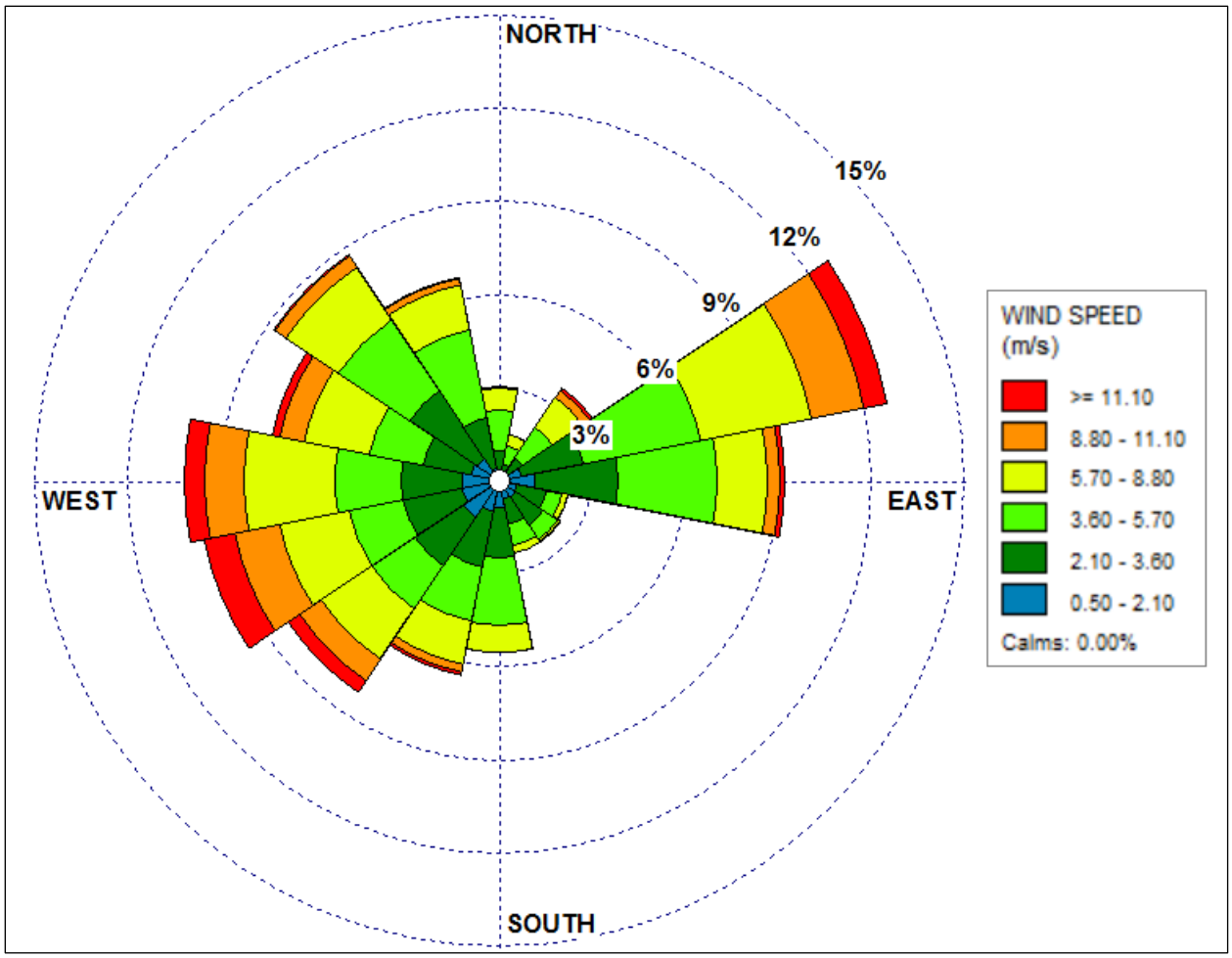
2.4.1.4 Meteorology

Five years of pre-processed regional meteorological data from 2005 through 2009 for Toronto, Ontario were obtained. It was collected at Toronto Island Airport, which is representative for the Study Area due to the corridor proximity to Lake Ontario. The use of regional meteorological data are approved by the MOECC as the data set covers a period of five years and therefore includes a variety of meteorological conditions. The wind rose for the 5-year period showing the wind direction (blowing from) and wind speed is presented in **Figure 3**. The predominant wind directions are the north-northwest and west sectors.

2.4.1.5 Terrain

Digital elevation model (DEM) data were obtained from the MOECC. The DEM data were used to include the effects of terrain in the modelling. The terrain used is from the DEM data sets 'tiles 087 and 092'.

Figure 3: Wind Rose for Toronto Island Airport, Ontario, 2005 to 2009



2.4.1.6 Receptor Grid

To optimize the modelling computation, the receptor grid was designed as follows:

- The receptors grid is going 300 m on each side of the railway;
- Within current and future residential areas, a 50 m X 50 m receptor grid has been applied within the property limits of such residences. The targeted residential areas were identified using aerial photography of the area;
- Outside of residential areas, a 50 m X 50 m receptor grid was set up (results of these non-sensitive receptors were processed for contour mapping purposes only); and,
- All receptors will use a flagpole height of 1.5 m (Breathing zone height).

The area of modelling coverage is shown in **Figure 4**.

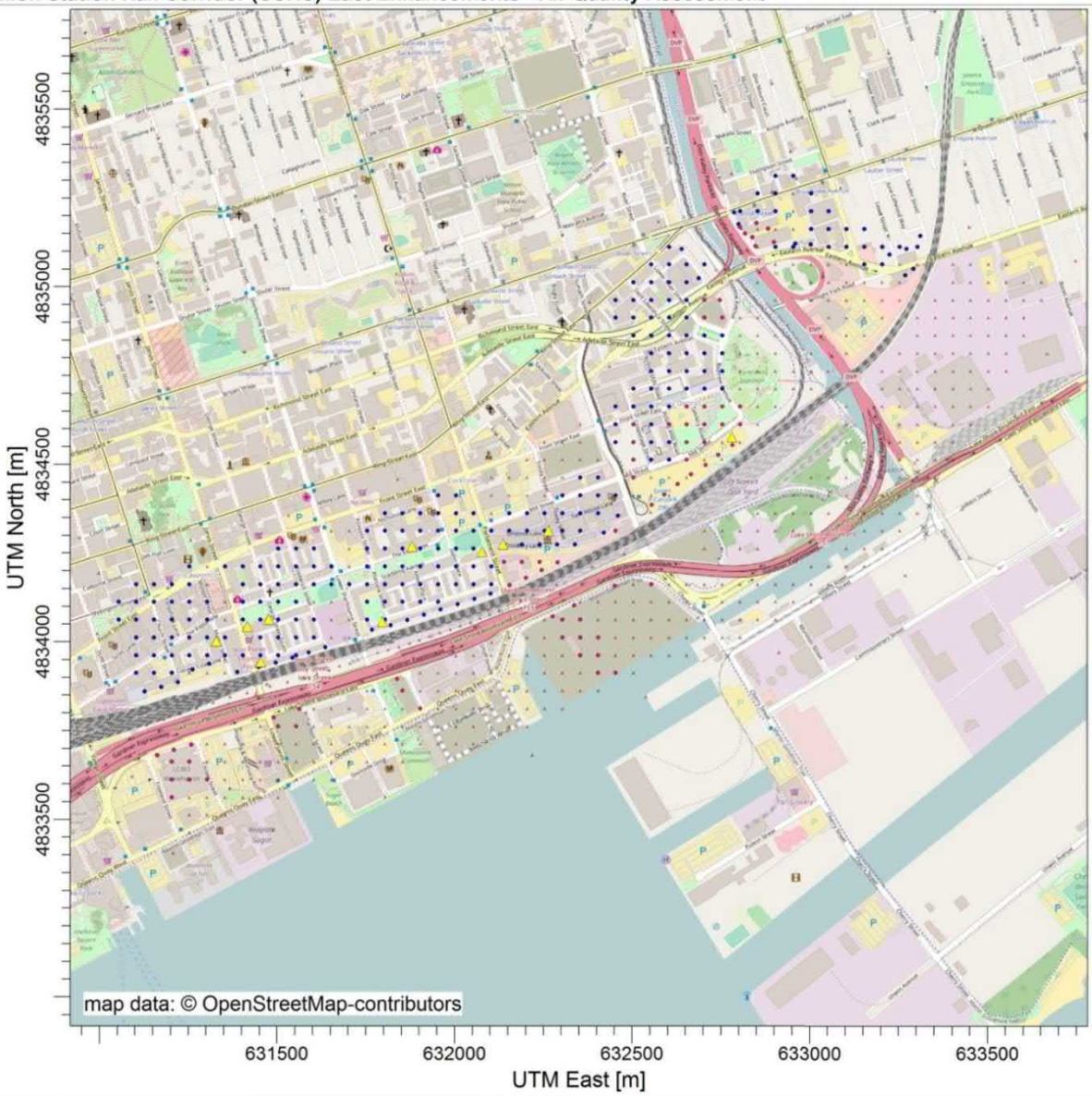
In addition, ten critical receptors have been identified within the Study Area. These receptors have been added to the modelling and are listed in **Table 16**; they are also shown in **Figure 4**. Examples of critical receptors are day care centers, retirement homes, school and hospitals. There are no hospitals within the Study Area. The list has been sorted from West to East.

Table 16: Critical Receptors within the Study Area

Receptor ID	Name	Address
R01	St. Lawrence Co-Operative Day Care Inc.	4 Market Street
R02	Brant Street Daycare & Downtown Alternative School	85 Lower Jarvis Street
R03	St. Michael Catholic School (Day Care)	47 Henry Lane Terrace
R04	St. Michael Catholic School	50 George Street South
R05	St Lawrence Co-operative Day Care Inc.	2 Princess Street
R06	Market Lane Jr and Senior Public School	246 The Esplanade
R07	Les Centres d'Accueil Héritage	33 Hahn Place
R08	Distillery District Early Learning Centre	8 Distillery Lane
R09	Voice Integrative School	50 Gristmill Lane
R10	Future School (West Don Lands Precinct Plan, 2005)	South of Mill Street (Corner of Bayview Avenue)

Figure 4: Dispersion Modelling Receptor Grid

PROJECT TITLE:
Air Dispersion Modelling Receptor Grid
Union Station Rail Corridor (USRC) East Enhancements - Air Quality Assessment



LEGEND:
- Sensitive receptors (Residential areas)
- Possible future sensitive receptors (Future residential areas)
- Critical receptors (Institutional receptors such as day care centers, schools, retirement homes)
- Non Sensitive receptors modelled for contour maps purposes

RECEPTORS: **771**

COMPANY NAME: **AECOM**

SCALE: 1:18 000
0 0.5 km

DATE: **2017-07-10**

PROJECT NO.: **60517668**

AERMOD View - Lakes Environmental Software

2.5 Maximum Concentration Prediction through "Predictable Worst-Case Analysis"

With respect to the *MTO Environmental Guidelines for Assessing Provincial Transportation Projects (MTO, June 2012)* document, which describes several points of methodology for meeting the requirements of a "Credible Worst-Case Analysis", a worst-case analysis has been added to this study. The methodology for this worst-case analysis accounts for limitations of the AERMOD model, which **cannot** model a specific standardized meteorological condition (a single wind speed, angle and stability class); a full set of meteorological data **must** be provided to AERMOD for modelling. This methodology has been called a "Predictable Worst-Case Analysis" and employs the following guidelines.

For gas pollutants modelled over a period of 1-hour:

- Worst-case assessment of the studied gas pollutants that are regulated over a 1-hour averaging time has been done by modelling the single highest peak hour of the day, therefore modelling the highest hourly emission rates of the day, whether this occurs during AM peak or PM peak, over all hours of the complete hourly meteorological dataset. This process models the peak service level through 43,848 single meteorological conditions (five years), thus proving to output a worst-case 1-hour result. The gaseous pollutants that are regulated over a 1-hour averaging time are NO_2, CO, SO_2 and acrolein.

For particulate matter pollutants modelled over a period of 24-hour:

- Worst-case assessment of the studied particulate matter pollutants that are regulated over a 24-hour averaging time has been done by modelling a 24-hour service schedule that represents a predictable maximum daily service, therefore modelling the highest 24-hour set of emission rates, over the hours of the complete hourly meteorological dataset. This process models the described daily service level over 1,827 single sets of 24 hourly meteorological conditions that are region-specific to the project, thus proving to output a worst-case 24-hour result while remaining plausible on a day/night atmospheric stability aspect. The particulate matter pollutant included in this study that is regulated over a 24-hour averaging time is $PM_{2.5}$.
- It should be noted that in the case of the 24-hour averaging time, this "Predictable Worst-Case Analysis" methodology is exactly the same as the "Comprehensive Analysis" conducted throughout this study. Although only the $PM_{2.5}$ results are presented as the Particulate Matter pollutant representative of the worst-case analysis as per MTO guidelines, the results obtained for

$PM_{2.5}$ shall be the same as the $PM_{2.5}$ results presented in the "Comprehensive Analysis" study. Therefore, any other 24-hour averaging time pollutants presented in the "Comprehensive Analysis" section shall be considered as fitting both "Predictable Worst-Case Analysis" and "Comprehensive Analysis" methodologies.

Common to pollutants modelled over 1-hour and 24-hour periods:

- The modelled concentrations were added to 90th percentile background concentrations using data obtained from the surrounding local air quality stations (listed in **Table 2**) in order to calculate cumulative worst-case concentrations;
- The definition of the predictable worst-case rail service incorporates those service conditions (e.g., train speed and notch setting) that are consistent with accepted operating practices; and,
- Modelling has been performed at all sensitive and critical receptors within the Study Area. For each pollutant modelled using this methodology, this report focuses on the receptor showing the highest cumulative worst-case concentration. For each of these maxima, the *mean* value is being presented as a statistical adjunct.

2.6 Cumulative Effects Analysis through "Comprehensive Analysis"

A local air quality impact assessment was conducted to determine maximum cumulative contaminant concentrations. The assessment was conducted in accordance with Metrolinx "*Air Quality and GHG Emissions Impact Assessment for the USRC East Enhancements Project: Recommended Approach*". The modelled concentrations due to GO Trains, CN and VIA Trains, and roads, were combined with background concentrations for each contaminant to determine the cumulative maximum concentration at sensitive and critical receptors. In addition, the "Source Groups" feature imbedded into AERMOD has been utilized to determine the contribution of each source group (GO, VIA and CN, Roads, Background) to the highest concentration of impact as modelled among all the sensitive and critical receptors. Contributions are then determined at this specific point of impact and at the specific worst-case 24-hour period, independently for all pollutants regulated for the 24-hour averaging period. Further, for NO_2 (1-hr and 24-hr) and $PM_{2.5}$ (24-hr), and also for any contaminants showing exceedance of one or more standards, a frequency analysis was conducted to estimate the potential period of exposure.

3. Assessment of Modelling Results through "Predictable Worst-Case Analysis"

3.1 Predicted Cumulative Concentrations

Refer to **Table 17** and **Table 18** for a range of predicted pollutant concentration through modelling using the "Predictable Worst-Case Analysis" approach (methodology and pollutants selection are explained in Section 2.5), including background air quality levels, under the two scenarios evaluated at all sensitive and critical receptors within the Study Area. The maximum predicted concentrations are compared to the mean concentration. The mean concentration that is presented is the average concentration for the receptor with the maximum concentration for any given pollutant and averaging time.

For all gaseous pollutants regulated for the 1-hour averaging time, as well as for $PM_{2.5}$ regulated for the 24-hour averaging time, the results from the "Predictable Worst-Case Analysis" methodology show that all maximum cumulative concentrations (including background levels) are below their corresponding air quality threshold.

Table 17: Cumulative Concentrations – Current Conditions (2016) ("Predictable Worst-Case")

Averaging Period	Pollutant	Background Level µg/m³	Modelled Concentration (Maximum) µg/m³	Cumulative Concentration (Maximum) µg/m³	Modelled Concentration (Mean) µg/m³	Cumulative Concentration (Mean) µg/m³	Air Quality Threshold µg/m³
1-hour	NO_2	58.3	320	379	66.2	125	400
	CO	412	7 014	7 426	308	720	36 200
	SO_2	5.24	15.7	20.9	0.69	5.93	690
	Acrolein	0.65	2.25	2.90	0.10	0.75	4.5
24-hour	$PM_{2.5}$	14.6	7.70	22.3	2.40	17.0	27

Notes: 1. 24-hour $PM_{2.5}$ air quality threshold is based on the 98th percentile ambient measurement (24-hour), annually averaged over three years. The $PM_{2.5}$ standards are proposed (2020) standards established under Canadian Ambient Air Quality Standards. The CAAQS are voluntary objectives.

2. 1-hour and 24-hour ambient concentrations for the contaminants were obtained from the 90th percentile of hourly measurements from representative air quality monitoring stations.

Table 18: Cumulative Concentrations – Future Build (2025) ("Predictable Worst-Case")

Averaging Period	Pollutant	Background Level µg/m³	Modelled Concentration (Maximum) µg/m³	Cumulative Concentration (Maximum) µg/m³	Modelled Concentration (Mean) µg/m³	Cumulative Concentration (Mean) µg/m³	Air Quality Threshold µg/m³
1-hour	NO_2	58.3	154	213	48.9	107	400
	CO	412	4 745	5 157	182	594	36 200
	SO_2	5.24	6.50	11.7	0.26	5.50	690
	Acrolein	0.65	0.76	1.41	0.03	0.68	4.5
24-hour	$PM_{2.5}$	14.6	2.98	17.6	0.93	15.5	27

Notes: 1. 24-hour $PM_{2.5}$ air quality threshold is based on the 98th percentile ambient measurement (24-hour), annually averaged over three years. The $PM_{2.5}$ standards are proposed (2020) standards established under Canadian Ambient Air Quality Standards. The CAAQS are voluntary objectives.

2. 1-hour and 24-hour ambient concentrations for the contaminants were obtained from the 90th percentile of hourly measurements from representative air quality monitoring stations.

4. Assessment of Modelling Results through "Comprehensive Analysis"

4.1 Predicted Cumulative Concentrations

Refer to **Table 19** and **Table 20** for a range of predicted pollutant concentration through modelling using the "Comprehensive Analysis" approach, including background air quality levels, under the two scenarios evaluated at all sensitive and critical receptors within the Study Area. The maximum predicted concentrations are compared to the mean concentration. The mean concentration that is presented is the average concentration for the receptor with the maximum concentration for any given pollutant and averaging time.

In all cases, maximum concentrations are below air quality threshold levels with exceptions of:

- For the Current (2016) scenario: acrolein (24-hr), benzene (annual), benzo(a)pyrene (24-hr and annual), and $PM_{2.5}$ (annual); and,
- For the Future Build (2025) scenario: benzene (annual), benzo(a)pyrene (24-hr and annual), and $PM_{2.5}$ (annual).

Some pollutant background (ambient) concentrations make up a significant percentage of the total concentration. In the case of benzene and benzo(a)pyrene, background levels alone are showing exceedances of their air quality threshold. Detailed contribution analyses are presented in Section 4.3 to illustrate this phenomenon. In addition, maximum pollutant concentrations at select critical receptors are also provided in Section 3.2.

Sample contours plots for NO_2, and $PM_{2.5}$ can be found in **Appendix F**. These contour plots depict the general pattern of pollutant concentrations and demonstrate that highest levels are noted near railways and roadways. Further, these figures show how concentrations drop off with distance from rail and roadways.

4.2 Maximum Predicted Concentrations at Critical Receptors

The following subsections present detailed results for each of the ten critical receptors discussed in Section 2.4.1.6 for both the Current and Future Build scenarios. Each table shows modelled concentrations of all modelling sources (GO, VIA, CN, Roads), along

Table 19: Cumulative Concentrations – Current Conditions (2016) ("Comprehensive")

Averaging Period	Pollutant	Background Level µg/m³	Modelled Concentration (Maximum) µg/m³	Cumulative Concentration (Maximum) µg/m³	Modelled Concentration (Mean) µg/m³	Cumulative Concentration (Mean) µg/m³	Air Quality Threshold µg/m³
1-hour	NO_2	58.3	298	356	56.4	115	400
	CO	412	6 190	6 602	142	554	36 200
	SO_2	5.24	13.9	19.2	0.35	5.59	690
	Acrolein	0.65	1.99	2.64	0.05	0.70	4.5
8-hour	CO	401	2 474	2 875	142	543	15 700
24-hour	NO_2	48.9	110	159	56.6	106	200
	SO_2	4.8	2.65	7.45	0.44	5.24	275
	$PM_{2.5}$	14.6	7.70	22.3	2.40	17.0	27
	Acetaldehyde	3.04	2.09	5.13	0.35	3.39	500
	Acrolein	**0.27**	**0.37**	**0.64**	**0.06**	**0.33**	**0.4**
	Benzene	1.06	0.46	1.52	0.08	1.14	2.3
	1,3-Butadiene	0.12	0.14	0.26	0.02	0.14	10
	Formaldehyde	5.51	4.95	10.46	0.83	6.34	65
	Benzo(a)Pyrene	**0.00008**	**0.00214**	**0.00222**	**0.00036**	**0.00044**	**0.00005**
Annual	**$PM_{2.5}$**	**8.06**	**2.40**	**10.46**	**-**	**-**	**8.8**
	SO_2	2.33	0.44	2.77	-	-	55
	Benzo(a)Pyrene	**0.00005**	**0.00036**	**0.00041**	**-**	**-**	**0.00001**
	Benzene	**0.70**	**0.08**	**0.78**	**-**	**-**	**0.45**
	1,3-Butadiene	0.07	0.02	0.09	-	-	2

Notes:
1. 24-hour $PM_{2.5}$ air quality threshold is based on the 98th percentile ambient measurement (24-hour), annually averaged over three years. The $PM_{2.5}$ standards are proposed (2020) standards established under Canadian Ambient Air Quality Standards. The CAAQS are voluntary objectives.
2. The concentration of VOCs (1,3-Butadiene, Acetaldehyde, Acrolein, Benzene, and Formaldehyde) were derived from the concentration of Total Gaseous Hydrocarbons using average % composition from U.S. EPA MOVES2014a 2016 and 2025 results simulation for MOVES vehicle class 62 (Combination Long-Haul Trucks) as representative of locomotives diesel engines.
3. 1 hour, 8 hour, and 24 hour ambient concentrations for the contaminants were obtained from the 90th percentile of hourly measurements from representative air quality monitoring stations. Annual ambient concentrations for the contaminants were obtained from the mean measurements from the representative air quality monitoring station.
4. Exceedances to air quality thresholds are shown in **bold**.

Table 20: Cumulative Concentrations – Future Build (2025) ("Comprehensive")

Averaging Period	Pollutant	Background Level µg/m³	Modelled Concentration (Maximum) µg/m³	Cumulative Concentration (Maximum) µg/m³	Modelled Concentration (Mean) µg/m³	Cumulative Concentration (Mean) µg/m³	Air Quality Threshold µg/m³
1-hour	NO_2	58.3	148	206	16.7	75	400
	CO	412	4373	4785	78.8	491	36200
	SO_2	5.24	6.02	11.3	0.12	5.36	690
	Acrolein	0.65	0.70	1.35	0.01	0.66	4.5
8-hour	CO	401	1475	1876	78.8	480	15700
24-hour	NO_2	48.9	82.4	131	19.0	67.9	200
	SO_2	4.8	0.95	5.75	0.16	4.96	275
	$PM_{2.5}$	14.6	2.98	17.6	0.93	15.5	27
	Acetaldehyde	3.04	0.64	3.68	0.11	3.15	500
	Acrolein	0.27	0.11	0.38	0.02	0.29	0.4
	Benzene	1.06	0.14	1.20	0.02	1.08	2.3
	1,3-Butadiene	0.12	0.03	0.15	0.01	0.13	10
	Formaldehyde	5.51	1.72	7.23	0.29	5.80	65
	Benzo(a)Pyrene	**0.00008**	**0.00067**	**0.00075**	**0.00011**	**0.00019**	**0.00005**
Annual	**$PM_{2.5}$**	**8.06**	**0.93**	**8.99**	**-**	**-**	**8.8**
	SO_2	2.33	0.16	2.49	-	-	55
	Benzo(a)Pyrene	**0.00005**	**0.00011**	**0.00016**	**-**	**-**	**0.00001**
	Benzene	**0.70**	**0.02**	**0.72**	**-**	**-**	**0.45**
	1,3-Butadiene	0.07	0.01	0.08	-	-	2

Notes:
1. 24-hour $PM_{2.5}$ air quality threshold is based on the 98th percentile ambient measurement (24-hour), annually averaged over three years. The $PM_{2.5}$ standards are proposed (2020) standards established under Canadian Ambient Air Quality Standards. The CAAQS are voluntary objectives.
2. The concentration of VOCs (1,3-Butadiene, Acetaldehyde, Acrolein, Benzene, and Formaldehyde) were derived from the concentration of Total Gaseous Hydrocarbons using average % composition from U.S. EPA MOVES2014a 2016 and 2025 results simulation for MOVES vehicle class 62 (Combination Long-Haul Trucks) as representative of locomotives diesel engines.
3. 1 hour, 8 hour, and 24 hour ambient concentrations for the contaminants were obtained from the 90th percentile of hourly measurements from representative air quality monitoring stations. Annual ambient concentrations for the contaminants were obtained from the mean measurements from the representative air quality monitoring station.
4. Exceedances to air quality thresholds are shown in **bold**.

with the background concentration summing up to the cumulative concentrations experienced by critical receptors. The modelled, background and cumulative concentrations are also compared individually to the air quality threshold to emphasize the contribution of background levels on the cumulative concentrations. Further details of the contribution of each modelling group are provided in Section 4.3 for all pollutants regulated for the 24-hour averaging time.

4.2.1 Nitrogen Dioxide (NO_2)

Maximum NO_2 concentrations at the critical receptors are provided in **Table 21** and **Table 22** for the two scenarios evaluated. Maximum cumulative concentrations are below the 1-hour average NO_2 air quality threshold of 400 µg/m^3 and below the 24-hour average NO_2 air quality threshold of 200 µg/m^3 at all the critical receptors for both scenarios.

Table 21: 1-hour Average NO_2 Maximum Predicted Concentrations

Receptor ID	Scenario	Modelled Concentration (all services) µg/m³	Background Concentration µg/m³	Cumulative Concentration µg/m³	Air Quality Threshold µg/m³	% of Threshold from Modelling %	% of Threshold from Background %	% of Threshold from Cumulative %
R01	Current/Existing	222	58.3	280	400	55.5%	14.6%	70.1%
	Future Build	124	58.3	182	400	30.9%	14.6%	45.5%
R02	Current/Existing	217	58.3	276	400	54.4%	14.6%	68.9%
	Future Build	123	58.3	181	400	30.6%	14.6%	45.2%
R03	Current/Existing	259	58.3	318	400	64.8%	14.6%	79.4%
	Future Build	135	58.3	193	400	33.8%	14.6%	48.3%
R04	Current/Existing	211	58.3	270	400	52.8%	14.6%	67.4%
	Future Build	121	58.3	179	400	30.2%	14.6%	44.8%
R05	Current/Existing	266	58.3	324	400	66.5%	14.6%	81.1%
	Future Build	138	58.3	196	400	34.4%	14.6%	49.0%
R06	Current/Existing	166	58.3	224	400	41.4%	14.6%	56.0%
	Future Build	107	58.3	165	400	26.7%	14.6%	41.3%
R07	Current/Existing	195	58.3	253	400	48.7%	14.6%	63.2%
	Future Build	115	58.3	173	400	28.7%	14.6%	43.3%
R08	Current/Existing	179	58.3	238	400	44.8%	14.6%	59.4%
	Future Build	110	58.3	168	400	27.4%	14.6%	42.0%
R09	Current/Existing	189	58.3	247	400	47.1%	14.6%	61.7%
	Future Build	112	58.3	170	400	27.9%	14.6%	42.5%
R10	Current/Existing	162	58.3	220	400	40.4%	14.6%	55.0%
	Future Build	103	58.3	162	400	25.8%	14.6%	40.4%

Table 22: 24-hour Average NO_2 Maximum Predicted Concentrations

Receptor ID	Scenario	Modelled Concentration (all services) µg/m³	Background Concentration µg/m³	Cumulative Concentration µg/m³	Air Quality Threshold µg/m³	% of Threshold from Modelling %	% of Threshold from Background %	% of Threshold from Cumulative %
R01	Current/Existing	93.4	48.9	142	200	46.7%	24.5%	71.1%
	Future Build	59.2	48.9	108	200	29.6%	24.5%	54.0%
R02	Current/Existing	101	48.9	150	200	50.3%	24.5%	74.8%
	Future Build	79.7	48.9	129	200	39.8%	24.5%	64.3%
R03	Current/Existing	104	48.9	153	200	52.2%	24.5%	76.6%
	Future Build	80.5	48.9	129	200	40.3%	24.5%	64.7%
R04	Current/Existing	91.9	48.9	141	200	46.0%	24.5%	70.4%
	Future Build	55.5	48.9	104	200	27.7%	24.5%	52.2%
R05	Current/Existing	105	48.9	154	200	52.5%	24.5%	76.9%
	Future Build	80.7	48.9	130	200	40.4%	24.5%	64.8%
R06	Current/Existing	89.2	48.9	138	200	44.6%	24.5%	69.0%
	Future Build	47.6	48.9	96.5	200	23.8%	24.5%	48.3%
R07	Current/Existing	94.5	48.9	143	200	47.2%	24.5%	71.7%
	Future Build	62.1	48.9	111	200	31.0%	24.5%	55.5%
R08	Current/Existing	92.4	48.9	141	200	46.2%	24.5%	70.7%
	Future Build	56.2	48.9	105	200	28.1%	24.5%	52.6%
R09	Current/Existing	88.5	48.9	137	200	44.2%	24.5%	68.7%
	Future Build	47.5	48.9	96.4	200	23.7%	24.5%	48.2%
R10	Current/Existing	88.2	48.9	137	200	44.1%	24.5%	68.5%
	Future Build	42.1	48.9	91.0	200	21.0%	24.5%	45.5%

4.2.2 Particulate Matter ($PM_{2.5}$)

Maximum $PM_{2.5}$ concentrations at the critical receptors are provided in **Table 23** and **Table 24** for the two scenarios evaluated. Maximum cumulative concentrations are below the 24-hour average $PM_{2.5}$ air quality threshold of 27 µg/m^3 at all the critical receptors for both scenarios. For the annual averaging period, the cumulative concentrations are slightly higher than the 8.8 µg/m^3 air quality threshold at most critical receptors for the Current scenario, and slightly lower than the threshold at all critical receptors for the Future Build scenario. To be noted, the background concentration alone is already reaching 91.6% of the air quality threshold, being the major contributor to the cumulative concentrations.

Table 23: 24-hour Average $PM_{2.5}$ Maximum Predicted Concentrations

Receptor ID	Scenario	Modelled Concentration (all services) µg/m³	Background Concentration µg/m³	Cumulative Concentration µg/m³	Air Quality Threshold µg/m³	% of Threshold from Modelling %	% of Threshold from Background %	% of Threshold from Cumulative %
R01	Current/Existing	4.23	14.6	18.8	27	15.7%	54.1%	69.8%
	Future Build	1.59	14.6	16.2	27	5.9%	54.1%	60.0%
R02	Current/Existing	5.20	14.6	19.8	27	19.2%	54.1%	73.3%
	Future Build	2.16	14.6	16.8	27	8.0%	54.1%	62.1%
R03	Current/Existing	6.45	14.6	21.0	27	23.9%	54.1%	78.0%
	Future Build	2.46	14.6	17.1	27	9.1%	54.1%	63.2%
R04	Current/Existing	3.59	14.6	18.2	27	13.3%	54.1%	67.4%
	Future Build	1.33	14.6	15.9	27	4.9%	54.1%	59.0%
R05	Current/Existing	5.26	14.6	19.9	27	19.5%	54.1%	73.6%
	Future Build	1.73	14.6	16.3	27	6.4%	54.1%	60.5%
R06	Current/Existing	2.62	14.6	17.2	27	9.7%	54.1%	63.8%
	Future Build	0.94	14.6	15.5	27	3.5%	54.1%	57.5%
R07	Current/Existing	4.13	14.6	18.7	27	15.3%	54.1%	69.4%
	Future Build	1.55	14.6	16.1	27	5.7%	54.1%	59.8%
R08	Current/Existing	3.29	14.6	17.9	27	12.2%	54.1%	66.3%
	Future Build	1.21	14.6	15.8	27	4.5%	54.1%	58.5%
R09	Current/Existing	2.91	14.6	17.5	27	10.8%	54.1%	64.9%
	Future Build	0.99	14.6	15.6	27	3.7%	54.1%	57.7%
R10	Current/Existing	3.18	14.6	17.8	27	11.8%	54.1%	65.8%
	Future Build	0.76	14.6	15.4	27	2.8%	54.1%	56.9%

Table 24: 1-year Average $PM_{2.5}$ Maximum Predicted Concentrations

Receptor ID	Scenario	Modelled Concentration (all services) µg/m³	Background Concentration µg/m³	Cumulative Concentration µg/m³	Air Quality Threshold µg/m³	% of Threshold from Modelling %	% of Threshold from Background %	% of Threshold from Cumulative %
R01	Current/Existing	0.99	8.06	9.05	8.8	11.3%	91.6%	102.9%
	Future Build	0.37	8.06	8.43	8.8	4.2%	91.6%	95.8%
R02	Current/Existing	1.54	8.06	9.60	8.8	17.5%	91.6%	109.1%
	Future Build	0.63	8.06	8.69	8.8	7.1%	91.6%	98.7%
R03	Current/Existing	1.89	8.06	9.95	8.8	21.4%	91.6%	113.0%
	Future Build	0.71	8.06	8.77	8.8	8.1%	91.6%	99.7%
R04	Current/Existing	0.92	8.06	8.98	8.8	10.4%	91.6%	102.0%
	Future Build	0.33	8.06	8.39	8.8	3.8%	91.6%	95.4%
R05	Current/Existing	1.37	8.06	9.43	8.8	15.6%	91.6%	107.2%
	Future Build	0.45	8.06	8.51	8.8	5.1%	91.6%	96.6%
R06	Current/Existing	0.64	8.06	8.70	8.8	7.3%	91.6%	98.9%
	Future Build	0.20	8.06	8.26	8.8	2.3%	91.6%	93.9%
R07	Current/Existing	1.08	8.06	9.14	8.8	12.2%	91.6%	103.8%
	Future Build	0.38	8.06	8.44	8.8	4.3%	91.6%	95.9%
R08	Current/Existing	0.96	8.06	9.02	8.8	10.9%	91.6%	102.5%
	Future Build	0.32	8.06	8.38	8.8	3.6%	91.6%	95.2%
R09	Current/Existing	0.85	8.06	8.91	8.8	9.6%	91.6%	101.2%
	Future Build	0.24	8.06	8.30	8.8	2.8%	91.6%	94.3%
R10	Current/Existing	1.25	8.06	9.31	8.8	14.3%	91.6%	105.8%
	Future Build	0.22	8.06	8.28	8.8	2.5%	91.6%	94.1%

4.2.3 Carbon Monoxide (CO)

Maximum CO concentrations at the critical receptors are provided in **Table 25** and **Table 26** for the two scenarios evaluated. Maximum cumulative concentrations are below the 1-hour average CO air quality threshold of 36 200 µg/m^3 and below the 8-hour average CO air quality threshold of 15 700 µg/m^3 at all the critical receptors for both scenarios.

Table 25: 1-hour Average CO Maximum Predicted Concentrations

Receptor ID	Scenario	Modelled Concentration (all services) µg/m³	Background Concentration µg/m³	Cumulative Concentration µg/m³	Air Quality Threshold µg/m³	% of Threshold from Modelling %	% of Threshold from Background %	% of Threshold from Cumulative %
R01	Current/Existing	3 165	412	3 577	36 200	8.7%	1.1%	9.9%
	Future Build	1 855	412	2 267	36 200	5.1%	1.1%	6.3%
R02	Current/Existing	4 827	412	5 239	36 200	13.3%	1.1%	14.5%
	Future Build	2 798	412	3 210	36 200	7.7%	1.1%	8.9%
R03	Current/Existing	4 960	412	5 372	36 200	13.7%	1.1%	14.8%
	Future Build	2 893	412	3 305	36 200	8.0%	1.1%	9.1%
R04	Current/Existing	3 046	412	3 458	36 200	8.4%	1.1%	9.6%
	Future Build	1 781	412	2 193	36 200	4.9%	1.1%	6.1%
R05	Current/Existing	3 275	412	3 687	36 200	9.0%	1.1%	10.2%
	Future Build	1 934	412	2 346	36 200	5.3%	1.1%	6.5%
R06	Current/Existing	2 951	412	3 363	36 200	8.2%	1.1%	9.3%
	Future Build	1 744	412	2 156	36 200	4.8%	1.1%	6.0%
R07	Current/Existing	4 170	412	4 582	36 200	11.5%	1.1%	12.7%
	Future Build	2 457	412	2 869	36 200	6.8%	1.1%	7.9%
R08	Current/Existing	3 351	412	3 763	36 200	9.3%	1.1%	10.4%
	Future Build	1 985	412	2 397	36 200	5.5%	1.1%	6.6%
R09	Current/Existing	3 183	412	3 595	36 200	8.8%	1.1%	9.9%
	Future Build	1 887	412	2 299	36 200	5.2%	1.1%	6.3%
R10	Current/Existing	1 321	412	1 733	36 200	3.6%	1.1%	4.8%
	Future Build	786	412	1 198	36 200	2.2%	1.1%	3.3%

Table 26: 8-hour Average CO Maximum Predicted Concentrations

Receptor ID	Scenario	Modelled Concentration (all services) µg/m³	Background Concentration µg/m³	Cumulative Concentration µg/m³	Air Quality Threshold µg/m³	% of Threshold from Modelling %	% of Threshold from Background %	% of Threshold from Cumulative %
R01	Current/Existing	1 471	401	1 872	15 700	9.4%	2.6%	11.9%
	Future Build	856	401	1 257	15 700	5.5%	2.6%	8.0%
R02	Current/Existing	1 817	401	2 218	15 700	11.6%	2.6%	14.1%
	Future Build	1 049	401	1 450	15 700	6.7%	2.6%	9.2%
R03	Current/Existing	2 144	401	2 545	15 700	13.7%	2.6%	16.2%
	Future Build	1 243	401	1 644	15 700	7.9%	2.6%	10.5%
R04	Current/Existing	1 282	401	1 683	15 700	8.2%	2.6%	10.7%
	Future Build	744	401	1 145	15 700	4.7%	2.6%	7.3%
R05	Current/Existing	1 509	401	1 910	15 700	9.6%	2.6%	12.2%
	Future Build	888	401	1 289	15 700	5.7%	2.6%	8.2%
R06	Current/Existing	1 056	401	1 457	15 700	6.7%	2.6%	9.3%
	Future Build	621	401	1 022	15 700	4.0%	2.6%	6.5%
R07	Current/Existing	1 647	401	2 048	15 700	10.5%	2.6%	13.0%
	Future Build	964	401	1 365	15 700	6.1%	2.6%	8.7%
R08	Current/Existing	1 298	401	1 699	15 700	8.3%	2.6%	10.8%
	Future Build	766	401	1 167	15 700	4.9%	2.6%	7.4%
R09	Current/Existing	1 323	401	1 724	15 700	8.4%	2.6%	11.0%
	Future Build	782	401	1 183	15 700	5.0%	2.6%	7.5%
R10	Current/Existing	551	401	952	15 700	3.5%	2.6%	6.1%
	Future Build	325	401	726	15 700	2.1%	2.6%	4.6%

4.2.4 Sulfur Dioxide (SO_2)

Maximum SO_2 concentrations at the critical receptors are provided in **Table 27**, **Table 28** and **Table 29** for the two scenarios evaluated. Maximum cumulative concentrations are below the 1-hour average SO_2 air quality threshold of 690 µg/m^3, below the 24-hour average SO_2 air quality threshold of 275 µg/m^3, and also below the annual average SO_2 air quality threshold of 55 µg/m^3, at all critical receptors for both scenarios.

Table 27: 1-hour Average SO_2 Maximum Predicted Concentrations

Receptor ID	Scenario	Modelled Concentration (all services) µg/m³	Background Concentration µg/m³	Cumulative Concentration µg/m³	Air Quality Threshold µg/m³	% of Threshold from Modelling %	% of Threshold from Background %	% of Threshold from Cumulative %
R01	Current/Existing	7.62	5.24	12.9	690	1.1%	0.8%	1.9%
	Future Build	2.77	5.24	8.01	690	0.4%	0.8%	1.2%
R02	Current/Existing	10.8	5.24	16.0	690	1.6%	0.8%	2.3%
	Future Build	3.94	5.24	9.18	690	0.6%	0.8%	1.3%
R03	Current/Existing	11.1	5.24	16.4	690	1.6%	0.8%	2.4%
	Future Build	4.05	5.24	9.29	690	0.6%	0.8%	1.3%
R04	Current/Existing	6.91	5.24	12.2	690	1.0%	0.8%	1.8%
	Future Build	2.53	5.24	7.77	690	0.4%	0.8%	1.1%
R05	Current/Existing	8.80	5.24	14.0	690	1.3%	0.8%	2.0%
	Future Build	3.52	5.24	8.76	690	0.5%	0.8%	1.3%
R06	Current/Existing	6.90	5.24	12.1	690	1.0%	0.8%	1.8%
	Future Build	2.47	5.24	7.71	690	0.4%	0.8%	1.1%
R07	Current/Existing	9.68	5.24	14.9	690	1.4%	0.8%	2.2%
	Future Build	3.46	5.24	8.70	690	0.5%	0.8%	1.3%
R08	Current/Existing	7.72	5.24	13.0	690	1.1%	0.8%	1.9%
	Future Build	2.76	5.24	8.00	690	0.4%	0.8%	1.2%
R09	Current/Existing	7.44	5.24	12.7	690	1.1%	0.8%	1.8%
	Future Build	2.65	5.24	7.89	690	0.4%	0.8%	1.1%
R10	Current/Existing	3.64	5.24	8.88	690	0.5%	0.8%	1.3%
	Future Build	1.63	5.24	6.87	690	0.2%	0.8%	1.0%

Table 28: 24-hour Average SO_2 Maximum Predicted Concentrations

Receptor ID	Scenario	Modelled Concentration (all services) µg/m³	Background Concentration µg/m³	Cumulative Concentration µg/m³	Air Quality Threshold µg/m³	% of Threshold from Modelling %	% of Threshold from Background %	% of Threshold from Cumulative %
R01	Current/Existing	1.35	4.8	6.15	275	0.5%	1.7%	2.2%
	Future Build	0.49	4.8	5.29	275	0.2%	1.7%	1.9%
R02	Current/Existing	2.11	4.8	6.91	275	0.8%	1.7%	2.5%
	Future Build	0.77	4.8	5.57	275	0.3%	1.7%	2.0%
R03	Current/Existing	2.15	4.8	6.95	275	0.8%	1.7%	2.5%
	Future Build	0.78	4.8	5.58	275	0.3%	1.7%	2.0%
R04	Current/Existing	1.21	4.8	6.01	275	0.4%	1.7%	2.2%
	Future Build	0.44	4.8	5.24	275	0.2%	1.7%	1.9%
R05	Current/Existing	1.75	4.8	6.55	275	0.6%	1.7%	2.4%
	Future Build	0.63	4.8	5.43	275	0.2%	1.7%	2.0%
R06	Current/Existing	1.04	4.8	5.84	275	0.4%	1.7%	2.1%
	Future Build	0.38	4.8	5.18	275	0.1%	1.7%	1.9%
R07	Current/Existing	1.48	4.8	6.28	275	0.5%	1.7%	2.3%
	Future Build	0.54	4.8	5.34	275	0.2%	1.7%	1.9%
R08	Current/Existing	1.32	4.8	6.12	275	0.5%	1.7%	2.2%
	Future Build	0.48	4.8	5.28	275	0.2%	1.7%	1.9%
R09	Current/Existing	1.22	4.8	6.02	275	0.4%	1.7%	2.2%
	Future Build	0.43	4.8	5.23	275	0.2%	1.7%	1.9%
R10	Current/Existing	0.75	4.8	5.55	275	0.3%	1.7%	2.0%
	Future Build	0.29	4.8	5.09	275	0.1%	1.7%	1.9%

Table 29: 1-year Average SO_2 Maximum Predicted Concentrations

Receptor ID	Scenario	Modelled Concentration (all services) µg/m³	Background Concentration µg/m³	Cumulative Concentration µg/m³	Air Quality Threshold µg/m³	% of Threshold from Modelling %	% of Threshold from Background %	% of Threshold from Cumulative %
R01	Current/Existing	0.19	2.33	2.52	55	0.3%	4.2%	4.6%
	Future Build	0.07	2.33	2.40	55	0.1%	4.2%	4.4%
R02	Current/Existing	0.30	2.33	2.63	55	0.6%	4.2%	4.8%
	Future Build	0.11	2.33	2.44	55	0.2%	4.2%	4.4%
R03	Current/Existing	0.35	2.33	2.68	55	0.6%	4.2%	4.9%
	Future Build	0.12	2.33	2.45	55	0.2%	4.2%	4.5%
R04	Current/Existing	0.17	2.33	2.50	55	0.3%	4.2%	4.6%
	Future Build	0.06	2.33	2.39	55	0.1%	4.2%	4.3%
R05	Current/Existing	0.23	2.33	2.56	55	0.4%	4.2%	4.7%
	Future Build	0.08	2.33	2.41	55	0.2%	4.2%	4.4%
R06	Current/Existing	0.11	2.33	2.44	55	0.2%	4.2%	4.4%
	Future Build	0.04	2.33	2.37	55	0.1%	4.2%	4.3%
R07	Current/Existing	0.20	2.33	2.53	55	0.4%	4.2%	4.6%
	Future Build	0.07	2.33	2.40	55	0.1%	4.2%	4.4%
R08	Current/Existing	0.17	2.33	2.50	55	0.3%	4.2%	4.6%
	Future Build	0.06	2.33	2.39	55	0.1%	4.2%	4.4%
R09	Current/Existing	0.14	2.33	2.47	55	0.3%	4.2%	4.5%
	Future Build	0.05	2.33	2.38	55	0.1%	4.2%	4.3%
R10	Current/Existing	0.11	2.33	2.44	55	0.2%	4.2%	4.4%
	Future Build	0.05	2.33	2.38	55	0.1%	4.2%	4.3%

4.2.5 Benzo(a)pyrene (BaP)

Maximum BaP concentrations at the critical receptors are provided in **Table 30** and **Table 31** for the two scenarios evaluated. Maximum cumulative concentrations significantly higher than the 24-hour average BaP air quality threshold of 0.00005 µg/m^3 at all the critical receptors for both scenarios. Concentrations are also higher than the air quality threshold of 0.00001 µg/m^3 at all critical receptors for both scenarios. Although the background concentration alone is already exceeding the air quality thresholds for both the 24-hour and annual averaging periods, the major contributors to the cumulative concentrations are the modelled concentrations. The 24-hour BaP contribution analysis presented in Section 4.3.4 is showing which source group is the highest contributor among the overall highest concentration at the most impacted sensitive or critical receptor.

Table 30: 24-hour Average BaP Maximum Predicted Concentrations

Receptor ID	Scenario	Modelled Concentration (all services) µg/m³	Background Concentration µg/m³	Cumulative Concentration µg/m³	Air Quality Threshold µg/m³	% of Threshold from Modelling %	% of Threshold from Background %	% of Threshold from Cumulative %
R01	Current/Existing	0.00107	0.00008	0.00115	0.00005	2140%	160%	2300%
	Future Build	0.00034	0.00008	0.00042	0.00005	674%	160%	834%
R02	Current/Existing	0.00172	0.00008	0.00180	0.00005	3445%	160%	3605%
	Future Build	0.00053	0.00008	0.00061	0.00005	1069%	160%	1229%
R03	Current/Existing	0.00172	0.00008	0.00180	0.00005	3445%	160%	3605%
	Future Build	0.00054	0.00008	0.00062	0.00005	1079%	160%	1239%
R04	Current/Existing	0.00095	0.00008	0.00103	0.00005	1900%	160%	2060%
	Future Build	0.00030	0.00008	0.00038	0.00005	599%	160%	759%
R05	Current/Existing	0.00131	0.00008	0.00139	0.00005	2629%	160%	2789%
	Future Build	0.00042	0.00008	0.00050	0.00005	837%	160%	997%
R06	Current/Existing	0.00080	0.00008	0.00088	0.00005	1604%	160%	1764%
	Future Build	0.00025	0.00008	0.00033	0.00005	510%	160%	670%
R07	Current/Existing	0.00116	0.00008	0.00124	0.00005	2317%	160%	2477%
	Future Build	0.00037	0.00008	0.00045	0.00005	732%	160%	892%
R08	Current/Existing	0.00103	0.00008	0.00111	0.00005	2058%	160%	2218%
	Future Build	0.00032	0.00008	0.00040	0.00005	650%	160%	810%
R09	Current/Existing	0.00094	0.00008	0.00102	0.00005	1883%	160%	2043%
	Future Build	0.00030	0.00008	0.00038	0.00005	608%	160%	768%
R10	Current/Existing	0.00055	0.00008	0.00063	0.00005	1103%	160%	1263%
	Future Build	0.00017	0.00008	0.00025	0.00005	348%	160%	508%

Table 31: 1-year Average BaP Maximum Predicted Concentrations

Receptor ID	Scenario	Modelled Concentration (all services) µg/m³	Background Concentration µg/m³	Cumulative Concentration µg/m³	Air Quality Threshold µg/m³	% of Threshold from Modelling %	% of Threshold from Background %	% of Threshold from Cumulative %
R01	Current/Existing	0.00015	0.00005	0.00020	0.00001	1519%	500%	2019%
	Future Build	0.00005	0.00005	0.00010	0.00001	475%	500%	975%
R02	Current/Existing	0.00025	0.00005	0.00030	0.00001	2526%	500%	3026%
	Future Build	0.00008	0.00005	0.00013	0.00001	780%	500%	1280%
R03	Current/Existing	0.00028	0.00005	0.00033	0.00001	2801%	500%	3301%
	Future Build	0.00009	0.00005	0.00014	0.00001	874%	500%	1374%
R04	Current/Existing	0.00014	0.00005	0.00019	0.00001	1380%	500%	1880%
	Future Build	0.00004	0.00005	0.00009	0.00001	432%	500%	932%
R05	Current/Existing	0.00017	0.00005	0.00022	0.00001	1732%	500%	2232%
	Future Build	0.00005	0.00005	0.00010	0.00001	549%	500%	1049%
R06	Current/Existing	0.00009	0.00005	0.00014	0.00001	884%	500%	1384%
	Future Build	0.00003	0.00005	0.00008	0.00001	278%	500%	778%
R07	Current/Existing	0.00016	0.00005	0.00021	0.00001	1593%	500%	2093%
	Future Build	0.00005	0.00005	0.00010	0.00001	498%	500%	998%
R08	Current/Existing	0.00014	0.00005	0.00019	0.00001	1367%	500%	1867%
	Future Build	0.00004	0.00005	0.00009	0.00001	428%	500%	928%
R09	Current/Existing	0.00011	0.00005	0.00016	0.00001	1085%	500%	1585%
	Future Build	0.00003	0.00005	0.00008	0.00001	342%	500%	842%
R10	Current/Existing	0.00007	0.00005	0.00012	0.00001	691%	500%	1191%
	Future Build	0.00002	0.00005	0.00007	0.00001	210%	500%	710%

4.2.6 Acetaldehyde

Maximum Acetaldehyde concentrations at the critical receptors are provided in **Table 32** for the two scenarios evaluated. Maximum cumulative concentrations are below the 24-hour average acetaldehyde air quality threshold of 500 µg/m^3 at all the critical receptors for both scenarios.

Table 32: 24-hour Average Acetaldehyde Maximum Predicted Concentrations

Receptor ID	Scenario	Modelled Concentration (all services) µg/m³	Background Concentration µg/m³	Cumulative Concentration µg/m³	Air Quality Threshold µg/m³	% of Threshold from Modelling %	% of Threshold from Background %	% of Threshold from Cumulative %
R01	Current/Existing	1.05	3.04	4.09	500	0.2%	0.6%	0.8%
	Future Build	0.33	3.04	3.37	500	0.1%	0.6%	0.7%
R02	Current/Existing	1.67	3.04	4.71	500	0.3%	0.6%	0.9%
	Future Build	0.52	3.04	3.56	500	0.1%	0.6%	0.7%
R03	Current/Existing	1.68	3.04	4.72	500	0.3%	0.6%	0.9%
	Future Build	0.52	3.04	3.56	500	0.1%	0.6%	0.7%
R04	Current/Existing	0.94	3.04	3.98	500	0.2%	0.6%	0.8%
	Future Build	0.29	3.04	3.33	500	0.1%	0.6%	0.7%
R05	Current/Existing	1.31	3.04	4.35	500	0.3%	0.6%	0.9%
	Future Build	0.40	3.04	3.44	500	0.1%	0.6%	0.7%
R06	Current/Existing	0.78	3.04	3.82	500	0.2%	0.6%	0.8%
	Future Build	0.24	3.04	3.28	500	0.0%	0.6%	0.7%
R07	Current/Existing	1.12	3.04	4.16	500	0.2%	0.6%	0.8%
	Future Build	0.35	3.04	3.39	500	0.1%	0.6%	0.7%
R08	Current/Existing	0.99	3.04	4.03	500	0.2%	0.6%	0.8%
	Future Build	0.31	3.04	3.35	500	0.1%	0.6%	0.7%
R09	Current/Existing	0.89	3.04	3.93	500	0.2%	0.6%	0.8%
	Future Build	0.28	3.04	3.32	500	0.1%	0.6%	0.7%
R10	Current/Existing	0.59	3.04	3.63	500	0.1%	0.6%	0.7%
	Future Build	0.17	3.04	3.21	500	0.0%	0.6%	0.6%

4.2.7 Acrolein

Maximum Acrolein concentrations at the critical receptors are provided in **Table 33** and **Table 34** for the two scenarios evaluated. Maximum cumulative concentrations are below the 1-hour average acrolein air quality threshold of 4.5 µg/m^3. For the 24-hour averaging time, the cumulative concentrations are slightly higher than the 0.4 µg/m^3 air quality threshold at most critical receptors for the Current scenario, and lower than the threshold at all critical receptors for the Future Build scenario. To be noted, the background concentration alone is already reaching 67.5% of the air quality threshold, being the major contributor to the cumulative concentrations.

Table 33: 1-hour Average Acrolein Maximum Predicted Concentrations

Receptor ID	Scenario	Modelled Concentration (all services) µg/m³	Background Concentration µg/m³	Cumulative Concentration µg/m³	Air Quality Threshold µg/m³	% of Threshold from Modelling %	% of Threshold from Background %	% of Threshold from Cumulative %
R01	Current/Existing	1.08	0.65	1.73	4.5	23.9%	14.4%	38.4%
	Future Build	0.31	0.65	0.96	4.5	6.9%	14.4%	21.4%
R02	Current/Existing	1.56	0.65	2.21	4.5	34.7%	14.4%	49.2%
	Future Build	0.45	0.65	1.10	4.5	10.0%	14.4%	24.5%
R03	Current/Existing	1.59	0.65	2.24	4.5	35.3%	14.4%	49.8%
	Future Build	0.46	0.65	1.11	4.5	10.2%	14.4%	24.7%
R04	Current/Existing	0.99	0.65	1.64	4.5	21.9%	14.4%	36.4%
	Future Build	0.29	0.65	0.94	4.5	6.4%	14.4%	20.8%
R05	Current/Existing	1.14	0.65	1.79	4.5	25.3%	14.4%	39.8%
	Future Build	0.33	0.65	0.98	4.5	7.4%	14.4%	21.8%
R06	Current/Existing	0.91	0.65	1.56	4.5	20.2%	14.4%	34.6%
	Future Build	0.27	0.65	0.92	4.5	6.0%	14.4%	20.4%
R07	Current/Existing	1.28	0.65	1.93	4.5	28.5%	14.4%	42.9%
	Future Build	0.38	0.65	1.03	4.5	8.4%	14.4%	22.8%
R08	Current/Existing	1.02	0.65	1.67	4.5	22.6%	14.4%	37.0%
	Future Build	0.30	0.65	0.95	4.5	6.6%	14.4%	21.1%
R09	Current/Existing	0.96	0.65	1.61	4.5	21.4%	14.4%	35.9%
	Future Build	0.29	0.65	0.94	4.5	6.3%	14.4%	20.8%
R10	Current/Existing	0.49	0.65	1.14	4.5	10.8%	14.4%	25.2%
	Future Build	0.14	0.65	0.79	4.5	3.0%	14.4%	17.5%

Table 34: 24-hour Average Acrolein Maximum Predicted Concentrations

Receptor ID	Scenario	Modelled Concentration (all services) µg/m³	Background Concentration µg/m³	Cumulative Concentration µg/m³	Air Quality Threshold µg/m³	% of Threshold from Modelling %	% of Threshold from Background %	% of Threshold from Cumulative %
R01	Current/Existing	0.19	0.27	0.46	0.4	47.0%	67.5%	114.5%
	Future Build	0.05	0.27	0.32	0.4	13.4%	67.5%	80.9%
R02	Current/Existing	0.30	0.27	0.57	0.4	74.8%	67.5%	142.3%
	Future Build	0.09	0.27	0.36	0.4	21.4%	67.5%	88.9%
R03	Current/Existing	0.30	0.27	0.57	0.4	75.0%	67.5%	142.5%
	Future Build	0.09	0.27	0.36	0.4	21.5%	67.5%	89.0%
R04	Current/Existing	0.17	0.27	0.44	0.4	41.8%	67.5%	109.3%
	Future Build	0.05	0.27	0.32	0.4	11.9%	67.5%	79.4%
R05	Current/Existing	0.23	0.27	0.50	0.4	58.5%	67.5%	126.0%
	Future Build	0.07	0.27	0.34	0.4	16.7%	67.5%	84.2%
R06	Current/Existing	0.14	0.27	0.41	0.4	35.0%	67.5%	102.5%
	Future Build	0.04	0.27	0.31	0.4	10.0%	67.5%	77.5%
R07	Current/Existing	0.20	0.27	0.47	0.4	49.9%	67.5%	117.4%
	Future Build	0.06	0.27	0.33	0.4	14.3%	67.5%	81.8%
R08	Current/Existing	0.18	0.27	0.45	0.4	44.5%	67.5%	112.0%
	Future Build	0.05	0.27	0.32	0.4	12.7%	67.5%	80.2%
R09	Current/Existing	0.16	0.27	0.43	0.4	40.0%	67.5%	107.5%
	Future Build	0.05	0.27	0.32	0.4	11.6%	67.5%	79.1%
R10	Current/Existing	0.10	0.27	0.37	0.4	26.1%	67.5%	93.6%
	Future Build	0.03	0.27	0.30	0.4	7.1%	67.5%	74.6%

4.2.8 Benzene

Maximum Benzene concentrations at the critical receptors are provided in **Table 35** and **Table 36** for the two scenarios evaluated. Maximum cumulative concentrations are below the 24-hour average benzene air quality threshold of 2.3 µg/m^3 at all the critical receptors for both scenarios. For the annual averaging time, the cumulative concentrations are higher than the 0.45 µg/m^3 air quality threshold at all critical receptors for both scenarios. To be noted, the background concentration alone is already reaching 155.6% of the air quality threshold, being the major contributor to the cumulative concentrations.

Table 35: 24-hour Average Benzene Maximum Predicted Concentrations

Receptor ID	Scenario	Modelled Concentration (all services) µg/m³	Background Concentration µg/m³	Cumulative Concentration µg/m³	Air Quality Threshold µg/m³	% of Threshold from Modelling %	% of Threshold from Background %	% of Threshold from Cumulative %
R01	Current/Existing	0.23	1.06	1.29	2.3	10.1%	46.1%	56.2%
	Future Build	0.07	1.06	1.13	2.3	3.1%	46.1%	49.2%
R02	Current/Existing	0.37	1.06	1.43	2.3	16.1%	46.1%	62.2%
	Future Build	0.11	1.06	1.17	2.3	4.9%	46.1%	51.0%
R03	Current/Existing	0.37	1.06	1.43	2.3	16.1%	46.1%	62.2%
	Future Build	0.11	1.06	1.17	2.3	4.9%	46.1%	51.0%
R04	Current/Existing	0.21	1.06	1.27	2.3	9.0%	46.1%	55.1%
	Future Build	0.06	1.06	1.12	2.3	2.7%	46.1%	48.8%
R05	Current/Existing	0.29	1.06	1.35	2.3	12.6%	46.1%	58.7%
	Future Build	0.09	1.06	1.15	2.3	3.8%	46.1%	49.9%
R06	Current/Existing	0.17	1.06	1.23	2.3	7.5%	46.1%	53.6%
	Future Build	0.05	1.06	1.11	2.3	2.3%	46.1%	48.4%
R07	Current/Existing	0.25	1.06	1.31	2.3	10.7%	46.1%	56.8%
	Future Build	0.08	1.06	1.14	2.3	3.3%	46.1%	49.4%
R08	Current/Existing	0.22	1.06	1.28	2.3	9.6%	46.1%	55.6%
	Future Build	0.07	1.06	1.13	2.3	2.9%	46.1%	49.0%
R09	Current/Existing	0.20	1.06	1.26	2.3	8.6%	46.1%	54.7%
	Future Build	0.06	1.06	1.12	2.3	2.7%	46.1%	48.8%
R10	Current/Existing	0.13	1.06	1.19	2.3	5.6%	46.1%	51.7%
	Future Build	0.04	1.06	1.10	2.3	1.6%	46.1%	47.7%

Table 36: 1-year Average Benzene Maximum Predicted Concentrations

Receptor ID	Scenario	Modelled Concentration (all services) µg/m³	Background Concentration µg/m³	Cumulative Concentration µg/m³	Air Quality Threshold µg/m³	% of Threshold from Modelling %	% of Threshold from Background %	% of Threshold from Cumulative %
R01	Current/Existing	0.03	0.70	0.73	0.45	7.3%	155.6%	162.8%
	Future Build	0.01	0.70	0.71	0.45	2.2%	155.6%	157.8%
R02	Current/Existing	0.05	0.70	0.75	0.45	11.9%	155.6%	167.5%
	Future Build	0.02	0.70	0.72	0.45	3.6%	155.6%	159.2%
R03	Current/Existing	0.06	0.70	0.76	0.45	13.5%	155.6%	169.1%
	Future Build	0.02	0.70	0.72	0.45	4.1%	155.6%	159.7%
R04	Current/Existing	0.03	0.70	0.73	0.45	6.6%	155.6%	162.2%
	Future Build	0.01	0.70	0.71	0.45	2.0%	155.6%	157.6%
R05	Current/Existing	0.04	0.70	0.74	0.45	8.8%	155.6%	164.3%
	Future Build	0.01	0.70	0.71	0.45	2.6%	155.6%	158.2%
R06	Current/Existing	0.02	0.70	0.72	0.45	4.3%	155.6%	159.9%
	Future Build	0.01	0.70	0.71	0.45	1.3%	155.6%	156.8%
R07	Current/Existing	0.03	0.70	0.73	0.45	7.7%	155.6%	163.3%
	Future Build	0.01	0.70	0.71	0.45	2.3%	155.6%	157.9%
R08	Current/Existing	0.03	0.70	0.73	0.45	6.7%	155.6%	162.2%
	Future Build	0.01	0.70	0.71	0.45	2.0%	155.6%	157.5%
R09	Current/Existing	0.02	0.70	0.72	0.45	5.5%	155.6%	161.0%
	Future Build	0.01	0.70	0.71	0.45	1.6%	155.6%	157.1%
R10	Current/Existing	0.02	0.70	0.72	0.45	5.0%	155.6%	160.6%
	Future Build	0.01	0.70	0.71	0.45	1.2%	155.6%	156.7%

4.2.9 1,3-Butadiene

Maximum 1,3-Butadiene concentrations at the critical receptors are provided in **Table 37** and **Table 38** for the two scenarios evaluated. Maximum cumulative concentrations are significantly below the 24-hour average 1,3-butadiene air quality threshold of 10 µg/m^3 and significantly below the annual averaging period air quality threshold of 2 µg/m^3 at all the critical receptors for both scenarios.

Table 37: 24-hour Average 1,3-Butadiene Maximum Predicted Concentrations

Receptor ID	Scenario	Modelled Concentration (all services) µg/m³	Background Concentration µg/m³	Cumulative Concentration µg/m³	Air Quality Threshold µg/m³	% of Threshold from Modelling %	% of Threshold from Background %	% of Threshold from Cumulative %
R01	Current/Existing	0.07	0.12	0.19	10	0.7%	1.2%	1.9%
	Future Build	0.02	0.12	0.14	10	0.2%	1.2%	1.4%
R02	Current/Existing	0.12	0.12	0.24	10	1.2%	1.2%	2.4%
	Future Build	0.02	0.12	0.14	10	0.2%	1.2%	1.4%
R03	Current/Existing	0.12	0.12	0.24	10	1.2%	1.2%	2.4%
	Future Build	0.02	0.12	0.14	10	0.2%	1.2%	1.4%
R04	Current/Existing	0.06	0.12	0.18	10	0.6%	1.2%	1.8%
	Future Build	0.01	0.12	0.13	10	0.1%	1.2%	1.3%
R05	Current/Existing	0.09	0.12	0.21	10	0.9%	1.2%	2.1%
	Future Build	0.02	0.12	0.14	10	0.2%	1.2%	1.4%
R06	Current/Existing	0.05	0.12	0.17	10	0.5%	1.2%	1.7%
	Future Build	0.01	0.12	0.13	10	0.1%	1.2%	1.3%
R07	Current/Existing	0.08	0.12	0.20	10	0.8%	1.2%	2.0%
	Future Build	0.02	0.12	0.14	10	0.2%	1.2%	1.4%
R08	Current/Existing	0.07	0.12	0.19	10	0.7%	1.2%	1.9%
	Future Build	0.01	0.12	0.13	10	0.1%	1.2%	1.3%
R09	Current/Existing	0.06	0.12	0.18	10	0.6%	1.2%	1.8%
	Future Build	0.01	0.12	0.13	10	0.1%	1.2%	1.3%
R10	Current/Existing	0.04	0.12	0.16	10	0.4%	1.2%	1.6%
	Future Build	0.01	0.12	0.13	10	0.1%	1.2%	1.3%

Table 38: 1-year Average 1,3-Butadiene Maximum Predicted Concentrations

Receptor ID	Scenario	Modelled Concentration (all services) µg/m³	Background Concentration µg/m³	Cumulative Concentration µg/m³	Air Quality Threshold µg/m³	% of Threshold from Modelling %	% of Threshold from Background %	% of Threshold from Cumulative %
R01	Current/Existing	0.010	0.07	0.080	2	0.5%	3.5%	4.0%
	Future Build	0.002	0.07	0.072	2	0.1%	3.5%	3.6%
R02	Current/Existing	0.017	0.07	0.087	2	0.8%	3.5%	4.3%
	Future Build	0.004	0.07	0.074	2	0.2%	3.5%	3.7%
R03	Current/Existing	0.019	0.07	0.089	2	1.0%	3.5%	4.5%
	Future Build	0.004	0.07	0.074	2	0.2%	3.5%	3.7%
R04	Current/Existing	0.009	0.07	0.079	2	0.5%	3.5%	4.0%
	Future Build	0.002	0.07	0.072	2	0.1%	3.5%	3.6%
R05	Current/Existing	0.012	0.07	0.082	2	0.6%	3.5%	4.1%
	Future Build	0.003	0.07	0.073	2	0.1%	3.5%	3.6%
R06	Current/Existing	0.006	0.07	0.076	2	0.3%	3.5%	3.8%
	Future Build	0.001	0.07	0.071	2	0.1%	3.5%	3.6%
R07	Current/Existing	0.011	0.07	0.081	2	0.5%	3.5%	4.0%
	Future Build	0.002	0.07	0.072	2	0.1%	3.5%	3.6%
R08	Current/Existing	0.009	0.07	0.079	2	0.5%	3.5%	4.0%
	Future Build	0.002	0.07	0.072	2	0.1%	3.5%	3.6%
R09	Current/Existing	0.008	0.07	0.078	2	0.4%	3.5%	3.9%
	Future Build	0.002	0.07	0.072	2	0.1%	3.5%	3.6%
R10	Current/Existing	0.007	0.07	0.077	2	0.4%	3.5%	3.9%
	Future Build	0.001	0.07	0.071	2	0.1%	3.5%	3.6%

4.2.10 Formaldehyde

Maximum Formaldehyde concentrations at the critical receptors are provided in **Table 39** for the two scenarios evaluated. Maximum cumulative concentrations are significantly below the 24-hour average formaldehyde air quality threshold of 65 µg/m^3 at all the critical receptors for both scenarios.

Table 39: 24-hour Average Formaldehyde Maximum Predicted Concentrations

Receptor ID	Scenario	Modelled Concentration (all services) µg/m³	Background Concentration µg/m³	Cumulative Concentration µg/m³	Air Quality Threshold µg/m³	% of Threshold from Modelling %	% of Threshold from Background %	% of Threshold from Cumulative %
R01	Current/Existing	2.49	5.51	8.00	65	3.8%	8.5%	12.3%
	Future Build	0.87	5.51	6.38	65	1.3%	8.5%	9.8%
R02	Current/Existing	3.97	5.51	9.48	65	6.1%	8.5%	14.6%
	Future Build	1.39	5.51	6.90	65	2.1%	8.5%	10.6%
R03	Current/Existing	3.98	5.51	9.49	65	6.1%	8.5%	14.6%
	Future Build	1.39	5.51	6.90	65	2.1%	8.5%	10.6%
R04	Current/Existing	2.22	5.51	7.73	65	3.4%	8.5%	11.9%
	Future Build	0.77	5.51	6.28	65	1.2%	8.5%	9.7%
R05	Current/Existing	3.10	5.51	8.61	65	4.8%	8.5%	13.3%
	Future Build	1.08	5.51	6.59	65	1.7%	8.5%	10.1%
R06	Current/Existing	1.86	5.51	7.37	65	2.9%	8.5%	11.3%
	Future Build	0.65	5.51	6.16	65	1.0%	8.5%	9.5%
R07	Current/Existing	2.65	5.51	8.16	65	4.1%	8.5%	12.6%
	Future Build	0.93	5.51	6.44	65	1.4%	8.5%	9.9%
R08	Current/Existing	2.36	5.51	7.87	65	3.6%	8.5%	12.1%
	Future Build	0.82	5.51	6.33	65	1.3%	8.5%	9.7%
R09	Current/Existing	2.12	5.51	7.63	65	3.3%	8.5%	11.7%
	Future Build	0.75	5.51	6.26	65	1.2%	8.5%	9.6%
R10	Current/Existing	1.39	5.51	6.90	65	2.1%	8.5%	10.6%
	Future Build	0.46	5.51	5.97	65	0.7%	8.5%	9.2%

4.3 Contribution Analysis

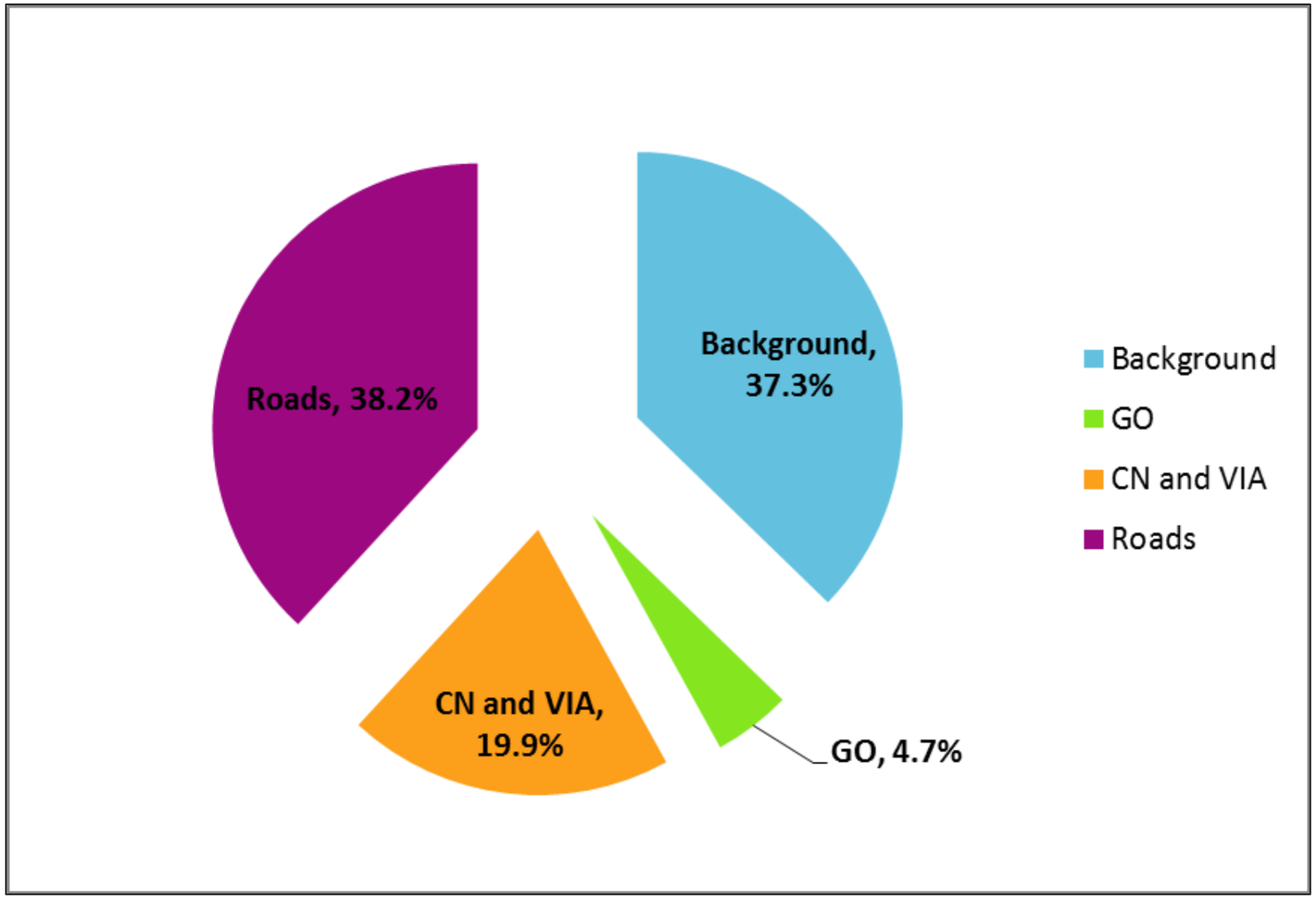
4.3.1 24-Hour Average NO_2

Maximum NO_2 24-hr cumulative concentrations and a breakdown of the cumulative NO_2 concentrations are provided in the **Table 40** for the Future Build (2025) for the worst air quality day at the most impacted receptor. The concentration contributions are further illustrated in **Figure 5**. The results show that the GO train emissions contribute 4.7% of the cumulative concentration. Contributions from background (37.3%) and from roads (38.2%) are predominant with 75.5% of the total contribution to the cumulative concentration. The cumulative NO_2 concentration for the Future Build scenario remains below the air quality threshold.

Table 40: Contribution Analysis for NO_2 24-hr Cumulative Concentration for Future Build Scenario at Most Impacted Receptor

Air Quality Threshold µg/m³	Cumulative Concentration µg/m³	Percent Air Quality Threshold (%)	Background Contribution µg/m³	Background Contribution (%)	GO Contribution µg/m³	GO Contribution (%)	Other Contribution (CN and VIA) µg/m³	Other Contribution (CN and VIA) (%)	Roads Contribution µg/m³	Roads Contribution (%)
200	131	65.6%	48.9	37.3%	6.20	4.7%	26.1	19.9%	50.1	38.2%

Figure 5: Concentration Contribution – Future Build – NO_2 24-hr Average



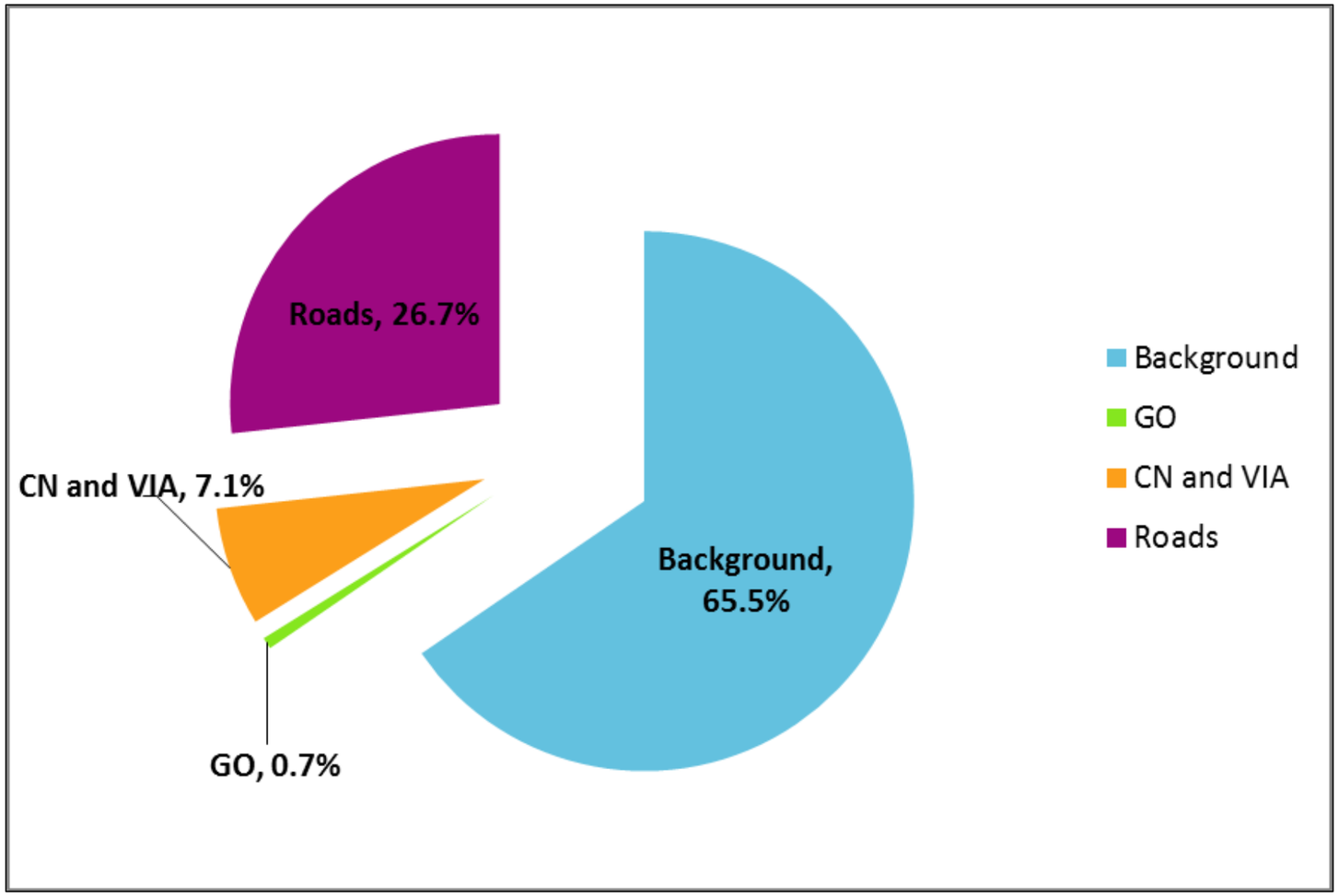
4.3.2 24-Hour Average $PM_{2.5}$

Maximum $PM_{2.5}$ 24-hr cumulative concentrations and a breakdown of the cumulative $PM_{2.5}$ concentrations are provided in the **Table 41** for the Future Build (2025) for the worst air quality day at the most impacted receptor. The concentration contributions are further illustrated in **Figure 6**. The results show that the GO train emissions contribute 0.7% of the cumulative concentration. Background is predominant with 65.5% of the total contribution to the cumulative concentration. The maximum cumulative $PM_{2.5}$ concentration reaches 82.6% of the air quality threshold for the Future Build scenario but the concentration remains below the threshold.

Table 41: Contribution Analysis for $PM_{2.5}$ 24-hr Cumulative Concentration for Future Build Scenario at Most Impacted Receptor

Air Quality Threshold µg/m³	Cumulative Concentration µg/m³	Percent Air Quality Threshold (%)	Background Contribution µg/m³	Background Contribution (%)	GO Contribution µg/m³	GO Contribution (%)	Other Contribution (CN and VIA) µg/m³	Other Contribution (CN and VIA) (%)	Roads Contribution µg/m³	Roads Contribution (%)
27	22.3	82.6%	14.6	65.5%	0.15	0.7%	1.59	7.1%	5.96	26.7%

Figure 6: Concentration Contribution – Future Build – $PM_{2.5}$ 24-hr Average



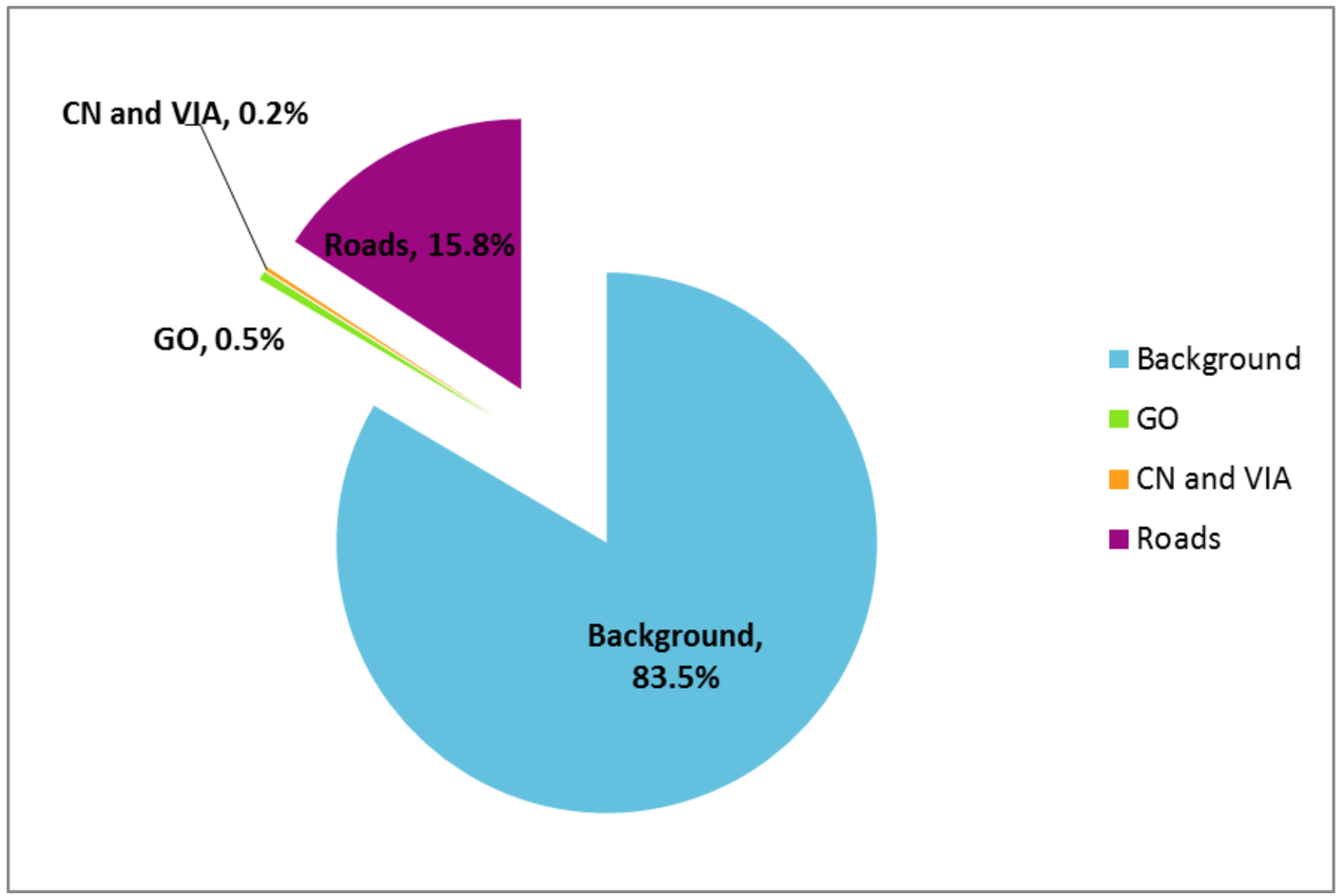
4.3.3 24-Hour Average SO_2

Maximum SO_2 24-hr cumulative concentrations and a breakdown of the cumulative SO_2 concentrations are provided in the **Table 42** for the Future Build (2025) for the worst air quality day at the most impacted receptor. The concentration contributions are further illustrated in **Figure 7**. The results show that the GO train emissions contribute 0.5% of the cumulative concentration. Background is predominant with 83.5% of the total contribution to the cumulative concentration. The cumulative SO_2 concentration for the Future Build scenario remains significantly below the air quality threshold reaching 2.1% of the threshold.

Table 42: Contribution Analysis for SO_2 24-hr Cumulative Concentration for Future Build Scenario at Most Impacted Receptor

Air Quality Threshold µg/m³	Cumulative Concentration µg/m³	Percent Air Quality Threshold (%)	Background Contribution µg/m³	Background Contribution (%)	GO Contribution µg/m³	GO Contribution (%)	Other Contribution (CN and VIA) µg/m³	Other Contribution (CN and VIA) (%)	Roads Contribution µg/m³	Roads Contribution (%)
275	5.75	2.1%	4.8	83.5%	0.03	0.5%	0.01	0.2%	0.91	15.8%

Figure 7: Concentration Contribution – Future Build – SO_2 24-hr Average



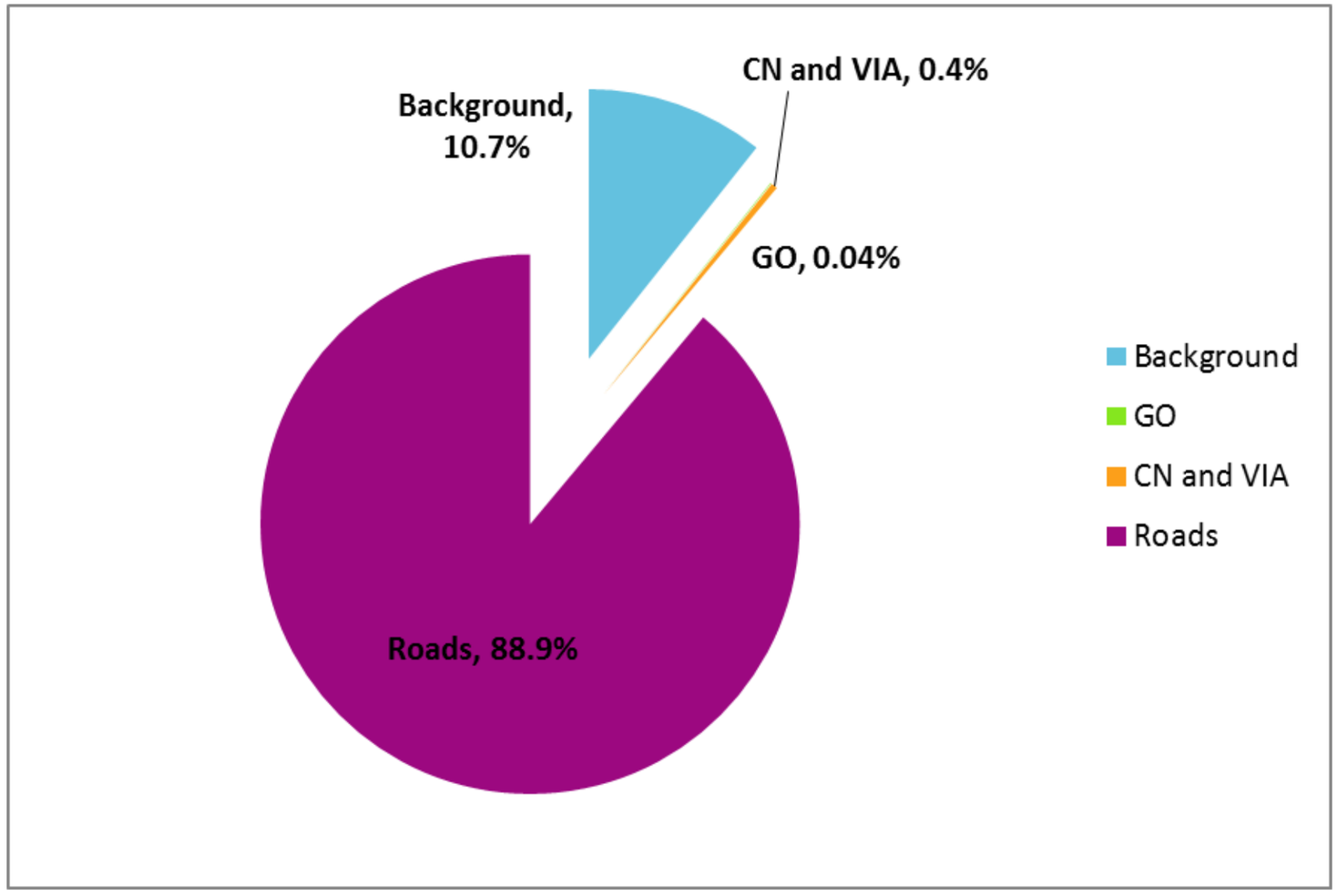
4.3.4 24-Hour Average BaP

Maximum BaP 24-hr cumulative concentrations and a breakdown of the cumulative BaP concentrations are provided in the **Table 43** for the Future Build (2025) for the worst air quality day at the most impacted receptor. The concentration contributions are further illustrated in **Figure 8**. The results show that the GO train emissions contribute only 0.04% of the cumulative concentration. The cumulative BaP concentration for the Future Build scenario reaches concentrations that are almost 15 times the air quality threshold. Roads contribution is predominant with 88.9% of the total contribution to the cumulative concentration. The background in itself, which is contributing 10.7% of the total cumulative concentration, is already over the air quality threshold as well. The GO train concentration is less than 1% of the air quality threshold.

Table 43: Contribution Analysis for BaP 24-hr Cumulative Concentration for Future Build Scenario at Most Impacted Receptor

Air Quality Threshold µg/m³	Cumulative Concentration µg/m³	Percent Air Quality Threshold (%)	Background Contribution µg/m³	Background Contribution (%)	GO Contribution µg/m³	GO Contribution (%)	Other Contribution (CN and VIA) µg/m³	Other Contribution (CN and VIA) (%)	Roads Contribution µg/m³	Roads Contribution (%)
0.00005	0.00075	1498%	0.00008	10.7%	0.00000031	0.04%	0.0000028	0.4%	0.0006657	88.9%

Figure 8: Concentration Contribution – Future Build – BaP 24-hr Average



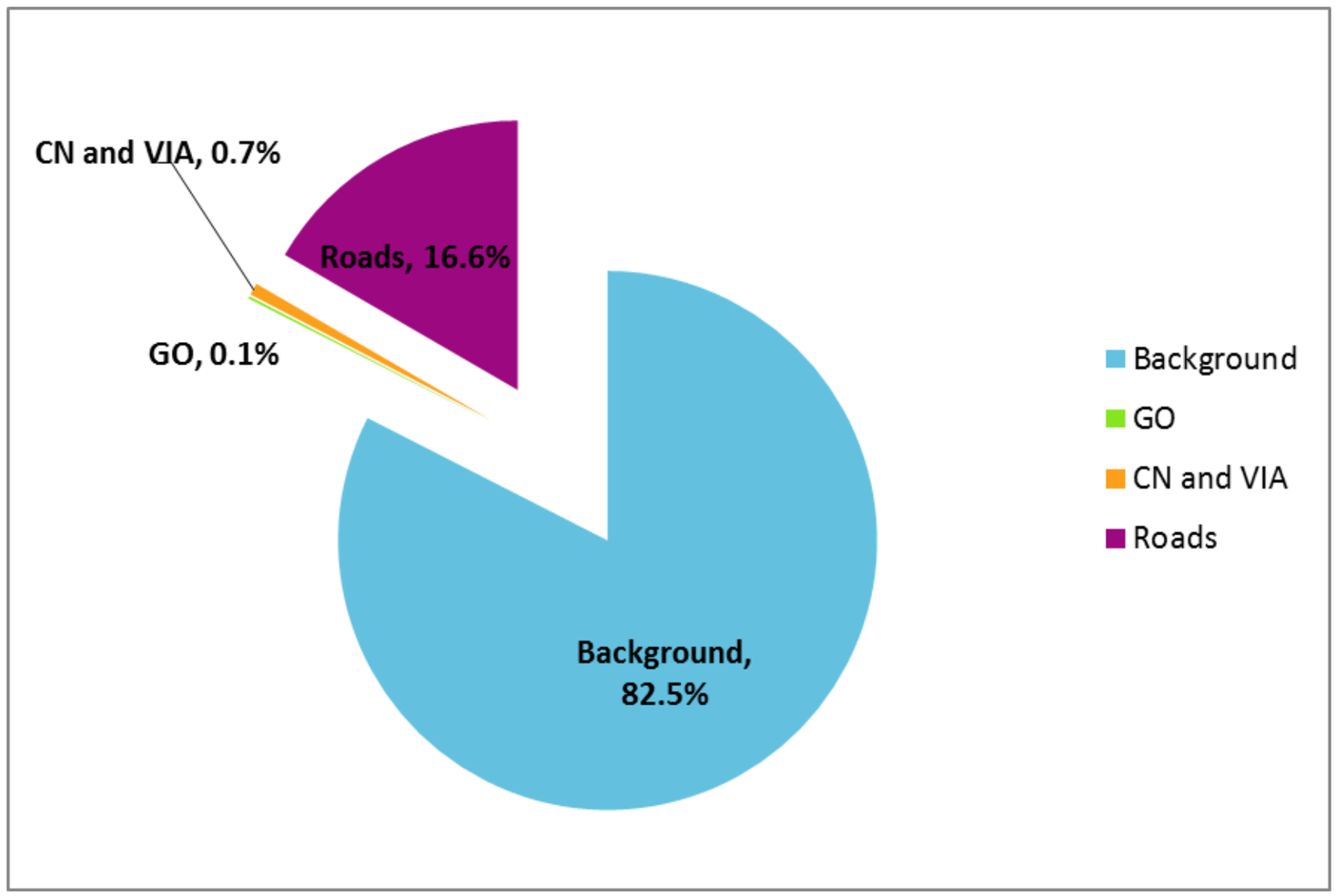
4.3.5 24-Hour Average Acetaldehyde

Maximum Acetaldehyde 24-hr cumulative concentrations and a breakdown of the cumulative Acetaldehyde concentrations are provided in the **Table 44** for the Future Build (2025) for the worst air quality day at the most impacted receptor. The concentration contributions are further illustrated in **Figure 9**. The results show that the GO train emissions contribute 0.1% of the cumulative concentration. Background is predominant with 82.5% of the total contribution to the cumulative concentration. The cumulative acetaldehyde concentration for the Future Build scenario remains significantly below the air quality threshold reaching 0.7% of the threshold.

Table 44: Contribution Analysis for Acetaldehyde 24-hr Cumulative Concentration for Future Build Scenario at Most Impacted Receptor

Air Quality Threshold µg/m³	Cumulative Concentration µg/m³	Percent Air Quality Threshold (%)	Background Contribution µg/m³	Background Contribution (%)	GO Contribution µg/m³	GO Contribution (%)	Other Contribution (CN and VIA) µg/m³	Other Contribution (CN and VIA) (%)	Roads Contribution µg/m³	Roads Contribution (%)
500	3.68	0.7%	3.04	82.5%	0.01	0.1%	0.03	0.7%	0.61	16.6%

Figure 9: Concentration Contribution – Future Build – Acetaldehyde 24-hr Average



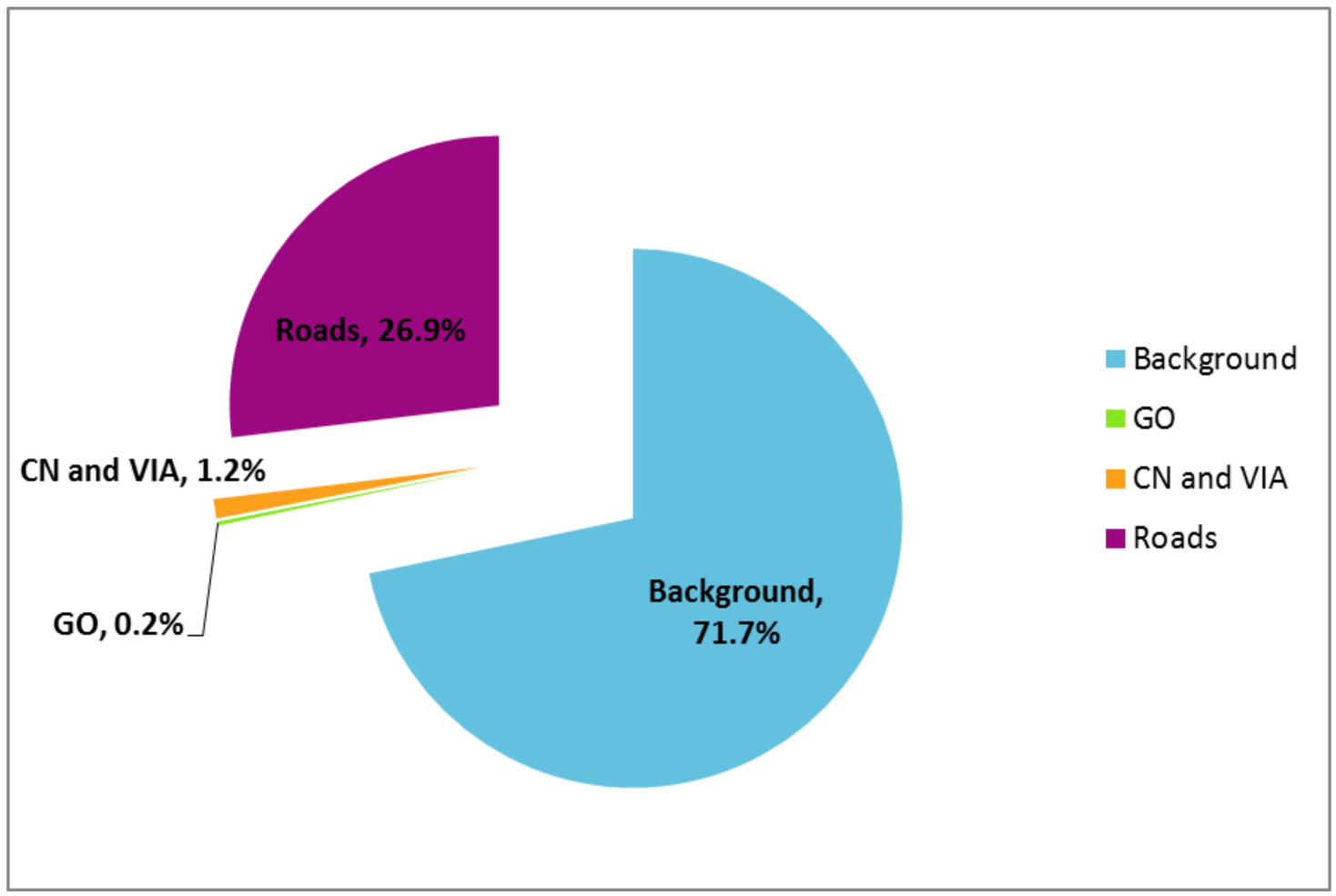
4.3.6 24-Hour Average Acrolein

Maximum Acrolein 24-hr cumulative concentrations and a breakdown of the cumulative Acrolein concentrations are provided in the **Table 45** for the Future Build (2025) for the worst air quality day at the most impacted receptor. The concentration contributions are further illustrated in **Figure 10**. The results show that the GO train emissions contribute 0.2% of the cumulative concentration. Background is predominant with 71.7% of the total contribution to the cumulative concentration with roads being the second largest contributor with 26.9%. The maximum cumulative acrolein concentration reaches 94.1% of the air quality threshold for the Future Build scenario but the concentration remains below the threshold.

Table 45: Contribution Analysis for Acrolein 24-hr Cumulative Concentration for Future Build Scenario at Most Impacted Receptor

Air Quality Threshold µg/m³	Cumulative Concentration µg/m³	Percent Air Quality Threshold (%)	Background Contribution µg/m³	Background Contribution (%)	GO Contribution µg/m³	GO Contribution (%)	Other Contribution (CN and VIA) µg/m³	Other Contribution (CN and VIA) (%)	Roads Contribution µg/m³	Roads Contribution (%)
0.4	0.38	94.1%	0.27	71.7%	0.0009	0.2%	0.0044	1.2%	0.10	26.9%

Figure 10: Concentration Contribution – Future Build – Acrolein 24-hr Average



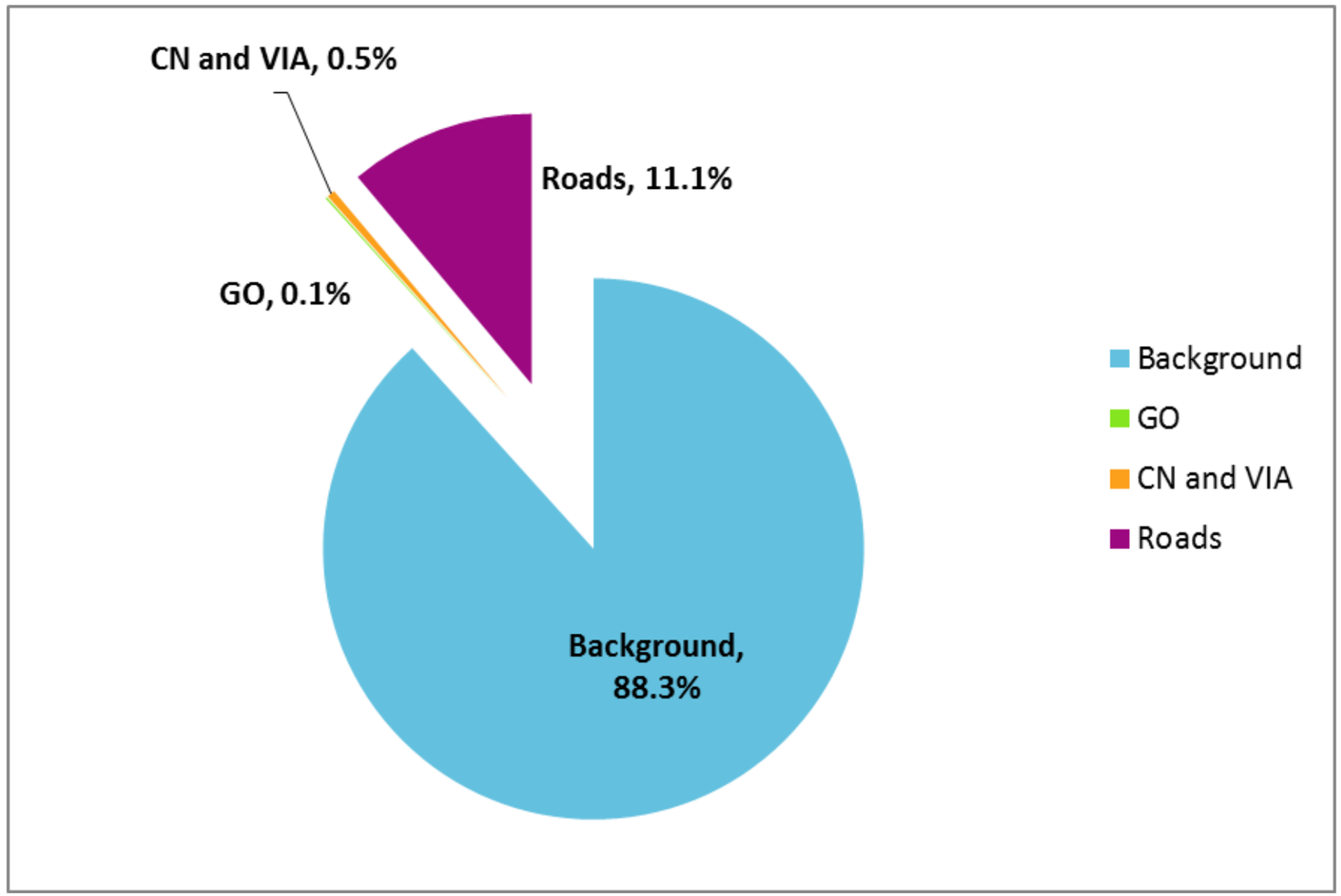
4.3.7 24-Hour Average Benzene

Maximum Benzene 24-hr cumulative concentrations and a breakdown of the cumulative Benzene concentrations are provided in the **Table 46** for the Future Build (2025) for the worst air quality day at the most impacted receptor. The concentration contributions are further illustrated in **Figure 11**. The results show that the GO train emissions contribute 0.1% of the cumulative concentration. Background is predominant with 88.3% of the total contribution to the cumulative concentration. The cumulative benzene concentration for the Future Build scenario remains below the air quality threshold reaching 52.2% of the threshold.

Table 46: Contribution Analysis for Benzene 24-hr Cumulative Concentration for Future Build Scenario at Most Impacted Receptor

Air Quality Threshold µg/m³	Cumulative Concentration µg/m³	Percent Air Quality Threshold (%)	Background Contribution µg/m³	Background Contribution (%)	GO Contribution µg/m³	GO Contribution (%)	Other Contribution (CN and VIA) µg/m³	Other Contribution (CN and VIA) (%)	Roads Contribution µg/m³	Roads Contribution (%)
2.3	1.20	52.2%	1.06	88.3%	0.0011	0.1%	0.0057	0.5%	0.13	11.1%

Figure 11: Concentration Contribution – Future Build – Benzene 24-hr Average



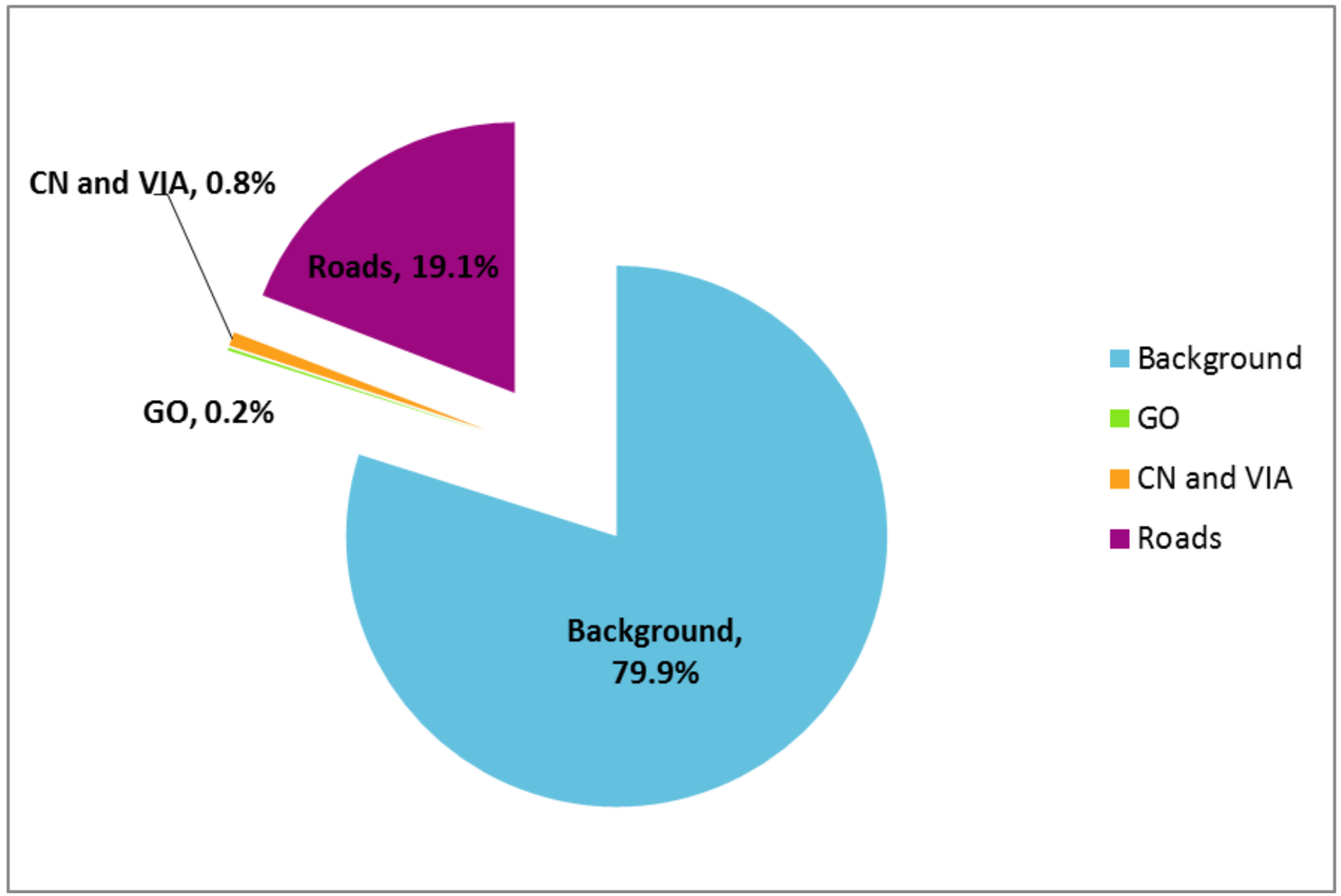
4.3.8 24-Hour Average 1,3-Butadiene

Maximum 1,3-Butadiene 24-hr cumulative concentrations and a breakdown of the cumulative 1,3-Butadiene concentrations are provided in the **Table 47** for the Future Build (2025) for the worst air quality day at the most impacted receptor. The concentration contributions are further illustrated in **Figure 12**. The results show that the GO train emissions contribute 0.2% of the cumulative concentration. Background is predominant with 79.9% of the total contribution to the cumulative concentration with roads being the second largest contributor with 19.1%. The cumulative 1,3-butadiene concentration for the Future Build scenario remains significantly below the air quality threshold reaching 1.5% of the threshold.

Table 47: Contribution Analysis for 1,3-Butadiene 24-hr Cumulative Concentration for Future Build Scenario at Most Impacted Receptor

Air Quality Threshold µg/m³	Cumulative Concentration µg/m³	Percent Air Quality Threshold (%)	Background Contribution µg/m³	Background Contribution (%)	GO Contribution µg/m³	GO Contribution (%)	Other Contribution (CN and VIA) µg/m³	Other Contribution (CN and VIA) (%)	Roads Contribution µg/m³	Roads Contribution (%)
10	0.15	1.5%	0.12	79.9%	0.0002	0.2%	0.0012	0.8%	0.0287	19.1%

Figure 12: Concentration Contribution – Future Build – 1,3-Butadiene 24-hr Average



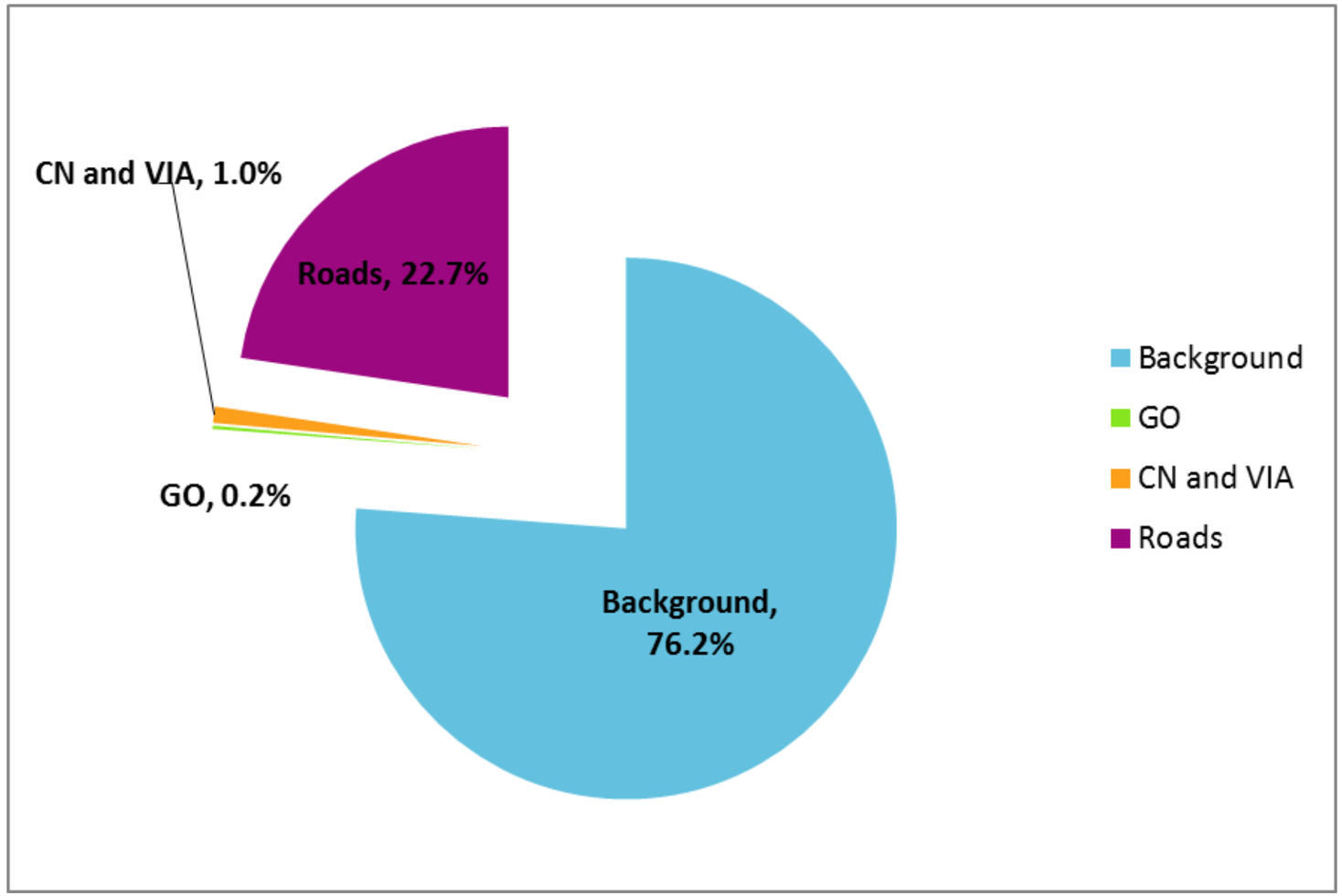
4.3.9 24-Hour Average Formaldehyde

Maximum Formaldehyde 24-hr cumulative concentrations and a breakdown of the cumulative Formaldehyde concentrations are provided in the **Table 48** for the Future Build (2025) for the worst air quality day at the most impacted receptor. The concentration contributions are further illustrated in **Figure 13**. The results show that the GO train emissions contribute 0.2% of the cumulative concentration. Background is predominant with 76.2% of the total contribution to the cumulative concentration with roads being the second largest contributor with 22.7%. The cumulative formaldehyde concentration for the Future Build scenario remains significantly below the air quality threshold reaching 11.1% of the threshold.

Table 48: Contribution Analysis for Formaldehyde 24-hr Cumulative Concentration for Future Build Scenario at Most Impacted Receptor

Air Quality Threshold µg/m³	Cumulative Concentration µg/m³	Percent Air Quality Threshold (%)	Background Contribution µg/m³	Background Contribution (%)	GO Contribution µg/m³	GO Contribution (%)	Other Contribution (CN and VIA) µg/m³	Other Contribution (CN and VIA) (%)	Roads Contribution µg/m³	Roads Contribution (%)
65	7.23	11.1%	5.51	76.2%	0.01	0.2%	0.07	1.0%	1.64	22.7%

Figure 13: Concentration Contribution – Future Build – Formaldehyde 24-hr Average



4.4 Frequency Analysis

For the Future Build (2025) scenario, a frequency analysis was conducted to estimate the potential period of exposure for the predicted 1-hour averaged NO_2, 24-hour averaged NO_2 concentrations, and 24-hour averaged $PM_{2.5}$, as well as for any 1-hour or 24-hour averaged pollutant showing exceedances of its air quality threshold at its most affected receptor. As shown in Section 4.1, only benzo(a)pyrene is showing an exceedance over 24-hour; its frequency analysis curve is therefore presented in this section. Each of the following figures shows the percentage of time the most impacted receptor is experiencing any given concentration, as well as the contribution of the background and other sources (VIA, CN, Roads) to the overall cumulative concentration in relation to the modelled concentration of the other sources added together. To be noted, the category-based graphical plotting mechanism utilised in this section tends to exaggerate the contribution from smaller contributors and should be viewed as a relative visual aid. Contributions calculated in Section 4.3 should be considered the reference in this report in regard to source contributions.

4.4.1 1-Hour Average NO_2 – Future Build Scenario

Figure 14 shows the frequency analysis curve that represents the percentage of time the most impacted receptor is experiencing any given concentration of NO_2 averaged over 1-hour, in relation to the relevant air quality threshold. The figure illustrates the contribution of the GO sources (volume and point sources) to the total cumulative concentration along with the contributions of background and other modelling sources (Roads, VIA and CN). The figure shows that GO sources are contributing to more than 33% of the cumulative concentrations only 4% of the time. The figure also illustrates that GO sources are contributing to less than 10% of cumulative concentrations 85% of the time. Regardless of contributions, cumulative concentrations remain less than 50% of the air quality threshold at all times.

4.4.2 24-Hour Average NO_2 – Future Build Scenario

Figure 15 shows the frequency analysis curve that represents the percentage of time the most impacted receptor is experiencing any given concentration of NO_2 averaged over 24-hour, in relation to the relevant air quality threshold. The figure illustrates the contribution of the GO sources (volume and point sources) to the total cumulative concentration along with the contributions of background and other modelling sources (Roads, VIA and CN). The figure shows that GO sources are contributing to more than 10% of the cumulative concentrations only 6% of the time. The figure also illustrates that GO sources are contributing to less than 5% of the cumulative concentrations 80% of the time. Regardless of the contributions, cumulative concentrations remain significantly lower than the air quality threshold at all times.

Figure 14: Frequency Analysis (Most Impacted Receptor) 1-hr NO_2 (Future Build)

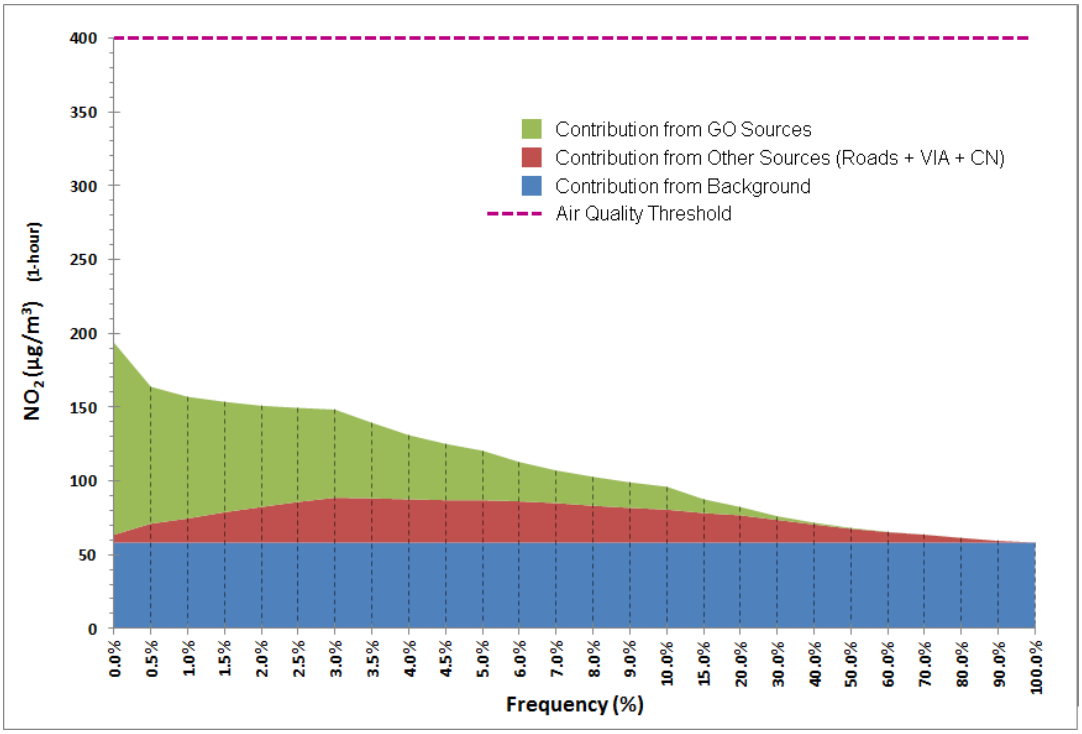
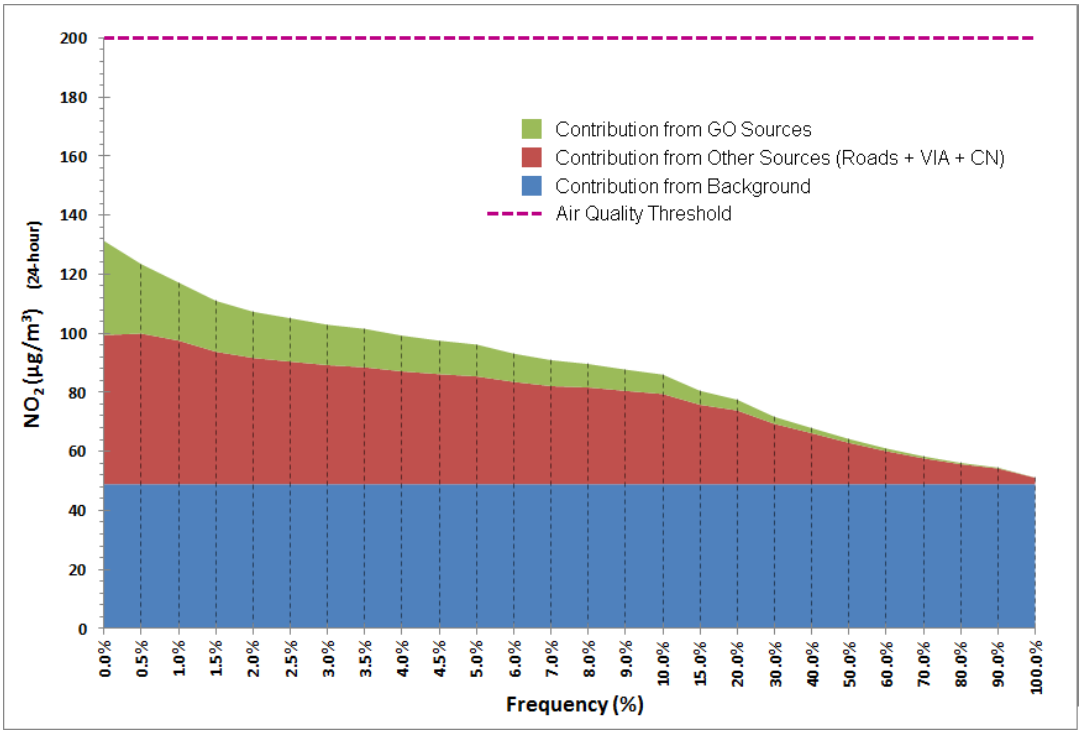


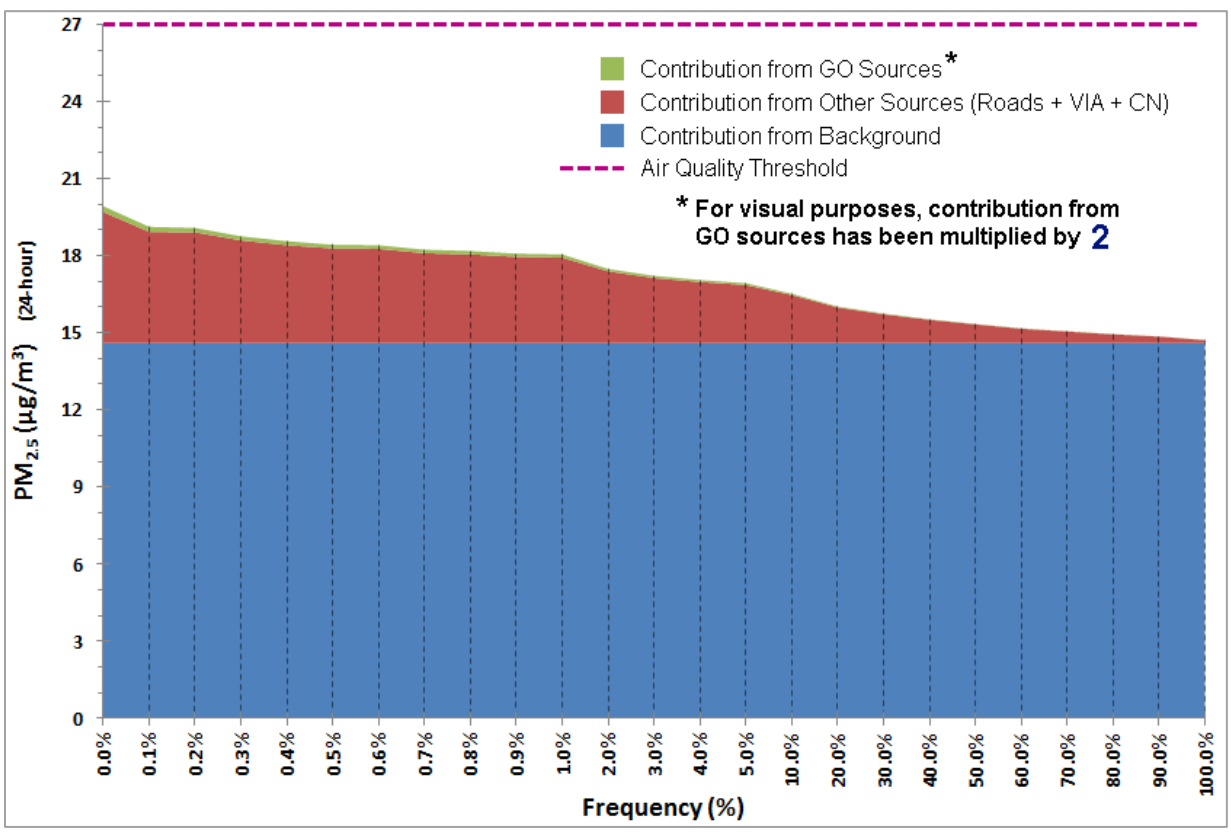
Figure 15: Frequency Analysis (Most Impacted Receptor) 24-hr NO_2 (Future Build)



4.4.3 24-Hour Average $PM_{2.5}$ – Future Build Scenario

Figure 16 shows the frequency analysis curve that represents the percentage of time the most impacted receptor is experiencing any given concentration of $PM_{2.5}$ averaged over 24-hour, in relation to the relevant air quality threshold. The figure illustrates the contribution of the GO sources (volume and point sources) to the total cumulative concentration along with the contributions of background and other modelling sources (Roads, VIA and CN). The figure also shows that GO sources are contributing to an insignificant portion of the cumulative concentrations at all times. Contributions of GO sources were *multiplied by 2* for illustration purposes only in this figure to prevent the GO contribution to become invisible within the cumulative concentrations. Regardless of the contributions, cumulative concentrations remain lower than the air quality threshold at all times. In addition, it is worth noting that this frequency analysis is using the full spectrum of concentrations while the CAAQS of 27 µg/m^3 should use the 98th percentile average of three years, thus explaining why the highest concentration shown in the figure is higher than the results presented in Section 4.1.

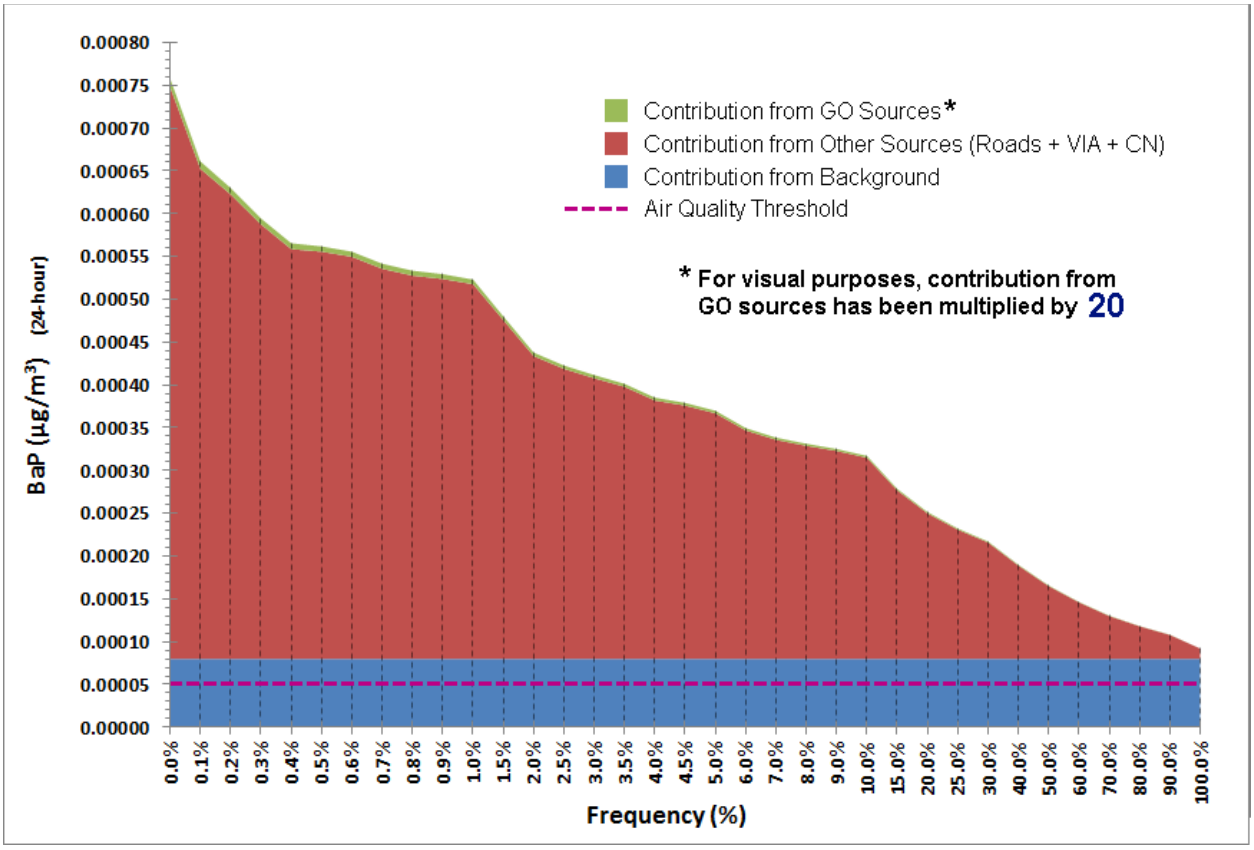
Figure 16: Frequency Analysis (Most Impacted Receptor) 24-hr PM2.5 (Future Build)



4.4.4 24-Hour Average BaP – Future Build Scenario

Figure 17 shows the frequency analysis curve that represents the percentage of time the most impacted receptor is experiencing any given concentration of BaP averaged over 24-hour, in relation to the relevant air quality threshold. The figure illustrates the contribution of the GO sources (volume and point sources) to the total cumulative concentration along with the contributions of background and other modelling sources (Roads, VIA and CN). The figure also shows that GO sources are contributing to an insignificant portion of the cumulative concentrations at all times. Contributions of GO sources were *multiplied by 20* for illustration purposes only in this figure to prevent the GO contribution to become invisible within the cumulative concentrations.

Figure 17: Frequency Analysis (Most Impacted Receptor) 24-hr BaP (Future Build)



The figure shows that 100% of the time the cumulative concentrations are significantly higher than the air quality threshold of 0.00005 µg/m^3. Background concentrations of 0.00008 µg/m^3 are already higher than the threshold, but as discussed in Section 4.3.4, the major contributor to the cumulative concentrations is the modelling aspect specific to the road sources. Whether or not the emission rates evaluated through MOVES2014a

are over predicting the emissions, the best information that can be taken from the figure is that the GO contribution is not only insignificant when compared to the cumulative concentrations, but is also negligible when compared alone with the air quality threshold. As presented in Section 4.3.4, the GO contribution to the maximum cumulative concentration is 0.04% while the GO contribution to the air quality threshold is still indeed only 0.62%.

4.5 Regional Air Quality and Greenhouse Gas Impacts

An emission burden analysis was conducted to determine the total ***annual*** amount of pollutants and greenhouse gas emissions for each of the scenarios to determine the project's regional impact. This analysis was conducted by comparing net emissions from the 'Current Conditions' scenario' to the 'Future Build' scenario, and by comparing the project related emissions to railways transportation emissions in Ontario and Canada. The analysis focused on regionally critical pollutants such as NO_2, CO and $PM_{2.5}$ which are important contributors to smog, as well as GHGs.

Table 49 shows that relative to the Current scenario, the Future Build scenario will result in a significant decrease in emissions for nitrous oxides, carbon monoxide and $PM_{2.5}$. When comparing the Future Build emissions from GO Transit sources to Current time (2016) Ontario and Canada "Air Pollutant Emissions Data" specifically related to Rail Transportation, the project related emissions are very small in comparison (less than 0.5%).

In addition, GHG impacts were analyzed to assess the project's impact on climate change. Individual greenhouse gases impacts are expressed in terms of global warming potential (GWP). The GWP of each GHG is taken into account to determine CO_2-equivalent emissions. Future Build GHG emissions from GO Transit sources were compared with current time (2014) Ontario and Canada GHG emissions to evaluate the contribution of project GHG emissions to provincial and federal GHG reporting.

As shown in **Table 50**, the Future Build scenario GHG emissions are showing a small contribution to the overall Ontario and Canada GHG emissions (less than 0.8%). More importantly, the Future Build scenario will result in a significant decrease in GHG emissions when compared to the Current scenario (41.8% decrease).

Table 49: Regional Emissions Comparison with GO Transit Project Emissions

Contaminants	Current (2016) Scenario (tonnes)	Future Build (2025) Scenario (tonnes)	Difference (Future Build Minus Current)	Rail Transportation Emissions (Ontario) (2015)[1] (tonnes)	% Project Contribution (compared with current time)	Rail Transportation Emissions (Canada) (2015)1 (tonnes)	% Project Contribution (compared with current time)
NO_X	171	20.0	*decrease* of 151 tonnes	24 168	0.083%	125 432	0.016%
CO	27.5	16.9	*decrease* of 10.6 tonnes	3 506	0.482%	18 198	0.093%
$PM_{2.5}$	4.98	0.25	*decrease* of 4.73 tonnes	563	0.044%	2 921	0.009%

Note: 1. Environment Canada, 2015 "Air Pollutant Emissions Data". http://www.ec.gc.ca/inrp-npri/donnees-data/ap/index.cfm?lang=En

Table 50: Greenhouse Gas Emissions Comparison with GO Transit Project GHG Emissions

GHG	Current (2016) Scenario (kt CO2-eq)	Future Build Scenario (2025) (kt CO2-eq)	Difference (Future Build Minus Current)	Railways GHG Emissions in Ontario (2014) (kt CO2-eq) [2]	% Project Contribution (compared with current time)	Railways GHG Emissions in Canada (2014) (kt CO2-eq) [2]	% Project Contribution (compared with current time)
CO_2eq	18.25	10.61	*decrease* of 7.64 kt CO_2-eq	1 400	0.76%	7 500	0.14%

Note: 1. kt-kilotons

2. Environment and Climate Change Canada: "National Inventory Report 1990-2014: GHG Sources and Sinks in Canada, Part 3"

4.6 Summary of Assumptions and Uncertainties

The values contained within the report are based on the best available data and methodologies. In general, predictions of this nature are inherently best estimates only and are associated with uncertainties due to variability in several key inputs and projections on future activities. There are a few key areas of uncertainty present within the available data which impact the predicted results. These key uncertainties include:

- **Background Monitoring Locations**
  Background concentrations of some contaminants of concern are only available from specific monitoring locations which may not be ideally localized for the study area so it was assumed that the study area had the same values as what was available.
- **Benzo(a)pyrene**
  Both the emission factor and background concentrations for benzo(a)pyrene have fairly high degrees of uncertainty, especially relevant as the compound exceeds the criteria based on the background concentrations alone.
- **Future Contributions from Roadways**
  Modelling of on-road vehicle emissions for the Future Build conditions incorporated several assumptions for future improvements in vehicular tailpipe emissions and engine efficiencies. These are theoretical projections based on current trends and desires and have a fairly reasonable amount of uncertainty.
- **Future Train Service Levels**
  Modelling of the Future Build conditions is based on projected 2025 train service levels both westbound and eastbound. These estimates are based on Metrolinx best available forecasts which may be subject to change.

5. Air Quality During Operation – Impacts and Mitigation

5.1 Potential Impacts

5.1.1 Predictable Worst-Case Analysis

The results from the "Predictable Worst-Case Analysis" methodology show that all maximum cumulative concentrations (including background levels) are below their corresponding air quality threshold, therefore no impacts are anticipated based on this analysis.

5.1.2 Comprehensive Analysis

Key findings and impacts from the Comprehensive Analysis are as follows:

- Maximum cumulative pollutant concentrations from the impact assessment indicate that concentrations are below accepted air quality thresholds for the majority of pollutants analyzed. The exceptions are:
  - Current Scenario: acrolein (24-hr), benzene(annual averaging time) and benzo(a)pyrene(24-hr and annual averaging time), $PM_{2.5}$ (annual averaging time); and
  - Future Build (2025) Scenario: benzene(annual averaging time), benzo(a)pyrene(24-hr and annual averaging time), $PM_{2.5}$ (annual averaging time).
- The reason for most of the exceedances above is due to the significant contribution of background concentration to the total concentrations for contaminants showing exceedance. It should be noted that for each pollutant, the 90th percentile background concentrations was used to represent background air quality levels as a conservative approach. In the case of exceedances for the benzo(a)pyrene pollutant, the roadway source group has been contributing to 89% of the highest concentration, leaving a contribution of only 0.04% by GO Transit sources.
- The Future Build (2025) scenario has shown reduction in predicted contaminant concentration relative to the current (2016) scenario for all contaminants analyzed.

- For 24-hr average NO_2, GO train emissions contribute 4.7% to the highest cumulative concentration for the Future Build (2025) scenario.
- For 24-hr average $PM_{2.5}$, GO train emissions contribute 0.7% to the highest cumulative concentration for the Future Build (2025) scenario.
- For 24-hr average acrolein, GO train emissions contribute 0.2% to the highest cumulative concentration for the Future Build (2025) scenario.
- For 24-hr average benzene, GO train emissions contribute 0.1% to the highest cumulative concentration for the Future Build (2025) scenario.
- For 24-h average benzo(a)pyrene, GO train emissions contribute only 0.04% to the cumulative concentration for the Future Build (2025) scenario.
- For 24-hr average benzo(a)pyrene, it was found that the 24-hr benzo(a)pyrene cumulative concentrations exceed the 24-hr benzo(a)pyrene air quality threshold of 0.00005 µg/m^3 at all times for all scenarios evaluated. This is also the case for the annual average of 0.00001 µg/m^3.
- Regional impact analysis shows that relative to the Current scenario, the Future Build (2025) scenario will result in a decrease in emissions for all pollutants analyzed and GHGs. In addition, the projects related emissions are very small compared with latest Ontario and National rail transportation emissions for 2014 and 2015, whether it's regarding pollutants or GHGs.

In summary, the results of the modelled scenarios suggest that the Future Build (2025) Scenario emissions from locomotives are significantly less than Current Scenario emissions. The main reason responsible for this reduction is the electrification of most of the train traffic passing on the USRC corridor. Another reason is that the remaining diesel locomotives will all be meeting Tier 4 standards which are more stringent standards.

Therefore no operational impacts are anticipated as a result of this Project.

5.2 Latest Air Quality Standards and Historic Trends of Background Levels

As mentioned in Section 1.2, new NO_2 and SO_2 CAAQS were published by the CCME in November 2017 after the Air Quality Work Plan was submitted to and reviewed by the MOECC. These new standards represent unparalleled ambitious long-term objectives. As 'objectives', they are not binding and do not directly apply to this Air Quality Study for which highly conservative assumptions are employed to predict the worst potential outcomes. **Table 51** shows the recent CAAQS for NO_2 and SO_2 as published on the

CCME website. It is worth noting that the statistical form required for the CAAQS, especially for the 1-hour averaging period, entails special processing of the output results (98th or 99th percentile of the daily maximum 1-hour average concentrations). In essence, this processing would remove the highest outliers. As all NO_2 and SO_2 results shown throughout this report were selected as the maximum 1st ranked concentrations modelled thus not removing outliers, the results shown in this study are more conservative and, therefore, are not directly comparable to the CAAQS.

Table 51: Recent CAAQS for NO_2 and SO_2

Contaminant	Averaging Period	Concentration Objective for Projected Years 2020	Concentration Objective for Projected Years 2025	Statistical Form
NO_2	1-hour	60 ppb (112 µg/m³)	42 ppb (79 µg/m³)	The 3-year average of the annual 98th percentile of the daily maximum 1-hour average concentrations
	Annual	17 ppb (32 µg/m³)	12 ppb (22.5 µg/m³)	The average over a single calendar year of all 1-hour average concentrations
SO_2	1-hour	70 ppb (183 µg/m³)	65 ppb (170 µg/m³)	The 3-year average of the annual 99th percentile of the SO_2 daily maximum 1-hour average concentrations
	Annual	5 ppb (13 µg/m³)	4 ppb (10.5 µg/m³)	The average over a single calendar year of all 1-hour average SO_2 concentrations

Notes: 1. Table based on CCME website: http://airquality-qualitedelair.ccme.ca/en/
2. CAAQS are published in ppb. Conversions to µg/m³ were calculated for easier comparisons to results in this report. Conversions assume ambient pressure of 1 atmosphere and a temperature of 25 degrees Celsius.

For SO_2, the newer CAAQS are more stringent for the 1-hour and annual averaging periods than the AAQC standards considered throughout this study (the 1-hour AAQC is 690 µg/m³ and the annual AAQC is 55 µg/m³). Nevertheless, the 1-hour and annual

maximum cumulative concentrations shown in **Table 18** and **Table 20** remain below the new CAAQS for both averaging periods even without processing the statistical form required for SO_2.

For NO_2, the 1-hour CAAQS is also more stringent for the 1-hour period than the AAQC and is creating a new annual averaging period that was absent from the AAQC. When compared to the AAQC standards, the new 1-hour CAAQS brings down the air quality threshold by approximately 80% from 400 µg/m³ to 79 µg/m³.

When comparing the maximum 1-hour NO_2 cumulative concentrations shown in **Table 20** for the "Comprehensive Analysis" of the Future Build 2025 scenario with the new CAAQS, several key factors should be pointed out in interpreting such a comparison:

- Applying the statistical form required for the 1-hour NO_2 CAAQS would bring down the 1-hour NO_2 result shown in the table which is using the maximum concentration modelled thus conservatively treating the results.
- The NO_2 background levels calculated as the 90th percentile over the 5-year data at the air quality station selected is contributing to a high percentage of the 1-hour CAAQ (58.3 µg/m³ for 73.8% of the threshold), leaving only a 20.7 µg/m³ contribution possible for the modelling of all sources (GO, CN+VIA, Roads);
- Contribution analysis conducted for NO_2 at the most impacted sensitive receptor for the 2025 Future Build scenario reveals that GO sources are contributing to approximately 5% of the overall concentrations; this applies to both 1-hour and 24-hour averaging periods;
- Metrolinx is committed to reduce its own air emissions through electrification and the deployment of the cleanest diesel technology available;
- Metrolinx is also working with suppliers to develop future hydrogen fuel cell powered trains to potentially replace all diesel powered trains and eliminate direct NO_x and SO_x emissions;
- Public transit helps reduce pollution by reducing the total vehicle kilometres travelled in the region.

Regarding the high background contribution to the cumulative concentrations relative to the new CAAQS, the new federal CAAQS are very stringent and are taking into account future progress in the global picture of NO_2 emissions. Future background levels of NO_2 are expected to decline with the evolution of clean emissions technology. For example, the MOECC 2015 Air Quality Report (MOECC, 2017) shows that all contaminant levels have continued to decrease from 2006 to 2015:

- 32% decrease for NO_2;
- 48% decrease for SO_2;
- 25% decrease for $PM_{2.5}$;
- 53% decrease for CO;
- 40% decrease for benzene.

Although the rate at which these trends will continue is uncertain, the historic trend of decreasing background levels is expected to continue. In general, these decreasing trends are resulting from more stringent regulations regarding not only the concentrations of pollutants in ambient air, but to the standards of emissions at the source; industries must emit less and on-road vehicles must implement technologies to create cleaner engines. For example, Ontario's emissions trading regulations on nitrogen oxides (O. Reg. 397/01 and O. Reg. 194/05) have contributed to the reduction in nitrogen oxides emissions in recent years. Nevertheless, considering the unpredictability of the continuality of the trends, current background levels are always used for air modelling purposes of future scenarios as a conservative practice.

5.3 Proposed Mitigation

As no impacts to air quality are anticipated due to the operation of the Project, no mitigation measures are proposed.

6. Air Quality During Construction - Impacts and Mitigation

6.1 Potential Impacts

Construction related air quality impacts (i.e., creation of vapours and particulate) are of a temporary nature and not likely to pose a major risk to human health.

The air quality impacts of construction related activities can be effectively mitigated through the following actions:

- Construction activities are scheduled to avoid overlapping construction activities where possible; and,
- The number of machines operating in any one area is minimized at any given point in time.

6.2 Proposed Mitigation

Means of mitigating exposure to construction related emissions can include:

- Ensuring the use of heavy equipment that is in good condition and compliant with applicable federal regulations for off-road diesel engines;
- Ensuring all machinery is maintained and operated in accordance with the manufacturer's specifications;
- Using equipment sized for the particular job and operating equipment at optimum rated loads;
- Minimizing idling time and posting signage to this effect around the construction site;
- Locating stationary equipment (e.g., generators, compressors etc.) as far away from sensitive receptors as practical; and,
- Implementing those measures (to be performed by the Contractor) to minimize the generation of dust VIA materials handling, vehicle movement and wind erosion.
- Dust suppressants can be used to control dust. This measure should comply with the MOECC recommendation against the use of chloride containing dust suppressants.

It is further recommended that mitigation measures detailed in *"Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (March 2005)"* prepared by Cheminfo for Environment Canada be implemented, where practical.

7. References

Environment and Climate Change Canada:
"National Inventory Report 1990-2014: Greenhouse Gas Sources and Sinks in Canada, Part 3"

Environment Canada, Transboundary Issues Branch, 2005 (prepared by Cheminfo Services Inc.):
"Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities"

Metrolinx, 2014:
"Air Quality and GHG Emissions Impact Assessment for the Lakeshore East Project: Recommended Approach"

Metrolinx, August 2015:
"Environmental Guide: Recommended Approach for Assessing and Mitigating Air Quality Impacts and Greenhouse Gas Emissions of Metrolinx Public Transit Projects"

Morrisville (NC):
Eastern Research Group for Emissions. Prepared for U.S. EPA. Contract No. EP-D-07-097.

Ontario Ministry of Transportation, June 2012:
"Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects"

United States Environmental Protection Agency. 2011.
"Documentation for Locomotive Component of the National Emissions Inventory Methodology."

Appendix A

Air Quality Monitoring Data

Table A.1: LSE Project – CAC Background Air Quality Levels

Pollutant	Averaging Period	2011	2012	2013	2014	2015	Average from Five Years	Background ($\mu g/m^3$)
CO (ppb)	1h	0.3300	0.3800	0.3600	0.3700	0.3600	0.3600	**412**
	8h	0.3138	0.3576	0.3521	0.3653	0.3569	0.3491	**401**
NO_2 ($\mu g/m^3$)	1h	34.0000	31.0000	30.0000	31.0000	31.0000	31.4000	**58.3**
	24h	28.1250	25.1667	23.5935	26.2333	25.7333	25.7704	**48.9**
SO_2 (ppb)	1h	3.0000	2.0000	1.0000	1.0000	2.0000	1.8000	**5.24**
	24h	2.5417	1.6667	1.3333	1.4663	1.8728	1.7762	**4.80**
	Annual	0.8879	0.8879	0.8879	0.8879	0.8879	0.8879	**2.33**
$PM_{2.5}$ ($\mu g/m^3$)	24h	12.7500	13.1375	15.7500	14.7000	16.2633	14.5202	**14.6**
	Annual	8.0605	8.0605	8.0605	8.0605	8.0605	8.0605	**8.06**
O_3 (ppb)	1h	42.0000	46.0000	43.0000	42.0000	43.0000	43.2000	**43.0**
	24h	37.5083	40.9958	38.0667	37.5750	37.9250	38.4142	**38.1**

Notes: MOECC, "Air Pollutant Data". Hourly data obtained for 2011 to 2015 from representative stations (Toronto West, Toronto Downtown and Toronto East). 90th percentile values calculated for short term averaging times and mean values for annual concentrations.

Table A.2: LSE Project – VOC and PAH Background Air Quality Levels

Pollutant	Averaging Period	2008*	2009*	2010*	2011*	2012*	Average from Five Years	Background (µg/m^3)
Benzene	24h	1.06	1.21	1.16	0.90	0.98	1.06	**1.06**
	Annual	0.77	0.77	0.77	0.59	0.62	0.70	**0.70**
1,3-Butadiene	24h	0.14	0.13	0.12	0.10	0.11	0.12	**0.12**
	Annual	0.080	0.080	0.070	0.060	0.060	0.072	**0.072**
Benzo(a)Pyrene	24h	0.000037	0.000026	0.000046	0.000154	0.000141	0.000081	**0.000081**
	Annual	0.000019	0.000015	0.000042	0.000094	0.000090	0.000052	**0.000052**

Notes: Data from Toronto NAPS Station (60427). Hourly data obtained for 2008 to 2012. 90th percentile values calculated for short term averaging times and mean values for annual concentrations.

Pollutant	Averaging Period	2001**	2002**	2003**	2004**	2005**	Average from Five Years	Background (µg/m^3)
Formaldehyde	24h	4.53	5.60	4.46	7.97	5.01	5.51	**5.51**
Acrolein	1h ***	0.46	0.49	0.56	0.34	1.39	0.65	**0.65**
	24h	0.19	0.20	0.23	0.14	0.57	0.27	**0.27**
Acetaldehyde	24h	2.54	2.36	3.13	3.20	3.98	3.04	**3.04**

Notes: * Data from Toronto NAPS Station (60427). Hourly data obtained for 2008 to 2012. 90th percentile of 24-hour values used for short term averaging times and mean values for annual concentrations.

** Data from Toronto NAPS Station (60418). Hourly data obtained for 2001 to 2005. 90th percentile of 24-hour values used for short term averaging times and mean values for annual concentrations.

*** Conversion Factor of 2.435 was applied to calculate 1-hour values from 24-hour values using equation provided through Ontario Air Dispersion Modelling Guidelines: $(t_0 / t_1)^{0.28} = (24 / 1)^{0.28}$

Appendix B

Emission Factors and MOVES2014 Input/Output

(Electronic Submission)

Appendix C

AERMOD Input/Output

(Electronic Submission)

Appendix D

Sample Calculation for Emission Rates Attribution

Appendix D: Sample Calculation for Emission Rates Attribution

The following detailed example shows a calculation steps of a Tier4 diesel Eastbound train of the Lakeshore East service for the Future Build Scenario, specifically for volume source GO_067 and for particulate matter ($PM_{2.5}$):

Sample Calculation

Volume source GO_067 is located at co-ordinates 632245 m, 4834171 m. The closest recording of the event recorder data file “L618 - 716 - Eastbound" is marked at time 11:47:59.9 which is characterized by the engine operating at Notch 8 and has been correlated at co-ordinates 632254 m, 4834175 m. This Notch 8 segment is occurring for 63.9 seconds covering 32 volume sources, over a distance of 716 m.

Data:

- Tier 2 MP40 emission factor for $PM_{2.5}$ at Notch 8 obtained from Metrolinx = 309.5 g/hr
- Tier 2 HEP engine emission factor for $PM_{2.5}$ at 50% load as obtained by Metrolinx = 92.1 g/hr
- Total MP40 + HEP emission factor for $PM_{2.5}$ = 309.5 + 92.1 = 401.6 g/hr
- ***Unit conversion*** = 401.6 g/hr x 1 hr/60 min x 1 min/60s = 0.11156 g/s
- Tier 2 U.S. EPA Line-Haul emission factor for $PM_{2.5}$ = 0.18 g/bhp-hr
- Tier 4 U.S. EPA Line-Haul emission factor for $PM_{2.5}$ = 0.015 g/bhp-hr
- Tier 4 / Tier 2 multiplier ratio for scaling emission factors from Tier 2 to Tier 4 = 0.015 / 0.18 = 0.08333
- Total Tier 4 MP40+HEP emission factor for $PM_{2.5}$ at Notch 8 = 0.11156 x 0.08333 = 0.00930 g/s
- Total $PM_{2.5}$ emitted by this segment which is composed of 32 volume sources = 0.00930 g/s x 63.9 s = 0.5943 g
- $PM_{2.5}$ emitted by any one of the volume sources (in this case: GO_067) = 0. 59427 / 32 = 0.01857 g
- $PM_{2.5}$ emission rate averaged over 1-hour = 0.01857 g / 3600 s = 5.1586×10^{-6} g/s

Observing the last points in further details, the $PM_{2.5}$ emission rate of the train is 0.00930 grams of $PM_{2.5}$ per hour of operation. The train is operating 63.9 seconds on that 32 volume sources segment.

Focusing on the modelling time periods, the smallest time period that is being modelled (and the smallest time period that is being regulated for any of the project's pollutants) is 1-hour which is conveniently the smallest time intervals for which meteorological data are available. As a pre-modelling step, emission rates must therefore be calculated in such a way that they will average the emissions over an entire modelling hour so that each hour is modelled using continuous emissions.

To better understand the calculations, one must distinguish between ***time-operated*** during which the train is actually moving for real, and ***time-modelled*** which is the single unit of time that is being modelled (1-hour).

Knowing that in this example, one "Tier 4 MP40+HEP" train is emitting $PM_{2.5}$ at an emission rate of 0.00930 g/***second-operated***, it is also known that one train is taking 63.9 seconds to pass through the segment which is being modelled over a 1-hour modelling period. So it's 63.9 ***seconds-operated*** per ***hour-modelled***.

Rewriting the last calculations:

- Total $PM_{2.5}$ emitted by this segment which is composed of 32 volume sources
  = 0.00930 g/***second-operated*** x 63.9 ***second-operated / hour-modelled***
  = 0. 5943 g / ***hour-modelled***.
- $PM_{2.5}$ emitted by any one of the volume sources
  = 0. 5943 g/***hour-modelled*** / 32 volume sources
  = 0. 01857 g/***hour-modelled***
- = 0. 01857 g/***hour-modelled*** x 1 ***hour-modelled*** / 3600 ***seconds-modelled***
  = 5.1586×10^{-6} g/***seconds-modelled***

The initial input was an ***emission rate*** (0.00930 g/s), in order to end up with an ***emission inventory*** of 0.5943 grams that were emitted during a 1-hour period over the entire segment of 32 sources. This inventory was divided by 32 to get the contribution from each of the 32 sources that are being modelled. This "per-source-inventory" was then distributed over a 1-hour period to get an hourly "ready-to-model" emission rate to be modelled continuously over that modelling hour.

When considering every step by inventory, the different possible calculation paths arrive at the same amount of pollutant emitted for any given hour:

- 0.00930 g/second-operated x 63.9 second-operated ..... 0.5943 grams emitted
- 0. 01857 g/hour-modelled_per_source x 32 sources..... 0.5943 grams emitted
- 5.1586×10^{-6} g/seconds-modelled x 3600 seconds-modelled x 32 sources..... 0.5943 grams emitted

Appendix E

Modelled Train Schedules for GO Transit and VIA

Table E.1: Hourly GO Train Schedule for Current Scenario (2016)

USRC East: Fall 2016, Westbound (Weekday)

Time	Lakeshore East Revenue	Stouffville Revenue	Richmond Hill Revenue	**Total Revenue**	Lakeshore East Non-Revenue	Stouffville Non-Revenue	Richmond Hill Non-Revenue	UP Express Non-Revenue	**Total Non-Revenue**	**Grand Total**
04:00-04:59	0	0	0	0	0	0	0	1	1	1
05:00-05:59	0	0	0	0	0	0	0	1	1	1
06:00-06:59	3	1	0	4	0	0	0	0	0	4
07:00-07:59	4	3	2	9	0	0	0	0	0	9
08:00-08:59	5	2	2	9	1	0	0	0	1	10
09:00-09:59	3	0	1	4	1	0	0	0	1	5
10:00-10:59	2	1	0	3	0	0	0	0	0	3
11:00-11:59	2	0	0	2	0	0	0	0	0	2
12:00-12:59	2	0	0	2	0	0	0	0	0	2
13:00-13:59	2	0	0	2	0	0	0	0	0	2
14:00-14:59	2	0	0	2	1	0	0	0	1	3
15:00-15:59	3	0	0	3	2	1	0	0	3	6
16:00-16:59	4	0	0	4	6	1	1	0	8	12
17:00-17:59	3	0	0	3	3	0	0	0	3	6
18:00-18:59	3	0	0	3	2	0	0	0	2	5
19:00-19:59	2	0	0	2	0	0	1	0	1	3
20:00-20:59	2	0	0	2	0	0	1	0	1	3
21:00-21:59	2	0	0	2	0	0	0	0	0	2
22:00-22:59	2	0	0	2	0	0	0	0	0	2
23:00-23:59	2	0	0	2	1	0	0	0	1	3
00:00-00:59	1	0	0	1	1	0	0	0	1	2
01:00-01:59	0	0	0	0	0	0	0	0	0	0
02:00-02:59	0	0	0	0	0	0	0	0	0	0
03:00-03:59	0	0	0	0	0	0	0	0	0	0
TOTAL	49	7	5	61	18	2	3	2	25	86

USRC East: Fall 2016, Eastbound (Weekday)

Time	Lakeshore East Revenue	Stouffville Revenue	Richmond Hill Revenue	**Total Revenue**	Lakeshore East Non-Revenue	Stouffville Non-Revenue	Richmond Hill Non-Revenue	UP Express Non-Revenue	**Total Non-Revenue**	**Grand Total**
04:00-04:59	0	0	0	0	0	0	0	0	0	0
05:00-05:59	0	0	0	0	2	0	1	0	3	3
06:00-06:59	2	0	0	2	3	0	0	0	3	5
07:00-07:59	2	0	0	2	8	0	0	0	8	10
08:00-08:59	4	0	0	4	5	1	0	0	6	10
09:00-09:59	3	0	0	3	0	0	0	0	0	3
10:00-10:59	2	0	0	2	0	0	0	0	0	2
11:00-11:59	2	0	0	2	0	0	0	0	0	2
12:00-12:59	2	0	0	2	0	0	0	0	0	2
13:00-13:59	2	0	0	2	0	0	0	0	0	2
14:00-14:59	2	1	0	3	0	0	0	0	0	3
15:00-15:59	2	1	1	4	0	0	0	0	0	4
16:00-16:59	4	2	1	7	1	0	0	0	1	8
17:00-17:59	5	1	2	8	1	0	0	0	1	9
18:00-18:59	3	2	1	6	0	0	0	0	0	6
19:00-19:59	2	1	1	4	0	0	0	0	0	4
20:00-20:59	2	0	1	3	0	0	0	0	0	3
21:00-21:59	2	0	0	2	0	0	0	0	0	2
22:00-22:59	2	0	0	2	0	0	0	0	0	2
23:00-23:59	1	0	0	1	0	0	0	0	0	1
00:00-00:59	1	0	0	1	0	0	0	0	0	1
01:00-01:59	0	0	0	0	0	0	0	1	1	1
02:00-02:59	0	0	0	0	0	0	0	1	1	1
03:00-03:59	0	0	0	0	0	0	0	0	0	0
TOTAL	45	8	7	60	20	1	1	2	24	84

Table E.2: Hourly GO Train Schedule for Future Build Scenario (2025)

USRC East: RER Scenario 5, Westbound (Weekday)

Time	Lakeshore East Revenue **Electric**	Lakeshore East Revenue **Diesel**	Stouffville Revenue **Electric**	Stouffville Revenue **Diesel**	Richmond Hill Revenue **Electric**	Richmond Hill Revenue **Diesel**	**Total Revenue Electric**	**Total Revenue Diesel**	Lakeshore East Non-Revenue **Electric**	Lakeshore East Non-Revenue **Diesel**	Stouffville Non-Revenue **Electric**	Stouffville Non-Revenue **Diesel**	Richmond Hill Non-Revenue **Electric**	Richmond Hill Non-Revenue **Diesel**	**Total Non-Revenue Electric**	**Total Non-Revenue Diesel**	**Total Electric**	**Total Diesel**	**GRAND TOTAL**
04:00-04:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00-05:59	2	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0	3
06:00-06:59	4	0	5	0	0	0	9	0	0	0	0	0	0	0	0	0	9	0	9
07:00-07:59	8	0	6	0	0	2	14	2	0	0	0	0	0	0	0	0	14	2	16
08:00-08:59	9	0	7	0	0	4	16	4	0	0	0	0	0	0	0	0	16	4	20
09:00-09:59	5	0	4	0	0	1	9	1	0	0	0	0	0	0	0	0	9	1	10
10:00-10:59	4	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0	8	0	8
11:00-11:59	4	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0	8	0	8
12:00-12:59	4	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0	8	0	8
13:00-13:59	4	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0	8	0	8
14:00-14:59	4	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0	8	0	8
15:00-15:59	4	0	4	0	0	0	8	0	0	1	0	0	0	0	0	1	8	1	9
16:00-16:59	4	0	4	0	0	0	8	0	2	4	0	0	0	1	2	5	10	5	15
17:00-17:59	4	0	4	0	0	0	8	0	2	4	0	0	0	2	2	6	10	6	16
18:00-18:59	4	0	4	0	0	0	8	0	1	4	0	0	0	1	1	5	9	5	14
19:00-19:59	4	0	4	0	0	0	8	0	0	0	0	0	0	1	0	1	8	1	9
20:00-20:59	4	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0	8	0	8
21:00-21:59	4	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0	8	0	8
22:00-22:59	4	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0	8	0	8
23:00-23:59	4	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0	8	0	8
00:00-00:59	2	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0	3
01:00-01:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00-02:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00-03:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	86	0	80	0	0	7	166	7	5	13	0	0	0	5	5	18	171	25	196

USRC East: RER Scenario 5, Eastbound (Weekday)

Time	Lakeshore East Revenue **Electric**	Lakeshore East Revenue **Diesel**	Stouffville Revenue **Electric**	Stouffville Revenue **Diesel**	Richmond Hill Revenue **Electric**	Richmond Hill Revenue **Diesel**	**Total Revenue Electric**	**Total Revenue Diesel**	Lakeshore East Non-Revenue **Electric**	Lakeshore East Non-Revenue **Diesel**	Stouffville Non-Revenue **Electric**	Stouffville Non-Revenue **Diesel**	Richmond Hill Non-Revenue **Electric**	Richmond Hill Non-Revenue **Diesel**	**Total Non-Revenue Electric**	**Total Non-Revenue Diesel**	**Total Electric**	**Total Diesel**	**GRAND TOTAL**
04:00-04:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00-05:59	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
06:00-06:59	4	0	4	0	0	0	8	0	1	0	0	0	0	0	1	0	9	1	10
07:00-07:59	4	0	4	0	0	0	8	0	2	6	0	0	0	0	2	6	10	8	18
08:00-08:59	4	0	4	0	0	0	8	0	2	7	0	0	0	4	2	11	10	13	23
09:00-09:59	4	0	4	0	0	0	8	0	0	0	0	0	0	1	0	1	8	1	9
10:00-10:59	4	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0	8	0	8
11:00-11:59	4	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0	8	0	8
12:00-12:59	4	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0	8	0	8
13:00-13:59	4	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0	8	0	8
14:00-14:59	4	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0	8	0	8
15:00-15:59	4	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0	8	0	8
16:00-16:59	8	0	6	0	0	3	14	3	0	0	0	0	0	0	0	0	14	0	14
17:00-17:59	8	0	7	0	0	2	15	2	0	0	0	0	0	0	0	0	15	0	15
18:00-18:59	6	0	5	0	0	1	11	1	0	0	0	0	0	0	0	0	11	0	11
19:00-19:59	4	0	4	0	0	1	8	1	0	0	0	0	0	0	0	0	8	0	8
20:00-20:59	4	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0	8	0	8
21:00-21:59	4	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0	8	0	8
22:00-22:59	4	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0	8	0	8
23:00-23:59	4	0	3	0	0	0	7	0	2	0	0	0	0	0	2	0	9	2	11
00:00-00:59	4	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	4	0	4
01:00-01:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00-02:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00-03:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	86	0	78	0	0	7	164	7	7	13	0	0	0	5	7	18	171	25	196

Table E.3: Hourly VIA Train Schedule

	Eastbound				Westbound				EB	WB
	Toronto-Kingston-Ottawa		Toronto-Kingston-Montreal		Ottawa-Kingston-Toronto		Montreal-Kingston-Toronto		Modelled	Modelled
Hour ID	Train #	Volume	Train #	Volume	Train #	Volume	Train #	Volume	Volume	Volume
0										
1										
2										
3										
4										
5										
6	50 at 6:40	1	60 at 6:40	1					2	
7										
8							651	1		1
9	52 at 9:20	1	62 at 9:20	1	41	1			2	1
10	40	1							1	
11			64	1	43	1	61	1	1	2
12	42	1			**51**	1	**51**	***0***	1	1
13	644	1							1	
14	44	1			45	1	63	1	1	2
15	46	1	66	1					2	
16	646	1					65	1	1	1
17			68 + 650	2	47	1			2	1
18	48	1	668	1	645	1			2	1
19					55	1				1
20							67	1		1
21					647	1	69	1		2
22					59	1				1
23							669	1		1
								Total =	16	16

Appendix F

Sample Concentration Contour Plots

- **Current (2016) Scenario**
  - 24-HR AVG NO_2
  - 24-HR AVG $PM_{2.5}$
- **Future Build (2025) Scenario**
  - 24-HR AVG NO_2
  - 24-HR AVG $PM_{2.5}$

PROJECT TITLE:
NO2 (24-hr avg) Cumulative Contour Plot (Current Scenario)
Union Station Rail Corridor (USRC) East Enhancements - Air Quality Assessment

COMMENTS:	SOURCES:	COMPANY NAME:	
Cumulative concentrations include background and modelled concentrations	**569**	**AECOM**	
LEGEND:	RECEPTORS: **771**		AECOM
Railway modelling (volume sources)			
Roadway modelling (volume sources	OUTPUT TYPE: **Cumulative concentrations**	SCALE: 1:18 000 0 0.5 km	
Train idling modelling (point sources)		DATE: **2017-07-10**	PROJECT NO.: **60517668**

AERMOD View - Lakes Environmental Software

PROJECT TITLE:
PM2.5 (24-hr avg, 98th percentile) Cumulative Concentrations Contour Plot (Current Scenario)
Union Station Rail Corridor (USRC) East Enhancements - Air Quality Assessment

COMMENTS:
Cumulative concentrations include background and modelled concentrations.

LEGEND:
- Railway modelling (volume sources)
- Roadway modelling (volume sources
- Train idling modelling (point sources)

SOURCES:
569

RECEPTORS:
771

OUTPUT TYPE:
Cumulative concentrations

COMPANY NAME:
AECOM

SCALE: 1:18 000
0 — 0.5 km

DATE:
2017-07-10

PROJECT NO.:
60517668

AECOM

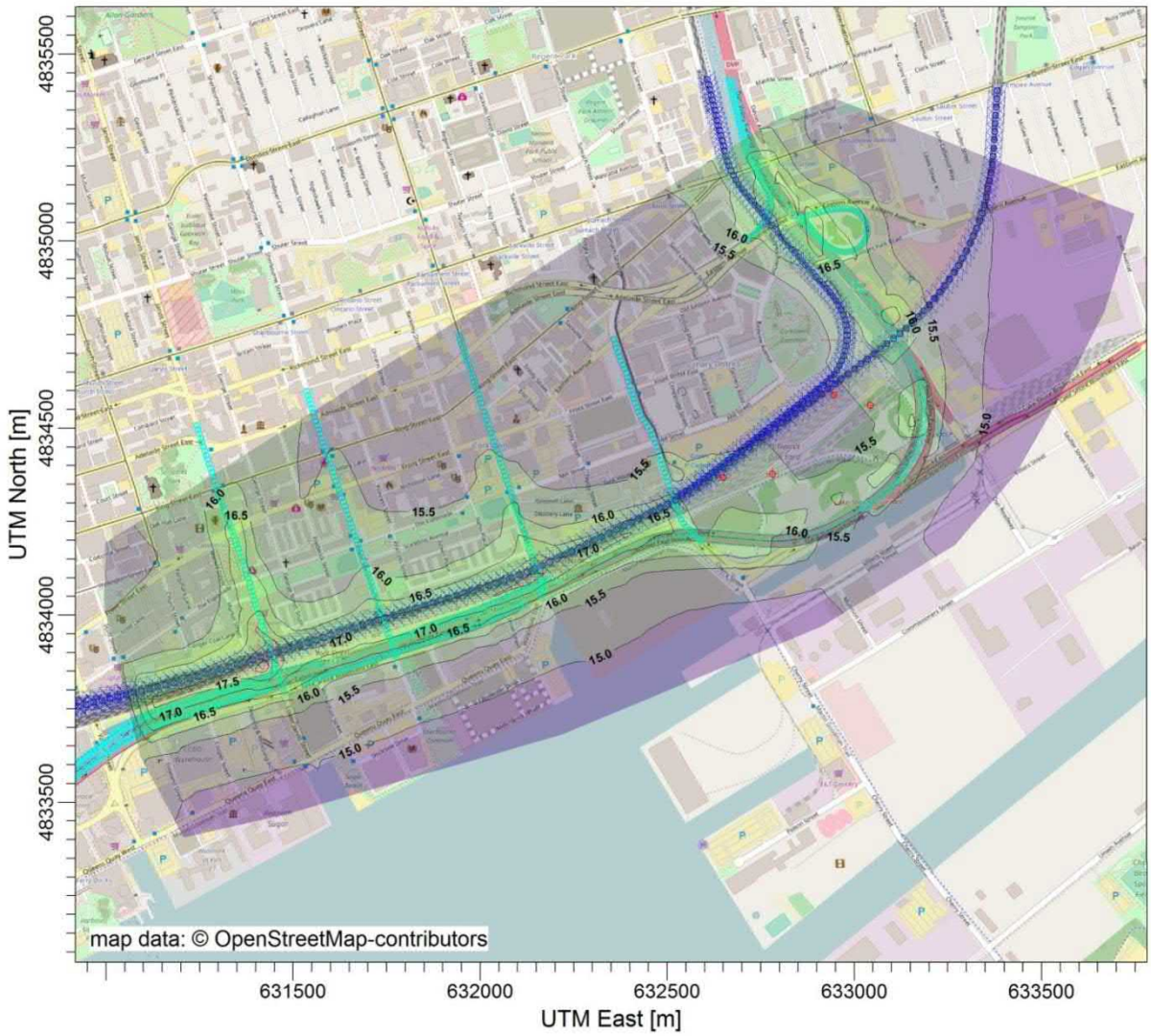
AERMOD View - Lakes Environmental Software

PROJECT TITLE:
NO2 (24-hr avg) Cumulative Contour Plot (Future Build Scenario)
Union Station Rail Corridor (USRC) East Enhancements - Air Quality Assessment

COMMENTS:	SOURCES:	COMPANY NAME:	
Cumulative concentrations include background and modelled concentrations	**569**	**AECOM**	
LEGEND:	RECEPTORS: **771**		AECOM
Railway modelling (volume sources)	OUTPUT TYPE: **Cumulative concentrations**	SCALE: 1:18 000 (0 – 0.5 km)	
Roadway modelling (volume sources			
Train idling modelling (point sources)		DATE: **2017-07-10**	PROJECT NO.: **60517668**

AERMOD View - Lakes Environmental Software

PROJECT TITLE:
PM2.5 (24-hr avg, 98th percentile) Cumulative Contour Plot (Future Build Scenario)
Union Station Rail Corridor (USRC) East Enhancements - Air Quality Assessment



ug/m^3

14.7 15.0 15.5 16.0 16.5 17.0 17.5 18.0 18.2

COMMENTS:	SOURCES:	COMPANY NAME:	
Cumulative concentrations include background and modelled concentrations	**569**	**AECOM**	
LEGEND:	RECEPTORS: **771**		AECOM
Railway modelling (volume sources)	OUTPUT TYPE: **Cumulative concentrations**	SCALE: 1:18 000 (0 – 0.5 km)	
Roadway modelling (volume sources			
Train idling modelling (point sources)		DATE: **2017-07-10**	PROJECT NO.: **60517668**

AERMOD View - Lakes Environmental Software

AECOM Imagine it. Delivered.

Appendix F

Emission Inventory (MOVES2014b Output)

Vehicle Travel Emission Rate Calculation: GHG (2019)

PollutantID 90 **Atmospheric CO2**

RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT CAR_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	5	1	90 5 5 1	5 1	270.7413	950.814	804.20
5	5	2	90 5 5 2	5 2	270.7413	950.814	804.20
5	5	3	90 5 5 3	5 3	270.7413	950.814	804.20
5	5	4	90 5 5 4	5 4	270.7413	950.814	804.20
5	5	5	90 5 5 5	5 5	270.7413	950.814	804.20
5	5	6	90 5 5 6	5 6	270.7413	950.814	804.20
5	5	7	90 5 5 7	5 7	270.7413	950.814	804.20
5	5	8	90 5 5 8	5 8	270.7413	950.814	804.20
5	5	9	90 5 5 9	5 9	270.7413	950.814	804.20
5	5	10	90 5 5 10	5 10	270.7413	950.814	804.20
5	5	11	90 5 5 11	5 11	270.7413	950.814	804.20
5	5	12	90 5 5 12	5 12	270.7413	950.814	804.20
5	5	13	90 5 5 13	5 13	270.7413	950.814	804.20
5	5	14	90 5 5 14	5 14	270.7413	950.814	804.20
5	5	15	90 5 5 15	5 15	270.7413	950.814	804.20
5	5	16	90 5 5 16	5 16	270.7413	950.814	804.20
5	5	17	90 5 5 17	5 17	270.7413	950.814	804.20
5	5	18	90 5 5 18	5 18	270.7413	950.814	804.20
5	5	19	90 5 5 19	5 19	270.7413	950.814	804.20
5	5	20	90 5 5 20	5 20	270.7413	950.814	804.20
5	5	21	90 5 5 21	5 21	270.7413	950.814	804.20
5	5	22	90 5 5 22	5 22	270.7413	950.814	804.20
5	5	23	90 5 5 23	5 23	270.7413	950.814	804.20
5	5	24	90 5 5 24	5 24	270.7413	950.814	804.20
5	6	1	90 5 6 1	6 1	242.4101	852.4824	791.57
5	6	2	90 5 6 2	6 2	242.4101	852.4824	791.57
5	6	3	90 5 6 3	6 3	242.4101	852.4824	791.57
5	6	4	90 5 6 4	6 4	242.4101	852.4824	791.57
5	6	5	90 5 6 5	6 5	242.4101	852.4824	791.57
5	6	6	90 5 6 6	6 6	242.4101	852.4824	791.57
5	6	7	90 5 6 7	6 7	242.4101	852.4824	791.57
5	6	8	90 5 6 8	6 8	242.4101	852.4824	791.57
5	6	9	90 5 6 9	6 9	242.4101	852.4824	791.57
5	6	10	90 5 6 10	6 10	242.4101	852.4824	791.57
5	6	11	90 5 6 11	6 11	242.4101	852.4824	791.57
5	6	12	90 5 6 12	6 12	242.4101	852.4824	791.57
5	6	13	90 5 6 13	6 13	242.4101	852.4824	791.57
5	6	14	90 5 6 14	6 14	242.4101	852.4824	791.57
5	6	15	90 5 6 15	6 15	242.4101	852.4824	791.57
5	6	16	90 5 6 16	6 16	242.4101	852.4824	791.57
5	6	17	90 5 6 17	6 17	242.4101	852.4824	791.57
5	6	18	90 5 6 18	6 18	242.4101	852.4824	791.57
5	6	19	90 5 6 19	6 19	242.4101	852.4824	791.57
5	6	20	90 5 6 20	6 20	242.4101	852.4824	791.57
5	6	21	90 5 6 21	6 21	242.4101	852.4824	791.57
5	6	22	90 5 6 22	6 22	242.4101	852.4824	791.57
5	6	23	90 5 6 23	6 23	242.4101	852.4824	791.57
5	6	24	90 5 6 24	6 24	242.4101	852.4824	791.57
5	7	1	90 5 7 1	7 1	216.9799	823.0591	793.65
5	7	2	90 5 7 2	7 2	216.9799	823.0591	793.65
5	7	3	90 5 7 3	7 3	216.9799	823.0591	793.65
5	7	4	90 5 7 4	7 4	216.9799	823.0591	793.65
5	7	5	90 5 7 5	7 5	216.9799	823.0591	793.65
5	7	6	90 5 7 6	7 6	216.9799	823.0591	793.65
5	7	7	90 5 7 7	7 7	216.9799	823.0591	793.65
5	7	8	90 5 7 8	7 8	216.9799	823.0591	793.65
5	7	9	90 5 7 9	7 9	216.9799	823.0591	793.65
5	7	10	90 5 7 10	7 10	216.9799	823.0591	793.65
5	7	11	90 5 7 11	7 11	216.9799	823.0591	793.65
5	7	12	90 5 7 12	7 12	216.9799	823.0591	793.65
5	7	13	90 5 7 13	7 13	216.9799	823.0591	793.65
5	7	14	90 5 7 14	7 14	216.9799	823.0591	793.65
5	7	15	90 5 7 15	7 15	216.9799	823.0591	793.65
5	7	16	90 5 7 16	7 16	216.9799	823.0591	793.65

Summary of Maximum ER by Speed Bin

	CAR_ER	TRK_ER	BUS_ER
30 km/hr	270.7413	950.814	804.1971
40 km/hr	242.4101	852.4824	791.5733
50 km/hr	216.9799	823.0591	793.6465
60 km/hr	205.9979	700.7326	728.3255
90 km/hr	189.8359	575.0589	821.0236

Vehicle Travel Emission Rate Calculation: GHG (2019)

PollutantID	90	Atmospheric CO2					
RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT CAR_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	7	17	90 5 7 17	7 17	216.9799	823.0591	793.65
5	7	18	90 5 7 18	7 18	216.9799	823.0591	793.65
5	7	19	90 5 7 19	7 19	216.9799	823.0591	793.65
5	7	20	90 5 7 20	7 20	216.9799	823.0591	793.65
5	7	21	90 5 7 21	7 21	216.9799	823.0591	793.65
5	7	22	90 5 7 22	7 22	216.9799	823.0591	793.65
5	7	23	90 5 7 23	7 23	216.9799	823.0591	793.65
5	7	24	90 5 7 24	7 24	216.9799	823.0591	793.65
5	8	1	90 5 8 1	8 1	205.9979	700.7326	728.33
5	8	2	90 5 8 2	8 2	205.9979	700.7326	728.33
5	8	3	90 5 8 3	8 3	205.9979	700.7326	728.33
5	8	4	90 5 8 4	8 4	205.9979	700.7326	728.33
5	8	5	90 5 8 5	8 5	205.9979	700.7326	728.33
5	8	6	90 5 8 6	8 6	205.9979	700.7326	728.33
5	8	7	90 5 8 7	8 7	205.9979	700.7326	728.33
5	8	8	90 5 8 8	8 8	205.9979	700.7326	728.33
5	8	9	90 5 8 9	8 9	205.9979	700.7326	728.33
5	8	10	90 5 8 10	8 10	205.9979	700.7326	728.33
5	8	11	90 5 8 11	8 11	205.9979	700.7326	728.33
5	8	12	90 5 8 12	8 12	205.9979	700.7326	728.33
5	8	13	90 5 8 13	8 13	205.9979	700.7326	728.33
5	8	14	90 5 8 14	8 14	205.9979	700.7326	728.33
5	8	15	90 5 8 15	8 15	205.9979	700.7326	728.33
5	8	16	90 5 8 16	8 16	205.9979	700.7326	728.33
5	8	17	90 5 8 17	8 17	205.9979	700.7326	728.33
5	8	18	90 5 8 18	8 18	205.9979	700.7326	728.33
5	8	19	90 5 8 19	8 19	205.9979	700.7326	728.33
5	8	20	90 5 8 20	8 20	205.9979	700.7326	728.33
5	8	21	90 5 8 21	8 21	205.9979	700.7326	728.33
5	8	22	90 5 8 22	8 22	205.9979	700.7326	728.33
5	8	23	90 5 8 23	8 23	205.9979	700.7326	728.33
5	8	24	90 5 8 24	8 24	205.9979	700.7326	728.33
5	12	1	90 5 12 1	12 1	189.8359	575.0589	821.02
5	12	2	90 5 12 2	12 2	189.8359	575.0589	821.02
5	12	3	90 5 12 3	12 3	189.8359	575.0589	821.02
5	12	4	90 5 12 4	12 4	189.8359	575.0589	821.02
5	12	5	90 5 12 5	12 5	189.8359	575.0589	821.02
5	12	6	90 5 12 6	12 6	189.8359	575.0589	821.02
5	12	7	90 5 12 7	12 7	189.8359	575.0589	821.02
5	12	8	90 5 12 8	12 8	189.8359	575.0589	821.02
5	12	9	90 5 12 9	12 9	189.8359	575.0589	821.02
5	12	10	90 5 12 10	12 10	189.8359	575.0589	821.02
5	12	11	90 5 12 11	12 11	189.8359	575.0589	821.02
5	12	12	90 5 12 12	12 12	189.8359	575.0589	821.02
5	12	13	90 5 12 13	12 13	189.8359	575.0589	821.02
5	12	14	90 5 12 14	12 14	189.8359	575.0589	821.02
5	12	15	90 5 12 15	12 15	189.8359	575.0589	821.02
5	12	16	90 5 12 16	12 16	189.8359	575.0589	821.02
5	12	17	90 5 12 17	12 17	189.8359	575.0589	821.02
5	12	18	90 5 12 18	12 18	189.8359	575.0589	821.02
5	12	19	90 5 12 19	12 19	189.8359	575.0589	821.02
5	12	20	90 5 12 20	12 20	189.8359	575.0589	821.02
5	12	21	90 5 12 21	12 21	189.8359	575.0589	821.02
5	12	22	90 5 12 22	12 22	189.8359	575.0589	821.02
5	12	23	90 5 12 23	12 23	189.8359	575.0589	821.02
5	12	24	90 5 12 24	12 24	189.8359	575.0589	821.02

Vehicle Travel Emission Rate Calculation: GHG (2019)

PollutantID 6 **Nitrous Oxide (N2O)**

RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT Car_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	5	1	6 5 5 1	5 1	0.001993	0.004635	0.01
5	5	2	6 5 5 2	5 2	0.001993	0.004635	0.01
5	5	3	6 5 5 3	5 3	0.001993	0.004635	0.01
5	5	4	6 5 5 4	5 4	0.001993	0.004635	0.01
5	5	5	6 5 5 5	5 5	0.001993	0.004635	0.01
5	5	6	6 5 5 6	5 6	0.001993	0.004635	0.01
5	5	7	6 5 5 7	5 7	0.001993	0.004635	0.01
5	5	8	6 5 5 8	5 8	0.001993	0.004635	0.01
5	5	9	6 5 5 9	5 9	0.001993	0.004635	0.01
5	5	10	6 5 5 10	5 10	0.001993	0.004635	0.01
5	5	11	6 5 5 11	5 11	0.001993	0.004635	0.01
5	5	12	6 5 5 12	5 12	0.001993	0.004635	0.01
5	5	13	6 5 5 13	5 13	0.001993	0.004635	0.01
5	5	14	6 5 5 14	5 14	0.001993	0.004635	0.01
5	5	15	6 5 5 15	5 15	0.001993	0.004635	0.01
5	5	16	6 5 5 16	5 16	0.001993	0.004635	0.01
5	5	17	6 5 5 17	5 17	0.001993	0.004635	0.01
5	5	18	6 5 5 18	5 18	0.001993	0.004635	0.01
5	5	19	6 5 5 19	5 19	0.001993	0.004635	0.01
5	5	20	6 5 5 20	5 20	0.001993	0.004635	0.01
5	5	21	6 5 5 21	5 21	0.001993	0.004635	0.01
5	5	22	6 5 5 22	5 22	0.001993	0.004635	0.01
5	5	23	6 5 5 23	5 23	0.001993	0.004635	0.01
5	5	24	6 5 5 24	5 24	0.001993	0.004635	0.01
5	6	1	6 5 6 1	6 1	0.001594	0.003708	0.01
5	6	2	6 5 6 2	6 2	0.001594	0.003708	0.01
5	6	3	6 5 6 3	6 3	0.001594	0.003708	0.01
5	6	4	6 5 6 4	6 4	0.001594	0.003708	0.01
5	6	5	6 5 6 5	6 5	0.001594	0.003708	0.01
5	6	6	6 5 6 6	6 6	0.001594	0.003708	0.01
5	6	7	6 5 6 7	6 7	0.001594	0.003708	0.01
5	6	8	6 5 6 8	6 8	0.001594	0.003708	0.01
5	6	9	6 5 6 9	6 9	0.001594	0.003708	0.01
5	6	10	6 5 6 10	6 10	0.001594	0.003708	0.01
5	6	11	6 5 6 11	6 11	0.001594	0.003708	0.01
5	6	12	6 5 6 12	6 12	0.001594	0.003708	0.01
5	6	13	6 5 6 13	6 13	0.001594	0.003708	0.01
5	6	14	6 5 6 14	6 14	0.001594	0.003708	0.01
5	6	15	6 5 6 15	6 15	0.001594	0.003708	0.01
5	6	16	6 5 6 16	6 16	0.001594	0.003708	0.01
5	6	17	6 5 6 17	6 17	0.001594	0.003708	0.01
5	6	18	6 5 6 18	6 18	0.001594	0.003708	0.01
5	6	19	6 5 6 19	6 19	0.001594	0.003708	0.01
5	6	20	6 5 6 20	6 20	0.001594	0.003708	0.01
5	6	21	6 5 6 21	6 21	0.001594	0.003708	0.01
5	6	22	6 5 6 22	6 22	0.001594	0.003708	0.01
5	6	23	6 5 6 23	6 23	0.001594	0.003708	0.01
5	6	24	6 5 6 24	6 24	0.001594	0.003708	0.01
5	7	1	6 5 7 1	7 1	0.001328	0.00309	0.01
5	7	2	6 5 7 2	7 2	0.001328	0.00309	0.01
5	7	3	6 5 7 3	7 3	0.001328	0.00309	0.01
5	7	4	6 5 7 4	7 4	0.001328	0.00309	0.01
5	7	5	6 5 7 5	7 5	0.001328	0.00309	0.01
5	7	6	6 5 7 6	7 6	0.001328	0.00309	0.01
5	7	7	6 5 7 7	7 7	0.001328	0.00309	0.01
5	7	8	6 5 7 8	7 8	0.001328	0.00309	0.01
5	7	9	6 5 7 9	7 9	0.001328	0.00309	0.01
5	7	10	6 5 7 10	7 10	0.001328	0.00309	0.01
5	7	11	6 5 7 11	7 11	0.001328	0.00309	0.01
5	7	12	6 5 7 12	7 12	0.001328	0.00309	0.01
5	7	13	6 5 7 13	7 13	0.001328	0.00309	0.01
5	7	14	6 5 7 14	7 14	0.001328	0.00309	0.01
5	7	15	6 5 7 15	7 15	0.001328	0.00309	0.01
5	7	16	6 5 7 16	7 16	0.001328	0.00309	0.01

Summary of Maximum ER by Speed Bin

	CAR_ER	TRK_ER	BUS_ER
30 km/hr	0.001993	0.004635	0.008199
40 km/hr	0.001594	0.003708	0.00656
50 km/hr	0.001328	0.00309	0.005466
60 km/hr	0.001139	0.002649	0.004685
90 km/hr	0.000725	0.001685	0.002982

Vehicle Travel Emission Rate Calculation: GHG (2019)

PollutantID	6	Nitrous Oxide (N2O)					
					g/VKT	g/VKT	g/VKT
RoadTypeID	AverageSp	HourID	Helper_X	ER Help	Car_ER	TRK_ER	Bus_ER
5	7	17	6 5 7 17	7 17	0.001328	0.00309	0.01
5	7	18	6 5 7 18	7 18	0.001328	0.00309	0.01
5	7	19	6 5 7 19	7 19	0.001328	0.00309	0.01
5	7	20	6 5 7 20	7 20	0.001328	0.00309	0.01
5	7	21	6 5 7 21	7 21	0.001328	0.00309	0.01
5	7	22	6 5 7 22	7 22	0.001328	0.00309	0.01
5	7	23	6 5 7 23	7 23	0.001328	0.00309	0.01
5	7	24	6 5 7 24	7 24	0.001328	0.00309	0.01
5	8	1	6 5 8 1	8 1	0.001139	0.002649	0.00
5	8	2	6 5 8 2	8 2	0.001139	0.002649	0.00
5	8	3	6 5 8 3	8 3	0.001139	0.002649	0.00
5	8	4	6 5 8 4	8 4	0.001139	0.002649	0.00
5	8	5	6 5 8 5	8 5	0.001139	0.002649	0.00
5	8	6	6 5 8 6	8 6	0.001139	0.002649	0.00
5	8	7	6 5 8 7	8 7	0.001139	0.002649	0.00
5	8	8	6 5 8 8	8 8	0.001139	0.002649	0.00
5	8	9	6 5 8 9	8 9	0.001139	0.002649	0.00
5	8	10	6 5 8 10	8 10	0.001139	0.002649	0.00
5	8	11	6 5 8 11	8 11	0.001139	0.002649	0.00
5	8	12	6 5 8 12	8 12	0.001139	0.002649	0.00
5	8	13	6 5 8 13	8 13	0.001139	0.002649	0.00
5	8	14	6 5 8 14	8 14	0.001139	0.002649	0.00
5	8	15	6 5 8 15	8 15	0.001139	0.002649	0.00
5	8	16	6 5 8 16	8 16	0.001139	0.002649	0.00
5	8	17	6 5 8 17	8 17	0.001139	0.002649	0.00
5	8	18	6 5 8 18	8 18	0.001139	0.002649	0.00
5	8	19	6 5 8 19	8 19	0.001139	0.002649	0.00
5	8	20	6 5 8 20	8 20	0.001139	0.002649	0.00
5	8	21	6 5 8 21	8 21	0.001139	0.002649	0.00
5	8	22	6 5 8 22	8 22	0.001139	0.002649	0.00
5	8	23	6 5 8 23	8 23	0.001139	0.002649	0.00
5	8	24	6 5 8 24	8 24	0.001139	0.002649	0.00
5	12	1	6 5 12 1	12 1	0.000725	0.001685	0.00
5	12	2	6 5 12 2	12 2	0.000725	0.001685	0.00
5	12	3	6 5 12 3	12 3	0.000725	0.001685	0.00
5	12	4	6 5 12 4	12 4	0.000725	0.001685	0.00
5	12	5	6 5 12 5	12 5	0.000725	0.001685	0.00
5	12	6	6 5 12 6	12 6	0.000725	0.001685	0.00
5	12	7	6 5 12 7	12 7	0.000725	0.001685	0.00
5	12	8	6 5 12 8	12 8	0.000725	0.001685	0.00
5	12	9	6 5 12 9	12 9	0.000725	0.001685	0.00
5	12	10	6 5 12 10	12 10	0.000725	0.001685	0.00
5	12	11	6 5 12 11	12 11	0.000725	0.001685	0.00
5	12	12	6 5 12 12	12 12	0.000725	0.001685	0.00
5	12	13	6 5 12 13	12 13	0.000725	0.001685	0.00
5	12	14	6 5 12 14	12 14	0.000725	0.001685	0.00
5	12	15	6 5 12 15	12 15	0.000725	0.001685	0.00
5	12	16	6 5 12 16	12 16	0.000725	0.001685	0.00
5	12	17	6 5 12 17	12 17	0.000725	0.001685	0.00
5	12	18	6 5 12 18	12 18	0.000725	0.001685	0.00
5	12	19	6 5 12 19	12 19	0.000725	0.001685	0.00
5	12	20	6 5 12 20	12 20	0.000725	0.001685	0.00
5	12	21	6 5 12 21	12 21	0.000725	0.001685	0.00
5	12	22	6 5 12 22	12 22	0.000725	0.001685	0.00
5	12	23	6 5 12 23	12 23	0.000725	0.001685	0.00
5	12	24	6 5 12 24	12 24	0.000725	0.001685	0.00

Vehicle Travel Emission Rate Calculation: GHG (2019)

PollutantID 5 Methane (CH4)

RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT Car_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	5	1	5 5 5 1	5 1	0.003305	0.036085	0.50
5	5	2	5 5 5 2	5 2	0.003305	0.036085	0.50
5	5	3	5 5 5 3	5 3	0.003305	0.036085	0.50
5	5	4	5 5 5 4	5 4	0.003305	0.036085	0.50
5	5	5	5 5 5 5	5 5	0.003305	0.036085	0.50
5	5	6	5 5 5 6	5 6	0.003305	0.036085	0.50
5	5	7	5 5 5 7	5 7	0.003305	0.036085	0.50
5	5	8	5 5 5 8	5 8	0.003305	0.036085	0.50
5	5	9	5 5 5 9	5 9	0.003305	0.036085	0.50
5	5	10	5 5 5 10	5 10	0.003305	0.036085	0.50
5	5	11	5 5 5 11	5 11	0.003305	0.036085	0.50
5	5	12	5 5 5 12	5 12	0.003305	0.036085	0.50
5	5	13	5 5 5 13	5 13	0.003305	0.036085	0.50
5	5	14	5 5 5 14	5 14	0.003305	0.036085	0.50
5	5	15	5 5 5 15	5 15	0.003305	0.036085	0.50
5	5	16	5 5 5 16	5 16	0.003305	0.036085	0.50
5	5	17	5 5 5 17	5 17	0.003305	0.036085	0.50
5	5	18	5 5 5 18	5 18	0.003305	0.036085	0.50
5	5	19	5 5 5 19	5 19	0.003305	0.036085	0.50
5	5	20	5 5 5 20	5 20	0.003305	0.036085	0.50
5	5	21	5 5 5 21	5 21	0.003305	0.036085	0.50
5	5	22	5 5 5 22	5 22	0.003305	0.036085	0.50
5	5	23	5 5 5 23	5 23	0.003305	0.036085	0.50
5	5	24	5 5 5 24	5 24	0.003305	0.036085	0.50
5	6	1	5 5 6 1	6 1	0.002901	0.029662	0.49
5	6	2	5 5 6 2	6 2	0.002901	0.029662	0.49
5	6	3	5 5 6 3	6 3	0.002901	0.029662	0.49
5	6	4	5 5 6 4	6 4	0.002901	0.029662	0.49
5	6	5	5 5 6 5	6 5	0.002901	0.029662	0.49
5	6	6	5 5 6 6	6 6	0.002901	0.029662	0.49
5	6	7	5 5 6 7	6 7	0.002901	0.029662	0.49
5	6	8	5 5 6 8	6 8	0.002901	0.029662	0.49
5	6	9	5 5 6 9	6 9	0.002901	0.029662	0.49
5	6	10	5 5 6 10	6 10	0.002901	0.029662	0.49
5	6	11	5 5 6 11	6 11	0.002901	0.029662	0.49
5	6	12	5 5 6 12	6 12	0.002901	0.029662	0.49
5	6	13	5 5 6 13	6 13	0.002901	0.029662	0.49
5	6	14	5 5 6 14	6 14	0.002901	0.029662	0.49
5	6	15	5 5 6 15	6 15	0.002901	0.029662	0.49
5	6	16	5 5 6 16	6 16	0.002901	0.029662	0.49
5	6	17	5 5 6 17	6 17	0.002901	0.029662	0.49
5	6	18	5 5 6 18	6 18	0.002901	0.029662	0.49
5	6	19	5 5 6 19	6 19	0.002901	0.029662	0.49
5	6	20	5 5 6 20	6 20	0.002901	0.029662	0.49
5	6	21	5 5 6 21	6 21	0.002901	0.029662	0.49
5	6	22	5 5 6 22	6 22	0.002901	0.029662	0.49
5	6	23	5 5 6 23	6 23	0.002901	0.029662	0.49
5	6	24	5 5 6 24	6 24	0.002901	0.029662	0.49
5	7	1	5 5 7 1	7 1	0.002686	0.02555	0.49
5	7	2	5 5 7 2	7 2	0.002686	0.02555	0.49
5	7	3	5 5 7 3	7 3	0.002686	0.02555	0.49
5	7	4	5 5 7 4	7 4	0.002686	0.02555	0.49
5	7	5	5 5 7 5	7 5	0.002686	0.02555	0.49
5	7	6	5 5 7 6	7 6	0.002686	0.02555	0.49
5	7	7	5 5 7 7	7 7	0.002686	0.02555	0.49
5	7	8	5 5 7 8	7 8	0.002686	0.02555	0.49
5	7	9	5 5 7 9	7 9	0.002686	0.02555	0.49
5	7	10	5 5 7 10	7 10	0.002686	0.02555	0.49
5	7	11	5 5 7 11	7 11	0.002686	0.02555	0.49
5	7	12	5 5 7 12	7 12	0.002686	0.02555	0.49
5	7	13	5 5 7 13	7 13	0.002686	0.02555	0.49
5	7	14	5 5 7 14	7 14	0.002686	0.02555	0.49
5	7	15	5 5 7 15	7 15	0.002686	0.02555	0.49
5	7	16	5 5 7 16	7 16	0.002686	0.02555	0.49

Summary of Maximum ER by Speed Bin

	CAR_ER	TRK_ER	BUS_ER
30 km/hr	0.003305	0.036085	0.497063
40 km/hr	0.002901	0.029662	0.494983
50 km/hr	0.002686	0.02555	0.493734
60 km/hr	0.002507	0.023054	0.434179
90 km/hr	0.002268	0.015892	0.220722

Vehicle Travel Emission Rate Calculation: GHG (2019)

PollutantID	5	Methane (CH4)					
RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT Car_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	7	17	5 5 7 17	7 17	0.002686	0.02555	0.49
5	7	18	5 5 7 18	7 18	0.002686	0.02555	0.49
5	7	19	5 5 7 19	7 19	0.002686	0.02555	0.49
5	7	20	5 5 7 20	7 20	0.002686	0.02555	0.49
5	7	21	5 5 7 21	7 21	0.002686	0.02555	0.49
5	7	22	5 5 7 22	7 22	0.002686	0.02555	0.49
5	7	23	5 5 7 23	7 23	0.002686	0.02555	0.49
5	7	24	5 5 7 24	7 24	0.002686	0.02555	0.49
5	8	1	5 5 8 1	8 1	0.002507	0.023054	0.43
5	8	2	5 5 8 2	8 2	0.002507	0.023054	0.43
5	8	3	5 5 8 3	8 3	0.002507	0.023054	0.43
5	8	4	5 5 8 4	8 4	0.002507	0.023054	0.43
5	8	5	5 5 8 5	8 5	0.002507	0.023054	0.43
5	8	6	5 5 8 6	8 6	0.002507	0.023054	0.43
5	8	7	5 5 8 7	8 7	0.002507	0.023054	0.43
5	8	8	5 5 8 8	8 8	0.002507	0.023054	0.43
5	8	9	5 5 8 9	8 9	0.002507	0.023054	0.43
5	8	10	5 5 8 10	8 10	0.002507	0.023054	0.43
5	8	11	5 5 8 11	8 11	0.002507	0.023054	0.43
5	8	12	5 5 8 12	8 12	0.002507	0.023054	0.43
5	8	13	5 5 8 13	8 13	0.002507	0.023054	0.43
5	8	14	5 5 8 14	8 14	0.002507	0.023054	0.43
5	8	15	5 5 8 15	8 15	0.002507	0.023054	0.43
5	8	16	5 5 8 16	8 16	0.002507	0.023054	0.43
5	8	17	5 5 8 17	8 17	0.002507	0.023054	0.43
5	8	18	5 5 8 18	8 18	0.002507	0.023054	0.43
5	8	19	5 5 8 19	8 19	0.002507	0.023054	0.43
5	8	20	5 5 8 20	8 20	0.002507	0.023054	0.43
5	8	21	5 5 8 21	8 21	0.002507	0.023054	0.43
5	8	22	5 5 8 22	8 22	0.002507	0.023054	0.43
5	8	23	5 5 8 23	8 23	0.002507	0.023054	0.43
5	8	24	5 5 8 24	8 24	0.002507	0.023054	0.43
5	12	1	5 5 12 1	12 1	0.002268	0.015892	0.22
5	12	2	5 5 12 2	12 2	0.002268	0.015892	0.22
5	12	3	5 5 12 3	12 3	0.002268	0.015892	0.22
5	12	4	5 5 12 4	12 4	0.002268	0.015892	0.22
5	12	5	5 5 12 5	12 5	0.002268	0.015892	0.22
5	12	6	5 5 12 6	12 6	0.002268	0.015892	0.22
5	12	7	5 5 12 7	12 7	0.002268	0.015892	0.22
5	12	8	5 5 12 8	12 8	0.002268	0.015892	0.22
5	12	9	5 5 12 9	12 9	0.002268	0.015892	0.22
5	12	10	5 5 12 10	12 10	0.002268	0.015892	0.22
5	12	11	5 5 12 11	12 11	0.002268	0.015892	0.22
5	12	12	5 5 12 12	12 12	0.002268	0.015892	0.22
5	12	13	5 5 12 13	12 13	0.002268	0.015892	0.22
5	12	14	5 5 12 14	12 14	0.002268	0.015892	0.22
5	12	15	5 5 12 15	12 15	0.002268	0.015892	0.22
5	12	16	5 5 12 16	12 16	0.002268	0.015892	0.22
5	12	17	5 5 12 17	12 17	0.002268	0.015892	0.22
5	12	18	5 5 12 18	12 18	0.002268	0.015892	0.22
5	12	19	5 5 12 19	12 19	0.002268	0.015892	0.22
5	12	20	5 5 12 20	12 20	0.002268	0.015892	0.22
5	12	21	5 5 12 21	12 21	0.002268	0.015892	0.22
5	12	22	5 5 12 22	12 22	0.002268	0.015892	0.22
5	12	23	5 5 12 23	12 23	0.002268	0.015892	0.22
5	12	24	5 5 12 24	12 24	0.002268	0.015892	0.22

Vehicle Travel Emission Rate Calculation: CAC (2019)

PollutantID 2 Carbon monoxide (CO)

RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT Car_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	5	1	2 5 5 1	5 1	1.984608	2.996309	1.80
5	5	2	2 5 5 2	5 2	1.984608	2.996309	1.80
5	5	3	2 5 5 3	5 3	1.984608	2.996309	1.80
5	5	4	2 5 5 4	5 4	1.984608	2.996309	1.80
5	5	5	2 5 5 5	5 5	1.984608	2.996309	1.80
5	5	6	2 5 5 6	5 6	1.984608	2.996309	1.80
5	5	7	2 5 5 7	5 7	1.984608	2.996309	1.80
5	5	8	2 5 5 8	5 8	1.984608	2.996309	1.80
5	5	9	2 5 5 9	5 9	1.984608	2.996309	1.80
5	5	10	2 5 5 10	5 10	1.984608	2.996309	1.80
5	5	11	2 5 5 11	5 11	1.984608	2.996309	1.80
5	5	12	2 5 5 12	5 12	1.984608	2.996309	1.80
5	5	13	2 5 5 13	5 13	1.984608	2.996309	1.80
5	5	14	2 5 5 14	5 14	1.984608	2.996309	1.80
5	5	15	2 5 5 15	5 15	1.984608	2.996309	1.80
5	5	16	2 5 5 16	5 16	1.984608	2.996309	1.80
5	5	17	2 5 5 17	5 17	1.984608	2.996309	1.80
5	5	18	2 5 5 18	5 18	1.984608	2.996309	1.80
5	5	19	2 5 5 19	5 19	1.984608	2.996309	1.80
5	5	20	2 5 5 20	5 20	1.984608	2.996309	1.80
5	5	21	2 5 5 21	5 21	1.984608	2.996309	1.80
5	5	22	2 5 5 22	5 22	1.984608	2.996309	1.80
5	5	23	2 5 5 23	5 23	1.984608	2.996309	1.80
5	5	24	2 5 5 24	5 24	1.984608	2.996309	1.80
5	6	1	2 5 6 1	6 1	1.662543	2.744751	1.75
5	6	2	2 5 6 2	6 2	1.662543	2.744751	1.75
5	6	3	2 5 6 3	6 3	1.662543	2.744751	1.75
5	6	4	2 5 6 4	6 4	1.662543	2.744751	1.75
5	6	5	2 5 6 5	6 5	1.662543	2.744751	1.75
5	6	6	2 5 6 6	6 6	1.662543	2.744751	1.75
5	6	7	2 5 6 7	6 7	1.662543	2.744751	1.75
5	6	8	2 5 6 8	6 8	1.662543	2.744751	1.75
5	6	9	2 5 6 9	6 9	1.662543	2.744751	1.75
5	6	10	2 5 6 10	6 10	1.662543	2.744751	1.75
5	6	11	2 5 6 11	6 11	1.662543	2.744751	1.75
5	6	12	2 5 6 12	6 12	1.662543	2.744751	1.75
5	6	13	2 5 6 13	6 13	1.662543	2.744751	1.75
5	6	14	2 5 6 14	6 14	1.662543	2.744751	1.75
5	6	15	2 5 6 15	6 15	1.662543	2.744751	1.75
5	6	16	2 5 6 16	6 16	1.662543	2.744751	1.75
5	6	17	2 5 6 17	6 17	1.662543	2.744751	1.75
5	6	18	2 5 6 18	6 18	1.662543	2.744751	1.75
5	6	19	2 5 6 19	6 19	1.662543	2.744751	1.75
5	6	20	2 5 6 20	6 20	1.662543	2.744751	1.75
5	6	21	2 5 6 21	6 21	1.662543	2.744751	1.75
5	6	22	2 5 6 22	6 22	1.662543	2.744751	1.75
5	6	23	2 5 6 23	6 23	1.662543	2.744751	1.75
5	6	24	2 5 6 24	6 24	1.662543	2.744751	1.75
5	7	1	2 5 7 1	7 1	1.579919	2.687494	1.72
5	7	2	2 5 7 2	7 2	1.578733	2.676953	1.70
5	7	3	2 5 7 3	7 3	1.578733	2.676953	1.70
5	7	4	2 5 7 4	7 4	1.578733	2.676953	1.70
5	7	5	2 5 7 5	7 5	1.578733	2.676953	1.70
5	7	6	2 5 7 6	7 6	1.578733	2.676953	1.70
5	7	7	2 5 7 7	7 7	1.578733	2.676953	1.70
5	7	8	2 5 7 8	7 8	1.578733	2.676953	1.70
5	7	9	2 5 7 9	7 9	1.578733	2.676953	1.70
5	7	10	2 5 7 10	7 10	1.578733	2.676953	1.70
5	7	11	2 5 7 11	7 11	1.578733	2.676953	1.70
5	7	12	2 5 7 12	7 12	1.578733	2.678908	1.70
5	7	13	2 5 7 13	7 13	1.578733	2.678908	1.70
5	7	14	2 5 7 14	7 14	1.578733	2.678908	1.70
5	7	15	2 5 7 15	7 15	1.578733	2.678908	1.70
5	7	16	2 5 7 16	7 16	1.578733	2.678908	1.70

Summary of Maximum ER by Speed Bin

	CAR_ER	TRK_ER	BUS_ER
30 km/hr	1.984608	2.996309	1.80113
40 km/hr	1.662543	2.744751	1.746996
50 km/hr	1.579919	2.687494	1.718538
60 km/hr	1.481087	2.230221	1.610271
90 km/hr	1.348107	1.677086	1.673142

Vehicle Travel Emission Rate Calculation: CAC (2019)

PollutantID	2	Carbon monoxide (CO)					
RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT Car_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	7	17	2 5 7 17	7 17	1.578733	2.678908	1.70
5	7	18	2 5 7 18	7 18	1.578733	2.678908	1.70
5	7	19	2 5 7 19	7 19	1.578733	2.678908	1.70
5	7	20	2 5 7 20	7 20	1.578733	2.678908	1.70
5	7	21	2 5 7 21	7 21	1.578733	2.678908	1.70
5	7	22	2 5 7 22	7 22	1.578733	2.678908	1.70
5	7	23	2 5 7 23	7 23	1.578733	2.678908	1.70
5	7	24	2 5 7 24	7 24	1.578733	2.678908	1.70
5	8	1	2 5 8 1	8 1	1.481087	2.230221	1.61
5	8	2	2 5 8 2	8 2	1.481087	2.230221	1.61
5	8	3	2 5 8 3	8 3	1.481087	2.230221	1.61
5	8	4	2 5 8 4	8 4	1.481087	2.230221	1.61
5	8	5	2 5 8 5	8 5	1.481087	2.230221	1.61
5	8	6	2 5 8 6	8 6	1.481087	2.230221	1.61
5	8	7	2 5 8 7	8 7	1.481087	2.230221	1.61
5	8	8	2 5 8 8	8 8	1.481087	2.230221	1.61
5	8	9	2 5 8 9	8 9	1.481087	2.230221	1.61
5	8	10	2 5 8 10	8 10	1.481087	2.230221	1.61
5	8	11	2 5 8 11	8 11	1.481087	2.230221	1.61
5	8	12	2 5 8 12	8 12	1.481087	2.230221	1.61
5	8	13	2 5 8 13	8 13	1.481087	2.230221	1.61
5	8	14	2 5 8 14	8 14	1.481087	2.230221	1.61
5	8	15	2 5 8 15	8 15	1.481087	2.230221	1.61
5	8	16	2 5 8 16	8 16	1.481087	2.230221	1.61
5	8	17	2 5 8 17	8 17	1.481087	2.230221	1.61
5	8	18	2 5 8 18	8 18	1.481087	2.230221	1.61
5	8	19	2 5 8 19	8 19	1.481087	2.230221	1.61
5	8	20	2 5 8 20	8 20	1.481087	2.230221	1.61
5	8	21	2 5 8 21	8 21	1.481087	2.230221	1.61
5	8	22	2 5 8 22	8 22	1.481087	2.230221	1.61
5	8	23	2 5 8 23	8 23	1.481087	2.230221	1.61
5	8	24	2 5 8 24	8 24	1.481087	2.230221	1.61
5	12	1	2 5 12 1	12 1	1.348107	1.677086	1.67
5	12	2	2 5 12 2	12 2	1.348107	1.677086	1.67
5	12	3	2 5 12 3	12 3	1.348107	1.677086	1.67
5	12	4	2 5 12 4	12 4	1.348107	1.677086	1.67
5	12	5	2 5 12 5	12 5	1.348107	1.677086	1.67
5	12	6	2 5 12 6	12 6	1.348107	1.677086	1.67
5	12	7	2 5 12 7	12 7	1.348107	1.677086	1.67
5	12	8	2 5 12 8	12 8	1.348107	1.677086	1.67
5	12	9	2 5 12 9	12 9	1.348107	1.677086	1.67
5	12	10	2 5 12 10	12 10	1.348107	1.677086	1.67
5	12	11	2 5 12 11	12 11	1.348107	1.677086	1.67
5	12	12	2 5 12 12	12 12	1.348107	1.677086	1.67
5	12	13	2 5 12 13	12 13	1.348107	1.677086	1.67
5	12	14	2 5 12 14	12 14	1.348107	1.677086	1.67
5	12	15	2 5 12 15	12 15	1.348107	1.677086	1.67
5	12	16	2 5 12 16	12 16	1.348107	1.677086	1.67
5	12	17	2 5 12 17	12 17	1.348107	1.677086	1.67
5	12	18	2 5 12 18	12 18	1.348107	1.677086	1.67
5	12	19	2 5 12 19	12 19	1.348107	1.677086	1.67
5	12	20	2 5 12 20	12 20	1.348107	1.677086	1.67
5	12	21	2 5 12 21	12 21	1.348107	1.677086	1.67
5	12	22	2 5 12 22	12 22	1.348107	1.677086	1.67
5	12	23	2 5 12 23	12 23	1.348107	1.677086	1.67
5	12	24	2 5 12 24	12 24	1.348107	1.677086	1.67

Vehicle Travel Emission Rate Calculation: CAC (2019)

PollutantID 3 **Oxides of Nitrogen (NOx)**

RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT Car_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	5	1	3 5 5 1	5 1	0.150383	2.442339	4.43
5	5	2	3 5 5 2	5 2	0.150383	2.442339	4.43
5	5	3	3 5 5 3	5 3	0.150383	2.442339	4.43
5	5	4	3 5 5 4	5 4	0.150383	2.442339	4.43
5	5	5	3 5 5 5	5 5	0.150383	2.442339	4.43
5	5	6	3 5 5 6	5 6	0.150383	2.442339	4.43
5	5	7	3 5 5 7	5 7	0.150383	2.442339	4.43
5	5	8	3 5 5 8	5 8	0.150383	2.442339	4.43
5	5	9	3 5 5 9	5 9	0.150383	2.442339	4.43
5	5	10	3 5 5 10	5 10	0.150383	2.442339	4.43
5	5	11	3 5 5 11	5 11	0.150383	2.442339	4.43
5	5	12	3 5 5 12	5 12	0.150383	2.442339	4.43
5	5	13	3 5 5 13	5 13	0.150383	2.442339	4.43
5	5	14	3 5 5 14	5 14	0.150383	2.442339	4.43
5	5	15	3 5 5 15	5 15	0.150383	2.442339	4.43
5	5	16	3 5 5 16	5 16	0.150383	2.442339	4.43
5	5	17	3 5 5 17	5 17	0.150383	2.442339	4.43
5	5	18	3 5 5 18	5 18	0.150383	2.442339	4.43
5	5	19	3 5 5 19	5 19	0.150383	2.442339	4.43
5	5	20	3 5 5 20	5 20	0.150383	2.442339	4.43
5	5	21	3 5 5 21	5 21	0.150383	2.442339	4.43
5	5	22	3 5 5 22	5 22	0.150383	2.442339	4.43
5	5	23	3 5 5 23	5 23	0.150383	2.442339	4.43
5	5	24	3 5 5 24	5 24	0.150383	2.442339	4.43
5	6	1	3 5 6 1	6 1	0.144453	2.173542	4.13
5	6	2	3 5 6 2	6 2	0.144453	2.173542	4.13
5	6	3	3 5 6 3	6 3	0.144453	2.173542	4.13
5	6	4	3 5 6 4	6 4	0.144453	2.173542	4.13
5	6	5	3 5 6 5	6 5	0.144453	2.173542	4.13
5	6	6	3 5 6 6	6 6	0.144453	2.173542	4.13
5	6	7	3 5 6 7	6 7	0.144453	2.173542	4.13
5	6	8	3 5 6 8	6 8	0.144453	2.173542	4.13
5	6	9	3 5 6 9	6 9	0.144453	2.173542	4.13
5	6	10	3 5 6 10	6 10	0.144453	2.173542	4.13
5	6	11	3 5 6 11	6 11	0.144453	2.173542	4.13
5	6	12	3 5 6 12	6 12	0.144453	2.173542	4.13
5	6	13	3 5 6 13	6 13	0.144453	2.173542	4.13
5	6	14	3 5 6 14	6 14	0.144453	2.173542	4.13
5	6	15	3 5 6 15	6 15	0.144453	2.173542	4.13
5	6	16	3 5 6 16	6 16	0.144453	2.173542	4.13
5	6	17	3 5 6 17	6 17	0.144453	2.173542	4.13
5	6	18	3 5 6 18	6 18	0.144453	2.173542	4.13
5	6	19	3 5 6 19	6 19	0.144453	2.173542	4.13
5	6	20	3 5 6 20	6 20	0.144453	2.173542	4.13
5	6	21	3 5 6 21	6 21	0.144453	2.173542	4.13
5	6	22	3 5 6 22	6 22	0.144453	2.173542	4.13
5	6	23	3 5 6 23	6 23	0.144453	2.173542	4.13
5	6	24	3 5 6 24	6 24	0.144453	2.173542	4.13
5	7	1	3 5 7 1	7 1	0.133963	2.083036	3.98
5	7	2	3 5 7 2	7 2	0.133954	2.082123	3.98
5	7	3	3 5 7 3	7 3	0.133954	2.082123	3.98
5	7	4	3 5 7 4	7 4	0.133954	2.082123	3.98
5	7	5	3 5 7 5	7 5	0.133956	2.082123	3.98
5	7	6	3 5 7 6	7 6	0.133956	2.082123	3.98
5	7	7	3 5 7 7	7 7	0.133956	2.082123	3.98
5	7	8	3 5 7 8	7 8	0.133956	2.082123	3.98
5	7	9	3 5 7 9	7 9	0.133956	2.082123	3.98
5	7	10	3 5 7 10	7 10	0.133956	2.082123	3.98
5	7	11	3 5 7 11	7 11	0.133956	2.082123	3.98
5	7	12	3 5 7 12	7 12	0.133956	2.082123	3.98
5	7	13	3 5 7 13	7 13	0.133956	2.082123	3.98
5	7	14	3 5 7 14	7 14	0.133956	2.082123	3.98
5	7	15	3 5 7 15	7 15	0.133956	2.082123	3.98
5	7	16	3 5 7 16	7 16	0.133956	2.082123	3.98

Summary of Maximum ER by Speed Bin

	CAR_ER	TRK_ER	BUS_ER
30 km/hr	0.150383	2.442339	4.429246
40 km/hr	0.144453	2.173542	4.131933
50 km/hr	0.133963	2.083036	3.980652
60 km/hr	0.133866	1.816757	3.634558
90 km/hr	0.145284	1.54026	3.975377

Vehicle Travel Emission Rate Calculation: CAC (2019)

PollutantID	3	Oxides of Nitrogen (NOx)					
RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT Car_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	7	17	3 5 7 17	7 17	0.133956	2.082123	3.98
5	7	18	3 5 7 18	7 18	0.133956	2.082123	3.98
5	7	19	3 5 7 19	7 19	0.133956	2.082123	3.98
5	7	20	3 5 7 20	7 20	0.133956	2.082779	3.98
5	7	21	3 5 7 21	7 21	0.133956	2.082779	3.98
5	7	22	3 5 7 22	7 22	0.133956	2.082779	3.98
5	7	23	3 5 7 23	7 23	0.133956	2.082779	3.98
5	7	24	3 5 7 24	7 24	0.133956	2.082779	3.98
5	8	1	3 5 8 1	8 1	0.133866	1.816757	3.63
5	8	2	3 5 8 2	8 2	0.133866	1.816757	3.63
5	8	3	3 5 8 3	8 3	0.133866	1.816757	3.63
5	8	4	3 5 8 4	8 4	0.133866	1.816757	3.63
5	8	5	3 5 8 5	8 5	0.133866	1.816757	3.63
5	8	6	3 5 8 6	8 6	0.133866	1.816757	3.63
5	8	7	3 5 8 7	8 7	0.133866	1.816757	3.63
5	8	8	3 5 8 8	8 8	0.133866	1.816757	3.63
5	8	9	3 5 8 9	8 9	0.133866	1.816757	3.63
5	8	10	3 5 8 10	8 10	0.133866	1.816757	3.63
5	8	11	3 5 8 11	8 11	0.133866	1.816757	3.63
5	8	12	3 5 8 12	8 12	0.133866	1.816757	3.63
5	8	13	3 5 8 13	8 13	0.133866	1.816757	3.63
5	8	14	3 5 8 14	8 14	0.133866	1.816757	3.63
5	8	15	3 5 8 15	8 15	0.133866	1.816757	3.63
5	8	16	3 5 8 16	8 16	0.133866	1.816757	3.63
5	8	17	3 5 8 17	8 17	0.133866	1.816757	3.63
5	8	18	3 5 8 18	8 18	0.133866	1.816757	3.63
5	8	19	3 5 8 19	8 19	0.133866	1.816757	3.63
5	8	20	3 5 8 20	8 20	0.133866	1.816757	3.63
5	8	21	3 5 8 21	8 21	0.133866	1.816757	3.63
5	8	22	3 5 8 22	8 22	0.133866	1.816757	3.63
5	8	23	3 5 8 23	8 23	0.133866	1.816757	3.63
5	8	24	3 5 8 24	8 24	0.133866	1.816757	3.63
5	12	1	3 5 12 1	12 1	0.145284	1.54026	3.98
5	12	2	3 5 12 2	12 2	0.145284	1.54026	3.98
5	12	3	3 5 12 3	12 3	0.145284	1.54026	3.98
5	12	4	3 5 12 4	12 4	0.145284	1.54026	3.98
5	12	5	3 5 12 5	12 5	0.145284	1.54026	3.98
5	12	6	3 5 12 6	12 6	0.145284	1.54026	3.98
5	12	7	3 5 12 7	12 7	0.145284	1.54026	3.98
5	12	8	3 5 12 8	12 8	0.145284	1.54026	3.98
5	12	9	3 5 12 9	12 9	0.145284	1.54026	3.98
5	12	10	3 5 12 10	12 10	0.145284	1.54026	3.98
5	12	11	3 5 12 11	12 11	0.145284	1.54026	3.98
5	12	12	3 5 12 12	12 12	0.145284	1.54026	3.98
5	12	13	3 5 12 13	12 13	0.145284	1.54026	3.98
5	12	14	3 5 12 14	12 14	0.145284	1.54026	3.98
5	12	15	3 5 12 15	12 15	0.145284	1.54026	3.98
5	12	16	3 5 12 16	12 16	0.145284	1.54026	3.98
5	12	17	3 5 12 17	12 17	0.145284	1.54026	3.98
5	12	18	3 5 12 18	12 18	0.145284	1.54026	3.98
5	12	19	3 5 12 19	12 19	0.145284	1.54026	3.98
5	12	20	3 5 12 20	12 20	0.145284	1.54026	3.98
5	12	21	3 5 12 21	12 21	0.145284	1.54026	3.98
5	12	22	3 5 12 22	12 22	0.145284	1.54026	3.98
5	12	23	3 5 12 23	12 23	0.145284	1.54026	3.98
5	12	24	3 5 12 24	12 24	0.145284	1.54026	3.98

Vehicle Travel Emission Rate Calculation: CAC (2019)

PollutantID 20 Benzene

RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT Car_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	5	1	20 5 5 1	5 1	0.001903	0.005416	0.00
5	5	2	20 5 5 2	5 2	0.001903	0.005416	0.00
5	5	3	20 5 5 3	5 3	0.001903	0.005416	0.00
5	5	4	20 5 5 4	5 4	0.001903	0.005416	0.00
5	5	5	20 5 5 5	5 5	0.001903	0.005416	0.00
5	5	6	20 5 5 6	5 6	0.001903	0.005416	0.00
5	5	7	20 5 5 7	5 7	0.001903	0.005416	0.00
5	5	8	20 5 5 8	5 8	0.001903	0.005416	0.00
5	5	9	20 5 5 9	5 9	0.001903	0.005416	0.00
5	5	10	20 5 5 10	5 10	0.001903	0.005416	0.00
5	5	11	20 5 5 11	5 11	0.001903	0.005416	0.00
5	5	12	20 5 5 12	5 12	0.001903	0.005416	0.00
5	5	13	20 5 5 13	5 13	0.001903	0.005416	0.00
5	5	14	20 5 5 14	5 14	0.001903	0.005416	0.00
5	5	15	20 5 5 15	5 15	0.001903	0.005416	0.00
5	5	16	20 5 5 16	5 16	0.001903	0.005416	0.00
5	5	17	20 5 5 17	5 17	0.001903	0.005416	0.00
5	5	18	20 5 5 18	5 18	0.001903	0.005416	0.00
5	5	19	20 5 5 19	5 19	0.001903	0.005416	0.00
5	5	20	20 5 5 20	5 20	0.001903	0.005416	0.00
5	5	21	20 5 5 21	5 21	0.001903	0.005416	0.00
5	5	22	20 5 5 22	5 22	0.001903	0.005416	0.00
5	5	23	20 5 5 23	5 23	0.001903	0.005416	0.00
5	5	24	20 5 5 24	5 24	0.001903	0.005416	0.00
5	6	1	20 5 6 1	6 1	0.00165	0.004372	0.00
5	6	2	20 5 6 2	6 2	0.00165	0.004372	0.00
5	6	3	20 5 6 3	6 3	0.00165	0.004372	0.00
5	6	4	20 5 6 4	6 4	0.00165	0.004372	0.00
5	6	5	20 5 6 5	6 5	0.00165	0.004372	0.00
5	6	6	20 5 6 6	6 6	0.00165	0.004372	0.00
5	6	7	20 5 6 7	6 7	0.00165	0.004372	0.00
5	6	8	20 5 6 8	6 8	0.00165	0.004372	0.00
5	6	9	20 5 6 9	6 9	0.00165	0.004372	0.00
5	6	10	20 5 6 10	6 10	0.00165	0.004372	0.00
5	6	11	20 5 6 11	6 11	0.00165	0.004372	0.00
5	6	12	20 5 6 12	6 12	0.00165	0.004372	0.00
5	6	13	20 5 6 13	6 13	0.00165	0.004372	0.00
5	6	14	20 5 6 14	6 14	0.00165	0.004372	0.00
5	6	15	20 5 6 15	6 15	0.00165	0.004372	0.00
5	6	16	20 5 6 16	6 16	0.00165	0.004372	0.00
5	6	17	20 5 6 17	6 17	0.00165	0.004372	0.00
5	6	18	20 5 6 18	6 18	0.00165	0.004372	0.00
5	6	19	20 5 6 19	6 19	0.00165	0.004372	0.00
5	6	20	20 5 6 20	6 20	0.00165	0.004372	0.00
5	6	21	20 5 6 21	6 21	0.00165	0.004372	0.00
5	6	22	20 5 6 22	6 22	0.00165	0.004372	0.00
5	6	23	20 5 6 23	6 23	0.00165	0.004372	0.00
5	6	24	20 5 6 24	6 24	0.00165	0.004372	0.00
5	7	1	20 5 7 1	7 1	0.001476	0.003865	0.00
5	7	2	20 5 7 2	7 2	0.001476	0.003865	0.00
5	7	3	20 5 7 3	7 3	0.001476	0.003865	0.00
5	7	4	20 5 7 4	7 4	0.001476	0.003865	0.00
5	7	5	20 5 7 5	7 5	0.001476	0.003865	0.00
5	7	6	20 5 7 6	7 6	0.001476	0.003865	0.00
5	7	7	20 5 7 7	7 7	0.001476	0.003865	0.00
5	7	8	20 5 7 8	7 8	0.001476	0.003865	0.00
5	7	9	20 5 7 9	7 9	0.001476	0.003865	0.00
5	7	10	20 5 7 10	7 10	0.001476	0.003865	0.00
5	7	11	20 5 7 11	7 11	0.001476	0.003865	0.00
5	7	12	20 5 7 12	7 12	0.001476	0.003865	0.00
5	7	13	20 5 7 13	7 13	0.001476	0.003865	0.00
5	7	14	20 5 7 14	7 14	0.001476	0.003865	0.00
5	7	15	20 5 7 15	7 15	0.001476	0.003865	0.00
5	7	16	20 5 7 16	7 16	0.001476	0.003865	0.00

Summary of Maximum ER by Speed Bin

	CAR_ER	TRK_ER	BUS_ER
30 km/hr	0.001903	0.005416	0.002966
40 km/hr	0.00165	0.004372	0.002536
50 km/hr	0.001476	0.003865	0.002268
60 km/hr	0.001355	0.003141	0.002019
90 km/hr	0.001135	0.001745	0.001878

Vehicle Travel Emission Rate Calculation: CAC (2019)

PollutantID	20	Benzene					
					g/VKT	g/VKT	g/VKT
RoadTypeID	AverageSp	HourID	Helper_X	ER Help	Car_ER	TRK_ER	Bus_ER
5	7	17	20 5 7 17	7 17	0.001476	0.003865	0.00
5	7	18	20 5 7 18	7 18	0.001476	0.003865	0.00
5	7	19	20 5 7 19	7 19	0.001476	0.003865	0.00
5	7	20	20 5 7 20	7 20	0.001476	0.003865	0.00
5	7	21	20 5 7 21	7 21	0.001476	0.003865	0.00
5	7	22	20 5 7 22	7 22	0.001476	0.003865	0.00
5	7	23	20 5 7 23	7 23	0.001476	0.003865	0.00
5	7	24	20 5 7 24	7 24	0.001476	0.003865	0.00
5	8	1	20 5 8 1	8 1	0.001355	0.003141	0.00
5	8	2	20 5 8 2	8 2	0.001355	0.003141	0.00
5	8	3	20 5 8 3	8 3	0.001355	0.003141	0.00
5	8	4	20 5 8 4	8 4	0.001355	0.003141	0.00
5	8	5	20 5 8 5	8 5	0.001355	0.003141	0.00
5	8	6	20 5 8 6	8 6	0.001355	0.003141	0.00
5	8	7	20 5 8 7	8 7	0.001355	0.003141	0.00
5	8	8	20 5 8 8	8 8	0.001355	0.003141	0.00
5	8	9	20 5 8 9	8 9	0.001355	0.003141	0.00
5	8	10	20 5 8 10	8 10	0.001355	0.003141	0.00
5	8	11	20 5 8 11	8 11	0.001355	0.003141	0.00
5	8	12	20 5 8 12	8 12	0.001355	0.003141	0.00
5	8	13	20 5 8 13	8 13	0.001355	0.003141	0.00
5	8	14	20 5 8 14	8 14	0.001355	0.003141	0.00
5	8	15	20 5 8 15	8 15	0.001355	0.003141	0.00
5	8	16	20 5 8 16	8 16	0.001355	0.003141	0.00
5	8	17	20 5 8 17	8 17	0.001355	0.003141	0.00
5	8	18	20 5 8 18	8 18	0.001355	0.003141	0.00
5	8	19	20 5 8 19	8 19	0.001355	0.003141	0.00
5	8	20	20 5 8 20	8 20	0.001355	0.003141	0.00
5	8	21	20 5 8 21	8 21	0.001355	0.003141	0.00
5	8	22	20 5 8 22	8 22	0.001355	0.003141	0.00
5	8	23	20 5 8 23	8 23	0.001355	0.003141	0.00
5	8	24	20 5 8 24	8 24	0.001355	0.003141	0.00
5	12	1	20 5 12 1	12 1	0.001135	0.001745	0.00
5	12	2	20 5 12 2	12 2	0.001135	0.001745	0.00
5	12	3	20 5 12 3	12 3	0.001135	0.001745	0.00
5	12	4	20 5 12 4	12 4	0.001135	0.001745	0.00
5	12	5	20 5 12 5	12 5	0.001135	0.001745	0.00
5	12	6	20 5 12 6	12 6	0.001135	0.001745	0.00
5	12	7	20 5 12 7	12 7	0.001135	0.001745	0.00
5	12	8	20 5 12 8	12 8	0.001135	0.001745	0.00
5	12	9	20 5 12 9	12 9	0.001135	0.001745	0.00
5	12	10	20 5 12 10	12 10	0.001135	0.001745	0.00
5	12	11	20 5 12 11	12 11	0.001135	0.001745	0.00
5	12	12	20 5 12 12	12 12	0.001135	0.001745	0.00
5	12	13	20 5 12 13	12 13	0.001135	0.001745	0.00
5	12	14	20 5 12 14	12 14	0.001135	0.001745	0.00
5	12	15	20 5 12 15	12 15	0.001135	0.001745	0.00
5	12	16	20 5 12 16	12 16	0.001135	0.001745	0.00
5	12	17	20 5 12 17	12 17	0.001135	0.001745	0.00
5	12	18	20 5 12 18	12 18	0.001135	0.001745	0.00
5	12	19	20 5 12 19	12 19	0.001135	0.001745	0.00
5	12	20	20 5 12 20	12 20	0.001135	0.001745	0.00
5	12	21	20 5 12 21	12 21	0.001135	0.001745	0.00
5	12	22	20 5 12 22	12 22	0.001135	0.001745	0.00
5	12	23	20 5 12 23	12 23	0.001135	0.001745	0.00
5	12	24	20 5 12 24	12 24	0.001135	0.001745	0.00

Vehicle Travel Emission Rate Calculation: CAC (2019)

PollutantID 24 1,3-Butadiene

RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT Car_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	5	1	24 5 5 1	5 1	0.000125	0.000821	0.00
5	5	2	24 5 5 2	5 2	0.000125	0.000821	0.00
5	5	3	24 5 5 3	5 3	0.000125	0.000821	0.00
5	5	4	24 5 5 4	5 4	0.000125	0.000821	0.00
5	5	5	24 5 5 5	5 5	0.000125	0.000821	0.00
5	5	6	24 5 5 6	5 6	0.000125	0.000821	0.00
5	5	7	24 5 5 7	5 7	0.000125	0.000821	0.00
5	5	8	24 5 5 8	5 8	0.000125	0.000821	0.00
5	5	9	24 5 5 9	5 9	0.000125	0.000821	0.00
5	5	10	24 5 5 10	5 10	0.000125	0.000821	0.00
5	5	11	24 5 5 11	5 11	0.000125	0.000821	0.00
5	5	12	24 5 5 12	5 12	0.000125	0.000821	0.00
5	5	13	24 5 5 13	5 13	0.000125	0.000821	0.00
5	5	14	24 5 5 14	5 14	0.000125	0.000821	0.00
5	5	15	24 5 5 15	5 15	0.000125	0.000821	0.00
5	5	16	24 5 5 16	5 16	0.000125	0.000821	0.00
5	5	17	24 5 5 17	5 17	0.000125	0.000821	0.00
5	5	18	24 5 5 18	5 18	0.000125	0.000821	0.00
5	5	19	24 5 5 19	5 19	0.000125	0.000821	0.00
5	5	20	24 5 5 20	5 20	0.000125	0.000821	0.00
5	5	21	24 5 5 21	5 21	0.000125	0.000821	0.00
5	5	22	24 5 5 22	5 22	0.000125	0.000821	0.00
5	5	23	24 5 5 23	5 23	0.000125	0.000821	0.00
5	5	24	24 5 5 24	5 24	0.000125	0.000821	0.00
5	6	1	24 5 6 1	6 1	0.000108	0.000683	0.00
5	6	2	24 5 6 2	6 2	0.000108	0.000683	0.00
5	6	3	24 5 6 3	6 3	0.000108	0.000683	0.00
5	6	4	24 5 6 4	6 4	0.000108	0.000683	0.00
5	6	5	24 5 6 5	6 5	0.000108	0.000683	0.00
5	6	6	24 5 6 6	6 6	0.000108	0.000683	0.00
5	6	7	24 5 6 7	6 7	0.000108	0.000683	0.00
5	6	8	24 5 6 8	6 8	0.000108	0.000683	0.00
5	6	9	24 5 6 9	6 9	0.000108	0.000683	0.00
5	6	10	24 5 6 10	6 10	0.000108	0.000683	0.00
5	6	11	24 5 6 11	6 11	0.000108	0.000683	0.00
5	6	12	24 5 6 12	6 12	0.000108	0.000683	0.00
5	6	13	24 5 6 13	6 13	0.000108	0.000683	0.00
5	6	14	24 5 6 14	6 14	0.000108	0.000683	0.00
5	6	15	24 5 6 15	6 15	0.000108	0.000683	0.00
5	6	16	24 5 6 16	6 16	0.000108	0.000683	0.00
5	6	17	24 5 6 17	6 17	0.000108	0.000683	0.00
5	6	18	24 5 6 18	6 18	0.000108	0.000683	0.00
5	6	19	24 5 6 19	6 19	0.000108	0.000683	0.00
5	6	20	24 5 6 20	6 20	0.000108	0.000683	0.00
5	6	21	24 5 6 21	6 21	0.000108	0.000683	0.00
5	6	22	24 5 6 22	6 22	0.000108	0.000683	0.00
5	6	23	24 5 6 23	6 23	0.000108	0.000683	0.00
5	6	24	24 5 6 24	6 24	0.000108	0.000683	0.00
5	7	1	24 5 7 1	7 1	9.37E-05	0.000605	0.00
5	7	2	24 5 7 2	7 2	9.37E-05	0.000605	0.00
5	7	3	24 5 7 3	7 3	9.37E-05	0.000605	0.00
5	7	4	24 5 7 4	7 4	9.37E-05	0.000605	0.00
5	7	5	24 5 7 5	7 5	9.37E-05	0.000605	0.00
5	7	6	24 5 7 6	7 6	9.37E-05	0.000605	0.00
5	7	7	24 5 7 7	7 7	9.37E-05	0.000605	0.00
5	7	8	24 5 7 8	7 8	9.37E-05	0.000605	0.00
5	7	9	24 5 7 9	7 9	9.37E-05	0.000605	0.00
5	7	10	24 5 7 10	7 10	9.37E-05	0.000605	0.00
5	7	11	24 5 7 11	7 11	9.37E-05	0.000605	0.00
5	7	12	24 5 7 12	7 12	9.37E-05	0.000605	0.00
5	7	13	24 5 7 13	7 13	9.37E-05	0.000605	0.00
5	7	14	24 5 7 14	7 14	9.37E-05	0.000605	0.00
5	7	15	24 5 7 15	7 15	9.37E-05	0.000605	0.00
5	7	16	24 5 7 16	7 16	9.37E-05	0.000605	0.00

Summary of Maximum ER by Speed Bin

	CAR_ER	TRK_ER	BUS_ER
30 km/hr	0.000125	0.000821	0.000936
40 km/hr	0.000108	0.000683	0.00079
50 km/hr	9.37E-05	0.000605	0.000699
60 km/hr	8.44E-05	0.000521	0.000624
90 km/hr	6.7E-05	0.000356	0.000619

Vehicle Travel Emission Rate Calculation: CAC (2019)

PollutantID	24	1,3-Butadiene					
RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT Car_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	7	17	24 5 7 17	7 17	9.37E-05	0.000605	0.00
5	7	18	24 5 7 18	7 18	9.37E-05	0.000605	0.00
5	7	19	24 5 7 19	7 19	9.37E-05	0.000605	0.00
5	7	20	24 5 7 20	7 20	9.37E-05	0.000605	0.00
5	7	21	24 5 7 21	7 21	9.37E-05	0.000605	0.00
5	7	22	24 5 7 22	7 22	9.37E-05	0.000605	0.00
5	7	23	24 5 7 23	7 23	9.37E-05	0.000605	0.00
5	7	24	24 5 7 24	7 24	9.37E-05	0.000605	0.00
5	8	1	24 5 8 1	8 1	8.44E-05	0.000521	0.00
5	8	2	24 5 8 2	8 2	8.44E-05	0.000521	0.00
5	8	3	24 5 8 3	8 3	8.44E-05	0.000521	0.00
5	8	4	24 5 8 4	8 4	8.44E-05	0.000521	0.00
5	8	5	24 5 8 5	8 5	8.44E-05	0.000521	0.00
5	8	6	24 5 8 6	8 6	8.44E-05	0.000521	0.00
5	8	7	24 5 8 7	8 7	8.44E-05	0.000521	0.00
5	8	8	24 5 8 8	8 8	8.44E-05	0.000521	0.00
5	8	9	24 5 8 9	8 9	8.44E-05	0.000521	0.00
5	8	10	24 5 8 10	8 10	8.44E-05	0.000521	0.00
5	8	11	24 5 8 11	8 11	8.44E-05	0.000521	0.00
5	8	12	24 5 8 12	8 12	8.44E-05	0.000521	0.00
5	8	13	24 5 8 13	8 13	8.44E-05	0.000521	0.00
5	8	14	24 5 8 14	8 14	8.44E-05	0.000521	0.00
5	8	15	24 5 8 15	8 15	8.44E-05	0.000521	0.00
5	8	16	24 5 8 16	8 16	8.44E-05	0.000521	0.00
5	8	17	24 5 8 17	8 17	8.44E-05	0.000521	0.00
5	8	18	24 5 8 18	8 18	8.44E-05	0.000521	0.00
5	8	19	24 5 8 19	8 19	8.44E-05	0.000521	0.00
5	8	20	24 5 8 20	8 20	8.44E-05	0.000521	0.00
5	8	21	24 5 8 21	8 21	8.44E-05	0.000521	0.00
5	8	22	24 5 8 22	8 22	8.44E-05	0.000521	0.00
5	8	23	24 5 8 23	8 23	8.44E-05	0.000521	0.00
5	8	24	24 5 8 24	8 24	8.44E-05	0.000521	0.00
5	12	1	24 5 12 1	12 1	6.7E-05	0.000356	0.00
5	12	2	24 5 12 2	12 2	6.7E-05	0.000356	0.00
5	12	3	24 5 12 3	12 3	6.7E-05	0.000356	0.00
5	12	4	24 5 12 4	12 4	6.7E-05	0.000356	0.00
5	12	5	24 5 12 5	12 5	6.7E-05	0.000356	0.00
5	12	6	24 5 12 6	12 6	6.7E-05	0.000356	0.00
5	12	7	24 5 12 7	12 7	6.7E-05	0.000356	0.00
5	12	8	24 5 12 8	12 8	6.7E-05	0.000356	0.00
5	12	9	24 5 12 9	12 9	6.7E-05	0.000356	0.00
5	12	10	24 5 12 10	12 10	6.7E-05	0.000356	0.00
5	12	11	24 5 12 11	12 11	6.7E-05	0.000356	0.00
5	12	12	24 5 12 12	12 12	6.7E-05	0.000356	0.00
5	12	13	24 5 12 13	12 13	6.7E-05	0.000356	0.00
5	12	14	24 5 12 14	12 14	6.7E-05	0.000356	0.00
5	12	15	24 5 12 15	12 15	6.7E-05	0.000356	0.00
5	12	16	24 5 12 16	12 16	6.7E-05	0.000356	0.00
5	12	17	24 5 12 17	12 17	6.7E-05	0.000356	0.00
5	12	18	24 5 12 18	12 18	6.7E-05	0.000356	0.00
5	12	19	24 5 12 19	12 19	6.7E-05	0.000356	0.00
5	12	20	24 5 12 20	12 20	6.7E-05	0.000356	0.00
5	12	21	24 5 12 21	12 21	6.7E-05	0.000356	0.00
5	12	22	24 5 12 22	12 22	6.7E-05	0.000356	0.00
5	12	23	24 5 12 23	12 23	6.7E-05	0.000356	0.00
5	12	24	24 5 12 24	12 24	6.7E-05	0.000356	0.00

Vehicle Travel Emission Rate Calculation: CAC (2019)

PollutantID 25 **Formaldehyde**

RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT Car_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	5	1	25 5 5 1	5 1	0.000842	0.021936	0.04
5	5	2	25 5 5 2	5 2	0.000842	0.021936	0.04
5	5	3	25 5 5 3	5 3	0.000842	0.021936	0.04
5	5	4	25 5 5 4	5 4	0.000842	0.021936	0.04
5	5	5	25 5 5 5	5 5	0.000842	0.021936	0.04
5	5	6	25 5 5 6	5 6	0.000842	0.021936	0.04
5	5	7	25 5 5 7	5 7	0.000842	0.021936	0.04
5	5	8	25 5 5 8	5 8	0.000842	0.021936	0.04
5	5	9	25 5 5 9	5 9	0.000842	0.021936	0.04
5	5	10	25 5 5 10	5 10	0.000842	0.021936	0.04
5	5	11	25 5 5 11	5 11	0.000842	0.021936	0.04
5	5	12	25 5 5 12	5 12	0.000842	0.021936	0.04
5	5	13	25 5 5 13	5 13	0.000842	0.021936	0.04
5	5	14	25 5 5 14	5 14	0.000842	0.021936	0.04
5	5	15	25 5 5 15	5 15	0.000842	0.021936	0.04
5	5	16	25 5 5 16	5 16	0.000842	0.021936	0.04
5	5	17	25 5 5 17	5 17	0.000842	0.021936	0.04
5	5	18	25 5 5 18	5 18	0.000842	0.021936	0.04
5	5	19	25 5 5 19	5 19	0.000842	0.021936	0.04
5	5	20	25 5 5 20	5 20	0.000842	0.021936	0.04
5	5	21	25 5 5 21	5 21	0.000842	0.021936	0.04
5	5	22	25 5 5 22	5 22	0.000842	0.021936	0.04
5	5	23	25 5 5 23	5 23	0.000842	0.021936	0.04
5	5	24	25 5 5 24	5 24	0.000842	0.021936	0.04
5	6	1	25 5 6 1	6 1	0.000729	0.018177	0.04
5	6	2	25 5 6 2	6 2	0.000729	0.018177	0.04
5	6	3	25 5 6 3	6 3	0.000729	0.018177	0.04
5	6	4	25 5 6 4	6 4	0.000729	0.018177	0.04
5	6	5	25 5 6 5	6 5	0.000729	0.018177	0.04
5	6	6	25 5 6 6	6 6	0.000729	0.018177	0.04
5	6	7	25 5 6 7	6 7	0.000729	0.018177	0.04
5	6	8	25 5 6 8	6 8	0.000729	0.018177	0.04
5	6	9	25 5 6 9	6 9	0.000729	0.018177	0.04
5	6	10	25 5 6 10	6 10	0.000729	0.018177	0.04
5	6	11	25 5 6 11	6 11	0.000729	0.018177	0.04
5	6	12	25 5 6 12	6 12	0.000729	0.018177	0.04
5	6	13	25 5 6 13	6 13	0.000729	0.018177	0.04
5	6	14	25 5 6 14	6 14	0.000729	0.018177	0.04
5	6	15	25 5 6 15	6 15	0.000729	0.018177	0.04
5	6	16	25 5 6 16	6 16	0.000729	0.018177	0.04
5	6	17	25 5 6 17	6 17	0.000729	0.018177	0.04
5	6	18	25 5 6 18	6 18	0.000729	0.018177	0.04
5	6	19	25 5 6 19	6 19	0.000729	0.018177	0.04
5	6	20	25 5 6 20	6 20	0.000729	0.018177	0.04
5	6	21	25 5 6 21	6 21	0.000729	0.018177	0.04
5	6	22	25 5 6 22	6 22	0.000729	0.018177	0.04
5	6	23	25 5 6 23	6 23	0.000729	0.018177	0.04
5	6	24	25 5 6 24	6 24	0.000729	0.018177	0.04
5	7	1	25 5 7 1	7 1	0.000651	0.015835	0.04
5	7	2	25 5 7 2	7 2	0.000651	0.015835	0.04
5	7	3	25 5 7 3	7 3	0.000651	0.015835	0.04
5	7	4	25 5 7 4	7 4	0.000651	0.015835	0.04
5	7	5	25 5 7 5	7 5	0.000651	0.015835	0.04
5	7	6	25 5 7 6	7 6	0.000651	0.015835	0.04
5	7	7	25 5 7 7	7 7	0.000651	0.015835	0.04
5	7	8	25 5 7 8	7 8	0.000651	0.015835	0.04
5	7	9	25 5 7 9	7 9	0.000651	0.015835	0.04
5	7	10	25 5 7 10	7 10	0.000651	0.015835	0.04
5	7	11	25 5 7 11	7 11	0.000651	0.015835	0.04
5	7	12	25 5 7 12	7 12	0.000651	0.015835	0.04
5	7	13	25 5 7 13	7 13	0.000651	0.015835	0.04
5	7	14	25 5 7 14	7 14	0.000651	0.015835	0.04
5	7	15	25 5 7 15	7 15	0.000651	0.015835	0.04
5	7	16	25 5 7 16	7 16	0.000651	0.015835	0.04

Summary of Maximum ER by Speed Bin

	CAR_ER	TRK_ER	BUS_ER
30 km/hr	0.000842	0.021936	0.04499
40 km/hr	0.000729	0.018177	0.040572
50 km/hr	0.000651	0.015835	0.037811
60 km/hr	0.000598	0.014196	0.034144
90 km/hr	0.000499	0.010301	0.029024

Vehicle Travel Emission Rate Calculation: CAC (2019)

PollutantID 25 **Formaldehyde**

RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT Car_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	7	17	25 5 7 17	7 17	0.000651	0.015835	0.04
5	7	18	25 5 7 18	7 18	0.000651	0.015835	0.04
5	7	19	25 5 7 19	7 19	0.000651	0.015835	0.04
5	7	20	25 5 7 20	7 20	0.000651	0.015835	0.04
5	7	21	25 5 7 21	7 21	0.000651	0.015835	0.04
5	7	22	25 5 7 22	7 22	0.000651	0.015835	0.04
5	7	23	25 5 7 23	7 23	0.000651	0.015835	0.04
5	7	24	25 5 7 24	7 24	0.000651	0.015835	0.04
5	8	1	25 5 8 1	8 1	0.000598	0.014196	0.03
5	8	2	25 5 8 2	8 2	0.000598	0.014196	0.03
5	8	3	25 5 8 3	8 3	0.000598	0.014196	0.03
5	8	4	25 5 8 4	8 4	0.000598	0.014196	0.03
5	8	5	25 5 8 5	8 5	0.000598	0.014196	0.03
5	8	6	25 5 8 6	8 6	0.000598	0.014196	0.03
5	8	7	25 5 8 7	8 7	0.000598	0.014196	0.03
5	8	8	25 5 8 8	8 8	0.000598	0.014196	0.03
5	8	9	25 5 8 9	8 9	0.000598	0.014196	0.03
5	8	10	25 5 8 10	8 10	0.000598	0.014196	0.03
5	8	11	25 5 8 11	8 11	0.000598	0.014196	0.03
5	8	12	25 5 8 12	8 12	0.000598	0.014196	0.03
5	8	13	25 5 8 13	8 13	0.000598	0.014196	0.03
5	8	14	25 5 8 14	8 14	0.000598	0.014196	0.03
5	8	15	25 5 8 15	8 15	0.000598	0.014196	0.03
5	8	16	25 5 8 16	8 16	0.000598	0.014196	0.03
5	8	17	25 5 8 17	8 17	0.000598	0.014196	0.03
5	8	18	25 5 8 18	8 18	0.000598	0.014196	0.03
5	8	19	25 5 8 19	8 19	0.000598	0.014196	0.03
5	8	20	25 5 8 20	8 20	0.000598	0.014196	0.03
5	8	21	25 5 8 21	8 21	0.000598	0.014196	0.03
5	8	22	25 5 8 22	8 22	0.000598	0.014196	0.03
5	8	23	25 5 8 23	8 23	0.000598	0.014196	0.03
5	8	24	25 5 8 24	8 24	0.000598	0.014196	0.03
5	12	1	25 5 12 1	12 1	0.000499	0.010301	0.03
5	12	2	25 5 12 2	12 2	0.000499	0.010301	0.03
5	12	3	25 5 12 3	12 3	0.000499	0.010301	0.03
5	12	4	25 5 12 4	12 4	0.000499	0.010301	0.03
5	12	5	25 5 12 5	12 5	0.000499	0.010301	0.03
5	12	6	25 5 12 6	12 6	0.000499	0.010301	0.03
5	12	7	25 5 12 7	12 7	0.000499	0.010301	0.03
5	12	8	25 5 12 8	12 8	0.000499	0.010301	0.03
5	12	9	25 5 12 9	12 9	0.000499	0.010301	0.03
5	12	10	25 5 12 10	12 10	0.000499	0.010301	0.03
5	12	11	25 5 12 11	12 11	0.000499	0.010301	0.03
5	12	12	25 5 12 12	12 12	0.000499	0.010301	0.03
5	12	13	25 5 12 13	12 13	0.000499	0.010301	0.03
5	12	14	25 5 12 14	12 14	0.000499	0.010301	0.03
5	12	15	25 5 12 15	12 15	0.000499	0.010301	0.03
5	12	16	25 5 12 16	12 16	0.000499	0.010301	0.03
5	12	17	25 5 12 17	12 17	0.000499	0.010301	0.03
5	12	18	25 5 12 18	12 18	0.000499	0.010301	0.03
5	12	19	25 5 12 19	12 19	0.000499	0.010301	0.03
5	12	20	25 5 12 20	12 20	0.000499	0.010301	0.03
5	12	21	25 5 12 21	12 21	0.000499	0.010301	0.03
5	12	22	25 5 12 22	12 22	0.000499	0.010301	0.03
5	12	23	25 5 12 23	12 23	0.000499	0.010301	0.03
5	12	24	25 5 12 24	12 24	0.000499	0.010301	0.03

Vehicle Travel Emission Rate Calculation: CAC (2019)

PollutantID 26 Acetaldehyde

RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT Car_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	5	1	26 5 5 1	5 1	0.000542	0.009449	0.02
5	5	2	26 5 5 2	5 2	0.000542	0.009449	0.02
5	5	3	26 5 5 3	5 3	0.000542	0.009449	0.02
5	5	4	26 5 5 4	5 4	0.000542	0.009449	0.02
5	5	5	26 5 5 5	5 5	0.000542	0.009449	0.02
5	5	6	26 5 5 6	5 6	0.000542	0.009449	0.02
5	5	7	26 5 5 7	5 7	0.000542	0.009449	0.02
5	5	8	26 5 5 8	5 8	0.000542	0.009449	0.02
5	5	9	26 5 5 9	5 9	0.000542	0.009449	0.02
5	5	10	26 5 5 10	5 10	0.000542	0.009449	0.02
5	5	11	26 5 5 11	5 11	0.000542	0.009449	0.02
5	5	12	26 5 5 12	5 12	0.000542	0.009449	0.02
5	5	13	26 5 5 13	5 13	0.000542	0.009449	0.02
5	5	14	26 5 5 14	5 14	0.000542	0.009449	0.02
5	5	15	26 5 5 15	5 15	0.000542	0.009449	0.02
5	5	16	26 5 5 16	5 16	0.000542	0.009449	0.02
5	5	17	26 5 5 17	5 17	0.000542	0.009449	0.02
5	5	18	26 5 5 18	5 18	0.000542	0.009449	0.02
5	5	19	26 5 5 19	5 19	0.000542	0.009449	0.02
5	5	20	26 5 5 20	5 20	0.000542	0.009449	0.02
5	5	21	26 5 5 21	5 21	0.000542	0.009449	0.02
5	5	22	26 5 5 22	5 22	0.000542	0.009449	0.02
5	5	23	26 5 5 23	5 23	0.000542	0.009449	0.02
5	5	24	26 5 5 24	5 24	0.000542	0.009449	0.02
5	6	1	26 5 6 1	6 1	0.000468	0.007836	0.01
5	6	2	26 5 6 2	6 2	0.000468	0.007836	0.01
5	6	3	26 5 6 3	6 3	0.000468	0.007836	0.01
5	6	4	26 5 6 4	6 4	0.000468	0.007836	0.01
5	6	5	26 5 6 5	6 5	0.000468	0.007836	0.01
5	6	6	26 5 6 6	6 6	0.000468	0.007836	0.01
5	6	7	26 5 6 7	6 7	0.000468	0.007836	0.01
5	6	8	26 5 6 8	6 8	0.000468	0.007836	0.01
5	6	9	26 5 6 9	6 9	0.000468	0.007836	0.01
5	6	10	26 5 6 10	6 10	0.000468	0.007836	0.01
5	6	11	26 5 6 11	6 11	0.000468	0.007836	0.01
5	6	12	26 5 6 12	6 12	0.000468	0.007836	0.01
5	6	13	26 5 6 13	6 13	0.000468	0.007836	0.01
5	6	14	26 5 6 14	6 14	0.000468	0.007836	0.01
5	6	15	26 5 6 15	6 15	0.000468	0.007836	0.01
5	6	16	26 5 6 16	6 16	0.000468	0.007836	0.01
5	6	17	26 5 6 17	6 17	0.000468	0.007836	0.01
5	6	18	26 5 6 18	6 18	0.000468	0.007836	0.01
5	6	19	26 5 6 19	6 19	0.000468	0.007836	0.01
5	6	20	26 5 6 20	6 20	0.000468	0.007836	0.01
5	6	21	26 5 6 21	6 21	0.000468	0.007836	0.01
5	6	22	26 5 6 22	6 22	0.000468	0.007836	0.01
5	6	23	26 5 6 23	6 23	0.000468	0.007836	0.01
5	6	24	26 5 6 24	6 24	0.000468	0.007836	0.01
5	7	1	26 5 7 1	7 1	0.000415	0.006849	0.01
5	7	2	26 5 7 2	7 2	0.000415	0.006849	0.01
5	7	3	26 5 7 3	7 3	0.000415	0.006849	0.01
5	7	4	26 5 7 4	7 4	0.000415	0.006849	0.01
5	7	5	26 5 7 5	7 5	0.000415	0.006849	0.01
5	7	6	26 5 7 6	7 6	0.000415	0.006849	0.01
5	7	7	26 5 7 7	7 7	0.000415	0.006849	0.01
5	7	8	26 5 7 8	7 8	0.000415	0.006849	0.01
5	7	9	26 5 7 9	7 9	0.000415	0.006849	0.01
5	7	10	26 5 7 10	7 10	0.000415	0.006849	0.01
5	7	11	26 5 7 11	7 11	0.000415	0.006849	0.01
5	7	12	26 5 7 12	7 12	0.000415	0.006849	0.01
5	7	13	26 5 7 13	7 13	0.000415	0.006849	0.01
5	7	14	26 5 7 14	7 14	0.000415	0.006849	0.01
5	7	15	26 5 7 15	7 15	0.000415	0.006849	0.01
5	7	16	26 5 7 16	7 16	0.000415	0.006849	0.01

Summary of Maximum ER by Speed Bin

	CAR_ER	TRK_ER	BUS_ER
30 km/hr	0.000542	0.009449	0.015715
40 km/hr	0.000468	0.007836	0.013735
50 km/hr	0.000415	0.006849	0.012495
60 km/hr	0.000379	0.006096	0.011082
90 km/hr	0.000311	0.004393	0.009448

Vehicle Travel Emission Rate Calculation: CAC (2019)

PollutantID	26	Acetaldehyde					
RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT Car_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	7	17	26 5 7 17	7 17	0.000415	0.006849	0.01
5	7	18	26 5 7 18	7 18	0.000415	0.006849	0.01
5	7	19	26 5 7 19	7 19	0.000415	0.006849	0.01
5	7	20	26 5 7 20	7 20	0.000415	0.006849	0.01
5	7	21	26 5 7 21	7 21	0.000415	0.006849	0.01
5	7	22	26 5 7 22	7 22	0.000415	0.006849	0.01
5	7	23	26 5 7 23	7 23	0.000415	0.006849	0.01
5	7	24	26 5 7 24	7 24	0.000415	0.006849	0.01
5	8	1	26 5 8 1	8 1	0.000379	0.006096	0.01
5	8	2	26 5 8 2	8 2	0.000379	0.006096	0.01
5	8	3	26 5 8 3	8 3	0.000379	0.006096	0.01
5	8	4	26 5 8 4	8 4	0.000379	0.006096	0.01
5	8	5	26 5 8 5	8 5	0.000379	0.006096	0.01
5	8	6	26 5 8 6	8 6	0.000379	0.006096	0.01
5	8	7	26 5 8 7	8 7	0.000379	0.006096	0.01
5	8	8	26 5 8 8	8 8	0.000379	0.006096	0.01
5	8	9	26 5 8 9	8 9	0.000379	0.006096	0.01
5	8	10	26 5 8 10	8 10	0.000379	0.006096	0.01
5	8	11	26 5 8 11	8 11	0.000379	0.006096	0.01
5	8	12	26 5 8 12	8 12	0.000379	0.006096	0.01
5	8	13	26 5 8 13	8 13	0.000379	0.006096	0.01
5	8	14	26 5 8 14	8 14	0.000379	0.006096	0.01
5	8	15	26 5 8 15	8 15	0.000379	0.006096	0.01
5	8	16	26 5 8 16	8 16	0.000379	0.006096	0.01
5	8	17	26 5 8 17	8 17	0.000379	0.006096	0.01
5	8	18	26 5 8 18	8 18	0.000379	0.006096	0.01
5	8	19	26 5 8 19	8 19	0.000379	0.006096	0.01
5	8	20	26 5 8 20	8 20	0.000379	0.006096	0.01
5	8	21	26 5 8 21	8 21	0.000379	0.006096	0.01
5	8	22	26 5 8 22	8 22	0.000379	0.006096	0.01
5	8	23	26 5 8 23	8 23	0.000379	0.006096	0.01
5	8	24	26 5 8 24	8 24	0.000379	0.006096	0.01
5	12	1	26 5 12 1	12 1	0.000311	0.004393	0.01
5	12	2	26 5 12 2	12 2	0.000311	0.004393	0.01
5	12	3	26 5 12 3	12 3	0.000311	0.004393	0.01
5	12	4	26 5 12 4	12 4	0.000311	0.004393	0.01
5	12	5	26 5 12 5	12 5	0.000311	0.004393	0.01
5	12	6	26 5 12 6	12 6	0.000311	0.004393	0.01
5	12	7	26 5 12 7	12 7	0.000311	0.004393	0.01
5	12	8	26 5 12 8	12 8	0.000311	0.004393	0.01
5	12	9	26 5 12 9	12 9	0.000311	0.004393	0.01
5	12	10	26 5 12 10	12 10	0.000311	0.004393	0.01
5	12	11	26 5 12 11	12 11	0.000311	0.004393	0.01
5	12	12	26 5 12 12	12 12	0.000311	0.004393	0.01
5	12	13	26 5 12 13	12 13	0.000311	0.004393	0.01
5	12	14	26 5 12 14	12 14	0.000311	0.004393	0.01
5	12	15	26 5 12 15	12 15	0.000311	0.004393	0.01
5	12	16	26 5 12 16	12 16	0.000311	0.004393	0.01
5	12	17	26 5 12 17	12 17	0.000311	0.004393	0.01
5	12	18	26 5 12 18	12 18	0.000311	0.004393	0.01
5	12	19	26 5 12 19	12 19	0.000311	0.004393	0.01
5	12	20	26 5 12 20	12 20	0.000311	0.004393	0.01
5	12	21	26 5 12 21	12 21	0.000311	0.004393	0.01
5	12	22	26 5 12 22	12 22	0.000311	0.004393	0.01
5	12	23	26 5 12 23	12 23	0.000311	0.004393	0.01
5	12	24	26 5 12 24	12 24	0.000311	0.004393	0.01

Vehicle Travel Emission Rate Calculation: CAC (2019)

PollutantID 27 Acrolein

RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT Car_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	5	1	27 5 5 1	5 1	4.33E-05	0.001545	0.00
5	5	2	27 5 5 2	5 2	4.33E-05	0.001545	0.00
5	5	3	27 5 5 3	5 3	4.33E-05	0.001545	0.00
5	5	4	27 5 5 4	5 4	4.33E-05	0.001545	0.00
5	5	5	27 5 5 5	5 5	4.33E-05	0.001545	0.00
5	5	6	27 5 5 6	5 6	4.33E-05	0.001545	0.00
5	5	7	27 5 5 7	5 7	4.33E-05	0.001545	0.00
5	5	8	27 5 5 8	5 8	4.33E-05	0.001545	0.00
5	5	9	27 5 5 9	5 9	4.33E-05	0.001545	0.00
5	5	10	27 5 5 10	5 10	4.33E-05	0.001545	0.00
5	5	11	27 5 5 11	5 11	4.33E-05	0.001545	0.00
5	5	12	27 5 5 12	5 12	4.33E-05	0.001545	0.00
5	5	13	27 5 5 13	5 13	4.33E-05	0.001545	0.00
5	5	14	27 5 5 14	5 14	4.33E-05	0.001545	0.00
5	5	15	27 5 5 15	5 15	4.33E-05	0.001545	0.00
5	5	16	27 5 5 16	5 16	4.33E-05	0.001545	0.00
5	5	17	27 5 5 17	5 17	4.33E-05	0.001545	0.00
5	5	18	27 5 5 18	5 18	4.33E-05	0.001545	0.00
5	5	19	27 5 5 19	5 19	4.33E-05	0.001545	0.00
5	5	20	27 5 5 20	5 20	4.33E-05	0.001545	0.00
5	5	21	27 5 5 21	5 21	4.33E-05	0.001545	0.00
5	5	22	27 5 5 22	5 22	4.33E-05	0.001545	0.00
5	5	23	27 5 5 23	5 23	4.33E-05	0.001545	0.00
5	5	24	27 5 5 24	5 24	4.33E-05	0.001545	0.00
5	6	1	27 5 6 1	6 1	3.737E-05	0.001284	0.00
5	6	2	27 5 6 2	6 2	3.737E-05	0.001284	0.00
5	6	3	27 5 6 3	6 3	3.737E-05	0.001284	0.00
5	6	4	27 5 6 4	6 4	3.737E-05	0.001284	0.00
5	6	5	27 5 6 5	6 5	3.737E-05	0.001284	0.00
5	6	6	27 5 6 6	6 6	3.737E-05	0.001284	0.00
5	6	7	27 5 6 7	6 7	3.737E-05	0.001284	0.00
5	6	8	27 5 6 8	6 8	3.737E-05	0.001284	0.00
5	6	9	27 5 6 9	6 9	3.737E-05	0.001284	0.00
5	6	10	27 5 6 10	6 10	3.737E-05	0.001284	0.00
5	6	11	27 5 6 11	6 11	3.737E-05	0.001284	0.00
5	6	12	27 5 6 12	6 12	3.737E-05	0.001284	0.00
5	6	13	27 5 6 13	6 13	3.737E-05	0.001284	0.00
5	6	14	27 5 6 14	6 14	3.737E-05	0.001284	0.00
5	6	15	27 5 6 15	6 15	3.737E-05	0.001284	0.00
5	6	16	27 5 6 16	6 16	3.737E-05	0.001284	0.00
5	6	17	27 5 6 17	6 17	3.737E-05	0.001284	0.00
5	6	18	27 5 6 18	6 18	3.737E-05	0.001284	0.00
5	6	19	27 5 6 19	6 19	3.737E-05	0.001284	0.00
5	6	20	27 5 6 20	6 20	3.737E-05	0.001284	0.00
5	6	21	27 5 6 21	6 21	3.737E-05	0.001284	0.00
5	6	22	27 5 6 22	6 22	3.737E-05	0.001284	0.00
5	6	23	27 5 6 23	6 23	3.737E-05	0.001284	0.00
5	6	24	27 5 6 24	6 24	3.737E-05	0.001284	0.00
5	7	1	27 5 7 1	7 1	3.335E-05	0.001121	0.00
5	7	2	27 5 7 2	7 2	3.335E-05	0.001121	0.00
5	7	3	27 5 7 3	7 3	3.335E-05	0.001121	0.00
5	7	4	27 5 7 4	7 4	3.335E-05	0.001121	0.00
5	7	5	27 5 7 5	7 5	3.335E-05	0.001121	0.00
5	7	6	27 5 7 6	7 6	3.335E-05	0.001121	0.00
5	7	7	27 5 7 7	7 7	3.335E-05	0.001121	0.00
5	7	8	27 5 7 8	7 8	3.335E-05	0.001121	0.00
5	7	9	27 5 7 9	7 9	3.335E-05	0.001121	0.00
5	7	10	27 5 7 10	7 10	3.335E-05	0.001121	0.00
5	7	11	27 5 7 11	7 11	3.335E-05	0.001121	0.00
5	7	12	27 5 7 12	7 12	3.335E-05	0.001121	0.00
5	7	13	27 5 7 13	7 13	3.335E-05	0.001121	0.00
5	7	14	27 5 7 14	7 14	3.335E-05	0.001121	0.00
5	7	15	27 5 7 15	7 15	3.335E-05	0.001121	0.00
5	7	16	27 5 7 16	7 16	3.335E-05	0.001121	0.00

Summary of Maximum ER by Speed Bin

	CAR_ER	TRK_ER	BUS_ER
30 km/hr	4.33E-05	0.001545	0.002344
40 km/hr	3.74E-05	0.001284	0.001985
50 km/hr	3.34E-05	0.001121	0.001761
60 km/hr	3.06E-05	0.001006	0.001573
90 km/hr	2.54E-05	0.000742	0.001536

Vehicle Travel Emission Rate Calculation: CAC (2019)

PollutantID	27	Acrolein					
RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT Car_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	7	17	27 5 7 17	7 17	3.335E-05	0.001121	0.00
5	7	18	27 5 7 18	7 18	3.335E-05	0.001121	0.00
5	7	19	27 5 7 19	7 19	3.335E-05	0.001121	0.00
5	7	20	27 5 7 20	7 20	3.335E-05	0.001121	0.00
5	7	21	27 5 7 21	7 21	3.335E-05	0.001121	0.00
5	7	22	27 5 7 22	7 22	3.335E-05	0.001121	0.00
5	7	23	27 5 7 23	7 23	3.335E-05	0.001121	0.00
5	7	24	27 5 7 24	7 24	3.335E-05	0.001121	0.00
5	8	1	27 5 8 1	8 1	3.061E-05	0.001006	0.00
5	8	2	27 5 8 2	8 2	3.061E-05	0.001006	0.00
5	8	3	27 5 8 3	8 3	3.061E-05	0.001006	0.00
5	8	4	27 5 8 4	8 4	3.061E-05	0.001006	0.00
5	8	5	27 5 8 5	8 5	3.061E-05	0.001006	0.00
5	8	6	27 5 8 6	8 6	3.061E-05	0.001006	0.00
5	8	7	27 5 8 7	8 7	3.061E-05	0.001006	0.00
5	8	8	27 5 8 8	8 8	3.061E-05	0.001006	0.00
5	8	9	27 5 8 9	8 9	3.061E-05	0.001006	0.00
5	8	10	27 5 8 10	8 10	3.061E-05	0.001006	0.00
5	8	11	27 5 8 11	8 11	3.061E-05	0.001006	0.00
5	8	12	27 5 8 12	8 12	3.061E-05	0.001006	0.00
5	8	13	27 5 8 13	8 13	3.061E-05	0.001006	0.00
5	8	14	27 5 8 14	8 14	3.061E-05	0.001006	0.00
5	8	15	27 5 8 15	8 15	3.061E-05	0.001006	0.00
5	8	16	27 5 8 16	8 16	3.061E-05	0.001006	0.00
5	8	17	27 5 8 17	8 17	3.061E-05	0.001006	0.00
5	8	18	27 5 8 18	8 18	3.061E-05	0.001006	0.00
5	8	19	27 5 8 19	8 19	3.061E-05	0.001006	0.00
5	8	20	27 5 8 20	8 20	3.061E-05	0.001006	0.00
5	8	21	27 5 8 21	8 21	3.061E-05	0.001006	0.00
5	8	22	27 5 8 22	8 22	3.061E-05	0.001006	0.00
5	8	23	27 5 8 23	8 23	3.061E-05	0.001006	0.00
5	8	24	27 5 8 24	8 24	3.061E-05	0.001006	0.00
5	12	1	27 5 12 1	12 1	2.543E-05	0.000742	0.00
5	12	2	27 5 12 2	12 2	2.543E-05	0.000742	0.00
5	12	3	27 5 12 3	12 3	2.543E-05	0.000742	0.00
5	12	4	27 5 12 4	12 4	2.543E-05	0.000742	0.00
5	12	5	27 5 12 5	12 5	2.543E-05	0.000742	0.00
5	12	6	27 5 12 6	12 6	2.543E-05	0.000742	0.00
5	12	7	27 5 12 7	12 7	2.543E-05	0.000742	0.00
5	12	8	27 5 12 8	12 8	2.543E-05	0.000742	0.00
5	12	9	27 5 12 9	12 9	2.543E-05	0.000742	0.00
5	12	10	27 5 12 10	12 10	2.543E-05	0.000742	0.00
5	12	11	27 5 12 11	12 11	2.543E-05	0.000742	0.00
5	12	12	27 5 12 12	12 12	2.543E-05	0.000742	0.00
5	12	13	27 5 12 13	12 13	2.543E-05	0.000742	0.00
5	12	14	27 5 12 14	12 14	2.543E-05	0.000742	0.00
5	12	15	27 5 12 15	12 15	2.543E-05	0.000742	0.00
5	12	16	27 5 12 16	12 16	2.543E-05	0.000742	0.00
5	12	17	27 5 12 17	12 17	2.543E-05	0.000742	0.00
5	12	18	27 5 12 18	12 18	2.543E-05	0.000742	0.00
5	12	19	27 5 12 19	12 19	2.543E-05	0.000742	0.00
5	12	20	27 5 12 20	12 20	2.543E-05	0.000742	0.00
5	12	21	27 5 12 21	12 21	2.543E-05	0.000742	0.00
5	12	22	27 5 12 22	12 22	2.543E-05	0.000742	0.00
5	12	23	27 5 12 23	12 23	2.543E-05	0.000742	0.00
5	12	24	27 5 12 24	12 24	2.543E-05	0.000742	0.00

Vehicle Travel Emission Rate Calculation: CAC (2019)

PollutantID 31 Sulfur Dioxide (SO2)

RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT Car_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	5	1	31 5 5 1	5 1	0.001811	0.007687	0.01
5	5	2	31 5 5 2	5 2	0.001811	0.007687	0.01
5	5	3	31 5 5 3	5 3	0.001811	0.007687	0.01
5	5	4	31 5 5 4	5 4	0.001811	0.007687	0.01
5	5	5	31 5 5 5	5 5	0.001811	0.007687	0.01
5	5	6	31 5 5 6	5 6	0.001811	0.007687	0.01
5	5	7	31 5 5 7	5 7	0.001811	0.007687	0.01
5	5	8	31 5 5 8	5 8	0.001811	0.007687	0.01
5	5	9	31 5 5 9	5 9	0.001811	0.007687	0.01
5	5	10	31 5 5 10	5 10	0.001811	0.007687	0.01
5	5	11	31 5 5 11	5 11	0.001811	0.007687	0.01
5	5	12	31 5 5 12	5 12	0.001811	0.007687	0.01
5	5	13	31 5 5 13	5 13	0.001811	0.007687	0.01
5	5	14	31 5 5 14	5 14	0.001811	0.007687	0.01
5	5	15	31 5 5 15	5 15	0.001811	0.007687	0.01
5	5	16	31 5 5 16	5 16	0.001811	0.007687	0.01
5	5	17	31 5 5 17	5 17	0.001811	0.007687	0.01
5	5	18	31 5 5 18	5 18	0.001811	0.007687	0.01
5	5	19	31 5 5 19	5 19	0.001811	0.007687	0.01
5	5	20	31 5 5 20	5 20	0.001811	0.007687	0.01
5	5	21	31 5 5 21	5 21	0.001811	0.007687	0.01
5	5	22	31 5 5 22	5 22	0.001811	0.007687	0.01
5	5	23	31 5 5 23	5 23	0.001811	0.007687	0.01
5	5	24	31 5 5 24	5 24	0.001811	0.007687	0.01
5	6	1	31 5 6 1	6 1	0.001622	0.006901	0.01
5	6	2	31 5 6 2	6 2	0.001622	0.006901	0.01
5	6	3	31 5 6 3	6 3	0.001622	0.006901	0.01
5	6	4	31 5 6 4	6 4	0.001622	0.006901	0.01
5	6	5	31 5 6 5	6 5	0.001622	0.006901	0.01
5	6	6	31 5 6 6	6 6	0.001622	0.006901	0.01
5	6	7	31 5 6 7	6 7	0.001622	0.006901	0.01
5	6	8	31 5 6 8	6 8	0.001622	0.006901	0.01
5	6	9	31 5 6 9	6 9	0.001622	0.006901	0.01
5	6	10	31 5 6 10	6 10	0.001622	0.006901	0.01
5	6	11	31 5 6 11	6 11	0.001622	0.006901	0.01
5	6	12	31 5 6 12	6 12	0.001622	0.006901	0.01
5	6	13	31 5 6 13	6 13	0.001622	0.006901	0.01
5	6	14	31 5 6 14	6 14	0.001622	0.006901	0.01
5	6	15	31 5 6 15	6 15	0.001622	0.006901	0.01
5	6	16	31 5 6 16	6 16	0.001622	0.006901	0.01
5	6	17	31 5 6 17	6 17	0.001622	0.006901	0.01
5	6	18	31 5 6 18	6 18	0.001622	0.006901	0.01
5	6	19	31 5 6 19	6 19	0.001622	0.006901	0.01
5	6	20	31 5 6 20	6 20	0.001622	0.006901	0.01
5	6	21	31 5 6 21	6 21	0.001622	0.006901	0.01
5	6	22	31 5 6 22	6 22	0.001622	0.006901	0.01
5	6	23	31 5 6 23	6 23	0.001622	0.006901	0.01
5	6	24	31 5 6 24	6 24	0.001622	0.006901	0.01
5	7	1	31 5 7 1	7 1	0.001452	0.006661	0.01
5	7	2	31 5 7 2	7 2	0.001452	0.006661	0.01
5	7	3	31 5 7 3	7 3	0.001452	0.006661	0.01
5	7	4	31 5 7 4	7 4	0.001452	0.006661	0.01
5	7	5	31 5 7 5	7 5	0.001452	0.006661	0.01
5	7	6	31 5 7 6	7 6	0.001452	0.006661	0.01
5	7	7	31 5 7 7	7 7	0.001452	0.006661	0.01
5	7	8	31 5 7 8	7 8	0.001452	0.006661	0.01
5	7	9	31 5 7 9	7 9	0.001452	0.006661	0.01
5	7	10	31 5 7 10	7 10	0.001452	0.006661	0.01
5	7	11	31 5 7 11	7 11	0.001452	0.006661	0.01
5	7	12	31 5 7 12	7 12	0.001452	0.006661	0.01
5	7	13	31 5 7 13	7 13	0.001452	0.006661	0.01
5	7	14	31 5 7 14	7 14	0.001452	0.006661	0.01
5	7	15	31 5 7 15	7 15	0.001452	0.006661	0.01
5	7	16	31 5 7 16	7 16	0.001452	0.006661	0.01

Summary of Maximum ER by Speed Bin

	CAR_ER	TRK_ER	BUS_ER
30 km/hr	0.001811	0.007687	0.006636
40 km/hr	0.001622	0.006901	0.006521
50 km/hr	0.001452	0.006661	0.006534
60 km/hr	0.001378	0.005666	0.00599
90 km/hr	0.00127	0.00464	0.006747

Vehicle Travel Emission Rate Calculation: CAC (2019)

PollutantID	31	Sulfur Dioxide (SO2)					
RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT Car_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	7	17	31 5 7 17	7 17	0.001452	0.006661	0.01
5	7	18	31 5 7 18	7 18	0.001452	0.006661	0.01
5	7	19	31 5 7 19	7 19	0.001452	0.006661	0.01
5	7	20	31 5 7 20	7 20	0.001452	0.006661	0.01
5	7	21	31 5 7 21	7 21	0.001452	0.006661	0.01
5	7	22	31 5 7 22	7 22	0.001452	0.006661	0.01
5	7	23	31 5 7 23	7 23	0.001452	0.006661	0.01
5	7	24	31 5 7 24	7 24	0.001452	0.006661	0.01
5	8	1	31 5 8 1	8 1	0.001378	0.005666	0.01
5	8	2	31 5 8 2	8 2	0.001378	0.005666	0.01
5	8	3	31 5 8 3	8 3	0.001378	0.005666	0.01
5	8	4	31 5 8 4	8 4	0.001378	0.005666	0.01
5	8	5	31 5 8 5	8 5	0.001378	0.005666	0.01
5	8	6	31 5 8 6	8 6	0.001378	0.005666	0.01
5	8	7	31 5 8 7	8 7	0.001378	0.005666	0.01
5	8	8	31 5 8 8	8 8	0.001378	0.005666	0.01
5	8	9	31 5 8 9	8 9	0.001378	0.005666	0.01
5	8	10	31 5 8 10	8 10	0.001378	0.005666	0.01
5	8	11	31 5 8 11	8 11	0.001378	0.005666	0.01
5	8	12	31 5 8 12	8 12	0.001378	0.005666	0.01
5	8	13	31 5 8 13	8 13	0.001378	0.005666	0.01
5	8	14	31 5 8 14	8 14	0.001378	0.005666	0.01
5	8	15	31 5 8 15	8 15	0.001378	0.005666	0.01
5	8	16	31 5 8 16	8 16	0.001378	0.005666	0.01
5	8	17	31 5 8 17	8 17	0.001378	0.005666	0.01
5	8	18	31 5 8 18	8 18	0.001378	0.005666	0.01
5	8	19	31 5 8 19	8 19	0.001378	0.005666	0.01
5	8	20	31 5 8 20	8 20	0.001378	0.005666	0.01
5	8	21	31 5 8 21	8 21	0.001378	0.005666	0.01
5	8	22	31 5 8 22	8 22	0.001378	0.005666	0.01
5	8	23	31 5 8 23	8 23	0.001378	0.005666	0.01
5	8	24	31 5 8 24	8 24	0.001378	0.005666	0.01
5	12	1	31 5 12 1	12 1	0.00127	0.00464	0.01
5	12	2	31 5 12 2	12 2	0.00127	0.00464	0.01
5	12	3	31 5 12 3	12 3	0.00127	0.00464	0.01
5	12	4	31 5 12 4	12 4	0.00127	0.00464	0.01
5	12	5	31 5 12 5	12 5	0.00127	0.00464	0.01
5	12	6	31 5 12 6	12 6	0.00127	0.00464	0.01
5	12	7	31 5 12 7	12 7	0.00127	0.00464	0.01
5	12	8	31 5 12 8	12 8	0.00127	0.00464	0.01
5	12	9	31 5 12 9	12 9	0.00127	0.00464	0.01
5	12	10	31 5 12 10	12 10	0.00127	0.00464	0.01
5	12	11	31 5 12 11	12 11	0.00127	0.00464	0.01
5	12	12	31 5 12 12	12 12	0.00127	0.00464	0.01
5	12	13	31 5 12 13	12 13	0.00127	0.00464	0.01
5	12	14	31 5 12 14	12 14	0.00127	0.00464	0.01
5	12	15	31 5 12 15	12 15	0.00127	0.00464	0.01
5	12	16	31 5 12 16	12 16	0.00127	0.00464	0.01
5	12	17	31 5 12 17	12 17	0.00127	0.00464	0.01
5	12	18	31 5 12 18	12 18	0.00127	0.00464	0.01
5	12	19	31 5 12 19	12 19	0.00127	0.00464	0.01
5	12	20	31 5 12 20	12 20	0.00127	0.00464	0.01
5	12	21	31 5 12 21	12 21	0.00127	0.00464	0.01
5	12	22	31 5 12 22	12 22	0.00127	0.00464	0.01
5	12	23	31 5 12 23	12 23	0.00127	0.00464	0.01
5	12	24	31 5 12 24	12 24	0.00127	0.00464	0.01

Vehicle Travel Emission Rate Calculation: CAC (2019)

PollutantID 974 Benzo(a)pyrene

RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT Car_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	5	1	974 5 5 1	5 1	3.729E-06	2.11E-05	0.0000
5	5	2	974 5 5 2	5 2	3.725E-06	2.11E-05	0.0000
5	5	3	974 5 5 3	5 3	3.762E-06	2.11E-05	0.0000
5	5	4	974 5 5 4	5 4	3.789E-06	2.11E-05	0.0000
5	5	5	974 5 5 5	5 5	3.805E-06	2.11E-05	0.0000
5	5	6	974 5 5 6	5 6	3.828E-06	2.11E-05	0.0000
5	5	7	974 5 5 7	5 7	3.835E-06	2.11E-05	0.0000
5	5	8	974 5 5 8	5 8	3.831E-06	2.11E-05	0.0000
5	5	9	974 5 5 9	5 9	3.839E-06	2.11E-05	0.0000
5	5	10	974 5 5 10	5 10	3.793E-06	2.11E-05	0.0000
5	5	11	974 5 5 11	5 11	3.719E-06	2.11E-05	0.0000
5	5	12	974 5 5 12	5 12	3.654E-06	2.1E-05	0.0000
5	5	13	974 5 5 13	5 13	3.588E-06	2.1E-05	0.0000
5	5	14	974 5 5 14	5 14	3.541E-06	2.09E-05	0.0000
5	5	15	974 5 5 15	5 15	3.511E-06	2.09E-05	0.0000
5	5	16	974 5 5 16	5 16	3.515E-06	2.09E-05	0.0000
5	5	17	974 5 5 17	5 17	3.538E-06	2.09E-05	0.0000
5	5	18	974 5 5 18	5 18	3.601E-06	2.1E-05	0.0000
5	5	19	974 5 5 19	5 19	3.658E-06	2.1E-05	0.0000
5	5	20	974 5 5 20	5 20	3.684E-06	2.1E-05	0.0000
5	5	21	974 5 5 21	5 21	3.707E-06	2.1E-05	0.0000
5	5	22	974 5 5 22	5 22	3.74E-06	2.11E-05	0.0000
5	5	23	974 5 5 23	5 23	3.8E-06	2.11E-05	0.0000
5	5	24	974 5 5 24	5 24	3.812E-06	2.11E-05	0.0000
5	6	1	974 5 6 1	6 1	2.924E-06	1.75E-05	0.0000
5	6	2	974 5 6 2	6 2	2.922E-06	1.75E-05	0.0000
5	6	3	974 5 6 3	6 3	2.949E-06	1.75E-05	0.0000
5	6	4	974 5 6 4	6 4	2.97E-06	1.75E-05	0.0000
5	6	5	974 5 6 5	6 5	2.981E-06	1.76E-05	0.0000
5	6	6	974 5 6 6	6 6	2.998E-06	1.76E-05	0.0000
5	6	7	974 5 6 7	6 7	3.003E-06	1.76E-05	0.0000
5	6	8	974 5 6 8	6 8	3.001E-06	1.76E-05	0.0000
5	6	9	974 5 6 9	6 9	3.007E-06	1.76E-05	0.0000
5	6	10	974 5 6 10	6 10	2.972E-06	1.76E-05	0.0000
5	6	11	974 5 6 11	6 11	2.917E-06	1.75E-05	0.0000
5	6	12	974 5 6 12	6 12	2.869E-06	1.75E-05	0.0000
5	6	13	974 5 6 13	6 13	2.819E-06	1.74E-05	0.0000
5	6	14	974 5 6 14	6 14	2.785E-06	1.74E-05	0.0000
5	6	15	974 5 6 15	6 15	2.762E-06	1.74E-05	0.0000
5	6	16	974 5 6 16	6 16	2.765E-06	1.74E-05	0.0000
5	6	17	974 5 6 17	6 17	2.782E-06	1.74E-05	0.0000
5	6	18	974 5 6 18	6 18	2.829E-06	1.75E-05	0.0000
5	6	19	974 5 6 19	6 19	2.872E-06	1.75E-05	0.0000
5	6	20	974 5 6 20	6 20	2.891E-06	1.75E-05	0.0000
5	6	21	974 5 6 21	6 21	2.908E-06	1.75E-05	0.0000
5	6	22	974 5 6 22	6 22	2.933E-06	1.75E-05	0.0000
5	6	23	974 5 6 23	6 23	2.977E-06	1.76E-05	0.0000
5	6	24	974 5 6 24	6 24	2.987E-06	1.76E-05	0.0000
5	7	1	974 5 7 1	7 1	2.652E-06	1.51E-05	0.0000
5	7	2	974 5 7 2	7 2	2.65E-06	1.51E-05	0.0000
5	7	3	974 5 7 3	7 3	2.675E-06	1.52E-05	0.0000
5	7	4	974 5 7 4	7 4	2.693E-06	1.52E-05	0.0000
5	7	5	974 5 7 5	7 5	2.704E-06	1.52E-05	0.0000
5	7	6	974 5 7 6	7 6	2.719E-06	1.52E-05	0.0000
5	7	7	974 5 7 7	7 7	2.724E-06	1.52E-05	0.0000
5	7	8	974 5 7 8	7 8	2.721E-06	1.52E-05	0.0000
5	7	9	974 5 7 9	7 9	2.727E-06	1.52E-05	0.0000
5	7	10	974 5 7 10	7 10	2.695E-06	1.52E-05	0.0000
5	7	11	974 5 7 11	7 11	2.646E-06	1.51E-05	0.0000
5	7	12	974 5 7 12	7 12	2.602E-06	1.51E-05	0.0000
5	7	13	974 5 7 13	7 13	2.557E-06	1.51E-05	0.0000
5	7	14	974 5 7 14	7 14	2.525E-06	1.5E-05	0.0000
5	7	15	974 5 7 15	7 15	2.505E-06	1.5E-05	0.0000
5	7	16	974 5 7 16	7 16	2.508E-06	1.5E-05	0.0000

Summary of Maximum ER by Speed Bin

	CAR_ER	TRK_ER	BUS_ER
30 km/hr	3.84E-06	2.11E-05	2.16E-05
40 km/hr	3.01E-06	1.76E-05	1.8E-05
50 km/hr	2.73E-06	1.52E-05	1.52E-05
60 km/hr	2.55E-06	1.37E-05	1.42E-05
90 km/hr	2.37E-06	9.86E-06	8.89E-06

Vehicle Travel Emission Rate Calculation: CAC (2019)

PollutantID	974	Benzo(a)pyrene						
RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT Car_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	7	17	974 5 7 17	7 17	2.523E-06	1.5E-05	0.0000
5	7	18	974 5 7 18	7 18	2.566E-06	1.51E-05	0.0000
5	7	19	974 5 7 19	7 19	2.604E-06	1.51E-05	0.0000
5	7	20	974 5 7 20	7 20	2.622E-06	1.51E-05	0.0000
5	7	21	974 5 7 21	7 21	2.638E-06	1.51E-05	0.0000
5	7	22	974 5 7 22	7 22	2.66E-06	1.51E-05	0.0000
5	7	23	974 5 7 23	7 23	2.7E-06	1.52E-05	0.0000
5	7	24	974 5 7 24	7 24	2.709E-06	1.52E-05	0.0000
5	8	1	974 5 8 1	8 1	2.478E-06	1.36E-05	0.0000
5	8	2	974 5 8 2	8 2	2.476E-06	1.36E-05	0.0000
5	8	3	974 5 8 3	8 3	2.499E-06	1.36E-05	0.0000
5	8	4	974 5 8 4	8 4	2.516E-06	1.37E-05	0.0000
5	8	5	974 5 8 5	8 5	2.526E-06	1.37E-05	0.0000
5	8	6	974 5 8 6	8 6	2.54E-06	1.37E-05	0.0000
5	8	7	974 5 8 7	8 7	2.544E-06	1.37E-05	0.0000
5	8	8	974 5 8 8	8 8	2.542E-06	1.37E-05	0.0000
5	8	9	974 5 8 9	8 9	2.547E-06	1.37E-05	0.0000
5	8	10	974 5 8 10	8 10	2.518E-06	1.37E-05	0.0000
5	8	11	974 5 8 11	8 11	2.472E-06	1.36E-05	0.0000
5	8	12	974 5 8 12	8 12	2.431E-06	1.36E-05	0.0000
5	8	13	974 5 8 13	8 13	2.389E-06	1.36E-05	0.0000
5	8	14	974 5 8 14	8 14	2.36E-06	1.35E-05	0.0000
5	8	15	974 5 8 15	8 15	2.341E-06	1.35E-05	0.0000
5	8	16	974 5 8 16	8 16	2.344E-06	1.35E-05	0.0000
5	8	17	974 5 8 17	8 17	2.358E-06	1.35E-05	0.0000
5	8	18	974 5 8 18	8 18	2.398E-06	1.36E-05	0.0000
5	8	19	974 5 8 19	8 19	2.434E-06	1.36E-05	0.0000
5	8	20	974 5 8 20	8 20	2.45E-06	1.36E-05	0.0000
5	8	21	974 5 8 21	8 21	2.464E-06	1.36E-05	0.0000
5	8	22	974 5 8 22	8 22	2.485E-06	1.36E-05	0.0000
5	8	23	974 5 8 23	8 23	2.522E-06	1.37E-05	0.0000
5	8	24	974 5 8 24	8 24	2.53E-06	1.37E-05	0.0000
5	12	1	974 5 12 1	12 1	2.303E-06	9.79E-06	0.0000
5	12	2	974 5 12 2	12 2	2.301E-06	9.79E-06	0.0000
5	12	3	974 5 12 3	12 3	2.322E-06	9.82E-06	0.0000
5	12	4	974 5 12 4	12 4	2.338E-06	9.83E-06	0.0000
5	12	5	974 5 12 5	12 5	2.347E-06	9.84E-06	0.0000
5	12	6	974 5 12 6	12 6	2.36E-06	9.86E-06	0.0000
5	12	7	974 5 12 7	12 7	2.364E-06	9.86E-06	0.0000
5	12	8	974 5 12 8	12 8	2.362E-06	9.86E-06	0.0000
5	12	9	974 5 12 9	12 9	2.366E-06	9.86E-06	0.0000
5	12	10	974 5 12 10	12 10	2.34E-06	9.83E-06	0.0000
5	12	11	974 5 12 11	12 11	2.297E-06	9.79E-06	0.0000
5	12	12	974 5 12 12	12 12	2.26E-06	9.75E-06	0.0000
5	12	13	974 5 12 13	12 13	2.222E-06	9.71E-06	0.0000
5	12	14	974 5 12 14	12 14	2.195E-06	9.68E-06	0.0000
5	12	15	974 5 12 15	12 15	2.178E-06	9.66E-06	0.0000
5	12	16	974 5 12 16	12 16	2.18E-06	9.66E-06	0.0000
5	12	17	974 5 12 17	12 17	2.193E-06	9.68E-06	0.0000
5	12	18	974 5 12 18	12 18	2.229E-06	9.72E-06	0.0000
5	12	19	974 5 12 19	12 19	2.262E-06	9.75E-06	0.0000
5	12	20	974 5 12 20	12 20	2.277E-06	9.77E-06	0.0000
5	12	21	974 5 12 21	12 21	2.29E-06	9.78E-06	0.0000
5	12	22	974 5 12 22	12 22	2.309E-06	9.8E-06	0.0000
5	12	23	974 5 12 23	12 23	2.343E-06	9.84E-06	0.0000
5	12	24	974 5 12 24	12 24	2.351E-06	9.85E-06	0.0000

Vehicle Travel Emission Rate Calculation: CAC (2019)

PollutantID 9100 PM10

RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT Car_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	5	1	9100 5 5 1	5 1	0.082683	0.453421	0.4987
5	5	2	9100 5 5 2	5 2	0.082676	0.453417	0.4987
5	5	3	9100 5 5 3	5 3	0.082754	0.453465	0.4987
5	5	4	9100 5 5 4	5 4	0.082812	0.4535	0.4987
5	5	5	9100 5 5 5	5 5	0.082845	0.453521	0.4987
5	5	6	9100 5 5 6	5 6	0.082893	0.45355	0.4987
5	5	7	9100 5 5 7	5 7	0.082908	0.45356	0.4987
5	5	8	9100 5 5 8	5 8	0.0829	0.453555	0.4987
5	5	9	9100 5 5 9	5 9	0.082917	0.453565	0.4987
5	5	10	9100 5 5 10	5 10	0.082819	0.453505	0.4987
5	5	11	9100 5 5 11	5 11	0.082663	0.453408	0.4987
5	5	12	9100 5 5 12	5 12	0.082526	0.453323	0.4987
5	5	13	9100 5 5 13	5 13	0.082385	0.453236	0.4987
5	5	14	9100 5 5 14	5 14	0.082287	0.453175	0.4987
5	5	15	9100 5 5 15	5 15	0.082222	0.453135	0.4987
5	5	16	9100 5 5 16	5 16	0.082232	0.453141	0.4987
5	5	17	9100 5 5 17	5 17	0.08228	0.45317	0.4987
5	5	18	9100 5 5 18	5 18	0.082413	0.453254	0.4987
5	5	19	9100 5 5 19	5 19	0.082535	0.453328	0.4987
5	5	20	9100 5 5 20	5 20	0.08259	0.453363	0.4987
5	5	21	9100 5 5 21	5 21	0.082638	0.453393	0.4987
5	5	22	9100 5 5 22	5 22	0.082708	0.453436	0.4987
5	5	23	9100 5 5 23	5 23	0.082833	0.453513	0.4987
5	5	24	9100 5 5 24	5 24	0.08286	0.45353	0.4987
5	6	1	9100 5 6 1	6 1	0.072736	0.364225	0.4282
5	6	2	9100 5 6 2	6 2	0.072731	0.364221	0.4282
5	6	3	9100 5 6 3	6 3	0.072789	0.36426	0.4282
5	6	4	9100 5 6 4	6 4	0.072831	0.364289	0.4282
5	6	5	9100 5 6 5	6 5	0.072857	0.364306	0.4282
5	6	6	9100 5 6 6	6 6	0.072892	0.36433	0.4282
5	6	7	9100 5 6 7	6 7	0.072903	0.364338	0.4282
5	6	8	9100 5 6 8	6 8	0.072898	0.364334	0.4282
5	6	9	9100 5 6 9	6 9	0.07291	0.364342	0.4282
5	6	10	9100 5 6 10	6 10	0.072837	0.364293	0.4282
5	6	11	9100 5 6 11	6 11	0.072721	0.364215	0.4282
5	6	12	9100 5 6 12	6 12	0.072619	0.364146	0.4282
5	6	13	9100 5 6 13	6 13	0.072514	0.364075	0.4282
5	6	14	9100 5 6 14	6 14	0.072441	0.364026	0.4282
5	6	15	9100 5 6 15	6 15	0.072392	0.363993	0.4282
5	6	16	9100 5 6 16	6 16	0.0724	0.363998	0.4282
5	6	17	9100 5 6 17	6 17	0.072435	0.364022	0.4282
5	6	18	9100 5 6 18	6 18	0.072535	0.36409	0.4282
5	6	19	9100 5 6 19	6 19	0.072625	0.36415	0.4282
5	6	20	9100 5 6 20	6 20	0.072666	0.364178	0.4282
5	6	21	9100 5 6 21	6 21	0.072702	0.364202	0.4282
5	6	22	9100 5 6 22	6 22	0.072754	0.364237	0.4282
5	6	23	9100 5 6 23	6 23	0.072848	0.3643	0.4282
5	6	24	9100 5 6 24	6 24	0.072868	0.364314	0.4282
5	7	1	9100 5 7 1	7 1	0.057856	0.310718	0.3893
5	7	2	9100 5 7 2	7 2	0.057851	0.310714	0.3893
5	7	3	9100 5 7 3	7 3	0.057904	0.310757	0.3893
5	7	4	9100 5 7 4	7 4	0.057943	0.310789	0.3893
5	7	5	9100 5 7 5	7 5	0.057966	0.310807	0.3893
5	7	6	9100 5 7 6	7 6	0.057998	0.310833	0.3893
5	7	7	9100 5 7 7	7 7	0.058008	0.310842	0.3893
5	7	8	9100 5 7 8	7 8	0.058003	0.310838	0.3893
5	7	9	9100 5 7 9	7 9	0.058014	0.310847	0.3893
5	7	10	9100 5 7 10	7 10	0.057948	0.310793	0.3893
5	7	11	9100 5 7 11	7 11	0.057843	0.310707	0.3893
5	7	12	9100 5 7 12	7 12	0.05775	0.310631	0.3893
5	7	13	9100 5 7 13	7 13	0.057655	0.310554	0.3893
5	7	14	9100 5 7 14	7 14	0.057588	0.3105	0.3893
5	7	15	9100 5 7 15	7 15	0.057544	0.310464	0.3893
5	7	16	9100 5 7 16	7 16	0.057551	0.31047	0.3893

Summary of Maximum ER by Speed Bin

	CAR_ER	TRK_ER	BUS_ER
30 km/hr	0.082917	0.453565	0.498727
40 km/hr	0.07291	0.364342	0.428215
50 km/hr	0.058014	0.310847	0.389336
60 km/hr	0.046441	0.254147	0.330067
90 km/hr	0.019473	0.123206	0.152479

Vehicle Travel Emission Rate Calculation: CAC (2019)

PollutantID 9100 PM10

RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT Car_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	7	17	9100 5 7 17	7 17	0.057583	0.310496	0.3893
5	7	18	9100 5 7 18	7 18	0.057674	0.31057	0.3893
5	7	19	9100 5 7 19	7 19	0.057756	0.310636	0.3893
5	7	20	9100 5 7 20	7 20	0.057793	0.310666	0.3893
5	7	21	9100 5 7 21	7 21	0.057826	0.310693	0.3893
5	7	22	9100 5 7 22	7 22	0.057873	0.310732	0.3893
5	7	23	9100 5 7 23	7 23	0.057957	0.3108	0.3893
5	7	24	9100 5 7 24	7 24	0.057976	0.310816	0.3893
5	8	1	9100 5 8 1	8 1	0.046295	0.254026	0.3300
5	8	2	9100 5 8 2	8 2	0.04629	0.254022	0.3300
5	8	3	9100 5 8 3	8 3	0.046339	0.254063	0.3301
5	8	4	9100 5 8 4	8 4	0.046375	0.254092	0.3301
5	8	5	9100 5 8 5	8 5	0.046396	0.25411	0.3301
5	8	6	9100 5 8 6	8 6	0.046426	0.254134	0.3301
5	8	7	9100 5 8 7	8 7	0.046435	0.254142	0.3301
5	8	8	9100 5 8 8	8 8	0.046431	0.254138	0.3301
5	8	9	9100 5 8 9	8 9	0.046441	0.254147	0.3301
5	8	10	9100 5 8 10	8 10	0.04638	0.254096	0.3301
5	8	11	9100 5 8 11	8 11	0.046282	0.254016	0.3300
5	8	12	9100 5 8 12	8 12	0.046196	0.253944	0.3300
5	8	13	9100 5 8 13	8 13	0.046108	0.253872	0.3300
5	8	14	9100 5 8 14	8 14	0.046046	0.253821	0.3300
5	8	15	9100 5 8 15	8 15	0.046006	0.253788	0.3300
5	8	16	9100 5 8 16	8 16	0.046012	0.253793	0.3300
5	8	17	9100 5 8 17	8 17	0.046042	0.253817	0.3300
5	8	18	9100 5 8 18	8 18	0.046126	0.253886	0.3300
5	8	19	9100 5 8 19	8 19	0.046202	0.253949	0.3300
5	8	20	9100 5 8 20	8 20	0.046236	0.253978	0.3300
5	8	21	9100 5 8 21	8 21	0.046266	0.254003	0.3300
5	8	22	9100 5 8 22	8 22	0.04631	0.254039	0.3301
5	8	23	9100 5 8 23	8 23	0.046389	0.254104	0.3301
5	8	24	9100 5 8 24	8 24	0.046406	0.254117	0.3301
5	12	1	9100 5 12 1	12 1	0.019338	0.122722	0.1525
5	12	2	9100 5 12 2	12 2	0.019334	0.123057	0.1525
5	12	3	9100 5 12 3	12 3	0.019379	0.123105	0.1525
5	12	4	9100 5 12 4	12 4	0.019412	0.123141	0.1525
5	12	5	9100 5 12 5	12 5	0.019431	0.123162	0.1525
5	12	6	9100 5 12 6	12 6	0.019458	0.123191	0.1525
5	12	7	9100 5 12 7	12 7	0.019467	0.1232	0.1525
5	12	8	9100 5 12 8	12 8	0.019463	0.123196	0.1525
5	12	9	9100 5 12 9	12 9	0.019473	0.123206	0.1525
5	12	10	9100 5 12 10	12 10	0.019416	0.123146	0.1525
5	12	11	9100 5 12 11	12 11	0.019327	0.123049	0.1525
5	12	12	9100 5 12 12	12 12	0.019248	0.122964	0.1525
5	12	13	9100 5 12 13	12 13	0.019167	0.122878	0.1524
5	12	14	9100 5 12 14	12 14	0.019111	0.122817	0.1524
5	12	15	9100 5 12 15	12 15	0.019073	0.122777	0.1524
5	12	16	9100 5 12 16	12 16	0.019079	0.122783	0.1524
5	12	17	9100 5 12 17	12 17	0.019106	0.122812	0.1524
5	12	18	9100 5 12 18	12 18	0.019183	0.122895	0.1524
5	12	19	9100 5 12 19	12 19	0.019253	0.12297	0.1525
5	12	20	9100 5 12 20	12 20	0.019284	0.123004	0.1525
5	12	21	9100 5 12 21	12 21	0.019312	0.123034	0.1525
5	12	22	9100 5 12 22	12 22	0.019352	0.123077	0.1525
5	12	23	9100 5 12 23	12 23	0.019424	0.123154	0.1525
5	12	24	9100 5 12 24	12 24	0.01944	0.123171	0.1525

Vehicle Travel Emission Rate Calculation: CAC (2019)

PollutantID 9110 PM2.5

RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT Car_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	5	1	9110 5 5 1	5 1	0.016917	0.170707	0.2078
5	5	2	9110 5 5 2	5 2	0.016911	0.170703	0.2078
5	5	3	9110 5 5 3	5 3	0.01698	0.170746	0.2078
5	5	4	9110 5 5 4	5 4	0.017031	0.170777	0.2078
5	5	5	9110 5 5 5	5 5	0.017061	0.170796	0.2078
5	5	6	9110 5 5 6	5 6	0.017102	0.170821	0.2078
5	5	7	9110 5 5 7	5 7	0.017116	0.17083	0.2078
5	5	8	9110 5 5 8	5 8	0.017109	0.170825	0.2078
5	5	9	9110 5 5 9	5 9	0.017124	0.170835	0.2078
5	5	10	9110 5 5 10	5 10	0.017037	0.170781	0.2078
5	5	11	9110 5 5 11	5 11	0.0169	0.170696	0.2078
5	5	12	9110 5 5 12	5 12	0.016778	0.170621	0.2078
5	5	13	9110 5 5 13	5 13	0.016654	0.170543	0.2078
5	5	14	9110 5 5 14	5 14	0.016567	0.17049	0.2078
5	5	15	9110 5 5 15	5 15	0.016509	0.170454	0.2078
5	5	16	9110 5 5 16	5 16	0.016518	0.17046	0.2078
5	5	17	9110 5 5 17	5 17	0.01656	0.170486	0.2078
5	5	18	9110 5 5 18	5 18	0.016679	0.170559	0.2078
5	5	19	9110 5 5 19	5 19	0.016786	0.170626	0.2078
5	5	20	9110 5 5 20	5 20	0.016834	0.170656	0.2078
5	5	21	9110 5 5 21	5 21	0.016877	0.170682	0.2078
5	5	22	9110 5 5 22	5 22	0.016939	0.170721	0.2078
5	5	23	9110 5 5 23	5 23	0.01705	0.170789	0.2078
5	5	24	9110 5 5 24	5 24	0.017074	0.170804	0.2078
5	6	1	9110 5 6 1	6 1	0.014311	0.145093	0.1865
5	6	2	9110 5 6 2	6 2	0.014306	0.145089	0.1865
5	6	3	9110 5 6 3	6 3	0.014357	0.145124	0.1865
5	6	4	9110 5 6 4	6 4	0.014395	0.145149	0.1865
5	6	5	9110 5 6 5	6 5	0.014418	0.145164	0.1865
5	6	6	9110 5 6 6	6 6	0.014449	0.145186	0.1865
5	6	7	9110 5 6 7	6 7	0.014459	0.145192	0.1865
5	6	8	9110 5 6 8	6 8	0.014454	0.145189	0.1865
5	6	9	9110 5 6 9	6 9	0.014465	0.145196	0.1865
5	6	10	9110 5 6 10	6 10	0.0144	0.145153	0.1865
5	6	11	9110 5 6 11	6 11	0.014298	0.145084	0.1865
5	6	12	9110 5 6 12	6 12	0.014207	0.145022	0.1865
5	6	13	9110 5 6 13	6 13	0.014114	0.14496	0.1865
5	6	14	9110 5 6 14	6 14	0.01405	0.144916	0.1865
5	6	15	9110 5 6 15	6 15	0.014007	0.144887	0.1865
5	6	16	9110 5 6 16	6 16	0.014013	0.144892	0.1865
5	6	17	9110 5 6 17	6 17	0.014045	0.144913	0.1865
5	6	18	9110 5 6 18	6 18	0.014133	0.144973	0.1865
5	6	19	9110 5 6 19	6 19	0.014213	0.145026	0.1865
5	6	20	9110 5 6 20	6 20	0.014249	0.145051	0.1865
5	6	21	9110 5 6 21	6 21	0.014281	0.145072	0.1865
5	6	22	9110 5 6 22	6 22	0.014327	0.145103	0.1865
5	6	23	9110 5 6 23	6 23	0.01441	0.145159	0.1865
5	6	24	9110 5 6 24	6 24	0.014427	0.145171	0.1865
5	7	1	9110 5 7 1	7 1	0.011955	0.130557	0.1744
5	7	2	9110 5 7 2	7 2	0.01195	0.130553	0.1744
5	7	3	9110 5 7 3	7 3	0.011997	0.130591	0.1744
5	7	4	9110 5 7 4	7 4	0.012031	0.130619	0.1745
5	7	5	9110 5 7 5	7 5	0.012051	0.130636	0.1745
5	7	6	9110 5 7 6	7 6	0.01208	0.130659	0.1745
5	7	7	9110 5 7 7	7 7	0.012089	0.130666	0.1745
5	7	8	9110 5 7 8	7 8	0.012084	0.130662	0.1745
5	7	9	9110 5 7 9	7 9	0.012094	0.130671	0.1745
5	7	10	9110 5 7 10	7 10	0.012036	0.130623	0.1745
5	7	11	9110 5 7 11	7 11	0.011943	0.130547	0.1744
5	7	12	9110 5 7 12	7 12	0.01186	0.13048	0.1744
5	7	13	9110 5 7 13	7 13	0.011776	0.130412	0.1744
5	7	14	9110 5 7 14	7 14	0.011718	0.130364	0.1744
5	7	15	9110 5 7 15	7 15	0.011679	0.130332	0.1744
5	7	16	9110 5 7 16	7 16	0.011685	0.130337	0.1744

Summary of Maximum ER by Speed Bin

	CAR_ER	TRK_ER	BUS_ER
30 km/hr	0.017124	0.170835	0.207848
40 km/hr	0.014465	0.145196	0.186523
50 km/hr	0.012094	0.130671	0.17446
60 km/hr	0.010328	0.108842	0.153798
90 km/hr	0.006595	0.07157	0.10207

Vehicle Travel Emission Rate Calculation: CAC (2019)

PollutantID 9110 PM2.5

RoadTypeID	AverageSp	HourID	Helper_X	ER Help	g/VKT Car_ER	g/VKT TRK_ER	g/VKT Bus_ER
5	7	17	9110 5 7 17	7 17	0.011713	0.13036	0.1744
5	7	18	9110 5 7 18	7 18	0.011793	0.130425	0.1744
5	7	19	9110 5 7 19	7 19	0.011866	0.130484	0.1744
5	7	20	9110 5 7 20	7 20	0.011899	0.130511	0.1744
5	7	21	9110 5 7 21	7 21	0.011928	0.130535	0.1744
5	7	22	9110 5 7 22	7 22	0.011969	0.130569	0.1744
5	7	23	9110 5 7 23	7 23	0.012044	0.13063	0.1745
5	7	24	9110 5 7 24	7 24	0.01206	0.130643	0.1745
5	8	1	9110 5 8 1	8 1	0.010199	0.108735	0.1538
5	8	2	9110 5 8 2	8 2	0.010195	0.108732	0.1538
5	8	3	9110 5 8 3	8 3	0.010238	0.108768	0.1538
5	8	4	9110 5 8 4	8 4	0.01027	0.108794	0.1538
5	8	5	9110 5 8 5	8 5	0.010288	0.10881	0.1538
5	8	6	9110 5 8 6	8 6	0.010315	0.108831	0.1538
5	8	7	9110 5 8 7	8 7	0.010323	0.108838	0.1538
5	8	8	9110 5 8 8	8 8	0.010319	0.108835	0.1538
5	8	9	9110 5 8 9	8 9	0.010328	0.108842	0.1538
5	8	10	9110 5 8 10	8 10	0.010274	0.108797	0.1538
5	8	11	9110 5 8 11	8 11	0.010188	0.108726	0.1538
5	8	12	9110 5 8 12	8 12	0.010111	0.108663	0.1538
5	8	13	9110 5 8 13	8 13	0.010033	0.108599	0.1538
5	8	14	9110 5 8 14	8 14	0.009979	0.108554	0.1538
5	8	15	9110 5 8 15	8 15	0.009943	0.108524	0.1538
5	8	16	9110 5 8 16	8 16	0.009948	0.108529	0.1538
5	8	17	9110 5 8 17	8 17	0.009975	0.108551	0.1538
5	8	18	9110 5 8 18	8 18	0.010049	0.108612	0.1538
5	8	19	9110 5 8 19	8 19	0.010116	0.108667	0.1538
5	8	20	9110 5 8 20	8 20	0.010147	0.108692	0.1538
5	8	21	9110 5 8 21	8 21	0.010174	0.108715	0.1538
5	8	22	9110 5 8 22	8 22	0.010212	0.108747	0.1538
5	8	23	9110 5 8 23	8 23	0.010282	0.108804	0.1538
5	8	24	9110 5 8 24	8 24	0.010297	0.108816	0.1538
5	12	1	9110 5 12 1	12 1	0.006476	0.071399	0.1021
5	12	2	9110 5 12 2	12 2	0.006472	0.071438	0.1021
5	12	3	9110 5 12 3	12 3	0.006512	0.07148	0.1021
5	12	4	9110 5 12 4	12 4	0.006541	0.071512	0.1021
5	12	5	9110 5 12 5	12 5	0.006558	0.07153	0.1021
5	12	6	9110 5 12 6	12 6	0.006582	0.071556	0.1021
5	12	7	9110 5 12 7	12 7	0.00659	0.071564	0.1021
5	12	8	9110 5 12 8	12 8	0.006586	0.07156	0.1021
5	12	9	9110 5 12 9	12 9	0.006595	0.07157	0.1021
5	12	10	9110 5 12 10	12 10	0.006545	0.071516	0.1021
5	12	11	9110 5 12 11	12 11	0.006466	0.071431	0.1021
5	12	12	9110 5 12 12	12 12	0.006396	0.071356	0.1020
5	12	13	9110 5 12 13	12 13	0.006324	0.071279	0.1020
5	12	14	9110 5 12 14	12 14	0.006275	0.071225	0.1020
5	12	15	9110 5 12 15	12 15	0.006242	0.07119	0.1020
5	12	16	9110 5 12 16	12 16	0.006247	0.071195	0.1020
5	12	17	9110 5 12 17	12 17	0.006271	0.071221	0.1020
5	12	18	9110 5 12 18	12 18	0.006339	0.071294	0.1020
5	12	19	9110 5 12 19	12 19	0.0064	0.071361	0.1020
5	12	20	9110 5 12 20	12 20	0.006428	0.071391	0.1021
5	12	21	9110 5 12 21	12 21	0.006453	0.071417	0.1021
5	12	22	9110 5 12 22	12 22	0.006489	0.071455	0.1021
5	12	23	9110 5 12 23	12 23	0.006552	0.071524	0.1021
5	12	24	9110 5 12 24	12 24	0.006566	0.071539	0.1021