AECOM

Annacis Automobile Terminal Expansion

Level 1 Air Quality Assessment

August 2, 2022

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AECOM: 2015-04-13

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Revision History

Revision	Revision date	Details	Authorized	Name	Position
1	November 1, 2021	Review comments	Thomas Hoffschild	Randy Rudolph	Senior AQ Scientist
2	November 16, 2021	Review comments	Thomas Hoffschild	Randy Rudolph	Senior AQ Scientist
3	May 16, 2022	Review comments	Thomas Hoffschild	Randy Rudolph	Senior AQ Scientist
4	August 2, 2022	Final	Thomas Hoffschild	Randy Rudolph	Senior AQ Scientist

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1. Introduction

1.1 Facility overview

The Annacis Automobile Terminal ("AAT") is a marine terminal for importing foreign-built vehicles, which are then transported by rail or truck throughout North America. The terminal is within the Port of Vancouver and operated by Wallenius Wilhelmsen Logistics (WWL) at 820 Dock Road, Delta since 1972 pursuant to various operating agreements and leases.

The VFPA recognizes the importance of maintaining good air quality in surrounding communities and minimizing emissions from Port lands and, as such, the VFPA required an Environmental Air Assessment be submitted as part of the PER Permit application for the Project. This Environmental Air Assessment report has been written to meet the project specific PER Application Submission Requirements (Submission Requirements) issued by the VFPA.

This report excludes emissions associated with demolition and construction activities (e.g., mobile equipment operation, increased vehicle traffic, and earthworks).

2. Project Description

2.1 Project overview

Due to a lack of available trade enabling land regionally, VFPA proposes to optimize AAT to make the Richmond Automobile Terminal (RAT) facility available for other port purposes. The project comprises an expansion of two existing terminal rail ramps to increase the velocity of railed out vehicle imports, installation of electric vehicle charging stations in preparation for future consumer demand and government climate action policies and subject to a Project Budget, certain refurbishment and replacement of existing terminal buildings and other vehicle processing and handling facilities to optimize terminal operations. When combined with WWS's improved operating practices and increased alignment of supply chain partners, the Project will increase the annual terminal practical capacity of AAT from approximately 352,000 vehicles to 480,000 vehicles.

The Project will generally include the following components at the AAT: rail expansion, electric charging stations, contingent facilities replacement described below.

Rail Expansion

Expansion of the Railway Loading Side 1 and Railway Side 2 railyards, by:

- Extending Tracks 1, 2 and 3 on Rail Side 1 to accommodate an additional twelve (12) rail cars on each extension, with loading pads positioned between blocks of six (6) rail cars; and
- Adding four new tracks and switches to Rail Side 2 that will accommodate six (6) additional rail cars on each track, to run parallel to existing Tracks 5 through 8. The new Tracks will be built to the east and parallel to Track 8.

Electric Charging Stations

The installation of the infrastructure and equipment to support up to eight (8) electric car charging stations and the installation of four (4) electric car charging stations at a location and of a type selected by WWS. For the purposes of the preparation of the Project Budget by the PDR Consultant, WWS will identify at the time an appropriate type of electric car charging station. However, the type that is later purchased for installation may differ due to rapidly changing technology and customer needs.

Contingent Facilities Replacement

To the extent permitted under the Project Budget, the demolition and replacement of existing facilities and addition of facilities, including:

- The demolition of Building Accessory Shop #2, Building Mechanical Shop #1, Paint and Body Shop, and Shed and Canopy attached to the Parts Warehouse.
- The replacement of the asphalt floor in the Parts Warehouse with a concrete floor.

2.2 Process Overview

Figure 1 and Figure 2 show the AAT before and after expansion (Baseline and Project Case). Ocean Going Vessels (OGVs) dock at either berth in both cases. Two tugboats assist each OGV with berthing and de-berthing.

The current general flow of traffic at both terminals is as follows:

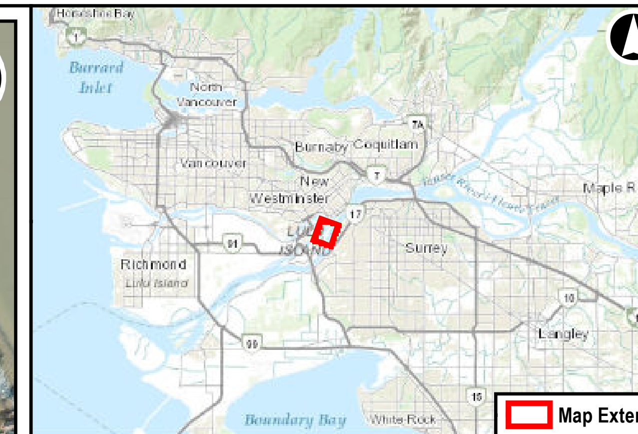
1. OGVs dock at one of two berths at AAT or the berth at RAT.
2. Vehicles are driven off the OGV into the parking area.
3. From the parking area, vehicles are driven into the processing building where they are inspected. Some may simply need an operating manual in French (for example) and some may need minor service (e.g., installation of a block heater).
4. Vehicles exit the processing building and are driven to the parking area.
5. From parking, AAT vehicles are driven to either railway loading yard side 1 or 2 or to the vehicle carrier loading area. Presently, at AAT there are 53 railcar spots at Railway Loading Yard Side 1 and 30 spots at Side 2. At RAT, vehicles are driven either to the railway loading yard or the vehicle carrier loading area.
6. Loaded railcars and vehicle carriers transport vehicles offsite to local or distant dealerships.

2.3 Assessment Methodology

The assessment methodology consisted of a Level 1 Assessment, as specified in the PER Air Guidelines, to evaluate the potential effects that the proposed Project could have on ambient air quality. It is important to note that the Project largely moves existing operations from the Richmond Auto Terminal (RAT) to the AAT and therefore results in a translation of emissions rather than an increase in emissions.

The Level 1 Assessment involved quantification of total (annual) emissions to provide an indication of the potential increased impacts on air quality from baseline conditions (present) to project conditions (post-expansion). The Level 1 Assessment quantified and qualified three operating scenarios:

- **Baseline Case**: Emissions from the existing operations at the AAT and RAT operating under normal conditions, using current vehicle throughput (see Figure 1).
- **Project Case**: Emissions associated with the cessation of operations at the RAT and increase in vehicle throughput at the AAT, assessed under normal operations. This case also includes the adoption of new technology where possible to reduce emissions (see Figure 2).
- **No-Project Case**: Emissions associated without the proposed expansion. As no expansion in throughput is considered, the No-Project Case is the same as the Baseline case



Legend

Railway

ANNACIS AUTO TERMINAL

BASE CASE

0 100 200 300 400
Metres

Datum: NAD 1983 UTM Zone 10N

Jul, 2022	PN#: TBD	1:6,500 * when printed 11"x17"	AECOM

Figure 1

Data Sources: NRCan - Canvec

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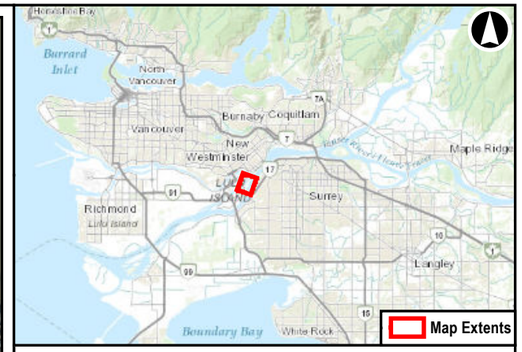

Legend

- Railway
- Expansion Area

ANNACIS AUTO TERMINAL

PROJECT CASE

0 100 200 300 400

Metres

Datum: NAD 1983 UTM Zone 10N

Jul, 2022	PN#: TBD	1:6,500 * when printed 11"x17"	AECOM

Figure 2

Data Sources: NRCan - Canvec

Map Scale: 1:a.aecomnet.com:FSAMERCalgary+CACGY3DCS\GIS\BC\Annacis Island\02_MXDs\MXD_20220727_Fig2_AnnacisIsland_ProjectCase.mxd
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2.4 Baseline Case

The Baseline emission case comprises current operations at the AAT as well as the RAT which also handles imports of Asian automobile manufacturers.

Parameters associated with baseline operations at AAT and RAT are listed in Table 1 which assumes the following capacities:

- 352,000 vehicles at AAT plus 99,968 vehicles at RAT based on client estimate and proportion of throughput at RAT and AAT presented in Table 11
- Baseline annual emissions are based on 2018 throughput, conservatively increased by 6% to 352,000 vehicles processed at AAT in a year and 99,968 vehicles processed at RAT
- Oberon class vessel (OGV) capacity of about 3,300 vehicles.
- 85% of processed vehicles shipped off-site by rail and 15% by truck carrier, based on current conditions.
- 20% of processed at terminal vehicles are light pick up trucks, SUVs, and mini vans. This approximates the percentage of cars shipped from Asia.
- Railcar capacity of 10 vehicles per auto rack (88 racks per train) and carrier capacity of 9 vehicles.
- At AAT, trains from siding 1 and siding 2, with railcar capacities of 53 railcars at siding 1 and 30 at siding 2.
- At RAT one carrier loading ramp and railcar capacities are the same as siding 2 at AAT.

Refer to Section 5.3 (Table 11) for historical throughput and base case determination discussion.

Table 1 Baseline Case Throughput Summary

Transport Service	AAT		RAT		AAT and RAT	
	Vehicle Throughput (#)	Equipment Movement	Vehicle Throughput (#)	Equipment Movement	Vehicle Throughput (#)	Equipment Movement
Marine	352,000	106 calls/year	99,968	30 calls/year	451,968	136 calls/year
Rail	299,200	339 trains/year	84,973	95 trains/year	384,173	434 trains/year
Car Carrier	52,800	5,867 carriers/year	14,995	1,666 carriers/year	67,795	7,533 carriers/year

2.5 Project Case

The Project Case considers emissions at AAT after expansion and after the closure of RAT. Parameters associated with operations at AAT after expansion are listed in Table 2 which assumes the following capacities:

- 480,000 vehicles processed annually at AAT based on client estimate
- Separate trains from siding 1 and siding 2, with railcar capacities of 89 railcars at siding 1 and 54 at siding 2.
- No change in OGV, railcar or carrier capacity
- No change in proportion of vehicles transported offsite by rail and carrier
- No change in the composition of fuel source in the incoming fleet (gasoline, diesel, electric)
- No change in the proportion of passenger cars in the import fleet.

Table 2 Project Case Throughput Summary

Transport Service	AAT		RAT	
	Vehicle Throughput (#)	Equipment Movement	Vehicle Throughput (#)	Equipment Movement
Marine	480,000	145[1] calls/year	0	0
Rail	408,000	463[1] trains/year	0	0
Carrier	72,000[1]	8,000[1] carriers/year	0	0

[1] *based on terminal capacity, not expected demand*

2.6 No Project Case

The No Project case would imply one of two options:

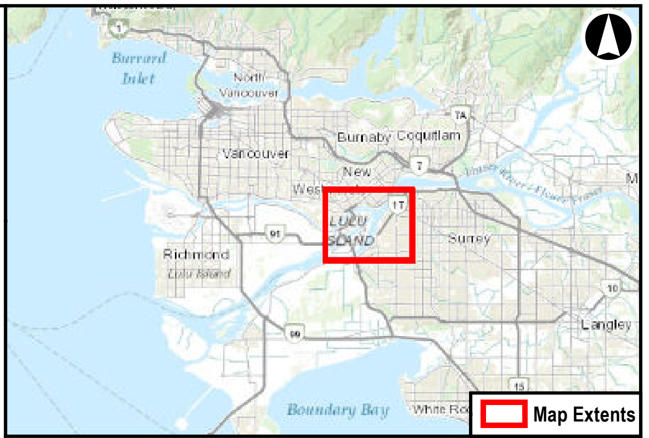
- VFPA chooses not to optimize the AAT in which case operations would continue at the RAT which also handles imports of Asian automobile manufacturers. Operations would also continue at AAT at current levels.
- VFPA chooses to stop operations at the RAT and maintain current volumes at the AAT.

For the purposes of this report, the former option is designated as the No Project case and, given that no expansion in capacity is considered at the RAT, the No Project case would be like the Baseline case (see Table 1).

3. Geographic Scope

3.1 Facility

The AAT facility boundary generally coincides with the leased area and operations under direct control of WWL. Activities directly adjacent to the leased area that support operations, for example, rail yards, truck staging and marine vessel berthing, are included in the facility boundary (Figure 1 and Figure 2). The facility location and vicinity (including special receptors) are shown on Figure 3. The inset in Figure 4 shows the location of the RAT.



Legend

- Annacis Auto Terminal
- Study Area (2 km Buffer)
- Railway
- Seniors Facility
- Childcare Facility
- Education Facility

ANNACIS AUTO TERMINAL

SITE LOCATION

0 0.4 0.8 1.2 1.6
Kilometres

Datum: NAD 1983 UTM Zone 10N

Jul, 2022	PN#: TBD	1:25,000 * when printed 11"x17"

Figure 3

AECOM

Data Sources: NRCan - Canvec

3.2 Supply Chain

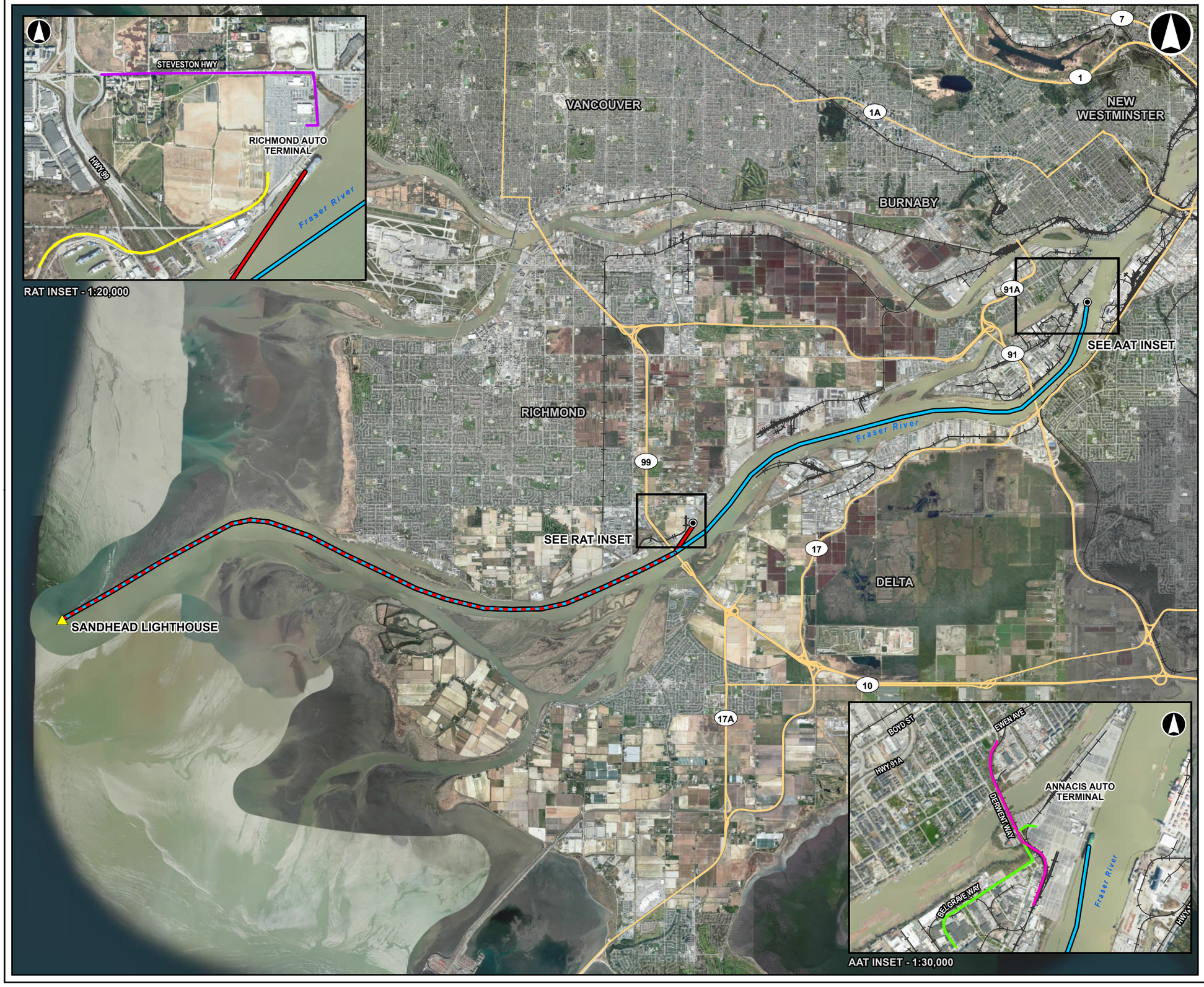
The Supply Chain includes activities from marine, rail, and trucking. For purposes of the air quality assessment:

- Outgoing car carriers travel 1.5 km from the point of loading (haul-way truck plaza) to being off Annacis Island (out of VFPA jurisdiction) in the Project Case. Similar distances are applied to both RAT and AAT in the Baseline.
- Rail transport travels 1.5 km from the point of loading (Side 2) to being off the island (out of VFPA jurisdiction). This assumption applies to the Project Case and both RAT and AAT in the Baseline.
- Inbound OGVs travel 32 km from Sandhead Lighthouse to the Annacis Island berth, and 18 km from Sandhead Lighthouse to the RAT berth in the Baseline. Emissions are calculated on a round trip basis. (Figure 4).

Supply Chain activities are considered in the assessment to identify any air emissions impacts and corresponding mitigating measures that could be implemented in the activities taking place within the port authority's jurisdiction. For AAT, it is expected that the port's authority is limited off the island.

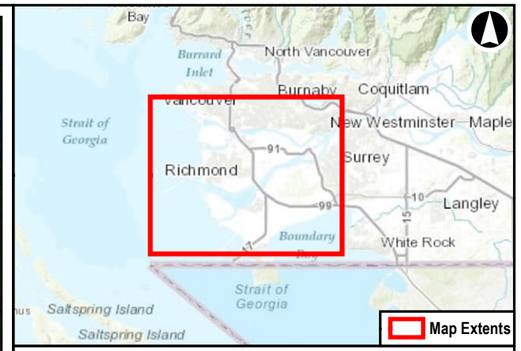
3.3 Receiver Identification and Proximity

Figure 3 shows the AAT facility as well as the surrounding properties and community. Public areas or locations of interest (such as seniors, childcare, and education facilities) are shown.



RAT INSET - 1:20,000

AAT INSET - 1:30,000



Legend

- Sandhead Lighthouse
- Railway

AAT – Annacis Automobile Terminal

- Oceanic Going Vessels Route to AAT
- 1.5 km Rail Transport
- 1.5 km Truck Route to HWY91

RAT – Richmond Automobile Terminal

- Oceanic Going Vessels Route to RAT
- 1.5 km Rail Transport
- 1.5 km Truck Route to HWY99

ANNACIS AUTO TERMINAL

SUPPLY CHAIN

0 1.5 3 4.5 6

Kilometres

Datum: NAD 1983 UTM Zone 10N

Aug, 2022	PN#: TBD	1:100,000 * when printed 11"x17"	AECOM

Figure 4

Data Sources: NRCan - Canvec

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4. Emission Sources

4.1 Primary sources

Emission sources are listed in Table 3 (marine Baseline Case), Table 4 (marine Project Case), Table 5 (Rail Baseline Case), Table 6 (Rail Project Case), Table 7 (Trucking Baseline Case) and Table 8 (Trucking Project Case). The assumptions leading to annual emission estimates include:

- Sulphur content in diesel used by trucks, locomotives and tugs was 15 mg/l (15 ppm)
- Sulphur content in marine fuel was 0.1%
- Estimated emissions in the Baseline Case are based on data provided from the client (352,000 vehicles processed annually at AAT and 99,968 vehicles processed at RAT)
- Estimated emissions in the Project Case are based on expanded capacity to handle 480,000 vehicles annually at AAT and do not necessarily imply a trend in expected demand
- Marine load factors based on evidence per reference paper from U.S. EPA: https://www3.epa.gov/ttnchie1/conference/ei19/session10/trozzi.pdf
- Marine boiler power rating per reference paper from U.S. EPA: https://www3.epa.gov/ttnchie1/conference/ei19/session10/trozzi.pdf
- Marine boiler employed in sea-going marine vessels to maintain adequate temperature for marine gasoil (MGO) fuel. During cruise, fuel heating is typically maintained through residual heat from the main engines, and therefore boiler usage is negligible. Assumed travel speed of 15 knots through the Fraser River, resulting in a 58% main engine load factor, based on an assumed top speed of 18-20 knots for this type of OGV.
- Two tugs maneuver OGVs for the berthing and de-berthing of vessels
- Locomotive specifications based on idling and slow on-site travel in Notch 1
- Fuel distribution for passenger cars, and light passenger trucks (which will include SUVs, and minivans) are given in Table 9.

Emissions from transportation sources are based on the U.S. EPA MOVES model which considers vehicle type as well as driving conditions. The model also incorporates planned future reductions in mandated emissions, with the next planned reduction forecast to occur in 2026. It was assumed the facility will be built and operational by 2026. If facility is built before that year, start-up operations will be below designed capacity. MOVES is designed to calculate emissions for average fleet consisting older and newer vehicles. In the case of AAT, there will be brand new vehicles unloaded from ships and processed at the plant, so MOVES calculations presented here are conservative. Future reductions in emission factors are pollutant-dependent – for example, relative reductions in VOC emissions are larger than reductions in particulate.

Table 3 Marine Emission Sources Baseline Case

Boundary	Source	Source	Metric	Value
Facility	OGV Maneuvering	Main / Slow AUX / Medium Boiler	Vessel Calls per Year	AAT: 106
				RAT: 30
			Hours per Call	2
	OGV Hoteling	AUX / Medium Boiler	Vessel Calls per Year	AAT: 106
				RAT: 30
			Hours per Call	24
	Tugs Assisting Maneuvering	Main Aux	Vessel Calls per Year	AAT: 106
				RAT: 30
			Hours per Call	4
			Tugs per OGV	2
Supply Chain	OGV Travelling (Transit)	Main / Slow AUX / Medium Boiler	Vessel Calls per Year	AAT: 106
				RAT: 30
			Distance per Call (Round Trip)	AAT: 64 km
				RAT: 36 km
			Hours per Call (Round Trip)	AAT: 8
				RAT: 4.5

Table 4 Marine Emission Sources Project Case

Boundary	Source	Source	Metric	Value
Facility	OGV Maneuvering	Main / Slow AUX / Medium Boiler	Vessel Calls per Year	AAT: 145
			Hours per Call	2
	OGV Hoteling	AUX / Medium Boiler	Vessel Calls per Year	AAT: 145
			Hours per Call	24
	Tugs Assisting Maneuvering	Main Aux	Vessel Calls per Year	AAT: 145
			Hours per Call	4
			Tugs per OGV	2
Supply Chain	OGV Travelling (Transit)	Main / Slow AUX / Medium Boiler	Vessel Calls per Year	AAT: 145
			Distance per Call (Round Trip)	AAT: 64 km
			Hours per Call (Round Trip)	AAT: 8

Table 5 Rail Emission Sources Baseline Case

Boundary	Equipment Type	Engine Tier (Age)	Metric	Value
Facility	Diesel Line Locomotives GE AC4400	1	Number of Trains per Year	AAT: 339
				RAT: 96
			Number of Engines per Train	2
			Idling Hours per Train (During Loading on Site)	8
Supply Chain	Diesel Line Locomotives GE AC4400	1	Number of Trains per Year	AAT: 339
				RAT: 96
			Number of Engines per Train	2
			Distance Travelled	1.5 km
			Operating Hours per Train (Travelling)	1

Table 6 Rail Emission Sources Project Case

Boundary	Equipment Type	Engine Tier (Age)	Metric	Value
Facility	Diesel Line Locomotives GE AC4400	1	Number of Trains per Year	AAT: 463
			Number of Engines per Train	2
			Idling Hours per Train (During Loading on Site)	8
Supply Chain	Diesel Line Locomotives GE AC4400	1	Number of Trains per Year	AAT: 463
			Number of Engines per Train	2
			Distance Travelled	1.5 km
			Operating Hours per Train (Travelling)	1

Table 7 On-Road Emissions – Baseline Case

Boundary	Source Type	Vehicle Distribution	Metric	Value
Facility	Vehicle Emissions – Process Building Idling	Light Trucks (SUVs, Minivans): 20% Passenger Cars: 80%	Vehicles per day	AAT: January 1,000/d; July 1,500/d; Annual: 352,000
				RAT: January 284/d; July 426/d; Annual: 99,968
			Idling Time	20 minutes per vehicle
			Distance Travelled in Processing – One Way	0.056 km
	Vehicle Emissions - OGV Offloading	Light Trucks (SUVs, Minivans): 20% Passenger Cars: 80%	Vehicles per day	AAT: 3,321/day; Annual (106 days) 352,000
				RAT: 3,332/day; Annual (30 days) 99,968
			Idling Time	0 minutes per vehicle
			Distance Travelled During Offloading – One Way	0.767 km
	Vehicle Emissions - Car Carrier and Rail Loading	Light Trucks (SUVs, Minivans): 20% Passenger Cars: 80%	Vehicles per day	AAT: January 1000/d; July 1500/d; Annual: 352,000
				RAT: January 284/d; July 426/d; Annual: 99,968
			Idling Time	0 minutes per vehicle
			Distance Travelled to Processing – Round Trip	1.3 km
			Distance Travelled to Rail Shipping – One Way	0.829 km
			% Vehicles Shipped by Rail	85%
			Distance Travelled to Carrier Shipping – One Way	0.671 km
			% Vehicles Shipped by Carrier	15%
Supply Chain	Car Carrier	Heavy Trucks	Car Carriers per Day	AAT: Jan 14/d; Jul 21/d Annual 5,867
				RAT: Jan 14/d; Jul 21/d Annual 1,666
			Idling Time	0 minutes per vehicle
			Distance Travelled – One Way	1.5 km
	Fuel Delivery	Heavy Trucks	Trucks per Day	1/d
			Idling Time	0 minutes
			Distance Travelled – One Way	1.5 km
	General Delivery	Light Commercial Trucks	Trucks per Day	2/d
			Idling Time	0 minutes
			Distance Travelled – One Way	1.5 km

Table 8 On-Road Emissions – Project Case

Boundary	Source Type	Vehicle Distribution	Metric	Value
Facility	Vehicle Emissions – Process Building Idling	Light Trucks (SUVs, Minivans): 20% Passenger Cars: 80%	Vehicles per day	AAT: January 1,364/d; July 2,045/d; Annual: 480,000
			Idling Time	20 minutes per vehicle
			Distance Travelled in Processing – One Way	0.056 km
	Vehicle Emissions - OGV Offloading	Light Trucks (SUVs, Minivans): 20% Passenger Cars: 80%	Vehicles per day	AAT: 3,321/day; Annual (145 days) 480,000
			Idling Time	0 minutes per vehicle
			Distance Travelled During Offloading – One Way	0.767 km
	Vehicle Emissions - Car Carrier and Rail Loading	Light Trucks (SUVs, Minivans): 20% Passenger Cars: 80%	Vehicles per day	AAT: January 1,364/d; July 2,045/d; Annual: 480,000
			Idling Time	0 minutes per vehicle
			Distance Travelled to Processing – Round Trip	1.3 km
			Distance Travelled to Rail Shipping – One Way	0.829 km
			% Vehicles Shipped by Rail	85%
			Distance Travelled to Carrier Shipping – One Way	0.671 km
			% Vehicles Shipped by Carrier	15%
Supply Chain	Car Carrier	Heavy Trucks	Car Carriers per Day	AAT: Jan 19/d; Jul 29/d Annual 8,000
			Idling Time	0 minutes per vehicle
			Distance Travelled – One Way	1.5 km
	Fuel Delivery	Heavy Trucks	Trucks per Day	1/d
			Idling Time	0 minutes
			Distance Travelled – One Way	1.5 km
	General Delivery	Light Commercial Trucks	Trucks per Day	2/d
			Idling Time	0 minutes
			Distance Travelled – One Way	1.5 km

Table 9 Vehicle Type Breakdown

Equipment Category	Fuel distribution: electric; hybrids; gasoline; diesel (%)
Light Trucks (e.g., SUV's, Mini Vans Pick-up Trucks) 20%	EV 5% Hybrids 20% Gasoline 74% Diesel 1%
Passenger Cars 80%	EV 5% Hybrids 20% Gasoline 75%

4.2 Emission Variability

4.2.1 Operations

The AAT operates 334 days per year, seven days a week, 16 hours a day. Emissions vary with the level of activity at the Terminal, which varies throughout the day and week. The AAT operations 24 hours per day when OGVs unload vehicles.

Emissions are lower from 11 p.m. to 6 a.m. Monday through Saturday, and all-day Sunday, as no car-carrier trucks pass through the AAT at those times. OGV emissions will vary based on time hotelling, and number of ships at berth. Larger OGVs are required to hotel longer, as they have more vehicles to unload. Rail emissions only occur while trains are at AAT; trains do not call at the AAT every day. On-site traffic associated with movement of vehicles to and from parking areas and OGVs can occur at all hours during the unloading process. On-site traffic from parking to car carriers and to and from the vehicle processing centre occur during the day.

Activity is seasonal. OGV inbound traffic is higher in summer (March to August) and lower in other months. As a result, emissions from rail and car carriers are also higher in these months.

Actual emissions are anticipated to be the highest during the highest level of activity at AAT (to further illustrate emission variability). Highest activity levels occur when there are two OGVs at berth, one or two trains arriving in or leaving the rail yard, and during loading of car carriers. These activities are most likely to overlap during the day. Nonetheless, emissions were calculated as annual averages, based on number of calls for marine vessels and number of trains and trucks leaving the facility per year.

4.3 Pollutants of Concern

Contaminants considered in the Level 1 Assessment for determining effects on air quality were selected because they are by-products of hydrocarbon combustion. All CAC air emissions from the Facility and Supply Chain are the result of fuel combustion during operations. AAT GHGs originate from fuel combustion and electricity used on-site in administration buildings and refrigeration. The following contaminants were considered for the Level 1 Assessment:

- Nitrogen Oxides, NO_X
- Sulphur Oxides, SO_2
- Carbon Monoxide, CO
- Particulate matter 10 micrometres or less in diameter, PM_{10}
- Particulate matter 2.5 micrometres or less in diameter, $PM_{2.5}$
- Volatile Organic Compounds, VOC

Greenhouse gases include the following listed in order of importance for combustion related activities:

- Carbon Dioxide, CO_2

- Methane, CH_4
- Nitrous Oxide, N_2O.

5. Current Condition

5.1 Air Quality

Air quality is not monitored at the AAT or near it. Table 10 summarizes air quality used to develop background concentrations. Richmond South (T17) and Burnaby South (T18) are near AAT that have data available to 2017 (other stations in Metro Vancouver have data from previous years).

T17 and T18 are near the project site and have the most compounds measured and reported. T18 is a station with background PM_{10} and VOCs (National Air Pollution Surveillance (NAPS) data) concentration data. The background was selected based on the average number from these two stations and three years of data (2015 to 2017).

In 2017 some data for SO_2, NO_2 and CO are missing from the record and in addition, wildfires affected the Vancouver area. As a result, data from the following 2017 periods were removed from the dataset when establishing background concentrations, based on Metro Vancouver air quality advisories for fine particulate:

- July 18
- August 1 to August 11
- August 29
- September 3 to September 8

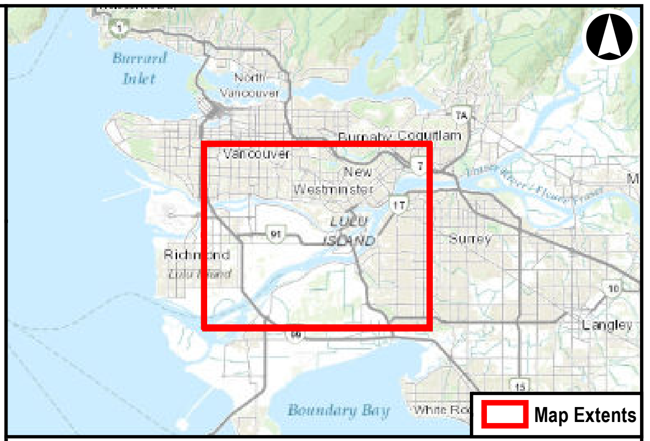
Table 10 Background Concentrations

Compound / Time Average	1-hr	8-hr	24-hr	Annual
SO_2	5	-	-	1
NO_2	61	-	-	24
NO_X	149	-	-	35
CO	681	611	-	-
$PM_{2.5}$	-	-	14	5.5
PM_{10}	-	-	18	9.0

5.2 Meteorological Influences

Air quality concentrations are influenced by meteorology. The wind direction controls the trajectory that contaminants travel from the emission point to receptors and wind speed affects the transport time. Temperatures provide an indication of seasonality in the ability of the atmosphere to disperse and dilute emissions. Therefore, it is important to consider local meteorological patterns to assess potential air quality effects.

The local meteorological conditions of the site are governed by the convergence of land-based and marine air masses with terrain features to the north. Depending on the wind direction, the Project location could be influence by both stable marine air masses when winds blow from the west and more neutral to unstable air masses when winds blow from the south and east. The urban influences surrounding the Project provide a more neutral to unstable atmospheric environment, due to rougher surface elements and heat island effects. Winds rarely blow from the north. Temperature and wind information is provided in this section, based on measurements from 2013-2015 at three Metro Vancouver monitoring stations closest to Annacis Island, (Figure 5).



Legend

- MetroVancouver Stations
- Annacis Auto Terminal
- Study Area (2 km Buffer)

ANNACIS AUTO TERMINAL

LOCATION OF METROVANCOUVER STATIONS

0 1 2 3 4
Kilometres

Datum: NAD 1983 UTM Zone 10N

Jul, 2022	PN#: TBD	1:65,000 * when printed 11"x17"

Figure 5

AECOM

Data Sources: NRCan - Canvec

Figure 6 and Figure 7 show the change in temperature with time of day averaged over the year (Figure 6) and by season (Figure 7).

Wind speeds and wind direction vary throughout the Metro Vancouver area. Wind roses (wind direction and speed frequency plots) are shown in Figure 8 from 2013 to 2015 and wind speed frequencies for the same period are shown in Figure 9. Winds near Annacis Island are often from the east.

Figure 6 Mean Diurnal Temperature, 2013-2015

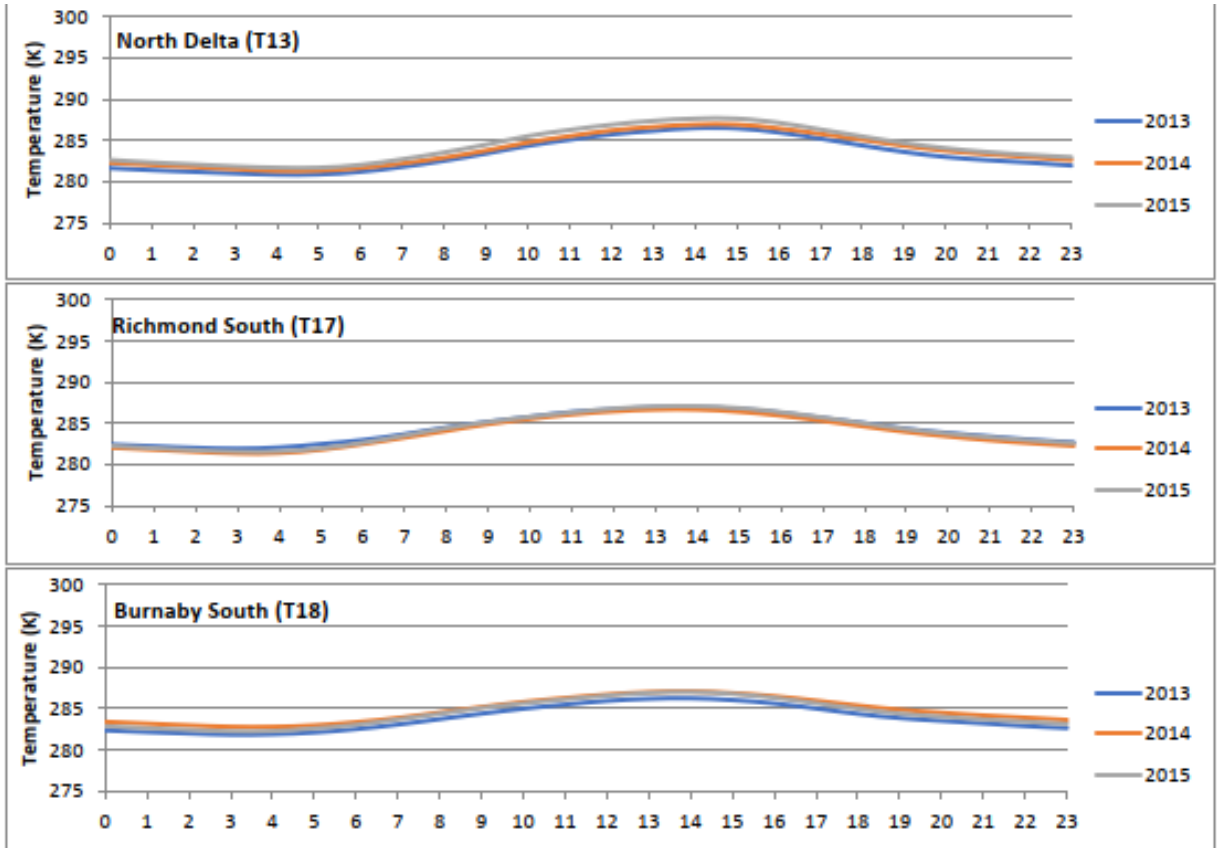


Figure 7 Seasonal Diurnal Temperature, 2013-2015

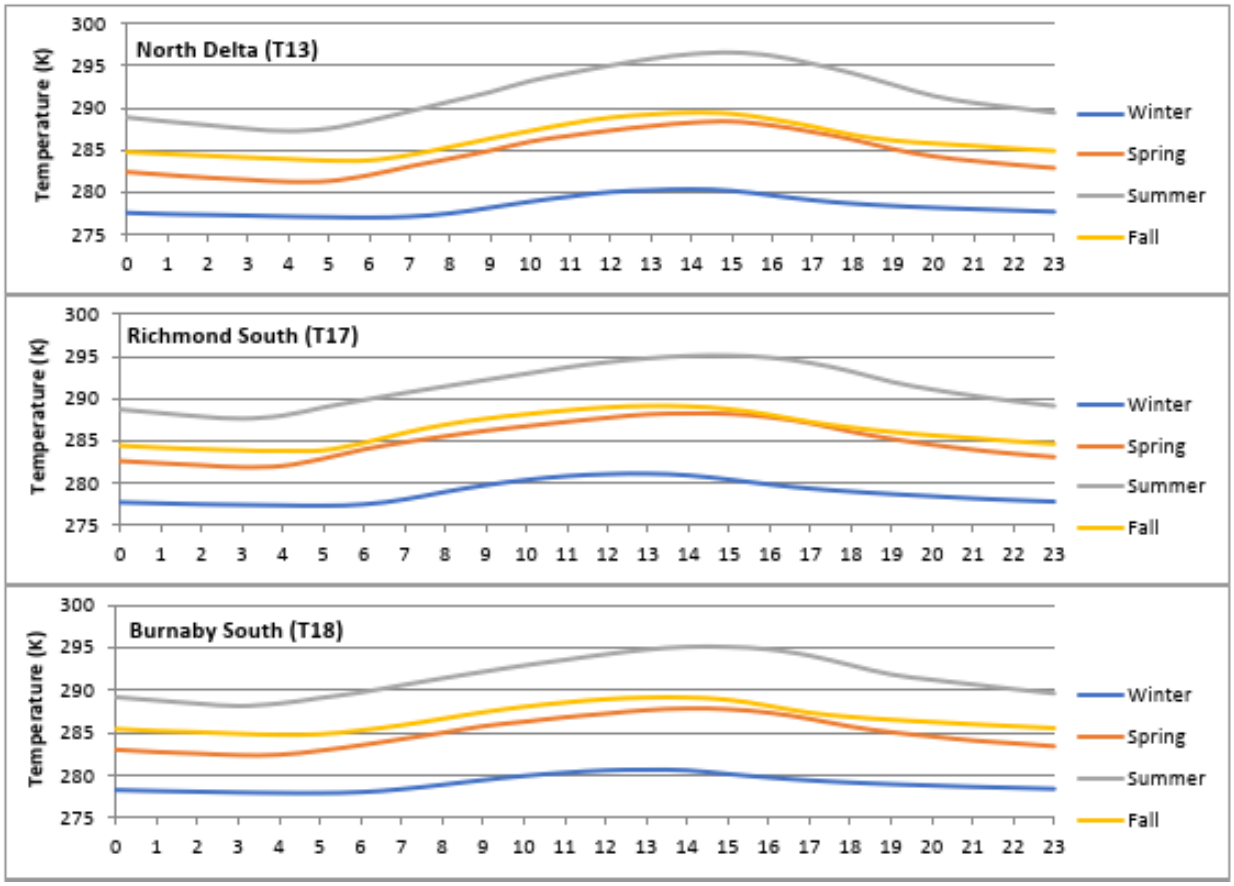


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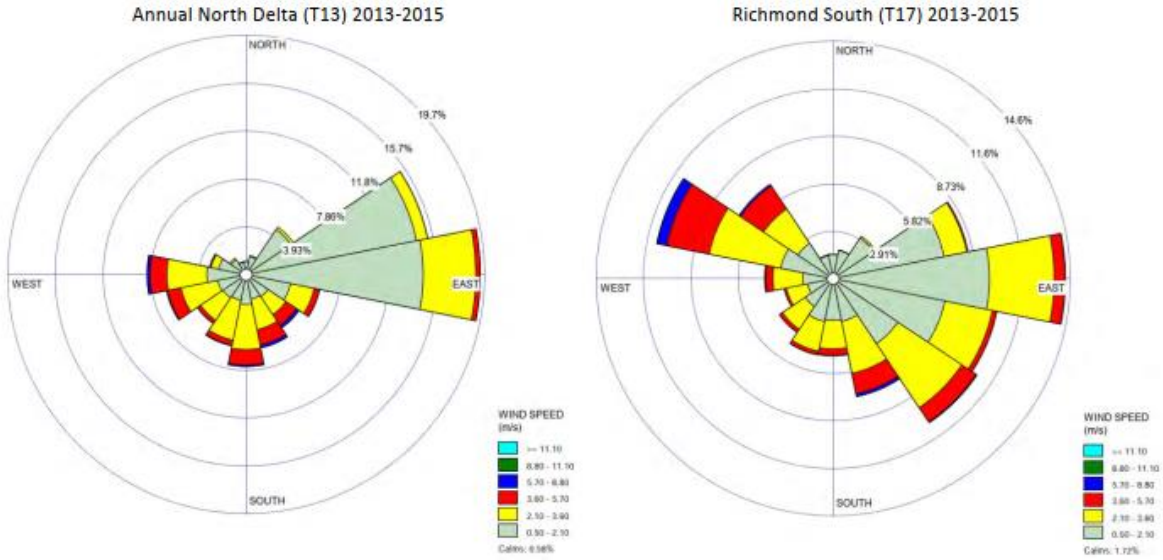
Figure 8 Windroses from Select Metro Vancouver Stations 2013-2015



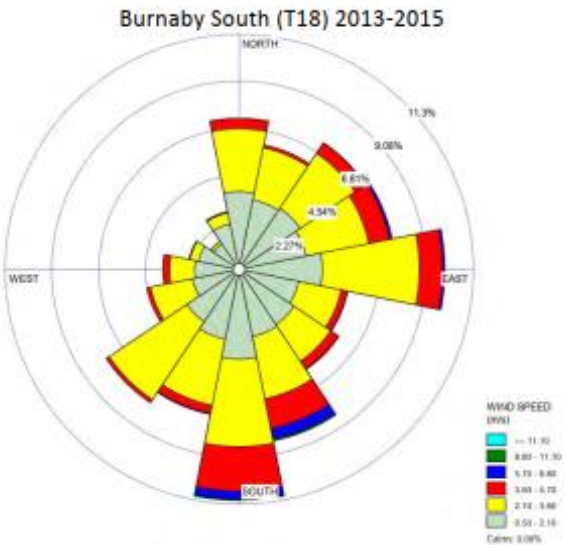
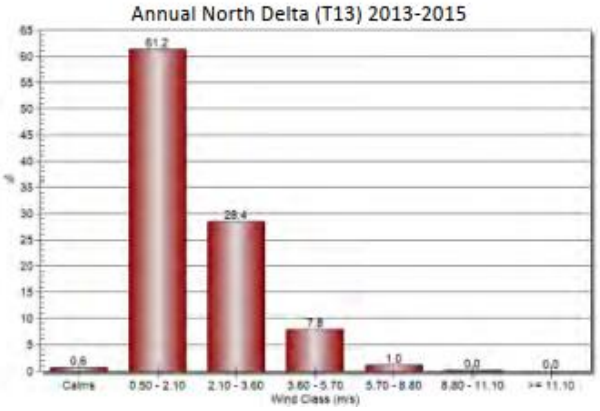
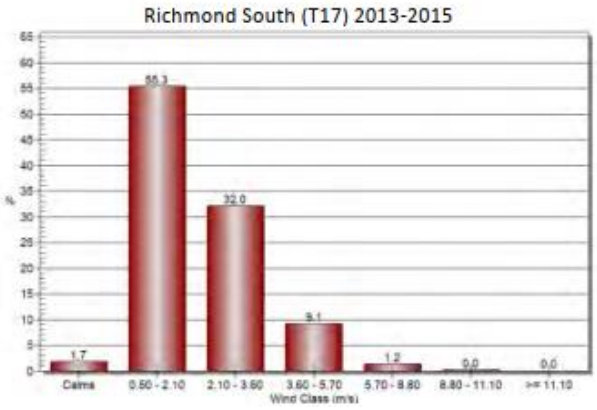
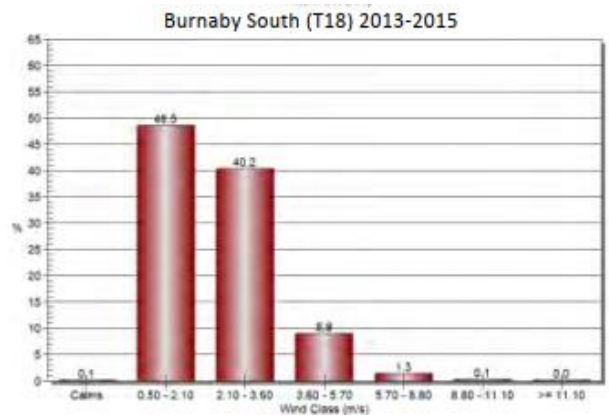


Figure 9 Wind Speed Frequencies at Select Metro Vancouver Stations, 2013-2015







5.3 Historical trends

Table 11 lists the approximate number of vehicles processed through AAT and RAT over the last five years. The values used for baseline annual emission estimates are based on the year 2018 counts (bold in Table 11), conservatively increased by around 6% to 352,000 vehicles processed at AAT in a year and 99,968 vehicles processed at RAT. The total number of vehicles processed at AAT and RAT is 451,968 per year, which is conservatively higher than total counts in Table 11. The number of vehicles processed in the most recent years (2020 and 2021) are lower due to decreased demands

during the COVID pandemic. The number of vehicles processed at RAT in 2019 and 2020 is significantly lower than in 2016 to 2018.

Table 11 Trend in Vehicles Processed by AAT and RAT

Year	AAT	RAT	Total
2016	296,279	96,969	393,248
2017	327,162	102,646	429,808
2018	**331,098**	**94,321**	**425,419**
2019	347,620	72,421	420,041
2020	284,625	60,683	345,308
Base Case Capacity	352,000	99,968	451,968
Project Case Capacity	480,000	0	480,000

6. Future Condition

6.1 Horizon Year

Annual emission estimates for Facility emissions and Supply Chain emissions were calculated for the Baseline Case, Project Case, and No-Project Case (which in this case were assumed the same as the Baseline Case as no increase in throughput has been forecast). Potential changes in annual emissions by application of the BAT Case are discussed.

2026 was chosen as the Horizon Year for the future scenarios, to reflect the anticipated completion of the expansion at AAT and decommissioning of the RAT. AAT emissions are based on the sustainable maximum throughput of the Project Case and are independent of the horizon year. Sustainable maximum throughput can be also considered as a maximum design capacity of the planned facility, which will not be exceeded at any time during the future operations.

In both the Project and No-Project cases, calls by vessels with larger capacities may be anticipated to replace calls from smaller vessels; however, in the Project Case vessel calls are anticipated to be dominated by larger vessels.

Combustion emissions associated with the Project Case are largely from independent operators, for fleets of OGVs, shipping by rail, and the car-carrier fleet. Although the AAT may influence emissions through choice of contractors for these services, they are not in the control of the AAT. Combustion emissions on site are largely determined by the type of vehicles imported, where electric vehicle imports (zero local emissions) are expected to increase.

6.2 Design Capacity Limitation

6.2.1 Physical Constraints

The limiting factor which affects the air assessment is terminal throughput, in this case driven by rail capacity.

6.2.2 Operational Constraints

6.2.2.1 Access

The following access constraints were considered for the Project.

- Rail Side 2 construction access will be required from Alford Avenue.

- Rail Side 2 construction staging requires planning for the needed laydown and staging area to build new tracks and switches; it is more complex than Rail Side 1 which is a more open area and is an extension of existing rail lines.
- There is limited on-site parking available for the personal vehicles of onsite construction crews.

The constraints do not impact air emission calculations.

6.2.2.2 Continued Terminal Operations

The following constraints have been identified for the Project:

- Rail Side 1 construction will be planned with no interruptions to current operations, except the extended length of Track 4. Rail Side 2 construction should be planned with minimum interruption for switch tie-ins and extended interruptions confined to Track 8.
- At least one rail side always needs to be operational; it is unlikely that construction activities can be accommodated on both rail sides at the same time.
- It is likely that construction works of the New Processing Building will occur during the terminal's peak spring shipping and processing season and will need to be considered during construction staging.
- On Rail Side 2, construction works will require new switches and turnouts. Procurement for switches and turnouts is approximately 6 months and should be considered in advance of construction, potentially as a separate purchasing inquiry.

These constraints do not affect air emission calculations, although emissions may occur over an extended duration to allow operations to continue during construction. No increase in emissions is expected because of this constraint.

7. Emission Estimates

7.1 Baseline Case

Table 12 summarizes emissions from the various aspects of operations at AAT and RAT, combined to a single Baseline value. Emissions in Table 12 are annual emissions accounting for 136 marine vessels per year, 452,000 vehicles processed, 435 trains and 7,533 carriers leaving the AAT and RAT facilities per year.

Table 13 summarizes daily emissions for normal AAT and RAT operations (vehicles processed and transported), daily maximum emissions with one vessel and with two vessels (somewhere in AAT or RAT) travelling, maneuvering (with tug assistance), hotelling and unloading vehicles to parking. Summer rail, trucking and site daily emissions are slightly higher than winter daily emissions.

Table 12 Annual Emissions – Baseline Case

Primary Source	Detail		SO_2 (tonnes)	NO_X (tonnes)	CO (tonnes)	VOC (tonnes)	$PM_{2.5}$ (tonnes)	PM_{10} (tonnes)	GHG (CO_2e) -100-year horizon (tonnes)
Facility Emissions									
Marine	Manoeuvring	Main	0.23	10.33	1.37	0.63	0.12	0.13	461
		Aux	0.18	5.78	0.46	0.16	0.07	0.07	339
		Boiler	0.06	0.20	0.02	0.01	0.02	0.02	106
	Hotelling	Main	0.00	0.00	0.00	0.00	0.00	0.00	0
		Aux	1.22	40.11	3.17	1.11	0.49	0.52	2,349
		Boiler	0.69	2.42	0.24	0.12	0.18	0.21	1,271
	Tugs	Main	0.00	0.00	0.00	0.00	0.00	0.00	0
		Aux	0.0034	3.53	2.60	0.14	0.130	0.134	363
		Boiler	0.0002	0.230	0.169	0.0091	0.0085	0.0087	24
Rail	During Onsite Loading		0.0009	2.052	0.392	0.139	0.090	0.098	170
On-Road	Vehicle Process Idling		6.53E-05	3.13E-03	8.71E-02	1.26E-03	3.13E-04	2.01E-03	10
	Vehicle OGV Offloading		6.41E-04	3.33E-02	8.91E-01	1.27E-02	3.10E-03	1.97E-02	97
	Vehicle Car Carrier		2.09E-03	1.08E-01	2.92E+00	4.16E-02	1.01E-02	6.42E-02	317
Supply Chain Emissions									
Marine	Transit along Fraser River	Main	0.543	25.50	2.10	0.869	0.255	0.29	1,112
		Aux	0.031	1.00	0.079	0.028	0.012	0.013	59
		Boiler	0.00	0.00	0.00	0.00	0.00	0.00	0

Rail	Transit Offsite	0.0051	1.539	0.294	0.104	0.068	0.073	128
On-Road	Car Carrier Offsite	6.32E-05	9.20E-02	4.54E-02	2.99E-03	2.66E-03	1.02E-02	18.8
	Fuel Transport & General Deliveries	6.66E-06	8.70E-03	5.96E-03	6.72E-04	3.13E-04	8.71E-04	2.0
Total Facility Emissions		**2.38**	**64.8**	**12.3**	**2.38**	**1.12**	**1.27**	**5,507**
Total Supply Chain Emissions		**0.58**	**28.1**	**2.5**	**1.00**	**0.34**	**0.38**	**1,319**
Total Baseline Annual Emissions		**2.96**	**93.0**	**14.8**	**3.39**	**1.45**	**1.66**	**6,825**

Note: It was assumed that vehicle carrier trucks would not be idling during loading operations.

Table 13 Total Daily Baseline Emissions for Three Operating Scenarios

Scenario 1: Normal Daily Case without Vessels Operating and Unloading; 2: Normal Daily Summer Emissions with One Vessel Only; 3: Normal Daily Summer Emissions for Two Vessels Unloading.

Activity	SO_2 (kg)	NO_X (kg)	CO (kg)	VOC (kg)	$PM_{2.5}$ (kg)	PM_{10} (kg)	GHG (CO_2e) – 100-year horizon (kg)
Normal Daily Summer Emissions (No Vessels)							
Marine	0	0	0	0	0	0	0
Tugs	0	0	0	0	0	0	0
Rail	0.016	9.837	1.879	0.666	0.432	0.470	817
Trucking	2.5E-04	0.016	0.182	0.013	0.010	0.039	74
Site	0.008	0.391	11.47	0.16	0.04	0.24	1,194
Total	0.025	10.2	13.5	0.84	0.48	0.75	2,084
Daily Summer Emissions (with One Vessel Operating and Unloaded)							
Marine	20.0	568	48	19	7.65	8.34	38,554
Tugs	0.007	6.916	5.085	0.275	0.25	0.26	710
Rail	0.016	9.837	1.879	0.666	0.43	0.47	817
Trucking	2.5E-04	0.016	0.182	0.013	0.010	0.039	74
Site	0.013	0.630	18.47	0.25	0.06	0.38	1,921
Total	20.0	585	74	19.8	8.4	9.5	42,076
Maximum Daily Summer Emissions (with Two Vessels Operating and Unloaded)							
Marine	39.9	1,135	96	37	15	17	77,109
Tugs	0.01	13.8	10.2	0.549	0.509	0.525	1,420
Rail	0.016	9.837	1.879	0.666	0.432	0.470	817
Trucking	2.5E-04	0.016	0.182	0.013	0.010	0.039	74
Site	0.024	0.869	25.47	0.35	0.08	0.53	2,648
Total	40.0	1,160	134	38.8	16.3	18.2	82,068

7.2 Project Case

Table 14 summarizes emissions at the AAT because of the operation of the Project. Emissions in Table 14 are annual emissions accounting for 145 marine vessels, 480,000 processed vehicles, 463 trains, and 8,000 carriers leaving the AAT facility per year.

From the summary in Table 12 and Table 14, marine emissions during manoeuvring and hotelling (Facility Emissions) are the dominant source category for Baseline and Project Cases, followed by transit along the Fraser River and land-based sources (rail and on-road emissions). From 14% (CO) to 28% (NO_X) of Baseline marine emissions are from transit (Table 12) while 17% (CO) to 31% (NO_X) of Project marine emissions are from transit.

7.3 No Project Case

The No Project assumption was that emissions would be the same as Baseline emissions given that capacity has essentially been reached at both RAT and AAT and that no further increases in throughput at the two locations are possible. In addition, the land at RAT has been allocated to other uses.

For this assessment, the No Project Case emissions are considered conservatively the same as Baseline Emissions. Nonetheless, reductions in Canadian vehicle emissions are mandated in future. Thus, calculated No Project emissions may be lower than Baseline. However, a No Project Emission Case is not tenable given the requirement to give up the RAT premises.

Table 14 Annual Emissions – Project Case

Primary Source	Detail		SO_2 (tonnes)	NO_X (tonnes)	CO (tonnes)	VOC (tonnes)	$PM_{2.5}$ (tonnes)	PM_{10} (tonnes)	GHG (CO_2e) – 100-year horizon (tonnes)
Facility Emissions									
Marine	Manoeuvring	Main	0.24	11.02	1.46	0.68	0.12	0.14	492
		Aux	0.19	6.17	0.49	0.17	0.08	0.08	361
		Boiler	0.06	0.22	0.02	0.01	0.02	0.02	113
	Hotelling	Main	0.00	0.00	0.00	0.00	0.00	0.00	0
		Aux	1.30	42.76	3.38	1.19	0.52	0.55	2,505
		Boiler	0.73	2.58	0.26	0.12	0.19	0.22	1,355
	Tugs	Main	0	0	0	0	0	0	0
		Aux	0.0036	3.766	2.769	0.150	0.139	0.143	387
		Boiler	0.0002	0.245	0.180	0.0097	0.0090	0.0093	25
Rail	During Onsite Loading		0.0009	2.184	0.417	0.148	0.096	0.104	181
On-Road	Vehicle Process Idling		7.45E-05	1.70E-03	8.95E-02	7.24E-04	3.84E-04	2.57E-03	11
	Vehicle OGV Offloading		6.06E-04	1.49E-02	7.50E-01	6.07E-03	3.13E-03	2.08E-02	92
	Vehicle Car Carrier		2.05E-03	5.01E-02	2.55E+00	2.06E-02	1.06E-02	7.02E-02	310
Supply Chain Emissions									
Marine	Transit along Fraser River	Main	0.641	30.09	2.478	1.026	0.301	0.336	1,312
		Aux	0.036	1.184	0.094	0.033	0.014	0.015	69
		Boiler	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Rail	Transit Offsite	0.005	1.638	0.313	0.111	0.072	0.078	136
On-Road	Car Carrier Offsite	6.24E-05	8.76E-02	4.73E-02	1.88E-03	2.03E-03	1.00E-02	18.7
	Fuel Transport & General Deliveries	4.59E-06	5.21E-03	3.70E-03	2.63E-04	1.63E-04	5.92E-04	1.4
	Total Facility Emissions	**2.54**	**69.0**	**12.4**	**2.5**	**1.2**	**1.4**	**5,832**
	Total Supply Chain Emissions	**0.68**	**33.0**	**2.9**	**1.2**	**0.4**	**0.4**	**1,537**
	Total Baseline Annual Emissions	**3.22**	**102.0**	**15.3**	**3.7**	**1.58**	**1.80**	**7,369**

Note: It was assumed that vehicle carriers do not be idling during loading operations.

8. Mitigation Potential (Best Available Technique)

8.1 Use of Best Available Technology Not Entailing Excessive Cost

The largest emissions during operation of the AAT are due to marine, rail and trucking vehicles on and off site. These operations are conducted by independent contractors over which the AAT has limited influence to reduce emissions.

The following are activities on site over which AAT has control:

- Increased fraction of electric cars serviced by the facility. Increased electrification would reduce the on-site emissions caused by off and on loading activities as vehicles are shunted around the facility. If the entire fleet of imported vehicles were electric, this would eliminate vehicle emissions during OGV offloading and car carrier loading as well as process building idling vehicles in Table 14. These changes would reduce total Site emissions (except marine sources) in Table 14 by 100%, apart from emissions from building heating and cooling. It is noted that while these emissions occur on site, the fraction of electric vehicles passing through the site is market driven rather than a policy over which AAT has control.
- The use of electric heating for buildings, from non-fossil fuel sources such as hydro, would eliminate building heating and cooling emissions.
- There are few yard vehicles on site during operations. Electrification of all yard vehicles would have a negligible effect on AAT emissions.

8.2 Application of Best Available Procedures

The emission assessment assumed that car carriers do not idle while loading for transport outside of the facility. Similarly, it was assumed that vehicles do not idle while offloaded from marine vessels. Should either of these not be the case, there would be an opportunity for limited emission reduction during operations.

No other BAPs were considered applicable to operations on site that would not entail excessive cost.

9. Impact Potential

9.1 Comparison of Baseline Case to Project Case

9.1.1 Capacity 480,00 Vehicles Processed Annually

The Project does not necessarily anticipate a growth in throughput, because it is due to a relocation of activities from the RAT to the AAT. Nonetheless, an overall increase in total emissions and emissions from marine, tugs, and rail sources (Table 15) is predicted for several reasons:

- Comparing the average vehicle throughput in Table 11 of 420,000 in the years 2016 to 2019 to the capacity of 480,000 results in an increase of about 14%. If capacity was reached, all annual emissions would be expected to increase in this proportion compared to current average emissions.
- Some project emissions are larger than Baseline emissions because of an increase in shipping emissions (travel distance to the AAT – 32 km is longer than to the RAT – 18 km) and projected increase of OGV calls (from 136 to 145).

Countering this tendency toward increase are the following which tend to decrease emissions for trucking and site emissions (Table 15):

- Some project emissions are lower because the MOVES model accounts for emission reductions from vehicles operating in 2021 compared to vehicles which will operate in 2026. This is particularly evident in the case of VOCs.
- There is some consolidation of operations on site in the Project case. This affects trucking for fuel and general deliveries.
- Travel distances on site, especially from the berth to the parking areas on site, are shorter in the AAT than in the RAT.

The net result is that emissions from trucking and site operations tend to decrease while emissions from other source categories increase. Overall, the Project results in increased emissions (Table 15).

Table 15 Change from Baseline to Project Case

Primary Source	Detail		SO_2 (tonnes)	NO_X (tonnes)	CO (tonnes)	VOC (tonnes)	$PM_{2.5}$ (tonnes)	PM_{10} (tonnes)	GHG (CO_2e) – 100 years (tonnes)
Facility Emissions									
Marine	Manoeuvring	Main	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%
		Aux	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%
		Boiler	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%
	Hotelling	Main	0%	0%	0%	0%	0%	0%	0%
		Aux	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%
		Boiler	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%
	Tugs	Main	0%	0%	0%	0%	0%	0%	0%
		Aux	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%
		Boiler	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%
Rail	During Onsite Loading		6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%
On-Road	Vehicle Process Idling		14%	-46%	2.7%	-42%	22%	28%	14%
	Vehicle OGV Offloading		-5.6%	-55%	-16%	-52%	0.9%	5.6%	-5.6%
	Vehicle Car Carrier		-2.1%	-54%	-13%	-51%	4.6%	9.5%	-2.1%
Supply Chain Emissions									
Marine	Transit along Fraser River	Main	18%	18%	18%	18%	18%	18%	18%
		Aux	18%	18%	18%	18%	18%	18%	18%
		Boiler	0%	0%	0%	0%	0%	0%	0%

Rail	Transit Offsite	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%
On-Road	Car Carrier Offsite	-1.3%	-4.7%	4.1%	-37%	-24%	-1.6%	-0.8%
	Fuel Transport & General Deliveries	-31%	-40%	-38%	-61%	-48%	-32%	-31%
Total Change in Facility Emissions		**6.6%**	**6.5%**	**0.4%**	**5.3%**	**6.6%**	**6.8%**	**5.9%**
Total Change in Supply Chain Emissions		**18%**	**17%**	**16%**	**17%**	**15%**	**15%**	**17%**
Total Change from Baseline to Project Annual Emissions		**8.8%**	**9.7%**	**3.1%**	**8.6%**	**8.6%**	**8.7%**	**8.0%**

Note: negative values indicate Project emissions are lower than Baseline emissions (due to lower emission vehicles in future)

9.1.2 Significance of Emission Increase

9.1.2.1 Relative to Capacity Increase

The proposed 480,000 vehicle capacity consolidated at AAT compared to 420,000 vehicles in the combined AAT and RAT) represents a capacity increase of about 14%. Table 15 indicates total emissions increase by 3.1% to 9.7%. That the capacity increases faster than emissions suggesting the expansion is efficient and therefore in our view the emissions increase is not significant.

9.1.2.2 Relative to Local Emissions

To establish context for the projected incremental emissions increase, *2005-2006 BC Ocean Going Vessel Emissions Inventory* (The Chamber of Shipping 2007) presents total annual marine (and tugs) emissions from the Lower Fraser River Valley area (LFRV). These emissions are summarized in the first column of Table 16. The next four columns are summarized from Port of Vancouver inventory (PofV inventory, 2017) for marine and all other transportation sources (trains, tugs, trucks, and cars). The report is published every 5 years and the most recently available data are presented (https://www.portvancouver.com/wp-content/uploads/2017/12/2015PortEmissionsInventory.pdf).

The purpose of this section is not to discuss or explain trends in emissions but to compare the incremental emissions from the AAT consolidation/expansion to the most recently available port of Vancouver emissions from all sources (column: PofV All Sources 2015). The relative change due to the AAT consolidation/expansion project is shown in the last column of Table 16 and ranges from 0.0007% for CO emissions to 0.10% for SO_2 emissions. The changes in emissions compared to port emissions are not significant.

Furthermore, continued emission reductions are forecast in future that would affect OGVs transiting the Fraser River (Figure 10) due to introduction of more efficient engines via the Energy Efficiency Design Index (EEDI) applicable to ships built after 2013, and Ship Energy Efficiency Management Plan (SEEMP) requirements for all ships (https://static.pmg.org.za/140729annexiv.pdf). As a result, future emissions of OGVs servicing the AAT are expected to decrease.

Table 16 Comparison of Annual Emissions (tonnes) from the Future AAT Project to Annual Emissions in Other Inventories

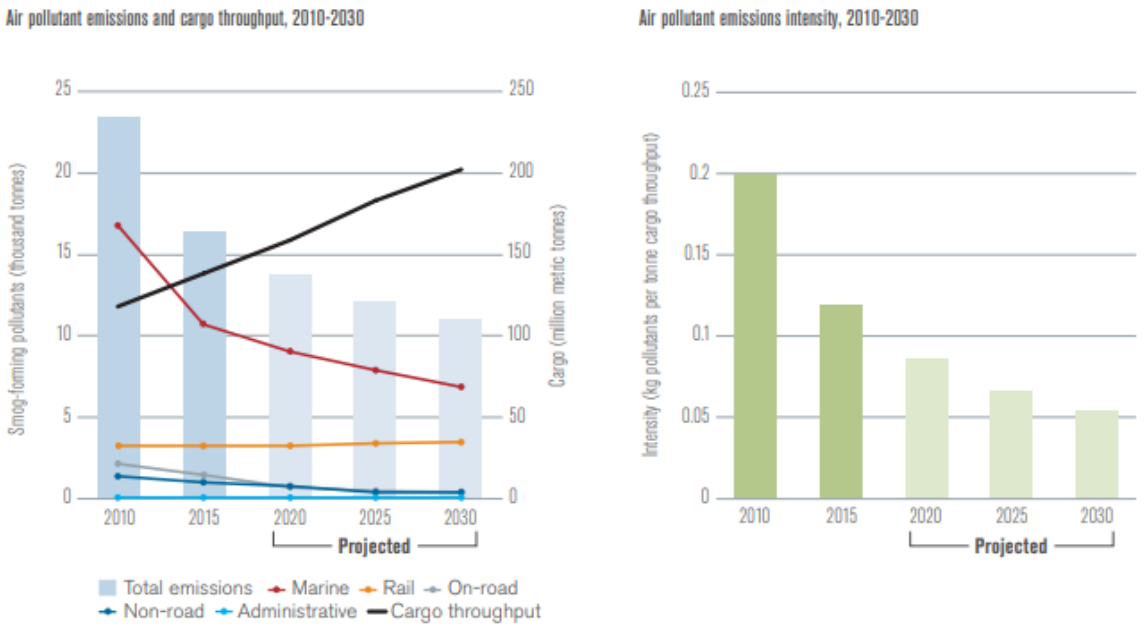
Compound / Emission Source	LFRV[1] Marine 2005-2006	PofV[2] Marine 2015	PofV All[2] Sources 2015	LFRV[2] All Sources 2015	BC All Sources[2] 2015	AAT Project	AAT Emission Change	Change / PofV All (%)
SO_2	3,508	265	268	1,626	60,485	3.22	0.26	0.10
NOx	4,022	8,997	12,971	50,357	276,444	102.0	9.1	0.07
CO	2,236	963	2,277	-	-	15.3	0.46	0.02
VOC (HC)	155	310	567	65,828	164,868	3.7	0.29	0.05
$PM_{2.5}$	237	140	288	5,243	80,882	1.58	0.13	0.04
CO_{2e}	248,036	635,192	1,079,686	17,529,390	60,900,000	7,369	543	0.05

Notes: *Emission inventories from Lower Fraser River Valley (LFRV) and the "All Emissions" category from British Columbia (BC), LFRV, and Port of Vancouver (PofV)*

[1] *2005-2006 BC Ocean Going Vessel Emissions Inventory* (The Chamber of Shipping 2007)

[2] PofV inventory (2017): https://www.portvancouver.com/wp-content/uploads/2017/12/2015PortEmissionsInventory.pdf

Figure 10 Calculated and Projected Total (Marine and Other Transport Emissions) Air Pollutant Emissions Decrease from 2010 to 2015 (PofV inventory, 2015)



9.1.3 Capacity 420,00 Vehicles Processed Annually

Table 17 assumes no growth in demand and therefore 136 marine vessel calls per year and 420,000 vehicles processed annually. For this capacity, total CO emissions in future are 5.1% lower than in the Baseline Case (due to more efficient equipment in the Project Case) (Table 17). The site and trucking emissions are lower for every compound in the Project Case, despite a slight increase in SO_2, NO_X, VOC, $PM_{2.5}$, and PM_{10} total emissions from 0.9% (for PM_{10}) to 2.7% (NO_X) (Table 12 and Table 17). In the case of GHG (CO_{2e}) the increase in total emissions from Baseline to Project Case is 0.6%. If future demand is similar to recent years, the increase in emissions will be less than presented in Table 14.

At the 420,000 vehicles capacity, the emission increase is also not signification from capacity and regional emissions perspectives.

Table 17 Total Annual Project Emissions based on 136 OGV calls

	SO_2 (tonnes)	**NO_X (tonnes)**	**CO (tonnes)**	**VOC (tonnes)**	**$PM_{2.5}$ (tonnes)**	**PM_{10} (tonnes)**	**GHG (CO_{2e}) (tonnes)**
Marine	3.01	88.2	7.67	3.03	1.17	1.28	5,821
Tugs	0.0036	3.76	2.77	0.15	0.138	0.143	386
Rail	0.0056	3.344	0.639	0.227	0.147	0.160	278
Trucking	5.86E-05	0.081	0.045	0.002	0.002	0.009	18
Site	0.0024	0.058	2.97	0.024	0.012	0.082	361
Total	3.02	95.4	14.1	3.43	1.47	1.67	6,864
Change = Proj. - Base	0.06	2.48	-0.75	0.046	0.015	0.014	39
Change (%)	2.0	2.7	-5.1	1.4	1.1	0.9	0.6

9.2 Comparison of Project Case to No Project Case

The No Project assumption was that the emissions would be the same as Baseline emissions given that capacity has essentially been reached at both RAT and AAT. The No Project case is not a viable option, as the land at RAT has been identified for other uses. Nonetheless, a comparison is provided in Table 19 and Table 19.

Emissions from all source categories are higher in the Project Case than in the No Project Case. Marine emissions in the Fraser River are the largest component of total emissions. Travel distances to the AAT are longer than to the RAT; therefore, consolidating operations at the AAT results in higher marine emissions and higher overall emissions.

Furthermore, Table 19 incorporates Baseline emissions scaled by the reduction in 2026 emission factors in the MOVES model. Thus, 2026 No Project emission factors are lower than 2021 Baseline emission factors. The result as evidenced by Table 19 is that No Project Case emissions are consistently lower than Project emissions.

Project emissions for fuel transport and general delivery is expected to be less than in the No Project Case due to better efficiency in deliveries to one facility instead to two facilities (negative percentages in Table 19).

Table 18 Annual Emissions – No Project Case

Primary Source	Detail		SO_2 (tonnes)	NO_X (tonnes)	CO (tonnes)	VOC (tonnes)	$PM_{2.5}$ (tonnes)	PM_{10} (tonnes)	GHG (CO_2e) – 100-year horizon (tonnes)
Facility Emissions									
Marine	Manoeuvring	Main	0.23	10.33	1.37	0.63	0.12	0.13	461
		Aux	0.18	5.78	0.46	0.16	0.07	0.07	339
		Boiler	0.06	0.20	0.02	0.01	0.02	0.02	106
	Hotelling	Main	0.00	0.00	0.00	0.00	0.00	0.00	0
		Aux	1.22	40.11	3.17	1.11	0.49	0.52	2,349
		Boiler	0.69	2.42	0.24	0.12	0.18	0.21	1,271
	Tugs	Main	0.00	0.00	0.00	0.00	0.00	0.00	0
		Aux	0.003	3.532	2.597	0.140	0.130	0.134	363
		Boiler	0.0002	0.2298	0.1690	0.0091	0.0085	0.0087	24
Rail	During Onsite Loading		0.0009	2.0518	0.3920	0.1390	0.0902	0.0980	170
On-Road	Vehicle Process Idling		5.78E-05	1.30E-03	6.89E-02	5.58E-04	2.98E-04	2.00E-03	9
	Vehicle OGV Offloading		5.68E-04	1.39E-02	7.04E-01	5.70E-03	2.93E-03	1.95E-02	86
	Vehicle Car Carrier		1.85E-03	4.53E-02	2.31E+00	1.86E-02	9.55E-03	6.35E-02	280
Supply Chain Emissions									
Marine	Transit along Fraser River	Main	0.543	25.503	2.100	0.869	0.255	0.285	1112
		Aux	0.031	1.003	0.079	0.028	0.012	0.013	59
		Boiler	0.000	0.000	0.000	0.000	0.000	0.000	0

Rail	Transit Offsite	0.0051	1.5389	0.2940	0.1042	0.0676	0.0735	128
On-Road	Car Carrier Offsite	5.84E-05	8.21E-02	4.43E-02	1.76E-03	1.90E-03	9.39E-03	17
	Fuel Transport & General Deliveries	5.89E-06	6.69E-03	4.74E-03	3.38E-04	2.10E-04	7.60E-04	2
Total Facility Emissions		**2.38**	**64.7**	**11.7**	**2.4**	**1.1**	**1.3**	**5,482**
Total Supply Chain Emissions		**0.58**	**28.1**	**2.5**	**1.0**	**0.3**	**0.4**	**1,315**
Total Baseline Annual Emissions		**2.96**	**92.8**	**14.2**	**3.4**	**1.5**	**1.7**	**6,797**

Note: It was assumed that vehicle carrier trucks would not be idling during loading operations.

Table 19 Emission Change from No Project to Project

Primary Source	Detail		SO_2 (tonnes)	NO_X (tonnes)	CO (tonnes)	VOC (tonnes)	$PM_{2.5}$ (tonnes)	PM_{10} (tonnes)	GHG (CO_2e) – 100 years (tonnes)
Facility Emissions									
Marine	Manoeuvring	Main	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%
		Aux	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%
		Boiler	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%
	Hotelling	Main	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Aux	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%
		Boiler	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%
	Tugs	Main	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Aux	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%
		Boiler	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%

Rail	During Onsite Loading		6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%
On-Road	Vehicle Process Idling		29%	31%	30%	30%	29%	29%	29%
	Vehicle OGV Offloading		6.6%	6.6%	6.5%	6.6%	6.6%	6.6%	6.6%
	Vehicle Car Carrier		10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%
Supply Chain Emissions									
Marine	Transit along Fraser River	Main	18%	18%	18%	18%	18%	18%	18%
		Aux	18%	18%	18%	18%	18%	18%	18%
		Boiler	0%	0%	0%	0%	0%	0%	0%
Rail	Transit Offsite		c	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%
On-Road	Car Carrier Offsite		6.8%	6.8%	6.8%	6.8%	6.8%	6.8%	6.8%
	Fuel Transport & General Deliveries		-22%	-22%	-22%	-22%	-22%	-22%	-22%
Total Facility Emissions			6.6%	6.6%	7.5%	6.6%	6.6%	6.8%	6.8%
Total Supply Chain Emissions			18%	17%	16%	17%	16%	15%	17%
Total Baseline Annual Emissions			8.8%	9.9%	9.1%	9.7%	8.7%	8.8%	8.8%

Note: negative values indicate Project emissions are lower than No-Project emissions (due to future lower-emission vehicles)

9.3 Comparison of Project Case to Best Available Technique

Overall, the potential reduction in emissions by application of BAT or BAP is small. If only electric vehicles were processed through AAT, and no other changes were made to marine, trucking or rail emissions, Project emission decreases associated with AAT activities would range from negligible for SO_2 and NO_X to 14%. However, CO emissions may lower substantially by 49%. As noted above, eliminating all but electric vehicles processed through AAT is not necessarily a BAT as it is market driven.

Electrification of all yard vehicles would have a small effect on AAT emissions.

The use of electric heating for buildings, from non-fossil fuel sources such as hydro, would eliminate building heating and cooling emissions to the extent they currently occur.

9.4 Conclusion

The Project involves a translation (consolidation) of activity from the RAT to the AAT. Project emissions at the AAT are based on expected capacity and Baseline emissions are based on currently expected throughput combining RAT and AAT. The Project results in a general increase in emissions due to an increase in capacity, and because of an increase in shipping distance. Application of BAT and BAP to activities over which the client has control is expected to have a small potential to reduce Project emissions from Baseline levels. Even with this limitation, the change in emissions from Baseline to Project is not significant in the Port of Vancouver area.

Trends that have not been included in the list of BAT/BAP are continued reductions in emissions from combustion sources. Rail emissions from diesel combustion will continue to decrease as Tier 4 engines replace older, less efficient versions. OGV emissions will continue to decrease for the same reason. Further replacing diesel with electric locomotives, alternative fuel engines, and wind-assist for OGVs is expected, and emissions from these types of improvements will reduce future emissions. Thus, it is expected that the benefits of consolidation at the AAT and the continued improvements in transportation emissions will overcome the short-term increase in emissions resulting from a longer travel distance.

The emissions depend on demand for vehicles in Canada. If demand does not grow substantially, then the increase in emissions for the Project Case will be lower than assessed under the assumption the plant will be working close to capacity. This increase of emissions will be less significant with time, due to improvements in engine technology.

With respect to the potential impact of the expansion emissions, their effect decreases with distance from the AAT site and the vessel transit path. Most emissions are from docking and hotelling of OGVs. The distance from berth to the closest houses is over 1 km. At these distances, emissions will be diluted in the atmosphere.

Appendix A Estimation Methods

A.1 Tugs Emissions

Table A.1.1 Emission Factors (g/kWh) (Tier 2 Engine)

Engine Type	Engines Power (kW)	Load Factor	Hours per Call	SO_2	NOx	CO	VOC	$PM_{2.5}$	PM_{10}	CO_2	CH_4	N_2O
Main (> 1000 kW)	3,080	31%	4	0.0065	6.80	5.0	0.27	0.250	0.258	690	0.09	0.02
Aux (130-225 kW)	200	31%	4	0.0065	6.80	5.0	0.27	0.250	0.258	690	0.09	0.02

Source: U.S. Environmental Protection Agency (2009): Current Methodologies in Preparing Mobile Source Port-Related Emission Inventories. Final Report, April 2009. Prepared by ICF International and summarized in Tables 3-4, 3-8, and 3-9 of this report. Table 3-4 states the load factor for an assist tugboat is 31%. Table 3-9 was used to scale emissions of SO_2, $PM_{2.5}$, and PM_{10} from Table 3-8, due to ultra low sulphur content in diesel. For example, for SO2, the emission factor 1.30 g/kWh (Table 3-8) is reduced by 0.005 factor (1.30 g/kWh*0.005 = 0.0065 g/kWh). Emission factors for PM10 and PM2.5 (0.300 g/kWh, and 0.291 g/kWh, respectively), were reduced by a factor of 0.86 to 0.25 g/kWh and 0.258 g/kWh, respectively.

Table A.1.2 Emissions for Baseline Case (tonnes/year) – 106 Calls/year to AAT and 30 Calls/year to RAT (136 Calls Total)

Engine Type	SO_2	NOx	CO	VOC	$PM_{2.5}$	PM_{10}	CO_2	CH_4	N_2O	CO_{2eq}
Main (> 1000 kW)	0.0034	3.53	2.60	0.14	0.130	0.134	358.4	0.047	0.010	362.7
Aux (130-225 kW)	0.0002	0.23	0.17	0.01	0.008	0.009	23.3	0.003	0.001	23.6
TOTAL	0.0036	3.76	2.77	0.15	0.138	0.143	381.7	0.050	0.011	386

Sample calculation for SO_2 – 0.0065 g/kWh * 31% * 4 h/Call *3,080 kW * 136 Calls/year /1000 g/kg / 1000 kg/tonnes = 0.0034 tonnes/year

Table A.1.3 Emissions for Future Built Case (tonnes/year) – 145 Calls/year

Engine Type	SO_2	NOx	CO	VOC	$PM_{2.5}$	PM_{10}	CO_2	CH_4	N_2O	CO_{2eq}
Main (> 1000 kW)	0.0036	3.77	2.77	0.15	0.139	0.143	382.1	0.050	0.011	386.7
Aux (130-225 kW)	0.0002	0.24	0.18	0.01	0.009	0.009	24.9	0.003	0.001	25.2
TOTAL	0.0038	4.01	2.95	0.16	0.148	0.152	407.0	0.053	0.012	412

A.2 Marine Vessel Emissions

SITE OPERATIONS: PRESENT & FUTURE NO-BUILD	DESCRIPTION OF EMISSIONS	Pollutant	Engine	Vlookup	EF (g/kWh)	Low Load Adjustment Factor	EF, w/ LL Adjustment (g/kWh)	Power Rating (kW)	Load Factor	Time in mode (hr)	Operating Emissions (g/day)	Hourly Emissions (g/hr)	Annual (tonnes/year)
Marine Shipping	**Berth Maneuvering** 106 calls per year at Annacis 30 calls per year at Richmond Main Engine: Marine Diesel B&W 8S60ME-C Main Fuel assumption: MGO Main engine load: LF = 0% (assumed off) AUX Engine(s): 2 Diesel 9SL21/31 STX-MAN B&W AUX Fuel assumption: MGO AUX engine load: 0.45 (maneuver) Boiler Engine: 371 kW (maneuvering) Boiler Fuel assumption: MGO Total time in Maneuvering mode: 2 hours per berth *assumed VOC = 0.9655 HC	NOx	Main	NOxMain	17.00	1.22	20.74	18315	0.10	2	7.60E+04	3.80E+04	1.03E+01
		NOx	AUX	NOxAUX	13.90	-	13.90	3400	0.45	2	4.25E+04	2.13E+04	5.78E+00
		NOx	Boiler	NOxBoiler	2.00	-	2.00	371	1.0	2	1.48E+03	7.42E+02	2.02E-01
		PM10	Main	PM10Main	0.19	1.38	0.26	18315	0.1	2	9.60E+02	4.80E+02	1.31E-01
		PM10	AUX	PM10AUX	0.18	-	0.18	3400	0.5	2	5.51E+02	2.75E+02	7.49E-02
		PM10	Boiler	PM10Boiler	0.17	-	0.17	371	1.0	2	1.26E+02	6.31E+01	1.72E-02
		PM2.5	Main	PM2.5Main	0.17	1.38	0.23	18315	0.1	2	8.59E+02	4.30E+02	1.17E-01
		PM2.5	AUX	PM2.5AUX	0.17	-	0.17	3400	0.5	2	5.20E+02	2.60E+02	7.07E-02
		PM2.5	Boiler	PM2.5Boiler	0.15	-	0.15	371	1.0	2	1.11E+02	5.57E+01	1.51E-02
		HC	Main	HCMain	0.60	2.20	1.32	18315	0.1	2	4.84E+03	2.42E+03	6.58E-01
		HC	AUX	HCAUX	0.40	-	0.40	3400	0.5	2	1.22E+03	6.12E+02	1.66E-01
		HC	Boiler	HCBoiler	0.10	-	0.10	371	1.0	2	7.42E+01	3.71E+01	1.01E-02
		VOC*	Main	VOC*Main	0.58	2.20	1.27	18315	0.1	2	4.67E+03	2.33E+03	6.35E-01
		VOC*	AUX	VOC*AUX	0.39	-	0.39	3400	0.5	2	1.18E+03	5.91E+02	1.61E-01
		VOC*	Boiler	VOC*Boiler	0.10	-	0.10	371	1.0	2	7.16E+01	3.58E+01	9.74E-03
		CO	Main	COMain	1.40	1.96	2.74	18315	0.1	2	1.01E+04	5.03E+03	1.37E+00
		CO	AUX	COAUX	1.10	-	1.10	3400	0.5	2	3.37E+03	1.68E+03	4.58E-01
		CO	Boiler	COBoiler	0.20	-	0.20	371	1.0	2	1.48E+02	7.42E+01	2.02E-02
		Sox	Main	SoxMain	0.36	1.26	0.46	18315	0.1	2	1.67E+03	8.35E+02	2.27E-01
		SOx	AUX	SOxAUX	0.42	-	0.42	3400	0.5	2	1.30E+03	6.49E+02	1.76E-01
		SOx	Boiler	SOxBoiler	0.57	-	0.57	371	1.0	2	4.21E+02	2.10E+02	5.72E-02
		CO2	Main	CO2Main	589	1.25	735.99	18315	0.1	2	2.70E+06	1.35E+06	3.67E+02
		CO2	AUX	CO2AUX	691	-	690.71	3400	0.5	2	2.11E+06	1.06E+06	2.87E+02
		CO2	Boiler	CO2Boiler	923	-	922.97	371	1.0	2	6.85E+05	3.42E+05	9.31E+01
		CH4	Main	CH4Main	1.32	1.25	1.65	18315	0.1	2	6.04E+03	3.02E+03	8.22E-01
		CH4	AUX	CH4AUX	0.17	-	0.17	3400	0.5	2	5.20E+02	2.60E+02	7.07E-02
		CH4	Boiler	CH4Boiler	0.29	-	0.29	371	1.0	2	2.15E+02	1.08E+02	2.93E-02
		N2O	Main	N2OMain	0.40	1.25	0.50	18315	0.1	2	1.83E+03	9.16E+02	2.49E-01
		N2O	AUX	N2OAUX	0.40	-	0.40	3400	0.5	2	1.22E+03	6.12E+02	1.66E-01
		N2O	Boiler	N2OBoiler	0.40	-	0.40	371	1.0	2	2.97E+02	1.48E+02	4.04E-02
Marine Shipping	**Berth Hotelling** 106 calls per year at present Main Engine: Marine Diesel B&W 8S60ME-C Main Fuel assumption: MGO Main engine load: LF = 0.02 - 0.10 (worst-case) AUX Engine(s): 2 Diesel 9SL21/31 STX-MAN B&W AUX Fuel assumption: MGO AUX engine load: 0.26 (hotel) Boiler Engine: 371 kW (hotel) Boiler Fuel assumption: MGO Total time in Maneuvering mode: 24 hours per berth *assumed VOC = 0.9655 HC	NOx	Main	NOxMain	17.00	-	17.00	18315	0.00	24	0.00E+00	0.00E+00	0.00E+00
		NOx	AUX	NOxAUX	13.90	-	13.90	3400	0.26	24	2.95E+05	1.23E+04	4.01E+01
		NOx	Boiler	NOxBoiler	2.00	-	2.00	371	1.0	24	1.78E+04	7.42E+02	2.42E+00
		PM10	Main	PM10Main	0.19	-	0.19	18315	0.00	24	0.00E+00	0.00E+00	0.00E+00
		PM10	AUX	PM10AUX	0.18	-	0.18	3400	0.26	24	3.82E+03	1.59E+02	5.19E-01
		PM10	Boiler	PM10Boiler	0.17	-	0.17	371	1.00	24	1.51E+03	6.31E+01	2.06E-01
		PM2.5	Main	PM2.5Main	0.17	-	0.17	18315	0.00	24	0.00E+00	0.00E+00	0.00E+00
		PM2.5	AUX	PM2.5AUX	0.17	-	0.17	3400	0.26	24	3.61E+03	1.50E+02	4.91E-01

SITE OPERATIONS: PRESENT & FUTURE NO-BUILD	DESCRIPTION OF EMISSIONS	Pollutant	Engine	Vlookup	EF (g/kWh)	Low Load Adjustment Factor	EF, w/ LL Adjustment (g/kWh)	Power Rating (kW)	Load Factor	Time in mode (hr)	Operating Emissions (g/day)	Hourly Emissions (g/hr)	Annual (tonnes/year)
		PM2.5	Boiler	PM2.5Boiler	0.15	-	0.15	371	1.00	24	1.34E+03	5.57E+01	1.82E-01
		HC	Main	HCMain	0.60	-	0.60	18315	0.00	24	0.00E+00	0.00E+00	0.00E+00
		HC	AUX	HCAUX	0.40	-	0.40	3400	0.26	24	8.49E+03	3.54E+02	1.15E+00
		HC	Boiler	HCBoiler	0.10	-	0.10	371	1.00	24	8.90E+02	3.71E+01	1.21E-01
		VOC*	Main	VOC*Main	0.58	-	0.58	18315	0.00	24	0.00E+00	0.00E+00	0.00E+00
		VOC*	AUX	VOC*AUX	0.39	-	0.39	3400	0.26	24	8.19E+03	3.41E+02	1.11E+00
		VOC*	Boiler	VOC*Boiler	0.10	-	0.10	371	1.00	24	8.60E+02	3.58E+01	1.17E-01
		CO	Main	COMain	1.40	-	1.40	18315	0.00	24	0.00E+00	0.00E+00	0.00E+00
		CO	AUX	COAUX	1.10	-	1.10	3400	0.26	24	2.33E+04	9.72E+02	3.17E+00
		CO	Boiler	COBoiler	0.20	-	0.20	371	1.00	24	1.78E+03	7.42E+01	2.42E-01
		SOx	Main	SOxMain	0.36	-	0.36	18315	0.00	24	0.00E+00	0.00E+00	0.00E+00
		SOx	AUX	SOxAUX	0.42	-	0.42	3400	0.26	24	9.00E+03	3.75E+02	1.22E+00
		SOx	Boiler	SOxBoiler	0.57	-	0.57	371	1.00	24	5.05E+03	2.10E+02	6.87E-01
		CO2	Main	CO2Main	588.79	-	588.79	18315	0.00	24	0.00E+00	0.00E+00	0.00E+00
		CO2	AUX	CO2AUX	690.71	-	690.71	3400	0.26	24	1.47E+07	6.11E+05	1.99E+03
		CO2	Boiler	CO2Boiler	922.97	-	922.97	371	1.00	24	8.22E+06	3.42E+05	1.12E+03
		CH4	Main	CH4Main	1.32	-	1.32	18315	0.00	24	0.00E+00	0.00E+00	0.00E+00
		CH4	AUX	CH4AUX	0.17	-	0.17	3400	0.26	24	3.61E+03	1.50E+02	4.91E-01
		CH4	Boiler	CH4Boiler	0.29	-	0.29	371	1.00	24	2.58E+03	1.08E+02	3.51E-01
		N2O	Main	N2OMain	0.40	-	0.40	18315	0.00	24	0.00E+00	0.00E+00	0.00E+00
		N2O	AUX	N2OAUX	0.40	-	0.40	3400	0.26	24	8.49E+03	3.54E+02	1.15E+00
		N2O	Boiler	N2OBoiler	0.40	-	0.40	371	1.00	24	3.56E+03	1.48E+02	4.84E-01
Marine Shipping	**Berth Travel** 106 calls per year at Annacis 30 calls at Richmond Main Engine: Marine Diesel B&W 8S60ME-C Main Fuel assumption: MGO Top speed = approximately 18 knots Main engine load: LF = [Actual Speed (knots) / Max Speed (knots)]^3 Assume Travel speed of 15 knots, as per: *[https://www.portvancouver.com/wp-content/uploads/2019/04/2019-05-01-PORT-INFORMATION-GUIDE-FINAL-1.pdf]* AUX Engine(s): 2 Diesel 9SL21/31 STX-MAN B&W AUX Fuel assumption: MGO AUX engine load: 0.15 (cruise) Boiler Engine: 0 kW (cruise) Boiler Fuel assumption: MGO Total time in cruise = distance travelled (km) / [speed (knots) x 1.852 km/hr per knot] Distance to Annacis Island = 32 km Distance to Richmond = 18 km *assumed VOC = 0.9655 HC	NOx	Main	NOxMain	17.00	-	17.00	18315	0.58	1.04	1.88E+05	1.80E+05	2.55E+01
		NOx	AUX	NOxAUX	13.90	-	13.90	3400	0.15	1.04	7.38E+03	7.09E+03	1.00E+00
		NOx	Boiler	NOxBoiler	2.00	-	2.00	371	0.0	1.04	0.00E+00	0.00E+00	0.00E+00
		PM10	Main	PM10Main	0.19	-	0.19	18315	0.58	1.04	2.10E+03	2.01E+03	2.85E-01
		PM10	AUX	PM10AUX	0.18	-	0.18	3400	0.15	1.04	9.55E+01	9.18E+01	1.30E-02
		PM10	Boiler	PM10Boiler	0.17	-	0.17	371	0.00	1.04	0.00E+00	0.00E+00	0.00E+00
		PM2.5	Main	PM2.5Main	0.17	-	0.17	18315	0.58	1.04	1.88E+03	1.80E+03	2.55E-01
		PM2.5	AUX	PM2.5AUX	0.17	-	0.17	3400	0.15	1.04	9.02E+01	8.67E+01	1.23E-02
		PM2.5	Boiler	PM2.5Boiler	0.15	-	0.15	371	0.00	1.04	0.00E+00	0.00E+00	0.00E+00
		HC	Main	HCMain	0.60	-	0.60	18315	0.58	1.04	6.62E+03	6.36E+03	9.00E-01
		HC	AUX	HCAUX	0.40	-	0.40	3400	0.15	1.04	2.12E+02	2.04E+02	2.89E-02
		HC	Boiler	HCBoiler	0.10	-	0.10	371	0.00	1.04	0.00E+00	0.00E+00	0.00E+00
		VOC*	Main	VOC*Main	0.58	-	0.58	18315	0.58	1.04	6.39E+03	6.14E+03	8.69E-01
		VOC*	AUX	VOC*AUX	0.39	-	0.39	3400	0.15	1.04	2.05E+02	1.97E+02	2.79E-02
		VOC*	Boiler	VOC*Boiler	0.10	-	0.10	371	0.00	1.04	0.00E+00	0.00E+00	0.00E+00
		CO	Main	COMain	1.40	-	1.40	18315	0.58	1.04	1.54E+04	1.48E+04	2.10E+00
		CO	AUX	COAUX	1.10	-	1.10	3400	0.15	1.04	5.84E+02	5.61E+02	7.94E-02
		CO	Boiler	COBoiler	0.20	-	0.20	371	0.00	1.04	0.00E+00	0.00E+00	0.00E+00

SITE OPERATIONS: PRESENT & FUTURE NO-BUILD	DESCRIPTION OF EMISSIONS	Pollutant	Engine	Vlookup	EF (g/kWh)	Low Load Adjustment Factor	EF, w/ LL Adjustment (g/kWh)	Power Rating (kW)	Load Factor	Time in mode (hr)	Operating Emissions (g/day)	Hourly Emissions (g/hr)	Annual (tonnes/year)
		SOx	Main	SOxMain	0.36	-	0.36	18315	0.58	1.04	3.99E+03	3.84E+03	5.43E-01
		SOx	AUX	SOxAUX	0.42	-	0.42	3400	0.15	1.04	2.25E+02	2.16E+02	3.06E-02
		SOx	Boiler	SOxBoiler	0.57	-	0.57	371	0.00	1.04	0.00E+00	0.00E+00	0.00E+00
		CO2	Main	CO2Main	588.79	-	588.79	18315	0.58	1.04	6.49E+06	6.24E+06	8.83E+02
		CO2	AUX	CO2AUX	690.71	-	690.71	3400	0.15	1.04	3.67E+05	3.52E+05	4.99E+01
		CO2	Boiler	CO2Boiler	922.97	-	922.97	371	0.00	1.04	0.00E+00	0.00E+00	0.00E+00
		CH4	Main	CH4Main	1.32	-	1.32	18315	0.58	1.04	1.46E+04	1.40E+04	1.98E+00
		CH4	AUX	CH4AUX	0.17	-	0.17	3400	0.15	1.04	9.02E+01	8.67E+01	1.23E-02
		CH4	Boiler	CH4Boiler	0.29	-	0.29	371	0.00	1.04	0.00E+00	0.00E+00	0.00E+00
		N2O	Main	N2OMain	0.40	-	0.40	18315	0.58	1.04	4.41E+03	4.24E+03	6.00E-01
		N2O	AUX	N2OAUX	0.40	-	0.40	3400	0.15	1.04	2.12E+02	2.04E+02	2.89E-02
		N2O	Boiler	N2OBoiler	0.40	-	0.40	371	0.00	1.04	0.00E+00	0.00E+00	0.00E+00

SITE OPERATIONS: FUTURE BUILD	DESCRIPTION OF EMISSIONS	Pollutant	Engine	Vlookup	EF (g/kWh)	Low Load Adjustment Factor	EF, w/ LL Adjustment (g/kWh)	Power Rating (kW)	Load Factor	Time in mode (hr)	Operating Emissions (g/day)	Hourly Emissions (g/hr)	Annual (tonnes/year)
Marine Shipping	**Berth Maneuvering** 145 calls per year, Future Build Main Engine: Marine Diesel B&W 8S60ME-C Main Fuel assumption: MGO Main engine load: LF = 0% (assumed off) AUX Engine(s): 2 Diesel 9SL21/31 STX-MAN B&W AUX Fuel assumption: MGO AUX engine load: 0.45 (maneuver) Boiler Engine: 371 kW (maneuvering) Boiler Fuel assumption: MGO Total time in Maneuvering mode: 2 hours per berth Total time (Annacis) = 2 hours *assumed VOC = 0.9655 HC	NOx	Main	NOxMain	17.00	1.22	20.74	18314.69	0.10	2.00	7.60E+04	3.80E+04	1.10E+01
		NOx	AUX	NOxAUX	13.90	-	13.90	3400.00	0.45	2.00	4.25E+04	2.13E+04	6.17E+00
		NOx	Boiler	NOxBoiler	2.00	-	2.00	371.00	1.00	2.00	1.48E+03	7.42E+02	2.15E-01
		PM10	Main	PM10Main	0.19	1.38	0.26	18314.69	0.10	2.00	9.60E+02	4.80E+02	1.39E-01
		PM10	AUX	PM10AUX	0.18	-	0.18	3400.00	0.45	2.00	5.51E+02	2.75E+02	7.99E-02
		PM10	Boiler	PM10Boiler	0.17	-	0.17	371.00	1.00	2.00	1.26E+02	6.31E+01	1.83E-02
		PM2.5	Main	PM2.5Main	0.17	1.38	0.23	18314.69	0.10	2.00	8.59E+02	4.30E+02	1.25E-01
		PM2.5	AUX	PM2.5AUX	0.17	-	0.17	3400.00	0.45	2.00	5.20E+02	2.60E+02	7.54E-02
		PM2.5	Boiler	PM2.5Boiler	0.15	-	0.15	371.00	1.00	2.00	1.11E+02	5.57E+01	1.61E-02
		HC	Main	HCMain	0.60	2.20	1.32	18314.69	0.10	2.00	4.84E+03	2.42E+03	7.01E-01
		HC	AUX	HCAUX	0.40	-	0.40	3400.00	0.45	2.00	1.22E+03	6.12E+02	1.77E-01
		HC	Boiler	HCBoiler	0.10	-	0.10	371.00	1.00	2.00	7.42E+01	3.71E+01	1.08E-02
		VOC*	Main	VOC*Main	0.58	2.20	1.27	18314.69	0.10	2.00	4.67E+03	2.33E+03	6.77E-01
		VOC*	AUX	VOC*AUX	0.39	-	0.39	3400.00	0.45	2.00	1.18E+03	5.91E+02	1.71E-01
		VOC*	Boiler	VOC*Boiler	0.10	-	0.10	371.00	1.00	2.00	7.16E+01	3.58E+01	1.04E-02
		CO	Main	COMain	1.40	1.96	2.74	18314.69	0.10	2.00	1.01E+04	5.03E+03	1.46E+00
		CO	AUX	COAUX	1.10	-	1.10	3400.00	0.45	2.00	3.37E+03	1.68E+03	4.88E-01
		CO	Boiler	COBoiler	0.20	-	0.20	371.00	1.00	2.00	1.48E+02	7.42E+01	2.15E-02
		SOx	Main	SOxMain	0.36	1.26	0.46	18314.69	0.10	2.00	1.67E+03	8.35E+02	2.42E-01
		SOx	AUX	SOxAUX	0.42	-	0.42	3400.00	0.45	2.00	1.30E+03	6.49E+02	1.88E-01
		SOx	Boiler	SOxBoiler	0.57	-	0.57	371.00	1.00	2.00	4.21E+02	2.10E+02	6.10E-02
		CO2	Main	CO2Main	588.79	1.25	735.99	18314.69	0.10	2.00	2.70E+06	1.35E+06	3.91E+02
		CO2	AUX	CO2AUX	690.71	-	690.71	3400.00	0.45	2.00	2.11E+06	1.06E+06	3.06E+02
		CO2	Boiler	CO2Boiler	922.97	-	922.97	371.00	1.00	2.00	6.85E+05	3.42E+05	9.93E+01
		CH4	Main	CH4Main	1.32	1.25	1.65	18314.69	0.10	2.00	6.04E+03	3.02E+03	8.76E-01

SITE OPERATIONS: FUTURE BUILD	DESCRIPTION OF EMISSIONS	Pollutant	Engine	Vlookup	EF (g/kWh)	Low Load Adjustment Factor	EF, w/ LL Adjustment (g/kWh)	Power Rating (kW)	Load Factor	Time in mode (hr)	Operating Emissions (g/day)	Hourly Emissions (g/hr)	Annual (tonnes/year)
		CH4	AUX	CH4AUX	0.17	-	0.17	3400.00	0.45	2.00	5.20E+02	2.60E+02	7.54E-02
		CH4	Boiler	CH4Boiler	0.29	-	0.29	371.00	1.00	2.00	2.15E+02	1.08E+02	3.12E-02
		N2O	Main	N2OMain	0.40	1.25	0.50	18314.69	0.10	2.00	1.83E+03	9.16E+02	2.66E-01
		N2O	AUX	N2OAUX	0.40	-	0.40	3400.00	0.45	2.00	1.22E+03	6.12E+02	1.77E-01
		N2O	Boiler	N2OBoiler	0.40	-	0.40	371.00	1.00	2.00	2.97E+02	1.48E+02	4.30E-02
Marine Shipping	**Berth Hotelling** 145 calls per year, Future Build Main Engine: Marine Diesel B&W 8S60ME-C Main Fuel assumption: MGO Main engine load: LF = 0.02 - 0.10 (worst-case) AUX Engine(s): 2 Diesel 9SL21/31 STX-MAN B&W AUX Fuel assumption: MGO AUX engine load: 0.26 (hotel) Boiler Engine: 371 kW (hotel) Boiler Fuel assumption: MGO Total time in Maneuvering mode: 24 hours per berth Total time (Annacis) = 24 hours *assumed VOC = 0.9655 HC	NOx	Main	NOxMain	17.00	-	17.00	18314.69	0.00	24.00	0.00E+00	0.00E+00	0.00E+00
		NOx	AUX	NOxAUX	13.90	-	13.90	3400.00	0.26	24.00	2.95E+05	1.23E+04	4.28E+01
		NOx	Boiler	NOxBoiler	2.00	-	2.00	371.00	1.00	24.00	1.78E+04	7.42E+02	2.58E+00
		PM10	Main	PM10Main	0.19	-	0.19	18314.69	0.00	24.00	0.00E+00	0.00E+00	0.00E+00
		PM10	AUX	PM10AUX	0.18	-	0.18	3400.00	0.26	24.00	3.82E+03	1.59E+02	5.54E-01
		PM10	Boiler	PM10Boiler	0.17	-	0.17	371.00	1.00	24.00	1.51E+03	6.31E+01	2.19E-01
		PM2.5	Main	PM2.5Main	0.17	-	0.17	18314.69	0.00	24.00	0.00E+00	0.00E+00	0.00E+00
		PM2.5	AUX	PM2.5AUX	0.17	-	0.17	3400.00	0.26	24.00	3.61E+03	1.50E+02	5.23E-01
		PM2.5	Boiler	PM2.5Boiler	0.15	-	0.15	371.00	1.00	24.00	1.34E+03	5.57E+01	1.94E-01
		HC	Main	HCMain	0.60	-	0.60	18314.69	0.00	24.00	0.00E+00	0.00E+00	0.00E+00
		HC	AUX	HCAUX	0.40	-	0.40	3400.00	0.26	24.00	8.49E+03	3.54E+02	1.23E+00
		HC	Boiler	HCBoiler	0.10	-	0.10	371.00	1.00	24.00	8.90E+02	3.71E+01	1.29E-01
		VOC*	Main	VOC*Main	0.58	-	0.58	18314.69	0.00	24.00	0.00E+00	0.00E+00	0.00E+00
		VOC*	AUX	VOC*AUX	0.39	-	0.39	3400.00	0.26	24.00	8.19E+03	3.41E+02	1.19E+00
		VOC*	Boiler	VOC*Boiler	0.10	-	0.10	371.00	1.00	24.00	8.60E+02	3.58E+01	1.25E-01
		CO	Main	COMain	1.40	-	1.40	18314.69	0.00	24.00	0.00E+00	0.00E+00	0.00E+00
		CO	AUX	COAUX	1.10	-	1.10	3400.00	0.26	24.00	2.33E+04	9.72E+02	3.38E+00
		CO	Boiler	COBoiler	0.20	-	0.20	371.00	1.00	24.00	1.78E+03	7.42E+01	2.58E-01
		SOx	Main	SOxMain	0.36	-	0.36	18314.69	0.00	24.00	0.00E+00	0.00E+00	0.00E+00
		SOx	AUX	SOxAUX	0.42	-	0.42	3400.00	0.26	24.00	9.00E+03	3.75E+02	1.30E+00
		SOx	Boiler	SOxBoiler	0.57	-	0.57	371.00	1.00	24.00	5.05E+03	2.10E+02	7.32E-01
		CO2	Main	CO2Main	588.79	-	588.79	18314.69	0.00	24.00	0.00E+00	0.00E+00	0.00E+00
		CO2	AUX	CO2AUX	690.71	-	690.71	3400.00	0.26	24.00	1.47E+07	6.11E+05	2.12E+03
		CO2	Boiler	CO2Boiler	922.97	-	922.97	371.00	1.00	24.00	8.22E+06	3.42E+05	1.19E+03
		CH4	Main	CH4Main	1.32	-	1.32	18314.69	0.00	24.00	0.00E+00	0.00E+00	0.00E+00
		CH4	AUX	CH4AUX	0.17	-	0.17	3400.00	0.26	24.00	3.61E+03	1.50E+02	5.23E-01
		CH4	Boiler	CH4Boiler	0.29	-	0.29	371.00	1.00	24.00	2.58E+03	1.08E+02	3.74E-01
		N2O	Main	N2OMain	0.40	-	0.40	18314.69	0.00	24.00	0.00E+00	0.00E+00	0.00E+00
		N2O	AUX	N2OAUX	0.40	-	0.40	3400.00	0.26	24.00	8.49E+03	3.54E+02	1.23E+00
		N2O	Boiler	N2OBoiler	0.40	-	0.40	371.00	1.00	24.00	3.56E+03	1.48E+02	5.16E-01
Marine Shipping	**Berth Travel** 145 calls per year, Future Build Main Engine: Marine Diesel B&W 8S60ME-C Main Fuel assumption: MGO Top speed = approximately 18 knots Main engine load: LF = [Actual Speed (knots) / Max Speed (knots)]^3 Assume Travel speed of 15 knots, as per:	NOx	Main	NOxMain	17.00	-	17.00	18314.69	0.58	1.15	2.08E+05	1.80E+05	3.01E+01
		NOx	AUX	NOxAUX	13.90	-	13.90	3400.00	0.15	1.15	8.17E+03	7.09E+03	1.18E+00
		NOx	Boiler	NOxBoiler	2.00	-	2.00	371.00	0.00	1.15	0.00E+00	0.00E+00	0.00E+00
		PM10	Main	PM10Main	0.19	-	0.19	18314.69	0.58	1.15	2.32E+03	2.01E+03	3.36E-01
		PM10	AUX	PM10AUX	0.18	-	0.18	3400.00	0.15	1.15	1.06E+02	9.18E+01	1.53E-02

SITE OPERATIONS: FUTURE BUILD	DESCRIPTION OF EMISSIONS	Pollutant	Engine	Vlookup	EF (g/kWh)	Low Load Adjustment Factor	EF, w/ LL Adjustment (g/kWh)	Power Rating (kW)	Load Factor	Time in mode (hr)	Operating Emissions (g/day)	Hourly Emissions (g/hr)	Annual (tonnes/year)
	[https://www.portvancouver.com/wp-content/uploads/2019/04/2019-05-01-PORT-INFORMATION-GUIDE-FINAL-1.pdf] AUX Engine(s): 2 Diesel 9SL21/31 STX-MAN B&W AUX Fuel assumption: MGO AUX engine load: 0.15 (cruise) Boiler Engine: 0 kW (cruise) Boiler Fuel assumption: MGO Total time in cruise = distance travelled (km) / [speed (knots) x 1.852 km/hr per knot] Distance to Annacis Island = 32 km *assumed VOC = 0.9655 HC	PM10	Boiler	PM10Boiler	0.17	-	0.17	371.00	0.00	1.15	0.00E+00	0.00E+00	0.00E+00
		PM2.5	Main	PM2.5Main	0.17	-	0.17	18314.69	0.58	1.15	2.08E+03	1.80E+03	3.01E-01
		PM2.5	AUX	PM2.5AUX	0.17	-	0.17	3400.00	0.15	1.15	9.99E+01	8.67E+01	1.45E-02
		PM2.5	Boiler	PM2.5Boiler	0.15	-	0.15	371.00	0.00	1.15	0.00E+00	0.00E+00	0.00E+00
		HC	Main	HCMain	0.60	-	0.60	18314.69	0.58	1.15	7.33E+03	6.36E+03	1.06E+00
		HC	AUX	HCAUX	0.40	-	0.40	3400.00	0.15	1.15	2.35E+02	2.04E+02	3.41E-02
		HC	Boiler	HCBoiler	0.10	-	0.10	371.00	0.00	1.15	0.00E+00	0.00E+00	0.00E+00
		VOC*	Main	VOC*Main	0.58	-	0.58	18314.69	0.58	1.15	7.07E+03	6.14E+03	1.03E+00
		VOC*	AUX	VOC*AUX	0.39	-	0.39	3400.00	0.15	1.15	2.27E+02	1.97E+02	3.29E-02
		VOC*	Boiler	VOC*Boiler	0.10	-	0.10	371.00	0.00	1.15	0.00E+00	0.00E+00	0.00E+00
		CO	Main	COMain	1.40	-	1.40	18314.69	0.58	1.15	1.71E+04	1.48E+04	2.48E+00
		CO	AUX	COAUX	1.10	-	1.10	3400.00	0.15	1.15	6.46E+02	5.61E+02	9.37E-02
		CO	Boiler	COBoiler	0.20	-	0.20	371.00	0.00	1.15	0.00E+00	0.00E+00	0.00E+00
		SOx	Main	SOxMain	0.36	-	0.36	18314.69	0.58	1.15	4.42E+03	3.84E+03	6.41E-01
		SOx	AUX	SOxAUX	0.42	-	0.42	3400.00	0.15	1.15	2.49E+02	2.16E+02	3.61E-02
		SOx	Boiler	SOxBoiler	0.57	-	0.57	371.00	0.00	1.15	0.00E+00	0.00E+00	0.00E+00
		CO2	Main	CO2Main	588.79	-	588.79	18314.69	0.58	1.15	7.19E+06	6.24E+06	1.04E+03
		CO2	AUX	CO2AUX	690.71	-	690.71	3400.00	0.15	1.15	4.06E+05	3.52E+05	5.88E+01
		CO2	Boiler	CO2Boiler	922.97	-	922.97	371.00	0.00	1.15	0.00E+00	0.00E+00	0.00E+00
		CH4	Main	CH4Main	1.32	-	1.32	18314.69	0.58	1.15	1.61E+04	1.40E+04	2.34E+00
		CH4	AUX	CH4AUX	0.17	-	0.17	3400.00	0.15	1.15	9.99E+01	8.67E+01	1.45E-02
		CH4	Boiler	CH4Boiler	0.29	-	0.29	371.00	0.00	1.15	0.00E+00	0.00E+00	0.00E+00
		N2O	Main	N2OMain	0.40	-	0.40	18314.69	0.58	1.15	4.88E+03	4.24E+03	7.08E-01
		N2O	AUX	N2OAUX	0.40	-	0.40	3400.00	0.15	1.15	2.35E+02	2.04E+02	3.41E-02
		N2O	Boiler	N2OBoiler	0.40	-	0.40	371.00	0.00	1.15	0.00E+00	0.00E+00	0.00E+00

A.3 On-Road Emissions

PROCESSING: PRESENT	DESCRIPTION OF EMISSIONS	Pollutant	PollutantID	Month	Fuel Type	Fleet Size (January)	Fleet Size (July)	Idling Emissions (g/day)	Running Emission (g/day)	Total Emission (g/day)	Total Emission (g/hr)	Total Emission (g/s)	Total Summer (tonnes/6-monts)	Total Winter (tonnes/6-monts)	Total Annual (tonnes/year)
Passenger Cars	Fuel Distribution: EV -5%, Hybrids 20%, Gasoline 75% Fleet Size (January) =1,027 cars/day Fleet Size (July) = 1,541 cars/day Idling time = 20 mins per car Distance Travelled = 0.056 km Max daily operation = 16 hours	Carbon Dioxide	90	1	1	1027	1541	2.57E+03	1.49E+04	1.75E+04	1.09E+03	3.03E-01	2.9247	-	7.48
		Carbon Dioxide	90	7	1	1027	1541	4.07E+03	2.33E+04	2.74E+04	1.71E+03	4.75E-01	-	4.5577	
		Nitrous Oxide	6	1	1	1027	1541	3.41E-02	1.43E-01	1.77E-01	1.11E-02	3.08E-06	2.969E-05	-	7.40E-05
		Nitrous Oxide	6	7	1	1027	1541	5.11E-02	2.15E-01	2.66E-01	1.66E-02	4.62E-06	-	4.429E-05	
		Methane	5	1	1	1027	1541	6.83E-02	5.14E-01	5.83E-01	3.64E-02	1.01E-05	9.755E-05	-	2.54E-04
		Methane	5	7	1	1027	1541	1.10E-01	8.30E-01	9.40E-01	5.88E-02	1.63E-05	-	1.566E-04	
		Carbon Monoxide	2	1	1	1027	1541	1.63E+01	1.32E+02	1.48E+02	9.26E+00	2.57E-03	2.480E-02	-	0.0682
		Carbon Monoxide	2	7	1	1027	1541	2.86E+01	2.32E+02	2.60E+02	1.63E+01	4.52E-03	-	4.338E-02	
		Nitrogen Oxides	3	1	1	1027	1541	3.63E-01	4.65E+00	5.01E+00	3.13E-01	8.69E-05	8.387E-04	-	0.00203
		Nitrogen Oxides	3	7	1	1027	1541	5.68E-01	6.59E+00	7.16E+00	4.47E-01	1.24E-04	-	1.192E-03	
		Benzene	20	1	1	1027	1541	1.31E-02	8.77E-02	1.01E-01	6.30E-03	1.75E-06	1.688E-05	-	4.55E-05
		Benzene	20	7	1	1027	1541	2.27E-02	1.49E-01	1.72E-01	1.07E-02	2.98E-06	-	2.862E-05	
		1,3-Butadiene	24	1	1	1027	1541	9.44E-04	6.65E-03	7.60E-03	4.75E-04	1.32E-07	1.272E-06	-	3.22E-06
		1,3-Butadiene	24	7	1	1027	1541	1.45E-03	1.02E-02	1.17E-02	7.31E-04	2.03E-07	-	1.948E-06	
		Formaldehyde	25	1	1	1027	1541	3.48E-03	2.57E-02	2.91E-02	1.82E-03	5.06E-07	4.881E-06	-	1.28E-05
		Formaldehyde	25	7	1	1027	1541	5.65E-03	4.17E-02	4.73E-02	2.96E-03	8.22E-07	-	7.883E-06	
		Acetaldehyde	26	1	1	1027	1541	2.67E-03	1.93E-02	2.20E-02	1.37E-03	3.82E-07	3.682E-06	-	4.05E-06
		Acrolein	27	7	1	1027	1541	2.62E-04	1.93E-03	2.19E-03	1.37E-04	3.80E-08	-	3.646E-07	
		Sulphur Dioxide	31	1	1	1027	1541	1.71E-02	9.89E-02	1.16E-01	7.25E-03	2.01E-06	1.943E-05	-	4.97E-05
		Sulphur Dioxide	31	7	1	1027	1541	2.70E-02	1.55E-01	1.82E-01	1.14E-02	3.16E-06	-	3.028E-05	
		Benzo(a)pyrene	974	1	1	1027	1541	5.41E-06	4.26E-05	4.81E-05	3.00E-06	8.34E-10	8.047E-09	-	2.01E-08
		Benzo(a)pyrene	974	7	1	1027	1541	8.15E-06	6.42E-05	7.23E-05	4.52E-06	1.26E-09	-	1.205E-08	
		VOC	87	1	1	1027	1541	2.43E-01	1.77E+00	2.02E+00	1.26E-01	3.50E-05	3.375E-04	-	8.70E-04
		VOC	87	7	1	1027	1541	3.85E-01	2.82E+00	3.20E+00	2.00E-01	5.56E-05	-	5.330E-04	
		PM10	9100	1	1	1027	1541	5.73E-01	3.19E+00	3.76E+00	2.35E-01	6.53E-05	6.300E-04	-	1.57E-03
		PM10	9100	7	1	1027	1541	8.60E-01	4.78E+00	5.64E+00	3.53E-01	9.80E-05	-	9.400E-04	
		PM2.5	9110	1	1	1027	1541	8.31E-02	4.90E-01	5.73E-01	3.58E-02	9.94E-06	9.589E-05	-	2.39E-04
		PM2.5	9110	7	1	1027	1541	1.25E-01	7.35E-01	8.59E-01	5.37E-02	1.49E-05	-	1.431E-04	
Light Trucks	Fuel Distribution: EV -5%, Hybrids 20%, Gasoline 74%, Diesel 1% Fleet Size (January) = 257 cars/day Fleet Size (July) = 385 cars/day Idling time = 20 mins per car Distance Travelled = 0.056 Max daily operation = 16 hours	Carbon Dioxide	90	1	1 & 2	257	385	8.01E+02	4.72E+03	5.52E+03	3.45E+02	9.59E-02	9.247E-01	-	2.36E+00
		Carbon Dioxide	90	7	1 & 2	257	385	1.26E+03	7.38E+03	8.64E+03	5.40E+02	1.50E-01	-	1.439E+00	
		Nitrous Oxide	6	1	1 & 2	257	385	1.54E-02	6.46E-02	8.00E-02	5.00E-03	1.39E-06	1.339E-05	-	3.34E-05
		Nitrous Oxide	6	7	1 & 2	257	385	2.31E-02	9.69E-02	1.20E-01	7.50E-03	2.08E-06	-	1.998E-05	
		Methane	5	1	1 & 2	257	385	2.38E-02	1.84E-01	2.08E-01	1.30E-02	3.61E-06	3.481E-05	-	9.02E-05
		Methane	5	7	1 & 2	257	385	3.80E-02	2.95E-01	3.33E-01	2.08E-02	5.77E-06	-	5.539E-05	
		Carbon Monoxide	2	1	1 & 2	257	385	4.37E+00	3.71E+01	4.14E+01	2.59E+00	7.20E-04	6.940E-03	-	1.89E-02
		Carbon Monoxide	2	7	1 & 2	257	385	7.55E+00	6.44E+01	7.19E+01	4.49E+00	1.25E-03	-	1.197E-02	
		Nitrogen Oxides	3	1	1 & 2	257	385	2.25E-01	2.46E+00	2.69E+00	1.68E-01	4.67E-05	4.502E-04	-	1.10E-03
		Nitrogen Oxides	3	7	1 & 2	257	385	3.57E-01	3.53E+00	3.88E+00	2.43E-01	6.74E-05	-	6.469E-04	
		Benzene	20	1	1 & 2	257	385	5.05E-03	3.56E-02	4.06E-02	2.54E-03	7.06E-07	6.806E-06	-	1.84E-05
		Benzene	20	7	1 & 2	257	385	8.75E-03	6.07E-02	6.95E-02	4.34E-03	1.21E-06	-	1.157E-05	

PROCESSING: PRESENT	DESCRIPTION OF EMISSIONS	Pollutant	PollutantID	Month	Fuel Type	Fleet Size (January)	Fleet Size (July)	Idling Emissions (g/day)	Running Emission (g/day)	Total Emission (g/day)	Total Emission (g/hr)	Total Emission (g/s)	Total Summer (tonnes/6-monts)	Total Winter (tonnes/6-monts)	Total Annual (tonnes/year)
		1,3-Butadiene	24	1	1 & 2	257	385	4.18E-04	3.18E-03	3.59E-03	2.25E-04	6.24E-08	6.019E-07	-	1.52E-06
		1,3-Butadiene	24	7	1 & 2	257	385	6.42E-04	4.88E-03	5.52E-03	3.45E-04	9.59E-08	-	9.198E-07	
		Formaldehyde	25	1	1 & 2	257	385	2.08E-03	1.40E-02	1.61E-02	1.01E-03	2.79E-07	2.694E-06	-	6.98E-06
		Formaldehyde	25	7	1 & 2	257	385	3.31E-03	2.24E-02	2.58E-02	1.61E-03	4.47E-07	-	4.290E-06	
		Acetaldehyde	26	1	1 & 2	257	385	1.41E-03	9.94E-03	1.14E-02	7.10E-04	1.97E-07	1.901E-06	-	2.14E-06
		Acrolein	27	7	1 & 2	257	385	1.95E-04	1.25E-03	1.44E-03	9.00E-05	2.50E-08	-	2.398E-07	
		Sulphur Dioxide	31	1	1 & 2	257	385	5.28E-03	3.11E-02	3.64E-02	2.27E-03	6.32E-07	6.093E-06	-	1.56E-05
		Sulphur Dioxide	31	7	1 & 2	257	385	8.34E-03	4.86E-02	5.69E-02	3.56E-03	9.88E-07	-	9.482E-06	
		Benzo(a)pyrene	974	1	1 & 2	257	385	1.58E-06	1.63E-05	1.79E-05	1.12E-06	3.11E-10	2.997E-09	-	7.48E-09
		Benzo(a)pyrene	974	7	1 & 2	257	385	2.37E-06	2.46E-05	2.69E-05	1.68E-06	4.67E-10	-	4.485E-09	
		VOC	87	1	1 & 2	257	385	1.06E-01	7.90E-01	8.96E-01	5.60E-02	1.56E-05	1.500E-04	-	3.85E-04
		VOC	87	7	1 & 2	257	385	1.67E-01	1.25E+00	1.41E+00	8.83E-02	2.45E-05	-	2.354E-04	
		PM10	9100	1	1 & 2	257	385	1.63E-01	9.00E-01	1.06E+00	6.64E-02	1.85E-05	1.780E-04	-	4.44E-04
		PM10	9100	7	1 & 2	257	385	2.44E-01	1.35E+00	1.59E+00	9.97E-02	2.77E-05	-	2.655E-04	
		PM2.5	9110	1	1 & 2	257	385	2.51E-02	1.53E-01	1.78E-01	1.11E-02	3.10E-06	2.987E-05	-	7.44E-05
		PM2.5	9110	7	1 & 2	257	385	3.76E-02	2.30E-01	2.68E-01	1.67E-02	4.65E-06	-	4.458E-05	

PROCESSING: FUTURE BUILD	DESCRIPTION OF EMISSIONS	Pollutant	PollutantID	Month	Fuel Type	Fleet Size (January)	Fleet Size (July)	Idling Emissions (g/day)	Running Emission (g/day)	Total Emission (g/day)	Total Emission (g/hr)	Total Emission (g/s)	Total Summer (tonnes/6-monts)	Total Winter (tonnes/6-monts)	Total Annual (tonnes/year)
Passenger Cars	Fuel Distribution: EV -5%, Hybrids 20%, Gasoline 75% Fleet Size (January) = 1,091 cars/day Fleet Size (July) = 1,636 cars/day Idling time = 20 mins per car Distance Travelled = 0.07 km Max daily operation = 16 hours	Carbon Dioxide	90	1	1	1091	1636	2.42E+03	1.75E+04	1.99E+04	1.24E+03	3.45E-01	3.329	-	8.51
		Carbon Dioxide	90	7	1	1091	1636	3.82E+03	2.73E+04	3.11E+04	1.95E+03	5.41E-01	-	5.185	
		Nitrous Oxide	6	1	1	1091	1636	2.91E-02	1.53E-01	1.82E-01	1.14E-02	3.16E-06	3.044E-05	-	7.58E-05
		Nitrous Oxide	6	7	1	1091	1636	4.36E-02	2.29E-01	2.73E-01	1.70E-02	4.73E-06	-	4.540E-05	
		Methane	5	1	1	1091	1636	4.38E-02	4.31E-01	4.75E-01	2.97E-02	8.24E-06	7.952E-05	-	2.09E-04
		Methane	5	7	1	1091	1636	7.15E-02	7.05E-01	7.77E-01	4.85E-02	1.35E-05	-	1.293E-04	
		Carbon Monoxide	2	1	1	1091	1636	1.39E+01	1.40E+02	1.54E+02	9.64E+00	2.68E-03	2.582E-02	-	7.12E-02
		Carbon Monoxide	2	7	1	1091	1636	2.45E+01	2.48E+02	2.73E+02	1.70E+01	4.73E-03	-	4.539E-02	
		Nitrogen Oxides	3	1	1	1091	1636	1.45E-01	2.58E+00	2.73E+00	1.71E-01	4.74E-05	4.570E-04	-	1.11E-03
		Nitrogen Oxides	3	7	1	1091	1636	2.28E-01	3.67E+00	3.90E+00	2.44E-01	6.77E-05	-	6.492E-04	
		Benzene	20	1	1	1091	1636	7.56E-03	6.38E-02	7.14E-02	4.46E-03	1.24E-06	1.195E-05	-	3.27E-05
		Benzene	20	7	1	1091	1636	1.34E-02	1.11E-01	1.24E-01	7.78E-03	2.16E-06	-	2.072E-05	
		1,3-Butadiene	24	1	1	1091	1636	2.36E-04	2.32E-03	2.56E-03	1.60E-04	4.44E-08	4.286E-07	-	1.09E-06
		1,3-Butadiene	24	7	1	1091	1636	3.63E-04	3.58E-03	3.94E-03	2.47E-04	6.85E-08	-	6.570E-07	
		Formaldehyde	25	1	1	1091	1636	1.78E-03	1.75E-02	1.93E-02	1.21E-03	3.35E-07	3.232E-06	-	8.46E-06
		Formaldehyde	25	7	1	1091	1636	2.89E-03	2.85E-02	3.14E-02	1.96E-03	5.45E-07	-	5.224E-06	
		Acetaldehyde	26	1	1	1091	1636	1.08E-03	1.06E-02	1.17E-02	7.30E-04	2.03E-07	1.956E-06	-	2.19E-06
		Acrolein	27	7	1	1091	1636	1.30E-04	1.28E-03	1.41E-03	8.82E-05	2.45E-08	-	2.349E-07	
		Sulphur Dioxide	31	1	1	1091	1636	1.61E-02	1.16E-01	1.32E-01	8.25E-03	2.29E-06	2.212E-05	-	5.66E-05
		Sulphur Dioxide	31	7	1	1091	1636	2.54E-02	1.81E-01	2.07E-01	1.29E-02	3.59E-06	-	3.445E-05	
		Benzo(a)pyrene	974	1	1	1091	1636	4.53E-06	3.75E-05	4.20E-05	2.63E-06	7.30E-10	7.041E-09	-	1.76E-08
		Benzo(a)pyrene	974	7	1	1091	1636	6.82E-06	5.65E-05	6.33E-05	3.96E-06	1.10E-09	-	1.054E-08	

PROCESSING: FUTURE BUILD	DESCRIPTION OF EMISSIONS	Pollutant	PollutantID	Month	Fuel Type	Fleet Size (January)	Fleet Size (July)	Idling Emissions (g/day)	Running Emission (g/day)	Total Emission (g/day)	Total Emission (g/hr)	Total Emission (g/s)	Total Summer (tonnes/6-monts)	Total Winter (tonnes/6-monts)	Total Annual (tonnes/year)
		VOC	87	1	1	1091	1636	1.11E-01	1.09E+00	1.20E+00	7.52E-02	2.09E-05	2.016E-04	-	5.26E-04
		VOC	87	7	1	1091	1636	1.79E-01	1.77E+00	1.95E+00	1.22E-01	3.38E-05	-	3.240E-04	
		PM10	9100	1	1	1091	1636	6.08E-01	4.21E+00	4.81E+00	3.01E-01	8.36E-05	8.061E-04	-	2.01E-03
		PM10	9100	7	1	1091	1636	9.12E-01	6.31E+00	7.22E+00	4.51E-01	1.25E-04	-	1.202E-03	
		PM2.5	9110	1	1	1091	1636	8.73E-02	6.25E-01	7.13E-01	4.45E-02	1.24E-05	1.193E-04	-	2.97E-04
		PM2.5	9110	7	1	1091	1636	1.31E-01	9.38E-01	1.07E+00	6.68E-02	1.86E-05	-	1.781E-04	
Light Trucks	Fuel Distribution: EV -5%, Hybrids 20%, Gasoline 74%, Diesel 1% Fleet Size (January) = 273 cars/day Fleet Size (July) = 409 cars/day Idling time = 20 mins per car Distance Travelled = 0.07 km Max daily operation = 16 hours	Carbon Dioxide	90	1	1 & 2	273	409	7.62E+02	5.61E+03	6.37E+03	3.98E+02	1.11E-01	1.067E+00	-	2.72
		Carbon Dioxide	90	7	1 & 2	273	409	1.20E+03	8.75E+03	9.95E+03	6.22E+02	1.73E-01	-	1.658E+00	
		Nitrous Oxide	6	1	1 & 2	273	409	1.12E-02	5.91E-02	7.03E-02	4.39E-03	1.22E-06	1.177E-05	-	2.93E-05
		Nitrous Oxide	6	7	1 & 2	273	409	1.69E-02	8.85E-02	1.05E-01	6.58E-03	1.83E-06	-	1.754E-05	
		Methane	5	1	1 & 2	273	409	1.35E-02	1.34E-01	1.47E-01	9.20E-03	2.55E-06	2.464E-05	-	6.45E-05
		Methane	5	7	1 & 2	273	409	2.20E-02	2.17E-01	2.39E-01	1.50E-02	4.15E-06	-	3.986E-05	
		Carbon Monoxide	2	1	1 & 2	273	409	3.45E+00	3.64E+01	3.98E+01	2.49E+00	6.92E-04	6.671E-03	-	1.83E-02
		Carbon Monoxide	2	7	1 & 2	273	409	6.01E+00	6.37E+01	6.97E+01	4.36E+00	1.21E-03	-	1.161E-02	
		Nitrogen Oxides	3	1	1 & 2	273	409	9.76E-02	1.36E+00	1.46E+00	9.13E-02	2.54E-05	2.445E-04	-	5.98E-04
		Nitrogen Oxides	3	7	1 & 2	273	409	1.57E-01	1.96E+00	2.12E+00	1.33E-01	3.68E-05	-	3.535E-04	
		Benzene	20	1	1 & 2	273	409	2.59E-03	2.22E-02	2.48E-02	1.55E-03	4.31E-07	4.158E-06	-	1.14E-05
		Benzene	20	7	1 & 2	273	409	4.61E-03	3.89E-02	4.35E-02	2.72E-03	7.55E-07	-	7.245E-06	
		1,3-Butadiene	24	1	1 & 2	273	409	1.01E-04	1.02E-03	1.12E-03	7.02E-05	1.95E-08	1.880E-07	-	4.76E-07
		1,3-Butadiene	24	7	1 & 2	273	409	1.55E-04	1.57E-03	1.73E-03	1.08E-04	3.00E-08	-	2.880E-07	
		Formaldehyde	25	1	1 & 2	273	409	9.03E-04	7.83E-03	8.73E-03	5.46E-04	1.52E-07	1.462E-06	-	3.79E-06
		Formaldehyde	25	7	1 & 2	273	409	1.44E-03	1.26E-02	1.40E-02	8.76E-04	2.43E-07	-	2.333E-06	
		Acetaldehyde	26	1	1 & 2	273	409	5.29E-04	4.76E-03	5.29E-03	3.31E-04	9.18E-08	8.857E-07	-	1.01E-06
		Acrolein	27	7	1 & 2	273	409	8.27E-05	6.75E-04	7.57E-04	4.73E-05	1.31E-08	-	1.261E-07	
		Sulphur Dioxide	31	1	1 & 2	273	409	5.03E-03	3.70E-02	4.20E-02	2.62E-03	7.29E-07	7.031E-06	-	1.80E-05
		Sulphur Dioxide	31	7	1 & 2	273	409	7.93E-03	5.77E-02	6.56E-02	4.10E-03	1.14E-06	-	1.093E-05	
		Benzo(a)pyrene	974	1	1 & 2	273	409	9.63E-07	1.37E-05	1.47E-05	9.18E-07	2.55E-10	2.460E-09	-	6.14E-09
		Benzo(a)pyrene	974	7	1 & 2	273	409	1.45E-06	2.06E-05	2.21E-05	1.38E-06	3.84E-10	-	3.680E-09	
		VOC	87	1	1 & 2	273	409	4.30E-02	4.14E-01	4.57E-01	2.86E-02	7.94E-06	7.656E-05	-	1.99E-04
		VOC	87	7	1 & 2	273	409	6.89E-02	6.65E-01	7.34E-01	4.58E-02	1.27E-05	-	1.222E-04	
		PM10	9100	1	1 & 2	273	409	1.70E-01	1.17E+00	1.34E+00	8.39E-02	2.33E-05	2.249E-04	-	5.60E-04
		PM10	9100	7	1 & 2	273	409	2.55E-01	1.76E+00	2.01E+00	1.26E-01	3.49E-05	-	3.351E-04	
		PM2.5	9110	1	1 & 2	273	409	2.43E-02	1.83E-01	2.07E-01	1.29E-02	3.60E-06	3.468E-05	-	8.64E-05
		PM2.5	9110	7	1 & 2	273	409	3.64E-02	2.74E-01	3.10E-01	1.94E-02	5.39E-06	-	5.170E-05	

PROCESSING: FUTURE NO-BUILD	DESCRIPTION OF EMISSIONS	Pollutant	PollutantID	Month	Fuel Type	Fleet Size (January)	Fleet Size (July)	Idling Emissions (g/day)	Running Emission (g/day)	Total Emission (g/day)	Total Emission (g/hr)	Total Emission (g/s)	Total Summer (tonnes/6-monts)	Total Winter (tonnes/6-monts)	Total Annual (tonnes/year)
Passenger Cars	Fuel Distribution: EV -5%, Hybrids 20%, Gasoline 75% Fleet Size (January) = 1,027 cars/day Fleet Size (July) = 1,541 cars/day	Carbon Dioxide	90	1	1	1027	1541	2.28E+03	1.32E+04	1.54E+04	9.64E+02	2.68E-01	2.584	-	6.61
		Carbon Dioxide	90	7	1	1027	1541	3.60E+03	2.06E+04	2.42E+04	1.51E+03	4.20E-01	-	4.027	
		Nitrous Oxide	6	1	1	1027	1541	2.74E-02	1.15E-01	1.42E-01	8.90E-03	2.47E-06	2.385E-05	-	5.94E-05

PROCESSING: FUTURE NO-BUILD	DESCRIPTION OF EMISSIONS	Pollutant	PollutantID	Month	Fuel Type	Fleet Size (January)	Fleet Size (July)	Idling Emissions (g/day)	Running Emission (g/day)	Total Emission (g/day)	Total Emission (g/hr)	Total Emission (g/s)	Total Summer (tonnes/6-monts)	Total Winter (tonnes/6-monts)	Total Annual (tonnes/year)
	Idling time = 20 mins per car Distance Travelled = 0.056 km Max daily operation = 16 hours	Nitrous Oxide	6	7	1	1027	1541	4.11E-02	1.73E-01	2.14E-01	1.33E-02	3.71E-06	-	3.557E-05	
		Methane	5	1	1	1027	1541	4.12E-02	3.25E-01	3.66E-01	2.29E-02	6.35E-06	6.128E-05	-	1.61E-04
		Methane	5	7	1	1027	1541	6.73E-02	5.31E-01	5.99E-01	3.74E-02	1.04E-05	-	9.970E-05	
		Carbon Monoxide	2	1	1	1027	1541	1.31E+01	1.06E+02	1.19E+02	7.42E+00	2.06E-03	1.989E-02	-	5.49E-02
		Carbon Monoxide	2	7	1	1027	1541	2.31E+01	1.87E+02	2.10E+02	1.31E+01	3.65E-03	-	3.497E-02	
		Nitrogen Oxides	3	1	1	1027	1541	1.37E-01	1.95E+00	2.08E+00	1.30E-01	3.62E-05	3.488E-04	-	8.45E-04
		Nitrogen Oxides	3	7	1	1027	1541	2.15E-01	2.77E+00	2.98E+00	1.86E-01	5.17E-05	-	4.963E-04	
		Benzene	20	1	1	1027	1541	7.12E-03	4.81E-02	5.52E-02	3.45E-03	9.58E-07	9.241E-06	-	2.53E-05
		Benzene	20	7	1	1027	1541	1.26E-02	8.36E-02	9.63E-02	6.02E-03	1.67E-06	-	1.603E-05	
		1,3-Butadiene	24	1	1	1027	1541	2.22E-04	1.75E-03	1.97E-03	1.23E-04	3.42E-08	3.303E-07	-	8.37E-07
		1,3-Butadiene	24	7	1	1027	1541	3.42E-04	2.70E-03	3.04E-03	1.90E-04	5.28E-08	-	5.064E-07	
		Formaldehyde	25	1	1	1027	1541	1.68E-03	1.32E-02	1.49E-02	9.30E-04	2.58E-07	2.491E-06	-	6.52E-06
		Formaldehyde	25	7	1	1027	1541	2.72E-03	2.15E-02	2.42E-02	1.51E-03	4.20E-07	-	4.026E-06	
		Acetaldehyde	26	1	1	1027	1541	1.01E-03	7.99E-03	9.00E-03	5.62E-04	1.56E-07	1.507E-06	-	1.69E-06
		Acrolein	27	7	1	1027	1541	1.22E-04	9.65E-04	1.09E-03	6.79E-05	1.89E-08	-	1.811E-07	
		Sulphur Dioxide	31	1	1	1027	1541	1.51E-02	8.74E-02	1.02E-01	6.41E-03	1.78E-06	1.716E-05	-	4.39E-05
		Sulphur Dioxide	31	7	1	1027	1541	2.39E-02	1.37E-01	1.61E-01	1.00E-02	2.79E-06	-	2.675E-05	
		Benzo(a)pyrene	974	1	1	1027	1541	4.27E-06	2.83E-05	3.25E-05	2.03E-06	5.65E-10	5.446E-09	-	1.36E-08
		Benzo(a)pyrene	974	7	1	1027	1541	6.42E-06	4.25E-05	4.90E-05	3.06E-06	8.50E-10	-	8.156E-09	
		VOC	87	1	1	1027	1541	1.04E-01	8.23E-01	9.28E-01	5.80E-02	1.61E-05	1.554E-04	-	4.05E-04
		VOC	87	7	1	1027	1541	1.69E-01	1.33E+00	1.50E+00	9.37E-02	2.60E-05	-	2.497E-04	
		PM10	9100	1	1	1027	1541	5.72E-01	3.17E+00	3.74E+00	2.34E-01	6.49E-05	6.264E-04	-	1.56E-03
		PM10	9100	7	1	1027	1541	8.59E-01	4.75E+00	5.61E+00	3.51E-01	9.74E-05	-	9.345E-04	
		PM2.5	9110	1	1	1027	1541	8.22E-02	4.71E-01	5.53E-01	3.46E-02	9.60E-06	9.263E-05	-	2.31E-04
		PM2.5	9110	7	1	1027	1541	1.23E-01	7.07E-01	8.30E-01	5.19E-02	1.44E-05	-	1.383E-04	
Light Trucks	Fuel Distribution: EV -5%, Hybrids 20%, Gasoline 74%, Diesel 1% Fleet Size (January) = 257 cars/day Fleet Size (July) = 385 cars/day Idling time = 20 mins per car Distance Travelled = 0.056 Max daily operation = 16 hours	Carbon Dioxide	90	1	1 & 2	257	385	7.17E+02	4.22E+03	4.94E+03	3.09E+02	8.57E-02	0.827	-	2.11
		Carbon Dioxide	90	7	1 & 2	257	385	1.13E+03	6.59E+03	7.73E+03	4.83E+02	1.34E-01	-	1.287	
		Nitrous Oxide	6	1	1 & 2	257	385	1.06E-02	4.44E-02	5.50E-02	3.44E-03	9.55E-07	9.214E-06	-	2.30E-05
		Nitrous Oxide	6	7	1 & 2	257	385	1.59E-02	6.67E-02	8.25E-02	5.16E-03	1.43E-06	-	1.375E-05	
		Methane	5	1	1 & 2	257	385	1.27E-02	1.01E-01	1.13E-01	7.08E-03	1.97E-06	1.897E-05	-	4.97E-05
		Methane	5	7	1 & 2	257	385	2.07E-02	1.64E-01	1.84E-01	1.15E-02	3.20E-06	-	3.072E-05	
		Carbon Monoxide	2	1	1 & 2	257	385	3.24E+00	2.74E+01	3.06E+01	1.91E+00	5.32E-04	5.129E-03	-	1.41E-02
		Carbon Monoxide	2	7	1 & 2	257	385	5.66E+00	4.80E+01	5.37E+01	3.35E+00	9.32E-04	-	8.939E-03	
		Nitrogen Oxides	3	1	1 & 2	257	385	9.18E-02	1.03E+00	1.12E+00	6.98E-02	1.94E-05	1.871E-04	-	4.58E-04
		Nitrogen Oxides	3	7	1 & 2	257	385	1.48E-01	1.48E+00	1.63E+00	1.02E-01	2.83E-05	-	2.712E-04	
		Benzene	20	1	1 & 2	257	385	2.43E-03	1.67E-02	1.92E-02	1.20E-03	3.33E-07	3.210E-06	-	8.81E-06
		Benzene	20	7	1 & 2	257	385	4.35E-03	2.93E-02	3.36E-02	2.10E-03	5.84E-07	-	5.604E-06	
		1,3-Butadiene	24	1	1 & 2	257	385	9.46E-05	7.69E-04	8.64E-04	5.40E-05	1.50E-08	1.447E-07	-	3.66E-07
		1,3-Butadiene	24	7	1 & 2	257	385	1.46E-04	1.19E-03	1.33E-03	8.32E-05	2.31E-08	-	2.218E-07	
		Formaldehyde	25	1	1 & 2	257	385	8.50E-04	5.89E-03	6.74E-03	4.21E-04	1.17E-07	1.129E-06	-	2.93E-06

PROCESSING: FUTURE NO-BUILD	DESCRIPTION OF EMISSIONS	Pollutant	PollutantID	Month	Fuel Type	Fleet Size (January)	Fleet Size (July)	Idling Emissions (g/day)	Running Emission (g/day)	Total Emission (g/day)	Total Emission (g/hr)	Total Emission (g/s)	Total Summer (tonnes/6-monts)	Total Winter (tonnes/6-monts)	Total Annual (tonnes/year)
		Formaldehyde	25	7	1 & 2	257	385	1.36E-03	9.47E-03	1.08E-02	6.77E-04	1.88E-07	-	1.803E-06	
		Acetaldehyde	26	1	1 & 2	257	385	4.98E-04	3.58E-03	4.08E-03	2.55E-04	7.08E-08	6.832E-07	-	7.81E-07
		Acrolein	27	7	1 & 2	257	385	7.79E-05	5.08E-04	5.86E-04	3.66E-05	1.02E-08	-	9.762E-08	
		Sulphur Dioxide	31	1	1 & 2	257	385	4.73E-03	2.78E-02	3.25E-02	2.03E-03	5.65E-07	5.449E-06	-	1.39E-05
		Sulphur Dioxide	31	7	1 & 2	257	385	7.47E-03	4.35E-02	5.09E-02	3.18E-03	8.84E-07	-	8.482E-06	
		Benzo(a)pyrene	974	1	1 & 2	257	385	9.06E-07	1.03E-05	1.12E-05	7.02E-07	1.95E-10	1.882E-09	-	4.70E-09
		Benzo(a)pyrene	974	7	1 & 2	257	385	1.36E-06	1.56E-05	1.69E-05	1.06E-06	2.94E-10	-	2.818E-09	
		VOC	87	1	1 & 2	257	385	4.04E-02	3.12E-01	3.52E-01	2.20E-02	6.11E-06	5.896E-05	-	1.53E-04
		VOC	87	7	1 & 2	257	385	6.49E-02	5.01E-01	5.66E-01	3.54E-02	9.82E-06	-	9.420E-05	
		PM10	9100	1	1 & 2	257	385	1.60E-01	8.82E-01	1.04E+00	6.52E-02	1.81E-05	1.746E-04	-	4.35E-04
		PM10	9100	7	1 & 2	257	385	2.41E-01	1.32E+00	1.56E+00	9.78E-02	2.72E-05	-	2.605E-04	
		PM2.5	9110	1	1 & 2	257	385	2.28E-02	1.38E-01	1.60E-01	1.00E-02	2.78E-06	2.686E-05	-	6.70E-05
		PM2.5	9110	7	1 & 2	257	385	3.43E-02	2.06E-01	2.41E-01	1.50E-02	4.18E-06	-	4.009E-05	

SITE OPERATION: PRESENT	DESCRIPTION OF EMISSIONS	Pollutant	PollutantID	Month	Fuel Type	Fleet Size (January)	Fleet Size (July)	Idling Emissions (g/day)	Running Emission (g/day)	Total Emission (g/day)	Total Emission (g/hr)	Total Emission (g/s)	Total Summer (tonnes/6-monts)	Total Winter (tonnes/6-monts)	Total Annual (tonnes/year)
Passenger Cars	**SHIP to PARKING** Fuel Distribution: EV -5%, Hybrids 20%, Gasoline 75% Fleet Size (January) = 2,657 cars/day Fleet Size (July) = 2,657 cars/day Idling time = 0 mins per car Distance Travelled = 0.767 km Max daily operation = 16 hours	Carbon Dioxide	90	1	1	2657	2657	0.00E+00	5.28E+05	5.28E+05	3.30E+04	9.16E+00	31.814	-	73.47
		Carbon Dioxide	90	7	1	2657	2657	0.00E+00	5.50E+05	5.50E+05	3.44E+04	9.55E+00	-	41.655	
		Nitrous Oxide	6	1	1	2657	2657	0.00E+00	5.07E+00	5.07E+00	3.17E-01	8.81E-05	3.059E-04	-	6.90E-04
		Nitrous Oxide	6	7	1	2657	2657	0.00E+00	5.07E+00	5.07E+00	3.17E-01	8.81E-05	-	3.840E-04	
		Methane	5	1	1	2657	2657	0.00E+00	1.82E+01	1.82E+01	1.14E+00	3.16E-04	1.099E-03	-	2.58E-03
		Methane	5	7	1	2657	2657	0.00E+00	1.96E+01	1.96E+01	1.23E+00	3.40E-04	-	1.484E-03	
		Carbon Monoxide	2	1	1	2657	2657	0.00E+00	4.67E+03	4.67E+03	2.92E+02	8.11E-02	2.817E-01	-	6.96E-01
		Carbon Monoxide	2	7	1	2657	2657	0.00E+00	5.48E+03	5.48E+03	3.42E+02	9.51E-02	-	4.147E-01	
		Nitrogen Oxides	3	1	1	2657	2657	0.00E+00	1.65E+02	1.65E+02	1.03E+01	2.86E-03	9.925E-03	-	2.17E-02
		Nitrogen Oxides	3	7	1	2657	2657	0.00E+00	1.56E+02	1.56E+02	9.73E+00	2.70E-03	-	1.178E-02	
		Benzene	20	1	1	2657	2657	0.00E+00	3.11E+00	3.11E+00	1.94E-01	5.39E-05	1.873E-04	-	4.54E-04
		Benzene	20	7	1	2657	2657	0.00E+00	3.52E+00	3.52E+00	2.20E-01	6.12E-05	-	2.667E-04	
		1,3-Butadiene	24	1	1	2657	2657	0.00E+00	2.36E-01	2.36E-01	1.47E-02	4.09E-06	1.422E-05	-	3.25E-05
		1,3-Butadiene	24	7	1	2657	2657	0.00E+00	2.42E-01	2.42E-01	1.51E-02	4.20E-06	-	1.832E-05	
		Formaldehyde	25	1	1	2657	2657	0.00E+00	9.09E-01	9.09E-01	5.68E-02	1.58E-05	5.482E-05	-	1.29E-04
		Formaldehyde	25	7	1	2657	2657	0.00E+00	9.84E-01	9.84E-01	6.15E-02	1.71E-05	-	7.452E-05	
		Acetaldehyde	26	1	1	2657	2657	0.00E+00	6.84E-01	6.84E-01	4.28E-02	1.19E-05	4.127E-05	-	4.47E-05
		Acrolein	27	7	1	2657	2657	0.00E+00	4.55E-02	4.55E-02	2.85E-03	7.90E-07	-	3.446E-06	
		Sulphur Dioxide	31	1	1	2657	2657	0.00E+00	3.50E+00	3.50E+00	2.19E-01	6.08E-05	2.113E-04	-	4.88E-04
		Sulphur Dioxide	31	7	1	2657	2657	0.00E+00	3.66E+00	3.66E+00	2.28E-01	6.35E-05	-	2.767E-04	
		Benzo(a)pyrene	974	1	1	2657	2657	0.00E+00	1.51E-03	1.51E-03	9.44E-05	2.62E-08	9.110E-08	-	2.06E-07
		Benzo(a)pyrene	974	7	1	2657	2657	0.00E+00	1.52E-03	1.52E-03	9.47E-05	2.63E-08	-	1.147E-07	
		VOC	87	1	1	2657	2657	0.00E+00	6.28E+01	6.28E+01	3.92E+00	1.09E-03	3.787E-03	-	8.82E-03
		VOC	87	7	1	2657	2657	0.00E+00	6.65E+01	6.65E+01	4.16E+00	1.15E-03	-	5.034E-03	

SITE OPERATION: PRESENT	DESCRIPTION OF EMISSIONS	Pollutant	PollutantID	Month	Fuel Type	Fleet Size (January)	Fleet Size (July)	Idling Emissions (g/day)	Running Emission (g/day)	Total Emission (g/day)	Total Emission (g/hr)	Total Emission (g/s)	Total Summer (tonnes/6-monts)	Total Winter (tonnes/6-monts)	Total Annual (tonnes/year)
		PM10	9100	1	1	2657	2657	0.00E+00	1.13E+02	1.13E+02	7.06E+00	1.96E-03	6.813E-03	-	1.54E-02
		PM10	9100	7	1	2657	2657	0.00E+00	1.13E+02	1.13E+02	7.06E+00	1.96E-03	-	8.553E-03	
		PM2.5	9110	1	1	2657	2657	0.00E+00	1.73E+01	1.73E+01	1.08E+00	3.01E-04	1.046E-03	-	2.36E-03
		PM2.5	9110	7	1	2657	2657	0.00E+00	1.74E+01	1.74E+01	1.08E+00	3.01E-04	-	1.314E-03	
Passenger Cars	**PARKING to PROCESSING & SHIPPING** Fuel Distribution: EV -5%, Hybrids 20%, Gasoline 75% Fleet Size (January) = 1,027 cars/day Fleet Size (July) = 1,541 cars/day Idling time = 0 mins per car Distance Travelled: processing & back = 1.3 km Distance Travelled: rail shipping = 0.829 km Distance Travelled: truck shipping = 0.671 km % Vehicles shipped by rail = 85% % Vehicles shipped by truck = 15% Max daily operation = 16 hours	Carbon Dioxide	90	1	1	1027	1541	0.00E+00	5.60E+05	5.60E+05	2.33E+04	6.48E+00	93.749	-	2.40E+02
		Carbon Dioxide	90	7	1	1027	1541	0.00E+00	8.76E+05	8.76E+05	3.65E+04	1.01E+01	-	145.874	
		Nitrous Oxide	6	1	1	1027	1541	0.00E+00	5.38E+00	5.38E+00	2.24E-01	6.23E-05	9.015E-04	-	2.25E-03
		Nitrous Oxide	6	7	1	1027	1541	0.00E+00	8.07E+00	8.07E+00	3.36E-01	9.35E-05	-	1.345E-03	
		Methane	5	1	1	1027	1541	0.00E+00	1.93E+01	1.93E+01	8.05E-01	2.24E-04	3.237E-03	-	8.43E-03
		Methane	5	7	1	1027	1541	0.00E+00	3.12E+01	3.12E+01	1.30E+00	3.61E-04	-	5.197E-03	
		Carbon Monoxide	2	1	1	1027	1541	0.00E+00	4.96E+03	4.96E+03	2.07E+02	5.74E-02	8.302E-01	-	2.28
		Carbon Monoxide	2	7	1	1027	1541	0.00E+00	8.72E+03	8.72E+03	3.63E+02	1.01E-01	-	1.452E+00	
		Nitrogen Oxides	3	1	1	1027	1541	0.00E+00	1.75E+02	1.75E+02	7.28E+00	2.02E-03	2.925E-02	-	7.05E-02
		Nitrogen Oxides	3	7	1	1027	1541	0.00E+00	2.48E+02	2.48E+02	1.03E+01	2.87E-03	-	4.126E-02	
		Benzene	20	1	1	1027	1541	0.00E+00	3.30E+00	3.30E+00	1.37E-01	3.82E-05	5.520E-04	-	1.49E-03
		Benzene	20	7	1	1027	1541	0.00E+00	5.61E+00	5.61E+00	2.34E-01	6.49E-05	-	9.341E-04	
		1,3-Butadiene	24	1	1	1027	1541	0.00E+00	2.50E-01	2.50E-01	1.04E-02	2.90E-06	4.189E-05	-	1.06E-04
		1,3-Butadiene	24	7	1	1027	1541	0.00E+00	3.85E-01	3.85E-01	1.60E-02	4.46E-06	-	6.414E-05	
		Formaldehyde	25	1	1	1027	1541	0.00E+00	9.65E-01	9.65E-01	4.02E-02	1.12E-05	1.616E-04	-	4.23E-04
		Formaldehyde	25	7	1	1027	1541	0.00E+00	1.57E+00	1.57E+00	6.53E-02	1.81E-05	-	2.610E-04	
		Acetaldehyde	26	1	1	1027	1541	0.00E+00	7.26E-01	7.26E-01	3.03E-02	8.40E-06	1.216E-04	-	1.34E-04
		Acrolein	27	7	1	1027	1541	0.00E+00	7.25E-02	7.25E-02	3.02E-03	8.39E-07	-	1.207E-05	
		Sulphur Dioxide	31	1	1	1027	1541	0.00E+00	3.72E+00	3.72E+00	1.55E-01	4.30E-05	6.228E-04	-	1.59E-03
		Sulphur Dioxide	31	7	1	1027	1541	0.00E+00	5.82E+00	5.82E+00	2.42E-01	6.73E-05	-	9.690E-04	
		Benzo(a)pyrene	974	1	1	1027	1541	0.00E+00	1.60E-03	1.60E-03	6.68E-05	1.86E-08	2.685E-07	-	6.70E-07
		Benzo(a)pyrene	974	7	1	1027	1541	0.00E+00	2.41E-03	2.41E-03	1.01E-04	2.79E-08	-	4.018E-07	
		VOC	87	1	1	1027	1541	0.00E+00	6.66E+01	6.66E+01	2.78E+00	7.71E-04	1.116E-02	-	2.88E-02
		VOC	87	7	1	1027	1541	0.00E+00	1.06E+02	1.06E+02	4.41E+00	1.23E-03	-	1.763E-02	
		PM10	9100	1	1	1027	1541	0.00E+00	1.20E+02	1.20E+02	5.00E+00	1.39E-03	2.008E-02	-	5.00E-02
		PM10	9100	7	1	1027	1541	0.00E+00	1.80E+02	1.80E+02	7.49E+00	2.08E-03	-	2.995E-02	
		PM2.5	9110	1	1	1027	1541	0.00E+00	1.84E+01	1.84E+01	7.67E-01	2.13E-04	3.082E-03	-	7.68E-03
		PM2.5	9110	7	1	1027	1541	0.00E+00	2.76E+01	2.76E+01	1.15E+00	3.20E-04	-	4.601E-03	
Light Trucks	**SHIP to PARKING** Fuel Distribution: EV -5%, Hybrids 20%, Gasoline 74%, Diesel 1% Fleet Size (January) = 664 cars/day Fleet Size (July) = 664 cars/day Idling time = 0 mins per car Distance Travelled = 0.767 km Max daily operation = 16 hours	Carbon Dioxide	90	1	1 & 2	664	664	0.00E+00	1.67E+05	1.67E+05	1.04E+04	2.90E+00	10.082	-	23.26
		Carbon Dioxide	90	7	1 & 2	664	664	0.00E+00	1.74E+05	1.74E+05	1.09E+04	3.02E+00	-	13.183	
		Nitrous Oxide	6	1	1 & 2	664	664	0.00E+00	2.29E+00	2.29E+00	1.43E-01	3.97E-05	1.379E-04	-	3.11E-04
		Nitrous Oxide	6	7	1 & 2	664	664	0.00E+00	2.29E+00	2.29E+00	1.43E-01	3.97E-05	-	1.731E-04	
		Methane	5	1	1 & 2	664	664	0.00E+00	6.52E+00	6.52E+00	4.07E-01	1.13E-04	3.930E-04	-	9.20E-04
		Methane	5	7	1 & 2	664	664	0.00E+00	6.95E+00	6.95E+00	4.35E-01	1.21E-04	-	5.265E-04	
		Carbon Monoxide	2	1	1 & 2	664	664	0.00E+00	1.31E+03	1.31E+03	8.21E+01	2.28E-02	7.916E-02	-	1.94E-01
		Carbon Monoxide	2	7	1 & 2	664	664	0.00E+00	1.52E+03	1.52E+03	9.50E+01	2.64E-02	-	1.150E-01	

SITE OPERATION: PRESENT	DESCRIPTION OF EMISSIONS	Pollutant	PollutantID	Month	Fuel Type	Fleet Size (January)	Fleet Size (July)	Idling Emissions (g/day)	Running Emission (g/day)	Total Emission (g/day)	Total Emission (g/hr)	Total Emission (g/s)	Total Summer (tonnes/6-monts)	Total Winter (tonnes/6-monts)	Total Annual (tonnes/year)
		Nitrogen Oxides	3	1	1 & 2	664	664	0.00E+00	8.72E+01	8.72E+01	5.45E+00	1.51E-03	5.261E-03	-	1.16E-02
		Nitrogen Oxides	3	7	1 & 2	664	664	0.00E+00	8.33E+01	8.33E+01	5.21E+00	1.45E-03	-	6.305E-03	
		Benzene	20	1	1 & 2	664	664	0.00E+00	1.26E+00	1.26E+00	7.88E-02	2.19E-05	7.602E-05	-	1.85E-04
		Benzene	20	7	1 & 2	664	664	0.00E+00	1.43E+00	1.43E+00	8.96E-02	2.49E-05	-	1.085E-04	
		1,3-Butadiene	24	1	1 & 2	664	664	0.00E+00	1.12E-01	1.12E-01	7.03E-03	1.95E-06	6.782E-06	-	1.55E-05
		1,3-Butadiene	24	7	1 & 2	664	664	0.00E+00	1.15E-01	1.15E-01	7.20E-03	2.00E-06	-	8.723E-06	
		Formaldehyde	25	1	1 & 2	664	664	0.00E+00	4.96E-01	4.96E-01	3.10E-02	8.61E-06	2.992E-05	-	7.00E-05
		Formaldehyde	25	7	1 & 2	664	664	0.00E+00	5.30E-01	5.30E-01	3.31E-02	9.20E-06	-	4.012E-05	
		Acetaldehyde	26	1	1 & 2	664	664	0.00E+00	3.52E-01	3.52E-01	2.20E-02	6.11E-06	2.124E-05	-	2.35E-05
		Acrolein	27	7	1 & 2	664	664	0.00E+00	2.94E-02	2.94E-02	1.84E-03	5.10E-07	-	2.226E-06	
		Sulphur Dioxide	31	1	1 & 2	664	664	0.00E+00	1.10E+00	1.10E+00	6.88E-02	1.91E-05	6.643E-05	-	1.53E-04
		Sulphur Dioxide	31	7	1 & 2	664	664	0.00E+00	1.15E+00	1.15E+00	7.17E-02	1.99E-05	-	8.686E-05	
		Benzo(a)pyrene	974	1	1 & 2	664	664	0.00E+00	5.78E-04	5.78E-04	3.61E-05	1.00E-08	3.484E-08	-	7.87E-08
		Benzo(a)pyrene	974	7	1 & 2	664	664	0.00E+00	5.80E-04	5.80E-04	3.62E-05	1.01E-08	-	4.388E-08	
		VOC	87	1	1 & 2	664	664	0.00E+00	2.80E+01	2.80E+01	1.75E+00	4.86E-04	1.687E-03	-	3.92E-03
		VOC	87	7	1 & 2	664	664	0.00E+00	2.94E+01	2.94E+01	1.84E+00	5.11E-04	-	2.228E-03	
		PM10	9100	1	1 & 2	664	664	0.00E+00	3.19E+01	3.19E+01	1.99E+00	5.53E-04	1.922E-03	-	4.34E-03
		PM10	9100	7	1 & 2	664	664	0.00E+00	3.19E+01	3.19E+01	1.99E+00	5.53E-04	-	2.413E-03	
		PM2.5	9110	1	1 & 2	664	664	0.00E+00	5.43E+00	5.43E+00	3.39E-01	9.43E-05	3.274E-04	-	7.39E-04
		PM2.5	9110	7	1 & 2	664	664	0.00E+00	5.43E+00	5.43E+00	3.40E-01	9.43E-05	-	4.112E-04	
Light Trucks	**PARKING to PROCESSING & SHIPPING** Fuel Distribution: EV -5%, Hybrids 20%, Gasoline 74%, Diesel 1% Fleet Size (January) = 257 cars/day Fleet Size (July) = 385 cars/day Idling time = 0 mins per car Distance Travelled: processing & back = 1.3 km Distance Travelled: rail shipping = 0.829 km Distance Travelled: truck shipping = 0.671 km % Vehicles shipped by rail = 85% % Vehicles shipped by truck = 15% Max daily operation = 16 hours	Carbon Dioxide	90	1	1 & 2	257	385	0.00E+00	1.77E+05	1.77E+05	1.11E+04	3.08E+00	29.721	-	75.90
		Carbon Dioxide	90	7	1 & 2	257	385	0.00E+00	2.77E+05	2.77E+05	1.73E+04	4.81E+00	-	46.183	
		Nitrous Oxide	6	1	1 & 2	257	385	0.00E+00	2.43E+00	2.43E+00	1.52E-01	4.22E-05	4.066E-04	-	1.01E-03
		Nitrous Oxide	6	7	1 & 2	257	385	0.00E+00	3.64E+00	3.64E+00	2.28E-01	6.32E-05	-	6.066E-04	
		Methane	5	1	1 & 2	257	385	0.00E+00	6.92E+00	6.92E+00	4.32E-01	1.20E-04	1.159E-03	-	3.00E-03
		Methane	5	7	1 & 2	257	385	0.00E+00	1.11E+01	1.11E+01	6.92E-01	1.92E-04	-	1.844E-03	
		Carbon Monoxide	2	1	1 & 2	257	385	0.00E+00	1.39E+03	1.39E+03	8.71E+01	2.42E-02	2.334E-01	-	6.36E-01
		Carbon Monoxide	2	7	1 & 2	257	385	0.00E+00	2.42E+03	2.42E+03	1.51E+02	4.20E-02	-	4.029E-01	
		Nitrogen Oxides	3	1	1 & 2	257	385	0.00E+00	9.26E+01	9.26E+01	5.79E+00	1.61E-03	1.551E-02	-	3.76E-02
		Nitrogen Oxides	3	7	1 & 2	257	385	0.00E+00	1.33E+02	1.33E+02	8.29E+00	2.30E-03	-	2.209E-02	
		Benzene	20	1	1 & 2	257	385	0.00E+00	1.34E+00	1.34E+00	8.36E-02	2.32E-05	2.241E-04	-	6.04E-04
		Benzene	20	7	1 & 2	257	385	0.00E+00	2.28E+00	2.28E+00	1.43E-01	3.96E-05	-	3.802E-04	
		1,3-Butadiene	24	1	1 & 2	257	385	0.00E+00	1.19E-01	1.19E-01	7.46E-03	2.07E-06	1.999E-05	-	5.06E-05
		1,3-Butadiene	24	7	1 & 2	257	385	0.00E+00	1.83E-01	1.83E-01	1.15E-02	3.19E-06	-	3.056E-05	
		Formaldehyde	25	1	1 & 2	257	385	0.00E+00	5.27E-01	5.27E-01	3.29E-02	9.14E-06	8.820E-05	-	2.29E-04
		Formaldehyde	25	7	1 & 2	257	385	0.00E+00	8.44E-01	8.44E-01	5.27E-02	1.47E-05	-	1.406E-04	
		Acetaldehyde	26	1	1 & 2	257	385	0.00E+00	3.74E-01	3.74E-01	2.34E-02	6.49E-06	6.260E-05	-	7.04E-05
		Acrolein	27	7	1 & 2	257	385	0.00E+00	4.68E-02	4.68E-02	2.93E-03	8.13E-07	-	7.798E-06	
		Sulphur Dioxide	31	1	1 & 2	257	385	0.00E+00	1.17E+00	1.17E+00	7.31E-02	2.03E-05	1.958E-04	-	5.00E-04
		Sulphur Dioxide	31	7	1 & 2	257	385	0.00E+00	1.83E+00	1.83E+00	1.14E-01	3.17E-05	-	3.043E-04	

SITE OPERATION: PRESENT	DESCRIPTION OF EMISSIONS	Pollutant	PollutantID	Month	Fuel Type	Fleet Size (January)	Fleet Size (July)	Idling Emissions (g/day)	Running Emission (g/day)	Total Emission (g/day)	Total Emission (g/hr)	Total Emission (g/s)	Total Summer (tonnes/6-monts)	Total Winter (tonnes/6-monts)	Total Annual (tonnes/year)
		Benzo(a)pyrene	974	1	1 & 2	257	385	0.00E+00	6.13E-04	6.13E-04	3.83E-05	1.06E-08	1.027E-07	-	2.56E-07
		Benzo(a)pyrene	974	7	1 & 2	257	385	0.00E+00	9.23E-04	9.23E-04	5.77E-05	1.60E-08	-	1.537E-07	
		VOC	87	1	1 & 2	257	385	0.00E+00	2.97E+01	2.97E+01	1.86E+00	5.16E-04	4.973E-03	-	1.28E-02
		VOC	87	7	1 & 2	257	385	0.00E+00	4.69E+01	4.69E+01	2.93E+00	8.14E-04	-	7.807E-03	
		PM10	9100	1	1 & 2	257	385	0.00E+00	3.38E+01	3.38E+01	2.11E+00	5.87E-04	5.667E-03	-	1.41E-02
		PM10	9100	7	1 & 2	257	385	0.00E+00	5.08E+01	5.08E+01	3.17E+00	8.81E-04	-	8.454E-03	
		PM2.5	9110	1	1 & 2	257	385	0.00E+00	5.76E+00	5.76E+00	3.60E-01	1.00E-04	9.651E-04	-	2.41E-03
		PM2.5	9110	7	1 & 2	257	385	0.00E+00	8.65E+00	8.65E+00	5.41E-01	1.50E-04	-	1.441E-03	
Heavy Trucks	**TRANSPORT SHIPPING OFF-SITE** Fuel Distribution: Diesel 100% Fleet Size (January) = 18 truck/day Fleet Size (July) = 27 truck/day Idling time = 0 mins per truck Distance Travelled: onsite = 1.5 km % Trucks shipping to Canada = 80% % Trucks shipping to VC dealership = 20% Max daily operation = n/a	Carbon Dioxide	90	1	2	18	27	0.00E+00	4.51E+04	4.51E+04	-	-	7.544	-	18.80
		Carbon Dioxide	90	7	2	18	27	0.00E+00	6.76E+04	6.76E+04	-	-	-	11.254	
		Nitrous Oxide	6	1	2	18	27	0.00E+00	1.39E-01	1.39E-01	-	-	2.322E-05	-	5.79E-05
		Nitrous Oxide	6	7	2	18	27	0.00E+00	2.08E-01	2.08E-01	-	-	-	3.465E-05	
		Methane	5	1	2	18	27	0.00E+00	1.23E+00	1.23E+00	-	-	2.052E-04	-	5.11E-04
		Methane	5	7	2	18	27	0.00E+00	1.84E+00	1.84E+00	-	-	-	3.061E-04	
		Carbon Monoxide	2	1	2	18	27	0.00E+00	1.09E+02	1.09E+02	-	-	1.823E-02	-	4.54E-02
		Carbon Monoxide	2	7	2	18	27	0.00E+00	1.63E+02	1.63E+02	-	-	-	2.719E-02	
		Nitrogen Oxides	3	1	2	18	27	0.00E+00	2.31E+02	2.31E+02	-	-	3.860E-02	-	9.20E-02
		Nitrogen Oxides	3	7	2	18	27	0.00E+00	3.21E+02	3.21E+02	-	-	-	5.338E-02	
		Benzene	20	1	2	18	27	0.00E+00	4.20E-02	4.20E-02	-	-	7.030E-06	-	1.75E-05
		Benzene	20	7	2	18	27	0.00E+00	6.30E-02	6.30E-02	-	-	-	1.049E-05	
		1,3-Butadiene	24	1	2	18	27	0.00E+00	1.36E-02	1.36E-02	-	-	2.274E-06	-	5.67E-06
		1,3-Butadiene	24	7	2	18	27	0.00E+00	2.04E-02	2.04E-02	-	-	-	3.393E-06	
		Formaldehyde	25	1	2	18	27	0.00E+00	5.58E-01	5.58E-01	-	-	9.340E-05	-	2.33E-04
		Formaldehyde	25	7	2	18	27	0.00E+00	8.37E-01	8.37E-01	-	-	-	1.393E-04	
		Acetaldehyde	26	1	2	18	27	0.00E+00	3.42E-01	3.42E-01	-	-	5.731E-05	-	6.92E-05
		Acrolein	27	7	2	18	27	0.00E+00	7.15E-02	7.15E-02	-	-	-	1.190E-05	
		Sulphur Dioxide	31	1	2	18	27	0.00E+00	1.51E-01	1.51E-01	-	-	2.537E-05	-	6.32E-05
		Sulphur Dioxide	31	7	2	18	27	0.00E+00	2.27E-01	2.27E-01	-	-	-	3.784E-05	
		Benzo(a)pyrene	974	1	2	18	27	0.00E+00	2.55E-04	2.55E-04	-	-	4.269E-08	-	1.06E-07
		Benzo(a)pyrene	974	7	2	18	27	0.00E+00	3.82E-04	3.82E-04	-	-	-	6.368E-08	
		VOC	87	1	2	18	27	0.00E+00	7.17E+00	7.17E+00	-	-	1.200E-03	-	2.99E-03
		VOC	87	7	2	18	27	0.00E+00	1.07E+01	1.07E+01	-	-	-	1.790E-03	
		PM10	9100	1	2	18	27	0.00E+00	2.44E+01	2.44E+01	-	-	4.093E-03	-	1.02E-02
		PM10	9100	7	2	18	27	0.00E+00	3.67E+01	3.67E+01	-	-	-	6.106E-03	
		PM2.5	9110	1	2	18	27	0.00E+00	6.37E+00	6.37E+00	-	-	1.067E-03	-	2.66E-03
		PM2.5	9110	7	2	18	27	0.00E+00	9.56E+00	9.56E+00	-	-	-	1.591E-03	
Heavy Trucks	**FUEL TANKERS** Fuel Distribution: Diesel 100% Fleet Size (January) = 1 truck/day Fleet Size (July) = 1 truck/day Idling time = 0 mins per truck	Carbon Dioxide	90	1	2	1.28	1.28	0.00E+00	3.35E+03	3.35E+03	3.35E+03	9.30E-01	0.560	-	1.12
		Carbon Dioxide	90	7	2	1.28	1.28	0.00E+00	3.35E+03	3.35E+03	3.35E+03	9.30E-01	-	0.557	
		Nitrous Oxide	6	1	2	1.28	1.28	0.00E+00	1.03E-02	1.03E-02	1.03E-02	2.86E-06	1.725E-06	-	3.44E-06
		Nitrous Oxide	6	7	2	1.28	1.28	0.00E+00	1.03E-02	1.03E-02	1.03E-02	2.86E-06	-	1.716E-06	

SITE OPERATION: PRESENT	DESCRIPTION OF EMISSIONS	Pollutant	PollutantID	Month	Fuel Type	Fleet Size (January)	Fleet Size (July)	Idling Emissions (g/day)	Running Emission (g/day)	Total Emission (g/day)	Total Emission (g/hr)	Total Emission (g/s)	Total Summer (tonnes/6-monts)	Total Winter (tonnes/6-monts)	Total Annual (tonnes/year)
	Distance Travelled = 1.56 km Max daily operation = 1 hour	Methane	5	1	2	1.28	1.28	0.00E+00	9.10E-02	9.10E-02	9.10E-02	2.53E-05	1.524E-05	-	3.04E-05
		Methane	5	7	2	1.28	1.28	0.00E+00	9.10E-02	9.10E-02	9.10E-02	2.53E-05	-	1.516E-05	
		Carbon Monoxide	2	1	2	1.28	1.28	0.00E+00	8.09E+00	8.09E+00	8.09E+00	2.25E-03	1.354E-03	-	2.70E-03
		Carbon Monoxide	2	7	2	1.28	1.28	0.00E+00	8.09E+00	8.09E+00	8.09E+00	2.25E-03	-	1.347E-03	
		Nitrogen Oxides	3	1	2	1.28	1.28	0.00E+00	1.71E+01	1.71E+01	1.71E+01	4.76E-03	2.868E-03	-	5.51E-03
		Nitrogen Oxides	3	7	2	1.28	1.28	0.00E+00	1.59E+01	1.59E+01	1.59E+01	4.41E-03	-	2.644E-03	
		Benzene	20	1	2	1.28	1.28	0.00E+00	3.12E-03	3.12E-03	3.12E-03	8.66E-07	5.222E-07	-	1.04E-06
		Benzene	20	7	2	1.28	1.28	0.00E+00	3.12E-03	3.12E-03	3.12E-03	8.66E-07	-	5.194E-07	
		1,3-Butadiene	24	1	2	1.28	1.28	0.00E+00	1.01E-03	1.01E-03	1.01E-03	2.80E-07	1.689E-07	-	3.37E-07
		1,3-Butadiene	24	7	2	1.28	1.28	0.00E+00	1.01E-03	1.01E-03	1.01E-03	2.80E-07	-	1.680E-07	
		Formaldehyde	25	1	2	1.28	1.28	0.00E+00	4.14E-02	4.14E-02	4.14E-02	1.15E-05	6.939E-06	-	1.38E-05
		Formaldehyde	25	7	2	1.28	1.28	0.00E+00	4.14E-02	4.14E-02	4.14E-02	1.15E-05	-	6.901E-06	
		Acetaldehyde	26	1	2	1.28	1.28	0.00E+00	2.54E-02	2.54E-02	2.54E-02	7.06E-06	4.257E-06	-	4.85E-06
		Acrolein	27	7	2	1.28	1.28	0.00E+00	3.54E-03	3.54E-03	3.54E-03	9.83E-07	-	5.893E-07	
		Sulphur Dioxide	31	1	2	1.28	1.28	0.00E+00	1.13E-02	1.13E-02	1.13E-02	3.13E-06	1.884E-06	-	3.76E-06
		Sulphur Dioxide	31	7	2	1.28	1.28	0.00E+00	1.13E-02	1.13E-02	1.13E-02	3.13E-06	-	1.874E-06	
		Benzo(a)pyrene	974	1	2	1.28	1.28	0.00E+00	1.89E-05	1.89E-05	1.89E-05	5.26E-09	3.171E-09	-	6.33E-09
		Benzo(a)pyrene	974	7	2	1.28	1.28	0.00E+00	1.89E-05	1.89E-05	1.89E-05	5.26E-09	-	3.154E-09	
		VOC	87	1	2	1.28	1.28	0.00E+00	5.32E-01	5.32E-01	5.32E-01	1.48E-04	8.915E-05	-	1.78E-04
		VOC	87	7	2	1.28	1.28	0.00E+00	5.32E-01	5.32E-01	5.32E-01	1.48E-04	-	8.866E-05	
		PM10	9100	1	2	1.28	1.28	0.00E+00	1.82E+00	1.82E+00	1.82E+00	5.04E-04	3.040E-04	-	6.06E-04
		PM10	9100	7	2	1.28	1.28	0.00E+00	1.82E+00	1.82E+00	1.82E+00	5.04E-04	-	3.024E-04	
		PM2.5	9110	1	2	1.28	1.28	0.00E+00	4.73E-01	4.73E-01	4.73E-01	1.31E-04	7.924E-05	-	1.58E-04
		PM2.5	9110	7	2	1.28	1.28	0.00E+00	4.73E-01	4.73E-01	4.73E-01	1.31E-04	-	7.881E-05	
Light Commercial Trucks	**GENERAL DELIVERIES** Fuel Distribution: Diesel 100% Fleet Size (January) = 2 truck/day Fleet Size (July) = 2 truck/day Idling time = 0 mins per truck Distance Travelled = 1.56 km Max daily operation = 1 hour	Carbon Dioxide	90	1	2	2.57	2.57	0.00E+00	2.50E+03	2.50E+03	2.50E+03	6.96E-01	0.419	-	0.853
		Carbon Dioxide	90	7	2	2.57	2.57	0.00E+00	2.60E+03	2.60E+03	2.60E+03	7.23E-01	-	0.434	
		Nitrous Oxide	6	1	2	2.57	2.57	0.00E+00	1.88E-02	1.88E-02	1.88E-02	5.21E-06	3.143E-06	-	6.27E-06
		Nitrous Oxide	6	7	2	2.57	2.57	0.00E+00	1.88E-02	1.88E-02	1.88E-02	5.21E-06	-	3.126E-06	
		Methane	5	1	2	2.57	2.57	0.00E+00	8.77E-02	8.77E-02	8.77E-02	2.43E-05	1.468E-05	-	2.97E-05
		Methane	5	7	2	2.57	2.57	0.00E+00	9.03E-02	9.03E-02	9.03E-02	2.51E-05	-	1.504E-05	
		Carbon Monoxide	2	1	2	2.57	2.57	0.00E+00	9.12E+00	9.12E+00	9.12E+00	2.53E-03	1.528E-03	-	3.26E-03
		Carbon Monoxide	2	7	2	2.57	2.57	0.00E+00	1.04E+01	1.04E+01	1.04E+01	2.89E-03	-	1.733E-03	
		Nitrogen Oxides	3	1	2	2.57	2.57	0.00E+00	9.04E+00	9.04E+00	9.04E+00	2.51E-03	1.515E-03	-	3.19E-03
		Nitrogen Oxides	3	7	2	2.57	2.57	0.00E+00	1.01E+01	1.01E+01	1.01E+01	2.79E-03	-	1.676E-03	
		Benzene	20	1	2	2.57	2.57	0.00E+00	1.11E-02	1.11E-02	1.11E-02	3.08E-06	1.858E-06	-	3.76E-06
		Benzene	20	7	2	2.57	2.57	0.00E+00	1.14E-02	1.14E-02	1.14E-02	3.17E-06	-	1.900E-06	
		1,3-Butadiene	24	1	2	2.57	2.57	0.00E+00	3.99E-03	3.99E-03	3.99E-03	1.11E-06	6.682E-07	-	1.35E-06
		1,3-Butadiene	24	7	2	2.57	2.57	0.00E+00	4.10E-03	4.10E-03	4.10E-03	1.14E-06	-	6.835E-07	
		Formaldehyde	25	1	2	2.57	2.57	0.00E+00	1.16E-01	1.16E-01	1.16E-01	3.23E-05	1.945E-05	-	3.93E-05
		Formaldehyde	25	7	2	2.57	2.57	0.00E+00	1.19E-01	1.19E-01	1.19E-01	3.32E-05	-	1.990E-05	

SITE OPERATION: PRESENT	DESCRIPTION OF EMISSIONS	Pollutant	PollutantID	Month	Fuel Type	Fleet Size (January)	Fleet Size (July)	Idling Emissions (g/day)	Running Emission (g/day)	Total Emission (g/day)	Total Emission (g/hr)	Total Emission (g/s)	Total Summer (tonnes/6-monts)	Total Winter (tonnes/6-monts)	Total Annual (tonnes/year)
		Acetaldehyde	26	1	2	2.57	2.57	0.00E+00	5.43E-02	5.43E-02	5.43E-02	1.51E-05	9.094E-06	-	1.07E-05
		Acrolein	27	7	2	2.57	2.57	0.00E+00	9.93E-03	9.93E-03	9.93E-03	2.76E-06	-	1.654E-06	
		Sulphur Dioxide	31	1	2	2.57	2.57	0.00E+00	8.53E-03	8.53E-03	8.53E-03	2.37E-06	1.429E-06	-	2.91E-06
		Sulphur Dioxide	31	7	2	2.57	2.57	0.00E+00	8.87E-03	8.87E-03	8.87E-03	2.46E-06	-	1.477E-06	
		Benzo(a)pyrene	974	1	2	2.57	2.57	0.00E+00	3.17E-05	3.17E-05	3.17E-05	8.80E-09	5.305E-09	-	1.06E-08
		Benzo(a)pyrene	974	7	2	2.57	2.57	0.00E+00	3.17E-05	3.17E-05	3.17E-05	8.80E-09	-	5.276E-09	
		VOC	87	1	2	2.57	2.57	0.00E+00	1.46E+00	1.46E+00	1.46E+00	4.05E-04	2.441E-04	-	4.94E-04
		VOC	87	7	2	2.57	2.57	0.00E+00	1.50E+00	1.50E+00	1.50E+00	4.17E-04	-	2.498E-04	
		PM10	9100	1	2	2.57	2.57	0.00E+00	7.93E-01	7.93E-01	7.93E-01	2.20E-04	1.328E-04	-	2.65E-04
		PM10	9100	7	2	2.57	2.57	0.00E+00	7.93E-01	7.93E-01	7.93E-01	2.20E-04	-	1.320E-04	
		PM2.5	9110	1	2	2.57	2.57	0.00E+00	4.63E-01	4.63E-01	4.63E-01	1.29E-04	7.749E-05	-	1.55E-04
		PM2.5	9110	7	2	2.57	2.57	0.00E+00	4.63E-01	4.63E-01	4.63E-01	1.29E-04	-	7.706E-05	

SITE OPERATION: FUTURE BUILD	DESCRIPTION OF EMISSIONS	Pollutant	PollutantID	Month	Fuel Type	Fleet Size (January)	Fleet Size (July)	Idling Emissions (g/day)	Running Emission (g/day)	Total Emission (g/day)	Total Emission (g/hr)	Total Emission (g/s)	Total Summer (tonnes/6-monts)	Total Winter (tonnes/6-monts)	Total Annual (tonnes/year)
Passenger Cars	**SHIP to PARKING** Fuel Distribution: EV -5%, Hybrids 20%, Gasoline 75% Fleet Size (January) = 2,657 cars/day Fleet Size (July) = 2,657 cars/day Idling time = 0 mins per car Distance Travelled = 0.767 km Max daily operation = 16 hours	Carbon Dioxide	90	1	1	2657	2657	0.00E+00	4.66E+05	4.66E+05	2.91E+04	8.09E+00	30.291	-	69.18
		Carbon Dioxide	90	7	1	2657	2657	0.00E+00	4.86E+05	4.86E+05	3.04E+04	8.44E+00	-	38.887	
		Nitrous Oxide	6	1	1	2657	2657	0.00E+00	4.07E+00	4.07E+00	2.55E-01	7.07E-05	2.649E-04	-	5.91E-04
		Nitrous Oxide	6	7	1	2657	2657	0.00E+00	4.07E+00	4.07E+00	2.55E-01	7.07E-05	-	3.260E-04	
		Methane	5	1	1	2657	2657	0.00E+00	1.15E+01	1.15E+01	7.19E-01	2.00E-04	7.477E-04	-	1.75E-03
		Methane	5	7	1	2657	2657	0.00E+00	1.25E+01	1.25E+01	7.84E-01	2.18E-04	-	1.004E-03	
		Carbon Monoxide	2	1	1	2657	2657	0.00E+00	3.74E+03	3.74E+03	2.34E+02	6.50E-02	2.434E-01	-	5.96E-01
		Carbon Monoxide	2	7	1	2657	2657	0.00E+00	4.41E+03	4.41E+03	2.76E+02	7.66E-02	-	3.531E-01	
		Nitrogen Oxides	3	1	1	2657	2657	0.00E+00	6.90E+01	6.90E+01	4.31E+00	1.20E-03	4.482E-03	-	9.71E-03
		Nitrogen Oxides	3	7	1	2657	2657	0.00E+00	6.53E+01	6.53E+01	4.08E+00	1.13E-03	-	5.225E-03	
		Benzene	20	1	1	2657	2657	0.00E+00	1.70E+00	1.70E+00	1.06E-01	2.96E-05	1.107E-04	-	2.69E-04
		Benzene	20	7	1	2657	2657	0.00E+00	1.98E+00	1.98E+00	1.23E-01	3.43E-05	-	1.580E-04	
		1,3-Butadiene	24	1	1	2657	2657	0.00E+00	6.20E-02	6.20E-02	3.88E-03	1.08E-06	4.031E-06	-	9.13E-06
		1,3-Butadiene	24	7	1	2657	2657	0.00E+00	6.37E-02	6.37E-02	3.98E-03	1.11E-06	-	5.099E-06	
		Formaldehyde	25	1	1	2657	2657	0.00E+00	4.68E-01	4.68E-01	2.92E-02	8.12E-06	3.039E-05	-	7.09E-05
		Formaldehyde	25	7	1	2657	2657	0.00E+00	5.07E-01	5.07E-01	3.17E-02	8.80E-06	-	4.055E-05	
		Acetaldehyde	26	1	1	2657	2657	0.00E+00	2.83E-01	2.83E-01	1.77E-02	4.91E-06	1.839E-05	-	2.02E-05
		Acrolein	27	7	1	2657	2657	0.00E+00	2.28E-02	2.28E-02	1.42E-03	3.96E-07	-	1.823E-06	
		Sulphur Dioxide	31	1	1	2657	2657	0.00E+00	3.10E+00	3.10E+00	1.93E-01	5.37E-05	2.012E-04	-	4.60E-04
		Sulphur Dioxide	31	7	1	2657	2657	0.00E+00	3.23E+00	3.23E+00	2.02E-01	5.61E-05	-	2.583E-04	
		Benzo(a)pyrene	974	1	1	2657	2657	0.00E+00	1.00E-03	1.00E-03	6.26E-05	1.74E-08	6.507E-08	-	1.45E-07
		Benzo(a)pyrene	974	7	1	2657	2657	0.00E+00	1.00E-03	1.00E-03	6.28E-05	1.74E-08	-	8.040E-08	
		VOC	87	1	1	2657	2657	0.00E+00	2.92E+01	2.92E+01	1.82E+00	5.06E-04	1.896E-03	-	4.41E-03
		VOC	87	7	1	2657	2657	0.00E+00	3.14E+01	3.14E+01	1.96E+00	5.46E-04	-	2.515E-03	
		PM10	9100	1	1	2657	2657	0.00E+00	1.12E+02	1.12E+02	7.01E+00	1.95E-03	7.295E-03	-	1.63E-02

SITE OPERATION: FUTURE BUILD	DESCRIPTION OF EMISSIONS	Pollutant	PollutantID	Month	Fuel Type	Fleet Size (January)	Fleet Size (July)	Idling Emissions (g/day)	Running Emission (g/day)	Total Emission (g/day)	Total Emission (g/hr)	Total Emission (g/s)	Total Summer (tonnes/6-monts)	Total Winter (tonnes/6-monts)	Total Annual (tonnes/year)
		PM10	9100	7	1	2657	2657	0.00E+00	1.12E+02	1.12E+02	7.02E+00	1.95E-03	-	8.980E-03	
		PM2.5	9110	1	1	2657	2657	0.00E+00	1.67E+01	1.67E+01	1.04E+00	2.90E-04	1.085E-03	-	2.42E-03
		PM2.5	9110	7	1	2657	2657	0.00E+00	1.67E+01	1.67E+01	1.04E+00	2.90E-04	-	1.336E-03	
Passenger Cars	**PARKING to PROCESSING & SHIPPING** Fuel Distribution: EV -5%, Hybrids 20%, Gasoline 75% Fleet Size (January) = 1,091 cars/day Fleet Size (July) = 1,636 cars/day Idling time = 0 mins per car Distance Travelled: processing & back = 1.3 km Distance Travelled: rail shipping = 0.93 km Distance Travelled: truck shipping = 0.671 km % Vehicles shipped by rail = 85% % Vehicles shipped by truck = 15% Max daily operation = 16 hours	Carbon Dioxide	90	1	1	1091	1636	0.00E+00	5.47E+05	5.47E+05	3.42E+04	9.49E+00	91.540	-	233.94
		Carbon Dioxide	90	7	1	1091	1636	0.00E+00	8.55E+05	8.55E+05	5.34E+04	1.48E+01	-	142.400	
		Nitrous Oxide	6	1	1	1091	1636	0.00E+00	4.78E+00	4.78E+00	2.99E-01	8.30E-05	8.004E-04	-	1.99E-03
		Nitrous Oxide	6	7	1	1091	1636	0.00E+00	7.17E+00	7.17E+00	4.48E-01	1.24E-04	-	1.194E-03	
		Methane	5	1	1	1091	1636	0.00E+00	1.35E+01	1.35E+01	8.43E-01	2.34E-04	2.260E-03	-	5.94E-03
		Methane	5	7	1	1091	1636	0.00E+00	2.21E+01	2.21E+01	1.38E+00	3.83E-04	-	3.676E-03	
		Carbon Monoxide	2	1	1	1091	1636	0.00E+00	4.39E+03	4.39E+03	2.74E+02	7.62E-02	7.354E-01	-	2.03
		Carbon Monoxide	2	7	1	1091	1636	0.00E+00	7.76E+03	7.76E+03	4.85E+02	1.35E-01	-	1.293E+00	
		Nitrogen Oxides	3	1	1	1091	1636	0.00E+00	8.09E+01	8.09E+01	5.06E+00	1.40E-03	1.354E-02	-	3.27E-02
		Nitrogen Oxides	3	7	1	1091	1636	0.00E+00	1.15E+02	1.15E+02	7.18E+00	1.99E-03	-	1.913E-02	
		Benzene	20	1	1	1091	1636	0.00E+00	2.00E+00	2.00E+00	1.25E-01	3.47E-05	3.345E-04	-	9.13E-04
		Benzene	20	7	1	1091	1636	0.00E+00	3.47E+00	3.47E+00	2.17E-01	6.03E-05	-	5.787E-04	
		1,3-Butadiene	24	1	1	1091	1636	0.00E+00	7.27E-02	7.27E-02	4.55E-03	1.26E-06	1.218E-05	-	3.09E-05
		1,3-Butadiene	24	7	1	1091	1636	0.00E+00	1.12E-01	1.12E-01	7.01E-03	1.95E-06	-	1.867E-05	
		Formaldehyde	25	1	1	1091	1636	0.00E+00	5.49E-01	5.49E-01	3.43E-02	9.52E-06	9.185E-05	-	2.40E-04
		Formaldehyde	25	7	1	1091	1636	0.00E+00	8.91E-01	8.91E-01	5.57E-02	1.55E-05	-	1.485E-04	
		Acetaldehyde	26	1	1	1091	1636	0.00E+00	3.32E-01	3.32E-01	2.07E-02	5.76E-06	5.558E-05	-	6.23E-05
		Acrolein	27	7	1	1091	1636	0.00E+00	4.01E-02	4.01E-02	2.51E-03	6.96E-07	-	6.677E-06	
		Sulphur Dioxide	31	1	1	1091	1636	0.00E+00	3.63E+00	3.63E+00	2.27E-01	6.30E-05	6.081E-04	-	1.55E-03
		Sulphur Dioxide	31	7	1	1091	1636	0.00E+00	5.68E+00	5.68E+00	3.55E-01	9.86E-05	-	9.460E-04	
		Benzo(a)pyrene	974	1	1	1091	1636	0.00E+00	1.17E-03	1.17E-03	7.34E-05	2.04E-08	1.966E-07	-	4.91E-07
		Benzo(a)pyrene	974	7	1	1091	1636	0.00E+00	1.77E-03	1.77E-03	1.10E-04	3.07E-08	-	2.944E-07	
		VOC	87	1	1	1091	1636	0.00E+00	3.42E+01	3.42E+01	2.14E+00	5.94E-04	5.729E-03	-	1.49E-02
		VOC	87	7	1	1091	1636	0.00E+00	5.53E+01	5.53E+01	3.46E+00	9.60E-04	-	9.209E-03	
		PM10	9100	1	1	1091	1636	0.00E+00	1.32E+02	1.32E+02	8.23E+00	2.29E-03	2.205E-02	-	5.49E-02
		PM10	9100	7	1	1091	1636	0.00E+00	1.97E+02	1.97E+02	1.23E+01	3.43E-03	-	3.288E-02	
		PM2.5	9110	1	1	1091	1636	0.00E+00	1.96E+01	1.96E+01	1.22E+00	3.40E-04	3.277E-03	-	8.17E-03
		PM2.5	9110	7	1	1091	1636	0.00E+00	2.94E+01	2.94E+01	1.84E+00	5.10E-04	-	4.891E-03	
Light Trucks	**SHIP to PARKING** Fuel Distribution: EV -5%, Hybrids 20%, Gasoline 74%, Diesel 1% Fleet Size (January) = 664 cars/day Fleet Size (July) = 664 cars/day Idling time = 0 mins per car Distance Travelled = 0.767 km Max daily operation = 16 hours	Carbon Dioxide	90	1	1 & 2	664	664	0.00E+00	1.49E+05	1.49E+05	9.34E+03	2.59E+00	9.713	-	22.17
		Carbon Dioxide	90	7	1 & 2	664	664	0.00E+00	1.56E+05	1.56E+05	9.73E+03	2.70E+00	-	12.455	
		Nitrous Oxide	6	1	1 & 2	664	664	0.00E+00	1.57E+00	1.57E+00	9.84E-02	2.73E-05	1.023E-04	-	2.28E-04
		Nitrous Oxide	6	7	1 & 2	664	664	0.00E+00	1.57E+00	1.57E+00	9.84E-02	2.73E-05	-	1.259E-04	
		Methane	5	1	1 & 2	664	664	0.00E+00	3.56E+00	3.56E+00	2.23E-01	6.18E-05	2.314E-04	-	5.41E-04
		Methane	5	7	1 & 2	664	664	0.00E+00	3.87E+00	3.87E+00	2.42E-01	6.71E-05	-	3.093E-04	
		Carbon Monoxide	2	1	1 & 2	664	664	0.00E+00	9.70E+02	9.70E+02	6.06E+01	1.68E-02	6.304E-02	-	1.54E-01
		Carbon Monoxide	2	7	1 & 2	664	664	0.00E+00	1.13E+03	1.13E+03	7.08E+01	1.97E-02	-	9.068E-02	
		Nitrogen Oxides	3	1	1 & 2	664	664	0.00E+00	3.63E+01	3.63E+01	2.27E+00	6.30E-04	2.361E-03	-	5.16E-03

SITE OPERATION: FUTURE BUILD	DESCRIPTION OF EMISSIONS	Pollutant	PollutantID	Month	Fuel Type	Fleet Size (January)	Fleet Size (July)	Idling Emissions (g/day)	Running Emission (g/day)	Total Emission (g/day)	Total Emission (g/hr)	Total Emission (g/s)	Total Summer (tonnes/6-monts)	Total Winter (tonnes/6-monts)	Total Annual (tonnes/year)
		Nitrogen Oxides	3	7	1 & 2	664	664	0.00E+00	3.50E+01	3.50E+01	2.18E+00	6.07E-04	-	2.796E-03	
		Benzene	20	1	1 & 2	664	664	0.00E+00	5.93E-01	5.93E-01	3.70E-02	1.03E-05	3.853E-05	-	9.39E-05
		Benzene	20	7	1 & 2	664	664	0.00E+00	6.92E-01	6.92E-01	4.32E-02	1.20E-05	-	5.535E-05	
		1,3-Butadiene	24	1	1 & 2	664	664	0.00E+00	2.72E-02	2.72E-02	1.70E-03	4.73E-07	1.771E-06	-	4.01E-06
		1,3-Butadiene	24	7	1 & 2	664	664	0.00E+00	2.80E-02	2.80E-02	1.75E-03	4.86E-07	-	2.241E-06	
		Formaldehyde	25	1	1 & 2	664	664	0.00E+00	2.09E-01	2.09E-01	1.30E-02	3.62E-06	1.356E-05	-	3.14E-05
		Formaldehyde	25	7	1 & 2	664	664	0.00E+00	2.24E-01	2.24E-01	1.40E-02	3.88E-06	-	1.788E-05	
		Acetaldehyde	26	1	1 & 2	664	664	0.00E+00	1.27E-01	1.27E-01	7.93E-03	2.20E-06	8.246E-06	-	9.21E-06
		Acrolein	27	7	1 & 2	664	664	0.00E+00	1.20E-02	1.20E-02	7.50E-04	2.08E-07	-	9.600E-07	
		Sulphur Dioxide	31	1	1 & 2	664	664	0.00E+00	9.85E-01	9.85E-01	6.16E-02	1.71E-05	6.402E-05	-	1.46E-04
		Sulphur Dioxide	31	7	1 & 2	664	664	0.00E+00	1.03E+00	1.03E+00	6.41E-02	1.78E-05	-	8.209E-05	
		Benzo(a)pyrene	974	1	1 & 2	664	664	0.00E+00	3.66E-04	3.66E-04	2.29E-05	6.35E-09	2.378E-08	-	5.32E-08
		Benzo(a)pyrene	974	7	1 & 2	664	664	0.00E+00	3.67E-04	3.67E-04	2.30E-05	6.38E-09	-	2.938E-08	
		VOC	87	1	1 & 2	664	664	0.00E+00	1.10E+01	1.10E+01	6.90E-01	1.92E-04	7.175E-04	-	1.66E-03
		VOC	87	7	1 & 2	664	664	0.00E+00	1.18E+01	1.18E+01	7.39E-01	2.05E-04	-	9.459E-04	
		PM10	9100	1	1 & 2	664	664	0.00E+00	3.12E+01	3.12E+01	1.95E+00	5.42E-04	2.031E-03	-	4.53E-03
		PM10	9100	7	1 & 2	664	664	0.00E+00	3.13E+01	3.13E+01	1.95E+00	5.43E-04	-	2.500E-03	
		PM2.5	9110	1	1 & 2	664	664	0.00E+00	4.87E+00	4.87E+00	3.05E-01	8.46E-05	3.167E-04	-	7.07E-04
		PM2.5	9110	7	1 & 2	664	664	0.00E+00	4.87E+00	4.87E+00	3.05E-01	8.46E-05	-	3.900E-04	
Light Trucks	**PARKING to PROCESSING & SHIPPING** Fuel Distribution: EV -5%, Hybrids 20%, Gasoline 74%, Diesel 1% Fleet Size (January) = 273 cars/day Fleet Size (July) = 409 cars/day Idling time = 0 mins per car Distance Travelled: processing & back = 1.3 km Distance Travelled: rail shipping = 0.93 km Distance Travelled: truck shipping = 0.671 km % Vehicles shipped by rail = 85% % Vehicles shipped by truck = 15% Max daily operation = 16 hours	Carbon Dioxide	90	1	1 & 2	273	409	0.00E+00	1.76E+05	1.76E+05	1.10E+04	3.05E+00	29.392	-	75.02
		Carbon Dioxide	90	7	1 & 2	273	409	0.00E+00	2.74E+05	2.74E+05	1.71E+04	4.76E+00	-	45.624	
		Nitrous Oxide	6	1	1 & 2	273	409	0.00E+00	1.85E+00	1.85E+00	1.16E-01	3.21E-05	3.096E-04	-	7.71E-04
		Nitrous Oxide	6	7	1 & 2	273	409	0.00E+00	2.77E+00	2.77E+00	1.73E-01	4.81E-05	-	4.613E-04	
		Methane	5	1	1 & 2	273	409	0.00E+00	4.18E+00	4.18E+00	2.61E-01	7.26E-05	7.003E-04	-	1.83E-03
		Methane	5	7	1 & 2	273	409	0.00E+00	6.80E+00	6.80E+00	4.25E-01	1.18E-04	-	1.133E-03	
		Carbon Monoxide	2	1	1 & 2	273	409	0.00E+00	1.14E+03	1.14E+03	7.12E+01	1.98E-02	1.907E-01	-	5.23E-01
		Carbon Monoxide	2	7	1 & 2	273	409	0.00E+00	1.99E+03	1.99E+03	1.25E+02	3.46E-02	-	3.322E-01	
		Nitrogen Oxides	3	1	1 & 2	273	409	0.00E+00	4.27E+01	4.27E+01	2.67E+00	7.41E-04	7.143E-03	-	1.74E-02
		Nitrogen Oxides	3	7	1 & 2	273	409	0.00E+00	6.15E+01	6.15E+01	3.84E+00	1.07E-03	-	1.024E-02	
		Benzene	20	1	1 & 2	273	409	0.00E+00	6.96E-01	6.96E-01	4.35E-02	1.21E-05	1.166E-04	-	3.19E-04
		Benzene	20	7	1 & 2	273	409	0.00E+00	1.22E+00	1.22E+00	7.61E-02	2.11E-05	-	2.027E-04	
		1,3-Butadiene	24	1	1 & 2	273	409	0.00E+00	3.20E-02	3.20E-02	2.00E-03	5.56E-07	5.358E-06	-	1.36E-05
		1,3-Butadiene	24	7	1 & 2	273	409	0.00E+00	4.93E-02	4.93E-02	3.08E-03	8.56E-07	-	8.208E-06	
		Formaldehyde	25	1	1 & 2	273	409	0.00E+00	2.45E-01	2.45E-01	1.53E-02	4.25E-06	4.103E-05	-	1.07E-04
		Formaldehyde	25	7	1 & 2	273	409	0.00E+00	3.93E-01	3.93E-01	2.46E-02	6.83E-06	-	6.552E-05	
		Acetaldehyde	26	1	1 & 2	273	409	0.00E+00	1.49E-01	1.49E-01	9.31E-03	2.59E-06	2.495E-05	-	2.85E-05
		Acrolein	27	7	1 & 2	273	409	0.00E+00	2.11E-02	2.11E-02	1.32E-03	3.67E-07	-	3.517E-06	
		Sulphur Dioxide	31	1	1 & 2	273	409	0.00E+00	1.16E+00	1.16E+00	7.23E-02	2.01E-05	1.937E-04	-	4.94E-04
		Sulphur Dioxide	31	7	1 & 2	273	409	0.00E+00	1.81E+00	1.81E+00	1.13E-01	3.13E-05	-	3.007E-04	
		Benzo(a)pyrene	974	1	1 & 2	273	409	0.00E+00	4.30E-04	4.30E-04	2.69E-05	7.46E-09	7.196E-08	-	1.80E-07

SITE OPERATION: FUTURE BUILD	DESCRIPTION OF EMISSIONS	Pollutant	PollutantID	Month	Fuel Type	Fleet Size (January)	Fleet Size (July)	Idling Emissions (g/day)	Running Emission (g/day)	Total Emission (g/day)	Total Emission (g/hr)	Total Emission (g/s)	Total Summer (tonnes/6-monts)	Total Winter (tonnes/6-monts)	Total Annual (tonnes/year)
		Benzo(a)pyrene	974	7	1 & 2	273	409	0.00E+00	6.46E-04	6.46E-04	4.04E-05	1.12E-08	-	1.076E-07	
		VOC	87	1	1 & 2	273	409	0.00E+00	1.30E+01	1.30E+01	8.10E-01	2.25E-04	2.171E-03	-	5.64E-03
		VOC	87	7	1 & 2	273	409	0.00E+00	2.08E+01	2.08E+01	1.30E+00	3.61E-04	-	3.465E-03	
		PM10	9100	1	1 & 2	273	409	0.00E+00	3.67E+01	3.67E+01	2.29E+00	6.37E-04	6.146E-03	-	1.53E-02
		PM10	9100	7	1 & 2	273	409	0.00E+00	5.50E+01	5.50E+01	3.44E+00	9.55E-04	-	9.158E-03	
		PM2.5	9110	1	1 & 2	273	409	0.00E+00	5.72E+00	5.72E+00	3.58E-01	9.93E-05	9.583E-04	-	2.39E-03
		PM2.5	9110	7	1 & 2	273	409	0.00E+00	8.58E+00	8.58E+00	5.36E-01	1.49E-04	-	1.429E-03	
Heavy Trucks	**TRANSPORT SHIPPING OFF-SITE** Fuel Distribtion: Diesel 100% Fleet Size (January) = 19 truck/day Fleet Size (July) = 29 truck/day Idling time = 0 mins per truck Distance Travelled onsite: 1.5 km % Trucks shipping to Canada = 80% % Trucks shipping to VC dealership = 20% Max daily operation = 16 hours	Carbon Dioxide	90	1	2	19	29	0.00E+00	4.42E+04	4.42E+04	-	-	7.405	-	18.65
		Carbon Dioxide	90	7	2	19	29	0.00E+00	6.75E+04	6.75E+04	-	-	-	11.241	
		Nitrous Oxide	6	1	2	19	29	0.00E+00	1.47E-01	1.47E-01	-	-	2.455E-05	-	6.18E-05
		Nitrous Oxide	6	7	2	19	29	0.00E+00	2.24E-01	2.24E-01	-	-	-	3.727E-05	
		Methane	5	1	2	19	29	0.00E+00	1.08E+00	1.08E+00	-	-	1.804E-04	-	4.54E-04
		Methane	5	7	2	19	29	0.00E+00	1.64E+00	1.64E+00	-	-	-	2.738E-04	
		Carbon Monoxide	2	1	2	19	29	0.00E+00	1.12E+02	1.12E+02	-	-	1.878E-02	-	4.73E-02
		Carbon Monoxide	2	7	2	19	29	0.00E+00	1.71E+02	1.71E+02	-	-	-	2.851E-02	
		Nitrogen Oxides	3	1	2	19	29	0.00E+00	2.17E+02	2.17E+02	-	-	3.641E-02	-	8.76E-02
		Nitrogen Oxides	3	7	2	19	29	0.00E+00	3.08E+02	3.08E+02	-	-	-	5.123E-02	
		Benzene	20	1	2	19	29	0.00E+00	1.61E-02	1.61E-02	-	-	2.690E-06	-	6.77E-06
		Benzene	20	7	2	19	29	0.00E+00	2.45E-02	2.45E-02	-	-	-	4.084E-06	
		1,3-Butadiene	24	1	2	19	29	0.00E+00	5.11E-03	5.11E-03	-	-	8.549E-07	-	2.15E-06
		1,3-Butadiene	24	7	2	19	29	0.00E+00	7.79E-03	7.79E-03	-	-	-	1.298E-06	
		Formaldehyde	25	1	2	19	29	0.00E+00	2.80E-01	2.80E-01	-	-	4.681E-05	-	1.18E-04
		Formaldehyde	25	7	2	19	29	0.00E+00	4.27E-01	4.27E-01	-	-	-	7.106E-05	
		Acetaldehyde	26	1	2	19	29	0.00E+00	2.32E-01	2.32E-01	-	-	3.878E-05	-	4.56E-05
		Acrolein	27	7	2	19	29	0.00E+00	4.10E-02	4.10E-02	-	-	-	6.831E-06	
		Sulphur Dioxide	31	1	2	19	29	0.00E+00	1.48E-01	1.48E-01	-	-	2.477E-05	-	6.24E-05
		Sulphur Dioxide	31	7	2	19	29	0.00E+00	2.26E-01	2.26E-01	-	-	-	3.760E-05	
		Benzo(a)pyrene	974	1	2	19	29	0.00E+00	9.27E-05	9.27E-05	-	-	1.552E-08	-	3.91E-08
		Benzo(a)pyrene	974	7	2	19	29	0.00E+00	1.41E-04	1.41E-04	-	-	-	2.355E-08	
		VOC	87	1	2	19	29	0.00E+00	4.45E+00	4.45E+00	-	-	7.451E-04	-	1.88E-03
		VOC	87	7	2	19	29	0.00E+00	6.79E+00	6.79E+00	-	-	-	1.131E-03	
		PM10	9100	1	2	19	29	0.00E+00	2.38E+01	2.38E+01	-	-	3.984E-03	-	1.00E-02
		PM10	9100	7	2	19	29	0.00E+00	3.63E+01	3.63E+01	-	-	-	6.048E-03	
		PM2.5	9110	1	2	19	29	0.00E+00	4.82E+00	4.82E+00	-	-	8.075E-04	-	2.03E-03
		PM2.5	9110	7	2	19	29	0.00E+00	7.36E+00	7.36E+00	-	-	-	1.226E-03	
Heavy Trucks	**FUEL TANKERS** Fuel Distribution: Diesel 100% Fleet Size (January) = 1 truck/day Fleet Size (July) = 1 truck/day Idling time = 0 mins per truck Distance Travelled = 1.56 km	Carbon Dioxide	90	1	2	1.00	1.00	0.00E+00	2.42E+03	2.42E+03	2.42E+03	6.72E-01	0.405	-	0.808
		Carbon Dioxide	90	7	2	1.00	1.00	0.00E+00	2.42E+03	2.42E+03	2.42E+03	6.72E-01	-	0.403	
		Nitrous Oxide	6	1	2	1.00	1.00	0.00E+00	8.02E-03	8.02E-03	8.02E-03	2.23E-06	1.344E-06	-	2.68E-06
		Nitrous Oxide	6	7	2	1.00	1.00	0.00E+00	8.02E-03	8.02E-03	8.02E-03	2.23E-06	-	1.336E-06	
		Methane	5	1	2	1.00	1.00	0.00E+00	5.90E-02	5.90E-02	5.90E-02	1.64E-05	9.872E-06	-	1.97E-05

SITE OPERATION: FUTURE BUILD	DESCRIPTION OF EMISSIONS	Pollutant	PollutantID	Month	Fuel Type	Fleet Size (January)	Fleet Size (July)	Idling Emissions (g/day)	Running Emission (g/day)	Total Emission (g/day)	Total Emission (g/hr)	Total Emission (g/s)	Total Summer (tonnes/6-monts)	Total Winter (tonnes/6-monts)	Total Annual (tonnes/year)
		Methane	5	7	2	1.00	1.00	0.00E+00	5.90E-02	5.90E-02	5.90E-02	1.64E-05	-	9.818E-06	
		Carbon Monoxide	2	1	2	1.00	1.00	0.00E+00	6.14E+00	6.14E+00	6.14E+00	1.71E-03	1.028E-03	-	2.05E-03
		Carbon Monoxide	2	7	2	1.00	1.00	0.00E+00	6.14E+00	6.14E+00	6.14E+00	1.71E-03	-	1.022E-03	
		Nitrogen Oxides	3	1	2	1.00	1.00	0.00E+00	1.19E+01	1.19E+01	1.19E+01	3.31E-03	1.993E-03	-	3.83E-03
		Nitrogen Oxides	3	7	2	1.00	1.00	0.00E+00	1.10E+01	1.10E+01	1.10E+01	3.06E-03	-	1.837E-03	
		Benzene	20	1	2	1.00	1.00	0.00E+00	8.79E-04	8.79E-04	8.79E-04	2.44E-07	1.473E-07	-	2.94E-07
		Benzene	20	7	2	1.00	1.00	0.00E+00	8.79E-04	8.79E-04	8.79E-04	2.44E-07	-	1.465E-07	
		1,3-Butadiene	24	1	2	1.00	1.00	0.00E+00	2.79E-04	2.79E-04	2.79E-04	7.76E-08	4.679E-08	-	9.33E-08
		1,3-Butadiene	24	7	2	1.00	1.00	0.00E+00	2.79E-04	2.79E-04	2.79E-04	7.76E-08	-	4.654E-08	
		Formaldehyde	25	1	2	1.00	1.00	0.00E+00	1.53E-02	1.53E-02	1.53E-02	4.25E-06	2.562E-06	-	5.11E-06
		Formaldehyde	25	7	2	1.00	1.00	0.00E+00	1.53E-02	1.53E-02	1.53E-02	4.25E-06	-	2.548E-06	
		Acetaldehyde	26	1	2	1.00	1.00	0.00E+00	1.27E-02	1.27E-02	1.27E-02	3.52E-06	2.123E-06	-	2.37E-06
		Acrolein	27	7	2	1.00	1.00	0.00E+00	1.47E-03	1.47E-03	1.47E-03	4.09E-07	-	2.450E-07	
		Sulphur Dioxide	31	1	2	1.00	1.00	0.00E+00	8.10E-03	8.10E-03	8.10E-03	2.25E-06	1.356E-06	-	2.70E-06
		Sulphur Dioxide	31	7	2	1.00	1.00	0.00E+00	8.10E-03	8.10E-03	8.10E-03	2.25E-06	-	1.349E-06	
		Benzo(a)pyrene	974	1	2	1.00	1.00	0.00E+00	5.07E-06	5.07E-06	5.07E-06	1.41E-09	8.493E-10	-	1.69E-09
		Benzo(a)pyrene	974	7	2	1.00	1.00	0.00E+00	5.07E-06	5.07E-06	5.07E-06	1.41E-09	-	8.447E-10	
		VOC	87	1	2	1.00	1.00	0.00E+00	2.44E-01	2.44E-01	2.44E-01	6.77E-05	4.078E-05	-	8.13E-05
		VOC	87	7	2	1.00	1.00	0.00E+00	2.44E-01	2.44E-01	2.44E-01	6.77E-05	-	4.056E-05	
		PM10	9100	1	2	1.00	1.00	0.00E+00	1.30E+00	1.30E+00	1.30E+00	3.62E-04	2.181E-04	-	4.35E-04
		PM10	9100	7	2	1.00	1.00	0.00E+00	1.30E+00	1.30E+00	1.30E+00	3.62E-04	-	2.169E-04	
		PM2.5	9110	1	2	1.00	1.00	0.00E+00	2.64E-01	2.64E-01	2.64E-01	7.33E-05	4.420E-05	-	8.82E-05
		PM2.5	9110	7	2	1.00	1.00	0.00E+00	2.64E-01	2.64E-01	2.64E-01	7.33E-05	-	4.396E-05	
Light Commercial Trucks	**GENERAL DELIVERIES** Fuel Distribution: Diesel 100% Fleet Size (January) = 2 truck/day Fleet Size (July) = 2 truck/day Idling time = 0 mins per truck Distance Travelled = 1.56 km	Carbon Dioxide	90	1	2	2.00	2.00	0.00E+00	1.64E+03	1.64E+03	1.64E+03	4.55E-01	0.274	-	0.558
		Carbon Dioxide	90	7	2	2.00	2.00	0.00E+00	1.70E+03	1.70E+03	1.70E+03	4.73E-01	-	0.284	
		Nitrous Oxide	6	1	2	2.00	2.00	0.00E+00	1.43E-02	1.43E-02	1.43E-02	3.98E-06	2.402E-06	-	4.79E-06
		Nitrous Oxide	6	7	2	2.00	2.00	0.00E+00	1.43E-02	1.43E-02	1.43E-02	3.98E-06	-	2.389E-06	
		Methane	5	1	2	2.00	2.00	0.00E+00	5.15E-02	5.15E-02	5.15E-02	1.43E-05	8.618E-06	-	1.74E-05
		Methane	5	7	2	2.00	2.00	0.00E+00	5.30E-02	5.30E-02	5.30E-02	1.47E-05	-	8.830E-06	
		Carbon Monoxide	2	1	2	2.00	2.00	0.00E+00	4.59E+00	4.59E+00	4.59E+00	1.28E-03	7.688E-04	-	1.64E-03
		Carbon Monoxide	2	7	2	2.00	2.00	0.00E+00	5.26E+00	5.26E+00	5.26E+00	1.46E-03	-	8.758E-04	
		Nitrogen Oxides	3	1	2	2.00	2.00	0.00E+00	3.90E+00	3.90E+00	3.90E+00	1.08E-03	6.525E-04	-	1.38E-03
		Nitrogen Oxides	3	7	2	2.00	2.00	0.00E+00	4.37E+00	4.37E+00	4.37E+00	1.21E-03	-	7.284E-04	
		Benzene	20	1	2	2.00	2.00	0.00E+00	3.79E-03	3.79E-03	3.79E-03	1.05E-06	6.354E-07	-	1.29E-06
		Benzene	20	7	2	2.00	2.00	0.00E+00	3.90E-03	3.90E-03	3.90E-03	1.08E-06	-	6.503E-07	
		1,3-Butadiene	24	1	2	2.00	2.00	0.00E+00	1.36E-03	1.36E-03	1.36E-03	3.79E-07	2.284E-07	-	4.62E-07
		1,3-Butadiene	24	7	2	2.00	2.00	0.00E+00	1.40E-03	1.40E-03	1.40E-03	3.90E-07	-	2.338E-07	
		Formaldehyde	25	1	2	2.00	2.00	0.00E+00	4.08E-02	4.08E-02	4.08E-02	1.13E-05	6.829E-06	-	1.38E-05
		Formaldehyde	25	7	2	2.00	2.00	0.00E+00	4.20E-02	4.20E-02	4.20E-02	1.17E-05	-	6.990E-06	
		Acetaldehyde	26	1	2	2.00	2.00	0.00E+00	2.02E-02	2.02E-02	2.02E-02	5.61E-06	3.382E-06	-	3.97E-06

SITE OPERATION: FUTURE BUILD	DESCRIPTION OF EMISSIONS	Pollutant	PollutantID	Month	Fuel Type	Fleet Size (January)	Fleet Size (July)	Idling Emissions (g/day)	Running Emission (g/day)	Total Emission (g/day)	Total Emission (g/hr)	Total Emission (g/s)	Total Summer (tonnes/6-monts)	Total Winter (tonnes/6-monts)	Total Annual (tonnes/year)
		Acrolein	27	7	2	2.00	2.00	0.00E+00	3.54E-03	3.54E-03	3.54E-03	9.84E-07	-	5.899E-07	
		Sulphur Dioxide	31	1	2	2.00	2.00	0.00E+00	5.52E-03	5.52E-03	5.52E-03	1.53E-06	9.251E-07	-	1.88E-06
		Sulphur Dioxide	31	7	2	2.00	2.00	0.00E+00	5.75E-03	5.75E-03	5.75E-03	1.60E-06	-	9.572E-07	
		Benzo(a)pyrene	974	1	2	2.00	2.00	0.00E+00	1.37E-05	1.37E-05	1.37E-05	3.81E-09	2.294E-09	-	4.58E-09
		Benzo(a)pyrene	974	7	2	2.00	2.00	0.00E+00	1.37E-05	1.37E-05	1.37E-05	3.81E-09	-	2.281E-09	
		VOC	87	1	2	2.00	2.00	0.00E+00	5.37E-01	5.37E-01	5.37E-01	1.49E-04	8.991E-05	-	1.82E-04
		VOC	87	7	2	2.00	2.00	0.00E+00	5.53E-01	5.53E-01	5.53E-01	1.54E-04	-	9.204E-05	
		PM10	9100	1	2	2.00	2.00	0.00E+00	4.70E-01	4.70E-01	4.70E-01	1.31E-04	7.878E-05	-	1.57E-04
		PM10	9100	7	2	2.00	2.00	0.00E+00	4.70E-01	4.70E-01	4.70E-01	1.31E-04	-	7.835E-05	
		PM2.5	9110	1	2	2.00	2.00	0.00E+00	2.26E-01	2.26E-01	2.26E-01	6.26E-05	3.777E-05	-	7.53E-05
		PM2.5	9110	7	2	2.00	2.00	0.00E+00	2.26E-01	2.26E-01	2.26E-01	6.26E-05	-	3.756E-05	
SITE OPERATION: FUTURE NO-BUILD	**DESCRIPTION OF EMISSIONS**		**PollutantID**	**Month**	**Fuel Type**	**Fleet Size (January)**	**Fleet Size (July)**	**Idling Emissions (g/day)**	**Running Emission (g/day)**	**Total Emission (g/day)**	**Total Emission (g/hr)**	**Total Emission (g/s)**	**Total Summer (tonnes/6-monts)**	**Total Winter (tonnes/6-monts)**	**Total Annual (tonnes/year)**
Passenger Cars	**SHIP to PARKING** Fuel Distribution: EV -5%, Hybrids 20%, Gasoline 75% Fleet Size (January) = 2,657cars/day Fleet Size (July) =2,657 cars/day Idling time = 0 mins per car Distance Travelled = 0.767 km Max daily operation = 16 hours	Carbon Dioxide	90	1	1	2657	2657	0.00E+00	4.66E+05	4.66E+05	2.91E+04	8.09E+00	28.101	-	64.90
		Carbon Dioxide	90	7	1	2657	2657	0.00E+00	4.86E+05	4.86E+05	3.04E+04	8.44E+00	-	36.796	
		Nitrous Oxide	6	1	1	2657	2657	0.00E+00	4.07E+00	4.07E+00	2.55E-01	7.07E-05	2.457E-04	-	5.54E-04
		Nitrous Oxide	6	7	1	2657	2657	0.00E+00	4.07E+00	4.07E+00	2.55E-01	7.07E-05	-	3.084E-04	
		Methane	5	1	1	2657	2657	0.00E+00	1.15E+01	1.15E+01	7.19E-01	2.00E-04	6.937E-04	-	1.64E-03
		Methane	5	7	1	2657	2657	0.00E+00	1.25E+01	1.25E+01	7.84E-01	2.18E-04	-	9.500E-04	
		Carbon Monoxide	2	1	1	2657	2657	0.00E+00	3.74E+03	3.74E+03	2.34E+02	6.50E-02	2.258E-01	-	5.60E-01
		Carbon Monoxide	2	7	1	2657	2657	0.00E+00	4.41E+03	4.41E+03	2.76E+02	7.66E-02	-	3.341E-01	
		Nitrogen Oxides	3	1	1	2657	2657	0.00E+00	6.90E+01	6.90E+01	4.31E+00	1.20E-03	4.158E-03	-	9.10E-03
		Nitrogen Oxides	3	7	1	2657	2657	0.00E+00	6.53E+01	6.53E+01	4.08E+00	1.13E-03	-	4.944E-03	
		Benzene	20	1	1	2657	2657	0.00E+00	1.70E+00	1.70E+00	1.06E-01	2.96E-05	1.027E-04	-	2.52E-04
		Benzene	20	7	1	2657	2657	0.00E+00	1.98E+00	1.98E+00	1.23E-01	3.43E-05	-	1.495E-04	
		1,3-Butadiene	24	1	1	2657	2657	0.00E+00	6.20E-02	6.20E-02	3.88E-03	1.08E-06	3.739E-06	-	8.56E-06
		1,3-Butadiene	24	7	1	2657	2657	0.00E+00	6.37E-02	6.37E-02	3.98E-03	1.11E-06	-	4.825E-06	
		Formaldehyde	25	1	1	2657	2657	0.00E+00	4.68E-01	4.68E-01	2.92E-02	8.12E-06	2.820E-05	-	6.66E-05
		Formaldehyde	25	7	1	2657	2657	0.00E+00	5.07E-01	5.07E-01	3.17E-02	8.80E-06	-	3.836E-05	
		Acetaldehyde	26	1	1	2657	2657	0.00E+00	2.83E-01	2.83E-01	1.77E-02	4.91E-06	1.706E-05	-	1.88E-05
		Acrolein	27	7	1	2657	2657	0.00E+00	2.28E-02	2.28E-02	1.42E-03	3.96E-07	-	1.725E-06	
		Sulphur Dioxide	31	1	1	2657	2657	0.00E+00	3.10E+00	3.10E+00	1.93E-01	5.37E-05	1.867E-04	-	4.31E-04
		Sulphur Dioxide	31	7	1	2657	2657	0.00E+00	3.23E+00	3.23E+00	2.02E-01	5.61E-05	-	2.444E-04	
		Benzo(a)pyrene	974	1	1	2657	2657	0.00E+00	1.00E-03	1.00E-03	6.26E-05	1.74E-08	6.036E-08	-	1.36E-07
		Benzo(a)pyrene	974	7	1	2657	2657	0.00E+00	1.00E-03	1.00E-03	6.28E-05	1.74E-08	-	7.607E-08	
		VOC	87	1	1	2657	2657	0.00E+00	2.92E+01	2.92E+01	1.82E+00	5.06E-04	1.759E-03	-	4.14E-03
		VOC	87	7	1	2657	2657	0.00E+00	3.14E+01	3.14E+01	1.96E+00	5.46E-04	-	2.380E-03	
		PM10	9100	1	1	2657	2657	0.00E+00	1.12E+02	1.12E+02	7.01E+00	1.95E-03	6.768E-03	-	1.53E-02
		PM10	9100	7	1	2657	2657	0.00E+00	1.12E+02	1.12E+02	7.02E+00	1.95E-03	-	8.497E-03	

SITE OPERATION: FUTURE BUILD	DESCRIPTION OF EMISSIONS	Pollutant	PollutantID	Month	Fuel Type	Fleet Size (January)	Fleet Size (July)	Idling Emissions (g/day)	Running Emission (g/day)	Total Emission (g/day)	Total Emission (g/hr)	Total Emission (g/s)	Total Summer (tonnes/6-monts)	Total Winter (tonnes/6-monts)	Total Annual (tonnes/year)
		PM2.5	9110	1	1	2657	2657	0.00E+00	1.67E+01	1.67E+01	1.04E+00	2.90E-04	1.006E-03	-	2.27E-03
		PM2.5	9110	7	1	2657	2657	0.00E+00	1.67E+01	1.67E+01	1.04E+00	2.90E-04	-	1.264E-03	
Passenger Cars	**PARKING to PROCESSING & SHIPPING** Fuel Distribution: EV -5%, Hybrids 20%, Gasoline 75% Fleet Size (January) = 1,027 cars/day Fleet Size (July) = 1,541 cars/day Idling time = 0 mins per car Distance Travelled: processing & back = 1.3 km Distance Travelled: rail shipping = 0.829 km Distance Travelled: truck shipping = 0.671 km % Vehicles shipped by rail = 85% % Vehicles shipped by truck = 15% Max daily operation = 16 hours	Carbon Dioxide	90	1	1	1027	1541	0.00E+00	4.95E+05	4.95E+05	3.09E+04	8.59E+00	82.810	-	211.67
		Carbon Dioxide	90	7	1	1027	1541	0.00E+00	7.74E+05	7.74E+05	4.84E+04	1.34E+01	-	128.859	
		Nitrous Oxide	6	1	1	1027	1541	0.00E+00	4.32E+00	4.32E+00	2.70E-01	7.51E-05	7.241E-04	-	1.80E-03
		Nitrous Oxide	6	7	1	1027	1541	0.00E+00	6.49E+00	6.49E+00	4.05E-01	1.13E-04	-	1.080E-03	
		Methane	5	1	1	1027	1541	0.00E+00	1.22E+01	1.22E+01	7.63E-01	2.12E-04	2.044E-03	-	5.37E-03
		Methane	5	7	1	1027	1541	0.00E+00	2.00E+01	2.00E+01	1.25E+00	3.47E-04	-	3.327E-03	
		Carbon Monoxide	2	1	1	1027	1541	0.00E+00	3.97E+03	3.97E+03	2.48E+02	6.90E-02	0.665	-	1.84
		Carbon Monoxide	2	7	1	1027	1541	0.00E+00	7.02E+03	7.02E+03	4.39E+02	1.22E-01	-	1.170	
		Nitrogen Oxides	3	1	1	1027	1541	0.00E+00	7.32E+01	7.32E+01	4.57E+00	1.27E-03	1.225E-02	-	2.96E-02
		Nitrogen Oxides	3	7	1	1027	1541	0.00E+00	1.04E+02	1.04E+02	6.50E+00	1.80E-03	-	1.731E-02	
		Benzene	20	1	1	1027	1541	0.00E+00	1.81E+00	1.81E+00	1.13E-01	3.14E-05	3.026E-04	-	8.26E-04
		Benzene	20	7	1	1027	1541	0.00E+00	3.14E+00	3.14E+00	1.97E-01	5.46E-05	-	5.237E-04	
		1,3-Butadiene	24	1	1	1027	1541	0.00E+00	6.58E-02	6.58E-02	4.11E-03	1.14E-06	1.102E-05	-	2.79E-05
		1,3-Butadiene	24	7	1	1027	1541	0.00E+00	1.01E-01	1.01E-01	6.34E-03	1.76E-06	-	1.690E-05	
		Formaldehyde	25	1	1	1027	1541	0.00E+00	4.96E-01	4.96E-01	3.10E-02	8.61E-06	8.309E-05	-	2.17E-04
		Formaldehyde	25	7	1	1027	1541	0.00E+00	8.07E-01	8.07E-01	5.04E-02	1.40E-05	-	1.344E-04	
		Acetaldehyde	26	1	1	1027	1541	0.00E+00	3.00E-01	3.00E-01	1.88E-02	5.21E-06	5.028E-05	-	5.63E-05
		Acrolein	27	7	1	1027	1541	0.00E+00	3.63E-02	3.63E-02	2.27E-03	6.30E-07	-	6.042E-06	
		Sulphur Dioxide	31	1	1	1027	1541	0.00E+00	3.29E+00	3.29E+00	2.05E-01	5.70E-05	5.501E-04	-	1.41E-03
		Sulphur Dioxide	31	7	1	1027	1541	0.00E+00	5.14E+00	5.14E+00	3.21E-01	8.92E-05	-	8.560E-04	
		Benzo(a)pyrene	974	1	1	1027	1541	0.00E+00	1.06E-03	1.06E-03	6.64E-05	1.84E-08	1.779E-07	-	4.44E-07
		Benzo(a)pyrene	974	7	1	1027	1541	0.00E+00	1.60E-03	1.60E-03	1.00E-04	2.78E-08	-	2.664E-07	
		VOC	87	1	1	1027	1541	0.00E+00	3.10E+01	3.10E+01	1.93E+00	5.37E-04	5.183E-03	-	1.35E-02
		VOC	87	7	1	1027	1541	0.00E+00	5.00E+01	5.00E+01	3.13E+00	8.69E-04	-	8.333E-03	
		PM10	9100	1	1	1027	1541	0.00E+00	1.19E+02	1.19E+02	7.44E+00	2.07E-03	1.994E-02	-	4.97E-02
		PM10	9100	7	1	1027	1541	0.00E+00	1.79E+02	1.79E+02	1.12E+01	3.10E-03	-	2.976E-02	
		PM2.5	9110	1	1	1027	1541	0.00E+00	1.77E+01	1.77E+01	1.11E+00	3.07E-04	2.965E-03	-	7.39E-03
		PM2.5	9110	7	1	1027	1541	0.00E+00	2.66E+01	2.66E+01	1.66E+00	4.61E-04	-	4.426E-03	
Light Trucks	**SHIP to PARKING** Fuel Distribution: EV -5%, Hybrids 20%, Gasoline 74%, Diesel 1% Fleet Size (January) = 664 cars/day Fleet Size (July) = 664 cars/day Idling time = 0 mins per car Distance Travelled = 0.767 km Max daily operation = 16 hours	Carbon Dioxide	90	1	1 & 2	664	664	0.00E+00	1.49E+05	1.49E+05	9.34E+03	2.59E+00	9.011	-	20.80
		Carbon Dioxide	90	7	1 & 2	664	664	0.00E+00	1.56E+05	1.56E+05	9.73E+03	2.70E+00	-	11.785	
		Nitrous Oxide	6	1	1 & 2	664	664	0.00E+00	1.57E+00	1.57E+00	9.84E-02	2.73E-05	9.491E-05	-	2.14E-04
		Nitrous Oxide	6	7	1 & 2	664	664	0.00E+00	1.57E+00	1.57E+00	9.84E-02	2.73E-05	-	1.191E-04	
		Methane	5	1	1 & 2	664	664	0.00E+00	3.56E+00	3.56E+00	2.23E-01	6.18E-05	2.147E-04	-	5.07E-04
		Methane	5	7	1 & 2	664	664	0.00E+00	3.87E+00	3.87E+00	2.42E-01	6.71E-05	-	2.926E-04	
		Carbon Monoxide	2	1	1 & 2	664	664	0.00E+00	9.70E+02	9.70E+02	6.06E+01	1.68E-02	5.848E-02	-	1.44E-01
		Carbon Monoxide	2	7	1 & 2	664	664	0.00E+00	1.13E+03	1.13E+03	7.08E+01	1.97E-02	-	8.580E-02	
		Nitrogen Oxides	3	1	1 & 2	664	664	0.00E+00	3.63E+01	3.63E+01	2.27E+00	6.30E-04	2.190E-03	-	4.84E-03
		Nitrogen Oxides	3	7	1 & 2	664	664	0.00E+00	3.50E+01	3.50E+01	2.18E+00	6.07E-04	-	2.646E-03	

SITE OPERATION: FUTURE BUILD	DESCRIPTION OF EMISSIONS	Pollutant	PollutantID	Month	Fuel Type	Fleet Size (January)	Fleet Size (July)	Idling Emissions (g/day)	Running Emission (g/day)	Total Emission (g/day)	Total Emission (g/hr)	Total Emission (g/s)	Total Summer (tonnes/6-monts)	Total Winter (tonnes/6-monts)	Total Annual (tonnes/year)
Light Trucks	**PARKING to PROCESSING & SHIPPING** Fuel Distribution: EV -5%, Hybrids 20%, Gasoline 74%, Diesel 1% Fleet Size (January) =257 cars/day Fleet Size (July) = 385 cars/day Idling time = 0 mins per car Distance Travelled: processing & back = 1.3 km Distance Travelled: rail shipping = 0.829 km Distance Travelled: truck shipping = 0.671 km % Vehicles shipped by rail = 85% % Vehicles shipped by truck = 15% Max daily operation = 16 hours	Benzene	20	1	1 & 2	664	664	0.00E+00	5.93E-01	5.93E-01	3.70E-02	1.03E-05	3.574E-05	-	8.81E-05
		Benzene	20	7	1 & 2	664	664	0.00E+00	6.92E-01	6.92E-01	4.32E-02	1.20E-05	-	5.237E-05	
		1,3-Butadiene	24	1	1 & 2	664	664	0.00E+00	2.72E-02	2.72E-02	1.70E-03	4.73E-07	1.643E-06	-	3.76E-06
		1,3-Butadiene	24	7	1 & 2	664	664	0.00E+00	2.80E-02	2.80E-02	1.75E-03	4.86E-07	-	2.120E-06	
		Formaldehyde	25	1	1 & 2	664	664	0.00E+00	2.09E-01	2.09E-01	1.30E-02	3.62E-06	1.258E-05	-	2.95E-05
		Formaldehyde	25	7	1 & 2	664	664	0.00E+00	2.24E-01	2.24E-01	1.40E-02	3.88E-06	-	1.692E-05	
		Acetaldehyde	26	1	1 & 2	664	664	0.00E+00	1.27E-01	1.27E-01	7.93E-03	2.20E-06	7.650E-06	-	8.56E-06
		Acrolein	27	7	1 & 2	664	664	0.00E+00	1.20E-02	1.20E-02	7.50E-04	2.08E-07	-	9.084E-07	
		Sulphur Dioxide	31	1	1 & 2	664	664	0.00E+00	9.85E-01	9.85E-01	6.16E-02	1.71E-05	5.939E-05	-	1.37E-04
		Sulphur Dioxide	31	7	1 & 2	664	664	0.00E+00	1.03E+00	1.03E+00	6.41E-02	1.78E-05	-	7.767E-05	
		Benzo(a)pyrene	974	1	1 & 2	664	664	0.00E+00	3.66E-04	3.66E-04	2.29E-05	6.35E-09	2.206E-08	-	4.99E-08
		Benzo(a)pyrene	974	7	1 & 2	664	664	0.00E+00	3.67E-04	3.67E-04	2.30E-05	6.38E-09	-	2.780E-08	
		VOC	87	1	1 & 2	664	664	0.00E+00	1.10E+01	1.10E+01	6.90E-01	1.92E-04	6.656E-04	-	1.56E-03
		VOC	87	7	1 & 2	664	664	0.00E+00	1.18E+01	1.18E+01	7.39E-01	2.05E-04	-	8.950E-04	
		PM10	9100	1	1 & 2	664	664	0.00E+00	3.12E+01	3.12E+01	1.95E+00	5.42E-04	1.884E-03	-	4.25E-03
		PM10	9100	7	1 & 2	664	664	0.00E+00	3.13E+01	3.13E+01	1.95E+00	5.43E-04	-	2.366E-03	
		PM2.5	9110	1	1 & 2	664	664	0.00E+00	4.87E+00	4.87E+00	3.05E-01	8.46E-05	2.938E-04	-	6.63E-04
		PM2.5	9110	7	1 & 2	664	664	0.00E+00	4.87E+00	4.87E+00	3.05E-01	8.46E-05	-	3.690E-04	
		Carbon Dioxide	90	1	1 & 2	257	385	0.00E+00	1.59E+05	1.59E+05	9.91E+03	2.75E+00	26.564	-	67.85
		Carbon Dioxide	90	7	1 & 2	257	385	0.00E+00	2.48E+05	2.48E+05	1.55E+04	4.30E+00	-	41.286	
		Nitrous Oxide	6	1	1 & 2	257	385	0.00E+00	1.67E+00	1.67E+00	1.04E-01	2.90E-05	2.798E-04	-	6.97E-04
		Nitrous Oxide	6	7	1 & 2	257	385	0.00E+00	2.51E+00	2.51E+00	1.57E-01	4.35E-05	-	4.174E-04	
		Methane	5	1	1 & 2	257	385	0.00E+00	3.78E+00	3.78E+00	2.36E-01	6.56E-05	6.330E-04	-	1.66E-03
		Methane	5	7	1 & 2	257	385	0.00E+00	6.16E+00	6.16E+00	3.85E-01	1.07E-04	-	1.025E-03	
		Carbon Monoxide	2	1	1 & 2	257	385	0.00E+00	1.03E+03	1.03E+03	6.43E+01	1.79E-02	1.724E-01	-	4.73E-01
		Carbon Monoxide	2	7	1 & 2	257	385	0.00E+00	1.80E+03	1.80E+03	1.13E+02	3.13E-02	-	3.006E-01	
		Nitrogen Oxides	3	1	1 & 2	257	385	0.00E+00	3.86E+01	3.86E+01	2.41E+00	6.69E-04	6.456E-03	-	1.57E-02
		Nitrogen Oxides	3	7	1 & 2	257	385	0.00E+00	5.57E+01	5.57E+01	3.48E+00	9.66E-04	-	9.269E-03	
		Benzene	20	1	1 & 2	257	385	0.00E+00	6.29E-01	6.29E-01	3.93E-02	1.09E-05	1.054E-04	-	2.89E-04
		Benzene	20	7	1 & 2	257	385	0.00E+00	1.10E+00	1.10E+00	6.89E-02	1.91E-05	-	1.835E-04	
		1,3-Butadiene	24	1	1 & 2	257	385	0.00E+00	2.89E-02	2.89E-02	1.81E-03	5.02E-07	4.843E-06	-	1.23E-05
		1,3-Butadiene	24	7	1 & 2	257	385	0.00E+00	4.46E-02	4.46E-02	2.79E-03	7.74E-07	-	7.427E-06	
		Formaldehyde	25	1	1 & 2	257	385	0.00E+00	2.21E-01	2.21E-01	1.38E-02	3.84E-06	3.708E-05	-	9.64E-05
		Formaldehyde	25	7	1 & 2	257	385	0.00E+00	3.56E-01	3.56E-01	2.22E-02	6.18E-06	-	5.929E-05	
		Acetaldehyde	26	1	1 & 2	257	385	0.00E+00	1.35E-01	1.35E-01	8.42E-03	2.34E-06	2.255E-05	-	2.57E-05
		Acrolein	27	7	1 & 2	257	385	0.00E+00	1.91E-02	1.91E-02	1.19E-03	3.32E-07	-	3.182E-06	
		Sulphur Dioxide	31	1	1 & 2	257	385	0.00E+00	1.05E+00	1.05E+00	6.53E-02	1.82E-05	1.751E-04	-	4.47E-04
		Sulphur Dioxide	31	7	1 & 2	257	385	0.00E+00	1.63E+00	1.63E+00	1.02E-01	2.84E-05	-	2.721E-04	
		Benzo(a)pyrene	974	1	1 & 2	257	385	0.00E+00	3.88E-04	3.88E-04	2.43E-05	6.74E-09	6.504E-08	-	1.62E-07
		Benzo(a)pyrene	974	7	1 & 2	257	385	0.00E+00	5.85E-04	5.85E-04	3.65E-05	1.02E-08	-	9.739E-08	

SITE OPERATION: FUTURE BUILD	DESCRIPTION OF EMISSIONS	Pollutant	PollutantID	Month	Fuel Type	Fleet Size (January)	Fleet Size (July)	Idling Emissions (g/day)	Running Emission (g/day)	Total Emission (g/day)	Total Emission (g/hr)	Total Emission (g/s)	Total Summer (tonnes/6-monts)	Total Winter (tonnes/6-monts)	Total Annual (tonnes/year)
		VOC	87	1	1 & 2	257	385	0.00E+00	1.17E+01	1.17E+01	7.32E-01	2.03E-04	1.962E-03	-	5.10E-03
		VOC	87	7	1 & 2	257	385	0.00E+00	1.88E+01	1.88E+01	1.18E+00	3.27E-04	-	3.136E-03	
		PM10	9100	1	1 & 2	257	385	0.00E+00	3.32E+01	3.32E+01	2.07E+00	5.76E-04	5.555E-03	-	1.38E-02
		PM10	9100	7	1 & 2	257	385	0.00E+00	4.98E+01	4.98E+01	3.11E+00	8.64E-04	-	8.287E-03	
		PM2.5	9110	1	1 & 2	257	385	0.00E+00	5.17E+00	5.17E+00	3.23E-01	8.98E-05	8.661E-04	-	2.16E-03
		PM2.5	9110	7	1 & 2	257	385	0.00E+00	7.76E+00	7.76E+00	4.85E-01	1.35E-04	-	1.293E-03	
Heavy Trucks	**TRANSPORT SHIPPING OFF-SITE** Fuel Distribution: Diesel 100% Fleet Size (January) = 15 truck/day Fleet Size (July) = 23 truck/day Idling time = 0 mins per truck Distance Travelled onsite: 1.5 km % Trucks shipping to Canada = 80% % Trucks shipping to VC dealership = 20% Max daily operation = 16 hours	Carbon Dioxide	90	1	2	18	27	0.00E+00	4.18E+04	4.18E+04	-	-	7.006	-	17.46
		Carbon Dioxide	90	7	2	18	27	0.00E+00	6.28E+04	6.28E+04	-	-	-	10.451	
		Nitrous Oxide	6	1	2	18	27	0.00E+00	1.39E-01	1.39E-01	-	-	2.323E-05	-	5.79E-05
		Nitrous Oxide	6	7	2	18	27	0.00E+00	2.08E-01	2.08E-01	-	-	-	3.465E-05	
		Methane	5	1	2	18	27	0.00E+00	1.02E+00	1.02E+00	-	-	1.706E-04	-	4.25E-04
		Methane	5	7	2	18	27	0.00E+00	1.53E+00	1.53E+00	-	-	-	2.546E-04	
		Carbon Monoxide	2	1	2	18	27	0.00E+00	1.06E+02	1.06E+02	-	-	1.777E-02	-	4.43E-02
		Carbon Monoxide	2	7	2	18	27	0.00E+00	1.59E+02	1.59E+02	-	-	-	2.651E-02	
		Nitrogen Oxides	3	1	2	18	27	0.00E+00	2.06E+02	2.06E+02	-	-	3.445E-02	-	8.21E-02
		Nitrogen Oxides	3	7	2	18	27	0.00E+00	2.86E+02	2.86E+02	-	-	-	4.763E-02	
		Benzene	20	1	2	18	27	0.00E+00	1.52E-02	1.52E-02	-	-	2.545E-06	-	6.34E-06
		Benzene	20	7	2	18	27	0.00E+00	2.28E-02	2.28E-02	-	-	-	3.797E-06	
		1,3-Butadiene	24	1	2	18	27	0.00E+00	4.83E-03	4.83E-03	-	-	8.088E-07	-	2.02E-06
		1,3-Butadiene	24	7	2	18	27	0.00E+00	7.24E-03	7.24E-03	-	-	-	1.207E-06	
		Formaldehyde	25	1	2	18	27	0.00E+00	2.64E-01	2.64E-01	-	-	4.429E-05	-	1.10E-04
		Formaldehyde	25	7	2	18	27	0.00E+00	3.97E-01	3.97E-01	-	-	-	6.607E-05	
		Acetaldehyde	26	1	2	18	27	0.00E+00	2.19E-01	2.19E-01	-	-	3.669E-05	-	4.30E-05
		Acrolein	27	7	2	18	27	0.00E+00	3.81E-02	3.81E-02	-	-	-	6.352E-06	
		Sulphur Dioxide	31	1	2	18	27	0.00E+00	1.40E-01	1.40E-01	-	-	2.344E-05	-	5.84E-05
		Sulphur Dioxide	31	7	2	18	27	0.00E+00	2.10E-01	2.10E-01	-	-	-	3.496E-05	
		Benzo(a)pyrene	974	1	2	18	27	0.00E+00	8.77E-05	8.77E-05	-	-	1.468E-08	-	3.66E-08
		Benzo(a)pyrene	974	7	2	18	27	0.00E+00	1.31E-04	1.31E-04	-	-	-	2.190E-08	
		VOC	87	1	2	18	27	0.00E+00	4.21E+00	4.21E+00	-	-	7.049E-04	-	1.76E-03
		VOC	87	7	2	18	27	0.00E+00	6.31E+00	6.31E+00	-	-	-	1.052E-03	
		PM10	9100	1	2	18	27	0.00E+00	2.25E+01	2.25E+01	-	-	3.770E-03	-	9.39E-03
		PM10	9100	7	2	18	27	0.00E+00	3.38E+01	3.38E+01	-	-	-	5.624E-03	
		PM2.5	9110	1	2	18	27	0.00E+00	4.56E+00	4.56E+00	-	-	7.640E-04	-	1.90E-03
		PM2.5	9110	7	2	18	27	0.00E+00	6.84E+00	6.84E+00	-	-	-	1.140E-03	
Heavy Trucks	**FUEL TANKERS** Fuel Distribution: Diesel 100% Fleet Size (January) = 1 truck/day Fleet Size (July) = 1 truck/day Idling time = 0 mins per truck Distance Travelled = 1.56 km	Carbon Dioxide	90	1	2	1.28	1.28	0.00E+00	3.11E+03	3.11E+03	3.11E+03	8.63E-01	0.520	-	1.038
		Carbon Dioxide	90	7	2	1.28	1.28	0.00E+00	3.11E+03	3.11E+03	3.11E+03	8.63E-01	-	0.518	
		Nitrous Oxide	6	1	2	1.28	1.28	0.00E+00	1.03E-02	1.03E-02	1.03E-02	2.86E-06	1.725E-06	-	3.44E-06
		Nitrous Oxide	6	7	2	1.28	1.28	0.00E+00	1.03E-02	1.03E-02	1.03E-02	2.86E-06	-	1.716E-06	
		Methane	5	1	2	1.28	1.28	0.00E+00	7.57E-02	7.57E-02	7.57E-02	2.10E-05	1.268E-05	-	2.53E-05
		Methane	5	7	2	1.28	1.28	0.00E+00	7.57E-02	7.57E-02	7.57E-02	2.10E-05	-	1.261E-05	

SITE OPERATION: FUTURE BUILD	DESCRIPTION OF EMISSIONS	Pollutant	PollutantID	Month	Fuel Type	Fleet Size (January)	Fleet Size (July)	Idling Emissions (g/day)	Running Emission (g/day)	Total Emission (g/day)	Total Emission (g/hr)	Total Emission (g/s)	Total Summer (tonnes/6-monts)	Total Winter (tonnes/6-monts)	Total Annual (tonnes/year)
		Carbon Monoxide	2	1	2	1.28	1.28	0.00E+00	7.88E+00	7.88E+00	7.88E+00	2.19E-03	1.320E-03	-	2.63E-03
		Carbon Monoxide	2	7	2	1.28	1.28	0.00E+00	7.88E+00	7.88E+00	7.88E+00	2.19E-03	-	1.313E-03	
		Nitrogen Oxides	3	1	2	1.28	1.28	0.00E+00	1.53E+01	1.53E+01	1.53E+01	4.24E-03	2.559E-03	-	4.92E-03
		Nitrogen Oxides	3	7	2	1.28	1.28	0.00E+00	1.42E+01	1.42E+01	1.42E+01	3.93E-03	-	2.359E-03	
		Benzene	20	1	2	1.28	1.28	0.00E+00	1.13E-03	1.13E-03	1.13E-03	3.14E-07	1.891E-07	-	3.77E-07
		Benzene	20	7	2	1.28	1.28	0.00E+00	1.13E-03	1.13E-03	1.13E-03	3.14E-07	-	1.881E-07	
		1,3-Butadiene	24	1	2	1.28	1.28	0.00E+00	3.59E-04	3.59E-04	3.59E-04	9.97E-08	6.008E-08	-	1.20E-07
		1,3-Butadiene	24	7	2	1.28	1.28	0.00E+00	3.59E-04	3.59E-04	3.59E-04	9.97E-08	-	5.975E-08	
		Formaldehyde	25	1	2	1.28	1.28	0.00E+00	1.96E-02	1.96E-02	1.96E-02	5.46E-06	3.290E-06	-	6.56E-06
		Formaldehyde	25	7	2	1.28	1.28	0.00E+00	1.96E-02	1.96E-02	1.96E-02	5.46E-06	-	3.272E-06	
		Acetaldehyde	26	1	2	1.28	1.28	0.00E+00	1.63E-02	1.63E-02	1.63E-02	4.52E-06	2.726E-06	-	3.04E-06
		Acrolein	27	7	2	1.28	1.28	0.00E+00	1.89E-03	1.89E-03	1.89E-03	5.25E-07	-	3.146E-07	
		Sulphur Dioxide	31	1	2	1.28	1.28	0.00E+00	1.04E-02	1.04E-02	1.04E-02	2.89E-06	1.741E-06	-	3.47E-06
		Sulphur Dioxide	31	7	2	1.28	1.28	0.00E+00	1.04E-02	1.04E-02	1.04E-02	2.89E-06	-	1.731E-06	
		Benzo(a)pyrene	974	1	2	1.28	1.28	0.00E+00	6.51E-06	6.51E-06	6.51E-06	1.81E-09	1.090E-09	-	2.18E-09
		Benzo(a)pyrene	974	7	2	1.28	1.28	0.00E+00	6.51E-06	6.51E-06	6.51E-06	1.81E-09	-	1.085E-09	
		VOC	87	1	2	1.28	1.28	0.00E+00	3.13E-01	3.13E-01	3.13E-01	8.69E-05	5.237E-05	-	1.04E-04
		VOC	87	7	2	1.28	1.28	0.00E+00	3.13E-01	3.13E-01	3.13E-01	8.69E-05	-	5.208E-05	
		PM10	9100	1	2	1.28	1.28	0.00E+00	1.67E+00	1.67E+00	1.67E+00	4.65E-04	2.800E-04	-	5.59E-04
		PM10	9100	7	2	1.28	1.28	0.00E+00	1.67E+00	1.67E+00	1.67E+00	4.65E-04	-	2.785E-04	
		PM2.5	9110	1	2	1.28	1.28	0.00E+00	3.39E-01	3.39E-01	3.39E-01	9.41E-05	5.675E-05	-	1.13E-04
		PM2.5	9110	7	2	1.28	1.28	0.00E+00	3.39E-01	3.39E-01	3.39E-01	9.41E-05	-	5.644E-05	
Light Commercial Trucks	**GENERAL DELIVERIES** Fuel Distribution: Diesel 100% Fleet Size (January) = 2 truck/day Fleet Size (July) = 2 truck/day Idling time = 0 mins per truck Distance Travelled = 1.56 km	Carbon Dioxide	90	1	2	2.57	2.57	0.00E+00	2.10E+03	2.10E+03	2.10E+03	5.84E-01	0.352	-	0.716
		Carbon Dioxide	90	7	2	2.57	2.57	0.00E+00	2.19E+03	2.19E+03	2.19E+03	6.08E-01	-	0.364	
		Nitrous Oxide	6	1	2	2.57	2.57	0.00E+00	1.84E-02	1.84E-02	1.84E-02	5.12E-06	3.084E-06	-	6.15E-06
		Nitrous Oxide	6	7	2	2.57	2.57	0.00E+00	1.84E-02	1.84E-02	1.84E-02	5.12E-06	-	3.067E-06	
		Methane	5	1	2	2.57	2.57	0.00E+00	6.61E-02	6.61E-02	6.61E-02	1.84E-05	1.107E-05	-	2.24E-05
		Methane	5	7	2	2.57	2.57	0.00E+00	6.81E-02	6.81E-02	6.81E-02	1.89E-05	-	1.134E-05	
		Carbon Monoxide	2	1	2	2.57	2.57	0.00E+00	5.90E+00	5.90E+00	5.90E+00	1.64E-03	9.872E-04	-	2.11E-03
		Carbon Monoxide	2	7	2	2.57	2.57	0.00E+00	6.75E+00	6.75E+00	6.75E+00	1.88E-03	-	1.124E-03	
		Nitrogen Oxides	3	1	2	2.57	2.57	0.00E+00	5.00E+00	5.00E+00	5.00E+00	1.39E-03	8.378E-04	-	1.77E-03
		Nitrogen Oxides	3	7	2	2.57	2.57	0.00E+00	5.62E+00	5.62E+00	5.62E+00	1.56E-03	-	9.352E-04	
		Benzene	20	1	2	2.57	2.57	0.00E+00	4.87E-03	4.87E-03	4.87E-03	1.35E-06	8.159E-07	-	1.65E-06
		Benzene	20	7	2	2.57	2.57	0.00E+00	5.01E-03	5.01E-03	5.01E-03	1.39E-06	-	8.350E-07	
		1,3-Butadiene	24	1	2	2.57	2.57	0.00E+00	1.75E-03	1.75E-03	1.75E-03	4.87E-07	2.933E-07	-	5.93E-07
		1,3-Butadiene	24	7	2	2.57	2.57	0.00E+00	1.80E-03	1.80E-03	1.80E-03	5.01E-07	-	3.002E-07	
		Formaldehyde	25	1	2	2.57	2.57	0.00E+00	5.24E-02	5.24E-02	5.24E-02	1.45E-05	8.769E-06	-	1.77E-05
		Formaldehyde	25	7	2	2.57	2.57	0.00E+00	5.39E-02	5.39E-02	5.39E-02	1.50E-05	-	8.975E-06	
		Acetaldehyde	26	1	2	2.57	2.57	0.00E+00	2.59E-02	2.59E-02	2.59E-02	7.20E-06	4.343E-06	-	5.10E-06
		Acrolein	27	7	2	2.57	2.57	0.00E+00	4.55E-03	4.55E-03	4.55E-03	1.26E-06	-	7.574E-07	

SITE OPERATION: FUTURE BUILD	DESCRIPTION OF EMISSIONS	Pollutant	PollutantID	Month	Fuel Type	Fleet Size (January)	Fleet Size (July)	Idling Emissions (g/day)	Running Emission (g/day)	Total Emission (g/day)	Total Emission (g/hr)	Total Emission (g/s)	Total Summer (tonnes/6-monts)	Total Winter (tonnes/6-monts)	Total Annual (tonnes/year)
		Sulphur Dioxide	31	1	2	2.57	2.57	0.00E+00	7.09E-03	7.09E-03	7.09E-03	1.97E-06	1.188E-06	-	2.42E-06
		Sulphur Dioxide	31	7	2	2.57	2.57	0.00E+00	7.38E-03	7.38E-03	7.38E-03	2.05E-06	-	1.229E-06	
		Benzo(a)pyrene	974	1	2	2.57	2.57	0.00E+00	1.76E-05	1.76E-05	1.76E-05	4.89E-09	2.945E-09	-	5.87E-09
		Benzo(a)pyrene	974	7	2	2.57	2.57	0.00E+00	1.76E-05	1.76E-05	1.76E-05	4.89E-09	-	2.929E-09	
		VOC	87	1	2	2.57	2.57	0.00E+00	6.89E-01	6.89E-01	6.89E-01	1.91E-04	1.154E-04	-	2.34E-04
		VOC	87	7	2	2.57	2.57	0.00E+00	7.10E-01	7.10E-01	7.10E-01	1.97E-04	-	1.182E-04	
		PM10	9100	1	2	2.57	2.57	0.00E+00	6.04E-01	6.04E-01	6.04E-01	1.68E-04	1.012E-04	-	2.02E-04
		PM10	9100	7	2	2.57	2.57	0.00E+00	6.04E-01	6.04E-01	6.04E-01	1.68E-04	-	1.006E-04	
		PM2.5	9110	1	2	2.57	2.57	0.00E+00	2.90E-01	2.90E-01	2.90E-01	8.04E-05	4.849E-05	-	9.67E-05
		PM2.5	9110	7	2	2.57	2.57	0.00E+00	2.90E-01	2.90E-01	2.90E-01	8.04E-05	-	4.823E-05	

A.4 Rail Emissions

SITE OPERATIONS: PRESENT	DESCRIPTION OF EMISSIONS	Pollutant	Tier	Power Rating (hp)	Load Factor @ Idle	Load Factor @ Notch 1	Fuel Usage-Idle (L/hr)	Fuel Usage-Notch1 (L/hr)	# engines/ locomotive	Emissions in Idle (g/train)	Emissions Travel (g/train)	Operating Emissions (g/day)	Hourly Emissions (g/hr)	Annual (tonnes/year)
Rail Shipping	Locomotive: GE AC4400 [1] Engine: 7FDL-16 GE engine [2] Fuel: 100% Diesel BSFC = 210 g/kWhr per engine [3] Power Rating: 4400 hp Load Factor (Idle): 1% [4] Load Factor (Notch 1): 6% [4] U.S. EPA Tier Rating: 1 Fleet Size Annacis: 339 trains/year Fleet Size Richmond: 96 trains/year Max daily idle (load) time: 8 hours/train Max daily travel time: 1 hours/train	PM10	1	4400	0.01	0.06	8	49	2	225	169	4.70E+02	5.87E+01	1.71E-01
		HC	1	4400	0.01	0.06	8	49	2	331	248	6.90E+02	8.63E+01	2.52E-01
		NOx	1	4400	0.01	0.06	8	49	2	4717	3538	9.84E+03	1.23E+03	3.59E+00
		CO	1	4400	0.01	0.06	8	49	2	901	676	1.88E+03	2.35E+02	6.86E-01
		CO2	1	4400	0.01	0.06	8	49	2	352005	264003	7.34E+05	9.18E+04	2.68E+02
		CH4	1	4400	0.01	0.06	8	49	2	20	15	4.11E+01	5.13E+00	1.50E-02
		N2O	1	4400	0.01	0.06	8	49	2	131	98	2.74E+02	3.42E+01	9.99E-02
		Estimates based on MOVES3.0.1 VOC/PM breakdown												
		PM2.5	1	4400	0.01	0.06	8	49	2	2.07E+02	1.55E+02	4.32E+02	5.40E+01	1.58E-01
		Benzo(a)pyrene	1	4400	0.01	0.06	8	49	2	4.12E-02	3.09E-02	8.59E-02	1.07E-02	3.13E-05
		Formaldehyde	1	4400	0.01	0.06	8	49	2	3.17E+01	2.38E+01	6.61E+01	8.27E+00	2.41E-02
		Benzene	1	4400	0.01	0.06	8	49	2	2.75E+00	2.06E+00	5.73E+00	7.16E-01	2.09E-03
		Acetaldehyde	1	4400	0.01	0.06	8	49	2	1.30E+01	9.74E+00	2.71E+01	3.39E+00	9.89E-03
		Acrolein	1	4400	0.01	0.06	8	49	2	2.28E+00	1.71E+00	4.75E+00	5.94E-01	1.73E-03
		1,3-Butadiene	1	4400	0.01	0.06	8	49	2	8.30E-01	6.22E-01	1.73E+00	2.16E-01	6.32E-04
		VOC	1	4400	0.01	0.06	8	49	2	3.19E+02	2.40E+02	6.66E+02	8.33E+01	2.43E-01
		Estimates based on sulphur fuel content (15 mg/L)												
		SO2	1	4400	0.01	0.06	8	49	2	2	12	1.64E+01	2.05E+00	6.00E-03

Sources:

[1] https://trains-and-locomotives.fandom.com/wiki/GE_AC4400CW

[2] https://trains-and-locomotives.fandom.com/wiki/GE_7FDL_Engine

[3] https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/air/diesel-locomotives-emissions-fuel-testing-3054.pdf?la=en&hash=A8C80AAA913711B9D206D7FF0F3577CC55D65BF2

[4] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7312617/ (Table 2, rounded to nearest integer)

SITE OPERATIONS: FUTURE BUILD	DESCRIPTION OF EMISSIONS	Pollutant	Tier	Power Rating (hp)	Load Factor @ Idle	Load Factor @ Notch 1	Fuel Usage-Idle (L/hr)	Fuel Usage-Notch1 (L/hr)	# engines/ locomotive	Emissions in Idle (g/train)	Emissions Travel (g/train)	Operating Emissions (g/day)	Hourly Emissions (g/hr)	Annual (tonnes/year)
Rail Shipping	Locomotive: GE AC4400 [1] Engine: 7FDL-16 GE engine [2] Fuel: 100% Diesel BSFC = 210 g/kWhr per engine [3] Power Rating: 4400 hp Load Factor (Idle): 1% [4] Load Factor (Notch 1): 6% [4] U.S. EPA Tier Rating: 1 Fleet Size Annacis: 463 trains/year Fleet Size Richmond: 0 trains/year Max daily idle (load) time: 8 hours/train Max daily travel time: 1 hours/train	PM10	1	4400	0.01	0.06	8	49	2	225	169	5.00E+02	6.25E+01	1.83E-01
		HC	1	4400	0.01	0.06	8	49	2	331	248	7.35E+02	9.18E+01	2.68E-01
		NOx	1	4400	0.01	0.06	8	49	2	4717	3538	1.05E+04	1.31E+03	3.82E+00
		CO	1	4400	0.01	0.06	8	49	2	901	676	2.00E+03	2.50E+02	7.30E-01
		CO2	1	4400	0.01	0.06	8	49	2	352005	264003	7.81E+05	9.77E+04	2.85E+02
		CH4	1	4400	0.01	0.06	8	49	2	20	15	4.37E+01	5.46E+00	1.60E-02
		N2O	1	4400	0.01	0.06	8	49	2	131	98	2.91E+02	3.64E+01	1.06E-01
		Estimates based on MOVES3.0.1 VOC/PM breakdown												
		PM2.5	1	4400	0.01	0.06	8	49	2	2.07E+02	1.55E+02	4.60E+02	5.75E+01	1.68E-01
		Benzo(a)pyrene	1	4400	0.01	0.06	8	49	2	4.12E-02	3.09E-02	9.14E-02	1.14E-02	3.34E-05
		Formaldehyde	1	4400	0.01	0.06	8	49	2	3.17E+01	2.38E+01	7.04E+01	8.80E+00	2.57E-02
		Benzene	1	4400	0.01	0.06	8	49	2	2.75E+00	2.06E+00	6.10E+00	7.62E-01	2.23E-03

		Acetaldehyde	1	4400	0.01	0.06	8	49	2	1.30E+01	9.74E+00	2.88E+01	3.60E+00	1.05E-02
		Acrolein	1	4400	0.01	0.06	8	49	2	2.28E+00	1.71E+00	5.06E+00	6.32E-01	1.85E-03
		1,3-Butadiene	1	4400	0.01	0.06	8	49	2	8.30E-01	6.22E-01	1.84E+00	2.30E-01	6.72E-04
		VOC	1	4400	0.01	0.06	8	49	2	3.19E+02	2.40E+02	7.09E+02	8.87E+01	2.59E-01
		Estimates based on sulphur fuel content (15 mg/L)												
		SO2	1	4400	0.01	0.06	8	49	2	2	12	1.75E+01	2.19E+00	6.38E-03

Sources:

[1] https://trains-and-locomotives.fandom.com/wiki/GE_AC4400CW

[2] https://trains-and-locomotives.fandom.com/wiki/GE_7FDL_Engine

[3] https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/air/diesel-locomotives-emissions-fuel-testing-3054.pdf?la=en&hash=A8C80AAA913711B9D206D7FF0F3577CC55D65BF2

[4] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7312617/ (Table 2, rounded to nearest integer)

SITE OPERATIONS: FUTURE NO-BUILD (same as PRESENT)	DESCRIPTION OF EMISSIONS	Pollutant	Tier	Power Rating (hp)	Load Factor @ Idle	Load Factor @ Notch 1	Fuel Usage-Idle (L/hr)	Fuel Usage-Notch1 (L/hr)	# engines/ locomotive	Emissions in Idle (g/train)	Emissions Travel (g/train)	Operating Emissions (g/day)	Hourly Emissions (g/hr)	Annual (tonnes/year)
Rail Shipping	Locomotive: GE AC4400 [1] Engine: 7FDL-16 GE engine [2] Fuel: 100% Diesel BSFC = 210 g/kWhr per engine [3] Power Rating: 4400 hp Load Factor (Idle): 1% [4] Load Factor (Notch 1): 6% [4] U.S. EPA Tier Rating: 1 Fleet Size Annacis: 339 trains/year Fleet Size Richmond: 96 trains/year Max daily idle (load) time: 8 hours/train Max daily travel time: 1 hours/train	PM10	1	4400	0.01	0.06	8	49	2	225	169	4.70E+02	5.87E+01	1.71E-01
		HC	1	4400	0.01	0.06	8	49	2	331	248	6.90E+02	8.63E+01	2.52E-01
		NOx	1	4400	0.01	0.06	8	49	2	4717	3538	9.84E+03	1.23E+03	3.59E+00
		CO	1	4400	0.01	0.06	8	49	2	901	676	1.88E+03	2.35E+02	6.86E-01
		CO2	1	4400	0.01	0.06	8	49	2	352005	264003	7.34E+05	9.18E+04	2.68E+02
		CH4	1	4400	0.01	0.06	8	49	2	20	15	4.11E+01	5.13E+00	1.50E-02
		N2O	1	4400	0.01	0.06	8	49	2	131	98	2.74E+02	3.42E+01	9.99E-02
		Estimates based on MOVES3.0.1 VOC/PM breakdown												
		PM2.5	1	4400	0.01	0.06	8	49	2	2.07E+02	1.55E+02	4.32E+02	5.40E+01	1.58E-01
		Benzo(a)pyrene	1	4400	0.01	0.06	8	49	2	4.12E-02	3.09E-02	8.59E-02	1.07E-02	3.13E-05
		Formaldehyde	1	4400	0.01	0.06	8	49	2	3.17E+01	2.38E+01	6.61E+01	8.27E+00	2.41E-02
		Benzene	1	4400	0.01	0.06	8	49	2	2.75E+00	2.06E+00	5.73E+00	7.16E-01	2.09E-03
		Acetaldehyde	1	4400	0.01	0.06	8	49	2	1.30E+01	9.74E+00	2.71E+01	3.39E+00	9.89E-03
		Acrolein	1	4400	0.01	0.06	8	49	2	2.28E+00	1.71E+00	4.75E+00	5.94E-01	1.73E-03
		1,3-Butadiene	1	4400	0.01	0.06	8	49	2	8.30E-01	6.22E-01	1.73E+00	2.16E-01	6.32E-04
		VOC	1	4400	0.01	0.06	8	49	2	3.19E+02	2.40E+02	6.66E+02	8.33E+01	2.43E-01
		Estimates based on sulphur fuel content (15 mg/L)												
		SO2	1	4400	0.01	0.06	8	49	2	2	12	1.64E+01	2.05E+00	6.00E-03

Sources:

[1] https://trains-and-locomotives.fandom.com/wiki/GE_AC4400CW

[2] https://trains-and-locomotives.fandom.com/wiki/GE_7FDL_Engine

[3] https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/air/diesel-locomotives-emissions-fuel-testing-3054.pdf?la=en&hash=A8C80AAA913711B9D206D7FF0F3577CC55D65BF2

[4] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7312617/ (Table 2, rounded to nearest integer)

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