Appendix B1

Air Quality Regulations/Methodology and Air Quality and GHG Emission

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1.0 Introduction

This appendix describes, in detail, the regulatory background, methods and results of emissions inventory analysis that estimates the annual emissions of criteria pollutants and greenhouse gas from construction and operation of the Berths 226-236 (Everport) Container Terminal.

2.0 Applicable Regulations

2.1 International Regulations

International Maritime Organization International Convention for the Prevention of Pollution from Ships Annex VI

The International Maritime Organization (IMO) International Convention for the Prevention of Pollution from Ships (MARPOL) Annex VI, which came into force in May 2005, set new international NO_X emission limits on marine engines over 130 kilowatts (kW) installed on new vessels retroactive to the year 2000. In October 2008, IMO adopted amendments to international requirements under MARPOL Annex VI, which introduced NO_X emission standards for new engines and more stringent fuel quality requirements. In April 2014, amendments to MARPOL Annex VI were adopted regarding the effective date of NOx Tier III standards (DieselNet, 2011a; IMO, 2008; IMO, 2014; IMO, 2016). The Annex VI North American Emission Control Area (ECA) requirements applicable to the proposed Project include:

- Caps on the sulfur content of fuel as a measure to control SO_X emissions and, indirectly, PM emissions. For ECAs, the sulfur limits were capped at 1.0 percent starting in 2012 and 0.1 percent starting in 2015[1]. The proposed Project and alternatives assume full compliance with MARPOL Annex VI SO_X limits.
- NO_X engine emission rate limits for new engines. Tier I and Tier II limits effective 2000 and 2011 are global limits, whereas Tier III limits, effective in 2016, apply only in NO_X ECAs. NO_X emission reductions due to these Tier III engine limits were conservatively excluded from the analysis for the peak unmitigated proposed Project and alternative scenarios. However, Tier III propulsion and auxiliary engines were incorporated into the annual emissions analysis for future years based on the methodology listed in the May 2015 "POLA CEQA Terminal Level Container Ship Forecast for Tier 3 Engines" draft document developed by Starcrest Consulting Group, LLC (Starcrest, 2015a).

2.2 Federal Regulations

State Implementation Plan

In federal nonattainment areas, the Federal Clean Air Act (CAA) requires preparation of a SIP detailing how the state will attain the NAAQS within mandated timeframes. In response to this requirement, SCAQMD, in collaboration with other agencies, such as CARB and Southern California Association of Governments (SCAG), periodically prepares an AQMP) designed to bring the SCAB into attainment with federal requirements and/or to incorporate the latest

[1] The sulfur requirements in ECA's are 1.0 percent as of July 2010 and 0.1 percent starting in January 2015. North America was designated as ECA in August 2012, and the sulfur requirements became applicable as of the time of designation.

technical planning information. The AQMP is then incorporated into the SIP, which is submitted by CARB to EPA for approval.

SCAQMD has prepared AQMPs in 1997, 2003, 2007, 2012, and most recently in 2016. Each iteration of the AQMP is an update of the previous AQMP. The focus of the 2007 AQMP was to demonstrate compliance with the NAAQS for $PM_{2.5}$ and 8-hour ozone and other planning requirements, including compliance with the NAAQS for PM_{10} (SCAQMD, 2007). The 2007 AQMP proposed attainment demonstration of the federal $PM_{2.5}$ standards through a focused control of SO_X, directly emitted $PM_{2.5}$, and NO_X, supplemented with VOCs by 2015. The SCAQMD did not meet the standards by the original attainment year; therefore, subsequent AQMPs address new attainment deadlines.

In December 2012, the SCAQMD Governing Board adopted the 2012 AQMP (SCAQMD, 2013). The 2012 AQMP focuses on $PM_{2.5}$ control measures designed to attain the federal 24-hour $PM_{2.5}$ standard and contingency measures in case the targeted attainment date is missed. The 2012 AQMP also contains proposed actions to reduce ozone. The draft 2016 AQMP, which is a comprehensive and integrated Plan primarily focused on addressing the ozone and $PM_{2.5}$ standards, was released on June 30, 2016. (SCAQMD, 2016).

SIP approval lags the development and implementation of AQMPs. EPA often approves portions and disapproves other portions of submitted SIPs. CARB, and in turn SCAQMD, act to correct the deficiencies identified by EPA and resubmit the disapproved SIP portions to EPA for approval. For example, EPA approved California's 1997 SIP in 2011, excepting contingency measures. The contingency measures for the 1997 $PM_{2.5}$ SIP were finally approved by EPA in September 2013.

EPA Emissions Standards for Marine Diesel Compression Ignition Engines—Category 1 and 2 Engines

Engine Categories are identified on the basis of engine displacement per cylinder. Category 1 engines have engine displacements per cylinder of less than 5 liters, whereas Category 2 engines have engine displacements of between 5 and 30 liters. Category 1 and 2 engines are often the auxiliary engines on large ocean going vessels (OGVs) as well as auxiliary and propulsion engines on harbor craft. To reduce emissions from these marine diesel engines, EPA established 1999 emission standards for newly built engines, referred to as *Tier 2 marine engine standards*. These standards were based on the land-based standard for non-road engines. The Tier 2 standards were phased in from 2004 to 2007 (year of manufacture), depending on the engine size.

On March 14, 2008, EPA finalized a program to reduce emissions from marine diesel Category 1 and 2 engines (73 FR 88 25098-25352). The regulations introduced Tier 3 and Tier 4 standards, which apply to both new and remanufactured diesel engines. The phase-in of Tier 3 standards began in 2009 for new Category 1 engines and will continue through 2014. The phase-in of Tier 3 standards for new Category 2 engines began in 2013 and will continue through 2014. Tier 4 standards will be phased in for new Category 1 and 2 engines above 600 kW from 2014 to 2017. For remanufactured engines, standards apply only to commercial marine diesel engines above 600 kW when the engines are remanufactured and as soon as certified systems are available.

For the proposed Project and alternatives, this rule is assumed to affect harbor craft but not oceangoing vessel auxiliary engines because the latter would likely be manufactured overseas and, therefore, would not be subject to the rule.

EPA Emission Standards for Large Marine Diesel Engines—Category 3 Engines

Category 3 engines have engine displacements per cylinder greater than 30 liters. Category 3 engines are propulsion engines on OGVs. To reduce emissions from these engines, EPA established 2003 Tier 1 NO_X standards for marine diesel engines above 30 liters per cylinder, large Category 3 marine propulsion engines on U.S. flagged ocean-going vessels (40 CFR Part 9 and 94) (68 FR 9745-9789). The standards went into effect for new engines built in 2004 and later. Tier 1 limits were achieved by engine-based controls, without the need for exhaust gas after-treatment.

In December 2009, EPA adopted Tier 2 and Tier 3 emissions standards for newly built Category 3 engines installed on U.S. flagged vessels, as well as marine fuel sulfur limits. The Tier 2 and 3 engines standards and fuel limits are equivalent to the amendments to MARPOL Annex VI. Tier 2 NO_X standards for newly built engines apply beginning in 2011 and require the use of engine-based controls, such as engine timing, engine cooling, and advanced electronic controls. Tier 3 standards will apply beginning in 2016 in ECAs and would be met with the use of high efficiency emission control technology, such as selective catalytic reduction. The Tier 2 standards are anticipated to result in a 15 to 25 percent NO_X reduction below the Tier 1 levels; Tier 3 standards are expected to achieve NO_X reductions 80 percent below the Tier 1 levels (DieselNet, 2011b). In addition to the Tier 2 and Tier 3 NO_X standards, the final regulation established standards for hydrocarbon (HC) and CO.

EPA Emission Standards for Non-Road Diesel Engines

To reduce emissions from non-road diesel equipment, EPA established a series of increasingly strict emission standards for new non-road diesel engines (DieselNet, 2013a). Tier 1 standards were phased in on newly manufactured equipment from 1996 through 2000 (year of manufacture), depending on the engine horsepower category. Tier 2 standards were phased in on newly manufactured equipment from 2001 through 2006. Tier 3 standards were phased in on newly manufactured equipment from 2006 through 2008. Tier 4 standards, which require advanced emission control technology to attain them, are being phased in between 2008 to 2015. These standards apply to construction equipment and cargo handling equipment (CHE).

EPA Emission Standards for Locomotives

In 1997, to reduce emissions from switch and line-haul locomotives, EPA established a series of increasingly strict emission standards for new or remanufactured locomotive engines (63 FR 18997-19084). Tier 0 standards, effective as of 2000, applied to engines manufactured or remanufactured from 1973 to 2001. Tier 1 standards applied to engines manufactured/remanufactured from 2002 to 2004. Tier 2 standards applied to engines manufactured/ remanufactured after 2004.

In 2008, EPA strengthened the Tier 0 through 2 standards to apply to existing locomotives and introduced more stringent Tier 3 and 4 emission requirements (73 FR 88 25098-25352). Tier 3 standards, met by engine design methods, were phased in between 2011 and 2014. Tier 4 standards, which are expected to require exhaust gas after-treatment technologies, became effective starting in 2015 (DieselNet, 2008).

EPA Emission Standards for On-Road Trucks

Heavy-duty trucks are subdivided into three categories by the vehicle's GVWR: light heavy-duty engines (8,500 to 19,500 pounds), medium heavy-duty engines (19,500 to 33,000 pounds), and heavy heavy-duty engines (greater than 33,000 pounds).

To reduce emissions from on-road, heavy-duty diesel trucks, EPA established a series of increasingly strict emission standards for new truck engines (DieselNet, 2015). The 1988 through 2003 emission standards applied to truck manufactured between 1988 and 2003. In 1997, EPA adopted new emission standards for model year 2004 and later heavy-duty trucks. The goal of the 1997 regulation was to reduce NO_X engine emissions to approximately 2.0 g/bhp-hr. In 2000, EPA adopted standards for PM, NO_X and nonmethane hydrocarbon (NMHC) for model year 2007 and later heavy-duty highway engines and a 15 ppm limit on the sulfur content of diesel fuel. The NO_X and NMHC standards were phased in between 2007 and 2010; the PM standard applied to 2008 and newer engines. The 15 ppm sulfur limit was required starting in 2006.

On September 15, 2011, EPA and Department of Transportation's National Highway Traffic Safety Administration (NHTSA) finalized regulations to reduce greenhouse gas (GHG) emissions and improve fuel efficiency of medium- and heavy-duty vehicles (EPA, 2011a), including large pickup trucks and vans, semi-trucks, and all types and sizes of work trucks and buses. The regulations incorporate all on-road vehicles rated at a gross vehicle weight at or above 8,500 pounds, and the engines that power them. Under the regulations, fuel economy will be improved and GHG emissions will be reduced in model years 2014 to 2018. The rule was subsequently amended in July and August 2013 to correct inconsistencies and add clarifications to the text (EPA, 2013a; EPA, 2013b). On August 16, 2016, EPA and NHTSA implemented Phase 2 of the Heavy-Duty National Program to cover model years 2018 to 2027 for certain trailers and model years 2021 to 2027 for semi-trucks, large pickup trucks, vans, and all types and sizes of buses and work trucks (EPA 20,16b).

EPA Non-Road Diesel Fuel Rule

With this rule, EPA set sulfur limitations for non-road diesel fuel, including locomotives and marine vessels (though not for the marine residual fuel used by very large engines on oceangoing vessels). For the proposed Project and alternatives, this rule affects line-haul locomotives; the California Diesel Fuel Regulation (described below) (CARB, 2004) generally pre-empts this rule for other sources such as yard locomotives, construction equipment, terminal equipment, and harbor craft. Under this rule, the diesel fuel used by line-haul locomotives was limited to 500 ppm starting June 1, 2007 and further limited to 15 ppm sulfur content (ultra-low-sulfur diesel) starting January 1, 2010 for non-road fuel and June 2012 for and marine and locomotive fuels (EPA, 2004b).

EPA and National Highway Traffic Safety Administration Light-Duty Vehicle GHG Emission Standards and Corporate Average Fuel Economy Standards

In May 2010, EPA, in conjunction with the NHTSA, finalized the Light-Duty Vehicle Rule that established a national program consisting of GHG emissions standards and Corporate Average Fuel Economy standards for light-duty vehicles (EPA, 2010). Light-Duty Vehicle Rule standards first applied to new cars and trucks starting with model year 2012. Although the rule is primarily designed to address GHG emissions, the fuel economy standards portion of the rule would serve to also reduce criteria pollutant emissions. On August 28, 2012, EPA and NHTSA

extended the National Program of harmonized GHG and fuel economy standards to model year 2017 through 2025 passenger vehicles (EPA, 2012). The 2010 and 2012 rules affect passenger vehicles (i.e., terminal workers) and other light-duty vehicles traveling to the terminal.

General Conformity Rule

Section 176(c) of the CAA states that a federal agency cannot support an activity unless the agency determines that the activity will conform to the most recent EPA-approved SIP. Therefore, projects using federal funds or requiring federal approval must not: (1) cause or contribute to any new violation of a NAAQS; (2) increase the frequency or severity of any existing violation; or (3) delay the timely attainment of any standard, interim emission reduction, or other milestone.

On April 5, 2010, EPA revised the General Conformity Regulations (40 CFR Parts 51 and 93.153). The revisions were intended to clarify, streamline, and improve conformity determination and review processes, and provide transition tools for making conformity determinations for new NAAQS standards. The revisions also allowed federal facilities to negotiate a facility-wide emission budget with the applicable air pollution control agencies, and to allow the emissions of one precursor pollutant to be offset by the emissions of another precursor pollutant. The revised rules became effective on July 6, 2010.

Based on the current General Conformity rule and attainment status of the SCAB, a federal action would conform to the SIP if its annual emissions remain below 100 tons of CO or $PM_{2.5}$ (or any of the $PM_{2.5}$ precursors: NO_X, SO_2, VOC or ammonia), 100 tons of PM_{10}, or 10 tons of NO_X or VOC. These *de minimis* thresholds apply to both proposed Project or alternative construction and proposed Project or alternative operations. The thresholds are compared to the net change in emissions relative to the NEPA baseline. If the proposed action exceeds one or more of the *de minimis* thresholds, a more rigorous conformity determination is the next step in the conformity evaluation process.

Conformity Statement

Section 176 (c) of the CAA (42 USC Section 7506(c)) requires any entity of the federal government that engages in, supports, or in any way provides financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable SIP required under Section 110 (a) of the CAA (42 USC Section 7410(a)) before the action is otherwise approved. In this context, conformity means that such federal actions must be consistent with a SIP's purpose of eliminating or reducing the severity and number of violations of NAAQS and achieving expeditious attainment of those standards. Each federal agency (including the U.S. Army Corps of Engineers [USACE]) must determine that any action that is proposed by the agency and that is subject to the regulations implementing the conformity requirements will, in fact, conform to the applicable SIP before the action is taken.

The general conformity regulations incorporate a stepwise process, beginning with an applicability analysis. According to EPA guidance, before any approval is given for a federal action to go forward, the regulating federal agency must apply the applicability requirements found at 40 CFR Section 51.853(b) to the federal action and/or determine the regional significance of the federal action pursuant to 40 CFR Section 51.853(j) to evaluate whether, on a pollutant-by-pollutant basis, a determination of general conformity is required. The guidance states that the applicability analysis can be (but is not required to be) completed concurrently with any analysis required under NEPA. If the regulating federal agency determines that the general conformity regulations do not apply to the federal action, no further analysis or

documentation is required. If the general conformity regulations do apply to the federal action, the regulating federal agency must next conduct a conformity evaluation in accord with the criteria and procedures in the implementing regulations, publish a draft determination of general conformity for public review, and then publish the final determination of general conformity.

As part of the environmental review of the federal action, USACE conducted a general conformity evaluation pursuant to SCAQMD Rule 1901 and 40 CFR Part 51 Subpart W. The general conformity regulations apply at this time to those actions at LAHD requiring USACE approval, because the portion of the SCAB where the Port is situated is a nonattainment area for ozone and $PM_{2.5}$ and a maintenance area for NO_2 and CO.

USACE began the general conformity evaluation by conducting the applicability analysis in which the calculated federal action emissions are compared to the general conformity *de minimis* thresholds. This applicability analysis is presented in this appendix. Following USACE guidance (USACE, 1994), the federal actions for this evaluation included construction emissions for the following proposed Project elements:

- Sheet piling, dredging and disposal of 30,000 cubic yards required to improve Berths 226-229;
- Sheet piling, dredging and disposal of 8,000 cubic yards required to improve Berths 230-232;
- Installing electrical substation and feeder cable conduit for the new cranes; and
- Delivery and installation of five new cranes.

The raising of up to five existing cranes is assumed to throughout the construction period and the equipment needed to raise the existing cranes would arrive via container ship already calling at the Everport Container Terminal. Construction of the federal action elements was estimated to require approximately 12 months to complete. Emissions associated with actions taken under the USACE federal control and responsibility were determined for this period. The methodology and assumptions used to estimate emissions are discussed in this appendix. The federal action is not subject to a general conformity determination for CO, VOC (as an ozone and $PM_{2.5}$ precursor), PM_{10}, $PM_{2.5}$, or SO_X (as a $PM_{2.5}$ precursor) because the net emissions associated with the federal action would be less than the general conformity *de minimis* thresholds. However, the anticipated NO_X emissions in 2018 exceeds the general conformity *de minimis* threshold. The SCAQMD approved a SIP budget that includes the construction of the federal action elements (SCAQMD, 2012; SCAQMD, 2016). Therefore, USACE concluded that the federal action as designed would conform to the purpose of the approved SIP and would be consistent with all applicable requirements. The federal conformity determination is included in this appendix.

2.3 State Regulations and Agreements

California Clean Air Act

The California Clean Air Act of 1988, as amended in 1992, outlines a program to attain the CAAQS by the earliest practical date. Because the CAAQS are more stringent than the NAAQS, attainment of the CAAQS requires more emissions reductions than what would be required to show attainment of the NAAQS. Consequently, the main focus of attainment planning in California has shifted from the federal to state requirements. Similar to the federal system, the state requirements and compliance dates are based upon the severity of the ambient air quality standard violation within a region.

AB 2650

AB 2650 (Lowenthal) was signed into law by Governor Davis and became effective on January 1, 2003. Under AB 2650, shipping terminal operators are required to limit truck-waiting times to no more than 30 minutes at the Ports of Los Angeles, Long Beach, and Oakland, or face fines of $250 per violation. A companion piece of legislation (AB 1971) was approved in September 2004 to ensure that the intent of AB 2650 is not circumvented by moving trucks with appointments inside the terminal gates to wait.

CARB Heavy Duty Diesel Vehicle Idling Emission Reduction Regulation

This CARB rule has been in effect for heavy-duty diesel trucks in California since 2008. The rule requires that heavy-duty trucks be equipped with a non-programmable engine shutdown system that shuts down the engine after five minutes or optionally meet a stringent NO_X idling emission standard (CCR Title 13, Section 1956.8 and 2485). This regulation applies to trucks used during construction and operation.

CARB 1998 South Coast Locomotive Emissions Agreement

In 1998, CARB, Class I freight railroads operating in the SCAB (Burlington Northern and Santa Fe and Union Pacific Railroad), and EPA signed the 1998 Memorandum of Understanding (MOU) agreeing to a locomotive fleet average emissions program in the SCAQMD. The 1998 MOU requires that, by 2010, the Class I freight railroad fleet of locomotives in the SCAQMD achieve average emissions equivalent to the NO_X emission standard established by EPA for Tier 2 locomotives (5.5 g/bhp-hr). The MOU applies to both line-haul (freight) and switch locomotives operated by the railroads. This emission level is equivalent, on average district-wide, to operating only federal Tier 2 NO_X-compliant locomotives in the SCAQMD (CARB, 1998).

CARB 2005 Railroad Statewide Agreement

In 2005, CARB, Class I freight railroads operating in the SCAB, and EPA signed the 2005 MOU agreeing to several program elements intended to reduce the emission impacts of rail-yard operations on local communities. The 2005 MOU includes a locomotive idling-reduction program, early introduction of lower-sulfur diesel fuel in interstate locomotives, and a visible emission reduction and repair program (CARB, 2005a).

CARB California Diesel Fuel Regulation

With this rule, CARB set sulfur limitations for diesel fuel sold in California for use in on-road and off-road motor vehicles (CARB, 2004). Harbor craft and intrastate locomotives were originally excluded from the rule, but were later included by a 2004 rule amendment (CARB, 2005b). Under this rule, diesel fuel used in motor vehicles except harbor craft and intrastate locomotives has been limited to 500-ppm sulfur since 1993. The sulfur limit was reduced to 15 ppm on September 1, 2006. A federal diesel rule similarly limited sulfur content nationwide to 15 ppm by October 15, 2006. Diesel fuel used in harbor craft in the SCAQMD was limited to 500-ppm sulfur starting January 1, 2006 and 15-ppm sulfur starting September 1, 2006. Diesel fuel used in intrastate locomotives (switch locomotives) was limited to 15-ppm sulfur starting January 1, 2007.

CARB In-Use Off-road Diesel Vehicle Regulation

In 2007, CARB adopted a rule that requires owners of off-road mobile equipment powered by diesel engines 25 hp or larger to meet the fleet average or best available control technology (BACT) requirements for NO_X and PM emissions by March 1 of each year (CCR Title 13, Section 2449). The rule is structured by fleet size: large, medium, and small fleets. The regulation was adopted in April 2008 and subsequently amended to delay the turnover of Tier 1 equipment for meeting the NO_X performance requirements of the regulation, and then to delay overall implementation of the equipment turnover compliance schedule in response to the economic downturn in 2008 and 2009.

In September 2013, CARB received authorization from EPA to enforce the In-Use Off-road Diesel Vehicle Regulation, including the regulation's performance requirements, such as turnover requirements and restrictions on adding older, dirtier Tier 0 and 1 vehicles. Enforcement of the restrictions on adding Tier 0 and 1 vehicles began January 1, 2014. Enforcement of the first fleet average requirements for large fleets (greater than 5,000 total fleet horsepower) will begin on July 1, 2014. For the purposes of this analysis, the regulation was applied to construction activities.

CARB Measures to Reduce Emissions from Goods Movement Activities

Emission Reduction Plan for Ports and Goods Movement in California

In April 2006, CARB approved the *Emission Reduction Plan for Ports and Goods Movement in California* (CARB, 2006a). The Goods Movement Plan proposes measures that would reduce emissions from the main sources associated with port cargo-handling activities, including ships, harbor craft, terminal equipment, trucks, and locomotives. This effort was a step in implementing the *Goods Movement Action Plan (GMAP)* developed by the California Business, Transportation, and Housing Agency (BTH) and Cal/EPA. The final GMAP was released on January 11, 2007, and includes measures to address the various layers of the goods movement system throughout the state including freeways, rail, and ports.

CARB Regulations for Fuel Sulfur and Other Operational Requirements for OGVs within California Waters and 24 Nautical Miles of the California Baseline

In July 2008, CARB approved the Regulation for Fuel Sulfur and Other Operational Requirements for Ocean-Going Vessels within California Waters and 24 Nautical Miles of the California Baseline (CCR Title 13, Section 2299.2). These regulations have required ship main engines, auxiliary engines, and auxiliary boilers operating in California waters since July 2009 to either use MDO with a maximum sulfur content of 0.5 percent or MGO with a maximum sulfur content of 1.5 percent. By August 1, 2012, these source activities were required to meet an MDO limit of 0.5 percent or MGO limit of 1.0 percent. By January 1, 2012, these source activities were required to meet an MDO or MGO sulfur limit of 0.1 percent, but this requirement was delayed to January 1, 2014.

CARB Regulation to Reduce Emissions from Diesel Auxiliary Engines on OGVs While at Berth at a California Port

In December 2007, CARB adopted a regulation to reduce emissions from diesel auxiliary engines on OGVs while at berth for container, cruise, and refrigerated cargo vessels (CCR Title

17, Section 93118.3). The regulation requires that auxiliary diesel engines on OGVs be shut down for specified percentages of fleet's visits and also for the fleet's at-berth auxiliary engine power generation to be reduced by the same percentages. By 2014, vessel operators are required to shut down their auxiliary engines at berth for 50 percent of the fleet's vessel visits and also reduce their onboard auxiliary engine power generation by 50 percent. The specified percentages will increase to 70 percent in 2017 and 80 percent in 2020. Vessel operators can also choose an emissions reduction equivalency alternatives; the regulation requires a 10 percent reduction in OGV hoteling emissions starting in 2010, increasing in stringency to an 80 percent reduction by 2020 (CARB, 2007).

CARB Regulation Related to Ocean Going Ship Onboard Incineration

CARB adopted this regulation in 2005 and amended it in 2006. As of November 2007, the regulation has prohibited all OGVs greater than 300 registered gross tons from conducting on-board incineration within 3 nm of the California coast (CCR Title 17, Section 93119).

CARB Mobile Cargo-Handling Equipment at Ports and Intermodal Rail Yards

In December 2005, CARB approved the Regulation for Mobile CHE at Ports and Intermodal Rail Yards (CCR Title 13, Section 2479) designed to use BACT to reduce diesel PM and NO_X emissions from mobile CHE at ports and intermodal rail yards. Since January 1, 2007, the regulation has imposed emission performance standards on new and in-use terminal equipment that vary by equipment type. The regulation also includes recordkeeping and reporting requirements. The effects of this regulation are accounted for in CARB's CHE Inventory Model emission factors used in this study (CARB, 2011a). In October 2012, the Office of Administrative Law approved amendments to the CARB regulation to provide additional flexibility for CHE owners/operators in an effort to reduce compliance costs while continuing to reduce emissions (CARB, 2012a).

CARB Emission Standards, Test Procedures, for Large Spark Ignition Engine Forklifts and Other Industrial Equipment

Since 2007, CARB has promulgated more stringent emissions standards for hydrocarbon and oxides of nitrogen combined (HC + NO_X) emissions and test procedures. The engine emission standards and test procedures were implemented in two phases. The first phase was implemented for engines built between January 2007 and December 2009. The second more stringent phase was implemented for engines built starting in January 2010. The regulation was amended in 2010 establishing fleet average emissions requirements for existing engines (CCR Title 13, Section 2775).

CARB California Drayage Truck Regulation

CARB adopted the drayage truck regulation in December 2007 to modernize the class 8 drayage truck fleet (trucks with GVWR greater than 33,000 pounds) in use at California's ports. Emergency vehicles and yard trucks are exempted from this regulation. The regulatory objective is to be achieved in two phases:

1) By December 31, 2009, pre-1994 model year engines were to be retired or replaced with 1994 and newer model year engines. In addition, all drayage trucks with 1994 to 2003 model year engines were required to achieve an 85 percent PM emission reduction through the use of a CARB-approved Level 3 VDEC.

2) By December 31, 2013, all trucks operating at California ports must comply with the 2007 and newer on-road heavy-duty engine standards.

In December 2010, CARB amended the regulation to include Class 7 drayage trucks with GVWR between 26,000 and 33,001 pounds. The amended regulation required the acceleration of filter replacements to January 1, 2012 for Class 7 trucks in the SCAB and required that Class 7 trucks statewide operate with 2007 or newer emission standard engines by January 1, 2014. CARB furthermore expanded the definition of drayage trucks to include dray-offs, those non-compliant trucks that may not directly come to the ports to pick up/drop off cargo but that engage in moving cargo destined to or originating from port facilities and to/from near-port facilities or rail yards (CCR Title 13, Section 2027).

CARB On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation—Truck and Bus Regulation

In December 2011, CARB amended the 2008 Statewide Truck and Bus Regulation to modernize in-use heavy-duty vehicles operating throughout the state. Under this regulation, existing heavy-duty trucks are required to be replaced with trucks meeting the latest NO_X and PM BACT or retrofitted to meet these levels.

Trucks with GVWR less than 26,000 (most construction trucks) are required to replace engines with 2010 or newer engines, or equivalent, by January 2023. Trucks with GVWR greater than 26,000 (most drayage trucks) must meet PM BACT and upgrade to a 2010 or newer model year emissions equivalent engine pursuant to the compliance schedule set forth by the rule. By January 1, 2023, all model year 2007 class 8 drayage trucks are required to meet NO_X and PM BACT (i.e., EPA 2010 and newer standards) (CARB, 2011b).

CARB Regulation to Reduce Emissions from Diesel Engines on Commercial Harbor Craft

In November 2007, CARB adopted a regulation to reduce DPM and NO_X emissions from new and in-use commercial harbor craft. Under CARB's definition, commercial harbor craft include tug boats, tow boats, ferries, excursion vessels, work boats, crew boats, and fishing vessels. The regulation implemented stringent emission limits on harbor craft auxiliary and propulsion engines. In 2010, CARB amended the regulation to add specific in-use requirements for barges, dredges, and crew/supply vessels.

The regulation requires that all in-use, newly purchased, or replacement engines meet EPA's most stringent emission standards per a compliance schedule set forth by CARB. For harbor craft with home ports in the SCAQMD, the compliance schedule is accelerated by two years, as compared to statewide requirements. The compliance schedule as listed in the 2007 regulation for in-use engine replacement was supposed to begin in 2009, but was not enforced until August 2012, after EPA approved CARB's regulation (CCR Title 13 Section 2299.5; CCR Title 17 Section 93118.5).

CARB Statewide Portable Equipment Registration Program

The Portable Equipment Registration Program (PERP) establishes a uniform program to regulate portable engines and portable engine-driven equipment units (CARB, 2011c). Once registered in the PERP, engines and equipment units may operate throughout California without the need to obtain individual permits from local air districts. Equipment subject to the PERP must meet weighted fleet average PM emission requirements, per CARB's phased-in compliance schedule,

based on engine size. The PERP generally would apply to construction-related dredging and barge equipment.

2.4 Local Regulations and Agreements

SCAQMD develops Rules and Regulations to regulate sources of air pollution in the SCAB. SCAQMD's regulatory authority applies primarily to stationary sources. The emission sources associated with the proposed Project and alternatives are mobile sources and as such are, for the most part, not subject to the SCAQMD rules that apply to stationary sources, such as Regulation XIII (New Source Review), Rule 1401 (New Source Review of Toxic Air Contaminants), or Rule 431.2 (Sulfur Content of Liquid Fuels). However, several of SCAQMD's prohibition rules do apply to the proposed Project and alternatives as listed below.

SCAQMD Rule 402—Nuisance

This rule prohibits discharge of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any such persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property.

SCAQMD Rule 403—Fugitive Dust

This rule prohibits emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area that remains visible beyond the emission source property line. During proposed construction, best available control measures identified in the rule would be required to minimize fugitive dust emissions from proposed earth-moving and grading activities. These measures would include site watering as necessary to maintain sufficient soil moisture content. Additional requirements apply to construction projects on property with 50 or more acres of disturbed surface area, or for any earth-moving operation with a daily earth-moving or throughput volume of 5,000 cubic yards or more three times during the most recent 365-day period. These requirements include submitting a dust control plan, maintaining dust control records, and designating a SCAQMD-certified dust control supervisor.

2.5 LAHD Emission Reduction Programs

LAHD has developed several programs designed to reduce pollution from mobile sources associated with Port operations. Programs pertinent to the proposed Project and alternatives are listed below.

San Pedro Bay Ports Clean Air Action Plan

The Ports of Los Angeles and Long Beach, with the participation and cooperation of EPA, CARB, and SCAQMD staff, developed the San Pedro Bay Ports CAAP, a planning and policy document that sets goals and implementation strategies to reduce air emissions and health risks associated with port operations while allowing port development to continue (POLA and POLB, 2006). In addition, the CAAP sought the reduction of criteria pollutant emissions to the levels that ensure port-related sources decrease their "fair share" of regional emissions to enable the SCAB to attain state and federal ambient air quality standards. Each individual CAAP measure is a proposed strategy for achieving these emissions reductions goals. The ports approved the first CAAP in November 2006. Specific strategies to significantly reduce the health risks posed by air pollution from port-related sources include:

- Aggressive milestones with measurable goals for air quality improvements;

- Specific goals set forth as standards for individual source categories to act as a guide for decision-making;
- Technology advancement programs to reduce emissions; and
- Public participation processes with environmental organizations and the business communities.

The CAAP focuses primarily on reducing DPM, as well as NO_X and SO_X. DPM reduction reduces emissions and health risk and thereby allows for future port growth while progressively controlling the impacts associated with growth. The CAAP includes emission control measures as proposed strategies that are designed to further these goals, expressed as Source-Specific Performance Standards, which may be implemented through the environmental review process, or could be included in new leases or port-wide tariffs, MOUs, voluntary action, grants, or incentive programs.

The CAAP Update adopted in November 2010 includes updated and new emission control measures as proposed strategies that support the goals expressed as the Source-Specific Performance Standards and the Project-Specific Standards. In addition, the CAAP Update includes the recently developed San Pedro Bay Standards, which establish emission and health risk reduction goals to assist the ports in their planning for adopting and implementing strategies to significantly reduce the effects of cumulative port-related operations (POLA and POLB, 2010).

The goals set forth as the San Pedro Bay Standards, as part of the 2010 CAAP update, are the most significant addition to the CAAP and include both a Bay-wide health risk reduction standard and a Bay-wide mass emission reduction standard. Ongoing port-wide CAAP progress and effectiveness is measured against these Bay-wide Standards, which consist of the following reductions as compared to 2005 emissions levels:

- Health Risk Reduction Standard: 85 percent reduction in DPM by 2020
- Emission Reduction Standards:
  - By 2014, reduce emissions by 72 percent for DPM, 22 percent for NO_X, and 93 percent for SO_X
  - By 2023, reduce emissions by 77 percent for DPM, 59 percent for NO_X, and 92 percent for SO_X

The Project-Specific Standard remains as adopted in the original CAAP in 2006, requiring that new projects fall below the 10 in 1,000,000 excess residential cancer risk threshold, as determined by health risk assessments conducted subject to CEQA statutes, regulations, and guidelines, and implemented through required CEQA mitigations and/or lease negotiations. Although each port has adopted the Project-Specific Standard as a policy, the LAHD Board of Harbor Commissioners retains the discretion to consider and approve projects that exceed this threshold if the Board deems it necessary by adoption of a statement of overriding considerations at the time of project approval.

The goals set forth as the Source-Specific Performance Standards of the CAAP address a variety of port-related emission sources—ships, trucks, trains, CHE, and harbor craft—and outline specific strategies to reduce emissions from each source category. The Source-Specific Performance Standards have been updated as detailed in Section 2 of the CAAP Update, and the

applicable emission control measures (as detailed in Section 4 of the CAAP Update) for the proposed Project and alternatives are discussed below.

Although LAHD has adopted a general policy that its leases will be compliant with the CAAP, the Board of Harbor Commissioners has discretion regarding the form of all lease provisions and CAAP measures at the time of lease approval. In addition, tenants must comply with all applicable federal, state, and local air quality regulations.

As the CAAP is a planning document that sets goals and implementation strategies to guide future actions, it does not constrain the discretion of the Board of Harbor Commissioners as to any specific future action. Each individual CAAP measure is a proposed strategy for achieving necessary emission reductions. The Board of Harbor Commissioners uses its discretion in its approvals of projects, leases, tariffs, contracts, or other implementing activities in order to appropriately apply the CAAP to the particular situation, and may make adjustments if any proposed measure proves infeasible or if better alternatives for a measure emerge.

CAAP Measure—SPBP-OGV1, Vessel Speed Reduction Program

Under this voluntary program, LAHD has requested that ships coming into the Port reduce their speed to 12 knots or less within 20 nm of the Point Fermin Lighthouse. Reduction in speed demands less power from the main engine, which in turn reduces fuel usage and emissions. This reduction of 3 to 10 knots per ship (depending on the ship's cruising speed) can substantially reduce emissions from the main propulsion engines of the ships. The program started in May 2001. The CAAP adopted the VSRP as control measure OGV1 and expanded the program out to 40 nm from the Point Fermin Lighthouse in 2008.

CAAP Measure—SPBP-OGV2, Reduction of At-Berth OGV Emissions

This measure requires the use of shore power to reduce hoteling emissions at all container and cruise terminals by 2014. This measure also requires demonstration and application of alternative emissions reduction technologies for ships that are not viable candidates for shore power, to be facilitated through the Technology Advancement Program (TAP).

CAAP Measures—SPBP-OGV3 and 4, OGV Low Sulfur Fuel for Auxiliary Engines, Auxiliary Boilers, and Main Engines

This measure requires the use of 0.2 percent or lower sulfur distillate fuels in the auxiliary engines, auxiliary boilers, and main engines of OGVs within 40 nm of Point Fermin and while at berth. For vessel calls that are subject to these measures, due to new lease agreements or renewal, the fuel switch emissions benefits will initially surpass the benefits of CARB's regulation. However, by January 1, 2014, CARB's regulation will surpass these CAAP measures by requiring the use of MGO and MDO with a sulfur fuel content of 0.1 percent within 24 nm of the California coastline. The analysis assumes compliance with CARB's regulation starting in 2014.

CAAP Measure—SPBP-OGV5 and 6, Cleaner OGV Engines and OGV Engine Emissions Reduction Technology Improvements and Environmental Ship Index Program

Measure OGV5 seeks to maximize the early introduction and preferential deployment of vessels to the San Pedro Bay Ports with cleaner/newer engines meeting the new IMO NO_X standard for ECAs. Measure OGV6 focuses on reducing DPM and NO_X from the legacy fleet through identification and deployment of effective emission reduction technologies.

In order to advance the goals of OGV5 and 6, LAHD approved the voluntary Environmental Ship Index (ESI) Program in May 2012. The ESI Program is an international clean ship indexing program developed through the International Association of Ports and Harbors' World Ports Climate Initiative. Operators registered under this program earn an ESI score for their vessels by using cleaner technology and practices that reduce emissions beyond the regulatory requirements set by IMO. The ESI Program rewards vessel operators for reducing NO_X, SO_X, and GHG emissions in advance of regulatory requirements. The ESI Program also rewards vessel operators for bringing their newest and cleanest vessels to the Port and demonstrating technologies onboard their vessels. This program became effective in July 2012.

CAAP Measure—SPBP-HC1, Performance Standards for Harbor Craft

The measure calls for repowering all harbor craft home-based in the San Pedro Bay to Tier 3 within five years after Tier 3 engines become available. The measure also requires the use of shore power. In addition, LAHD plans to accelerate harbor craft emission reductions through emerging technologies, such as hybrid tugs, more efficient engine configurations, and alternative fuels, through incentives or voluntary measures.

CAAP Measure—SPBP-CHE1, Performance Standards for CHE

This measure calls for 2007 through 2014 phased-in CHE emission reductions beyond CARB's CHE regulation, at the time of terminal lease renewal. As of 2007, CHE purchases were required to meet the cleanest available NO_X available at the time of purchase or install cleanest available VDEC. In addition, by the end of 2010, yard tractors were required to meet, at a minimum, the EPA 2007 on-road or Tier 4 engine standards. By the end of 2012, pre-2007 on-road or pre-Tier 4 off-road toppicks, forklifts, reach stackers, rubber tired gantry cranes (RTGs), and straddle carriers were required to meet EPA 2007 on-road engine standards or Tier 4 off-road engine standards. Finally, by the end of 2014, all CHE with engines greater than 750 hp must meet, at a minimum, the EPA Tier 4 off-road engine standards. Starting in 2007 and until equipment is replaced with Tier 4, all CHE with engines greater than 750 hp were required to be equipped with the cleanest CARB VDEC.

CAAP Measure—SPBP-RL1, Pacific Harbor Line Rail Switch Engine Modernization

This measure implements the switch locomotive engine modernization and emission reduction requirements included in the operating agreements between the ports and the Pacific Harbor Line (PHL). In 2010, PHL entered into a third amendment to their operating agreements, which facilitated the upgrade of their Tier 2 switcher locomotive fleet to meet Tier 3-plus standards. By the end of 2011, PHL upgraded all of its Tier 2 switcher locomotives to meet Tier 3-plus standards.

CAAP Measure—SPBP-RL2, Class 1 Line-Haul and Switcher Fleet Modernization

This measure is designed to identify emission reductions associated with the CARB Class 1 railroads MOU and the 2008 EPA locomotive engine standards. The goal of this measure is for all Class 1 locomotives entering the ports to meet emissions equivalent to Tier 3 locomotive standards by 2023.

CAAP Measure—SPBP-HDV1, Performance Standards for On-Road Heavy-Duty Vehicles; Clean Trucks Program

The Port Clean Trucks Program (CTP) is a central element of the CAAP. The CTP established a progressive ban on polluting trucks. As of October 1, 2008, all pre-1989 trucks were banned from the Port. As of January 1, 2010, all 1989 to 1993 trucks were banned from the Port in addition to 1994 to 2003 trucks that had not been retrofitted. As of January 1, 2012, all trucks that did not meet the 2007 Federal Clean Truck Emissions Standards were banned from the Port. Following full implementation in 2014, Port truck emissions were reduced by more than 90 percent for DPM, PM and SO_X, and by 71 percent for NO_X (LAHD, 2014a). The analysis assumes full compliance with the CTP.

2017 CAAP Update

In November 2016, the Ports of Los Angeles and Long Beach issued a Draft Discussion Document (POLA and POLB, 2016) which lays out the core strategies for the next CAAP update, anticipated in 2017. The 2017 CAAP update will improve upon the initial plan adopted in 2006 and updated in 2010 to reduce emissions from port-related sources. The CAAP update will incorporate a new emission reduction target: to reduce GHGs from port-related sources to 80 percent below 1990 levels by 2050.

LAHD Sustainable Construction Guidelines

In February 2008, the LAHD Board of Harbor Commissioners adopted the Los Angeles Harbor Department Sustainable Construction Guidelines for Reducing Air Emissions (LAHD Construction Guidelines). These guidelines will be used to establish air emission criteria for inclusion in construction bid specifications. The LAHD Construction Guidelines reinforce and require sustainability measures during performance of the contracts, balancing the need to protect the environment, be socially responsible, and provide for the economic development of the Port. The intent of the LAHD Construction Guidelines is to facilitate the integration of sustainable concepts and practices into all capital projects at the Port and to phase in the implementation of these procedures in a practical yet aggressive manner.

3.0 Methodology

3.1 Methodology for Determining Construction Emissions

Construction activities for the proposed Project and alternatives would involve the use of off-road land-side construction equipment, in-water construction equipment such as dredgers and pile drivers, on-road trucks, tugboats, and worker vehicles. Construction emissions inventories were developed for CO, VOC, NOx, SO_2, PM_{10} and $PM_{2.5}$. In addition, off-road construction equipment traveling over unpaved surfaces and performing earthmoving activities, such as haul truck loading or grading, would generate fugitive dust emissions. Haul truck and construction worker commute trips would generate vehicle exhaust and paved road dust emissions. Paving would generate fugitive VOC emissions. Approaches to calculating each of these sources are discussed below.

The equipment utilization and scheduling data needed to calculate emissions for the proposed construction activities were provided by the LAHD Engineering staff and are included in this appendix. Activities associated with each construction phase are summarized as follows:

- Phase 1 would consist of deepening Berths 226–229;

- Phase 2 would consist of deepening Berths 230-232;
- Phase 3 would consist of installing electrical substation and feeder cable conduit;
- Phase 4 would consist of installing AMP boxes;
- Phase 5 would consist of developing Parcel H;
- Phase 6 would consist of relocating the main gate; and
- Phase 7 would consist of expanding the TICTF.

The proposed Project would consist of Phases 1 through 6. Phases 5 and 6 would occur under the No Federal Action alternative. Phases 2 through 6 would occur under Alternative 3. Phases 1 through 4 would occur under Alternative 4. All above phases would occur under Alternative 5. New cranes would be delivered and set up at the end of the construction period for the proposed Project and Alternatives 3 through 5.

Phases 1 and 2 would include dredging activities. All dredged material would be disposed of at an ocean disposal site (i.e., LA-2), an approved upland disposal facility, or a combination of the above. Emissions associated with both ocean disposal and land disposal were calculated and the disposal method that resulted in the higher emissions for each pollutant was used for impact determination. As detailed in Section 3.11.2.3 in Section 3.11, Water Quality, Sediments and Oceanography, a sediment characterization study was performed at Berths 226-232 to determine the suitability of the dredged sediments for the range of potential dredged material management options. Results from this evaluation are summarized below; the full sediment characterization study report is included as an appendix to this EIS/EIR (Appendix F1). On August 26, 2015, members of the Los Angeles Regional Contaminated Sediments Task Force agreed with the results and conclusions of the sediment suitability study, and determined that all sediments dredged during the proposed Project would be suitable for ocean disposal at LA-2. LAHD would pursue a permit from the Los Angeles Regional Water Quality Control Board (RWQCB) to authorize the dredging pursuant to Section 401 of the Clean Water Act and the Porter Cologne Water Quality Control Act.

To estimate peak daily construction emissions, emissions were first calculated for the individual construction phases (e.g., dredging, crane delivery, or backland construction). Peak daily emissions were then determined by summing emissions from overlapping construction activities as indicated in the proposed construction schedule presented in this appendix. Peak daily construction emissions were compared against SCAQMD emissions thresholds. The SCAQMD emission thresholds are discussed in Section 3.2.4.4 of this Draft EIS/EIR. For dispersion modeling, annual emission rates were divided by 240 days per year to obtain an average annual daily emission rate. Average annual and peak daily emission rates were used to model for long and short-term averaging times, respectively.

Regulations and agreements that were assumed as part of the proposed Project and alternatives in the construction calculations are summarized in Table 3.1-1 below. Construction emission calculations are presented in this appendix.

Table 3.1-1: Regulations and Agreements Assumed in the Unmitigated Construction Emissions

Off-road Construction Equipment	On-Road Trucks	Tugboats/Harbor Craft	Delivery Ships	Fugitive Dust
EPA Emission Standards for Non-road Diesel Engines: Tier 1, 2, 3, and 4 standards gradually phased in over all years due to normal construction equipment fleet turnover. **CARB In-Use Off-road Diesel Vehicle Regulation:** Off-road mobile equipment powered by diesel engines 25 hp or larger are required to meet the fleet average or BACT requirements for NO_X and PM emissions. **California Diesel Fuel Regulation**: 15-ppm sulfur. **CARB Portable Diesel-Fueled Engines Air Toxic Control Measure (ATCM)**: Portable engines having a maximum rated horsepower of 50 bhp and greater and fueled with diesel must meet weighted fleet average PM emission standards.	**EPA Emission Standards for On-Road Trucks**: Increasingly stringent engine standards phased in due to truck turnover. **CARB Heavy Duty Diesel Vehicle Idling Emission Reduction**: Diesel trucks are subject to idling limits when not being used to power concrete mixing, water pumps, etc. **CARB Statewide Truck and Bus Regulation**: Trucks less than 26,000 GVWR are required to replace engines with 2010+ engines by January 2023. Trucks with GVWR greater than 26,000 must meet PM BACT and upgrade to a 2010+ model year emissions equivalent engine pursuant to the rule compliance schedule. **California Diesel Fuel Regulation**: 15-ppm sulfur.	**California Diesel Fuel Regulation:** 15-ppm sulfur. **CARB Regulation to Reduce CARB Emissions from Diesel Engines on Commercial Harbor Craft**: Harbor craft are subject to engine replacement/retrofit schedule set forth by CARB.	**IMO Marpol VI**: 0.1 percent sulfur fuel.	**SCAQMD Rule 403 Compliance**: 61 percent reduction in fugitive dust via watering three times per day.

Note: This table is not a comprehensive list of all applicable regulations; rather, the table lists key regulations and agreements that substantially affect the emission calculations for the proposed Project. A description of each regulation or agreement is provided herein.

Off-road Construction Equipment

Emissions of VOC, NO_X, and PM_{10} from diesel-powered off-road construction equipment were calculated using emission factors representative of the SCAB in 2017 derived from the CARB 2011 Inventory Model for In-Use Off-Road Equipment (CARB, 2011d). Emission factors were calculated for each type of equipment based on the horsepower rating of the equipment and corresponding equipment activity levels. $PM_{2.5}$ was estimated from PM_{10} emission rates based on CARB's size fractions for off-road diesel vehicle exhaust (CARB, 2014a). CO and SO_2 emission factors were derived from CARB's OFFROAD2007 (CARB, 2006b), based on equipment operating in the SCAB in 2017 because CARB's 2011 inventory does not provide CO and SO_2 estimates. Operating schedule and hours were obtained from LAHD (Bahng, 2015a; Correa, 2016).

On-Road Trucks

Emissions from on-road, heavy-duty diesel trucks and pickup trucks during construction were calculated using emission factors generated by CARB's EMFAC2014 on-road mobile source emission factor model in SCAB in 2017 (CARB, 2014b). Assumptions regarding on-road trucks during construction include:

- The average one-way trip travel distances for trucks were assumed to be 20 to 40 miles for haul trucks and electricians' equipment trucks, 50 miles for slurry trucks, 200 miles for trucks hauling dredged materials, 65 miles for pile/concrete/rail delivery trucks, and 0.5 mile on-site (Correa, 2016).
- On-site truck idling times were assumed to be 5 minutes per one-way trip.

Crane Delivery Ships

Two crane delivery ships would be used to deliver new marine terminal cranes at the end of the construction period. Emissions from the main engines, auxiliary engines, and boilers were calculated using engine size, load, and emission factors provided by LAHD, based on similar ships in the LAHD database of ships having visited the Port (Bahng, 2015b). At low loads in the precautionary zone and within the harbor, the emission factors for main engines were adjusted higher, on a per kilowatt hour (kWh) basis, using low-load adjustment factors (LAHD, 2014b and 2015b).

The following assumptions were made regarding crane delivery ship used during construction:

- One crane delivery ship is capable of transporting up to four cranes. As a result, two crane delivery ship would be required for the construction phase of the proposed Project.
    - The crane delivery ship would arrive and remain at berth (hoteling) for approximately seven working days, 24 hours per day, while up to four cranes are side-shifted onto the wharf, and then depart. It was assumed that the two delivery ships would not arrive at the same time and their operations would not overlap.
    - During hoteling, the crane delivery ship was assumed to turn off the main engines but leave the auxiliary engine and boiler running for the duration of the ship call.

- The maximum sulfur content of fuel burned in propulsion and auxiliary engines was assumed to be 0.1 percent.
- Crane delivery and associated crane delivery ship emissions were assumed to occur after all other construction elements.

Tugboats

Tugboats would be used during construction to assist dredging barges and scows. Tugboat main and auxiliary engine sizes and load factors were obtained from the 2013 and 2014 Port Emissions Inventory (LAHD, 2014b and 2015b). Emission factors were derived based on the EPA standards for marine compression-ignition engines.

The fuel sulfur content for Port tug boats has been 15 ppm starting September 1, 2006. The fuel sulfur content limits are required for California harbor craft in accordance with the California Diesel Fuel Regulation (CARB, 2005b).

Fugitive Dust

Fugitive dust emissions (PM_{10} and $PM_{2.5}$) from grading, material loading/handling, and building demolition activities would occur during upland improvements. Emission factors for these fugitive dust sources were derived from EPA's compilation of emission factors, AP-42 Sections 11.9 and 13.2.4 (EPA, 1998 and 2006) and CalEEMod (CAPCOA, 2013). Construction area and hauled material quantity information necessary to calculate fugitive dust emissions were provided by LAHD's Engineering Division (Correa, 2015). Fugitive dust emissions from grading were reduced by 61 percent from uncontrolled levels to reflect compliance with SCAQMD Rule 403 for unmitigated conditions. It is not anticipated that a dust control plan would be required for this proposed Project.

In addition, fugitive dust in the form of PM_{10} and $PM_{2.5}$ would result from vehicles traveling on paved roads. These emissions were calculated using Section 13.2.1 of EPA's AP-42 (EPA, 2011b). Because the existing Project site and surrounding areas are paved, no transit on unpaved roads is anticipated.

Fugitive Emissions from Asphalt Paving

VOC emissions from paving activities would occur during upland improvements. The VOC emission factor for asphalt paving was obtained from CalEEMod (CAPCOA, 2013). Construction area necessary to quantify VOC emissions from asphalt paving was provided by LAHD's Engineering Division.

Worker Commute Trips

Emissions from worker trips during construction of the proposed Project and alternatives were calculated using EMFAC2014 emission factors, which are based on SCAQMD default assumptions for vehicle fleet mix and average travel speeds. The peak number of workers was determined by multiplying the active pieces of equipment for each construction element by a factor of 1.25, per CalEEMod (CAPCOA, 2013). It was assumed that each worker would travel a distance of 12.7 miles each way (CAPCOA, 2013), for a roundtrip total of 25.4 miles per worker.

3.2 Methodology for Determining Operational Emissions

Operational emission sources include container ships, tugboats, on-road trucks, trains, and CHE. Because these sources would use diesel fuel, they would generate emissions of diesel exhaust in the form of CO, VOC, NO_X, SO_X, PM_{10}, and $PM_{2.5}$. In addition, when ships are using AMP, indirect emissions would be created by regional power plants burning fossil fuels to generate the electricity consumed by the hoteling ships. Worker commute trips would generate primarily gasoline vehicle exhaust and paved road dust emissions.

Information regarding the activity and characteristics of proposed operational emission sources was obtained primarily from LAHD staff, Everport staff, the proposed Project traffic study conducted as part of this Draft EIS/EIR (Section 3.6, Ground Transportation), and the 2013 and 2014 Port Emissions Inventory Reports (LAHD, 2014b and 2015a). Activity and utilization assumptions used to estimate peak daily operational emissions for comparison to SCAQMD emission thresholds represent upper-bound estimates of activity levels at the terminal, would occur infrequently, and, therefore, represent a conservative set of assumptions.

Table 3.2-1 summarizes the regulations assumed in the unmitigated operational emissions calculations. Current in-place regulations are treated as proposed Project elements rather than mitigation because they represent enforceable rules with or without proposed Project approval. Only current regulations and agreements were assumed as part of the unmitigated proposed Project emissions for the various analysis years. CAAP measures planned for future implementation at a project level were treated as mitigation.

Table 3.2-1: Regulations and Agreements Assumed as Part of the Unmitigated Operational Emissions

Container Ships	Tugboats	Terminal Equipment	Trucks	Trains
MARPOL Annex VI: 0.1 percent sulfur limit for fuels, beginning in 2015 (200 nm of CA coast). NO_X engine emission limits for new engines.[a] **EPA Engine Standards for Marine Diesel Engines:** NO_X, PM, and SOx engine emission standards for new engines. **CARB Airborne Toxic Control Measure for Fuel Sulfur and Other Operational Requirements for Ocean-Going Vessels Within California Waters and 24 Nautical Miles of the California Coast:** Limits sulfur content for marine gas oil or marine diesel oil to 0.1 percent sulfur by January 2014. **CARB Regulation to Reduce Emissions from OGV Auxiliary Engines at Berth:** Operational limits for OGV auxiliary engines while hoteling at berth: 50 percent in 2014, 70 percent in 2017, and 80 percent in 2020. **CAAP Vessel Speed Reduction Program:** 95 percent compliance to 20 nm.	**EPA Engine Standards for Marine Diesel Engines:** NO_X, HC, and CO engine emission standards for new engines. **CARB Regulation to Reduce Emissions from Diesel Engines on Commercial Harbor Craft:** Requires that harbor craft engines meet EPA's most stringent emission standards per an accelerated, rule-specified compliance schedule. **California Diesel Fuel Regulation:** 15 ppm sulfur.	**EPA Emission Standards for Non-road Diesel Engines:** Engine standards for newly built engines. **CARB Mobile CHE at Ports and Intermodal Rail Yards:** Emission performance standards on new and in-use terminal equipment**.** **California Diesel Fuel Regulation:** 15-ppm sulfur.	**EPA Emission Standards for On-road Trucks:** Tiered standards gradually phased in over all years due to normal truck fleet turnover. **California Diesel Fuel Regulation:** 15-ppm sulfur. **Heavy Duty Diesel Vehicle Idling Emission Reduction Regulation:** Idling limits for on-terminal trucks. **CARB On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation:** Trucks are required to replace engines with 2010+ engines by January 2023. Trucks with GVWR greater than 26,000 must also meet PM BACT. **CAAP Clean Truck Program:** In January 2012, banned all trucks that did not meet 2007+ EPA standards for heavy duty trucks.	**EPA Emission Standards for Locomotives:** Tier 0 through Tier 4 standards gradually phased in over all years due to normal locomotive fleet turnover. **CARB 1998 South Coast Locomotive Emissions Agreement:** Cleaner NO_X Class I locomotives. **CAAP PHL Rail Switch Engine Modernization:** All PHL locomotives meet Tier 3 or 4 standards. **CARB Non-road Diesel Fuel Rule:** 15-ppm sulfur starting January 1, 2012. Applies to all line-haul locomotives. **California Diesel Fuel Regulation:** 15-ppm sulfur. Applies to all switch locomotives.

Note:
This table is not a comprehensive list of all applicable regulations; rather, the table lists key regulations and agreements that substantially affect the emission calculations for the proposed Project. A description of each regulation or agreement is provided in herein.

[a]100 percent compliance with IMO Annex VI sulfur limits in SO_X Emission Control Areas is assumed and analyzed. Compliance with IMO Annex VI engine standards is assumed but not analyzed because IMO engine standards apply to newly built engines and the mix of vessels with new or older engines visiting the Everport Container Terminal cannot be accurately predicted.
[b] Compliance with EPA engine standards is assumed but not analyzed because engine standards apply to newly built engines and the mix of vessels with new or old engines visiting the Everport Container Terminal cannot be accurately predicted.

The methodology for calculating emissions for the various emission sources during proposed Project and alternatives operations is discussed below. Because the proposed Project is within the SCAB, the analysis scope is also limited to the SCAB and to the thresholds established by SCAQMD for that jurisdiction. The SCAQMD thresholds are discussed in Section 3.2.4.4 of this Draft EIS/EIR. The operational emission calculations are presented in tables following this appendix.

Container Ships

Emissions from container ship main engines, auxiliary engines, and boilers were calculated using emission factors reported in the 2013 (LAHD, 2014b) and 2014 Port Emissions Inventory Reports (LAHD, 2015a), and activity provided by LAHD and AECOM. Sulfur fuel content and emission factors were adjusted to conform to IMO and CARB requirements. The assumptions below were applied to estimate unmitigated emissions.

Emission Factor Assumptions:

- Emission factors for propulsion engines, auxiliary engines, and auxiliary boilers in the 2013 baseline operations were obtained from the 2013 Port Emissions Inventory Report (LAHD, 2014b). For the future analysis years, these emission factors were obtained from the 2014 Port Emissions Inventory Report (LAHD, 2015a).
- Emission factors for propulsion and auxiliary engines are dependent upon engine tier, which in turn is dependent upon engine age. The LAHD provided the age and engine tier of vessels that called at the Everport Container Terminal in 2013 (LAHD, 2014c). These engine tiers were used to determine the appropriate emission factors for propulsion and auxiliary engines for the different ship TEU categories that called the Port in the 2013 baseline operations. The mix of ship TEU categories calling at the Everport Container Terminal in future years was obtained from AECOM (McBride, 2015a, 2015b and 2015c).
- Emission factors for future analysis years for ship TEU categories that called at the Everport Container Terminal during the baseline year were determined by calculating the weighted averages emission factors for propulsion and auxiliary engines for these categories based on their annual calls in the baseline year and tier category. Engine Tiers for newer ships expected to call at the Everport Container Terminal in future years were determined based on the following:
    - 9,000-TEU ships are assumed to have Tier 1 engines based on the "Year Built" of the ship (2008) listed in Table 3.22 of the 2013 Port Emissions Inventory Report (LAHD, 2014b).
    - 10,000-TEU and 14,000 ships are assumed to have Tier 1 engines based on the "Year Built" of the ship (2009 and 2010 respectively) listed in Table B.3 of 2013 POLB Emissions Inventory (LAHD, 2014d).
    - 11,000-TEU ships are assumed to have Tier 1 engines based on the “laid down date” of the Emma Maersk (2006) which is the oldest 11,000-TEU ship (Vitron Ltd,. 2013).
    - 16,000-TEU ships are assumed to have Tier 2 engines based on personal communications with the LAHD (Bahng, 2015c), since the oldest Container16000 container ship was built in 2012 (gCaptain, 2012.)
- Emission factors were adjusted for the appropriate sulfur fuel content.
- Tier 3 propulsion and auxiliary engines were incorporated into the annual emissions analysis for future years following the methodology listed in the May 2015 “POLA CEQA Terminal Level Container Ship Forecast for Tier 3 Engines” draft document developed by Starcrest Consulting Group, LLC (Starcrest, 2015a). However, to be conservative, no Tier 3 was assumed for the peak day scenarios.

Engine and Boiler Load Assumptions:

- Main engine loads for the 2013 baseline operations were obtained from the LAHD, based on container ships that called at the Everport Container Terminal in 2013 (LAHD, 2014c). Auxiliary engine and boiler loads for the 2013 baseline were obtained from the 2014 YTI EIS/EIR report for 4,000-TEU through 7,000-TEU ships (LAHD, 2014e), and from the 2013 Port Inventory Report for 8,000-TEU ships (LAHD, 2014b). Note that all anchorage auxiliary engine and boiler loads were obtained from 2013 Port Inventory Report.
- For the future analysis years, main engine loads were obtained from AECOM (McBride, 2015a, 2015b and 2015c) and auxiliary and boiler loads from the 2014 Port Emissions Inventory Report (LAHD, 2015a), except for the ship categories not listed in this Inventory. Specifically, auxiliary engine and boiler loads for 11,000-TEU ships were obtained from the 2012 Port Inventory Report (LAHD, 2013) and for 14,000 and 16,000-TEU ships from the 2013 Port of Long Beach Inventory Report (LAHD, 2014d). Note that loads from 16,000-TEU ships were assumed to be the same as the ones in the 2013 Port of Long Beach Inventory for 14,000-TEU ships as loads for 16,000-TEU ships were not available in the inventory.
- Ship auxiliary boilers were assumed to operate at main engine loads less than 20 percent (LAHD, 2014b).
- During transit, main engine load factors were determined using the propeller law, which states that the engine load factor is proportional to the speed of the ship cubed. At low loads, the emission factors for main engines were adjusted higher, on a per g/kWh basis, using low-load adjustment factors (LAHD, 2015a).

Fuel Sulfur Content Assumptions:

- 0.5 percent fuel sulfur content was assumed for peak day and annual ship calls in the 2013 CEQA baseline year, per CARB's ATCM for Fuel Sulfur and Other Operational Requirements for Ocean-Going Vessels within California Waters and 24 Nautical Miles of the California Baseline and MARPOL Annex VI (CARB, 2011e).
- 0.1 percent fuel sulfur content was assumed for peak day and annual ship calls in all future analysis years, per CARB's ATCM for Fuel Sulfur and Other Operational Requirements for Ocean-Going Vessels within California Waters and 24 Nautical Miles of the California Baseline and MARPOL Annex VI.

VSRP Assumptions:

- Annual VSRP compliance between the precautionary zone and 20 nm in all future analysis years was assumed to be 95 percent without mitigation, which is the minimum compliance rate for VSRP recognition by LAHD. This was also the compliance rate provided by AECOM for ships calling at the Everport Container Terminal in the future analysis years (McBride, 2015a, 2015b and 2015c).
- Annual VSRP compliance between 20 nm and 40 nm in all future analysis years was assumed to be 82 percent without mitigation. This compliance rate was provided by AECOM for ships calling at the Everport Container Terminal in the future analysis years (McBride, 2015a, 2015b and 2015c).
- For the future analysis, peak day VSRP compliance was derived by conservatively assuming that the smallest of the two or three ship TEU category from each year of the future analysis would not be in compliance with the VSRP. In years 2033 and 2038 of the proposed Project and Alternative 3 it was assumed that the two smallest TEU container ship categories would

not be in compliance with the VSRP since these scenarios had four container TEU ship categories in transit during the peak day.

- Average speeds for each ship TEU category during the 2013 baseline year was derived from actual speed data provided by the LAHD for ship TEU categories that called at the Everport Container Terminal in 2013 (LAHD, 2015a).

Hoteling Assumptions:

- During hoteling (without AMP), ships were assumed to turn off main engines but leave the auxiliary engines and boilers running.
- Average hoteling times used in annual calculations during the 2013 baseline year were based on data provided by the LAHD for ships that visited the Everport Container Terminal in 2013 (LAHD, 2014c). For future analysis years, average hoteling times were based on data provided by AECOM (McBride, 2015a, 2015b and 2015c).
- Peak day hoteling times were provided by AECOM for each future analysis year and ship category (McBride, 2015a, 2015b and 2015c). For the baseline year, peak day hoteling times were derived from data provided by the LAHD for ships that visited at the Everport Container Terminal in 2013 (LAHD, 2014c).

AMP Assumptions:

- With AMP, the auxiliary engines would be turned off, but boilers would continue to operate.
- To be conservative, all annual ship calls and ship calls during the peak day were assumed to have used AMP at the Everport Container Terminal during the baseline year.
- In future analysis years, annual AMP utilization data was provided by AECOM (McBride, 2015a, 2015b and 2015c) which is closely aligned with CARB's Regulation to Reduce Emissions from OGV Auxiliary Diesel Engines at Berth (CARB, 2007).
- For the future analysis, peak day AMP utilization was derived by conservatively assuming that the smallest of the two or three ships would not use AMP. In years 2033 and 2038 of the proposed Project and Alternative 3, it was assumed that the smallest two ships would not use AMP since these scenarios had four ships at berth during the peak day.
- It was assumed that a vessel would require approximately 3 hours to engage and disengage from AMP (CARB, 2007).

Additional Assumptions:

- Ship transit emissions were calculated from berth to the edge of the SCAB over-water boundary (roughly a 50-mile one-way trip).
- Some arriving container ships are unable to proceed directly to the berth, but instead must wait at a designated anchorage point either inside or outside the breakwater until given clearance to proceed to the berth. Anchorage times were provided by the LAHD for the 2013 baseline year, based on 2013 data for Everport ship visits (LAHD, 2014c). Similar to hoteling, the main engine is assumed to be turned off during anchorage, while the auxiliary engines and boilers are assumed to remain running.
- Assumptions on annual and peak day anchoring time in the harbor prior to calling at the terminal in future analysis years was provided by AECOM (McBride, 2015a, 2015b and 2015c).

Activity Assumptions:

Table 3.2-2 shows TEU throughput, ship calls by ship size category, and peak day ship activity for the 2013 baseline and future analysis years. The table also shows which berths would be operational and which berths would be equipped with AMP in the different analysis years.

Table 3.2-2: Annual TEU Throughput, Annual Ship Calls by Ship Size, and Peak Day Activity

	CEQA Baseline	Operation during Construction Years		Operation during Future Analysis Years			
	2013	2018[a]	2019[a]		2026	2033	2038
Proposed Project							
Annual TEU Throughput	1,240,773	1,211,500	1,297,656		1,843,297	2,379,525	2,379,525
Annual Ship Calls by Ship TEU Capacity							
4,000–4,999	68	-	-		-	-	-
5,000–5,999	2	52	52		52	52	52
6,000–6,999	15	52	52		-	-	-
7,000–7,999	30	-	-		-	-	-
8,000–8,999	51	-	-		-	52	52
10,000–10,999	-	-	-		52	52	52
11,000–11,999	-	52	52		-	-	-
16,000–16,999	-	-	-		52	52	52
Total Annual Ship Calls	166	156	156		156	208	208
Peak Day Ship Calls—Ships at Berth	4	3	3		3	4	4
Peak Day Number of Transits	4	3	3		3	4	4
Operating Berths	226-229 230-232	226-229 230-232	226-229 230-232		226-229 230-232	226-229 230-232	226-229 230-232
AMP Berths	227, 230	227, 230	226-229 230-232		226-229 230-232	226-229 230-232	226-229 230-232
Alternative 1— No Federal Action/NEPA Baseline, Alternative 2—CEQA No Project							

Annual TEU Throughput		1,263,742	1,278,107		1,429,798	1,818,000	1,818,000
Annual Ship Calls by Ship TEU Capacity							
6,000–6,999	Same as Proposed Project	52	52		-	-	-
7,000–7,999		52	52		52	104	104
8,000–8,999		52	52		104	104	104
Total Annual Ship Calls		156	156		156	208	208
Peak Day Ship Calls—Ships at Berth		3	3		3	4	4
Peak Day Number of Transits		3	3		3	4	4
Operating Berths		226-229 230-232	226-229 230-232		226-229 230-232	226-229 230-232	226-229 230-232
AMP Berths		227, 230	226-229 230-232		226-229 230-232	226-229 230-232	226-229 230-232
Alternative 3—Reduced Wharf Improvements							
Annual TEU Throughput		1,211,500	1,264,037		1,749,023	2,250,000	2,250,000
Annual Ship Calls by Ship TEU Capacity							
5,000–5,999	Same as Proposed Project	52	52		52	52	52
6,000–6,999		-	52		-	-	-
8,000–8,999		-	-		52	52	52
9,000–9,999		-	-		-	52	52
10,000–10,999		-	52		-	-	-
16,000–16,999		-	-		52	52	52
Total Annual Ship Calls		156	156		156	208	208
Peak Day Ship Calls—Ships at Berth		3	3		3	4	4
Peak Day Number of Transits		3	3		3	4	4
Operating Berths		226-229 230-232	226-229 230-232		226-229 230-232	226-229 230-232	226-229 230-232
AMP Berths		227, 230	226-229 230-232		226-229 230-232	226-229 230-232	226-229 230-232
Alternative 4—No Backland Improvements							
Annual TEU Throughput		1,211,500	1,227,556		1,649,522	2,115,133	2,115,133
Annual Ship Calls by Ship TEU Capacity							
5,000–5,999	Same as Proposed Project	-	52		52	52	52
6,000–6,999		-	52		-	52	52
8,000–8,999		-	-		52	52	52
9,000–9,999		-	52		-	-	-
14,000–14,999		-	-		52	-	-
16,000–16,999		-	-		-	52	52

Total Annual Ship Calls		156	156		156	208	208
Peak Day Ship Calls—Ships at Berth		3	3		3	3	3
Peak Day Number of Transits		3	3		3	3	3
Operating Berths		226-229 230-232	226-229 230-232		226-229 230-232	226-229 230-232	226-229 230-232
AMP Berths		227, 230	226-229 230-232		226-229 230-232	226-229 230-232	226-229 230-232
Alternative 5—Expanded On-Dock Railyard with Wharf and Backland Improvements							
Annual TEU Throughput		1,211,500	1,297,656		1,843,297	2,379,525	2,379,525
Annual Ship Calls by Ship TEU Capacity							
5,000–5,999	Same as Proposed Project	52	52		52	52	52
6,000–6,999		52	52		-	-	-
8,000–8,999		-	-		-	52	52
10,000–10,999		-	-		52	52	52
11,000–11,999		52	52		-	-	-
16,000–16,999		-	-		52	52	52
Total Annual Ship Calls		156	156		156	208	208
Peak Day Ship Calls—Ships at Berth		3	3		3	4	4
Peak Day Number of Transits		3	3		3	4	4
Operating Berths		226-229 230-232	226-229 230-232		226-229 230-232	226-229 230-232	226-229 230-232
AMP Berths		227, 230	226-229 230-232		226-229 230-232	226-229 230-232	226-229 230-232

Notes:
[a] Operational activity during the construction years 2018 and 2019 is presented because operation would overlap construction during these years.

Tugboats

During proposed Project operations, tugboats would be used to assist container ships while maneuvering and docking inside Port breakwater. The assumptions below were applied to estimate peak day and annual unmitigated emissions.

- Two tugboats were assumed for each arrival/departure assist of a container ship.
- Tugboat transit time was assumed to equal the average of container ship transit times in the harbor, multiplied by 1.3 to account for tug movement and assist time (LAHD, 2011).
- Tugboat main and auxiliary engine sizes and load factors were obtained from the 2014 Port Emissions Inventory Report (LAHD, 2015a).
    - Tugboat emission factors were calculated using zero hour emission factors from the CARB *Emissions Estimation Methodology for Commercial Harbor Craft Operating in*

California, Appendix B (CARB, 2012b) and using deterioration factors for harbor craft diesel engines from the 2013 Port Emission Inventory Report (LAHD, 2014b) since these factors were not included in the 2014 Port Emission Inventory Report.

- Replacements of main and auxiliary engines were determined based on CARB harbor craft compliance schedule (CARB, 2010).
- The fuel sulfur content was assumed to be 15 ppm for all analysis years, in accordance with California Diesel Fuel Regulation (CARB, 2004).
- SO_X emission factors were determined from the fuel consumption rate and the 15 ppm sulfur content of diesel fuel.
- Fuel correction factors listed in the 2013 Port Inventory Report (LAHD, 2014b) were applied to the annual emission analyses years. However, these correction factors were not applied to the peak future or peak baseline scenarios, except for when calculating SOx emissions. Not accounting for the fuel correction factors to calculate emissions during the future years is conservative since not accounting for them results in higher emissions. Note that even though fuel correction factors were not accounted for in the peak scenario emissions inventory (except for SOx), they were accounted for in the health risk assessment in order to get more refined results.

Cargo-Handling Equipment (CHE)

CHE includes yard tractors, RTGs, top handlers, sidepicks, forklifts, sweepers, and other miscellaneous equipment. All equipment is assumed to be diesel powered with the exception of a certain number of propane-powered forklifts. The marine terminal cranes used to lift containers on and off container ships would be electric and, therefore, would have no direct emissions. Yard tractors and top handlers would operate at both the Everport Container Terminal and the Eveport portion of the TICTF.

The following assumptions were applied to estimate peak day and annual unmitigated emissions:

- Annual and peak day 2013 baseline activity was provided by Starcrest in hours for each type of CHE. CHE activity in future analysis years was derived based on projected terminal throughput (Agrawal, 2015a).
- CHE model year and load factors were provided by Starcrest (Agrawal, 2015a).
- Emission factors were derived from CARB's CHE inventory model (CARB, 2011a).
- The fuel sulfur content was assumed to be 15 ppm for all analysis years, in accordance with California Diesel Fuel Regulation (CARB, 2004).
- SO_X emission factors were determined from the fuel consumption rate and the 15 ppm sulfur content of diesel fuel.

Annual and peak daily activity (hours) by CHE type are presented in Table 3.2-3.

Table 3.2-3: Annual and Peak Day CHE Activity and Size Parameters

CHE Type	HP/Load Factor	2013 CEQA Baseline	Operation during Construction Years[a]		Operation during Future Analysis Years		
			2018	2019	2026	2033	2038
Proposed Project: Annual (Peak Daily) Hours of Operation							
Forklift	113/0.30	1,548 (6.0)	1,511 (5.8)	1,619 (6.2)	2,300 (8.9)	2,969 (11.4)	2,969 (11.4)
Forklift (On Road)	121/0.30	1,548 (6.0)	1,511 (5.8)	1,619 (6.2)	2,300 (8.9)	2,969 (11.4)	2,969 (11.4)
Forklift (LPG)	123/0.30	371 (1.4)	362 (1.4)	388 (1.5)	551 (2.1)	711 (2.7)	711 (2.7)
RTG Crane	424/0.20	1,160 (11.9)	1,133 (11.5)	1,213 (12,4)	1,723 (17.6)	2,225 (22.8)	2,225 (22.8)
Side Pick	179/0.59	2,153 (10.2)	2,102 (11.8)	2,252 (10.7)	3,199 (15.2)	4,129 (19.6)	4,129 (19.6)
Sweeper	75/0.68	367 (1.4)	358 (1,4)	384 (1.5)	545 (2.1)	704 (2.7)	704 (2.7)
Top handler	240/0.59	2,323 (10.7)	2,268 (10.0)	2,429 (11.2)	3,451 (15.9)	4,455 (20.6)	4,455 (20.6)
Top handler (IY)	240/0.59	2,323 (6.5)	2,268 (6.0)	2,429 (6.8)	3,451 (9.6)	4,455 (12.4)	4,455 (12.4)
Truck	175/0.51	918 (3.5)	896 (3.5)	960 (3.7)	1,363 (5.3)	1,760 (6.8)	1,760 (6.8)
Yard tractor	129/0.39	1,928 (9.1)	1,883 (8.1)	2,016 (9.5)	2,864 (13.5)	3,697 (17.4)	3,697 (17.4)
Yard tractor (On Road)	175/0.39	1,928 (9.1)	1,883 (8.1)	2,016 (9.5)	2,864 (13.5)	3,697 (17.4)	3,697 (17.4)
Alternative 1 (No Federal Action/NEPA Baseline) and Alternative 2 (CEQA No Project): Annual (Peak Daily) Hours of Operation							
Forklift	Same as Proposed Project		1,559 (6.0)	1,595 (6.1)	1,784 (6.9)	2,268 (8.7)	2,268 (8.7)
Forklift (On Road)			1,559 (6.0)	1,595 (6.1)	1,784 (6.9)	2,268 (8.7)	2,268 (8.7)
Forklift (LPG)			373 (1.4)	382 (1.5)	427 (1.6)	543 (2.1)	543 (2.1)
RTG Crane			1,168 (11.9)	1,195 (12.1)	1,337 (17.3)	1,700 (22.3)	1,700 (22.3)
Side Pick			2,168 (12.2)	2,218 (12.5)	2,481 (17.7)	3,155 (22.9)	3,155 (22.9)
Sweeper			370 (1.4)	378 (1.5)	423 (1.6)	538 (2.1)	538 (2.1)
Top handler			2,339 (10.3)	2,393 (10.5)	2,677 (14.9)	3,404 (19.3)	3,404 (19.3)
Top handler (IY)			2,339 (6.2)	2,393 (6.3)	2,677 (8.9)	3,404 (11.5)	3,404 (11.5)
Truck			924 (3.6)	945 (3.6)	1,057 (4.1)	1,345 (5.2)	1,345 (5.2)
Yard tractor			1,942 (8.4)	1,986 (8.6)	2,222 (12.2)	2,825 (15.7)	2,825 (15.7)
Yard tractor (On Road)			1,942 (8.3)	1,986 (8.5)	2,222 (12.1)	2,825 (15.6)	2,825 (15.6)
Alternative 3: Annual (Peak Daily) Hours of Operation							
Forklift	Same as Proposed Project		1,511 (5.8)	1,577 (6.1)	2,182 (8.4)	2,807 (10.8)	2,807 (10.8)
Forklift (On Road)			1,511 (5.8)	1,577 (6.1)	2,182 (8.4)	2,807 (10.8)	2,807 (10.8)

Table 3.2-3: Annual and Peak Day CHE Activity and Size Parameters

CHE Type	HP/Load Factor	2013 CEQA Baseline	Operation during Construction Years[a]		Operation during Future Analysis Years		
			2018	2019	2026	2033	2038
Forklift (LPG)			362 (1.4)	378 (1.5)	523 (2.0)	672 (2.6)	672 (2.6)
RTG Crane			1,133 (11.5)	1,182 (12.2)	1,635 (17.3)	2,104 (22.3)	2,104 (22.3)
Side Pick			2,102 (11.8)	2,193 (11.5)	3,035 (16.3)	3,904 (21.1)	3,904 (21.1)
Sweeper			358 (1.4)	374 (1.4)	517 (2.0)	666 (2.6)	666 (2.6)
Top handler			2,268 (10.0)	2,367 (11.5)	3,275 (16.4)	4,212 (21.2)	4,212 (21.2)
Top handler (IY)			2,268 (6.0)	2,367 (6.9)	3,275 (9.9)	4,212 (12.7)	4,212 (12.7)
Truck			896 (3.5)	935 (3.6)	1,294 (5.0)	1,664 (6.4)	1,664 (6.4)
Yard tractor			1,883 (8.1)	1,964 (9.2)	2,718 (13.1)	3,496 (16.9)	3,496 (16.9)
Yard tractor (On Road)			1,883 (8.1)	1,964 (9.2)	2,718 (13.0)	3,496 (16.8)	3,496 (16.8)
Alternative 4: Annual (Peak Daily) Hours of Operation							
Forklift	Same as Proposed Project		1,511 (5.8)	1,532 (5.9)	2,058 (7.9)	2,639 (10.2)	2,639 (10.2)
Forklift (On Road)			1,511 (5.8)	1,532 (5.9)	2,058 (7.9)	2,639 (10.2)	2,639 (10.2)
Forklift (LPG)			362 (1.4)	367 (1.4)	493 (1.9)	632 (2.4)	632 (2.4)
RTG Crane			1,133 (11.5)	1,148 (12.2)	1,542 (17.3)	1,977 (22.2)	1,977 (22.2)
Side Pick			2,102 (11.8)	2,130 (12.0)	2,862 (17.1)	3,670 (22.1)	3,670 (22.1)
Sweeper			358 (1.4)	363 (1.4)	488 (1.9)	626 (2.4)	626 (2.4)
Top handler			2,268 (10.0)	2,298 (10.8)	3,088 (15.3)	3,960 (19.7)	3,960 (19.7)
Top handler (IY)			2,268 (6.0)	2,298 (6.0)	3,088 (8.5)	3,960 (10.9)	3,960 (10.9)
Truck			896 (3.5)	908 (3.5)	1,220 (4.7)	1,564 (6.0)	1,564 (6.0)
Yard tractor			1,883 (8.1)	1,907 (10.0)	2,563 (14.3)	3,287 (18.4)	3,287 (18.4)
Yard tractor (On Road)			1,883 (8.1)	1,907 (10.0)	2,563 (14.2)	3,287 (18.3)	3,287 (18.3)
Alternative 5: Annual (Peak Daily) Hours of Operation							
Forklift	Same as Proposed Project		1,511 (5.8)	1,619 (6.2)	2,300 (8.9)	2,969 (11.4)	2,969 (11.4)
Forklift (On Road)			1,511 (5.8)	1,619 (6.2)	2,300 (8.9)	2,969 (11.4)	2,969 (11.4)
Forklift (LPG)			362 (1.4)	388 (1.5)	551 (2.1)	711 (2.7)	711 (2.7)
RTG Crane			1,133 (11.5)	1,213 (12.2)	1,723 (17.6)	2,225 (22.3)	2,225 (22.3)
Side Pick			2,102 (11.8)	2,252 (10.7)	3,199 (15.2)	4,129 (19.7)	4,129 (19.7)

Table 3.2-3: Annual and Peak Day CHE Activity and Size Parameters

CHE Type	HP/Load Factor	2013 CEQA Baseline	Operation during Construction Years[a]		Operation during Future Analysis Years		
			2018	2019	2026	2033	2038
Sweeper			358 (1.4)	384 (1.5)	545 (2.1)	704 (2.7)	704 (2.7)
Top handler			2,268 (10.0)	2,429 (11.2)	3,451 (15.9)	4,455 (18.8)	4,455 (18.8)
Top handler (IY)			2,268 (6.0)	2,429 (6.8)	3,451 (9.6)	4,455 (13.0)	4,455 (13.0)
Truck			896 (3.5)	960 (3.7)	1,363 (5.3)	1,760 (6.8)	1,760 (6.8)
Yard tractor			1,883 (8.1)	2,016 (9.5)	2,864 (13.5)	3,697 (17.2)	3,697 (17.2)
Yard tractor (On Road)			1,883 (8.1)	2,016 (9.5)	2,864 (13.5)	3,697 (17.2)	3,697 (17.2)

Notes:
[a] Operational activity during construction years 2018 and 2019 is presented because operations would overlap construction during these years.

1

Trucks

- The assumptions below were applied to estimate peak day and annual unmitigated emissions.
- Emissions from on-road, heavy-duty diesel trucks hauling containers during proposed Project and alternative operations were calculated using emission factors generated by the EMFAC2014 on-road mobile source emission factor model. EMFAC2014 was run by Starcrest using the Port fleet mix for the baseline and future proposed Project and alternative years (Agrawal, 2015b).
- The Port's truck fleet mix reflects the Clean Truck Program, which banned all trucks that did not meet 2007 and newer on-road heavy duty truck standards by January 1, 2012 (LAHD, 2012).
- Trucks fueled with liquefied natural gas (LNG) composed 9.4 percent of the POLA truck calls in the 2013 baseline year (Agrawal, 2015b). Based on the 2014 Port Emissions Inventory Report (LAHD, 2015a), it was assumed that trucks fueled by LNG would comprise 8.2 percent of POLA truck calls in 2017 and all future years. LNG trucks are subject to the same emission standards as diesel trucks, and therefore were assumed to have the same criteria pollutant emission factors as diesel trucks. However, DPM emissions, a key contributor to cancer risk impacts, would not occur in LNG trucks.
- PM_{10} and $PM_{2.5}$ emissions from paved road dust were calculated and added to the EMFAC2014 emissions from truck exhaust, tire wear, and brake wear. Road dust emission factors for on-terminal driving, off-terminal local streets, and freeways were derived from Section 13.2.1 of EPA's AP-42 compilation of emission factors (EPA, 2011b).
- Truck idling time was assumed to be 6 minutes at the in-gate and 8 minutes at the out-gate. Average on-terminal idling, not including at-gate idling times, was assumed to be 10 minutes. Truck idling times were based on times used in the YTI EIS/EIR (LAHD, 2014e).
- On-terminal drive distance was assumed to be 1.5 miles per round trip at an average speed of 10 mph, based in information in the YTI EIS/EIR (LAHD ,2014e).
- The fuel sulfur content was assumed to be 15 ppm for all analysis years, in accordance with California Diesel Fuel Regulation (CARB, 2004).
- Gate operating hours were provided by LAHD and confirmed by Everport (Bahng, 2016)

Truck activity was provided by the traffic consultant, and is summarized in Table 3.2-4.

Table 3.2-4: Annual and Peak Day Operational Truck Trips

Parameter	2013 CEQA Baseline	Operation during Construction Years[a]		Operation during Future Analysis Years	
		2018	2019	2026	2033/2038
Alternative 1 (No Federal Action/NEPA Baseline) and Alternative 2 (CEQA No Project)					
Annual Truck Trips	1,112,551	1,007,200	1,231,811	1,201,917	1,189,000
Peak Day Truck Trips	4,505	4,079	4,988	4,867	4,815
Proposed Project					
Annual Truck Trips	1,112,551	1,007,200[b]	1,250,521	1,548,654	1,735,493
Peak Day Truck Trips	4,505	4,079[b]	5,064	6,271	7,028
Alternative 3					
Annual Truck Trips	Same as Proposed Project		1,218,240	1,469,632	1,609,228
Peak Day Truck Trips			4,933	5,951	6,516
Alternative 4					
Annual Truck Trips	Same as Proposed Project		1,183,169	1,386,208	1,477,899
Peak Day Truck Trips			4,791	5,613	5,985
Alternative 5					
Annual Truck Trips	Same as Proposed Project		1,183,169	1,548,654	1,683,712
Peak Day Truck Trips			4,791	6,271	6,818

Notes:
[a] Operational activity during construction years 2018 and 2019 is presented because operation would overlap construction during these years.
[b] The proposed Project data uses the No Project data for 2018, which overestimates truck trips for the proposed Project in 2018

Trains

The Everport Container Terminal Berths 226–232 generate train trips to and from the on-dock rail yard (TICTF) and off-dock rail yards. Containers arriving and departing via off-dock rail yard are transported between the terminal and rail yard by drayage trucks. Emissions associated with rail activity include diesel exhaust from PHL locomotives performing switching activities at the on-dock rail yard, Class I switch locomotives performing switching activities at the off-dock rail yards, and line-haul locomotive emissions used during transport within the SCAB and idling at the rail yards.

The assumptions below were applied to estimate peak day and annual unmitigated emissions.

- Class I switch and line haul locomotive emissions for VOC, NO_X, and PM_{10} were calculated from EPA emission factors (EPA, 2009), with the exception of line haul locomotive emission factors in 2013. 2013 line haul locomotive emission factors were obtained from the 2013 POLA Emissions Inventory (LAHD, 2014b). EPA line haul locomotive emission factors become cleaner than the MOU NOx emission factor after 2016 due to anticipated locomotive fleet turnover; therefore, national fleet average emission factors for NO_X were used for all other analysis years.
- The emission factors for PHL switch locomotives at the on-dock rail yard were based on PHL's 2013 switch engine fleet, a combination of Tier 3-plus and genset locomotives, and fleet turnover assumptions for future proposed Project analysis years (LAHD, 2014b). For future analysis years, the gensets were assumed to convert to Tier 4 locomotive standards based on a 15-year repower schedule. The Tier 3-plus locomotives were assumed to be replaced with Tier 4 locomotives based on a 30-year lifetime.
- The fuel sulfur content was assumed to be 15 ppm for all analysis years, in accordance with California Diesel Fuel Regulation (CARB, 2005).
- Line-haul locomotives were assumed to operate 2.5 hours on-port per TICTF departing train and 1 hour on-port per TICTF arriving train (LAHD, 2015a). These residence times include both moving and idling. A similar assumption was made for proposed Project-related trains arriving at and departing from and off-dock rail yards; line-haul locomotives were assumed to operate in the rail yard 2.5 hours per departure and 1 hour per arrival.
- Line haul locomotives were assumed to operate at the EPA line haul duty cycle, which reflects an average engine load factor, including idling time, of 28 percent.
- The average line haul locomotive was assumed to be 4,000 hp.
- The PHL switch engine use was scaled from an average daily PHL switch engine use on-dock of 5.7 hours per day for 955 TEU/day by the quantity of TEUs in each analysis year (LAHD, 2014e). The peak day use was assumed to be 8 percent higher than the average day use (LAHD, 2014e).
- Switch engine locomotives were assumed to operate at the EPA switch locomotive duty cycle, which reflects an average engine load factor, including idling time, of 10 percent. Switch engine locomotives were assumed to produce an average of 240 brake-horsepower while in use (LAHD, 2008).
- The transportation study for this EIS/EIR (Section 3.6 and Appendix E2) provided the train and locomotive activity data used in the emission calculations. The data included average daily train counts, train length, number of locomotives per train, and average daily train-miles within the SCAB. The train activity for each alternative is summarized in Table 3.2-5.

Table 3.2-5: Annual and Peak Day Rail Locomotive Operations

Parameter	Baseline	Operation during Future Analysis Years				
	2013	2018	2019	2026	2033	2038
Proposed Project						
On-Dock						
Annual Trains	475	485	511	648	1,149	1,149
Annual Average Locomotives per Train	4.30	4.29	4.31	4.33	4.33	4.33
Peak Day Trains	1.4	1.4	1.5	2.0	3.5	3.5
Peak Day Locomotives per Train	4.29	4.29	4.31	4.33	4.33	4.33
Off-Dock						
Annual Trains	110	104	110	152	655	655
Annual Average Locomotives per Train	4.33	4.32	4.25	4.33	4.33	4.33
Peak Day Trains	0.3	0.3	0.4	0.5	2.0	2.0
Peak Day Locomotives per Train	4.33	4.35	4.29	4.33	4.33	4.33
Alternative 1 (No Federal Action/NEPA Baseline) and Alternative 2 (CEQA No Project)						
On-Dock						
Annual Trains	Same as Proposed Project	505	511	503	1,149	1,149
Annual Average Locomotives per Train		4.29	4.29	4.33	4.33	4.33
Peak Day Trains		1.5	1.5	1.5	3.5	3.5
Peak Day Locomotives per Train		4.29	4.29	4.33	4.33	4.33
Off-Dock						
Annual Trains	Same as Proposed Project	108	110	118	229	229
Annual Average Locomotives per Train		4.32	4.32	4.33	4.33	4.33
Peak Day Trains		0.3	0.3	0.4	0.7	0.7
Peak Day Locomotives per Train		4.35	4.35	4.33	4.33	4.33
Alternative 3 Reduced Wharf Improvements						
On-Dock						
Annual Trains	Same as Proposed Project	485	475	615	1,149	1,149
Annual Average Locomotives per Train		4.29	4.30	4.33	4.33	4.33
Peak Day Trains		1.4	1.5	1.9	3.5	3.5
Peak Day Locomotives per Train		4.29	4.29	4.33	4.33	4.33
Off-Dock						
Annual Trains	Same as Proposed Project	104	110	144	557	557
Annual Average Locomotives per Train		4.32	4.29	4.33	4.33	4.33
Peak Day Trains		0.3	0.3	0.4	1.7	1.7

Table 3.2-5: Annual and Peak Day Rail Locomotive Operations

Parameter	Baseline	Operation during Future Analysis Years				
	2013	2018	2019	2026	2033	2038
Peak Day Locomotives per Train		4.35	4.29	4.33	4.33	4.33
Alternative 4 No Backland Improvements						
On-Dock						
Annual Trains	Same as Proposed Project	485	475	580	1,149	1,149
Annual Average Locomotives per Train		4.29	4.29	4.33	4.33	4.33
Peak Day Trains		1.4	1.4	1.8	3.5	3.5
Peak Day Locomotives per Train		4.29	4.30	4.33	4.33	4.33
Off-Dock						
Annual Trains	Same as Proposed Project	104	110	136	455	455
Annual Average Locomotives per Train		4.32	4.30	4.33	4.33	4.33
Peak Day Trains		0.3	0.3	0.4	1.4	1.4
Peak Day Locomotives per Train		4.35	4.30	4.33	4.33	4.33
Alternative 5 Additional TICTF						
On-Dock						
Annual Trains	Same as Proposed Project	485	511	648	1,251	1,251
Annual Average Locomotives per Train		4.29	4.31	4.33	4.33	4.33
Peak Day Trains		1.4	1.5	2.0	3.8	3.8
Peak Day Locomotives per Train		4.29	4.31	4.33	4.33	4.33
Off-Dock						
Annual Trains	Same as Proposed Project	104	110	152	554	554
Annual Average Locomotives per Train		4.32	4.25	4.33	4.33	4.33
Peak Day Trains		0.3	0.4	0.5	1.7	1.7
Peak Day Locomotives per Train		4.35	4.29	4.33	4.33	4.33

Note:
Operational rail activity during construction year 2018 was scaled from 2013 data according to the number of TEUs moved by rail.

AMP Power Generation

Indirect CO, VOC, and PM regional emissions associated with electricity generation for AMP were calculated using criteria pollutant emission factors provided by SCAQMD in the *CEQA Air Quality Handbook* (SCAQMD, 1993). Although the emissions could be generated by power plants inside and outside the SCAB, the emissions were conservatively assumed in this study to be produced entirely within the SCAB. Indirect NO_X and SO_X emissions were based on emission factors from EPA's Emissions and Generation Resource Integrated Database (eGRID) (EPA, 2014). In addition, as noted in Section 3.5, Greenhouse Gas Emissions, CH_4 and N_2O emission are based on The

Climate Registry's 2015 Default Emission Factors (TCR, 2015) and CO_2 emissions from emission factors listed in the Los Angeles Department of Water and Power's (LADWP) 2014 Power Integrated Resource Plan (LADWP, 2014).

The amount of electricity required by hoteling container ships was estimated using average auxiliary engine loads and average hoteling times obtained and calculated as described in the container ships methodology above. As shown in Table 3.2-6, AMP was applied to annual ship calls in future analysis years, based on data provided by AECOM (McBride, 2015a, 2015b and 2015c). For the baseline year, to be conservative, all ship calls were assumed to have used AMP.

Table 3.2-6: AMP Power Generation

Analysis Year	Regulatory Compliance Rate (by percentage)
2013 CEQA Baseline	100 percent
Construction Year 2018	80 percent
Construction Year 2019	80 percent
Operational Analysis Year 2026	80 percent
Operational Analysis Year 2033	80 percent
Operational Analysis Year 2038	80 percent

Notes:
100 percent was conservatively assumed for year 2013
AECOM data was used to determine annual ship calls using AMP (McBride, 2015a, 2015b and 2015c).

Worker Commute Trips

Emissions from worker trips during proposed Project operation were calculated using worker trips provided by the traffic consultant and emission factors from EMFAC2014 (CARB, 2014b). PM_{10} and $PM_{2.5}$ emissions from paved road dust were calculated and added to the EMFAC2014 emissions. Road dust emission factors were derived from Section 13.2 of EPA's AP-42 compilation of emission factors (EPA, 2011b).

Construction and Operational Emissions Tables

The following tables summarize Construction and Operational Emissions estimates for the proposed Project and all project alternatives.

Table 1. Daily Construction CO Emissions (lb/day)

	2017	Year 2018																																	
	DEC	JAN	FEB	MAR		APR				MAY				JUN				JUL				AUG				SEP				OCT				NOV			
Proposed Total Ocean Disposal	**6**	**87**	**87**	**84**	**80**	**61**	**56**	**263**	**263**	**275**	**27**	**77**	**77**	**70**	**66**	**67**	**67**	**87**	**87**	**83**	**83**	**69**	**65**	**66**	**66**	**68**	**68**	**68**	**68**	**66**	**265**	**262**	**262**	**263**	**15**	**11**	**11**
Off-road Construction Equipment Exhaust	6	67	67	62	58	39	35	82	82	93	24	55	55	47	43	46	46	63	63	60	60	46	43	45	45	47	47	47	47	44	83	82	82	83	14	10	10
Marine Source Exhaust	0	18	18	18	18	18	18	179	179	179	0	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	179	179	179	179	0	0	0
On-Road Construction Vehicles	0	1	1	3	3	3	3	1	1	3	3	3	3	4	4	2	2	4	4	4	4	4	3	1	1	2	2	2	2	3	2	0	0	1	1	1	1
Worker Vehicles	0	2	2	2	2	1	1	1	1	1	1	2	2	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
Upland Disposal	**6**	**87**	**87**	**84**	**80**	**61**	**56**	**116**	**116**	**129**	**129**	**77**	**77**	**70**	**66**	**67**	**67**	**87**	**87**	**83**	**83**	**69**	**65**	**66**	**66**	**68**	**68**	**68**	**68**	**66**	**122**	**119**	**119**	**121**	**121**	**117**	**11**
Off-road Construction Equipment Exhaust	6	67	67	62	58	39	35	76	76	86	86	55	55	47	43	46	46	63	63	60	60	46	43	45	45	47	47	47	47	44	76	75	75	76	76	73	10
Marine Source Exhaust	0	18	18	18	18	18	18	36	36	36	36	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	36	36	36	36	36	36	0
On-Road Construction Vehicles	0	1	1	3	3	3	3	3	3	5	5	3	3	4	4	2	2	4	4	4	4	4	3	1	1	2	2	2	2	3	8	6	6	7	7	7	1
Worker Vehicles	0	2	2	2	2	1	1	1	1	1	1	2	2	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Alt 1 No Federal Action	**6**	**44**	**44**	**33**	**33**	**12**	**12**	**12**	**12**	**19**	**19**	**27**	**27**	**19**	**19**	**19**	**19**	**33**	**33**	**33**	**33**	**17**	**17**	**17**	**17**	**14**	**14**	**18**	**18**	**14**	**14**	**10**	**10**	**7**	**7**	**7**	**7**
Off-road Construction Equipment Exhaust	6	42	42	30	30	10	10	10	10	16	16	24	24	16	16	16	16	29	29	29	29	15	15	15	15	13	13	16	16	13	13	10	10	6	6	6	6
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
On-Road Construction Vehicles	0	1	1	2	2	1	1	1	1	2	2	3	3	2	2	2	2	3	3	3	3	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Worker Vehicles	0	1	1	1	1	0	0	0	0	0	0	1	1	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	1	1	0	0	0	0	0	0
Alt 3 Reduced Wharf Improvements Ocean Disposal	**6**	**44**	**44**	**41**	**37**	**18**	**14**	**15**	**15**	**27**	**27**	**77**	**77**	**70**	**66**	**67**	**67**	**87**	**87**	**83**	**83**	**69**	**65**	**66**	**66**	**68**	**68**	**68**	**68**	**66**	**265**	**262**	**262**	**263**	**15**	**11**	**11**
Off-road Construction Equipment Exhaust	6	42	42	37	33	14	10	13	13	24	24	55	55	47	43	46	46	63	63	60	60	46	43	45	45	47	47	47	47	44	83	82	82	83	14	10	10
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	179	179	179	179	0	0	0
On-Road Construction Vehicles	0	1	1	3	3	3	3	1	1	3	3	3	3	4	4	2	2	4	4	4	4	4	3	1	1	2	2	2	2	3	2	0	0	1	1	1	1
Worker Vehicles	0	1	1	1	1	0	0	0	0	1	1	2	2	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
Upland Disposal	**6**	**44**	**44**	**41**	**37**	**18**	**14**	**15**	**15**	**27**	**27**	**77**	**77**	**70**	**66**	**67**	**67**	**87**	**87**	**83**	**83**	**69**	**65**	**66**	**66**	**68**	**68**	**68**	**68**	**66**	**122**	**119**	**119**	**121**	**121**	**117**	**11**
Off-road Construction Equipment Exhaust	6	42	42	37	33	14	10	13	13	24	24	55	55	47	43	46	46	63	63	60	60	46	43	45	45	47	47	47	47	44	76	75	75	76	76	73	10
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	36	36	36	36	36	36	0
On-Road Construction Vehicles	0	1	1	3	3	3	3	1	1	3	3	3	3	4	4	2	2	4	4	4	4	4	3	1	1	2	2	2	2	3	8	6	6	7	7	7	1
Worker Vehicles	0	1	1	1	1	0	0	0	0	1	1	2	2	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Alt 4 No Backland Improvements Ocean Disposal	**0**	**43**	**43**	**43**	**43**	**43**	**43**	**248**	**248**	**248**	**0**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**248**	**248**	**248**	**248**	**0**	**0**	**0**
Off-road Construction Equipment Exhaust	0	25	25	25	25	25	25	69	69	69	0	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	69	69	69	69	0	0	0
Marine Source Exhaust	0	18	18	18	18	18	18	179	179	179	0	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	179	179	179	179	0	0	0
On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker Vehicles	0	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
Upland Disposal	**0**	**43**	**43**	**43**	**43**	**43**	**43**	**102**	**102**	**102**	**102**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**106**	**106**	**106**	**106**	**106**	**106**	**0**
Off-road Construction Equipment Exhaust	0	25	25	25	25	25	25	63	63	63	63	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	63	63	63	63	63	63	0
Marine Source Exhaust	0	18	18	18	18	18	18	36	36	36	36	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	36	36	36	36	36	36	0
On-Road Construction Vehicles	0	0	0	0	0	0	0	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	6	6	6	6	0
Worker Vehicles	0	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
Alt 5 Expanded On-Dock Rail Yard Ocean Disposal	**6**	**87**	**87**	**84**	**80**	**68**	**64**	**313**	**313**	**325**	**77**	**139**	**139**	**125**	**121**	**85**	**85**	**87**	**87**	**83**	**83**	**69**	**65**	**66**	**66**	**68**	**68**	**68**	**68**	**66**	**265**	**262**	**262**	**263**	**15**	**11**	**11**
Off-road Construction Equipment Exhaust	6	67	67	62	58	45	41	130	130	141	71	114	114	100	97	64	64	63	63	60	60	46	43	45	45	47	47	47	47	44	83	82	82	83	14	10	10
Marine Source Exhaust	0	18	18	18	18	18	18	179	179	179	0	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	179	179	179	179	0	0	0
On-Road Construction Vehicles	0	1	1	3	3	4	4	2	2	4	4	4	4	4	4	2	2	4	4	4	4	4	3	1	1	2	2	2	2	3	2	0	0	1	1	1	1
Worker Vehicles	0	2	2	2	2	1	1	2	2	2	2	3	3	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
Upland Disposal	**6**	**87**	**87**	**84**	**80**	**68**	**64**	**166**	**166**	**178**	**178**	**139**	**139**	**125**	**121**	**85**	**85**	**87**	**87**	**83**	**83**	**69**	**65**	**66**	**66**	**68**	**68**	**68**	**68**	**66**	**122**	**119**	**119**	**121**	**121**	**117**	**11**
Off-road Construction Equipment Exhaust	6	67	67	62	58	45	41	124	124	134	134	114	114	100	97	64	64	63	63	60	60	46	43	45	45	47	47	47	47	44	76	75	75	76	76	73	10
Marine Source Exhaust	0	18	18	18	18	18	18	36	36	36	36	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	36	36	36	36	36	36	0
On-Road Construction Vehicles	0	1	1	3	3	4	4	4	4	6	6	4	4	4	4	2	2	4	4	4	4	4	3	1	1	2	2	2	2	3	8	6	6	7	7	7	1
Worker Vehicles	0	2	2	2	2	1	1	2	2	2	2	3	3	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0

Table 1. Daily Construction CO Emissions (lb/day)

| | | |

Table 2. Daily Construction TOG Emissions (lb/day)

	2017	Year 2018																																	
	DEC	JAN	FEB	MAR		APR				MAY				JUN				JUL				AUG				SEP				OCT				NOV			
Proposed Total **Ocean Disposal**	**1**	**17**	**17**	**17**	**16**	**12**	**11**	**39**	**39**	**40**	**4**	**14**	**14**	**13**	**13**	**13**	**13**	**16**	**16**	**15**	**15**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**12**	**39**	**38**	**38**	**39**	**2**	**1**	**1**
Off-road Construction Equipment Exhaust	1	15	15	14	14	9	9	24	24	25	3	10	10	10	9	10	10	12	12	11	11	10	10	10	10	10	10	10	10	10	24	24	24	24	2	1	1
Marine Source Exhaust	0	1	1	1	1	1	1	15	15	15	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15	15	15	15	0	0	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Upland Disposal	**1**	**17**	**17**	**17**	**16**	**12**	**11**	**25**	**25**	**26**	**26**	**14**	**14**	**13**	**13**	**13**	**13**	**16**	**16**	**15**	**15**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**12**	**26**	**26**	**26**	**26**	**26**	**26**	**1**
Off-road Construction Equipment Exhaust	1	15	15	14	14	9	9	21	21	22	22	10	10	10	9	10	10	12	12	11	11	10	10	10	10	10	10	10	10	10	21	21	21	21	21	20	1
Marine Source Exhaust	0	1	1	1	1	1	1	3	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	3	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	3	2	2	2	2	2	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Alt 1 No Federal Action	**1**	**8**	**8**	**7**	**7**	**2**	**2**	**2**	**2**	**2**	**2**	**4**	**4**	**3**	**3**	**3**	**3**	**5**	**5**	**5**	**5**	**3**	**3**	**3**	**3**	**2**	**2**	**3**	**3**	**2**	**2**	**1**	**1**	**1**	**1**	**1**	**1**
Off-road Construction Equipment Exhaust	1	8	8	6	6	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3	3	2	2	2	2	1	1	2	2	2	2	1	1	1	1	1	1
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
On-Road Construction Vehicles	0	0	0	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Alt 3 Reduced Wharf Improvements **Ocean Disposal**	**1**	**8**	**8**	**8**	**8**	**3**	**2**	**2**	**2**	**4**	**4**	**14**	**14**	**13**	**13**	**13**	**13**	**16**	**16**	**15**	**15**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**12**	**39**	**38**	**38**	**39**	**2**	**1**	**1**
Off-road Construction Equipment Exhaust	1	8	8	7	6	2	1	2	2	3	3	10	10	10	9	10	10	12	12	11	11	10	10	10	10	10	10	10	10	10	24	24	24	24	2	1	1
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15	15	15	15	0	0	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Upland Disposal	**1**	**8**	**8**	**8**	**8**	**3**	**2**	**2**	**2**	**4**	**4**	**14**	**14**	**13**	**13**	**13**	**13**	**16**	**16**	**15**	**15**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**12**	**26**	**26**	**26**	**26**	**26**	**26**	**1**
Off-road Construction Equipment Exhaust	1	8	8	7	6	2	1	2	2	3	3	10	10	10	9	10	10	12	12	11	11	10	10	10	10	10	10	10	10	10	21	21	21	21	21	20	1
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	3	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	3	2	2	2	2	2	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Alt 4 No Backland Improvements **Ocean Disposal**	**0**	**9**	**9**	**9**	**9**	**9**	**9**	**37**	**37**	**37**	**0**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**37**	**37**	**37**	**37**	**0**	**0**	**0**
Off-road Construction Equipment Exhaust	0	7	7	7	7	7	7	22	22	22	0	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	22	22	22	22	0	0	0
Marine Source Exhaust	0	1	1	1	1	1	1	15	15	15	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15	15	15	15	0	0	0
On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**0**	**9**	**9**	**9**	**9**	**9**	**9**	**23**	**23**	**23**	**23**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**24**	**24**	**24**	**24**	**24**	**24**	**0**
Off-road Construction Equipment Exhaust	0	7	7	7	7	7	7	19	19	19	19	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	19	19	19	19	19	19	0
Marine Source Exhaust	0	1	1	1	1	1	1	3	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	3	0
On-Road Construction Vehicles	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 5 Expanded On-Dock Rail Yard **Ocean Disposal**	**1**	**17**	**17**	**17**	**16**	**13**	**12**	**49**	**49**	**50**	**14**	**25**	**25**	**24**	**23**	**16**	**16**	**16**	**16**	**15**	**15**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**12**	**39**	**38**	**38**	**39**	**2**	**1**	**1**
Off-road Construction Equipment Exhaust	1	15	15	14	14	10	10	34	34	34	12	21	21	19	19	13	13	12	12	11	11	10	10	10	10	10	10	10	10	10	24	24	24	24	2	1	1
Marine Source Exhaust	0	1	1	1	1	1	1	15	15	15	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15	15	15	15	0	0	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0

Table 2. Daily Construction TOG Emissions (lb/day)

| | | |

Table 3. Daily Construction VOC Emissions (lb/day)

	2017	Year 2018																																	
	DEC	JAN	FEB	MAR		APR				MAY				JUN				JUL				AUG				SEP				OCT				NOV			
Proposed Total **Ocean Disposal**	**1**	**17**	**17**	**17**	**16**	**11**	**11**	**38**	**38**	**40**	**4**	**13**	**13**	**13**	**12**	**13**	**13**	**15**	**15**	**15**	**15**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**12**	**38**	**38**	**38**	**38**	**2**	**1**	**1**
Off-road Construction Equipment Exhaust	1	15	15	14	13	9	8	24	24	24	3	10	10	9	9	10	10	11	11	11	11	10	10	10	10	10	10	10	10	9	23	23	23	23	2	1	1
Marine Source Exhaust	0	1	1	1	1	1	1	14	14	14	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	14	14	14	0	0	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Upland Disposal	**1**	**17**	**17**	**17**	**16**	**11**	**11**	**25**	**25**	**26**	**26**	**13**	**13**	**13**	**12**	**13**	**13**	**15**	**15**	**15**	**15**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**12**	**26**	**26**	**26**	**26**	**26**	**25**	**1**
Off-road Construction Equipment Exhaust	1	15	15	14	13	9	8	21	21	21	21	10	10	9	9	10	10	11	11	11	11	10	10	10	10	10	10	10	10	9	20	20	20	20	20	20	1
Marine Source Exhaust	0	1	1	1	1	1	1	3	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	3	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	3	2	2	2	2	2	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Alt 1 No Federal Action	**1**	**8**	**8**	**7**	**7**	**2**	**2**	**2**	**2**	**2**	**2**	**4**	**4**	**3**	**3**	**3**	**3**	**5**	**5**	**5**	**5**	**3**	**3**	**3**	**3**	**2**	**2**	**3**	**3**	**2**	**2**	**1**	**1**	**1**	**1**	**1**	**1**
Off-road Construction Equipment Exhaust	1	8	8	6	6	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3	3	2	2	2	2	1	1	2	2	2	2	1	1	1	1	1	1
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
On-Road Construction Vehicles	0	0	0	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Alt 3 Reduced Wharf Improvements **Ocean Disposal**	**1**	**8**	**8**	**8**	**8**	**3**	**2**	**2**	**2**	**4**	**4**	**13**	**13**	**13**	**12**	**13**	**13**	**15**	**15**	**15**	**15**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**12**	**38**	**38**	**38**	**38**	**2**	**1**	**1**
Off-road Construction Equipment Exhaust	1	8	8	7	6	2	1	2	2	3	3	10	10	9	9	10	10	11	11	11	11	10	10	10	10	10	10	10	10	9	23	23	23	23	2	1	1
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	14	14	14	0	0	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Upland Disposal	**1**	**8**	**8**	**8**	**8**	**3**	**2**	**2**	**2**	**4**	**4**	**13**	**13**	**13**	**12**	**13**	**13**	**15**	**15**	**15**	**15**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**12**	**26**	**26**	**26**	**26**	**26**	**25**	**1**
Off-road Construction Equipment Exhaust	1	8	8	7	6	2	1	2	2	3	3	10	10	9	9	10	10	11	11	11	11	10	10	10	10	10	10	10	10	9	20	20	20	20	20	20	1
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	3	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	3	2	2	2	2	2	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Alt 4 No Backland Improvements **Ocean Disposal**	**0**	**9**	**9**	**9**	**9**	**9**	**9**	**36**	**36**	**36**	**0**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**36**	**36**	**36**	**36**	**0**	**0**	**0**
Off-road Construction Equipment Exhaust	0	7	7	7	7	7	7	22	22	22	0	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	22	22	22	22	0	0	0
Marine Source Exhaust	0	1	1	1	1	1	1	14	14	14	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	14	14	14	0	0	0
On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**0**	**9**	**9**	**9**	**9**	**9**	**9**	**22**	**22**	**22**	**22**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**24**	**24**	**24**	**24**	**24**	**24**	**0**
Off-road Construction Equipment Exhaust	0	7	7	7	7	7	7	19	19	19	19	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	19	19	19	19	19	19	0
Marine Source Exhaust	0	1	1	1	1	1	1	3	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	3	0
On-Road Construction Vehicles	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 5 Expanded On-Dock Rail Yard **Ocean Disposal**	**1**	**17**	**17**	**17**	**16**	**13**	**12**	**48**	**48**	**50**	**14**	**25**	**25**	**23**	**23**	**16**	**16**	**15**	**15**	**15**	**15**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**12**	**38**	**38**	**38**	**38**	**2**	**1**	**1**
Off-road Construction Equipment Exhaust	1	15	15	14	13	10	9	33	33	34	12	21	21	19	19	12	12	11	11	11	11	10	10	10	10	10	10	10	10	9	23	23	23	23	2	1	1
Marine Source Exhaust	0	1	1	1	1	1	1	14	14	14	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	14	14	14	0	0	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Upland Disposal	**1**	**17**	**17**	**17**	**16**	**13**	**12**	**35**	**35**	**36**	**36**	**25**	**25**	**23**	**23**	**16**	**16**	**15**	**15**	**15**	**15**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**12**	**26**	**26**	**26**	**26**	**26**	**25**	**1**
Off-road Construction Equipment Exhaust	1	15	15	14	13	10	9	30	30	31	31	21	21	19	19	12	12	11	11	11	11	10	10	10	10	10	10	10	10	9	20	20	20	20	20	20	1
Marine Source Exhaust	0	1	1	1	1	1	1	3	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	3	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	3	2	2	2	2	2	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0

Table 3. Daily Construction VOC Emissions (lb/day)

		Year 2019																																2018	2019
		DEC				JAN		FEB		MAR				APR				MAY				JUN				JUL				AUG	SEP	OCT	NOV	Peak	Peak
Proposed Total	**Ocean Disposal**	**3**	**3**	**3**	**3**	**4**	**2**	**2**	**2**	**4**	**4**	**2**	**4**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**128**	**40**	**128**
	Off-road Construction Equipment Exhaust	3	2	3	3	4	2	2	2	4	4	2	3	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	24	4
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	126	14	126
	On-Road Construction Vehicles	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	Upland Disposal	**3**	**3**	**3**	**3**	**4**	**2**	**2**	**2**	**4**	**4**	**2**	**4**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**128**	**26**	**128**
	Off-road Construction Equipment Exhaust	3	2	3	3	4	2	2	2	4	4	2	3	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	21	4
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	126	3	126
	On-Road Construction Vehicles	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Alt 1 No Federal Action		**2**	**2**	**2**	**2**	**4**	**2**	**2**	**2**	**3**	**3**	**1**	**3**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**4**
	Off-road Construction Equipment Exhaust	2	2	2	2	4	2	2	2	3	3	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	4
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Alt 3 Reduced Wharf Improvements	**Ocean Disposal**	**3**	**3**	**3**	**3**	**4**	**2**	**2**	**2**	**4**	**4**	**2**	**4**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**128**	**38**	**128**
	Off-road Construction Equipment Exhaust	3	2	3	3	4	2	2	2	4	4	2	3	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	23	4
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	126	14	126
	On-Road Construction Vehicles	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	Upland Disposal	**3**	**3**	**3**	**3**	**4**	**2**	**2**	**2**	**4**	**4**	**2**	**4**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**128**	**26**	**128**
	Off-road Construction Equipment Exhaust	3	2	3	3	4	2	2	2	4	4	2	3	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	20	4
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	126	3	126
	On-Road Construction Vehicles	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Alt 4 No Backland Improvements	**Ocean Disposal**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**128**	**36**	**128**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	22	1
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	126	14	126
	On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upland Disposal	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**128**	**24**	**128**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	19	1
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	126	3	126
	On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 5 Expanded On-Dock Rail Yard	**Ocean Disposal**	**3**	**3**	**3**	**3**	**4**	**2**	**2**	**2**	**4**	**4**	**2**	**4**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**128**	**50**	**128**
	Off-road Construction Equipment Exhaust	3	2	3	3	4	2	2	2	4	4	2	3	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	34	4
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	126	14	126
	On-Road Construction Vehicles	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	Upland Disposal	**3**	**3**	**3**	**3**	**4**	**2**	**2**	**2**	**4**	**4**	**2**	**4**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**128**	**36**	**128**
	Off-road Construction Equipment Exhaust	3	2	3	3	4	2	2	2	4	4	2	3	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	31	4
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	126	3	126
	On-Road Construction Vehicles	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0

Table 4. Daily Construction NOx Emissions (lb/day)

	2017	Year 2018																																	
	DEC	JAN	FEB	MAR		APR				MAY				JUN				JUL				AUG				SEP				OCT				NOV			
Proposed Total **Ocean Disposal**	**10**	**182**	**182**	**209**	**205**	**149**	**137**	**456**	**456**	**478**	**62**	**160**	**160**	**168**	**157**	**145**	**145**	**183**	**183**	**179**	**179**	**164**	**153**	**140**	**141**	**137**	**137**	**137**	**136**	**143**	**460**	**443**	**444**	**446**	**30**	**26**	**26**
Off-road Construction Equipment Exhaust	10	146	146	142	138	79	74	180	180	179	26	91	91	83	79	89	89	102	102	98	98	90	86	95	95	83	83	83	83	81	169	175	175	170	18	14	14
Marine Source Exhaust	0	26	26	26	26	26	26	263	263	263	0	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	263	263	263	263	0	0	0
On-Road Construction Vehicles	0	10	10	41	41	44	37	12	12	36	36	42	42	59	52	30	30	55	55	55	54	49	41	19	19	27	27	27	27	36	27	5	5	12	12	12	12
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**10**	**182**	**182**	**209**	**205**	**149**	**137**	**263**	**263**	**285**	**285**	**160**	**160**	**168**	**157**	**145**	**145**	**183**	**183**	**179**	**179**	**164**	**153**	**140**	**141**	**137**	**137**	**137**	**136**	**143**	**318**	**302**	**302**	**305**	**305**	**301**	**26**
Off-road Construction Equipment Exhaust	10	146	146	142	138	79	74	165	165	164	164	91	91	83	79	89	89	102	102	98	98	90	86	95	95	83	83	83	83	81	154	160	160	155	155	151	14
Marine Source Exhaust	0	26	26	26	26	26	26	54	54	54	54	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	54	54	54	54	54	54	0
On-Road Construction Vehicles	0	10	10	41	41	44	37	44	44	67	67	42	42	59	52	30	30	55	55	55	54	49	41	19	19	27	27	27	27	36	110	88	88	96	96	96	12
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 1 No Federal Action	**10**	**99**	**99**	**110**	**110**	**29**	**29**	**29**	**29**	**47**	**47**	**61**	**61**	**47**	**47**	**47**	**47**	**79**	**79**	**79**	**79**	**43**	**43**	**43**	**43**	**32**	**32**	**36**	**36**	**21**	**21**	**17**	**17**	**14**	**14**	**14**	**14**
Off-road Construction Equipment Exhaust	10	89	89	77	77	18	18	18	18	18	18	27	27	18	18	18	18	33	33	33	33	25	25	25	25	15	15	19	19	17	17	13	13	10	10	10	10
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
On-Road Construction Vehicles	0	9	9	33	33	12	12	12	12	28	28	34	34	28	28	28	28	46	46	46	46	18	18	18	18	18	18	18	18	4	4	4	4	4	4	4	4
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 3 Reduced Wharf Improvements **Ocean Disposal**	**10**	**99**	**99**	**126**	**122**	**66**	**54**	**40**	**40**	**62**	**62**	**160**	**160**	**168**	**157**	**145**	**145**	**183**	**183**	**179**	**179**	**164**	**153**	**140**	**141**	**137**	**137**	**137**	**136**	**143**	**460**	**443**	**444**	**446**	**30**	**26**	**26**
Off-road Construction Equipment Exhaust	10	89	89	85	81	22	18	28	28	26	26	91	91	83	79	89	89	102	102	98	98	90	86	95	95	83	83	83	83	81	169	175	175	170	18	14	14
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	263	263	263	263	0	0	0
On-Road Construction Vehicles	0	9	9	41	41	44	36	12	12	36	36	42	42	59	52	30	30	55	55	55	54	49	41	19	19	27	27	27	27	36	27	5	5	12	12	12	12
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**10**	**99**	**99**	**126**	**122**	**66**	**54**	**40**	**40**	**62**	**62**	**160**	**160**	**168**	**157**	**145**	**145**	**183**	**183**	**179**	**179**	**164**	**153**	**140**	**141**	**137**	**137**	**137**	**136**	**143**	**318**	**302**	**302**	**305**	**305**	**301**	**26**
Off-road Construction Equipment Exhaust	10	89	89	85	81	22	18	28	28	26	26	91	91	83	79	89	89	102	102	98	98	90	86	95	95	83	83	83	83	81	154	160	160	155	155	151	14
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	54	54	54	54	54	54	0
On-Road Construction Vehicles	0	9	9	41	41	44	36	12	12	36	36	42	42	59	52	30	30	55	55	55	54	49	41	19	19	27	27	27	27	36	110	88	88	96	96	96	12
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 4 No Backland Improvements **Ocean Disposal**	**0**	**83**	**83**	**83**	**83**	**83**	**83**	**416**	**416**	**416**	**0**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**416**	**416**	**416**	**416**	**0**	**0**	**0**
Off-road Construction Equipment Exhaust	0	57	57	57	57	57	57	153	153	153	0	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	153	153	153	153	0	0	0
Marine Source Exhaust	0	26	26	26	26	26	26	263	263	263	0	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	263	263	263	263	0	0	0
On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**0**	**83**	**83**	**83**	**83**	**83**	**83**	**223**	**223**	**223**	**223**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**275**	**275**	**275**	**275**	**275**	**275**	**0**
Off-road Construction Equipment Exhaust	0	57	57	57	57	57	57	138	138	138	138	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	138	138	138	138	138	138	0
Marine Source Exhaust	0	26	26	26	26	26	26	54	54	54	54	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	54	54	54	54	54	54	0
On-Road Construction Vehicles	0	0	0	0	0	0	0	32	32	32	32	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	83	83	83	83	83	83	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 5 Expanded On-Dock Rail Yard **Ocean Disposal**	**10**	**182**	**182**	**209**	**205**	**170**	**158**	**597**	**597**	**620**	**203**	**314**	**313**	**301**	**290**	**176**	**176**	**183**	**183**	**179**	**179**	**164**	**153**	**140**	**141**	**137**	**137**	**137**	**136**	**143**	**460**	**443**	**444**	**446**	**30**	**26**	**26**
Off-road Construction Equipment Exhaust	10	146	146	142	138	88	84	310	310	309	156	234	234	216	212	120	120	102	102	98	98	90	86	95	95	83	83	83	83	81	169	175	175	170	18	14	14
Marine Source Exhaust	0	26	26	26	26	26	26	263	263	263	0	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	263	263	263	263	0	0	0
On-Road Construction Vehicles	0	10	10	41	41	56	48	23	24	47	47	54	54	59	52	30	30	55	55	55	54	49	41	19	19	27	27	27	27	36	27	5	5	12	12	12	12
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**10**	**182**	**182**	**209**	**205**	**170**	**158**	**404**	**404**	**426**	**426**	**314**	**313**	**301**	**290**	**176**	**176**	**183**	**183**	**179**	**179**	**164**	**153**	**140**	**141**	**137**	**137**	**137**	**136**	**143**	**318**	**302**	**302**	**305**	**305**	**301**	**26**
Off-road Construction Equipment Exhaust	10	146	146	142	138	88	84	295	295	294	294	234	234	216	212	120	120	102	102	98	98	90	86	95	95	83	83	83	83	81	154	160	160	155	155	151	14
Marine Source Exhaust	0	26	26	26	26	26	26	54	54	54	54	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	54	54	54	54	54	54	0
On-Road Construction Vehicles	0	10	10	41	41	56	48	55	55	79	79	54	54	59	52	30	30	55	55	55	54	49	41	19	19	27	27	27	27	36	110	88	88	96	96	96	12
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 4. Daily Construction NOx Emissions (lb/day)

						Year 2019																												2018	2019
		DEC				JAN		FEB		MAR				APR				MAY				JUN				JUL				AUG	SEP	OCT	NOV	Peak	Peak
Proposed Total	**Ocean Disposal**	**66**	**55**	**40**	**40**	**55**	**25**	**25**	**25**	**53**	**54**	**40**	**65**	**31**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**10**	**10**	**0**	**0**	**0**	**0**	**0**	**3,354**	**478**	**3,354**
	Off-road Construction Equipment Exhaust	34	30	40	40	48	18	18	18	49	49	16	30	14	10	0	0	0	0	0	0	0	0	0	10	10	10	0	0	0	0	0	30	180	49
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,324	263	3,324
	On-Road Construction Vehicles	32	25	0	0	8	8	8	8	4	4	23	35	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	35
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upland Disposal	**66**	**55**	**40**	**40**	**55**	**25**	**25**	**25**	**53**	**54**	**40**	**65**	**31**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**10**	**10**	**0**	**0**	**0**	**0**	**0**	**3,354**	**318**	**3,354**
	Off-road Construction Equipment Exhaust	34	30	40	40	48	18	18	18	49	49	16	30	14	10	0	0	0	0	0	0	0	0	0	10	10	10	0	0	0	0	0	30	165	49
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,324	54	3,324
	On-Road Construction Vehicles	32	25	0	0	8	8	8	8	4	4	23	35	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	110	35
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 1 No Federal Action		**30**	**30**	**30**	**30**	**55**	**25**	**25**	**25**	**42**	**42**	**23**	**42**	**20**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**110**	**55**
	Off-road Construction Equipment Exhaust	30	30	30	30	47	18	18	18	41	41	8	17	8	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	89	47
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	On-Road Construction Vehicles	0	0	0	0	7	7	7	7	0	1	14	26	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	26
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 3 Reduced Wharf Improvements	**Ocean Disposal**	**66**	**55**	**40**	**40**	**55**	**25**	**25**	**25**	**53**	**54**	**40**	**65**	**31**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**10**	**10**	**0**	**0**	**0**	**0**	**0**	**3,354**	**460**	**3,354**
	Off-road Construction Equipment Exhaust	34	30	40	40	48	18	18	18	49	49	16	30	14	10	0	0	0	0	0	0	0	0	0	10	10	10	0	0	0	0	0	30	175	49
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,324	263	3,324
	On-Road Construction Vehicles	32	25	0	0	8	8	8	8	4	4	23	35	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	35
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upland Disposal	**66**	**55**	**40**	**40**	**55**	**25**	**25**	**25**	**53**	**54**	**40**	**65**	**31**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**10**	**10**	**0**	**0**	**0**	**0**	**0**	**3,354**	**318**	**3,354**
	Off-road Construction Equipment Exhaust	34	30	40	40	48	18	18	18	49	49	16	30	14	10	0	0	0	0	0	0	0	0	0	10	10	10	0	0	0	0	0	30	160	49
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,324	54	3,324
	On-Road Construction Vehicles	32	25	0	0	8	8	8	8	4	4	23	35	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	110	35
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 4 No Backland Improvements	**Ocean Disposal**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**17**	**17**	**17**	**22**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**10**	**10**	**0**	**0**	**0**	**0**	**0**	**3,354**	**416**	**3,354**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	8	8	8	13	5	0	0	0	0	0	0	0	0	0	0	10	10	10	0	0	0	0	0	30	153	30
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,324	263	3,324
	On-Road Construction Vehicles	0	0	0	0	0	0	0	0	4	4	9	9	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	9
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upland Disposal	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**17**	**17**	**17**	**22**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**10**	**10**	**0**	**0**	**0**	**0**	**0**	**3,354**	**275**	**3,354**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	8	8	8	13	5	0	0	0	0	0	0	0	0	0	0	10	10	10	0	0	0	0	0	30	138	30
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,324	54	3,324
	On-Road Construction Vehicles	0	0	0	0	0	0	0	0	4	4	9	9	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	83	9
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 5 Expanded On-Dock Rail Yard	**Ocean Disposal**	**66**	**55**	**40**	**40**	**55**	**25**	**25**	**25**	**53**	**54**	**40**	**65**	**31**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**10**	**10**	**0**	**0**	**0**	**0**	**0**	**3,354**	**620**	**3,354**
	Off-road Construction Equipment Exhaust	34	30	40	40	48	18	18	18	49	49	16	30	14	10	0	0	0	0	0	0	0	0	0	10	10	10	0	0	0	0	0	30	310	49
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,324	263	3,324
	On-Road Construction Vehicles	32	25	0	0	8	8	8	8	4	4	23	35	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	35
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upland Disposal	**66**	**55**	**40**	**40**	**55**	**25**	**25**	**25**	**53**	**54**	**40**	**65**	**31**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**10**	**10**	**0**	**0**	**0**	**0**	**0**	**3,354**	**426**	**3,354**
	Off-road Construction Equipment Exhaust	34	30	40	40	48	18	18	18	49	49	16	30	14	10	0	0	0	0	0	0	0	0	0	10	10	10	0	0	0	0	0	30	295	49
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,324	54	3,324
	On-Road Construction Vehicles	32	25	0	0	8	8	8	8	4	4	23	35	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	110	35
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 5. Daily Construction PM10 Emissions (lb/day)

	2017	Year 2018																																	
	DEC	JAN	FEB	MAR		APR				MAY				JUN				JUL				AUG				SEP				OCT				NOV			
Proposed Total Ocean Disposal	**0**	**10**	**10**	**13**	**13**	**10**	**9**	**18**	**18**	**22**	**7**	**12**	**12**	**13**	**12**	**10**	**10**	**14**	**14**	**14**	**14**	**11**	**10**	**8**	**8**	**8**	**8**	**8**	**8**	**10**	**20**	**18**	**18**	**18**	**4**	**3**	**3**
Off-road Construction Equipment Exhaust	0	6	6	6	5	3	3	6	6	7	2	4	4	4	3	4	4	5	5	5	5	4	4	4	4	4	4	4	4	3	6	6	6	6	1	1	1
Marine Source Exhaust	0	1	1	1	1	1	1	10	10	10	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	10	10	10	0	0	0
On-Road Construction Vehicles	0	1	1	5	5	6	5	2	2	5	5	6	6	8	7	4	4	8	8	8	8	6	5	2	2	3	3	3	3	4	3	1	1	2	2	2	2
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Upland Disposal	**0**	**10**	**10**	**13**	**13**	**10**	**9**	**13**	**13**	**17**	**17**	**12**	**12**	**13**	**12**	**10**	**10**	**14**	**14**	**14**	**14**	**11**	**10**	**8**	**8**	**8**	**8**	**8**	**8**	**10**	**21**	**18**	**18**	**19**	**19**	**19**	**3**
Off-road Construction Equipment Exhaust	0	6	6	6	5	3	3	6	6	6	6	4	4	4	3	4	4	5	5	5	5	4	4	4	4	4	4	4	4	3	5	6	6	6	6	5	1
Marine Source Exhaust	0	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	0
On-Road Construction Vehicles	0	1	1	5	5	6	5	5	5	9	9	6	6	8	7	4	4	8	8	8	8	6	5	2	2	3	3	3	3	4	13	10	10	11	11	11	2
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Alt 1 No Federal Action	**0**	**7**	**7**	**9**	**9**	**3**	**3**	**3**	**3**	**6**	**6**	**7**	**7**	**6**	**6**	**6**	**6**	**9**	**9**	**9**	**9**	**4**	**4**	**4**	**4**	**3**	**3**	**4**	**4**	**3**	**3**	**2**	**2**	**2**	**2**	**2**	**2**
Off-road Construction Equipment Exhaust	0	4	4	3	3	1	1	1	1	1	1	2	2	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
On-Road Construction Vehicles	0	1	1	4	4	2	2	2	2	4	4	5	5	4	4	4	4	7	7	7	7	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Alt 3 Reduced Wharf Improvements Ocean Disposal	**0**	**7**	**7**	**10**	**10**	**7**	**6**	**3**	**3**	**7**	**7**	**12**	**12**	**13**	**12**	**10**	**10**	**14**	**14**	**14**	**14**	**11**	**10**	**8**	**8**	**8**	**8**	**8**	**8**	**10**	**20**	**18**	**18**	**18**	**4**	**3**	**3**
Off-road Construction Equipment Exhaust	0	4	4	4	3	1	1	1	1	2	2	4	4	4	3	4	4	5	5	5	5	4	4	4	4	4	4	4	4	3	6	6	6	6	1	1	1
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	10	10	10	0	0	0
On-Road Construction Vehicles	0	1	1	5	5	5	5	2	2	5	5	6	6	8	7	4	4	8	8	8	8	6	5	2	2	3	3	3	3	4	3	1	1	2	2	2	2
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Upland Disposal	**0**	**7**	**7**	**10**	**10**	**7**	**6**	**3**	**3**	**7**	**7**	**12**	**12**	**13**	**12**	**10**	**10**	**14**	**14**	**14**	**14**	**11**	**10**	**8**	**8**	**8**	**8**	**8**	**8**	**10**	**21**	**18**	**18**	**19**	**19**	**19**	**3**
Off-road Construction Equipment Exhaust	0	4	4	4	3	1	1	1	1	2	2	4	4	4	3	4	4	5	5	5	5	4	4	4	4	4	4	4	4	3	5	6	6	6	6	5	1
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	0
On-Road Construction Vehicles	0	1	1	5	5	5	5	2	2	5	5	6	6	8	7	4	4	8	8	8	8	6	5	2	2	3	3	3	3	4	13	10	10	11	11	11	2
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Alt 4 No Backland Improvements Ocean Disposal	**0**	**3**	**3**	**3**	**3**	**3**	**3**	**15**	**15**	**15**	**0**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**15**	**15**	**15**	**15**	**0**	**0**	**0**
Off-road Construction Equipment Exhaust	0	2	2	2	2	2	2	5	5	5	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	5	5	5	0	0	0
Marine Source Exhaust	0	1	1	1	1	1	1	10	10	10	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	10	10	10	0	0	0
On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**0**	**3**	**3**	**3**	**3**	**3**	**3**	**10**	**10**	**10**	**10**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**16**	**16**	**16**	**16**	**16**	**16**	**0**
Off-road Construction Equipment Exhaust	0	2	2	2	2	2	2	5	5	5	5	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	5	5	5	5	5	0
Marine Source Exhaust	0	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	0
On-Road Construction Vehicles	0	0	0	0	0	0	0	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9	9	9	9	9	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 5 Expanded On-Dock Rail Yard Ocean Disposal	**0**	**10**	**10**	**13**	**13**	**12**	**11**	**25**	**25**	**29**	**14**	**19**	**19**	**19**	**18**	**11**	**11**	**14**	**14**	**14**	**14**	**11**	**10**	**8**	**8**	**8**	**8**	**8**	**8**	**10**	**20**	**18**	**18**	**18**	**4**	**3**	**3**
Off-road Construction Equipment Exhaust	0	6	6	6	5	4	3	11	11	12	7	10	10	9	9	5	5	5	5	5	5	4	4	4	4	4	4	4	4	3	6	6	6	6	1	1	1
Marine Source Exhaust	0	1	1	1	1	1	1	10	10	10	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	10	10	10	0	0	0
On-Road Construction Vehicles	0	1	1	5	5	7	6	3	3	7	7	8	8	8	7	4	4	8	8	8	8	6	5	2	2	3	3	3	3	4	3	1	1	2	2	2	2
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Upland Disposal	**0**	**10**	**10**	**13**	**13**	**12**	**11**	**20**	**20**	**24**	**24**	**19**	**19**	**19**	**18**	**11**	**11**	**14**	**14**	**14**	**14**	**11**	**10**	**8**	**8**	**8**	**8**	**8**	**8**	**10**	**21**	**18**	**18**	**19**	**19**	**19**	**3**
Off-road Construction Equipment Exhaust	0	6	6	6	5	4	3	11	11	11	11	10	10	9	9	5	5	5	5	5	5	4	4	4	4	4	4	4	4	3	5	6	6	6	6	5	1
Marine Source Exhaust	0	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	0
On-Road Construction Vehicles	0	1	1	5	5	7	6	6	7	10	10	8	8	8	7	4	4	8	8	8	8	6	5	2	2	3	3	3	3	4	13	10	10	11	11	11	2
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1

Table 5. Daily Construction PM10 Emissions (lb/day)

| | | |

Table 6. Daily Construction PM2.5 Emissions (lb/day)

	2017	Year 2018																																					
	DEC	JAN		FEB		MAR		APR				MAY				JUN				JUL				AUG				SEP				OCT				NOV			
Proposed Total **Ocean Disposal**	**0**	**7**	**7**	**8**	**8**	**5**	**5**	**15**	**15**	**17**	**3**	**7**	**7**	**7**	**6**	**6**	**6**	**8**	**8**	**7**	**7**	**6**	**6**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**15**	**15**	**15**	**15**	**2**	**1**	**1**
Off-road Construction Equipment Exhaust	0	6	6	5	5	3	3	6	6	7	2	4	4	4	3	4	4	5	5	5	5	4	3	4	4	4	4	4	4	3	6	6	6	6	1	1	1
Marine Source Exhaust	0	1	1	1	1	1	1	9	9	9	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9	9	9	9	0	0	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	0	0	1	1	2	2	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**0**	**7**	**7**	**8**	**8**	**5**	**5**	**9**	**9**	**10**	**10**	**7**	**7**	**7**	**6**	**6**	**6**	**8**	**8**	**7**	**7**	**6**	**6**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**11**	**10**	**10**	**10**	**10**	**10**	**1**
Off-road Construction Equipment Exhaust	0	6	6	5	5	3	3	6	6	6	6	4	4	4	3	4	4	5	5	5	5	4	3	4	4	4	4	4	4	3	5	5	5	5	5	5	1
Marine Source Exhaust	0	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	1	1	2	2	2	2	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	4	3	3	3	3	3	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 1 No Federal Action	**0**	**4**	**4**	**4**	**4**	**1**	**1**	**1**	**1**	**2**	**2**	**3**	**3**	**2**	**2**	**2**	**2**	**4**	**4**	**4**	**4**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Off-road Construction Equipment Exhaust	0	4	4	3	3	1	1	1	1	1	1	2	2	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
On-Road Construction Vehicles	0	0	0	1	1	0	0	0	0	1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 3 Reduced Wharf Improvements **Ocean Disposal**	**0**	**4**	**4**	**5**	**5**	**3**	**2**	**2**	**2**	**3**	**3**	**7**	**7**	**7**	**6**	**6**	**6**	**8**	**8**	**7**	**7**	**6**	**6**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**15**	**15**	**15**	**15**	**2**	**1**	**1**
Off-road Construction Equipment Exhaust	0	4	4	4	3	1	1	1	1	2	2	4	4	4	3	4	4	5	5	5	5	4	3	4	4	4	4	4	4	3	6	6	6	6	1	1	1
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9	9	9	9	0	0	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	0	0	1	1	2	2	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**0**	**4**	**4**	**5**	**5**	**3**	**2**	**2**	**2**	**3**	**3**	**7**	**7**	**7**	**6**	**6**	**6**	**8**	**8**	**7**	**7**	**6**	**6**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**11**	**10**	**10**	**10**	**10**	**10**	**1**
Off-road Construction Equipment Exhaust	0	4	4	4	3	1	1	1	1	2	2	4	4	4	3	4	4	5	5	5	5	4	3	4	4	4	4	4	4	3	5	5	5	5	5	5	1
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	0	0	1	1	2	2	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	4	3	3	3	3	3	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 4 No Backland Improvements **Ocean Disposal**	**0**	**3**	**3**	**3**	**3**	**3**	**3**	**14**	**14**	**14**	**0**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**14**	**14**	**14**	**14**	**0**	**0**	**0**
Off-road Construction Equipment Exhaust	0	2	2	2	2	2	2	5	5	5	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	5	5	5	0	0	0
Marine Source Exhaust	0	1	1	1	1	1	1	9	9	9	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9	9	9	9	0	0	0
On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**0**	**3**	**3**	**3**	**3**	**3**	**3**	**7**	**7**	**7**	**7**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**9**	**9**	**9**	**9**	**9**	**9**	**0**
Off-road Construction Equipment Exhaust	0	2	2	2	2	2	2	4	4	4	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4	4	4	4	4	4	0
Marine Source Exhaust	0	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	0
On-Road Construction Vehicles	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3	3	3	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 5 Expanded On-Dock Rail Yard **Ocean Disposal**	**0**	**7**	**7**	**8**	**8**	**6**	**6**	**20**	**20**	**22**	**8**	**13**	**12**	**12**	**11**	**7**	**7**	**8**	**8**	**7**	**7**	**6**	**6**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**15**	**15**	**15**	**15**	**2**	**1**	**1**
Off-road Construction Equipment Exhaust	0	6	6	5	5	3	3	11	11	11	6	10	10	9	8	5	5	5	5	5	5	4	3	4	4	4	4	4	4	3	6	6	6	6	1	1	1
Marine Source Exhaust	0	1	1	1	1	1	1	9	9	9	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9	9	9	9	0	0	0
On-Road Construction Vehicles	0	0	0	1	1	2	2	1	1	2	2	2	2	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**0**	**7**	**7**	**8**	**8**	**6**	**6**	**14**	**14**	**15**	**15**	**13**	**12**	**12**	**11**	**7**	**7**	**8**	**8**	**7**	**7**	**6**	**6**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**11**	**10**	**10**	**10**	**10**	**10**	**1**
Off-road Construction Equipment Exhaust	0	6	6	5	5	3	3	10	10	11	11	10	10	9	8	5	5	5	5	5	5	4	3	4	4	4	4	4	4	3	5	5	5	5	5	5	1
Marine Source Exhaust	0	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	0
On-Road Construction Vehicles	0	0	0	1	1	2	2	2	2	3	3	2	2	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	4	3	3	3	3	3	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 6. Daily Construction PM2.5 Emissions (lb/day)

					Year 2019																														2018	2019
		DEC				JAN		FEB		MAR				APR				MAY				JUN				JUL				AUG	SEP	OCT	NOV	Peak	Peak
Proposed Total	**Ocean Disposal**	**2**	**2**	**1**	**1**	**2**	**1**	**1**	**1**	**2**	**2**	**2**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**51**	**17**	**51**
	Off-road Construction Equipment Exhaust	1	1	1	1	2	1	1	1	2	2	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	2
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	9	50
	On-Road Construction Vehicles	1	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upland Disposal	**2**	**2**	**1**	**1**	**2**	**1**	**1**	**1**	**2**	**2**	**2**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**51**	**11**	**51**
	Off-road Construction Equipment Exhaust	1	1	1	1	2	1	1	1	2	2	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	2
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	2	50
	On-Road Construction Vehicles	1	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 1 No Federal Action		**1**	**1**	**1**	**1**	**2**	**1**	**1**	**1**	**2**	**2**	**1**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**2**
	Off-road Construction Equipment Exhaust	1	1	1	1	2	1	1	1	2	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 3 Reduced Wharf Improvements	**Ocean Disposal**	**2**	**2**	**1**	**1**	**2**	**1**	**1**	**1**	**2**	**2**	**2**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**51**	**15**	**51**
	Off-road Construction Equipment Exhaust	1	1	1	1	2	1	1	1	2	2	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	2
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	9	50
	On-Road Construction Vehicles	1	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upland Disposal	**2**	**2**	**1**	**1**	**2**	**1**	**1**	**1**	**2**	**2**	**2**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**51**	**11**	**51**
	Off-road Construction Equipment Exhaust	1	1	1	1	2	1	1	1	2	2	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	2
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	2	50
	On-Road Construction Vehicles	1	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 4 No Backland Improvements	**Ocean Disposal**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**51**	**14**	**51**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	1
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	9	50
	On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upland Disposal	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**51**	**9**	**51**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	1
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	2	50
	On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 5 Expanded On-Dock Rail Yard	**Ocean Disposal**	**2**	**2**	**1**	**1**	**2**	**1**	**1**	**1**	**2**	**2**	**2**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**51**	**22**	**51**
	Off-road Construction Equipment Exhaust	1	1	1	1	2	1	1	1	2	2	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	11	2
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	9	50
	On-Road Construction Vehicles	1	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upland Disposal	**2**	**2**	**1**	**1**	**2**	**1**	**1**	**1**	**2**	**2**	**2**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**51**	**15**	**51**
	Off-road Construction Equipment Exhaust	1	1	1	1	2	1	1	1	2	2	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	11	2
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	2	50
	On-Road Construction Vehicles	1	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 7. Daily Construction SOx Emissions (lb/day)

		2017	Year 2018																															
		DEC	JAN	FEB	MAR		APR				MAY				JUN				JUL				AUG				SEP				OCT				NOV			
Proposed Total	**Ocean Disposal**	**0.0**	**0.3**	**0.3**	**0.4**	**0.4**	**0.3**	**0.3**	**0.6**	**0.6**	**0.7**	**0.1**	**0.3**	**0.3**	**0.4**	**0.3**	**0.3**	**0.3**	**0.4**	**0.4**	**0.4**	**0.4**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.7**	**0.6**	**0.6**	**0.6**	**0.1**	**0.1**	**0.1**
	Off-road Construction Equipment Exhaust	0.0	0.3	0.3	0.3	0.3	0.2	0.2	0.4	0.4	0.4	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.4	0.4	0.0	0.0	0.0
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.0	0.0	0.0
	On-Road Construction Vehicles	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Upland Disposal	**0.0**	**0.3**	**0.3**	**0.4**	**0.4**	**0.3**	**0.3**	**0.5**	**0.5**	**0.6**	**0.6**	**0.3**	**0.3**	**0.4**	**0.3**	**0.3**	**0.3**	**0.4**	**0.4**	**0.4**	**0.4**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.1**	
	Off-road Construction Equipment Exhaust	0.0	0.3	0.3	0.3	0.3	0.2	0.2	0.4	0.4	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.4	0.4	0.4	0.3	0.0
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	On-Road Construction Vehicles	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	0.3	0.0
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alt 1 No Federal Action		**0.0**	**0.2**	**0.2**	**0.2**	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.2**	**0.2**	**0.2**	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
	Off-road Construction Equipment Exhaust	0.0	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	On-Road Construction Vehicles	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alt 3 Reduced Wharf Improvements	**Ocean Disposal**	**0.0**	**0.2**	**0.2**	**0.3**	**0.2**	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.3**	**0.3**	**0.4**	**0.3**	**0.3**	**0.3**	**0.4**	**0.4**	**0.4**	**0.4**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.7**	**0.6**	**0.6**	**0.6**	**0.1**	**0.1**	**0.1**
	Off-road Construction Equipment Exhaust	0.0	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.4	0.4	0.0	0.0	0.0
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.0
	On-Road Construction Vehicles	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Upland Disposal	**0.0**	**0.2**	**0.2**	**0.3**	**0.2**	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.3**	**0.3**	**0.4**	**0.3**	**0.3**	**0.3**	**0.4**	**0.4**	**0.4**	**0.4**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.1**	
	Off-road Construction Equipment Exhaust	0.0	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.4	0.4	0.4	0.3	0.0
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	On-Road Construction Vehicles	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	0.3	0.0
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alt 4 No Backland Improvements	**Ocean Disposal**	**0.0**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.6**	**0.6**	**0.6**	**0.0**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.6**	**0.6**	**0.6**	**0.6**	**0.0**	**0.0**	**0.0**
	Off-road Construction Equipment Exhaust	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.4	0.4	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.4	0.4	0.4	0.0	0.0	0.0
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.0
	On-Road Construction Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Upland Disposal	**0.0**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.5**	**0.5**	**0.5**	**0.5**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.0**
	Off-road Construction Equipment Exhaust	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	0.3	0.0
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	On-Road Construction Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.0
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alt 5 Expanded On-Dock Rail Yard	**Ocean Disposal**	**0.0**	**0.3**	**0.3**	**0.4**	**0.4**	**0.4**	**0.3**	**0.9**	**0.9**	**0.9**	**0.4**	**0.6**	**0.6**	**0.6**	**0.5**	**0.3**	**0.3**	**0.4**	**0.4**	**0.4**	**0.4**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.7**	**0.6**	**0.6**	**0.6**	**0.1**	**0.1**	**0.1**
	Off-road Construction Equipment Exhaust	0.0	0.3	0.3	0.3	0.3	0.2	0.2	0.6	0.6	0.6	0.3	0.4	0.4	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.4	0.4	0.4	0.0	0.0
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.0	0.0
	On-Road Construction Vehicles	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Upland Disposal	**0.0**	**0.3**	**0.3**	**0.4**	**0.4**	**0.4**	**0.3**	**0.8**	**0.8**	**0.8**	**0.8**	**0.6**	**0.6**	**0.6**	**0.5**	**0.3**	**0.3**	**0.4**	**0.4**	**0.4**	**0.4**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.1**	
	Off-road Construction Equipment Exhaust	0.0	0.3	0.3	0.3	0.3	0.2	0.2	0.6	0.6	0.6	0.6	0.4	0.4	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.4	0.4	0.4	0.3	0.0
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	On-Road Construction Vehicles	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	0.3	0.0
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 7. Daily Construction SOx Emissions (lb/day)

		Year 2019																														2018	2019
		DEC				JAN		FEB		MAR				APR				MAY				JUN				JUL				AUG	SEP	OCT	NOV	Peak	Peak
Proposed Total	**Ocean Disposal**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**89.5**	**0.7**	**89.5**
	Off-road Construction Equipment Exhaust	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	89.4	0.2	89.4
	On-Road Construction Vehicles	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Upland Disposal	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**89.5**	**0.7**	**89.5**
	Off-road Construction Equipment Exhaust	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	89.4	0.0	89.4
	On-Road Construction Vehicles	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alt 1 No Federal Action		**0.0**	**0.0**	**0.0**	**0.0**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.2**	**0.1**
	Off-road Construction Equipment Exhaust	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	On-Road Construction Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alt 3 Reduced Wharf Improvements	**Ocean Disposal**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**89.5**	**0.7**	**89.5**
	Off-road Construction Equipment Exhaust	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	89.4	0.2	89.4
	On-Road Construction Vehicles	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Upland Disposal	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**89.5**	**0.7**	**89.5**
	Off-road Construction Equipment Exhaust	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	89.4	0.0	89.4
	On-Road Construction Vehicles	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alt 4 No Backland Improvements	**Ocean Disposal**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**89.5**	**0.6**	**89.5**
	Off-road Construction Equipment Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	89.4	0.2	89.4
	On-Road Construction Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Upland Disposal	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**89.5**	**0.6**	**89.5**
	Off-road Construction Equipment Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	89.4	0.0	89.4
	On-Road Construction Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alt 5 Expanded On-Dock Rail Yard	**Ocean Disposal**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**89.5**	**0.9**	**89.5**
	Off-road Construction Equipment Exhaust	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	89.4	0.2	89.4
	On-Road Construction Vehicles	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Upland Disposal	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**89.5**	**0.8**	**89.5**
	Off-road Construction Equipment Exhaust	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	89.4	0.0	89.4
	On-Road Construction Vehicles	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 8. Daily Construction CO2 Emissions (metric tons/day)

	2017	Year 2018																																	
	DEC	JAN	FEB	MAR		APR				MAY				JUN				JUL				AUG				SEP				OCT				NOV			
Proposed Total **Ocean Disposal**	**1**	**15**	**15**	**20**	**19**	**15**	**13**	**30**	**30**	**34**	**7**	**15**	**15**	**17**	**15**	**13**	**13**	**18**	**18**	**17**	**17**	**16**	**14**	**12**	**12**	**13**	**13**	**13**	**13**	**14**	**32**	**29**	**29**	**31**	**4**	**4**	**4**
Off-road Construction Equipment Exhaust	1	12	12	12	11	7	7	18	18	18	2	8	8	7	7	8	8	8	8	8	8	8	7	8	8	7	7	7	7	8	18	18	18	18	1	1	1
Marine Source Exhaust	0	1	1	1	1	1	1	11	11	11	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11	11	11	11	0	0	0
On-Road Construction Vehicles	0	2	2	7	7	7	5	2	2	6	6	6	6	9	7	4	4	8	8	8	8	7	5	3	3	5	5	5	5	6	4	1	1	3	3	3	3
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**1**	**15**	**15**	**20**	**19**	**15**	**13**	**29**	**29**	**33**	**33**	**15**	**15**	**17**	**15**	**13**	**13**	**18**	**18**	**17**	**17**	**16**	**14**	**12**	**12**	**13**	**13**	**13**	**13**	**14**	**45**	**43**	**43**	**44**	**44**	**44**	**4**
Off-road Construction Equipment Exhaust	1	12	12	12	11	7	7	16	16	16	16	8	8	7	7	8	8	8	8	8	8	8	7	8	8	7	7	7	7	8	16	16	16	16	16	16	1
Marine Source Exhaust	0	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	0
On-Road Construction Vehicles	0	2	2	7	7	7	5	11	11	15	15	6	6	9	7	4	4	8	8	8	8	7	5	3	3	5	5	5	5	6	27	24	24	26	26	26	3
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 1 No Federal Action	**1**	**8**	**8**	**10**	**10**	**3**	**3**	**3**	**3**	**5**	**5**	**6**	**6**	**5**	**5**	**5**	**5**	**8**	**8**	**8**	**8**	**4**	**4**	**4**	**4**	**3**	**3**	**3**	**3**	**2**	**2**	**2**	**2**	**1**	**1**	**1**	**1**
Off-road Construction Equipment Exhaust	1	6	6	5	5	1	1	1	1	1	1	2	2	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
On-Road Construction Vehicles	0	2	2	5	5	2	2	2	2	4	4	4	4	4	4	4	4	6	6	6	6	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 3 Reduced Wharf Improvements **Ocean Disposal**	**1**	**8**	**8**	**13**	**12**	**8**	**6**	**3**	**3**	**7**	**7**	**15**	**15**	**17**	**15**	**13**	**13**	**18**	**18**	**17**	**17**	**16**	**14**	**12**	**12**	**13**	**13**	**13**	**13**	**14**	**32**	**29**	**29**	**31**	**4**	**4**	**4**
Off-road Construction Equipment Exhaust	1	6	6	6	6	1	1	2	2	2	2	8	8	7	7	8	8	8	8	8	8	8	7	8	8	7	7	7	7	8	18	18	18	18	1	1	1
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11	11	11	11	0	0	0
On-Road Construction Vehicles	0	2	2	7	7	7	5	2	2	6	6	6	6	9	7	4	4	8	8	8	8	7	5	3	3	5	5	5	5	6	4	1	1	3	3	3	3
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**1**	**8**	**8**	**13**	**12**	**8**	**6**	**3**	**3**	**7**	**7**	**15**	**15**	**17**	**15**	**13**	**13**	**18**	**18**	**17**	**17**	**16**	**14**	**12**	**12**	**13**	**13**	**13**	**13**	**14**	**45**	**43**	**43**	**44**	**44**	**44**	**4**
Off-road Construction Equipment Exhaust	1	6	6	6	6	1	1	2	2	2	2	8	8	7	7	8	8	8	8	8	8	8	7	8	8	7	7	7	7	8	16	16	16	16	16	16	1
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	0
On-Road Construction Vehicles	0	2	2	7	7	7	5	2	2	6	6	6	6	9	7	4	4	8	8	8	8	7	5	3	3	5	5	5	5	6	27	24	24	26	26	26	3
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 4 No Backland Improvements **Ocean Disposal**	**0**	**7**	**7**	**7**	**7**	**7**	**7**	**27**	**27**	**27**	**0**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**27**	**27**	**27**	**27**	**0**	**0**	**0**
Off-road Construction Equipment Exhaust	0	6	6	6	6	6	6	16	16	16	0	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	16	16	16	16	0	0	0
Marine Source Exhaust	0	1	1	1	1	1	1	11	11	11	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11	11	11	11	0	0	0
On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**0**	**7**	**7**	**7**	**7**	**7**	**7**	**26**	**26**	**26**	**26**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**40**	**40**	**40**	**40**	**40**	**40**	**0**
Off-road Construction Equipment Exhaust	0	6	6	6	6	6	6	15	15	15	15	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	15	15	15	15	15	15	0
Marine Source Exhaust	0	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	0
On-Road Construction Vehicles	0	0	0	0	0	0	0	9	9	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	24	24	24	24	24	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 5 Expanded On-Dock Rail Yard **Ocean Disposal**	**1**	**15**	**15**	**20**	**19**	**19**	**16**	**42**	**42**	**46**	**20**	**29**	**29**	**27**	**25**	**15**	**15**	**18**	**18**	**17**	**17**	**16**	**14**	**12**	**12**	**13**	**13**	**13**	**13**	**14**	**32**	**29**	**29**	**31**	**4**	**4**	**4**
Off-road Construction Equipment Exhaust	1	12	12	12	11	8	8	27	27	27	11	18	18	17	17	10	10	8	8	8	8	8	7	8	8	7	7	7	7	8	18	18	18	18	1	1	1
Marine Source Exhaust	0	1	1	1	1	1	1	11	11	11	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11	11	11	11	0	0	0
On-Road Construction Vehicles	0	2	2	7	7	10	8	4	4	8	8	9	9	9	7	4	4	8	8	8	8	7	5	3	3	5	5	5	5	6	4	1	1	3	3	3	3
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**1**	**15**	**15**	**20**	**19**	**19**	**16**	**41**	**41**	**45**	**45**	**29**	**29**	**27**	**25**	**15**	**15**	**18**	**18**	**17**	**17**	**16**	**14**	**12**	**12**	**13**	**13**	**13**	**13**	**14**	**45**	**43**	**43**	**44**	**44**	**44**	**4**
Off-road Construction Equipment Exhaust	1	12	12	12	11	8	8	26	26	26	26	18	18	17	17	10	10	8	8	8	8	8	7	8	8	7	7	7	7	8	16	16	16	16	16	16	1
Marine Source Exhaust	0	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	0
On-Road Construction Vehicles	0	2	2	7	7	10	8	13	13	17	17	9	9	9	7	4	4	8	8	8	8	7	5	3	3	5	5	5	5	6	27	24	24	26	26	26	3
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 8. Daily Construction CO2 Emissions (metric tons/day)

		Year 2019																																2018	2019
		DEC				JAN		FEB		MAR				APR				MAY				JUN				JUL				AUG	SEP	OCT	NOV	Peak	Peak
Proposed Total	**Ocean Disposal**	**8**	**6**	**3**	**3**	**4**	**2**	**2**	**2**	**4**	**4**	**5**	**7**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**790**	**34**	**790**
	Off-road Construction Equipment Exhaust	2	2	3	3	3	1	1	1	3	3	1	2	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	2	18	3
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	788	11	788
	On-Road Construction Vehicles	5	3	0	0	1	1	1	1	1	1	4	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	5
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upland Disposal	**8**	**6**	**3**	**3**	**4**	**2**	**2**	**2**	**4**	**4**	**5**	**7**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**790**	**45**	**790**
	Off-road Construction Equipment Exhaust	2	2	3	3	3	1	1	1	3	3	1	2	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	2	16	3
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	788	2	788
	On-Road Construction Vehicles	5	3	0	0	1	1	1	1	1	1	4	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	5
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 1 No Federal Action		**2**	**2**	**2**	**2**	**4**	**2**	**2**	**2**	**3**	**3**	**2**	**4**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**4**
	Off-road Construction Equipment Exhaust	2	2	2	2	3	1	1	1	3	3	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	3
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	On-Road Construction Vehicles	0	0	0	0	1	1	1	1	0	0	2	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	3
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 3 Reduced Wharf Improvements	**Ocean Disposal**	**8**	**6**	**3**	**3**	**4**	**2**	**2**	**2**	**4**	**4**	**5**	**7**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**790**	**32**	**790**
	Off-road Construction Equipment Exhaust	2	2	3	3	3	1	1	1	3	3	1	2	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	2	18	3
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	788	11	788
	On-Road Construction Vehicles	5	3	0	0	1	1	1	1	1	1	4	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	5
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upland Disposal	**8**	**6**	**3**	**3**	**4**	**2**	**2**	**2**	**4**	**4**	**5**	**7**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**790**	**45**	**790**
	Off-road Construction Equipment Exhaust	2	2	3	3	3	1	1	1	3	3	1	2	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	2	16	3
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	788	2	788
	On-Road Construction Vehicles	5	3	0	0	1	1	1	1	1	1	4	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	5
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 4 No Backland Improvements	**Ocean Disposal**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**2**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**790**	**27**	**790**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	2	16	2
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	788	11	788
	On-Road Construction Vehicles	0	0	0	0	0	0	0	0	1	1	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upland Disposal	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**2**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**790**	**40**	**790**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	2	15	2
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	788	2	788
	On-Road Construction Vehicles	0	0	0	0	0	0	0	0	1	1	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	2
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 5 Expanded On-Dock Rail Yard	**Ocean Disposal**	**8**	**6**	**3**	**3**	**4**	**2**	**2**	**2**	**4**	**4**	**5**	**7**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**790**	**46**	**790**
	Off-road Construction Equipment Exhaust	2	2	3	3	3	1	1	1	3	3	1	2	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	2	27	3
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	788	11	788
	On-Road Construction Vehicles	5	3	0	0	1	1	1	1	1	1	4	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	5
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upland Disposal	**8**	**6**	**3**	**3**	**4**	**2**	**2**	**2**	**4**	**4**	**5**	**7**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**790**	**45**	**790**
	Off-road Construction Equipment Exhaust	2	2	3	3	3	1	1	1	3	3	1	2	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	2	26	3
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	788	2	788
	On-Road Construction Vehicles	5	3	0	0	1	1	1	1	1	1	4	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	5
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
Phase 1: Berths 230-232 Dredging 8,000 cy																	
Sheet Piling	Derrick Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Compressor	0	0	0	0	0	0	0	0	0	0	6.62E-02	2.24E-02	2.21E-02	1.48E-01	5.19E-03	4.97E-03
	Barge Crane	0	0	0	0	0	0	0	0	0	0	5.39E-02	1.18E-02	1.16E-02	5.96E-02	1.80E-03	1.72E-03
	Deck Door Engine	0	0	0	0	0	0	0	0	0	0	4.81E-02	1.06E-02	1.04E-02	1.18E-01	3.15E-03	3.02E-03
	Generator	0	0	0	0	0	0	0	0	0	0	2.45E-01	8.79E-02	8.65E-02	5.46E-01	1.95E-02	1.86E-02
	Hoist Swing Winch	0	0	0	0	0	0	0	0	0	0	8.20E-02	2.84E-02	2.79E-02	1.83E-01	6.47E-03	6.19E-03
	Hoist Swing Pump	0	0	0	0	0	0	0	0	0	0	2.41E-01	6.47E-02	6.37E-02	5.56E-01	1.75E-02	1.67E-02
	Vibratory Hammer	0	0	0	0	0	0	0	0	0	0	1.07E-01	2.24E-02	2.20E-02	3.19E-01	1.15E-02	1.10E-02
	Pile Hammer	0	0	0	0	0	0	0	0	0	0	1.78E-02	3.73E-03	3.67E-03	5.32E-02	1.91E-03	1.83E-03
	Supply Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tug Boat	0	0	0	0	0	0	0	0	0	0	2.55E-01	2.08E-02	2.05E-02	3.76E-01	1.38E-02	1.23E-02
	Dive Boat	0	0	0	0	0	0	0	0	0	0	3.61E-01	2.96E-02	2.91E-02	5.34E-01	1.96E-02	1.74E-02
exhaust	Delivery Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	1.18E-03	4.02E-04	3.96E-04	1.66E-02	1.21E-04	1.15E-04
brake wear	Delivery Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.60E-04	2.40E-04
tire wear	Delivery Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.16E-05	1.29E-05
entrained road dust	Delivery Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.25E-04	1.24E-04
exhaust	Delivery Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	9.21E-05	2.81E-05	2.76E-05	7.37E-04	4.02E-06	3.84E-06
brake wear	Delivery Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.31E-06	1.85E-06
tire wear	Delivery Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.97E-07	9.92E-08
entrained road dust	Delivery Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.41E-04	6.62E-05
Dredging - Ocean Disposal	Derrick Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Barge Crane	0	0	0	0	0	0	0	0	0	0	1.27E-02	2.78E-03	2.74E-03	1.41E-02	4.23E-04	4.05E-04
	Deck Door Engine	0	0	0	0	0	0	0	0	0	0	1.13E-02	2.50E-03	2.46E-03	2.79E-02	7.43E-04	7.11E-04
	Dredger (Clam Shell)	0	0	0	0	0	0	0	0	0	0	4.47E-02	1.61E-02	1.58E-02	1.02E-01	3.59E-03	3.44E-03
	Generator	0	0	0	0	0	0	0	0	0	0	5.78E-02	2.07E-02	2.04E-02	1.29E-01	4.59E-03	4.39E-03
	Hoist Swing Winch	0	0	0	0	0	0	0	0	0	0	1.93E-02	6.69E-03	6.59E-03	4.32E-02	1.52E-03	1.46E-03
	Hoist Swing Pump	0	0	0	0	0	0	0	0	0	0	5.68E-02	1.53E-02	1.50E-02	1.31E-01	4.12E-03	3.94E-03
	Tug Boat	0	0	0	0	0	0	0	0	0	0	5.47E-02	4.47E-03	4.40E-03	8.06E-02	2.96E-03	2.63E-03
	Clam Bucket	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dump Scows	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Generator	0	0	0	0	0	0	0	0	0	0	5.26E-03	1.88E-03	1.85E-03	1.17E-02	4.18E-04	3.99E-04
	Tug Boat	0	0	0	0	0	0	0	0	0	0	4.82E-01	3.93E-02	3.87E-02	7.09E-01	2.60E-02	2.32E-02
exhaust	Worker Commute (offsite)	0	0	0	0	0	0	0	0	0	0	1.69E-03	2.16E-04	1.93E-04	1.51E-04	3.33E-06	3.07E-06
brake wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.61E-05	1.98E-05
tire wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.00E-05	2.51E-06
entrained road dust	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.41E-04	3.62E-05
Dredging - Upland Disposal	Derrick Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Barge Crane	0	0	0	0	0	0	0	0	0	0	4.44E-02	9.74E-03	9.58E-03	4.92E-02	1.48E-03	1.42E-03
	Deck Door Engine	0	0	0	0	0	0	0	0	0	0	3.96E-02	8.75E-03	8.61E-03	9.76E-02	2.60E-03	2.49E-03
	Dredger (Clam Shell)	0	0	0	0	0	0	0	0	0	0	7.82E-02	2.81E-02	2.77E-02	1.78E-01	6.28E-03	6.01E-03
	Generator	0	0	0	0	0	0	0	0	0	0	2.02E-01	7.25E-02	7.14E-02	4.50E-01	1.61E-02	1.54E-02
	Hoist Swing Winch	0	0	0	0	0	0	0	0	0	0	6.77E-02	2.34E-02	2.31E-02	1.51E-01	5.34E-03	5.11E-03
	Hoist Swing Pump	0	0	0	0	0	0	0	0	0	0	1.99E-01	5.34E-02	5.26E-02	4.59E-01	1.44E-02	1.38E-02
	Tug Boat	0	0	0	0	0	0	0	0	0	0	1.92E-01	1.56E-02	1.54E-02	2.82E-01	1.03E-02	9.21E-03
	Clam Bucket	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dump Scows	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tug Boat	0	0	0	0	0	0	0	0	0	0	1.92E-01	1.56E-02	1.54E-02	2.82E-01	1.03E-02	9.21E-03
	Excavator	0	0	0	0	0	0	0	0	0	0	2.65E-02	3.98E-03	3.91E-03	5.78E-02	1.75E-03	1.67E-03
exhaust	Haul Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	2.29E-02	7.84E-03	7.71E-03	3.24E-01	2.35E-03	2.25E-03
brake wear	Haul Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.09E-02	4.68E-03
tire wear	Haul Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.01E-03	2.51E-04
entrained road dust	Haul Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.61E-02	2.41E-03
exhaust	Haul Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	1.23E-03	3.74E-04	3.68E-04	9.83E-03	5.35E-05	5.12E-05
brake wear	Haul Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.75E-05	2.46E-05
tire wear	Haul Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.29E-06	1.32E-06
entrained road dust	Haul Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.88E-03	8.83E-04
exhaust	Worker Commute (offsite)	0	0	0	0	0	0	0	0	0	0	5.82E-03	7.41E-04	6.63E-04	5.20E-04	1.14E-05	1.05E-05
brake wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.58E-04	6.79E-05
tire wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.45E-05	8.62E-06
entrained road dust	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.28E-04	1.24E-04

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
	Phase 1 Total - Ocean Disposal	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*2.22*	*0.41*	*0.41*	*4.16*	*0.15*	*0.13*
	Off-road Construction Equipment Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1.07*	*0.32*	*0.31*	*2.44*	*0.08*	*0.08*
	Marine Source Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1.15*	*0.09*	*0.09*	*1.70*	*0.06*	*0.06*
	On-Road Construction Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.02*	*0.00*	*0.00*
	Worker Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (VOC)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (Dust)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Phase 1 Total - Upland Disposal	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*2.55*	*0.54*	*0.53*	*5.25*	*0.21*	*0.17*
	Off-road Construction Equipment Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1.52*	*0.45*	*0.44*	*3.43*	*0.11*	*0.11*
	Marine Source Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1.00*	*0.08*	*0.08*	*1.47*	*0.05*	*0.05*
	On-Road Construction Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.03*	*0.01*	*0.01*	*0.35*	*0.04*	*0.01*
	Worker Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.01*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (VOC)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (Dust)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Phase 2: Berths 226-229 Dredging 37,000 cy																	
Sheet & King Pile Installation	Derrick Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Compressor	0	0	0	0	0	0	0	0	0	0	9.46E-02	3.20E-02	3.15E-02	2.12E-01	7.42E-03	7.10E-03
	Barge Crane	0	0	0	0	0	0	0	0	0	0	7.69E-02	1.69E-02	1.66E-02	8.52E-02	2.57E-03	2.45E-03
	Deck Door Engine	0	0	0	0	0	0	0	0	0	0	6.86E-02	1.51E-02	1.49E-02	1.69E-01	4.51E-03	4.31E-03
	Generator	0	0	0	0	0	0	0	0	0	0	3.50E-01	1.26E-01	1.24E-01	7.80E-01	2.78E-02	2.66E-02
	Hoist Swing Winch	0	0	0	0	0	0	0	0	0	0	1.17E-01	4.06E-02	3.99E-02	2.62E-01	9.24E-03	8.84E-03
	Hoist Swing Pump	0	0	0	0	0	0	0	0	0	0	3.44E-01	9.25E-02	9.10E-02	7.95E-01	2.50E-02	2.39E-02
	Vibratory Hammer	0	0	0	0	0	0	0	0	0	0	1.53E-01	3.20E-02	3.14E-02	4.56E-01	1.64E-02	1.57E-02
	Pile Hammer	0	0	0	0	0	0	0	0	0	0	2.54E-02	5.33E-03	5.24E-03	7.60E-02	2.73E-03	2.62E-03
	Jet Pump	0	0	0	0	0	0	0	0	0	0	1.33E-01	1.95E-02	1.92E-02	2.01E-01	1.53E-02	1.46E-02
	Supply Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tug Boat	0	0	0	0	0	0	0	0	0	0	3.65E-01	2.98E-02	2.93E-02	5.37E-01	1.97E-02	1.75E-02
	Dive Boat	0	0	0	0	0	0	0	0	0	0	5.15E-01	4.23E-02	4.16E-02	7.63E-01	2.79E-02	2.49E-02
exhaust	Delivery Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	1.18E-03	4.02E-04	3.96E-04	1.66E-02	1.21E-04	1.15E-04
brake wear	Delivery Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.60E-04	2.40E-04
tire wear	Delivery Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.16E-05	1.29E-05
entrained road dust	Delivery Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.25E-04	1.24E-04
exhaust	Delivery Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	9.21E-05	2.81E-05	2.76E-05	7.37E-04	4.02E-06	3.84E-06
brake wear	Delivery Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.31E-06	1.85E-06
tire wear	Delivery Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.97E-07	9.92E-08
entrained road dust	Delivery Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.41E-04	6.62E-05
exhaust	Delivery Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	2.75E-03	9.38E-04	9.24E-04	3.88E-02	2.81E-04	2.69E-04
brake wear	Delivery Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.31E-03	5.60E-04
tire wear	Delivery Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.20E-04	3.01E-05
entrained road dust	Delivery Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.93E-03	2.89E-04
exhaust	Delivery Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	2.15E-04	6.55E-05	6.44E-05	1.72E-03	9.37E-06	8.96E-06
brake wear	Delivery Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.01E-05	4.31E-06
tire wear	Delivery Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	9.26E-07	2.31E-07
entrained road dust	Delivery Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.03E-03	1.54E-04
Dredging - Ocean Disposal	Derrick Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Barge Crane	0	0	0	0	0	0	0	0	0	0	4.66E-02	1.02E-02	1.00E-02	5.16E-02	1.55E-03	1.49E-03
	Deck Door Engine	0	0	0	0	0	0	0	0	0	0	4.15E-02	9.17E-03	9.02E-03	1.02E-01	2.73E-03	2.61E-03
	Dredger (Clam Shell)	0	0	0	0	0	0	0	0	0	0	1.64E-01	5.89E-02	5.80E-02	3.74E-01	1.32E-02	1.26E-02
	Generator	0	0	0	0	0	0	0	0	0	0	2.12E-01	7.60E-02	7.48E-02	4.72E-01	1.68E-02	1.61E-02
	Hoist Swing Winch	0	0	0	0	0	0	0	0	0	0	7.09E-02	2.45E-02	2.42E-02	1.59E-01	5.59E-03	5.35E-03
	Hoist Swing Pump	0	0	0	0	0	0	0	0	0	0	2.08E-01	5.60E-02	5.51E-02	4.81E-01	1.51E-02	1.45E-02
	Tug Boat	0	0	0	0	0	0	0	0	0	0	2.01E-01	1.64E-02	1.61E-02	2.96E-01	1.08E-02	9.65E-03
	Clam Bucket	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dump Scows	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Generator	0	0	0	0	0	0	0	0	0	0	1.93E-02	6.91E-03	6.80E-03	4.29E-02	1.53E-03	1.46E-03
	Tug Boat	0	0	0	0	0	0	0	0	0	0	1.77E+00	1.44E-01	1.42E-01	2.60E+00	9.54E-02	8.49E-02
exhaust	Worker Commute (offsite)	0	0	0	0	0	0	0	0	0	0	6.90E-03	8.79E-04	7.86E-04	6.17E-04	1.36E-05	1.25E-05
brake wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.88E-04	8.06E-05
tire wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.09E-05	1.02E-05
entrained road dust	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	9.82E-04	1.47E-04
Dredging - Upland Disposal	Derrick Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
	Barge Crane	0	0	0	0	0	0	0	0	0	0	7.83E-02	1.72E-02	1.69E-02	8.67E-02	2.61E-03	2.50E-03
	Deck Door Engine	0	0	0	0	0	0	0	0	0	0	6.98E-02	1.54E-02	1.52E-02	1.72E-01	4.58E-03	4.39E-03
	Dredger (Clam Shell)	0	0	0	0	0	0	0	0	0	0	1.38E-01	4.95E-02	4.88E-02	3.14E-01	1.11E-02	1.06E-02
	Generator	0	0	0	0	0	0	0	0	0	0	3.57E-01	1.28E-01	1.26E-01	7.94E-01	2.83E-02	2.71E-02
	Hoist Swing Winch	0	0	0	0	0	0	0	0	0	0	1.19E-01	4.13E-02	4.06E-02	2.67E-01	9.40E-03	9.00E-03
	Hoist Swing Pump	0	0	0	0	0	0	0	0	0	0	3.50E-01	9.41E-02	9.26E-02	8.09E-01	2.54E-02	2.43E-02
	Tug Boat	0	0	0	0	0	0	0	0	0	0	3.37E-01	2.75E-02	2.71E-02	4.97E-01	1.82E-02	1.62E-02
	Clam Bucket	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dump Scows	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tug Boat	0	0	0	0	0	0	0	0	0	0	3.37E-01	2.75E-02	2.71E-02	4.97E-01	1.82E-02	1.62E-02
	Excavator	0	0	0	0	0	0	0	0	0	0	4.67E-02	7.01E-03	6.90E-03	1.02E-01	3.07E-03	2.94E-03
exhaust	Haul Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	1.06E-01	3.62E-02	3.57E-02	1.50E+00	1.09E-02	1.04E-02
brake wear	Haul Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.05E-02	2.16E-02
tire wear	Haul Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.65E-03	1.16E-03
entrained road dust	Haul Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	7.44E-02	1.12E-02
exhaust	Haul Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	5.68E-03	1.73E-03	1.70E-03	4.55E-02	2.48E-04	2.37E-04
brake wear	Haul Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.66E-04	1.14E-04
tire wear	Haul Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.45E-05	6.12E-06
entrained road dust	Haul Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.72E-02	4.08E-03
exhaust	Worker Commute (offsite)	0	0	0	0	0	0	0	0	0	0	1.12E-02	1.43E-03	1.28E-03	1.00E-03	2.21E-05	2.03E-05
brake wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.06E-04	1.31E-04
tire wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.66E-05	1.67E-05
entrained road dust	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.60E-03	2.40E-04
Phase 2 Total - Ocean Disposal		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*4.98*	*0.86*	*0.84*	*8.97*	*0.33*	*0.30*
Off-road Construction Equipment Exhaust		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*2.13*	*0.62*	*0.61*	*4.72*	*0.17*	*0.16*
Marine Source Exhaust		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*2.85*	*0.23*	*0.23*	*4.20*	*0.15*	*0.14*
On-Road Construction Vehicles		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.06*	*0.01*	*0.00*
Worker Vehicles		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.01*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Fugitive Emissions (VOC)		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Fugitive Emissions (Dust)		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Phase 2 Total - Upland Disposal		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*4.20*	*0.90*	*0.89*	*9.48*	*0.46*	*0.31*
Off-road Construction Equipment Exhaust		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*2.52*	*0.73*	*0.72*	*5.58*	*0.20*	*0.19*
Marine Source Exhaust		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1.56*	*0.13*	*0.13*	*2.29*	*0.08*	*0.07*
On-Road Construction Vehicles		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.12*	*0.04*	*0.04*	*1.60*	*0.17*	*0.05*
Worker Vehicles		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.01*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Fugitive Emissions (VOC)		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Fugitive Emissions (Dust)		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Phase 3: Install Electrical Substation and Feeder Cable Conduit																	
Electrical substation, feeder cable conduits, cable horn boxes																	
	Sawcutter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Backhoe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Haul Trucks - soil (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Haul Trucks - soil (onsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-				-	-	-	-	0	0
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-				-	-	-	-	0	0
	Vibrating Compactor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
exhaust	Slurry Truck (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
brake wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Slurry Truck (onsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
	Forklift	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
exhaust	Concrete Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Concrete Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Equipment Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Equipment Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Equipment Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Equipment Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
	Crane	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
exhaust	Worker Commute (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
DWP new service	Equipment Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Equipment Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
	Phase 3 Total	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Off-road Construction Equipment Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Marine Source Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	On-Road Construction Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Worker Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (VOC)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (Dust)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Phase 4: AMP																	
Install 5 AMP boxes																	
Box 1	Sawcutter	0	0	0	0	0	0	0	0	0	0	1.88E-02	3.14E-03	3.09E-03	1.98E-02	1.35E-03	1.29E-03
	Backhoe	0	0	0	0	0	0	0	0	0	0	4.58E-02	4.52E-03	4.45E-03	5.05E-02	3.56E-03	3.40E-03
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	5.55E-04	1.90E-04	1.87E-04	7.85E-03	5.69E-05	5.44E-05
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.64E-04	1.13E-04
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.43E-05	6.08E-06
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.89E-04	5.84E-05
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	1.41E-04	4.30E-05	4.24E-05	1.13E-03	6.16E-06	5.89E-06

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.61E-06	2.83E-06
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.08E-07	1.52E-07
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.76E-04	1.01E-04
exhaust	Haul Trucks - soil (offsite)	0	0	0	0	0	0	0	0	0	0	5.85E-03	2.00E-03	1.97E-03	8.26E-02	5.99E-04	5.73E-04
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.78E-03	1.19E-03
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.56E-04	6.41E-05
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.10E-03	6.15E-04
exhaust	Haul Trucks - soil (onsite)	0	0	0	0	0	0	0	0	0	0	3.13E-04	9.54E-05	9.39E-05	2.51E-03	1.37E-05	1.31E-05
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.47E-05	6.28E-06
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.35E-06	3.37E-07
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.50E-03	2.25E-04
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.15E-04	1.73E-05
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.15E-04	1.73E-05
exhaust	Slurry Truck (offsite)	0	0	0	0	0	0	0	0	0	0	7.55E-03	2.58E-03	2.54E-03	1.07E-01	7.72E-04	7.39E-04
brake wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.59E-03	1.54E-03
tire wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.31E-04	8.27E-05
entrained road dust	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.29E-03	7.94E-04
exhaust	Slurry Truck (onsite)	0	0	0	0	0	0	0	0	0	0	7.68E-04	2.34E-04	2.30E-04	6.15E-03	3.35E-05	3.20E-05
brake wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.59E-05	1.54E-05
tire wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.31E-06	8.27E-07
entrained road dust	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.68E-03	5.52E-04
exhaust	Concrete Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	1.18E-04	4.02E-05	3.96E-05	1.66E-03	1.21E-05	1.15E-05
brake wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.60E-05	2.40E-05
tire wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.16E-06	1.29E-06
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.25E-05	1.24E-05
exhaust	Concrete Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	9.21E-06	2.81E-06	2.76E-06	7.37E-05	4.02E-07	3.84E-07
brake wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.31E-07	1.85E-07
tire wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.97E-08	9.92E-09
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.41E-05	6.62E-06
	Crane	0	0	0	0	0	0	0	0	0	0	1.38E-02	3.50E-03	3.44E-03	4.96E-02	1.99E-03	1.90E-03
exhaust	Equipment Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	2.44E-04	8.34E-05	8.21E-05	3.45E-03	2.50E-05	2.39E-05
brake wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.16E-04	4.98E-05
tire wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.07E-05	2.68E-06
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.71E-04	2.57E-05
exhaust	Equipment Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	6.21E-05	1.89E-05	1.86E-05	4.97E-04	2.71E-06	2.59E-06
brake wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.91E-06	1.25E-06
tire wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.68E-07	6.69E-08
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.97E-04	4.46E-05
Box 2	Sawcutter	0	0	0	0	0	0	0	0	0	0	1.88E-02	3.14E-03	3.09E-03	1.98E-02	1.35E-03	1.29E-03
	Backhoe	0	0	0	0	0	0	0	0	0	0	4.92E-02	4.86E-03	4.78E-03	5.43E-02	3.82E-03	3.66E-03
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	5.55E-04	1.90E-04	1.87E-04	7.85E-03	5.69E-05	5.44E-05
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.64E-04	1.13E-04
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.43E-05	6.08E-06
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.89E-04	5.84E-05
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	1.41E-04	4.30E-05	4.24E-05	1.13E-03	6.16E-06	5.89E-06
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.61E-06	2.83E-06
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.08E-07	1.52E-07
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.76E-04	1.01E-04
exhaust	Haul Trucks - soil (offsite)	0	0	0	0	0	0	0	0	0	0	5.85E-03	2.00E-03	1.97E-03	8.26E-02	5.99E-04	5.73E-04
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.78E-03	1.19E-03
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.56E-04	6.41E-05
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.10E-03	6.15E-04
exhaust	Haul Trucks - soil (onsite)	0	0	0	0	0	0	0	0	0	0	3.13E-04	9.54E-05	9.39E-05	2.51E-03	1.37E-05	1.31E-05
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.47E-05	6.28E-06
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.35E-06	3.37E-07
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.50E-03	2.25E-04
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.15E-04	1.73E-05
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.15E-04	1.73E-05
exhaust	Slurry Truck (offsite)	0	0	0	0	0	0	0	0	0	0	7.55E-03	2.58E-03	2.54E-03	1.07E-01	7.72E-04	7.39E-04
brake wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.59E-03	1.54E-03
tire wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.31E-04	8.27E-05

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
entrained road dust	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.29E-03	7.94E-04
exhaust	Slurry Truck (onsite)	0	0	0	0	0	0	0	0	0	0	7.68E-04	2.34E-04	2.30E-04	6.15E-03	3.35E-05	3.20E-05
brake wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.59E-05	1.54E-05
tire wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.31E-06	8.27E-07
entrained road dust	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.68E-03	5.52E-04
exhaust	Concrete Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	1.18E-04	4.02E-05	3.96E-05	1.66E-03	1.21E-05	1.15E-05
brake wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.60E-05	2.40E-05
tire wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.16E-06	1.29E-06
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.25E-05	1.24E-05
exhaust	Concrete Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	9.21E-06	2.81E-06	2.76E-06	7.37E-05	4.02E-07	3.84E-07
brake wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.31E-07	1.85E-07
tire wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.97E-08	9.92E-09
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.41E-05	6.62E-06
	Crane	0	0	0	0	0	0	0	0	0	0	1.25E-02	3.18E-03	3.13E-03	4.51E-02	1.81E-03	1.73E-03
exhaust	Equipment Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	2.33E-04	7.97E-05	7.84E-05	3.29E-03	2.39E-05	2.28E-05
brake wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.11E-04	4.76E-05
tire wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.02E-05	2.55E-06
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.63E-04	2.45E-05
exhaust	Equipment Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	5.93E-05	1.81E-05	1.78E-05	4.75E-04	2.58E-06	2.47E-06
brake wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.77E-06	1.19E-06
tire wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.55E-07	6.39E-08
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.84E-04	4.26E-05
Box 3	Sawcutter	0	0	0	0	0	0	0	0	0	0	1.71E-02	2.86E-03	2.81E-03	1.80E-02	1.22E-03	1.17E-03
	Backhoe	0	0	0	0	0	0	0	0	0	0	4.75E-02	4.69E-03	4.61E-03	5.24E-02	3.69E-03	3.53E-03
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	5.55E-04	1.90E-04	1.87E-04	7.85E-03	5.69E-05	5.44E-05
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.64E-04	1.13E-04
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.43E-05	6.08E-06
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.89E-04	5.84E-05
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	1.41E-04	4.30E-05	4.24E-05	1.13E-03	6.16E-06	5.89E-06
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.61E-06	2.83E-06
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.08E-07	1.52E-07
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.76E-04	1.01E-04
exhaust	Haul Trucks - soil (offsite)	0	0	0	0	0	0	0	0	0	0	5.85E-03	2.00E-03	1.97E-03	8.26E-02	5.99E-04	5.73E-04
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.78E-03	1.19E-03
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.56E-04	6.41E-05
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.10E-03	6.15E-04
exhaust	Haul Trucks - soil (onsite)	0	0	0	0	0	0	0	0	0	0	3.13E-04	9.54E-05	9.39E-05	2.51E-03	1.37E-05	1.31E-05
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.47E-05	6.28E-06
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.35E-06	3.37E-07
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.50E-03	2.25E-04
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.15E-04	1.73E-05
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.15E-04	1.73E-05
exhaust	Slurry Truck (offsite)	0	0	0	0	0	0	0	0	0	0	7.55E-03	2.58E-03	2.54E-03	1.07E-01	7.72E-04	7.39E-04
brake wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.59E-03	1.54E-03
tire wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.31E-04	8.27E-05
entrained road dust	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.29E-03	7.94E-04
exhaust	Slurry Truck (onsite)	0	0	0	0	0	0	0	0	0	0	7.68E-04	2.34E-04	2.30E-04	6.15E-03	3.35E-05	3.20E-05
brake wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.59E-05	1.54E-05
tire wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.31E-06	8.27E-07
entrained road dust	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.68E-03	5.52E-04
exhaust	Concrete Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	1.18E-04	4.02E-05	3.96E-05	1.66E-03	1.21E-05	1.15E-05
brake wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.60E-05	2.40E-05
tire wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.16E-06	1.29E-06
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.25E-05	1.24E-05
exhaust	Concrete Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	9.21E-06	2.81E-06	2.76E-06	7.37E-05	4.02E-07	3.84E-07
brake wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.31E-07	1.85E-07
tire wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.97E-08	9.92E-09
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.41E-05	6.62E-06
	Crane	0	0	0	0	0	0	0	0	0	0	1.50E-02	3.82E-03	3.76E-03	5.41E-02	2.17E-03	2.08E-03
exhaust	Equipment Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	2.33E-04	7.97E-05	7.84E-05	3.29E-03	2.39E-05	2.28E-05
brake wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.11E-04	4.76E-05

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
tire wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.02E-05	2.55E-06
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.63E-04	2.45E-05
exhaust	Equipment Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	5.93E-05	1.81E-05	1.78E-05	4.75E-04	2.58E-06	2.47E-06
brake wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.77E-06	1.19E-06
tire wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.55E-07	6.39E-08
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.84E-04	4.26E-05
Box 4	Sawcutter	0	0	0	0	0	0	0	0	0	0	1.71E-02	2.86E-03	2.81E-03	1.80E-02	1.22E-03	1.17E-03
	Backhoe	0	0	0	0	0	0	0	0	0	0	4.41E-02	4.35E-03	4.28E-03	4.87E-02	3.43E-03	3.28E-03
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	5.55E-04	1.90E-04	1.87E-04	7.85E-03	5.69E-05	5.44E-05
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.64E-04	1.13E-04
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.43E-05	6.08E-06
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.89E-04	5.84E-05
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	1.41E-04	4.30E-05	4.24E-05	1.13E-03	6.16E-06	5.89E-06
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.61E-06	2.83E-06
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.08E-07	1.52E-07
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.76E-04	1.01E-04
exhaust	Haul Trucks - soil (offsite)	0	0	0	0	0	0	0	0	0	0	5.85E-03	2.00E-03	1.97E-03	8.26E-02	5.99E-04	5.73E-04
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.78E-03	1.19E-03
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.56E-04	6.41E-05
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.10E-03	6.15E-04
exhaust	Haul Trucks - soil (onsite)	0	0	0	0	0	0	0	0	0	0	3.13E-04	9.54E-05	9.39E-05	2.51E-03	1.37E-05	1.31E-05
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.47E-05	6.28E-06
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.35E-06	3.37E-07
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.50E-03	2.25E-04
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.15E-04	1.73E-05
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.15E-04	1.73E-05
exhaust	Slurry Truck (offsite)	0	0	0	0	0	0	0	0	0	0	7.55E-03	2.58E-03	2.54E-03	1.07E-01	7.72E-04	7.39E-04
brake wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.59E-03	1.54E-03
tire wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.31E-04	8.27E-05
entrained road dust	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.29E-03	7.94E-04
exhaust	Slurry Truck (onsite)	0	0	0	0	0	0	0	0	0	0	7.68E-04	2.34E-04	2.30E-04	6.15E-03	3.35E-05	3.20E-05
brake wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.59E-05	1.54E-05
tire wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.31E-06	8.27E-07
entrained road dust	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.68E-03	5.52E-04
exhaust	Concrete Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	1.18E-04	4.02E-05	3.96E-05	1.66E-03	1.21E-05	1.15E-05
brake wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.60E-05	2.40E-05
tire wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.16E-06	1.29E-06
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.25E-05	1.24E-05
exhaust	Concrete Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	9.21E-06	2.81E-06	2.76E-06	7.37E-05	4.02E-07	3.84E-07
brake wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.31E-07	1.85E-07
tire wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.97E-08	9.92E-09
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.41E-05	6.62E-06
	Crane	0	0	0	0	0	0	0	0	0	0	1.50E-02	3.82E-03	3.76E-03	5.41E-02	2.17E-03	2.08E-03
exhaust	Equipment Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	2.55E-04	8.72E-05	8.59E-05	3.61E-03	2.61E-05	2.50E-05
brake wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.22E-04	5.21E-05
tire wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.12E-05	2.80E-06
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.79E-04	2.69E-05
exhaust	Equipment Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	6.50E-05	1.98E-05	1.95E-05	5.20E-04	2.83E-06	2.71E-06
brake wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.04E-06	1.30E-06
tire wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.80E-07	6.99E-08
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.11E-04	4.67E-05
Box 5	Sawcutter	0	0	0	0	0	0	0	0	0	0	1.88E-02	3.14E-03	3.09E-03	1.98E-02	1.35E-03	1.29E-03
	Backhoe	0	0	0	0	0	0	0	0	0	0	4.58E-02	4.52E-03	4.45E-03	5.05E-02	3.56E-03	3.40E-03
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	5.55E-04	1.90E-04	1.87E-04	7.85E-03	5.69E-05	5.44E-05
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.64E-04	1.13E-04
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.43E-05	6.08E-06
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.89E-04	5.84E-05
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	1.41E-04	4.30E-05	4.24E-05	1.13E-03	6.16E-06	5.89E-06
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.61E-06	2.83E-06
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.08E-07	1.52E-07
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.76E-04	1.01E-04

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
exhaust	Haul Trucks - soil (offsite)	0	0	0	0	0	0	0	0	0	0	5.85E-03	2.00E-03	1.97E-03	8.26E-02	5.99E-04	5.73E-04
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.78E-03	1.19E-03
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.56E-04	6.41E-05
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.10E-03	6.15E-04
exhaust	Haul Trucks - soil (onsite)	0	0	0	0	0	0	0	0	0	0	3.13E-04	9.54E-05	9.39E-05	2.51E-03	1.37E-05	1.31E-05
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.47E-05	6.28E-06
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.35E-06	3.37E-07
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.50E-03	2.25E-04
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.15E-04	1.73E-05
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.15E-04	1.73E-05
exhaust	Slurry Truck (offsite)	0	0	0	0	0	0	0	0	0	0	7.55E-03	2.58E-03	2.54E-03	1.07E-01	7.72E-04	7.39E-04
brake wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.59E-03	1.54E-03
tire wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.31E-04	8.27E-05
entrained road dust	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.29E-03	7.94E-04
exhaust	Slurry Truck (onsite)	0	0	0	0	0	0	0	0	0	0	7.68E-04	2.34E-04	2.30E-04	6.15E-03	3.35E-05	3.20E-05
brake wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.59E-05	1.54E-05
tire wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.31E-06	8.27E-07
entrained road dust	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.68E-03	5.52E-04
exhaust	Concrete Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	1.18E-04	4.02E-05	3.96E-05	1.66E-03	1.21E-05	1.15E-05
brake wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.60E-05	2.40E-05
tire wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.16E-06	1.29E-06
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.25E-05	1.24E-05
exhaust	Concrete Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	9.21E-06	2.81E-06	2.76E-06	7.37E-05	4.02E-07	3.84E-07
brake wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.31E-07	1.85E-07
tire wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.97E-08	9.92E-09
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.41E-05	6.62E-06
	Crane	0	0	0	0	0	0	0	0	0	0	1.38E-02	3.50E-03	3.44E-03	4.96E-02	1.99E-03	1.90E-03
exhaust	Equipment Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	6.66E-05	2.28E-05	2.24E-05	9.41E-04	6.82E-06	6.52E-06
brake wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.17E-05	1.36E-05
tire wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.92E-06	7.30E-07
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.67E-05	7.01E-06
exhaust	Equipment Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	1.69E-05	5.16E-06	5.08E-06	1.36E-04	7.39E-07	7.07E-07
brake wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	7.93E-07	3.40E-07
tire wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	7.30E-08	1.82E-08
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.11E-05	1.22E-05
exhaust	Worker Commute (offsite)	0	0	0	0	0	0	0	0	0	0	1.70E-02	2.17E-03	1.94E-03	1.52E-03	3.35E-05	3.09E-05
brake wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.64E-04	1.99E-04
tire wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.01E-04	2.53E-05
entrained road dust	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.42E-03	3.64E-04
	Phase 4 Total	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.49*	*0.08*	*0.08*	*1.67*	*0.16*	*0.07*
	Off-road Construction Equipment Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.39*	*0.06*	*0.06*	*0.60*	*0.03*	*0.03*
	Marine Source Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	On-Road Construction Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.08*	*0.03*	*0.03*	*1.06*	*0.13*	*0.03*
	Worker Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.02*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (VOC)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (Dust)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Phase 5: Parcel H																	
Parcel H Development																	
(1.5 acres)	Excavator	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - soil (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Haul Trucks - soil (onsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
	Backhoe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Grading Machine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
Grading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
	Water Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - base CMB (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - base CMB (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Haul Trucks - base CMB (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Haul Trucks - base CMB (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Haul Trucks - base CMB (onsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - base CMB (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Haul Trucks - base CMB (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Haul Trucks - base CMB (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
	Roller	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Skip Loader	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
Paving	fugitive VOC	-	0	0	-	-	-	-				-	0	0	-	-	-
	Skip Loader	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tack coat sprayer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Striping Machine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
exhaust	Concrete Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Concrete Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
	Crane	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
exhaust	Worker Commute (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
	Phase 5 Total	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Off-road Construction Equipment Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Marine Source Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	On-Road Construction Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Worker Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (VOC)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (Dust)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Phase 6: Entrace Gate Development																	
Construction & Demolition of the Main Gate																	
Realignment of Cannery Street & Terminal Way	Excavator	2.45E-02	3.68E-03	3.62E-03	5.34E-02	1.61E-03	1.54E-03	1.32E-04	1.06E+01	5.64E-04	0	5.02E-02	7.53E-03	7.41E-03	1.09E-01	3.30E-03	3.16E-03
	Backhoe	3.58E-02	3.54E-03	3.48E-03	3.95E-02	2.78E-03	2.66E-03	6.34E-05	4.91E+00	3.72E-04	0	7.33E-02	7.24E-03	7.13E-03	8.09E-02	5.70E-03	5.45E-03
	Sawcutter	0	0	0	0	0	0	0	0	0	0	7.41E-02	1.24E-02	1.22E-02	7.78E-02	5.29E-03	5.07E-03
	Excavator	0	0	0	0	0	0	0	0	0	0	7.59E-02	1.14E-02	1.12E-02	1.65E-01	5.00E-03	4.78E-03
	Backhoe	0	0	0	0	0	0	0	0	0	0	1.11E-01	1.09E-02	1.08E-02	1.22E-01	8.62E-03	8.24E-03
Grading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.22E-03	6.71E-04
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	7.12E-03	2.43E-03	2.40E-03	1.01E-01	7.29E-04	6.98E-04
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.39E-03	1.45E-03
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.12E-04	7.80E-05
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.00E-03	7.49E-04
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	1.81E-03	5.52E-04	5.43E-04	1.45E-02	7.90E-05	7.56E-05
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.48E-05	3.63E-05

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	7.80E-06	1.95E-06
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.68E-03	1.30E-03
exhaust	Slurry Truck (offsite)	0	0	0	0	0	0	0	0	0	0	1.47E-02	5.01E-03	4.93E-03	2.07E-01	1.50E-03	1.44E-03
brake wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.98E-03	2.99E-03
tire wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.43E-04	1.61E-04
entrained road dust	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.03E-02	1.54E-03
exhaust	Slurry Truck (onsite)	0	0	0	0	0	0	0	0	0	0	1.49E-03	4.55E-04	4.47E-04	1.19E-02	6.51E-05	6.22E-05
brake wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.98E-05	2.99E-05
tire wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.43E-06	1.61E-06
entrained road dust	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	7.15E-03	1.07E-03
	Water Truck	0	0	0	0	0	0	0	0	0	0	1.80E-01	4.75E-02	4.67E-02	5.70E-01	2.20E-02	2.10E-02
	Forklift	0	0	0	0	0	0	0	0	0	0	1.24E-02	4.05E-03	3.98E-03	5.32E-02	2.22E-03	2.12E-03
exhaust	Concrete Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	1.33E-03	4.56E-04	4.49E-04	1.88E-02	1.37E-04	1.31E-04
brake wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.35E-04	2.72E-04
tire wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.85E-05	1.46E-05
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	9.36E-04	1.40E-04
exhaust	Concrete Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	1.04E-04	3.18E-05	3.13E-05	8.36E-04	4.55E-06	4.35E-06
brake wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.88E-06	2.09E-06
tire wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.50E-07	1.12E-07
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.00E-04	7.50E-05
exhaust	Haul Trucks - base CMB (offsite)	0	0	0	0	0	0	0	0	0	0	7.12E-03	2.43E-03	2.40E-03	1.01E-01	7.29E-04	6.98E-04
brake wear	Haul Trucks - base CMB (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.39E-03	1.45E-03
tire wear	Haul Trucks - base CMB (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.12E-04	7.80E-05
entrained road dust	Haul Trucks - base CMB (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.00E-03	7.49E-04
exhaust	Haul Trucks - base CMB (onsite)	0	0	0	0	0	0	0	0	0	0	1.81E-03	5.52E-04	5.43E-04	1.45E-02	7.90E-05	7.56E-05
brake wear	Haul Trucks - base CMB (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.48E-05	3.63E-05
tire wear	Haul Trucks - base CMB (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	7.80E-06	1.95E-06
entrained road dust	Haul Trucks - base CMB (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.68E-03	1.30E-03
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.33E-04	5.04E-05
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.33E-04	5.04E-05
	Roller	0	0	0	0	0	0	0	0	0	0	8.57E-02	9.66E-03	9.51E-03	1.06E-01	7.22E-03	6.91E-03
	Skip Loader	0	0	0	0	0	0	0	0	0	0	7.10E-02	3.80E-03	3.74E-03	5.70E-02	2.77E-03	2.65E-03
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	9.66E-03	3.30E-03	3.25E-03	1.36E-01	9.89E-04	9.46E-04
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.60E-03	1.97E-03
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.23E-04	1.06E-04
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.77E-03	1.02E-03
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	1.23E-03	3.74E-04	3.68E-04	9.83E-03	5.35E-05	5.12E-05
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.75E-05	2.46E-05
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.29E-06	1.32E-06
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.88E-03	8.83E-04
	Roller	0	0	0	0	0	0	0	0	0	0	1.07E-01	1.21E-02	1.19E-02	1.32E-01	9.03E-03	8.64E-03
Paving	fugitive VOC	-	0	0	-	-	-	-				-	1.32E-02	1.32E-02	-	-	-
	Skip Loader	0	0	0	0	0	0	0	0	0	0	8.88E-02	4.76E-03	4.68E-03	7.13E-02	3.46E-03	3.31E-03
	Tack coat sprayer	0	0	0	0	0	0	0	0	0	0	3.22E-04	3.14E-04	3.09E-04	1.60E-03	1.35E-04	1.30E-04
	Tack coat sprayer	0	0	0	0	0	0	0	0	0	0	3.22E-04	3.14E-04	3.09E-04	1.60E-03	1.35E-04	1.30E-04
	Crane	0	0	0	0	0	0	0	0	0	0	8.20E-02	2.08E-02	2.05E-02	2.95E-01	1.18E-02	1.13E-02
	Crane	0	0	0	0	0	0	0	0	0	0	2.90E-02	7.36E-03	7.24E-03	1.04E-01	4.18E-03	4.00E-03
	Striping Machine	0	0	0	0	0	0	0	0	0	0	6.17E-04	6.01E-04	5.91E-04	3.07E-03	2.60E-04	2.48E-04
Vacant Properties	Sawcutter	0	0	0	0	0	0	0	0	0	0	7.41E-02	1.24E-02	1.22E-02	7.78E-02	5.29E-03	5.07E-03
	Excavator	0	0	0	0	0	0	0	0	0	0	7.59E-02	1.14E-02	1.12E-02	1.65E-01	5.00E-03	4.78E-03
Demolition	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	9.48E-04	1.44E-04
	Backhoe	0	0	0	0	0	0	0	0	0	0	1.11E-01	1.09E-02	1.08E-02	1.22E-01	8.62E-03	8.24E-03
Grading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.22E-03	6.71E-04
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	5.81E-03	1.98E-03	1.95E-03	8.20E-02	5.95E-04	5.69E-04
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.76E-03	1.18E-03
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.55E-04	6.36E-05
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.07E-03	6.11E-04
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	1.48E-03	4.50E-04	4.43E-04	1.18E-02	6.44E-05	6.16E-05
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.91E-05	2.96E-05
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.36E-06	1.59E-06
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	7.07E-03	1.06E-03

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
Debris	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.75E-02	2.66E-03
exhaust	Haul Trucks - soil (offsite)	0	0	0	0	0	0	0	0	0	0	5.16E-03	1.76E-03	1.74E-03	7.29E-02	5.28E-04	5.06E-04
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.46E-03	1.05E-03
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.26E-04	5.65E-05
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.62E-03	5.43E-04
exhaust	Haul Trucks - soil (onsite)	0	0	0	0	0	0	0	0	0	0	2.76E-04	8.42E-05	8.29E-05	2.21E-03	1.20E-05	1.15E-05
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.29E-05	5.54E-06
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.19E-06	2.98E-07
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.32E-03	1.99E-04
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.01E-04	1.53E-05
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.01E-04	1.53E-05
	Water Truck	0	0	0	0	0	0	0	0	0	0	1.80E-01	4.75E-02	4.67E-02	5.70E-01	2.20E-02	2.10E-02
	Forklift	0	0	0	0	0	0	0	0	0	0	3.65E-02	1.20E-02	1.18E-02	1.57E-01	6.55E-03	6.27E-03
exhaust	Concrete Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	3.92E-03	1.34E-03	1.32E-03	5.54E-02	4.02E-04	3.84E-04
brake wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.87E-03	8.00E-04
tire wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.72E-04	4.30E-05
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.75E-03	4.13E-04
exhaust	Concrete Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	3.07E-04	9.36E-05	9.21E-05	2.46E-03	1.34E-05	1.28E-05
brake wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.44E-05	6.16E-06
tire wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.32E-06	3.31E-07
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.47E-03	2.21E-04
	Crane	0	0	0	0	0	0	0	0	0	0	2.65E-02	6.72E-03	6.61E-03	9.52E-02	3.82E-03	3.65E-03
exhaust	Haul Trucks - base CMB (offsite)	0	0	0	0	0	0	0	0	0	0	4.24E-02	1.45E-02	1.43E-02	5.99E-01	4.34E-03	4.15E-03
brake wear	Haul Trucks - base CMB (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.02E-02	8.65E-03
tire wear	Haul Trucks - base CMB (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.86E-03	4.65E-04
entrained road dust	Haul Trucks - base CMB (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.97E-02	4.46E-03
exhaust	Haul Trucks - base CMB (onsite)	0	0	0	0	0	0	0	0	0	0	1.08E-02	3.29E-03	3.23E-03	8.64E-02	4.70E-04	4.50E-04
brake wear	Haul Trucks - base CMB (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.05E-04	2.16E-04
tire wear	Haul Trucks - base CMB (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.65E-05	1.16E-05
entrained road dust	Haul Trucks - base CMB (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.17E-02	7.75E-03
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.98E-03	3.00E-04
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.98E-03	3.00E-04
	Roller	0	0	0	0	0	0	0	0	0	0	2.57E-01	2.90E-02	2.85E-02	3.17E-01	2.17E-02	2.07E-02
	Paving Machine	0	0	0	0	0	0	0	0	0	0	1.23E-01	1.23E-02	1.21E-02	1.32E-01	9.28E-03	8.88E-03
Paving	fugitive VOC	-		0	0	-	-	-	-			-	1.56E-02	1.56E-02	-	-	-
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	3.49E-02	1.19E-02	1.17E-02	4.94E-01	3.58E-03	3.42E-03
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.66E-02	7.13E-03
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.53E-03	3.83E-04
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.45E-02	3.68E-03
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	4.44E-03	1.35E-03	1.33E-03	3.56E-02	1.94E-04	1.85E-04
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.08E-04	8.91E-05
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.91E-05	4.79E-06
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.13E-02	3.19E-03
	Roller	0	0	0	0	0	0	0	0	0	0	2.53E-01	2.85E-02	2.81E-02	3.12E-01	2.13E-02	2.04E-02
	Skip Loader	0	0	0	0	0	0	0	0	0	0	3.71E-02	1.99E-03	1.96E-03	2.98E-02	1.45E-03	1.39E-03
	Striping Machine	0	0	0	0	0	0	0	0	0	0	6.17E-04	6.01E-04	5.91E-04	3.07E-03	2.60E-04	2.48E-04
Inside Terminal	Sawcutter	0	0	0	0	0	0	0	0	0	0	3.62E-02	6.03E-03	5.94E-03	3.80E-02	2.59E-03	2.47E-03
	Excavator	0	0	0	0	0	0	0	0	0	0	5.25E-02	7.88E-03	7.76E-03	1.14E-01	3.46E-03	3.31E-03
Demolition	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	9.48E-04	1.44E-04
	Backhoe	0	0	0	0	0	0	0	0	0	0	7.67E-02	7.58E-03	7.46E-03	8.47E-02	5.96E-03	5.71E-03
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	4.90E-03	1.67E-03	1.65E-03	6.93E-02	5.02E-04	4.80E-04
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.33E-03	1.00E-03
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.15E-04	5.37E-05
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.44E-03	5.16E-04
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	1.25E-03	3.80E-04	3.74E-04	9.98E-03	5.43E-05	5.20E-05
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.83E-05	2.50E-05
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.37E-06	1.34E-06
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.97E-03	8.96E-04
Debris	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.75E-02	2.66E-03
exhaust	Slurry Truck (offsite)	0	0	0	0	0	0	0	0	0	0	9.06E-04	3.09E-04	3.04E-04	1.28E-02	9.27E-05	8.87E-05
brake wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.31E-04	1.85E-04

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
tire wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.97E-05	9.92E-06
entrained road dust	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.35E-04	9.53E-05
exhaust	Slurry Truck (onsite)	0	0	0	0	0	0	0	0	0	0	9.21E-05	2.81E-05	2.76E-05	7.37E-04	4.02E-06	3.84E-06
brake wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.31E-06	1.85E-06
tire wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.97E-07	9.92E-08
entrained road dust	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.41E-04	6.62E-05
	Cold Planer	0	0	0	0	0	0	0	0	0	0	3.50E-02	7.32E-03	7.20E-03	1.04E-01	3.76E-03	3.59E-03
	Sweeper	0	0	0	0	0	0	0	0	0	0	5.80E-02	1.53E-02	1.51E-02	1.84E-01	7.09E-03	6.79E-03
	Paving Machine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
	Roller	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Skip Loader	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Striping Machine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
exhaust	Worker Commute (offsite)	5.29E-03	6.74E-04	6.03E-04	4.73E-04	1.04E-05	9.58E-06	1.39E-05	1.25E+00	3.76E-05	2.30E-04	5.92E-02	7.54E-03	6.75E-03	5.29E-03	1.16E-04	1.07E-04
brake wear	Worker Commute (offsite)	-	-	-	-	1.44E-04	6.18E-05	-	-	-	-	-	-	-	-	1.61E-03	6.91E-04
tire wear	Worker Commute (offsite)	-	-	-	-	3.14E-05	7.85E-06	-	-	-	-	-	-	-	-	3.51E-04	8.78E-05
entrained road dust	Worker Commute (offsite)	-	-	-	-	7.53E-04	1.13E-04	-	-	-	-	-	-	-	-	8.43E-03	1.26E-03
	Phase 6 Total	*0.07*	*0.01*	*0.01*	*0.09*	*0.01*	*0.00*	*0.00*	*16.78*	*0.00*	*0.00*	*2.70*	*0.47*	*0.46*	*6.61*	*0.59*	*0.30*
	Off-road Construction Equipment Exhaust	*0.06*	*0.01*	*0.01*	*0.09*	*0.00*	*0.00*	*0.00*	*15.52*	*0.00*	*0.00*	*2.47*	*0.38*	*0.37*	*4.46*	*0.22*	*0.21*
	Marine Source Exhaust	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	On-Road Construction Vehicles	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.16*	*0.05*	*0.05*	*2.15*	*0.31*	*0.08*
	Worker Vehicles	*0.01*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.25*	*0.00*	*0.00*	*0.06*	*0.01*	*0.01*	*0.01*	*0.01*	*0.00*
	Fugitive Emissions (VOC)	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.03*	*0.03*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (Dust)	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.05*	*0.01*
Crane Delivery																	
	Cargo Ship (Berth+Zones 1-5)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tug Boat	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Crane	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Welder	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tractor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
exhaust	Worker Commute (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
	Crane Delivery Total	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Off-road Construction Equipment Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Marine Source Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	On-Road Construction Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Worker Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (VOC)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (Dust)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Phase 7: TICTF Loading Track																	
Installation of an additional loading track																	
exhaust	Delivery Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	3.02E-04	1.03E-04	1.01E-04	4.26E-03	3.09E-05	2.96E-05
brake wear	Delivery Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.44E-04	6.16E-05
tire wear	Delivery Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.32E-05	3.31E-06
entrained road dust	Delivery Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.12E-04	3.18E-05
exhaust	Delivery Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	7.68E-05	2.34E-05	2.30E-05	6.15E-04	3.35E-06	3.20E-06
brake wear	Delivery Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.59E-06	1.54E-06
tire wear	Delivery Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.31E-07	8.27E-08
entrained road dust	Delivery Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.68E-04	5.52E-05
exhaust	Haul Trucks - base CMB (offsite)	0	0	0	0	0	0	0	0	0	0	2.42E-03	8.25E-04	8.12E-04	3.41E-02	2.47E-04	2.37E-04
brake wear	Haul Trucks - base CMB (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.15E-03	4.93E-04
tire wear	Haul Trucks - base CMB (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.06E-04	2.65E-05

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
entrained road dust	Haul Trucks - base CMB (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.69E-03	2.54E-04
exhaust	Haul Trucks - base CMB (onsite)	0	0	0	0	0	0	0	0	0	0	6.14E-04	1.87E-04	1.84E-04	4.92E-03	2.68E-05	2.56E-05
brake wear	Haul Trucks - base CMB (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.87E-05	1.23E-05
tire wear	Haul Trucks - base CMB (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.65E-06	6.61E-07
entrained road dust	Haul Trucks - base CMB (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.94E-03	4.41E-04
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.13E-04	1.71E-05
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.13E-04	1.71E-05
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	9.78E-04	3.34E-04	3.29E-04	1.38E-02	1.00E-04	9.58E-05
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.66E-04	2.00E-04
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.29E-05	1.07E-05
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.86E-04	1.03E-04
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	2.49E-04	7.58E-05	7.46E-05	1.99E-03	1.08E-05	1.04E-05
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.16E-05	4.99E-06
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.07E-06	2.68E-07
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.19E-03	1.79E-04
exhaust	Haul Trucks - soil (offsite)	0	0	0	0	0	0	0	0	0	0	1.20E-02	4.10E-03	4.03E-03	1.69E-01	1.23E-03	1.17E-03
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.71E-03	2.45E-03
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.25E-04	1.31E-04
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.41E-03	1.26E-03
exhaust	Haul Trucks - soil (onsite)	0	0	0	0	0	0	0	0	0	0	6.42E-04	1.96E-04	1.92E-04	5.14E-03	2.80E-05	2.68E-05
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.00E-05	1.29E-05
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.76E-06	6.91E-07
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.07E-03	4.61E-04
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.35E-04	3.56E-05
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.35E-04	3.56E-05
	Sawcutter	0	0	0	0	0	0	0	0	0	0	3.61E-02	6.02E-03	5.93E-03	3.79E-02	2.58E-03	2.47E-03
	Excavator	0	0	0	0	0	0	0	0	0	0	2.45E-02	3.67E-03	3.61E-03	5.33E-02	1.61E-03	1.54E-03
	Tamper	0	0	0	0	0	0	0	0	0	0	1.12E-01	1.09E-02	1.08E-02	1.97E-01	6.75E-03	6.45E-03
	Regulator	0	0	0	0	0	0	0	0	0	0	5.42E-02	1.39E-02	1.37E-02	2.11E-01	7.60E-03	7.27E-03
	Speed Swing	0	0	0	0	0	0	0	0	0	0	1.06E-01	2.21E-02	2.18E-02	3.16E-01	1.14E-02	1.09E-02
	Forklift	0	0	0	0	0	0	0	0	0	0	2.52E-02	8.26E-03	8.13E-03	1.09E-01	4.53E-03	4.33E-03
	Loader	0	0	0	0	0	0	0	0	0	0	7.66E-02	7.56E-03	7.44E-03	8.45E-02	5.95E-03	5.70E-03
	Blade/Grader	0	0	0	0	0	0	0	0	0	0	6.05E-02	1.65E-02	1.62E-02	2.56E-01	8.26E-03	7.90E-03
Grading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.30E-03	4.64E-04
	Swivel Dump	0	0	0	0	0	0	0	0	0	0	1.06E-01	2.21E-02	2.18E-02	3.16E-01	1.14E-02	1.09E-02
	Water Truck	0	0	0	0	0	0	0	0	0	0	1.52E-01	4.01E-02	3.95E-02	4.81E-01	1.85E-02	1.77E-02
	Prentice Loader	0	0	0	0	0	0	0	0	0	0	7.48E-02	1.56E-02	1.54E-02	2.23E-01	8.03E-03	7.69E-03
	Tie Truck	0	0	0	0	0	0	0	0	0	0	1.24E-01	3.28E-02	3.23E-02	3.94E-01	1.52E-02	1.45E-02
	Paving Machine	0	0	0	0	0	0	0	0	0	0	6.41E-02	6.41E-03	6.31E-03	6.89E-02	4.85E-03	4.64E-03
Paving	fugitive VOC	-	0	0	-	-	-	-				-	7.86E-03	7.86E-03	-	-	-
	Roller	0	0	0	0	0	0	0	0	0	0	6.61E-02	7.45E-03	7.33E-03	8.14E-02	5.57E-03	5.33E-03
	Skip Loader	0	0	0	0	0	0	0	0	0	0	5.48E-02	2.93E-03	2.89E-03	4.40E-02	2.14E-03	2.04E-03
exhaust	Worker Commute (offsite)	0	0	0	0	0	0	0	0	0	0	2.79E-02	3.56E-03	3.19E-03	2.50E-03	5.49E-05	5.06E-05
brake wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	7.61E-04	3.26E-04
tire wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.66E-04	4.14E-05
entrained road dust	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.98E-03	5.97E-04
	Phase 7 Total	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1.18*	*0.23*	*0.23*	*3.11*	*0.15*	*0.12*
	Off-road Construction Equipment Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1.14*	*0.22*	*0.21*	*2.87*	*0.11*	*0.11*
	Marine Source Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	On-Road Construction Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.02*	*0.01*	*0.01*	*0.23*	*0.03*	*0.01*
	Worker Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.03*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (VOC)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.01*	*0.01*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (Dust)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Proposed Total	**Ocean Disposal**	**0.07**	**0.01**	**0.01**	**0.09**	**0.01**	**0.00**	**0.00**	**16.78**	**0.00**	**0.00**	**10.39**	**1.82**	**1.79**	**21.41**	**1.23**	**0.80**
	Off-road Construction Equipment Exhaust	0.06	0.01	0.01	0.09	0.00	0.00	0.00	15.52	0.00	0.00	6.06	1.37	1.35	12.22	0.50	0.48
	Marine Source Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.33	0.32	5.90	0.22	0.19
	On-Road Construction Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.08	0.08	3.29	0.44	0.11
	Worker Vehicles	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.25	0.00	0.00	0.08	0.01	0.01	0.01	0.02	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
	Upland Disposal	**0.07**	**0.01**	**0.01**	**0.09**	**0.01**	**0.00**	**0.00**	**16.78**	**0.00**	**0.00**	**9.94**	**2.00**	**1.96**	**23.01**	**1.42**	**0.85**
	Off-road Construction Equipment Exhaust	0.06	0.01	0.01	0.09	0.00	0.00	0.00	15.52	0.00	0.00	6.91	1.62	1.59	14.07	0.56	0.54
	Marine Source Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.55	0.21	0.21	3.77	0.14	0.12
	On-Road Construction Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.13	0.13	5.16	0.64	0.17
	Worker Vehicles	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.25	0.00	0.00	0.09	0.01	0.01	0.01	0.02	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
General Conformity	**Ocean Disposal**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**7.21**	**1.27**	**1.25**	**13.13**	**0.48**	**0.43**
	Off-road Construction Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.19	0.94	0.92	7.16	0.25	0.24
	Marine Source Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.33	0.32	5.90	0.22	0.19
	On-Road Construction Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.08	0.01	0.00
	Worker Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Upland Disposal	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**6.75**	**1.44**	**1.42**	**14.73**	**0.66**	**0.48**
	Off-road Construction Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.04	1.18	1.16	9.01	0.31	0.30
	Marine Source Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.55	0.21	0.21	3.77	0.14	0.12
	On-Road Construction Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.05	0.05	1.95	0.21	0.06
	Worker Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Alt 1 No Federal Action		**0.07**	**0.01**	**0.01**	**0.09**	**0.01**	**0.00**	**0.00**	**16.78**	**0.00**	**0.00**	**2.70**	**0.47**	**0.46**	**6.61**	**0.59**	**0.30**
	Off-road Construction Equipment Exhaust	0.06	0.01	0.01	0.09	0.00	0.00	0.00	15.52	0.00	0.00	2.47	0.38	0.37	4.46	0.22	0.21
	Marine Source Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	On-Road Construction Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.05	0.05	2.15	0.31	0.08
	Worker Vehicles	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.25	0.00	0.00	0.06	0.01	0.01	0.01	0.01	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
Alt 3 Reduced Wharf Improvements	**Ocean Disposal**	**0.07**	**0.01**	**0.01**	**0.09**	**0.01**	**0.00**	**0.00**	**16.78**	**0.00**	**0.00**	**8.17**	**1.41**	**1.39**	**17.25**	**1.08**	**0.66**
	Off-road Construction Equipment Exhaust	0.06	0.01	0.01	0.09	0.00	0.00	0.00	15.52	0.00	0.00	4.99	1.06	1.04	9.78	0.42	0.40
	Marine Source Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.85	0.23	0.23	4.20	0.15	0.14
	On-Road Construction Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.08	0.08	3.27	0.44	0.11
	Worker Vehicles	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.25	0.00	0.00	0.08	0.01	0.01	0.01	0.01	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
	Upland Disposal	**0.07**	**0.01**	**0.01**	**0.09**	**0.01**	**0.00**	**0.00**	**16.78**	**0.00**	**0.00**	**7.39**	**1.45**	**1.43**	**17.75**	**1.21**	**0.68**
	Off-road Construction Equipment Exhaust	0.06	0.01	0.01	0.09	0.00	0.00	0.00	15.52	0.00	0.00	5.39	1.17	1.15	10.64	0.45	0.43
	Marine Source Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56	0.13	0.13	2.29	0.08	0.07
	On-Road Construction Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.12	0.12	4.81	0.61	0.16
	Worker Vehicles	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.25	0.00	0.00	0.09	0.01	0.01	0.01	0.02	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
Alt 4 No Backland Improvements	**Ocean Disposal**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**7.70**	**1.35**	**1.33**	**14.80**	**0.64**	**0.50**
	Off-road Construction Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.59	0.99	0.98	7.76	0.28	0.27
	Marine Source Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.33	0.32	5.90	0.22	0.19
	On-Road Construction Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.03	0.03	1.14	0.13	0.04
	Worker Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Upland Disposal	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**7.24**	**1.53**	**1.50**	**16.40**	**0.83**	**0.55**
	Off-road Construction Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.43	1.24	1.22	9.61	0.35	0.33
	Marine Source Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.55	0.21	0.21	3.77	0.14	0.12
	On-Road Construction Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.07	0.07	3.01	0.34	0.10
	Worker Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.01	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Alt 5 Expanded On-Dock Rail Yard	**Ocean Disposal**	**0.07**	**0.01**	**0.01**	**0.09**	**0.01**	**0.00**	**0.00**	**16.78**	**0.00**	**0.00**	**11.57**	**2.06**	**2.02**	**24.52**	**1.38**	**0.92**
	Off-road Construction Equipment Exhaust	0.06	0.01	0.01	0.09	0.00	0.00	0.00	15.52	0.00	0.00	7.20	1.59	1.56	15.09	0.62	0.59
	Marine Source Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.33	0.32	5.90	0.22	0.19
	On-Road Construction Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.09	0.09	3.52	0.47	0.12
	Worker Vehicles	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.25	0.00	0.00	0.11	0.01	0.01	0.01	0.02	0.00

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
	Upland Disposal	**0.07**	**0.01**	**0.01**	**0.09**	**0.01**	**0.00**	**0.00**	**16.78**	**0.00**	**0.00**	**11.12**	**2.23**	**2.19**	**26.12**	**1.57**	**0.97**
	Off-road Construction Equipment Exhaust	0.06	0.01	0.01	0.09	0.00	0.00	0.00	15.52	0.00	0.00	8.04	1.83	1.80	16.94	0.68	0.65
	Marine Source Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.55	0.21	0.21	3.77	0.14	0.12
	On-Road Construction Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.14	0.13	5.40	0.67	0.18
	Worker Vehicles	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.25	0.00	0.00	0.12	0.02	0.01	0.01	0.02	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01

Sources:
2016_05 B226-236 Construction Schedule_EIR.pdf
E-mail from B. Correa (POLA) to J. Bahng (POLA) on 1/5/15 (hours of operation)
Barge equipment operations from BargeEquipmentOperatingHrs+ENG+EMD.xlsx received 11/16/15

Conversions

2000	lb/ton
453.592	g/lb
1000000	g/tonne
0.98	VOC/TOG (diesel)
0.89	VOC/TOG (gasoline)

Assume all emissions except for fugitive paving VOCs and worker commute emissions are diesel tailpipe emissions.
Worker commute exhaust emissions assumed to be all gasoline.
EPA. 2010. Conversion Factors for Hydrocarbon Emission Components. EPA-420-R-10-015. July.

Monthly Construction Days 20

Truck Capacity

Trips to Kettleman	20
Others	10

Soure: E-mail from B. Correa (POLA) to J. Bahng on 1/14/15.

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year							2019 Emissions tonne/year		
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
Phase 1: Berths 230-232 Dredging 8,000 cy															
Sheet Piling	Derrick Barge	-	-	-	-	-	-	-	-	-	-	-			
	Compressor	3.28E-04	3.03E+01	1.54E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Barge Crane	3.00E-04	2.77E+01	8.08E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Deck Door Engine	3.02E-04	2.44E+01	7.26E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Generator	1.20E-03	1.11E+02	6.02E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Hoist Swing Winch	4.05E-04	3.74E+01	1.94E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Hoist Swing Pump	1.26E-03	1.17E+02	4.43E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Vibratory Hammer	5.62E-04	5.20E+01	2.07E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Pile Hammer	9.37E-05	8.66E+00	3.45E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Supply Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tug Boat	2.81E-04	3.01E+01	3.59E-04	1.43E-03	0	0	0	0	0	0	0	0	0	0
	Dive Boat	3.98E-04	4.27E+01	5.10E-04	2.03E-03	0	0	0	0	0	0	0	0	0	0
exhaust	Delivery Trucks (offsite)	4.80E-05	4.57E+00	1.49E-05	1.87E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Delivery Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Delivery Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Delivery Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Delivery Trucks (onsite)	1.03E-06	9.75E-02	1.04E-06	2.04E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Delivery Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Delivery Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Delivery Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Dredging - Ocean Disposal	Derrick Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Barge Crane	7.06E-05	6.53E+00	1.91E-04	0.00E+00	0	0	0	0	0	0	0			
	Deck Door Engine	7.12E-05	5.74E+00	1.71E-04	0.00E+00	0	0	0	0	0	0	0			
	Dredger (Clam Shell)	2.18E-04	2.02E+01	1.10E-03	0.00E+00	0	0	0	0	0	0	0			
	Generator	2.82E-04	2.61E+01	1.42E-03	0.00E+00	0	0	0	0	0	0	0			
	Hoist Swing Winch	9.54E-05	8.81E+00	4.58E-04	0.00E+00	0	0	0	0	0	0	0			
	Hoist Swing Pump	2.98E-04	2.75E+01	1.05E-03	0.00E+00	0	0	0	0	0	0	0			
	Tug Boat	6.01E-05	6.44E+00	7.70E-05	3.06E-04	0	0	0	0	0	0	0	0	0	0
	Clam Bucket	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dump Scows	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Generator	2.57E-05	2.37E+00	1.29E-04	0.00E+00	0	0	0	0	0	0	0			
	Tug Boat	5.29E-04	5.67E+01	6.77E-04	2.70E-03	0	0	0	0	0	0	0	0	0	0
exhaust	Worker Commute (offsite)	4.44E-06	4.01E-01	1.20E-05	7.37E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Dredging - Upland Disposal	Derrick Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Barge Crane	2.47E-04	2.28E+01	6.67E-04	0.00E+00	0	0	0	0	0	0	0			
	Deck Door Engine	2.49E-04	2.01E+01	5.99E-04	0.00E+00	0	0	0	0	0	0	0			
	Dredger (Clam Shell)	3.82E-04	3.53E+01	1.93E-03	0.00E+00	0	0	0	0	0	0	0			
	Generator	9.89E-04	9.14E+01	4.97E-03	0.00E+00	0	0	0	0	0	0	0			
	Hoist Swing Winch	3.34E-04	3.08E+01	1.60E-03	0.00E+00	0	0	0	0	0	0	0			
	Hoist Swing Pump	1.04E-03	9.64E+01	3.66E-03	0.00E+00	0	0	0	0	0	0	0			
	Tug Boat	2.10E-04	2.26E+01	2.69E-04	1.07E-03	0	0	0	0	0	0	0	0	0	0
	Clam Bucket	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dump Scows	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tug Boat	2.10E-04	2.26E+01	2.69E-04	1.07E-03	0	0	0	0	0	0	0	0	0	0
	Excavator	1.42E-04	1.15E+01	6.09E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks (offsite)	9.36E-04	1.87E+02	6.11E-04	7.68E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks (onsite)	1.37E-05	1.30E+00	1.39E-05	2.72E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Worker Commute (offsite)	1.53E-05	1.38E+00	4.13E-05	2.53E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year							2019 Emissions tonne/year		
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
	Phase 1 Total - Ocean Disposal	*0.01*	*646.19*	*0.02*	*0.01*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Off-road Construction Equipment Exhaust	*0.01*	*505.23*	*0.02*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Marine Source Exhaust	*0.00*	*135.90*	*0.00*	*0.01*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	On-Road Construction Vehicles	*0.00*	*4.66*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Worker Vehicles	*0.00*	*0.40*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (VOC)	*0.00*	*0.00*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (Dust)	*0.00*	*0.00*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Phase 1 Total - Upland Disposal	*0.01*	*1028.76*	*0.03*	*0.01*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Off-road Construction Equipment Exhaust	*0.01*	*716.27*	*0.03*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Marine Source Exhaust	*0.00*	*117.85*	*0.00*	*0.01*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	On-Road Construction Vehicles	*0.00*	*193.26*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Worker Vehicles	*0.00*	*1.38*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (VOC)	*0.00*	*0.00*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (Dust)	*0.00*	*0.00*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Phase 2: Berths 226-229 Dredging 37,000 cy															
Sheet & King Pile Installation	Derrick Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Compressor	4.69E-04	4.33E+01	2.19E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Barge Crane	4.28E-04	3.96E+01	1.15E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Deck Door Engine	4.32E-04	3.48E+01	1.04E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Generator	1.71E-03	1.58E+02	8.60E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Hoist Swing Winch	5.78E-04	5.34E+01	2.78E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Hoist Swing Pump	1.81E-03	1.67E+02	6.33E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Vibratory Hammer	8.03E-04	7.42E+01	2.96E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Pile Hammer	1.34E-04	1.24E+01	4.93E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Jet Pump	2.46E-04	1.90E+01	1.28E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Supply Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tug Boat	4.01E-04	4.30E+01	5.13E-04	2.04E-03	0	0	0	0	0	0	0	0	0	0
	Dive Boat	5.69E-04	6.10E+01	7.28E-04	2.90E-03	0	0	0	0	0	0	0	0	0	0
exhaust	Delivery Trucks (offsite)	4.80E-05	4.57E+00	1.49E-05	1.87E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Delivery Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Delivery Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Delivery Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Delivery Trucks (onsite)	1.03E-06	9.75E-02	1.04E-06	2.04E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Delivery Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Delivery Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Delivery Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Delivery Trucks (offsite)	1.12E-04	1.07E+01	3.47E-05	4.37E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Delivery Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Delivery Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Delivery Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Delivery Trucks (onsite)	2.39E-06	2.28E-01	2.42E-06	4.76E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Delivery Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Delivery Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Delivery Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Dredging - Ocean Disposal	Derrick Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Barge Crane	2.59E-04	2.39E+01	6.99E-04	0.00E+00	0	0	0	0	0	0	0			
	Deck Door Engine	2.61E-04	2.11E+01	6.28E-04	0.00E+00	0	0	0	0	0	0	0			
	Dredger (Clam Shell)	8.00E-04	7.39E+01	4.04E-03	0.00E+00	0	0	0	0	0	0	0			
	Generator	1.04E-03	9.57E+01	5.20E-03	0.00E+00	0	0	0	0	0	0	0			
	Hoist Swing Winch	3.50E-04	3.23E+01	1.68E-03	0.00E+00	0	0	0	0	0	0	0			
	Hoist Swing Pump	1.09E-03	1.01E+02	3.83E-03	0.00E+00	0	0	0	0	0	0	0			
	Tug Boat	2.21E-04	2.36E+01	2.82E-04	1.12E-03	0	0	0	0	0	0	0	0	0	0
	Clam Bucket	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dump Scows	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Generator	9.41E-05	8.70E+00	4.73E-04	0.00E+00	0	0	0	0	0	0	0			
	Tug Boat	1.94E-03	2.08E+02	2.48E-03	9.89E-03	0	0	0	0	0	0	0	0	0	0
exhaust	Worker Commute (offsite)	1.81E-05	1.64E+00	4.90E-05	3.00E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Dredging - Upland Disposal	Derrick Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year							2019 Emissions tonne/year		
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
	Barge Crane	4.35E-04	4.02E+01	1.18E-03	0.00E+00	0	0	0	0	0	0	0			
	Deck Door Engine	4.39E-04	3.54E+01	1.06E-03	0.00E+00	0	0	0	0	0	0	0			
	Dredger (Clam Shell)	6.73E-04	6.22E+01	3.39E-03	0.00E+00	0	0	0	0	0	0	0			
	Generator	1.74E-03	1.61E+02	8.75E-03	0.00E+00	0	0	0	0	0	0	0			
	Hoist Swing Winch	5.88E-04	5.44E+01	2.83E-03	0.00E+00	0	0	0	0	0	0	0			
	Hoist Swing Pump	1.84E-03	1.70E+02	6.45E-03	0.00E+00	0	0	0	0	0	0	0			
	Tug Boat	3.71E-04	3.97E+01	4.75E-04	1.89E-03	0	0	0	0	0	0	0	0	0	0
	Clam Bucket	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dump Scows	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tug Boat	3.71E-04	3.97E+01	4.75E-04	1.89E-03	0	0	0	0	0	0	0	0	0	0
	Excavator	2.51E-04	2.02E+01	1.07E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks (offsite)	4.33E-03	8.66E+02	2.82E-03	3.55E-03	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks (onsite)	6.33E-05	6.01E+00	6.41E-05	1.26E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Worker Commute (offsite)	2.95E-05	2.66E+00	7.98E-05	4.89E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
	Phase 2 Total - Ocean Disposal	*0.01*	*1311.10*	*0.05*	*0.02*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Off-road Construction Equipment Exhaust	*0.01*	*958.44*	*0.04*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Marine Source Exhaust	*0.00*	*335.49*	*0.00*	*0.02*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	On-Road Construction Vehicles	*0.00*	*15.54*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Worker Vehicles	*0.00*	*1.64*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (VOC)	*0.00*	*0.00*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (Dust)	*0.00*	*0.00*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Phase 2 Total - Upland Disposal	*0.02*	*2218.89*	*0.06*	*0.01*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Off-road Construction Equipment Exhaust	*0.01*	*1145.02*	*0.05*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Marine Source Exhaust	*0.00*	*183.40*	*0.00*	*0.01*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	On-Road Construction Vehicles	*0.00*	*887.81*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Worker Vehicles	*0.00*	*2.66*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (VOC)	*0.00*	*0.00*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (Dust)	*0.00*	*0.00*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Phase 3: Install Electrical Substation and Feeder Cable Conduit															
Electrical substation, feeder cable conduits, cable horn boxes															
	Sawcutter	0	0	0	0	4.31E-02	7.18E-03	7.07E-03	4.53E-02	3.08E-03	2.94E-03	8.04E-05	6.22E+00	4.92E-04	0.00E+00
	Backhoe	0	0	0	0	4.26E-02	4.21E-03	4.14E-03	4.71E-02	3.31E-03	3.17E-03	7.55E-05	5.84E+00	4.43E-04	0.00E+00
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	1.93E-04	6.60E-05	6.50E-05	2.73E-03	1.98E-05	1.89E-05	7.88E-06	7.49E-01	2.44E-06	3.07E-06
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	9.20E-05	3.94E-05	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	8.47E-06	2.12E-06	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	1.35E-04	2.03E-05	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	4.91E-05	1.50E-05	1.47E-05	3.93E-04	2.14E-06	2.05E-06	5.47E-07	5.20E-02	5.54E-07	1.09E-07
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	2.30E-06	9.85E-07	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	2.12E-07	5.29E-08	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	2.35E-04	3.53E-05	-	-	-	-
exhaust	Haul Trucks - soil (offsite)	0	0	0	0	2.75E-03	9.41E-04	9.26E-04	3.89E-02	2.82E-04	2.70E-04	1.12E-04	2.25E+01	7.33E-05	9.22E-05
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	1.31E-03	5.62E-04	-	-	-	-
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	1.21E-04	3.02E-05	-	-	-	-
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	1.93E-03	2.90E-04	-	-	-	-
exhaust	Haul Trucks - soil (onsite)	0	0	0	0	1.47E-04	4.49E-05	4.42E-05	1.18E-03	6.43E-06	6.15E-06	1.64E-06	1.56E-01	1.66E-06	3.26E-07
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	6.90E-06	2.96E-06	-	-	-	-
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	6.35E-07	1.59E-07	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	7.06E-04	1.06E-04	-	-	-	-
Loading	fugitive dust (offsite)	-				-	-	-	-	5.42E-05	8.20E-06	-			
Loading	fugitive dust (onsite)	-				-	-	-	-	5.42E-05	8.20E-06	-			
	Vibrating Compactor	0	0	0	0	5.79E-04	1.32E-04	1.30E-04	6.92E-04	2.69E-05	2.57E-05	1.48E-06	8.61E-02	9.04E-06	0.00E+00
exhaust	Slurry Truck (offsite)	0	0	0	0	3.11E-03	1.06E-03	1.05E-03	4.39E-02	3.18E-04	3.04E-04	1.27E-04	1.21E+01	3.93E-05	4.94E-05

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year							2019 Emissions tonne/year		
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
brake wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	1.48E-03	6.34E-04	-	-	-	-
tire wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	1.36E-04	3.41E-05	-	-	-	-
entrained road dust	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	2.18E-03	3.27E-04	-	-	-	-
exhaust	Slurry Truck (onsite)	0	0	0	0	3.16E-04	9.64E-05	9.48E-05	2.53E-03	1.38E-05	1.32E-05	3.52E-06	3.35E-01	3.57E-06	7.00E-07
brake wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	1.48E-05	6.34E-06	-	-	-	-
tire wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	1.36E-06	3.41E-07	-	-	-	-
entrained road dust	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	1.51E-03	2.27E-04	-	-	-	-
	Forklift	0	0	0	0	7.36E-03	2.41E-03	2.37E-03	3.16E-02	1.32E-03	1.26E-03	4.10E-05	3.30E+00	1.70E-04	0.00E+00
exhaust	Concrete Trucks (offsite)	0	0	0	0	1.18E-04	4.02E-05	3.96E-05	1.66E-03	1.21E-05	1.15E-05	4.80E-06	4.57E-01	1.49E-06	1.87E-06
brake wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	5.60E-05	2.40E-05	-	-	-	-
tire wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	5.16E-06	1.29E-06	-	-	-	-
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	8.25E-05	1.24E-05	-	-	-	-
exhaust	Concrete Trucks (onsite)	0	0	0	0	9.21E-06	2.81E-06	2.76E-06	7.37E-05	4.02E-07	3.84E-07	1.03E-07	9.75E-03	1.04E-07	2.04E-08
brake wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	4.31E-07	1.85E-07	-	-	-	-
tire wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	3.97E-08	9.92E-09	-	-	-	-
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	4.41E-05	6.62E-06	-	-	-	-
exhaust	Equipment Trucks (offsite)	0	0	0	0	2.26E-04	7.72E-05	7.60E-05	3.19E-03	2.31E-05	2.21E-05	9.22E-06	8.76E-01	2.86E-06	3.59E-06
brake wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	1.08E-04	4.61E-05	-	-	-	-
tire wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	9.90E-06	2.48E-06	-	-	-	-
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	1.58E-04	2.38E-05	-	-	-	-
exhaust	Equipment Trucks (onsite)	0	0	0	0	5.75E-05	1.75E-05	1.72E-05	4.60E-04	2.51E-06	2.40E-06	6.40E-07	6.09E-02	6.48E-07	1.27E-07
brake wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	2.69E-06	1.15E-06	-	-	-	-
tire wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	2.48E-07	6.19E-08	-	-	-	-
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	2.75E-04	4.13E-05	-	-	-	-
exhaust	Equipment Trucks (offsite)	0	0	0	0	3.72E-04	1.27E-04	1.25E-04	5.26E-03	3.81E-05	3.65E-05	1.52E-05	1.44E+00	4.71E-06	5.92E-06
brake wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	1.77E-04	7.59E-05	-	-	-	-
tire wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	1.63E-05	4.08E-06	-	-	-	-
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	2.61E-04	3.92E-05	-	-	-	-
exhaust	Equipment Trucks (onsite)	0	0	0	0	9.47E-05	2.88E-05	2.84E-05	7.58E-04	4.13E-06	3.95E-06	1.05E-06	1.00E-01	1.07E-06	2.10E-07
brake wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	4.43E-06	1.90E-06	-	-	-	-
tire wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	4.08E-07	1.02E-07	-	-	-	-
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	4.53E-04	6.80E-05	-	-	-	-
	Crane	0	0	0	0	2.40E-02	6.09E-03	6.00E-03	8.64E-02	3.46E-03	3.31E-03	1.04E-04	9.61E+00	5.78E-04	0.00E+00
exhaust	Worker Commute (offsite)	0	0	0	0	1.25E-02	1.59E-03	1.42E-03	1.11E-03	2.45E-05	2.26E-05	3.27E-05	2.95E+00	8.85E-05	5.42E-04
brake wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	3.40E-04	1.46E-04	-	-	-	-
tire wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	7.39E-05	1.85E-05	-	-	-	-
entrained road dust	Worker Commute (offsite)	-	-	-	-	-	-	-	-	1.77E-03	2.66E-04	-	-	-	-
DWP new service	Equipment Trucks (offsite)	0	0	0	0	7.25E-04	2.48E-04	2.44E-04	1.02E-02	7.42E-05	7.10E-05	2.95E-05	2.81E+00	9.16E-06	1.15E-05
brake wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	3.45E-04	1.48E-04	-	-	-	-
tire wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	3.17E-05	7.94E-06	-	-	-	-
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	5.08E-04	7.62E-05	-	-	-	-
exhaust	Equipment Trucks (onsite)	0	0	0	0	1.84E-04	5.61E-05	5.52E-05	1.47E-03	8.03E-06	7.68E-06	2.05E-06	1.95E-01	2.08E-06	4.08E-07
brake wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	8.62E-06	3.69E-06	-	-	-	-
tire wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	7.94E-07	1.98E-07	-	-	-	-
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	8.82E-04	1.32E-04	-	-	-	-
	Phase 3 Total	*0*	*0*	*0*	*0*	*0.14*	*0.02*	*0.02*	*0.32*	*0.03*	*0.01*	*0.00*	*69.78*	*0.00*	*0.00*
	Off-road Construction Equipment Exhaust	*0*	*0*	*0*	*0*	*0.12*	*0.02*	*0.02*	*0.21*	*0.01*	*0.01*	*0.00*	*25.05*	*0.00*	*0.00*
	Marine Source Exhaust	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	On-Road Construction Vehicles	*0*	*0*	*0*	*0*	*0.01*	*0.00*	*0.00*	*0.11*	*0.01*	*0.00*	*0.00*	*41.78*	*0.00*	*0.00*
	Worker Vehicles	*0*	*0*	*0*	*0*	*0.01*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*2.95*	*0.00*	*0.00*
	Fugitive Emissions (VOC)	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (Dust)	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Phase 4: AMP															
Install 5 AMP boxes															
Box 1	Sawcutter	3.52E-05	2.72E+00	2.15E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Backhoe	8.11E-05	6.27E+00	4.76E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - AC pavement (offsite)	2.27E-05	2.15E+00	7.02E-06	8.83E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	1.57E-06	1.50E-01	1.59E-06	3.13E-07	0	0	0	0	0	0	0	0	0	0

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year						2019 Emissions tonne/year			
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - soil (offsite)	2.39E-04	4.78E+01	1.56E-04	1.96E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - soil (onsite)	3.49E-06	3.32E-01	3.53E-06	6.94E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Loading	fugitive dust (offsite)	-	-	-	-	-	-	-	-	0	0	-			
Loading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
exhaust	Slurry Truck (offsite)	3.08E-04	2.93E+01	9.54E-05	1.20E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Slurry Truck (onsite)	8.55E-06	8.13E-01	8.66E-06	1.70E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Concrete Trucks (offsite)	4.80E-06	4.57E-01	1.49E-06	1.87E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Concrete Trucks (onsite)	1.03E-07	9.75E-03	1.04E-07	2.04E-08	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
	Crane	5.97E-05	5.52E+00	3.32E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Equipment Trucks (offsite)	9.96E-06	9.47E-01	3.09E-06	3.88E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Equipment Trucks (onsite)	6.92E-07	6.58E-02	7.01E-07	1.38E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Box 2	Sawcutter	3.52E-05	2.72E+00	2.15E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Backhoe	8.71E-05	6.73E+00	5.11E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - AC pavement (offsite)	2.27E-05	2.15E+00	7.02E-06	8.83E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	1.57E-06	1.50E-01	1.59E-06	3.13E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - soil (offsite)	2.39E-04	4.78E+01	1.56E-04	1.96E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - soil (onsite)	3.49E-06	3.32E-01	3.53E-06	6.94E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Loading	fugitive dust (offsite)	-	-	-	-	-	-	-	-	0	0	-			
Loading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
exhaust	Slurry Truck (offsite)	3.08E-04	2.93E+01	9.54E-05	1.20E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year							2019 Emissions tonne/year		
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
entrained road dust	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Slurry Truck (onsite)	8.55E-06	8.13E-01	8.66E-06	1.70E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Concrete Trucks (offsite)	4.80E-06	4.57E-01	1.49E-06	1.87E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Concrete Trucks (onsite)	1.03E-07	9.75E-03	1.04E-07	2.04E-08	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
	Crane	5.43E-05	5.02E+00	3.02E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Equipment Trucks (offsite)	9.51E-06	9.04E-01	2.95E-06	3.71E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Equipment Trucks (onsite)	6.60E-07	6.28E-02	6.69E-07	1.31E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Box 3	Sawcutter	3.20E-05	2.47E+00	1.96E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Backhoe	8.41E-05	6.50E+00	4.93E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - AC pavement (offsite)	2.27E-05	2.15E+00	7.02E-06	8.83E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	1.57E-06	1.50E-01	1.59E-06	3.13E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - soil (offsite)	2.39E-04	4.78E+01	1.56E-04	1.96E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - soil (onsite)	3.49E-06	3.32E-01	3.53E-06	6.94E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Loading	fugitive dust (offsite)	-	-	-	-	-	-	-	-	0	0	-			
Loading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
exhaust	Slurry Truck (offsite)	3.08E-04	2.93E+01	9.54E-05	1.20E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Slurry Truck (onsite)	8.55E-06	8.13E-01	8.66E-06	1.70E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Concrete Trucks (offsite)	4.80E-06	4.57E-01	1.49E-06	1.87E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Concrete Trucks (onsite)	1.03E-07	9.75E-03	1.04E-07	2.04E-08	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
	Crane	6.51E-05	6.02E+00	3.62E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Equipment Trucks (offsite)	9.51E-06	9.04E-01	2.95E-06	3.71E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year							2019 Emissions tonne/year		
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
tire wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Equipment Trucks (onsite)	6.60E-07	6.28E-02	6.69E-07	1.31E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Box 4	Sawcutter	3.20E-05	2.47E+00	1.96E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Backhoe	7.81E-05	6.04E+00	4.58E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - AC pavement (offsite)	2.27E-05	2.15E+00	7.02E-06	8.83E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	1.57E-06	1.50E-01	1.59E-06	3.13E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - soil (offsite)	2.39E-04	4.78E+01	1.56E-04	1.96E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - soil (onsite)	3.49E-06	3.32E-01	3.53E-06	6.94E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Loading	fugitive dust (offsite)	-	-	-	-	-	-	-	-	0	0	-			
Loading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
exhaust	Slurry Truck (offsite)	3.08E-04	2.93E+01	9.54E-05	1.20E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Slurry Truck (onsite)	8.55E-06	8.13E-01	8.66E-06	1.70E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Concrete Trucks (offsite)	4.80E-06	4.57E-01	1.49E-06	1.87E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Concrete Trucks (onsite)	1.03E-07	9.75E-03	1.04E-07	2.04E-08	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
	Crane	6.51E-05	6.02E+00	3.62E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Equipment Trucks (offsite)	1.04E-05	9.90E-01	3.23E-06	4.06E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Equipment Trucks (onsite)	7.23E-07	6.88E-02	7.32E-07	1.44E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Box 5	Sawcutter	3.52E-05	2.72E+00	2.15E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Backhoe	8.11E-05	6.27E+00	4.76E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - AC pavement (offsite)	2.27E-05	2.15E+00	7.02E-06	8.83E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	1.57E-06	1.50E-01	1.59E-06	3.13E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year							2019 Emissions tonne/year		
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
exhaust	Haul Trucks - soil (offsite)	2.39E-04	4.78E+01	1.56E-04	1.96E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - soil (onsite)	3.49E-06	3.32E-01	3.53E-06	6.94E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Loading	fugitive dust (offsite)	-	-	-	-	-	-	-	-	0	0	-			
Loading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
exhaust	Slurry Truck (offsite)	3.08E-04	2.93E+01	9.54E-05	1.20E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Slurry Truck (onsite)	8.55E-06	8.13E-01	8.66E-06	1.70E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Concrete Trucks (offsite)	4.80E-06	4.57E-01	1.49E-06	1.87E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Concrete Trucks (onsite)	1.03E-07	9.75E-03	1.04E-07	2.04E-08	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
	Crane	5.97E-05	5.52E+00	3.32E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Equipment Trucks (offsite)	2.72E-06	2.58E-01	8.42E-07	1.06E-06	4.77E-04	1.63E-04	1.61E-04	6.74E-03	4.89E-05	4.68E-05	1.95E-05	1.85E+00	6.04E-06	7.59E-06
brake wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	2.27E-04	9.74E-05	-	-	-	-
tire wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	2.09E-05	5.23E-06	-	-	-	-
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	3.35E-04	5.02E-05	-	-	-	-
exhaust	Equipment Trucks (onsite)	1.89E-07	1.79E-02	1.91E-07	3.75E-08	1.21E-04	3.70E-05	3.64E-05	9.72E-04	5.29E-06	5.06E-06	1.35E-06	1.29E-01	1.37E-06	2.69E-07
brake wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	5.68E-06	2.43E-06	-	-	-	-
tire wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	5.23E-07	1.31E-07	-	-	-	-
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	5.81E-04	8.72E-05	-	-	-	-
exhaust	Worker Commute (offsite)	4.47E-05	4.04E+00	1.21E-04	7.41E-04	3.36E-03	4.28E-04	3.83E-04	3.00E-04	6.60E-06	6.09E-06	8.82E-06	7.96E-01	2.39E-05	1.46E-04
brake wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	9.15E-05	3.92E-05	-	-	-	-
tire wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	1.99E-05	4.98E-06	-	-	-	-
entrained road dust	Worker Commute (offsite)	-	-	-	-	-	-	-	-	4.78E-04	7.18E-05	-	-	-	-
	Phase 4 Total	*0.00*	*486.03*	*0.01*	*0.00*	*0.00*	*0.00*	*0.00*	*0.01*	*0.00*	*0.00*	*0.00*	*2.78*	*0.00*	*0.00*
	Off-road Construction Equipment Exhaust	*0.00*	*73.00*	*0.01*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Marine Source Exhaust	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	On-Road Construction Vehicles	*0.00*	*408.99*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.01*	*0.00*	*0.00*	*0.00*	*1.98*	*0.00*	*0.00*
	Worker Vehicles	*0.00*	*4.04*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.80*	*0.00*	*0.00*
	Fugitive Emissions (VOC)	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (Dust)	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Phase 5: Parcel H															
Parcel H Development															
(1.5 acres)	Excavator	0	0	0	0	1.30E-02	1.95E-03	1.92E-03	2.84E-02	8.57E-04	8.20E-04	6.99E-05	5.64E+00	2.99E-04	0.00E+00
exhaust	Haul Trucks - soil (offsite)	0	0	0	0	1.72E-04	5.88E-05	5.78E-05	2.43E-03	1.76E-05	1.69E-05	7.02E-06	1.40E+00	4.58E-06	5.76E-06
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	8.19E-05	3.51E-05	-	-	-	-
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	7.54E-06	1.88E-06	-	-	-	-
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	1.21E-04	1.81E-05	-	-	-	-
exhaust	Haul Trucks - soil (onsite)	0	0	0	0	9.21E-06	2.81E-06	2.76E-06	7.37E-05	4.02E-07	3.84E-07	1.03E-07	9.75E-03	1.04E-07	2.04E-08
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	4.31E-07	1.85E-07	-	-	-	-
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	3.97E-08	9.92E-09	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	4.41E-05	6.62E-06	-	-	-	-
Loading	fugitive dust (offsite)	-	-	-	-	-	-	-	-	3.39E-06	5.13E-07	-			
Loading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	3.39E-06	5.13E-07	-			
	Backhoe	0	0	0	0	1.90E-02	1.88E-03	1.85E-03	2.10E-02	1.48E-03	1.41E-03	3.37E-05	2.60E+00	1.98E-04	0.00E+00
	Grading Machine	0	0	0	0	1.50E-02	4.09E-03	4.03E-03	6.35E-02	2.05E-03	1.96E-03	7.70E-05	6.21E+00	3.63E-04	0.00E+00

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year							2019 Emissions tonne/year		
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
Grading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	1.07E-03	1.15E-04	-			
	Water Truck	0	0	0	0	3.08E-02	8.15E-03	8.02E-03	9.78E-02	3.77E-03	3.60E-03	1.51E-04	1.37E+01	7.51E-04	0.00E+00
exhaust	Haul Trucks - base CMB (offsite)	0	0	0	0	4.14E-03	1.41E-03	1.39E-03	5.85E-02	4.24E-04	4.06E-04	1.69E-04	1.61E+01	5.24E-05	6.59E-05
brake wear	Haul Trucks - base CMB (offsite)	-	-	-	-	-	-	-	-	1.97E-03	8.45E-04	-	-	-	-
tire wear	Haul Trucks - base CMB (offsite)	-	-	-	-	-	-	-	-	1.81E-04	4.54E-05	-	-	-	-
entrained road dust	Haul Trucks - base CMB (offsite)	-	-	-	-	-	-	-	-	2.90E-03	4.36E-04	-	-	-	-
exhaust	Haul Trucks - base CMB (onsite)	0	0	0	0	1.05E-03	3.21E-04	3.16E-04	8.43E-03	4.59E-05	4.39E-05	1.17E-05	1.12E+00	1.19E-05	2.33E-06
brake wear	Haul Trucks - base CMB (onsite)	-	-	-	-	-	-	-	-	4.93E-05	2.11E-05	-	-	-	-
tire wear	Haul Trucks - base CMB (onsite)	-	-	-	-	-	-	-	-	4.54E-06	1.13E-06	-	-	-	-
entrained road dust	Haul Trucks - base CMB (onsite)	-	-	-	-	-	-	-	-	5.04E-03	7.57E-04	-	-	-	-
Loading	fugitive dust (offsite)	-	-	-	-	-	-	-	-	1.94E-04	2.93E-05	-			
Loading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	1.94E-04	2.93E-05	-			
	Roller	0	0	0	0	1.97E-02	2.23E-03	2.19E-03	2.43E-02	1.66E-03	1.59E-03	3.49E-05	2.70E+00	2.81E-04	0.00E+00
	Skip Loader	0	0	0	0	1.64E-02	8.77E-04	8.63E-04	1.31E-02	6.38E-04	6.10E-04	3.06E-05	2.37E+00	1.24E-04	0.00E+00
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	3.91E-03	1.34E-03	1.32E-03	5.53E-02	4.00E-04	3.83E-04	1.60E-04	1.52E+01	4.95E-05	6.22E-05
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	1.86E-03	7.98E-04	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	1.71E-04	4.29E-05	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	2.74E-03	4.12E-04	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	4.98E-04	1.52E-04	1.49E-04	3.98E-03	2.17E-05	2.07E-05	5.54E-06	5.27E-01	5.61E-06	1.10E-06
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	2.33E-05	9.98E-06	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	2.14E-06	5.36E-07	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	2.38E-03	3.57E-04	-	-	-	-
	Roller	0	0	0	0	2.17E-02	2.45E-03	2.41E-03	2.68E-02	1.83E-03	1.75E-03	3.84E-05	2.97E+00	3.09E-04	0.00E+00
Paving	fugitive VOC	-				-	1.97E-03	1.97E-03	-	-	-	-			
	Skip Loader	0	0	0	0	1.80E-02	9.64E-04	9.49E-04	1.44E-02	7.02E-04	6.72E-04	3.37E-05	2.60E+00	1.36E-04	0.00E+00
	Tack coat sprayer	0	0	0	0	2.99E-04	2.91E-04	2.87E-04	1.49E-03	1.26E-04	1.20E-04	1.57E-06	1.45E-01	5.79E-06	0.00E+00
	Striping Machine	0	0	0	0	1.36E-04	1.32E-04	1.30E-04	6.76E-04	5.72E-05	5.47E-05	7.15E-07	6.61E-02	2.63E-06	0.00E+00
exhaust	Concrete Trucks (offsite)	0	0	0	0	3.92E-05	1.34E-05	1.32E-05	5.54E-04	4.02E-06	3.84E-06	1.60E-06	1.52E-01	4.96E-07	6.24E-07
brake wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	1.87E-05	8.00E-06	-	-	-	-
tire wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	1.72E-06	4.30E-07	-	-	-	-
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	2.75E-05	4.13E-06	-	-	-	-
exhaust	Concrete Trucks (onsite)	0	0	0	0	3.07E-06	9.36E-07	9.21E-07	2.46E-05	1.34E-07	1.28E-07	3.42E-08	3.25E-03	3.46E-08	6.80E-09
brake wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	1.44E-07	6.16E-08	-	-	-	-
tire wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	1.32E-08	3.31E-09	-	-	-	-
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	1.47E-05	2.21E-06	-	-	-	-
	Crane	0	0	0	0	6.39E-03	1.62E-03	1.60E-03	2.30E-02	9.22E-04	8.82E-04	2.77E-05	2.56E+00	1.54E-04	0.00E+00
exhaust	Worker Commute (offsite)	0	0	0	0	5.10E-03	6.50E-04	5.81E-04	4.56E-04	1.00E-05	9.23E-06	1.34E-05	1.21E+00	3.62E-05	2.22E-04
brake wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	1.39E-04	5.95E-05	-	-	-	-
tire wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	3.02E-05	7.56E-06	-	-	-	-
entrained road dust	Worker Commute (offsite)	-	-	-	-	-	-	-	-	7.26E-04	1.09E-04	-	-	-	-
	Phase 5 Total	*0*	*0*	*0*	*0*	*0.18*	*0.03*	*0.03*	*0.44*	*0.04*	*0.02*	*0.00*	*77.16*	*0.00*	*0.00*
	Off-road Construction Equipment Exhaust	*0*	*0*	*0*	*0*	*0.16*	*0.02*	*0.02*	*0.31*	*0.01*	*0.01*	*0.00*	*41.51*	*0.00*	*0.00*
	Marine Source Exhaust	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	On-Road Construction Vehicles	*0*	*0*	*0*	*0*	*0.01*	*0.00*	*0.00*	*0.13*	*0.02*	*0.00*	*0.00*	*34.44*	*0.00*	*0.00*
	Worker Vehicles	*0*	*0*	*0*	*0*	*0.01*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.21*	*0.00*	*0.00*
	Fugitive Emissions (VOC)	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (Dust)	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Phase 6: Entrace Gate Development															
Construction & Demolition of the Main Gate															
Realignment of Cannery Street & Terminal Way	Excavator	2.70E-04	2.17E+01	1.15E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Backhoe	1.30E-04	1.00E+01	7.62E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Sawcutter	1.38E-04	1.07E+01	8.46E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Excavator	4.08E-04	3.29E+01	1.74E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Backhoe	1.96E-04	1.52E+01	1.15E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
Grading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
exhaust	Haul Trucks - AC pavement (offsite)	2.91E-04	2.76E+01	9.01E-05	1.13E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	2.02E-05	1.92E+00	2.04E-05	4.01E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year							2019 Emissions tonne/year		
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Slurry Truck (offsite)	5.98E-04	5.69E+01	1.86E-04	2.33E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Slurry Truck (onsite)	1.66E-05	1.58E+00	1.68E-05	3.30E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
	Water Truck	8.82E-04	7.96E+01	4.38E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Forklift	6.88E-05	5.55E+00	2.86E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Concrete Trucks (offsite)	5.44E-05	5.17E+00	1.69E-05	2.12E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Concrete Trucks (onsite)	1.16E-06	1.11E-01	1.18E-06	2.31E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - base CMB (offsite)	2.91E-04	2.76E+01	9.01E-05	1.13E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - base CMB (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - base CMB (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - base CMB (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - base CMB (onsite)	2.02E-05	1.92E+00	2.04E-05	4.01E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - base CMB (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - base CMB (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - base CMB (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Loading	fugitive dust (offsite)	-	-	-	-	-	-	-	-	0	0	-			
Loading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
	Roller	1.51E-04	1.17E+01	1.22E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Skip Loader	1.33E-04	1.03E+01	5.38E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - AC pavement (offsite)	3.94E-04	3.75E+01	1.22E-04	1.54E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	1.37E-05	1.30E+00	1.39E-05	2.72E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
	Roller	1.89E-04	1.46E+01	1.52E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
Paving	fugitive VOC	-				-	0	0	-	-	-	-			
	Skip Loader	1.66E-04	1.28E+01	6.72E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Tack coat sprayer	1.69E-06	1.56E-01	6.23E-06	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Tack coat sprayer	1.69E-06	1.56E-01	6.23E-06	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Crane	3.55E-04	3.28E+01	1.97E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Crane	1.26E-04	1.16E+01	6.98E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Striping Machine	3.24E-06	3.00E-01	1.19E-05	0.00E+00	0	0	0	0	0	0	0	0	0	0
Vacant Properties	Sawcutter	1.38E-04	1.07E+01	8.46E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Excavator	4.08E-04	3.29E+01	1.74E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
Demolition	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
	Backhoe	1.96E-04	1.52E+01	1.15E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
Grading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
exhaust	Haul Trucks - AC pavement (offsite)	2.37E-04	2.25E+01	7.34E-05	9.24E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	1.64E-05	1.56E+00	1.67E-05	3.27E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year						2019 Emissions tonne/year			
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
Debris	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
exhaust	Haul Trucks - soil (offsite)	2.11E-04	4.21E+01	1.37E-04	1.73E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - soil (onsite)	3.08E-06	2.93E-01	3.12E-06	6.12E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Loading	fugitive dust (offsite)	-	-	-	-	-	-	-	-	0	0	-			
Loading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
	Water Truck	8.82E-04	7.96E+01	4.38E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Forklift	2.03E-04	1.64E+01	8.44E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Concrete Trucks (offsite)	1.60E-04	1.52E+01	4.96E-05	6.24E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Concrete Trucks (onsite)	3.42E-06	3.25E-01	3.46E-06	6.80E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
	Crane	1.15E-04	1.06E+01	6.38E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - base CMB (offsite)	1.73E-03	1.64E+02	5.36E-04	6.74E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - base CMB (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - base CMB (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - base CMB (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - base CMB (onsite)	1.20E-04	1.14E+01	1.22E-04	2.39E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - base CMB (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - base CMB (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - base CMB (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Loading	fugitive dust (offsite)	-	-	-	-	-	-	-	-	0	0	-			
Loading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
	Roller	4.54E-04	3.51E+01	3.65E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Paving Machine	2.06E-04	1.59E+01	2.12E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
Paving	fugitive VOC	-				-	0	0	-	-	-	-			
exhaust	Haul Trucks - AC pavement (offsite)	1.43E-03	1.36E+02	4.42E-04	5.56E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	4.95E-05	4.70E+00	5.01E-05	9.84E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
	Roller	4.47E-04	3.46E+01	3.60E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Skip Loader	6.95E-05	5.37E+00	2.81E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Striping Machine	3.24E-06	3.00E-01	1.19E-05	0.00E+00	0	0	0	0	0	0	0	0	0	0
Inside Terminal	Sawcutter	6.75E-05	5.22E+00	4.13E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Excavator	2.82E-04	2.28E+01	1.21E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
Demolition	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
	Backhoe	1.36E-04	1.05E+01	7.97E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - AC pavement (offsite)	2.00E-04	1.90E+01	6.20E-05	7.80E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	1.39E-05	1.32E+00	1.41E-05	2.76E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Debris	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
exhaust	Slurry Truck (offsite)	3.69E-05	3.51E+00	1.15E-05	1.44E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year						2019 Emissions tonne/year			
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
tire wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Slurry Truck (onsite)	1.03E-06	9.75E-02	1.04E-06	2.04E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
	Cold Planer	1.84E-04	1.70E+01	6.77E-04	0.00E+00	1.83E-02	3.83E-03	3.77E-03	5.47E-02	1.97E-03	1.88E-03	9.63E-05	8.90E+00	3.55E-04	0.00E+00
	Sweeper	2.85E-04	2.57E+01	1.41E-03	0.00E+00	3.04E-02	8.04E-03	7.91E-03	9.64E-02	3.72E-03	3.56E-03	1.49E-04	1.35E+01	7.41E-04	0.00E+00
	Paving Machine	0	0	0	0	8.12E-02	8.13E-03	8.00E-03	8.73E-02	6.14E-03	5.87E-03	1.36E-04	1.05E+01	1.41E-03	0.00E+00
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	9.81E-03	3.35E-03	3.30E-03	1.39E-01	1.00E-03	9.60E-04	4.00E-04	3.80E+01	1.24E-04	1.56E-04
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	4.67E-03	2.00E-03	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	4.30E-04	1.07E-04	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	6.87E-03	1.03E-03	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	1.25E-03	3.80E-04	3.74E-04	9.98E-03	5.43E-05	5.20E-05	1.39E-05	1.32E+00	1.41E-05	2.76E-06
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	5.83E-05	2.50E-05	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	5.37E-06	1.34E-06	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	5.97E-03	8.96E-04	-	-	-	-
	Roller	0	0	0	0	1.68E-01	1.89E-02	1.86E-02	2.06E-01	1.41E-02	1.35E-02	2.96E-04	2.29E+01	2.38E-03	0.00E+00
	Skip Loader	0	0	0	0	6.94E-02	3.72E-03	3.66E-03	5.57E-02	2.71E-03	2.59E-03	1.30E-04	1.00E+01	5.25E-04	0.00E+00
	Striping Machine	0	0	0	0	5.63E-04	5.49E-04	5.40E-04	2.80E-03	2.37E-04	2.27E-04	2.96E-06	2.74E-01	1.09E-05	0.00E+00
exhaust	Worker Commute (offsite)	1.55E-04	1.40E+01	4.20E-04	2.58E-03	1.61E-02	2.05E-03	1.84E-03	1.44E-03	3.17E-05	2.92E-05	4.23E-05	3.82E+00	1.14E-04	7.02E-04
brake wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	4.39E-04	1.88E-04	-	-	-	-
tire wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	9.56E-05	2.39E-05	-	-	-	-
entrained road dust	Worker Commute (offsite)	-	-	-	-	-	-	-	-	2.30E-03	3.44E-04	-	-	-	-
	Phase 6 Total	*0.01*	*1205.80*	*0.04*	*0.00*	*0.39*	*0.05*	*0.05*	*0.65*	*0.05*	*0.03*	*0.00*	*109.28*	*0.01*	*0.00*
	Off-road Construction Equipment Exhaust	*0.01*	*608.03*	*0.04*	*0.00*	*0.37*	*0.04*	*0.04*	*0.50*	*0.03*	*0.03*	*0.00*	*66.12*	*0.01*	*0.00*
	Marine Source Exhaust	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	On-Road Construction Vehicles	*0.01*	*583.74*	*0.00*	*0.00*	*0.01*	*0.00*	*0.00*	*0.15*	*0.02*	*0.01*	*0.00*	*39.34*	*0.00*	*0.00*
	Worker Vehicles	*0.00*	*14.03*	*0.00*	*0.00*	*0.02*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*3.82*	*0.00*	*0.00*
	Fugitive Emissions (VOC)	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (Dust)	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Crane Delivery															
	Cargo Ship (Berth+Zones 1-5)	0	0	0	0	7.04E-01	3.11E-01	3.07E-01	8.46E+00	1.54E-01	1.42E-01	3.00E-01	7.87E+02	1.26E-02	4.27E-02
	Tug Boat	0	0	0	0	8.03E-03	6.55E-04	6.45E-04	1.18E-02	4.34E-04	3.86E-04	8.82E-06	9.45E-01	1.13E-05	4.49E-05
	Crane	0	0	0	0	1.91E-02	4.84E-03	4.77E-03	6.86E-02	2.75E-03	2.63E-03	8.26E-05	7.64E+00	4.60E-04	0.00E+00
	Welder	0	0	0	0	1.24E-02	1.82E-03	1.79E-03	1.87E-02	1.43E-03	1.36E-03	2.30E-05	1.78E+00	1.20E-04	0.00E+00
	Tractor	0	0	0	0	4.01E-02	8.62E-03	8.49E-03	1.22E-01	4.44E-03	4.25E-03	2.30E-04	1.85E+01	8.70E-04	0.00E+00
exhaust	Worker Commute (offsite)	0	0	0	0	3.70E-03	4.72E-04	4.22E-04	3.31E-04	7.27E-06	6.70E-06	9.71E-06	8.77E-01	2.63E-05	1.61E-04
brake wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	1.01E-04	4.32E-05	-	-	-	-
tire wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	2.20E-05	5.49E-06	-	-	-	-
entrained road dust	Worker Commute (offsite)	-	-	-	-	-	-	-	-	5.27E-04	7.91E-05	-	-	-	-
	Crane Delivery Total	*0*	*0*	*0*	*0*	*0.79*	*0.33*	*0.32*	*8.68*	*0.16*	*0.15*	*0.30*	*817.19*	*0.01*	*0.04*
	Off-road Construction Equipment Exhaust	*0*	*0*	*0*	*0*	*0.07*	*0.02*	*0.02*	*0.21*	*0.01*	*0.01*	*0.00*	*27.95*	*0.00*	*0.00*
	Marine Source Exhaust	*0*	*0*	*0*	*0*	*0.71*	*0.31*	*0.31*	*8.47*	*0.15*	*0.14*	*0.30*	*788.36*	*0.01*	*0.04*
	On-Road Construction Vehicles	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Worker Vehicles	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.88*	*0.00*	*0.00*
	Fugitive Emissions (VOC)	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (Dust)	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Phase 7: TICTF Loading Track															
Installation of an additional loading track															
exhaust	Delivery Trucks (offsite)	1.23E-05	1.17E+00	3.82E-06	4.80E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Delivery Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Delivery Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Delivery Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Delivery Trucks (onsite)	8.55E-07	8.13E-02	8.66E-07	1.70E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Delivery Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Delivery Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Delivery Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - base CMB (offsite)	9.85E-05	9.36E+00	3.05E-05	3.84E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - base CMB (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - base CMB (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year						2019 Emissions tonne/year			
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
entrained road dust	Haul Trucks - base CMB (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - base CMB (onsite)	6.84E-06	6.50E-01	6.93E-06	1.36E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - base CMB (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - base CMB (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - base CMB (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Loading	fugitive dust (offsite)	-	-	-	-	-	-	-	-	0	0	-			
Loading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
exhaust	Haul Trucks - AC pavement (offsite)	3.99E-05	3.79E+00	1.24E-05	1.56E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	2.77E-06	2.63E-01	2.80E-06	5.51E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - soil (offsite)	4.89E-04	9.79E+01	3.19E-04	4.01E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - soil (onsite)	7.15E-06	6.80E-01	7.24E-06	1.42E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Loading	fugitive dust (offsite)	-	-	-	-	-	-	-	-	0	0	-			
Loading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
	Sawcutter	6.74E-05	5.21E+00	4.12E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Excavator	1.31E-04	1.06E+01	5.62E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Tamper	4.95E-04	4.47E+01	2.07E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Regulator	2.85E-04	2.63E+01	1.05E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Speed Swing	5.56E-04	5.14E+01	2.05E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Forklift	1.41E-04	1.13E+01	5.83E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Loader	1.36E-04	1.05E+01	7.96E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Blade/Grader	3.10E-04	2.50E+01	1.46E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
Grading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
	Swivel Dump	5.56E-04	5.14E+01	2.05E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Water Truck	7.45E-04	6.72E+01	3.70E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Prentice Loader	3.93E-04	3.64E+01	1.45E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Tie Truck	6.10E-04	5.50E+01	3.03E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Paving Machine	1.08E-04	8.32E+00	1.11E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
Paving	fugitive VOC	-				-	0	0	-	-	-	-			
	Roller	1.17E-04	9.03E+00	9.39E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Skip Loader	1.02E-04	7.93E+00	4.15E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Worker Commute (offsite)	7.33E-05	6.62E+00	1.98E-04	1.22E-03	0	0	0	0	0	0	0	0	0	0
brake wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
	Phase 7 Total	*0.01*	*540.83*	*0.02*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Off-road Construction Equipment Exhaust	*0.00*	*420.34*	*0.02*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Marine Source Exhaust	*0.00*	*0.00*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	On-Road Construction Vehicles	*0.00*	*113.87*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Worker Vehicles	*0.00*	*6.62*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (VOC)	*0.00*	*0.00*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (Dust)	*0.00*	*0.00*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Proposed Total	**Ocean Disposal**	**0.04**	**3649.12**	**0.12**	**0.03**	**1.50**	**0.43**	**0.43**	**10.11**	**0.28**	**0.22**	**0.30**	**1076.18**	**0.02**	**0.05**
	Off-road Construction Equipment Exhaust	0.02	2144.70	0.11	0.00	0.72	0.10	0.10	1.24	0.06	0.06	0.00	160.63	0.01	0.00
	Marine Source Exhaust	0.00	471.38	0.01	0.02	0.71	0.31	0.31	8.47	0.15	0.14	0.30	788.36	0.01	0.04
	On-Road Construction Vehicles	0.01	1012.93	0.00	0.00	0.03	0.01	0.01	0.40	0.05	0.01	0.00	117.54	0.00	0.00
	Worker Vehicles	0.00	20.11	0.00	0.00	0.04	0.01	0.00	0.00	0.01	0.00	0.00	9.66	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year							2019 Emissions tonne/year		
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
	Upland Disposal	**0.05**	**4939.48**	**0.14**	**0.03**	**1.50**	**0.43**	**0.43**	**10.11**	**0.28**	**0.22**	**0.30**	**1076.18**	**0.02**	**0.05**
	Off-road Construction Equipment Exhaust	0.03	2542.32	0.13	0.00	0.72	0.10	0.10	1.24	0.06	0.06	0.00	160.63	0.01	0.00
	Marine Source Exhaust	0.00	301.25	0.00	0.01	0.71	0.31	0.31	8.47	0.15	0.14	0.30	788.36	0.01	0.04
	On-Road Construction Vehicles	0.01	2073.80	0.01	0.01	0.03	0.01	0.01	0.40	0.05	0.01	0.00	117.54	0.00	0.00
	Worker Vehicles	0.00	22.11	0.00	0.00	0.04	0.01	0.00	0.00	0.01	0.00	0.00	9.66	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
General Conformity	**Ocean Disposal**	**0.02**	**1957.30**	**0.07**	**0.02**	**0.93**	**0.35**	**0.35**	**9.01**	**0.19**	**0.17**	**0.30**	**886.97**	**0.02**	**0.04**
	Off-road Construction Equipment Exhaust	0.02	1463.67	0.07	0.00	0.19	0.04	0.03	0.42	0.02	0.02	0.00	53.00	0.00	0.00
	Marine Source Exhaust	0.00	471.38	0.01	0.02	0.71	0.31	0.31	8.47	0.15	0.14	0.30	788.36	0.01	0.04
	On-Road Construction Vehicles	0.00	20.21	0.00	0.00	0.01	0.00	0.00	0.11	0.01	0.00	0.00	41.78	0.00	0.00
	Worker Vehicles	0.00	2.04	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	3.83	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Upland Disposal	**0.03**	**3247.65**	**0.09**	**0.02**	**0.93**	**0.35**	**0.35**	**9.01**	**0.19**	**0.17**	**0.30**	**886.97**	**0.02**	**0.04**
	Off-road Construction Equipment Exhaust	0.02	1861.29	0.08	0.00	0.19	0.04	0.03	0.42	0.02	0.02	0.00	53.00	0.00	0.00
	Marine Source Exhaust	0.00	301.25	0.00	0.01	0.71	0.31	0.31	8.47	0.15	0.14	0.30	788.36	0.01	0.04
	On-Road Construction Vehicles	0.01	1081.07	0.00	0.00	0.01	0.00	0.00	0.11	0.01	0.00	0.00	41.78	0.00	0.00
	Worker Vehicles	0.00	4.04	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	3.83	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Alt 1 No Federal Action		**0.01**	**1205.80**	**0.04**	**0.00**	**0.57**	**0.08**	**0.08**	**1.10**	**0.09**	**0.05**	**0.00**	**186.44**	**0.01**	**0.00**
	Off-road Construction Equipment Exhaust	0.01	608.03	0.04	0.00	0.53	0.07	0.07	0.82	0.04	0.04	0.00	107.63	0.01	0.00
	Marine Source Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	On-Road Construction Vehicles	0.01	583.74	0.00	0.00	0.02	0.01	0.01	0.28	0.04	0.01	0.00	73.79	0.00	0.00
	Worker Vehicles	0.00	14.03	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	5.03	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Alt 3 Reduced Wharf Improvements	**Ocean Disposal**	**0.03**	**3002.93**	**0.10**	**0.02**	**1.50**	**0.43**	**0.43**	**10.11**	**0.28**	**0.22**	**0.30**	**1076.18**	**0.02**	**0.05**
	Off-road Construction Equipment Exhaust	0.02	1639.47	0.09	0.00	0.72	0.10	0.10	1.24	0.06	0.06	0.00	160.63	0.01	0.00
	Marine Source Exhaust	0.00	335.49	0.00	0.02	0.71	0.31	0.31	8.47	0.15	0.14	0.30	788.36	0.01	0.04
	On-Road Construction Vehicles	0.01	1008.27	0.00	0.00	0.03	0.01	0.01	0.40	0.05	0.01	0.00	117.54	0.00	0.00
	Worker Vehicles	0.00	19.70	0.00	0.00	0.04	0.01	0.00	0.00	0.01	0.00	0.00	9.66	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Upland Disposal	**0.04**	**3910.72**	**0.11**	**0.02**	**1.50**	**0.43**	**0.43**	**10.11**	**0.28**	**0.22**	**0.30**	**1076.18**	**0.02**	**0.05**
	Off-road Construction Equipment Exhaust	0.02	1826.05	0.10	0.00	0.72	0.10	0.10	1.24	0.06	0.06	0.00	160.63	0.01	0.00
	Marine Source Exhaust	0.00	183.40	0.00	0.01	0.71	0.31	0.31	8.47	0.15	0.14	0.30	788.36	0.01	0.04
	On-Road Construction Vehicles	0.01	1880.54	0.01	0.01	0.03	0.01	0.01	0.40	0.05	0.01	0.00	117.54	0.00	0.00
	Worker Vehicles	0.00	20.73	0.00	0.00	0.04	0.01	0.00	0.00	0.01	0.00	0.00	9.66	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Alt 4 No Backland Improvements	**Ocean Disposal**	**0.02**	**2443.32**	**0.08**	**0.03**	**0.93**	**0.35**	**0.35**	**9.01**	**0.19**	**0.17**	**0.30**	**889.74**	**0.02**	**0.04**
	Off-road Construction Equipment Exhaust	0.02	1536.68	0.07	0.00	0.19	0.04	0.03	0.42	0.02	0.02	0.00	53.00	0.00	0.00
	Marine Source Exhaust	0.00	471.38	0.01	0.02	0.71	0.31	0.31	8.47	0.15	0.14	0.30	788.36	0.01	0.04
	On-Road Construction Vehicles	0.00	429.19	0.00	0.00	0.01	0.00	0.00	0.12	0.02	0.00	0.00	43.76	0.00	0.00
	Worker Vehicles	0.00	6.07	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	4.63	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Upland Disposal	**0.03**	**3733.68**	**0.10**	**0.02**	**0.93**	**0.35**	**0.35**	**9.01**	**0.19**	**0.17**	**0.30**	**889.74**	**0.02**	**0.04**
	Off-road Construction Equipment Exhaust	0.02	1934.29	0.09	0.00	0.19	0.04	0.03	0.42	0.02	0.02	0.00	53.00	0.00	0.00
	Marine Source Exhaust	0.00	301.25	0.00	0.01	0.71	0.31	0.31	8.47	0.15	0.14	0.30	788.36	0.01	0.04
	On-Road Construction Vehicles	0.01	1490.06	0.00	0.01	0.01	0.00	0.00	0.12	0.02	0.00	0.00	43.76	0.00	0.00
	Worker Vehicles	0.00	8.08	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	4.63	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Alt 5 Expanded On-Dock Rail Yard	**Ocean Disposal**	**0.04**	**4189.96**	**0.14**	**0.03**	**1.50**	**0.43**	**0.43**	**10.11**	**0.28**	**0.22**	**0.30**	**1076.18**	**0.02**	**0.05**
	Off-road Construction Equipment Exhaust	0.03	2565.04	0.13	0.00	0.72	0.10	0.10	1.24	0.06	0.06	0.00	160.63	0.01	0.00
	Marine Source Exhaust	0.00	471.38	0.01	0.02	0.71	0.31	0.31	8.47	0.15	0.14	0.30	788.36	0.01	0.04
	On-Road Construction Vehicles	0.01	1126.80	0.00	0.00	0.03	0.01	0.01	0.40	0.05	0.01	0.00	117.54	0.00	0.00
	Worker Vehicles	0.00	26.73	0.00	0.00	0.04	0.01	0.00	0.00	0.01	0.00	0.00	9.66	0.00	0.00

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	2018 Emissions ton/year				2019 Emissions ton/year									
			2018 Emissions tonne/year									2019 Emissions tonne/year			
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Upland Disposal	**0.05**	**5480.31**	**0.16**	**0.03**	**1.50**	**0.43**	**0.43**	**10.11**	**0.28**	**0.22**	**0.30**	**1076.18**	**0.02**	**0.05**
	Off-road Construction Equipment Exhaust	0.03	2962.66	0.15	0.00	0.72	0.10	0.10	1.24	0.06	0.06	0.00	160.63	0.01	0.00
	Marine Source Exhaust	0.00	301.25	0.00	0.01	0.71	0.31	0.31	8.47	0.15	0.14	0.30	788.36	0.01	0.04
	On-Road Construction Vehicles	0.02	2187.67	0.01	0.01	0.03	0.01	0.01	0.40	0.05	0.01	0.00	117.54	0.00	0.00
	Worker Vehicles	0.00	28.73	0.00	0.01	0.04	0.01	0.00	0.00	0.01	0.00	0.00	9.66	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sources:
2016_05 B226-236 Construction Schedule_EIR.pdf
E-mail from B. Correa (POLA) to J. Bahng (POLA) on 1/5/15 (hours of operation)
Barge equipment operations from BargeEquipmentOperatingHrs+ENG+EMD.xlsx received 11/16/

Conversions

2000	lb/ton
453.592	g/lb
1000000	g/tonne
0.98	VOC/TOG (diesel)
0.89	VOC/TOG (gasoline)

Assume all emissions except for fugitive paving VOCs and worker commute emissions are diesel
Worker commute exhaust emissions assumed to be all gasoline.
EPA. 2010. Conversion Factors for Hydrocarbon Emission Components. EPA-420-R-10-015. July

Monthly Construction Days 20

Truck Capacity

Trips to Kettleman	20
Others	10

Soure: E-mail from B. Correa (POLA) to J. Bahng on 1/14/15.

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	Start Year	Duration Total (days)	2017 (days)	2018 (days)	2019 (days)	Total (months)	Start Date	End Date	#	Loads (cy)	(veh)	One-way Distance (mi)	One-way Distance in SCAB (mi)	Hours	Usage
Phase 1: Berths 230-232 Dredging 8,000 cy																
Sheet Piling	Derrick Barge	2018	70	0	70	0	3.5	1/1/2018	4/15/2018	1		-	-	-	8	100%
	Compressor									1		-	-	-	4	100%
	Barge Crane									1		-	-	-	8	100%
	Deck Door Engine									1		-	-	-	8	100%
	Generator									1		-	-	-	8	100%
	Hoist Swing Winch									1		-	-	-	8	100%
	Hoist Swing Pump									1		-	-	-	8	100%
	Vibratory Hammer									1		-	-	-	4.8	100%
	Pile Hammer									1		-	-	-	0.8	100%
	Supply Barge									1		-	-	-	8	100%
	Tug Boat									1		-	-	-	2	100%
	Dive Boat									1		-	-	-	3	100%
exhaust	Delivery Trucks (offsite)									-		30	65	65	-	-
brake wear	Delivery Trucks (offsite)									-		30	65	65	-	-
tire wear	Delivery Trucks (offsite)									-		30	65	65	-	-
entrained road dust	Delivery Trucks (offsite)									-		30	65	65	-	-
exhaust	Delivery Trucks (onsite)									-		30	-	-	-	-
brake wear	Delivery Trucks (onsite)									-		30	-	-	-	-
tire wear	Delivery Trucks (onsite)									-		30	-	-	-	-
entrained road dust	Delivery Trucks (onsite)									-		30	-	-	-	-
Dredging - Ocean Disposal	Derrick Barge	2018	6	0	6	0	0.3	4/16/2018	5/8/2018	1		-	-	-	22	100%
	Barge Crane									1		-	-	-	22	100%
	Deck Door Engine									1		-	-	-	22	100%
	Dredger (Clam Shell)									1		-	-	-	22	100%
	Generator									1		-	-	-	22	100%
	Hoist Swing Winch									1		-	-	-	22	100%
	Hoist Swing Pump									1		-	-	-	22	100%
	Tug Boat									1		-	-	-	5	100%
	Clam Bucket									1		-	-	-	8	100%
	Dump Scows									2		-	-	-	8	100%
	Generator									2		-	-	-	1	100%
	Tug Boat									2		-	-	-	22	100%
exhaust	Worker Commute (offsite)									-		45	12.7	12.7	-	-
brake wear	Worker Commute (offsite)									-		45	12.7	12.7	-	-
tire wear	Worker Commute (offsite)									-		45	12.7	12.7	-	-
entrained road dust	Worker Commute (offsite)									-		45	12.7	12.7	-	-
Dredging - Upland Disposal	Derrick Barge	2018	21	0	21	0	1.05	4/16/2018	5/15/2018	1		-	-	-	22	100%
	Barge Crane									1		-	-	-	22	100%
	Deck Door Engine									1		-	-	-	22	100%
	Dredger (Clam Shell)									1		-	-	-	11	100%
	Generator									1		-	-	-	22	100%
	Hoist Swing Winch									1		-	-	-	22	100%
	Hoist Swing Pump									1		-	-	-	22	100%
	Tug Boat									1		-	-	-	5	100%
	Clam Bucket									1		-	-	-	8	100%
	Dump Scows									2		-	-	-	8	100%
	Tug Boat									1		-	-	-	5	100%
	Excavator									1		-	-	-	8	100%
exhaust	Haul Trucks (offsite)									-	8000	400	200	95	-	-
brake wear	Haul Trucks (offsite)									-		400	200	95	-	-
tire wear	Haul Trucks (offsite)									-		400	200	95	-	-
entrained road dust	Haul Trucks (offsite)									-		400	200	95	-	-
exhaust	Haul Trucks (onsite)									-	8000	400	-	-	-	-
brake wear	Haul Trucks (onsite)									-		400	-	-	-	-
tire wear	Haul Trucks (onsite)									-		400	-	-	-	-
entrained road dust	Haul Trucks (onsite)									-		400	-	-	-	-
exhaust	Worker Commute (offsite)									-		154	12.7	12.7	-	-
brake wear	Worker Commute (offsite)									-		154	12.7	12.7	-	-
tire wear	Worker Commute (offsite)									-		154	12.7	12.7	-	-
entrained road dust	Worker Commute (offsite)									-		154	12.7	12.7	-	-

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	Start Year	Duration Total (days)	2017 (days)	2018 (days)	2019 (days)	Total (months)	Start Date	End Date	#	Loads (cy)	(veh)	One-way Distance (mi)	One-way Distance in SCAB (mi)	Hours	Usage
Phase 1 Total - Ocean Disposal																
Off-road Construction Equipment Exhaust																
Marine Source Exhaust																
On-Road Construction Vehicles																
Worker Vehicles																
Fugitive Emissions (VOC)																
Fugitive Emissions (Dust)																
Phase 1 Total - Upland Disposal																
Off-road Construction Equipment Exhaust																
Marine Source Exhaust																
On-Road Construction Vehicles																
Worker Vehicles																
Fugitive Emissions (VOC)																
Fugitive Emissions (Dust)																
Phase 2: Berths 226-229 Dredging 37,000 cy																
Sheet & King Pile Installation	Derrick Barge	2018	100	0	100	0	5	5/16/2018	10/8/2018	1		-	-	-	8	100%
	Compressor									1		-	-	-	4	100%
	Barge Crane									1		-	-	-	8	100%
	Deck Door Engine									1		-	-	-	8	100%
	Generator									1		-	-	-	8	100%
	Hoist Swing Winch									1		-	-	-	8	100%
	Hoist Swing Pump									1		-	-	-	8	100%
	Vibratory Hammer									1		-	-	-	4.8	100%
	Pile Hammer									1		-	-	-	0.8	100%
	Jet Pump									1		-	-	-	8	50%
	Supply Barge									1		-	-	-	8	100%
	Tug Boat									1		-	-	-	2	100%
	Dive Boat									1		-	-	-	3	100%
exhaust	Delivery Trucks (offsite)									-		30	65	65	-	-
brake wear	Delivery Trucks (offsite)									-		30	65	65	-	-
tire wear	Delivery Trucks (offsite)									-		30	65	65	-	-
entrained road dust	Delivery Trucks (offsite)									-		30	65	65	-	-
exhaust	Delivery Trucks (onsite)									-		30	-	-	-	-
brake wear	Delivery Trucks (onsite)									-		30	-	-	-	-
tire wear	Delivery Trucks (onsite)									-		30	-	-	-	-
entrained road dust	Delivery Trucks (onsite)									-		30	-	-	-	-
exhaust	Delivery Trucks (offsite)									-		70	65	65	-	-
brake wear	Delivery Trucks (offsite)									-		70	65	65	-	-
tire wear	Delivery Trucks (offsite)									-		70	65	65	-	-
entrained road dust	Delivery Trucks (offsite)									-		70	65	65	-	-
exhaust	Delivery Trucks (onsite)									-		70	-	-	-	-
brake wear	Delivery Trucks (onsite)									-		70	-	-	-	-
tire wear	Delivery Trucks (onsite)									-		70	-	-	-	-
entrained road dust	Delivery Trucks (onsite)									-		70	-	-	-	-
Dredging - Ocean Disposal	Derrick Barge	2018	22	0	22	0	1.1	10/9/2018	11/8/2018	1		-	-	-	22	100%
	Barge Crane									1		-	-	-	22	100%
	Deck Door Engine									1		-	-	-	22	100%
	Dredger (Clam Shell)									1		-	-	-	22	100%
	Generator									1		-	-	-	22	100%
	Hoist Swing Winch									1		-	-	-	22	100%
	Hoist Swing Pump									1		-	-	-	22	100%
	Tug Boat									1		-	-	-	5	100%
	Clam Bucket									1		-	-	-	8	100%
	Dump Scows									2		-	-	-	8	100%
	Generator									2		-	-	-	1	100%
	Tug Boat									2		-	-	-	22	100%
exhaust	Worker Commute (offsite)									-		183	12.7	12.7	-	-
brake wear	Worker Commute (offsite)									-		183	12.7	12.7	-	-
tire wear	Worker Commute (offsite)									-		183	12.7	12.7	-	-
entrained road dust	Worker Commute (offsite)									-		183	12.7	12.7	-	-
Dredging - Upland Disposal	Derrick Barge	2018	37	0	37	0	1.85	10/9/2018	11/22/2018	1		-	-	-	22	100%

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	Start Year	Duration Total (days)	2017 (days)	2018 (days)	2019 (days)	Total (months)	Start Date	End Date	#	Loads (cy)	(veh)	One-way Distance (mi)	One-way Distance in SCAB (mi)	Hours	Usage
	Barge Crane									1		-	-	-	22	100%
	Deck Door Engine									1		-	-	-	22	100%
	Dredger (Clam Shell)									1		-	-	-	11	100%
	Generator									1		-	-	-	22	100%
	Hoist Swing Winch									1		-	-	-	22	100%
	Hoist Swing Pump									1		-	-	-	22	100%
	Tug Boat									1		-	-	-	5	100%
	Clam Bucket									1		-	-	-	8	100%
	Dump Scows									2		-	-	-	8	100%
	Tug Boat									1		-	-	-	5	100%
	Excavator									1		-	-	-	8	100%
exhaust	Haul Trucks (offsite)									-	37000	1850	200	95	-	-
brake wear	Haul Trucks (offsite)									-		1850	200	95	-	-
tire wear	Haul Trucks (offsite)									-		1850	200	95	-	-
entrained road dust	Haul Trucks (offsite)									-		1850	200	95	-	-
exhaust	Haul Trucks (onsite)									-	37000	1850	-	-	-	-
brake wear	Haul Trucks (onsite)									-		1850	-	-	-	-
tire wear	Haul Trucks (onsite)									-		1850	-	-	-	-
entrained road dust	Haul Trucks (onsite)									-		1850	-	-	-	-
exhaust	Worker Commute (offsite)									-		297	12.7	12.7	-	-
brake wear	Worker Commute (offsite)									-		297	12.7	12.7	-	-
tire wear	Worker Commute (offsite)									-		297	12.7	12.7	-	-
entrained road dust	Worker Commute (offsite)									-		297	12.7	12.7	-	-
Phase 2 Total - Ocean Disposal																
Off-road Construction Equipment Exhaust																
Marine Source Exhaust																
On-Road Construction Vehicles																
Worker Vehicles																
Fugitive Emissions (VOC)																
Fugitive Emissions (Dust)																
Phase 2 Total - Upland Disposal																
Off-road Construction Equipment Exhaust																
Marine Source Exhaust																
On-Road Construction Vehicles																
Worker Vehicles																
Fugitive Emissions (VOC)																
Fugitive Emissions (Dust)																
Phase 3: Install Electrical Substation and Feeder Cable Conduit																
Electrical substation, feeder cable conduits, cable horn boxes		2019	120				6									
	Sawcutter			0	0	23		3/1/2019	3/31/2019	1	-	-	-	-	8	100%
	Backhoe			0	0	23		3/1/2019	3/31/2019	1	-	-	-	-	8	100%
exhaust	Haul Trucks - AC pavement (offsite)			0	0	23		3/1/2019	3/31/2019	-	160	16	20	20	-	-
brake wear	Haul Trucks - AC pavement (offsite)									-		16	20	20	-	-
tire wear	Haul Trucks - AC pavement (offsite)									-		16	20	20	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)									-		16	20	20	-	-
exhaust	Haul Trucks - AC pavement (onsite)			0	0	23		3/1/2019	3/31/2019	-	160	16	-	-	-	-
brake wear	Haul Trucks - AC pavement (onsite)									-		16	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)									-		16	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)									-		16	-	-	-	-
exhaust	Haul Trucks - soil (offsite)			0	0	23		3/1/2019	3/31/2019	-	960	48	200	95	-	-
brake wear	Haul Trucks - soil (offsite)									-		48	200	95	-	-
tire wear	Haul Trucks - soil (offsite)									-		48	200	95	-	-
entrained road dust	Haul Trucks - soil (offsite)									-		48	200	95	-	-
exhaust	Haul Trucks - soil (onsite)			0	0	23		3/1/2019	3/31/2019	-	960	48	-	-	-	-
brake wear	Haul Trucks - soil (onsite)									-		48	-	-	-	-
tire wear	Haul Trucks - soil (onsite)									-		48	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)									-		48	-	-	-	-
Loading	fugitive dust (offsite)			0	0	23		3/1/2019	3/31/2019							
Loading	fugitive dust (onsite)			0	0	23		3/1/2019	3/31/2019							
	Vibrating Compactor			0	0	6		3/24/2019	3/31/2019	1	-	-	-	-	8	100%
exhaust	Slurry Truck (offsite)			0	0	18		3/16/2019	4/8/2019	-	1025	103	50	50	-	-

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	Start Year	Duration Total (days)	2017 (days)	2018 (days)	2019 (days)	Total (months)	Start Date	End Date	#	Loads (cy)	(veh)	One-way Distance (mi)	One-way Distance in SCAB (mi)	Hours	Usage
brake wear	Slurry Truck (offsite)									-		103	50	50	-	-
tire wear	Slurry Truck (offsite)									-		103	50	50	-	-
entrained road dust	Slurry Truck (offsite)									-		103	50	50	-	-
exhaust	Slurry Truck (onsite)			0	0	18		3/16/2019	4/8/2019	-	1025	103	-	-	-	-
brake wear	Slurry Truck (onsite)									-		103	-	-	-	-
tire wear	Slurry Truck (onsite)									-		103	-	-	-	-
entrained road dust	Slurry Truck (onsite)									-		103	-	-	-	-
	Forklift			0	0	12		3/24/2019	4/8/2019	1	-	-	-	-	8	100%
exhaust	Concrete Trucks (offsite)			0	0	12		4/1/2019	4/15/2019	-	30	3	65	65	-	-
brake wear	Concrete Trucks (offsite)									-		3	65	65	-	-
tire wear	Concrete Trucks (offsite)									-		3	65	65	-	-
entrained road dust	Concrete Trucks (offsite)									-		3	65	65	-	-
exhaust	Concrete Trucks (onsite)			0	0	12		4/1/2019	4/15/2019	-	30	3	-	-	-	-
brake wear	Concrete Trucks (onsite)									-		3	-	-	-	-
tire wear	Concrete Trucks (onsite)									-		3	-	-	-	-
entrained road dust	Concrete Trucks (onsite)									-		3	-	-	-	-
exhaust	Equipment Trucks (offsite)			0	0	19		4/16/2019	5/8/2019	-		19	20	20	8	100%
brake wear	Equipment Trucks (offsite)									-		18.716	20	20	-	-
tire wear	Equipment Trucks (offsite)									-		18.716	20	20	-	-
entrained road dust	Equipment Trucks (offsite)									-		18.716	20	20	-	-
exhaust	Equipment Trucks (onsite)			0	0	19		4/16/2019	5/8/2019	-		19	-	-	8	100%
brake wear	Equipment Trucks (onsite)									-		18.716	-	-	-	-
tire wear	Equipment Trucks (onsite)									-		18.716	-	-	-	-
entrained road dust	Equipment Trucks (onsite)									-		18.716	-	-	-	-
exhaust	Equipment Trucks (offsite)			0	0	31		6/24/2019	7/31/2019	-		31	20	20	8	100%
brake wear	Equipment Trucks (offsite)									-		30.826	20	20	-	-
tire wear	Equipment Trucks (offsite)									-		30.826	20	20	-	-
entrained road dust	Equipment Trucks (offsite)									-		30.826	20	20	-	-
exhaust	Equipment Trucks (onsite)			0	0	31		6/24/2019	7/31/2019	-		31	-	-	8	100%
brake wear	Equipment Trucks (onsite)									-		30.826	-	-	-	-
tire wear	Equipment Trucks (onsite)									-		30.826	-	-	-	-
entrained road dust	Equipment Trucks (onsite)									-		30.826	-	-	-	-
	Crane			0	0	18		6/24/2019	7/15/2019	1	-	-	-	-	8	100%
exhaust	Worker Commute (offsite)			0	0	120		3/1/2019	7/31/2019	-		330	12.7	12.7	-	-
brake wear	Worker Commute (offsite)									-		330	12.7	12.7	-	-
tire wear	Worker Commute (offsite)									-		330	12.7	12.7	-	-
entrained road dust	Worker Commute (offsite)									-		330	12.7	12.7	-	-
DWP new service	Equipment Trucks (offsite)	2019	60	0	0	60	3	8/1/2019	10/31/2019	-		60	20	20	8	100%
brake wear	Equipment Trucks (offsite)									-		60	20	20	-	-
tire wear	Equipment Trucks (offsite)									-		60	20	20	-	-
entrained road dust	Equipment Trucks (offsite)									-		60	20	20	-	-
exhaust	Equipment Trucks (onsite)			0	0	60		8/1/2019	10/31/2019	-		60	-	-	8	100%
brake wear	Equipment Trucks (onsite)									-		60	-	-	-	-
tire wear	Equipment Trucks (onsite)									-		60	-	-	-	-
entrained road dust	Equipment Trucks (onsite)									-		60	-	-	-	-
	Phase 3 Total															
	Off-road Construction Equipment Exhaust															
	Marine Source Exhaust															
	On-Road Construction Vehicles															
	Worker Vehicles															
	Fugitive Emissions (VOC)															
	Fugitive Emissions (Dust)															
Phase 4: AMP																
Install 5 AMP boxes		2018	240				12									
Box 1	Sawcutter			0	10	0		3/1/2018	3/15/2018	1	-	-	-	-	8	100%
	Backhoe			0	25	0		3/1/2018	4/8/2018	1	-	-	-	-	8	100%
exhaust	Haul Trucks - AC pavement (offsite)			0	25	0		3/1/2018	4/8/2018	-	460	46	20	20	-	-
brake wear	Haul Trucks - AC pavement (offsite)									-		46	20	20	-	-
tire wear	Haul Trucks - AC pavement (offsite)									-		46	20	20	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)									-		46	20	20	-	-
exhaust	Haul Trucks - AC pavement (onsite)			0	25	0		3/1/2018	4/8/2018	-	460	46	-	-	-	-

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	Start Year	Duration Total (days)	2017 (days)	2018 (days)	2019 (days)	Total (months)	Start Date	End Date	#	Loads (cy)	(veh)	One-way Distance (mi)	One-way Distance in SCAB (mi)	Hours	Usage
brake wear	Haul Trucks - AC pavement (onsite)									-		46	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)									-		46	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)									-		46	-	-	-	-
exhaust	Haul Trucks - soil (offsite)			0	25	0		3/1/2018	4/8/2018	-	2030	102	200	95	-	-
brake wear	Haul Trucks - soil (offsite)									-		102	200	95	-	-
tire wear	Haul Trucks - soil (offsite)									-		102	200	95	-	-
entrained road dust	Haul Trucks - soil (offsite)									-		102	200	95	-	-
exhaust	Haul Trucks - soil (onsite)			0	25	0		3/1/2018	4/8/2018	-	2030	102	-	-	-	-
brake wear	Haul Trucks - soil (onsite)									-		102	-	-	-	-
tire wear	Haul Trucks - soil (onsite)									-		102	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)									-		102	-	-	-	-
Loading	fugitive dust (offsite)			0	25	0		3/1/2018	4/8/2018							
Loading	fugitive dust (onsite)			0	25	0		3/1/2018	4/8/2018							
exhaust	Slurry Truck (offsite)			0	9	0		4/1/2018	4/15/2018	-	2490	250	50	50	-	-
brake wear	Slurry Truck (offsite)									-		250	50	50	-	-
tire wear	Slurry Truck (offsite)									-		250	50	50	-	-
entrained road dust	Slurry Truck (offsite)									-		250	50	50	-	-
exhaust	Slurry Truck (onsite)			0	9	0		4/1/2018	4/15/2018	-	2490	250	-	-	-	-
brake wear	Slurry Truck (onsite)									-		250	-	-	-	-
tire wear	Slurry Truck (onsite)									-		250	-	-	-	-
entrained road dust	Slurry Truck (onsite)									-		250	-	-	-	-
exhaust	Concrete Trucks (offsite)			0	15	0		4/1/2018	4/23/2018	-		3	65	65	-	-
brake wear	Concrete Trucks (offsite)									-		3	65	65	-	-
tire wear	Concrete Trucks (offsite)									-		3	65	65	-	-
entrained road dust	Concrete Trucks (offsite)									-		3	65	65	-	-
exhaust	Concrete Trucks (onsite)			0	15	0		4/1/2018	4/23/2018	-		3	-	-	-	-
brake wear	Concrete Trucks (onsite)									-		3	-	-	-	-
tire wear	Concrete Trucks (onsite)									-		3	-	-	-	-
entrained road dust	Concrete Trucks (onsite)									-		3	-	-	-	-
	Crane			0	10	0		4/16/2018	4/30/2018	1	-	-	-	-	8	100%
exhaust	Equipment Trucks (offsite)			0	20	0		4/24/2018	5/23/2018	-	-	20	20	20	8	100%
brake wear	Equipment Trucks (offsite)									-		20	20	20	-	-
tire wear	Equipment Trucks (offsite)									-		20	20	20	-	-
entrained road dust	Equipment Trucks (offsite)									-		20	20	20	-	-
exhaust	Equipment Trucks (onsite)			0	20	0		4/24/2018	5/23/2018	-	-	20	20	20	8	100%
brake wear	Equipment Trucks (onsite)									-		20	20	20	-	-
tire wear	Equipment Trucks (onsite)									-		20	20	20	-	-
entrained road dust	Equipment Trucks (onsite)									-		20	20	20	-	-
Box 2	Sawcutter			0	10	0		5/1/2018	5/15/2018	1	-	-	-	-	8	100%
	Backhoe			0	27	0		5/1/2018	6/8/2018	1	-	-	-	-	8	100%
exhaust	Haul Trucks - AC pavement (offsite)			0	27	0		5/1/2018	6/8/2018	-	460	46	20	20	-	-
brake wear	Haul Trucks - AC pavement (offsite)									-		46	20	20	-	-
tire wear	Haul Trucks - AC pavement (offsite)									-		46	20	20	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)									-		46	20	20	-	-
exhaust	Haul Trucks - AC pavement (onsite)			0	27	0		5/1/2018	6/8/2018	-	460	46	-	-	-	-
brake wear	Haul Trucks - AC pavement (onsite)									-		46	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)									-		46	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)									-		46	-	-	-	-
exhaust	Haul Trucks - soil (offsite)			0	27	0		5/1/2018	6/8/2018	-	2030	102	200	95	-	-
brake wear	Haul Trucks - soil (offsite)									-		102	200	95	-	-
tire wear	Haul Trucks - soil (offsite)									-		102	200	95	-	-
entrained road dust	Haul Trucks - soil (offsite)									-		102	200	95	-	-
exhaust	Haul Trucks - soil (onsite)			0	27	0		5/1/2018	6/8/2018	-	2030	102	-	-	-	-
brake wear	Haul Trucks - soil (onsite)									-		102	-	-	-	-
tire wear	Haul Trucks - soil (onsite)									-		102	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)									-		102	-	-	-	-
Loading	fugitive dust (offsite)			0	27	0		5/1/2018	6/8/2018							
Loading	fugitive dust (onsite)			0	27	0		5/1/2018	6/8/2018							
exhaust	Slurry Truck (offsite)			0	10	0		6/1/2018	6/15/2018	-	2490	250	50	50	-	-
brake wear	Slurry Truck (offsite)									-		250	50	50	-	-
tire wear	Slurry Truck (offsite)									-		250	50	50	-	-

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	Start Year	Duration Total (days)	2017 (days)	2018 (days)	2019 (days)	Total (months)	Start Date	End Date	#	Loads (cy)	(veh)	One-way Distance (mi)	One-way Distance in SCAB (mi)	Hours	Usage
entrained road dust	Slurry Truck (offsite)									-		250	50	50	-	-
exhaust	Slurry Truck (onsite)			0	10	0		6/1/2018	6/15/2018	-	2490	250	-	-	-	-
brake wear	Slurry Truck (onsite)									-		250	-	-	-	-
tire wear	Slurry Truck (onsite)									-		250	-	-	-	-
entrained road dust	Slurry Truck (onsite)									-		250	-	-	-	-
exhaust	Concrete Trucks (offsite)			0	15	0		6/1/2018	6/23/2018	-		3	65	65	-	-
brake wear	Concrete Trucks (offsite)									-		3	65	65	-	-
tire wear	Concrete Trucks (offsite)									-		3	65	65	-	-
entrained road dust	Concrete Trucks (offsite)									-		3	65	65	-	-
exhaust	Concrete Trucks (onsite)			0	15	0		6/1/2018	6/23/2018	-		3	-	-	-	-
brake wear	Concrete Trucks (onsite)									-		3	-	-	-	-
tire wear	Concrete Trucks (onsite)									-		3	-	-	-	-
entrained road dust	Concrete Trucks (onsite)									-		3	-	-	-	-
	Crane			0	9	0		6/16/2018	6/30/2018	1	-	-	-	-	8	100%
exhaust	Equipment Trucks (offsite)			0	19	0		6/24/2018	7/23/2018	-	-	19	20	20	8	100%
brake wear	Equipment Trucks (offsite)									-		19.31	20	20	-	-
tire wear	Equipment Trucks (offsite)									-		19.31	20	20	-	-
entrained road dust	Equipment Trucks (offsite)									-		19.31	20	20	-	-
exhaust	Equipment Trucks (onsite)			0	19	0		6/24/2018	7/23/2018	-	-	19	-	-	8	100%
brake wear	Equipment Trucks (onsite)									-		19.31	-	-	-	-
tire wear	Equipment Trucks (onsite)									-		19.31	-	-	-	-
entrained road dust	Equipment Trucks (onsite)									-		19.31	-	-	-	-
Box 3	Sawcutter			0	9	0		7/1/2018	7/15/2018	1	-	-	-	-	8	100%
	Backhoe			0	26	0		7/1/2018	8/8/2018	1	-	-	-	-	8	100%
exhaust	Haul Trucks - AC pavement (offsite)			0	26	0		7/1/2018	8/8/2018	-	460	46	20	20	-	-
brake wear	Haul Trucks - AC pavement (offsite)									-		46	20	20	-	-
tire wear	Haul Trucks - AC pavement (offsite)									-		46	20	20	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)									-		46	20	20	-	-
exhaust	Haul Trucks - AC pavement (onsite)			0	26	0		7/1/2018	8/8/2018	-	460	46	-	-	-	-
brake wear	Haul Trucks - AC pavement (onsite)									-		46	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)									-		46	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)									-		46	-	-	-	-
exhaust	Haul Trucks - soil (offsite)			0	26	0		7/1/2018	8/8/2018	-	2030	102	200	95	-	-
brake wear	Haul Trucks - soil (offsite)									-		102	200	95	-	-
tire wear	Haul Trucks - soil (offsite)									-		102	200	95	-	-
entrained road dust	Haul Trucks - soil (offsite)									-		102	200	95	-	-
exhaust	Haul Trucks - soil (onsite)			0	26	0		7/1/2018	8/8/2018	-	2030	102	-	-	-	-
brake wear	Haul Trucks - soil (onsite)									-		102	-	-	-	-
tire wear	Haul Trucks - soil (onsite)									-		102	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)									-		102	-	-	-	-
Loading	fugitive dust (offsite)			0	26	0		7/1/2018	8/8/2018							
Loading	fugitive dust (onsite)			0	26	0		7/1/2018	8/8/2018							
exhaust	Slurry Truck (offsite)			0	10	0		8/1/2018	8/15/2018	-	2490	250	50	50	-	-
brake wear	Slurry Truck (offsite)									-		250	50	50	-	-
tire wear	Slurry Truck (offsite)									-		250	50	50	-	-
entrained road dust	Slurry Truck (offsite)									-		250	50	50	-	-
exhaust	Slurry Truck (onsite)			0	10	0		8/1/2018	8/15/2018	-	2490	250	-	-	-	-
brake wear	Slurry Truck (onsite)									-		250	-	-	-	-
tire wear	Slurry Truck (onsite)									-		250	-	-	-	-
entrained road dust	Slurry Truck (onsite)									-		250	-	-	-	-
exhaust	Concrete Trucks (offsite)			0	16	0		8/1/2018	8/23/2018	-		3	65	65	-	-
brake wear	Concrete Trucks (offsite)									-		3	65	65	-	-
tire wear	Concrete Trucks (offsite)									-		3	65	65	-	-
entrained road dust	Concrete Trucks (offsite)									-		3	65	65	-	-
exhaust	Concrete Trucks (onsite)			0	16	0		8/1/2018	8/23/2018	-		3	-	-	-	-
brake wear	Concrete Trucks (onsite)									-		3	-	-	-	-
tire wear	Concrete Trucks (onsite)									-		3	-	-	-	-
entrained road dust	Concrete Trucks (onsite)									-		3	-	-	-	-
	Crane			0	11	0		8/16/2018	8/31/2018	1	-	-	-	-	8	100%
exhaust	Equipment Trucks (offsite)			0	19	0		8/24/2018	9/23/2018	1	-	19	20	20	8	100%
brake wear	Equipment Trucks (offsite)									-		19.31	20	20	-	-

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	Start Year	Duration Total (days)	2017 (days)	2018 (days)	2019 (days)	Total (months)	Start Date	End Date	#	Loads (cy)	(veh)	One-way Distance (mi)	One-way Distance in SCAB (mi)	Hours	Usage
tire wear	Equipment Trucks (offsite)									-		19.31	20	20	-	-
entrained road dust	Equipment Trucks (offsite)									-		19.31	20	20	-	-
exhaust	Equipment Trucks (onsite)			0	19	0		8/24/2018	9/23/2018	-	-	19	-	-	8	100%
brake wear	Equipment Trucks (onsite)									-		19.31	-	-	-	-
tire wear	Equipment Trucks (onsite)									-		19.31	-	-	-	-
entrained road dust	Equipment Trucks (onsite)									-		19.31	-	-	-	-
Box 4	Sawcutter			0	9	0		9/1/2018	9/15/2018	1	-	-	-	-	8	100%
	Backhoe			0	24	0		9/1/2018	10/8/2018	1	-	-	-	-	8	100%
exhaust	Haul Trucks - AC pavement (offsite)			0	24	0		9/1/2018	10/8/2018	-	460	46	20	20	-	-
brake wear	Haul Trucks - AC pavement (offsite)									-		46	20	20	-	-
tire wear	Haul Trucks - AC pavement (offsite)									-		46	20	20	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)									-		46	20	20	-	-
exhaust	Haul Trucks - AC pavement (onsite)			0	24	0		9/1/2018	10/8/2018	-	460	46	-	-	-	-
brake wear	Haul Trucks - AC pavement (onsite)									-		46	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)									-		46	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)									-		46	-	-	-	-
exhaust	Haul Trucks - soil (offsite)			0	24	0		9/1/2018	10/8/2018	-	2030	102	200	95	-	-
brake wear	Haul Trucks - soil (offsite)									-		102	200	95	-	-
tire wear	Haul Trucks - soil (offsite)									-		102	200	95	-	-
entrained road dust	Haul Trucks - soil (offsite)									-		102	200	95	-	-
exhaust	Haul Trucks - soil (onsite)			0	24	0		9/1/2018	10/8/2018	-	2030	102	-	-	-	-
brake wear	Haul Trucks - soil (onsite)									-		102	-	-	-	-
tire wear	Haul Trucks - soil (onsite)									-		102	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)									-		102	-	-	-	-
Loading	fugitive dust (offsite)			0	24	0		9/1/2018	10/8/2018							
Loading	fugitive dust (onsite)			0	24	0		9/1/2018	10/8/2018							
exhaust	Slurry Truck (offsite)			0	10	0		10/1/2018	10/15/2018	-	2490	250	50	50	-	-
brake wear	Slurry Truck (offsite)									-		250	50	50	-	-
tire wear	Slurry Truck (offsite)									-		250	50	50	-	-
entrained road dust	Slurry Truck (offsite)									-		250	50	50	-	-
exhaust	Slurry Truck (onsite)			0	10	0		10/1/2018	10/15/2018	-	2490	250	-	-	-	-
brake wear	Slurry Truck (onsite)									-		250	-	-	-	-
tire wear	Slurry Truck (onsite)									-		250	-	-	-	-
entrained road dust	Slurry Truck (onsite)									-		250	-	-	-	-
exhaust	Concrete Trucks (offsite)			0	16	0		10/1/2018	10/23/2018	-		3	65	65	-	-
brake wear	Concrete Trucks (offsite)									-		3	65	65	-	-
tire wear	Concrete Trucks (offsite)									-		3	65	65	-	-
entrained road dust	Concrete Trucks (offsite)									-		3	65	65	-	-
exhaust	Concrete Trucks (onsite)			0	16	0		10/1/2018	10/23/2018	-		3	-	-	-	-
brake wear	Concrete Trucks (onsite)									-		3	-	-	-	-
tire wear	Concrete Trucks (onsite)									-		3	-	-	-	-
entrained road dust	Concrete Trucks (onsite)									-		3	-	-	-	-
	Crane			0	11	0		10/16/2018	10/31/2018	1	-	-	-	-	8	100%
exhaust	Equipment Trucks (offsite)			0	21	0		10/24/2018	11/23/2018	-	-	21	20	20	8	100%
brake wear	Equipment Trucks (offsite)									-		21	20	20	-	-
tire wear	Equipment Trucks (offsite)									-		21	20	20	-	-
entrained road dust	Equipment Trucks (offsite)									-		21	20	20	-	-
exhaust	Equipment Trucks (onsite)			0	21	0		10/24/2018	11/23/2018	-	-	21	-	-	8	100%
brake wear	Equipment Trucks (onsite)									-		21	-	-	-	-
tire wear	Equipment Trucks (onsite)									-		21	-	-	-	-
entrained road dust	Equipment Trucks (onsite)									-		21	-	-	-	-
Box 5	Sawcutter			0	10	0		11/1/2018	11/15/2018	1	-	-	-	-	8	100%
	Backhoe			0	25	0		11/1/2018	12/8/2018	1	-	-	-	-	8	100%
exhaust	Haul Trucks - AC pavement (offsite)			0	25	0		11/1/2018	12/8/2018	-	460	46	20	20	-	-
brake wear	Haul Trucks - AC pavement (offsite)									-		46	20	20	-	-
tire wear	Haul Trucks - AC pavement (offsite)									-		46	20	20	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)									-		46	20	20	-	-
exhaust	Haul Trucks - AC pavement (onsite)			0	25	0		11/1/2018	12/8/2018	-	460	46	-	-	-	-
brake wear	Haul Trucks - AC pavement (onsite)									-		46	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)									-		46	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)									-		46	-	-	-	-

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	Start Year	Duration Total (days)	2017 (days)	2018 (days)	2019 (days)	Total (months)	Start Date	End Date	#	Loads (cy)	(veh)	One-way Distance (mi)	One-way Distance in SCAB (mi)	Hours	Usage
exhaust	Haul Trucks - soil (offsite)			0	25	0		11/1/2018	12/8/2018	-	2030	102	200	95	-	-
brake wear	Haul Trucks - soil (offsite)									-		102	200	95	-	-
tire wear	Haul Trucks - soil (offsite)									-		102	200	95	-	-
entrained road dust	Haul Trucks - soil (offsite)									-		102	200	95	-	-
exhaust	Haul Trucks - soil (onsite)			0	25	0		11/1/2018	12/8/2018	-	2030	102	-	-	-	-
brake wear	Haul Trucks - soil (onsite)									-		102	-	-	-	-
tire wear	Haul Trucks - soil (onsite)									-		102	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)									-		102	-	-	-	-
Loading	fugitive dust (offsite)			0	25	0		11/1/2018	12/8/2018							
Loading	fugitive dust (onsite)			0	25	0		11/1/2018	12/8/2018							
exhaust	Slurry Truck (offsite)			0	9	0		12/1/2018	12/15/2018	-	2490	250	50	50	-	-
brake wear	Slurry Truck (offsite)									-		250	50	50	-	-
tire wear	Slurry Truck (offsite)									-		250	50	50	-	-
entrained road dust	Slurry Truck (offsite)									-		250	50	50	-	-
exhaust	Slurry Truck (onsite)			0	9	0		12/1/2018	12/15/2018	-	2490	250	-	-	-	-
brake wear	Slurry Truck (onsite)									-		250	-	-	-	-
tire wear	Slurry Truck (onsite)									-		250	-	-	-	-
entrained road dust	Slurry Truck (onsite)									-		250	-	-	-	-
exhaust	Concrete Trucks (offsite)			0	14	0		12/1/2018	12/23/2018	-		3	65	65	-	-
brake wear	Concrete Trucks (offsite)									-		3	65	65	-	-
tire wear	Concrete Trucks (offsite)									-		3	65	65	-	-
entrained road dust	Concrete Trucks (offsite)									-		3	65	65	-	-
exhaust	Concrete Trucks (onsite)			0	14	0		12/1/2018	12/23/2018	-		3	-	-	-	-
brake wear	Concrete Trucks (onsite)									-		3	-	-	-	-
tire wear	Concrete Trucks (onsite)									-		3	-	-	-	-
entrained road dust	Concrete Trucks (onsite)									-		3	-	-	-	-
	Crane			0	10	0		12/16/2018	12/31/2018	1	-	-	-	-	8	100%
exhaust	Equipment Trucks (offsite)			0	6	40		12/24/2018	2/28/2019	-	-	45	20	20	8	100%
brake wear	Equipment Trucks (offsite)									-		45	20	20	-	-
tire wear	Equipment Trucks (offsite)									-		45	20	20	-	-
entrained road dust	Equipment Trucks (offsite)									-		45	20	20	-	-
exhaust	Equipment Trucks (onsite)			0	6	40		12/24/2018	2/28/2019	-	-	45	-	-	8	100%
brake wear	Equipment Trucks (onsite)									-		45	-	-	-	-
tire wear	Equipment Trucks (onsite)									-		45	-	-	-	-
entrained road dust	Equipment Trucks (onsite)									-		45	-	-	-	-
exhaust	Worker Commute (offsite)			0	200	40		3/1/2018	2/28/2019	-		540	12.7	12.7	-	-
brake wear	Worker Commute (offsite)									-		540	12.7	12.7	-	-
tire wear	Worker Commute (offsite)									-		540	12.7	12.7	-	-
entrained road dust	Worker Commute (offsite)									-		540	12.7	12.7	-	-
	Phase 4 Total															
	Off-road Construction Equipment Exhaust															
	Marine Source Exhaust															
	On-Road Construction Vehicles															
	Worker Vehicles															
	Fugitive Emissions (VOC)															
	Fugitive Emissions (Dust)															
Phase 5: Parcel H																
Parcel H Development		2019	30				1.5									
(1.5 acres)	Excavator			0	0	10		3/1/2019	3/15/2019	1	-	-	-	-	8	100%
exhaust	Haul Trucks - soil (offsite)			0	0	10		3/1/2019	3/15/2019	-	60	3	200	95	-	-
brake wear	Haul Trucks - soil (offsite)									-		3	200	95	-	-
tire wear	Haul Trucks - soil (offsite)									-		3	200	95	-	-
entrained road dust	Haul Trucks - soil (offsite)									-		3	200	95	-	-
exhaust	Haul Trucks - soil (onsite)			0	0	10		3/1/2019	3/15/2019	-	60	3	-	-	-	-
brake wear	Haul Trucks - soil (onsite)									-		3	-	-	-	-
tire wear	Haul Trucks - soil (onsite)									-		3	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)									-		3	-	-	-	-
Loading	fugitive dust (offsite)			0	0	10		3/1/2019	3/15/2019							
Loading	fugitive dust (onsite)			0	0	10		3/1/2019	3/15/2019							
	Backhoe			0	0	10		3/1/2019	3/15/2019	1	-	-	-	-	8	100%
	Grading Machine			0	0	10		3/1/2019	3/15/2019	1	-	-	-	-	8	100%

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	Start Year	Duration Total (days)	2017 (days)	2018 (days)	2019 (days)	Total (months)	Start Date	End Date	#	Loads (cy)	(veh)	One-way Distance (mi)	One-way Distance in SCAB (mi)	Hours	Usage
Grading	fugitive dust (onsite)			0	0	10		3/1/2019	3/15/2019							
	Water Truck			0	0	10		3/1/2019	3/15/2019	1	-	-	-	-	8	100%
exhaust	Haul Trucks - base CMB (offsite)			0	0	9		3/16/2019	3/31/2019	-	3430	343	20	20	-	-
brake wear	Haul Trucks - base CMB (offsite)									-		343	20	20	-	-
tire wear	Haul Trucks - base CMB (offsite)									-		343	20	20	-	-
entrained road dust	Haul Trucks - base CMB (offsite)									-		343	20	20	-	-
exhaust	Haul Trucks - base CMB (onsite)			0	0	9		3/16/2019	3/31/2019	-	3430	343	-	-	-	-
brake wear	Haul Trucks - base CMB (onsite)									-		343	-	-	-	-
tire wear	Haul Trucks - base CMB (onsite)									-		343	-	-	-	-
entrained road dust	Haul Trucks - base CMB (onsite)									-		343	-	-	-	-
Loading	fugitive dust (offsite)			0	0	9		3/16/2019	3/31/2019							
Loading	fugitive dust (onsite)			0	0	9		3/16/2019	3/31/2019							
	Roller			0	0	9		3/16/2019	3/31/2019	1	-	-	-	-	8	100%
	Skip Loader			0	0	9		3/16/2019	3/31/2019	1	-	-	-	-	8	100%
exhaust	Haul Trucks - AC pavement (offsite)			0	0	10		3/24/2019	4/8/2019	-	1620	162	40	40	-	-
brake wear	Haul Trucks - AC pavement (offsite)									-		162	40	40	-	-
tire wear	Haul Trucks - AC pavement (offsite)									-		162	40	40	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)									-		162	40	40	-	-
exhaust	Haul Trucks - AC pavement (onsite)			0	0	10		3/24/2019	4/8/2019	-	1620	162	-	-	-	-
brake wear	Haul Trucks - AC pavement (onsite)									-		162	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)									-		162	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)									-		162	-	-	-	-
	Roller			0	0	10		3/24/2019	4/8/2019	1	-	-	-	-	8	100%
Paving	fugitive VOC			0	0	10		3/24/2019	4/8/2019							
	Skip Loader			0	0	10		3/24/2019	4/8/2019	1	-	-	-	-	8	100%
	Tack coat sprayer			0	0	10		3/24/2019	4/8/2019	1	-	-	-	-	8	100%
	Striping Machine			0	0	5		4/9/2019	4/15/2019	1	-	-	-	-	8	100%
exhaust	Concrete Trucks (offsite)			0	0	5		3/9/2019	3/15/2019	-		1	65	65	-	-
brake wear	Concrete Trucks (offsite)									-		1	65	65	-	-
tire wear	Concrete Trucks (offsite)									-		1	65	65	-	-
entrained road dust	Concrete Trucks (offsite)									-		1	65	65	-	-
exhaust	Concrete Trucks (onsite)			0	0	5		3/9/2019	3/15/2019	-		1	-	-	-	-
brake wear	Concrete Trucks (onsite)									-		1	-	-	-	-
tire wear	Concrete Trucks (onsite)									-		1	-	-	-	-
entrained road dust	Concrete Trucks (onsite)									-		1	-	-	-	-
	Crane			0	0	5		4/9/2019	4/15/2019	1	-	-	-	-	8	100%
exhaust	Worker Commute (offsite)			0	0	30		3/1/2019	4/15/2019	-		135	12.7	12.7	-	-
brake wear	Worker Commute (offsite)									-		135	12.7	12.7	-	-
tire wear	Worker Commute (offsite)									-		135	12.7	12.7	-	-
entrained road dust	Worker Commute (offsite)									-		135	12.7	12.7	-	-
	Phase 5 Total															
	Off-road Construction Equipment Exhaust															
	Marine Source Exhaust															
	On-Road Construction Vehicles															
	Worker Vehicles															
	Fugitive Emissions (VOC)															
	Fugitive Emissions (Dust)															
Phase 6: Entrace Gate Development																
Construction & Demolition of the Main Gate		2017	320				16									
Realignment of Cannery Street & Terminal Way	Excavator			19	40	0		12/1/2017	2/28/2018	1	-	-	-	-	8	100%
	Backhoe			19	40	0		12/1/2017	2/28/2018	1	-	-	-	-	8	100%
	Sawcutter			0	40	0		1/1/2018	2/28/2018	1	-	-	-	-	8	100%
	Excavator			0	60	0		1/1/2018	3/31/2018	1	-	-	-	-	8	100%
	Backhoe			0	60	0		1/1/2018	3/31/2018	1	-	-	-	-	8	100%
Grading	fugitive dust (onsite)			0	60	0		1/1/2018	3/31/2018							
exhaust	Haul Trucks - AC pavement (offsite)			0	60	0		1/1/2018	3/31/2018	-	5900	590	20	20	-	-
brake wear	Haul Trucks - AC pavement (offsite)									-		590	20	20	-	-
tire wear	Haul Trucks - AC pavement (offsite)									-		590	20	20	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)									-		590	20	20	-	-
exhaust	Haul Trucks - AC pavement (onsite)			0	60	0		1/1/2018	3/31/2018	-	5900	590	-	-	-	-
brake wear	Haul Trucks - AC pavement (onsite)									-		590	-	-	-	-

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	Start Year	Duration Total (days)	2017 (days)	2018 (days)	2019 (days)	Total (months)	Start Date	End Date	#	Loads (cy)	Loads (veh)	One-way Distance (mi)	One-way Distance in SCAB (mi)	Hours	Usage
tire wear	Haul Trucks - AC pavement (onsite)									-		590	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)									-		590	-	-	-	-
exhaust	Slurry Truck (offsite)			0	20	0		3/1/2018	3/31/2018	-	4860	486	50	50	-	-
brake wear	Slurry Truck (offsite)									-		486	50	50	-	-
tire wear	Slurry Truck (offsite)									-		486	50	50	-	-
entrained road dust	Slurry Truck (offsite)									-		486	50	50	-	-
exhaust	Slurry Truck (onsite)			0	20	0		3/1/2018	3/31/2018	-	4860	486	-	-	-	-
brake wear	Slurry Truck (onsite)									-		486	-	-	-	-
tire wear	Slurry Truck (onsite)									-		486	-	-	-	-
entrained road dust	Slurry Truck (onsite)									-		486	-	-	-	-
	Water Truck			0	60	0		1/1/2018	3/31/2018	1	-	-	-	-	8	100%
	Forklift			0	20	0		3/1/2018	3/31/2018	1	-	-	-	-	8	100%
exhaust	Concrete Trucks (offsite)			0	20	0		3/1/2018	3/31/2018	-	340	34	65	65	-	-
brake wear	Concrete Trucks (offsite)									-		34	65	65	-	-
tire wear	Concrete Trucks (offsite)									-		34	65	65	-	-
entrained road dust	Concrete Trucks (offsite)									-		34	65	65	-	-
exhaust	Concrete Trucks (onsite)			0	20	0		3/1/2018	3/31/2018	-	340	34	-	-	-	-
brake wear	Concrete Trucks (onsite)									-		34	-	-	-	-
tire wear	Concrete Trucks (onsite)									-		34	-	-	-	-
entrained road dust	Concrete Trucks (onsite)									-		34	-	-	-	-
exhaust	Haul Trucks - base CMB (offsite)			0	41	0		4/1/2018	5/31/2018	-	5900	590	20	20	-	-
brake wear	Haul Trucks - base CMB (offsite)									-		590	20	20	-	-
tire wear	Haul Trucks - base CMB (offsite)									-		590	20	20	-	-
entrained road dust	Haul Trucks - base CMB (offsite)									-		590	20	20	-	-
exhaust	Haul Trucks - base CMB (onsite)			0	41	0		4/1/2018	5/31/2018	-	5900	590	-	-	-	-
brake wear	Haul Trucks - base CMB (onsite)									-		590	-	-	-	-
tire wear	Haul Trucks - base CMB (onsite)									-		590	-	-	-	-
entrained road dust	Haul Trucks - base CMB (onsite)									-		590	-	-	-	-
Loading	fugitive dust (offsite)			0	41	0		4/1/2018	5/31/2018							
Loading	fugitive dust (onsite)			0	41	0		4/1/2018	5/31/2018							
	Roller			0	41	0		4/1/2018	5/31/2018	1	-	-	-	-	8	100%
	Skip Loader			0	41	0		4/1/2018	5/31/2018	1	-	-	-	-	8	100%
exhaust	Haul Trucks - AC pavement (offsite)			0	51	0		5/16/2018	7/31/2018	-	4000	400	40	40	-	-
brake wear	Haul Trucks - AC pavement (offsite)									-		400	40	40	-	-
tire wear	Haul Trucks - AC pavement (offsite)									-		400	40	40	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)									-		400	40	40	-	-
exhaust	Haul Trucks - AC pavement (onsite)			0	51	0		5/16/2018	7/31/2018	-	4000	400	-	-	-	-
brake wear	Haul Trucks - AC pavement (onsite)									-		400	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)									-		400	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)									-		400	-	-	-	-
	Roller			0	51	0		5/16/2018	7/31/2018	1	-	-	-	-	8	100%
Paving	fugitive VOC			0	51	0		5/16/2018	7/31/2018							
	Skip Loader			0	51	0		5/16/2018	7/31/2018	1	-	-	-	-	8	100%
	Tack coat sprayer			0	11	0		5/16/2018	5/31/2018	1	-	-	-	-	8	100%
	Tack coat sprayer			0	11	0		7/16/2018	7/31/2018	1	-	-	-	-	8	100%
	Crane			0	60	0		1/1/2018	3/31/2018	1	-	-	-	-	8	100%
	Crane			0	21	0		8/1/2018	8/31/2018	1	-	-	-	-	8	100%
	Striping Machine			0	21	0		8/1/2018	8/31/2018	1	-	-	-	-	8	100%
Vacant Properties	Sawcutter			0	40	0		1/1/2018	2/28/2018	1	-	-	-	-	8	100%
	Excavator			0	60	0		1/1/2018	3/31/2018	1	-	-	-	-	8	100%
Demolition	fugitive dust (onsite)			0	60	0		1/1/2018	3/31/2018							
	Backhoe			0	60	0		1/1/2018	3/31/2018	1	-	-	-	-	8	100%
Grading	fugitive dust (onsite)			0	60	0		1/1/2018	3/31/2018							
exhaust	Haul Trucks - AC pavement (offsite)			0	60	0		1/1/2018	3/31/2018	-	4810	481	20	20	-	-
brake wear	Haul Trucks - AC pavement (offsite)									-		481	20	20	-	-
tire wear	Haul Trucks - AC pavement (offsite)									-		481	20	20	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)									-		481	20	20	-	-
exhaust	Haul Trucks - AC pavement (onsite)			0	60	0		1/1/2018	3/31/2018	-	4810	481	-	-	-	-
brake wear	Haul Trucks - AC pavement (onsite)									-		481	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)									-		481	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)									-		481	-	-	-	-

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	Start Year	Duration Total (days)	2017 (days)	2018 (days)	2019 (days)	Total (months)	Start Date	End Date	#	Loads (cy)	(veh)	One-way Distance (mi)	One-way Distance in SCAB (mi)	Hours	Usage
Debris	fugitive dust (onsite)			0	60	0		1/1/2018	3/31/2018							
exhaust	Haul Trucks - soil (offsite)			0	60	0		1/1/2018	3/31/2018	-	1790	90	200	95	-	-
brake wear	Haul Trucks - soil (offsite)									-		90	200	95	-	-
tire wear	Haul Trucks - soil (offsite)									-		90	200	95	-	-
entrained road dust	Haul Trucks - soil (offsite)									-		90	200	95	-	-
exhaust	Haul Trucks - soil (onsite)			0	60	0		1/1/2018	3/31/2018	-	1790	90	-	-	-	-
brake wear	Haul Trucks - soil (onsite)									-		90	-	-	-	-
tire wear	Haul Trucks - soil (onsite)									-		90	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)									-		90	-	-	-	-
Loading	fugitive dust (offsite)			0	60	0		1/1/2018	3/31/2018							
Loading	fugitive dust (onsite)			0	60	0		1/1/2018	3/31/2018							
	Water Truck			0	60	0		1/1/2018	3/31/2018	1	-	-	-	-	8	100%
	Forklift			0	60	0		1/1/2018	3/31/2018	1	-	-	-	-	8	100%
exhaust	Concrete Trucks (offsite)			0	19	0		4/1/2018	4/30/2018	-	1000	100	65	65	-	-
brake wear	Concrete Trucks (offsite)									-		100	65	65	-	-
tire wear	Concrete Trucks (offsite)									-		100	65	65	-	-
entrained road dust	Concrete Trucks (offsite)									-		100	65	65	-	-
exhaust	Concrete Trucks (onsite)			0	19	0		4/1/2018	4/30/2018	-	1000	100	-	-	-	-
brake wear	Concrete Trucks (onsite)									-		100	-	-	-	-
tire wear	Concrete Trucks (onsite)									-		100	-	-	-	-
entrained road dust	Concrete Trucks (onsite)									-		100	-	-	-	-
	Crane			0	19	0		4/1/2018	4/30/2018	1	-	-	-	-	8	100%
exhaust	Haul Trucks - base CMB (offsite)			0	61	0		5/1/2018	7/31/2018	-	35130	3513	20	20	-	-
brake wear	Haul Trucks - base CMB (offsite)									-		3513	20	20	-	-
tire wear	Haul Trucks - base CMB (offsite)									-		3513	20	20	-	-
entrained road dust	Haul Trucks - base CMB (offsite)									-		3513	20	20	-	-
exhaust	Haul Trucks - base CMB (onsite)			0	61	0		5/1/2018	7/31/2018	-	35130	3513	-	-	-	-
brake wear	Haul Trucks - base CMB (onsite)									-		3513	-	-	-	-
tire wear	Haul Trucks - base CMB (onsite)									-		3513	-	-	-	-
entrained road dust	Haul Trucks - base CMB (onsite)									-		3513	-	-	-	-
Loading	fugitive dust (offsite)			0	61	0		5/1/2018	7/31/2018							
Loading	fugitive dust (onsite)			0	61	0		5/1/2018	7/31/2018							
	Roller			0	61	0		5/1/2018	7/31/2018	2	-	-	-	-	8	100%
	Paving Machine			0	60	0		7/1/2018	9/30/2018	1	-	-	-	-	8	100%
Paving	fugitive VOC			0	60	0		7/1/2018	9/30/2018							
exhaust	Haul Trucks - AC pavement (offsite)			0	60	0		7/1/2018	9/30/2018	-	14462	1447	40	40	-	-
brake wear	Haul Trucks - AC pavement (offsite)									-		1447	40	40	-	-
tire wear	Haul Trucks - AC pavement (offsite)									-		1447	40	40	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)									-		1447	40	40	-	-
exhaust	Haul Trucks - AC pavement (onsite)			0	60	0		7/1/2018	9/30/2018	-	14462	1447	-	-	-	-
brake wear	Haul Trucks - AC pavement (onsite)									-		1447	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)									-		1447	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)									-		1447	-	-	-	-
	Roller			0	60	0		7/1/2018	9/30/2018	2	-	-	-	-	8	100%
	Skip Loader			0	21	0		10/1/2018	10/31/2018	1	-	-	-	-	8	100%
	Striping Machine			0	21	0		10/1/2018	10/31/2018	1	-	-	-	-	8	100%
Inside Terminal	Sawcutter			0	19	0		9/16/2018	10/15/2018	1	-	-	-	-	8	100%
	Excavator			0	42	0		10/1/2018	11/30/2018	1	-	-	-	-	8	100%
Demolition	fugitive dust (onsite)			0	42	0		10/1/2018	11/30/2018							
	Backhoe			0	42	0		10/1/2018	11/30/2018	1	-	-	-	-	8	100%
exhaust	Haul Trucks - AC pavement (offsite)			0	42	0		10/1/2018	11/30/2018	-	4060	406	20	20	-	-
brake wear	Haul Trucks - AC pavement (offsite)									-		406	20	20	-	-
tire wear	Haul Trucks - AC pavement (offsite)									-		406	20	20	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)									-		406	20	20	-	-
exhaust	Haul Trucks - AC pavement (onsite)			0	42	0		10/1/2018	11/30/2018	-	4060	406	-	-	-	-
brake wear	Haul Trucks - AC pavement (onsite)									-		406	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)									-		406	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)									-		406	-	-	-	-
Debris	fugitive dust (onsite)			0	42	0		10/1/2018	11/30/2018							
exhaust	Slurry Truck (offsite)			0	42	0		10/1/2018	11/30/2018	-	300	30	50	50	-	-
brake wear	Slurry Truck (offsite)									-		30	50	50	-	-

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Phase	Equipment	Start Year	Duration Total (days)	2017 (days)	2018 (days)	2019 (days)	Total (months)	Start Date	End Date	#	Loads (cy)	(veh)	One-way Distance (mi)	One-way Distance in SCAB (mi)	Hours	Usage
tire wear	Slurry Truck (offsite)									-		30	50	50	-	-
entrained road dust	Slurry Truck (offsite)									-		30	50	50	-	-
exhaust	Slurry Truck (onsite)			0	42	0		10/1/2018	11/30/2018	-	300	30	-	-	-	-
brake wear	Slurry Truck (onsite)									-		30	-	-	-	-
tire wear	Slurry Truck (onsite)									-		30	-	-	-	-
entrained road dust	Slurry Truck (onsite)									-		30	-	-	-	-
	Cold Planer			0	19	10		12/1/2018	1/15/2019	1	-	-	-	-	8	100%
	Sweeper			0	19	10		12/1/2018	1/15/2019	1	-	-	-	-	8	100%
	Paving Machine			0	0	40		1/1/2019	2/28/2019	1	-	-	-	-	8	100%
exhaust	Haul Trucks - AC pavement (offsite)			0	0	40		1/1/2019	2/28/2019	-	4060	406	40	40	-	-
brake wear	Haul Trucks - AC pavement (offsite)									-		406	40	40	-	-
tire wear	Haul Trucks - AC pavement (offsite)									-		406	40	40	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)									-		406	40	40	-	-
exhaust	Haul Trucks - AC pavement (onsite)			0	0	40		1/1/2019	2/28/2019	-	4060	406	-	-	-	-
brake wear	Haul Trucks - AC pavement (onsite)									-		406	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)									-		406	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)									-		406	-	-	-	-
	Roller			0	0	40		1/1/2019	2/28/2019	2	-	-	-	-	8	100%
	Skip Loader			0	0	40		1/1/2019	2/28/2019	1	-	-	-	-	8	100%
	Striping Machine			0	0	19		3/1/2019	3/31/2019	1	-	-	-	-	8	100%
exhaust	Worker Commute (offsite)			21	235	64		12/1/2017	3/31/2019	-		2135	12.7	12.7	-	-
brake wear	Worker Commute (offsite)									-		2135	12.7	12.7	-	-
tire wear	Worker Commute (offsite)									-		2135	12.7	12.7	-	-
entrained road dust	Worker Commute (offsite)									-		2135	12.7	12.7	-	-
	Phase 6 Total															
	Off-road Construction Equipment Exhaust															
	Marine Source Exhaust															
	On-Road Construction Vehicles															
	Worker Vehicles															
	Fugitive Emissions (VOC)															
	Fugitive Emissions (Dust)															
Crane Delivery																
	Cargo Ship (Berth+Zones 1-5)	2019	14	0	0	14		11/1/2019	11/15/2019	1					24	100%
	Tug Boat			0	0	2		11/1/2019	11/15/2019	2					1.1	100%
	Crane			0	0	14		11/1/2019	11/15/2019	1	-	-	-	-	8	100%
	Welder			0	0	14		11/1/2019	11/15/2019	1	-	-	-	-	8	100%
	Tractor			0	0	14		11/1/2019	11/15/2019	1	-	-	-	-	8	100%
exhaust	Worker Commute (offsite)			0	0	14		11/1/2019	11/15/2019	-		98	12.7	12.7	-	-
brake wear	Worker Commute (offsite)									-		98	12.7	12.7	-	-
tire wear	Worker Commute (offsite)									-		98	12.7	12.7	-	-
entrained road dust	Worker Commute (offsite)									-		98	12.7	12.7	-	-
	Crane Delivery Total															
	Off-road Construction Equipment Exhaust															
	Marine Source Exhaust															
	On-Road Construction Vehicles															
	Worker Vehicles															
	Fugitive Emissions (VOC)															
	Fugitive Emissions (Dust)															
Phase 7: TICTF Loading Track																
Installation of an additional loading track		2018	60				3									
exhaust	Delivery Trucks (offsite)			0	41	0		4/1/2018	5/31/2018	-		25	20	20	-	-
brake wear	Delivery Trucks (offsite)									-		25	20	20	-	-
tire wear	Delivery Trucks (offsite)									-		25	20	20	-	-
entrained road dust	Delivery Trucks (offsite)									-		25	20	20	-	-
exhaust	Delivery Trucks (onsite)			0	41	0		4/1/2018	5/31/2018	-		25	-	-	-	-
brake wear	Delivery Trucks (onsite)									-		25	-	-	-	-
tire wear	Delivery Trucks (onsite)									-		25	-	-	-	-
entrained road dust	Delivery Trucks (onsite)									-		25	-	-	-	-
exhaust	Haul Trucks - base CMB (offsite)			0	41	0		4/1/2018	5/31/2018	-	2000	200	20	20	-	-
brake wear	Haul Trucks - base CMB (offsite)									-		200	20	20	-	-
tire wear	Haul Trucks - base CMB (offsite)									-		200	20	20	-	-

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	Start Year	Duration Total (days)	2017 (days)	2018 (days)	2019 (days)	Total (months)	Start Date	End Date	#	Loads (cy)	(veh)	One-way Distance (mi)	One-way Distance in SCAB (mi)	Hours	Usage
entrained road dust	Haul Trucks - base CMB (offsite)									-		200	20	20	-	-
exhaust	Haul Trucks - base CMB (onsite)			0	41	0		4/1/2018	5/31/2018	-	2000	200	-	-	-	-
brake wear	Haul Trucks - base CMB (onsite)									-		200	-	-	-	-
tire wear	Haul Trucks - base CMB (onsite)									-		200	-	-	-	-
entrained road dust	Haul Trucks - base CMB (onsite)									-		200	-	-	-	-
Loading	fugitive dust (offsite)			0	41	0		4/1/2018	5/31/2018							
Loading	fugitive dust (onsite)			0	41	0		4/1/2018	5/31/2018							
exhaust	Haul Trucks - AC pavement (offsite)			0	41	0		4/1/2018	5/31/2018	-	810	81	20	20	-	-
brake wear	Haul Trucks - AC pavement (offsite)									-		81	20	20	-	-
tire wear	Haul Trucks - AC pavement (offsite)									-		81	20	20	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)									-		81	20	20	-	-
exhaust	Haul Trucks - AC pavement (onsite)			0	41	0		4/1/2018	5/31/2018	-	810	81	-	-	-	-
brake wear	Haul Trucks - AC pavement (onsite)									-		81	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)									-		81	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)									-		81	-	-	-	-
exhaust	Haul Trucks - soil (offsite)			0	41	0		4/1/2018	5/31/2018	-	4170	209	200	95	-	-
brake wear	Haul Trucks - soil (offsite)									-		209	200	95	-	-
tire wear	Haul Trucks - soil (offsite)									-		209	200	95	-	-
entrained road dust	Haul Trucks - soil (offsite)									-		209	200	95	-	-
exhaust	Haul Trucks - soil (onsite)			0	41	0		4/1/2018	5/31/2018	-	4170	209	-	-	-	-
brake wear	Haul Trucks - soil (onsite)									-		209	-	-	-	-
tire wear	Haul Trucks - soil (onsite)									-		209	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)									-		209	-	-	-	-
Loading	fugitive dust (offsite)			0	41	0		4/1/2018	5/31/2018							
Loading	fugitive dust (onsite)			0	41	0		4/1/2018	5/31/2018							
	Sawcutter			0	19	0		4/1/2018	4/30/2018	1	-	-	-	-	8	100%
	Excavator			0	19	0		4/1/2018	4/30/2018	1	-	-	-	-	8	100%
	Tamper			0	42	0		4/16/2018	6/15/2018	1	-	-	-	-	8	100%
	Regulator			0	42	0		4/16/2018	6/15/2018	1	-	-	-	-	8	100%
	Speed Swing			0	42	0		4/16/2018	6/15/2018	1	-	-	-	-	8	100%
	Forklift			0	42	0		4/16/2018	6/15/2018	1	-	-	-	-	8	100%
	Loader			0	42	0		4/16/2018	6/15/2018	1	-	-	-	-	8	100%
	Blade/Grader			0	42	0		4/16/2018	6/15/2018	1	-	-	-	-	8	100%
Grading	fugitive dust (onsite)			0	42	0		4/16/2018	6/15/2018							
	Swivel Dump			0	42	0		4/16/2018	6/15/2018	1	-	-	-	-	8	100%
	Water Truck			0	51	0		4/16/2018	6/30/2018	1	-	-	-	-	8	100%
	Prentice Loader			0	42	0		4/16/2018	6/15/2018	1	-	-	-	-	8	100%
	Tie Truck			0	42	0		4/16/2018	6/15/2018	1	-	-	-	-	8	100%
	Paving Machine			0	31	0		5/15/2018	6/30/2018	1	-	-	-	-	8	100%
Paving	fugitive VOC			0	31	0		5/15/2018	6/30/2018							
	Roller			0	31	0		5/15/2018	6/30/2018	1	-	-	-	-	8	100%
	Skip Loader			0	31	0		5/15/2018	6/30/2018	1	-	-	-	-	8	100%
exhaust	Worker Commute (offsite)			0	60	0		4/1/2018	6/30/2018	-		740	12.7	12.7	-	-
brake wear	Worker Commute (offsite)									-		740	12.7	12.7	-	-
tire wear	Worker Commute (offsite)									-		740	12.7	12.7	-	-
entrained road dust	Worker Commute (offsite)									-		740	12.7	12.7	-	-
	Phase 7 Total															
	Off-road Construction Equipment Exhaust															
	Marine Source Exhaust															
	On-Road Construction Vehicles															
	Worker Vehicles															
	Fugitive Emissions (VOC)															
	Fugitive Emissions (Dust)															

Proposed Total	**Ocean Disposal**
Off-road Construction Equipment Exhaust	
Marine Source Exhaust	
On-Road Construction Vehicles	
Worker Vehicles	
Fugitive Emissions (VOC)	
Fugitive Emissions (Dust)	

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	Start Year	Duration Total (days)	2017 (days)	2018 (days)	2019 (days)	Total (months)	Start Date	End Date	#	Loads (cy)	(veh)	One-way Distance (mi)	One-way Distance in SCAB (mi)	Hours	Usage
	Upland Disposal															
	Off-road Construction Equipment Exhaust															
	Marine Source Exhaust															
	On-Road Construction Vehicles															
	Worker Vehicles															
	Fugitive Emissions (VOC)															
	Fugitive Emissions (Dust)															
General Conformity	**Ocean Disposal**															
	Off-road Construction Equipment Exhaust															
	Marine Source Exhaust															
	On-Road Construction Vehicles															
	Worker Vehicles															
	Fugitive Emissions (VOC)															
	Fugitive Emissions (Dust)															
	Upland Disposal															
	Off-road Construction Equipment Exhaust															
	Marine Source Exhaust															
	On-Road Construction Vehicles															
	Worker Vehicles															
	Fugitive Emissions (VOC)															
	Fugitive Emissions (Dust)															
Alt 1 No Federal Action																
	Off-road Construction Equipment Exhaust															
	Marine Source Exhaust															
	On-Road Construction Vehicles															
	Worker Vehicles															
	Fugitive Emissions (VOC)															
	Fugitive Emissions (Dust)															
Alt 3 Reduced Wharf Improvements	**Ocean Disposal**															
	Off-road Construction Equipment Exhaust															
	Marine Source Exhaust															
	On-Road Construction Vehicles															
	Worker Vehicles															
	Fugitive Emissions (VOC)															
	Fugitive Emissions (Dust)															
	Upland Disposal															
	Off-road Construction Equipment Exhaust															
	Marine Source Exhaust															
	On-Road Construction Vehicles															
	Worker Vehicles															
	Fugitive Emissions (VOC)															
	Fugitive Emissions (Dust)															
Alt 4 No Backland Improvements	**Ocean Disposal**															
	Off-road Construction Equipment Exhaust															
	Marine Source Exhaust															
	On-Road Construction Vehicles															
	Worker Vehicles															
	Fugitive Emissions (VOC)															
	Fugitive Emissions (Dust)															
	Upland Disposal															
	Off-road Construction Equipment Exhaust															
	Marine Source Exhaust															
	On-Road Construction Vehicles															
	Worker Vehicles															
	Fugitive Emissions (VOC)															
	Fugitive Emissions (Dust)															
Alt 5 Expanded On-Dock Rail Yard	**Ocean Disposal**															
	Off-road Construction Equipment Exhaust															
	Marine Source Exhaust															
	On-Road Construction Vehicles															
	Worker Vehicles															

Table 9. Construction Schedule & Annual Emissions

Phase	Equipment	Start Year	Duration Total (days)	2017 (days)	2018 (days)	2019 (days)	Total (months)	Start Date	End Date	#	Loads (cy)	(veh)	One-way Distance (mi)	One-way Distance in SCAB (mi)	Hours	Usage
	Fugitive Emissions (VOC)															
	Fugitive Emissions (Dust)															
	Upland Disposal															
	Off-road Construction Equipment Exhaust															
	Marine Source Exhaust															
	On-Road Construction Vehicles															
	Worker Vehicles															
	Fugitive Emissions (VOC)															
	Fugitive Emissions (Dust)															

Sources:
2016_05 B226-236 Construction Schedule_EIR.pdf
E-mail from B. Correa (POLA) to J. Bahng (POLA) on 1/5/15 (hours of operation)
Barge equipment operations from BargeEquipmentOperatingHrs+ENG+EMD.xlsx received 11/16/

Conversions

2000	lb/ton
453.592	g/lb
1000000	g/tonne
0.98	VOC/TOG (diesel)
0.89	VOC/TOG (gasoline)

Assume all emissions except for fugitive paving VOCs and worker commute emissions are diesel
Worker commute exhaust emissions assumed to be all gasoline.
EPA. 2010. Conversion Factors for Hydrocarbon Emission Components. EPA-420-R-10-015. July

Monthly Construction Days 20

Truck Capacity

Trips to Kettleman	20
Others	10

Soure: E-mail from B. Correa (POLA) to J. Bahng on 1/14/15.

Table 10. South Coast Air Basin 2018 Offroad Equipment Emission Factors

Equipment type	Proposed Project		Emission Factor (g/hr)										
	HP	LF	CO	HC	TOG	NOx	PM	PM10	PM2_5	SOx	CO2	CH4	N2O
Derrick Barge													
Compressor	353	0.54	214.4	67.9	72.6	480.5	16.9	16.8	16.1	1.1	108,329	5.5	0.0
Barge Crane	300	0.29	87.3	17.9	19.1	96.6	2.9	2.9	2.8	0.5	49,442	1.4	0.0
Deck Door Engine	86	0.89	77.8	16.1	17.2	191.7	5.1	5.1	4.9	0.5	43,498	1.3	0.0
Dredger (Clam Shell)	527	0.51	307.0	103.2	110.4	700.8	24.8	24.7	23.6	1.5	152,742	8.3	0.0
Generator	464	0.75	397.4	133.1	142.4	884.5	31.8	31.6	30.2	1.9	197,768	10.7	0.0
Hoist Swing Winch	379	0.31	132.9	43.0	46.0	297.1	10.5	10.5	10.0	0.7	66,769	3.5	0.0
Hoist Swing Pump	517	0.71	390.5	98.0	104.9	901.2	28.5	28.3	27.1	2.0	208,606	7.9	0.0
Vibratory Hammer	439	0.62	288.6	56.4	60.4	862.0	31.2	31.0	29.7	1.5	154,680	6.2	0.0
Pile Hammer	439	0.62	288.6	56.4	60.4	862.0	31.2	31.0	29.7	1.5	154,680	6.2	0.0
Jet Pump	113	0.74	300.7	41.3	44.2	455.0	34.8	34.6	33.1	0.6	47,521	3.2	0.0
Excavator	211	0.57	143.1	20.1	21.5	312.0	9.5	9.4	9.0	0.8	68,349	3.6	0.0
Sawcutter	81	0.73	211.2	32.9	35.2	222.0	15.2	15.1	14.4	0.4	33603.5	2.7	0.0
Backhoe	101	0.55	209.1	19.3	20.7	230.8	16.3	16.3	15.5	0.4	31,569	2.4	0.0
Vibrating Compactor	8	0.43	11.9	2.5	2.7	14.3	0.6	0.6	0.5	0.0	1954.9	0.2	0.0
Forklift	200	0.3	68.9	21.1	22.6	296.3	12.4	12.4	11.8	0.4	34,098	1.8	0.0
Crane	279	0.43	154.7	36.7	39.2	556.0	22.4	22.3	21.3	0.7	68,179	4.1	0.0
Grading Machine	217	0.61	165.1	42.0	45.0	697.7	22.7	22.5	21.6	0.8	75,226	4.4	0.0
Roller	113	0.56	238.9	25.2	26.9	294.3	20.3	20.1	19.3	0.4	35,962	3.7	0.0
Skip Loader	101	0.55	197.9	9.9	10.6	158.9	7.8	7.7	7.4	0.4	31,569	1.7	0.0
Tack Coat Sprayer	5	0.62	3.3	3.0	3.2	16.3	1.4	1.4	1.3	0.0	1,762	0.1	0.0
Striping Machine	5	0.62	3.3	3.0	3.2	16.3	1.4	1.4	1.3	0.0	1,762	0.1	0.0
Paving Machine	110	0.53	231.5	21.7	23.2	249.0	17.6	17.5	16.8	0.4	33,132	4.4	0.0
Cold Planer	350	0.55	204.1	39.9	42.7	609.6	22.1	21.9	21.0	1.1	109,398	4.4	0.0
Sweeper	511	0.57	338.9	83.7	89.6	1074.9	41.7	41.4	39.6	1.7	165,529	9.1	0.0
Water Truck	511	0.57	338.9	83.7	89.6	1074.9	41.7	41.4	39.6	1.7	165,529	9.1	0.0
Welder	62	0.45	100.3	13.8	14.7	151.8	11.6	11.6	11.1	0.2	15,856	1.1	0.0
Tractor	511	0.57	324.9	65.3	69.9	991.0	36.2	36.0	34.4	1.9	165,529	7.8	0.0
Tamper	526	0.45	306.6	27.9	29.8	537.0	18.5	18.4	17.6	1.4	134,516	6.2	0.0
Regulator	225	0.62	147.9	35.5	38.0	576.7	20.9	20.8	19.9	0.8	79,278	3.2	0.0
Speed Swing	439	0.62	288.6	56.4	60.4	862.0	31.2	31.0	29.7	1.5	154,680	6.2	0.0
Loader	101	0.55	209.1	19.3	20.7	230.8	16.3	16.3	15.5	0.4	31,569	2.4	0.0
Blade/Grader	217	0.61	165.1	42.0	45.0	697.7	22.7	22.5	21.6	0.8	75,226	4.4	0.0
Swivel Dump	439	0.62	288.6	56.4	60.4	862.0	31.2	31.0	29.7	1.5	154,680	6.2	0.0
Prentice Loader	350	0.55	204.1	39.9	42.7	609.6	22.1	21.9	21.0	1.1	109,398	4.4	0.0
Tie Truck	511	0.57	338.9	83.7	89.6	1074.9	41.7	41.4	39.6	1.7	165,529	9.1	0.0

Sources: OFFROAD2007, 2011 In-Use Off-Road Equipment Inventory Model

Conversion Factors

2000	lb/ton	
453.592	g/lb	

PM Fractions

	PM10/PM	0.994
	PM2.5/PM	0.951

Profile No. 6179 (Offroad Diesel Vehicle Exhaust)

CARB. 2014. PM10 Size Fraction: CARB Speciation Profiles. August 20. Available at: http://www.arb.ca.gov/ei/speciate/speciate.htm#specprof. Accessed 1/27/.

Diesel	TOG/THC	1.07
	VOC/TOG	0.98

EPA. 2010. Conversion Factors for Hydrocarbon Emission Components. EPA-420-R-10-015. July.

Drop Operation Dust Equation (AP-42 Section 13.2.4)

$$E = k(0.0032)\left[\frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}}\right]$$

Equation good for:
s 0.44-19%
M 0.25-4.8%
U 1.3-15 mph

where: E = emission factor (lb/ton)
k = 0.35 for PM10
= 0.053 for PM2.5
U = mean wind speed (mph)
M = material moisture content (%)

Assumptions

Mean wind speed	2.2 m/s	(CalEEMod)	
	4.92 mph		
Moisture content	12 %	(CalEEMod)	*Assumed for both soil & base CMB.*
Number of loading/unloading per truck	2		

Table 11. Loading/Unloading Fugitive Dust Emission Factors

PM10 (lb/ton)	PM2.5 (lb/ton)
0.000089	0.000014

lb/ton = pounds per ton of material

Conversion factors

1.26	ton soil/cubic (CalEEMod)
27	cubic feet/cubic yard
2,000	pound/ton

Table 12. Loading/Unloading Fugitive Dust Emissions

Phase		Material Hauled	Number of Days 2017	2018	2019	Materials Handled (cy)	(ton)	PM10 lb/day	2017 (tpy)	2018 (tpy)	2019 (tpy)	PM2.5 lb/day	2017 (tpy)	2018 (tpy)	2019 (tpy)
Phase 3		Haul Trucks - soil (offsite)	0	0	23	960	1,214	0.01	-	-	0.0001	0.001	-	-	0.0000
Phase 4	Box 1	Haul Trucks - soil (offsite)	0	25	0	2,030	2,566	0.02	-	0.0002	-	0.003	-	0.0000	-
	Box 2	Haul Trucks - soil (offsite)	0	27	0	2,030	2,566	0.02	-	0.0002	-	0.003	-	0.0000	-
	Box 3	Haul Trucks - soil (offsite)	0	26	0	2,030	2,566	0.02	-	0.0002	-	0.003	-	0.0000	-
	Box 4	Haul Trucks - soil (offsite)	0	24	0	2,030	2,566	0.02	-	0.0002	-	0.003	-	0.0000	-
	Box 5	Haul Trucks - soil (offsite)	0	25	0	2,030	2,566	0.02	-	0.0002	-	0.003	-	0.0000	-
Phase 5		Haul Trucks - soil (offsite)	0	0	10	60	76	0.00	-	-	0.0000	0.000	-	-	0.0000
		Haul Trucks - base CMB (offsite)	0	0	9	3,430	4,336	0.08	-	-	0.0004	0.013	-	-	0.0001
Phase 6	Realignment	Haul Trucks - base CMB (offsite)	0	41	0	5,900	7,459	0.03	-	0.0007	-	0.005	-	0.0001	-
	Vacant Prop	Haul Trucks - soil (offsite)	0	60	0	1,790	2,263	0.01	-	0.0002	-	0.001	-	0.0000	-
		Haul Trucks - base CMB (offsite)	0	61	0	35,130	44,410	0.13	-	0.0040	-	0.020	-	0.0006	-
Phase 7		Haul Trucks - base CMB (offsite)	0	41	0	2,000	2,528	0.01	-	0.0002	-	0.002	-	0.0000	-
		Haul Trucks - soil (offsite)	0	41	0	4,170	5,272	0.02	-	0.0005	-	0.004	-	0.0001	-

cy = cubic yards

tpy = tons per year

Assumed loading/unloading of AC pavement will have negligible dust.

Sources:

- California Air Pollution Control Officers Association. 2013. California Emissions Estimator Model User's Guide Version 2013.2.2. Updated September.

- Port of Los Angeles. 2014. Draft EIS/EIR - Berths 212-224 (YTI) Container Terminal Improvements Project. May.

- USEPA. 2006. Compilation of Air Pollutant Emission Factors (AP-42). Fifth Edition, Volume I. Chapter 13.2.4 Aggregate Handling and Storage Piles. November.

Grading Dust Equation (AP-42 Table 11.9-1)

PM_{10} 0.60 x 0.051 (S)^2

$PM_{2.5}$ 0.031 x 0.040 (S)^2.5

where: S = mean vehicle speed (mph).

Assumptions

S = 7.1 mph (AP-42 Table 11.9-3)

Table 13. Grading Fugitive Dust Emission Factors

PM10 (lb/VMT)	PM2.5 (lb/VMT)
1.543	0.167

lb/VMT = pounds per vehicle mile traveled

Construction Data

Site Area	Phase 6	1.5	acre	
	Phase 7	22.0	acre	
	Phase 8	6.0	acre	(YTI)
Blade width		12	feet	(CalEEMod Default)
Daily grading area		0.5	acre/8-hour day (for each tractor, grader, or dozer)	(CalEEMod Default)
Number of equipment		1		
Daily grading distance		0.34	mi/day	
Dust suppression		61%	reduced by water application	(CalEEMod Default for water application 3 times a day)

Table 14. Grading Fugitive Dust Emissions

Phase	Number of Days			Distance	PM10	2017	2018	2019	PM2.5	2017	2018	2019
	2017	2018	2019	(mi)	lb/day	(tpy)	(tpy)	(tpy)	lb/day	(tpy)	(tpy)	(tpy)
Phase 5	0	0	10	3.5	0.207	0	0	1.07E-03	0.022	0	0	1.15E-04
Phase 6	0	120	0	41.3	0.207	0	1.24E-02	0	0.022	0	1.34E-03	0
Phase 7	0	42	0	14.3	0.207	0	4.30E-03	0	0.022	0	4.64E-04	0

tpy = tons per year

Conversion factors

43,560	square feet/acre
5,280	feet/mile
2,000	pound/ton

Sources:

- California Air Pollution Control Officers Association. 2013. California Emissions Estimator Model User's Guide Version 2013.2.2. Updated September.

- Port of Los Angeles. 2014. Draft EIS/EIR - Berths 212-224 (YTI) Container Terminal Improvements Project. May.

- USEPA. 1998 Compilation of Air Pollutant Emission Factors (AP-42). Fifth Edition, Volume I. Chapter 11.9 Western Surface Coal Mining. July.

Building Demolition Data

Building #1	16,000	sf
Building #2	4,000	sf
Building #3	4,000	sf
Building #4	2,100	sf
Building #5	3,400	sf
Building #6	8,100	sf
Building #7	3,000	sf
Building #8	3,000	sf
Building #9	16,000	sf
Building #10	4,000	sf
TOTAL	63,600	sf

Mechanical or Explosive Dismemberment

$$E = k(0.0032) \left[\frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \right]$$

where: E = emission factor (lb/ton)
k = 0.35 for PM10
= 0.053 for PM2.5
U = mean wind speed (mph)
M = material moisture content (%)

Source: CalEEMod (AP-42 Section 13.2.4 - Drop Operation Dust Equation)

Assumptions

Mean wind speed	2.2	m/s	(CalEEMod)	
	4.92	mph		
Moisture content	2	%	(CalEEMod)	
Building Waste	2925.6	tons debris	0.046	ton waste/sf

Table 15. Building Demolition Fugitive Dust Emission Factors

PM10 (lb/ton)	PM2.5 (lb/ton)
0.00110	0.00017

lb/ton = pounds per ton of material

Table 16. Building Demolition Fugitive Dust Emissions

Phase		Number of Days 2017	2018	2019	Debris (tons)	PM10 lb/day	2017 (tpy)	2018 (tpy)	2019 (tpy)	PM2.5 lb/day	2017 (tpy)	2018 (tpy)	2019 (tpy)
Phase 6	Vacant Properties	0	60	0	1728.8	0.03	0	0.000948	0	0.00	0	0.0001436	0
	Inside Terminal	0	42	0	1728.8	0.05	0	0.000948	0	0.01	0	0.0001436	0

Debris Loading

E = k x EF_L-TSP

where: E = emission factor (lb/ton)
k = 0.35 for PM10
= 0.053 for PM2.5
EF_L-TSP = 0.058 lb/ton

Source: CalEEMod User's Guide v2013.2

Table 17. Debris Loading Fugitive Dust Emission Factors

PM10 (lb/ton)	PM2.5 (lb/ton)
0.0203	0.0031

lb/ton = pounds per ton of material

Building Waste 2925.6 tons debris

Table 18. Debris Loading Fugitive Dust Emissions

Phase		Number of Days 2017	2018	2019	Debris (tons)	PM10 lb/day	2017 (tpy)	2018 (tpy)	2019 (tpy)	PM2.5 lb/day	2017 (tpy)	2018 (tpy)	2019 (tpy)
Phase 6	Vacant Properties	0	60	0	1728.8	0.58	0	0.017547	0	0.09	0	0.0026571	0
	Inside Terminal	0	42	0	1728.8	0.84	0	0.017547	0	0.13	0	0.0026571	0

Conversion Factor

2000 lb/ton

For conservative analysis, assume no watering. If dusty, watering will be required per AQMD Rule 403. (L. Utsumi 3/2/15)

Paving Fugitive Emission Rate

2.62 pound VOC/acre (CalEEMod default)

Table 19. Paving Fugitive Emissions

Phase	Number of Days			Area	VOC	2017	2018	2019
	2017	2018	2019	(acre)	lb/day	(tpy)	(tpy)	(tpy)
Phase 5	0	0	10	1.5	0.4	0	0.000	0.001965
Phase 6	0	111	0	22.0	0.5	0.000	0.029	0
Phase 7	0	31	0	6.0	0.5	0.000	0.008	0

tpy = tons per year

Conversion factor

2,000 pounds/ton

Sources:

- California Air Pollution Control Officers Association. 2013. California Emissions Estimator Model User's Guide Version 2013.2.2. Updated

- Port of Los Angeles. 2014. Draft EIS/EIR - Berths 212-224 (YTI) Container Terminal Improvements Project. May.

Table 20. South Coast Air Basin 2018 Onroad Vehicle Emission Rate Summary (g/mi, or g/idle-hour for idle)

Vehicle Type	Speed (mph)	CO	HC	TOG	ROG	NOx	PM Exhaust	PM Brake Wear	PM Tire Wear	PM10 Exhaust	PM10 Brake Wear	PM10 Tire Wear	PM2_5 Exhaust	PM2_5 Brake Wear	PM2_5 Tire Wear	SOx	CO2	CH4	N2O
LDA-LDT1-LDT2	Aggregated	1.349	0.161	0.172	0.160	0.121	0.003	0.037	0.008	0.003	0.037	0.008	0.002	0.016	0.002	0.004	352.4	0.011	0.0647
LDT2	Aggregated	1.488	0.170	0.182	0.169	0.157	0.003	0.037	0.008	0.002	0.037	0.008	0.002	0.016	0.002	0.004	434.3	0.012	0.0647
T6 Instate Construction Heavy	Aggregated	0.274	0.065	0.094	0.082	3.869	0.028	0.133	0.012	0.028	0.130	0.012	0.027	0.056	0.003	0.011	1170.6	0.004	0.0048
LDT2	10	1.870	0.125	0.135	0.094	0.194	0.008	0.037	0.008	0.007	0.037	0.008	0.007	0.016	0.002	0.010	953.4	0.036	0.0647
T6 Instate Construction Heavy	10	1.363	0.449	0.648	0.569	10.049	0.076	0.133	0.012	0.075	0.130	0.012	0.072	0.056	0.003	0.020	2046.5	0.026	0.0048
T6 Instate Construction Heavy	Idle	8.539	0.836	1.205	1.058	73.511	0.278	0.000	0.000	0.276	0.000	0.000	0.264	0.000	0.000	0.069	7229.1	0.049	0.0120

Source: EMFAC2014

Table 21. Total Construction Worker Commute Miles Traveled per Day

	Year 2017	Year 2018																																						
Phase Name	**DEC**				**JAN**				**FEB**				**MAR**				**APR**				**MAY**				**JUN**				**JUL**				**AUG**			
Phase 1 Total-Ocean Disposal					203	203	203	203	203	203	203	203	203	203	203	203	203	203	127	127	127																			
Phase 1 Total-Upland Disposal					203	203	203	203	203	203	203	203	203	203	203	203	203	203	127	127	127	127																		
Phase 2 Total-Ocean Disposal																							229	229	229	229	229	229	229	229	229	229	229	229	229	229				
Phase 2 Total-Upland Disposal																							229	229	229	229	229	229	229	229	229	229	229	229	229	229				
Phase 3 Total																																								
Phase 4 Total													76	76	51	51	51	51	51	51	76	76	51	51	51	51	51	51	76	76	51	51	51	51	51	51				
Phase 5 Total																																								
Phase 6 Total	76	76	76	76	381	381	381	381	381	381	381	381	305	305	305	305	102	102	102	102	127	127	229	229	127	127	127	127	229	229	254	254	178	178	178	178				
Crane Delivery Total																																								
Phase 7 Total																	76	76	381	381	381	381	483	483	432	432	127	127														

	Year 2019																																							
	SEP				**OCT**				**NOV**				**DEC**				**JAN**				**FEB**				**MAR**				**APR**				**MAY**			
Phase 1 Total-Ocean Disposal																																							
Phase 1 Total-Upland Disposal																																								
Phase 2 Total-Ocean Disposal	229	229	229	229	229	127	127	127	127																															
Phase 2 Total-Upland Disposal	229	229	229	229	229	127	127	127	127	127	127																														
Phase 3 Total-Ocean Disposal																																								
Phase 3 Total-Upland Disposal																																								
Phase 3 Total																									76	76	76	127	51													
Phase 4 Total	76	76	51	51	51	51	51	51	76	76	51	51	51	51	51	51																									
Phase 5 Total																									127	127	76	178	102	76											
Phase 6 Total	102	102	127	127	178	178	127	127	76	76	76	76	76	76	76	76	203	127	127	127	127	127	127	127	51	51	51	51													
Crane Delivery Total																																								
Phase 7 Total																																								

	JUN		**JUL**			**AUG**	**SEP**	**OCT**	**NOV**	**Maximum**	**Average**
Phase 1 Total-Ocean Disposal										203.2	190
Phase 1 Total-Upland Disposal										203.2	186
Phase 2 Total-Ocean Disposal										228.6	211
Phase 2 Total-Upland Disposal										228.6	204
Phase 3 Total-Ocean Disposal										101.6	102
Phase 3 Total-Upland Disposal										127	127
Phase 3 Total		51	51	51						127	70
Phase 4 Total										76.2	57
Phase 5 Total										177.8	114
Phase 6 Total										381	169
Crane Delivery Total									178	178	177.8	178
Phase 7 Total										482.6	313

1.25 workers/equipment
12.7 mile each way (CalEEMod default assumption)

Paved Road Dust

$$E_{ext} = \left[k(sL)^{0.91} \times (W)^{1.02}\right](1 - P/4N)$$ (AP-42 Section 13.2.1)

Where:

Eext = annual or other long-term average emission factor in the same units as k,
k = particle size multiplier for particle size range and units of interest (see below),
sL = road surface silt loading (grams per square meter) (g/m2),
W = average weight (tons) of the vehicles traveling the road,
P = number of "wet" days with at least 0.254 mm (0.01 in) of precipitation during the averaging period, and
N = number of days in the averaging period (e.g., 365 for annual, 91 for seasonal, 30 for monthly).

Constants

Table 22. CARB PM Size Fractions k

Compound	Fraction of PM	Fraction of PM10
PM10	0.4572	1
PM2.5	0.0686	0.15

Profile No. 471 (Paved Road Dust 1997 and After)

Table 23. Paved Road Dust Emission Rate

	Local *offsite <500 ADT*	Collectors *offsite 500-5000 ADT*	Minor Arterial *offsite 5000-10,000 ADT*	Other Principal Arterial *offsite >10,000 ADT*	Interstate/Other Fwy & Expwy *offsite >10,000 ADT limited access*	Composite	Onsite trucks
Road silt loading	0.6	0.2	0.06	0.03	0.015		0.6
Average vehicle weight (tons)	2.4	2.4	2.4	2.4	2.4		20
Daily VMT (x1000)	14,024	11,709	46,988	70,302	119,806	262,829	
Travel Fraction	5%	4%	18%	27%	46%		
PM (g/VMT)	3.36	1.23	0.41	0.22	0.12	0.42	29.18
PM10 (g/VMT)	1.53	0.56	0.19	0.10	0.05	0.19	13.34
PM2.5 (g/VMT)	0.23	0.08	0.03	0.02	0.01	0.03	2.00

Sources:

- California Air Pollution Control Officers Association. 2013. California Emissions Estimator Model User's Guide Version 2013.2.2. Updated September.
- CARB. 2014. PM10 Size Fraction: CARB Speciation Profiles. August 20. Available at: http://www.arb.ca.gov/ei/speciate/speciate.htm#specprof. Accessed 1/27/15.
- Federal Highway Administration. 2014. Highway Statistics 2013 - Urbanized Areas - 2013 Miles and Daily Vehicle - Miles Traveled. Table HM-71. Available online at: http://www.fhwa.dot.gov/policyinformation/statistics/2013/hm71.cfm. Accessed 6/9/15.
- USEPA. 2011. Compilation of Air Pollutant Emission Factors (AP-42). Fifth Edition, Volume I. Chapter 13.2.1 Paved Roads. January.

Table 24. Construction Harbor Craft Type and Emission Factors

Emission Source		# Engine	Average Power (hp)	(kw)	Load Factor	Engine Tier	Emission Factors (g/kW-hr) PM10	PM2.5	DPM	NOx	SOX	CO	HC	VOC	CO2	CH4	N2O	Average Model Year	Compliance Date
Assist tug																			
	Propulsion	2	1908	1423	0.31	Tier 1	0.54	0.48	0.54	17.00	0.01	11.40	1.30	1.37	652.00	0.026	0.031	2003	12/31/2016
	Auxiliary	1	182	136	0.43	Tier 2	0.20	0.18	0.20	6.84	0.01	5.00	0.36	0.38	652.00	0.007	0.031	2007	12/31/2020
Tug Boat																			
	Propulsion	2	680	507	0.31	Tier 2 or 3	0.27	0.24	0.27	7.41	0.0055	5.0	0.39	0.41	652	0.008	0.031	2009	N/A
	Auxiliary	1	47	35	0.43	Tier 2 or 3	0.30	0.27	0.30	7.13	0.0055	5.5	0.38	0.39	652	0.008	0.031	2009	N/A
Dive Boat																			
	Propulsion	2	528	394	0.38	Tier 2 or 3	0.27	0.24	0.27	7.41	0.0055	5.0	0.39	0.41	652	0.008	0.031	2009	N/A
	Auxiliary	1	52	39	0.32	Tier 2 or 3	0.30	0.27	0.30	7.13	0.0055	5.0	0.38	0.39	652	0.008	0.031	2002	12/31/2015

Sources:

Tug boat and dive boat (weighted average of crew boat and work boat) horsepower from 2014 POLA Air Emission Inventory. Tables 4.1 and 4.2.

Tug boat and dive boat (crew/work boat) load factor from 2013 POLA Air Emission Inventory. Table 4.7. Load factor not available in the 2014 POLA Air Emission Inventory report.

Notes:

Tugboats assist dredging barges & scows

Assumes dive boat can be a work boat or a crew boat.

Conversion Factors

1.341	hp/kW
2000	lb/ton
453.592	g/lb
1000	cc/L

SOx EF

[g/hp-hr] = S[ppm]/10^6 x MWSO2/MWS x BSF

0.00552 g/hp-hr

S	15	ppm	*https://www.federalregister.gov/articles/2014/11/24/2014-27807/california-state-nonroad-engine-pollution-control-standards-diesel-engines-on-commercial-harbor*
MW SO2	64		
MW S	32		
BSFC	184	g/hp-hr	*CARB 2007 Harbor Craft Methodology*

Table 25. Harbor Craft Marine Engine EPA Tier Levels

Tier 0	-1999	All
Tier 1	2000-2003	≤ 500 hp
Tier 1	2000-2006	> 500 hp
Tier 2	2004-Tier 3	≤ 500 hp
Tier 2	2007-Tier 3	> 500 hp
Tier 3	2009-	0-120 hp
Tier 3	2013-	>120-175 hp
Tier 3	2014-	>175-500 hp
Tier 3	2013-	>500-750 hp
Tier 3	2012-2017	>750-1,900 hp
Tier 3	2013-2016	>1,900-3300 hp
Tier 3	2014-2016	>3,300 hp

Source: POLA. 2014. Inventory of Air Emissions CY 2013. Table 4.3. July.

Table 26. Compliance Dates for Engines on Ferries, Excursion Vessels, Tugboats, Towboats, and Push Boats with Homeports in SCAQMD

Engine MY	Annual Hrs (	Compliance Date
1979 and earl	≥300	12/31/09
1980-1985	≥300	12/31/10
1986-1990	≥300	12/31/11
1991-1995	≥300	12/31/12
1996-2000	≥300	12/31/13
2001	≥300	12/31/14
2002	≥300	12/31/15
2003	≥300	12/31/16
2004	≥300	12/31/17
2005	≥300	12/31/18
2006	≥300	12/31/19
2007	≥300	12/31/20

Sources:

CARB. 2009. Commercial Harbor Craft Compliance Guideline. Table 2. January.

CARB. 2011. Final Regulation Order: Amendments to the Regulations to Reduce Emissions from Diesel Engines on Commercial Harbor Craft Operated within California Waters and 24 Nautical Miles of the California Baseline. Title 17, Section 93118.5. Table 8. July 20. http://www.arb.ca.gov/regact/2010/chc10/chc10.htm

Table 27. Harbor Craft Emission Factors - EPA Standards

Displacement (L/cylinder)	Power (kW)	EPA Tier	Model Year	g/kw-hr NMHC+NOx	PM10	PM2.5	DPM	NOx	SOX	CO	HC	VOC	CO2	CH4	N2O
Category 1	**HC auxiliary engines**														
≥2.5	≥37	Tier 1	2004		0.54	0.48	0.54	17.0	0.0055	11.40	1.30	1.37	652	0.026	0.031
<0.9	≥37	Tier 2	2005	7.50	0.40	0.36	0.40	7.1	0.0055	5.0	0.38	0.39	652	0.008	0.031
0.9 ≤ D < 1.2	All	Tier 2	2004	7.20	0.30	0.27	0.30	6.8	0.0055	5.0	0.36	0.38	652	0.007	0.031
1.2 ≤ D < 2.5	All	Tier 2	2004	7.20	0.20	0.18	0.20	6.8	0.0055	5.0	0.36	0.38	652	0.007	0.031
2.5 ≤ D < 5.0	All	Tier 2	2007	7.20	0.20	0.18	0.20	6.8	0.0055	5.0	0.36	0.38	652	0.007	0.031
<0.9	<8	Tier 3	2009	7.5	0.40	0.36	0.40	7.1	0.0055	8.0	0.38	0.39	652	0.008	0.031
<0.9	8≤kW<19	Tier 3	2009	7.5	0.40	0.36	0.40	7.1	0.0055	6.6	0.38	0.39	652	0.008	0.031
<0.9	19≤kW<37	Tier 3	2009-2013	7.5	0.30	0.27	0.30	7.1	0.0055	5.5	0.38	0.39	652	0.008	0.031
<0.9	19≤kW<37	Tier 3	2014+	4.7	0.30	0.27	0.30	4.5	0.0055	5.5	0.24	0.25	652	0.005	0.031
<0.9	37≤kW<75	Tier 3	2009-2013	7.5	0.30	0.27	0.30	7.1	0.0055	5.0	0.38	0.39	652	0.008	0.031
<0.9	37≤kW<75	Tier 3	2014+	4.7	0.30	0.27	0.30	4.5	0.0055	5.0	0.24	0.25	652	0.005	0.031
<0.9	≥75	Tier 3	2012+	5.4	0.14	0.12	0.14	5.1	0.0055	5.0	0.27	0.28	652	0.005	0.031
0.9 ≤ D < 1.2	37≤kW<75	Tier 3	2013+	5.4	0.12	0.11	0.12	5.1	0.0055	5.0	0.27	0.28	652	0.005	0.031
1.2 ≤ D < 2.5	37≤kW<600	Tier 3	2014-2017	5.6	0.11	0.10	0.11	5.3	0.0055	5.0	0.28	0.29	652	0.006	0.031
1.2 ≤ D < 2.5	37≤kW<600	Tier 3	2018+	5.6	0.10	0.09	0.10	5.3	0.0055	5.0	0.28	0.29	652	0.006	0.031
1.2 ≤ D < 2.5	600≤kW<3700	Tier 3	2014+	5.6	0.11	0.10	0.11	5.3	0.0055	5.0	0.28	0.29	652	0.006	0.031
2.5 ≤ D < 3.5	37≤kW<600	Tier 3	2013-2017	5.6	0.11	0.10	0.11	5.3	0.0055	5.0	0.28	0.29	652	0.006	0.031
2.5 ≤ D < 3.5	37≤kW<600	Tier 3	2018+	5.6	0.10	0.09	0.10	5.3	0.0055	5.0	0.28	0.29	652	0.006	0.031
2.5 ≤ D < 3.5	600≤kW<3700	Tier 3	2013+	5.6	0.11	0.10	0.11	5.3	0.0055	5.0	0.28	0.29	652	0.006	0.031
3.5 ≤ D < 7	37≤kW<600	Tier 3	2012-2017	5.8	0.11	0.10	0.11	5.5	0.0055	5.0	0.29	0.31	652	0.006	0.031
3.5 ≤ D < 7	37≤kW<600	Tier 3	2018+	5.8	0.10	0.09	0.10	5.5	0.0055	5.0	0.29	0.31	652	0.006	0.031
3.5 ≤ D < 7	600≤kW<3700	Tier 3	2012+	5.8	0.11	0.10	0.11	5.5	0.0055	5.0	0.29	0.31	652	0.006	0.031
All	600≤kW<1400	Tier 4	2017+		0.04	0.04	0.04	1.8	0.0055	5.0	0.19	0.20	652	0.004	0.031
All	1400≤kW<2000	Tier 4	2016+		0.04	0.04	0.04	1.8	0.0055	5.0	0.19	0.20	652	0.004	0.031
All	2000≤kW<3700	Tier 4	2014+		0.04	0.04	0.04	1.8	0.0055	5.0	0.19	0.20	652	0.004	0.031
<15.0	≥3700	Tier 4	2014-2015		0.12	0.11	0.12	1.8	0.0055	5.0	0.19	0.20	652	0.004	0.031
15 ≤ D < 30	≥3700	Tier 4	2014-2015		0.25	0.22	0.25	1.8	0.0055	5.0	0.19	0.20	652	0.004	0.031
All	≥3700	Tier 4	2016+		0.06	0.05	0.06	1.8	0.0055	5.0	0.19	0.20	652	0.004	0.031
Category 2	**HC propulsion engines**														
≥2.5	≥37	Tier 1	2004		0.54	0.48	0.54	17.0	0.0055	11.40	1.30	1.37	652	0.026	0.031
5.0 ≤ D < 15	All	Tier 2	2007	7.8	0.27	0.24	0.27	7.4	0.0055	5.0	0.39	0.41	652	0.008	0.031
15 ≤ D < 20	< 3300 kW	Tier 2	2007	8.7	0.50	0.45	0.50	8.3	0.0055	5.0	0.44	0.46	652	0.009	0.031
15 ≤ D < 20	≥ 3300 kW	Tier 2	2007	9.8	0.50	0.45	0.50	9.3	0.0055	5.0	0.49	0.52	652	0.010	0.031
20 ≤ D < 25	All	Tier 2	2007	9.8	0.50	0.45	0.50	9.3	0.0055	5.0	0.49	0.52	652	0.010	0.031
25 ≤ D < 30	All	Tier 2	2007	11.0	0.50	0.45	0.50	10.5	0.0055	5.0	0.55	0.58	652	0.011	0.031
7 ≤ D < 15	37≤kW<2000	Tier 3	2013+	6.2	0.14	0.12	0.14	5.9	0.0055	5.0	0.31	0.33	652	0.006	0.031
7 ≤ D < 15	2000 ≤ kW<3700	Tier 3	2013+	7.8	0.14	0.12	0.14	7.4	0.0055	5.0	0.39	0.41	652	0.008	0.031
15 ≤ D < 20	37≤kW<2000	Tier 3	2014+	7.0	0.34	0.30	0.34	6.7	0.0055	5.0	0.35	0.37	652	0.007	0.031
20 ≤ D < 25	37≤kW<2000	Tier 3	2014+	9.8	0.27	0.24	0.27	9.3	0.0055	5.0	0.49	0.52	652	0.010	0.031
25 ≤ D < 30	37≤kW<2000	Tier 3	2014+	11.0	0.27	0.24	0.27	10.5	0.0055	5.0	0.55	0.58	652	0.011	0.031
All	600≤kW<1400	Tier 4	2017+		0.04	0.04	0.04	1.8	0.0055	5.00	0.19	0.20	652	0.004	0.031
All	1400≤kW<2000	Tier 4	2016+		0.04	0.04	0.04	1.8	0.0055	5.00	0.19	0.20	652	0.004	0.031
All	2000≤kW<3700	Tier 4	2014+		0.04	0.04	0.04	1.8	0.0055	5.00	0.19	0.20	652	0.004	0.031
<15.0	≥ 3700	Tier 4	2014-2015		0.12	0.11	0.12	1.8	0.0055	5.00	0.19	0.20	652	0.004	0.031
15 ≤ D < 30	≥ 3700	Tier 4	2014-2015		0.25	0.22	0.25	1.8	0.0055	5.00	0.19	0.20	652	0.004	0.031
All	≥ 3700	Tier 4	2016+		0.06	0.05	0.06	1.8	0.0055	5.00	0.19	0.20	652	0.004	0.031

Sources: *Federal Marine Compression-Ignition Engines - Exhaust Emission Standards Reference Guide, http://epa.gov/OMS/standards/nonroad/marineci.htm; Tier 1 and Tier 2 standards: 40CFR Part 94.8; Tier 3 and Tier 4 standards: 40CFR Part 1042.101*

EPA Tier 1 emissions standards for marine engines do not specify restrictions to PM, SOx, CO, or VOC. NOx reflects Marpol Annex VI (17 g/kW-hr). PM10, SOX, CO and VOC emissions factors were obtained from EPA offroad emission engine standards for Tier 1 engines.

EPA Tier 2 and Tier 3 emission standards are reported as NOx+THC. 5% is HC per Carl Moyer Program guidelines. 95% is NOx.

SOx emission factor is based on 15 ppm fuel sulfur content.

PM2.5 is 89% of PM10, per SCAQMD 2006 Final Methodology to Calculate PM2.5 and PM 2.5 Significance Thresholds, Table 5.

CO2 and N20 emission factors are from IVL: Methodology for Calculating Emissions from Ships: Update on Emission Factors, 2004, also summarized in POLA 2009 Emissions Inventory, Appendix B. CH4 is 2% of HC, per IVL study.

Table 28. Crane Delivery Cargo Ship Data

Vessel Characteristics			Hotelling at Berth			Zone 1: Harbor			Zone 2: Breakwater to PZ		Zone 3: PZ to 20nm		Zone 4: 20nm to 40nm		Zone 5: 40nm to 50nm (SCAB Boundary)		Zone 6: 50nm to 170nm (State Inventory Boundary)	
Vessel Type	Engine/ Source Type	Engine Rating (kW)	Peak Day Hotelling Time Per Vessel (hr/day)	Average Time (hr/call)	Energy Demand (kW-hr/call)	Speed (knots)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)
Cargo Ship	Propulsion	12798	7.5			3.4	704	5%	0.9	11,621	2.0	25,097	2.3	29,484	1.2	12,254	14.4	147,053
	Auxiliary		16.5	168	65,641		879		0.9	274	2.0	592	2.3	696	1.2	361	14.4	4,336
	Boiler		16.5	168	62,328		408		0.9	337	2.0	728	2.3	855	1.2	444	14.4	5,329

Max Rated Speed (knots)	9
Speed in Open Ocean (knots)	8
Peak Day Berth Calls	1
Peak Day Transits	1
Annual Berth Calls	2
Annual Transits	4
Fuel Sulfur Content	0.1%
Number of Vessels using AMP	0
Number of Transits with Slide Valves	0
Propulsion Engine Load Factor during Maneuvering	100%
Propulsion Engine Average Load in Open Ocean	80%

Table 29. Emission Factors for OGV Propulsion Power (g/kW-hr)

Engine	Model Year	IMO Tier	PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	CH4	N2O
Slow Speed Diesel	≤1999	Tier 0	0.26	0.24	0.26	17	0.39	1.4	0.6	0.6	589	0.012	0.029
Medium Speed Diesel	≤1999	Tier 0	0.26	0.24	0.26	13.2	0.43	1.1	0.5	0.5	649	0.01	0.029

Notes:
1. Slow speed diesel: engine speed < 150 rpm; assumed as default for propulsion engines
2. Fuel sulfur content of 0.1% assumed.

Source: POLA 2014 Emissions Inventory, Table 3.7.

Table 30. Emission Factors for OGV Auxiliary Power (g/kW-hr)

Engine	Model Year	IMO Tier	PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	CH4	N2O
Medium Speed Diesel	≤1999	Tier 0	0.26	0.24	0.26	13.8	0.46	1.1	0.4	0.42	686	0.008	0.029
High Speed Diesel	≤1999	Tier 0	0.26	0.24	0.26	10.9	0.46	0.9	0.4	0.42	656	0.008	0.029

1. Fuel sulfur content of 0.1% assumed.

Source: POLA 2014 Emissions Inventory, Table 3.8

Table 31. Emission Factors for OGV Auxiliary Boilers (g/kW-hr)

Engine	Model Year	IMO Tier	PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	CH4	N2O
Steamship	All	N/A	0.14	0.13	0	2.1	0.61	0.2	0.1	0.11	922	0.002	0.075

1. Fuel sulfur content of 0.1% assumed.

Source: POLA 2014 Emissions Inventory, Table 3.7

HC to VOC conversion 1.053

Source: EPA, 2010. Conversion Factors for Hydrocarbon Emission Components, EPA-420-R-10-015. July. Available online:
http://www.epa.gov/oms/models/nonrdmdl/nonrdmdl2010/420r10015.pdf

Table 32. Low Load Adjustment Factors - 2-Stroke non-MAN Propulsion Engines

Load	PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	CH4	N2O
5%	2.44	2.44	2.44	1.83	1.00	3.89	5.61	5.61	1.00	5.61	1.83

Source: POLA 2014 Emissions Inventory, Table 3.10.

Table 33. OGV Average Aux Engine & Aux Boiler Loads

Category	Engine Type	Average Loads (kW) Transit	Manuvering	Berth
Cargo Ship	Auxiliary Engine	302	799	391
Cargo Ship	Auxiliary Boiler	371	371	371

Source: YTI EIR

Cargo ship data was provided by LAHD from the Port database for vessels specifically designated to carry heavy machinery.

Table 34. Manuvering Time (Average of all arrivals and departures)

1.10 hours

Source: YTI EIR (Starcrest)

Table 35. Speed Assumption for Cargo Ships

PZ	9 knots
Maximum Rated	9 knots

Source: YTI EIR (Starcrest)

Table 36. Segment Distances in nautical miles

			Zone 1: Harbor	Zone 2: Breakwater to PZ		Zone 3: PZ to 20nm		Zone 4: 20nm to 40nm		Zone 5: 40nm to 50nm (SCAB Boundary)	Zone 6: 50nm to 170nm (State Inventory Boundary)
% Calls By Route	**Arrival**	**Departure**		**Arrival**	**Departure**	**Arrival**	**Departure**	**Arrival**	**Departure**		
East	0%	0%	3.7	7.63	7.63	25.75	25.75	0	0		
North	46%	38%	3.7	8.57	7.63	21.91	21.68	21.37	20.75		
South	36%	34%	3.7	8.47	7.36	11.11	12.55	20.18	19.92		
West	18%	28%	3.7	8.58	8.58	18.97	18.97	21.12	21.12		
	100%	100%	**Average Segment Distance** 3.7	8.54	7.81	17.45	17.85	20.89	20.58		
			Average Distance 3.7	8.17		17.65		20.73		10	120

Table 37. Crane Delivery Emissions

Emission	Peak 1-Hour (lb/hour)								Peak Day (lb/day)							
Source	PM10	PM2.5	DPM	NOX	SOX	CO	HC	VOC	PM10	PM2.5	DPM	NOX	SOX	CO	HC	VOC
Berth																
Propulsion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Auxiliary	0.22	0.21	0.22	11.89	0.40	0.95	0.34	0.36	3.70	3.42	3.70	196.50	6.55	15.66	5.70	6.00
Boiler	0.11	0.11	-	1.72	0.50	0.16	0.08	0.09	1.89	1.76	-	28.39	8.25	2.70	1.35	1.42
Total	**0.34**	**0.31**	**0.22**	**13.60**	**0.90**	**1.11**	**0.43**	**0.45**	**5.59**	**5.18**	**3.70**	**224.89**	**14.80**	**18.37**	**7.05**	**7.42**
Zone 1: Harbor																
Propulsion	0.89	0.83	0.89	43.89	0.55	7.68	4.75	5.00	0.98	0.91	0.98	48.28	0.61	8.45	5.22	5.50
Auxiliary	0.46	0.42	0.46	24.31	0.81	1.94	0.70	0.74	0.50	0.47	0.50	26.75	0.89	2.13	0.78	0.82
Boiler	0.11	0.11	-	1.72	0.50	0.16	0.08	0.09	0.13	0.12	-	1.89	0.55	0.18	0.09	0.09
Assist Tug	1.08	0.96	1.08	33.94	0.01	22.81	2.57	2.71	1.18	1.05	1.18	37.34	0.01	25.10	2.83	2.98
Total	**1.47**	**1.36**	**1.35**	**69.92**	**1.86**	**9.78**	**5.54**	**5.83**	**1.61**	**1.49**	**1.49**	**76.91**	**2.05**	**10.76**	**6.09**	**6.41**
Zone 2: Breakwater to PZ																
Propulsion	6.66	6.15	6.66	435.54	9.99	35.87	15.37	16.19	6.66	6.15	6.66	435.54	9.99	35.87	15.37	16.19
Auxiliary	0.16	0.15	0.16	8.34	0.28	0.66	0.24	0.25	0.16	0.15	0.16	8.34	0.28	0.66	0.24	0.25
Boiler	0.10	0.10	-	1.56	0.45	0.15	0.07	0.08	0.10	0.10	-	1.56	0.45	0.15	0.07	0.08
Total	**6.92**	**6.39**	**6.82**	**445.44**	**10.72**	**36.68**	**15.69**	**16.52**	**6.92**	**6.39**	**6.82**	**445.44**	**10.72**	**36.68**	**15.69**	**16.52**
Zone 3: PZ to 20nm																
Propulsion	7.34	6.77	7.34	479.65	11.00	39.50	16.93	17.83	14.39	13.28	14.39	940.60	21.58	77.46	33.20	34.96
Auxiliary	0.17	0.16	0.17	9.19	0.31	0.73	0.27	0.28	0.34	0.31	0.34	18.01	0.60	1.44	0.52	0.55
Boiler	0.11	0.11	-	1.72	0.50	0.16	0.08	0.09	0.22	0.21	-	3.37	0.98	0.32	0.16	0.17
Total	**7.62**	**7.04**	**7.51**	**490.55**	**11.81**	**40.40**	**17.28**	**18.19**	**14.95**	**13.80**	**14.73**	**961.98**	**23.16**	**79.22**	**33.88**	**35.68**
Zone 4: 20nm to 40nm																
Propulsion	7.34	6.77	7.34	479.65	11.00	39.50	16.93	17.83	16.90	15.60	16.90	1,105.02	25.35	91.00	39.00	41.07
Auxiliary	0.17	0.16	0.17	9.19	0.31	0.73	0.27	0.28	0.40	0.37	0.40	21.16	0.71	1.69	0.61	0.65
Boiler	0.11	0.11	-	1.72	0.50	0.16	0.08	0.09	0.26	0.24	-	3.96	1.15	0.38	0.19	0.20
Total	**7.62**	**7.04**	**7.51**	**490.55**	**11.81**	**40.40**	**17.28**	**18.19**	**17.56**	**16.21**	**17.30**	**1,130.14**	**27.21**	**93.07**	**39.80**	**41.91**
Zone 5: 40 nm to 50 nm																
Propulsion	5.87	5.42	5.87	383.72	8.80	31.60	13.54	14.26	7.02	6.48	7.02	459.28	10.54	37.82	16.21	17.07
Auxiliary	0.17	0.16	0.17	9.19	0.31	0.73	0.27	0.28	0.21	0.19	0.21	10.99	0.37	0.88	0.32	0.34
Boiler	0.11	0.11	-	1.72	0.50	0.16	0.08	0.09	0.14	0.13	-	2.06	0.60	0.20	0.10	0.10
Total	**6.16**	**5.68**	**6.04**	**394.62**	**9.61**	**32.50**	**13.89**	**14.63**	**7.37**	**6.80**	**7.23**	**472.33**	**11.50**	**38.90**	**16.63**	**17.51**
Zone 6: 50 nm to 170 nm																
Propulsion	5.87	5.42	5.87	383.72	8.80	31.60	13.54	14.26	84.29	77.81	84.29	5,511.35	126.44	453.88	194.52	204.83
Auxiliary	0.17	0.16	0.17	9.19	0.31	0.73	0.27	0.28	2.49	2.29	2.49	131.93	4.40	10.52	3.82	4.03
Boiler	0.11	0.11	-	1.72	0.50	0.16	0.08	0.09	1.64	1.53	-	24.67	7.17	2.35	1.17	1.24
Total	**6.16**	**5.68**	**6.04**	**394.62**	**9.61**	**32.50**	**13.89**	**14.63**	**88.42**	**81.63**	**86.78**	**5,667.95**	**138.00**	**466.74**	**199.52**	**210.09**

Total Transit Emissions Zones 1-5																
Propulsion	7.34	6.77	7.34	479.65	11.00	39.50	16.93	17.83	45.96	42.42	45.96	2,988.71	68.06	250.60	109.00	114.78
Auxiliary	0.17	0.16	0.17	9.19	0.31	0.73	0.27	0.28	1.61	1.48	1.61	85.26	2.84	6.80	2.47	2.60
Boiler	0.11	0.11	-	1.72	0.50	0.16	0.08	0.09	0.86	0.79	-	12.83	3.73	1.22	0.61	0.64
Total	**7.62**	**7.04**	**7.51**	**490.55**	**11.81**	**40.40**	**17.28**	**18.19**	**48.42**	**44.70**	**47.56**	**3,086.80**	**74.63**	**258.62**	**112.09**	**118.03**
Total Emissions (Berth + Transit Emissions Zones 1-5)																
Propulsion	7.34	6.77	7.34	479.65	11.00	39.50	16.93	17.83	45.96	42.42	45.96	2,988.71	68.06	250.60	109.00	114.78
Auxiliary	0.17	0.16	0.17	9.19	0.31	0.73	0.27	0.28	5.31	4.90	5.31	281.75	9.39	22.46	8.17	8.60
Boiler	0.11	0.11	-	1.72	0.50	0.16	0.08	0.09	2.75	2.55	-	41.22	11.97	3.93	1.96	2.07
Total	**7.62**	**7.04**	**7.51**	**490.55**	**11.81**	**40.40**	**17.28**	**18.19**	**54.01**	**49.87**	**51.26**	**3,311.69**	**89.43**	**276.99**	**119.13**	**125.45**

Table 37. Crane Delivery Emissions

Emission Source	Annual (tpy) PM10	PM2.5	DPM	NOX	SOX	CO	HC	VOC	(metric tons per year) CO2	CH4	N2O	CO2e
Berth												
Propulsion	-	-	-	-	-	-	-	-	-	-	-	-
Auxiliary	0.04	0.03	0.04	2.00	0.07	0.16	0.06	0.06	90.06	0.00	0.00	91.27
Boiler	0.02	0.02	-	0.29	0.08	0.03	0.01	0.01	114.93	0.00	0.01	117.84
Total	**0.06**	**0.05**	**0.04**	**2.29**	**0.15**	**0.19**	**0.07**	**0.08**	**204.99**	**0.00**	**0.01**	**209.10**
Zone 1: Harb												
Propulsion	0.00	0.00	0.00	0.10	0.00	0.02	0.01	0.01	1.66	0.00	0.00	1.71
Auxiliary	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	2.41	0.00	0.00	2.44
Boiler	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	1.51	0.00	0.00	1.54
Assist Tug	0.00	0.00	0.00	0.07	0.00	0.05	0.01	0.01	2.70	0.00	0.00	-
Total	**0.00**	**0.00**	**0.00**	**0.15**	**0.00**	**0.02**	**0.01**	**0.01**	**5.58**	**0.00**	**0.00**	**5.70**
Zone 2: Brea												
Propulsion	0.01	0.01	0.01	0.87	0.02	0.07	0.03	0.03	27.38	0.00	0.00	27.81
Auxiliary	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.75	0.00	0.00	0.76
Boiler	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	1.24	0.00	0.00	1.27
Total	**0.01**	**0.01**	**0.01**	**0.89**	**0.02**	**0.07**	**0.03**	**0.03**	**29.37**	**0.00**	**0.00**	**29.85**
Zone 3: PZ to												
Propulsion	0.03	0.03	0.03	1.88	0.04	0.15	0.07	0.07	59.13	0.00	0.00	60.06
Auxiliary	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	1.62	0.00	0.00	1.65
Boiler	0.00	0.00	-	0.01	0.00	0.00	0.00	0.00	2.68	0.00	0.00	2.75
Total	**0.03**	**0.03**	**0.03**	**1.92**	**0.05**	**0.16**	**0.07**	**0.07**	**63.44**	**0.00**	**0.00**	**64.46**
Zone 4: 20nn												
Propulsion	0.03	0.03	0.03	2.21	0.05	0.18	0.08	0.08	69.46	0.00	0.00	70.56
Auxiliary	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	1.91	0.00	0.00	1.93
Boiler	0.00	0.00	-	0.01	0.00	0.00	0.00	0.00	3.15	0.00	0.00	3.23
Total	**0.04**	**0.03**	**0.03**	**2.26**	**0.05**	**0.19**	**0.08**	**0.08**	**74.53**	**0.00**	**0.00**	**75.73**
Zone 5: 40 nı												
Propulsion	0.01	0.01	0.01	0.92	0.02	0.08	0.03	0.03	28.87	0.00	0.00	29.33
Auxiliary	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.99	0.00	0.00	1.00
Boiler	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	1.64	0.00	0.00	1.68
Total	**0.01**	**0.01**	**0.01**	**0.94**	**0.02**	**0.08**	**0.03**	**0.04**	**31.50**	**0.00**	**0.00**	**32.01**
Zone 6: 50 nı												
Propulsion	0.17	0.16	0.17	11.02	0.25	0.91	0.39	0.41	346.46	0.01	0.02	351.92
Auxiliary	0.00	0.00	0.00	0.26	0.01	0.02	0.01	0.01	11.90	0.00	0.00	12.06
Boiler	0.00	0.00	-	0.05	0.01	0.00	0.00	0.00	19.65	0.00	0.00	20.15
Total	**0.18**	**0.16**	**0.17**	**11.34**	**0.28**	**0.93**	**0.40**	**0.42**	**378.01**	**0.01**	**0.02**	**384.13**

Total Transit									***Total Transit Emissions Zones 1-6***			
Propulsion	0.09	0.08	0.09	5.98	0.14	0.50	0.22	0.23	532.96	0.01	0.03	541.39
Auxiliary	0.00	0.00	0.00	0.17	0.01	0.01	0.00	0.01	19.59	0.00	0.00	19.85
Boiler	0.00	0.00	-	0.03	0.01	0.00	0.00	0.00	29.87	0.00	0.00	30.63
Total	**0.10**	**0.09**	**0.10**	**6.17**	**0.15**	**0.52**	**0.22**	**0.24**	**582.42**	**0.01**	**0.03**	**591.87**
Total Emissi									***Total Emissions (Berth+Zones 1-6)***			
Propulsion	0.09	0.08	0.09	5.98	0.14	0.50	0.22	0.23	532.96	0.01	0.03	541.39
Auxiliary	0.04	0.04	0.04	2.17	0.07	0.17	0.06	0.07	109.65	0.00	0.00	111.12
Boiler	0.02	0.02	-	0.31	0.09	0.03	0.01	0.02	144.81	0.00	0.01	148.46
Total	**0.15**	**0.14**	**0.13**	**8.46**	**0.30**	**0.70**	**0.30**	**0.31**	**787.41**	**0.01**	**0.04**	**800.97**

Global Warming Potentials (GWP):

CO2	CH4	N2O
1	25	310

Source: Intergovernmental Panel on Climate Change (IPCC). 2007. Summary for Policymakers. In: Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M.Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Available from: https://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf. Accessed on July 7, 2015.

Table 38. Daily Mitigated Construction CO Emissions (lb/day)

	2017	Year 2018																																	
	DEC	JAN	FEB	MAR		APR				MAY				JUN				JUL				AUG				SEP				OCT				NOV			
Proposed Total Ocean Disposal	**8**	**110**	**110**	**107**	**104**	**60**	**57**	**266**	**266**	**269**	**20**	**69**	**69**	**65**	**61**	**65**	**65**	**76**	**76**	**73**	**73**	**67**	**64**	**67**	**67**	**62**	**62**	**62**	**62**	**65**	**265**	**266**	**266**	**263**	**15**	**12**	**12**
Off-road Construction Equipment Exhaust	8	90	90	84	82	38	36	86	86	86	17	47	47	41	39	44	44	53	53	50	50	44	41	47	47	41	41	41	41	43	83	86	86	83	13	11	11
Marine Source Exhaust	0	18	18	18	18	18	18	179	179	179	0	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	179	179	179	179	0	0	0
On-Road Construction Vehicles	0	1	1	3	3	3	3	1	1	3	3	3	3	4	4	2	2	4	4	4	4	4	3	1	1	2	2	2	2	3	2	0	0	1	1	1	1
Worker Vehicles	0	2	2	2	2	1	1	1	1	1	1	2	2	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
Upland Disposal	**8**	**110**	**110**	**107**	**104**	**60**	**57**	**123**	**123**	**125**	**125**	**69**	**69**	**65**	**61**	**65**	**65**	**76**	**76**	**73**	**73**	**67**	**64**	**67**	**67**	**62**	**62**	**62**	**62**	**65**	**125**	**126**	**126**	**124**	**124**	**121**	**12**
Off-road Construction Equipment Exhaust	8	90	90	84	82	38	36	82	82	82	82	47	47	41	39	44	44	53	53	50	50	44	41	47	47	41	41	41	41	43	79	82	82	79	79	76	11
Marine Source Exhaust	0	18	18	18	18	18	18	36	36	36	36	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	36	36	36	36	36	36	0
On-Road Construction Vehicles	0	1	1	3	3	3	3	3	3	5	5	3	3	4	4	2	2	4	4	4	4	4	3	1	1	2	2	2	2	3	8	7	7	7	7	7	1
Worker Vehicles	0	2	2	2	2	1	1	1	1	1	1	2	2	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Alt 1 No Federal Action	**8**	**67**	**67**	**58**	**58**	**12**	**12**	**12**	**12**	**14**	**14**	**20**	**20**	**14**	**14**	**14**	**14**	**24**	**24**	**24**	**24**	**16**	**16**	**16**	**16**	**10**	**10**	**13**	**13**	**14**	**14**	**12**	**12**	**9**	**9**	**9**	**9**
Off-road Construction Equipment Exhaust	8	65	65	54	54	11	11	11	11	11	11	17	17	11	11	11	11	20	20	20	20	14	14	14	14	9	9	11	11	14	14	11	11	8	8	8	8
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
On-Road Construction Vehicles	0	1	1	2	2	1	1	1	1	2	2	3	3	2	2	2	2	4	4	4	4	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Worker Vehicles	0	1	1	1	1	0	0	0	0	0	0	1	1	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	1	1	0	0	0	0	0	0
Alt 3 Reduced Wharf Improvements Ocean Disposal	**8**	**67**	**67**	**64**	**61**	**17**	**14**	**18**	**18**	**20**	**20**	**69**	**69**	**65**	**61**	**65**	**65**	**76**	**76**	**73**	**73**	**67**	**64**	**67**	**67**	**62**	**62**	**62**	**62**	**65**	**265**	**266**	**266**	**263**	**15**	**12**	**12**
Off-road Construction Equipment Exhaust	8	65	65	60	57	14	11	17	17	17	17	47	47	41	39	44	44	53	53	50	50	44	41	47	47	41	41	41	41	43	83	86	86	83	13	11	11
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	179	179	179	179	0	0	0
On-Road Construction Vehicles	0	1	1	3	3	3	3	1	1	3	3	3	3	4	4	2	2	4	4	4	4	4	3	1	1	2	2	2	2	3	2	0	0	1	1	1	1
Worker Vehicles	0	1	1	1	1	0	0	0	0	1	1	2	2	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
Upland Disposal	**8**	**67**	**67**	**64**	**61**	**17**	**14**	**18**	**18**	**20**	**20**	**69**	**69**	**65**	**61**	**65**	**65**	**76**	**76**	**73**	**73**	**67**	**64**	**67**	**67**	**62**	**62**	**62**	**62**	**65**	**125**	**126**	**126**	**124**	**124**	**121**	**12**
Off-road Construction Equipment Exhaust	8	65	65	60	57	14	11	17	17	17	17	47	47	41	39	44	44	53	53	50	50	44	41	47	47	41	41	41	41	43	79	82	82	79	79	76	11
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	36	36	36	36	36	36	0
On-Road Construction Vehicles	0	1	1	3	3	3	3	1	1	3	3	3	3	4	4	2	2	4	4	4	4	4	3	1	1	2	2	2	2	3	8	7	7	7	7	7	1
Worker Vehicles	0	1	1	1	1	0	0	0	0	1	1	2	2	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Alt 4 No Backland Improvements Ocean Disposal	**0**	**43**	**43**	**43**	**43**	**43**	**43**	**248**	**248**	**248**	**0**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**248**	**248**	**248**	**248**	**0**	**0**	**0**
Off-road Construction Equipment Exhaust	0	25	25	25	25	25	25	69	69	69	0	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	69	69	69	69	0	0	0
Marine Source Exhaust	0	18	18	18	18	18	18	179	179	179	0	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	179	179	179	179	0	0	0
On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker Vehicles	0	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
Upland Disposal	**0**	**43**	**43**	**43**	**43**	**43**	**43**	**105**	**105**	**105**	**105**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**46**	**109**	**109**	**109**	**109**	**109**	**109**	**0**
Off-road Construction Equipment Exhaust	0	25	25	25	25	25	25	66	66	66	66	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	66	66	66	66	66	66	0
Marine Source Exhaust	0	18	18	18	18	18	18	36	36	36	36	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	36	36	36	36	36	36	0
On-Road Construction Vehicles	0	0	0	0	0	0	0	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	6	6	6	6	0
Worker Vehicles	0	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
Alt 5 Expanded On-Dock Rail Yard Ocean Disposal	**8**	**110**	**110**	**107**	**104**	**70**	**67**	**367**	**367**	**369**	**121**	**178**	**178**	**164**	**161**	**87**	**87**	**76**	**76**	**73**	**73**	**67**	**64**	**67**	**67**	**62**	**62**	**62**	**62**	**65**	**265**	**266**	**266**	**263**	**15**	**12**	**12**
Off-road Construction Equipment Exhaust	8	90	90	84	82	47	44	184	184	185	115	154	154	140	137	66	66	53	53	50	50	44	41	47	47	41	41	41	41	43	83	86	86	83	13	11	11
Marine Source Exhaust	0	18	18	18	18	18	18	179	179	179	0	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	179	179	179	179	0	0	0
On-Road Construction Vehicles	0	1	1	3	3	4	4	2	2	4	4	4	4	4	4	2	2	4	4	4	4	4	3	1	1	2	2	2	2	3	2	0	0	1	1	1	1
Worker Vehicles	0	2	2	2	2	1	1	2	2	2	2	3	3	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
Upland Disposal	**8**	**110**	**110**	**107**	**104**	**70**	**67**	**223**	**223**	**226**	**226**	**178**	**178**	**164**	**161**	**87**	**87**	**76**	**76**	**73**	**73**	**67**	**64**	**67**	**67**	**62**	**62**	**62**	**62**	**65**	**125**	**126**	**126**	**124**	**124**	**121**	**12**
Off-road Construction Equipment Exhaust	8	90	90	84	82	47	44	181	181	181	181	154	154	140	137	66	66	53	53	50	50	44	41	47	47	41	41	41	41	43	79	82	82	79	79	76	11
Marine Source Exhaust	0	18	18	18	18	18	18	36	36	36	36	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	36	36	36	36	36	36	0
On-Road Construction Vehicles	0	1	1	3	3	4	4	4	4	6	6	4	4	4	4	2	2	4	4	4	4	4	3	1	1	2	2	2	2	3	8	7	7	7	7	7	1
Worker Vehicles	0	2	2	2	2	1	1	2	2	2	2	3	3	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0

Table 38. Daily Mitigated Construction CO Emissions (lb/day)

		Year 2019																																2018	2019
		DEC				JAN		FEB		MAR				APR				MAY				JUN				JUL				AUG	SEP	OCT	NOV	Peak	Peak
Proposed Total	**Ocean Disposal**	**28**	**25**	**28**	**28**	**35**	**12**	**12**	**12**	**34**	**34**	**13**	**23**	**10**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**6**	**6**	**0**	**0**	**0**	**0**	**0**	**305**	**269**	**305**
	Off-road Construction Equipment Exhaust	25	22	28	28	34	11	11	11	33	33	11	19	8	6	0	0	0	0	0	0	0	0	6	6	6	0	0	0	0	0	20	90	34
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	285	179	285
	On-Road Construction Vehicles	2	2	0	0	1	1	1	1	0	0	2	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	3
	Worker Vehicles	0	0	0	0	1	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1
	Upland Disposal	**28**	**25**	**28**	**28**	**35**	**12**	**12**	**12**	**34**	**34**	**13**	**23**	**10**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**6**	**6**	**0**	**0**	**0**	**0**	**0**	**305**	**126**	**305**
	Off-road Construction Equipment Exhaust	25	22	28	28	34	11	11	11	33	33	11	19	8	6	0	0	0	0	0	0	0	0	6	6	6	0	0	0	0	0	20	90	34
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	285	36	285
	On-Road Construction Vehicles	2	2	0	0	1	1	1	1	0	0	2	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	3
	Worker Vehicles	0	0	0	0	1	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1
Alt 1 No Federal Action		**23**	**23**	**23**	**23**	**35**	**12**	**12**	**12**	**28**	**28**	**7**	**14**	**7**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**67**	**35**
	Off-road Construction Equipment Exhaust	22	22	22	22	34	11	11	11	28	28	6	11	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65	34
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	On-Road Construction Vehicles	0	0	0	0	1	1	1	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2
	Worker Vehicles	0	0	0	0	1	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Alt 3 Reduced Wharf Improvements	**Ocean Disposal**	**28**	**25**	**28**	**28**	**35**	**12**	**12**	**12**	**34**	**34**	**13**	**23**	**10**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**6**	**6**	**0**	**0**	**0**	**0**	**0**	**305**	**266**	**305**
	Off-road Construction Equipment Exhaust	25	22	28	28	34	11	11	11	33	33	11	19	8	6	0	0	0	0	0	0	0	0	6	6	6	0	0	0	0	0	20	86	34
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	285	179	285
	On-Road Construction Vehicles	2	2	0	0	1	1	1	1	0	0	2	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	3
	Worker Vehicles	0	0	0	0	1	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1
	Upland Disposal	**28**	**25**	**28**	**28**	**35**	**12**	**12**	**12**	**34**	**34**	**13**	**23**	**10**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**6**	**6**	**0**	**0**	**0**	**0**	**0**	**305**	**126**	**305**
	Off-road Construction Equipment Exhaust	25	22	28	28	34	11	11	11	33	33	11	19	8	6	0	0	0	0	0	0	0	0	6	6	6	0	0	0	0	0	20	82	34
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	285	36	285
	On-Road Construction Vehicles	2	2	0	0	1	1	1	1	0	0	2	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	3
	Worker Vehicles	0	0	0	0	1	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1
Alt 4 No Backland Improvements	**Ocean Disposal**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**11**	**6**	**9**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**6**	**6**	**0**	**0**	**0**	**0**	**0**	**305**	**248**	**305**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	5	5	5	8	3	0	0	0	0	0	0	0	0	0	6	6	6	0	0	0	0	0	20	69	20
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	285	179	285
	On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	Upland Disposal	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**11**	**6**	**9**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**6**	**6**	**0**	**0**	**0**	**0**	**0**	**305**	**109**	**305**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	5	5	5	8	3	0	0	0	0	0	0	0	0	0	6	6	6	0	0	0	0	0	20	66	20
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	285	36	285
	On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Alt 5 Expanded On-Dock Rail Yard	**Ocean Disposal**	**28**	**25**	**28**	**28**	**35**	**12**	**12**	**12**	**34**	**34**	**13**	**23**	**10**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**6**	**6**	**0**	**0**	**0**	**0**	**0**	**305**	**369**	**305**
	Off-road Construction Equipment Exhaust	25	22	28	28	34	11	11	11	33	33	11	19	8	6	0	0	0	0	0	0	0	0	6	6	6	0	0	0	0	0	20	185	34
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	285	179	285
	On-Road Construction Vehicles	2	2	0	0	1	1	1	1	0	0	2	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	3
	Worker Vehicles	0	0	0	0	1	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1
	Upland Disposal	**28**	**25**	**28**	**28**	**35**	**12**	**12**	**12**	**34**	**34**	**13**	**23**	**10**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**6**	**6**	**0**	**0**	**0**	**0**	**0**	**305**	**226**	**305**
	Off-road Construction Equipment Exhaust	25	22	28	28	34	11	11	11	33	33	11	19	8	6	0	0	0	0	0	0	0	0	6	6	6	0	0	0	0	0	20	181	34
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	285	36	285
	On-Road Construction Vehicles	2	2	0	0	1	1	1	1	0	0	2	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	3
	Worker Vehicles	0	0	0	0	1	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1

Table 39. Daily Mitigated Construction TOG Emissions (lb/day)

	2017	Year 2018																																	
	DEC	JAN		FEB		MAR		APR				MAY				JUN				JUL				AUG				SEP				OCT				NOV			
Proposed Total **Ocean Disposal**	**1**	**20**	**20**	**20**	**20**	**12**	**12**	**37**	**37**	**38**	**4**	**14**	**14**	**14**	**13**	**13**	**13**	**16**	**16**	**16**	**16**	**14**	**13**	**14**	**14**	**13**	**13**	**13**	**13**	**13**	**37**	**37**	**37**	**36**	**3**	**2**	**2**
Off-road Construction Equipment Exhaust	1	18	18	18	17	10	9	25	25	25	3	11	11	10	10	11	11	12	12	12	12	11	10	11	11	10	10	10	10	11	24	25	25	24	2	2	2
Marine Source Exhaust	0	1	1	1	1	1	1	12	12	12	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12	12	12	12	0	0	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	0	0	1	1	1	1	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Upland Disposal	**1**	**20**	**20**	**20**	**20**	**12**	**12**	**26**	**26**	**27**	**27**	**14**	**14**	**14**	**13**	**13**	**13**	**16**	**16**	**16**	**16**	**14**	**13**	**14**	**14**	**13**	**13**	**13**	**13**	**13**	**28**	**28**	**28**	**27**	**27**	**27**	**2**
Off-road Construction Equipment Exhaust	1	18	18	18	17	10	9	22	22	22	22	11	11	10	10	11	11	12	12	12	12	11	10	11	11	10	10	10	10	11	22	22	22	22	22	21	2
Marine Source Exhaust	0	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	1	1	2	2	1	1	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	3	3	3	3	3	3	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Alt 1 No Federal Action	**1**	**11**	**11**	**10**	**10**	**2**	**2**	**2**	**2**	**3**	**3**	**5**	**5**	**3**	**3**	**3**	**3**	**6**	**6**	**6**	**6**	**4**	**4**	**4**	**4**	**3**	**3**	**3**	**3**	**3**	**3**	**2**	**2**	**2**	**2**	**2**	**2**
Off-road Construction Equipment Exhaust	1	11	11	9	9	2	2	2	2	2	2	3	3	2	2	2	2	3	3	3	3	2	2	2	2	1	1	2	2	2	2	2	2	1	1	1	1
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
On-Road Construction Vehicles	0	0	0	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Alt 3 Reduced Wharf Improvements **Ocean Disposal**	**1**	**11**	**11**	**12**	**11**	**4**	**3**	**3**	**3**	**4**	**4**	**14**	**14**	**14**	**13**	**13**	**13**	**16**	**16**	**16**	**16**	**14**	**13**	**14**	**14**	**13**	**13**	**13**	**13**	**13**	**37**	**37**	**37**	**36**	**3**	**2**	**2**
Off-road Construction Equipment Exhaust	1	11	11	10	10	2	2	3	3	3	3	11	11	10	10	11	11	12	12	12	12	11	10	11	11	10	10	10	10	11	24	25	25	24	2	2	2
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12	12	12	12	0	0	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	0	0	1	1	1	1	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Upland Disposal	**1**	**11**	**11**	**12**	**11**	**4**	**3**	**3**	**3**	**4**	**4**	**14**	**14**	**14**	**13**	**13**	**13**	**16**	**16**	**16**	**16**	**14**	**13**	**14**	**14**	**13**	**13**	**13**	**13**	**13**	**28**	**28**	**28**	**27**	**27**	**27**	**2**
Off-road Construction Equipment Exhaust	1	11	11	10	10	2	2	3	3	3	3	11	11	10	10	11	11	12	12	12	12	11	10	11	11	10	10	10	10	11	22	22	22	22	22	21	2
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	0	0	1	1	1	1	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	3	3	3	3	3	3	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Alt 4 No Backland Improvements **Ocean Disposal**	**0**	**9**	**9**	**9**	**9**	**9**	**9**	**34**	**34**	**34**	**0**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**34**	**34**	**34**	**34**	**0**	**0**	**0**
Off-road Construction Equipment Exhaust	0	7	7	7	7	7	7	22	22	22	0	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	22	22	22	22	0	0	0
Marine Source Exhaust	0	1	1	1	1	1	1	12	12	12	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12	12	12	12	0	0	0
On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**0**	**9**	**9**	**9**	**9**	**9**	**9**	**23**	**23**	**23**	**23**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**25**	**25**	**25**	**25**	**25**	**25**	**0**
Off-road Construction Equipment Exhaust	0	7	7	7	7	7	7	20	20	20	20	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	20	20	20	20	20	20	0
Marine Source Exhaust	0	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	0
On-Road Construction Vehicles	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3	3	3	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 5 Expanded On-Dock Rail Yard **Ocean Disposal**	**1**	**20**	**20**	**20**	**20**	**14**	**14**	**54**	**54**	**55**	**21**	**33**	**33**	**31**	**31**	**18**	**18**	**16**	**16**	**16**	**16**	**14**	**13**	**14**	**14**	**13**	**13**	**13**	**13**	**13**	**37**	**37**	**37**	**36**	**3**	**2**	**2**
Off-road Construction Equipment Exhaust	1	18	18	18	17	11	11	41	41	41	19	29	29	27	26	14	14	12	12	12	12	11	10	11	11	10	10	10	10	11	24	25	25	24	2	2	2
Marine Source Exhaust	0	1	1	1	1	1	1	12	12	12	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12	12	12	12	0	0	0
On-Road Construction Vehicles	0	0	0	1	1	2	2	1	1	2	2	2	2	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Upland Disposal	**1**	**20**	**20**	**20**	**20**	**14**	**14**	**43**	**43**	**44**	**44**	**33**	**33**	**31**	**31**	**18**	**18**	**16**	**16**	**16**	**16**	**14**	**13**	**14**	**14**	**13**	**13**	**13**	**13**	**13**	**28**	**28**	**28**	**27**	**27**	**27**	**2**
Off-road Construction Equipment Exhaust	1	18	18	18	17	11	11	39	39	39	39	29	29	27	26	14	14	12	12	12	12	11	10	11	11	10	10	10	10	11	22	22	22	22	22	21	2
Marine Source Exhaust	0	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	0
On-Road Construction Vehicles	0	0	0	1	1	2	2	2	2	3	3	2	2	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	3	3	3	3	3	3	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0

Table 39. Daily Mitigated Construction TOG Emissions (lb/day)

	Year 2019																																2018	2019
	DEC				JAN		FEB		MAR				APR				MAY				JUN				JUL				AUG	SEP	OCT	NOV	Peak	Peak
Proposed Total Ocean Disposal	**5**	**5**	**5**	**5**	**6**	**2**	**2**	**2**	**6**	**6**	**3**	**5**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**131**	**38**	**131**
Off-road Construction Equipment Exhaust	4	4	5	5	6	2	2	2	6	6	2	3	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	3	25	6
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	128	12	128
On-Road Construction Vehicles	1	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Upland Disposal	**5**	**5**	**5**	**5**	**6**	**2**	**2**	**2**	**6**	**6**	**3**	**5**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**131**	**28**	**131**
Off-road Construction Equipment Exhaust	4	4	5	5	6	2	2	2	6	6	2	3	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	3	22	6
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	128	2	128
On-Road Construction Vehicles	1	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	1
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Alt 1 No Federal Action	**4**	**4**	**4**	**4**	**6**	**2**	**2**	**2**	**5**	**5**	**1**	**3**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**6**
Off-road Construction Equipment Exhaust	4	4	4	4	6	2	2	2	5	5	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	6
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Alt 3 Reduced Wharf Improvements Ocean Disposal	**5**	**5**	**5**	**5**	**6**	**2**	**2**	**2**	**6**	**6**	**3**	**5**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**131**	**37**	**131**
Off-road Construction Equipment Exhaust	4	4	5	5	6	2	2	2	6	6	2	3	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	3	25	6
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	128	12	128
On-Road Construction Vehicles	1	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Upland Disposal	**5**	**5**	**5**	**5**	**6**	**2**	**2**	**2**	**6**	**6**	**3**	**5**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**131**	**28**	**131**
Off-road Construction Equipment Exhaust	4	4	5	5	6	2	2	2	6	6	2	3	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	3	22	6
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	128	2	128
On-Road Construction Vehicles	1	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	1
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Alt 4 No Backland Improvements Ocean Disposal	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**1**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**131**	**34**	**131**
Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	3	22	3
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	128	12	128
On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**1**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**131**	**25**	**131**
Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	3	20	3
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	128	2	128
On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	1
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 5 Expanded On-Dock Rail Yard Ocean Disposal	**5**	**5**	**5**	**5**	**6**	**2**	**2**	**2**	**6**	**6**	**3**	**5**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**131**	**55**	**131**
Off-road Construction Equipment Exhaust	4	4	5	5	6	2	2	2	6	6	2	3	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	3	41	6
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	128	12	128
On-Road Construction Vehicles	1	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Upland Disposal	**5**	**5**	**5**	**5**	**6**	**2**	**2**	**2**	**6**	**6**	**3**	**5**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**131**	**44**	**131**
Off-road Construction Equipment Exhaust	4	4	5	5	6	2	2	2	6	6	2	3	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	3	39	6
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	128	2	128
On-Road Construction Vehicles	1	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	1
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0

Table 40. Daily Mitigated Construction VOC Emissions (lb/day)

	2017	Year 2018																																			
	DEC	JAN		FEB		MAR		APR				MAY				JUN				JUL				AUG				SEP				OCT				NOV			
Proposed Total **Ocean Disposal**	**1**	**20**	**20**	**20**	**19**	**12**	**12**	**36**	**36**	**37**	**4**	**14**	**14**	**14**	**13**	**13**	**13**	**16**	**16**	**16**	**16**	**14**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**36**	**36**	**36**	**36**	**3**	**2**	**2**
Off-road Construction Equipment Exhaust	1	18	18	17	17	10	9	24	24	24	3	11	11	10	10	11	11	12	12	11	11	11	10	11	11	10	10	10	10	10	24	24	24	24	2	2	2
Marine Source Exhaust	0	1	1	1	1	1	1	12	12	12	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12	12	12	12	0	0	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	0	0	1	1	1	1	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
Upland Disposal	**1**	**20**	**20**	**20**	**19**	**12**	**12**	**26**	**26**	**27**	**27**	**14**	**14**	**14**	**13**	**13**	**13**	**16**	**16**	**16**	**16**	**14**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**27**	**27**	**27**	**27**	**27**	**27**	**2**
Off-road Construction Equipment Exhaust	1	18	18	17	17	10	9	22	22	22	22	11	11	10	10	11	11	12	12	11	11	11	10	11	11	10	10	10	10	10	22	22	22	22	22	21	2
Marine Source Exhaust	0	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	1	1	2	2	1	1	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	3	3	3	3	3	3	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
Alt 1 No Federal Action	**1**	**11**	**11**	**10**	**10**	**2**	**2**	**2**	**2**	**3**	**3**	**4**	**4**	**3**	**3**	**3**	**3**	**6**	**6**	**6**	**6**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Off-road Construction Equipment Exhaust	1	11	11	9	9	2	2	2	2	2	2	3	3	2	2	2	2	3	3	3	3	2	2	2	2	1	1	2	2	2	2	2	2	2	1	1	1
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
On-Road Construction Vehicles	0	0	0	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
Alt 3 Reduced Wharf Improvements **Ocean Disposal**	**1**	**11**	**11**	**11**	**11**	**4**	**3**	**3**	**3**	**4**	**4**	**14**	**14**	**14**	**13**	**13**	**13**	**16**	**16**	**16**	**16**	**14**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**36**	**36**	**36**	**36**	**3**	**2**	**2**
Off-road Construction Equipment Exhaust	1	11	11	10	9	2	2	3	3	3	3	11	11	10	10	11	11	12	12	11	11	11	10	11	11	10	10	10	10	10	24	24	24	24	2	2	2
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12	12	12	12	0	0	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	0	0	1	1	1	1	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
Upland Disposal	**1**	**11**	**11**	**11**	**11**	**4**	**3**	**3**	**3**	**4**	**4**	**14**	**14**	**14**	**13**	**13**	**13**	**16**	**16**	**16**	**16**	**14**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**27**	**27**	**27**	**27**	**27**	**27**	**2**
Off-road Construction Equipment Exhaust	1	11	11	10	9	2	2	3	3	3	3	11	11	10	10	11	11	12	12	11	11	11	10	11	11	10	10	10	10	10	22	22	22	22	22	21	2
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	0	0	1	1	1	1	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	3	3	3	3	3	3	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
Alt 4 No Backland Improvements **Ocean Disposal**	**0**	**9**	**9**	**9**	**9**	**9**	**9**	**33**	**33**	**33**	**0**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**33**	**33**	**33**	**33**	**0**	**0**	**0**
Off-road Construction Equipment Exhaust	0	7	7	7	7	7	7	22	22	22	0	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	22	22	22	22	0	0	0
Marine Source Exhaust	0	1	1	1	1	1	1	12	12	12	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12	12	12	12	0	0	0
On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**0**	**9**	**9**	**9**	**9**	**9**	**9**	**23**	**23**	**23**	**23**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**24**	**24**	**24**	**24**	**24**	**24**	**0**
Off-road Construction Equipment Exhaust	0	7	7	7	7	7	7	19	19	19	19	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	19	19	19	19	19	19	0
Marine Source Exhaust	0	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	0
On-Road Construction Vehicles	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3	3	3	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 5 Expanded On-Dock Rail Yard **Ocean Disposal**	**1**	**20**	**20**	**20**	**19**	**14**	**13**	**53**	**53**	**54**	**21**	**33**	**33**	**31**	**30**	**17**	**17**	**16**	**16**	**16**	**16**	**14**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**36**	**36**	**36**	**36**	**3**	**2**	**2**
Off-road Construction Equipment Exhaust	1	18	18	17	17	11	11	41	41	41	19	29	29	26	26	14	14	12	12	11	11	11	10	11	11	10	10	10	10	10	24	24	24	24	2	2	2
Marine Source Exhaust	0	1	1	1	1	1	1	12	12	12	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12	12	12	12	0	0	0
On-Road Construction Vehicles	0	0	0	1	1	2	2	1	1	1	1	2	2	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
Upland Disposal	**1**	**20**	**20**	**20**	**19**	**14**	**13**	**43**	**43**	**44**	**44**	**33**	**33**	**31**	**30**	**17**	**17**	**16**	**16**	**16**	**16**	**14**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**27**	**27**	**27**	**27**	**27**	**27**	**2**
Off-road Construction Equipment Exhaust	1	18	18	17	17	11	11	38	38	38	38	29	29	26	26	14	14	12	12	11	11	11	10	11	11	10	10	10	10	10	22	22	22	22	22	22	2
Marine Source Exhaust	0	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	0
On-Road Construction Vehicles	0	0	0	1	1	2	2	2	2	2	2	2	2	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	3	3	3	3	3	3	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions (VOC)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0

Table 40. Daily Mitigated Construction VOC Emissions (lb/day)

| | | |

Table 41. Daily Mitigated Construction NOx Emissions (lb/day)

	2017	Year 2018																																	
	DEC	JAN	FEB	MAR		APR				MAY				JUN				JUL				AUG				SEP				OCT				NOV			
Proposed Total **Ocean Disposal**	**5**	**131**	**131**	**164**	**163**	**139**	**128**	**389**	**389**	**416**	**52**	**144**	**143**	**159**	**149**	**127**	**127**	**162**	**162**	**160**	**160**	**150**	**139**	**117**	**117**	**122**	**122**	**122**	**122**	**135**	**405**	**381**	**381**	**388**	**23**	**21**	**21**
Off-road Construction Equipment Exhaust	5	99	99	95	93	65	64	164	164	164	11	74	74	70	68	72	72	77	77	75	75	72	70	74	74	70	70	70	70	71	162	164	164	162	9	7	7
Marine Source Exhaust	0	21	21	21	21	21	21	212	212	212	0	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	212	212	212	212	0	0	0
On-Road Construction Vehicles	0	12	12	48	48	52	43	14	14	41	41	49	49	69	60	34	34	64	64	64	63	57	48	22	22	32	32	32	31	42	32	5	6	15	15	15	14
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**5**	**131**	**131**	**164**	**163**	**139**	**128**	**241**	**241**	**268**	**268**	**144**	**143**	**159**	**149**	**127**	**127**	**162**	**162**	**160**	**160**	**150**	**139**	**117**	**117**	**122**	**122**	**122**	**122**	**135**	**318**	**294**	**294**	**301**	**301**	**299**	**21**
Off-road Construction Equipment Exhaust	5	99	99	95	93	65	64	146	146	146	146	74	74	70	68	72	72	77	77	75	75	72	70	74	74	70	70	70	70	71	145	146	146	144	144	142	7
Marine Source Exhaust	0	21	21	21	21	21	21	43	43	43	43	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	43	43	43	43	43	43	0
On-Road Construction Vehicles	0	12	12	48	48	52	43	52	52	79	79	49	49	69	60	34	34	64	64	64	63	57	48	22	22	32	32	32	31	42	131	105	105	114	114	114	14
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 1 No Federal Action	**5**	**53**	**53**	**74**	**74**	**21**	**21**	**21**	**21**	**40**	**40**	**50**	**50**	**40**	**40**	**40**	**40**	**66**	**66**	**66**	**66**	**30**	**30**	**30**	**30**	**26**	**26**	**28**	**28**	**14**	**14**	**12**	**12**	**10**	**10**	**10**	**10**
Off-road Construction Equipment Exhaust	5	42	42	35	35	7	7	7	7	7	7	11	11	7	7	7	7	13	13	13	13	9	9	9	9	6	6	7	7	9	9	7	7	5	5	5	5
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
On-Road Construction Vehicles	0	11	11	39	39	14	14	14	14	32	32	39	39	33	33	33	33	53	53	53	53	21	21	21	21	21	21	21	21	5	5	5	5	5	5	5	5
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 3 Reduced Wharf Improvements **Ocean Disposal**	**5**	**53**	**53**	**86**	**84**	**60**	**50**	**25**	**25**	**52**	**52**	**144**	**143**	**159**	**149**	**127**	**127**	**162**	**162**	**160**	**160**	**150**	**139**	**117**	**117**	**122**	**122**	**122**	**122**	**135**	**405**	**381**	**381**	**388**	**23**	**21**	**21**
Off-road Construction Equipment Exhaust	5	42	42	38	37	9	7	11	11	11	11	74	74	70	68	72	72	77	77	75	75	72	70	74	74	70	70	70	70	71	162	164	164	162	9	7	7
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	212	212	212	212	0	0	0
On-Road Construction Vehicles	0	11	11	48	48	52	43	14	14	41	41	49	49	69	60	34	34	64	64	64	63	57	48	22	22	32	32	32	31	42	32	5	6	15	15	15	14
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**5**	**53**	**53**	**86**	**84**	**60**	**50**	**25**	**25**	**52**	**52**	**144**	**143**	**159**	**149**	**127**	**127**	**162**	**162**	**160**	**160**	**150**	**139**	**117**	**117**	**122**	**122**	**122**	**122**	**135**	**318**	**294**	**294**	**301**	**301**	**299**	**21**
Off-road Construction Equipment Exhaust	5	42	42	38	37	9	7	11	11	11	11	74	74	70	68	72	72	77	77	75	75	72	70	74	74	70	70	70	70	71	145	146	146	144	144	142	7
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	43	43	43	43	43	43	0
On-Road Construction Vehicles	0	11	11	48	48	52	43	14	14	41	41	49	49	69	60	34	34	64	64	64	63	57	48	22	22	32	32	32	31	42	131	105	105	114	114	114	14
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 4 No Backland Improvements **Ocean Disposal**	**0**	**78**	**78**	**78**	**78**	**78**	**78**	**365**	**365**	**365**	**0**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**365**	**365**	**365**	**365**	**0**	**0**	**0**
Off-road Construction Equipment Exhaust	0	57	57	57	57	57	57	153	153	153	0	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	153	153	153	153	0	0	0
Marine Source Exhaust	0	21	21	21	21	21	21	212	212	212	0	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	212	212	212	212	0	0	0
On-Road Construction Vehicles	0	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**0**	**78**	**78**	**78**	**78**	**78**	**78**	**217**	**217**	**217**	**217**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**278**	**278**	**278**	**278**	**278**	**278**	**0**
Off-road Construction Equipment Exhaust	0	57	57	57	57	57	57	136	136	136	136	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	136	136	136	136	136	136	0
Marine Source Exhaust	0	21	21	21	21	21	21	43	43	43	43	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	43	43	43	43	43	43	0
On-Road Construction Vehicles	0	1	1	1	1	1	1	38	38	38	38	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	99	99	99	99	99	99	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 5 Expanded On-Dock Rail Yard **Ocean Disposal**	**5**	**131**	**131**	**164**	**163**	**158**	**147**	**466**	**466**	**493**	**129**	**226**	**226**	**223**	**213**	**141**	**141**	**162**	**162**	**160**	**160**	**150**	**139**	**117**	**117**	**122**	**122**	**122**	**122**	**135**	**405**	**381**	**381**	**388**	**23**	**21**	**21**
Off-road Construction Equipment Exhaust	5	99	99	95	93	71	69	227	227	227	74	142	142	133	131	86	86	77	77	75	75	72	70	74	74	70	70	70	70	71	162	164	164	162	9	7	7
Marine Source Exhaust	0	21	21	21	21	21	21	212	212	212	0	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	212	212	212	212	0	0	0
On-Road Construction Vehicles	0	12	12	48	48	66	57	27	28	55	55	63	62	69	60	34	34	64	64	64	63	57	48	22	22	32	32	32	31	42	32	5	6	15	15	15	14
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**5**	**131**	**131**	**164**	**163**	**158**	**147**	**318**	**318**	**345**	**345**	**226**	**226**	**223**	**213**	**141**	**141**	**162**	**162**	**160**	**160**	**150**	**139**	**117**	**117**	**122**	**122**	**122**	**122**	**135**	**318**	**294**	**294**	**301**	**301**	**299**	**21**
Off-road Construction Equipment Exhaust	5	99	99	95	93	71	69	210	210	210	210	142	142	133	131	86	86	77	77	75	75	72	70	74	74	70	70	70	70	71	145	146	146	144	144	142	7
Marine Source Exhaust	0	21	21	21	21	21	21	43	43	43	43	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	43	43	43	43	43	43	0
On-Road Construction Vehicles	0	12	12	48	48	66	57	65	65	92	92	63	62	69	60	34	34	64	64	64	63	57	48	22	22	32	32	32	31	42	131	105	105	114	114	114	14
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 41. Daily Mitigated Construction NOx Emissions (lb/day)

		Year 2019																														2018	2019
		DEC				JAN		FEB		MAR				APR				MAY				JUN				JUL				AUG	SEP	OCT	NOV	Peak	Peak
Proposed Total	**Ocean Disposal**	**54**	**44**	**18**	**18**	**31**	**16**	**16**	**16**	**27**	**27**	**34**	**54**	**26**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**4**	**4**	**0**	**0**	**0**	**0**	**0**	**3,334**	**416**	**3,334**
	Off-road Construction Equipment Exhaust	16	14	18	18	22	8	8	8	22	22	7	13	6	4	0	0	0	0	0	0	0	0	0	4	4	4	0	0	0	0	0	13	164	22
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,321	212	3,321
	On-Road Construction Vehicles	38	29	0	0	9	9	9	9	5	5	27	40	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	69	40
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upland Disposal	**54**	**44**	**18**	**18**	**31**	**16**	**16**	**16**	**27**	**27**	**34**	**54**	**26**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**4**	**4**	**0**	**0**	**0**	**0**	**0**	**3,334**	**318**	**3,334**
	Off-road Construction Equipment Exhaust	16	14	18	18	22	8	8	8	22	22	7	13	6	4	0	0	0	0	0	0	0	0	0	4	4	4	0	0	0	0	0	13	146	22
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,321	43	3,321
	On-Road Construction Vehicles	38	29	0	0	9	9	9	9	5	5	27	40	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	131	40
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 1 No Federal Action		**14**	**14**	**14**	**14**	**30**	**16**	**16**	**16**	**19**	**19**	**20**	**38**	**17**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**74**	**38**
	Off-road Construction Equipment Exhaust	14	14	14	14	22	7	7	7	18	18	4	8	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	22
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	On-Road Construction Vehicles	0	0	0	0	9	9	9	9	1	1	16	30	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	30
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 3 Reduced Wharf Improvements	**Ocean Disposal**	**54**	**44**	**18**	**18**	**31**	**16**	**16**	**16**	**27**	**27**	**34**	**54**	**26**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**4**	**4**	**0**	**0**	**0**	**0**	**0**	**3,334**	**405**	**3,334**
	Off-road Construction Equipment Exhaust	16	14	18	18	22	8	8	8	22	22	7	13	6	4	0	0	0	0	0	0	0	0	0	4	4	4	0	0	0	0	0	13	164	22
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,321	212	3,321
	On-Road Construction Vehicles	38	29	0	0	9	9	9	9	5	5	27	40	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	69	40
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upland Disposal	**54**	**44**	**18**	**18**	**31**	**16**	**16**	**16**	**27**	**27**	**34**	**54**	**26**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**4**	**4**	**0**	**0**	**0**	**0**	**0**	**3,334**	**318**	**3,334**
	Off-road Construction Equipment Exhaust	16	14	18	18	22	8	8	8	22	22	7	13	6	4	0	0	0	0	0	0	0	0	0	4	4	4	0	0	0	0	0	13	146	22
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,321	43	3,321
	On-Road Construction Vehicles	38	29	0	0	9	9	9	9	5	5	27	40	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	131	40
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 4 No Backland Improvements	**Ocean Disposal**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**11**	**14**	**16**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**4**	**4**	**0**	**0**	**0**	**0**	**0**	**3,334**	**365**	**3,334**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	4	4	3	5	2	0	0	0	0	0	0	0	0	0	0	4	4	4	0	0	0	0	0	13	153	13
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,321	212	3,321
	On-Road Construction Vehicles	0	0	0	0	0	0	0	0	4	4	11	11	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	11
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upland Disposal	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**11**	**14**	**16**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**4**	**4**	**0**	**0**	**0**	**0**	**0**	**3,334**	**278**	**3,334**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	4	4	3	5	2	0	0	0	0	0	0	0	0	0	0	4	4	4	0	0	0	0	0	13	136	13
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,321	43	3,321
	On-Road Construction Vehicles	0	0	0	0	0	0	0	0	4	4	11	11	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	99	11
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 5 Expanded On-Dock Rail Yard	**Ocean Disposal**	**54**	**44**	**18**	**18**	**31**	**16**	**16**	**16**	**27**	**27**	**34**	**54**	**26**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**4**	**4**	**0**	**0**	**0**	**0**	**0**	**3,334**	**493**	**3,334**
	Off-road Construction Equipment Exhaust	16	14	18	18	22	8	8	8	22	22	7	13	6	4	0	0	0	0	0	0	0	0	0	4	4	4	0	0	0	0	0	13	227	22
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,321	212	3,321
	On-Road Construction Vehicles	38	29	0	0	9	9	9	9	5	5	27	40	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	69	40
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upland Disposal	**54**	**44**	**18**	**18**	**31**	**16**	**16**	**16**	**27**	**27**	**34**	**54**	**26**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**4**	**4**	**0**	**0**	**0**	**0**	**0**	**3,334**	**345**	**3,334**
	Off-road Construction Equipment Exhaust	16	14	18	18	22	8	8	8	22	22	7	13	6	4	0	0	0	0	0	0	0	0	0	4	4	4	0	0	0	0	0	13	210	22
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,321	43	3,321
	On-Road Construction Vehicles	38	29	0	0	9	9	9	9	5	5	27	40	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	131	40
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 42. Daily Mitigated Construction PM10 Emissions (lb/day)

	2017	Year 2018																																	
	DEC	JAN		FEB		MAR		APR				MAY				JUN				JUL				AUG				SEP				OCT				NOV			
Proposed Total Ocean Disposal	**0**	**6**	**6**	**9**	**9**	**8**	**7**	**12**	**12**	**16**	**6**	**9**	**9**	**11**	**10**	**8**	**8**	**11**	**11**	**11**	**11**	**9**	**8**	**5**	**6**	**6**	**6**	**6**	**6**	**8**	**15**	**12**	**12**	**13**	**3**	**3**	**3**
Off-road Construction Equipment Exhaust	0	2	2	2	2	2	2	5	5	5	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	5	5	5	0	0	0
Marine Source Exhaust	0	1	1	1	1	1	1	5	5	5	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	5	5	5	0	0	0
On-Road Construction Vehicles	0	1	1	5	5	5	5	2	2	5	5	6	6	8	7	4	4	7	7	7	7	6	5	2	2	3	3	3	3	4	3	1	1	2	2	2	2
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Upland Disposal	**0**	**6**	**6**	**9**	**9**	**8**	**7**	**11**	**11**	**15**	**15**	**9**	**9**	**11**	**10**	**8**	**8**	**11**	**11**	**11**	**11**	**9**	**8**	**5**	**6**	**6**	**6**	**6**	**6**	**8**	**19**	**16**	**16**	**17**	**17**	**17**	**3**
Off-road Construction Equipment Exhaust	0	2	2	2	2	2	2	5	5	5	5	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	5	5	5	5	4	0
Marine Source Exhaust	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
On-Road Construction Vehicles	0	1	1	5	5	5	5	5	5	9	9	6	6	8	7	4	4	7	7	7	7	6	5	2	2	3	3	3	3	4	12	10	10	10	10	10	2
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Alt 1 No Federal Action	**0**	**3**	**3**	**6**	**6**	**2**	**2**	**2**	**2**	**5**	**5**	**6**	**6**	**4**	**4**	**4**	**4**	**7**	**7**	**7**	**7**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
On-Road Construction Vehicles	0	1	1	4	4	2	2	2	2	4	4	5	5	4	4	4	4	6	6	6	6	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Alt 3 Reduced Wharf Improvements Ocean Disposal	**0**	**3**	**3**	**7**	**7**	**6**	**5**	**2**	**2**	**6**	**6**	**9**	**9**	**11**	**10**	**8**	**8**	**11**	**11**	**11**	**11**	**9**	**8**	**5**	**6**	**6**	**6**	**6**	**6**	**8**	**15**	**12**	**12**	**13**	**3**	**3**	**3**
Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	5	5	5	0	0	0
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	5	5	5	0	0	0
On-Road Construction Vehicles	0	1	1	5	5	5	5	2	2	5	5	6	6	8	7	4	4	7	7	7	7	6	5	2	2	3	3	3	3	4	3	1	1	2	2	2	2
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Upland Disposal	**0**	**3**	**3**	**7**	**7**	**6**	**5**	**2**	**2**	**6**	**6**	**9**	**9**	**11**	**10**	**8**	**8**	**11**	**11**	**11**	**11**	**9**	**8**	**5**	**6**	**6**	**6**	**6**	**6**	**8**	**19**	**16**	**16**	**17**	**17**	**17**	**3**
Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	5	5	5	5	4	0
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
On-Road Construction Vehicles	0	1	1	5	5	5	5	2	2	5	5	6	6	8	7	4	4	7	7	7	7	6	5	2	2	3	3	3	3	4	12	10	10	10	10	10	2
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Alt 4 No Backland Improvements Ocean Disposal	**0**	**3**	**3**	**3**	**3**	**3**	**3**	**10**	**10**	**10**	**0**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**10**	**10**	**10**	**10**	**0**	**0**	**0**
Off-road Construction Equipment Exhaust	0	2	2	2	2	2	2	5	5	5	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	5	5	5	0	0	0
Marine Source Exhaust	0	1	1	1	1	1	1	5	5	5	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	5	5	5	0	0	0
On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**0**	**3**	**3**	**3**	**3**	**3**	**3**	**9**	**9**	**9**	**9**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**14**	**14**	**14**	**14**	**14**	**14**	**0**
Off-road Construction Equipment Exhaust	0	2	2	2	2	2	2	4	4	4	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4	4	4	4	4	4	0
Marine Source Exhaust	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
On-Road Construction Vehicles	0	0	0	0	0	0	0	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9	9	9	9	9	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 5 Expanded On-Dock Rail Yard Ocean Disposal	**0**	**6**	**6**	**9**	**9**	**10**	**9**	**15**	**15**	**18**	**8**	**12**	**12**	**12**	**11**	**8**	**8**	**11**	**11**	**11**	**11**	**9**	**8**	**5**	**6**	**6**	**6**	**6**	**6**	**8**	**15**	**12**	**12**	**13**	**3**	**3**	**3**
Off-road Construction Equipment Exhaust	0	2	2	2	2	2	2	6	6	6	1	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	5	5	5	0	0	0
Marine Source Exhaust	0	1	1	1	1	1	1	5	5	5	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	5	5	5	0	0	0
On-Road Construction Vehicles	0	1	1	5	5	7	6	3	3	7	7	7	7	8	7	4	4	7	7	7	7	6	5	2	2	3	3	3	3	4	3	1	1	2	2	2	2
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Upland Disposal	**0**	**6**	**6**	**9**	**9**	**10**	**9**	**13**	**13**	**17**	**17**	**12**	**12**	**12**	**11**	**8**	**8**	**11**	**11**	**11**	**11**	**9**	**8**	**5**	**6**	**6**	**6**	**6**	**6**	**8**	**19**	**16**	**16**	**17**	**17**	**17**	**3**
Off-road Construction Equipment Exhaust	0	2	2	2	2	2	2	5	5	5	5	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	5	5	5	5	4	0
Marine Source Exhaust	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
On-Road Construction Vehicles	0	1	1	5	5	7	6	6	6	10	10	7	7	8	7	4	4	7	7	7	7	6	5	2	2	3	3	3	3	4	12	10	10	10	10	10	2
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1

Table 42. Daily Mitigated Construction PM10 Emissions (lb/day)

		Year 2019																																2018	2019
		DEC				JAN		FEB		MAR				APR				MAY				JUN				JUL				AUG	SEP	OCT	NOV	Peak	Peak
Proposed Total	**Ocean Disposal**	**4**	**3**	**0**	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**4**	**5**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**54**	**16**	**54**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	5	54
	On-Road Construction Vehicles	4	3	0	0	1	1	1	1	0	0	3	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	5
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	Upland Disposal	**4**	**3**	**0**	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**4**	**5**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**54**	**19**	**54**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	1	54
	On-Road Construction Vehicles	4	3	0	0	1	1	1	1	0	0	3	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	5
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Alt 1 No Federal Action		**0**	**0**	**0**	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**2**	**4**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**4**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	On-Road Construction Vehicles	0	0	0	0	1	1	1	1	0	0	2	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	4
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Alt 3 Reduced Wharf Improvements	**Ocean Disposal**	**4**	**3**	**0**	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**4**	**5**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**54**	**15**	**54**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	5	54
	On-Road Construction Vehicles	4	3	0	0	1	1	1	1	0	0	3	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	5
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	Upland Disposal	**4**	**3**	**0**	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**4**	**5**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**54**	**19**	**54**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	1	54
	On-Road Construction Vehicles	4	3	0	0	1	1	1	1	0	0	3	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	5
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Alt 4 No Backland Improvements	**Ocean Disposal**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**54**	**10**	**54**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	5	54
	On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upland Disposal	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**54**	**14**	**54**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	1	54
	On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 5 Expanded On-Dock Rail Yard	**Ocean Disposal**	**4**	**3**	**0**	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**4**	**5**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**54**	**18**	**54**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	5	54
	On-Road Construction Vehicles	4	3	0	0	1	1	1	1	0	0	3	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	5
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	Upland Disposal	**4**	**3**	**0**	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**4**	**5**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**54**	**19**	**54**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	1	54
	On-Road Construction Vehicles	4	3	0	0	1	1	1	1	0	0	3	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	5
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0

Table 43. Daily Mitigated Construction PM2.5 Emissions (lb/day)

	2017	Year 2018																																					
	DEC	JAN		FEB		MAR		APR				MAY				JUN				JUL				AUG				SEP				OCT				NOV			
Proposed Total **Ocean Disposal**	**0**	**3**	**3**	**3**	**4**	**4**	**4**	**4**	**10**	**10**	**11**	**1**	**4**	**4**	**5**	**4**	**4**	**4**	**5**	**5**	**5**	**5**	**4**	**4**	**3**	**3**	**4**	**4**	**4**	**4**	**4**	**11**	**10**	**10**	**10**	**1**	**1**	**1**
Off-road Construction Equipment Exhaust	0	2	2	2	2	2	2	5	5	5	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	5	5	5	0	0	0
Marine Source Exhaust	0	0	0	0	0	0	0	5	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	5	5	0	0	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	0	0	1	1	1	1	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**0**	**3**	**3**	**4**	**4**	**4**	**4**	**7**	**7**	**8**	**8**	**4**	**4**	**5**	**4**	**4**	**4**	**5**	**5**	**5**	**5**	**4**	**4**	**3**	**3**	**4**	**4**	**4**	**4**	**4**	**9**	**8**	**8**	**8**	**8**	**8**	**1**
Off-road Construction Equipment Exhaust	0	2	2	2	2	2	2	4	4	4	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4	4	4	4	4	4	0
Marine Source Exhaust	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	1	1	2	2	1	1	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	3	3	3	3	3	3	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 1 No Federal Action	**0**	**1**	**1**	**2**	**2**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
On-Road Construction Vehicles	0	0	0	1	1	0	0	0	0	1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 3 Reduced Wharf Improvements **Ocean Disposal**	**0**	**1**	**1**	**2**	**2**	**1**	**1**	**1**	**1**	**1**	**1**	**4**	**4**	**5**	**4**	**4**	**4**	**5**	**5**	**5**	**5**	**4**	**4**	**3**	**3**	**4**	**4**	**4**	**4**	**4**	**11**	**10**	**10**	**10**	**1**	**1**	**1**
Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	5	5	5	0	0	0
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	5	5	0	0	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	0	0	1	1	1	1	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**0**	**1**	**1**	**2**	**2**	**1**	**1**	**1**	**1**	**1**	**1**	**4**	**4**	**5**	**4**	**4**	**4**	**5**	**5**	**5**	**5**	**4**	**4**	**3**	**3**	**4**	**4**	**4**	**4**	**4**	**9**	**8**	**8**	**8**	**8**	**8**	**1**
Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4	4	4	4	4	4	0
Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0
On-Road Construction Vehicles	0	0	0	1	1	1	1	0	0	1	1	1	1	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	3	3	3	3	3	3	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 4 No Backland Improvements **Ocean Disposal**	**0**	**2**	**2**	**2**	**2**	**2**	**2**	**10**	**10**	**10**	**0**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**10**	**10**	**10**	**10**	**0**	**0**	**0**
Off-road Construction Equipment Exhaust	0	2	2	2	2	2	2	5	5	5	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	5	5	5	0	0	0
Marine Source Exhaust	0	0	0	0	0	0	0	5	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	5	5	0	0	0
On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**0**	**2**	**2**	**2**	**2**	**2**	**2**	**6**	**6**	**6**	**6**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**8**	**8**	**8**	**8**	**8**	**8**	**0**
Off-road Construction Equipment Exhaust	0	2	2	2	2	2	2	4	4	4	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4	4	4	4	4	4	0
Marine Source Exhaust	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0
On-Road Construction Vehicles	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 5 Expanded On-Dock Rail Yard **Ocean Disposal**	**0**	**3**	**3**	**4**	**4**	**4**	**4**	**11**	**11**	**12**	**2**	**5**	**5**	**5**	**5**	**4**	**4**	**5**	**5**	**5**	**5**	**4**	**4**	**3**	**3**	**4**	**4**	**4**	**4**	**4**	**11**	**10**	**10**	**10**	**1**	**1**	**1**
Off-road Construction Equipment Exhaust	0	2	2	2	2	2	2	6	6	6	1	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	5	5	5	0	0	0
Marine Source Exhaust	0	0	0	0	0	0	0	5	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	5	5	0	0	0
On-Road Construction Vehicles	0	0	0	1	1	2	2	1	1	2	2	2	2	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upland Disposal	**0**	**3**	**3**	**4**	**4**	**4**	**4**	**8**	**8**	**8**	**8**	**5**	**5**	**5**	**5**	**4**	**4**	**5**	**5**	**5**	**5**	**4**	**4**	**3**	**3**	**4**	**4**	**4**	**4**	**4**	**9**	**8**	**8**	**8**	**8**	**8**	**1**
Off-road Construction Equipment Exhaust	0	2	2	2	2	2	2	5	5	5	5	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4	4	4	4	4	4	0
Marine Source Exhaust	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0
On-Road Construction Vehicles	0	0	0	1	1	2	2	2	2	3	3	2	2	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	3	3	3	3	3	3	0
Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 43. Daily Mitigated Construction PM2.5 Emissions (lb/day)

		Year 2019																																2018	2019
		DEC				JAN		FEB		MAR				APR				MAY				JUN				JUL				AUG	SEP	OCT	NOV	Peak	Peak
Proposed Total	**Ocean Disposal**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**50**	**11**	**50**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	5	50
	On-Road Construction Vehicles	1	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upland Disposal	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**50**	**9**	**50**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	1	50
	On-Road Construction Vehicles	1	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 1 No Federal Action		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**1**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 3 Reduced Wharf Improvements	**Ocean Disposal**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**50**	**11**	**50**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	5	50
	On-Road Construction Vehicles	1	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upland Disposal	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**50**	**9**	**50**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	1	50
	On-Road Construction Vehicles	1	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 4 No Backland Improvements	**Ocean Disposal**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**50**	**10**	**50**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	5	50
	On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upland Disposal	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**50**	**8**	**50**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	1	50
	On-Road Construction Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt 5 Expanded On-Dock Rail Yard	**Ocean Disposal**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**50**	**12**	**50**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	5	50
	On-Road Construction Vehicles	1	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upland Disposal	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**50**	**9**	**50**
	Off-road Construction Equipment Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
	Marine Source Exhaust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	1	50
	On-Road Construction Vehicles	1	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1
	Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fugitive Emissions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 44. Daily Mitigated Construction SOx Emissions (lb/day)

	2017	Year 2018																																					
	DEC	JAN	FEB	MAR		APR				MAY				JUN				JUL				AUG				SEP				OCT				NOV			
Proposed Total **Ocean Disposal**	**0.0**	**0.3**	**0.3**	**0.4**	**0.4**	**0.3**	**0.3**	**0.6**	**0.6**	**0.7**	**0.1**	**0.3**	**0.3**	**0.4**	**0.3**	**0.3**	**0.3**	**0.4**	**0.4**	**0.4**	**0.4**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.7**	**0.6**	**0.6**	**0.6**	**0.1**	**0.1**	**0.1**
Off-road Construction Equipment Exhaust	0.0	0.3	0.3	0.3	0.3	0.2	0.2	0.4	0.4	0.4	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.4	0.0	0.0	0.0
Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.0
On-Road Construction Vehicles	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upland Disposal	**0.0**	**0.3**	**0.3**	**0.4**	**0.4**	**0.3**	**0.3**	**0.5**	**0.5**	**0.6**	**0.6**	**0.3**	**0.3**	**0.4**	**0.3**	**0.3**	**0.3**	**0.4**	**0.4**	**0.4**	**0.4**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.1**
Off-road Construction Equipment Exhaust	0.0	0.3	0.3	0.3	0.3	0.2	0.2	0.4	0.4	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.4	0.4	0.4	0.0
Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
On-Road Construction Vehicles	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	0.0
Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alt 1 No Federal Action	**0.0**	**0.2**	**0.2**	**0.2**	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.2**	**0.2**	**0.2**	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Off-road Construction Equipment Exhaust	0.0	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
On-Road Construction Vehicles	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alt 3 Reduced Wharf Improvements **Ocean Disposal**	**0.0**	**0.2**	**0.2**	**0.3**	**0.2**	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.3**	**0.3**	**0.4**	**0.3**	**0.3**	**0.3**	**0.4**	**0.4**	**0.4**	**0.4**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.7**	**0.6**	**0.6**	**0.6**	**0.1**	**0.1**
Off-road Construction Equipment Exhaust	0.0	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.4	0.4	0.0	0.0
Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.0	0.0
On-Road Construction Vehicles	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upland Disposal	**0.0**	**0.2**	**0.2**	**0.3**	**0.2**	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.3**	**0.3**	**0.4**	**0.3**	**0.3**	**0.3**	**0.4**	**0.4**	**0.4**	**0.4**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.1**
Off-road Construction Equipment Exhaust	0.0	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.4	0.4	0.3	0.0
Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
On-Road Construction Vehicles	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	0.0
Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alt 4 No Backland Improvements **Ocean Disposal**	**0.0**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.6**	**0.6**	**0.6**	**0.0**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.6**	**0.6**	**0.6**	**0.6**	**0.0**	**0.0**
Off-road Construction Equipment Exhaust	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.4	0.4	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.4	0.4	0.4	0.0	0.0
Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.0	0.0
On-Road Construction Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alt 5 Expanded On-Dock Rail Yard **Ocean Disposal**	**0.0**	**0.3**	**0.3**	**0.4**	**0.4**	**0.4**	**0.3**	**0.9**	**0.9**	**0.9**	**0.4**	**0.6**	**0.6**	**0.6**	**0.6**	**0.3**	**0.3**	**0.4**	**0.4**	**0.4**	**0.4**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.7**	**0.6**	**0.6**	**0.6**	**0.1**	**0.1**
Off-road Construction Equipment Exhaust	0.0	0.3	0.3	0.3	0.3	0.2	0.2	0.6	0.6	0.6	0.3	0.4	0.4	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.4	0.4	0.0	0.0
Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.0	0.0
On-Road Construction Vehicles	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 44. Daily Mitigated Construction SOx Emissions (lb/day)

		Year 2019																														2018	2019
		DEC				JAN		FEB		MAR				APR				MAY				JUN				JUL				AUG	SEP	OCT	NOV	Peak	Peak
Proposed Total	**Ocean Disposal**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**89.5**	**0.7**	**89.5**
	Off-road Construction Equipment Exhaust	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	89.4	0.2	89.4
	On-Road Construction Vehicles	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Fugitive Emissions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Upland Disposal	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**89.5**	**0.7**	**89.5**
	Off-road Construction Equipment Exhaust	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	89.4	0.0	89.4
	On-Road Construction Vehicles	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Fugitive Emissions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alt 1 No Federal Action		**0.0**	**0.0**	**0.0**	**0.0**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.2**	**0.1**
	Off-road Construction Equipment Exhaust	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	On-Road Construction Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Fugitive Emissions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alt 3 Reduced Wharf Improvements	**Ocean Disposal**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**89.5**	**0.7**	**89.5**
	Off-road Construction Equipment Exhaust	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	89.4	0.2	89.4
	On-Road Construction Vehicles	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Fugitive Emissions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Upland Disposal	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**89.5**	**0.7**	**89.5**
	Off-road Construction Equipment Exhaust	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	89.4	0.0	89.4
	On-Road Construction Vehicles	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Fugitive Emissions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alt 4 No Backland Improvements	**Ocean Disposal**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**89.5**	**0.6**	**89.5**
	Off-road Construction Equipment Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	89.4	0.2	89.4
	On-Road Construction Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Fugitive Emissions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Upland Disposal	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**89.5**	**0.6**	**89.5**
	Off-road Construction Equipment Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	89.4	0.0	89.4
	On-Road Construction Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Fugitive Emissions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alt 5 Expanded On-Dock Rail Yard	**Ocean Disposal**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**89.5**	**0.9**	**89.5**
	Off-road Construction Equipment Exhaust	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	89.4	0.2	89.4
	On-Road Construction Vehicles	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Fugitive Emissions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Upland Disposal	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**89.5**	**0.9**	**89.5**
	Off-road Construction Equipment Exhaust	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1
	Marine Source Exhaust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	89.4	0.0	89.4
	On-Road Construction Vehicles	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1
	Worker Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Fugitive Emissions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
Phase 1: Berths 230-232 Dredging 8,000 cy																	
Sheet Piling	Derrick Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Compressor	0	0	0	0	0	0	0	0	0	0	6.62E-02	2.24E-02	2.21E-02	1.48E-01	5.19E-03	4.97E-03
	Barge Crane	0	0	0	0	0	0	0	0	0	0	5.39E-02	1.18E-02	1.16E-02	5.96E-02	1.80E-03	1.72E-03
	Deck Door Engine	0	0	0	0	0	0	0	0	0	0	4.81E-02	1.06E-02	1.04E-02	1.18E-01	3.15E-03	3.02E-03
	Generator	0	0	0	0	0	0	0	0	0	0	2.45E-01	8.79E-02	8.65E-02	5.46E-01	1.95E-02	1.86E-02
	Hoist Swing Winch	0	0	0	0	0	0	0	0	0	0	8.20E-02	2.84E-02	2.79E-02	1.83E-01	6.47E-03	6.19E-03
	Hoist Swing Pump	0	0	0	0	0	0	0	0	0	0	2.41E-01	6.47E-02	6.37E-02	5.56E-01	1.75E-02	1.67E-02
	Vibratory Hammer	0	0	0	0	0	0	0	0	0	0	1.07E-01	3.02E-02	2.97E-02	3.19E-01	1.15E-02	1.10E-02
	Pile Hammer	0	0	0	0	0	0	0	0	0	0	1.78E-02	5.04E-03	4.96E-03	5.32E-02	1.91E-03	1.83E-03
	Supply Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tug Boat	0	0	0	0	0	0	0	0	0	0	2.55E-01	1.68E-02	1.65E-02	3.02E-01	7.49E-03	6.67E-03
	Dive Boat	0	0	0	0	0	0	0	0	0	0	3.61E-01	2.37E-02	2.34E-02	4.28E-01	1.06E-02	9.40E-03
exhaust	Delivery Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	1.21E-03	5.22E-04	5.14E-04	2.00E-02	8.49E-05	8.13E-05
brake wear	Delivery Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.60E-04	2.40E-04
tire wear	Delivery Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.16E-05	1.29E-05
entrained road dust	Delivery Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.25E-04	1.24E-04
exhaust	Delivery Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	8.49E-05	2.85E-05	2.80E-05	5.77E-04	1.20E-06	1.15E-06
brake wear	Delivery Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.31E-06	1.85E-06
tire wear	Delivery Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.97E-07	9.92E-08
entrained road dust	Delivery Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.41E-04	6.62E-05
Dredging - Ocean Disposal	Derrick Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Barge Crane	0	0	0	0	0	0	0	0	0	0	1.27E-02	2.78E-03	2.74E-03	1.41E-02	4.23E-04	4.05E-04
	Deck Door Engine	0	0	0	0	0	0	0	0	0	0	1.13E-02	2.50E-03	2.46E-03	2.79E-02	7.43E-04	7.11E-04
	Dredger (Clam Shell)	0	0	0	0	0	0	0	0	0	0	4.47E-02	1.61E-02	1.58E-02	1.02E-01	3.59E-03	3.44E-03
	Generator	0	0	0	0	0	0	0	0	0	0	5.78E-02	2.07E-02	2.04E-02	1.29E-01	4.59E-03	4.39E-03
	Hoist Swing Winch	0	0	0	0	0	0	0	0	0	0	1.93E-02	6.69E-03	6.59E-03	4.32E-02	1.52E-03	1.46E-03
	Hoist Swing Pump	0	0	0	0	0	0	0	0	0	0	5.68E-02	1.53E-02	1.50E-02	1.31E-01	4.12E-03	3.94E-03
	Tug Boat	0	0	0	0	0	0	0	0	0	0	5.47E-02	3.59E-03	3.53E-03	6.48E-02	1.61E-03	1.43E-03
	Clam Bucket	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dump Scows	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Generator	0	0	0	0	0	0	0	0	0	0	5.26E-03	1.88E-03	1.85E-03	1.17E-02	4.18E-04	3.99E-04
	Tug Boat	0	0	0	0	0	0	0	0	0	0	4.82E-01	3.16E-02	3.11E-02	5.70E-01	1.41E-02	1.26E-02
exhaust	Worker Commute (offsite)	0	0	0	0	0	0	0	0	0	0	1.69E-03	2.16E-04	1.93E-04	1.51E-04	3.33E-06	3.07E-06
brake wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.61E-05	1.98E-05
tire wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.00E-05	2.51E-06
entrained road dust	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.41E-04	3.62E-05
Dredging - Upland Disposal	Derrick Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Barge Crane	0	0	0	0	0	0	0	0	0	0	4.44E-02	9.74E-03	9.58E-03	4.92E-02	1.48E-03	1.42E-03
	Deck Door Engine	0	0	0	0	0	0	0	0	0	0	3.96E-02	8.75E-03	8.61E-03	9.76E-02	2.60E-03	2.49E-03
	Dredger (Clam Shell)	0	0	0	0	0	0	0	0	0	0	7.82E-02	2.81E-02	2.77E-02	1.78E-01	6.28E-03	6.01E-03
	Generator	0	0	0	0	0	0	0	0	0	0	2.02E-01	7.25E-02	7.14E-02	4.50E-01	1.61E-02	1.54E-02
	Hoist Swing Winch	0	0	0	0	0	0	0	0	0	0	6.77E-02	2.34E-02	2.31E-02	1.51E-01	5.34E-03	5.11E-03
	Hoist Swing Pump	0	0	0	0	0	0	0	0	0	0	1.99E-01	5.34E-02	5.26E-02	4.59E-01	1.44E-02	1.38E-02
	Tug Boat	0	0	0	0	0	0	0	0	0	0	1.92E-01	1.26E-02	1.24E-02	2.27E-01	5.62E-03	5.00E-03
	Clam Bucket	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dump Scows	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tug Boat	0	0	0	0	0	0	0	0	0	0	1.92E-01	1.26E-02	1.24E-02	2.27E-01	5.62E-03	5.00E-03
	Excavator	0	0	0	0	0	0	0	0	0	0	5.86E-02	9.90E-03	9.74E-03	3.76E-02	3.32E-04	3.18E-04
exhaust	Haul Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	2.37E-02	1.02E-02	1.00E-02	3.89E-01	1.66E-03	1.58E-03
brake wear	Haul Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.09E-02	4.68E-03
tire wear	Haul Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.01E-03	2.51E-04
entrained road dust	Haul Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.61E-02	2.41E-03
exhaust	Haul Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	1.13E-03	3.80E-04	3.74E-04	7.69E-03	1.61E-05	1.54E-05
brake wear	Haul Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.75E-05	2.46E-05
tire wear	Haul Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.29E-06	1.32E-06
entrained road dust	Haul Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.88E-03	8.83E-04
exhaust	Worker Commute (offsite)	0	0	0	0	0	0	0	0	0	0	5.82E-03	7.41E-04	6.63E-04	5.20E-04	1.14E-05	1.05E-05
brake wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.58E-04	6.79E-05
tire wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.45E-05	8.62E-06
entrained road dust	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.28E-04	1.24E-04

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
	Phase 1 Total - Ocean Disposal	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*2.22*	*0.40*	*0.40*	*3.83*	*0.12*	*0.11*
	Off-road Construction Equipment Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1.07*	*0.33*	*0.32*	*2.44*	*0.08*	*0.08*
	Marine Source Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1.15*	*0.08*	*0.07*	*1.37*	*0.03*	*0.03*
	On-Road Construction Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.02*	*0.00*	*0.00*
	Worker Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (VOC)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (Dust)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Phase 1 Total - Upland Disposal	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*2.58*	*0.54*	*0.54*	*5.01*	*0.18*	*0.15*
	Off-road Construction Equipment Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1.55*	*0.47*	*0.46*	*3.41*	*0.11*	*0.11*
	Marine Source Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1.00*	*0.07*	*0.06*	*1.18*	*0.03*	*0.03*
	On-Road Construction Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.03*	*0.01*	*0.01*	*0.42*	*0.04*	*0.01*
	Worker Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.01*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (VOC)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (Dust)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Phase 2: Berths 226-229 Dredging 37,000 cy																	
Sheet & King Pile Installation	Derrick Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Compressor	0	0	0	0	0	0	0	0	0	0	9.46E-02	3.20E-02	3.15E-02	2.12E-01	7.42E-03	7.10E-03
	Barge Crane	0	0	0	0	0	0	0	0	0	0	7.69E-02	1.69E-02	1.66E-02	8.52E-02	2.57E-03	2.45E-03
	Deck Door Engine	0	0	0	0	0	0	0	0	0	0	6.86E-02	1.51E-02	1.49E-02	1.69E-01	4.51E-03	4.31E-03
	Generator	0	0	0	0	0	0	0	0	0	0	3.50E-01	1.26E-01	1.24E-01	7.80E-01	2.78E-02	2.66E-02
	Hoist Swing Winch	0	0	0	0	0	0	0	0	0	0	1.17E-01	4.06E-02	3.99E-02	2.62E-01	9.24E-03	8.84E-03
	Hoist Swing Pump	0	0	0	0	0	0	0	0	0	0	3.44E-01	9.25E-02	9.10E-02	7.95E-01	2.50E-02	2.39E-02
	Vibratory Hammer	0	0	0	0	0	0	0	0	0	0	1.53E-01	4.32E-02	4.25E-02	4.56E-01	1.64E-02	1.57E-02
	Pile Hammer	0	0	0	0	0	0	0	0	0	0	2.54E-02	7.20E-03	7.08E-03	7.60E-02	2.73E-03	2.62E-03
	Jet Pump	0	0	0	0	0	0	0	0	0	0	1.33E-01	1.87E-02	1.84E-02	2.01E-01	1.53E-02	1.46E-02
	Supply Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tug Boat	0	0	0	0	0	0	0	0	0	0	3.65E-01	2.39E-02	2.36E-02	4.32E-01	1.07E-02	9.52E-03
	Dive Boat	0	0	0	0	0	0	0	0	0	0	5.15E-01	3.39E-02	3.34E-02	6.12E-01	1.51E-02	1.34E-02
exhaust	Delivery Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	1.21E-03	5.22E-04	5.14E-04	2.00E-02	8.49E-05	8.13E-05
brake wear	Delivery Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.60E-04	2.40E-04
tire wear	Delivery Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.16E-05	1.29E-05
entrained road dust	Delivery Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.25E-04	1.24E-04
exhaust	Delivery Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	8.49E-05	2.85E-05	2.80E-05	5.77E-04	1.20E-06	1.15E-06
brake wear	Delivery Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.31E-06	1.85E-06
tire wear	Delivery Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.97E-07	9.92E-08
entrained road dust	Delivery Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.41E-04	6.62E-05
exhaust	Delivery Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	2.83E-03	1.22E-03	1.20E-03	4.66E-02	1.98E-04	1.90E-04
brake wear	Delivery Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.31E-03	5.60E-04
tire wear	Delivery Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.20E-04	3.01E-05
entrained road dust	Delivery Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.93E-03	2.89E-04
exhaust	Delivery Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	1.98E-04	6.65E-05	6.54E-05	1.35E-03	2.81E-06	2.69E-06
brake wear	Delivery Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.01E-05	4.31E-06
tire wear	Delivery Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	9.26E-07	2.31E-07
entrained road dust	Delivery Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.03E-03	1.54E-04
Dredging - Ocean Disposal	Derrick Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Barge Crane	0	0	0	0	0	0	0	0	0	0	4.66E-02	1.02E-02	1.00E-02	5.16E-02	1.55E-03	1.49E-03
	Deck Door Engine	0	0	0	0	0	0	0	0	0	0	4.15E-02	9.17E-03	9.02E-03	1.02E-01	2.73E-03	2.61E-03
	Dredger (Clam Shell)	0	0	0	0	0	0	0	0	0	0	1.64E-01	5.89E-02	5.80E-02	3.74E-01	1.32E-02	1.26E-02
	Generator	0	0	0	0	0	0	0	0	0	0	2.12E-01	7.60E-02	7.48E-02	4.72E-01	1.68E-02	1.61E-02
	Hoist Swing Winch	0	0	0	0	0	0	0	0	0	0	7.09E-02	2.45E-02	2.42E-02	1.59E-01	5.59E-03	5.35E-03
	Hoist Swing Pump	0	0	0	0	0	0	0	0	0	0	2.08E-01	5.60E-02	5.51E-02	4.81E-01	1.51E-02	1.45E-02
	Tug Boat	0	0	0	0	0	0	0	0	0	0	2.01E-01	1.32E-02	1.30E-02	2.38E-01	5.89E-03	5.24E-03
	Clam Bucket	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dump Scows	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Generator	0	0	0	0	0	0	0	0	0	0	1.93E-02	6.91E-03	6.80E-03	4.29E-02	1.53E-03	1.46E-03
	Tug Boat	0	0	0	0	0	0	0	0	0	0	1.77E+00	1.16E-01	1.14E-01	2.09E+00	5.18E-02	4.61E-02
exhaust	Worker Commute (offsite)	0	0	0	0	0	0	0	0	0	0	6.90E-03	8.79E-04	7.86E-04	6.17E-04	1.36E-05	1.25E-05
brake wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.88E-04	8.06E-05
tire wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.09E-05	1.02E-05
entrained road dust	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	9.82E-04	1.47E-04
Dredging - Upland Disposal	Derrick Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
	Barge Crane	0	0	0	0	0	0	0	0	0	0	7.83E-02	1.72E-02	1.69E-02	8.67E-02	2.61E-03	2.50E-03
	Deck Door Engine	0	0	0	0	0	0	0	0	0	0	6.98E-02	1.54E-02	1.52E-02	1.72E-01	4.58E-03	4.39E-03
	Dredger (Clam Shell)	0	0	0	0	0	0	0	0	0	0	1.38E-01	4.95E-02	4.88E-02	3.14E-01	1.11E-02	1.06E-02
	Generator	0	0	0	0	0	0	0	0	0	0	3.57E-01	1.28E-01	1.26E-01	7.94E-01	2.83E-02	2.71E-02
	Hoist Swing Winch	0	0	0	0	0	0	0	0	0	0	1.19E-01	4.13E-02	4.06E-02	2.67E-01	9.40E-03	9.00E-03
	Hoist Swing Pump	0	0	0	0	0	0	0	0	0	0	3.50E-01	9.41E-02	9.26E-02	8.09E-01	2.54E-02	2.43E-02
	Tug Boat	0	0	0	0	0	0	0	0	0	0	3.37E-01	2.21E-02	2.18E-02	4.00E-01	9.90E-03	8.81E-03
	Clam Bucket	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dump Scows	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tug Boat	0	0	0	0	0	0	0	0	0	0	3.37E-01	2.21E-02	2.18E-02	4.00E-01	9.90E-03	8.81E-03
	Excavator	0	0	0	0	0	0	0	0	0	0	1.03E-01	1.74E-02	1.72E-02	6.63E-02	5.85E-04	5.60E-04
exhaust	Haul Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	1.09E-01	4.71E-02	4.63E-02	1.80E+00	7.66E-03	7.33E-03
brake wear	Haul Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.05E-02	2.16E-02
tire wear	Haul Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.65E-03	1.16E-03
entrained road dust	Haul Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	7.44E-02	1.12E-02
exhaust	Haul Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	5.23E-03	1.76E-03	1.73E-03	3.56E-02	7.43E-05	7.11E-05
brake wear	Haul Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.66E-04	1.14E-04
tire wear	Haul Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.45E-05	6.12E-06
entrained road dust	Haul Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.72E-02	4.08E-03
exhaust	Worker Commute (offsite)	0	0	0	0	0	0	0	0	0	0	1.12E-02	1.43E-03	1.28E-03	1.00E-03	2.21E-05	2.03E-05
brake wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.06E-04	1.31E-04
tire wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.66E-05	1.67E-05
entrained road dust	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.60E-03	2.40E-04
Phase 2 Total - Ocean Disposal		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*4.98*	*0.82*	*0.81*	*8.16*	*0.26*	*0.24*
Off-road Construction Equipment Exhaust		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*2.13*	*0.63*	*0.62*	*4.72*	*0.17*	*0.16*
Marine Source Exhaust		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*2.85*	*0.19*	*0.18*	*3.37*	*0.08*	*0.07*
On-Road Construction Vehicles		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.07*	*0.01*	*0.00*
Worker Vehicles		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.01*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Fugitive Emissions (VOC)		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Fugitive Emissions (Dust)		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Phase 2 Total - Upland Disposal		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*4.26*	*0.91*	*0.89*	*9.29*	*0.41*	*0.27*
Off-road Construction Equipment Exhaust		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*2.58*	*0.75*	*0.74*	*5.54*	*0.19*	*0.18*
Marine Source Exhaust		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1.56*	*0.10*	*0.10*	*1.84*	*0.05*	*0.04*
On-Road Construction Vehicles		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.12*	*0.05*	*0.05*	*1.90*	*0.17*	*0.05*
Worker Vehicles		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.01*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Fugitive Emissions (VOC)		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Fugitive Emissions (Dust)		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Phase 3: Install Electrical Substation and Feeder Cable Conduit																	
Electrical substation, feeder cable conduits, cable horn boxes																	
	Sawcutter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Backhoe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Haul Trucks - soil (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Haul Trucks - soil (onsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-				-	-	-	-	0	0
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-				-	-	-	-	0	0
	Vibrating Compactor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
exhaust	Slurry Truck (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
brake wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Slurry Truck (onsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
	Forklift	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
exhaust	Concrete Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Concrete Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Equipment Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Equipment Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Equipment Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Equipment Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
	Crane	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
exhaust	Worker Commute (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
DWP new service	Equipment Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Equipment Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
	Phase 3 Total	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Off-road Construction Equipment Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Marine Source Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	On-Road Construction Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Worker Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (VOC)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (Dust)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Phase 4: AMP																	
Install 5 AMP boxes																	
Box 1	Sawcutter	0	0	0	0	0	0	0	0	0	0	1.39E-02	2.34E-03	2.31E-03	8.91E-03	7.86E-05	7.52E-05
	Backhoe	0	0	0	0	0	0	0	0	0	0	3.20E-02	5.40E-03	5.32E-03	2.06E-02	1.81E-04	1.73E-04
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	5.73E-04	2.46E-04	2.43E-04	9.41E-03	4.01E-05	3.83E-05
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.64E-04	1.13E-04
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.43E-05	6.08E-06
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.89E-04	5.84E-05
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	1.30E-04	4.37E-05	4.30E-05	8.84E-04	1.85E-06	1.77E-06

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.61E-06	2.83E-06
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.08E-07	1.52E-07
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.76E-04	1.01E-04
exhaust	Haul Trucks - soil (offsite)	0	0	0	0	0	0	0	0	0	0	6.04E-03	2.60E-03	2.55E-03	9.92E-02	4.22E-04	4.04E-04
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.78E-03	1.19E-03
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.56E-04	6.41E-05
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.10E-03	6.15E-04
exhaust	Haul Trucks - soil (onsite)	0	0	0	0	0	0	0	0	0	0	2.89E-04	9.69E-05	9.53E-05	1.96E-03	4.10E-06	3.92E-06
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.47E-05	6.28E-06
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.35E-06	3.37E-07
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.50E-03	2.25E-04
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.15E-04	1.73E-05
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.15E-04	1.73E-05
exhaust	Slurry Truck (offsite)	0	0	0	0	0	0	0	0	0	0	7.75E-03	3.34E-03	3.28E-03	1.27E-01	5.42E-04	5.19E-04
brake wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.58E-03	1.53E-03
tire wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.29E-04	8.23E-05
entrained road dust	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.27E-03	7.91E-04
exhaust	Slurry Truck (onsite)	0	0	0	0	0	0	0	0	0	0	7.04E-04	2.36E-04	2.33E-04	4.79E-03	1.00E-05	9.57E-06
brake wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.58E-05	1.53E-05
tire wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.29E-06	8.23E-07
entrained road dust	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.66E-03	5.49E-04
exhaust	Concrete Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	1.21E-04	5.22E-05	5.14E-05	2.00E-03	8.49E-06	8.13E-06
brake wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.60E-05	2.40E-05
tire wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.16E-06	1.29E-06
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.25E-05	1.24E-05
exhaust	Concrete Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	8.49E-06	2.85E-06	2.80E-06	5.77E-05	1.20E-07	1.15E-07
brake wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.31E-07	1.85E-07
tire wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.97E-08	9.92E-09
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.41E-05	6.62E-06
	Crane	0	0	0	0	0	0	0	0	0	0	2.82E-02	4.76E-03	4.68E-03	1.81E-02	1.60E-04	1.53E-04
exhaust	Equipment Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	2.52E-04	1.08E-04	1.07E-04	4.14E-03	1.76E-05	1.69E-05
brake wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.16E-04	4.98E-05
tire wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.07E-05	2.68E-06
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.71E-04	2.57E-05
exhaust	Equipment Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	5.72E-05	1.92E-05	1.89E-05	3.89E-04	8.12E-07	7.77E-07
brake wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.91E-06	1.25E-06
tire wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.68E-07	6.69E-08
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.97E-04	4.46E-05
Box 2	Sawcutter	0	0	0	0	0	0	0	0	0	0	1.39E-02	2.34E-03	2.31E-03	8.91E-03	7.86E-05	7.52E-05
	Backhoe	0	0	0	0	0	0	0	0	0	0	3.44E-02	5.81E-03	5.71E-03	2.21E-02	1.95E-04	1.86E-04
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	5.73E-04	2.46E-04	2.43E-04	9.41E-03	4.01E-05	3.83E-05
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.64E-04	1.13E-04
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.43E-05	6.08E-06
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.89E-04	5.84E-05
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	1.30E-04	4.37E-05	4.30E-05	8.84E-04	1.85E-06	1.77E-06
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.61E-06	2.83E-06
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.08E-07	1.52E-07
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.76E-04	1.01E-04
exhaust	Haul Trucks - soil (offsite)	0	0	0	0	0	0	0	0	0	0	6.04E-03	2.60E-03	2.55E-03	9.92E-02	4.22E-04	4.04E-04
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.78E-03	1.19E-03
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.56E-04	6.41E-05
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.10E-03	6.15E-04
exhaust	Haul Trucks - soil (onsite)	0	0	0	0	0	0	0	0	0	0	2.89E-04	9.69E-05	9.53E-05	1.96E-03	4.10E-06	3.92E-06
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.47E-05	6.28E-06
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.35E-06	3.37E-07
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.50E-03	2.25E-04
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.15E-04	1.73E-05
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.15E-04	1.73E-05
exhaust	Slurry Truck (offsite)	0	0	0	0	0	0	0	0	0	0	7.75E-03	3.34E-03	3.28E-03	1.27E-01	5.42E-04	5.19E-04
brake wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.58E-03	1.53E-03
tire wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.29E-04	8.23E-05

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
entrained road dust	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.27E-03	7.91E-04
exhaust	Slurry Truck (onsite)	0	0	0	0	0	0	0	0	0	0	7.04E-04	2.36E-04	2.33E-04	4.79E-03	1.00E-05	9.57E-06
brake wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.58E-05	1.53E-05
tire wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.29E-06	8.23E-07
entrained road dust	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.66E-03	5.49E-04
exhaust	Concrete Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	1.21E-04	5.22E-05	5.14E-05	2.00E-03	8.49E-06	8.13E-06
brake wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.60E-05	2.40E-05
tire wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.16E-06	1.29E-06
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.25E-05	1.24E-05
exhaust	Concrete Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	8.49E-06	2.85E-06	2.80E-06	5.77E-05	1.20E-07	1.15E-07
brake wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.31E-07	1.85E-07
tire wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.97E-08	9.92E-09
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.41E-05	6.62E-06
	Crane	0	0	0	0	0	0	0	0	0	0	2.56E-02	4.32E-03	4.25E-03	1.64E-02	1.45E-04	1.39E-04
exhaust	Equipment Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	2.41E-04	1.03E-04	1.02E-04	3.95E-03	1.68E-05	1.61E-05
brake wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.11E-04	4.76E-05
tire wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.02E-05	2.55E-06
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.63E-04	2.45E-05
exhaust	Equipment Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	5.46E-05	1.83E-05	1.80E-05	3.71E-04	7.75E-07	7.42E-07
brake wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.77E-06	1.19E-06
tire wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.55E-07	6.39E-08
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.84E-04	4.26E-05
Box 3	Sawcutter	0	0	0	0	0	0	0	0	0	0	1.26E-02	2.13E-03	2.10E-03	8.10E-03	7.15E-05	6.84E-05
	Backhoe	0	0	0	0	0	0	0	0	0	0	3.32E-02	5.60E-03	5.52E-03	2.13E-02	1.88E-04	1.80E-04
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	5.73E-04	2.46E-04	2.43E-04	9.41E-03	4.01E-05	3.83E-05
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.64E-04	1.13E-04
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.43E-05	6.08E-06
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.89E-04	5.84E-05
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	1.30E-04	4.37E-05	4.30E-05	8.84E-04	1.85E-06	1.77E-06
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.61E-06	2.83E-06
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.08E-07	1.52E-07
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.76E-04	1.01E-04
exhaust	Haul Trucks - soil (offsite)	0	0	0	0	0	0	0	0	0	0	6.04E-03	2.60E-03	2.55E-03	9.92E-02	4.22E-04	4.04E-04
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.78E-03	1.19E-03
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.56E-04	6.41E-05
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.10E-03	6.15E-04
exhaust	Haul Trucks - soil (onsite)	0	0	0	0	0	0	0	0	0	0	2.89E-04	9.69E-05	9.53E-05	1.96E-03	4.10E-06	3.92E-06
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.47E-05	6.28E-06
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.35E-06	3.37E-07
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.50E-03	2.25E-04
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.15E-04	1.73E-05
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.15E-04	1.73E-05
exhaust	Slurry Truck (offsite)	0	0	0	0	0	0	0	0	0	0	7.75E-03	3.34E-03	3.28E-03	1.27E-01	5.42E-04	5.19E-04
brake wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.58E-03	1.53E-03
tire wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.29E-04	8.23E-05
entrained road dust	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.27E-03	7.91E-04
exhaust	Slurry Truck (onsite)	0	0	0	0	0	0	0	0	0	0	7.04E-04	2.36E-04	2.33E-04	4.79E-03	1.00E-05	9.57E-06
brake wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.58E-05	1.53E-05
tire wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.29E-06	8.23E-07
entrained road dust	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.66E-03	5.49E-04
exhaust	Concrete Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	1.21E-04	5.22E-05	5.14E-05	2.00E-03	8.49E-06	8.13E-06
brake wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.60E-05	2.40E-05
tire wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.16E-06	1.29E-06
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.25E-05	1.24E-05
exhaust	Concrete Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	8.49E-06	2.85E-06	2.80E-06	5.77E-05	1.20E-07	1.15E-07
brake wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.31E-07	1.85E-07
tire wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.97E-08	9.92E-09
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.41E-05	6.62E-06
	Crane	0	0	0	0	0	0	0	0	0	0	3.07E-02	5.19E-03	5.11E-03	1.97E-02	1.74E-04	1.67E-04
exhaust	Equipment Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	2.41E-04	1.03E-04	1.02E-04	3.95E-03	1.68E-05	1.61E-05
brake wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.11E-04	4.76E-05

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
tire wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.02E-05	2.55E-06
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.63E-04	2.45E-05
exhaust	Equipment Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	5.46E-05	1.83E-05	1.80E-05	3.71E-04	7.75E-07	7.42E-07
brake wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.77E-06	1.19E-06
tire wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.55E-07	6.39E-08
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.84E-04	4.26E-05
Box 4	Sawcutter	0	0	0	0	0	0	0	0	0	0	1.26E-02	2.13E-03	2.10E-03	8.10E-03	7.15E-05	6.84E-05
	Backhoe	0	0	0	0	0	0	0	0	0	0	3.08E-02	5.20E-03	5.12E-03	1.98E-02	1.75E-04	1.67E-04
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	5.73E-04	2.46E-04	2.43E-04	9.41E-03	4.01E-05	3.83E-05
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.64E-04	1.13E-04
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.43E-05	6.08E-06
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.89E-04	5.84E-05
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	1.30E-04	4.37E-05	4.30E-05	8.84E-04	1.85E-06	1.77E-06
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.61E-06	2.83E-06
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.08E-07	1.52E-07
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.76E-04	1.01E-04
exhaust	Haul Trucks - soil (offsite)	0	0	0	0	0	0	0	0	0	0	6.04E-03	2.60E-03	2.55E-03	9.92E-02	4.22E-04	4.04E-04
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.78E-03	1.19E-03
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.56E-04	6.41E-05
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.10E-03	6.15E-04
exhaust	Haul Trucks - soil (onsite)	0	0	0	0	0	0	0	0	0	0	2.89E-04	9.69E-05	9.53E-05	1.96E-03	4.10E-06	3.92E-06
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.47E-05	6.28E-06
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.35E-06	3.37E-07
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.50E-03	2.25E-04
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.15E-04	1.73E-05
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.15E-04	1.73E-05
exhaust	Slurry Truck (offsite)	0	0	0	0	0	0	0	0	0	0	7.75E-03	3.34E-03	3.28E-03	1.27E-01	5.42E-04	5.19E-04
brake wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.58E-03	1.53E-03
tire wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.29E-04	8.23E-05
entrained road dust	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.27E-03	7.91E-04
exhaust	Slurry Truck (onsite)	0	0	0	0	0	0	0	0	0	0	7.04E-04	2.36E-04	2.33E-04	4.79E-03	1.00E-05	9.57E-06
brake wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.58E-05	1.53E-05
tire wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.29E-06	8.23E-07
entrained road dust	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.66E-03	5.49E-04
exhaust	Concrete Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	1.21E-04	5.22E-05	5.14E-05	2.00E-03	8.49E-06	8.13E-06
brake wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.60E-05	2.40E-05
tire wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.16E-06	1.29E-06
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.25E-05	1.24E-05
exhaust	Concrete Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	8.49E-06	2.85E-06	2.80E-06	5.77E-05	1.20E-07	1.15E-07
brake wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.31E-07	1.85E-07
tire wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.97E-08	9.92E-09
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.41E-05	6.62E-06
	Crane	0	0	0	0	0	0	0	0	0	0	3.07E-02	5.19E-03	5.11E-03	1.97E-02	1.74E-04	1.67E-04
exhaust	Equipment Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	2.63E-04	1.13E-04	1.12E-04	4.33E-03	1.84E-05	1.76E-05
brake wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.22E-04	5.21E-05
tire wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.12E-05	2.80E-06
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.79E-04	2.69E-05
exhaust	Equipment Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	5.98E-05	2.01E-05	1.98E-05	4.07E-04	8.49E-07	8.13E-07
brake wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.04E-06	1.30E-06
tire wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.80E-07	6.99E-08
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.11E-04	4.67E-05
Box 5	Sawcutter	0	0	0	0	0	0	0	0	0	0	1.39E-02	2.34E-03	2.31E-03	8.91E-03	7.86E-05	7.52E-05
	Backhoe	0	0	0	0	0	0	0	0	0	0	3.20E-02	5.40E-03	5.32E-03	2.06E-02	1.81E-04	1.73E-04
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	5.73E-04	2.46E-04	2.43E-04	9.41E-03	4.01E-05	3.83E-05
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.64E-04	1.13E-04
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.43E-05	6.08E-06
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.89E-04	5.84E-05
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	1.30E-04	4.37E-05	4.30E-05	8.84E-04	1.85E-06	1.77E-06
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.61E-06	2.83E-06
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.08E-07	1.52E-07
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.76E-04	1.01E-04

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
exhaust	Haul Trucks - soil (offsite)	0	0	0	0	0	0	0	0	0	0	6.04E-03	2.60E-03	2.55E-03	9.92E-02	4.22E-04	4.04E-04
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.78E-03	1.19E-03
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.56E-04	6.41E-05
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.10E-03	6.15E-04
exhaust	Haul Trucks - soil (onsite)	0	0	0	0	0	0	0	0	0	0	2.89E-04	9.69E-05	9.53E-05	1.96E-03	4.10E-06	3.92E-06
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.47E-05	6.28E-06
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.35E-06	3.37E-07
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.50E-03	2.25E-04
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.15E-04	1.73E-05
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.15E-04	1.73E-05
exhaust	Slurry Truck (offsite)	0	0	0	0	0	0	0	0	0	0	7.75E-03	3.34E-03	3.28E-03	1.27E-01	5.42E-04	5.19E-04
brake wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.58E-03	1.53E-03
tire wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.29E-04	8.23E-05
entrained road dust	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.27E-03	7.91E-04
exhaust	Slurry Truck (onsite)	0	0	0	0	0	0	0	0	0	0	7.04E-04	2.36E-04	2.33E-04	4.79E-03	1.00E-05	9.57E-06
brake wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.58E-05	1.53E-05
tire wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.29E-06	8.23E-07
entrained road dust	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.66E-03	5.49E-04
exhaust	Concrete Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	1.21E-04	5.22E-05	5.14E-05	2.00E-03	8.49E-06	8.13E-06
brake wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.60E-05	2.40E-05
tire wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.16E-06	1.29E-06
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.25E-05	1.24E-05
exhaust	Concrete Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	8.49E-06	2.85E-06	2.80E-06	5.77E-05	1.20E-07	1.15E-07
brake wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.31E-07	1.85E-07
tire wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.97E-08	9.92E-09
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.41E-05	6.62E-06
	Crane	0	0	0	0	0	0	0	0	0	0	2.82E-02	4.76E-03	4.68E-03	1.81E-02	1.60E-04	1.53E-04
exhaust	Equipment Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	6.87E-05	2.96E-05	2.91E-05	1.13E-03	4.81E-06	4.60E-06
brake wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.17E-05	1.36E-05
tire wear	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.92E-06	7.30E-07
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.67E-05	7.01E-06
exhaust	Equipment Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	1.56E-05	5.24E-06	5.16E-06	1.06E-04	2.22E-07	2.12E-07
brake wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	7.93E-07	3.40E-07
tire wear	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	7.30E-08	1.82E-08
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.11E-05	1.22E-05
exhaust	Worker Commute (offsite)	0	0	0	0	0	0	0	0	0	0	1.70E-02	2.17E-03	1.94E-03	1.52E-03	3.35E-05	3.09E-05
brake wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.64E-04	1.99E-04
tire wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.01E-04	2.53E-05
entrained road dust	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.42E-03	3.64E-04
	Phase 4 Total	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.47*	*0.10*	*0.10*	*1.49*	*0.13*	*0.04*
	Off-road Construction Equipment Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.37*	*0.06*	*0.06*	*0.24*	*0.00*	*0.00*
	Marine Source Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	On-Road Construction Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.08*	*0.03*	*0.03*	*1.25*	*0.12*	*0.03*
	Worker Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.02*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (VOC)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (Dust)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Phase 5: Parcel H																	
Parcel H Development																	
(1.5 acres)	Excavator	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - soil (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Haul Trucks - soil (onsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
	Backhoe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Grading Machine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
Grading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
	Water Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - base CMB (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - base CMB (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Haul Trucks - base CMB (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Haul Trucks - base CMB (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Haul Trucks - base CMB (onsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - base CMB (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Haul Trucks - base CMB (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Haul Trucks - base CMB (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
	Roller	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Skip Loader	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
	Roller	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paving	fugitive VOC	-	0	0	-	-	-	-				-	0	0	-	-	-
	Skip Loader	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tack coat sprayer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Striping Machine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
exhaust	Concrete Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Concrete Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
	Crane	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
exhaust	Worker Commute (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
	Phase 5 Total	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Off-road Construction Equipment Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Marine Source Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	On-Road Construction Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Worker Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (VOC)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (Dust)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Phase 6: Entrace Gate Development																	
Construction & Demolition of the Main Gate																	
Realignment of Cannery Street & Terminal Way	Excavator	5.42E-02	9.15E-03	9.01E-03	3.48E-02	3.07E-04	2.94E-04	1.32E-04	1.06E+01	5.64E-04	0.00E+00	1.11E-01	1.87E-02	1.84E-02	7.13E-02	6.29E-04	6.02E-04
	Backhoe	2.50E-02	4.23E-03	4.16E-03	1.61E-02	1.42E-04	1.36E-04	6.34E-05	4.91E+00	3.72E-04	0.00E+00	5.13E-02	8.66E-03	8.52E-03	3.29E-02	2.90E-04	2.78E-04
	Sawcutter	0	0	0	0	0	0	0	0	0	0	5.46E-02	9.22E-03	9.07E-03	3.50E-02	3.09E-04	2.96E-04
	Excavator	0	0	0	0	0	0	0	0	0	0	1.68E-01	2.83E-02	2.79E-02	1.08E-01	9.51E-04	9.10E-04
	Backhoe	0	0	0	0	0	0	0	0	0	0	7.75E-02	1.31E-02	1.29E-02	4.98E-02	4.39E-04	4.20E-04
Grading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.22E-03	6.71E-04
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	7.35E-03	3.16E-03	3.11E-03	1.21E-01	5.14E-04	4.92E-04
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.39E-03	1.45E-03
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.12E-04	7.80E-05
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.00E-03	7.49E-04
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	1.67E-03	5.60E-04	5.51E-04	1.13E-02	2.37E-05	2.27E-05
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.48E-05	3.63E-05

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	7.80E-06	1.95E-06
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.68E-03	1.30E-03
exhaust	Slurry Truck (offsite)	0	0	0	0	0	0	0	0	0	0	1.51E-02	6.51E-03	6.41E-03	2.49E-01	1.06E-03	1.01E-03
brake wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.98E-03	2.99E-03
tire wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.43E-04	1.61E-04
entrained road dust	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.03E-02	1.54E-03
exhaust	Slurry Truck (onsite)	0	0	0	0	0	0	0	0	0	0	1.37E-03	4.61E-04	4.54E-04	9.34E-03	1.95E-05	1.87E-05
brake wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.98E-05	2.99E-05
tire wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.43E-06	1.61E-06
entrained road dust	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	7.15E-03	1.07E-03
	Water Truck	0	0	0	0	0	0	0	0	0	0	4.06E-01	6.86E-02	6.75E-02	2.61E-01	2.30E-03	2.20E-03
	Forklift	0	0	0	0	0	0	0	0	0	0	2.83E-02	4.78E-03	4.71E-03	1.82E-02	1.61E-04	1.54E-04
exhaust	Concrete Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	1.38E-03	5.92E-04	5.83E-04	2.26E-02	9.63E-05	9.21E-05
brake wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.35E-04	2.72E-04
tire wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.85E-05	1.46E-05
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	9.36E-04	1.40E-04
exhaust	Concrete Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	9.62E-05	3.23E-05	3.18E-05	6.54E-04	1.37E-06	1.31E-06
brake wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.88E-06	2.09E-06
tire wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.50E-07	1.12E-07
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.00E-04	7.50E-05
exhaust	Haul Trucks - base CMB (offsite)	0	0	0	0	0	0	0	0	0	0	7.35E-03	3.16E-03	3.11E-03	1.21E-01	5.14E-04	4.92E-04
brake wear	Haul Trucks - base CMB (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.39E-03	1.45E-03
tire wear	Haul Trucks - base CMB (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.12E-04	7.80E-05
entrained road dust	Haul Trucks - base CMB (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.00E-03	7.49E-04
exhaust	Haul Trucks - base CMB (onsite)	0	0	0	0	0	0	0	0	0	0	1.67E-03	5.60E-04	5.51E-04	1.13E-02	2.37E-05	2.27E-05
brake wear	Haul Trucks - base CMB (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.48E-05	3.63E-05
tire wear	Haul Trucks - base CMB (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	7.80E-06	1.95E-06
entrained road dust	Haul Trucks - base CMB (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.68E-03	1.30E-03
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.33E-04	5.04E-05
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.33E-04	5.04E-05
	Roller	0	0	0	0	0	0	0	0	0	0	5.97E-02	1.01E-02	9.93E-03	3.84E-02	3.39E-04	3.24E-04
	Skip Loader	0	0	0	0	0	0	0	0	0	0	5.24E-02	8.86E-03	8.72E-03	3.37E-02	2.97E-04	2.84E-04
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	9.97E-03	4.29E-03	4.22E-03	1.64E-01	6.97E-04	6.67E-04
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.60E-03	1.97E-03
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.23E-04	1.06E-04
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.77E-03	1.02E-03
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	1.13E-03	3.80E-04	3.74E-04	7.69E-03	1.61E-05	1.54E-05
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.75E-05	2.46E-05
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.29E-06	1.32E-06
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.88E-03	8.83E-04
	Roller	0	0	0	0	0	0	0	0	0	0	7.47E-02	1.26E-02	1.24E-02	4.80E-02	4.23E-04	4.05E-04
Paving	fugitive VOC	-	0	0	-	-	-	-				-	1.32E-02	1.32E-02	-	-	-
	Skip Loader	0	0	0	0	0	0	0	0	0	0	6.56E-02	1.11E-02	1.09E-02	4.21E-02	3.72E-04	3.55E-04
	Tack coat sprayer	0	0	0	0	0	0	0	0	0	0	3.22E-04	9.10E-05	8.95E-05	1.60E-03	1.35E-04	1.30E-04
	Tack coat sprayer	0	0	0	0	0	0	0	0	0	0	3.22E-04	9.10E-05	8.95E-05	1.60E-03	1.35E-04	1.30E-04
	Crane	0	0	0	0	0	0	0	0	0	0	1.67E-01	2.83E-02	2.78E-02	1.07E-01	9.48E-04	9.07E-04
	Crane	0	0	0	0	0	0	0	0	0	0	5.92E-02	1.00E-02	9.84E-03	3.80E-02	3.36E-04	3.21E-04
	Striping Machine	0	0	0	0	0	0	0	0	0	0	6.17E-04	1.74E-04	1.72E-04	3.07E-03	2.60E-04	2.48E-04
Vacant Properties	Sawcutter	0	0	0	0	0	0	0	0	0	0	5.46E-02	9.22E-03	9.07E-03	3.50E-02	3.09E-04	2.96E-04
	Excavator	0	0	0	0	0	0	0	0	0	0	1.68E-01	2.83E-02	2.79E-02	1.08E-01	9.51E-04	9.10E-04
Demolition	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	9.48E-04	1.44E-04
	Backhoe	0	0	0	0	0	0	0	0	0	0	7.75E-02	1.31E-02	1.29E-02	4.98E-02	4.39E-04	4.20E-04
Grading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.22E-03	6.71E-04
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	5.99E-03	2.58E-03	2.54E-03	9.84E-02	4.19E-04	4.01E-04
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.76E-03	1.18E-03
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.55E-04	6.36E-05
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.07E-03	6.11E-04
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	1.36E-03	4.57E-04	4.49E-04	9.25E-03	1.93E-05	1.85E-05
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.91E-05	2.96E-05
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.36E-06	1.59E-06
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	7.07E-03	1.06E-03

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
Debris	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.75E-02	2.66E-03
exhaust	Haul Trucks - soil (offsite)	0	0	0	0	0	0	0	0	0	0	5.33E-03	2.29E-03	2.25E-03	8.75E-02	3.72E-04	3.56E-04
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.46E-03	1.05E-03
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.26E-04	5.65E-05
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.62E-03	5.43E-04
exhaust	Haul Trucks - soil (onsite)	0	0	0	0	0	0	0	0	0	0	2.55E-04	8.55E-05	8.41E-05	1.73E-03	3.61E-06	3.46E-06
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.29E-05	5.54E-06
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.19E-06	2.98E-07
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.32E-03	1.99E-04
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.01E-04	1.53E-05
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.01E-04	1.53E-05
	Water Truck	0	0	0	0	0	0	0	0	0	0	4.06E-01	6.86E-02	6.75E-02	2.61E-01	2.30E-03	2.20E-03
	Forklift	0	0	0	0	0	0	0	0	0	0	8.37E-02	1.41E-02	1.39E-02	5.38E-02	4.74E-04	4.54E-04
exhaust	Concrete Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	4.05E-03	1.74E-03	1.71E-03	6.65E-02	2.83E-04	2.71E-04
brake wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.87E-03	8.00E-04
tire wear	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.72E-04	4.30E-05
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.75E-03	4.13E-04
exhaust	Concrete Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	2.83E-04	9.50E-05	9.34E-05	1.92E-03	4.02E-06	3.84E-06
brake wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.44E-05	6.16E-06
tire wear	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.32E-06	3.31E-07
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.47E-03	2.21E-04
	Crane	0	0	0	0	0	0	0	0	0	0	5.41E-02	9.13E-03	8.99E-03	3.47E-02	3.06E-04	2.93E-04
exhaust	Haul Trucks - base CMB (offsite)	0	0	0	0	0	0	0	0	0	0	4.38E-02	1.88E-02	1.85E-02	7.19E-01	3.06E-03	2.93E-03
brake wear	Haul Trucks - base CMB (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.02E-02	8.65E-03
tire wear	Haul Trucks - base CMB (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.86E-03	4.65E-04
entrained road dust	Haul Trucks - base CMB (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.97E-02	4.46E-03
exhaust	Haul Trucks - base CMB (onsite)	0	0	0	0	0	0	0	0	0	0	9.94E-03	3.34E-03	3.28E-03	6.75E-02	1.41E-04	1.35E-04
brake wear	Haul Trucks - base CMB (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.05E-04	2.16E-04
tire wear	Haul Trucks - base CMB (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.65E-05	1.16E-05
entrained road dust	Haul Trucks - base CMB (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.17E-02	7.75E-03
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.98E-03	3.00E-04
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.98E-03	3.00E-04
	Roller	0	0	0	0	0	0	0	0	0	0	1.79E-01	3.03E-02	2.98E-02	1.15E-01	1.02E-03	9.72E-04
	Paving Machine	0	0	0	0	0	0	0	0	0	0	8.13E-02	1.37E-02	1.35E-02	5.22E-02	4.61E-04	4.41E-04
Paving	fugitive VOC	-		0	0	-	-	-	-			-	1.56E-02	1.56E-02	-	-	-
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	3.61E-02	1.55E-02	1.53E-02	5.92E-01	2.52E-03	2.41E-03
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.66E-02	7.13E-03
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.53E-03	3.83E-04
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.45E-02	3.68E-03
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	4.09E-03	1.37E-03	1.35E-03	2.78E-02	5.81E-05	5.56E-05
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.08E-04	8.91E-05
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.91E-05	4.79E-06
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.13E-02	3.19E-03
	Roller	0	0	0	0	0	0	0	0	0	0	1.77E-01	2.98E-02	2.93E-02	1.13E-01	1.00E-03	9.57E-04
	Skip Loader	0	0	0	0	0	0	0	0	0	0	2.74E-02	4.63E-03	4.56E-03	1.76E-02	1.55E-04	1.49E-04
	Striping Machine	0	0	0	0	0	0	0	0	0	0	6.17E-04	1.74E-04	1.72E-04	3.07E-03	2.60E-04	2.48E-04
Inside Terminal	Sawcutter	0	0	0	0	0	0	0	0	0	0	2.66E-02	4.50E-03	4.43E-03	1.71E-02	1.51E-04	1.44E-04
	Excavator	0	0	0	0	0	0	0	0	0	0	1.16E-01	1.96E-02	1.93E-02	7.46E-02	6.58E-04	6.30E-04
Demolition	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	9.48E-04	1.44E-04
	Backhoe	0	0	0	0	0	0	0	0	0	0	5.36E-02	9.06E-03	8.92E-03	3.45E-02	3.04E-04	2.91E-04
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	5.06E-03	2.18E-03	2.14E-03	8.31E-02	3.54E-04	3.38E-04
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.33E-03	1.00E-03
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.15E-04	5.37E-05
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.44E-03	5.16E-04
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	1.15E-03	3.86E-04	3.79E-04	7.80E-03	1.63E-05	1.56E-05
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.83E-05	2.50E-05
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.37E-06	1.34E-06
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.97E-03	8.96E-04
Debris	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.75E-02	2.66E-03
exhaust	Slurry Truck (offsite)	0	0	0	0	0	0	0	0	0	0	9.34E-04	4.02E-04	3.95E-04	1.53E-02	6.53E-05	6.25E-05
brake wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.31E-04	1.85E-04

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
tire wear	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.97E-05	9.92E-06
entrained road dust	Slurry Truck (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.35E-04	9.53E-05
exhaust	Slurry Truck (onsite)	0	0	0	0	0	0	0	0	0	0	8.49E-05	2.85E-05	2.80E-05	5.77E-04	1.20E-06	1.15E-06
brake wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.31E-06	1.85E-06
tire wear	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.97E-07	9.92E-08
entrained road dust	Slurry Truck (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.41E-04	6.62E-05
	Cold Planer	0	0	0	0	0	0	0	0	0	0	8.67E-02	1.47E-02	1.44E-02	5.57E-02	4.92E-04	4.70E-04
	Sweeper	0	0	0	0	0	0	0	0	0	0	1.31E-01	2.22E-02	2.18E-02	8.43E-02	7.44E-04	7.12E-04
	Paving Machine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
	Roller	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Skip Loader	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Striping Machine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
exhaust	Worker Commute (offsite)	5.29E-03	6.74E-04	6.03E-04	4.73E-04	1.04E-05	9.58E-06	1.39E-05	1.25E+00	3.76E-05	2.30E-04	5.92E-02	7.54E-03	6.75E-03	5.29E-03	1.16E-04	1.07E-04
brake wear	Worker Commute (offsite)	-	-	-	-	1.44E-04	6.18E-05	-	-	-	-	-	-	-	-	1.61E-03	6.91E-04
tire wear	Worker Commute (offsite)	-	-	-	-	3.14E-05	7.85E-06	-	-	-	-	-	-	-	-	3.51E-04	8.78E-05
entrained road dust	Worker Commute (offsite)	-	-	-	-	7.53E-04	1.13E-04	-	-	-	-	-	-	-	-	8.43E-03	1.26E-03
	Phase 6 Total	*0.08*	*0.01*	*0.01*	*0.05*	*0.00*	*0.00*	*0.00*	*16.78*	*0.00*	*0.00*	*3.32*	*0.63*	*0.62*	*4.50*	*0.38*	*0.10*
	Off-road Construction Equipment Exhaust	*0.08*	*0.01*	*0.01*	*0.05*	*0.00*	*0.00*	*0.00*	*15.52*	*0.00*	*0.00*	*3.10*	*0.52*	*0.52*	*2.00*	*0.02*	*0.02*
	Marine Source Exhaust	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	On-Road Construction Vehicles	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.17*	*0.07*	*0.07*	*2.50*	*0.30*	*0.07*
	Worker Vehicles	*0.01*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.25*	*0.00*	*0.00*	*0.06*	*0.01*	*0.01*	*0.01*	*0.01*	*0.00*
	Fugitive Emissions (VOC)	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.03*	*0.03*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (Dust)	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.05*	*0.01*
Crane Delivery																	
	Cargo Ship (Berth+Zones 1-5)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tug Boat	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Crane	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Welder	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tractor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
exhaust	Worker Commute (offsite)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brake wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
tire wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
entrained road dust	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
	Crane Delivery Total	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Off-road Construction Equipment Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Marine Source Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	On-Road Construction Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Worker Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (VOC)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (Dust)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Phase 7: TICTF Loading Track																	
Installation of an additional loading track																	
exhaust	Delivery Trucks (offsite)	0	0	0	0	0	0	0	0	0	0	3.11E-04	1.34E-04	1.32E-04	5.12E-03	2.18E-05	2.08E-05
brake wear	Delivery Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.44E-04	6.16E-05
tire wear	Delivery Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.32E-05	3.31E-06
entrained road dust	Delivery Trucks (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.12E-04	3.18E-05
exhaust	Delivery Trucks (onsite)	0	0	0	0	0	0	0	0	0	0	7.07E-05	2.37E-05	2.34E-05	4.81E-04	1.00E-06	9.60E-07
brake wear	Delivery Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.59E-06	1.54E-06
tire wear	Delivery Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.31E-07	8.27E-08
entrained road dust	Delivery Trucks (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.68E-04	5.52E-05
exhaust	Haul Trucks - base CMB (offsite)	0	0	0	0	0	0	0	0	0	0	2.49E-03	1.07E-03	1.05E-03	4.09E-02	1.74E-04	1.67E-04
brake wear	Haul Trucks - base CMB (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.15E-03	4.93E-04
tire wear	Haul Trucks - base CMB (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.06E-04	2.65E-05

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
entrained road dust	Haul Trucks - base CMB (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.69E-03	2.54E-04
exhaust	Haul Trucks - base CMB (onsite)	0	0	0	0	0	0	0	0	0	0	5.66E-04	1.90E-04	1.87E-04	3.84E-03	8.03E-06	7.68E-06
brake wear	Haul Trucks - base CMB (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.87E-05	1.23E-05
tire wear	Haul Trucks - base CMB (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.65E-06	6.61E-07
entrained road dust	Haul Trucks - base CMB (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.94E-03	4.41E-04
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.13E-04	1.71E-05
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.13E-04	1.71E-05
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	0	0	0	0	0	0	1.01E-03	4.34E-04	4.27E-04	1.66E-02	7.06E-05	6.75E-05
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.66E-04	2.00E-04
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.29E-05	1.07E-05
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	6.86E-04	1.03E-04
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	0	0	0	0	0	0	2.29E-04	7.69E-05	7.57E-05	1.56E-03	3.25E-06	3.11E-06
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.16E-05	4.99E-06
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.07E-06	2.68E-07
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.19E-03	1.79E-04
exhaust	Haul Trucks - soil (offsite)	0	0	0	0	0	0	0	0	0	0	1.24E-02	5.32E-03	5.24E-03	2.03E-01	8.65E-04	8.28E-04
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.71E-03	2.45E-03
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	5.25E-04	1.31E-04
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	8.41E-03	1.26E-03
exhaust	Haul Trucks - soil (onsite)	0	0	0	0	0	0	0	0	0	0	5.91E-04	1.98E-04	1.95E-04	4.02E-03	8.39E-06	8.03E-06
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.00E-05	1.29E-05
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.76E-06	6.91E-07
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.07E-03	4.61E-04
Loading	fugitive dust (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.35E-04	3.56E-05
Loading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	2.35E-04	3.56E-05
	Sawcutter	0	0	0	0	0	0	0	0	0	0	2.66E-02	4.49E-03	4.42E-03	1.71E-02	1.51E-04	1.44E-04
	Excavator	0	0	0	0	0	0	0	0	0	0	5.41E-02	9.14E-03	8.99E-03	3.47E-02	3.07E-04	2.93E-04
	Tamper	0	0	0	0	0	0	0	0	0	0	2.28E-01	3.85E-02	3.79E-02	1.47E-01	1.29E-03	1.24E-03
	Regulator	0	0	0	0	0	0	0	0	0	0	1.34E-01	2.27E-02	2.23E-02	8.64E-02	7.62E-04	7.29E-04
	Speed Swing	0	0	0	0	0	0	0	0	0	0	2.62E-01	4.43E-02	4.36E-02	1.68E-01	1.49E-03	1.42E-03
	Forklift	0	0	0	0	0	0	0	0	0	0	5.78E-02	9.77E-03	9.61E-03	3.71E-02	3.28E-04	3.14E-04
	Loader	0	0	0	0	0	0	0	0	0	0	5.35E-02	9.04E-03	8.90E-03	3.44E-02	3.03E-04	2.90E-04
	Blade/Grader	0	0	0	0	0	0	0	0	0	0	1.28E-01	2.15E-02	2.12E-02	8.19E-02	7.23E-04	6.92E-04
Grading	fugitive dust (onsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	4.30E-03	4.64E-04
	Swivel Dump	0	0	0	0	0	0	0	0	0	0	2.62E-01	4.43E-02	4.36E-02	1.68E-01	1.49E-03	1.42E-03
	Water Truck	0	0	0	0	0	0	0	0	0	0	3.43E-01	5.80E-02	5.70E-02	2.20E-01	1.94E-03	1.86E-03
	Prentice Loader	0	0	0	0	0	0	0	0	0	0	1.86E-01	3.13E-02	3.08E-02	1.19E-01	1.05E-03	1.01E-03
	Tie Truck	0	0	0	0	0	0	0	0	0	0	2.81E-01	4.74E-02	4.67E-02	1.80E-01	1.59E-03	1.52E-03
	Paving Machine	0	0	0	0	0	0	0	0	0	0	4.25E-02	7.17E-03	7.06E-03	2.73E-02	2.41E-04	2.30E-04
Paving	fugitive VOC	-	0	0	-	-	-	-				-	7.86E-03	7.86E-03	-	-	-
	Roller	0	0	0	0	0	0	0	0	0	0	4.61E-02	7.78E-03	7.66E-03	2.96E-02	2.61E-04	2.50E-04
	Skip Loader	0	0	0	0	0	0	0	0	0	0	4.05E-02	6.83E-03	6.72E-03	2.60E-02	2.29E-04	2.19E-04
exhaust	Worker Commute (offsite)	0	0	0	0	0	0	0	0	0	0	2.79E-02	3.56E-03	3.19E-03	2.50E-03	5.49E-05	5.06E-05
brake wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	7.61E-04	3.26E-04
tire wear	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	1.66E-04	4.14E-05
entrained road dust	Worker Commute (offsite)	-	-	-	-	0	0	-	-	-	-	-	-	-	-	3.98E-03	5.97E-04
	Phase 7 Total	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*2.19*	*0.38*	*0.37*	*1.66*	*0.05*	*0.02*
	Off-road Construction Equipment Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*2.15*	*0.36*	*0.36*	*1.38*	*0.01*	*0.01*
	Marine Source Exhaust	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	On-Road Construction Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.02*	*0.01*	*0.01*	*0.28*	*0.03*	*0.01*
	Worker Vehicles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.03*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (VOC)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.01*	*0.01*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (Dust)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Proposed Total	**Ocean Disposal**	**0.08**	**0.01**	**0.01**	**0.05**	**0.00**	**0.00**	**0.00**	**16.78**	**0.00**	**0.00**	**11.00**	**1.95**	**1.92**	**17.98**	**0.89**	**0.48**
	Off-road Construction Equipment Exhaust	0.08	0.01	0.01	0.05	0.00	0.00	0.00	15.52	0.00	0.00	6.67	1.55	1.52	9.40	0.27	0.26
	Marine Source Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.26	0.26	4.74	0.12	0.10
	On-Road Construction Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.10	0.10	3.83	0.43	0.11
	Worker Vehicles	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.25	0.00	0.00	0.08	0.01	0.01	0.01	0.02	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
	Upland Disposal	**0.08**	**0.01**	**0.01**	**0.05**	**0.00**	**0.00**	**0.00**	**16.78**	**0.00**	**0.00**	**10.64**	**2.18**	**2.15**	**20.29**	**1.11**	**0.55**
	Off-road Construction Equipment Exhaust	0.08	0.01	0.01	0.05	0.00	0.00	0.00	15.52	0.00	0.00	7.60	1.81	1.78	11.19	0.33	0.31
	Marine Source Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.55	0.17	0.17	3.03	0.07	0.07
	On-Road Construction Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.16	0.16	6.06	0.63	0.16
	Worker Vehicles	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.25	0.00	0.00	0.09	0.01	0.01	0.01	0.02	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
General Conformity	**Ocean Disposal**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**7.21**	**1.23**	**1.21**	**11.99**	**0.38**	**0.35**
	Off-road Construction Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.19	0.96	0.95	7.16	0.25	0.24
	Marine Source Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.26	0.26	4.74	0.12	0.10
	On-Road Construction Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.09	0.01	0.00
	Worker Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Upland Disposal	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**6.85**	**1.45**	**1.43**	**14.30**	**0.59**	**0.42**
	Off-road Construction Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.13	1.22	1.20	8.95	0.31	0.29
	Marine Source Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.55	0.17	0.17	3.03	0.07	0.07
	On-Road Construction Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.06	0.06	2.32	0.21	0.06
	Worker Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Alt 1 No Federal Action		**0.08**	**0.01**	**0.01**	**0.05**	**0.00**	**0.00**	**0.00**	**16.78**	**0.00**	**0.00**	**3.32**	**0.63**	**0.62**	**4.50**	**0.38**	**0.10**
	Off-road Construction Equipment Exhaust	0.08	0.01	0.01	0.05	0.00	0.00	0.00	15.52	0.00	0.00	3.10	0.52	0.52	2.00	0.02	0.02
	Marine Source Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	On-Road Construction Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.07	0.07	2.50	0.30	0.07
	Worker Vehicles	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.25	0.00	0.00	0.06	0.01	0.01	0.01	0.01	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
Alt 3 Reduced Wharf Improvements	**Ocean Disposal**	**0.08**	**0.01**	**0.01**	**0.05**	**0.00**	**0.00**	**0.00**	**16.78**	**0.00**	**0.00**	**8.78**	**1.55**	**1.53**	**14.15**	**0.77**	**0.37**
	Off-road Construction Equipment Exhaust	0.08	0.01	0.01	0.05	0.00	0.00	0.00	15.52	0.00	0.00	5.60	1.22	1.20	6.96	0.19	0.18
	Marine Source Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.85	0.19	0.18	3.37	0.08	0.07
	On-Road Construction Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.10	0.10	3.81	0.43	0.11
	Worker Vehicles	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.25	0.00	0.00	0.08	0.01	0.01	0.01	0.01	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
	Upland Disposal	**0.08**	**0.01**	**0.01**	**0.05**	**0.00**	**0.00**	**0.00**	**16.78**	**0.00**	**0.00**	**8.06**	**1.64**	**1.61**	**15.28**	**0.92**	**0.41**
	Off-road Construction Equipment Exhaust	0.08	0.01	0.01	0.05	0.00	0.00	0.00	15.52	0.00	0.00	6.05	1.34	1.32	7.78	0.21	0.20
	Marine Source Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56	0.10	0.10	1.84	0.05	0.04
	On-Road Construction Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.15	0.15	5.65	0.59	0.15
	Worker Vehicles	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.25	0.00	0.00	0.09	0.01	0.01	0.01	0.02	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
Alt 4 No Backland Improvements	**Ocean Disposal**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**7.68**	**1.33**	**1.30**	**13.48**	**0.51**	**0.38**
	Off-road Construction Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.57	1.02	1.01	7.40	0.25	0.24
	Marine Source Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.26	0.26	4.74	0.12	0.10
	On-Road Construction Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.04	0.04	1.34	0.13	0.03
	Worker Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Upland Disposal	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**7.31**	**1.55**	**1.53**	**15.79**	**0.72**	**0.45**
	Off-road Construction Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	1.28	1.26	9.19	0.31	0.30
	Marine Source Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.55	0.17	0.17	3.03	0.07	0.07
	On-Road Construction Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.10	0.09	3.57	0.33	0.09
	Worker Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.01	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Alt 5 Expanded On-Dock Rail Yard	**Ocean Disposal**	**0.08**	**0.01**	**0.01**	**0.05**	**0.00**	**0.00**	**0.00**	**16.78**	**0.00**	**0.00**	**13.19**	**2.34**	**2.30**	**19.63**	**0.94**	**0.50**
	Off-road Construction Equipment Exhaust	0.08	0.01	0.01	0.05	0.00	0.00	0.00	15.52	0.00	0.00	8.81	1.91	1.88	10.78	0.28	0.27
	Marine Source Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.26	0.26	4.74	0.12	0.10
	On-Road Construction Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.11	0.11	4.11	0.46	0.11
	Worker Vehicles	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.25	0.00	0.00	0.11	0.01	0.01	0.01	0.02	0.00

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2017 Emissions ton/year							2017 Emissions tonne/year			2018 Emissions ton/year					
		CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
	Upland Disposal	**0.08**	**0.01**	**0.01**	**0.05**	**0.00**	**0.00**	**0.00**	**16.78**	**0.00**	**0.00**	**12.83**	**2.56**	**2.52**	**21.94**	**1.16**	**0.57**
	Off-road Construction Equipment Exhaust	0.08	0.01	0.01	0.05	0.00	0.00	0.00	15.52	0.00	0.00	9.75	2.17	2.14	12.57	0.34	0.32
	Marine Source Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.55	0.17	0.17	3.03	0.07	0.07
	On-Road Construction Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.17	0.17	6.34	0.66	0.17
	Worker Vehicles	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.25	0.00	0.00	0.12	0.02	0.01	0.01	0.02	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01

Sources:
2016_05 B226-236 Construction Schedule_EIR.pdf
E-mail from B. Correa (POLA) to J. Bahng (POLA) on 1/5/15 (hours of operation)
Barge equipment operations from BargeEquipmentOperatingHrs+ENG+EMD.xlsx received 11/16/15

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year							2019 Emissions tonne/year		
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
Phase 1: Berths 230-232 Dredging 8,000 cy															
Sheet Piling	Derrick Barge	-	-	-	-	-	-	-	-	-	-	-			
	Compressor	3.28E-04	3.03E+01	1.54E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Barge Crane	3.00E-04	2.77E+01	8.08E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Deck Door Engine	3.02E-04	2.44E+01	7.26E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Generator	1.20E-03	1.11E+02	6.02E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Hoist Swing Winch	4.05E-04	3.74E+01	1.94E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Hoist Swing Pump	1.26E-03	1.17E+02	4.43E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Vibratory Hammer	5.62E-04	5.20E+01	2.07E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Pile Hammer	9.37E-05	8.66E+00	3.45E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Supply Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tug Boat	2.81E-04	3.01E+01	2.89E-04	1.43E-03	0	0	0	0	0	0	0	0	0	0
	Dive Boat	3.98E-04	4.27E+01	4.09E-04	2.03E-03	0	0	0	0	0	0	0	0	0	0
exhaust	Delivery Trucks (offsite)	4.88E-05	4.64E+00	1.93E-05	1.87E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Delivery Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Delivery Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Delivery Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Delivery Trucks (onsite)	1.08E-06	1.02E-01	1.05E-06	2.04E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Delivery Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Delivery Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Delivery Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Dredging - Ocean Disposal	Derrick Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Barge Crane	7.06E-05	6.53E+00	1.91E-04	0.00E+00	0	0	0	0	0	0	0			
	Deck Door Engine	7.12E-05	5.74E+00	1.71E-04	0.00E+00	0	0	0	0	0	0	0			
	Dredger (Clam Shell)	2.18E-04	2.02E+01	1.10E-03	0.00E+00	0	0	0	0	0	0	0			
	Generator	2.82E-04	2.61E+01	1.42E-03	0.00E+00	0	0	0	0	0	0	0			
	Hoist Swing Winch	9.54E-05	8.81E+00	4.58E-04	0.00E+00	0	0	0	0	0	0	0			
	Hoist Swing Pump	2.98E-04	2.75E+01	1.05E-03	0.00E+00	0	0	0	0	0	0	0			
	Tug Boat	6.01E-05	6.44E+00	6.19E-05	3.06E-04	0	0	0	0	0	0	0	0	0	0
	Clam Bucket	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dump Scows	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Generator	2.57E-05	2.37E+00	1.29E-04	0.00E+00	0	0	0	0	0	0	0			
	Tug Boat	5.29E-04	5.67E+01	5.44E-04	2.70E-03	0	0	0	0	0	0	0	0	0	0
exhaust	Worker Commute (offsite)	4.44E-06	4.01E-01	1.20E-05	7.37E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Dredging - Upland Disposal	Derrick Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Barge Crane	2.47E-04	2.28E+01	6.67E-04	0.00E+00	0	0	0	0	0	0	0			
	Deck Door Engine	2.49E-04	2.01E+01	5.99E-04	0.00E+00	0	0	0	0	0	0	0			
	Dredger (Clam Shell)	3.82E-04	3.53E+01	1.93E-03	0.00E+00	0	0	0	0	0	0	0			
	Generator	9.89E-04	9.14E+01	4.97E-03	0.00E+00	0	0	0	0	0	0	0			
	Hoist Swing Winch	3.34E-04	3.08E+01	1.60E-03	0.00E+00	0	0	0	0	0	0	0			
	Hoist Swing Pump	1.04E-03	9.64E+01	3.66E-03	0.00E+00	0	0	0	0	0	0	0			
	Tug Boat	2.10E-04	2.26E+01	2.17E-04	1.07E-03	0	0	0	0	0	0	0	0	0	0
	Clam Bucket	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dump Scows	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tug Boat	2.10E-04	2.26E+01	2.17E-04	1.07E-03	0	0	0	0	0	0	0	0	0	0
	Excavator	1.42E-04	1.15E+01	6.09E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks (offsite)	9.51E-04	1.90E+02	7.93E-04	7.68E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks (onsite)	1.43E-05	1.36E+00	1.41E-05	2.72E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Worker Commute (offsite)	1.53E-05	1.38E+00	4.13E-05	2.53E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year							2019 Emissions tonne/year		
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
	Phase 1 Total - Ocean Disposal	*0.01*	*646.28*	*0.02*	*0.01*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Off-road Construction Equipment Exhaust	*0.01*	*505.23*	*0.02*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Marine Source Exhaust	*0.00*	*135.90*	*0.00*	*0.01*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	On-Road Construction Vehicles	*0.00*	*4.74*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Worker Vehicles	*0.00*	*0.40*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (VOC)	*0.00*	*0.00*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (Dust)	*0.00*	*0.00*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Phase 1 Total - Upland Disposal	*0.01*	*1032.08*	*0.03*	*0.01*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Off-road Construction Equipment Exhaust	*0.01*	*716.27*	*0.03*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Marine Source Exhaust	*0.00*	*117.85*	*0.00*	*0.01*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	On-Road Construction Vehicles	*0.00*	*196.57*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Worker Vehicles	*0.00*	*1.38*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (VOC)	*0.00*	*0.00*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (Dust)	*0.00*	*0.00*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Phase 2: Berths 226-229 Dredging 37,000 cy															
Sheet & King Pile Installation	Derrick Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Compressor	4.69E-04	4.33E+01	2.19E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Barge Crane	4.28E-04	3.96E+01	1.15E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Deck Door Engine	4.32E-04	3.48E+01	1.04E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Generator	1.71E-03	1.58E+02	8.60E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Hoist Swing Winch	5.78E-04	5.34E+01	2.78E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Hoist Swing Pump	1.81E-03	1.67E+02	6.33E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Vibratory Hammer	8.03E-04	7.42E+01	2.96E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Pile Hammer	1.34E-04	1.24E+01	4.93E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Jet Pump	2.46E-04	1.90E+01	1.28E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Supply Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tug Boat	4.01E-04	4.30E+01	4.12E-04	2.04E-03	0	0	0	0	0	0	0	0	0	0
	Dive Boat	5.69E-04	6.10E+01	5.85E-04	2.90E-03	0	0	0	0	0	0	0	0	0	0
exhaust	Delivery Trucks (offsite)	4.88E-05	4.64E+00	1.93E-05	1.87E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Delivery Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Delivery Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Delivery Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Delivery Trucks (onsite)	1.08E-06	1.02E-01	1.05E-06	2.04E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Delivery Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Delivery Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Delivery Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Delivery Trucks (offsite)	1.14E-04	1.08E+01	4.51E-05	4.37E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Delivery Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Delivery Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Delivery Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Delivery Trucks (onsite)	2.51E-06	2.39E-01	2.46E-06	4.76E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Delivery Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Delivery Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Delivery Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Dredging - Ocean Disposal	Derrick Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Barge Crane	2.59E-04	2.39E+01	6.99E-04	0.00E+00	0	0	0	0	0	0	0			
	Deck Door Engine	2.61E-04	2.11E+01	6.28E-04	0.00E+00	0	0	0	0	0	0	0			
	Dredger (Clam Shell)	8.00E-04	7.39E+01	4.04E-03	0.00E+00	0	0	0	0	0	0	0			
	Generator	1.04E-03	9.57E+01	5.20E-03	0.00E+00	0	0	0	0	0	0	0			
	Hoist Swing Winch	3.50E-04	3.23E+01	1.68E-03	0.00E+00	0	0	0	0	0	0	0			
	Hoist Swing Pump	1.09E-03	1.01E+02	3.83E-03	0.00E+00	0	0	0	0	0	0	0			
	Tug Boat	2.21E-04	2.36E+01	2.27E-04	1.12E-03	0	0	0	0	0	0	0	0	0	0
	Clam Bucket	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dump Scows	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Generator	9.41E-05	8.70E+00	4.73E-04	0.00E+00	0	0	0	0	0	0	0			
	Tug Boat	1.94E-03	2.08E+02	2.00E-03	9.89E-03	0	0	0	0	0	0	0	0	0	0
exhaust	Worker Commute (offsite)	1.81E-05	1.64E+00	4.90E-05	3.00E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Dredging - Upland Disposal	Derrick Barge	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year							2019 Emissions tonne/year		
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
	Barge Crane	4.35E-04	4.02E+01	1.18E-03	0.00E+00	0	0	0	0	0	0	0			
	Deck Door Engine	4.39E-04	3.54E+01	1.06E-03	0.00E+00	0	0	0	0	0	0	0			
	Dredger (Clam Shell)	6.73E-04	6.22E+01	3.39E-03	0.00E+00	0	0	0	0	0	0	0			
	Generator	1.74E-03	1.61E+02	8.75E-03	0.00E+00	0	0	0	0	0	0	0			
	Hoist Swing Winch	5.88E-04	5.44E+01	2.83E-03	0.00E+00	0	0	0	0	0	0	0			
	Hoist Swing Pump	1.84E-03	1.70E+02	6.45E-03	0.00E+00	0	0	0	0	0	0	0			
	Tug Boat	3.71E-04	3.97E+01	3.82E-04	1.89E-03	0	0	0	0	0	0	0	0	0	0
	Clam Bucket	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dump Scows	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tug Boat	3.71E-04	3.97E+01	3.82E-04	1.89E-03	0	0	0	0	0	0	0	0	0	0
	Excavator	2.51E-04	2.02E+01	1.07E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks (offsite)	4.40E-03	8.81E+02	3.67E-03	3.55E-03	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks (onsite)	6.63E-05	6.31E+00	6.50E-05	1.26E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Worker Commute (offsite)	2.95E-05	2.66E+00	7.98E-05	4.89E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
	Phase 2 Total - Ocean Disposal	*0.01*	*1311.38*	*0.05*	*0.02*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Off-road Construction Equipment Exhaust	*0.01*	*958.44*	*0.04*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Marine Source Exhaust	*0.00*	*335.49*	*0.00*	*0.02*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	On-Road Construction Vehicles	*0.00*	*15.82*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Worker Vehicles	*0.00*	*1.64*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (VOC)	*0.00*	*0.00*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (Dust)	*0.00*	*0.00*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Phase 2 Total - Upland Disposal	*0.02*	*2234.10*	*0.06*	*0.01*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Off-road Construction Equipment Exhaust	*0.01*	*1145.02*	*0.05*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Marine Source Exhaust	*0.00*	*183.40*	*0.00*	*0.01*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	On-Road Construction Vehicles	*0.00*	*903.02*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Worker Vehicles	*0.00*	*2.66*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (VOC)	*0.00*	*0.00*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (Dust)	*0.00*	*0.00*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Phase 3: Install Electrical Substation and Feeder Cable Conduit															
Electrical substation, feeder cable conduits, cable horn boxes															
	Sawcutter	0	0	0	0	3.17E-02	5.36E-03	5.27E-03	2.04E-02	1.80E-04	1.72E-04	8.04E-05	6.22E+00	4.92E-04	0.00E+00
	Backhoe	0	0	0	0	2.98E-02	5.03E-03	4.95E-03	1.91E-02	1.69E-04	1.62E-04	7.55E-05	5.84E+00	4.43E-04	0.00E+00
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	1.99E-04	8.57E-05	8.44E-05	3.27E-03	1.39E-05	1.33E-05	8.01E-06	7.62E-01	3.17E-06	3.07E-06
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	9.20E-05	3.94E-05	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	8.47E-06	2.12E-06	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	1.35E-04	2.03E-05	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	4.53E-05	1.52E-05	1.50E-05	3.08E-04	6.42E-07	6.15E-07	5.74E-07	5.45E-02	5.62E-07	1.09E-07
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	2.30E-06	9.85E-07	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	2.12E-07	5.29E-08	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	2.35E-04	3.53E-05	-	-	-	-
exhaust	Haul Trucks - soil (offsite)	0	0	0	0	2.84E-03	1.22E-03	1.20E-03	4.67E-02	1.99E-04	1.90E-04	1.14E-04	2.29E+01	9.52E-05	9.22E-05
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	1.31E-03	5.62E-04	-	-	-	-
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	1.21E-04	3.02E-05	-	-	-	-
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	1.93E-03	2.90E-04	-	-	-	-
exhaust	Haul Trucks - soil (onsite)	0	0	0	0	1.36E-04	4.56E-05	4.49E-05	9.23E-04	1.93E-06	1.84E-06	1.72E-06	1.64E-01	1.69E-06	3.26E-07
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	6.90E-06	2.96E-06	-	-	-	-
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	6.35E-07	1.59E-07	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	7.06E-04	1.06E-04	-	-	-	-
Loading	fugitive dust (offsite)	-				-	-	-	-	5.42E-05	8.20E-06	-			
Loading	fugitive dust (onsite)	-				-	-	-	-	5.42E-05	8.20E-06	-			
	Vibrating Compactor	0	0	0	0	4.39E-04	7.42E-05	7.30E-05	2.82E-04	2.49E-06	2.38E-06	1.48E-06	8.61E-02	9.04E-06	0.00E+00
exhaust	Slurry Truck (offsite)	0	0	0	0	3.21E-03	1.38E-03	1.36E-03	5.27E-02	2.24E-04	2.15E-04	1.29E-04	1.23E+01	5.11E-05	4.94E-05

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year							2019 Emissions tonne/year		
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
brake wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	1.48E-03	6.34E-04	-	-	-	-
tire wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	1.36E-04	3.41E-05	-	-	-	-
entrained road dust	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	2.18E-03	3.27E-04	-	-	-	-
exhaust	Slurry Truck (onsite)	0	0	0	0	2.91E-04	9.78E-05	9.63E-05	1.98E-03	4.14E-06	3.96E-06	3.69E-06	3.51E-01	3.62E-06	7.00E-07
brake wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	1.48E-05	6.34E-06	-	-	-	-
tire wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	1.36E-06	3.41E-07	-	-	-	-
entrained road dust	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	1.51E-03	2.27E-04	-	-	-	-
	Forklift	0	0	0	0	1.69E-02	2.85E-03	2.80E-03	1.08E-02	9.55E-05	9.14E-05	4.10E-05	3.30E+00	1.70E-04	0.00E+00
exhaust	Concrete Trucks (offsite)	0	0	0	0	1.21E-04	5.22E-05	5.14E-05	2.00E-03	8.49E-06	8.13E-06	4.88E-06	4.64E-01	1.93E-06	1.87E-06
brake wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	5.60E-05	2.40E-05	-	-	-	-
tire wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	5.16E-06	1.29E-06	-	-	-	-
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	8.25E-05	1.24E-05	-	-	-	-
exhaust	Concrete Trucks (onsite)	0	0	0	0	8.49E-06	2.85E-06	2.80E-06	5.77E-05	1.20E-07	1.15E-07	1.08E-07	1.02E-02	1.05E-07	2.04E-08
brake wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	4.31E-07	1.85E-07	-	-	-	-
tire wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	3.97E-08	9.92E-09	-	-	-	-
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	4.41E-05	6.62E-06	-	-	-	-
exhaust	Equipment Trucks (offsite)	0	0	0	0	2.33E-04	1.00E-04	9.87E-05	3.83E-03	1.63E-05	1.56E-05	9.37E-06	8.91E-01	3.71E-06	3.59E-06
brake wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	1.08E-04	4.61E-05	-	-	-	-
tire wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	9.90E-06	2.48E-06	-	-	-	-
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	1.58E-04	2.38E-05	-	-	-	-
exhaust	Equipment Trucks (onsite)	0	0	0	0	5.29E-05	1.78E-05	1.75E-05	3.60E-04	7.52E-07	7.19E-07	6.71E-07	6.38E-02	6.58E-07	1.27E-07
brake wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	2.69E-06	1.15E-06	-	-	-	-
tire wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	2.48E-07	6.19E-08	-	-	-	-
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	2.75E-04	4.13E-05	-	-	-	-
exhaust	Equipment Trucks (offsite)	0	0	0	0	3.84E-04	1.65E-04	1.63E-04	6.31E-03	2.69E-05	2.57E-05	1.54E-05	1.47E+00	6.11E-06	5.92E-06
brake wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	1.77E-04	7.59E-05	-	-	-	-
tire wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	1.63E-05	4.08E-06	-	-	-	-
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	2.61E-04	3.92E-05	-	-	-	-
exhaust	Equipment Trucks (onsite)	0	0	0	0	8.72E-05	2.93E-05	2.88E-05	5.92E-04	1.24E-06	1.18E-06	1.10E-06	1.05E-01	1.08E-06	2.10E-07
brake wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	4.43E-06	1.90E-06	-	-	-	-
tire wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	4.08E-07	1.02E-07	-	-	-	-
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	4.53E-04	6.80E-05	-	-	-	-
	Crane	0	0	0	0	4.90E-02	8.28E-03	8.15E-03	3.15E-02	2.78E-04	2.66E-04	1.04E-04	9.61E+00	5.78E-04	0.00E+00
exhaust	Worker Commute (offsite)	0	0	0	0	1.25E-02	1.59E-03	1.42E-03	1.11E-03	2.45E-05	2.26E-05	3.27E-05	2.95E+00	8.85E-05	5.42E-04
brake wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	3.40E-04	1.46E-04	-	-	-	-
tire wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	7.39E-05	1.85E-05	-	-	-	-
entrained road dust	Worker Commute (offsite)	-	-	-	-	-	-	-	-	1.77E-03	2.66E-04	-	-	-	-
DWP new service	Equipment Trucks (offsite)	0	0	0	0	7.47E-04	3.22E-04	3.16E-04	1.23E-02	5.23E-05	5.00E-05	3.00E-05	2.86E+00	1.19E-05	1.15E-05
brake wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	3.45E-04	1.48E-04	-	-	-	-
tire wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	3.17E-05	7.94E-06	-	-	-	-
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	5.08E-04	7.62E-05	-	-	-	-
exhaust	Equipment Trucks (onsite)	0	0	0	0	1.70E-04	5.70E-05	5.61E-05	1.15E-03	2.41E-06	2.31E-06	2.15E-06	2.05E-01	2.11E-06	4.08E-07
brake wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	8.62E-06	3.69E-06	-	-	-	-
tire wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	7.94E-07	1.98E-07	-	-	-	-
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	8.82E-04	1.32E-04	-	-	-	-
	Phase 3 Total	*0*	*0*	*0*	*0*	*0.15*	*0.03*	*0.03*	*0.22*	*0.02*	*0.00*	*0.00*	*70.52*	*0.00*	*0.00*
	Off-road Construction Equipment Exhaust	*0*	*0*	*0*	*0*	*0.13*	*0.02*	*0.02*	*0.08*	*0.00*	*0.00*	*0.00*	*25.05*	*0.00*	*0.00*
	Marine Source Exhaust	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	On-Road Construction Vehicles	*0*	*0*	*0*	*0*	*0.01*	*0.00*	*0.00*	*0.13*	*0.01*	*0.00*	*0.00*	*42.51*	*0.00*	*0.00*
	Worker Vehicles	*0*	*0*	*0*	*0*	*0.01*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*2.95*	*0.00*	*0.00*
	Fugitive Emissions (VOC)	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (Dust)	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Phase 4: AMP															
Install 5 AMP boxes															
Box 1	Sawcutter	3.52E-05	2.72E+00	2.15E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Backhoe	8.11E-05	6.27E+00	4.76E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - AC pavement (offsite)	2.30E-05	2.19E+00	9.12E-06	8.83E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	1.65E-06	1.57E-01	1.62E-06	3.13E-07	0	0	0	0	0	0	0	0	0	0

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year							2019 Emissions tonne/year		
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - soil (offsite)	2.43E-04	4.86E+01	2.02E-04	1.96E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - soil (onsite)	3.66E-06	3.48E-01	3.58E-06	6.94E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Loading	fugitive dust (offsite)	-	-	-	-	-	-	-	-	0	0	-			
Loading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
exhaust	Slurry Truck (offsite)	3.12E-04	2.96E+01	1.23E-04	1.20E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Slurry Truck (onsite)	8.93E-06	8.49E-01	8.75E-06	1.69E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Concrete Trucks (offsite)	4.88E-06	4.64E-01	1.93E-06	1.87E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Concrete Trucks (onsite)	1.08E-07	1.02E-02	1.05E-07	2.04E-08	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
	Crane	5.97E-05	5.52E+00	3.32E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Equipment Trucks (offsite)	1.01E-05	9.63E-01	4.01E-06	3.88E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Equipment Trucks (onsite)	7.25E-07	6.90E-02	7.11E-07	1.38E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Box 2	Sawcutter	3.52E-05	2.72E+00	2.15E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Backhoe	8.71E-05	6.73E+00	5.11E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - AC pavement (offsite)	2.30E-05	2.19E+00	9.12E-06	8.83E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	1.65E-06	1.57E-01	1.62E-06	3.13E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - soil (offsite)	2.43E-04	4.86E+01	2.02E-04	1.96E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - soil (onsite)	3.66E-06	3.48E-01	3.58E-06	6.94E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Loading	fugitive dust (offsite)	-	-	-	-	-	-	-	-	0	0	-			
Loading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
exhaust	Slurry Truck (offsite)	3.12E-04	2.96E+01	1.23E-04	1.20E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year						2019 Emissions tonne/year			
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
entrained road dust	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Slurry Truck (onsite)	8.93E-06	8.49E-01	8.75E-06	1.69E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Concrete Trucks (offsite)	4.88E-06	4.64E-01	1.93E-06	1.87E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Concrete Trucks (onsite)	1.08E-07	1.02E-02	1.05E-07	2.04E-08	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
	Crane	5.43E-05	5.02E+00	3.02E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Equipment Trucks (offsite)	9.67E-06	9.19E-01	3.83E-06	3.71E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Equipment Trucks (onsite)	6.92E-07	6.58E-02	6.79E-07	1.31E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Box 3	Sawcutter	3.20E-05	2.47E+00	1.96E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Backhoe	8.41E-05	6.50E+00	4.93E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - AC pavement (offsite)	2.30E-05	2.19E+00	9.12E-06	8.83E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	1.65E-06	1.57E-01	1.62E-06	3.13E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - soil (offsite)	2.43E-04	4.86E+01	2.02E-04	1.96E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - soil (onsite)	3.66E-06	3.48E-01	3.58E-06	6.94E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Loading	fugitive dust (offsite)	-	-	-	-	-	-	-	-	0	0	-			
Loading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
exhaust	Slurry Truck (offsite)	3.12E-04	2.96E+01	1.23E-04	1.20E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Slurry Truck (onsite)	8.93E-06	8.49E-01	8.75E-06	1.69E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Concrete Trucks (offsite)	4.88E-06	4.64E-01	1.93E-06	1.87E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Concrete Trucks (onsite)	1.08E-07	1.02E-02	1.05E-07	2.04E-08	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
	Crane	6.51E-05	6.02E+00	3.62E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Equipment Trucks (offsite)	9.67E-06	9.19E-01	3.83E-06	3.71E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year							2019 Emissions tonne/year		
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
tire wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Equipment Trucks (onsite)	6.92E-07	6.58E-02	6.79E-07	1.31E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Box 4	Sawcutter	3.20E-05	2.47E+00	1.96E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Backhoe	7.81E-05	6.04E+00	4.58E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - AC pavement (offsite)	2.30E-05	2.19E+00	9.12E-06	8.83E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	1.65E-06	1.57E-01	1.62E-06	3.13E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - soil (offsite)	2.43E-04	4.86E+01	2.02E-04	1.96E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - soil (onsite)	3.66E-06	3.48E-01	3.58E-06	6.94E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Loading	fugitive dust (offsite)	-	-	-	-	-	-	-	-	0	0	-			
Loading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
exhaust	Slurry Truck (offsite)	3.12E-04	2.96E+01	1.23E-04	1.20E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Slurry Truck (onsite)	8.93E-06	8.49E-01	8.75E-06	1.69E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Concrete Trucks (offsite)	4.88E-06	4.64E-01	1.93E-06	1.87E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Concrete Trucks (onsite)	1.08E-07	1.02E-02	1.05E-07	2.04E-08	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
	Crane	6.51E-05	6.02E+00	3.62E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Equipment Trucks (offsite)	1.06E-05	1.01E+00	4.19E-06	4.06E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Equipment Trucks (onsite)	7.58E-07	7.21E-02	7.43E-07	1.44E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Box 5	Sawcutter	3.52E-05	2.72E+00	2.15E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Backhoe	8.11E-05	6.27E+00	4.76E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - AC pavement (offsite)	2.30E-05	2.19E+00	9.12E-06	8.83E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	1.65E-06	1.57E-01	1.62E-06	3.13E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year							2019 Emissions tonne/year		
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
exhaust	Haul Trucks - soil (offsite)	2.43E-04	4.86E+01	2.02E-04	1.96E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - soil (onsite)	3.66E-06	3.48E-01	3.58E-06	6.94E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Loading	fugitive dust (offsite)	-	-	-	-	-	-	-	-	0	0	-			
Loading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
exhaust	Slurry Truck (offsite)	3.12E-04	2.96E+01	1.23E-04	1.20E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Slurry Truck (onsite)	8.93E-06	8.49E-01	8.75E-06	1.69E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Concrete Trucks (offsite)	4.88E-06	4.64E-01	1.93E-06	1.87E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Concrete Trucks (onsite)	1.08E-07	1.02E-02	1.05E-07	2.04E-08	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
	Crane	5.97E-05	5.52E+00	3.32E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Equipment Trucks (offsite)	2.76E-06	2.63E-01	1.09E-06	1.06E-06	4.93E-04	2.12E-04	2.09E-04	8.09E-03	3.45E-05	3.30E-05	1.98E-05	1.88E+00	7.84E-06	7.59E-06
brake wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	2.27E-04	9.74E-05	-	-	-	-
tire wear	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	2.09E-05	5.23E-06	-	-	-	-
entrained road dust	Equipment Trucks (offsite)	-	-	-	-	-	-	-	-	3.35E-04	5.02E-05	-	-	-	-
exhaust	Equipment Trucks (onsite)	1.98E-07	1.88E-02	1.94E-07	3.75E-08	1.12E-04	3.75E-05	3.70E-05	7.60E-04	1.59E-06	1.52E-06	1.42E-06	1.35E-01	1.39E-06	2.69E-07
brake wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	5.68E-06	2.43E-06	-	-	-	-
tire wear	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	5.23E-07	1.31E-07	-	-	-	-
entrained road dust	Equipment Trucks (onsite)	-	-	-	-	-	-	-	-	5.81E-04	8.72E-05	-	-	-	-
exhaust	Worker Commute (offsite)	4.47E-05	4.04E+00	1.21E-04	7.41E-04	3.36E-03	4.28E-04	3.83E-04	3.00E-04	6.60E-06	6.09E-06	8.82E-06	7.96E-01	2.39E-05	1.46E-04
brake wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	9.15E-05	3.92E-05	-	-	-	-
tire wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	1.99E-05	4.98E-06	-	-	-	-
entrained road dust	Worker Commute (offsite)	-	-	-	-	-	-	-	-	4.78E-04	7.18E-05	-	-	-	-
	Phase 4 Total	*0.00*	*492.54*	*0.01*	*0.00*	*0.00*	*0.00*	*0.00*	*0.01*	*0.00*	*0.00*	*0.00*	*2.81*	*0.00*	*0.00*
	Off-road Construction Equipment Exhaust	*0.00*	*73.00*	*0.01*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Marine Source Exhaust	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	On-Road Construction Vehicles	*0.00*	*415.50*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.01*	*0.00*	*0.00*	*0.00*	*2.02*	*0.00*	*0.00*
	Worker Vehicles	*0.00*	*4.04*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.80*	*0.00*	*0.00*
	Fugitive Emissions (VOC)	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (Dust)	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Phase 5: Parcel H															
Parcel H Development															
(1.5 acres)	Excavator	0	0	0	0	2.88E-02	4.86E-03	4.78E-03	1.85E-02	1.63E-04	1.56E-04	6.99E-05	5.64E+00	2.99E-04	0.00E+00
exhaust	Haul Trucks - soil (offsite)	0	0	0	0	1.78E-04	7.64E-05	7.51E-05	2.92E-03	1.24E-05	1.19E-05	7.14E-06	1.43E+00	5.95E-06	5.76E-06
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	8.19E-05	3.51E-05	-	-	-	-
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	7.54E-06	1.88E-06	-	-	-	-
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	1.21E-04	1.81E-05	-	-	-	-
exhaust	Haul Trucks - soil (onsite)	0	0	0	0	8.49E-06	2.85E-06	2.80E-06	5.77E-05	1.20E-07	1.15E-07	1.08E-07	1.02E-02	1.05E-07	2.04E-08
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	4.31E-07	1.85E-07	-	-	-	-
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	3.97E-08	9.92E-09	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	4.41E-05	6.62E-06	-	-	-	-
Loading	fugitive dust (offsite)	-	-	-	-	-	-	-	-	3.39E-06	5.13E-07	-			
Loading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	3.39E-06	5.13E-07	-			
	Backhoe	0	0	0	0	1.33E-02	2.24E-03	2.21E-03	8.54E-03	7.53E-05	7.21E-05	3.37E-05	2.60E+00	1.98E-04	0.00E+00
	Grading Machine	0	0	0	0	3.17E-02	5.35E-03	5.26E-03	2.03E-02	1.79E-04	1.72E-04	7.70E-05	6.21E+00	3.63E-04	0.00E+00

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year							2019 Emissions tonne/year		
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
Grading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	1.07E-03	1.15E-04	-			
	Water Truck	0	0	0	0	6.97E-02	1.18E-02	1.16E-02	4.48E-02	3.95E-04	3.78E-04	1.51E-04	1.37E+01	7.51E-04	0.00E+00
exhaust	Haul Trucks - base CMB (offsite)	0	0	0	0	4.27E-03	1.84E-03	1.81E-03	7.02E-02	2.99E-04	2.86E-04	1.72E-04	1.63E+01	6.80E-05	6.59E-05
brake wear	Haul Trucks - base CMB (offsite)	-	-	-	-	-	-	-	-	1.97E-03	8.45E-04	-	-	-	-
tire wear	Haul Trucks - base CMB (offsite)	-	-	-	-	-	-	-	-	1.81E-04	4.54E-05	-	-	-	-
entrained road dust	Haul Trucks - base CMB (offsite)	-	-	-	-	-	-	-	-	2.90E-03	4.36E-04	-	-	-	-
exhaust	Haul Trucks - base CMB (onsite)	0	0	0	0	9.70E-04	3.26E-04	3.21E-04	6.59E-03	1.38E-05	1.32E-05	1.23E-05	1.17E+00	1.21E-05	2.33E-06
brake wear	Haul Trucks - base CMB (onsite)	-	-	-	-	-	-	-	-	4.93E-05	2.11E-05	-	-	-	-
tire wear	Haul Trucks - base CMB (onsite)	-	-	-	-	-	-	-	-	4.54E-06	1.13E-06	-	-	-	-
entrained road dust	Haul Trucks - base CMB (onsite)	-	-	-	-	-	-	-	-	5.04E-03	7.57E-04	-	-	-	-
Loading	fugitive dust (offsite)	-	-	-	-	-	-	-	-	1.94E-04	2.93E-05	-			
Loading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	1.94E-04	2.93E-05	-			
	Roller	0	0	0	0	1.38E-02	2.32E-03	2.29E-03	8.84E-03	7.80E-05	7.46E-05	3.49E-05	2.70E+00	2.81E-04	0.00E+00
	Skip Loader	0	0	0	0	1.21E-02	2.04E-03	2.01E-03	7.76E-03	6.85E-05	6.55E-05	3.06E-05	2.37E+00	1.24E-04	0.00E+00
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	4.04E-03	1.74E-03	1.71E-03	6.63E-02	2.82E-04	2.70E-04	1.62E-04	1.54E+01	6.43E-05	6.22E-05
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	1.86E-03	7.98E-04	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	1.71E-04	4.29E-05	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	2.74E-03	4.12E-04	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	4.58E-04	1.54E-04	1.51E-04	3.11E-03	6.51E-06	6.22E-06	5.81E-06	5.52E-01	5.69E-06	1.10E-06
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	2.33E-05	9.98E-06	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	2.14E-06	5.36E-07	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	2.38E-03	3.57E-04	-	-	-	-
	Roller	0	0	0	0	1.51E-02	2.56E-03	2.52E-03	9.73E-03	8.58E-05	8.21E-05	3.84E-05	2.97E+00	3.09E-04	0.00E+00
Paving	fugitive VOC	-				-	1.97E-03	1.97E-03	-	-	-	-			
	Skip Loader	0	0	0	0	1.33E-02	2.24E-03	2.21E-03	8.54E-03	7.53E-05	7.21E-05	3.37E-05	2.60E+00	1.36E-04	0.00E+00
	Tack coat sprayer	0	0	0	0	2.99E-04	8.45E-05	8.32E-05	1.49E-03	1.26E-04	1.20E-04	1.57E-06	1.45E-01	5.79E-06	0.00E+00
	Striping Machine	0	0	0	0	1.36E-04	3.84E-05	3.78E-05	6.76E-04	5.72E-05	5.47E-05	7.15E-07	6.61E-02	2.63E-06	0.00E+00
exhaust	Concrete Trucks (offsite)	0	0	0	0	4.05E-05	1.74E-05	1.71E-05	6.65E-04	2.83E-06	2.71E-06	1.63E-06	1.55E-01	6.45E-07	6.24E-07
brake wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	1.87E-05	8.00E-06	-	-	-	-
tire wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	1.72E-06	4.30E-07	-	-	-	-
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	2.75E-05	4.13E-06	-	-	-	-
exhaust	Concrete Trucks (onsite)	0	0	0	0	2.83E-06	9.50E-07	9.34E-07	1.92E-05	4.02E-08	3.84E-08	3.58E-08	3.41E-03	3.51E-08	6.80E-09
brake wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	1.44E-07	6.16E-08	-	-	-	-
tire wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	1.32E-08	3.31E-09	-	-	-	-
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	1.47E-05	2.21E-06	-	-	-	-
	Crane	0	0	0	0	1.30E-02	2.20E-03	2.17E-03	8.38E-03	7.39E-05	7.07E-05	2.77E-05	2.56E+00	1.54E-04	0.00E+00
exhaust	Worker Commute (offsite)	0	0	0	0	5.10E-03	6.50E-04	5.81E-04	4.56E-04	1.00E-05	9.23E-06	1.34E-05	1.21E+00	3.62E-05	2.22E-04
brake wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	1.39E-04	5.95E-05	-	-	-	-
tire wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	3.02E-05	7.56E-06	-	-	-	-
entrained road dust	Worker Commute (offsite)	-	-	-	-	-	-	-	-	7.26E-04	1.09E-04	-	-	-	-
	Phase 5 Total	*0*	*0*	*0*	*0*	*0.23*	*0.04*	*0.04*	*0.29*	*0.02*	*0.01*	*0.00*	*77.80*	*0.00*	*0.00*
	Off-road Construction Equipment Exhaust	*0*	*0*	*0*	*0*	*0.21*	*0.04*	*0.04*	*0.14*	*0.00*	*0.00*	*0.00*	*41.51*	*0.00*	*0.00*
	Marine Source Exhaust	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	On-Road Construction Vehicles	*0*	*0*	*0*	*0*	*0.01*	*0.00*	*0.00*	*0.15*	*0.02*	*0.00*	*0.00*	*35.08*	*0.00*	*0.00*
	Worker Vehicles	*0*	*0*	*0*	*0*	*0.01*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.21*	*0.00*	*0.00*
	Fugitive Emissions (VOC)	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (Dust)	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Phase 6: Entrace Gate Development															
Construction & Demolition of the Main Gate															
Realignment of Cannery Street & Terminal Way	Excavator	2.70E-04	2.17E+01	1.15E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Backhoe	1.30E-04	1.00E+01	7.62E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Sawcutter	1.38E-04	1.07E+01	8.46E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Excavator	4.08E-04	3.29E+01	1.74E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Backhoe	1.96E-04	1.52E+01	1.15E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
Grading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
exhaust	Haul Trucks - AC pavement (offsite)	2.95E-04	2.81E+01	1.17E-04	1.13E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	2.11E-05	2.01E+00	2.07E-05	4.01E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year							2019 Emissions tonne/year		
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Slurry Truck (offsite)	6.08E-04	5.79E+01	2.41E-04	2.33E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Slurry Truck (onsite)	1.74E-05	1.66E+00	1.71E-05	3.30E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
	Water Truck	8.82E-04	7.96E+01	4.38E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Forklift	6.88E-05	5.55E+00	2.86E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Concrete Trucks (offsite)	5.53E-05	5.26E+00	2.19E-05	2.12E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Concrete Trucks (onsite)	1.22E-06	1.16E-01	1.19E-06	2.31E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - base CMB (offsite)	2.95E-04	2.81E+01	1.17E-04	1.13E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - base CMB (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - base CMB (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - base CMB (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - base CMB (onsite)	2.11E-05	2.01E+00	2.07E-05	4.01E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - base CMB (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - base CMB (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - base CMB (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Loading	fugitive dust (offsite)	-	-	-	-	-	-	-	-	0	0	-			
Loading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
	Roller	1.51E-04	1.17E+01	1.22E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Skip Loader	1.33E-04	1.03E+01	5.38E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - AC pavement (offsite)	4.01E-04	3.81E+01	1.59E-04	1.54E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	1.43E-05	1.36E+00	1.41E-05	2.72E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
	Roller	1.89E-04	1.46E+01	1.52E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
Paving	fugitive VOC	-				-	0	0	-	-	-	-			
	Skip Loader	1.66E-04	1.28E+01	6.72E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Tack coat sprayer	1.69E-06	1.56E-01	6.23E-06	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Tack coat sprayer	1.69E-06	1.56E-01	6.23E-06	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Crane	3.55E-04	3.28E+01	1.97E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Crane	1.26E-04	1.16E+01	6.98E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Striping Machine	3.24E-06	3.00E-01	1.19E-05	0.00E+00	0	0	0	0	0	0	0	0	0	0
Vacant Properties	Sawcutter	1.38E-04	1.07E+01	8.46E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Excavator	4.08E-04	3.29E+01	1.74E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
Demolition	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
	Backhoe	1.96E-04	1.52E+01	1.15E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
Grading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
exhaust	Haul Trucks - AC pavement (offsite)	2.41E-04	2.29E+01	9.54E-05	9.24E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	1.72E-05	1.64E+00	1.69E-05	3.27E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year						2019 Emissions tonne/year			
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
Debris	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
exhaust	Haul Trucks - soil (offsite)	2.14E-04	4.29E+01	1.78E-04	1.73E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - soil (onsite)	3.23E-06	3.07E-01	3.16E-06	6.12E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Loading	fugitive dust (offsite)	-	-	-	-	-	-	-	-	0	0	-			
Loading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
	Water Truck	8.82E-04	7.96E+01	4.38E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Forklift	2.03E-04	1.64E+01	8.44E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Concrete Trucks (offsite)	1.63E-04	1.55E+01	6.45E-05	6.24E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Concrete Trucks (onsite)	3.58E-06	3.41E-01	3.51E-06	6.80E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Concrete Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
	Crane	1.15E-04	1.06E+01	6.38E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - base CMB (offsite)	1.76E-03	1.67E+02	6.97E-04	6.74E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - base CMB (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - base CMB (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - base CMB (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - base CMB (onsite)	1.26E-04	1.20E+01	1.23E-04	2.39E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - base CMB (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - base CMB (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - base CMB (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Loading	fugitive dust (offsite)	-	-	-	-	-	-	-	-	0	0	-			
Loading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
	Roller	4.54E-04	3.51E+01	3.65E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Paving Machine	2.06E-04	1.59E+01	2.12E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
Paving	fugitive VOC	-				-	0	0	-	-	-	-			
exhaust	Haul Trucks - AC pavement (offsite)	1.45E-03	1.38E+02	5.74E-04	5.56E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	5.19E-05	4.93E+00	5.09E-05	9.84E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
	Roller	4.47E-04	3.46E+01	3.60E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Skip Loader	6.95E-05	5.37E+00	2.81E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Striping Machine	3.24E-06	3.00E-01	1.19E-05	0.00E+00	0	0	0	0	0	0	0	0	0	0
Inside Terminal	Sawcutter	6.75E-05	5.22E+00	4.13E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Excavator	2.82E-04	2.28E+01	1.21E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
Demolition	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
	Backhoe	1.36E-04	1.05E+01	7.97E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Haul Trucks - AC pavement (offsite)	2.03E-04	1.93E+01	8.05E-05	7.80E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	1.46E-05	1.38E+00	1.43E-05	2.76E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Debris	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
exhaust	Slurry Truck (offsite)	3.76E-05	3.57E+00	1.49E-05	1.44E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year							2019 Emissions tonne/year		
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
tire wear	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Slurry Truck (onsite)	1.08E-06	1.02E-01	1.05E-06	2.04E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Slurry Truck (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
	Cold Planer	1.84E-04	1.70E+01	6.77E-04	0.00E+00	4.54E-02	7.67E-03	7.55E-03	2.92E-02	2.57E-04	2.46E-04	9.63E-05	8.90E+00	3.55E-04	0.00E+00
	Sweeper	2.85E-04	2.57E+01	1.41E-03	0.00E+00	6.88E-02	1.16E-02	1.14E-02	4.42E-02	3.90E-04	3.73E-04	1.49E-04	1.35E+01	7.41E-04	0.00E+00
	Paving Machine	0	0	0	0	5.38E-02	9.09E-03	8.94E-03	3.46E-02	3.05E-04	2.92E-04	1.36E-04	1.05E+01	1.41E-03	0.00E+00
exhaust	Haul Trucks - AC pavement (offsite)	0	0	0	0	1.01E-02	4.35E-03	4.28E-03	1.66E-01	7.07E-04	6.77E-04	4.07E-04	3.87E+01	1.61E-04	1.56E-04
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	4.67E-03	2.00E-03	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	4.30E-04	1.07E-04	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	6.87E-03	1.03E-03	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	0	0	0	0	1.15E-03	3.86E-04	3.79E-04	7.80E-03	1.63E-05	1.56E-05	1.46E-05	1.38E+00	1.43E-05	2.76E-06
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	5.83E-05	2.50E-05	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	5.37E-06	1.34E-06	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	5.97E-03	8.96E-04	-	-	-	-
	Roller	0	0	0	0	1.17E-01	1.97E-02	1.94E-02	7.50E-02	6.62E-04	6.33E-04	2.96E-04	2.29E+01	2.38E-03	0.00E+00
	Skip Loader	0	0	0	0	5.13E-02	8.66E-03	8.52E-03	3.29E-02	2.90E-04	2.78E-04	1.30E-04	1.00E+01	5.25E-04	0.00E+00
	Striping Machine	0	0	0	0	5.63E-04	1.59E-04	1.57E-04	2.80E-03	2.37E-04	2.27E-04	2.96E-06	2.74E-01	1.09E-05	0.00E+00
exhaust	Worker Commute (offsite)	1.55E-04	1.40E+01	4.20E-04	2.58E-03	1.61E-02	2.05E-03	1.84E-03	1.44E-03	3.17E-05	2.92E-05	4.23E-05	3.82E+00	1.14E-04	7.02E-04
brake wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	4.39E-04	1.88E-04	-	-	-	-
tire wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	9.56E-05	2.39E-05	-	-	-	-
entrained road dust	Worker Commute (offsite)	-	-	-	-	-	-	-	-	2.30E-03	3.44E-04	-	-	-	-
	Phase 6 Total	*0.01*	*1216.51*	*0.04*	*0.00*	*0.36*	*0.06*	*0.06*	*0.39*	*0.02*	*0.01*	*0.00*	*109.99*	*0.01*	*0.00*
	Off-road Construction Equipment Exhaust	*0.01*	*608.03*	*0.04*	*0.00*	*0.34*	*0.06*	*0.06*	*0.22*	*0.00*	*0.00*	*0.00*	*66.12*	*0.01*	*0.00*
	Marine Source Exhaust	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	On-Road Construction Vehicles	*0.01*	*594.45*	*0.00*	*0.00*	*0.01*	*0.00*	*0.00*	*0.17*	*0.02*	*0.00*	*0.00*	*40.05*	*0.00*	*0.00*
	Worker Vehicles	*0.00*	*14.03*	*0.00*	*0.00*	*0.02*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*3.82*	*0.00*	*0.00*
	Fugitive Emissions (VOC)	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (Dust)	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Crane Delivery															
	Cargo Ship (Berth+Zones 1-5)	0	0	0	0	7.04E-01	3.11E-01	3.07E-01	8.46E+00	1.54E-01	1.42E-01	3.00E-01	7.87E+02	1.26E-02	4.27E-02
	Tug Boat	0	0	0	0	8.03E-03	5.27E-04	5.18E-04	9.50E-03	2.35E-04	2.10E-04	8.82E-06	9.45E-01	9.07E-06	4.49E-05
	Crane	0	0	0	0	3.90E-02	6.58E-03	6.48E-03	2.50E-02	2.21E-04	2.11E-04	8.26E-05	7.64E+00	4.60E-04	0.00E+00
	Welder	0	0	0	0	9.06E-03	1.53E-03	1.51E-03	5.82E-03	5.14E-05	4.91E-05	2.30E-05	1.78E+00	1.20E-04	0.00E+00
	Tractor	0	0	0	0	9.46E-02	1.60E-02	1.57E-02	6.08E-02	5.36E-04	5.13E-04	2.30E-04	1.85E+01	8.70E-04	0.00E+00
exhaust	Worker Commute (offsite)	0	0	0	0	3.70E-03	4.72E-04	4.22E-04	3.31E-04	7.27E-06	6.70E-06	9.71E-06	8.77E-01	2.63E-05	1.61E-04
brake wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	1.01E-04	4.32E-05	-	-	-	-
tire wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	2.20E-05	5.49E-06	-	-	-	-
entrained road dust	Worker Commute (offsite)	-	-	-	-	-	-	-	-	5.27E-04	7.91E-05	-	-	-	-
	Crane Delivery Total	*0*	*0*	*0*	*0*	*0.86*	*0.34*	*0.33*	*8.56*	*0.16*	*0.14*	*0.30*	*817.19*	*0.01*	*0.04*
	Off-road Construction Equipment Exhaust	*0*	*0*	*0*	*0*	*0.14*	*0.02*	*0.02*	*0.09*	*0.00*	*0.00*	*0.00*	*27.95*	*0.00*	*0.00*
	Marine Source Exhaust	*0*	*0*	*0*	*0*	*0.71*	*0.31*	*0.31*	*8.47*	*0.15*	*0.14*	*0.30*	*788.36*	*0.01*	*0.04*
	On-Road Construction Vehicles	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Worker Vehicles	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.88*	*0.00*	*0.00*
	Fugitive Emissions (VOC)	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Fugitive Emissions (Dust)	*0*	*0*	*0*	*0*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Phase 7: TICTF Loading Track															
Installation of an additional loading track															
exhaust	Delivery Trucks (offsite)	1.25E-05	1.19E+00	4.96E-06	4.80E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Delivery Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Delivery Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Delivery Trucks (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Delivery Trucks (onsite)	8.96E-07	8.52E-02	8.79E-07	1.70E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Delivery Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Delivery Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Delivery Trucks (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - base CMB (offsite)	1.00E-04	9.52E+00	3.97E-05	3.84E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - base CMB (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - base CMB (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year						2019 Emissions tonne/year			
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
entrained road dust	Haul Trucks - base CMB (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - base CMB (onsite)	7.17E-06	6.82E-01	7.03E-06	1.36E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - base CMB (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - base CMB (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - base CMB (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Loading	fugitive dust (offsite)	-	-	-	-	-	-	-	-	0	0	-			
Loading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
exhaust	Haul Trucks - AC pavement (offsite)	4.06E-05	3.86E+00	1.61E-05	1.56E-05	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - AC pavement (onsite)	2.90E-06	2.76E-01	2.85E-06	5.51E-07	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - AC pavement (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - soil (offsite)	4.97E-04	9.95E+01	4.15E-04	4.01E-04	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
exhaust	Haul Trucks - soil (onsite)	7.49E-06	7.12E-01	7.35E-06	1.42E-06	0	0	0	0	0	0	0	0	0	0
brake wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Haul Trucks - soil (onsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Loading	fugitive dust (offsite)	-	-	-	-	-	-	-	-	0	0	-			
Loading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
	Sawcutter	6.74E-05	5.21E+00	4.12E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Excavator	1.31E-04	1.06E+01	5.62E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Tamper	4.95E-04	4.47E+01	2.07E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Regulator	2.85E-04	2.63E+01	1.05E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Speed Swing	5.56E-04	5.14E+01	2.05E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Forklift	1.41E-04	1.13E+01	5.83E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Loader	1.36E-04	1.05E+01	7.96E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Blade/Grader	3.10E-04	2.50E+01	1.46E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
Grading	fugitive dust (onsite)	-	-	-	-	-	-	-	-	0	0	-			
	Swivel Dump	5.56E-04	5.14E+01	2.05E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Water Truck	7.45E-04	6.72E+01	3.70E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Prentice Loader	3.93E-04	3.64E+01	1.45E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Tie Truck	6.10E-04	5.50E+01	3.03E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Paving Machine	1.08E-04	8.32E+00	1.11E-03	0.00E+00	0	0	0	0	0	0	0	0	0	0
Paving	fugitive VOC	-				-	0	0	-	-	-	-			
	Roller	1.17E-04	9.03E+00	9.39E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
	Skip Loader	1.02E-04	7.93E+00	4.15E-04	0.00E+00	0	0	0	0	0	0	0	0	0	0
exhaust	Worker Commute (offsite)	7.33E-05	6.62E+00	1.98E-04	1.22E-03	0	0	0	0	0	0	0	0	0	0
brake wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
tire wear	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
entrained road dust	Worker Commute (offsite)	-	-	-	-	-	-	-	-	0	0	-	-	-	-
	Phase 7 Total	*0.01*	*542.81*	*0.02*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Off-road Construction Equipment Exhaust	*0.00*	*420.34*	*0.02*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Marine Source Exhaust	*0.00*	*0.00*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	On-Road Construction Vehicles	*0.00*	*115.84*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Worker Vehicles	*0.00*	*6.62*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (VOC)	*0.00*	*0.00*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Fugitive Emissions (Dust)	*0.00*	*0.00*	*0.00*	*0.00*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Proposed Total	**Ocean Disposal**	**0.04**	**3666.70**	**0.12**	**0.03**	**1.60**	**0.47**	**0.46**	**9.47**	**0.22**	**0.16**	**0.30**	**1078.30**	**0.02**	**0.05**
	Off-road Construction Equipment Exhaust	0.02	2144.70	0.11	0.00	0.82	0.14	0.14	0.53	0.01	0.00	0.00	160.63	0.01	0.00
	Marine Source Exhaust	0.00	471.38	0.00	0.02	0.71	0.31	0.31	8.47	0.15	0.14	0.30	788.36	0.01	0.04
	On-Road Construction Vehicles	0.01	1030.51	0.00	0.00	0.03	0.01	0.01	0.47	0.05	0.01	0.00	119.66	0.00	0.00
	Worker Vehicles	0.00	20.11	0.00	0.00	0.04	0.01	0.00	0.00	0.01	0.00	0.00	9.66	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2018 Emissions ton/year				2019 Emissions ton/year									
			2018 Emissions tonne/year										2019 Emissions tonne/year		
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
	Upland Disposal	**0.05**	**4975.23**	**0.14**	**0.03**	**1.60**	**0.47**	**0.46**	**9.47**	**0.22**	**0.16**	**0.30**	**1078.30**	**0.02**	**0.05**
	Off-road Construction Equipment Exhaust	0.03	2542.32	0.13	0.00	0.82	0.14	0.14	0.53	0.01	0.00	0.00	160.63	0.01	0.00
	Marine Source Exhaust	0.00	301.25	0.00	0.01	0.71	0.31	0.31	8.47	0.15	0.14	0.30	788.36	0.01	0.04
	On-Road Construction Vehicles	0.01	2109.55	0.01	0.01	0.03	0.01	0.01	0.47	0.05	0.01	0.00	119.66	0.00	0.00
	Worker Vehicles	0.00	22.11	0.00	0.00	0.04	0.01	0.00	0.00	0.01	0.00	0.00	9.66	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
General Conformity	**Ocean Disposal**	**0.02**	**1957.65**	**0.07**	**0.02**	**1.01**	**0.36**	**0.36**	**8.78**	**0.17**	**0.15**	**0.30**	**887.70**	**0.02**	**0.04**
	Off-road Construction Equipment Exhaust	0.02	1463.67	0.07	0.00	0.27	0.05	0.04	0.17	0.00	0.00	0.00	53.00	0.00	0.00
	Marine Source Exhaust	0.00	471.38	0.00	0.02	0.71	0.31	0.31	8.47	0.15	0.14	0.30	788.36	0.01	0.04
	On-Road Construction Vehicles	0.00	20.56	0.00	0.00	0.01	0.00	0.00	0.13	0.01	0.00	0.00	42.51	0.00	0.00
	Worker Vehicles	0.00	2.04	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	3.83	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Upland Disposal	**0.03**	**3266.18**	**0.09**	**0.02**	**1.01**	**0.36**	**0.36**	**8.78**	**0.17**	**0.15**	**0.30**	**887.70**	**0.02**	**0.04**
	Off-road Construction Equipment Exhaust	0.02	1861.29	0.08	0.00	0.27	0.05	0.04	0.17	0.00	0.00	0.00	53.00	0.00	0.00
	Marine Source Exhaust	0.00	301.25	0.00	0.01	0.71	0.31	0.31	8.47	0.15	0.14	0.30	788.36	0.01	0.04
	On-Road Construction Vehicles	0.01	1099.60	0.00	0.00	0.01	0.00	0.00	0.13	0.01	0.00	0.00	42.51	0.00	0.00
	Worker Vehicles	0.00	4.04	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	3.83	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Alt 1 No Federal Action		**0.01**	**1216.51**	**0.04**	**0.00**	**0.59**	**0.11**	**0.10**	**0.68**	**0.05**	**0.01**	**0.00**	**187.78**	**0.01**	**0.00**
	Off-road Construction Equipment Exhaust	0.01	608.03	0.04	0.00	0.55	0.09	0.09	0.36	0.00	0.00	0.00	107.63	0.01	0.00
	Marine Source Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	On-Road Construction Vehicles	0.01	594.45	0.00	0.00	0.02	0.01	0.01	0.32	0.04	0.01	0.00	75.13	0.00	0.00
	Worker Vehicles	0.00	14.03	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	5.03	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Alt 3 Reduced Wharf Improvements	**Ocean Disposal**	**0.03**	**3020.43**	**0.10**	**0.02**	**1.60**	**0.47**	**0.46**	**9.47**	**0.22**	**0.16**	**0.30**	**1078.30**	**0.02**	**0.05**
	Off-road Construction Equipment Exhaust	0.02	1639.47	0.09	0.00	0.82	0.14	0.14	0.53	0.01	0.00	0.00	160.63	0.01	0.00
	Marine Source Exhaust	0.00	335.49	0.00	0.02	0.71	0.31	0.31	8.47	0.15	0.14	0.30	788.36	0.01	0.04
	On-Road Construction Vehicles	0.01	1025.77	0.00	0.00	0.03	0.01	0.01	0.47	0.05	0.01	0.00	119.66	0.00	0.00
	Worker Vehicles	0.00	19.70	0.00	0.00	0.04	0.01	0.00	0.00	0.01	0.00	0.00	9.66	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Upland Disposal	**0.04**	**3943.15**	**0.11**	**0.02**	**1.60**	**0.47**	**0.46**	**9.47**	**0.22**	**0.16**	**0.30**	**1078.30**	**0.02**	**0.05**
	Off-road Construction Equipment Exhaust	0.02	1826.05	0.10	0.00	0.82	0.14	0.14	0.53	0.01	0.00	0.00	160.63	0.01	0.00
	Marine Source Exhaust	0.00	183.40	0.00	0.01	0.71	0.31	0.31	8.47	0.15	0.14	0.30	788.36	0.01	0.04
	On-Road Construction Vehicles	0.01	1912.98	0.01	0.01	0.03	0.01	0.01	0.47	0.05	0.01	0.00	119.66	0.00	0.00
	Worker Vehicles	0.00	20.73	0.00	0.00	0.04	0.01	0.00	0.00	0.01	0.00	0.00	9.66	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Alt 4 No Backland Improvements	**Ocean Disposal**	**0.02**	**2450.20**	**0.08**	**0.03**	**1.01**	**0.36**	**0.36**	**8.79**	**0.17**	**0.15**	**0.30**	**890.52**	**0.02**	**0.04**
	Off-road Construction Equipment Exhaust	0.02	1536.68	0.07	0.00	0.27	0.05	0.04	0.17	0.00	0.00	0.00	53.00	0.00	0.00
	Marine Source Exhaust	0.00	471.38	0.00	0.02	0.71	0.31	0.31	8.47	0.15	0.14	0.30	788.36	0.01	0.04
	On-Road Construction Vehicles	0.00	436.06	0.00	0.00	0.01	0.00	0.00	0.14	0.02	0.00	0.00	44.53	0.00	0.00
	Worker Vehicles	0.00	6.07	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	4.63	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Upland Disposal	**0.03**	**3758.72**	**0.10**	**0.02**	**1.01**	**0.36**	**0.36**	**8.79**	**0.17**	**0.15**	**0.30**	**890.52**	**0.02**	**0.04**
	Off-road Construction Equipment Exhaust	0.02	1934.29	0.09	0.00	0.27	0.05	0.04	0.17	0.00	0.00	0.00	53.00	0.00	0.00
	Marine Source Exhaust	0.00	301.25	0.00	0.01	0.71	0.31	0.31	8.47	0.15	0.14	0.30	788.36	0.01	0.04
	On-Road Construction Vehicles	0.01	1515.10	0.01	0.01	0.01	0.00	0.00	0.14	0.02	0.00	0.00	44.53	0.00	0.00
	Worker Vehicles	0.00	8.08	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	4.63	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Alt 5 Expanded On-Dock Rail Yard	**Ocean Disposal**	**0.04**	**4209.51**	**0.14**	**0.03**	**1.60**	**0.47**	**0.46**	**9.47**	**0.22**	**0.16**	**0.30**	**1078.30**	**0.02**	**0.05**
	Off-road Construction Equipment Exhaust	0.03	2565.04	0.13	0.00	0.82	0.14	0.14	0.53	0.01	0.00	0.00	160.63	0.01	0.00
	Marine Source Exhaust	0.00	471.38	0.00	0.02	0.71	0.31	0.31	8.47	0.15	0.14	0.30	788.36	0.01	0.04
	On-Road Construction Vehicles	0.01	1146.36	0.01	0.00	0.03	0.01	0.01	0.47	0.05	0.01	0.00	119.66	0.00	0.00
	Worker Vehicles	0.00	26.73	0.00	0.00	0.04	0.01	0.00	0.00	0.01	0.00	0.00	9.66	0.00	0.00

Table 45. Annual Mitigated Construction Emissions

Phase	Equipment	2018 Emissions ton/year	2018 Emissions tonne/year			2019 Emissions ton/year							2019 Emissions tonne/year		
		SOx	CO2	CH4	N2O	CO	TOG	VOC	NOx	PM10	PM2_5	SOx	CO2	CH4	N2O
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Upland Disposal	**0.05**	**5518.04**	**0.16**	**0.03**	**1.60**	**0.47**	**0.46**	**9.47**	**0.22**	**0.16**	**0.30**	**1078.30**	**0.02**	**0.05**
	Off-road Construction Equipment Exhaust	0.03	2962.66	0.15	0.00	0.82	0.14	0.14	0.53	0.01	0.00	0.00	160.63	0.01	0.00
	Marine Source Exhaust	0.00	301.25	0.00	0.01	0.71	0.31	0.31	8.47	0.15	0.14	0.30	788.36	0.01	0.04
	On-Road Construction Vehicles	0.02	2225.39	0.01	0.01	0.03	0.01	0.01	0.47	0.05	0.01	0.00	119.66	0.00	0.00
	Worker Vehicles	0.00	28.73	0.00	0.01	0.04	0.01	0.00	0.00	0.01	0.00	0.00	9.66	0.00	0.00
	Fugitive Emissions (VOC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions (Dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sources:
2016_05 B226-236 Construction Schedule_EIR.pdf
E-mail from B. Correa (POLA) to J. Bahng (POLA) on 1/5/15 (hours of operation)
Barge equipment operations from BargeEquipmentOperatingHrs+ENG+EMD.xlsx received 11/16/

Table 46. South Coast Air Basin 2018 Offroad Equipment Mitigated Emission Factors

Equipment type	Proposed Project		Emission Factor (g/hr)										
	HP	LF	CO	HC	TOG	NOx	PM	PM10	PM2_5	SOx	CO2	CH4	N2O
Derrick Barge													
Compressor	353	0.54	214.4	67.9	72.6	480.5	16.9	16.8	16.1	1.1	108,329	5.5	0.0
Barge Crane	300	0.29	87.3	17.9	19.1	96.6	2.9	2.9	2.8	0.5	49,442	1.4	0.0
Deck Door Engine	86	0.89	77.8	16.1	17.2	191.7	5.1	5.1	4.9	0.5	43,498	1.3	0.0
Dredger (Clam Shell)	527	0.51	307.0	103.2	110.4	700.8	24.8	24.7	23.6	1.5	152,742	8.3	0.0
Generator	464	0.75	397.4	133.1	142.4	884.5	31.8	31.6	30.2	1.9	197,768	10.7	0.0
Hoist Swing Winch	379	0.31	132.9	43.0	46.0	297.1	10.5	10.5	10.0	0.7	66,769	3.5	0.0
Hoist Swing Pump	517	0.71	390.5	98.0	104.9	901.2	28.5	28.3	27.1	2.0	208,606	7.9	0.0
Vibratory Hammer	439	0.62	288.6	56.4	81.6	862.0	31.2	31.0	29.7	1.5	154,680	6.2	0.0
Pile Hammer	439	0.62	288.6	56.4	81.6	862.0	31.2	31.0	29.7	1.5	154,680	6.2	0.0
Jet Pump	113	0.74	300.7	41.3	42.4	455.0	34.8	34.6	33.1	0.6	47,521	3.2	0.0
Excavator	211	0.57	316.4	50.0	53.4	203.3	1.8	1.8	1.7	0.8	68,349	3.6	0.0
Sawcutter	81	0.73	155.6	24.6	26.3	99.9	0.9	0.9	0.8	0.4	33603.5	2.7	0.0
Backhoe	101	0.55	146.2	23.1	24.7	93.9	0.8	0.8	0.8	0.4	31,569	2.4	0.0
Vibrating Compactor	8	0.43	9.1	1.4	1.5	5.8	0.1	0.1	0.0	0.0	1954.9	0.2	0.0
Forklift	200	0.3	157.9	24.9	26.7	101.4	0.9	0.9	0.9	0.4	34,098	1.8	0.0
Crane	279	0.43	315.6	49.8	53.3	202.7	1.8	1.8	1.7	0.7	68,179	4.1	0.0
Grading Machine	217	0.61	348.3	55.0	58.8	223.7	2.0	2.0	1.9	0.8	75,226	4.4	0.0
Roller	113	0.56	166.5	26.3	28.1	106.9	0.9	0.9	0.9	0.4	35,962	3.7	0.0
Skip Loader	101	0.55	146.2	23.1	24.7	93.9	0.8	0.8	0.8	0.4	31,569	1.7	0.0
Tack Coat Sprayer	5	0.62	3.3	3.0	0.9	16.3	1.4	1.4	1.3	0.0	1,762	0.1	0.0
Striping Machine	5	0.62	3.3	3.0	0.9	16.3	1.4	1.4	1.3	0.0	1,762	0.1	0.0
Paving Machine	110	0.53	153.4	24.2	25.9	98.5	0.9	0.9	0.8	0.4	33,132	4.4	0.0
Cold Planer	350	0.55	506.5	79.9	85.5	325.3	2.9	2.9	2.7	1.1	109,398	4.4	0.0
Sweeper	511	0.57	766.3	121.0	129.4	492.2	4.4	4.3	4.2	1.7	165,529	9.1	0.0
Water Truck	511	0.57	766.3	121.0	129.4	492.2	4.4	4.3	4.2	1.7	165,529	9.1	0.0
Welder	62	0.45	73.4	11.6	12.4	47.2	0.4	0.4	0.4	0.2	15,856	1.1	0.0
Tractor	511	0.57	766.3	121.0	129.4	492.2	4.4	4.3	4.2	1.9	165,529	7.8	0.0
Tamper	526	0.45	622.8	98.3	105.2	400.0	3.6	3.5	3.4	1.4	134,516	6.2	0.0
Regulator	225	0.62	367.0	57.9	62.0	235.8	2.1	2.1	2.0	0.8	79,278	3.2	0.0
Speed Swing	439	0.62	716.1	113.0	121.0	460.0	4.1	4.1	3.9	1.5	154,680	6.2	0.0
Loader	101	0.55	146.2	23.1	24.7	93.9	0.8	0.8	0.8	0.4	31,569	2.4	0.0
Blade/Grader	217	0.61	348.3	55.0	58.8	223.7	2.0	2.0	1.9	0.8	75,226	4.4	0.0
Swivel Dump	439	0.62	716.1	113.0	121.0	460.0	4.1	4.1	3.9	1.5	154,680	6.2	0.0
Prentice Loader	350	0.55	506.5	79.9	85.5	325.3	2.9	2.9	2.7	1.1	109,398	4.4	0.0
Tie Truck	511	0.57	766.3	121.0	129.4	492.2	4.4	4.3	4.2	1.7	165,529	9.1	0.0

Sources: OFFROAD2007 Emission Rates, 2011 In-Use Off-Road Equipment Inventory Model

Conversion Factors

2000	lb/ton	
453.592	g/lb	

PM Fractions

	PM10/PM	0.994
	PM2.5/PM	0.951

Profile No. 6179 (Offroad Diesel Vehicle Exhaust)

CARB. 2014. PM10 Size Fraction: CARB Speciation Profiles. August 20. Available at: http://www.arb.ca.gov/ei/speciate/speciate.htm#specprof. Accessed 1/27/.

Diesel	TOG/THC	1.07
	VOC/TOG	0.98

EPA. 2010. Conversion Factors for Hydrocarbon Emission Components. EPA-420-R-10-015. July.

Table 47. LAHD Sustainable Construction Guidelines Table A: Compliance Step-Down Schedule

				(g/bhp-hr)	(g/bhp-hr)	(g/bhp-hr)	(g/bhp-hr)
Compliance Alternative	**Engine Standard**	**CARB-Verified DECS**	**Distribution**	**PM**	**NOx**	**CO**	**VOC**
1	Tier 4	N/A	50%	0.01	0.3	2.55	0.15
2	Tier 3	Level 3	45%	0.02	2.9	2.71	0.56
3	Tier 2	Level 3	5%	0.02	4.7	2.71	2.19
Composite Emission Factor			**100%**	**0.02**	**1.69**	**2.63**	**0.44**

Table 48. South Coast Air Basin 2018 Onroad Vehicle Mitigated Emission Rate Summary (g/mi, or g/idle-hour for idle)

Vehicle Type	Speed (mph)	CO	HC	TOG	ROG	NOx	PM Exhaust	PM Brake Wear	PM Tire Wear	PM10 Exhaust	PM10 Brake Wear	PM10 Tire Wear	PM2_5 Exhaust	PM2_5 Brake Wear	PM2_5 Tire Wear	SOx	CO2	CH4	N2O
LDA-LDT1-LDT2	Aggregated	1.349	0.161	0.172	0.160	0.121	0.003	0.037	0.008	0.003	0.037	0.008	0.002	0.016	0.002	0.004	352.4	0.011	0.0647
LDT2	Aggregated	1.488	0.170	0.182	0.169	0.157	0.003	0.037	0.008	0.002	0.037	0.008	0.002	0.016	0.002	0.004	434.3	0.012	0.0647
T6 Instate Construction Heavy	Aggregated	0.283	0.084	0.122	0.107	4.641	0.020	0.133	0.012	0.020	0.130	0.012	0.019	0.056	0.003	0.011	1190.409	0.005	0.005
LDT2	10	1.870	0.125	0.135	0.094	0.194	0.008	0.037	0.008	0.007	0.037	0.008	0.007	0.016	0.002	0.010	953.411	0.036	0.065
T6 Instate Construction Heavy	10	1.681	0.511	0.737	0.647	9.868	0.036	0.133	0.012	0.036	0.130	0.012	0.035	0.056	0.003	0.020	2093.845	0.030	0.005
T6 Instate Construction Heavy	Idle	5.314	0.519	0.749	0.658	45.416	0.001	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.075	7888.178	0.031	0.012

Source: EMFAC2014

Table 49. Construction Harbor Craft Type and Emission Factors

Emission Source		# Engine	Average Power (hp)	(kw)	Load Factor	Engine Tier	Emission Factors (g/kW-hr) PM10	PM2.5	DPM	NOx	SOX	CO	HC	VOC	CO2	CH4	N2O	Average Model Year	Compliance Date
Assist tug																			
	Propulsion	2	1908	1423	0.31	Tier 1	0.54	0.48	0.54	17.00	0.01	11.40	1.30	1.37	652.00	0.026	0.031	2003	12/31/2016
	Auxiliary	1	182	136	0.43	Tier 2	0.20	0.18	0.20	6.84	0.01	5.00	0.36	0.38	652.00	0.007	0.031	2007	12/31/2020
Tug Boat																			
	Propulsion	2	680	507	0.31	Tier 3	0.14	0.12	0.14	5.89	0.0055	5.0	0.31	0.33	652	0.006	0.031	2008	N/A
	Auxiliary	1	47	35	0.43	Tier 3	0.30	0.27	0.30	7.13	0.0055	5.5	0.38	0.39	652	0.008	0.031	2009	N/A
Dive Boat																			
	Propulsion	2	528	394	0.38	Tier 3	0.14	0.12	0.14	5.89	0.0055	5.0	0.31	0.33	652	0.006	0.031	2010	N/A
	Auxiliary	1	52	39	0.32	Tier 3	0.30	0.27	0.30	7.13	0.0055	5.0	0.38	0.39	652	0.008	0.031	2002	12/31/2015

Sources:

Tug boat and dive boat (weighted average of crew boat and work boat) horsepower from 2014 POLA Air Emission Inventory. Tables 4.1 and 4.2.

Tug boat and dive boat (crew/work boat) load factor from 2013 POLA Air Emission Inventory. Table 4.7.

Notes:

Tugboats assist dredging barges & scows

Assumes dive boat can be a work boat or a crew boat.

Table 50. Wharf Cranes Activity and Emission Factors					Emission Factors (lb/kW-hr)		
		Annual TEUs	Electrical Energy Consumption (kW-hr/yr)	Energy Consumption Factor (kW-hr/TEU)	CO2	CH4	N2O
Baseline							
	2013	1,240,773	4,140,223	3.34	1.135000	0.000028	0.000006
Proposed Project							
	2019	1,297,656	4,332,450	3.34	1.135000	0.000028	0.000006
	2026	1,843,297	6,153,870	3.34	1.135000	0.000028	0.000006
	2033	2,379,525	7,939,704	3.34	1.135000	0.000028	0.000006
	2038	2,379,525	7,939,704	3.34	1.135000	0.000028	0.000006
No Project							
	2019	1,278,107	4,265,928	3.34	1.135000	0.000028	0.000006
	2026	1,429,798	4,770,666	3.34	1.135000	0.000028	0.000006
	2033	1,818,000	6,065,904	3.34	1.135000	0.000028	0.000006
	2038	1,818,000	6,065,904	3.34	1.135000	0.000028	0.000006
Alt 3							
	2019	1,264,037	4,217,658	3.34	1.135000	0.000028	0.000006
	2026	1,749,023	5,836,632	3.34	1.135000	0.000028	0.000006
	2033	2,250,000	7,509,624	3.34	1.135000	0.000028	0.000006
	2038	2,250,000	7,509,624	3.34	1.135000	0.000028	0.000006
Alt 4							
	2019	1,227,556	4,096,098	3.34	1.135000	0.000028	0.000006
	2026	1,649,522	5,504,154	3.34	1.135000	0.000028	0.000006
	2033	2,115,133	7,057,428	3.34	1.135000	0.000028	0.000006
	2038	2,115,133	7,057,428	3.34	1.135000	0.000028	0.000006

Source:

Annual TEUs from LAHD. Energy Consumption Factor for Baseline based on Electrical Energy Consumption and Annual TEUs from No Project 2019, 2016, 2033 and 2038 and for future scenarios from AECOM.

CH4 and N2O emission factors are from The Climate Registry, 2015 Default Emission Factors, Table 14.1 (US Emission Factors by eGrid Subregion CAMX).

CO2 emission factor from LADWP 2014 Power Integrated Resource Plan

Table 51. 2013 Everport - Baseline Emissions

			Vessel Characteristics			Activity								
	Vessel Type	**Engine/Source Type**	**Engine Rating (kW)**	**Tier**	**Max Rated Speed (knots)**	**Peak Day Berth Calls**	**Peak Day Anchorage Calls**	**Peak Day Transits**	**Peak Day Hotelling Time Per Vessel (hr/day)**	**Hours at Anchorage within Peak Day (hr/day)**	**Annual Berth Calls**	**Annual Transits***	**Peak Day Fuel Sulfur**	**Peak Day Number of Vessels using AMP**
Baseline 2013	Container4000	Propulsion	36,553	Tier 0	23	2		2	9.9		46	92	0.5%	2
	Container4000	Propulsion	41,815	Tier 1	24						21	42	0.5%	
	Container4000	Propulsion	36,559	Tier 2	25						1	2	0.5%	
	Container4000	Auxiliary		Tier 0		2		2	9.9		46	92	0.5%	2
	Container4000	Auxiliary		Tier 1							21	42	0.5%	
	Container4000	Auxiliary		Tier 2							1	2	0.5%	
	Container4000	Auxiliary Boiler		Tier 0		2		2	9.9		46	92	0.5%	2
	Container4000	Auxiliary Boiler		Tier 1							21	42	0.5%	
	Container4000	Auxiliary Boiler		Tier 2							1	2	0.5%	
	Container5000	Propulsion	51,479	Tier 1	26						2	4	0.5%	
	Container5000	Auxiliary		Tier 1							2	4	0.5%	
	Container5000	Auxiliary Boiler		Tier 1							2	4	0.5%	
	Container6000	Propulsion	49,775	Tier 1	25						15	30	0.5%	
	Container6000	Auxiliary		Tier 1							15	30	0.5%	
	Container6000	Auxiliary Boiler		Tier 1							15	30	0.5%	
	Container7000	Propulsion	54,927	Tier 1	25	1		1	18.5		30	60	0.5%	1
	Container7000	Auxiliary		Tier 1		1		1	18.5		30	60	0.5%	1
	Container7000	Auxiliary Boiler		Tier 1		1		1	18.5		30	60	0.5%	1
	Container8000	Propulsion	66,354	Tier1	25	1		1	6.2		50	100	0.5%	1
	Container8000	Propulsion	47,429	Tier 2	22						1	2	0.5%	
	Container8000	Auxiliary		Tier1		1		1	6.2		50	100	0.5%	1
	Container8000	Auxiliary		Tier 2							1	2	0.5%	
	Container8000	Auxiliary Boiler		Tier1		1		1	6.2		50	100	0.5%	
	Container8000	Auxiliary Boiler		Tier 2							1	2	0.5%	
Total 2013						**4**		**4**			**166**	**332**		

* Annual Transit are assumed to be twice the Annual Berth Calls amounts

** Source: POLB Emissions Inventory, 2007

*** Maneuvering loads below 2% are assumed to be 2%.

Note: Everport 2013 Vessel Calls data was provided by Los Angeles Harbor District

Table 51. 2013 Everport - Baseline Emissions

	Vessel Type	Engine/Source Type	Annual Fuel Sulfur	Annual Number of Vessels using AMP		Average Auxiliary Load (kW)				elling at Anchorage		Hotelling at Berth		
						Transit	Maneuvering	Berth	Anchorage	(calls/yr)	Average Time (hr/call)	Energy Demand (kW-hr/call)	Average Time (hr/call)	Energy Demand (kW-hr/call)
Baseline 2013														
	Container4000	Propulsion	0.5%											
	Container4000	Propulsion	0.5%											
	Container4000	Propulsion	0.5%											
	Container4000	Auxiliary	0.5%	46		1,434	2,526	1,161	1,434	1	10.00	14,340	15	17,222
	Container4000	Auxiliary	0.5%	21		1,434	2,526	1,161	1,434	1	2.42	3,466	29	33,853
	Container4000	Auxiliary	0.5%	1		1,434	2,526	1,161	1,434				46	53,019
	Container4000	Auxiliary Boiler	0.5%			369	492	492	492	1	10.00	4,920	15	7,298
	Container4000	Auxiliary Boiler	0.5%			369	492	492	492	1	2.42	1,189	29	14,346
	Container4000	Auxiliary Boiler	0.5%			369	492	492	492				46	22,468
	Container5000	Propulsion	0.5%											
	Container5000	Auxiliary	0.5%	2		1,176	4,200	1,025	1,176				15	15,329
	Container5000	Auxiliary Boiler	0.5%			630	630	630	630				15	9,424
	Container6000	Propulsion	0.5%											
	Container6000	Auxiliary	0.5%	15		1,386	2,560	1,047	1,425				43	45,464
	Container6000	Auxiliary Boiler	0.5%			486	565	565	565				43	24,534
	Container7000	Propulsion	0.5%											
	Container7000	Auxiliary	0.5%	30		1,539	3,434	1,066	1,444				34	36,599
	Container7000	Auxiliary Boiler	0.5%			530	551	551	538				34	18,918
	Container8000	Propulsion	0.5%											
	Container8000	Propulsion	0.5%											
	Container8000	Auxiliary	0.5%	50		1,416	3,158	980	1,416	1	2.92	4,130	38	37,679
	Container8000	Auxiliary	0.5%	1		1,416	3,158	980	1,416				16	15,925
	Container8000	Auxiliary Boiler	0.5%			525	525	525	525	1	3	1,531	38	20,185
	Container8000	Auxiliary Boiler	0.5%			525	525	525	525				16	8,531
Total 2013										**3**				

* Annual Transit are assumed to be twice the Annual Berth Calls amounts

** Source: POLB Emissions Inventory, 2007

*** Maneuvering loads below 2% are assumed to be 2%.

Note: Everport 2013 Vessel Calls data was provided by Los Angeles Harbor Di

Table 51. 2013 Everport - Baseline Emissions

			Transit Characteristics											
	Vessel Type	**Engine/Source Type**	**AMP**		**Zone 1: Harbor**					**Zone 2: Breakwater to PZ**				
			Time (hr/call)	Energy Demand (kW-hr/call)	Speed (knots)	Distance (nm)	Maneuvering Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering* **	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Baseline 2013														
	Container4000	Propulsion			3.4	3.7	1.1	804	2%	11.0	8.3	0.8	2,767	10%
	Container4000	Propulsion			3.4	3.7	1.1	920	2%	11.0	8.3	0.8	2,849	9%
	Container4000	Propulsion			3.4	3.7	1.1	804	2%	11.0	8.3	0.8	2,491	9%
	Container4000	Auxiliary	12	13,739			1.1	2,779				0.8	1,085	
	Container4000	Auxiliary	26	30,370			1.1	2,779				0.8	1,085	
	Container4000	Auxiliary	43	49,536			1.1	2,779				0.8	1,085	
	Container4000	Auxiliary Boiler					1.1	541				0.8	279	
	Container4000	Auxiliary Boiler					1.1	541				0.8	279	
	Container4000	Auxiliary Boiler					1.1	541				0.8	279	
	Container5000	Propulsion			3.4	3.7	1.1	1,133	2%	11.0	8.3	0.8	3,117	8%
	Container5000	Auxiliary	12	12,255			1.1	4,620				0.8	890	
	Container5000	Auxiliary Boiler					1.1	693				0.8	477	
	Container6000	Propulsion			3.4	3.7	1.1	1,095	2%	11.0	8.3	0.8	3,014	8%
	Container6000	Auxiliary	40	42,323			1.1	2,816				0.8	1,049	
	Container6000	Auxiliary Boiler					1.1	622				0.8	368	
	Container7000	Propulsion			3.4	3.7	1.1	1,208	2%	11.0	8.3	0.8	3,326	8%
	Container7000	Auxiliary	31	33,401			1.1	3,777				0.8	1,165	
	Container7000	Auxiliary Boiler					1.1	606				0.8	401	
	Container8000	Propulsion			3.4	3.7	1.1	1,460	2%	11.0	8.3	0.8	4,018	8%
	Container8000	Propulsion			3.4	3.7	1.1	1,043	2%	11.0	8.3	0.8	4,308	12%
	Container8000	Auxiliary	35	34,739			1.1	3,474				0.8	1,072	
	Container8000	Auxiliary	13	12,985			1.1	3,474				0.8	1,072	
	Container8000	Auxiliary Boiler					1.1	578				0.8	397	
	Container8000	Auxiliary Boiler					1.1	578				0.8	397	
Total 2013														

* Annual Transit are assumed to be twice the Annual Berth Calls amounts

** Source: POLB Emissions Inventory, 2007

*** Maneuvering loads below 2% are assumed to be 2%.

Note: Everport 2013 Vessel Calls data was provided by Los Angeles Harbor Di

Table 51. 2013 Everport - Baseline Emissions

	Vessel Type	Engine/Source Type	Zone 3: PZ to 20nm					Zone 4: 20nm to 40nm				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Baseline 2013												
	Container4000	Propulsion	9.7	18.8	1.9	4,957	7%	11.6	20.9	1.8	7,945	12%
	Container4000	Propulsion	10.2	18.8	1.9	5,429	7%	11.7	20.9	1.8	8,228	11%
	Container4000	Propulsion	9.8	18.8	1.9	4,203	6%	11.6	20.9	1.8	6,622	10%
	Container4000	Auxiliary			1.9	2,778				1.8	2,597	
	Container4000	Auxiliary			1.9	2,660				1.8	2,565	
	Container4000	Auxiliary			1.9	2,748				1.8	2,597	
	Container4000	Auxiliary Boiler			1.9	715				1.8	668	
	Container4000	Auxiliary Boiler			1.9	684				1.8	660	
	Container4000	Auxiliary Boiler			1.9	707				1.8	668	
	Container5000	Propulsion	9.8	18.8	1.9	4,932	5%	12.4	20.9	1.7	9,526	11%
	Container5000	Auxiliary			1.9	2,253				1.7	1,978	
	Container5000	Auxiliary Boiler			1.9	1,207				1.7	1,060	
	Container6000	Propulsion	10.3	18.8	1.8	6,353	7%	11.6	20.9	1.8	9,010	10%
	Container6000	Auxiliary			1.8	2,527				1.8	2,509	
	Container6000	Auxiliary Boiler			1.8	887				1.8	880	
	Container7000	Propulsion	10.1	18.8	1.9	6,144	6%	11.5	20.9	1.8	8,998	9%
	Container7000	Auxiliary			1.9	2,869				1.8	2,801	
	Container7000	Auxiliary Boiler			1.9	989				1.8	965	
	Container8000	Propulsion	10.4	18.8	1.8	7,236	6%	11.3	20.9	1.8	11,036	9%
	Container8000	Propulsion	10.8	18.8	1.7	9,074	11%	11.9	20.9	1.8	12,535	15%
	Container8000	Auxiliary			1.8	2,574				1.8	2,617	
	Container8000	Auxiliary			1.7	2,463				1.8	2,495	
	Container8000	Auxiliary Boiler			1.8	954				1.8	970	
	Container8000	Auxiliary Boiler			1.7	913				1.8	925	
Total 2013												

* Annual Transit are assumed to be twice the Annual Berth Calls amounts

** Source: POLB Emissions Inventory, 2007

*** Maneuvering loads below 2% are assumed to be 2%.

Note: Everport 2013 Vessel Calls data was provided by Los Angeles Harbor Di

Table 51. 2013 Everport - Baseline Emissions

	Vessel Type	Engine/Source Type	Zone 5: 40nm to 50nm (SCAB Boundary)					Zone 6: 50nm to 170nm (State Inventory Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean**	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean**
Baseline 2013												
	Container4000	Propulsion	22	10	0.5	13,468	80%	22	120	5.5	161,617	80%
	Container4000	Propulsion	22	10	0.4	14,957	80%	22	120	5.4	179,482	80%
	Container4000	Propulsion	23	10	0.4	12,859	80%	23	120	5.3	154,313	80%
	Container4000	Auxiliary			0.5	660				5.5	7,925	
	Container4000	Auxiliary			0.4	641				5.4	7,694	
	Container4000	Auxiliary			0.4	631				5.3	7,566	
	Container4000	Auxiliary Boiler										
	Container4000	Auxiliary Boiler										
	Container4000	Auxiliary Boiler										
	Container5000	Propulsion	24	10	0.4	17,397	80%	24	120	5.1	208,768	80%
	Container5000	Auxiliary			0.4	497				5.1	5,961	
	Container5000	Auxiliary Boiler			0.4					5.1		
	Container6000	Propulsion	23	10	0.4	17,366	80%	23	120	5.2	208,394	80%
	Container6000	Auxiliary			0.4	604				5.2	7,253	
	Container6000	Auxiliary Boiler			0.4					5.2		
	Container7000	Propulsion	23	10	0.4	18,717	80%	23	120	5.1	224,601	80%
	Container7000	Auxiliary			0.4	656				5.1	7,866	
	Container7000	Auxiliary Boiler			0.4					5.1		
	Container8000	Propulsion	23	10	0.4	22,716	80%	23	120	5.1	272,597	80%
	Container8000	Propulsion	20	10	0.5	18,579	80%	20	120	5.9	222,944	80%
	Container8000	Auxiliary			0.4	606				5.1	7,272	
	Container8000	Auxiliary			0.5	693				5.9	8,320	
	Container8000	Auxiliary Boiler										
	Container8000	Auxiliary Boiler										
Total 2013												

* Annual Transit are assumed to be twice the Annual Berth Calls amounts

** Source: POLB Emissions Inventory, 2007

*** Maneuvering loads below 2% are assumed to be 2%.

Note: Everport 2013 Vessel Calls data was provided by Los Angeles Harbor Di

Table 52. Operational OGV Emissions Without Mitigation - Proposed Project (2019)

			Vessel Characteristics		Activity									
	Vessel Type	Engine/Source Type	Engine Rating (kW)	Max Rated Speed (knots)	Peak Day Berth Calls	Peak Day Anchorage Calls	Peak Day Transits	Peak Day Hotelling Time at Berth Per Vessel (hr/day)	Hours at Anchorage within Peak Day (hr/day)	Annual Berth Calls	Annual Transits	Peak Day Fuel Sulfur	Peak Day Number of Transits in Compliance with VSRP in Zone 3*	Peak Day Number of Transits in Compliance with VSRP in Zone 4*
Proposed Project	**2019**													
	Container5000	Propulsion	49,000	25.1	1		1	18.3		52	104	0.1%		
	Container5000	Auxiliary			1		1	18.3		52	104	0.1%		
	Container5000	Auxiliary Boiler			1		1	18.3		52	104	0.1%		
	Container6000	Propulsion	58,000	25.1	1	1	1	11.2	3.3	52	104	0.1%	1	1
	Container6000	Auxiliary			1	1	1	11.2	3.3	52	104	0.1%	1	1
	Container6000	Auxiliary Boiler			1	1	1	11.2	3.3	52	104	0.1%	1	1
	Container11000	Propulsion	69,000	24.8	1		1	9.8		52	104	0.1%	1	1
	Container11000	Auxiliary			1		1	9.8		52	104	0.1%	1	1
	Container11000	Auxiliary Boiler			1		1	9.8		52	104	0.1%	1	1
Total 2019					**3**	**1**	**3**			**156**	**312**		**2**	**2**

Notes:

* To be conservative, it was assumed that "Container5000" would not be in compliance with VSRP in Zone 3 and Zone 4 during a peak day.

****** To be conservative, it was assumed that "Container5000" would have no AMP during a peak day.

Main engine loads were obtained from AECOM and auxiliary and boiler loads from the 2014 Port Emissions Inventory Report.

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engines, Main Engines, and Auxiliary Boilers.

Trips = one-way trips

Table 52. Operational OGV Emissions Without Mitigation - Proposed Project (

	Vessel Type	Engine/Source Type	Peak Day Number of Vessels using AMP**	Annual Fuel Sulfur	Annual Number of Transits in Compliance with VSRP in Zone 3	Annual Number of Transits in Compliance with VSRP in Zone 4	Annual Number of Vessels using AMP	Average Auxiliary Load (kW)			
								Transit	Maneuvering	Berth	Anchorage
Proposed Project	**2019**										
	Container5000	Propulsion		0.1%	96	80	41				
	Container5000	Auxiliary		0.1%	96	80	41	1,725	3,367	900	1,725
	Container5000	Auxiliary Boiler		0.1%	96	80	41	545	547	547	547
	Container6000	Propulsion	1	0.1%	104	94	41				
	Container6000	Auxiliary	1	0.1%	104	94	41	1,453	2,197	990	1,453
	Container6000	Auxiliary Boiler	1	0.1%	104	94	41	577	573	573	573
	Container11000	Propulsion	1	0.1%	96	80	42				
	Container11000	Auxiliary	1	0.1%	96	80	42	2,000	4,000	1,500	2,000
	Container11000	Auxiliary Boiler	1	0.1%	96	80	42	600	600	600	600
Total 2019			**2**		**296**	**254**	**124**				

Notes:

* To be conservative, it was assumed that "Container500(

****** To be conservative, it was assumed that "Container500(

Main engine loads were obtained from AECOM and aux

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engines, Main Engir

Trips = one-way trips

Table 52. Operational OGV Emissions Without Mitigation - Proposed Project (

	Vessel Type	Engine/Source Type	Hotelling at Anchorage			Hotelling at Berth		AMP	
			(calls/yr)	Average Time (hr/call)	Energy Demand (kW-hr/call)	Average Time (hr/call)	Energy Demand (kW-hr/call)	Time (hr/call)	Energy Demand (kW-hr/call)
Proposed Project	**2019**								
	Container5000	Propulsion							
	Container5000	Auxiliary		0		29.4	26,450	26.4	23,750
	Container5000	Auxiliary Boiler		0		29.4	16,076		
	Container6000	Propulsion							
	Container6000	Auxiliary		0		39.7	39,283	37	36,313
	Container6000	Auxiliary Boiler		0		39.7	22,737		
	Container11000	Propulsion							
	Container11000	Auxiliary	1	5.5	10,986	41.5	62,280	39	57,780
	Container11000	Auxiliary Boiler	1	5.5	3,296	41.5	24,912		
Total 2019									

Notes:

* To be conservative, it was assumed that "Container500(

****** To be conservative, it was assumed that "Container500(

Main engine loads were obtained from AECOM and aux

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engines, Main Engir

Trips = one-way trips

Table 52. Operational OGV Emissions Without Mitigation - Proposed Project (

Transit Characteristics

	Vessel Type	Engine/Source Type	Zone 1: Harbor					Zone 2: Breakwater to PZ				
			Speed (knots)	Distance (nm)	Maneuvering Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Proposed Project	**2019**											
	Container5000	Propulsion	2.5	3.7	1.5	1,470	2%	11.0	8.3	0.8	2,967	8%
	Container5000	Auxiliary			1.5	5,051				0.8	1,306	
	Container5000	Auxiliary Boiler			1.5	821				0.8	413	
	Container6000	Propulsion	2.5	3.7	1.5	1,740	2%	11.0	8.3	0.8	3,512	8%
	Container6000	Auxiliary			1.5	3,296				0.8	1,100	
	Container6000	Auxiliary Boiler			1.5	860				0.8	437	
	Container11000	Propulsion	2.5	3.7	1.5	2,070	2%	11.0	8.3	0.8	4,178	8%
	Container11000	Auxiliary			1.5	6,000				0.8	1,514	
	Container11000	Auxiliary Boiler			1.5	900				0.8	454	

Total 2019

Notes:

* To be conservative, it was assumed that "Container500(

****** To be conservative, it was assumed that "Container500(

Main engine loads were obtained from AECOM and aux

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engines, Main Engir

Trips = one-way trips

Table 52. Operational OGV Emissions Without Mitigation - Proposed Project (

	Vessel Type	Engine/Source Type	Zone 3: PZ to 20nm					Zone 3: PZ to 20nm (no VSRP compliance)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Proposed Project	**2019**											
	Container5000	Propulsion	12.0	18.8	1.6	7,693	10%	20.1	18.8	0.9	23,448	51%
	Container5000	Auxiliary			1.6	2,708				0.9	1,619	
	Container5000	Auxiliary Boiler			1.6	856				0.9	511	
	Container6000	Propulsion	12.0	18.8	1.6	9,107	10%	20.1	18.8	0.9	27,755	51%
	Container6000	Auxiliary			1.6	2,281				0.9	1,363	
	Container6000	Auxiliary Boiler			1.6	906				0.9	541	
	Container11000	Propulsion	12.0	18.8	1.6	11,917	11%	19.8	18.8	0.9	33,418	51%
	Container11000	Auxiliary			1.6	3,140				0.9	1,899	
	Container11000	Auxiliary Boiler			1.6	942				0.9	570	
Total 2019												

Notes:

* To be conservative, it was assumed that "Container500(

****** To be conservative, it was assumed that "Container500(

Main engine loads were obtained from AECOM and aux

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engines, Main Engir

Trips = one-way trips

Table 52. Operational OGV Emissions Without Mitigation - Proposed Project (

	Vessel Type	Engine/Source Type	Zone 4: 20nm to 40nm					Zone 4: 20nm to 40nm (no VSRP compliance)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Proposed Project	**2019**											
	Container5000	Propulsion	12.0	20.9	1.7	8,544	10%	20.1	20.9	1.0	26,040	51%
	Container5000	Auxiliary			1.7	3,008				1.0	1,797	
	Container5000	Auxiliary Boiler			1.7	950				1.0	568	
	Container6000	Propulsion	12.0	20.9	1.7	10,113	10%	20.1	20.9	1.0	30,823	51%
	Container6000	Auxiliary			1.7	2,533				1.0	1,514	
	Container6000	Auxiliary Boiler			1.7	1,006				1.0	601	
	Container11000	Propulsion	12.0	20.9	1.7	13,234	11%	19.8	20.9	1.1	37,112	51%
	Container11000	Auxiliary			1.7	3,487				1.1	2,109	
	Container11000	Auxiliary Boiler			1.7	1,046				1.1	633	

Total 2019

Notes:

* To be conservative, it was assumed that "Container500(

****** To be conservative, it was assumed that "Container500(

Main engine loads were obtained from AECOM and aux

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engines, Main Engir

Trips = one-way trips

Table 52. Operational OGV Emissions Without Mitigation - Proposed Project (

	Vessel Type	Engine/Source Type	Zone 5: 40nm to 50nm (SCAB Boundary)					Zone 6: 50nm to 170nm (State Inventory Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
Proposed Project	**2019**											
	Container5000	Propulsion	23	10	0.4	16,823	80%	23	120	5.2	201,882	80%
	Container5000	Auxiliary			0.4	740				5.2	8,884	
	Container5000	Auxiliary Boiler			0.4					5.2		
	Container6000	Propulsion	23	10	0.4	19,913	80%	23	120	5.2	238,962	80%
	Container6000	Auxiliary			0.4	624				5.2	7,483	
	Container6000	Auxiliary Boiler			0.4					5.2		
	Container11000	Propulsion	23	10	0.4	23,977	80%	23	120	5.2	287,721	80%
	Container11000	Auxiliary			0.4	869				5.2	10,425	
	Container11000	Auxiliary Boiler			0.4					5.2		
Total 2019												

Notes:

* To be conservative, it was assumed that "Container500(

****** To be conservative, it was assumed that "Container500(

Main engine loads were obtained from AECOM and aux

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engines, Main Engir

Trips = one-way trips

Table 53. Operational OGV Emissions Without Mitigation - Proposed Project (2026)

			Vessel Characteristics			Activity								
	Vessel Type	**Engine/Source Type**	**Engine Rating (kW)**		**Max Rated Speed (knots)**	**Peak Day Berth Calls**	**Peak Day Anchorage Calls**	**Peak Day Transits**	**Peak Day Hotelling Time at Berth Per Vessel (hr/day)**	**Hours at Anchorage within Peak Day (hr/day)**	**Annual Berth Calls**	**Annual Transits**	**Peak Day Fuel Sulfur**	**Peak Day Number of Transits in Compliance with VSRP in Zone 3*** **
Proposed Project	**2026**													
	Container5000	Propulsion	49,000		25.1	1		1	17.8		52	104	0.1%	
	Container5000	Auxiliary				1		1	17.8		52	104	0.1%	
	Container5000	Auxiliary Boiler				1		1	17.8		52	104	0.1%	
	Container10000*	Propulsion	67,000		25.2	1	1	1	4.4	2.1	52	104	0.1%	1
	Container10000	Auxiliary				1	1	1	4.4	2.1	52	104	0.1%	1
	Container10000	Auxiliary Boiler				1	1	1	4.4	2.1	52	104	0.1%	1
	Container16000**	Propulsion	70,000		25.1	1		1	16.6		52	104	0.1%	1
	Container16000	Auxiliary				1		1	16.6		52	104	0.1%	1
	Container16000	Auxiliary Boiler				1		1	16.6		52	104	0.1%	1
Total 2026						**3**	**1**	**3**			**156**	**312**		**2**

Notes:

* Container10000 are assumed to have Tier 1 engines based on the "Year Built" of Container 10000 (2009) listed in 2013 POLB Emissions Inventory, Table B.3.

** Container16000 are assumed to have Tier 2 engines since the oldest Container16000 container ship was built in 2012. (http://www.cma-cgm.com/the-group/activities/shipping/vessel/9454436/cma-cgm-marco-polo)

*** To be conservative, it was assumed that "Container5000" would not be in compliance with VSRP in Zone 3 and Zone 4 during a peak day.

**** To be conservative, it was assumed that "Container5000" would have no AMP during a peak day.

Main engine loads were obtained from AECOM and auxiliary and boiler loads from the 2014 Port Emissions Inventory Report.

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engines, Main Engines, and Auxiliary Boilers.

Trips = one-way trips

Table 53. Operational OGV Emissions Without Mitigation - Proposed Project (2026)

	Vessel Type	Engine/Source Type	Peak Day Number of Transits in Compliance with VSRP in Zone 4***	Peak Day Number of Vessels using AMP****	Annual Fuel Sulfur	Annual Number of Transits in Compliance with VSRP in Zone 3	Annual Number of Transits in Compliance with VSRP in Zone 4	Annual Number of Vessels using AMP	Average Auxiliary Load (kW)			
									Transit	Maneuvering	Berth	Anchorage
Proposed Project	**2026**											
	Container5000	Propulsion			0.1%	94	80	41				
	Container5000	Auxiliary			0.1%	94	80	41	1,725	3,367	900	1,725
	Container5000	Auxiliary Boiler			0.1%	94	80	41	545	547	547	547
	Container10000*	Propulsion	1	1	0.1%	98	80	41				
	Container10000	Auxiliary	1	1	0.1%	98	80	41	2,300	2,350	1,450	2,300
	Container10000	Auxiliary Boiler	1	1	0.1%	98	80	41	708	708	708	708
	Container16000**	Propulsion	1	1	0.1%	104	94	42				
	Container16000	Auxiliary	1	1	0.1%	104	94	42	3,000	5,500	3,000	3,000
	Container16000	Auxiliary Boiler	1	1	0.1%	104	94	42	700	700	700	700
Total 2026			**2**	**2**		**296**	**254**	**124**				

Notes:

*	Container10000 are assumed to have Tier 1 engines based on
**	Container16000 are assumed to have Tier 2 engines since the
***	To be conservative, it was assumed that "Container5000" wou
****	To be conservative, it was assumed that "Container5000" wou
	Main engine loads were obtained from AECOM and auxiliary a

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engines, Main Engines, an
Trips = one-way trips

Table 53. Operational OGV Emissions Without Mitigation - Proposed Project (2026)

	Vessel Type	Engine/Source Type	Hotelling at Anchorage			Hotelling at Berth		AMP	
			(calls/yr)	Average Time (hr/call)	Energy Demand (kW-hr/call)	Average Time (hr/call)	Energy Demand (kW-hr/call)	Time (hr/call)	Energy Demand (kW-hr/call)
Proposed Project	**2026**								
	Container5000	Propulsion							
	Container5000	Auxiliary		0		29.5	26,533	26.5	23,833
	Container5000	Auxiliary Boiler		0		29.5	16,126		
	Container10000*	Propulsion							
	Container10000	Auxiliary	2	5.3	12,290	37.8	54,834	35	50,484
	Container10000	Auxiliary Boiler	2	5	3,783	37.8	26,774		
	Container16000**	Propulsion							
	Container16000	Auxiliary	8	11.6	34,776	60.7	182,030	58	173,030
	Container16000	Auxiliary Boiler	8	11.6	8,114	60.7	42,474		
Total 2026									

Notes:

* Container10000 are assumed to have Tier 1 engines based on

** Container16000 are assumed to have Tier 2 engines since the

*** To be conservative, it was assumed that "Container5000" wou

**** To be conservative, it was assumed that "Container5000" wou

Main engine loads were obtained from AECOM and auxiliary a

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engines, Main Engines, an

Trips = one-way trips

Table 53. Operational OGV Emissions Without Mitigation - Proposed Project (2026)

			Transit Characteristics									
	Vessel Type	**Engine/Source Type**	**Zone 1: Harbor**					**Zone 2: Breakwater to PZ**				
			Speed (knots)	Distance (nm)	Maneuvering Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Proposed Project	**2026**											
	Container5000	Propulsion	2.5	3.7	1.5	1,470	2%	11.0	8.3	0.8	2,967	8%
	Container5000	Auxiliary			1.5	5,051				0.8	1,306	
	Container5000	Auxiliary Boiler			1.5	821				0.8	413	
	Container10000*	Propulsion	2.5	3.7	1.5	2,010	2%	11.0	8.3	0.8	4,057	8%
	Container10000	Auxiliary			1.5	3,525				0.8	1,741	
	Container10000	Auxiliary Boiler			1.5	1,062				0.8	536	
	Container16000**	Propulsion	2.5	3.7	1.5	2,100	2%	11.0	8.3	0.8	4,239	8%
	Container16000	Auxiliary			1.5	8,250				0.8	2,271	
	Container16000	Auxiliary Boiler			1.5	1,050				0.8	530	
Total 2026												

Notes:

* Container10000 are assumed to have Tier 1 engines based on

** Container16000 are assumed to have Tier 2 engines since the

*** To be conservative, it was assumed that "Container5000" wou

**** To be conservative, it was assumed that "Container5000" wou

Main engine loads were obtained from AECOM and auxiliary a

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engines, Main Engines, an

Trips = one-way trips

Table 53. Operational OGV Emissions Without Mitigation - Proposed Project (2026)

	Vessel Type	Engine/Source Type	Zone 3: PZ to 20nm					Zone 3: PZ to 20nm (no VSRP compliance)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Proposed Project	**2026**											
	Container5000	Propulsion	12.0	18.8	1.6	7,693	10%	20.1	18.8	0.9	23,448	51%
	Container5000	Auxiliary			1.6	2,708				0.9	1,619	
	Container5000	Auxiliary Boiler			1.6	856				0.9	511	
	Container10000*	Propulsion	12.0	18.8	1.6	10,520	10%	20.2	18.8	0.9	31,935	51%
	Container10000	Auxiliary			1.6	3,611				0.9	2,150	
	Container10000	Auxiliary Boiler			1.6	1,112				0.9	662	
	Container16000**	Propulsion	12.0	18.8	1.6	10,991	10%	20.1	18.8	0.9	33,497	51%
	Container16000	Auxiliary			1.6	4,710				0.9	2,815	
	Container16000	Auxiliary Boiler			1.6	1,099				0.9	657	
Total 2026												

Notes:

*	Container10000 are assumed to have Tier 1 engines based on
**	Container16000 are assumed to have Tier 2 engines since the
***	To be conservative, it was assumed that "Container5000" wou
****	To be conservative, it was assumed that "Container5000" wou
	Main engine loads were obtained from AECOM and auxiliary a

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engines, Main Engines, an

Trips = one-way trips

Table 53. Operational OGV Emissions Without Mitigation - Proposed Project (2026)

	Vessel Type	Engine/Source Type	Zone 4: 20nm to 40nm					Zone 4: 20nm to 40nm (no VSRP compliance)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Proposed Project	**2026**											
	Container5000	Propulsion	12.0	20.9	1.7	8,544	10%	20.1	20.9	1.0	26,040	51%
	Container5000	Auxiliary			1.7	3,008				1.0	1,797	
	Container5000	Auxiliary Boiler			1.7	950				1.0	568	
	Container10000*	Propulsion	12.0	20.9	1.7	11,682	10%	20.2	20.9	1.0	35,464	51%
	Container10000	Auxiliary			1.7	4,010				1.0	2,387	
	Container10000	Auxiliary Boiler			1.7	1,234				1.0	735	
	Container16000**	Propulsion	12.0	20.9	1.7	12,205	10%	20.1	20.9	1.0	37,200	51%
	Container16000	Auxiliary			1.7	5,231				1.0	3,126	
	Container16000	Auxiliary Boiler			1.7	1,221				1.0	729	
Total 2026												

Notes:

* Container10000 are assumed to have Tier 1 engines based on

** Container16000 are assumed to have Tier 2 engines since the

*** To be conservative, it was assumed that "Container5000" wou

**** To be conservative, it was assumed that "Container5000" wou

Main engine loads were obtained from AECOM and auxiliary a

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engines, Main Engines, an

Trips = one-way trips

Table 53. Operational OGV Emissions Without Mitigation - Proposed Project (2026)

	Vessel Type	Engine/Source Type	Zone 5: 40nm to 50nm (SCAB Boundary)					Zone 6: 50nm to 170nm (State Inventory Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
Proposed Project	**2026**											
	Container5000	Propulsion	23	10	0.4	16,823	80%	23	120	5.2	201,882	80%
	Container5000	Auxiliary			0.4	740				5.2	8,884	
	Container5000	Auxiliary Boiler			0.4					5.2		
	Container10000*	Propulsion	23	10	0.4	22,912	80%	23	120	5.1	274,947	80%
	Container10000	Auxiliary			0.4	983				5.1	11,798	
	Container10000	Auxiliary Boiler			0.4					5.1		
	Container16000**	Propulsion	23	10	0.4	24,034	80%	23	120	5.2	288,402	80%
	Container16000	Auxiliary			0.4	1,288				5.2	15,450	
	Container16000	Auxiliary Boiler			0.4					5.2		
Total 2026												

Notes:

*	Container10000 are assumed to have Tier 1 engines based on
**	Container16000 are assumed to have Tier 2 engines since the
***	To be conservative, it was assumed that "Container5000" wou
****	To be conservative, it was assumed that "Container5000" wou
	Main engine loads were obtained from AECOM and auxiliary a

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engines, Main Engines, an

Trips = one-way trips

Table 54. Operational OGV Emissions Without Mitigation - Proposed Project (2033)

		Vessel Characteristics			Activity										
	Vessel Type	Engine/Source Type	Engine Rating (kW)	Max Rated Speed (knots)	Peak Day Berth Calls	Peak Day Anchorage Calls	Peak Day Transits	Peak Day Hotelling Time at Berth Per Vessel (hr/day)	Hours at Anchorage within Peak Day (hr/day)	Annual Berth Calls	Annual Transits	Peak Day Fuel Sulfur	Peak Day Number of Transits in Compliance with VSRP in Zone 3***	Peak Day Number of Transits in Compliance with VSRP in Zone 4***	Peak Day Number of Vessels using AMP****
Proposed Project	**2033**														
	Container5000	Propulsion	49,000	25.1	1		1	9.9		52	104	0.1%			
	Container5000	Auxiliary			1		1	9.9		52	104	0.1%			
	Container5000	Auxiliary Boiler			1		1	9.9		52	104	0.1%			
	Container8000	Propulsion	62,000	25.4	1		1	3.0		52	104	0.1%			
	Container8000	Auxiliary			1		1	3.0		52	104	0.1%			
	Container8000	Auxiliary Boiler			1		1	3.0		52	104	0.1%			
	Container10000*	Propulsion	67,000	25.2	1		1	0.5		52	104	0.1%	1	1	1
	Container10000	Auxiliary			1		1	0.5		52	104	0.1%	1	1	1
	Container10000	Auxiliary Boiler			1		1	0.5		52	104	0.1%	1	1	1
	Container16000**	Propulsion	70,000	25.1	1		1	10.0		52	104	0.1%	1	1	1
	Container16000	Auxiliary			1		1	10.0		52	104	0.1%	1	1	1
	Container16000	Auxiliary Boiler			1		1	10.0		52	104	0.1%	1	1	1
Total 2033					**4**		**4**			**208**	**416**		**2**	**2**	**2**

Notes:

*	Container10000 are assumed to have Tier 1 engines based on the "Year Built" of Container 10000 (2009) listed in 2013 POLB Emissions I
**	Container16000 are assumed to have Tier 2 engines since the oldest Container16000 container ship was built in 2012. (http://www.cma-cgm.com/the-group/activities/shipping/vessel/9454436/cma-cg
***	To be conservative, it was assumed that "Container5000" and "Container8000" would not be in compliance with VSRP in Zone 3 and Zone 4 during a pea
****	To be conservative, it was assumed that "Container5000" and "Container8000" would have no AMP during a peak day.
	Main engine loads were obtained from AECOM and auxiliary and boiler loads from the 2014 Port Emissions Inventory Re

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engines, Main Engines, and Auxiliary Boilers.
Trips = one-way trips

Table 54. Operational OGV Emissions Without Mitigation - Prop

	Vessel Type	Engine/Source Type	Annual Fuel Sulfur	Annual Number of Transits in Compliance with VSRP in Zone 3	Annual Number of Transits in Compliance with VSRP in Zone 4	Annual Number of Vessels using AMP	Average Auxiliary Load (kW)				Hotelling at Anchorage		
							Transit	Maneuvering	Berth	Anchorage	(calls/yr)	Average Time (hr/call)	Energy Demand (kW-hr/call)
Proposed Project	**2033**												
	Container5000	Propulsion	0.1%	102	92	41							
	Container5000	Auxiliary	0.1%	102	92	41	1,725	3,367	900	1,725	2	6.2	10,673
	Container5000	Auxiliary Boiler	0.1%	102	92	41	545	547	547	547	2	6.2	3,385
	Container8000	Propulsion	0.1%	92	82	42							
	Container8000	Auxiliary	0.1%	92	82	42	1,494	2,753	902	1,494	4	6.6	9,865
	Container8000	Auxiliary Boiler	0.1%	92	82	42	650	531	531	531	4	6.6	3,506
	Container10000*	Propulsion	0.1%	100	76	41							
	Container10000	Auxiliary	0.1%	100	76	41	2,300	2,350	1,450	2,300	3	7.3	16,800
	Container10000	Auxiliary Boiler	0.1%	100	76	41	708	708	708	708	3	7.3	5,172
	Container16000**	Propulsion	0.1%	100	90	42							
	Container16000	Auxiliary	0.1%	100	90	42	3,000	5,500	3,000	3,000	7	9.4	28,346
	Container16000	Auxiliary Boiler	0.1%	100	90	42	700	700	700	700	7	9.4	6,614
Total 2033				**394**	**340**	**166**							

Notes:

*	Container10000 are assumed to have Ti
**	Container16000 are assumed to have Ti
***	To be conservative, it was assumed that
****	To be conservative, it was assumed that
	Main engine loads were obtained from A

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engin

Trips = one-way trips

Table 54. Operational OGV Emissions Without Mitigation - Prop

			Transit Characteristics								
			Hotelling at Berth		AMP		Zone 1: Harbor				
	Vessel Type	Engine/Source Type	Average Time (hr/call)	Energy Demand (kW-hr/call)	Time (hr/call)	Energy Demand (kW-hr/call)	Speed (knots)	Distance (nm)	Maneuvering Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Proposed Project	**2033**										
	Container5000	Propulsion					2.5	3.7	1.5	1,470	2%
	Container5000	Auxiliary	34.6	31,096	31.6	28,396			1.5	5,051	
	Container5000	Auxiliary Boiler	34.6	18,899					1.5	821	
	Container8000	Propulsion					2.5	3.7	1.5	1,860	2%
	Container8000	Auxiliary	39.0	35,219	36	32,513			1.5	4,130	
	Container8000	Auxiliary Boiler	39.0	20,733					1.5	797	
	Container10000*	Propulsion					2.5	3.7	1.5	2,010	2%
	Container10000	Auxiliary	40.8	59,186	38	54,836			1.5	3,525	
	Container10000	Auxiliary Boiler	40.8	28,899					1.5	1,062	
	Container16000**	Propulsion					2.5	3.7	1.5	2,100	2%
	Container16000	Auxiliary	60.7	182,002	58	173,002			1.5	8,250	
	Container16000	Auxiliary Boiler	60.7	42,467					1.5	1,050	
Total 2033											

Notes:

*	Container10000 are assumed to have Ti
**	Container16000 are assumed to have Ti
***	To be conservative, it was assumed that
****	To be conservative, it was assumed that
	Main engine loads were obtained from A

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engin

Trips = one-way trips

Table 54. Operational OGV Emissions Without Mitigation - Prop

	Vessel Type	Engine/Source Type	Zone 2: Breakwater to PZ					Zone 3: PZ to 20nm				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Proposed Project	**2033**											
	Container5000	Propulsion	11.0	8.3	0.8	2,967	8%	12.0	18.8	1.6	7,693	10%
	Container5000	Auxiliary			0.8	1,306				1.6	2,708	
	Container5000	Auxiliary Boiler			0.8	413				1.6	856	
	Container8000	Propulsion	11.0	8.3	0.8	3,755	8%	12.0	18.8	1.6	9,735	10%
	Container8000	Auxiliary			0.8	1,131				1.6	2,346	
	Container8000	Auxiliary Boiler			0.8	492				1.6	1,021	
	Container10000*	Propulsion	11.0	8.3	0.8	4,057	8%	12.0	18.8	1.6	10,520	10%
	Container10000	Auxiliary			0.8	1,741				1.6	3,611	
	Container10000	Auxiliary Boiler			0.8	536				1.6	1,112	
	Container16000**	Propulsion	11.0	8.3	0.8	4,239	8%	12.0	18.8	1.6	10,991	10%
	Container16000	Auxiliary			0.8	2,271				1.6	4,710	
	Container16000	Auxiliary Boiler			0.8	530				1.6	1,099	
Total 2033												

Notes:

*	Container10000 are assumed to have Ti
**	Container16000 are assumed to have Ti
***	To be conservative, it was assumed that
****	To be conservative, it was assumed that
	Main engine loads were obtained from A

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engin

Trips = one-way trips

Table 54. Operational OGV Emissions Without Mitigation - Prop

	Vessel Type	Engine/Source Type	Zone 3: PZ to 20nm (no VSRP compliance)					Zone 4: 20nm to 40nm				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Proposed Project	**2033**											
	Container5000	Propulsion	20.1	18.8	0.9	23,448	51%	12.0	20.9	1.7	8,544	10%
	Container5000	Auxiliary			0.9	1,619				1.7	3,008	
	Container5000	Auxiliary Boiler			0.9	511				1.7	950	
	Container8000	Propulsion	20.3	18.8	0.9	29,319	51%	12.0	20.9	1.7	10,811	10%
	Container8000	Auxiliary			0.9	1,385				1.7	2,605	
	Container8000	Auxiliary Boiler			0.9	603				1.7	1,133	
	Container10000*	Propulsion	20.2	18.8	0.9	31,935	51%	12.0	20.9	1.7	11,682	10%
	Container10000	Auxiliary			0.9	2,150				1.7	4,010	
	Container10000	Auxiliary Boiler			0.9	662				1.7	1,234	
	Container16000**	Propulsion	20.1	18.8	0.9	33,497	51%	12.0	20.9	1.7	12,205	10%
	Container16000	Auxiliary			0.9	2,815				1.7	5,231	
	Container16000	Auxiliary Boiler			0.9	657				1.7	1,221	
Total 2033												

Notes:

*	Container10000 are assumed to have Ti
**	Container16000 are assumed to have Ti
***	To be conservative, it was assumed that
****	To be conservative, it was assumed that
	Main engine loads were obtained from A

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engin

Trips = one-way trips

Table 54. Operational OGV Emissions Without Mitigation - Prop

	Vessel Type	Engine/Source Type	Zone 4: 20nm to 40nm (no VSRP compliance)					Zone 5: 40nm to 50nm (SCAB Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
Proposed Project	**2033**											
	Container5000	Propulsion	20.1	20.9	1.0	26,040	51%	23	10	0.4	16,823	80%
	Container5000	Auxiliary			1.0	1,797				0.4	740	
	Container5000	Auxiliary Boiler			1.0	568				0.4		
	Container8000	Propulsion	20.3	20.9	1.0	32,559	51%	24	10	0.4	21,035	80%
	Container8000	Auxiliary			1.0	1,538				0.4	634	
	Container8000	Auxiliary Boiler			1.0	669				0.4		
	Container10000*	Propulsion	20.2	20.9	1.0	35,464	51%	23	10	0.4	22,912	80%
	Container10000	Auxiliary			1.0	2,387				0.4	983	
	Container10000	Auxiliary Boiler			1.0	735				0.4		
	Container16000**	Propulsion	20.1	20.9	1.0	37,200	51%	23	10	0.4	24,034	80%
	Container16000	Auxiliary			1.0	3,126				0.4	1,288	
	Container16000	Auxiliary Boiler			1.0	729				0.4		
Total 2033												

Notes:

*	Container10000 are assumed to have Ti
**	Container16000 are assumed to have Ti
***	To be conservative, it was assumed that
****	To be conservative, it was assumed that
	Main engine loads were obtained from A

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engin

Trips = one-way trips

Table 54. Operational OGV Emissions Without Mitigation - Prop

	Vessel Type	Engine/Source Type	Zone 6: 50nm to 170nm (State Inventory Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
Proposed Project	**2033**						
	Container5000	Propulsion	23	120	5.2	201,882	80%
	Container5000	Auxiliary			5.2	8,884	
	Container5000	Auxiliary Boiler			5.2		
	Container8000	Propulsion	24	120	5.1	252,425	80%
	Container8000	Auxiliary			5.1	7,603	
	Container8000	Auxiliary Boiler			5.1		
	Container10000*	Propulsion	23	120	5.1	274,947	80%
	Container10000	Auxiliary			5.1	11,798	
	Container10000	Auxiliary Boiler			5.1		
	Container16000**	Propulsion	23	120	5.2	288,402	80%
	Container16000	Auxiliary			5.2	15,450	
	Container16000	Auxiliary Boiler			5.2		
Total 2033							

Notes:

*	Container10000 are assumed to have Ti
**	Container16000 are assumed to have Ti
***	To be conservative, it was assumed that
****	To be conservative, it was assumed that
	Main engine loads were obtained from /

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engin

Trips = one-way trips

Table 55. Operational OGV Emissions Without Mitigation - Proposed Project (2038)

			Vessel Characteristics		Activity										
	Vessel Type	Engine/Source Type	Engine Rating (kW)	Max Rated Speed (knots)	Peak Day Berth Calls	Peak Day Anchorage Calls	Peak Day Transits	Peak Day Hotelling Time at Berth Per Vessel (hr/day)	Hours at Anchorage within Peak Day (hr/day)	Annual Berth Calls	Annual Transits	Peak Day Fuel Sulfur	Peak Day Number of Transits in Compliance with VSRP in Zone 3***	Peak Day Number of Transits in Compliance with VSRP in Zone 4***	Peak Day Number of Vessels using AMP****
Proposed Project	**2038**														
	Container5000	Propulsion	49,000	25.1	1		1	9.9		52	104	0.1%			
	Container5000	Auxiliary			1		1	9.9		52	104	0.1%			
	Container5000	Auxiliary Boiler			1		1	9.9		52	104	0.1%			
	Container8000	Propulsion	62,000	25.4	1		1	3.0		52	104	0.1%			
	Container8000	Auxiliary			1		1	3.0		52	104	0.1%			
	Container8000	Auxiliary Boiler			1		1	3.0		52	104	0.1%			
	Container10000*	Propulsion	67,000	25.2	1		1	0.5		52	104	0.1%	1	1	1
	Container10000	Auxiliary			1		1	0.5		52	104	0.1%	1	1	1
	Container10000	Auxiliary Boiler			1		1	0.5		52	104	0.1%	1	1	1
	Container16000**	Propulsion	70,000	25.1	1		1	10.0		52	104	0.1%	1	1	1
	Container16000	Auxiliary			1		1	10.0		52	104	0.1%	1	1	1
	Container16000	Auxiliary Boiler			1		1	10.0		52	104	0.1%	1	1	1
Total 2038					**4**		**4**			**208**	**416**		**2**	**2**	**2**

Notes:

* Container10000 are assumed to have Tier 1 engines based on the "Year Built" of Container 10000 (2009) listed in 2013 POLB Emissions I

** Container16000 are assumed to have Tier 2 engines since the oldest Container16000 container ship was built in 2012. (http://www.cma-cgm.com/the-group/activities/shipping/vessel/9454436/cma-cg

*** To be conservative, it was assumed that "Container5000" and "Container8000" would not be in compliance with VSRP in Zone 3 and Zone 4 during a pea

**** To be conservative, it was assumed that "Container5000" and "Container8000" would have no AMP during a peak day.

Main engine loads were obtained from AECOM and auxiliary and boiler loads from the 2014 Port Emissions Inventory Re

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engines, Main Engines, and Auxiliary Boilers.

Trips = one-way trips

Table 55. Operational OGV Emissions Without Mitigation - Prop

	Vessel Type	Engine/Source Type	Annual Fuel Sulfur	Annual Number of Transits in Compliance with VSRP in Zone 3	Annual Number of Transits in Compliance with VSRP in Zone 4	Annual Number of Vessels using AMP	Average Auxiliary Load (kW)				Hotelling at Anchorage		
							Transit	Maneuvering	Berth	Anchorage	(calls/yr)	Average Time (hr/call)	Energy Demand (kW-hr/call)
Proposed Project	**2038**												
	Container5000	Propulsion	0.1%	102	92	41							
	Container5000	Auxiliary	0.1%	102	92	41	1,725	3,367	900	1,725	2	6.2	10,673
	Container5000	Auxiliary Boiler	0.1%	102	92	41	545	547	547	547	2	6.2	3,385
	Container8000	Propulsion	0.1%	92	82	42							
	Container8000	Auxiliary	0.1%	92	82	42	1,494	2,753	902	1,494	4	6.6	9,865
	Container8000	Auxiliary Boiler	0.1%	92	82	42	650	531	531	531	4	6.6	3,506
	Container10000*	Propulsion	0.1%	100	76	41							
	Container10000	Auxiliary	0.1%	100	76	41	2,300	2,350	1,450	2,300	3	7.3	16,800
	Container10000	Auxiliary Boiler	0.1%	100	76	41	708	708	708	708	3	7.3	5,172
	Container16000**	Propulsion	0.1%	100	90	42							
	Container16000	Auxiliary	0.1%	100	90	42	3,000	5,500	3,000	3,000	7	9.4	28,346
	Container16000	Auxiliary Boiler	0.1%	100	90	42	700	700	700	700	7	9.4	6,614
Total 2038				**394**	**340**	**166**							

Notes:

*	Container10000 are assumed to have Ti
**	Container16000 are assumed to have Ti
***	To be conservative, it was assumed that
****	To be conservative, it was assumed that
	Main engine loads were obtained from A

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engin

Trips = one-way trips

Table 55. Operational OGV Emissions Without Mitigation - Prop

			Transit Characteristics								
			Hotelling at Berth		AMP		Zone 1: Harbor				
	Vessel Type	Engine/Source Type	Average Time (hr/call)	Energy Demand (kW-hr/call)	Time (hr/call)	Energy Demand (kW-hr/call)	Speed (knots)	Distance (nm)	Maneuvering Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Proposed Project	**2038**										
	Container5000	Propulsion					2.5	3.7	1.5	1,470	2%
	Container5000	Auxiliary	34.6	31,096	31.6	28,396			1.5	5,051	
	Container5000	Auxiliary Boiler	34.6	18,899					1.5	821	
	Container8000	Propulsion					2.5	3.7	1.5	1,860	2%
	Container8000	Auxiliary	39.0	35,219	36	32,513			1.5	4,130	
	Container8000	Auxiliary Boiler	39.0	20,733					1.5	797	
	Container10000*	Propulsion					2.5	3.7	1.5	2,010	2%
	Container10000	Auxiliary	40.8	59,186	38	54,836			1.5	3,525	
	Container10000	Auxiliary Boiler	40.8	28,899					1.5	1,062	
	Container16000**	Propulsion					2.5	3.7	1.5	2,100	2%
	Container16000	Auxiliary	60.7	182,002	58	173,002			1.5	8,250	
	Container16000	Auxiliary Boiler	60.7	42,467					1.5	1,050	
Total 2038											

Notes:

*	Container10000 are assumed to have Ti
**	Container16000 are assumed to have Ti
***	To be conservative, it was assumed that
****	To be conservative, it was assumed that
	Main engine loads were obtained from A

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engin

Trips = one-way trips

Table 55. Operational OGV Emissions Without Mitigation - Prop

	Vessel Type	Engine/Source Type	Zone 2: Breakwater to PZ					Zone 3: PZ to 20nm				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Proposed Project	**2038**											
	Container5000	Propulsion	11.0	8.3	0.8	2,967	8%	12.0	18.8	1.6	7,693	10%
	Container5000	Auxiliary			0.8	1,306				1.6	2,708	
	Container5000	Auxiliary Boiler			0.8	413				1.6	856	
	Container8000	Propulsion	11.0	8.3	0.8	3,755	8%	12.0	18.8	1.6	9,735	10%
	Container8000	Auxiliary			0.8	1,131				1.6	2,346	
	Container8000	Auxiliary Boiler			0.8	492				1.6	1,021	
	Container10000*	Propulsion	11.0	8.3	0.8	4,057	8%	12.0	18.8	1.6	10,520	10%
	Container10000	Auxiliary			0.8	1,741				1.6	3,611	
	Container10000	Auxiliary Boiler			0.8	536				1.6	1,112	
	Container16000**	Propulsion	11.0	8.3	0.8	4,239	8%	12.0	18.8	1.6	10,991	10%
	Container16000	Auxiliary			0.8	2,271				1.6	4,710	
	Container16000	Auxiliary Boiler			0.8	530				1.6	1,099	
Total 2038												

Notes:

*	Container10000 are assumed to have Ti
**	Container16000 are assumed to have Ti
***	To be conservative, it was assumed that
****	To be conservative, it was assumed that
	Main engine loads were obtained from A

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engin

Trips = one-way trips

Table 55. Operational OGV Emissions Without Mitigation - Prop

	Vessel Type	Engine/Source Type	Zone 3: PZ to 20nm (no VSRP compliance)					Zone 4: 20nm to 40nm				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Proposed Project	**2038**											
	Container5000	Propulsion	20.1	18.8	0.9	23,448	51%	12.0	20.9	1.7	8,544	10%
	Container5000	Auxiliary			0.9	1,619				1.7	3,008	
	Container5000	Auxiliary Boiler			0.9	511				1.7	950	
	Container8000	Propulsion	20.3	18.8	0.9	29,319	51%	12.0	20.9	1.7	10,811	10%
	Container8000	Auxiliary			0.9	1,385				1.7	2,605	
	Container8000	Auxiliary Boiler			0.9	603				1.7	1,133	
	Container10000*	Propulsion	20.2	18.8	0.9	31,935	51%	12.0	20.9	1.7	11,682	10%
	Container10000	Auxiliary			0.9	2,150				1.7	4,010	
	Container10000	Auxiliary Boiler			0.9	662				1.7	1,234	
	Container16000**	Propulsion	20.1	18.8	0.9	33,497	51%	12.0	20.9	1.7	12,205	10%
	Container16000	Auxiliary			0.9	2,815				1.7	5,231	
	Container16000	Auxiliary Boiler			0.9	657				1.7	1,221	
Total 2038												

Notes:

*	Container10000 are assumed to have Ti
**	Container16000 are assumed to have Ti
***	To be conservative, it was assumed that
****	To be conservative, it was assumed that
	Main engine loads were obtained from A

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engin

Trips = one-way trips

Table 55. Operational OGV Emissions Without Mitigation - Prop

	Vessel Type	Engine/Source Type	Zone 4: 20nm to 40nm (no VSRP compliance)					Zone 5: 40nm to 50nm (SCAB Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
Proposed Project	**2038**											
	Container5000	Propulsion	20.1	20.9	1.0	26,040	51%	23	10	0.4	16,823	80%
	Container5000	Auxiliary			1.0	1,797				0.4	740	
	Container5000	Auxiliary Boiler			1.0	568				0.4		
	Container8000	Propulsion	20.3	20.9	1.0	32,559	51%	24	10	0.4	21,035	80%
	Container8000	Auxiliary			1.0	1,538				0.4	634	
	Container8000	Auxiliary Boiler			1.0	669				0.4		
	Container10000*	Propulsion	20.2	20.9	1.0	35,464	51%	23	10	0.4	22,912	80%
	Container10000	Auxiliary			1.0	2,387				0.4	983	
	Container10000	Auxiliary Boiler			1.0	735				0.4		
	Container16000**	Propulsion	20.1	20.9	1.0	37,200	51%	23	10	0.4	24,034	80%
	Container16000	Auxiliary			1.0	3,126				0.4	1,288	
	Container16000	Auxiliary Boiler			1.0	729				0.4		
Total 2038												

Notes:

*	Container10000 are assumed to have Ti
**	Container16000 are assumed to have Ti
***	To be conservative, it was assumed that
****	To be conservative, it was assumed that
	Main engine loads were obtained from A

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engin

Trips = one-way trips

Table 55. Operational OGV Emissions Without Mitigation - Prop

	Vessel Type	Engine/Source Type	Zone 6: 50nm to 170nm (State Inventory Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
Proposed Project	**2038**						
	Container5000	Propulsion	23	120	5.2	201,882	80%
	Container5000	Auxiliary			5.2	8,884	
	Container5000	Auxiliary Boiler			5.2		
	Container8000	Propulsion	24	120	5.1	252,425	80%
	Container8000	Auxiliary			5.1	7,603	
	Container8000	Auxiliary Boiler			5.1		
	Container10000*	Propulsion	23	120	5.1	274,947	80%
	Container10000	Auxiliary			5.1	11,798	
	Container10000	Auxiliary Boiler			5.1		
	Container16000**	Propulsion	23	120	5.2	288,402	80%
	Container16000	Auxiliary			5.2	15,450	
	Container16000	Auxiliary Boiler			5.2		
Total 2038							

Notes:

*	Container10000 are assumed to have Ti
**	Container16000 are assumed to have Ti
***	To be conservative, it was assumed that
****	To be conservative, it was assumed that
	Main engine loads were obtained from A

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engin
Trips = one-way trips

Table 56. Operational OGV Emissions Without Mitigation - Alt 3 (2019)

			Vessel Characteristics		Activity											
	Vessel Type	**Engine/Source Type**	**Engine Rating (kW)**	**Max Rated Speed (knots)**	**Peak Day Berth Calls**	**Peak Day Anchorage Calls**	**Peak Day Transits**	**Peak Day Hotelling Time at Berth Per Vessel (hr/day)**	**Hours at Anchorage within Peak Day (hr/day)**	**Annual Berth Calls**	**Annual Transits**	**Peak Day Fuel Sulfur**	**Peak Day Number of Transits in Compliance with VSRP in Zone 3****	**Peak Day Number of Transits in Compliance with VSRP in Zone 4****	**Peak Day Number of Vessels using AMP*****
Alt 3	**2019**														
	Container5000	Propulsion	49,000	25.1	1		1	8.1		52	104	0.1%			
	Container5000	Auxiliary			1		1	8.1		52	104	0.1%			
	Container5000	Auxiliary Boiler			1		1	8.1		52	104	0.1%			
	Container6000	Propulsion	58,000	25.1	1		1	0.0		52	104	0.1%	1	1	1
	Container6000	Auxiliary			1		1	0.0		52	104	0.1%	1	1	1
	Container6000	Auxiliary Boiler			1		1	0.0		52	104	0.1%	1	1	1
	Container10000*	Propulsion	67,000	25.2	1		1	9.1		52	104	0.1%	1	1	1
	Container10000	Auxiliary			1		1	9.1		52	104	0.1%	1	1	1
	Container10000	Auxiliary Boiler			1		1	9.1		52	104	0.1%	1	1	1
Total 2019					**3**		**3**			**156**	**312**		**2**	**2**	**2**

***** Container10000 are assumed to have Tier 1 engines based on the "Year Built" of Container 10000 (2009) listed in 2013 POLB Emissions Inventory, Table B.3.
****** To be conservative, it was assumed that "Container5000" would not be in compliance with VSRP in Zone 3 and Zone 4 during a peak day.
******* To be conservative, it was assumed that "Container5000" would have no AMP during a peak day.
Notes:
Main engine loads were obtained from AECOM and auxiliary and boiler loads from the 2014 Port Emissions Inventory Report except for the ship categories not listed in this Inventory. See this EIR report for more details.

Trips = one-way trips
Peak hourly emissions correspond to activity for 1 hour or less, if anchorage/hotelling/transit time is less than 1 hour.

Peak 8-hour emissions correspond to activity for 8 hour or less, if anchorage/hotelling/transit time is less than 8 hour.

Table 56. Operational OGV Emissions Without Mitigat

	Vessel Type	Engine/Source Type	Annual Fuel Sulfur	Annual Number of Transits in Compliance with VSRP in Zone 3	Annual Number of Transits in Compliance with VSRP in Zone 4	Annual Number of Vessels using AMP	Average Auxiliary Load (kW)				Hotelling at Anchorage		
							Transit	Maneuvering	Berth	Anchorage	(calls/yr)	Average Time (hr/call)	Energy Demand (kW-hr/call)
Alt 3	**2019**												
	Container5000	Propulsion	0.1%	96	78	41							
	Container5000	Auxiliary	0.1%	96	78	41	1,725	3,367	900	1,725		0	
	Container5000	Auxiliary Boiler	0.1%	96	78	41	545	547	547	547		0	
	Container6000	Propulsion	0.1%	96	82	41							
	Container6000	Auxiliary	0.1%	96	82	41	1,453	2,197	990	1,453		0	
	Container6000	Auxiliary Boiler	0.1%	96	82	41	577	573	573	573		0	
	Container10000*	Propulsion	0.1%	104	94	42							
	Container10000	Auxiliary	0.1%	104	94	42	2,300	2,350	1,450	2,300		0	
	Container10000	Auxiliary Boiler	0.1%	104	94	42	708	708	708	708		0	
Total 2019				**296**	**254**	**124**							

***** Container10000 are assumed to have
****** To be conservative, it was assumed t
******* To be conservative, it was assumed t
Main engine loads were obtained fro

Notes:

Trips = one-way trips
Peak hourly emissions correspond to activity for 1 hou

Peak 8-hour emissions correspond to activity for 8 hou

Table 56. Operational OGV Emissions Without Mitigat

Transit Characteristics

	Vessel Type	Engine/Source Type	Hotelling at Berth		AMP		Zone 1: Harbor				
			Average Time (hr/call)	Energy Demand (kW-hr/call)	Time (hr/call)	Energy Demand (kW-hr/call)	Speed (knots)	Distance (nm)	Maneuvering Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Alt 3	**2019**										
	Container5000	Propulsion					2.5	3.7	1.5	1,470	2%
	Container5000	Auxiliary	32.1	28,903	29.1	26,203			1.5	5,051	
	Container5000	Auxiliary Boiler	32.1	17,567					1.5	821	
	Container6000	Propulsion					2.5	3.7	1.5	1,740	2%
	Container6000	Auxiliary	39.6	39,205	37	36,235			1.5	3,296	
	Container6000	Auxiliary Boiler	39.6	22,692					1.5	860	
	Container10000*	Propulsion					2.5	3.7	1.5	2,010	2%
	Container10000	Auxiliary	37.9	54,888	35	50,538			1.5	3,525	
	Container10000	Auxiliary Boiler	37.9	26,800					1.5	1,062	
Total 2019											

***** Container10000 are assumed to have
****** To be conservative, it was assumed t
******* To be conservative, it was assumed t
Main engine loads were obtained fro

Notes:

Trips = one-way trips
Peak hourly emissions correspond to activity for 1 hou

Peak 8-hour emissions correspond to activity for 8 hou

Table 56. Operational OGV Emissions Without Mitigat

	Vessel Type	Engine/Source Type	Zone 2: Breakwater to PZ					Zone 3: PZ to 20nm				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Alt 3	**2019**											
	Container5000	Propulsion	11.0	8.3	0.8	2,967	8%	12.0	18.8	1.6	7,693	10%
	Container5000	Auxiliary			0.8	1,306				1.6	2,708	
	Container5000	Auxiliary Boiler			0.8	413				1.6	856	
	Container6000	Propulsion	11.0	8.3	0.8	3,512	8%	12.0	18.8	1.6	9,107	10%
	Container6000	Auxiliary			0.8	1,100				1.6	2,281	
	Container6000	Auxiliary Boiler			0.8	437				1.6	906	
	Container10000*	Propulsion	11.0	8.3	0.8	4,057	8%	12.0	18.8	1.6	10,520	10%
	Container10000	Auxiliary			0.8	1,741				1.6	3,611	
	Container10000	Auxiliary Boiler			0.8	536				1.6	1,112	
Total 2019												

***** Container10000 are assumed to have
****** To be conservative, it was assumed t
******* To be conservative, it was assumed t
Main engine loads were obtained fro

Notes:

Trips = one-way trips
Peak hourly emissions correspond to activity for 1 hou

Peak 8-hour emissions correspond to activity for 8 hou

Table 56. Operational OGV Emissions Without Mitigat

	Vessel Type	Engine/Source Type	Zone 3: PZ to 20nm (no VSRP compliance)					Zone 4: 20nm to 40nm				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Alt 3	**2019**											
	Container5000	Propulsion	20.1	18.8	0.9	23,448	51%	12.0	20.9	1.7	8,544	10%
	Container5000	Auxiliary			0.9	1,619				1.7	3,008	
	Container5000	Auxiliary Boiler			0.9	511				1.7	950	
	Container6000	Propulsion	20.1	18.8	0.9	27,755	51%	12.0	20.9	1.7	10,113	10%
	Container6000	Auxiliary			0.9	1,363				1.7	2,533	
	Container6000	Auxiliary Boiler			0.9	541				1.7	1,006	
	Container10000*	Propulsion	20.2	18.8	0.9	31,935	51%	12.0	20.9	1.7	11,682	10%
	Container10000	Auxiliary			0.9	2,150				1.7	4,010	
	Container10000	Auxiliary Boiler			0.9	662				1.7	1,234	
Total 2019												

*	Container10000 are assumed to have
**	To be conservative, it was assumed t
***	To be conservative, it was assumed t
	Main engine loads were obtained fro

Notes:

Trips = one-way trips

Peak hourly emissions correspond to activity for 1 hou

Peak 8-hour emissions correspond to activity for 8 hou

Table 56. Operational OGV Emissions Without Mitigat

	Vessel Type	Engine/Source Type	Zone 4: 20nm to 40nm (no VSRP compliance)					Zone 5: 40nm to 50nm (SCAB Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
Alt 3	**2019**											
	Container5000	Propulsion	20.1	20.9	1.0	26,040	51%	23	10	0.4	16,823	80%
	Container5000	Auxiliary			1.0	1,797				0.4	740	
	Container5000	Auxiliary Boiler			1.0	568				0.4		
	Container6000	Propulsion	20.1	20.9	1.0	30,823	51%	23	10	0.4	19,913	80%
	Container6000	Auxiliary			1.0	1,514				0.4	624	
	Container6000	Auxiliary Boiler			1.0	601				0.4		
	Container10000*	Propulsion	20.2	20.9	1.0	35,464	51%	23	10	0.4	22,912	80%
	Container10000	Auxiliary			1.0	2,387				0.4	983	
	Container10000	Auxiliary Boiler			1.0	735				0.4		
Total 2019												

***** Container10000 are assumed to have
****** To be conservative, it was assumed t
******* To be conservative, it was assumed t
Main engine loads were obtained fro

Notes:

Trips = one-way trips
Peak hourly emissions correspond to activity for 1 hou

Peak 8-hour emissions correspond to activity for 8 hou

Table 56. Operational OGV Emissions Without Mitigat

	Vessel Type	Engine/Source Type	Zone 6: 50nm to 170nm (State Inventory Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
Alt 3	**2019**						
	Container5000	Propulsion	23	120	5.2	201,882	80%
	Container5000	Auxiliary			5.2	8,884	
	Container5000	Auxiliary Boiler			5.2		
	Container6000	Propulsion	23	120	5.2	238,962	80%
	Container6000	Auxiliary			5.2	7,483	
	Container6000	Auxiliary Boiler			5.2		
	Container10000*	Propulsion	23	120	5.1	274,947	80%
	Container10000	Auxiliary			5.1	11,798	
	Container10000	Auxiliary Boiler			5.1		
Total 2019							

*	Container10000 are assumed to have
**	To be conservative, it was assumed t
***	To be conservative, it was assumed t
	Main engine loads were obtained fro

Notes:

Trips = one-way trips

Peak hourly emissions correspond to activity for 1 hou

Peak 8-hour emissions correspond to activity for 8 hou

Table 57. Operational OGV Emissions Without Mitigation - Alt 3 (2026)

		Vessel Characteristics			Activity										
	Vessel Type	**Engine/Source Type**	**Engine Rating (kW)**	**Max Rated Speed (knots)**	**Peak Day Berth Calls**	**Peak Day Anchorage Calls**	**Peak Day Transits**	**Peak Day Hotelling Time at Berth Per Vessel (hr/day)**	**Hours at Anchorage within Peak Day (hr/day)**	**Annual Berth Calls**	**Annual Transits**	**Peak Day Fuel Sulfur**	**Peak Day Number of Transits in Compliance with VSRP in Zone 3****	**Peak Day Number of Transits in Compliance with VSRP in Zone 4****	**Peak Day Number of Vessels using AMP*****
Alt 3	**2026**														
	Container5000	Propulsion	49,000	25.1	1		1	13.0		52	104	0.1%			
	Container5000	Auxiliary			1		1	13.0		52	104	0.1%			
	Container5000	Auxiliary Boiler			1		1	13.0		52	104	0.1%			
	Container8000	Propulsion	62,000	25.4	1	1	1	8.0	1.8	52	104	0.1%	1	1	1
	Container8000	Auxiliary			1	1	1	8.0	1.8	52	104	0.1%	1	1	1
	Container8000	Auxiliary Boiler			1	1	1	8.0	1.8	52	104	0.1%	1	1	1
	Container16000*	Propulsion	70,000	25.1	1		1	18.9		52	104	0.1%	1	1	1
	Container16000	Auxiliary			1		1	18.9		52	104	0.1%	1	1	1
	Container16000	Auxiliary Boiler			1		1	18.9		52	104	0.1%	1	1	1
Total 2026					**3**	**1**	**3**			**156**	**312**		**2**	**2**	**2**

* Container16000 are assumed to have Tier 2 engines since the oldest Container16000 container ship was built in 2012. (http://www.cma-cgm.com/the-group/activities/shipping/vessel/9454436/cma-cgm-marco-polo)

** To be conservative, it was assumed that "Container5000" would not be in compliance with VSRP in Zone 3 and Zone 4 during a peak day.

*** To be conservative, it was assumed that "Container5000" would have no AMP during a peak day.

Main engine loads were obtained from AECOM and auxiliary and boiler loads from the 2014 Port Emissions Inventory Report except for the ship categories not listed in this Inventory. See this EIR report for more details.

Notes:

Trips = one-way trips

Peak hourly emissions correspond to activity for 1 hour or less, if anchorage/hotelling/transit time is less than 1 hour.

Peak 8-hour emissions correspond to activity for 8 hour or less, if anchorage/hotelling/transit time is less than 8 hour.

Table 57. Operational OGV Emissions Without

	Vessel Type	Engine/Source Type	Annual Fuel Sulfur	Annual Number of Transits in Compliance with VSRP in Zone 3	Annual Number of Transits in Compliance with VSRP in Zone 4	Annual Number of Vessels using AMP	Average Auxiliary Load (kW)				Hotelling at Anchorage		
							Transit	Maneuvering	Berth	Anchorage	(calls/yr)	Average Time (hr/call)	Energy Demand (kW-hr/call)
Alt 3	**2026**												
	Container5000	Propulsion	0.1%	96	82	41							
	Container5000	Auxiliary	0.1%	96	82	41	1,725	3,367	900	1,725		0	
	Container5000	Auxiliary Boiler	0.1%	96	82	41	545	547	547	547		0	
	Container8000	Propulsion	0.1%	96	78	41							
	Container8000	Auxiliary	0.1%	96	78	41	1,494	2,753	902	1,494		0	
	Container8000	Auxiliary Boiler	0.1%	96	78	41	650	531	531	531		0	
	Container16000*	Propulsion	0.1%	104	94	42							
	Container16000	Auxiliary	0.1%	104	94	42	3,000	5,500	3,000	3,000	1	6.0	17,874
	Container16000	Auxiliary Boiler	0.1%	104	94	42	700	700	700	700	1	6.0	4,171
Total 2026				**296**	**254**	**124**							

* Container16000 are assumed to hav
** To be conservative, it was assumed
*** To be conservative, it was assumed
Main engine loads were obtained fr

Notes:

Trips = one-way trips
Peak hourly emissions correspond to activity fo

Peak 8-hour emissions correspond to activity fc

Table 57. Operational OGV Emissions Without

			Transit Characteristics								
	Vessel Type	**Engine/Source Type**	**Hotelling at Berth**		**AMP**		**Zone 1: Harbor**				
			Average Time (hr/call)	Energy Demand (kW-hr/call)	Time (hr/call)	Energy Demand (kW-hr/call)	Speed (knots)	Distance (nm)	Maneuvering Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Alt 3	**2026**										
	Container5000	Propulsion					2.5	3.7	1.5	1,470	2%
	Container5000	Auxiliary	32.1	28,912	29.1	26,212			1.5	5,051	
	Container5000	Auxiliary Boiler	32.1	17,572					1.5	821	
	Container8000	Propulsion					2.5	3.7	1.5	1,860	2%
	Container8000	Auxiliary	35.4	31,914	32	29,208			1.5	4,130	
	Container8000	Auxiliary Boiler	35.4	18,787					1.5	797	
	Container16000*	Propulsion					2.5	3.7	1.5	2,100	2%
	Container16000	Auxiliary	60.8	182,437	58	173,437			1.5	8,250	
	Container16000	Auxiliary Boiler	60.8	42,569					1.5	1,050	
Total 2026											

* Container16000 are assumed to hav
** To be conservative, it was assumed
*** To be conservative, it was assumed
Main engine loads were obtained fr

Notes:

Trips = one-way trips
Peak hourly emissions correspond to activity fo

Peak 8-hour emissions correspond to activity fc

Table 57. Operational OGV Emissions Without

	Vessel Type	Engine/Source Type	Zone 2: Breakwater to PZ					Zone 3: PZ to 20nm				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Alt 3	**2026**											
	Container5000	Propulsion	11.0	8.3	0.8	2,967	8%	12.0	18.8	1.6	7,693	10%
	Container5000	Auxiliary			0.8	1,306				1.6	2,708	
	Container5000	Auxiliary Boiler			0.8	413				1.6	856	
	Container8000	Propulsion	11.0	8.3	0.8	3,755	8%	12.0	18.8	1.6	9,735	10%
	Container8000	Auxiliary			0.8	1,131				1.6	2,346	
	Container8000	Auxiliary Boiler			0.8	492				1.6	1,021	
	Container16000*	Propulsion	11.0	8.3	0.8	4,239	8%	12.0	18.8	1.6	10,991	10%
	Container16000	Auxiliary			0.8	2,271				1.6	4,710	
	Container16000	Auxiliary Boiler			0.8	530				1.6	1,099	
Total 2026												

* Container16000 are assumed to hav
** To be conservative, it was assumed
*** To be conservative, it was assumed
Main engine loads were obtained fr

Notes:

Trips = one-way trips
Peak hourly emissions correspond to activity fo

Peak 8-hour emissions correspond to activity fc

Table 57. Operational OGV Emissions Without

	Vessel Type	Engine/Source Type	Zone 3: PZ to 20nm (no VSRP compliance)					Zone 4: 20nm to 40nm				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Alt 3	**2026**											
	Container5000	Propulsion	20.1	18.8	0.9	23,448	51%	12.0	20.9	1.7	8,544	10%
	Container5000	Auxiliary			0.9	1,619				1.7	3,008	
	Container5000	Auxiliary Boiler			0.9	511				1.7	950	
	Container8000	Propulsion	20.3	18.8	0.9	29,319	51%	12.0	20.9	1.7	10,811	10%
	Container8000	Auxiliary			0.9	1,385				1.7	2,605	
	Container8000	Auxiliary Boiler			0.9	603				1.7	1,133	
	Container16000*	Propulsion	20.1	18.8	0.9	33,497	51%	12.0	20.9	1.7	12,205	10%
	Container16000	Auxiliary			0.9	2,815				1.7	5,231	
	Container16000	Auxiliary Boiler			0.9	657				1.7	1,221	
Total 2026												

* Container16000 are assumed to hav
** To be conservative, it was assumed
*** To be conservative, it was assumed
Main engine loads were obtained fr

Notes:

Trips = one-way trips
Peak hourly emissions correspond to activity fo

Peak 8-hour emissions correspond to activity fc

Table 57. Operational OGV Emissions Without

	Vessel Type	Engine/Source Type	Zone 4: 20nm to 40nm (no VSRP compliance)					Zone 5: 40nm to 50nm (SCAB Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
Alt 3	**2026**											
	Container5000	Propulsion	20.1	20.9	1.0	26,040	51%	23	10	0.4	16,823	80%
	Container5000	Auxiliary			1.0	1,797				0.4	740	
	Container5000	Auxiliary Boiler			1.0	568				0.4		
	Container8000	Propulsion	20.3	20.9	1.0	32,559	51%	24	10	0.4	21,035	80%
	Container8000	Auxiliary			1.0	1,538				0.4	634	
	Container8000	Auxiliary Boiler			1.0	669				0.4		
	Container16000*	Propulsion	20.1	20.9	1.0	37,200	51%	23	10	0.4	24,034	80%
	Container16000	Auxiliary			1.0	3,126				0.4	1,288	
	Container16000	Auxiliary Boiler			1.0	729				0.4		
Total 2026												

* Container16000 are assumed to hav
** To be conservative, it was assumed
*** To be conservative, it was assumed
Main engine loads were obtained fr

Notes:

Trips = one-way trips
Peak hourly emissions correspond to activity fo

Peak 8-hour emissions correspond to activity fc

Table 57. Operational OGV Emissions Without

	Vessel Type	Engine/Source Type	Zone 6: 50nm to 170nm (State Inventory Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
Alt 3	**2026**						
	Container5000	Propulsion	23	120	5.2	201,882	80%
	Container5000	Auxiliary			5.2	8,884	
	Container5000	Auxiliary Boiler			5.2		
	Container8000	Propulsion	24	120	5.1	252,425	80%
	Container8000	Auxiliary			5.1	7,603	
	Container8000	Auxiliary Boiler			5.1		
	Container16000*	Propulsion	23	120	5.2	288,402	80%
	Container16000	Auxiliary			5.2	15,450	
	Container16000	Auxiliary Boiler			5.2		
Total 2026							

***** Container16000 are assumed to hav
****** To be conservative, it was assumed
******* To be conservative, it was assumed
Main engine loads were obtained fr

Notes:

Trips = one-way trips
Peak hourly emissions correspond to activity fo

Peak 8-hour emissions correspond to activity fc

Table 58. Operational OGV Emissions Without Mitigation - Alt 3 (2033)

			Vessel Characteristics			Activity											
	Vessel Type	Engine/Source Type	Engine Rating (kW)		Max Rated Speed (knots)	Peak Day Berth Calls	Peak Day Anchorage Calls	Peak Day Transits	Peak Day Hotelling Time at Berth Per Vessel (hr/day)	Hours at Anchorage within Peak Day (hr/day)	Annual Berth Calls	Annual Transits	Peak Day Fuel Sulfur	Peak Day Number of Transits in Compliance with VSRP in Zone 3***	Peak Day Number of Transits in Compliance with VSRP in Zone 4***	Peak Day Number of Vessels using AMP****
Alt 3	**2033**															
	Container5000	Propulsion	49,000		25.1	1		1	16.6		52	104	0.1%			
	Container5000	Auxiliary				1		1	16.6		52	104	0.1%			
	Container5000	Auxiliary Boiler				1		1	16.6		52	104	0.1%			
	Container8000	Propulsion	62,000		25.4	1		1	2.6		52	104	0.1%			
	Container8000	Auxiliary				1		1	2.6		52	104	0.1%			
	Container8000	Auxiliary Boiler				1		1	2.6		52	104	0.1%			
	Container9000*	Propulsion	62,000		24.9	1		1	0.5		52	104	0.1%	1	1	1
	Container9000	Auxiliary				1		1	0.5		52	104	0.1%	1	1	1
	Container9000	Auxiliary Boiler				1		1	0.5		52	104	0.1%	1	1	1
	Container16000**	Propulsion	70,000		25.1	1		1	7.4		52	104	0.1%	1	1	1
	Container16000	Auxiliary				1		1	7.4		52	104	0.1%	1	1	1
	Container16000	Auxiliary Boiler				1		1	7.4		52	104	0.1%	1	1	1
Total 2033						**4**		**4**			**208**	**416**		**2**	**2**	**2**

* Container9000 are assumed to have Tier 1 engines based on the "Year Built" of Container9000 (2008) listed in 2013 POLA Emissions Inventory, Table 3.22.

** Container16000 are assumed to have Tier 2 engines since the oldest Container16000 container ship was built in 2012. (http://www.cma-cgm.com/the-group/activities/shipping/vessel/9454436/cma-cgm-marco-polo)

*** To be conservative, it was assumed that "Container5000" and "Container8000" would not be in compliance with VSRP in Zone 3 and Zone 4 during a peak day.

**** To be conservative, it was assumed that "Container5000" and "Container8000" would have no AMP during a peak day.

Main engine loads were obtained from AECOM and auxiliary and boiler loads from the 2014 Port Emissions Inventory Report except for the ship categories not listed in this Inventory. See this EIR report for more details.

Notes:

Trips = one-way trips

Peak hourly emissions correspond to activity for 1 hour or less, if anchorage/hotelling/transit time is less than 1 hour.

Peak 8-hour emissions correspond to activity for 8 hour or less, if anchorage/hotelling/transit time is less than 8 hour.

Table 58. Operational OGV Emissions Without Mit

	Vessel Type	Engine/Source Type		Annual Fuel Sulfur	Annual Number of Transits in Compliance with VSRP in Zone 3	Annual Number of Transits in Compliance with VSRP in Zone 4	Annual Number of Vessels using AMP	Average Auxiliary Load (kW)				Hotelling at Anchorage		
								Transit	Maneuvering	Berth	Anchorage	(calls/yr)	Average Time (hr/call)	Energy Demand (kW-hr/call)
Alt 3	**2033**													
	Container5000	Propulsion		0.1%	102	90	41							
	Container5000	Auxiliary		0.1%	102	90	41	1,725	3,367	900	1,725	4	1.2	2,143
	Container5000	Auxiliary Boiler		0.1%	102	90	41	545	547	547	547	4	1.2	680
	Container8000	Propulsion		0.1%	90	80	42							
	Container8000	Auxiliary		0.1%	90	80	42	1,494	2,753	902	1,494	1	1.9	2,831
	Container8000	Auxiliary Boiler		0.1%	90	80	42	650	531	531	531	1	1.9	1,006
	Container9000*	Propulsion		0.1%	100	80	41							
	Container9000	Auxiliary		0.1%	100	80	41	1,501	2,942	1,037	1,501	4	12.7	19,113
	Container9000	Auxiliary Boiler		0.1%	100	80	41	475	475	475	475	4	12.7	6,048
	Container16000**	Propulsion		0.1%	100	90	42							
	Container16000	Auxiliary		0.1%	100	90	42	3,000	5,500	3,000	3,000	5	17.1	51,440
	Container16000	Auxiliary Boiler		0.1%	100	90	42	700	700	700	700	5	17.1	12,003
Total 2033					**392**	**340**	**166**							

* Container9000 are assumed to have T

** Container16000 are assumed to have

*** To be conservative, it was assumed th

**** To be conservative, it was assumed th

Main engine loads were obtained fron

Notes:

Trips = one-way trips

Peak hourly emissions correspond to activity for 1 h

Peak 8-hour emissions correspond to activity for 8

Table 58. Operational OGV Emissions Without Mit

			Transit Characteristics								
	Vessel Type	**Engine/Source Type**	**Hotelling at Berth**		**AMP**		**Zone 1: Harbor**				
			Average Time (hr/call)	Energy Demand (kW-hr/call)	Time (hr/call)	Energy Demand (kW-hr/call)	Speed (knots)	Distance (nm)	Maneuvering Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Alt 3	**2033**										
	Container5000	Propulsion					2.5	3.7	1.5	1,470	2%
	Container5000	Auxiliary	26.9	24,254	23.9	21,554			1.5	5,051	
	Container5000	Auxiliary Boiler	26.9	14,741					1.5	821	
	Container8000	Propulsion					2.5	3.7	1.5	1,860	2%
	Container8000	Auxiliary	40.6	36,583	38	33,877			1.5	4,130	
	Container8000	Auxiliary Boiler	40.6	21,536					1.5	797	
	Container9000*	Propulsion					2.5	3.7	1.5	1,860	2%
	Container9000	Auxiliary	39.6	41,039	37	37,928			1.5	4,413	
	Container9000	Auxiliary Boiler	39.6	18,798					1.5	713	
	Container16000**	Propulsion					2.5	3.7	1.5	2,100	2%
	Container16000	Auxiliary	60.7	181,957	58	172,957			1.5	8,250	
	Container16000	Auxiliary Boiler	60.7	42,457					1.5	1,050	
Total 2033											

* Container9000 are assumed to have T

** Container16000 are assumed to have

*** To be conservative, it was assumed th

**** To be conservative, it was assumed th

Main engine loads were obtained fron

Notes:

Trips = one-way trips

Peak hourly emissions correspond to activity for 1 h

Peak 8-hour emissions correspond to activity for 8

Table 58. Operational OGV Emissions Without Mit

	Vessel Type	Engine/Source Type	Zone 2: Breakwater to PZ					Zone 3: PZ to 20nm				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Alt 3	**2033**											
	Container5000	Propulsion	11.0	8.3	0.8	2,967	8%	12.0	18.8	1.6	7,693	10%
	Container5000	Auxiliary			0.8	1,306				1.6	2,708	
	Container5000	Auxiliary Boiler			0.8	413				1.6	856	
	Container8000	Propulsion	11.0	8.3	0.8	3,755	8%	12.0	18.8	1.6	9,735	10%
	Container8000	Auxiliary			0.8	1,131				1.6	2,346	
	Container8000	Auxiliary Boiler			0.8	492				1.6	1,021	
	Container9000*	Propulsion	11.0	8.3	0.8	3,755	8%	12.0	18.8	1.6	10,708	11%
	Container9000	Auxiliary			0.8	1,136				1.6	2,357	
	Container9000	Auxiliary Boiler			0.8	360				1.6	746	
	Container16000**	Propulsion	11.0	8.3	0.8	4,239	8%	12.0	18.8	1.6	10,991	10%
	Container16000	Auxiliary			0.8	2,271				1.6	4,710	
	Container16000	Auxiliary Boiler			0.8	530				1.6	1,099	
Total 2033												

* Container9000 are assumed to have T
** Container16000 are assumed to have
*** To be conservative, it was assumed th
**** To be conservative, it was assumed th
Main engine loads were obtained fron

Notes:

Trips = one-way trips
Peak hourly emissions correspond to activity for 1 h

Peak 8-hour emissions correspond to activity for 8

Table 58. Operational OGV Emissions Without Mit

	Vessel Type	Engine/Source Type	Zone 3: PZ to 20nm (no VSRP compliance)					Zone 4: 20nm to 40nm				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Alt 3	**2033**											
	Container5000	Propulsion	20.1	18.8	0.9	23,448	51%	12.0	20.9	1.7	8,544	10%
	Container5000	Auxiliary			0.9	1,619				1.7	3,008	
	Container5000	Auxiliary Boiler			0.9	511				1.7	950	
	Container8000	Propulsion	20.3	18.8	0.9	29,319	51%	12.0	20.9	1.7	10,811	10%
	Container8000	Auxiliary			0.9	1,385				1.7	2,605	
	Container8000	Auxiliary Boiler			0.9	603				1.7	1,133	
	Container9000*	Propulsion	19.9	18.8	0.9	29,907	51%	12.0	20.9	1.7	11,892	11%
	Container9000	Auxiliary			0.9	1,420				1.7	2,617	
	Container9000	Auxiliary Boiler			0.9	449				1.7	828	
	Container16000**	Propulsion	20.1	18.8	0.9	33,497	51%	12.0	20.9	1.7	12,205	10%
	Container16000	Auxiliary			0.9	2,815				1.7	5,231	
	Container16000	Auxiliary Boiler			0.9	657				1.7	1,221	
Total 2033												

* Container9000 are assumed to have T

** Container16000 are assumed to have

*** To be conservative, it was assumed th

**** To be conservative, it was assumed th

Main engine loads were obtained fron

Notes:

Trips = one-way trips

Peak hourly emissions correspond to activity for 1 h

Peak 8-hour emissions correspond to activity for 8

Table 58. Operational OGV Emissions Without Mit

	Vessel Type	Engine/Source Type	Zone 4: 20nm to 40nm (no VSRP compliance)					Zone 5: 40nm to 50nm (SCAB Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
Alt 3	**2033**											
	Container5000	Propulsion	20.1	20.9	1.0	26,040	51%	23	10	0.4	16,823	80%
	Container5000	Auxiliary			1.0	1,797				0.4	740	
	Container5000	Auxiliary Boiler			1.0	568				0.4		
	Container8000	Propulsion	20.3	20.9	1.0	32,559	51%	24	10	0.4	21,035	80%
	Container8000	Auxiliary			1.0	1,538				0.4	634	
	Container8000	Auxiliary Boiler			1.0	669				0.4		
	Container9000*	Propulsion	19.9	20.9	1.1	33,213	51%	23	10	0.4	21,458	80%
	Container9000	Auxiliary			1.1	1,577				0.4	649	
	Container9000	Auxiliary Boiler			1.1	499				0.4		
	Container16000**	Propulsion	20.1	20.9	1.0	37,200	51%	23	10	0.4	24,034	80%
	Container16000	Auxiliary			1.0	3,126				0.4	1,288	
	Container16000	Auxiliary Boiler			1.0	729				0.4		
Total 2033												

* Container9000 are assumed to have T

** Container16000 are assumed to have

*** To be conservative, it was assumed th

**** To be conservative, it was assumed th

Main engine loads were obtained fron

Notes:

Trips = one-way trips

Peak hourly emissions correspond to activity for 1 h

Peak 8-hour emissions correspond to activity for 8

Table 58. Operational OGV Emissions Without Mit

	Vessel Type	Engine/Source Type	Zone 6: 50nm to 170nm (State Inventory Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
Alt 3	**2033**						
	Container5000	Propulsion	23	120	5.2	201,882	80%
	Container5000	Auxiliary			5.2	8,884	
	Container5000	Auxiliary Boiler			5.2		
	Container8000	Propulsion	24	120	5.1	252,425	80%
	Container8000	Auxiliary			5.1	7,603	
	Container8000	Auxiliary Boiler			5.1		
	Container9000*	Propulsion	23	120	5.2	257,494	80%
	Container9000	Auxiliary			5.2	7,792	
	Container9000	Auxiliary Boiler			5.2		
	Container16000**	Propulsion	23	120	5.2	288,402	80%
	Container16000	Auxiliary			5.2	15,450	
	Container16000	Auxiliary Boiler			5.2		
Total 2033							

* Container9000 are assumed to have T
** Container16000 are assumed to have
*** To be conservative, it was assumed th
**** To be conservative, it was assumed th
Main engine loads were obtained fron

Notes:

Trips = one-way trips
Peak hourly emissions correspond to activity for 1 h

Peak 8-hour emissions correspond to activity for 8

Table 59. Operational OGV Emissions Without Mitigation - Alt 3 (2038)

			Vessel Characteristics			Activity										
	Vessel Type	Engine/Source Type	Engine Rating (kW)	Vessel Year	Max Rated Speed (knots)	Peak Day Berth Calls	Peak Day Anchorage Calls	Peak Day Transits	Peak Day Hotelling Time at Berth Per Vessel (hr/day)	Hours at Anchorage within Peak Day (hr/day)	Annual Berth Calls	Annual Transits	Peak Day Fuel Sulfur	Peak Day Number of Transits in Compliance with VSRP in Zone 3***	Peak Day Number of Transits in Compliance with VSRP in Zone 4***	Peak Day Number of Vessels using AMP****
Alt 3	**2038**															
	Container5000	Propulsion	49,000		25.1	1		1	16.6		52	104	0.1%			
	Container5000	Auxiliary				1		1	16.6		52	104	0.1%			
	Container5000	Auxiliary Boiler				1		1	16.6		52	104	0.1%			
	Container8000	Propulsion	62,000		25.4	1		1	2.6		52	104	0.1%			
	Container8000	Auxiliary				1		1	2.6		52	104	0.1%			
	Container8000	Auxiliary Boiler				1		1	2.6		52	104	0.1%			
	Container9000*	Propulsion	62,000		24.9	1		1	0.5		52	104	0.1%	1	1	1
	Container9000	Auxiliary				1		1	0.5		52	104	0.1%	1	1	1
	Container9000	Auxiliary Boiler				1		1	0.5		52	104	0.1%	1	1	1
	Container16000**	Propulsion	70,000		25.1	1		1	7.4		52	104	0.1%	1	1	1
	Container16000	Auxiliary				1		1	7.4		52	104	0.1%	1	1	1
	Container16000	Auxiliary Boiler				1		1	7.4		52	104	0.1%	1	1	1
2038						**4**		**4**			**208**	**416**		**2**	**2**	**2**

* Container9000 are assumed to have Tier 1 engines based on the "Year Built" of Container9000 (2008) listed in 2013 POLA Emissions Inventory, Table 3.22.

** Container16000 are assumed to have Tier 2 engines since the oldest Container16000 container ship was built in 2012. (http://www.cma-cgm.com/the-group/activities/shipping/vessel/9454436/cma-cgm-marco-polo)

*** To be conservative, it was assumed that "Container5000" and "Container8000" would not be in compliance with VSRP in Zone 3 and Zone 4 during a peak day.

**** To be conservative, it was assumed that "Container5000" and "Container8000" would have no AMP during a peak day.

Main engine loads were obtained from AECOM and auxiliary and boiler loads from the 2014 Port Emissions Inventory Report except for the ship categories not listed in this Inventory. See this EIR report for more details.

Notes:

Trips = one-way trips

Peak hourly emissions correspond to activity for 1 hour or less, if anchorage/hotelling/transit time is less than 1 hour.

Peak 8-hour emissions correspond to activity for 8 hour or less, if anchorage/hotelling/transit time is less than 8 hour.

Table 59. Operational OGV Emissions Without Mi

	Vessel Type	Engine/Source Type	Annual Fuel Sulfur	Annual Number of Transits in Compliance with VSRP in Zone 3	Annual Number of Transits in Compliance with VSRP in Zone 4	Annual Number of Vessels using AMP	Average Auxiliary Load (kW)				Hotelling at Anchorage		
							Transit	Maneuvering	Berth	Anchorage	(calls/yr)	Average Time (hr/call)	Energy Demand (kW-hr/call)
Alt 3	**2038**												
	Container5000	Propulsion	0.1%	102	90	41							
	Container5000	Auxiliary	0.1%	102	90	41	1,725	3,367	900	1,725	4	1.2	2,143
	Container5000	Auxiliary Boiler	0.1%	102	90	41	545	547	547	547	4	1.2	680
	Container8000	Propulsion	0.1%	90	80	42							
	Container8000	Auxiliary	0.1%	90	80	42	1,494	2,753	902	1,494	1	1.9	2,831
	Container8000	Auxiliary Boiler	0.1%	90	80	42	650	531	531	531	1	1.9	1,006
	Container9000*	Propulsion	0.1%	100	80	41							
	Container9000	Auxiliary	0.1%	100	80	41	1,501	2,942	1,037	1,501	4	12.7	19,113
	Container9000	Auxiliary Boiler	0.1%	100	80	41	475	475	475	475	4	12.7	6,048
	Container16000**	Propulsion	0.1%	100	90	42							
	Container16000	Auxiliary	0.1%	100	90	42	3,000	5,500	3,000	3,000	5	17.1	51,440
	Container16000	Auxiliary Boiler	0.1%	100	90	42	700	700	700	700	5	17.1	12,003
2038				**392**	**340**	**166**							

* Container9000 are assumed to have Tie
** Container16000 are assumed to have Ti
*** To be conservative, it was assumed that
**** To be conservative, it was assumed that
Main engine loads were obtained from .

Notes:

Trips = one-way trips
Peak hourly emissions correspond to activity for 1

Peak 8-hour emissions correspond to activity for 8

Table 59. Operational OGV Emissions Without Mi

Transit Characteristics

	Vessel Type	Engine/Source Type	Hotelling at Berth		AMP		Zone 1: Harbor				
			Average Time (hr/call)	Energy Demand (kW-hr/call)	Time (hr/call)	Energy Demand (kW-hr/call)	Speed (knots)	Distance (nm)	Maneuvering Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Alt 3	**2038**										
	Container5000	Propulsion					2.5	3.7	1.5	1,470	2%
	Container5000	Auxiliary	26.9	24,254	23.9	21,554			1.5	5,051	
	Container5000	Auxiliary Boiler	26.9	14,741					1.5	821	
	Container8000	Propulsion					2.5	3.7	1.5	1,860	2%
	Container8000	Auxiliary	40.6	36,583	38	33,877			1.5	4,130	
	Container8000	Auxiliary Boiler	40.6	21,536					1.5	797	
	Container9000*	Propulsion					2.5	3.7	1.5	1,860	2%
	Container9000	Auxiliary	39.6	41,039	37	37,928			1.5	4,413	
	Container9000	Auxiliary Boiler	39.6	18,798					1.5	713	
	Container16000**	Propulsion					2.5	3.7	1.5	2,100	2%
	Container16000	Auxiliary	60.7	181,957	58	172,957			1.5	8,250	
	Container16000	Auxiliary Boiler	60.7	42,457					1.5	1,050	
2038											

* Container9000 are assumed to have Tie

** Container16000 are assumed to have Ti

*** To be conservative, it was assumed that

**** To be conservative, it was assumed that

Main engine loads were obtained from .

Notes:

Trips = one-way trips

Peak hourly emissions correspond to activity for 1

Peak 8-hour emissions correspond to activity for 8

Table 59. Operational OGV Emissions Without Mi

	Vessel Type	Engine/Source Type	Zone 2: Breakwater to PZ					Zone 3: PZ to 20nm				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Alt 3	**2038**											
	Container5000	Propulsion	11.0	8.3	0.8	2,967	8%	12.0	18.8	1.6	7,693	10%
	Container5000	Auxiliary			0.8	1,306				1.6	2,708	
	Container5000	Auxiliary Boiler			0.8	413				1.6	856	
	Container8000	Propulsion	11.0	8.3	0.8	3,755	8%	12.0	18.8	1.6	9,735	10%
	Container8000	Auxiliary			0.8	1,131				1.6	2,346	
	Container8000	Auxiliary Boiler			0.8	492				1.6	1,021	
	Container9000*	Propulsion	11.0	8.3	0.8	3,755	8%	12.0	18.8	1.6	10,708	11%
	Container9000	Auxiliary			0.8	1,136				1.6	2,357	
	Container9000	Auxiliary Boiler			0.8	360				1.6	746	
	Container16000**	Propulsion	11.0	8.3	0.8	4,239	8%	12.0	18.8	1.6	10,991	10%
	Container16000	Auxiliary			0.8	2,271				1.6	4,710	
	Container16000	Auxiliary Boiler			0.8	530				1.6	1,099	
2038												

* Container9000 are assumed to have Tie
** Container16000 are assumed to have Ti
*** To be conservative, it was assumed that
**** To be conservative, it was assumed that
Main engine loads were obtained from .

Notes:

Trips = one-way trips
Peak hourly emissions correspond to activity for 1

Peak 8-hour emissions correspond to activity for 8

Table 59. Operational OGV Emissions Without Mi

	Vessel Type	Engine/Source Type	Zone 3: PZ to 20nm (no VSRP compliance)					Zone 4: 20nm to 40nm				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Alt 3	**2038**											
	Container5000	Propulsion	20.1	18.8	0.9	23,448	51%	12.0	20.9	1.7	8,544	10%
	Container5000	Auxiliary			0.9	1,619				1.7	3,008	
	Container5000	Auxiliary Boiler			0.9	511				1.7	950	
	Container8000	Propulsion	20.3	18.8	0.9	29,319	51%	12.0	20.9	1.7	10,811	10%
	Container8000	Auxiliary			0.9	1,385				1.7	2,605	
	Container8000	Auxiliary Boiler			0.9	603				1.7	1,133	
	Container9000*	Propulsion	19.9	18.8	0.9	29,907	51%	12.0	20.9	1.7	11,892	11%
	Container9000	Auxiliary			0.9	1,420				1.7	2,617	
	Container9000	Auxiliary Boiler			0.9	449				1.7	828	
	Container16000**	Propulsion	20.1	18.8	0.9	33,497	51%	12.0	20.9	1.7	12,205	10%
	Container16000	Auxiliary			0.9	2,815				1.7	5,231	
	Container16000	Auxiliary Boiler			0.9	657				1.7	1,221	
2038												

* Container9000 are assumed to have Tie
** Container16000 are assumed to have Ti
*** To be conservative, it was assumed that
**** To be conservative, it was assumed that
Main engine loads were obtained from .

Notes:

Trips = one-way trips
Peak hourly emissions correspond to activity for 1

Peak 8-hour emissions correspond to activity for 8

Table 59. Operational OGV Emissions Without Mi

	Vessel Type	Engine/Source Type	Zone 4: 20nm to 40nm (no VSRP compliance)					Zone 5: 40nm to 50nm (SCAB Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
Alt 3	**2038**											
	Container5000	Propulsion	20.1	20.9	1.0	26,040	51%	23	10	0.4	16,823	80%
	Container5000	Auxiliary			1.0	1,797				0.4	740	
	Container5000	Auxiliary Boiler			1.0	568				0.4		
	Container8000	Propulsion	20.3	20.9	1.0	32,559	51%	24	10	0.4	21,035	80%
	Container8000	Auxiliary			1.0	1,538				0.4	634	
	Container8000	Auxiliary Boiler			1.0	669				0.4		
	Container9000*	Propulsion	19.9	20.9	1.1	33,213	51%	23	10	0.4	21,458	80%
	Container9000	Auxiliary			1.1	1,577				0.4	649	
	Container9000	Auxiliary Boiler			1.1	499				0.4		
	Container16000**	Propulsion	20.1	20.9	1.0	37,200	51%	23	10	0.4	24,034	80%
	Container16000	Auxiliary			1.0	3,126				0.4	1,288	
	Container16000	Auxiliary Boiler			1.0	729				0.4		
2038												

* Container9000 are assumed to have Tie

** Container16000 are assumed to have Ti

*** To be conservative, it was assumed that

**** To be conservative, it was assumed that

Main engine loads were obtained from .

Notes:

Trips = one-way trips

Peak hourly emissions correspond to activity for 1

Peak 8-hour emissions correspond to activity for 8

Table 59. Operational OGV Emissions Without Mi

	Vessel Type	Engine/Source Type	Zone 6: 50nm to 170nm (State Inventory Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
Alt 3	**2038**						
	Container5000	Propulsion	23	120	5.2	201,882	80%
	Container5000	Auxiliary			5.2	8,884	
	Container5000	Auxiliary Boiler			5.2		
	Container8000	Propulsion	24	120	5.1	252,425	80%
	Container8000	Auxiliary			5.1	7,603	
	Container8000	Auxiliary Boiler			5.1		
	Container9000*	Propulsion	23	120	5.2	257,494	80%
	Container9000	Auxiliary			5.2	7,792	
	Container9000	Auxiliary Boiler			5.2		
	Container16000**	Propulsion	23	120	5.2	288,402	80%
	Container16000	Auxiliary			5.2	15,450	
	Container16000	Auxiliary Boiler			5.2		
2038							

***** Container9000 are assumed to have Tie
****** Container16000 are assumed to have Ti
******* To be conservative, it was assumed that
******** To be conservative, it was assumed that
Main engine loads were obtained from .

Notes:

Trips = one-way trips
Peak hourly emissions correspond to activity for 1

Peak 8-hour emissions correspond to activity for 8

Table 60. Operational OGV Emissions Without Mitigation - Alt 4 (2019)

			Vessel Characteristics		Activity											
	Vessel Type	Engine/Source Type	Engine Rating (kW)	Max Rated Speed (knots)	Peak Day Berth Calls	Peak Day Anchorage Calls	Peak Day Transits	Peak Day Hotelling Time at Berth Per Vessel (hr/day)	Hours at Anchorage within Peak Day (hr/day)	Annual Berth Calls	Annual Transits	Peak Day Fuel Sulfur	Peak Day Number of Transits in Compliance with VSRP in Zone 3*	Peak Day Number of Transits in Compliance with VSRP in Zone 4*	Peak Day Number of Vessels using AMP**	Annual Fuel Sulfur
Alt 4	**2019**															
	Container5000	Propulsion	49,000	25.1	1		1	18.3		52	104	0.1%				0.1%
	Container5000	Auxiliary			1		1	18.3		52	104	0.1%				0.1%
	Container5000	Auxiliary Boiler			1		1	18.3		52	104	0.1%				0.1%
	Container6000	Propulsion	58,000	25.1	1	1	1	8.7	1.8	52	104	0.1%	1	1	1	0.1%
	Container6000	Auxiliary			1	1	1	8.7	1.8	52	104	0.1%	1	1	1	0.1%
	Container6000	Auxiliary Boiler			1	1	1	8.7	1.8	52	104	0.1%	1	1	1	0.1%
	Container9000***	Propulsion	62,000	24.9	1		1	12.3		52	104	0.1%	1	1	1	0.1%
	Container9000	Auxiliary			1		1	12.3		52	104	0.1%	1	1	1	0.1%
	Container9000	Auxiliary Boiler			1		1	12.3		52	104	0.1%	1	1	1	0.1%
Total 2019					**3**	**1**	**3**			**156**	**312**		**2**	**2**	**2**	

Notes:

* To be conservative, it was assumed that "Container5000" would not be in compliance with VSRP in Zone 3 and Zone 4 during a peak day.

** To be conservative, it was assumed that "Container5000" would have no AMP during a peak day.

*** Container9000 are assumed to have Tier 1 engines based on the "Year Built" of Container 9000 (2008) listed in 2013 POLA Emissions Inventory, Table 3.22. Main engine loads were obtained from AECOM and auxiliary and boiler loads from the 2014 Port Emissions Inventory Report except for the ship categories not listed in this Inventory. See this EIR report for more details.

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engines, Main Engines, and Auxiliary Boilers.

Trips = one-way trips

Table 60. Operational OGV Emissions Without Mi

	Vessel Type	Engine/Source Type	Annual Number of Transits in Compliance with VSRP in Zone 3	Annual Number of Transits in Compliance with VSRP in Zone 4	Annual Number of Vessels using AMP	Average Auxiliary Load (kW)				Hotelling at Anchorage			Hotelling at Berth	
						Transit	Maneuvering	Berth	Anchorage	(calls/yr)	Average Time (hr/call)	Energy Demand (kW-hr/call)	Average Time (hr/call)	Energy Demand (kW-hr/call)
Alt 4	**2019**													
	Container5000	Propulsion	96	80	41									
	Container5000	Auxiliary	96	80	41	1,725	3,367	900	1,725		0		34.8	31,308
	Container5000	Auxiliary Boiler	96	80	41	545	547	547	547		0		34.8	19,028
	Container6000	Propulsion	96	80	41									
	Container6000	Auxiliary	96	80	41	1,453	2,197	990	1,453		0		39.6	39,196
	Container6000	Auxiliary Boiler	96	80	41	577	573	573	573		0		39.6	22,686
	Container9000***	Propulsion	104	94	42									
	Container9000	Auxiliary	104	94	42	1,501	2,942	1,037	1,501	1	8.5	12,695	39.6	41,099
	Container9000	Auxiliary Boiler	104	94	42	475	475	475	475	1	8.5	4,017	39.6	18,825
Total 2019			**296**	**254**	**124**									

Notes:

* To be conservative, it was assumed th

** To be conservative, it was assumed th

*** Container9000 are assumed to have T
Main engine loads were obtained fror
listed in this Inventory. See this EIR re

Sulfur Content: CARB's Low Sulfur Fuel for Marine

Trips = one-way trips

Table 60. Operational OGV Emissions Without Mi

			Transit Characteristics											
	Vessel Type	**Engine/Source Type**	**AMP**		**Zone 1: Harbor**					**Zone 2: Breakwater to PZ**				
			Time (hr/call)	Energy Demand (kW-hr/call)	Speed (knots)	Distance (nm)	Maneuvering Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Alt 4	**2019**													
	Container5000	Propulsion			2.5	3.7	1.5	1,470	2%	11.0	8.3	0.8	2,967	8%
	Container5000	Auxiliary	31.8	28,608			1.5	5,051				0.8	1,306	
	Container5000	Auxiliary Boiler					1.5	821				0.8	413	
	Container6000	Propulsion			2.5	3.7	1.5	1,740	2%	11.0	8.3	0.8	3,512	8%
	Container6000	Auxiliary	37	36,226			1.5	3,296				0.8	1,100	
	Container6000	Auxiliary Boiler					1.5	860				0.8	437	
	Container9000***	Propulsion			2.5	3.7	1.5	1,860	2%	11.0	8.3	0.8	3,755	8%
	Container9000	Auxiliary	37	37,988			1.5	4,413				0.8	1,136	
	Container9000	Auxiliary Boiler					1.5	713				0.8	360	
Total 2019														

Notes:

* To be conservative, it was assumed th

** To be conservative, it was assumed th

*** Container9000 are assumed to have T
Main engine loads were obtained fror
listed in this Inventory. See this EIR re

Sulfur Content: CARB's Low Sulfur Fuel for Marine

Trips = one-way trips

Table 60. Operational OGV Emissions Without Mi

	Vessel Type	Engine/Source Type	Zone 3: PZ to 20nm					Zone 3: PZ to 20nm (no VSRP compliance)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Alt 4	**2019**											
	Container5000	Propulsion	12.0	18.8	1.6	7,693	10%	20.1	18.8	0.9	23,448	51%
	Container5000	Auxiliary			1.6	2,708				0.9	1,619	
	Container5000	Auxiliary Boiler			1.6	856				0.9	511	
	Container6000	Propulsion	12.0	18.8	1.6	9,107	10%	20.1	18.8	0.9	27,755	51%
	Container6000	Auxiliary			1.6	2,281				0.9	1,363	
	Container6000	Auxiliary Boiler			1.6	906				0.9	541	
	Container9000***	Propulsion	12.0	18.8	1.6	10,708	11%	19.9	18.8	0.9	29,907	51%
	Container9000	Auxiliary			1.6	2,357				0.9	1,420	
	Container9000	Auxiliary Boiler			1.6	746				0.9	449	
Total 2019												

Notes:

* To be conservative, it was assumed th

** To be conservative, it was assumed th

*** Container9000 are assumed to have T
Main engine loads were obtained fror
listed in this Inventory. See this EIR re

Sulfur Content: CARB's Low Sulfur Fuel for Marine

Trips = one-way trips

Table 60. Operational OGV Emissions Without Mi

	Vessel Type	Engine/Source Type	Zone 4: 20nm to 40nm					Zone 4: 20nm to 40nm (no VSRP compliance)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Alt 4	**2019**											
	Container5000	Propulsion	12.0	20.9	1.7	8,544	10%	20.1	20.9	1.0	26,040	51%
	Container5000	Auxiliary			1.7	3,008				1.0	1,797	
	Container5000	Auxiliary Boiler			1.7	950				1.0	568	
	Container6000	Propulsion	12.0	20.9	1.7	10,113	10%	20.1	20.9	1.0	30,823	51%
	Container6000	Auxiliary			1.7	2,533				1.0	1,514	
	Container6000	Auxiliary Boiler			1.7	1,006				1.0	601	
	Container9000***	Propulsion	12.0	20.9	1.7	11,892	11%	19.9	20.9	1.1	33,213	51%
	Container9000	Auxiliary			1.7	2,617				1.1	1,577	
	Container9000	Auxiliary Boiler			1.7	828				1.1	499	
Total 2019												

Notes:

* To be conservative, it was assumed th

** To be conservative, it was assumed th

*** Container9000 are assumed to have T
Main engine loads were obtained fror
listed in this Inventory. See this EIR re

Sulfur Content: CARB's Low Sulfur Fuel for Marine

Trips = one-way trips

Table 60. Operational OGV Emissions Without Mi

	Vessel Type	Engine/Source Type	Zone 5: 40nm to 50nm (SCAB Boundary)					Zone 6: 50nm to 170nm (State Inventory Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
Alt 4	**2019**											
	Container5000	Propulsion	23	10	0.4	16,823	80%	23	120	5.2	201,882	80%
	Container5000	Auxiliary			0.4	740				5.2	8,884	
	Container5000	Auxiliary Boiler			0.4					5.2		
	Container6000	Propulsion	23	10	0.4	19,913	80%	23	120	5.2	238,962	80%
	Container6000	Auxiliary			0.4	624				5.2	7,483	
	Container6000	Auxiliary Boiler			0.4					5.2		
	Container9000***	Propulsion	23	10	0.4	21,458	80%	23	120	5.2	257,494	80%
	Container9000	Auxiliary			0.4	649				5.2	7,792	
	Container9000	Auxiliary Boiler			0.4					5.2		
Total 2019												

Notes:

* To be conservative, it was assumed th

** To be conservative, it was assumed th

*** Container9000 are assumed to have T
Main engine loads were obtained fror
listed in this Inventory. See this EIR re

Sulfur Content: CARB's Low Sulfur Fuel for Marine

Trips = one-way trips

Table 61. Operational OGV Emissions Without Mitigation - Alt 4 (2026)

			Vessel Characteristics		Activity											
	Vessel Type	Engine/Source Type	Engine Rating (kW)	Max Rated Speed (knots)	Peak Day Berth Calls	Peak Day Anchorage Calls	Peak Day Transits	Peak Day Hotelling Time at Berth Per Vessel (hr/day)	Hours at Anchorage within Peak Day (hr/day)	Annual Berth Calls	Annual Transits	Peak Day Fuel Sulfur	Peak Day Number of Transits in Compliance with VSRP in Zone 3**	Peak Day Number of Transits in Compliance with VSRP in Zone 4**	Peak Day Number of Vessels using AMP***	Annual Fuel Sulfur
Alt 4	**2026**															
	Container5000	Propulsion	49,000	25.1	1		1	2.6		52	104	0.1%				0.1%
	Container5000	Auxiliary			1		1	2.6		52	104	0.1%				0.1%
	Container5000	Auxiliary Boiler			1		1	2.6		52	104	0.1%				0.1%
	Container8000	Propulsion	62,000	25.4	1		1	18.4		52	104	0.1%	1	1	1	0.1%
	Container8000	Auxiliary			1		1	18.4		52	104	0.1%	1	1	1	0.1%
	Container8000	Auxiliary Boiler			1		1	18.4		52	104	0.1%	1	1	1	0.1%
	Container14000*	Propulsion	70,000	24.0	1		1	18.7		52	104	0.1%	1	1	1	0.1%
	Container14000	Auxiliary			1		1	18.7		52	104	0.1%	1	1	1	0.1%
	Container14000	Auxiliary Boiler			1		1	18.7		52	104	0.1%	1	1	1	0.1%
Total 2026					**3**		**3**			**156**	**312**		**2**	**2**	**2**	

Notes:

* Container14000 are assumed to have Tier 1 engines based on the "Year Built" of Container 14000 (2010) listed in 2013 POLB Emissions Inventory, Table B.3.

** To be conservative, it was assumed that "Container5000" would not be in compliance with VSRP in Zone 3 and Zone 4 during a peak day.

*** To be conservative, it was assumed that "Container5000" would have no AMP during a peak day.
Main engine loads were obtained from AECOM and auxiliary and boiler loads from the 2014 Port Emissions Inventory Report except for the ship categories not listed in this Inventory. See this EIR report for more details.

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engines, Main Engines, and Auxiliary Boilers.

Trips = one-way trips

Table 61. Operational OGV Emissions Without I

	Vessel Type	Engine/Source Type	Annual Number of Transits in Compliance with VSRP in Zone 3	Annual Number of Transits in Compliance with VSRP in Zone 4	Annual Number of Vessels using AMP	Average Auxiliary Load (kW)				Hotelling at Anchorage			Hotelling at Berth	
						Transit	Maneuvering	Berth	Anchorage	(calls/yr)	Average Time (hr/call)	Energy Demand (kW-hr/call)	Average Time (hr/call)	Energy Demand (kW-hr/call)
Alt 4	**2026**													
	Container5000	Propulsion	104	96	41									
	Container5000	Auxiliary	104	96	41	1,725	3,367	900	1,725		0		52.2	47,017
	Container5000	Auxiliary Boiler	104	96	41	545	547	547	547		0		52.2	28,576
	Container8000	Propulsion	96	78	41									
	Container8000	Auxiliary	96	78	41	1,494	2,753	902	1,494	2	0.2	318	35.3	31,843
	Container8000	Auxiliary Boiler	96	78	41	650	531	531	531	2	0	113	35.3	18,746
	Container14000*	Propulsion	96	80	42									
	Container14000	Auxiliary	96	80	42	3,000	5,500	3,000	3,000		0		35.2	105,512
	Container14000	Auxiliary Boiler	96	80	42	700	700	700	700		0		35.2	24,619
Total 2026			**296**	**254**	**124**									

Notes:

* Container14000 are assumed to hav

** To be conservative, it was assumed t

*** To be conservative, it was assumed t

Main engine loads were obtained fr

listed in this Inventory. See this EIR r

Sulfur Content: CARB's Low Sulfur Fuel for Mari

Trips = one-way trips

Table 61. Operational OGV Emissions Without I

Transit Characteristics

	Vessel Type	Engine/Source Type	AMP		Zone 1: Harbor					Zone 2: Breakwater to PZ				
			Time (hr/call)	Energy Demand (kW-hr/call)	Speed (knots)	Distance (nm)	Maneuvering Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Alt 4	**2026**													
	Container5000	Propulsion			2.5	3.7	1.5	1,470	2%	11.0	8.3	0.8	2,967	8%
	Container5000	Auxiliary	49.2	44,317			1.5	5,051				0.8	1,306	
	Container5000	Auxiliary Boiler					1.5	821				0.8	413	
	Container8000	Propulsion			2.5	3.7	1.5	1,860	2%	11.0	8.3	0.8	3,755	8%
	Container8000	Auxiliary	32	29,137			1.5	4,130				0.8	1,131	
	Container8000	Auxiliary Boiler					1.5	797				0.8	492	
	Container14000*	Propulsion			2.5	3.7	1.5	2,100	2%	11.0	8.3	0.8	4,769	9%
	Container14000	Auxiliary	32	96,512			1.5	8,250				0.8	2,271	
	Container14000	Auxiliary Boiler					1.5	1,050				0.8	530	
Total 2026														

Notes:

* Container14000 are assumed to hav

** To be conservative, it was assumed t

*** To be conservative, it was assumed t

Main engine loads were obtained fr

listed in this Inventory. See this EIR r

Sulfur Content: CARB's Low Sulfur Fuel for Mari

Trips = one-way trips

Table 61. Operational OGV Emissions Without I

	Vessel Type	Engine/Source Type	Zone 3: PZ to 20nm					Zone 3: PZ to 20nm (no VSRP compliance)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Alt 4	**2026**											
	Container5000	Propulsion	12.0	18.8	1.6	7,693	10%	20.1	18.8	0.9	23,448	51%
	Container5000	Auxiliary			1.6	2,708				0.9	1,619	
	Container5000	Auxiliary Boiler			1.6	856				0.9	511	
	Container8000	Propulsion	12.0	18.8	1.6	9,735	10%	20.3	18.8	0.9	29,319	51%
	Container8000	Auxiliary			1.6	2,346				0.9	1,385	
	Container8000	Auxiliary Boiler			1.6	1,021				0.9	603	
	Container14000*	Propulsion	12.0	18.8	1.6	13,189	12%	19.2	18.8	1.0	35,033	51%
	Container14000	Auxiliary			1.6	4,710				1.0	2,944	
	Container14000	Auxiliary Boiler			1.6	1,099				1.0	687	
Total 2026												

Notes:

* Container14000 are assumed to hav

** To be conservative, it was assumed t

*** To be conservative, it was assumed t

Main engine loads were obtained fr listed in this Inventory. See this EIR r

Sulfur Content: CARB's Low Sulfur Fuel for Mari

Trips = one-way trips

Table 61. Operational OGV Emissions Without I

	Vessel Type	Engine/Source Type	Zone 4: 20nm to 40nm					Zone 4: 20nm to 40nm (no VSRP compliance)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Alt 4	**2026**											
	Container5000	Propulsion	12.0	20.9	1.7	8,544	10%	20.1	20.9	1.0	26,040	51%
	Container5000	Auxiliary			1.7	3,008				1.0	1,797	
	Container5000	Auxiliary Boiler			1.7	950				1.0	568	
	Container8000	Propulsion	12.0	20.9	1.7	10,811	10%	20.3	20.9	1.0	32,559	51%
	Container8000	Auxiliary			1.7	2,605				1.0	1,538	
	Container8000	Auxiliary Boiler			1.7	1,133				1.0	669	
	Container14000*	Propulsion	12.0	20.9	1.7	14,647	12%	19.2	20.9	1.1	38,905	51%
	Container14000	Auxiliary			1.7	5,231				1.1	3,269	
	Container14000	Auxiliary Boiler			1.7	1,221				1.1	763	
Total 2026												

Notes:

* Container14000 are assumed to hav

** To be conservative, it was assumed t

*** To be conservative, it was assumed t

Main engine loads were obtained fr

listed in this Inventory. See this EIR r

Sulfur Content: CARB's Low Sulfur Fuel for Mari

Trips = one-way trips

Table 61. Operational OGV Emissions Without I

	Vessel Type	Engine/Source Type	Zone 5: 40nm to 50nm (SCAB Boundary)					Zone 6: 50nm to 170nm (State Inventory Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
Alt 4	**2026**											
	Container5000	Propulsion	23	10	0.4	16,823	80%	23	120	5.2	201,882	80%
	Container5000	Auxiliary			0.4	740				5.2	8,884	
	Container5000	Auxiliary Boiler			0.4					5.2		
	Container8000	Propulsion	24	10	0.4	21,035	80%	24	120	5.1	252,425	80%
	Container8000	Auxiliary			0.4	634				5.1	7,603	
	Container8000	Auxiliary Boiler			0.4					5.1		
	Container14000*	Propulsion	22	10	0.4	25,135	80%	22	120	5.4	301,621	80%
	Container14000	Auxiliary			0.4	1,347				5.4	16,158	
	Container14000	Auxiliary Boiler			0.4					5.4		
Total 2026												

Notes:

* Container14000 are assumed to hav

** To be conservative, it was assumed t

*** To be conservative, it was assumed t

Main engine loads were obtained fr

listed in this Inventory. See this EIR r

Sulfur Content: CARB's Low Sulfur Fuel for Mari

Trips = one-way trips

Table 62. Operational OGV Emissions Without Mitigation - Alt 4 (2033)

			Vessel Characteristics		Activity											
	Vessel Type	Engine/Source Type	Engine Rating (kW)	Max Rated Speed (knots)	Peak Day Berth Calls	Peak Day Anchorage Calls	Peak Day Transits	Peak Day Hotelling Time at Berth Per Vessel (hr/day)	Hours at Anchorage within Peak Day (hr/day)	Annual Berth Calls	Annual Transits	Peak Day Fuel Sulfur	Peak Day Number of Transits in Compliance with VSRP in Zone 3***	Peak Day Number of Transits in Compliance with VSRP in Zone 4***	Peak Day Number of Vessels using AMP****	Annual Fuel Sulfur
Alt 4	**2033**															
	Container5000	Propulsion	49,000	25.1	1	1		21.7	0.8	52	104	0.1%				0.1%
	Container5000	Auxiliary			1	1		21.7	0.8	52	104	0.1%				0.1%
	Container5000	Auxiliary Boiler			1	1		21.7	0.8	52	104	0.1%				0.1%
	Container6000	Propulsion	58,000	25.1	1	1	1	1.2	18.0	52	104	0.1%				0.1%
	Container6000	Auxiliary			1	1	1	1.2	18.0	52	104	0.1%				0.1%
	Container6000	Auxiliary Boiler			1	1	1	1.2	18.0	52	104	0.1%				0.1%
	Container8000	Propulsion	62,000	25.4	1		1	19.8		52	104	0.1%	1	1	1	0.1%
	Container8000	Auxiliary			1		1	19.8		52	104	0.1%	1	1	1	0.1%
	Container8000	Auxiliary Boiler			1		1	19.8		52	104	0.1%	1	1	1	0.1%
	Container16000**	Propulsion	70,000	25.1			1			52	104	0.1%	1	1	1	0.1%
	Container16000	Auxiliary					1			52	104	0.1%	1	1	1	0.1%
	Container16000	Auxiliary Boiler					1			52	104	0.1%	1	1	1	0.1%
Total 2033					**3**	**1**	**3**			**208**	**416**		**2**	**2**	**2**	

Notes:

* Container10000 are assumed to have Tier 1 engines based on the "Year Built" of Container 10000 (2009) listed in 2013 POLB Emissions Inventory, Table B.3.

** Container16000 are assumed to have Tier 2 engines since the oldest Container16000 container ship was built in 2012. (http://www.cma-cgm.com/the-group/activities/shipping/vessel/9454436/cma-cgm-marco-polo)

*** To be conservative, it was assumed that "Container5000" and "Container8000" would not be in compliance with VSRP in Zone 3 and Zone 4 during a peak day.

**** To be conservative, it was assumed that "Container5000" and "Container8000" would have no AMP during a peak day.

Main engine loads were obtained from AECOM and auxiliary and boiler loads from the 2014 Port Emissions Inventory Report except for the ship categories not listed in this Inventory. See this EIR report for more details.

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engines, Main Engines, and Auxiliary Boilers.

Trips = one-way trips

Table 62. Operational OGV Emissions Without I

	Vessel Type	Engine/Source Type	Annual Number of Transits in Compliance with VSRP in Zone 3	Annual Number of Transits in Compliance with VSRP in Zone 4	Annual Number of Vessels using AMP	Average Auxiliary Load (kW)				Hotelling at Anchorage			Hotelling at Berth	
						Transit	Maneuvering	Berth	Anchorage	(calls/yr)	Average Time (hr/call)	Energy Demand (kW-hr/call)	Average Time (hr/call)	Energy Demand (kW-hr/call)
Alt 4	**2033**													
	Container5000	Propulsion	98	84	41									
	Container5000	Auxiliary	98	84	41	1,725	3,367	900	1,725	2	14.9	25,687	32.0	28,805
	Container5000	Auxiliary Boiler	98	84	41	545	547	547	547	2	14.9	8,146	32.0	17,507
	Container6000	Propulsion	98	80	41									
	Container6000	Auxiliary	98	80	41	1,453	2,197	990	1,453	4	9.8	14,216	39.7	39,254
	Container6000	Auxiliary Boiler	98	80	41	577	573	573	573	4	9.8	5,606	39.7	22,720
	Container8000	Propulsion	104	94	42									
	Container8000	Auxiliary	104	94	42	1,494	2,753	902	1,494	3	9.9	14,773	35.3	31,883
	Container8000	Auxiliary Boiler	104	94	42	650	531	531	531	3	9.9	5,251	35.3	18,769
	Container16000**	Propulsion	94	82	42									
	Container16000	Auxiliary	94	82	42	3,000	5,500	3,000	3,000	9	10.7	32,248	60.8	182,291
	Container16000	Auxiliary Boiler	94	82	42	700	700	700	700	9	10.7	7,525	60.8	42,535
Total 2033			**394**	**340**	**166**									

Notes:

* Container10000 are assumed to have

** Container16000 are assumed to have

*** To be conservative, it was assumed th

**** To be conservative, it was assumed th

Main engine loads were obtained fror
listed in this Inventory. See this EIR re

Sulfur Content: CARB's Low Sulfur Fuel for Mari

Trips = one-way trips

Table 62. Operational OGV Emissions Without I

			Transit Characteristics											
	Vessel Type	**Engine/Source Type**	**AMP**		**Zone 1: Harbor**					**Zone 2: Breakwater to PZ**				
			Time (hr/call)	Energy Demand (kW-hr/call)	Speed (knots)	Distance (nm)	Maneuvering Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Alt 4	**2033**													
	Container5000	Propulsion			2.5	3.7	1.5	1,470	2%	11.0	8.3	0.8	2,967	8%
	Container5000	Auxiliary	29.0	26,105			1.5	5,051				0.8	1,306	
	Container5000	Auxiliary Boiler					1.5	821				0.8	413	
	Container6000	Propulsion			2.5	3.7	1.5	1,740	2%	11.0	8.3	0.8	3,512	8%
	Container6000	Auxiliary	37	36,284			1.5	3,296				0.8	1,100	
	Container6000	Auxiliary Boiler					1.5	860				0.8	437	
	Container8000	Propulsion			2.5	3.7	1.5	1,860	2%	11.0	8.3	0.8	3,755	8%
	Container8000	Auxiliary	32	29,177			1.5	4,130				0.8	1,131	
	Container8000	Auxiliary Boiler					1.5	797				0.8	492	
	Container16000**	Propulsion			2.5	3.7	1.5	2,100	2%	11.0	8.3	0.8	4,239	8%
	Container16000	Auxiliary	58	173,291			1.5	8,250				0.8	2,271	
	Container16000	Auxiliary Boiler					1.5	1,050				0.8	530	
Total 2033														

Notes:

* Container10000 are assumed to have

** Container16000 are assumed to have

*** To be conservative, it was assumed th

**** To be conservative, it was assumed th

Main engine loads were obtained fror
listed in this Inventory. See this EIR re

Sulfur Content: CARB's Low Sulfur Fuel for Mari

Trips = one-way trips

Table 62. Operational OGV Emissions Without I

	Vessel Type	Engine/Source Type	Zone 3: PZ to 20nm					Zone 3: PZ to 20nm (no VSRP compliance)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Alt 4	**2033**											
	Container5000	Propulsion	12.0	18.8	1.6	7,693	10%	20.1	18.8	0.9	23,448	51%
	Container5000	Auxiliary			1.6	2,708				0.9	1,619	
	Container5000	Auxiliary Boiler			1.6	856				0.9	511	
	Container6000	Propulsion	12.0	18.8	1.6	9,107	10%	20.1	18.8	0.9	27,755	51%
	Container6000	Auxiliary			1.6	2,281				0.9	1,363	
	Container6000	Auxiliary Boiler			1.6	906				0.9	541	
	Container8000	Propulsion	12.0	18.8	1.6	9,735	10%	20.3	18.8	0.9	29,319	51%
	Container8000	Auxiliary			1.6	2,346				0.9	1,385	
	Container8000	Auxiliary Boiler			1.6	1,021				0.9	603	
	Container16000**	Propulsion	12.0	18.8	1.6	10,991	10%	20.1	18.8	0.9	33,497	51%
	Container16000	Auxiliary			1.6	4,710				0.9	2,815	
	Container16000	Auxiliary Boiler			1.6	1,099				0.9	657	
Total 2033												

Notes:

* Container10000 are assumed to have

** Container16000 are assumed to have

*** To be conservative, it was assumed th

**** To be conservative, it was assumed th

Main engine loads were obtained fror
listed in this Inventory. See this EIR re

Sulfur Content: CARB's Low Sulfur Fuel for Mari

Trips = one-way trips

Table 62. Operational OGV Emissions Without I

	Vessel Type	Engine/Source Type	Zone 4: 20nm to 40nm					Zone 4: 20nm to 40nm (no VSRP compliance)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Alt 4	**2033**											
	Container5000	Propulsion	12.0	20.9	1.7	8,544	10%	20.1	20.9	1.0	26,040	51%
	Container5000	Auxiliary			1.7	3,008				1.0	1,797	
	Container5000	Auxiliary Boiler			1.7	950				1.0	568	
	Container6000	Propulsion	12.0	20.9	1.7	10,113	10%	20.1	20.9	1.0	30,823	51%
	Container6000	Auxiliary			1.7	2,533				1.0	1,514	
	Container6000	Auxiliary Boiler			1.7	1,006				1.0	601	
	Container8000	Propulsion	12.0	20.9	1.7	10,811	10%	20.3	20.9	1.0	32,559	51%
	Container8000	Auxiliary			1.7	2,605				1.0	1,538	
	Container8000	Auxiliary Boiler			1.7	1,133				1.0	669	
	Container16000**	Propulsion	12.0	20.9	1.7	12,205	10%	20.1	20.9	1.0	37,200	51%
	Container16000	Auxiliary			1.7	5,231				1.0	3,126	
	Container16000	Auxiliary Boiler			1.7	1,221				1.0	729	
Total 2033												

Notes:

* Container10000 are assumed to have

** Container16000 are assumed to have

*** To be conservative, it was assumed th

**** To be conservative, it was assumed th

Main engine loads were obtained fror
listed in this Inventory. See this EIR re

Sulfur Content: CARB's Low Sulfur Fuel for Mari

Trips = one-way trips

Table 62. Operational OGV Emissions Without I

	Vessel Type	Engine/Source Type	Zone 5: 40nm to 50nm (SCAB Boundary)					Zone 6: 50nm to 170nm (State Inventory Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
Alt 4	**2033**											
	Container5000	Propulsion	23	10	0.4	16,823	80%	23	120	5.2	201,882	80%
	Container5000	Auxiliary			0.4	740				5.2	8,884	
	Container5000	Auxiliary Boiler			0.4					5.2		
	Container6000	Propulsion	23	10	0.4	19,913	80%	23	120	5.2	238,962	80%
	Container6000	Auxiliary			0.4	624				5.2	7,483	
	Container6000	Auxiliary Boiler			0.4					5.2		
	Container8000	Propulsion	24	10	0.4	21,035	80%	24	120	5.1	252,425	80%
	Container8000	Auxiliary			0.4	634				5.1	7,603	
	Container8000	Auxiliary Boiler			0.4					5.1		
	Container16000**	Propulsion	23	10	0.4	24,034	80%	23	120	5.2	288,402	80%
	Container16000	Auxiliary			0.4	1,288				5.2	15,450	
	Container16000	Auxiliary Boiler			0.4					5.2		
Total 2033												

Notes:

* Container10000 are assumed to have

** Container16000 are assumed to have

*** To be conservative, it was assumed th

**** To be conservative, it was assumed th

Main engine loads were obtained fror
listed in this Inventory. See this EIR re

Sulfur Content: CARB's Low Sulfur Fuel for Mari

Trips = one-way trips

Table 63. Operational OGV Emissions Without Mitigation - Alt 4 (2038)

			Vessel Characteristics		Activity											
	Vessel Type	Engine/Source Type	Engine Rating (kW)	Max Rated Speed (knots)	Peak Day Berth Calls	Peak Day Anchorage Calls	Peak Day Transits	Peak Day Hotelling Time at Berth Per Vessel (hr/day)	Hours at Anchorage within Peak Day (hr/day)	Annual Berth Calls	Annual Transits	Peak Day Fuel Sulfur	Peak Day Number of Transits in Compliance with VSRP in Zone 3***	Peak Day Number of Transits in Compliance with VSRP in Zone 4***	Peak Day Number of Vessels using AMP****	Annual Fuel Sulfur
Alt 4	**2038**															
	Container5000	Propulsion	49,000	25.1	1	1		21.7	0.8	52	104	0.1%				0.1%
	Container5000	Auxiliary			1	1		21.7	0.8	52	104	0.1%				0.1%
	Container5000	Auxiliary Boiler			1	1		21.7	0.8	52	104	0.1%				0.1%
	Container6000	Propulsion	58,000	25.1	1	1	1	1.2	18.0	52	104	0.1%				0.1%
	Container6000	Auxiliary			1	1	1	1.2	18.0	52	104	0.1%				0.1%
	Container6000	Auxiliary Boiler			1	1	1	1.2	18.0	52	104	0.1%				0.1%
	Container8000	Propulsion	62,000	25.4	1		1	19.8		52	104	0.1%	1	1	1	0.1%
	Container8000	Auxiliary			1		1	19.8		52	104	0.1%	1	1	1	0.1%
	Container8000	Auxiliary Boiler			1		1	19.8		52	104	0.1%	1	1	1	0.1%
	Container16000**	Propulsion	70,000	25.1			1			52	104	0.1%	1	1	1	0.1%
	Container16000	Auxiliary					1			52	104	0.1%	1	1	1	0.1%
	Container16000	Auxiliary Boiler					1			52	104	0.1%	1	1	1	0.1%
Total 2038					**3**	**1**	**3**			**208**	**416**		**2**	**2**	**2**	

Notes:

* Container10000 are assumed to have Tier 1 engines based on the "Year Built" of Container 10000 (2009) listed in 2013 POLB Emissions Inventory, Table B.3.

** Container16000 are assumed to have Tier 2 engines since the oldest Container16000 container ship was built in 2012. (http://www.cma-cgm.com/the-group/activities/shipping/vessel/9454436/cma-cgm-marco-polo)

*** To be conservative, it was assumed that "Container5000" and "Container8000" would not be in compliance with VSRP in Zone 3 and Zone 4 during a peak day.

**** To be conservative, it was assumed that "Container5000" and "Container8000" would have no AMP during a peak day.

Main engine loads were obtained from AECOM and auxiliary and boiler loads from the 2014 Port Emissions Inventory Report except for the ship categories not listed in this Inventory. See this EIR report for more details.

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engines, Main Engines, and Auxiliary Boilers.

Trips = one-way trips

Table 63. Operational OGV Emissions Without Mi

	Vessel Type	Engine/Source Type	Annual Number of Transits in Compliance with VSRP in Zone 3	Annual Number of Transits in Compliance with VSRP in Zone 4	Annual Number of Vessels using AMP	Average Auxiliary Load (kW)				Hotelling at Anchorage			Hotelling at Berth	
						Transit	Maneuvering	Berth	Anchorage	(calls/yr)	Average Time (hr/call)	Energy Demand (kW-hr/call)	Average Time (hr/call)	Energy Demand (kW-hr/call)
Alt 4	**2038**													
	Container5000	Propulsion	98	84	41									
	Container5000	Auxiliary	98	84	41	1,725	3,367	900	1,725	2	14.9	25,687	32.0	28,805
	Container5000	Auxiliary Boiler	98	84	41	545	547	547	547	2	14.9	8,146	32.0	17,507
	Container6000	Propulsion	98	80	41									
	Container6000	Auxiliary	98	80	41	1,453	2,197	990	1,453	4	9.8	14,216	39.7	39,254
	Container6000	Auxiliary Boiler	98	80	41	577	573	573	573	4	9.8	5,606	39.7	22,720
	Container8000	Propulsion	104	94	42									
	Container8000	Auxiliary	104	94	42	1,494	2,753	902	1,494	3	9.9	14,773	35.3	31,883
	Container8000	Auxiliary Boiler	104	94	42	650	531	531	531	3	9.9	5,251	35.3	18,769
	Container16000**	Propulsion	94	82	42									
	Container16000	Auxiliary	94	82	42	3,000	5,500	3,000	3,000	9	10.7	32,248	60.8	182,291
	Container16000	Auxiliary Boiler	94	82	42	700	700	700	700	9	10.7	7,525	60.8	42,535
Total 2038			**394**	**340**	**166**									

Notes:

* Container10000 are assumed to have

** Container16000 are assumed to have

*** To be conservative, it was assumed th

**** To be conservative, it was assumed th

Main engine loads were obtained fror
listed in this Inventory. See this EIR re

Sulfur Content: CARB's Low Sulfur Fuel for Marine

Trips = one-way trips

Table 63. Operational OGV Emissions Without Mi

			Transit Characteristics											
	Vessel Type	**Engine/Source Type**	**AMP**		**Zone 1: Harbor**					**Zone 2: Breakwater to PZ**				
			Time (hr/call)	Energy Demand (kW-hr/call)	Speed (knots)	Distance (nm)	Maneuvering Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Alt 4	**2038**													
	Container5000	Propulsion			2.5	3.7	1.5	1,470	2%	11.0	8.3	0.8	2,967	8%
	Container5000	Auxiliary	29.0	26,105			1.5	5,051				0.8	1,306	
	Container5000	Auxiliary Boiler					1.5	821				0.8	413	
	Container6000	Propulsion			2.5	3.7	1.5	1,740	2%	11.0	8.3	0.8	3,512	8%
	Container6000	Auxiliary	37	36,284			1.5	3,296				0.8	1,100	
	Container6000	Auxiliary Boiler					1.5	860				0.8	437	
	Container8000	Propulsion			2.5	3.7	1.5	1,860	2%	11.0	8.3	0.8	3,755	8%
	Container8000	Auxiliary	32	29,177			1.5	4,130				0.8	1,131	
	Container8000	Auxiliary Boiler					1.5	797				0.8	492	
	Container16000**	Propulsion			2.5	3.7	1.5	2,100	2%	11.0	8.3	0.8	4,239	8%
	Container16000**	Propulsion			2.5	3.7	1.5	2,100	2%	11.0	8.3	0.8	4,239	8%
	Container16000	Auxiliary	58	173,291			1.5	8,250				0.8	2,271	
	Container16000	Auxiliary Boiler					1.5	1,050				0.8	530	
Total 2038														

Notes:

* Container10000 are assumed to have

** Container16000 are assumed to have

*** To be conservative, it was assumed th

**** To be conservative, it was assumed th

Main engine loads were obtained fror
listed in this Inventory. See this EIR re

Sulfur Content: CARB's Low Sulfur Fuel for Marine

Trips = one-way trips

Table 63. Operational OGV Emissions Without Mi

	Vessel Type	Engine/Source Type	Zone 3: PZ to 20nm					Zone 3: PZ to 20nm (no VSRP compliance)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Alt 4	**2038**											
	Container5000	Propulsion	12.0	18.8	1.6	7,693	10%	20.1	18.8	0.9	23,448	51%
	Container5000	Auxiliary			1.6	2,708				0.9	1,619	
	Container5000	Auxiliary Boiler			1.6	856				0.9	511	
	Container6000	Propulsion	12.0	18.8	1.6	9,107	10%	20.1	18.8	0.9	27,755	51%
	Container6000	Auxiliary			1.6	2,281				0.9	1,363	
	Container6000	Auxiliary Boiler			1.6	906				0.9	541	
	Container8000	Propulsion	12.0	18.8	1.6	9,735	10%	20.3	18.8	0.9	29,319	51%
	Container8000	Auxiliary			1.6	2,346				0.9	1,385	
	Container8000	Auxiliary Boiler			1.6	1,021				0.9	603	
	Container16000**	Propulsion	12.0	18.8	1.6	10,991	10%	20.1	18.8	0.9	33,497	51%
	Container16000	Auxiliary			1.6	4,710				0.9	2,815	
	Container16000	Auxiliary Boiler			1.6	1,099				0.9	657	
Total 2038												

Notes:

* Container10000 are assumed to have

** Container16000 are assumed to have

*** To be conservative, it was assumed th

**** To be conservative, it was assumed th

Main engine loads were obtained fror
listed in this Inventory. See this EIR re

Sulfur Content: CARB's Low Sulfur Fuel for Marine

Trips = one-way trips

Table 63. Operational OGV Emissions Without Mi

	Vessel Type	Engine/Source Type	Zone 4: 20nm to 40nm					Zone 4: 20nm to 40nm (no VSRP compliance)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
Alt 4	**2038**											
	Container5000	Propulsion	12.0	20.9	1.7	8,544	10%	20.1	20.9	1.0	26,040	51%
	Container5000	Auxiliary			1.7	3,008				1.0	1,797	
	Container5000	Auxiliary Boiler			1.7	950				1.0	568	
	Container6000	Propulsion	12.0	20.9	1.7	10,113	10%	20.1	20.9	1.0	30,823	51%
	Container6000	Auxiliary			1.7	2,533				1.0	1,514	
	Container6000	Auxiliary Boiler			1.7	1,006				1.0	601	
	Container8000	Propulsion	12.0	20.9	1.7	10,811	10%	20.3	20.9	1.0	32,559	51%
	Container8000	Auxiliary			1.7	2,605				1.0	1,538	
	Container8000	Auxiliary Boiler			1.7	1,133				1.0	669	
	Container16000**	Propulsion	12.0	20.9	1.7	12,205	10%	20.1	20.9	1.0	37,200	51%
	Container16000	Auxiliary			1.7	5,231				1.0	3,126	
	Container16000	Auxiliary Boiler			1.7	1,221				1.0	729	
Total 2038												

Notes:

* Container10000 are assumed to have

** Container16000 are assumed to have

*** To be conservative, it was assumed th

**** To be conservative, it was assumed th

Main engine loads were obtained fror listed in this Inventory. See this EIR re

Sulfur Content: CARB's Low Sulfur Fuel for Marine

Trips = one-way trips

Table 63. Operational OGV Emissions Without Mi

	Vessel Type	Engine/Source Type	Zone 5: 40nm to 50nm (SCAB Boundary)					Zone 6: 50nm to 170nm (State Inventory Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
Alt 4	**2038**											
	Container5000	Propulsion	23	10	0.4	16,823	80%	23	120	5.2	201,882	80%
	Container5000	Auxiliary			0.4	740				5.2	8,884	
	Container5000	Auxiliary Boiler			0.4					5.2		
	Container6000	Propulsion	23	10	0.4	19,913	80%	23	120	5.2	238,962	80%
	Container6000	Auxiliary			0.4	624				5.2	7,483	
	Container6000	Auxiliary Boiler			0.4					5.2		
	Container8000	Propulsion	24	10	0.4	21,035	80%	24	120	5.1	252,425	80%
	Container8000	Auxiliary			0.4	634				5.1	7,603	
	Container8000	Auxiliary Boiler			0.4					5.1		
	Container16000**	Propulsion	23	10	0.4	24,034	80%	23	120	5.2	288,402	80%
	Container16000	Auxiliary			0.4	1,288				5.2	15,450	
	Container16000	Auxiliary Boiler			0.4					5.2		
Total 2038												

Notes:

* Container10000 are assumed to have

** Container16000 are assumed to have

*** To be conservative, it was assumed th

**** To be conservative, it was assumed th

Main engine loads were obtained fror
listed in this Inventory. See this EIR re

Sulfur Content: CARB's Low Sulfur Fuel for Marine

Trips = one-way trips

Table 64. Operational OGV Emissions Without Mitigation - No Project (2019)

			Vessel Characteristics		Activity										
	Vessel Type	**Engine/Source Type**	**Engine Rating (kW)**	**Max Rated Speed (knots)**	**Peak Day Berth Calls**	**Peak Day Anchorage Calls**	**Peak Day Transits**	**Peak Day Hotelling Time at Berth Per Vessel (hr/day)**	**Hours at Anchorage within Peak Day (hr/day)**	**Annual Berth Calls**	**Annual Transits**	**Peak Day Fuel Sulfur**	**Peak Day Number of Transits in Compliance with VSRP in Zone 3***	**Peak Day Number of Transits in Compliance with VSRP in Zone 4***	**Peak Day Number of Vessels using AMP****
No Project	**2019**														
	Container6000	Propulsion	58,000	25.1	1	1	1	2.5	15.0	52	104	0.1%			
	Container6000	Auxiliary			1	1	1	2.5	15.0	52	104	0.1%			
	Container6000	Auxiliary Boiler			1	1	1	2.5	15.0	52	104	0.1%			
	Container7000	Propulsion	60,000	25.3	1		1	18.6		52	104	0.1%	1	1	1
	Container7000	Auxiliary			1		1	18.6		52	104	0.1%	1	1	1
	Container7000	Auxiliary Boiler			1		1	18.6		52	104	0.1%	1	1	1
	Container8000	Propulsion	62,000	25.4	1		1	18.5		52	104	0.1%	1	1	1
	Container8000	Auxiliary			1		1	18.5		52	104	0.1%	1	1	1
	Container8000	Auxiliary Boiler			1		1	18.5		52	104	0.1%	1	1	1
Total 2019					**3**	**1**	**3**			**156**	**312**		**2**	**2**	**2**

Notes:

* To be conservative, it was assumed that "Container6000" would not be in compliance with VSRP in Zone 3 and Zone 4 during a peak day.

** To be conservative, it was assumed that "Container6000" would have no AMP during a peak day.

Main engine loads were obtained from AECOM and auxiliary and boiler loads from the 2014 Port Emissions Inventory Report except for the ship categories not listed in this Inventory. See this EIR report for more details.

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engines, Main Engines, and Auxiliary Boilers.

Trips = one-way trips

Table 64. Operational OGV Emissions Without Mitigati

	Vessel Type	Engine/Source Type	Annual Fuel Sulfur	Annual Number of Transits in Compliance with VSRP in Zone 3	Annual Number of Transits in Compliance with VSRP in Zone 4	Annual Number of Vessels using AMP	Average Auxiliary Load (kW)				Hotelling at Anchorage		
							Transit	Maneuvering	Berth	Anchorage	(calls/yr)	Average Time (hr/call)	Energy Demand (kW-hr/call)
No Project	**2019**												
	Container6000	Propulsion	0.1%	96	76	41							
	Container6000	Auxiliary	0.1%	96	76	41	1,453	2,197	990	1,453	1	13.4	19,448
	Container6000	Auxiliary Boiler	0.1%	96	76	41	577	573	573	573	1	13.4	7,669
	Container7000	Propulsion	0.1%	96	84	41							
	Container7000	Auxiliary	0.1%	96	84	41	1,444	3,357	1,372	1,444		0	
	Container7000	Auxiliary Boiler	0.1%	96	84	41	538	551	551	551		0	
	Container8000	Propulsion	0.1%	104	94	42							
	Container8000	Auxiliary	0.1%	104	94	42	1,494	2,753	902	1,494		0	
	Container8000	Auxiliary Boiler	0.1%	104	94	42	650	531	531	531		0	
Total 2019				**296**	**254**	**124**							

Notes:

* To be conservative, it was assumed t

** To be conservative, it was assumed t

Main engine loads were obtained frc
listed in this Inventory. See this EIR r

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxili

Trips = one-way trips

Table 64. Operational OGV Emissions Without Mitigati

			Transit Characteristics								
	Vessel Type	**Engine/Source Type**	**Hotelling at Berth**		**AMP**		**Zone 1: Harbor**				
			Average Time (hr/call)	Energy Demand (kW-hr/call)	Time (hr/call)	Energy Demand (kW-hr/call)	Speed (knots)	Distance (nm)	Maneuvering Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
No Project	**2019**										
	Container6000	Propulsion					2.5	3.7	1.5	1,740	2%
	Container6000	Auxiliary	39.7	39,278	36.7	36,308			1.5	3,296	
	Container6000	Auxiliary Boiler	39.7	22,733					1.5	860	
	Container7000	Propulsion					2.5	3.7	1.5	1,800	2%
	Container7000	Auxiliary	39.3	53,943	36	49,827			1.5	5,036	
	Container7000	Auxiliary Boiler	39.3	21,664					1.5	827	
	Container8000	Propulsion					2.5	3.7	1.5	1,860	2%
	Container8000	Auxiliary	36.1	32,557	33	29,851			1.5	4,130	
	Container8000	Auxiliary Boiler	36.1	19,166					1.5	797	
Total 2019											

Notes:

* To be conservative, it was assumed t

** To be conservative, it was assumed t

Main engine loads were obtained frc
listed in this Inventory. See this EIR r

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxili

Trips = one-way trips

Table 64. Operational OGV Emissions Without Mitigati

	Vessel Type	Engine/Source Type	Zone 2: Breakwater to PZ					Zone 3: PZ to 20nm				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
No Project	**2019**											
	Container6000	Propulsion	11.0	8.3	0.8	3,512	8%	12.0	18.8	1.6	9,107	10%
	Container6000	Auxiliary			0.8	1,100				1.6	2,281	
	Container6000	Auxiliary Boiler			0.8	437				1.6	906	
	Container7000	Propulsion	11.0	8.3	0.8	3,633	8%	12.0	18.8	1.6	9,421	10%
	Container7000	Auxiliary			0.8	1,093				1.6	2,267	
	Container7000	Auxiliary Boiler			0.8	407				1.6	845	
	Container8000	Propulsion	11.0	8.3	0.8	3,755	8%	12.0	18.8	1.6	9,735	10%
	Container8000	Auxiliary			0.8	1,131				1.6	2,346	
	Container8000	Auxiliary Boiler			0.8	492				1.6	1,021	
Total 2019												

Notes:

* To be conservative, it was assumed t

** To be conservative, it was assumed t

Main engine loads were obtained frc
listed in this Inventory. See this EIR r

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxili

Trips = one-way trips

Table 64. Operational OGV Emissions Without Mitigati

	Vessel Type	Engine/Source Type	Zone 3: PZ to 20nm (no VSRP compliance)					Zone 4: 20nm to 40nm				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
No Project	**2019**											
	Container6000	Propulsion	20.1	18.8	0.9	27,755	51%	12.0	20.9	1.7	10,113	10%
	Container6000	Auxiliary			0.9	1,363				1.7	2,533	
	Container6000	Auxiliary Boiler			0.9	541				1.7	1,006	
	Container7000	Propulsion	20.2	18.8	0.9	28,485	51%	12.0	20.9	1.7	10,462	10%
	Container7000	Auxiliary			0.9	1,344				1.7	2,518	
	Container7000	Auxiliary Boiler			0.9	501				1.7	938	
	Container8000	Propulsion	20.3	18.8	0.9	29,319	51%	12.0	20.9	1.7	10,811	10%
	Container8000	Auxiliary			0.9	1,385				1.7	2,605	
	Container8000	Auxiliary Boiler			0.9	603				1.7	1,133	
Total 2019												

Notes:

* To be conservative, it was assumed t

** To be conservative, it was assumed t

Main engine loads were obtained frc
listed in this Inventory. See this EIR r

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxili

Trips = one-way trips

Table 64. Operational OGV Emissions Without Mitigati

	Vessel Type	Engine/Source Type	Zone 4: 20nm to 40nm (no VSRP compliance)					Zone 5: 40nm to 50nm (SCAB Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
No Project	**2019**											
	Container6000	Propulsion	20.1	20.9	1.0	30,823	51%	23	10	0.4	19,913	80%
	Container6000	Auxiliary			1.0	1,514				0.4	624	
	Container6000	Auxiliary Boiler			1.0	601				0.4		
	Container7000	Propulsion	20.2	20.9	1.0	31,633	51%	23	10	0.4	20,437	80%
	Container7000	Auxiliary			1.0	1,493				0.4	615	
	Container7000	Auxiliary Boiler			1.0	556				0.4		
	Container8000	Propulsion	20.3	20.9	1.0	32,559	51%	24	10	0.4	21,035	80%
	Container8000	Auxiliary			1.0	1,538				0.4	634	
	Container8000	Auxiliary Boiler			1.0	669				0.4		
Total 2019												

Notes:

* To be conservative, it was assumed t

** To be conservative, it was assumed t

Main engine loads were obtained frc
listed in this Inventory. See this EIR r

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxili

Trips = one-way trips

Table 64. Operational OGV Emissions Without Mitigati

	Vessel Type	Engine/Source Type	Zone 6: 50nm to 170nm (State Inventory Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
No Project	**2019**						
	Container6000	Propulsion	23	120	5.2	238,962	80%
	Container6000	Auxiliary			5.2	7,483	
	Container6000	Auxiliary Boiler			5.2		
	Container7000	Propulsion	23	120	5.1	245,248	80%
	Container7000	Auxiliary			5.1	7,378	
	Container7000	Auxiliary Boiler			5.1		
	Container8000	Propulsion	24	120	5.1	252,425	80%
	Container8000	Auxiliary			5.1	7,603	
	Container8000	Auxiliary Boiler			5.1		
Total 2019							

Notes:

* To be conservative, it was assumed t

** To be conservative, it was assumed t

Main engine loads were obtained frc
listed in this Inventory. See this EIR r

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxili

Trips = one-way trips

Table 65. Operational OGV Emissions Without Mitigation - No Project (2026)

			Vessel Characteristics		Activity										
	Vessel Type	**Engine/Source Type**	**Engine Rating (kW)**	**Max Rated Speed (knots)**	**Peak Day Berth Calls**	**Peak Day Anchorage Calls**	**Peak Day Transits**	**Peak Day Hotelling Time at Berth Per Vessel (hr/day)**	**Hours at Anchorage within Peak Day (hr/day)**	**Annual Berth Calls**	**Annual Transits**	**Peak Day Fuel Sulfur**	**Peak Day Number of Transits in Compliance with VSRP in Zone 3***	**Peak Day Number of Transits in Compliance with VSRP in Zone 4***	**Peak Day Number of Vessels using AMP****
No Project	**2026**														
	Container7000	Propulsion	60,000	25.3	1		1	12.6		52	104	0.1%			
	Container7000	Auxiliary			1		1	12.6		52	104	0.1%			
	Container7000	Auxiliary Boiler			1		1	12.6		52	104	0.1%			
	Container8000	Propulsion	62,000	25.4	2	1	2	13.6	10.1	104	208	0.1%	2	2	2
	Container8000	Auxiliary			2	1	2	13.6	10.1	104	208	0.1%	2	2	2
	Container8000	Auxiliary Boiler			2	1	2	13.6	10.1	104	208	0.1%	2	2	2
Total 2026					**3**	**1**	**3**			**156**	**312**		**2**	**2**	**2**

Notes: To be conservative, it was assumed that "Container7000" would not be in compliance with VSRP in Zone 3 and Zone 4 during a peak day.

***** To be conservative, it was assumed that "Container7000" would have no AMP during a peak day.

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engines, Main Engines, and Auxiliary Boilers.

Trips = one-way trips

Table 65. Operational OGV Emissions Without Mitigati

	Vessel Type	Engine/Source Type	Annual Fuel Sulfur	Annual Number of Transits in Compliance with VSRP in Zone 3	Annual Number of Transits in Compliance with VSRP in Zone 4	Annual Number of Vessels using AMP	Average Auxiliary Load (kW)				Hotelling at Anchorage		
							Transit	Maneuvering	Berth	Anchorage	(calls/yr)	Average Time (hr/call)	Energy Demand (kW-hr/call)
No Project	**2026**												
	Container7000	Propulsion	0.1%	94	78	41							
	Container7000	Auxiliary	0.1%	94	78	41	1,444	3,357	1,372	1,444		0	
	Container7000	Auxiliary Boiler	0.1%	94	78	41	538	551	551	551		0	
	Container8000	Propulsion	0.1%	202	176	83							
	Container8000	Auxiliary	0.1%	202	176	83	1,494	2,753	902	1,494	1	3.9	5,830
	Container8000	Auxiliary Boiler	0.1%	202	176	83	650	531	531	531	1	3.9	2,072
Total 2026				**296**	**254**	**124**							

Notes: To be conservative, it was assumed t
***** To be conservative, it was assumed t
Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxili
Trips = one-way trips

Table 65. Operational OGV Emissions Without Mitigati

			Transit Characteristics								
	Vessel Type	**Engine/Source Type**	**Hotelling at Berth**		**AMP**		**Zone 1: Harbor**				
			Average Time (hr/call)	Energy Demand (kW-hr/call)	Time (hr/call)	Energy Demand (kW-hr/call)	Speed (knots)	Distance (nm)	Maneuvering Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
No Project	**2026**										
	Container7000	Propulsion					2.5	3.7	1.5	1,800	2%
	Container7000	Auxiliary	42.4	58,134	39.4	54,018			1.5	5,036	
	Container7000	Auxiliary Boiler	42.4	23,347					1.5	827	
	Container8000	Propulsion					2.5	3.7	1.5	1,860	2%
	Container8000	Auxiliary	39.4	35,573	36	32,867			1.5	4,130	
	Container8000	Auxiliary Boiler	39.4	20,942					1.5	797	
Total 2026											

Notes: To be conservative, it was assumed t

***** To be conservative, it was assumed t

Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxili

Trips = one-way trips

Table 65. Operational OGV Emissions Without Mitigatic

	Vessel Type	Engine/Source Type	Zone 2: Breakwater to PZ					Zone 3: PZ to 20nm				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
No Project	**2026**											
	Container7000	Propulsion	11.0	8.3	0.8	3,633	8%	12.0	18.8	1.6	9,421	10%
	Container7000	Auxiliary			0.8	1,093				1.6	2,267	
	Container7000	Auxiliary Boiler			0.8	407				1.6	845	
	Container8000	Propulsion	11.0	8.3	0.8	3,755	8%	12.0	18.8	1.6	9,735	10%
	Container8000	Auxiliary			0.8	1,131				1.6	2,346	
	Container8000	Auxiliary Boiler			0.8	492				1.6	1,021	
Total 2026												

Notes: To be conservative, it was assumed t
***** To be conservative, it was assumed t
Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxili
Trips = one-way trips

Table 65. Operational OGV Emissions Without Mitigati

	Vessel Type	Engine/Source Type	Zone 3: PZ to 20nm (no VSRP compliance)					Zone 4: 20nm to 40nm				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
No Project	**2026**											
	Container7000	Propulsion	20.2	18.8	0.9	28,485	51%	12.0	20.9	1.7	10,462	10%
	Container7000	Auxiliary			0.9	1,344				1.7	2,518	
	Container7000	Auxiliary Boiler			0.9	501				1.7	938	
	Container8000	Propulsion	20.3	18.8	0.9	29,319	51%	12.0	20.9	1.7	10,811	10%
	Container8000	Auxiliary			0.9	1,385				1.7	2,605	
	Container8000	Auxiliary Boiler			0.9	603				1.7	1,133	
Total 2026												

Notes: To be conservative, it was assumed t
***** To be conservative, it was assumed t
Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxili
Trips = one-way trips

Table 65. Operational OGV Emissions Without Mitigatic

	Vessel Type	Engine/Source Type	Zone 4: 20nm to 40nm (no VSRP compliance)					Zone 5: 40nm to 50nm (SCAB Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
No Project	**2026**											
	Container7000	Propulsion	20.2	20.9	1.0	31,633	51%	23	10	0.4	20,437	80%
	Container7000	Auxiliary			1.0	1,493				0.4	615	
	Container7000	Auxiliary Boiler			1.0	556				0.4		
	Container8000	Propulsion	20.3	20.9	1.0	32,559	51%	24	10	0.4	21,035	80%
	Container8000	Auxiliary			1.0	1,538				0.4	634	
	Container8000	Auxiliary Boiler			1.0	669				0.4		
Total 2026												

Notes: To be conservative, it was assumed t
***** To be conservative, it was assumed t
Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxili
Trips = one-way trips

Table 65. Operational OGV Emissions Without Mitigati

	Vessel Type	Engine/Source Type	Zone 6: 50nm to 170nm (State Inventory Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
No Project	**2026**						
	Container7000	Propulsion	23	120	5.1	245,248	80%
	Container7000	Auxiliary			5.1	7,378	
	Container7000	Auxiliary Boiler			5.1		
	Container8000	Propulsion	24	120	5.1	252,425	80%
	Container8000	Auxiliary			5.1	7,603	
	Container8000	Auxiliary Boiler			5.1		
Total 2026							

Notes: To be conservative, it was assumed t
***** To be conservative, it was assumed t
Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxili
Trips = one-way trips

Table 66. Operational OGV Emissions Without Mitigation - No Project (2033)

			Vessel Characteristics		Activity											
	Vessel Type	**Engine/Source Type**	**Engine Rating (kW)**	**Max Rated Speed (knots)**	**Peak Day Berth Calls**	**Peak Day Anchorage Calls**	**Peak Day Transits**	**Peak Day Hotelling Time at Berth Per Vessel (hr/day)**	**Hours at Anchorage within Peak Day (hr/day)**	**Annual Berth Calls**	**Annual Transits**	**Peak Day Fuel Sulfur**	**Peak Day Number of Transits in Compliance with VSRP in Zone 3***	**Peak Day Number of Transits in Compliance with VSRP in Zone 4***	**Peak Day Number of Vessels using AMP****	**Annual Fuel Sulfur**
No Project	**2033**															
	Container7000	Propulsion	60,000	25.3	2	1	2	10.5	5.3	104	208	0.1%				0.1%
	Container7000	Auxiliary			2	1	2	10.5	5.3	104	208	0.1%				0.1%
	Container7000	Auxiliary Boiler			2	1	2	10.5	5.3	104	208	0.1%				0.1%
	Container8000	Propulsion	62,000	25.4	2		2	6.1		104	208	0.1%	2	2	2	0.1%
	Container8000	Auxiliary			2		2	6.1		104	208	0.1%	2	2	2	0.1%
	Container8000	Auxiliary Boiler			2		2	6.1		104	208	0.1%	2	2	2	0.1%
Total 2033					**4**	**1**	**4**			**208**	**416**		**2**	**2**	**2**	

Notes:
***** To be conservative, it was assumed that "Container7000" would not be in compliance with VSRP in Zone 3 and Zone 4 during a peak day.
To be conservative, it was assumed that "Container7000" would have no AMP during a peak day.
Main engine loads were obtained from AECOM and auxiliary and boiler loads from the 2014 Port Emissions Inventory Report except for the ship categories not listed in this Inventory. See this EIR report for more details.
Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engines, Main Engines, and Auxiliary Boilers.
Trips = one-way trips

Table 66. Operational OGV Emissions Without Mitigat

	Vessel Type	Engine/Source Type	Annual Number of Transits in Compliance with VSRP in Zone 3	Annual Number of Transits in Compliance with VSRP in Zone 4	Annual Number of Vessels using AMP	Average Auxiliary Load (kW)				Hotelling at Anchorage		
						Transit	Maneuvering	Berth	Anchorage	(calls/yr)	Average Time (hr/call)	Energy Demand (kW-hr/call)
No Project	**2033**											
	Container7000	Propulsion	198	164	83							
	Container7000	Auxiliary	198	164	83	1,444	3,357	1,372	1,444	8	9.8	14,111
	Container7000	Auxiliary Boiler	198	164	83	538	551	551	551	8	9.8	5,384
	Container8000	Propulsion	196	176	83							
	Container8000	Auxiliary	196	176	83	1,494	2,753	902	1,494	6	14.9	22,224
	Container8000	Auxiliary Boiler	196	176	83	650	531	531	531	6	14.9	7,899
Total 2033			**394**	**340**	**166**							

Notes: To be conservative, it was assumed
* To be conservative, it was assumed
Main engine loads were obtained fı
listed in this Inventory. See this EIR
Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxi
Trips = one-way trips

Table 66. Operational OGV Emissions Without Mitigat

			Transit Characteristics								
	Vessel Type	**Engine/Source Type**	**Hotelling at Berth**		**AMP**		**Zone 1: Harbor**				
			Average Time (hr/call)	Energy Demand (kW-hr/call)	Time (hr/call)	Energy Demand (kW-hr/call)	Speed (knots)	Distance (nm)	Maneuvering Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
No Project	**2033**										
	Container700 0	Propulsion					2.5	3.7	1.5	1,800	2%
	Container700 0	Auxiliary	40.8	55,978	37.8	51,862			1.5	5,036	
	Container700 0	Auxiliary Boiler	40.8	22,481					1.5	827	
	Container800 0	Propulsion					2.5	3.7	1.5	1,860	2%
	Container800 0	Auxiliary	41.5	37,395	38	34,689			1.5	4,130	
	Container800 0	Auxiliary Boiler	41.5	22,014					1.5	797	
	0	Auxiliary Boiler	41.5	22,014					1.5	797	
Total 2033											

Notes: To be conservative, it was assumed
***** To be conservative, it was assumed
Main engine loads were obtained fı
listed in this Inventory. See this EIR
Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxi
Trips = one-way trips

Table 66. Operational OGV Emissions Without Mitigat

	Vessel Type	Engine/Source Type	Zone 2: Breakwater to PZ					Zone 3: PZ to 20nm				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
No Project	**2033**											
	Container7000	Propulsion	11.0	8.3	0.8	3,633	8%	12.0	18.8	1.6	9,421	10%
	Container7000	Auxiliary			0.8	1,093				1.6	2,267	
	Container7000	Auxiliary Boiler			0.8	407				1.6	845	
	Container8000	Propulsion	11.0	8.3	0.8	3,755	8%	12.0	18.8	1.6	9,735	10%
	Container8000	Auxiliary			0.8	1,131				1.6	2,346	
	Container8000	Auxiliary Boiler			0.8	492				1.6	1,021	
Total 2033												

Notes: To be conservative, it was assumed
* To be conservative, it was assumed
Main engine loads were obtained fı
listed in this Inventory. See this EIR
Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxi
Trips = one-way trips

Table 66. Operational OGV Emissions Without Mitigat

	Vessel Type	Engine/Source Type	Zone 3: PZ to 20nm (no VSRP compliance)					Zone 4: 20nm to 40nm				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
No Project	**2033**											
	Container7000	Propulsion	20.2	18.8	0.9	28,485	51%	12.0	20.9	1.7	10,462	10%
	Container7000	Auxiliary			0.9	1,344				1.7	2,518	
	Container7000	Auxiliary Boiler			0.9	501				1.7	938	
	Container8000	Propulsion	20.3	18.8	0.9	29,319	51%	12.0	20.9	1.7	10,811	10%
	Container8000	Auxiliary			0.9	1,385				1.7	2,605	
	Container8000	Auxiliary Boiler			0.9	603				1.7	1,133	
Total 2033												

Notes: To be conservative, it was assumed
* To be conservative, it was assumed
Main engine loads were obtained fı
listed in this Inventory. See this EIR
Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxi
Trips = one-way trips

Table 66. Operational OGV Emissions Without Mitigat

	Vessel Type	Engine/Source Type	Zone 4: 20nm to 40nm (no VSRP compliance)					Zone 5: 40nm to 50nm (SCAB Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
No Project	**2033**											
	Container7000	Propulsion	20.2	20.9	1.0	31,633	51%	23	10	0.4	20,437	80%
	Container7000	Auxiliary			1.0	1,493				0.4	615	
	Container7000	Auxiliary Boiler			1.0	556				0.4		
	Container8000	Propulsion	20.3	20.9	1.0	32,559	51%	24	10	0.4	21,035	80%
	Container8000	Auxiliary			1.0	1,538				0.4	634	
	Container8000	Auxiliary Boiler			1.0	669				0.4		
Total 2033												

Notes: To be conservative, it was assumed
***** To be conservative, it was assumed
Main engine loads were obtained fı
listed in this Inventory. See this EIR
Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxi
Trips = one-way trips

Table 66. Operational OGV Emissions Without Mitigat

	Vessel Type	Engine/Source Type	Zone 6: 50nm to 170nm (State Inventory Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
No Project	**2033**						
	Container7000	Propulsion	23	120	5.1	245,248	80%
	Container7000	Auxiliary			5.1	7,378	
	Container7000	Auxiliary Boiler			5.1		
	Container8000	Propulsion	24	120	5.1	252,425	80%
	Container8000	Auxiliary			5.1	7,603	
	Container8000	Auxiliary Boiler			5.1		
Total 2033							

Notes: To be conservative, it was assumed
***** To be conservative, it was assumed
Main engine loads were obtained fı
listed in this Inventory. See this EIR
Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxi
Trips = one-way trips

Table 67. Operational OGV Emissions Without Mitigation - No Project (2038)

			Vessel Characteristics		Activity											
	Vessel Type	**Engine/Source Type**	**Engine Rating (kW)**	**Max Rated Speed (knots)**	**Peak Day Berth Calls**	**Peak Day Anchorage Calls**	**Peak Day Transits**	**Peak Day Hotelling Time at Berth Per Vessel (hr/day)**	**Hours at Anchorage within Peak Day (hr/day)**	**Annual Berth Calls**	**Annual Transits**	**Peak Day Fuel Sulfur*** **	**Peak Day Number of Transits in Compliance with VSRP in Zone 3***	**Peak Day Number of Transits in Compliance with VSRP in Zone 4***	**Peak Day Number of Vessels using AMP****	**Annual Fuel Sulfur*** **
No Project	**2038**															
	0	Propulsion	60,000	25.3	2	1	2	10.5	5.3	104	208	0.1%				0.1%
	0	Auxiliary			2	1	2	10.5	5.3	104	208	0.1%				0.1%
	0	Auxiliary Boiler			2	1	2	10.5	5.3	104	208	0.1%				0.1%
	0	Propulsion	62,000	25.4	2		2	6.1		104	208	0.1%	2	2	2	0.1%
	0	Auxiliary			2		2	6.1		104	208	0.1%	2	2	2	0.1%
	0	Auxiliary Boiler			2		2	6.1		104	208	0.1%	2	2	2	0.1%
Total 2038					**4**	**1**	**4**			**208**	**416**		**2**	**2**	**2**	

Notes:
***** To be conservative, it was assumed that "Container7000" would not be in compliance with VSRP in Zone 3 and Zone 4 during a peak day.
To be conservative, it was assumed that "Container7000" would have no AMP during a peak day.
Main engine loads were obtained from AECOM and auxiliary and boiler loads from the 2014 Port Emissions Inventory Report except for the ship categories not listed in this Inventory. See this EIR report for more details.
Sulfur Content: CARB's Low Sulfur Fuel for Marine Auxiliary Engines, Main Engines, and Auxiliary Boilers.
Trips = one-way trips

Table 67. Operational OGV Emissions Without Mitiga

	Vessel Type	Engine/Source Type	Annual Number of Transits in Compliance with VSRP in Zone 3	Annual Number of Transits in Compliance with VSRP in Zone 4	Annual Number of Vessels using AMP	Average Auxiliary Load (kW)				Hotelling at Anchorage		
						Transit	Maneuvering	Berth	Anchorage	(calls/yr)	Average Time (hr/call)	Energy Demand (kW-hr/call)
No Project	**2038**											
	0	Propulsion	198	164	83							
	0	Auxiliary	198	164	83	1,444	3,357	1,372	1,444	8	9.8	14,111
	0	Auxiliary Boiler	198	164	83	538	551	551	551	8	9.8	5,384
	0	Propulsion	196	176	83							
	0	Auxiliary	196	176	83	1,494	2,753	902	1,494	6	14.9	22,224
	0	Auxiliary Boiler	196	176	83	650	531	531	531	6	14.9	7,899
Total 2038			**394**	**340**	**166**							

Notes: To be conservative, it was assumed
***** To be conservative, it was assumed
Main engine loads were obtained f
listed in this Inventory. See this EIR
Sulfur Content: CARB's Low Sulfur Fuel for Marine Aux
Trips = one-way trips

Table 67. Operational OGV Emissions Without Mitiga

			Transit Characteristics								
	Vessel Type	**Engine/Source Type**	**Hotelling at Berth**		**AMP**		**Zone 1: Harbor**				
			Average Time (hr/call)	Energy Demand (kW-hr/call)	Time (hr/call)	Energy Demand (kW-hr/call)	Speed (knots)	Distance (nm)	Maneuvering Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
No Project	**2038**										
	0	Propulsion					2.5	3.7	1.5	1,800	2%
	0	Auxiliary	40.8	55,978	37.8	51,862			1.5	5,036	
	0	Auxiliary Boiler	40.8	22,481					1.5	827	
	0	Propulsion					2.5	3.7	1.5	1,860	2%
	0	Auxiliary	41.5	37,395	38	34,689			1.5	4,130	
	0	Auxiliary Boiler	41.5	22,014					1.5	797	
Total 2038											

Notes: To be conservative, it was assumed
***** To be conservative, it was assumed
Main engine loads were obtained f
listed in this Inventory. See this EIR
Sulfur Content: CARB's Low Sulfur Fuel for Marine Aux
Trips = one-way trips

Table 67. Operational OGV Emissions Without Mitiga

	Vessel Type	Engine/Source Type	Zone 2: Breakwater to PZ					Zone 3: PZ to 20nm				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
No Project	**2038**											
	0	Propulsion	11.0	8.3	0.8	3,633	8%	12.0	18.8	1.6	9,421	10%
	0	Auxiliary			0.8	1,093				1.6	2,267	
	0	Auxiliary Boiler			0.8	407				1.6	845	
	0	Propulsion	11.0	8.3	0.8	3,755	8%	12.0	18.8	1.6	9,735	10%
	0	Auxiliary			0.8	1,131				1.6	2,346	
	0	Auxiliary Boiler			0.8	492				1.6	1,021	
Total 2038												

Notes:
To be conservative, it was assumed
***** To be conservative, it was assumed
Main engine loads were obtained f
listed in this Inventory. See this EIR
Sulfur Content: CARB's Low Sulfur Fuel for Marine Aux
Trips = one-way trips

Table 67. Operational OGV Emissions Without Mitiga

	Vessel Type	Engine/Source Type	Zone 3: PZ to 20nm (no VSRP compliance)					Zone 4: 20nm to 40nm				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering
No Project	**2038**											
	0	Propulsion	20.2	18.8	0.9	28,485	51%	12.0	20.9	1.7	10,462	10%
	0	Auxiliary			0.9	1,344				1.7	2,518	
	0	Auxiliary Boiler			0.9	501				1.7	938	
	0	Propulsion	20.3	18.8	0.9	29,319	51%	12.0	20.9	1.7	10,811	10%
	0	Auxiliary			0.9	1,385				1.7	2,605	
	0	Auxiliary Boiler			0.9	603				1.7	1,133	
Total 2038												

Notes: To be conservative, it was assumed
***** To be conservative, it was assumed
Main engine loads were obtained f
listed in this Inventory. See this EIR
Sulfur Content: CARB's Low Sulfur Fuel for Marine Aux
Trips = one-way trips

Table 67. Operational OGV Emissions Without Mitiga

	Vessel Type	Engine/Source Type	Zone 4: 20nm to 40nm (no VSRP compliance)					Zone 5: 40nm to 50nm (SCAB Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Load Factor during Maneuvering	Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
No Project	**2038**											
	0	Propulsion	20.2	20.9	1.0	31,633	51%	23	10	0.4	20,437	80%
	0	Auxiliary			1.0	1,493				0.4	615	
	0	Auxiliary Boiler			1.0	556				0.4		
	0	Propulsion	20.3	20.9	1.0	32,559	51%	24	10	0.4	21,035	80%
	0	Auxiliary			1.0	1,538				0.4	634	
	0	Auxiliary Boiler			1.0	669				0.4		
Total 2038												

Notes: To be conservative, it was assumed
***** To be conservative, it was assumed
Main engine loads were obtained f
listed in this Inventory. See this EIR
Sulfur Content: CARB's Low Sulfur Fuel for Marine Aux
Trips = one-way trips

Table 67. Operational OGV Emissions Without Mitiga

	Vessel Type	Engine/Source Type	Zone 6: 50nm to 170nm (State Inventory Boundary)				
			Speed (knots)	Distance (nm)	Transit Time (hr/trip)	Loaded Energy Demand (kW-hr/trip)	Propulsion Engine Average Load in Open Ocean
No Project	**2038**						
	0	Propulsion	23	120	5.1	245,248	80%
	0	Auxiliary			5.1	7,378	
	0	Auxiliary Boiler			5.1		
	0	Propulsion	24	120	5.1	252,425	80%
	0	Auxiliary			5.1	7,603	
	0	Auxiliary Boiler			5.1		
Total 2038							

Notes:
To be conservative, it was assumed
*****
To be conservative, it was assumed
Main engine loads were obtained f
listed in this Inventory. See this EIR
Sulfur Content: CARB's Low Sulfur Fuel for Marine Aux
Trips = one-way trips

Table 68. Propulsion/Boiler Engine Emission Factors for 0.1% S MGO Fuel (g/kWhr)

Engine	Model Year	IMO Tier	PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	CH4	N2O
Slow Speed Diesel	≤1999	Tier 0	0.26	0.24	0.26	17.0	0.39	1.40	0.60	0.63	589	0.012	0.029
Medium Speed Diesel	≤1999	Tier 0 (not used)	0.26	0.24	0.26	13.2	0.43	1.10	0.50	0.53	649	0.010	0.029
Slow Speed Diesel	2000-2010	Tier 1	0.26	0.24	0.26	16.0	0.39	1.40	0.60	0.63	589	0.012	0.029
Medium Speed Diesel	2000-2010	Tier 1 (not used)	0.26	0.24	0.26	12.2	0.43	1.10	0.50	0.53	649	0.010	0.029
Slow Speed Diesel	2011-2015	Tier 2	0.26	0.24	0.26	14.4	0.39	1.40	0.60	0.63	589	0.012	0.029
Medium Speed Diesel	2011-2015	Tier 2 (not used)	0.26	0.24	0.26	10.5	0.43	1.10	0.50	0.53	649	0.010	0.029
Slow Speed Diesel in ECA	2016+	Tier 3	0.26	0.24	0.26	3.4	0.39	1.40	0.60	0.63	589	0.012	0.029
Medium Speed Diesel in ECA	2016+	Tier 3 (not used)	0.26	0.24	0.26	2.6	0.43	1.10	0.50	0.53	649	0.010	0.029
Gas Turbine	all	na	0.01	0.01	0.00	5.7	0.61	0.20	0.10	0.11	922	0.002	0.075
Steam Ship	all	na	0.14	0.13	0.00	2.0	0.61	0.20	0.10	0.11	922	0.002	0.075

Source:

POLA 2014 Emissions Inventory, Tables 3.7

Notes:

1. Slow speed diesel: engine speed < 130 rpm; assumed as default for propulsion engines (2013 POLA, Section 3.5.4)

2. Medium speed diesel: engine speed > 130 rpm (2013 POLA, Section 3.5.4) - Per MARPOL Annex VI: NOx emission factor for Tier I = $45n^{-0.2}$; Tier II = $44n^{-0.23}$, Tier III = $9n^{-0.2}$. Tier 3 standards are required for vessels built on or after January 1, 2016 and that operate in an ECA. These standards were adopted during the 66th session of MEPC in March 2014, and are expected to be operative in September 2015.

Table 69. Weighted Average Emission Factors for Main Engine based on Baseline % Vessel Type Distribution

Category	PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	CH4	N2O
Container4000	0.26	0.24	0.26	16.66	0.39	1.40	0.60	0.63	589	0.012	0.029
Container5000	0.26	0.24	0.26	15.98	0.39	1.40	0.60	0.63	589	0.012	0.029
Container6000	0.26	0.24	0.26	15.98	0.39	1.40	0.60	0.63	589	0.012	0.029
Container7000	0.26	0.24	0.26	15.98	0.39	1.40	0.60	0.63	589	0.012	0.029
Container8000	0.26	0.24	0.26	15.95	0.39	1.40	0.60	0.63	589	0.012	0.029

Table 70. Auxiliary Engine Emission Factors for 0.1% S MGO Fuel (g/kW-hr)

Engine	Model Year	IMO Tier	PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC*	CO2	CH4	N2O
Medium speed diesel	≤1999	Tier 0	0.26	0.24	0.26	13.8	0.46	1.1	0.4	0.42	686	0.008	0.029
Medium speed diesel	2000-2010	Tier 1	0.26	0.24	0.26	12.2	0.46	1.1	0.4	0.42	686	0.008	0.029
Medium speed diesel	2011-2015	Tier 2	0.26	0.24	0.26	10.5	0.46	1.1	0.4	0.42	686	0.008	0.029
Medium speed diesel	2016+	Tier 3	0.26	0.24	0.26	2.6	0.46	1.1	0.4	0.42	686	0.008	0.029

Source:

POLA 2014 Emissions Inventory, Tables 3.8

Auxiliary engines are consider medium speed diesel engines based on the 2014 YTI EIS/EIR

* HC to VOC converstion from "EPA, 2010. Conversion Factors for Hydrocarbon Emission Components, EPA-420-R-10-015" (http://www.epa.gov/oms/models/nonrdmdl/nonrdmdl2010/420r10015.pdf)

Table 71. Weighted Average Emission Factors for Aux Engine based on Baseline % Vessel Type Distribution

Category	PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	CH4	N2O
Container4000	0.26	0.24	0.26	13.27	0.46	1.10	0.40	0.42	686	0.01	0.03
Container5000	0.26	0.24	0.26	12.21	0.46	1.10	0.40	0.42	686	0.01	0.03
Container6000	0.26	0.24	0.26	12.21	0.46	1.10	0.40	0.42	686	0.01	0.03
Container7000	0.26	0.24	0.26	12.21	0.46	1.10	0.40	0.42	686	0.01	0.03
Container8000	0.26	0.24	0.26	12.17	0.46	1.10	0.40	0.42	686	0.01	0.03

Table 72. Auxiliary Boilers Engine Emission Factors for 0.1% S MGO Fuel (g/kWhr)

Engine	PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	CH4	N2O
Steam Boiler	0.14	0.13	0.00	2.0	0.61	0.2	0.1	0.11	922	0.002	0.075

Source:
POLA 2014 Emissions Inventory, "Steamship" in Tables 3.7

Table 73. AMP Electricity Consumption Emission Factors (lb/MW-hr)

PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	CH4	N2O
0.04	0.04	0.04	0.4047	0.1708	0.2		0.01	1,135	0.02849	0.00603

Source:
CO, VOC, and PM criteria pollutant emission factors are from SCAQMD 1993 CEQA Handbook, Table A9-11-B.
NOx and SOx emission factors are from eGrid 9th Edition, Version 1.0, Year 2010 Summary Tables. (created February 2014)
CH4 and N2O emission factors are from The Climate Registry, 2015 Default Emission Factors, Table 14.1 (US Emission Factors by eGrid Subregion CAMX).
CO2 emission factor from LADWP 2014 Power Integrated Resource Plan

Table 74. Fuel Correction Factors

Fuel	Sulfur Content	PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	CH4	N2O
MGO	0.1%	1	1	1	1	1	1	1	1	1	1	1

Table 75. Low Load Adjustment Factors - Propulsion Engines

Load	PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	CH4	N2O
2% docking load	7.29	7.29	7.29	4.63	1.00	9.68	21.18	21.18	1.00	21.18	4.63
3% transit load	4.33	4.33	4.33	2.92	1.00	6.46	11.68	11.68	1.00	11.68	2.92
4% transit load	3.09	3.09	3.09	2.21	1.00	4.86	7.71	7.71	1.00	7.71	2.21
5% transit load	2.44	2.44	2.44	1.83	1.00	3.89	5.61	5.61	1.00	5.61	1.83
6% transit load	2.04	2.04	2.04	1.60	1.00	3.25	4.35	4.35	1.00	4.35	1.60
7% transit load	1.79	1.79	1.79	1.45	1.00	2.79	3.52	3.52	1.00	3.52	1.45
8% transit load	1.61	1.61	1.61	1.35	1.00	2.45	2.95	2.95	1.00	2.95	1.35
9% transit load	1.48	1.48	1.48	1.27	1.00	2.18	2.52	2.52	1.00	2.52	1.27
10% transit load	1.38	1.38	1.38	1.22	1.00	1.96	2.18	2.18	1.00	2.18	1.22
11% transit load	1.30	1.30	1.30	1.17	1.00	1.79	1.96	1.96	1.00	1.96	1.17
12% transit load	1.24	1.24	1.24	1.14	1.00	1.64	1.76	1.76	1.00	1.76	1.14
13% transit load	1.19	1.19	1.19	1.11	1.00	1.52	1.60	1.60	1.00	1.60	1.11
14% transit load	1.15	1.15	1.15	1.08	1.00	1.41	1.47	1.47	1.00	1.47	1.08
15% transit load	1.11	1.11	1.11	1.06	1.00	1.32	1.36	1.36	1.00	1.36	1.06
16% transit load	1.08	1.08	1.08	1.05	1.00	1.24	1.26	1.26	1.00	1.26	1.05
17% transit load	1.06	1.06	1.06	1.03	1.00	1.17	1.18	1.18	1.00	1.18	1.03
18% transit load	1.04	1.04	1.04	1.02	1.00	1.11	1.11	1.11	1.00	1.11	1.02
19% transit load	1.02	1.02	1.02	1.01	1.00	1.05	1.05	1.05	1.00	1.05	1.01
20% transit load	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Source: POLA 2014 Emissions Inventory, Table 3.10.

Table 76. OGV Control Factors

	PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	CH4	N2O	Connect/Disconnect
AMP Control Factor	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	3

Shore Power Regulation.

Source: 2013 POLA Emissions Inventory, Section 3.5.12
AMP control factor takes into consideration the time necessary to connect to and disconnect from the electrical power and start-up the auxiliary engines.

Table 77. 2013 Everport OGV Vessel Information

Category	Ship Calls			Max Avg Rated Speed (knots)			Max Eng Avg (KW)		
	Tier 0	Tier 1	Tier 2	Tier 0	Tier 1	Tier 2	Tier 0	Tier 1	Tier 2
Container4000	46	21	1	23.4	24.1	24.5	36,553	41,815	36,559
Container5000	0	2	0	-	25.5	-	-	51,479	-
Container6000	0	15	0	-	24.7	-	-	49,775	-
Container7000	0	30	0	-	25.3	-	-	54,927	-
Container8000	0	50	1	-	25.2	22.0	-	66,354	47,429
Total	**46**	**118**	**2**						

Source: Values from file: "Everport 2013 Vessel Activity.csv", dated 9/8/2014

Table 78. OGV Average Aux Engine & Aux Boiler Loads

		Average Loads (kW)			
Category	Engine Type	Transit	Manuvering	Berth	Anchorage
Container4000	Auxiliary	1,434	2,526	1,161	1,434
Container4000	Auxiliary Boiler	492	492	492	492
Container5000	Auxiliary	1,725	3,367	900	1,725
Container5000	Auxiliary Boiler	545	547	547	547
Container6000	Auxiliary	1,453	2,197	990	1,453
Container6000	Auxiliary Boiler	577	573	573	573
Container7000	Auxiliary	1,444	3,357	1,372	1,444
Container7000	Auxiliary Boiler	538	551	551	551
Container8000	Auxiliary	1,494	2,753	902	1,494
Container8000	Auxiliary Boiler	650	531	531	531
Container9000	Auxiliary	1,501	2,942	1,037	1,501
Container9000	Auxiliary Boiler	475	475	475	475
Container10000	Auxiliary	2,300	2,350	1,450	2,300
Container10000	Auxiliary Boiler	708	708	708	708
Container11000	Auxiliary	2,000	4,000	1,500	2,000
Container11000	Auxiliary Boiler	600	600	600	600
Container14000	Auxiliary	3,000	5,500	3,000	3,000
Container14000	Auxiliary Boiler	700	700	700	700
Container16000	Auxiliary	3,000	5,500	3,000	3,000
Container16000	Auxiliary Boiler	700	700	700	700

Source: 2014 POLA EI, Table 3.12 and 3.16 for Containers 4000-10000
2012 POLA EI, Table 3.12 and 3.16 for Container 11000
2013 POLB EI, Table 2.12 and 2.16 for Container 16000 - Data for Container 16000 assumed to be the same as Container 14000 data since Container 16000 data is not ava
2013 POLB EI, Table 2.12 and 2.16 for Container 14000

Table 79. Manuvering Time (Average of all arrivals and departures)

1.50	hours

Source: AECOM Future Container Ship Data

Table 80. PZ Speed Assumption

11	knots (Container)

Source: 2013 POLA EI, Table 3.4: Precautionary Zone Average Speed, knots

Table 81. Maximum Rated Vessel Speed

Category	Speed (knots)
Container1000	20.1
Container2000	22.0
Container3000	22.5
Container4000	24.0
Container5000	25.1
Container6000	25.1
Container7000	25.3
Container8000	25.4
Container9000	24.9
Container10000	25.2
Container11000	24.8
Container14000	24.0
Container16000	25.1

Source:
Maximum rated speeds for Containers1000-9000 were obtained from 2013 POLA Inventory, Table 3.22
Maximum rated speed for Container11000 was obtained from 2012 POLA Inventory, Table 3.22
Maximum rated speed for Container10000 was obtained from 2014 YTI EIS/EIR, Appendix B1, Table B1.23.
Maximum rated speed for Container14000 was obtained from 2013 POLB Inventory, Appendix B, Table B.3
Maximum rated speed for Container16000 was obtained from CMA CGM MARCO POLO ship information from Bureau Veritas' website (http://www.veristar.com/portal/veristarinfo/equasis?IMO=9454

Table 82. Segment Distances in nm

				Zone 1: Harbor	Zone 2: Breakwater to PZ		Zone 3: PZ to 20nm		Zone 4: 20nm to 40nm		Zone 5: 40 nm to 50nm SCAB overwater	Zone 6: 50nm to 170nm State Over-Water	
% Calls By Route*	**Arrival**	**Departure**			Arrival	Departure	Arrival	Departure	Arrival	Departure			
East	0%	0%		3.7	7.6	7.6	25.8	25.8	0.0	0.0			
North	16%	49%		3.7	8.6	7.6	21.9	21.7	21.4	20.8			
South	26%	1%		3.7	8.5	7.4	11.1	12.6	20.2	19.9			
West	58%	50%		3.7	8.6	8.6	19.0	19.0	21.1	21.1			
	100%	100%	Average Segment Distance	3.7	8.55	8.10	17.41	20.27	20.92	20.93			
			Average Distance	3.7	8.33		18.84		20.92		10	120	

*Based on 2013 Baseline year calls

Segment Distances in nm

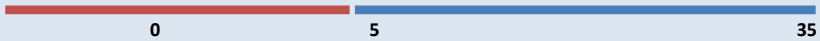
		In Harbor	Breakwater-PZ	PZ-10nm	10-15nm	15-20nm	20-25nm	25-30nm	30-35nm	35-40nm
East	inbound	3.7	7.63	10.8	5.27	9.68	0	0	0	0
	outbound	3.7	7.63	10.8	5.27	9.68	0	0	0	0
North	inbound	3.7	8.57	9.51	6.41	5.99	5.89	4.71	5.34	5.43
	outbound	3.7	7.63	10.8	5.27	5.61	5.54	4.63	5.2	5.38
South	inbound	3.7	8.47	0.49	5.25	5.37	4.88	4.91	5.14	5.25
	outbound	3.7	7.36	2.19	5.07	5.29	4.78	4.86	5.01	5.27
West	inbound	3.7	8.58	6.69	6.31	5.97	5.48	4.89	5.3	5.45
	outbound	3.7	8.58	6.69	6.31	5.97	5.48	4.89	5.3	5.45

Source:
YTI's "OperationalCalculations22_CargoShips.xlsb" spreadsheet

Port of Los Angeles

Table 83. CEQA Tier 3 Forecasting

Time Line



Baseline Start of Project

Most recent completed EI year

	Year	avg age	4-6k Tier 3
Baseline	2013	15	0%
Start Date	2018	20	0%
	2019	21	0%
	2020	22	0%
	2021	23	7%
	2022	24	13%
	2023	25	20%
	2024	26	27%
	2025	27	33%
	2026	28	40%
	2027	29	47%
	2028	30	53%
	2029	31	60%
	2030	32	67%
	2031	33	73%
	2032	34	80%
	2033	35	87%
	2034	36	93%
	2035	37	100%
	2036	38	100%
	2037	39	100%
	2038	40	100%
	2039	41	100%
	2040	42	100%
	2041	43	100%
	2042	44	100%
	2043	45	100%
	2044	46	100%
	2045	47	100%
	2046	48	100%
	2047	49	100%
	2048	50	100%

	Year	avg age	7-9k Tier 3
Baseline	2013	7	0%
Start Date	2018	12	0%
	2019	13	0%
	2020	14	0%
	2021	15	0%
	2022	16	0%
	2023	17	0%
	2024	18	7%
	2025	19	13%
	2026	20	20%
	2027	21	27%
	2028	22	33%
	2029	23	40%
	2030	24	47%
	2031	25	53%
	2032	26	60%
	2033	27	67%
	2034	28	73%
	2035	29	80%
	2036	30	87%
	2037	31	93%
	2038	32	100%
	2039	33	100%
	2040	34	100%
	2041	35	100%
	2042	36	100%
	2043	37	100%
	2044	38	100%
	2045	39	100%
	2046	40	100%
	2047	41	100%
	2048	42	100%

Example

	Year	avg age	10-14k Tier 3
Baseline	2013	4	0%
Start Date	2019	9	0%
	2020	10	0%
	2021	11	0%
	2022	12	0%
	2023	13	0%
	2024	14	0%
	2025	15	0%
	2026	16	0%
	2027	17	0%
	2028	18	7%

	2029	19	13%
	2030	20	20%
	2031	21	27%
	2032	22	33%
	2033	23	40%
	2034	24	47%
	2035	25	53%
	2036	26	60%
	2037	27	67%
	2038	28	73%
	2039	29	80%
	2040	30	87%
	2041	31	93%
	2042	32	100%
	2043	33	100%
	2044	34	100%
	2045	35	100%
	2046	36	100%
	2047	37	100%
	2048	38	100%
	2049	39	100%

Example

	Year	avg age	15-20k Tier 3
Baseline	2013	1	0%
Start Date	2019	6	0%
	2020	7	0%
	2021	8	0%
	2022	9	0%
	2023	10	0%
	2024	11	0%
	2025	12	0%
	2026	13	0%
	2027	14	0%
	2028	15	0%
	2029	16	0%
	2030	17	0%
	2031	18	7%
	2032	19	13%
	2033	20	20%
	2034	21	27%
	2035	22	33%
	2036	23	40%
	2037	24	47%
	2038	25	53%
	2039	26	60%
	2040	27	67%
	2041	28	73%
	2042	29	80%
	2043	30	87%
	2044	31	93%

	2045	32	100%
	2046	33	100%
	2047	34	100%
	2048	35	100%
	2049	36	100%

Category	Average Built Year
Containers4000-6000	1998
Containers7000-9000	2006
Containers10000-14000	2009
Containers15000-20000	2012

Source: Based on 'POLA CEQA Terminal Level Container Ship Forecast for Tier 3 Engines' DRAFT PDF from Starcrest (May 2015)

The year was determined by the "POLA CEQA Terminal Level Container Ship Forecast for Tier 3 Engines" PDF

Years (call weighted average based on built year) for categories "Containers4000-6000" and "Containers7000-9000" were based on the baseline ship calls

Years for category "Containers10000-14000" were based on 2013 POLB Emissions Inventory, Table B.3 and Table 2.3

Year for category "Containers15000-20000" was assumed to be 1 year since no call information exists for these vessel sizes

Table 84. Harbor Craft Data (Proposed Project)

			HC Characteristics						OGV Activity				HC Energy Demand		
Year	HC Classification	Engine Type	Engine Count per HC	HC Average MY	HC Average HP	Load Factor	HC Activity per HC	HC Count per OGV	Peak Day OGV Transit	Average Day OGV Transits	Average Annual OGV Transits		Peak Day HC Energy Demand	Average Day HC Energy Demand	Annual HC Energy Demand
							(hr/trip)		(one-way trips/day)	(one-way trips/day)	(one-way trips/yr)		(hp-hr/day)	(hp-hr/day)	(hp-hr/yr)
Proposed Project															
	Assist Tugboat	Propulsion	2	2016	1,908	0.31	3.9	2	3	0.9	312		13,841	3,944	1,439,426
		Auxiliary	2	2007	182	0.43	3.9	2	3	0.9	312		1,831	522	190,454
2019 Total															
	Assist Tugboat	Propulsion	2	2016	1,908	0.31	3.9	2	3	0.9	312		13,841	3,944	1,439,426
		Auxiliary	2	2020	182	0.43	3.9	2	3	0.9	312		1,831	522	190,454
2026 Total															
	Assist Tugboat	Propulsion	2	2016	1,908	0.31	3.9	2	4	1.1	416		18,454	5,258	1,919,234
		Auxiliary	2	2020	182	0.43	3.9	2	4	1.1	416		2,442	696	253,938
2033 Total															
	Assist Tugboat	Propulsion	2	2037	1,908	0.31	3.9	2	4	1.1	416		18,454	5,258	1,919,234
		Auxiliary	2	2020	182	0.43	3.9	2	4	1.1	416		2,442	696	253,938
2038 Total															

Notes and Source:

HC Average MY and Average HP from POLA 2014 EI, tables 4.1 and 4.2

Assumed 2 assist tugboats per OGV (2014 YTI EIS/EIR, Section 3.2, Page 3.2-44)

Assumed 2 Engine Count per HC based (2014 YTI EIS/EIR, Appendix B1, Table B1.37)

There are no mitigation measures for operational HC. HC controls are implemented Port-wide via CAAP measures (2014 YTI EIS/EIR, Appendix B1, Table B1.37).

Tugboat emission factors were calculated using zero hour emission factors from the CARB Emissions Estimation Methodology for Commercial Harbor Craft Operating in California, Appendix B and using deterioration factors for harbor craft diesel engines from the 2013 Port Emission Inventory Report since these factors were not included in the 2014 Port Emission Inventory Report.

Replacements of main and auxiliary engines were determined based on CARB harbor craft compliance schedule

SOX emission factors were determined from the fuel consumption rate and the 15 ppm sulfur content of diesel fuel.

Table 84. Harbor Craft Data (Proposed Project)

Year	HC Classification	Engine Type	PM10	PM2.5	DPM	NOX	SOX	CO	VOC	CO2	CH4	N2O
			(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)
Proposed Project												
	Assist Tugboat	Propulsion	0.03	0.03	0.03	1.34	0.01	3.86	0.19	486.39	0.00	0.02
		Auxiliary	0.18	0.16	0.18	5.47	0.01	4.04	0.93	486.39	0.01	0.02
2019 Total												
	Assist Tugboat	Propulsion	0.04	0.04	0.04	1.43	0.01	4.17	0.22	486.39	0.00	0.02
		Auxiliary	0.09	0.08	0.09	4.14	0.01	3.89	0.87	486.39	0.01	0.02
2026 Total												
	Assist Tugboat	Propulsion	0.05	0.04	0.05	1.53	0.01	4.48	0.24	486.39	0.00	0.02
		Auxiliary	0.10	0.09	0.10	4.31	0.01	4.07	0.94	486.39	0.01	0.02
2033 Total												
	Assist Tugboat	Propulsion	0.03	0.03	0.03	1.31	0.01	3.77	0.18	486.39	0.00	0.02
		Auxiliary	0.11	0.10	0.11	4.43	0.01	4.20	0.99	486.39	0.01	0.02
2038 Total												

Notes and Source:

HC Average MY and Average HP from POLA 2014 EI, tables 4.1 and 4.2

Assumed 2 assist tugboats per OGV (2014 YTI EIS/EIR, Section 3.2, Page 3.2-44)

Assumed 2 Engine Count per HC based (2014 YTI EIS/EIR, Appendix B1, Table B

There are no mitigation measures for operational HC. HC controls are impleme

Tugboat emission factors were calculated using zero hour emission factors fror in California, Appendix B and using deterioration factors for harbor craft diesel included in the 2014 Port Emission Inventory Report.

Replacements of main and auxiliary engines were determined based on CARB h

SOX emission factors were determined from the fuel consumption rate and the

Table 85. Harbor Craft Data (Alternative 3)

			HC Characteristics						OGV Activity				HC Energy Demand		
Year	HC Classification	Engine Type	Engine Count per HC	HC Average MY	HC Average HP	Load Factor	HC Activity per HC	HC Count per OGV	Peak Day OGV Transit	Average Day OGV Transits	Average Annual OGV Transits		Peak Day HC Energy Demand	Average Day HC Energy Demand	Annual HC Energy Demand
							(hr/trip)		(one-way trips/day)	(one-way trips/day)	(one-way trips/yr)		(hp-hr/day)	(hp-hr/day)	(hp-hr/yr)
Alt 3															
	Assist Tugboat	Propulsion	2	2016	1,908	0.31	3.9	2	3	0.9	312		13,841	3,944	1,439,426
		Auxiliary	2	2007	182	0.43	3.9	2	3	0.9	312		1,831	522	190,454
2019 Total															
	Assist Tugboat	Propulsion	2	2016	1,908	0.31	3.9	2	3	0.9	312		13,841	3,944	1,439,426
		Auxiliary	2	2020	182	0.43	3.9	2	3	0.9	312		1,831	522	190,454
2026 Total															
	Assist Tugboat	Propulsion	2	2016	1,908	0.31	3.9	2	4	1.1	416		18,454	5,258	1,919,234
		Auxiliary	2	2020	182	0.43	3.9	2	4	1.1	416		2,442	696	253,938
2033 Total															
	Assist Tugboat	Propulsion	2	2037	1,908	0.31	3.9	2	4	1.1	416		18,454	5,258	1,919,234
		Auxiliary	2	2020	182	0.43	3.9	2	4	1.1	416		2,442	696	253,938
2038 Total															

Notes and Source:

HC Average MY and Average HP from POLA 2014 EI, tables 4.1 and 4.2

Assumed 2 assist tugboats per OGV (2014 YTI EIS/EIR, Section 3.2, Page 3.2-44)

Assumed 2 Engine Count per HC based (2014 YTI EIS/EIR, Appendix B1, Table B1.37)

There are no mitigation measures for operational HC. HC controls are implemented Port-wide via CAAP measures (2014 YTI EIS/EIR, Appendix B1, Table B1.37).

Tugboat emission factors were calculated using zero hour emission factors from the CARB Emissions Estimation Methodology for Commercial Harbor Craft Operating in California, Appendix B and using deterioration factors for harbor craft diesel engines from the 2013 Port Emission Inventory Report since these factors were not included in the 2014 Port Emission Inventory Report.

Replacements of main and auxiliary engines were determined based on CARB harbor craft compliance schedule

SOX emission factors were determined from the fuel consumption rate and the 15 ppm sulfur content of diesel fuel.

Table 85. Harbor Craft Data (Alternative 3)

Year	HC Classification	Engine Type	PM10 (g/hp-hr)	PM2.5 (g/hp-hr)	DPM (g/hp-hr)	NOX (g/hp-hr)	SOX (g/hp-hr)	CO (g/hp-hr)	VOC (g/hp-hr)	CO2 (g/hp-hr)	CH4 (g/hp-hr)	N2O (g/hp-hr)
Alt 3												
	Assist Tugboat	Propulsion	0.03	0.03	0.03	1.34	0.01	3.86	0.19	486.39	0.00	0.02
		Auxiliary	0.18	0.16	0.18	5.47	0.01	4.04	0.93	486.39	0.01	0.02
2019 Total												
	Assist Tugboat	Propulsion	0.04	0.04	0.04	1.43	0.01	4.17	0.22	486.39	0.00	0.02
		Auxiliary	0.09	0.08	0.09	4.14	0.01	3.89	0.87	486.39	0.01	0.02
2026 Total												
	Assist Tugboat	Propulsion	0.05	0.04	0.05	1.53	0.01	4.48	0.24	486.39	0.00	0.02
		Auxiliary	0.10	0.09	0.10	4.31	0.01	4.07	0.94	486.39	0.01	0.02
2033 Total												
	Assist Tugboat	Propulsion	0.03	0.03	0.03	1.31	0.01	3.77	0.18	486.39	0.00	0.02
		Auxiliary	0.11	0.10	0.11	4.43	0.01	4.20	0.99	486.39	0.01	0.02
2038 Total												

Notes and Source:

HC Average MY and Average HP from POLA 2014 EI, tables 4.1 and 4.2
Assumed 2 assist tugboats per OGV (2014 YTI EIS/EIR, Section 3.2, Page 3.2-4
Assumed 2 Engine Count per HC based (2014 YTI EIS/EIR, Appendix B1, Table
There are no mitigation measures for operational HC. HC controls are implem

Tugboat emission factors were calculated using zero hour emission factors fr
Operating in California, Appendix B and using deterioration factors for harbor
were not included in the 2014 Port Emission Inventory Report.
Replacements of main and auxiliary engines were determined based on CARB
SOX emission factors were determined from the fuel consumption rate and th

Table 86. Harbor Craft Data (Alternative 4)

			HC Characteristics						OGV Activity				HC Energy Demand		
Year	HC Classification	Engine Type	Engine Count per HC	HC Average MY	HC Average HP	Load Factor	HC Activity per HC	HC Count per OGV	Peak Day OGV Transit	Average Day OGV Transits	Average Annual OGV Transits		Peak Day HC Energy Demand	Average Day HC Energy Demand	Annual HC Energy Demand
							(hr/trip)		(one-way trips/day)	(one-way trips/day)	(one-way trips/yr)		(hp-hr/day)	(hp-hr/day)	(hp-hr/yr)
Alt 4															
	Assist Tugboat	Propulsion	2	2016	1,908	0.31	3.9	2	3	0.9	312		13,841	3,944	1,439,426
		Auxiliary	2	2007	182	0.43	3.9	2	3	0.9	312		1,831	522	190,454
2019 Total															
	Assist Tugboat	Propulsion	2	2016	1,908	0.31	3.9	2	3	0.9	312		13,841	3,944	1,439,426
		Auxiliary	2	2020	182	0.43	3.9	2	3	0.9	312		1,831	522	190,454
2026 Total															
	Assist Tugboat	Propulsion	2	2016	1,908	0.31	3.9	2	3	1.1	416		13,841	5,258	1,919,234
		Auxiliary	2	2020	182	0.43	3.9	2	3	1.1	416		1,831	696	253,938
2033 Total															
	Assist Tugboat	Propulsion	2	2037	1,908	0.31	3.9	2	3	1.1	416		13,841	5,258	1,919,234
		Auxiliary	2	2020	182	0.43	3.9	2	3	1.1	416		1,831	696	253,938
2038 Total															

Notes and Source:

HC Average MY and Average HP from POLA 2014 EI, tables 4.1 and 4.2

Assumed 2 assist tugboats per OGV (2014 YTI EIS/EIR, Section 3.2, Page 3.2-44)

Assumed 2 Engine Count per HC based (2014 YTI EIS/EIR, Appendix B1, Table B1.37)

There are no mitigation measures for operational HC. HC controls are implemented Port-wide via CAAP measures (2014 YTI EIS/EIR, Appendix B1, Table B1.37).

Tugboat emission factors were calculated using zero hour emission factors from the CARB Emissions Estimation Methodology for Commercial Harbor

Replacements of main and auxiliary engines were determined based on CARB harbor craft compliance schedule

SOX emission factors were determined from the fuel consumption rate and the 15 ppm sulfur content of diesel fuel.

Table 86. Harbor Craft Data (Alternative 4)

Year	HC Classification	Engine Type	PM10	PM2.5	DPM	NOX	SOX	CO	VOC	CO2	CH4	N2O
			(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)
Alt 4												
	Assist Tugboat	Propulsion	0.03	0.03	0.03	1.34	0.01	3.86	0.19	486.39	0.00	0.02
		Auxiliary	0.18	0.16	0.18	5.47	0.01	4.04	0.93	486.39	0.01	0.02
2019 Total												
	Assist Tugboat	Propulsion	0.04	0.04	0.04	1.43	0.01	4.17	0.22	486.39	0.00	0.02
		Auxiliary	0.09	0.08	0.09	4.14	0.01	3.89	0.87	486.39	0.01	0.02
2026 Total												
	Assist Tugboat	Propulsion	0.05	0.04	0.05	1.53	0.01	4.48	0.24	486.39	0.00	0.02
		Auxiliary	0.10	0.09	0.10	4.31	0.01	4.07	0.94	486.39	0.01	0.02
2033 Total												
	Assist Tugboat	Propulsion	0.03	0.03	0.03	1.31	0.01	3.77	0.18	486.39	0.00	0.02
		Auxiliary	0.11	0.10	0.11	4.43	0.01	4.20	0.99	486.39	0.01	0.02
2038 Total												

Notes and Source:

HC Average MY and Average HP from POLA 2014 EI, tables 4.1 and 4
Assumed 2 assist tugboats per OGV (2014 YTI EIS/EIR, Section 3.2, P
Assumed 2 Engine Count per HC based (2014 YTI EIS/EIR, Appendix E
There are no mitigation measures for operational HC. HC controls ar
Tugboat emission factors were calculated using zero hour emission f
Replacements of main and auxiliary engines were determined based
SOX emission factors were determined from the fuel consumption ra

Table 87. Harbor Craft Data (No Project)

			HC Characteristics					OGV Activity					HC Energy Demand		
Year	HC Classification	Engine Type	Engine Count per HC	HC Average MY	HC Average HP	Load Factor	HC Activity per HC	HC Count per OGV	Peak Day OGV Transit	Average Day OGV Transits	Average Annual OGV Transits		Peak Day HC Energy Demand	Average Day HC Energy Demand	Annual HC Energy Demand
							(hr/trip)		(one-way trips/day)	(one-way trips/day)	(one-way trips/yr)		(hp-hr/day)	(hp-hr/day)	(hp-hr/yr)
	Assist Tugboat	Propulsion	2	2,016	1,908	0	4	2	3	1	312	0	13,841	3,944	1,439,426
		Auxiliary	2	2,007	182	0	4	2	3	1	312	0	1,831	522	190,454
2017 Total															
	Assist Tugboat	Propulsion	2	2,016	1,908	0	4	2	3	1	312	0	13,841	3,944	1,439,426
		Auxiliary	2	2,007	182	0	4	2	3	1	312	0	1,831	522	190,454
2018 Total															
No Project															
	Assist Tugboat	Propulsion	2	2016	1,908	0.31	3.9	2	3	0.9	312		13,841	3,944	1,439,426
		Auxiliary	2	2007	182	0.43	3.9	2	3	0.9	312		1,831	522	190,454
2019 Total															
	Assist Tugboat	Propulsion	2	2016	1,908	0.31	3.9	2	3	0.9	312		13,841	3,944	1,439,426
		Auxiliary	2	2020	182	0.43	3.9	2	3	0.9	312		1,831	522	190,454
2026 Total															
	Assist Tugboat	Propulsion	2	2016	1,908	0.31	3.9	2	4	1.1	416		18,454	5,258	1,919,234
		Auxiliary	2	2020	182	0.43	3.9	2	4	1.1	416		2,442	696	253,938
2033 Total															
	Assist Tugboat	Propulsion	2	2037	1,908	0.31	3.9	2	4	1.1	416		18,454	5,258	1,919,234
		Auxiliary	2	2020	182	0.43	3.9	2	4	1.1	416		2,442	696	253,938
2038 Total															

Notes and Source:

HC Average MY and Average HP from POLA 2013 EI, tables 4.1 and 4.2

Assumed 2 assist tugboats per OGV (2014 YTI EIS/EIR, Section 3.2, Page 3.2-44)

Assumed 2 Engine Count per HC based (2014 YTI EIS/EIR, Appendix B1, Table B1.37)

There are no mitigation measures for operational HC. HC controls are implemented Port-wide via CAAP measures (2014 YTI EIS/EIR, Appendix B1, Table B1.37).

Tugboat emission factors were calculated using zero hour emission factors from the CARB Emissions Estimation Methodology for Commercial Harbor Craft Operating in California, Appendix B and using deterioration factors for harbor craft diesel engines from the 2013 Port Emission Inventory Report since these factors were not included in the 2014 Port Emission Inventory Report.

Replacements of main and auxiliary engines were determined based on CARB harbor craft compliance schedule

SOX emission factors were determined from the fuel consumption rate and the 15 ppm sulfur content of diesel fuel.

Table 87. Harbor Craft Data (No Project)

Year	HC Classification	Engine Type	PM10	PM2.5	DPM	NOX	SOX	CO	VOC	CO2	CH4	N2O
			(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)
	Assist Tugboat	Propulsion	0.03	0.03	0.03	1.31	0.01	3.77	0.18	486.39	0.00	0.02
		Auxiliary	0.18	0.16	0.18	5.41	0.01	3.99	0.91	486.39	0.01	0.02
2017 Total												
	Assist Tugboat	Propulsion	0.03	0.03	0.03	1.33	0.01	3.82	0.19	486.39	0.00	0.02
		Auxiliary	0.18	0.16	0.18	5.44	0.01	4.02	0.92	486.39	0.01	0.02
2018 Total												
No Project												
	Assist Tugboat	Propulsion	0.03	0.03	0.03	1.34	0.01	3.86	0.19	486.39	0.00	0.02
		Auxiliary	0.18	0.16	0.18	5.47	0.01	4.04	0.93	486.39	0.01	0.02
2019 Total												
	Assist Tugboat	Propulsion	0.04	0.04	0.04	1.43	0.01	4.17	0.22	486.39	0.00	0.02
		Auxiliary	0.09	0.08	0.09	4.14	0.01	3.89	0.87	486.39	0.01	0.02
2026 Total												
	Assist Tugboat	Propulsion	0.05	0.04	0.05	1.53	0.01	4.48	0.24	486.39	0.00	0.02
		Auxiliary	0.10	0.09	0.10	4.31	0.01	4.07	0.94	486.39	0.01	0.02
2033 Total												
	Assist Tugboat	Propulsion	0.03	0.03	0.03	1.31	0.01	3.77	0.18	486.39	0.00	0.02
		Auxiliary	0.11	0.10	0.11	4.43	0.01	4.20	0.99	486.39	0.01	0.02
2038 Total												

Notes and Source:

HC Average MY and Average HP from POLA 2013 EI, tables 4.1 anc
Assumed 2 assist tugboats per OGV (2014 YTI EIS/EIR, Section 3.2,
Assumed 2 Engine Count per HC based (2014 YTI EIS/EIR, Appendi
There are no mitigation measures for operational HC. HC controls
Tugboat emission factors were calculated using zero hour emissio
Craft Operating in California, Appendix B and using deterioration f
since these factors were not included in the 2014 Port Emission In
Replacements of main and auxiliary engines were determined bas
SOX emission factors were determined from the fuel consumptior

Table 88. HC Activity

Hours required to assist OGV from pilot station to berth	1.95

Notes:

Assumed to equal the average of OGV transit times in Zone 1 (harbor transit) times 1.3 to account for tug movement and assist time (2011 APL EIR/EIS, Appendix E, Table 1.3-221).

Methodology

DR = (DF x ZH) / cumulative hours at the end of useful life

EF = ZH + (DR x cumulative hours)

ZH = zero-hour emission rate for a given engine size category and model year when the engine is new and there is no component malfunctioning, g/hp-hr or g/kW-hr

DR = deterioration rate (rate of change of emissions as a function of equipment age), g/hp-hr2 or g/kW-hr2

Cumulative hours = total number of hours the engine has been in use and calculated as annual operating hours times age of the engine, hours

DR = deterioration rate, g/hp-hr2 or g/kW-hr2

DF = deterioration factor, percent increase in emissions at the end of the useful life, percent

ZH = zero-hour emission rate for a given engine size category and model year when the engine is new and there is no component malfunctioning, g/hp-hr or g/kW-hr

Cumulative hours at the end of useful life = annual operating hours times useful life in years, hours

Table 89. COMMERCIAL HARBOR CRAFT EMISSION FACTOR TABLE

HP Range	Model Year	Main Engine				Auxiliary Engine			
		Nox	PM	ROG	CO	Nox	PM	ROG	CO
176-250 hp	pre-1971	16.52	0.73	1.32	3.21	14.00	0.65	1.57	4.53
	1971-1978	15.34	0.63	1.10	3.21	13.00	0.55	1.31	4.53
	1979-1983	14.16	0.52	1.00	3.21	12.00	0.46	1.19	4.53
	1984-1986	12.98	0.52	0.94	3.14	11.00	0.46	1.12	4.43
	1987-1994	12.98	0.52	0.88	3.07	11.00	0.46	1.05	4.33
	1995-1999	9.64	0.36	0.68	1.97	8.17	0.32	0.81	2.78
	2000-2003	7.31	0.36	0.68	1.97	7.31	0.32	0.81	2.78
	2004-2013	5.10	0.15	0.68	3.73	5.10	0.15	0.81	3.73
	2014-2020	3.99	0.08	0.68	3.73	3.99	0.08	0.81	3.73
1901-3300 hp	pre-1971	16.52	0.70	1.26	3.07	14.00	0.62	1.50	4.33
	1971-1978	15.34	0.60	1.05	3.07	13.00	0.53	1.25	4.33
	1979-1983	14.16	0.50	0.95	3.07	12.00	0.45	1.13	4.33
	1984-1986	12.98	0.50	0.90	3.07	11.00	0.45	1.07	4.33
	1987-1998	12.98	0.50	0.84	2.99	11.00	0.45	1.00	4.22
	1999	9.64	0.36	0.68	1.97	8.17	0.32	0.81	2.78
	2000-2006	7.31	0.36	0.68	1.97	7.31	0.32	0.81	2.78
	2007-2012	5.53	0.20	0.68	3.73	5.53	0.20	0.81	3.73
	2013-2015	4.37	0.10	0.68	3.73	4.37	0.10	0.81	3.73
	2016-2020	1.30	0.03	0.18	3.73	1.30	0.03	0.18	3.73

Note: Emission Factors in g/hp-hr

Source: CARB Emissions Estimation Methodology for Commercial Harbor Craft Operating in California, Appendix B

Table 90. Engine Deterioration Factors (DF) for Harbor Craft Diesel Engines

Power Range	PM	NO_x	SO_x	CO	HC	CO_2	N_2O	CH_4
25-50	0.31	0.06	0	0.41	0.51	0	0	0
51-250	0.44	0.14	0	0.16	0.28	0	0	0
>250	0.67	0.214	0	0.25	0.44	0	0	0

Source: POLA 2013 Emissions Inventory, Tables 4.4

Table 91. Useful Life by Harbor Craft Type and Engine Type, years

Harbor Craft Type	Main Engines	Auxiliary Engines
Assist Tug	21	23

Source: POLA 2013 Emissions Inventory, Tables 4.5

Table 92. Fuel Correction Factors for ULSD

Equipment MY	PM	NO_x	SO_x	CO	HC	CO_2	CH4	N2O
1995 and older	0.72	0.93	0.04	1	0.72	1	0.72	0.93
1996 to 2010	0.8	0.948	0.04	1	0.72	1	0.72	0.948
2011 and newer	0.852	0.948	0.04	1	0.72	1	0.72	0.948

Source: POLA 2013 Emissions Inventory, Tables 4.6

Table 93. 2014 Summary of Propulsion Engine Data by Vessel Category

Harbor	Vessel	Engine	Model Year			Horsepower			Annual Operating Hours		
Craft Type	Count	Count	Minimum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum	Average
Assist tug	14	29	1980	2012	2003	600	2540	1908	65	2,197	1462

Source: POLA 2014 Emissions Inventory, Table 4.1

Table 94. 2014 Summary of Auxiliary Engine Data by Vessel Category

Harbor	Vessel	Engine	Model Year			Horsepower			Annual Operating Hours		
Craft Type	Count	Count	Minimum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum	Average
Assist tug	14	29	1980	2013	2007	67	450	182	9	4,068	1732

Source: POLA 2014 Emissions Inventory, Table 4.2

Table 95. Habor Craft Load Factor

Type	Main Engine	Auxiliary Engine
Assist tugboat	0.31	0.43

Source:
2013 POLA Emissions Inventory, Table 4.7

Table 96. OGV Control

	VSRP Zone 3 (PZ to 20nm)	VSRP Zone 4 (20nm-40nm)	AMP
2019	95%	95%	85%
2026	95%	95%	95%
2033	95%	95%	95%
2038	95%	95%	95%

Source:

Mitigation measures based on LAHD

Table 97.Trucks Idling On-Site, CEQA Baseline (Criteria Pollutant Emissions)

				Criteria Pollutant Emission Factor (g/hr)								Criteria Pollutant Emission Rate (lb/day)							
Year	Daily Trips	Site Idling Time (min/trip)	Site Idling Time (hr/day)	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM
2013	4,505	12	901	3.929	8.709	100.810	0.122	0.035	0.034	4.475	0.032	7.8	17.3	200.2	0.2	0.1	0.1	8.9	0.1

Notes:

1. On-site iding time represents 6 minutes at the in-gate, 10 minutes on terminal, and 8 minutes at the out gate per round trip, which equates to 12 minutes per one-way trip, for all analysis years.
2. Emission factors for criteria pollutants are equal for diesel and LNG (except diesel particulate matter and GHG).
3. No idling emissions would occur from tire wear, brake wear, and paved road dust; therefore, PM10 and PM2.5 emissions are only for exhaust.
4. Trips are one-way trips.

Table 98. Trucks Idling On-Site, Proposed Project without Mitigation (Criteria Pollutant Emissions)

				Criteria Pollutant Emission Factor (g/hr)								Criteria Pollutant Emission Rate (lb/day)							
Year	Daily Trips	Site Idling Time (min/trip)	Site Idling Time (hr/day)	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM
2017	4,030	12	806	4.169	9.803	103.405	0.120	0.103	0.099	4.748	0.095	7.4	17.4	183.7	0.2	0.2	0.2	8.4	0.2
2018	4,079	12	816	4.170	9.902	102.297	0.120	0.116	0.111	4.749	0.107	7.5	17.8	184.0	0.2	0.2	0.2	8.5	0.2
2019	5,064	12	1,013	4.171	10.001	101.188	0.119	0.129	0.123	4.751	0.118	9.3	22.3	225.9	0.3	0.3	0.3	10.6	0.3
2026	6,271	12	1,254	1.326	2.715	34.167	0.109	0.003	0.003	1.510	0.002	3.7	7.5	94.5	0.3	0.0	0.0	4.2	0.0
2033	7,028	12	1,406	1.057	2.115	29.853	0.108	0.003	0.003	1.204	0.002	3.3	6.6	92.5	0.3	0.0	0.0	3.7	0.0
2038	7,028	12	1,406	0.999	1.987	28.930	0.107	0.003	0.003	1.138	0.002	3.1	6.2	89.6	0.3	0.0	0.0	3.5	0.0

Notes:

1. On-site iding time represents 6 minutes at the in-gate, 10 minutes on terminal, and 8 minutes at the out gate per round trip, which equates to 12 minutes per one-way trip, for all analysis years.
2. Emission factors for criteria pollutants are equal for diesel and LNG (except diesel particulate matter and GHG).
3. No idling emissions would occur from tire wear, brake wear, and paved road dust; therefore, PM10 and PM2.5 emissions are only for exhaust.
4. Trips are one-way trips.

Table 99. Trucks Idling On-Site, No Project Alternative (Criteria Pollutant Emissions)

				Criteria Pollutant Emission Factor (g/hr)								Criteria Pollutant Emission Rate (lb/day)							
Year	Daily Trips	Site Idling Time (min/trip)	Site Idling Time (hr/day)	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM
2017	4,030	12	806	4.169	9.803	103.405	0.120	0.103	0.099	4.748	0.095	7.4	17.4	183.7	0.2	0.2	0.2	8.4	0.2
2018	4,079	12	816	4.170	9.902	102.297	0.120	0.116	0.111	4.749	0.107	7.5	17.8	184.0	0.2	0.2	0.2	8.5	0.2
2019	4,988	12	998	4.171	10.001	101.188	0.119	0.129	0.123	4.751	0.118	9.2	22.0	222.5	0.3	0.3	0.3	10.4	0.3
2026	4,867	12	973	1.326	2.715	34.167	0.109	0.003	0.003	1.510	0.002	2.8	5.8	73.3	0.2	0.005	0.005	3.241	0.005
2033	4,815	12	963	1.057	2.115	29.853	0.108	0.003	0.003	1.204	0.002	2.2	4.5	63.4	0.2	0.0	0.0	2.6	0.0
2038	4,815	12	963	0.999	1.987	28.930	0.107	0.003	0.003	1.138	0.002	2.1	4.2	61.4	0.2	0.005	0.005	2.417	0.005

Notes:

1. On-site iding time represents 6 minutes at the in-gate, 10 minutes on terminal, and 8 minutes at the out gate per round trip, which equates to 12 minutes per one-way trip, for all analysis years (Source: YTI, 6/7/2013).
2. Emission factors for criteria pollutants are equal for diesel and LNG (except diesel particulate matter and GHG).
3. No idling emissions would occur from tire wear, brake wear, and paved road dust; therefore, PM10 and PM2.5 emissions are only for exhaust.
4. Trips are one-way trips.

Table 100. Trucks Driving On-Site, CEQA Baseline (Criteria Pollutant Emissions)

				Criteria Pollutant Emission Factor (g/mi)													Criteria Pollutant Emission Rate (lb/day)							
Year	Daily Trips	Driving Distance (mi/trip)	Total On-Site VMT (mi/day)	VOC	CO	NOx	SOx	TOG	DPM	PM10 Exhaust	PM10 Tire Wear	PM10 Brake Wear	PM10 Road Dust	PM2.5 Exhaust	PM2.5 Tire Wear	PM2.5 Brake Wear	PM2.5 Road Dust	VOC	CO	NOx	SOx	TOG	DPM	PM10	PM2.5
2013	4,505	0.75	3,379	1.311	3.738	15.797	0.018	1.493	0.057	0.063	0.036	0.062	12.592	0.060	0.009	0.026	3.148	9.8	27.8	117.7	0.1	11.1	0.4	95.0	24.2

Notes:

1. Average on-site driving distance is 1.5 miles per truck, or 0.75 miles per one-way trip (Source: YTI, 6/7/2013).
2. Emission factors shown in the table are the average of diesel and LNG trucks.
3. Trips are one-way trips.
4. On-site driving speed is 10 mph (Source: YTI, 6/7/2013).

Table 101. Trucks Driving On-Site, Proposed Project without Mitigation (Criteria Pollutant Emissions)

				Criteria Pollutant Emission Factor (g/mi)													Criteria Pollutant Emission Rate (lb/day)							
Year	Daily Trips	Driving Distance (mi/trip)	Total On-Site VMT (mi/day)	VOC	CO	NOx	SOx	TOG	DPM	PM10 Exhaust	PM10 Tire Wear	PM10 Brake Wear	PM10 Road Dust	PM2.5 Exhaust	PM2.5 Tire Wear	PM2.5 Brake Wear	PM2.5 Road Dust	VOC	CO	NOx	SOx	TOG	DPM	PM10	PM2.5
2017	4,030	0.75	3,023	1.485	4.470	19.146	0.017	1.691	0.073	0.080	0.036	0.062	12.592	0.076	0.009	0.026	3.148	9.9	29.8	127.6	0.1	11.3	0.5	85.1	21.7
2018	4,079	0.75	3,059	1.437	4.515	19.737	0.017	1.636	0.072	0.078	0.036	0.062	12.592	0.075	0.009	0.026	3.148	9.7	30.4	133.1	0.1	11.0	0.5	86.1	22.0
2019	5,064	0.75	3,798	1.388	4.561	20.327	0.017	1.581	0.071	0.077	0.036	0.062	12.592	0.074	0.009	0.026	3.148	11.6	38.2	170.2	0.1	13.2	0.6	106.9	27.3
2026	6,271	0.75	4,703	0.708	3.731	18.889	0.015	0.806	0.021	0.023	0.036	0.062	12.592	0.022	0.009	0.026	3.148	7.3	38.7	195.9	0.2	8.4	0.2	131.8	33.2
2033	7,028	0.75	5,271	0.538	3.322	18.888	0.015	0.613	0.014	0.015	0.036	0.062	12.592	0.014	0.009	0.026	3.148	6.2	38.6	219.5	0.2	7.1	0.2	147.6	37.2
2038	7,028	0.75	5,271	0.499	3.222	18.875	0.014	0.569	0.012	0.013	0.036	0.062	12.592	0.013	0.009	0.026	3.148	5.8	37.4	219.3	0.2	6.6	0.1	147.6	37.1

Notes:

1. Average on-site driving distance is 1.5 miles per truck, or 0.75 miles per one-way trip (Source: YTI, 6/7/2013).
2. Emission factors shown in the table are the average of diesel and LNG trucks based on the percent LNG trucks shown. LNG trucks are assumed to use 1.5% diesel fuel (15 percent of LNG trucks are dual-fueled and use 10% diesel fuel).
3. Trips are one-way trips.
4. On-site driving speed is 10 mph (Source: YTI, 6/7/2013).
5. The emission factors for the floating baseline are averaged over the years 2013-2052 for the 40-year average, and 2013-2082 for the 70-year average.

Table 102. Trucks Driving On-Site, No Project Alternative (Criteria Pollutant Emissions)

				Criteria Pollutant Emission Factor (g/mi)													Criteria Pollutant Emission Rate (lb/day)							
Year	Daily Trips	Driving Distance (mi/trip)	Total On-Site VMT (mi/day)	VOC	CO	NOx	SOx	TOG	DPM	PM10 Exhaust	PM10 Tire Wear	PM10 Brake Wear	PM10 Road Dust	PM2.5 Exhaust	PM2.5 Tire Wear	PM2.5 Brake Wear	PM2.5 Road Dust	VOC	CO	NOx	SOx	TOG	DPM	PM10	PM2.5
2017	4,030	0.75	3,023	1.485	4.470	19.146	0.017	1.691	0.073	0.080	0.036	0.062	12.592	0.076	0.009	0.026	3.148	9.9	29.8	127.6	0.1	11.3	0.5	85.1	21.7
2018	4,079	0.75	3,059	1.437	4.515	19.737	0.017	1.636	0.072	0.078	0.036	0.062	12.592	0.075	0.009	0.026	3.148	9.7	30.4	133.1	0.1	11.0	0.5	86.1	22.0
2019	4,988	0.75	3,741	1.388	4.561	20.327	0.017	1.581	0.071	0.077	0.036	0.062	12.592	0.074	0.009	0.026	3.148	11.5	37.6	167.6	0.1	13.0	0.6	105.3	26.9
2026	4,867	0.75	3,650	0.708	3.731	18.889	0.015	0.806	0.021	0.023	0.036	0.062	12.592	0.022	0.009	0.026	3.148	5.7	30.0	152.0	0.1	6.5	0.2	102.3	25.8
2033	4,815	0.75	3,611	0.538	3.322	18.888	0.015	0.613	0.014	0.015	0.036	0.062	12.592	0.014	0.009	0.026	3.148	4.3	26.4	150.4	0.1	4.9	0.1	101.1	25.5
2038	4,815	0.75	3,611	0.499	3.222	18.875	0.014	0.569	0.012	0.013	0.036	0.062	12.592	0.013	0.009	0.026	3.148	4.0	25.6	150.3	0.1	4.5	0.1	101.1	25.4

Notes:

1. Average on-site driving distance is 1.5 miles per truck, or 0.75 miles per one-way trip (Source: YTI, 6/7/2013).
2. Emission factors shown in the table are the average of diesel and LNG trucks based on the percent LNG trucks shown. LNG trucks are assumed to use 1.5% diesel fuel (15 percent of LNG trucks are dual-fueled and use 10% diesel fuel).
3. Trips are one-way trips.
4. On-site driving speed is 10 mph (Source: YTI, 6/7/2013).
5. The emission factors for the floating baseline are averaged over the years 2013-2052 for the 40-year average, and 2013-2082 for the 70-year average.

Table 103. Employee Vehicles Driving On-Site, CEQA Baseline (Criteria Pollutant Emissions)

				Criteria Pollutant Emission Factor (g/mi)													Criteria Pollutant Emission Rate (lb/day)							
Year	Daily Trips	Driving Distance (mi/trip)	Total On-Site VMT (mi/day)	VOC	CO	NOx	SOx	TOG	DPM	PM10 Exhaust	PM10 Tire Wear	PM10 Brake Wear	PM10 Road Dust	PM2.5 Exhaust	PM2.5 Tire Wear	PM2.5 Brake Wear	PM2.5 Road Dust	VOC	CO	NOx	SOx	TOG	DPM	PM10	PM2.5
2013	1,640	0.5	820	0.260	3.749	0.308	0.009	0.344	0.001	0.010	0.008	0.037	1.534	0.009	0.002	0.016	0.384	0.5	6.8	0.6	0.0	0.6	0.0	2.9	0.7

Notes:

1. Average on-site driving distance represents the distance from the guard shack to the ILWU parking lot (estimated using Google Earth).
2. Trips are one-way trips.
3. On-site driving speed is 10 mph (Source: YTI, 6/7/2013).
4. The emission factors for the floating baseline are averaged over the years 2013-2052 for the 40-year average, and 2013-2082 for the 70-year average.

Table 104. Employee Vehicles Driving On-Site, Proposed Project without Mitigation (Criteria Pollutant Emissions)

				Criteria Pollutant Emission Factor (g/mi)													Criteria Pollutant Emission Rate (lb/day)								
Year	Daily Trips	Driving Distance (mi/trip)	Total On-Site VMT (mi/day)	VOC	CO	NOx	SOx	TOG	DPM	PM10 Exhaust	PM10 Tire Wear	PM10 Brake Wear	PM10 Road Dust	PM2.5 Exhaust	PM2.5 Tire Wear	PM2.5 Brake Wear	PM2.5 Road Dust	VOC	CO	NOx	SOx	TOG	DPM	PM10	PM2.5	Gasoline PM10
2017	3,146	0.5	1,573	0.164	2.368	0.191	0.009	0.221	0.000	0.008	0.008	0.037	1.534	0.008	0.002	0.016	0.384	0.6	8.2	0.7	0.0	0.8	0.0	5.5	1.4	0.0
2018	3,168	0.5	1,584	0.146	2.117	0.170	0.008	0.198	0.000	0.008	0.008	0.037	1.534	0.008	0.002	0.016	0.384	0.5	7.4	0.6	0.0	0.7	0.0	5.5	1.4	0.0
2019	3,213	0.5	1,607	0.132	1.915	0.152	0.008	0.181	0.000	0.008	0.008	0.037	1.534	0.008	0.002	0.016	0.384	0.5	6.8	0.5	0.0	0.6	0.0	5.6	1.4	0.0
2026	4,057	0.5	2,029	0.093	1.201	0.085	0.007	0.126	0.000	0.008	0.008	0.037	1.534	0.007	0.002	0.016	0.384	0.4	5.4	0.4	0.0	0.6	0.0	7.1	1.8	0.0
2033	4,827	0.5	2,413	0.078	0.925	0.056	0.006	0.104	0.000	0.005	0.008	0.037	1.534	0.005	0.002	0.016	0.384	0.4	4.9	0.3	0.0	0.6	0.0	8.4	2.2	0.0
2038	4,827	0.5	2,413	0.072	0.812	0.047	0.005	0.095	0.000	0.004	0.008	0.037	1.534	0.003	0.002	0.016	0.384	0.4	4.3	0.2	0.0	0.5	0.0	8.4	2.2	0.0

Notes:

1. Average on-site driving distance represents the distance from the guard shack to the ILWU parking lot (estimated using Google Earth).
2. Trips are one-way trips.
3. On-site driving speed is 10 mph (Source: YTI, 6/7/2013).

Table 105. Employee Vehicles Driving On-Site, No Project Alternative (Criteria Pollutant Emissions)

				Criteria Pollutant Emission Factor (g/mi)													Criteria Pollutant Emission Rate (lb/day)								
Year	Daily Trips	Driving Distance (mi/trip)	Total On-Site VMT (mi/day)	VOC	CO	NOx	SOx	TOG	DPM	PM10 Exhaust	PM10 Tire Wear	PM10 Brake Wear	PM10 Road Dust	PM2.5 Exhaust	PM2.5 Tire Wear	PM2.5 Brake Wear	PM2.5 Road Dust	VOC	CO	NOx	SOx	TOG	DPM	PM10	PM2.5	Gasoline PM10
2017	3,146	0.5	1,573	0.164	2.368	0.191	0.009	0.221	0.000	0.008	0.008	0.037	1.534	0.008	0.002	0.016	0.384	0.6	8.2	0.7	0.0	0.8	0.0	5.5	1.4	0.0
2018	3,168	0.5	1,584	0.146	2.117	0.170	0.008	0.198	0.000	0.008	0.008	0.037	1.534	0.008	0.002	0.016	0.384	0.5	7.4	0.6	0.0	0.7	0.0	5.5	1.4	0.0
2019	3,191	0.5	1,595	0.132	1.915	0.152	0.008	0.181	0.000	0.008	0.008	0.037	1.534	0.008	0.002	0.016	0.384	0.5	6.7	0.5	0.0	0.6	0.0	5.6	1.4	0.0
2026	3,427	0.5	1,714	0.093	1.201	0.085	0.007	0.126	0.000	0.008	0.008	0.037	1.534	0.007	0.002	0.016	0.384	0.4	4.5	0.3	0.0	0.5	0.0	6.0	1.5	0.0
2033	4,011	0.5	2,005	0.078	0.925	0.056	0.006	0.104	0.000	0.005	0.008	0.037	1.534	0.005	0.002	0.016	0.384	0.3	4.1	0.2	0.0	0.5	0.0	7.0	1.8	0.0
2038	4,011	0.5	2,005	0.072	0.812	0.047	0.005	0.095	0.000	0.004	0.008	0.037	1.534	0.003	0.002	0.016	0.384	0.3	3.6	0.2	0.0	0.4	0.0	7.0	1.8	0.0

Notes:

1. Average on-site driving distance represents the distance from the guard shack to the ILWU parking lot (estimated using Google Earth).
2. Trips are one-way trips.
3. On-site driving speed is 10 mph (Source: YTI, 6/7/2013).

Table 106. Trucks Idling Off-Site, Without Mitigation (Criteria Pollutant Emissions)

					Criteria Pollutant Emission Factors (g/hr)								Criteria Pollutant Emission Rate (lb/day)							
Alternative	Year	Daily Trips	Site Idling Time (min/trip)	Site Idling Time (hr/day)	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM
CEQA Baseline	2013	4,505	10	751	3.929	8.709	100.810	0.122	0.035	0.034	4.475	0.032	6.5	14.4	166.9	0.2	0.1	0.1	7.4	0.1
No Project	2017	4,030	10	672	4.169	9.803	103.405	0.120	0.103	0.099	4.748	0.095	6.2	14.5	153.1	0.2	0.2	0.1	7.0	0.1
No Project	2018	4,079	10	680	4.170	9.902	102.297	0.120	0.116	0.111	4.749	0.107	6.2	14.8	153.3	0.2	0.2	0.2	7.1	0.2
No Project	2019	4,988	10	831	4.171	10.001	101.188	0.119	0.129	0.123	4.751	0.118	7.6	18.3	185.5	0.2	0.2	0.2	8.7	0.2
No Project	2026	4,867	10	811	1.326	2.715	34.167	0.109	0.003	0.003	1.510	0.002	2.4	4.9	61.1	0.2	0.0	0.0	2.7	0.0
No Project	2033	4,815	10	802	1.057	2.115	29.853	0.108	0.003	0.003	1.204	0.002	1.9	3.7	52.8	0.2	0.0	0.0	2.1	0.0
No Project	2038	4,815	10	802	0.999	1.987	28.930	0.107	0.003	0.003	1.138	0.002	1.8	3.5	51.2	0.2	0.0	0.0	2.0	0.0
Proposed Project	2017	4,030	10	672	4.169	9.803	103.405	0.120	0.103	0.099	4.748	0.095	6.2	14.5	153.1	0.2	0.2	0.1	7.0	0.1
Proposed Project	2018	4,079	10	680	4.170	9.902	102.297	0.120	0.116	0.111	4.749	0.107	6.2	14.8	153.3	0.2	0.2	0.2	7.1	0.2
Proposed Project	2019	5,064	10	844	4.171	10.001	101.188	0.119	0.129	0.123	4.751	0.118	7.8	18.6	188.3	0.2	0.2	0.2	8.8	0.2
Proposed Project	2026	6,271	10	1,045	1.326	2.715	34.167	0.109	0.003	0.003	1.510	0.002	3.1	6.3	78.7	0.3	0.0	0.0	3.5	0.0
Proposed Project	2033	7,028	10	1,171	1.057	2.115	29.853	0.108	0.003	0.003	1.204	0.002	2.7	5.5	77.1	0.3	0.0	0.0	3.1	0.0
Proposed Project	2038	7,028	10	1,171	0.999	1.987	28.930	0.107	0.003	0.003	1.138	0.002	2.6	5.1	74.7	0.3	0.0	0.0	2.9	0.0

Notes:

1. Emissions occur within the South Coast Air Basin.
2. Emission factors for criteria pollutants are equal for diesel and LNG (except diesel particulate matter and GHG).
3. No idling emissions would occur from tire wear, brake wear, and paved road dust; therefore, PM10 and PM2.5 emissions are only for exhaust.
4. Trips are one-way trips.

Table 107. Trucks Idling Off-Site, Without Mitigation (GHG Emissions)

Alternative	Year	Annual Trips	Site Idling Time (min/trip)	Site Idling Time (hr/yr)	GHG Emission Factor (g/hr)			GHG Emission Rate (metric ton/year)		
					CO2	CH4	N2O	CO2	CH4	N2O
CEQA Baseline	2013	1,112,551	10	185,425	12,955	0.18	0.42	2,402	0.03	0.08
No Project	2017	995,225	10	165,871	12,819	0.19	0.41	2,126	0.03	0.07
No Project	2018	1,007,200	10	167,867	12,769	0.19	0.41	2,143	0.03	0.07
No Project	2019	1,231,811	10	205,302	12,718	0.19	0.41	2,611	0.04	0.08
No Project	2026	1,201,917	10	200,320	11,647	0.06	0.37	2,333	0.01	0.08
No Project	2033	1,189,000	10	198,167	11,495	0.05	0.37	2,278	0.01	0.07
No Project	2038	1,189,000	10	198,167	11,463	0.05	0.37	2,272	0.01	0.07
Proposed Project	2017	995,225	10	165,871	12,819	0.19	0.41	2,126	0.03	0.07
Proposed Project	2018	1,007,200	10	167,867	12,769	0.19	0.41	2,143	0.03	0.07
Proposed Project	2019	1,250,521	10	208,420	12,718	0.19	0.41	2,651	0.04	0.09
Proposed Project	2026	1,548,654	10	258,109	11,647	0.06	0.37	3,006	0.02	0.10
Proposed Project	2033	1,735,493	10	289,249	11,495	0.05	0.37	3,325	0.01	0.11
Proposed Project	2038	1,735,493	10	289,249	11,463	0.05	0.37	3,316	0.01	0.11

Notes:

1. Emissions occur within California.
2. Emission factors shown in the table are the average of diesel and LNG trucks based on the percent LNG trucks shown. LNG trucks are assumed to use 1.5% diesel fuel (15 percent of LNG trucks are dual-fueled and use 10% diesel fuel).
3. Trips are one-way trips.

Table 108. Trucks Idling On-Site, Without Mitigation (GHG Emissions)

Alternative	Year	Annual Trips	Site Idling Time (min/trip)	Site Idling Time (hr/yr)	GHG Emission Factor (g/hr)			GHG Emission Rate (metric ton/year)		
					CO2	CH4	N2O	CO2	CH4	N2O
CEQA Baseline	2013	1,112,551	12	222,510	12,955	0.18	0.42	2,883	0.04	0.09
No Project	2017	995,225	12	199,045	12,819	0.19	0.41	2,552	0.04	0.08
No Project	2018	1,007,200	12	201,440	12,769	0.19	0.41	2,572	0.04	0.08
No Project	2019	1,231,811	12	246,362	12,718	0.19	0.41	3,133	0.05	0.10
No Project	2026	1,201,917	12	240,383	11,647	0.06	0.37	2,800	0.01	0.09
No Project	2033	1,189,000	12	237,800	11,495	0.05	0.37	2,734	0.01	0.09
No Project	2038	1,189,000	12	237,800	11,463	0.05	0.37	2,726	0.01	0.09
Proposed Project	2017	995,225	12	199,045	12,819	0.19	0.41	2,552	0.04	0.08
Proposed Project	2018	1,007,200	12	201,440	12,769	0.19	0.41	2,572	0.04	0.08
Proposed Project	2019	1,250,521	12	250,104	12,718	0.19	0.41	3,181	0.05	0.10
Proposed Project	2026	1,548,654	12	309,731	11,647	0.06	0.37	3,607	0.02	0.12
Proposed Project	2033	1,735,493	12	347,099	11,495	0.05	0.37	3,990	0.02	0.13
Proposed Project	2038	1,735,493	12	347,099	11,463	0.05	0.37	3,979	0.02	0.13

Notes:

1. On-site idling time represents 6 minutes at the in-gate, 10 minutes on terminal, and 8 minutes at the out gate per round trip, which equates to 12 minutes per one-way trip, for all analyses (Source: YTI, 6/7/2013).
2. Emission factors shown in the table are the average of diesel and LNG trucks based on the percent LNG trucks shown. LNG trucks are assumed to use 1.5% diesel fuel (15 percent of LNG trucks are dual-fueled and use 10% diesel fuel).
3. Trips are one-way trips.

Table 109. Trucks Driving On-Site, Without Mitigation (GHG Emissions)

Alternative	Year	Annual Trips	Driving Distance (mi/trip)	Total On-Site VMT (mi/yr)	GHG Emission Factor (g/mi)			GHG Emission Rate (metric ton/year)		
					CO2	CH4	N2O	CO2	CH4	N2O
CEQA Baseline	2013	1,112,551	0.75	834,413	3,180	0.08	0.06	2,654	0.07	0.05
No Project	2017	995,225	0.75	746,419	3,147	0.07	0.06	2,349	0.05	0.05
No Project	2018	1,007,200	0.75	755,400	3,136	0.07	0.06	2,369	0.05	0.05
No Project	2019	1,231,811	0.75	923,858	3,126	0.06	0.06	2,888	0.06	0.06
No Project	2026	1,201,917	0.75	901,438	2,725	0.03	0.05	2,456	0.03	0.05
No Project	2033	1,189,000	0.75	891,750	2,558	0.03	0.05	2,281	0.02	0.05
No Project	2038	1,189,000	0.75	891,750	2,514	0.02	0.05	2,242	0.02	0.05
Proposed Project	2017	995,225	0.75	746,419	3,147	0.07	0.06	2,349	0.05	0.05
Proposed Project	2018	1,007,200	0.75	755,400	3,136	0.07	0.06	2,369	0.05	0.05
Proposed Project	2019	1,250,521	0.75	937,891	3,126	0.06	0.06	2,932	0.06	0.06
Proposed Project	2026	1,548,654	0.75	1,161,490	2,725	0.03	0.05	3,165	0.04	0.06
Proposed Project	2033	1,735,493	0.75	1,301,620	2,558	0.03	0.05	3,329	0.03	0.07
Proposed Project	2038	1,735,493	0.75	1,301,620	2,514	0.02	0.05	3,273	0.03	0.07

Notes:

1. Average on-site driving distance is 1.5 miles per truck, or 0.75 miles per one-way trip (Source: YTI, 6/7/2013).
2. Emission factors shown in the table are the average of diesel and LNG trucks based on the percent LNG trucks shown. LNG trucks are assumed to use 1.5% diesel fuel (15 percent of LNG trucks are dual-fueled and use 10% diesel fuel).
3. Trips are one-way trips.
4. On-site driving speed is 10 mph (Source: YTI, 6/7/2013).

Table 110. Employee Vehicles Driving On-Site, Without Mitigation (GHG Emissions)

Alternative	Year	Annual Trips	Driving Distance (mi/trip)	Total On-Site VMT (mi/yr)	GHG Emission Factor (g/mi)			GHG Emission Rate (metric ton/year)		
					CO2	CH4	N2O	CO2	CH4	N2O
CEQA Baseline	2013	404,934	0.5	202,467	928	0.072	0.065	188	0.01	0.01
No Project	2017	776,875	0.5	388,438	853	0.050	0.065	331	0.02	0.03
No Project	2018	782,432	0.5	391,216	831	0.045	0.065	325	0.02	0.03
No Project	2019	787,989	0.5	393,994	809	0.042	0.065	319	0.02	0.03
No Project	2026	846,332	0.5	423,166	652	0.028	0.065	276	0.01	0.03
No Project	2033	990,489	0.5	495,245	561	0.022	0.065	278	0.01	0.03
No Project	2038	990,489	0.5	495,245	533	0.019	0.065	264	0.01	0.03
Proposed Project	2017	776,875	0.5	388,438	853	0.050	0.065	331	0.02	0.03
Proposed Project	2018	782,432	0.5	391,216	831	0.045	0.065	325	0.02	0.03
Proposed Project	2019	793,545	0.5	396,773	809	0.042	0.065	321	0.02	0.03
Proposed Project	2026	1,001,914	0.5	500,957	652	0.028	0.065	327	0.01	0.03
Proposed Project	2033	1,192,015	0.5	596,007	561	0.022	0.065	334	0.01	0.04
Proposed Project	2038	1,192,015	0.5	596,007	533	0.019	0.065	317	0.01	0.04

Notes:

1. Average on-site driving distance represents the distance from the guard shack to the ILWU parking lot (estimated using Google Earth).
2. Trips are one-way trips.
3. On-site driving speed is 10 mph (Source: YTI, 6/7/2013).

Table 111. Trucks and Employee Vehicles Driving Off-Site, Without Mitigation (Criteria Pollutant Emissions)

Alternative	Year	Daily Trips		Daily VMT		Criteria Pollutant Emission Rate (lb/day) - Autos								Criteria Pollutant Emission Rate (lb/day) - Trucks							
		Autos	Trucks	Autos	Trucks	VOC	CO	NOx	SOx	TOG	DPM	PM10	PM2.5	VOC	CO	NOx	SOx	TOG	DPM	PM10	PM2.5
CEQA Baseline	2013	1,640	4,505	18,289	114,269	2.9	82.3	8.3	0.2	3.7	2.0	6.4	1.9	37.5	110.9	1,808.1	4.5	42.7	7.3	52.7	21.6
No Project	2017	3,146	4,030	33,098	103,013	3.1	95.3	9.2	0.3	4.2	0.0	11.1	3.4	38.9	128.0	1,822.9	3.8	44.3	9.9	51.2	22.9
No Project	2018	3,168	4,079	33,513	104,842	3.6	101.1	9.5	0.3	4.7	0.0	11.4	3.4	47.2	153.4	1,913.0	3.9	53.7	10.2	52.5	23.5
No Project	2019	3,191	4,988	33,609	114,039	2.7	80.4	7.4	0.3	3.6	0.0	11.2	3.4	44.3	156.3	2,070.1	4.2	50.4	10.5	55.9	24.8
No Project	2026	3,427	4,867	35,838	112,685	1.9	53.3	4.3	0.2	2.5	0.0	11.2	3.4	21.5	113.5	672.1	3.8	24.5	2.7	46.1	16.4
No Project	2033	4,011	4,815	41,951	111,542	2.0	49.5	3.4	0.2	2.6	0.0	13.1	4.0	19.8	122.6	451.8	3.6	22.6	1.8	44.4	15.2
No Project	2038	4,011	4,815	41,951	111,542	1.8	43.3	2.8	0.2	2.4	0.0	13.1	3.9	18.4	118.9	382.7	3.6	21.0	1.6	44.1	15.0
Proposed Project	2017	3,146	4,030	33,098	103,013	3.1	95.3	9.2	0.3	4.2	0.0	11.1	3.4	38.9	128.0	1,822.9	3.8	44.3	9.9	51.2	22.9
Proposed Project	2018	3,168	4,079	33,513	104,842	3.6	101.1	9.5	0.3	4.7	0.0	11.4	3.4	47.2	153.4	1,913.0	3.9	53.7	10.2	52.5	23.5
Proposed Project	2019	3,213	5,064	33,829	114,838	2.7	80.9	7.5	0.3	3.6	0.0	11.3	3.4	44.0	155.5	2,079.8	4.2	50.1	10.6	56.2	25.0
Proposed Project	2026	4,057	6,271	41,901	144,436	2.2	62.6	5.0	0.3	3.0	0.0	13.1	4.0	27.6	145.2	862.4	4.8	31.4	3.5	58.8	20.9
Proposed Project	2033	4,827	7,028	49,820	155,491	2.4	59.0	4.1	0.3	3.1	0.0	15.4	4.7	28.0	172.9	641.3	5.0	31.9	2.6	61.2	21.1
Proposed Project	2038	4,827	7,028	49,820	155,491	2.2	51.6	3.4	0.3	2.9	0.0	15.4	4.6	26.0	167.7	545.0	5.0	29.6	2.3	60.9	20.7

Notes:

1. Emissions occur within the South Coast Air Basin.
2. Emissions were calculated link-by-link and summed. Link-based data were provided by the traffic study (CSI, personal communication with Sean McAtee, 7/19/2013).
3. Trips are one-way trips.
4. Because project would not be built until 2019 (2017 and 2018 are construction years), emissions for the Proposed Project in 2017 and 2018 are equal to the No Project.

Table 112. Trucks and Employee Vehicles Driving Off-Site, Without Mitigation (GHG Emissions)

Alternative	Year	Annual Trips		Annual VMT		GHG Emission Rate			GHG Emission Rate		
		Autos	Trucks	Autos	Trucks	CO2	CH4	N2O	CO2	CH4	N2O
CEQA Baseline	2013	404,934	1,112,551	4,516,348	28,218,630	1,714	0.1	0.3	47,934	0.3	1.8
No Project	2017	776,875	995,225	8,173,556	25,439,087	2,871	0.1	0.5	42,797	0.2	1.5
No Project	2018	782,432	1,007,200	8,276,048	25,890,735	3,087	0.1	0.5	44,571	0.2	1.6
No Project	2019	787,989	1,231,811	8,299,724	28,161,911	2,857	0.1	0.5	47,683	0.2	1.7
No Project	2026	846,332	1,201,917	8,850,224	27,827,554	2,428	0.1	0.6	42,709	0.1	1.5
No Project	2033	990,489	1,189,000	10,359,805	27,545,369	2,512	0.1	0.7	40,889	0.1	1.4
No Project	2038	990,489	1,189,000	10,359,805	27,545,369	2,385	0.1	0.7	40,237	0.1	1.4
Proposed Project	2017	776,875	995,225	8,173,556	25,439,087	2,871	0.1	0.5	42,797	0.2	1.5
Proposed Project	2018	782,432	1,007,200	8,276,048	25,890,735	3,087	0.1	0.5	44,571	0.2	1.6
Proposed Project	2019	793,545	1,250,521	8,354,087	28,359,179	2,877	0.1	0.5	47,927	0.2	1.7
Proposed Project	2026	1,001,914	1,548,654	10,347,534	35,668,569	2,849	0.1	0.7	54,731	0.1	1.9
Proposed Project	2033	1,192,015	1,735,493	12,302,940	38,398,417	2,997	0.1	0.8	57,090	0.1	2.0
Proposed Project	2038	1,192,015	1,735,493	12,302,940	38,398,417	2,844	0.1	0.8	56,180	0.1	2.0

Annual Adjustment Factor
246.95

Notes:

1. Emissions occur within California.
2. Emissions were calculated link-by-link and summed. Link-based data were provided by the traffic study (CSI, personal communication with Sean McAtee, 7/19/2013).
3. Trips are one-way trips.
4. Because project would not be built until 2019 (2017 and 2018 are construction years), emissions for the Proposed Project in 2017 and 2018 are equal to the No Project.

Table 113. Trucks Emissions Summary Table - Without Mitigation

		Criteria Pollutant Emission Rate (lb/day)								GHG Emission Rate (metric ton/year)		
Alternative	Year	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM	CO2	CH4	N2O
CEQA Baseline	2013	61.6	170.4	2,292.9	5.0	147.8	45.9	70.1	7.8	55,872	0.4	2.0
Proposed Project	2017	62.3	189.7	2,287.3	4.4	136.6	44.9	71.0	10.7	49,824	0.3	1.7
Proposed Project	2018	70.6	216.5	2,383.4	4.4	139.0	45.9	80.4	11.1	51,656	0.4	1.8
Proposed Project	2019	72.7	234.6	2,664.2	4.9	163.7	52.7	82.8	11.7	56,690	0.4	1.9
Proposed Project	2026	41.6	197.7	1,231.5	5.5	190.6	54.1	47.4	3.7	64,509	0.2	2.2
Proposed Project	2033	40.2	223.6	1,030.3	5.8	208.9	58.2	45.8	2.7	67,734	0.2	2.3
Proposed Project	2038	37.5	216.4	928.7	5.7	208.5	57.9	42.7	2.4	66,747	0.2	2.3
No Project	2017	62.3	189.7	2,287.3	4.4	136.6	44.9	71.0	10.7	49,824	0.3	1.7
No Project	2018	70.6	216.5	2,383.4	4.4	139.0	45.9	80.4	11.1	51,656	0.4	1.8
No Project	2019	72.5	234.2	2,645.7	4.8	161.7	52.2	82.6	11.6	56,315	0.4	1.9
No Project	2026	32.4	154.2	958.5	4.3	148.5	42.2	36.9	2.9	50,297	0.2	1.7
No Project	2033	28.2	157.3	718.4	4.1	145.5	40.7	32.2	2.0	48,181	0.1	1.6
No Project	2038	26.3	152.3	645.6	4.1	145.3	40.4	30.0	1.7	47,477	0.1	1.6

Notes:

1. On-road vehicle emissions for the Reduced Project are the same as the Proposed Project.
2. On-road vehicle emissions for the No Federal Action Alternative are the same as the No Project Alternative.
3. Criteria pollutant emissions occur within the SCAB. GHG emissions occur within California.
4. Trucks include drayage trucks and other trucks, such as fuel and delivery trucks. Drayage trucks comprise the vast majority of trips.

Table 114. Employee Vehicles Emissions Summary Table - Without Mitigation

		Criteria Pollutant Emission Rate (lb/day)								GHG Emission Rate (metric ton/year)		
Alternative	Year	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM	CO2	CH4	N2O
CEQA Baseline	2013	3.4	89.1	8.9	0.2	9.3	2.7	4.4	2.0	1,902	0.1	0.3
Proposed Project	2017	3.7	103.6	9.9	0.3	16.6	4.8	5.0	0.0	3,202	0.1	0.6
Proposed Project	2018	4.1	108.5	10.1	0.3	16.9	4.9	5.4	0.0	3,412	0.1	0.6
Proposed Project	2019	3.1	87.7	8.0	0.3	16.9	4.9	4.3	0.0	3,198	0.1	0.6
Proposed Project	2026	2.6	68.0	5.4	0.3	20.2	5.8	3.6	0.0	3,176	0.1	0.7
Proposed Project	2033	2.8	63.9	4.4	0.3	23.9	6.8	3.7	0.0	3,331	0.1	0.8
Proposed Project	2038	2.6	56.0	3.6	0.3	23.8	6.8	3.4	0.0	3,162	0.1	0.8
No Project	2017	3.7	103.6	9.9	0.3	16.6	4.8	5.0	0.0	3,202	0.1	0.6
No Project	2018	4.1	108.5	10.1	0.3	16.9	4.9	5.4	0.0	3,412	0.1	0.6
No Project	2019	3.1	87.2	8.0	0.3	16.8	4.8	4.2	0.0	3,176	0.1	0.6
No Project	2026	2.2	57.9	4.6	0.2	17.2	5.0	3.0	0.0	2,703	0.1	0.6
No Project	2033	2.3	53.5	3.7	0.2	20.1	5.8	3.1	0.0	2,790	0.1	0.7
No Project	2038	2.2	46.9	3.0	0.2	20.1	5.7	2.8	0.0	2,648	0.1	0.7

Notes:

1. On-road vehicle emissions for the Reduced Project are the same as the Proposed Project.
2. On-road vehicle emissions for the No Federal Action Alternative are the same as the No Project Alternative.
3. Criteria pollutant emissions occur within the SCAB. GHG emissions occur within California.

Table 115. Trucks Idling On-Site, Alternative 1 (Criteria Pollutant Emissions)

				Criteria Pollutant Emission Factor (g/hr)								Criteria Pollutant Emission Rate (lb/day)							
Year	Daily Trips	Site Idling Time (min/trip)	Site Idling Time (hr/day)	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM
2019	4,988	12	998	4.171	10.001	101.188	0.119	0.129	0.123	4.751	0.118	9.2	22.0	222.5	0.3	0.3	0.3	10.4	0.3
2026	4,867	12	973	1.326	2.715	34.167	0.109	0.003	0.003	1.510	0.002	2.8	5.8	73.3	0.2	0.005	0.005	3.241	0.005
2033	4,815	12	963	1.057	2.115	29.853	0.108	0.003	0.003	1.204	0.002	2.2	4.5	63.4	0.2	0.0	0.0	2.6	0.0
2038	4,815	12	963	0.999	1.987	28.930	0.107	0.003	0.003	1.138	0.002	2.1	4.2	61.4	0.2	0.005	0.005	2.417	0.005

Notes:

1. On-site iding time represents 6 minutes at the in-gate, 10 minutes on terminal, and 8 minutes at the out gate per round trip, which equates to 12 minutes per one-way trip, for all analysis years (Source: YTI, 6/7/2013).
2. Emission factors for criteria pollutants are equal for diesel and LNG (except diesel particulate matter and GHG).
3. No idling emissions would occur from tire wear, brake wear, and paved road dust; therefore, PM10 and PM2.5 emissions are only for exhaust.
4. Trips are one-way trips.

Table 116. Trucks Driving On-Site, Alternative 1 (Criteria Pollutant Emissions)

				Criteria Pollutant Emission Factor (g/mi)													Criteria Pollutant Emission Rate (lb/day)							
Year	Daily Trips	Driving Distance (mi/trip)	Total On-Site VMT (mi/day)	VOC	CO	NOx	SOx	TOG	DPM	PM10 Exhaust	PM10 Tire Wear	PM10 Brake Wear	PM10 Road Dust	PM2.5 Exhaust	PM2.5 Tire Wear	PM2.5 Brake Wear	PM2.5 Road Dust	VOC	CO	NOx	SOx	TOG	DPM	PM10	PM2.5
2019	4,988	0.75	3,741	1.388	4.561	20.327	0.017	1.581	0.071	0.077	0.036	0.062	12.592	0.074	0.009	0.026	3.148	11.5	37.6	167.6	0.1	13.0	0.6	105.3	26.9
2026	4,867	0.75	3,650	0.708	3.731	18.889	0.015	0.806	0.021	0.023	0.036	0.062	12.592	0.022	0.009	0.026	3.148	5.7	30.0	152.0	0.1	6.5	0.2	102.3	25.8
2033	4,815	0.75	3,611	0.538	3.322	18.888	0.015	0.613	0.014	0.015	0.036	0.062	12.592	0.014	0.009	0.026	3.148	4.3	26.4	150.4	0.1	4.9	0.1	101.1	25.5
2038	4,815	0.75	3,611	0.499	3.222	18.875	0.014	0.569	0.012	0.013	0.036	0.062	12.592	0.013	0.009	0.026	3.148	4.0	25.6	150.3	0.1	4.5	0.1	101.1	25.4

Notes:

1. Average on-site driving distance is 1.5 miles per truck, or 0.75 miles per one-way trip (Source: YTI, 6/7/2013).
2. Emission factors shown in the table are the average of diesel and LNG trucks based on the percent LNG trucks shown. LNG trucks are assumed to use 1.5% diesel fuel (15 percent of LNG trucks are dual-fueled and use 10% diesel fuel).
3. Trips are one-way trips.
4. On-site driving speed is 10 mph (Source: YTI, 6/7/2013).
5. The emission factors for the floating baseline are averaged over the years 2013-2052 for the 40-year average, and 2013-2082 for the 70-year average.

Table 117. Employee Vehicles Driving On-Site, Alternative 1 (Criteria Pollutant Emissions)

				Criteria Pollutant Emission Factor (g/mi)													Criteria Pollutant Emission Rate (lb/day)								
Year	Daily Trips	Driving Distance (mi/trip)	Total On-Site VMT (mi/day)	VOC	CO	NOx	SOx	TOG	DPM	PM10 Exhaust	PM10 Tire Wear	PM10 Brake Wear	PM10 Road Dust	PM2.5 Exhaust	PM2.5 Tire Wear	PM2.5 Brake Wear	PM2.5 Road Dust	VOC	CO	NOx	SOx	TOG	DPM	PM10	PM2.5	Gasoline PM10
2019	3,191	0.5	1,595	0.132	1.915	0.152	0.008	0.181	0.000	0.008	0.008	0.037	1.534	0.008	0.002	0.016	0.384	0.5	6.7	0.5	0.0	0.6	0.0	5.6	1.4	0.0
2026	3,427	0.5	1,714	0.093	1.201	0.085	0.007	0.126	0.000	0.008	0.008	0.037	1.534	0.007	0.002	0.016	0.384	0.4	4.5	0.3	0.0	0.5	0.0	6.0	1.5	0.0
2033	4,011	0.5	2,005	0.078	0.925	0.056	0.006	0.104	0.000	0.005	0.008	0.037	1.534	0.005	0.002	0.016	0.384	0.3	4.1	0.2	0.0	0.5	0.0	7.0	1.8	0.0
2038	4,011	0.5	2,005	0.072	0.812	0.047	0.005	0.095	0.000	0.004	0.008	0.037	1.534	0.003	0.002	0.016	0.384	0.3	3.6	0.2	0.0	0.4	0.0	7.0	1.8	0.0

Notes:

1. Average on-site driving distance represents the distance from the guard shack to the ILWU parking lot (estimated using Google Earth).
2. Trips are one-way trips.
3. On-site driving speed is 10 mph (Source: YTI, 6/7/2013).

Table 118. Trucks Idling Off-Site, Alternative 1 Without Mitigation (Criteria Pollutant Emissions)

					Criteria Pollutant Emission Factors (g/hr)								Criteria Pollutant Emission Rate (lb/day)							
Alternative	Year	Daily Trips	Site Idling Time (min/trip)	Site Idling Time (hr/day)	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM
Alternative 1	2019	4,988	10	831	4.171	10.001	101.188	0.119	0.129	0.123	4.751	0.118	7.6	18.3	185.5	0.2	0.2	0.2	8.7	0.2
Alternative 1	2026	4,867	10	811	1.326	2.715	34.167	0.109	0.003	0.003	1.510	0.002	2.4	4.9	61.1	0.2	0.0	0.0	2.7	0.0
Alternative 1	2033	4,815	10	802	1.057	2.115	29.853	0.108	0.003	0.003	1.204	0.002	1.9	3.7	52.8	0.2	0.0	0.0	2.1	0.0
Alternative 1	2038	4,815	10	802	0.999	1.987	28.930	0.107	0.003	0.003	1.138	0.002	1.8	3.5	51.2	0.2	0.0	0.0	2.0	0.0

Notes:

1. Emissions occur within the South Coast Air Basin.
2. Emission factors for criteria pollutants are equal for diesel and LNG (except diesel particulate matter and GHG).
3. No idling emissions would occur from tire wear, brake wear, and paved road dust; therefore, PM10 and PM2.5 emissions are only for exhaust.
4. Trips are one-way trips.

Table 119.Trucks Idling Off-Site, Alternative 1 Without Mitigation (GHG Emissions)

					GHG Emission Factor (g/hr)			GHG Emission Rate (metric ton/year)		
Alternative	Year	Annual Trips	Site Idling Time (min/trip)	Site Idling Time (hr/yr)	CO2	CH4	N2O	CO2	CH4	N2O
Alternative 1	2019	1,231,811	10	205,302	12,718	0.19	0.41	2,611	0.04	0.08
Alternative 1	2026	1,201,917	10	200,320	11,647	0.06	0.37	2,333	0.01	0.08
Alternative 1	2033	1,189,000	10	198,167	11,495	0.05	0.37	2,278	0.01	0.07
Alternative 1	2038	1,189,000	10	198,167	11,463	0.05	0.37	2,272	0.01	0.07

Notes:

1. Emissions occur within California.
2. Emission factors shown in the table are the average of diesel and LNG trucks based on the percent LNG trucks shown. LNG trucks are assumed to use 1.5% diesel fuel (15 percent of LNG trucks are dual-fueled and use 10% diesel fuel).
3. Trips are one-way trips.

Table 120. Trucks Idling On-Site, Alternative 1 Without Mitigation (GHG Emissions)

Alternative	Year	Annual Trips	Site Idling Time (min/trip)	Site Idling Time (hr/yr)	GHG Emission Factor (g/hr)			GHG Emission Rate (metric ton/year)		
					CO2	CH4	N2O	CO2	CH4	N2O
Alternative 1	2019	1,231,811	12	246,362	12,718	0.19	0.41	3,133	0.05	0.10
Alternative 1	2026	1,201,917	12	240,383	11,647	0.06	0.37	2,800	0.01	0.09
Alternative 1	2033	1,189,000	12	237,800	11,495	0.05	0.37	2,734	0.01	0.09
Alternative 1	2038	1,189,000	12	237,800	11,463	0.05	0.37	2,726	0.01	0.09

Notes:

1. On-site idling time represents 6 minutes at the in-gate, 10 minutes on terminal, and 8 minutes at the out gate per round trip, which equates to 12 minutes per one-way trip, for all analyses (Source: YTI, 6/7/2013).
2. Emission factors shown in the table are the average of diesel and LNG trucks based on the percent LNG trucks shown. LNG trucks are assumed to use 1.5% diesel fuel (15 percent of LNG trucks are dual-fueled and use 10% diesel fuel).
3. Trips are one-way trips.

Table 121. Trucks Driving On-Site, Alternative 1 Without Mitigation (GHG Emissions)

Alternative	Year	Annual Trips	Driving Distance (mi/trip)	Total On-Site VMT (mi/yr)	GHG Emission Factor (g/mi)			GHG Emission Rate (metric ton/year)		
					CO2	CH4	N2O	CO2	CH4	N2O
Alternative 1	2019	1,231,811	0.75	923,858	3,126	0.06	0.06	2,888	0.06	0.06
Alternative 1	2026	1,201,917	0.75	901,438	2,725	0.03	0.05	2,456	0.03	0.05
Alternative 1	2033	1,189,000	0.75	891,750	2,558	0.03	0.05	2,281	0.02	0.05
Alternative 1	2038	1,189,000	0.75	891,750	2,514	0.02	0.05	2,242	0.02	0.05

Notes:

1. Average on-site driving distance is 1.5 miles per truck, or 0.75 miles per one-way trip (Source: YTI, 6/7/2013).
2. Emission factors shown in the table are the average of diesel and LNG trucks based on the percent LNG trucks shown. LNG trucks are assumed to use 1.5% diesel fuel (15 percent of LNG trucks are dual-fueled and use 10% diesel fuel).
3. Trips are one-way trips.
4. On-site driving speed is 10 mph (Source: YTI, 6/7/2013).

Table 122. Employee Vehicles Driving On-Site, Alternative 1 Without Mitigation (GHG Emissions)

Alternative	Year	Annual Trips	Driving Distance (mi/trip)	Total On-Site VMT (mi/yr)	GHG Emission Factor (g/mi)			GHG Emission Rate (metric ton/year)		
					CO2	CH4	N2O	CO2	CH4	N2O
Alternative 1	2019	787,989	0.5	393,994	809	0.042	0.065	319	0.02	0.03
Alternative 1	2026	846,332	0.5	423,166	652	0.028	0.065	276	0.01	0.03
Alternative 1	2033	990,489	0.5	495,245	561	0.022	0.065	278	0.01	0.03
Alternative 1	2038	990,489	0.5	495,245	533	0.019	0.065	264	0.01	0.03

Notes:

1. Average on-site driving distance represents the distance from the guard shack to the ILWU parking lot (estimated using Google Earth).
2. Trips are one-way trips.
3. On-site driving speed is 10 mph (Source: YTI, 6/7/2013).

Table 123. Trucks and Employee Vehicles Driving Off-Site, Alternative 1 Without Mitigation (Criteria Pollutant Emissions)

Alternative	Year	Daily Trips		Daily VMT		Criteria Pollutant Emission Rate (lb/day) - Autos								Criteria Pollutant Emission Rate (lb/day) - Trucks							
		Autos	Trucks	Autos	Trucks	VOC	CO	NOx	SOx	TOG	DPM	PM10	PM2.5	VOC	CO	NOx	SOx	TOG	DPM	PM10	PM2.5
Alternative 1	2019	3,191	4,988	33,609	114,039	2.7	80.4	7.4	0.3	3.6	0.0	11.2	3.4	44.3	156.3	2,070.1	4.2	50.4	10.5	55.9	24.8
Alternative 1	2026	3,427	4,867	35,838	112,685	1.9	53.3	4.3	0.2	2.5	0.0	11.2	3.4	21.5	113.5	672.1	3.8	24.5	2.7	46.1	16.4
Alternative 1	2033	4,011	4,815	41,951	111,542	2.0	49.5	3.4	0.2	2.6	0.0	13.1	4.0	19.8	122.6	451.8	3.6	22.6	1.8	44.4	15.2
Alternative 1	2038	4,011	4,815	41,951	111,542	1.8	43.3	2.8	0.2	2.4	0.0	13.1	3.9	18.4	118.9	382.7	3.6	21.0	1.6	44.1	15.0

Notes:

1. Emissions occur within the South Coast Air Basin.
2. Emissions were calculated link-by-link and summed. Link-based data were provided by the traffic study (CSI, personal communication with Sean McAtee, 7/19/2013).
3. Trips are one-way trips.
4. Because project would not be built until 2019 (2017 and 2018 are construction years), emissions for the Proposed Project in 2017 and 2018 are equal to the No Project.

Table 124. Trucks and Employee Vehicles Driving Off-Site, Alternative 1 Without Mitigation (GHG Emissions)

Alternative	Year	Annual Trips		Annual VMT		GHG Emission Rate			GHG Emission Rate		
		Autos	Trucks	Autos	Trucks	CO2	CH4	N2O	CO2	CH4	N2O
Alternative 1	2019	787,989	1,231,811	8,299,724	28,161,911	2,857	0.1	0.5	47,683	0.2	1.7
Alternative 1	2026	846,332	1,201,917	8,850,224	27,827,554	2,428	0.1	0.6	42,709	0.1	1.5
Alternative 1	2033	990,489	1,189,000	10,359,805	27,545,369	2,512	0.1	0.7	40,889	0.1	1.4
Alternative 1	2038	990,489	1,189,000	10,359,805	27,545,369	2,385	0.1	0.7	40,237	0.1	1.4

Annual Adjustment Factor
246.95

Notes:

1. Emissions occur within California.
2. Emissions were calculated link-by-link and summed. Link-based data were provided by the traffic study (CSI, personal communication with Sean McAtee, 7/19/2013).
3. Trips are one-way trips.
4. Because project would not be built until 2019 (2017 and 2018 are construction years), emissions for the Proposed Project in 2017 and 2018 are equal to the No Project.

Table 125. Trucks Emissions Summary Table - Alternative 1 Without Mitigation

Alternative	Year	Criteria Pollutant Emission Rate (lb/day)								GHG Emission Rate (metric ton/year)		
		VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM	CO2	CH4	N2O
Alternative 1	2019	72.5	234.2	2,645.7	4.8	161.7	52.2	82.6	11.6	56,315	0.4	1.9
Alternative 1	2026	32.4	154.2	958.5	4.3	148.5	42.2	36.9	2.9	50,297	0.2	1.7
Alternative 1	2033	28.2	157.3	718.4	4.1	145.5	40.7	32.2	2.0	48,181	0.1	1.6
Alternative 1	2038	26.3	152.3	645.6	4.1	145.3	40.4	30.0	1.7	47,477	0.1	1.6

Notes:

1. On-road vehicle emissions for the Reduced Project are the same as the Proposed Project.
2. On-road vehicle emissions for the No Federal Action Alternative are the same as the No Project Alternative.
3. Criteria pollutant emissions occur within the SCAB. GHG emissions occur within California.
4. Trucks include drayage trucks and other trucks, such as fuel and delivery trucks. Drayage trucks comprise the vast majority of trips.

Table 126. Employee Vehicles Emissions Summary Table - Without Mitigation

Alternative	Year	Criteria Pollutant Emission Rate (lb/day)								GHG Emission Rate (metric ton/year)		
		VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM	CO2	CH4	N2O
Alternative 1	2019	3.1	87.2	8.0	0.3	16.8	4.8	4.2	0.0	3,176	0.1	0.6
Alternative 1	2026	2.2	57.9	4.6	0.2	17.2	5.0	3.0	0.0	2,703	0.1	0.6
Alternative 1	2033	2.3	53.5	3.7	0.2	20.1	5.8	3.1	0.0	2,790	0.1	0.7
Alternative 1	2038	2.2	46.9	3.0	0.2	20.1	5.7	2.8	0.0	2,648	0.1	0.7

Notes:

1. On-road vehicle emissions for the Reduced Project are the same as the Proposed Project.
2. On-road vehicle emissions for the No Federal Action Alternative are the same as the No Project Alternative.
3. Criteria pollutant emissions occur within the SCAB. GHG emissions occur within California.

Table 127. Trucks Idling On-Site, Alternative 3 without Mitigation (Criteria Pollutant Emissions)

				Criteria Pollutant Emission Factor (g/hr)								Criteria Pollutant Emission Rate (lb/day)							
Year	Daily Trips	Site Idling Time (min/trip)	Site Idling Time (hr/day)	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM
2019	4,933	12	987	4.171	10.001	101.188	0.119	0.129	0.123	4.751	0.118	9.1	21.8	220.1	0.3	0.3	0.3	10.3	0.3
2026	5,951	12	1,190	1.326	2.715	34.167	0.109	0.003	0.003	1.510	0.002	3.5	7.1	89.7	0.3	0.0	0.0	4.0	0.0
2033	6,516	12	1,303	1.057	2.115	29.853	0.108	0.002500	0.003	1.204	0.002	3.0	6.1	85.8	0.3	0.0	0.0	3.5	0.0
2038	6,516	12	1,303	0.999	1.987	28.930	0.107	0.002500	0.003	1.138	0.002	2.9	5.7	83.1	0.3	0.0	0.0	3.3	0.0

Notes:

1. On-site iding time represents 6 minutes at the in-gate, 10 minutes on terminal, and 8 minutes at the out gate per round trip, which equates to 12 minutes per one-way trip, for all analysis years.
2. Emission factors for criteria pollutants are equal for diesel and LNG (except diesel particulate matter and GHG).
3. No idling emissions would occur from tire wear, brake wear, and paved road dust; therefore, PM10 and PM2.5 emissions are only for exhaust.
4. Trips are one-way trips.

Table 128. Trucks Driving On-Site, Alternative 3 without Mitigation (Criteria Pollutant Emissions)

				Criteria Pollutant Emission Factor (g/mi)													Criteria Pollutant Emission Rate (lb/day)							
Year	Daily Trips	Driving Distance (mi/trip)	Total On-Site VMT (mi/day)	VOC	CO	NOx	SOx	TOG	DPM	PM10 Exhaust	PM10 Tire Wear	PM10 Brake Wear	PM10 Road Dust	PM2.5 Exhaust	PM2.5 Tire Wear	PM2.5 Brake Wear	PM2.5 Road Dust	VOC	CO	NOx	SOx	TOG	DPM	PM10	PM2.5
2019	4,933	0.75	3,700	1.388	4.561	20.327	0.017	1.581	0.071	0.077	0.036	0.062	12.592	0.074	0.009	0.026	3.148	11.3	37.2	165.8	0.1	12.9	0.6	104.1	26.6
2026	5,951	0.75	4,463	0.708	3.731	18.889	0.015	0.806	0.021	0.023	0.036	0.062	12.592	0.022	0.009	0.026	3.148	7.0	36.7	185.9	0.1	7.9	0.2	125.1	31.5
2033	6,516	0.75	4,887	0.538	3.322	18.888	0.015	0.613	0.014	0.015	0.036	0.062	12.592	0.014	0.009	0.026	3.148	5.8	35.8	203.5	0.2	6.6	0.2	136.9	34.5
2038	6,516	0.75	4,887	0.499	3.222	18.875	0.014	0.569	0.012	0.013	0.036	0.062	12.592	0.013	0.009	0.026	3.148	5.4	34.7	203.4	0.2	6.1	0.1	136.9	34.4

Notes:

1. Average on-site driving distance is 1.5 miles per truck, or 0.75 miles per one-way trip (Source: YTI, 6/7/2013).
2. Emission factors shown in the table are the average of diesel and LNG trucks based on the percent LNG trucks shown. LNG trucks are assumed to use 1.5% diesel fuel (15 percent of LNG trucks are dual-fueled and use 10% diesel fuel).
3. Trips are one-way trips.
4. On-site driving speed is 10 mph (Source: YTI, 6/7/2013).
5. The emission factors for the floating baseline are averaged over the years 2013-2052 for the 40-year average, and 2013-2082 for the 70-year average.

Table 129. Employee Vehicles Driving On-Site, Alternative 3 without Mitigation (Criteria Pollutant Emissions)

				Criteria Pollutant Emission Factor (g/mi)													Criteria Pollutant Emission Rate (lb/day)								
Year	Daily Trips	Driving Distance (mi/trip)	Total On-Site VMT (mi/day)	VOC	CO	NOx	SOx	TOG	DPM	PM10 Exhaust	PM10 Tire Wear	PM10 Brake Wear	PM10 Road Dust	PM2.5 Exhaust	PM2.5 Tire Wear	PM2.5 Brake Wear	PM2.5 Road Dust	VOC	CO	NOx	SOx	TOG	DPM	PM10	PM2.5	Gasoline PM10
2019	3,165	0.5	1,582	0.132	1.915	0.152	0.008	0.181	0.000	0.008	0.008	0.037	1.534	0.008	0.002	0.016	0.384	0.5	6.7	0.5	0.0	0.6	0.0	5.5	1.4	0.0
2026	3,915	0.5	1,957	0.093	1.201	0.085	0.007	0.126	0.000	0.008	0.008	0.037	1.534	0.007	0.002	0.016	0.384	0.4	5.2	0.4	0.0	0.5	0.0	6.8	1.8	0.0
2033	4,639	0.5	2,319	0.078	0.925	0.056	0.006	0.104	0.000	0.005	0.008	0.037	1.534	0.005	0.002	0.016	0.384	0.4	4.7	0.3	0.0	0.5	0.0	8.1	2.1	0.0
2038	4,639	0.5	2,319	0.072	0.812	0.047	0.005	0.095	0.000	0.004	0.008	0.037	1.534	0.003	0.002	0.016	0.384	0.4	4.2	0.2	0.0	0.5	0.0	8.1	2.1	0.0

Notes:

1. Average on-site driving distance represents the distance from the guard shack to the ILWU parking lot (estimated using Google Earth).
2. Trips are one-way trips.
3. On-site driving speed is 10 mph (Source: YTI, 6/7/2013).

Table 130. Trucks Idling Off-Site, Alternative 3 Without Mitigation (Criteria Pollutant Emissions)

					Criteria Pollutant Emission Factors (g/hr)								Criteria Pollutant Emission Rate (lb/day)							
Alternative	Year	Daily Trips	Site Idling Time (min/trip)	Site Idling Time (hr/day)	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM
Alternative 3	2019	4,933	10	822	4.171	10.001	101.188	0.119	0.129	0.123	4.751	0.118	7.6	18.1	183.4	0.2	0.2	0.2	8.6	0.2
Alternative 3	2026	5,951	10	992	1.326	2.715	34.167	0.109	0.003	0.003	1.510	0.002	2.9	5.9	74.7	0.2	0.0	0.0	3.3	0.0
Alternative 3	2033	6,516	10	1,086	1.057	2.115	29.853	0.108	0.003	0.003	1.204	0.002	2.5	5.1	71.5	0.3	0.0	0.0	2.9	0.0
Alternative 3	2038	6,516	10	1,086	0.999	1.987	28.930	0.107	0.003	0.003	1.138	0.002	2.4	4.8	69.3	0.3	0.0	0.0	2.7	0.0

Notes:

1. Emissions occur within the South Coast Air Basin.
2. Emission factors for criteria pollutants are equal for diesel and LNG (except diesel particulate matter and GHG).
3. No idling emissions would occur from tire wear, brake wear, and paved road dust; therefore, PM10 and PM2.5 emissions are only for exhaust.
4. Trips are one-way trips.

Table 131. Trucks Idling Off-Site, Alternative 3 Without Mitigation (GHG Emissions)

					GHG Emission Factor (g/hr)			GHG Emission Rate (metric ton/year)		
Alternative	Year	Annual Trips	Site Idling Time (min/trip)	Site Idling Time (hr/yr)	CO2	CH4	N2O	CO2	CH4	N2O
Alternative 3	2019	1,218,240	10	203,040	12,718	0.19	0.41	2,582	0.04	0.08
Alternative 3	2026	1,469,632	10	244,939	11,647	0.06	0.37	2,853	0.02	0.09
Alternative 3	2033	1,609,228	10	268,205	11,495	0.05	0.37	3,083	0.01	0.10
Alternative 3	2038	1,609,228	10	268,205	11,463	0.05	0.37	3,074	0.01	0.10

Notes:

1. Emissions occur within California.
2. Emission factors shown in the table are the average of diesel and LNG trucks based on the percent LNG trucks shown. LNG trucks are assumed to use 1.5% diesel fuel (15 percent of LNG trucks are dual-fueled and use 10% diesel fuel).
3. Trips are one-way trips.

Table 132. Trucks Idling On-Site, Alternative 3 Without Mitigation (GHG Emissions)

Alternative	Year	Annual Trips	Site Idling Time (min/trip)	Site Idling Time (hr/yr)	GHG Emission Factor (g/hr)			GHG Emission Rate (metric ton/year)		
					CO2	CH4	N2O	CO2	CH4	N2O
Alternative 3	2019	1,218,240	12	243,648	12,718	0.19	0.41	3,099	0.05	0.10
Alternative 3	2026	1,469,632	12	293,926	11,647	0.06	0.37	3,423	0.02	0.11
Alternative 3	2033	1,609,228	12	321,846	11,495	0.05	0.37	3,700	0.02	0.12
Alternative 3	2038	1,609,228	12	321,846	11,463	0.05	0.37	3,689	0.01	0.12

Notes:

1. On-site idling time represents 6 minutes at the in-gate, 10 minutes on terminal, and 8 minutes at the out gate per round trip, which equates to 12 minutes per one-way trip, for all analyses (Source: YTI, 6/7/2013).
2. Emission factors shown in the table are the average of diesel and LNG trucks based on the percent LNG trucks shown. LNG trucks are assumed to use 1.5% diesel fuel (15 percent of LNG trucks are dual-fueled and use 10% diesel fuel).
3. Trips are one-way trips.

Table 133. Trucks Driving On-Site, Alternative 3 Without Mitigation (GHG Emissions)

Alternative	Year	Annual Trips	Driving Distance (mi/trip)	Total On-Site VMT (mi/yr)	GHG Emission Factor (g/mi)			GHG Emission Rate (metric ton/year)		
					CO2	CH4	N2O	CO2	CH4	N2O
Alternative 3	2019	1,218,240	0.75	913,680	3,126	0.06	0.06	2,856	0.06	0.05
Alternative 3	2026	1,469,632	0.75	1,102,224	2,725	0.03	0.05	3,003	0.04	0.06
Alternative 3	2033	1,609,228	0.75	1,206,921	2,558	0.03	0.05	3,087	0.03	0.06
Alternative 3	2038	1,609,228	0.75	1,206,921	2,514	0.02	0.05	3,035	0.03	0.06

Notes:

1. Average on-site driving distance is 1.5 miles per truck, or 0.75 miles per one-way trip (Source: YTI, 6/7/2013).
2. Emission factors shown in the table are the average of diesel and LNG trucks based on the percent LNG trucks shown. LNG trucks are assumed to use 1.5% diesel fuel (15 percent of LNG trucks are dual-fueled and use 10% diesel fuel).
3. Trips are one-way trips.
4. On-site driving speed is 10 mph (Source: YTI, 6/7/2013).

Table 134. Employee Vehicles Driving On-Site, Alternative 3 Without Mitigation (GHG Emissions)

Alternative	Year	Annual Trips	Driving Distance (mi/trip)	Total On-Site VMT (mi/yr)	GHG Emission Factor (g/mi)			GHG Emission Rate (metric ton/year)		
					CO2	CH4	N2O	CO2	CH4	N2O
Alternative 3	2019	781,506	0.5	390,753	809	0.042	0.065	316	0.02	0.03
Alternative 3	2026	966,723	0.5	483,362	652	0.028	0.065	315	0.01	0.03
Alternative 3	2033	1,145,530	0.5	572,765	561	0.022	0.065	321	0.01	0.04
Alternative 3	2038	1,145,530	0.5	572,765	533	0.019	0.065	305	0.01	0.04

Notes:

1. Average on-site driving distance represents the distance from the guard shack to the ILWU parking lot (estimated using Google Earth).
2. Trips are one-way trips.
3. On-site driving speed is 10 mph (Source: YTI, 6/7/2013).

Table 135. Trucks and Employee Vehicles Driving Off-Site, Alternative 3 Without Mitigation (Criteria Pollutant Emissions)

Alternative	Year	Daily Trips		Daily VMT		Criteria Pollutant Emission Rate (lb/day) - Autos								Criteria Pollutant Emission Rate (lb/day) - Trucks							
		Autos	Trucks	Autos	Trucks	VOC	CO	NOx	SOx	TOG	DPM	PM10	PM2.5	VOC	CO	NOx	SOx	TOG	DPM	PM10	PM2.5
Alternative 3	2019	3,165	4,933	33,361	111,597	2.6	79.8	7.4	0.3	3.6	0.0	11.2	3.4	42.9	151.6	2,022.3	4.1	48.9	10.3	54.7	24.3
Alternative 3	2026	3,915	5,951	40,478	136,920	2.2	60.4	4.8	0.2	2.9	0.0	12.7	3.9	26.2	137.9	818.2	4.6	29.8	3.3	55.8	19.8
Alternative 3	2033	4,639	6,516	48,098	145,444	2.3	56.9	3.9	0.3	3.0	0.0	15.0	4.5	26.1	161.1	596.7	4.7	29.7	2.4	57.5	19.8
Alternative 3	2038	4,639	6,516	48,098	145,444	2.1	49.8	3.3	0.2	2.8	0.0	14.9	4.5	24.2	156.3	506.7	4.6	27.6	2.1	57.2	19.5

Notes:

1. Emissions occur within the South Coast Air Basin.
2. Emissions were calculated link-by-link and summed. Link-based data were provided by the traffic study (CSI, personal communication with Sean McAtee, 7/19/2013).
3. Trips are one-way trips.
4. Because project would not be built until 2019 (2017 and 2018 are construction years), emissions for the Proposed Project in 2017 and 2018 are equal to the No Project.

Table 136. Trucks and Employee Vehicles Driving Off-Site, Alternative 3 Without Mitigation (GHG Emissions)

Alternative	Year	Annual Trips		Annual VMT		GHG Emission Rate			GHG Emission Rate		
		Autos	Trucks	Autos	Trucks	CO2	CH4	N2O	CO2	CH4	N2O
Alternative 3	2019	781,506	1,218,240	8,238,432	27,558,832	2,835	0.1	0.5	46,594	0.2	1.7
Alternative 3	2026	966,723	1,469,632	9,996,122	33,812,316	2,751	0.1	0.6	51,894	0.1	1.8
Alternative 3	2033	1,145,530	1,609,228	11,877,680	35,917,393	2,891	0.1	0.8	53,376	0.1	1.9
Alternative 3	2038	1,145,530	1,609,228	11,877,680	35,917,393	2,744	0.1	0.8	52,525	0.1	1.8

Annual Adjustment Factor
246.95

Notes:

1. Emissions occur within California.
2. Emissions were calculated link-by-link and summed. Link-based data were provided by the traffic study (CSI, personal communication with Sean McAtee, 7/19/2013).
3. Trips are one-way trips.
4. Because project would not be built until 2019 (2017 and 2018 are construction years), emissions for the Proposed Project in 2017 and 2018 are equal to the No Project.

Table 137. Trucks Emissions Summary Table - Without Mitigation

Alternative	Year	Criteria Pollutant Emission Rate (lb/day)								GHG Emission Rate (metric ton/year)		
		VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM	CO2	CH4	N2O
Alternative 3	2019	70.9	228.7	2,591.6	4.7	159.4	51.4	80.7	11.3	55,131	0.4	1.9
Alternative 3	2026	39.5	187.7	1,168.4	5.2	181.0	51.4	45.0	3.5	61,173	0.2	2.1
Alternative 3	2033	37.4	208.1	957.4	5.4	194.4	54.2	42.7	2.6	63,246	0.2	2.1
Alternative 3	2038	34.9	201.4	862.4	5.4	194.1	53.9	39.7	2.3	62,324	0.2	2.1

Notes:

1. On-road vehicle emissions for the Reduced Project are the same as the Proposed Project.
2. On-road vehicle emissions for the No Federal Action Alternative are the same as the No Project Alternative.
3. Criteria pollutant emissions occur within the SCAB. GHG emissions occur within California.
4. Trucks include drayage trucks and other trucks, such as fuel and delivery trucks. Drayage trucks comprise the vast majority of trips.

Table 138. Employee Vehicles Emissions Summary Table - Without Mitigation

Alternative	Year	Criteria Pollutant Emission Rate (lb/day)								GHG Emission Rate (metric ton/year)		
		VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM	CO2	CH4	N2O
Alternative 3	2019	3.1	86.4	7.9	0.3	16.7	4.8	4.2	0.0	3,151	0.1	0.6
Alternative 3	2026	2.6	65.6	5.2	0.3	19.6	5.6	3.4	0.0	3,066	0.1	0.7
Alternative 3	2033	2.7	61.6	4.2	0.3	23.1	6.6	3.5	0.0	3,213	0.1	0.8
Alternative 3	2038	2.5	54.0	3.5	0.3	23.0	6.6	3.3	0.0	3,049	0.1	0.8

Notes:

1. On-road vehicle emissions for the Reduced Project are the same as the Proposed Project.
2. On-road vehicle emissions for the No Federal Action Alternative are the same as the No Project Alternative.
3. Criteria pollutant emissions occur within the SCAB. GHG emissions occur within California.

Table 139. Trucks Idling On-Site, Alternative 4 without Mitigation (Criteria Pollutant Emissions)

				Criteria Pollutant Emission Factor (g/hr)								Criteria Pollutant Emission Rate (lb/day)							
Year	Daily Trips	Site Idling Time (min/trip)	Site Idling Time (hr/day)	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM
2019	4,791	12	958	4.171	10.001	101.188	0.119	0.129	0.123	4.751	0.118	8.8	21.1	213.8	0.3	0.3	0.3	10.0	0.3
2026	5,613	12	1,123	1.326	2.715	34.167	0.109	0.003	0.003	1.510	0.002	3.3	6.7	84.6	0.3	0.0	0.0	3.7	0.0
2033	5,985	12	1,197	1.057	2.115	29.853	0.108	0.003	0.003	1.204	0.002	2.8	5.6	78.8	0.3	0.0	0.0	3.2	0.0
2038	5,985	12	1,197	0.999	1.987	28.930	0.107	0.003	0.003	1.138	0.002	2.6	5.2	76.3	0.3	0.0	0.0	3.0	0.0

Notes:

1. On-site iding time represents 6 minutes at the in-gate, 10 minutes on terminal, and 8 minutes at the out gate per round trip, which equates to 12 minutes per one-way trip, for all analysis years.
2. Emission factors for criteria pollutants are equal for diesel and LNG (except diesel particulate matter and GHG).
3. No idling emissions would occur from tire wear, brake wear, and paved road dust; therefore, PM10 and PM2.5 emissions are only for exhaust.
4. Trips are one-way trips.

Table 140. Trucks Driving On-Site, Alternative 4 without Mitigation (Criteria Pollutant Emissions)

				Criteria Pollutant Emission Factor (g/mi)													Criteria Pollutant Emission Rate (lb/day)							
Year	Daily Trips	Driving Distance (mi/trip)	Total On-Site VMT (mi/day)	VOC	CO	NOx	SOx	TOG	DPM	PM10 Exhaust	PM10 Tire Wear	PM10 Brake Wear	PM10 Road Dust	PM2.5 Exhaust	PM2.5 Tire Wear	PM2.5 Brake Wear	PM2.5 Road Dust	VOC	CO	NOx	SOx	TOG	DPM	PM10	PM2.5
2019	4,791	0.75	3,593	1.388	4.561	20.327	0.017	1.581	0.071	0.077	0.036	0.062	12.592	0.074	0.009	0.026	3.148	11.0	36.1	161.0	0.1	12.5	0.6	101.1	25.8
2026	5,613	0.75	4,210	0.708	3.731	18.889	0.015	0.806	0.021	0.023	0.036	0.062	12.592	0.022	0.009	0.026	3.148	6.6	34.6	175.3	0.1	7.5	0.2	118.0	29.8
2033	5,985	0.75	4,488	0.538	3.322	18.888	0.015	0.613	0.014	0.015	0.036	0.062	12.592	0.014	0.009	0.026	3.148	5.3	32.9	186.9	0.1	6.1	0.1	125.7	31.6
2038	5,985	0.75	4,488	0.499	3.222	18.875	0.014	0.569	0.012	0.013	0.036	0.062	12.592	0.013	0.009	0.026	3.148	4.9	31.9	186.8	0.1	5.6	0.1	125.7	31.6

Notes:

1. Average on-site driving distance is 1.5 miles per truck, or 0.75 miles per one-way trip (Source: YTI, 6/7/2013).
2. Emission factors shown in the table are the average of diesel and LNG trucks based on the percent LNG trucks shown. LNG trucks are assumed to use 1.5% diesel fuel (15 percent of LNG trucks are dual-fueled and use 10% diesel fuel).
3. Trips are one-way trips.
4. On-site driving speed is 10 mph (Source: YTI, 6/7/2013).
5. The emission factors for the floating baseline are averaged over the years 2013-2052 for the 40-year average, and 2013-2082 for the 70-year average.

Table 141. Employee Vehicles Driving On-Site, Alternative 4 without Mitigation (Criteria Pollutant Emissions)

				Criteria Pollutant Emission Factor (g/mi)													Criteria Pollutant Emission Rate (lb/day)								
Year	Daily Trips	Driving Distance (mi/trip)	Total On-Site VMT (mi/day)	VOC	CO	NOx	SOx	TOG	DPM	PM10 Exhaust	PM10 Tire Wear	PM10 Brake Wear	PM10 Road Dust	PM2.5 Exhaust	PM2.5 Tire Wear	PM2.5 Brake Wear	PM2.5 Road Dust	VOC	CO	NOx	SOx	TOG	DPM	PM10	PM2.5	Gasoline PM10
2019	3,116	0.5	1,558	0.132	1.915	0.152	0.008	0.181	0.000	0.008	0.008	0.037	1.534	0.008	0.002	0.016	0.384	0.5	6.6	0.5	0.0	0.6	0.0	5.5	1.4	0.0
2026	3,765	0.5	1,882	0.093	1.201	0.085	0.007	0.126	0.000	0.008	0.008	0.037	1.534	0.007	0.002	0.016	0.384	0.4	5.0	0.4	0.0	0.5	0.0	6.6	1.7	0.0
2033	4,443	0.5	2,221	0.078	0.925	0.056	0.006	0.104	0.000	0.005	0.008	0.037	1.534	0.005	0.002	0.016	0.384	0.4	4.5	0.3	0.0	0.5	0.0	7.8	2.0	0.0
2038	4,443	0.5	2,221	0.072	0.812	0.047	0.005	0.095	0.000	0.004	0.008	0.037	1.534	0.003	0.002	0.016	0.384	0.4	4.0	0.2	0.0	0.5	0.0	7.8	2.0	0.0

Notes:

1. Average on-site driving distance represents the distance from the guard shack to the ILWU parking lot (estimated using Google Earth).
2. Trips are one-way trips.
3. On-site driving speed is 10 mph (Source: YTI, 6/7/2013).

Table 142. Trucks Idling Off-Site, Alternative 4 Without Mitigation (Criteria Pollutant Emissions)

					Criteria Pollutant Emission Factors (g/hr)								Criteria Pollutant Emission Rate (lb/day)							
Alternative	Year	Daily Trips	Site Idling Time (min/trip)	Site Idling Time (hr/day)	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM
Alternative 4	2019	4,791	10	799	4.171	10.001	101.188	0.119	0.129	0.123	4.751	0.118	7.3	17.6	178.1	0.2	0.2	0.2	8.4	0.2
Alternative 4	2026	5,613	10	936	1.326	2.715	34.167	0.109	0.003	0.003	1.510	0.002	2.7	5.6	70.5	0.2	0.0	0.0	3.1	0.0
Alternative 4	2033	5,985	10	997	1.057	2.115	29.853	0.108	0.003	0.003	1.204	0.002	2.3	4.7	65.6	0.2	0.0	0.0	2.6	0.0
Alternative 4	2038	5,985	10	997	0.999	1.987	28.930	0.107	0.003	0.003	1.138	0.002	2.2	4.4	63.6	0.2	0.0	0.0	2.5	0.0

Notes:

1. Emissions occur within the South Coast Air Basin.
2. Emission factors for criteria pollutants are equal for diesel and LNG (except diesel particulate matter and GHG).
3. No idling emissions would occur from tire wear, brake wear, and paved road dust; therefore, PM10 and PM2.5 emissions are only for exhaust.
4. Trips are one-way trips.

Table 143. Trucks Idling Off-Site, Alternative 4 Without Mitigation (GHG Emissions)

Alternative	Year	Annual Trips	Site Idling Time (min/trip)	Site Idling Time (hr/yr)	GHG Emission Factor (g/hr)			GHG Emission Rate (metric ton/year)		
					CO2	CH4	N2O	CO2	CH4	N2O
Alternative 4	2019	1,183,169	10	197,195	12,718	0.19	0.41	2,508	0.04	0.08
Alternative 4	2026	1,386,208	10	231,035	11,647	0.06	0.37	2,691	0.01	0.09
Alternative 4	2033	1,477,899	10	246,317	11,495	0.05	0.37	2,831	0.01	0.09
Alternative 4	2038	1,477,899	10	246,317	11,463	0.05	0.37	2,824	0.01	0.09

Notes:

1. Emissions occur within California.
2. Emission factors shown in the table are the average of diesel and LNG trucks based on the percent LNG trucks shown. LNG trucks are assumed to use 1.5% diesel fuel (15 percent of LNG trucks are dual-fueled and use 10% diesel fuel).
3. Trips are one-way trips.

Table 144. Trucks Idling On-Site, Alternative 4 Without Mitigation (GHG Emissions)

Alternative	Year	Annual Trips	Site Idling Time (min/trip)	Site Idling Time (hr/yr)	GHG Emission Factor (g/hr)			GHG Emission Rate (metric ton/year)		
					CO2	CH4	N2O	CO2	CH4	N2O
Alternative 4	2019	1,183,169	12	236,634	12,718	0.19	0.41	3,010	0.05	0.10
Alternative 4	2026	1,386,208	12	277,242	11,647	0.06	0.37	3,229	0.02	0.10
Alternative 4	2033	1,477,899	12	295,580	11,495	0.05	0.37	3,398	0.01	0.11
Alternative 4	2038	1,477,899	12	295,580	11,463	0.05	0.37	3,388	0.01	0.11

Notes:

1. On-site idling time represents 6 minutes at the in-gate, 10 minutes on terminal, and 8 minutes at the out gate per round trip, which equates to 12 minutes per one-way trip, for all analyses (Source: YTI, 6/7/2013).
2. Emission factors shown in the table are the average of diesel and LNG trucks based on the percent LNG trucks shown. LNG trucks are assumed to use 1.5% diesel fuel (15 percent of LNG trucks are dual-fueled and use 10% diesel fuel).
3. Trips are one-way trips.

Table 145. Trucks Driving On-Site, Alternative 4 Without Mitigation (GHG Emissions)

Alternative	Year	Annual Trips	Driving Distance (mi/trip)	Total On-Site VMT (mi/yr)	GHG Emission Factor (g/mi)			GHG Emission Rate (metric ton/year)		
					CO2	CH4	N2O	CO2	CH4	N2O
Alternative 4	2019	1,183,169	0.75	887,377	3,126	0.06	0.06	2,774	0.06	0.05
Alternative 4	2026	1,386,208	0.75	1,039,656	2,725	0.03	0.05	2,833	0.03	0.06
Alternative 4	2033	1,477,899	0.75	1,108,425	2,558	0.03	0.05	2,835	0.03	0.06
Alternative 4	2038	1,477,899	0.75	1,108,425	2,514	0.02	0.05	2,787	0.03	0.06

Notes:

1. Average on-site driving distance is 1.5 miles per truck, or 0.75 miles per one-way trip (Source: YTI, 6/7/2013).
2. Emission factors shown in the table are the average of diesel and LNG trucks based on the percent LNG trucks shown. LNG trucks are assumed to use 1.5% diesel fuel (15 percent of LNG trucks are dual-fueled and use 10% diesel fuel).
3. Trips are one-way trips.
4. On-site driving speed is 10 mph (Source: YTI, 6/7/2013).

Table 146. Employee Vehicles Driving On-Site, Alternative 4 Without Mitigation (GHG Emissions)

Alternative	Year	Annual Trips	Driving Distance (mi/trip)	Total On-Site VMT (mi/yr)	GHG Emission Factor (g/mi)			GHG Emission Rate (metric tpy)		
					CO2	CH4	N2O	CO2	CH4	N2O
Alternative 4	2019	769,467	0.5	384,733	809	0.042	0.065	311	0.02	0.02
Alternative 4	2026	929,680	0.5	464,840	652	0.028	0.065	303	0.01	0.03
Alternative 4	2033	1,097,127	0.5	548,564	561	0.022	0.065	308	0.01	0.04
Alternative 4	2038	1,097,127	0.5	548,564	533	0.019	0.065	292	0.01	0.04

Notes:

1. Average on-site driving distance represents the distance from the guard shack to the ILWU parking lot (estimated using Google Earth).
2. Trips are one-way trips.
3. On-site driving speed is 10 mph (Source: YTI, 6/7/2013).

Table 147. Trucks and Employee Vehicles Driving Off-Site, Alternative 4 Without Mitigation (Criteria Pollutant Emissions)

Alternative	Year	Daily Trips		Daily VMT		Criteria Pollutant Emission Rate (lb/day) - Autos								Criteria Pollutant Emission Rate (lb/day) - Trucks							
		Autos	Trucks	Autos	Trucks	VOC	CO	NOx	SOx	TOG	DPM	PM10	PM2.5	VOC	CO	NOx	SOx	TOG	DPM	PM10	PM2.5
Alternative 4	2019	3,116	4,791	32,909	108,308	2.6	78.7	7.3	0.3	3.5	0.0	11.0	3.3	41.5	146.7	1,962.0	4.0	47.3	10.0	53.0	23.6
Alternative 4	2026	3,765	5,613	39,055	129,094	2.1	58.2	4.7	0.2	2.8	0.0	12.3	3.7	24.6	129.5	769.7	4.3	28.0	3.1	52.7	18.7
Alternative 4	2033	4,443	5,985	46,100	134,150	2.2	54.5	3.8	0.2	2.9	0.0	14.4	4.4	23.9	147.3	545.9	4.3	27.2	2.2	53.2	18.3
Alternative 4	2038	4,443	5,985	46,100	134,150	2.0	47.7	3.1	0.2	2.7	0.0	14.4	4.3	22.2	142.9	462.9	4.3	25.2	2.0	52.9	18.0

Notes:

1. Emissions occur within the South Coast Air Basin.
2. Emissions were calculated link-by-link and summed. Link-based data were provided by the traffic study (CSI, personal communication with Sean McAtee, 7/19/2013).
3. Trips are one-way trips.
4. Because project would not be built until 2019 (2017 and 2018 are construction years), emissions for the Proposed Project in 2017 and 2018 are equal to the No Project.

Table 148. Trucks and Employee Vehicles Driving Off-Site, Alternative 4 Without Mitigation (GHG Emissions)

		Annual Trips		Annual VMT		GHG Emission Rate			GHG Emission Rate		
Alternative	Year	Autos	Trucks	Autos	Trucks	CO2	CH4	N2O	CO2	CH4	N2O
Alternative 4	2019	769,467	1,183,169	8,126,960	26,746,635	2,797	0.1	0.5	45,205	0.2	1.6
Alternative 4	2026	929,680	1,386,208	9,644,640	31,879,759	2,652	0.1	0.6	48,905	0.1	1.7
Alternative 4	2033	1,097,127	1,477,899	11,384,473	33,128,465	2,770	0.1	0.7	49,180	0.1	1.7
Alternative 4	2038	1,097,127	1,477,899	11,384,473	33,128,465	2,629	0.1	0.7	48,396	0.1	1.7

Annual Adjustment Factor
246.95

Notes:

1. Emissions occur within California.
2. Emissions were calculated link-by-link and summed. Link-based data were provided by the traffic study (CSI, personal communication with Sean McAtee, 7/19/2013).
3. Trips are one-way trips.
4. Because project would not be built until 2019 (2017 and 2018 are construction years), emissions for the Proposed Project in 2017 and 2018 are equal to the No Project.

Table 149. Trucks Emissions Summary Table - Without Mitigation

		Criteria Pollutant Emission Rate (lb/day)								GHG Emission Rate (metric ton/year)		
Alternative	Year	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM	CO2	CH4	N2O
Alternative 4	2019	68.7	221.6	2,514.9	4.6	154.7	49.8	78.2	11.0	53,496	0.4	1.8
Alternative 4	2026	37.1	176.4	1,100.0	4.9	170.7	48.5	42.3	3.3	57,658	0.2	2.0
Alternative 4	2033	34.3	190.4	877.2	5.0	178.9	49.9	39.1	2.4	58,245	0.2	2.0
Alternative 4	2038	31.9	184.4	789.7	4.9	178.6	49.6	36.4	2.1	57,395	0.2	1.9

Notes:

1. On-road vehicle emissions for the Reduced Project are the same as the Proposed Project.
2. On-road vehicle emissions for the No Federal Action Alternative are the same as the No Project Alternative.
3. Criteria pollutant emissions occur within the SCAB. GHG emissions occur within California.
4. Trucks include drayage trucks and other trucks, such as fuel and delivery trucks. Drayage trucks comprise the vast majority of trips.

Table 150. Employee Vehicles Emissions Summary Table - Without Mitigation

		Criteria Pollutant Emission Rate (lb/day)								GHG Emission Rate (metric ton/year)		
Alternative	Year	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM	CO2	CH4	N2O
Alternative 4	2019	3.0	85.2	7.8	0.3	16.5	4.7	4.1	0.0	3,108	0.1	0.6
Alternative 4	2026	2.5	63.2	5.0	0.3	18.8	5.4	3.3	0.0	2,955	0.1	0.7
Alternative 4	2033	2.6	59.0	4.0	0.3	22.2	6.3	3.4	0.0	3,078	0.1	0.8
Alternative 4	2038	2.4	51.7	3.4	0.3	22.1	6.3	3.1	0.0	2,921	0.1	0.8

Notes:

1. On-road vehicle emissions for the Reduced Project are the same as the Proposed Project.
2. On-road vehicle emissions for the No Federal Action Alternative are the same as the No Project Alternative.
3. Criteria pollutant emissions occur within the SCAB. GHG emissions occur within California.

Table 151. Trucks Idling On-Site, Alternative 5 without Mitigation (Criteria Pollutant Emissions)

				Criteria Pollutant Emission Factor (g/hr)								Criteria Pollutant Emission Rate (lb/day)							
Year	Daily Trips	Site Idling Time (min/trip)	Site Idling Time (hr/day)	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM
2026	6,271	12	1,254	1.326	2.715	34.167	0.109	0.003	0.003	1.510	0.002	3.7	7.5	94.5	0.3	0.0	0.0	4.2	0.0
2033	6,818	12	1,364	1.057	2.115	29.853	0.108	0.003	0.003	1.204	0.002	3.2	6.4	89.7	0.3	0.0	0.0	3.6	0.0
2038	6,818	12	1,364	0.999	1.987	28.930	0.107	0.003	0.003	1.138	0.002	3.0	6.0	87.0	0.3	0.0	0.0	3.4	0.0

Notes:

1. On-site iding time represents 6 minutes at the in-gate, 10 minutes on terminal, and 8 minutes at the out gate per round trip, which equates to 12 minutes per one-way trip, for all analysis years.
2. Emission factors for criteria pollutants are equal for diesel and LNG (except diesel particulate matter and GHG).
3. No idling emissions would occur from tire wear, brake wear, and paved road dust; therefore, PM10 and PM2.5 emissions are only for exhaust.
4. Trips are one-way trips.

Table 152. Trucks Driving On-Site, Alternative 5 without Mitigation (Criteria Pollutant Emissions)

				Criteria Pollutant Emission Factor (g/mi)													Criteria Pollutant Emission Rate (lb/day)							
Year	Daily Trips	Driving Distance (mi/trip)	Total On-Site VMT (mi/day)	VOC	CO	NOx	SOx	TOG	DPM	PM10 Exhaust	PM10 Tire Wear	PM10 Brake Wear	PM10 Road Dust	PM2.5 Exhaust	PM2.5 Tire Wear	PM2.5 Brake Wear	PM2.5 Road Dust	VOC	CO	NOx	SOx	TOG	DPM	PM10	PM2.5
2026	6,271	0.75	4,703	0.708	3.731	18.889	0.015	0.806	0.021	0.023	0.036	0.062	12.592	0.022	0.009	0.026	3.148	7.3	38.7	195.9	0.2	8.4	0.2	131.8	33.2
2033	6,818	0.75	5,114	0.538	3.322	18.888	0.015	0.613	0.014	0.015	0.036	0.062	12.592	0.014	0.009	0.026	3.148	6.1	37.5	212.9	0.2	6.9	0.2	143.2	36.1
2038	6,818	0.75	5,114	0.499	3.222	18.875	0.014	0.569	0.012	0.013	0.036	0.062	12.592	0.013	0.009	0.026	3.148	5.6	36.3	212.8	0.2	6.4	0.1	143.2	36.0

Notes:

1. Average on-site driving distance is 1.5 miles per truck, or 0.75 miles per one-way trip (Source: YTI, 6/7/2013).
2. Emission factors shown in the table are the average of diesel and LNG trucks based on the percent LNG trucks shown. LNG trucks are assumed to use 1.5% diesel fuel (15 percent of LNG trucks are dual-fueled and use 10% diesel fuel).
3. Trips are one-way trips.
4. On-site driving speed is 10 mph (Source: YTI, 6/7/2013).
5. The emission factors for the floating baseline are averaged over the years 2013-2052 for the 40-year average, and 2013-2082 for the 70-year average.

Table 153. Employee Vehicles Driving On-Site, Alternative 5 without Mitigation (Criteria Pollutant Emissions)

				Criteria Pollutant Emission Factor (g/mi)													Criteria Pollutant Emission Rate (lb/day)								
Year	Daily Trips	Driving Distance (mi/trip)	Total On-Site VMT (mi/day)	VOC	CO	NOx	SOx	TOG	DPM	PM10 Exhaust	PM10 Tire Wear	PM10 Brake Wear	PM10 Road Dust	PM2.5 Exhaust	PM2.5 Tire Wear	PM2.5 Brake Wear	PM2.5 Road Dust	VOC	CO	NOx	SOx	TOG	DPM	PM10	PM2.5	Gasoline PM10
2026	4,057	0.5	2,029	0.093	1.201	0.085	0.007	0.126	0.000	0.008	0.008	0.037	1.534	0.007	0.002	0.016	0.384	0.4	5.4	0.4	0.0	0.6	0.0	7.1	1.8	0.0
2033	4,839	0.5	2,420	0.078	0.925	0.056	0.006	0.104	0.000	0.005	0.008	0.037	1.534	0.005	0.002	0.016	0.384	0.4	4.9	0.3	0.0	0.6	0.0	8.4	2.2	0.0
2038	4,839	0.5	2,420	0.072	0.812	0.047	0.005	0.095	0.000	0.004	0.008	0.037	1.534	0.003	0.002	0.016	0.384	0.4	4.3	0.2	0.0	0.5	0.0	8.4	2.2	0.0

Notes:

1. Average on-site driving distance represents the distance from the guard shack to the ILWU parking lot (estimated using Google Earth).
2. Trips are one-way trips.
3. On-site driving speed is 10 mph (Source: YTI, 6/7/2013).

Table 154. Trucks Idling Off-Site, Alternative 5 Without Mitigation (Criteria Pollutant Emissions)

					Criteria Pollutant Emission Factors (g/hr)								Criteria Pollutant Emission Rate (lb/day)							
Alternative	Year	Daily Trips	Site Idling Time (min/trip)	Site Idling Time (hr/day)	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM	VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM
Alternative 5	2026	6,271	10	1,045	1.326	2.715	34.167	0.109	0.003	0.003	1.510	0.002	3.1	6.3	78.7	0.3	0.0	0.0	3.5	0.0
Alternative 5	2033	6,818	10	1,136	1.057	2.115	29.853	0.108	0.003	0.003	1.204	0.002	2.6	5.3	74.8	0.3	0.0	0.0	3.0	0.0
Alternative 5	2038	6,818	10	1,136	0.999	1.987	28.930	0.107	0.003	0.003	1.138	0.002	2.5	5.0	72.5	0.3	0.0	0.0	2.9	0.0

Notes:

1. Emissions occur within the South Coast Air Basin.
2. Emission factors for criteria pollutants are equal for diesel and LNG (except diesel particulate matter and GHG).
3. No idling emissions would occur from tire wear, brake wear, and paved road dust; therefore, PM10 and PM2.5 emissions are only for exhaust.
4. Trips are one-way trips.

Table 155. Trucks Idling Off-Site, Alternative 5 Without Mitigation (GHG Emissions)

					GHG Emission Factor (g/hr)			GHG Emission Rate (metric ton/year)		
Alternative	Year	Annual Trips	Site Idling Time (min/trip)	Site Idling Time (hr/yr)	CO2	CH4	N2O	CO2	CH4	N2O
Alternative 5	2026	1,548,654	10	258,109	11,647	0.06	0.37	3,006	0.02	0.10
Alternative 5	2033	1,683,712	10	280,619	11,495	0.05	0.37	3,226	0.01	0.10
Alternative 5	2038	1,683,712	10	280,619	11,463	0.05	0.37	3,217	0.01	0.10

Notes:

1. Emissions occur within California.
2. Emission factors shown in the table are the average of diesel and LNG trucks based on the percent LNG trucks shown. LNG trucks are assumed to use 1.5% diesel fuel (15 percent of LNG trucks are dual-fueled and use 10% diesel fuel).
3. Trips are one-way trips.

Table 156. Trucks Idling On-Site, Alternative 5 Without Mitigation (GHG Emissions)

Alternative	Year	Annual Trips	Site Idling Time (min/trip)	Site Idling Time (hr/yr)	GHG Emission Factor (g/hr)			GHG Emission Rate (metric ton/year)		
					CO2	CH4	N2O	CO2	CH4	N2O
Alternative 5	2026	1,548,654	12	309,731	11,647	0.06	0.37	3,607	0.02	0.12
Alternative 5	2033	1,683,712	12	336,742	11,495	0.05	0.37	3,871	0.02	0.12
Alternative 5	2038	1,683,712	12	336,742	11,463	0.05	0.37	3,860	0.02	0.12

Notes:

1. On-site idling time represents 6 minutes at the in-gate, 10 minutes on terminal, and 8 minutes at the out gate per round trip, which equates to 12 minutes per one-way trip, for all analyses (Source: YTI, 6/7/2013).
2. Emission factors shown in the table are the average of diesel and LNG trucks based on the percent LNG trucks shown. LNG trucks are assumed to use 1.5% diesel fuel (15 percent of LNG trucks are dual-fueled and use 10% diesel fuel).
3. Trips are one-way trips.

Table 157. Trucks Driving On-Site, Alternative 5 Without Mitigation (GHG Emissions)

Alternative	Year	Annual Trips	Driving Distance (mi/trip)	Total On-Site VMT (mi/yr)	GHG Emission Factor (g/mi)			GHG Emission Rate (metric ton/year)		
					CO2	CH4	N2O	CO2	CH4	N2O
Alternative 5	2026	1,548,654	0.75	1,161,490	2,725	0.03	0.05	3,165	0.04	0.06
Alternative 5	2033	1,683,712	0.75	1,262,784	2,558	0.03	0.05	3,230	0.03	0.07
Alternative 5	2038	1,683,712	0.75	1,262,784	2,514	0.02	0.05	3,175	0.03	0.06

Notes:

1. Average on-site driving distance is 1.5 miles per truck, or 0.75 miles per one-way trip (Source: YTI, 6/7/2013).
2. Emission factors shown in the table are the average of diesel and LNG trucks based on the percent LNG trucks shown. LNG trucks are assumed to use 1.5% diesel fuel (15 percent of LNG trucks are dual-fueled and use 10% diesel fuel).
3. Trips are one-way trips.
4. On-site driving speed is 10 mph (Source: YTI, 6/7/2013).

Table 158. Employee Vehicles Driving On-Site, Alternative 5 Without Mitigation (GHG Emissions)

Alternative	Year	Annual Trips	Driving Distance (mi/trip)	Total On-Site VMT (mi/yr)	GHG Emission Factor (g/mi)			GHG Emission Rate (metric ton/year)		
					CO2	CH4	N2O	CO2	CH4	N2O
Alternative 5	2026	1,001,914	0.5	500,957	652	0.028	0.065	327	0.01	0.03
Alternative 5	2033	1,195,003	0.5	597,501	561	0.022	0.065	335	0.01	0.04
Alternative 5	2038	1,195,003	0.5	597,501	533	0.019	0.065	318	0.01	0.04

Notes:

1. Average on-site driving distance represents the distance from the guard shack to the ILWU parking lot (estimated using Google Earth).
2. Trips are one-way trips.
3. On-site driving speed is 10 mph (Source: YTI, 6/7/2013).

Table 159. Trucks and Employee Vehicles Driving Off-Site, Alternative 5 Without Mitigation (Criteria Pollutant Emissions)

Alternative	Year	Daily Trips		Daily VMT		Criteria Pollutant Emission Rate (lb/day) - Autos								Criteria Pollutant Emission Rate (lb/day) - Trucks							
		Autos	Trucks	Autos	Trucks	VOC	CO	NOx	SOx	TOG	DPM	PM10	PM2.5	VOC	CO	NOx	SOx	TOG	DPM	PM10	PM2.5
Alternative 5	2026	4,057	6,271	41,901	144,436	2.2	62.6	5.0	0.3	3.0	0.0	13.1	4.0	27.6	145.2	862.4	4.8	31.4	3.5	58.8	20.9
Alternative 5	2033	4,839	6,818	49,947	152,826	2.4	59.1	4.1	0.3	3.1	0.0	15.5	4.7	27.5	169.6	629.4	4.9	31.3	2.5	60.1	20.7
Alternative 5	2038	4,839	6,818	49,947	152,826	2.2	51.8	3.4	0.3	2.9	0.0	15.5	4.7	25.5	164.4	534.9	4.9	29.0	2.2	59.8	20.4

Notes:

1. Emissions occur within the South Coast Air Basin.
2. Emissions were calculated link-by-link and summed. Link-based data were provided by the traffic study (CSI, personal communication with Sean McAtee, 7/19/2013).
3. Trips are one-way trips.
4. Because project would not be built until 2019 (2017 and 2018 are construction years), emissions for the Proposed Project in 2017 and 2018 are equal to the No Project.

Table 160. Trucks and Employee Vehicles Driving Off-Site, Alternative 5 Without Mitigation (GHG Emissions)

Alternative	Year	Annual Trips		Annual VMT		GHG Emission Rate			GHG Emission Rate		
		Autos	Trucks	Autos	Trucks	CO2	CH4	N2O	CO2	CH4	N2O
Alternative 5	2026	1,001,914	1,548,654	10,347,534	35,668,569	2,849	0.1	0.7	54,731	0.1	1.9
Alternative 5	2033	1,195,003	1,683,712	12,334,448	37,740,363	3,004	0.1	0.8	56,086	0.1	1.9
Alternative 5	2038	1,195,003	1,683,712	12,334,448	37,740,363	2,852	0.1	0.8	55,191	0.1	1.9

Annual Adjustment Factor
246.95

Notes:

1. Emissions occur within California.
2. Emissions were calculated link-by-link and summed. Link-based data were provided by the traffic study (CSI, personal communication with Sean McAtee, 7/19/2013).
3. Trips are one-way trips.
4. Because project would not be built until 2019 (2017 and 2018 are construction years), emissions for the Proposed Project in 2017 and 2018 are equal to the No Project.

Table 161. Trucks Emissions Summary Table - Without Mitigation

Alternative	Year	Criteria Pollutant Emission Rate (lb/day)								GHG Emission Rate (metric ton/year)		
		VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM	CO2	CH4	N2O
Alternative 5	2026	41.6	197.7	1,231.5	5.5	190.6	54.1	47.4	3.7	64,509	0.2	2.2
Alternative 5	2033	39.3	218.7	1,006.9	5.7	203.4	56.8	44.8	2.7	66,412	0.2	2.2
Alternative 5	2038	36.6	211.7	907.2	5.6	203.0	56.4	41.7	2.4	65,443	0.2	2.2

Notes:

1. On-road vehicle emissions for the Reduced Project are the same as the Proposed Project.
2. On-road vehicle emissions for the No Federal Action Alternative are the same as the No Project Alternative.
3. Criteria pollutant emissions occur within the SCAB. GHG emissions occur within California.
4. Trucks include drayage trucks and other trucks, such as fuel and delivery trucks. Drayage trucks comprise the vast majority of trips.

Table 162. Employee Vehicles Emissions Summary Table - Without Mitigation

Alternative	Year	Criteria Pollutant Emission Rate (lb/day)								GHG Emission Rate (metric ton/year)		
		VOC	CO	NOx	SOx	PM10	PM2.5	TOG	DPM	CO2	CH4	N2O
Alternative 5	2026	2.6	68.0	5.4	0.3	20.2	5.8	3.6	0.0	3,176	0.1	0.7
Alternative 5	2033	2.8	64.0	4.4	0.3	23.9	6.9	3.7	0.0	3,340	0.1	0.8
Alternative 5	2038	2.6	56.1	3.6	0.3	23.9	6.8	3.4	0.0	3,170	0.1	0.8

Notes:

1. On-road vehicle emissions for the Reduced Project are the same as the Proposed Project.
2. On-road vehicle emissions for the No Federal Action Alternative are the same as the No Project Alternative.
3. Criteria pollutant emissions occur within the SCAB. GHG emissions occur within California.

Table 163. Annual Rail Emissions Summary

(tpy, or metric tons per year for GHGs)	Alt 2 - No Fed Action CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	CO2	N2O	CH4	CO2e
2013 Base Year												
Line Haul Locomotives On-Port	13.9	3.6	3.8	64.4	2.4	2.4	2.2	0.1	4,878	0.13	0.39	4,923
Line Haul Locomotives Off-Port	24.6	6.3	6.7	113.7	4.2	4.2	3.9	0.2	22,853	0.60	1.85	23,064
Switch Locomotives On-Port	0.6	0.1	0.1	1.5	0.0	0.0	0.0	0.0	215	0.01	0.02	217
Switch Locomotives Off-Port	0.2	0.1	0.1	1.3	0.0	0.0	0.0	0.0	52	0.00	0.00	53
2018 Construction Year												
Line Haul Locomotives On-Port	14.6	2.3	2.4	59.2	1.5	1.5	1.4	0.1	5,106	0.13	0.41	5,154
Line Haul Locomotives Off-Port	26.4	4.2	4.4	107.0	2.7	2.7	2.5	0.1	24,958	0.66	2.02	25,189
Switch Locomotives On-Port	0.6	0.1	0.1	1.6	0.0	0.0	0.0	0.0	219	0.01	0.02	221
Switch Locomotives Off-Port	0.2	0.1	0.1	1.1	0.0	0.0	0.0	0.0	53	0.00	0.00	54
CEQA 2019 Base + Everport 2019 Opening Year												
Line Haul Locomotives On-Port	14.8	2.2	2.3	57.1	1.4	1.4	1.3	0.1	5,165	0.14	0.42	5,212
Line Haul Locomotives Off-Port	27.0	4.0	4.2	104.4	2.5	2.5	2.3	0.1	25,529	0.67	2.07	25,765
Switch Locomotives On-Port	0.7	0.1	0.1	1.6	0.0	0.0	0.0	0.0	221	0.01	0.02	223
Switch Locomotives Off-Port	0.2	0.1	0.1	1.2	0.0	0.0	0.0	0.0	54	0.00	0.00	54
CEQA 2026 Base + Everport 2026 Interim Year												
Line Haul Locomotives On-Port	14.9	1.4	1.5	38.5	0.8	0.8	0.8	0.1	5,203	0.14	0.42	5,251
Line Haul Locomotives Off-Port	29.8	2.8	2.9	77.2	1.7	1.7	1.5	0.1	27,755	0.73	2.25	28,011
Switch Locomotives On-Port	0.8	0.1	0.1	1.5	0.0	0.0	0.0	0.0	258	0.01	0.02	260
Switch Locomotives Off-Port	0.2	0.0	0.1	0.9	0.0	0.0	0.0	0.0	60	0.00	0.00	61
CEQA 2033 Base + Everport 2033 Horizon Year												
Line Haul Locomotives On-Port	33.0	1.9	2.0	53.3	1.0	1.0	0.9	0.1	11,559	0.30	0.94	11,666
Line Haul Locomotives Off-Port	147.4	8.3	8.7	238.1	4.4	4.4	4.1	0.6	137,153	3.61	11.11	138,421
Switch Locomotives On-Port	1.8	0.2	0.2	3.4	0.0	0.0	0.0	0.0	589	0.01	0.04	594
Switch Locomotives Off-Port	0.3	0.1	0.1	1.2	0.0	0.0	0.0	0.0	117	0.00	0.01	118
CEQA 2038 Base + Everport 2038 Horizon Year												
Line Haul Locomotives On-Port	33.0	1.4	1.4	38.4	0.6	0.6	0.6	0.1	11,559	0.30	0.94	11,666
Line Haul Locomotives Off-Port	147.4	6.1	6.4	171.6	2.8	2.8	2.5	0.6	137,153	3.61	11.11	138,421
Switch Locomotives On-Port	1.8	0.1	0.1	1.4	0.0	0.0	0.0	0.0	589	0.01	0.04	594
Switch Locomotives Off-Port	0.3	0.0	0.0	0.8	0.0	0.0	0.0	0.0	117	0.00	0.01	118

Table 163. Annual Rail Emissions Summary

(tpy, or metric tons per year for GHGs)	Alt 1 - No CEQA Project CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	CO2	N2O	CH4	CO2e
2013 Base Year												
Line Haul Locomotives On-Port	13.9	3.6	3.8	64.4	2.4	2.4	2.2	0.1	4,878	0.13	0.39	4,923
Line Haul Locomotives Off-Port	24.6	6.3	6.7	113.7	4.2	4.2	3.9	0.2	22,853	0.60	1.85	23,064
Switch Locomotives On-Port	0.6	0.1	0.1	1.5	0.0	0.0	0.0	0.0	215	0.01	0.02	217
Switch Locomotives Off-Port	0.2	0.1	0.1	1.3	0.0	0.0	0.0	0.0	52	0.00	0.00	53
2018 Construction Year												
Line Haul Locomotives On-Port	14.6	2.3	2.4	59.2	1.5	1.5	1.4	0.1	5,106	0.13	0.41	5,154
Line Haul Locomotives Off-Port	26.4	4.2	4.4	107.0	2.7	2.7	2.5	0.1	24,958	0.66	2.02	25,189
Switch Locomotives On-Port	0.6	0.1	0.1	1.6	0.0	0.0	0.0	0.0	219	0.01	0.02	221
Switch Locomotives Off-Port	0.2	0.1	0.1	1.1	0.0	0.0	0.0	0.0	53	0.00	0.00	54
CEQA 2019 Base + Everport 2019 Opening Year												
Line Haul Locomotives On-Port	14.8	2.2	2.3	57.1	1.4	1.4	1.3	0.1	5,165	0.14	0.42	5,212
Line Haul Locomotives Off-Port	27.0	4.0	4.2	104.4	2.5	2.5	2.3	0.1	25,529	0.67	2.07	25,765
Switch Locomotives On-Port	0.7	0.1	0.1	1.6	0.0	0.0	0.0	0.0	221	0.01	0.02	223
Switch Locomotives Off-Port	0.2	0.1	0.1	1.2	0.0	0.0	0.0	0.0	54	0.00	0.00	54
CEQA 2026 Base + Everport 2026 Interim Year												
Line Haul Locomotives On-Port	14.9	1.4	1.5	38.5	0.8	0.8	0.8	0.1	5,203	0.14	0.42	5,251
Line Haul Locomotives Off-Port	29.8	2.8	2.9	77.2	1.7	1.7	1.5	0.1	27,755	0.73	2.25	28,011
Switch Locomotives On-Port	0.8	0.1	0.1	1.5	0.0	0.0	0.0	0.0	258	0.01	0.02	260
Switch Locomotives Off-Port	0.2	0.0	0.1	0.9	0.0	0.0	0.0	0.0	60	0.00	0.00	61
CEQA 2033 Base + Everport 2033 Horizon Year												
Line Haul Locomotives On-Port	33.0	1.9	2.0	53.3	1.0	1.0	0.9	0.1	11,559	0.30	0.94	11,666
Line Haul Locomotives Off-Port	147.4	8.3	8.7	238.1	4.4	4.4	4.1	0.6	137,153	3.61	11.11	138,421
Switch Locomotives On-Port	1.8	0.2	0.2	3.4	0.0	0.0	0.0	0.0	589	0.01	0.04	594
Switch Locomotives Off-Port	0.3	0.1	0.1	1.2	0.0	0.0	0.0	0.0	117	0.00	0.01	118
CEQA 2038 Base + Everport 2038 Horizon Year												
Line Haul Locomotives On-Port	33.0	1.4	1.4	38.4	0.6	0.6	0.6	0.1	11,559	0.30	0.94	11,666
Line Haul Locomotives Off-Port	147.4	6.1	6.4	171.6	2.8	2.8	2.5	0.6	137,153	3.61	11.11	138,421
Switch Locomotives On-Port	1.8	0.1	0.1	1.4	0.0	0.0	0.0	0.0	589	0.01	0.04	594
Switch Locomotives Off-Port	0.3	0.0	0.0	0.8	0.0	0.0	0.0	0.0	117	0.00	0.01	118

Table 163. Annual Rail Emissions Summary

(tpy, or metric tons per year for GHGs)	Alt 3 - Reduced Wharf Imp. CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	CO2	N2O	CH4	CO2e
2013 Base Year												
Line Haul Locomotives On-Port												
Line Haul Locomotives Off-Port												
Switch Locomotives On-Port												
Switch Locomotives Off-Port												
2018 Construction Year												
Line Haul Locomotives On-Port	14.0	2.2	2.3	56.7	1.4	1.4	1.3	0.1	4,895	0.13	0.40	4,941
Line Haul Locomotives Off-Port	24.2	3.8	4.0	98.3	2.5	2.5	2.3	0.1	22,937	0.60	1.86	23,149
Switch Locomotives On-Port	0.6	0.1	0.1	1.5	0.0	0.0	0.0	0.0	210	0.01	0.02	211
Switch Locomotives Off-Port	0.2	0.1	0.1	1.1	0.0	0.0	0.0	0.0	51	0.00	0.00	51
CEQA 2019 Base + Everport 2019 Opening Year												
Line Haul Locomotives On-Port	13.9	2.0	2.1	53.7	1.3	1.3	1.2	0.1	4,859	0.13	0.39	4,904
Line Haul Locomotives Off-Port	26.7	3.9	4.1	103.3	2.5	2.5	2.3	0.1	24,482	0.64	1.98	24,708
Switch Locomotives On-Port	0.6	0.1	0.1	1.6	0.0	0.0	0.0	0.0	219	0.01	0.02	221
Switch Locomotives Off-Port	0.2	0.1	0.1	1.1	0.0	0.0	0.0	0.0	53	0.00	0.00	54
CEQA 2026 Base + Everport 2026 Interim Year												
Line Haul Locomotives On-Port	18.2	1.7	1.8	47.1	1.0	1.0	0.9	0.1	6,363	0.17	0.52	6,422
Line Haul Locomotives Off-Port	44.6	4.2	4.4	115.5	2.5	2.5	2.3	0.2	41,532	1.09	3.36	41,915
Switch Locomotives On-Port	0.9	0.1	0.1	1.8	0.0	0.0	0.0	0.0	315	0.01	0.02	318
Switch Locomotives Off-Port	0.2	0.1	0.1	1.1	0.0	0.0	0.0	0.0	74	0.00	0.01	74
CEQA 2033 Base + Everport 2033 Horizon Year												
Line Haul Locomotives On-Port	40.9	2.3	2.4	66.0	1.2	1.2	1.1	0.2	14,305	0.38	1.16	14,437
Line Haul Locomotives Off-Port	220.0	12.4	13.1	355.4	6.6	6.6	6.1	0.9	208,069	5.48	16.85	209,992
Switch Locomotives On-Port	1.8	0.2	0.2	3.4	0.0	0.0	0.0	0.0	589	0.01	0.04	594
Switch Locomotives Off-Port	0.8	0.2	0.2	3.0	0.1	0.1	0.1	0.0	285	0.01	0.02	288
CEQA 2038 Base + Everport 2038 Horizon Year												
Line Haul Locomotives On-Port	40.9	1.7	1.8	47.6	0.8	0.8	0.7	0.2	14,305	0.38	1.16	14,437
Line Haul Locomotives Off-Port	220.0	9.1	9.6	256.2	4.1	4.1	3.8	0.9	208,069	5.48	16.85	209,992
Switch Locomotives On-Port	1.8	0.1	0.1	1.4	0.0	0.0	0.0	0.0	589	0.01	0.04	594
Switch Locomotives Off-Port	0.8	0.1	0.1	2.0	0.0	0.0	0.0	0.0	285	0.01	0.02	288

Table 163. Annual Rail Emissions Summary

(tpy, or metric tons per year for GHGs)	Alt 4 - No Backland Imp. CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	CO2	N2O	CH4	CO2e
2013 Base Year												
Line Haul Locomotives On-Port												
Line Haul Locomotives Off-Port												
Switch Locomotives On-Port												
Switch Locomotives Off-Port												
2018 Construction Year												
Line Haul Locomotives On-Port	14.0	2.2	2.3	56.7	1.4	1.4	1.3	0.1	4,895	0.13	0.40	4,941
Line Haul Locomotives Off-Port	24.2	3.8	4.0	98.3	2.5	2.5	2.3	0.1	22,937	0.60	1.86	23,149
Switch Locomotives On-Port	0.6	0.1	0.1	1.5	0.0	0.0	0.0	0.0	210	0.01	0.02	211
Switch Locomotives Off-Port	0.2	0.1	0.1	1.1	0.0	0.0	0.0	0.0	51	0.00	0.00	51
CEQA 2019 Base + Everport 2019 Opening Year												
Line Haul Locomotives On-Port	13.8	2.0	2.1	53.6	1.3	1.3	1.2	0.1	4,849	0.13	0.39	4,894
Line Haul Locomotives Off-Port	24.4	3.6	3.8	94.6	2.3	2.3	2.1	0.1	22,806	0.60	1.85	23,016
Switch Locomotives On-Port	0.6	0.1	0.1	1.5	0.0	0.0	0.0	0.0	212	0.01	0.02	214
Switch Locomotives Off-Port	0.2	0.1	0.1	1.1	0.0	0.0	0.0	0.0	52	0.00	0.00	52
CEQA 2026 Base + Everport 2026 Interim Year												
Line Haul Locomotives On-Port	17.1	1.6	1.7	44.4	1.0	1.0	0.9	0.1	6,001	0.16	0.49	6,057
Line Haul Locomotives Off-Port	39.6	3.7	3.9	102.7	2.2	2.2	2.1	0.2	36,941	0.97	2.99	37,282
Switch Locomotives On-Port	0.9	0.1	0.1	1.7	0.0	0.0	0.0	0.0	297	0.01	0.02	300
Switch Locomotives Off-Port	0.2	0.1	0.1	1.1	0.0	0.0	0.0	0.0	69	0.00	0.01	70
CEQA 2033 Base + Everport 2033 Horizon Year												
Line Haul Locomotives On-Port	38.4	2.2	2.3	62.0	1.2	1.2	1.1	0.2	13,447	0.35	1.09	13,571
Line Haul Locomotives Off-Port	195.8	11.0	11.6	316.3	5.9	5.9	5.4	0.8	184,351	4.85	14.93	186,055
Switch Locomotives On-Port	1.8	0.2	0.2	3.4	0.0	0.0	0.0	0.0	589	0.01	0.04	594
Switch Locomotives Off-Port	0.7	0.1	0.1	2.4	0.1	0.1	0.0	0.0	233	0.01	0.02	235
CEQA 2038 Base + Everport 2038 Horizon Year												
Line Haul Locomotives On-Port	38.4	1.6	1.7	44.7	0.7	0.7	0.7	0.2	13,447	0.35	1.09	13,571
Line Haul Locomotives Off-Port	195.8	8.1	8.5	228.0	3.7	3.7	3.4	0.8	184,351	4.85	14.93	186,055
Switch Locomotives On-Port	1.8	0.1	0.1	1.4	0.0	0.0	0.0	0.0	589	0.01	0.04	594
Switch Locomotives Off-Port	0.7	0.1	0.1	1.7	0.0	0.0	0.0	0.0	233	0.01	0.02	235

Table 163. Annual Rail Emissions Summary

(tpy, or metric tons per year for GHGs)	Alt 5 - Additional TICTF CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	CO2	N2O	CH4	CO2e
2013 Base Year												
Line Haul Locomotives On-Port												
Line Haul Locomotives Off-Port												
Switch Locomotives On-Port												
Switch Locomotives Off-Port												
2018 Construction Year												
Line Haul Locomotives On-Port	14.0	2.2	2.3	56.7	1.4	1.4	1.3	0.1	4,895	0.13	0.40	4,941
Line Haul Locomotives Off-Port	24.2	3.8	4.0	98.3	2.5	2.5	2.3	0.1	22,937	0.60	1.86	23,149
Switch Locomotives On-Port	0.6	0.1	0.1	1.5	0.0	0.0	0.0	0.0	210	0.01	0.02	211
Switch Locomotives Off-Port	0.2	0.1	0.1	1.1	0.0	0.0	0.0	0.0	51	0.00	0.00	51
CEQA 2019 Base + Everport 2019 Opening Year												
Line Haul Locomotives On-Port	14.8	2.2	2.3	57.1	1.4	1.4	1.3	0.1	5,167	0.14	0.42	5,214
Line Haul Locomotives Off-Port	27.4	4.0	4.2	106.0	2.6	2.6	2.4	0.1	25,679	0.68	2.08	25,917
Switch Locomotives On-Port	0.7	0.1	0.1	1.6	0.0	0.0	0.0	0.0	224	0.01	0.02	226
Switch Locomotives Off-Port	0.2	0.1	0.1	1.2	0.0	0.0	0.0	0.0	55	0.00	0.00	55
CEQA 2026 Base + Everport 2026 Interim Year												
Line Haul Locomotives On-Port	19.2	1.8	1.9	49.6	1.1	1.1	1.0	0.1	6,706	0.18	0.54	6,768
Line Haul Locomotives Off-Port	49.5	4.6	4.9	128.3	2.8	2.8	2.6	0.2	46,129	1.21	3.74	46,556
Switch Locomotives On-Port	1.0	0.1	0.1	1.9	0.0	0.0	0.0	0.0	332	0.01	0.02	335
Switch Locomotives Off-Port	0.2	0.1	0.1	1.2	0.0	0.0	0.0	0.0	78	0.00	0.01	78
CEQA 2033 Base + Everport 2033 Horizon Year												
Line Haul Locomotives On-Port	43.2	2.4	2.6	69.8	1.3	1.3	1.2	0.2	15,128	0.40	1.22	15,268
Line Haul Locomotives Off-Port	246.9	13.9	14.6	398.8	7.4	7.4	6.8	1.0	232,988	6.13	18.87	235,141
Switch Locomotives On-Port	1.9	0.2	0.2	3.7	0.0	0.0	0.0	0.0	641	0.02	0.05	646
Switch Locomotives Off-Port	0.8	0.2	0.2	3.0	0.1	0.1	0.1	0.0	284	0.01	0.02	286
CEQA 2038 Base + Everport 2038 Horizon Year												
Line Haul Locomotives On-Port	43.2	1.8	1.9	50.3	0.8	0.8	0.7	0.2	15,128	0.40	1.22	15,268
Line Haul Locomotives Off-Port	246.9	10.2	10.7	287.5	4.6	4.6	4.3	1.0	232,988	6.13	18.87	235,141
Switch Locomotives On-Port	1.9	0.1	0.1	1.5	0.0	0.0	0.0	0.0	641	0.02	0.05	646
Switch Locomotives Off-Port	0.8	0.1	0.1	2.0	0.0	0.0	0.0	0.0	284	0.01	0.02	286

Table 163. Annual Rail Emissions Summary

(tpy, or metric tons per year for GHGs)	Proposed Project CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	CO2	N2O	CH4	CO2e
2013 Base Year												
Line Haul Locomotives On-Port												
Line Haul Locomotives Off-Port												
Switch Locomotives On-Port												
Switch Locomotives Off-Port												
2018 Construction Year												
Line Haul Locomotives On-Port	14.0	2.2	2.3	56.7	1.4	1.4	1.3	0.1	4,895	0.13	0.40	4,941
Line Haul Locomotives Off-Port	24.2	3.8	4.0	98.3	2.5	2.5	2.3	0.1	22,937	0.60	1.86	23,149
Switch Locomotives On-Port	0.6	0.1	0.1	1.5	0.0	0.0	0.0	0.0	210	0.01	0.02	211
Switch Locomotives Off-Port	0.2	0.1	0.1	1.1	0.0	0.0	0.0	0.0	51	0.00	0.00	51
CEQA 2019 Base + Everport 2019 Opening Year												
Line Haul Locomotives On-Port	14.8	2.2	2.3	57.1	1.4	1.4	1.3	0.1	5,167	0.14	0.42	5,214
Line Haul Locomotives Off-Port	27.4	4.0	4.2	106.0	2.6	2.6	2.4	0.1	25,679	0.68	2.08	25,917
Switch Locomotives On-Port	0.7	0.1	0.1	1.6	0.0	0.0	0.0	0.0	224	0.01	0.02	226
Switch Locomotives Off-Port	0.2	0.1	0.1	1.2	0.0	0.0	0.0	0.0	55	0.00	0.00	55
CEQA 2026 Base + Everport 2026 Interim Year												
Line Haul Locomotives On-Port	19.2	1.8	1.9	49.6	1.1	1.1	1.0	0.1	6,706	0.18	0.54	6,768
Line Haul Locomotives Off-Port	49.5	4.6	4.9	128.3	2.8	2.8	2.6	0.2	46,129	1.21	3.74	46,556
Switch Locomotives On-Port	1.0	0.1	0.1	1.9	0.0	0.0	0.0	0.0	332	0.01	0.02	335
Switch Locomotives Off-Port	0.2	0.1	0.1	1.2	0.0	0.0	0.0	0.0	78	0.00	0.01	78
CEQA 2033 Base + Everport 2033 Horizon Year												
Line Haul Locomotives On-Port	43.2	2.4	2.6	69.8	1.3	1.3	1.2	0.2	15,128	0.40	1.22	15,268
Line Haul Locomotives Off-Port	244.6	13.8	14.5	395.1	7.4	7.4	6.8	1.0	232,196	6.11	18.80	234,342
Switch Locomotives On-Port	1.8	0.2	0.2	3.4	0.0	0.0	0.0	0.0	589	0.01	0.04	594
Switch Locomotives Off-Port	1.0	0.2	0.2	3.5	0.1	0.1	0.1	0.0	336	0.01	0.02	338
CEQA 2038 Base + Everport 2038 Horizon Year												
Line Haul Locomotives On-Port	43.2	1.8	1.9	50.3	0.8	0.8	0.7	0.2	15,128	0.40	1.22	15,268
Line Haul Locomotives Off-Port	244.6	10.1	10.6	284.8	4.6	4.6	4.2	1.0	232,196	6.11	18.80	234,342
Switch Locomotives On-Port	1.8	0.1	0.1	1.4	0.0	0.0	0.0	0.0	589	0.01	0.04	594
Switch Locomotives Off-Port	1.0	0.1	0.1	2.4	0.1	0.1	0.0	0.0	336	0.01	0.02	338

Table 164. SCAB to CA Line Haul Annual Emissions

(metric tons per year)	Alt 2 - No Fed Action CO2	N2O	CH4	CO2e	Alt 1 - No CEQA Project CO2	N2O	CH4	CO2e	Alt 3 - Reduced Wharf Imp. CO2	N2O	CH4	CO2e	Alt 4 - No Backland Imp. CO2	N2O	CH4	CO2e
2013 Base Year																
All IPI Rail	14,247	0.37	1.15	14,378.5	14,247	0.37	1.15	14,378.5								
On-dock IPI Rail	9,405	0.25	0.76	9,492.0	9,405	0.25	0.76	9,492.0								
BNSF	3,161	0.08	0.26	3,190.3	3,161	0.08	0.26	3,190.3								
UP	1,631	0.04	0.13	1,646.4	1,631	0.04	0.13	1,646.4								
Off-dock IPI Rail	501	0.01	0.04	505.5	501	0.01	0.04	505.5								
BNSF	113	0.00	0.01	113.9	113	0.00	0.01	113.9								
UP	109	0.00	0.01	109.8	109	0.00	0.01	109.8								
2018 Construction Year																
All IPI Rail	15,724	0.41	1.27	15,869.1	15,724	0.41	1.27	15,869.1	14,451	0.38	1.17	14,584.2	14,451	0.38	1.17	14,584.2
On-dock IPI Rail	9,902	0.26	0.80	9,993.6	9,902	0.26	0.80	9,993.6	9,100	0.24	0.74	9,184.5	9,100	0.24	0.74	9,184.5
BNSF	3,090	0.08	0.25	3,119.0	3,090	0.08	0.25	3,119.0	2,840	0.07	0.23	2,866.4	2,840	0.07	0.23	2,866.4
UP	1,595	0.04	0.13	1,609.6	1,595	0.04	0.13	1,609.6	1,466	0.04	0.12	1,479.3	1,466	0.04	0.12	1,479.3
Off-dock IPI Rail	490	0.01	0.04	494.2	490	0.01	0.04	494.2	450	0.01	0.04	454.2	450	0.01	0.04	454.2
BNSF	110	0.00	0.01	111.4	110	0.00	0.01	111.4	101	0.00	0.01	102.4	101	0.00	0.01	102.4
UP	106	0.00	0.01	107.3	106	0.00	0.01	107.3	98	0.00	0.01	98.6	98	0.00	0.01	98.6
CEQA 2019 Base + Everport 2019 Opening Year																
All IPI Rail	16,083	0.42	1.30	16,231.9	16,083	0.42	1.30	16,231.9	15,137	0.40	1.23	15,277.1	14,247	0.37	1.15	14,378.5
On-dock IPI Rail	10,129	0.27	0.82	10,222.2	10,129	0.27	0.82	10,222.2	9,405	0.25	0.76	9,492.0	9,405	0.25	0.76	9,492.0
BNSF	3,161	0.08	0.26	3,190.3	3,161	0.08	0.26	3,190.3	3,161	0.08	0.26	3,190.3	3,161	0.08	0.26	3,190.3
UP	1,631	0.04	0.13	1,646.4	1,631	0.04	0.13	1,646.4	1,631	0.04	0.13	1,646.4	1,631	0.04	0.13	1,646.4
Off-dock IPI Rail	501	0.01	0.04	505.5	501	0.01	0.04	505.5	501	0.01	0.04	505.5	501	0.01	0.04	505.5
BNSF	113	0.00	0.01	113.9	113	0.00	0.01	113.9	113	0.00	0.01	113.9	113	0.00	0.01	113.9
UP	109	0.00	0.01	109.8	109	0.00	0.01	109.8	109	0.00	0.01	109.8	109	0.00	0.01	109.8
CEQA 2026 Base + Everport 2026 Interim Year																
All IPI Rail	17327	0.46	1.40	17487.5	17327	0.46	1.40	17487.5	25928	0.68	2.10	26168.0	23062	0.61	1.87	23275.3
On-dock IPI Rail	11386	0.30	0.92	11490.8	11386	0.30	0.92	11490.8	17037	0.45	1.38	17194.6	15154	0.40	1.23	15293.8
BNSF	2900	0.08	0.23	2926.3	2900	0.08	0.23	2926.3	4339	0.11	0.35	4378.9	3859	0.10	0.31	3894.8
UP	2793	0.07	0.23	2819.1	2793	0.07	0.23	2819.1	4180	0.11	0.34	4218.4	3718	0.10	0.30	3752.1
Off-dock IPI Rail	622	0.02	0.05	627.3	622	0.02	0.05	627.3	930	0.02	0.08	938.6	827	0.02	0.07	834.9
BNSF	158	0.00	0.01	159.7	158	0.00	0.01	159.7	237	0.01	0.02	239.0	211	0.01	0.02	212.6
UP	152	0.00	0.01	153.9	152	0.00	0.01	153.9	228	0.01	0.02	230.3	203	0.01	0.02	204.8
CEQA 2033 Base + Everport 2033 Horizon Year																
All IPI Rail	85,543	2.25	6.93	86,333.4	85,543	2.25	6.93	86,333.4	131,027	3.45	10.61	132,237.9	115,790	3.05	9.38	116,860.1
On-dock IPI Rail	59,472	1.57	4.82	60,021.2	59,472	1.57	4.82	60,021.2	59,472	1.57	4.82	60,021.2	59,472	1.57	4.82	60,021.2
BNSF	15,145	0.40	1.23	15,285.4	15,145	0.40	1.23	15,285.4	15,145	0.40	1.23	15,285.4	15,145	0.40	1.23	15,285.4
UP	14,590	0.38	1.18	14,725.2	14,590	0.38	1.18	14,725.2	14,590	0.38	1.18	14,725.2	14,590	0.38	1.18	14,725.2
Off-dock IPI Rail	2,363	0.06	0.19	2,384.7	2,363	0.06	0.19	2,384.7	13,950	0.37	1.13	14,078.6	9,295	0.24	0.75	9,381.1
BNSF	602	0.02	0.05	607.3	602	0.02	0.05	607.3	3,553	0.09	0.29	3,585.3	2,367	0.06	0.19	2,389.0
UP	580	0.02	0.05	585.0	580	0.02	0.05	585.0	3,422	0.09	0.28	3,453.9	2,280	0.06	0.18	2,301.5
CEQA 2038 Base + Everport 2038 Horizon Year																
All IPI Rail	85,543	2.25	6.93	86,333.4	85,543	2.25	6.93	86,333.4	131,027	3.45	10.61	132,237.9	115,790	3.05	9.38	116,860.1
On-dock IPI Rail	59,472	1.57	4.82	60,021.2	59,472	1.57	4.82	60,021.2	59,472	1.57	4.82	60,021.2	59,472	1.57	4.82	60,021.2
BNSF	15,145	0.40	1.23	15,285.4	15,145	0.40	1.23	15,285.4	15,145	0.40	1.23	15,285.4	15,145	0.40	1.23	15,285.4
UP	14,590	0.38	1.18	14,725.2	14,590	0.38	1.18	14,725.2	14,590	0.38	1.18	14,725.2	14,590	0.38	1.18	14,725.2
Off-dock IPI Rail	2,363	0.06	0.19	2,384.7	2,363	0.06	0.19	2,384.7	13,950	0.37	1.13	14,078.6	9,295	0.24	0.75	9,381.1
BNSF	602	0.02	0.05	607.3	602	0.02	0.05	607.3	3,553	0.09	0.29	3,585.3	2,367	0.06	0.19	2,389.0
UP	580	0.02	0.05	585.0	580	0.02	0.05	585.0	3,422	0.09	0.28	3,453.9	2,280	0.06	0.18	2,301.5

Table 164. SCAB to CA Line Haul Annual Emissions

(metric tons per year)	Alt 5 - Additional TICTF CO2	N2O	CH4	CO2e	Proposed Project CO2	N2O	CH4	CO2e
2013 Base Year								
All IPI Rail								
On-dock IPI Rail								
BNSF								
UP								
Off-dock IPI Rail								
BNSF								
UP								
2018 Construction Year								
All IPI Rail	14,451	0.38	1.17	14,584.2	14,451	0.38	1.17	14,584.2
On-dock IPI Rail	9,100	0.24	0.74	9,184.5	9,100	0.24	0.74	9,184.5
BNSF	2,840	0.07	0.23	2,866.4	2,840	0.07	0.23	2,866.4
UP	1,466	0.04	0.12	1,479.3	1,466	0.04	0.12	1,479.3
Off-dock IPI Rail	450	0.01	0.04	454.2	450	0.01	0.04	454.2
BNSF	101	0.00	0.01	102.4	101	0.00	0.01	102.4
UP	98	0.00	0.01	98.6	98	0.00	0.01	98.6
CEQA 2019 Base + Everport 2019 Opening Year								
All IPI Rail	16,083	0.42	1.30	16,231.9	16,083	0.42	1.30	16,231.9
On-dock IPI Rail	10,129	0.27	0.82	10,222.2	10,129	0.27	0.82	10,222.2
BNSF	4,064	0.11	0.33	4,101.8	4,064	0.11	0.33	4,101.8
UP	1,631	0.04	0.13	1,646.4	1,631	0.04	0.13	1,646.4
Off-dock IPI Rail	501	0.01	0.04	505.5	501	0.01	0.04	505.5
BNSF	113	0.00	0.01	113.9	113	0.00	0.01	113.9
UP	109	0.00	0.01	109.8	109	0.00	0.01	109.8
CEQA 2026 Base + Everport 2026 Interim Year								
All IPI Rail	28799	0.76	2.33	29065.0	28799	0.76	2.33	29065.0
On-dock IPI Rail	18923	0.50	1.53	19098.1	18923	0.50	1.53	19098.1
BNSF	4819	0.13	0.39	4863.7	4819	0.13	0.39	4863.7
UP	4643	0.12	0.38	4685.4	4643	0.12	0.38	4685.4
Off-dock IPI Rail	1033	0.03	0.08	1042.5	1033	0.03	0.08	1042.5
BNSF	263	0.01	0.02	265.5	263	0.01	0.02	265.5
UP	253	0.01	0.02	255.8	253	0.01	0.02	255.8
CEQA 2033 Base + Everport 2033 Horizon Year								
All IPI Rail	146,547	3.86	11.87	147,901.1	146,547	3.86	11.87	147,901.1
On-dock IPI Rail	70,430	1.85	5.70	71,080.4	59,472	1.57	4.82	60,021.2
BNSF	17,936	0.47	1.45	18,101.8	15,145	0.40	1.23	15,285.4
UP	17,279	0.45	1.40	17,438.4	14,590	0.38	1.18	14,725.2
Off-dock IPI Rail	13,790	0.36	1.12	13,917.0	19,306	0.51	1.56	19,484.5
BNSF	3,512	0.09	0.28	3,544.2	4,917	0.13	0.40	4,962.1
UP	3,383	0.09	0.27	3,414.3	4,736	0.12	0.38	4,780.2
CEQA 2038 Base + Everport 2038 Horizon Year								
All IPI Rail	146,547	3.86	11.87	147,901.1	146,547	3.86	11.87	147,901.1
On-dock IPI Rail	70,430	1.85	5.70	71,080.4	59,472	1.57	4.82	60,021.2
BNSF	17,936	0.47	1.45	18,101.8	15,145	0.40	1.23	15,285.4
UP	17,279	0.45	1.40	17,438.4	14,590	0.38	1.18	14,725.2
Off-dock IPI Rail	13,790	0.36	1.12	13,917.0	19,306	0.51	1.56	19,484.5
BNSF	3,512	0.09	0.28	3,544.2	4,917	0.13	0.40	4,962.1
UP	3,383	0.09	0.27	3,414.3	4,736	0.12	0.38	4,780.2

Table 165. SCAB Line Haul Annual Emissions

	Alt 2 - No Fed Action (metric tons per year)											
(tpy)	CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	CO2	N2O	CH4	CO2e
2013 Base Year												
All IPI Rail	24.6	6.3	6.7	113.7	4.2	4.2	3.9	0.2	8,606	0.23	0.70	8,686
On-dock IPI Rail	16.7	4.3	4.5	77.1	2.9	2.9	2.6	0.1	5,840	0.15	0.47	5,894
BNSF	5.4	1.4	1.5	25.1	0.9	0.9	0.9	0.0	1,903	0.05	0.15	1,921
UP	3.0	0.8	0.8	14.1	0.5	0.5	0.5	0.0	1,064	0.03	0.09	1,074
Off-dock IPI Rail	0.8	0.2	0.2	3.5	0.1	0.1	0.1	0.0	266	0.01	0.02	268
BNSF	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	41	0.00	0.00	42
UP	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	47	0.00	0.00	48
2018 Construction Year												
All IPI Rail	26.4	4.2	4.4	107.0	2.7	2.7	2.5	0.1	9,234	0.24	0.75	9,320
On-dock IPI Rail	16.8	2.7	2.8	68.3	1.7	1.7	1.6	0.1	5,897	0.16	0.48	5,952
BNSF	5.5	0.9	0.9	22.3	0.6	0.6	0.5	0.0	1,921	0.05	0.16	1,939
UP	3.1	0.5	0.5	12.5	0.3	0.3	0.3	0.0	1,075	0.03	0.09	1,085
Off-dock IPI Rail	0.8	0.1	0.1	3.1	0.1	0.1	0.1	0.0	269	0.01	0.02	271
BNSF	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	40	0.00	0.00	41
UP	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	49	0.00	0.00	50
CEQA 2019 Base + Everport 2019 Opening Year												
All IPI Rail	27.0	4.0	4.2	104.4	2.5	2.5	2.3	0.1	9,445	0.25	0.76	9,533
On-dock IPI Rail	17.2	2.5	2.7	66.7	1.6	1.6	1.5	0.1	6,032	0.16	0.49	6,088
BNSF	5.6	0.8	0.9	21.7	0.5	0.5	0.5	0.0	1,965	0.05	0.16	1,983
UP	3.1	0.5	0.5	12.1	0.3	0.3	0.3	0.0	1,099	0.03	0.09	1,110
Off-dock IPI Rail	0.8	0.1	0.1	3.0	0.1	0.1	0.1	0.0	275	0.01	0.02	277
BNSF	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	41	0.00	0.00	42
UP	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	50	0.00	0.00	51
CEQA 2026 Base + Everport 2026 Interim Year												
All IPI Rail	29.8	2.8	2.9	77.2	1.7	1.7	1.5	0.1	10,427	0.27	0.84	10,524
On-dock IPI Rail	20.1	1.9	2.0	52.2	1.1	1.1	1.0	0.1	7,049	0.19	0.57	7,114
BNSF	5.0	0.5	0.5	13.0	0.3	0.3	0.3	0.0	1,754	0.05	0.14	1,770
UP	5.1	0.5	0.5	13.1	0.3	0.3	0.3	0.0	1,771	0.05	0.14	1,787
Off-dock IPI Rail	0.9	0.1	0.1	2.4	0.1	0.1	0.0	0.0	328	0.01	0.03	331
BNSF	0.2	0.0	0.0	0.6	0.0	0.0	0.0	0.0	74	0.00	0.01	75
UP	0.3	0.0	0.0	0.7	0.0	0.0	0.0	0.0	89	0.00	0.01	90
CEQA 2033 Base + Everport 2033 Horizon Year												
All IPI Rail	147.4	8.3	8.7	238.1	4.4	4.4	4.1	0.6	51,611	1.36	4.18	52,087
On-dock IPI Rail	105.2	5.9	6.2	169.9	3.2	3.2	2.9	0.4	36,822	0.97	2.98	37,162
BNSF	26.2	1.5	1.6	42.3	0.8	0.8	0.7	0.1	9,163	0.24	0.74	9,247
UP	26.4	1.5	1.6	42.7	0.8	0.8	0.7	0.1	9,248	0.24	0.75	9,334
Off-dock IPI Rail	3.5	0.2	0.2	5.7	0.1	0.1	0.1	0.0	1,238	0.03	0.10	1,250
BNSF	0.8	0.0	0.0	1.3	0.0	0.0	0.0	0.0	283	0.01	0.02	286
UP	1.0	0.1	0.1	1.6	0.0	0.0	0.0	0.0	336	0.01	0.03	339
CEQA 2038 Base + Everport 2038 Horizon Year												
All IPI Rail	147.4	6.1	6.4	171.6	2.8	2.8	2.5	0.6	51,611	1.36	4.18	52,087
On-dock IPI Rail	105.2	4.3	4.6	122.5	2.0	2.0	1.8	0.4	36,822	0.97	2.98	37,162
BNSF	26.2	1.1	1.1	30.5	0.5	0.5	0.5	0.1	9,163	0.24	0.74	9,247
UP	26.4	1.1	1.1	30.8	0.5	0.5	0.5	0.1	9,248	0.24	0.75	9,334
Off-dock IPI Rail	3.5	0.1	0.2	4.1	0.1	0.1	0.1	0.0	1,238	0.03	0.10	1,250
BNSF	0.8	0.0	0.0	0.9	0.0	0.0	0.0	0.0	283	0.01	0.02	286
UP	1.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	336	0.01	0.03	339

Table 165. SCAB Line Haul Annual Emissions

	Alt 1 - No CEQA Project (metric tons per year)											
(tpy)	CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	CO2	N2O	CH4	CO2e
2013 Base Year												
All IPI Rail	24.6	6.3	6.7	113.7	4.2	4.2	3.9	0.2	8,606	0.23	0.70	8,686
On-dock IPI Rail	16.7	4.3	4.5	77.1	2.9	2.9	2.6	0.1	5,840	0.15	0.47	5,894
BNSF	5.4	1.4	1.5	25.1	0.9	0.9	0.9	0.0	1,903	0.05	0.15	1,921
UP	3.0	0.8	0.8	14.1	0.5	0.5	0.5	0.0	1,064	0.03	0.09	1,074
Off-dock IPI Rail	0.8	0.2	0.2	3.5	0.1	0.1	0.1	0.0	266	0.01	0.02	268
BNSF	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	41	0.00	0.00	42
UP	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	47	0.00	0.00	48
2018 Construction Year												
All IPI Rail	26.4	4.2	4.4	107.0	2.7	2.7	2.5	0.1	9,234	0.24	0.75	9,320
On-dock IPI Rail	16.8	2.7	2.8	68.3	1.7	1.7	1.6	0.1	5,897	0.16	0.48	5,952
BNSF	5.5	0.9	0.9	22.3	0.6	0.6	0.5	0.0	1,921	0.05	0.16	1,939
UP	3.1	0.5	0.5	12.5	0.3	0.3	0.3	0.0	1,075	0.03	0.09	1,085
Off-dock IPI Rail	0.8	0.1	0.1	3.1	0.1	0.1	0.1	0.0	269	0.01	0.02	271
BNSF	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	40	0.00	0.00	41
UP	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	49	0.00	0.00	50
CEQA 2019 Base + Everport 2019 Opening Year												
All IPI Rail	27.0	4.0	4.2	104.4	2.5	2.5	2.3	0.1	9,445	0.25	0.76	9,533
On-dock IPI Rail	17.2	2.5	2.7	66.7	1.6	1.6	1.5	0.1	6,032	0.16	0.49	6,088
BNSF	5.6	0.8	0.9	21.7	0.5	0.5	0.5	0.0	1,965	0.05	0.16	1,983
UP	3.1	0.5	0.5	12.1	0.3	0.3	0.3	0.0	1,099	0.03	0.09	1,110
Off-dock IPI Rail	0.8	0.1	0.1	3.0	0.1	0.1	0.1	0.0	275	0.01	0.02	277
BNSF	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	41	0.00	0.00	42
UP	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	50	0.00	0.00	51
CEQA 2026 Base + Everport 2026 Interim Year												
All IPI Rail	29.8	2.8	2.9	77.2	1.7	1.7	1.5	0.1	10,427	0.27	0.84	10,524
On-dock IPI Rail	20.1	1.9	2.0	52.2	1.1	1.1	1.0	0.1	7,049	0.19	0.57	7,114
BNSF	5.0	0.5	0.5	13.0	0.3	0.3	0.3	0.0	1,754	0.05	0.14	1,770
UP	5.1	0.5	0.5	13.1	0.3	0.3	0.3	0.0	1,771	0.05	0.14	1,787
Off-dock IPI Rail	0.9	0.1	0.1	2.4	0.1	0.1	0.0	0.0	328	0.01	0.03	331
BNSF	0.2	0.0	0.0	0.6	0.0	0.0	0.0	0.0	74	0.00	0.01	75
UP	0.3	0.0	0.0	0.7	0.0	0.0	0.0	0.0	89	0.00	0.01	90
CEQA 2033 Base + Everport 2033 Horizon Year												
All IPI Rail	147.4	8.3	8.7	238.1	4.4	4.4	4.1	0.6	51,611	1.36	4.18	52,087
On-dock IPI Rail	105.2	5.9	6.2	169.9	3.2	3.2	2.9	0.4	36,822	0.97	2.98	37,162
BNSF	26.2	1.5	1.6	42.3	0.8	0.8	0.7	0.1	9,163	0.24	0.74	9,247
UP	26.4	1.5	1.6	42.7	0.8	0.8	0.7	0.1	9,248	0.24	0.75	9,334
Off-dock IPI Rail	3.5	0.2	0.2	5.7	0.1	0.1	0.1	0.0	1,238	0.03	0.10	1,250
BNSF	0.8	0.0	0.0	1.3	0.0	0.0	0.0	0.0	283	0.01	0.02	286
UP	1.0	0.1	0.1	1.6	0.0	0.0	0.0	0.0	336	0.01	0.03	339
CEQA 2038 Base + Everport 2038 Horizon Year												
All IPI Rail	147.4	6.1	6.4	171.6	2.8	2.8	2.5	0.6	51,611	1.36	4.18	52,087
On-dock IPI Rail	105.2	4.3	4.6	122.5	2.0	2.0	1.8	0.4	36,822	0.97	2.98	37,162
BNSF	26.2	1.1	1.1	30.5	0.5	0.5	0.5	0.1	9,163	0.24	0.74	9,247
UP	26.4	1.1	1.1	30.8	0.5	0.5	0.5	0.1	9,248	0.24	0.75	9,334
Off-dock IPI Rail	3.5	0.1	0.2	4.1	0.1	0.1	0.1	0.0	1,238	0.03	0.10	1,250
BNSF	0.8	0.0	0.0	0.9	0.0	0.0	0.0	0.0	283	0.01	0.02	286
UP	1.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	336	0.01	0.03	339

Table 165. SCAB Line Haul Annual Emissions

	Alt 3 - Reduced Wharf Imp.								(metric tons per year)			
(tpy)	CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	CO2	N2O	CH4	CO2e
2013 Base Year												
All IPI Rail												
On-dock IPI Rail												
BNSF												
UP												
Off-dock IPI Rail												
BNSF												
UP												
2018 Construction Year												
All IPI Rail	24.2	3.8	4.0	98.3	2.5	2.5	2.3	0.1	8,486	0.22	0.69	8,565
On-dock IPI Rail	15.5	2.4	2.6	62.8	1.6	1.6	1.4	0.1	5,420	0.14	0.44	5,470
BNSF	5.0	0.8	0.8	20.5	0.5	0.5	0.5	0.0	1,766	0.05	0.14	1,782
UP	2.8	0.4	0.5	11.4	0.3	0.3	0.3	0.0	988	0.03	0.08	997
Off-dock IPI Rail	0.7	0.1	0.1	2.9	0.1	0.1	0.1	0.0	247	0.01	0.02	249
BNSF	0.1	0.0	0.0	0.4	0.0	0.0	0.0	0.0	37	0.00	0.00	38
UP	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	45	0.00	0.00	46
CEQA 2019 Base + Everport 2019 Opening Year												
All IPI Rail	26.7	3.9	4.1	103.3	2.5	2.5	2.3	0.1	9,345	0.25	0.76	9,431
On-dock IPI Rail	17.0	2.5	2.6	65.8	1.6	1.6	1.5	0.1	5,955	0.16	0.48	6,010
BNSF	5.6	0.8	0.9	21.5	0.5	0.5	0.5	0.0	1,945	0.05	0.16	1,963
UP	3.1	0.5	0.5	12.0	0.3	0.3	0.3	0.0	1,082	0.03	0.09	1,092
Off-dock IPI Rail	0.8	0.1	0.1	3.0	0.1	0.1	0.1	0.0	275	0.01	0.02	277
BNSF	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	41	0.00	0.00	42
UP	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	50	0.00	0.00	51
CEQA 2026 Base + Everport 2026 Interim Year												
All IPI Rail	44.6	4.2	4.4	115.5	2.5	2.5	2.3	0.2	15,603	0.41	1.26	15,747
On-dock IPI Rail	30.1	2.8	3.0	78.1	1.7	1.7	1.6	0.1	10,548	0.28	0.85	10,646
BNSF	7.5	0.7	0.7	19.4	0.4	0.4	0.4	0.0	2,625	0.07	0.21	2,649
UP	7.6	0.7	0.7	19.6	0.4	0.4	0.4	0.0	2,649	0.07	0.21	2,674
Off-dock IPI Rail	1.4	0.1	0.1	3.6	0.1	0.1	0.1	0.0	491	0.01	0.04	495
BNSF	0.3	0.0	0.0	0.8	0.0	0.0	0.0	0.0	111	0.00	0.01	112
UP	0.4	0.0	0.0	1.0	0.0	0.0	0.0	0.0	134	0.00	0.01	135
CEQA 2033 Base + Everport 2033 Horizon Year												
All IPI Rail	220.0	12.4	13.1	355.4	6.6	6.6	6.1	0.9	77,042	2.03	6.24	77,754
On-dock IPI Rail	105.2	5.9	6.2	169.9	3.2	3.2	2.9	0.4	36,822	0.97	2.98	37,162
BNSF	26.2	1.5	1.6	42.3	0.8	0.8	0.7	0.1	9,163	0.24	0.74	9,247
UP	26.4	1.5	1.6	42.7	0.8	0.8	0.7	0.1	9,248	0.24	0.75	9,334
Off-dock IPI Rail	20.9	1.2	1.2	33.7	0.6	0.6	0.6	0.1	7,305	0.19	0.59	7,372
BNSF	4.8	0.3	0.3	7.7	0.1	0.1	0.1	0.0	1,670	0.04	0.14	1,686
UP	5.7	0.3	0.3	9.1	0.2	0.2	0.2	0.0	1,982	0.05	0.16	2,000
CEQA 2038 Base + Everport 2038 Horizon Year												
All IPI Rail	220.0	9.1	9.6	256.2	4.1	4.1	3.8	0.9	77,042	2.03	6.24	77,754
On-dock IPI Rail	105.2	4.3	4.6	122.5	2.0	2.0	1.8	0.4	36,822	0.97	2.98	37,162
BNSF	26.2	1.1	1.1	30.5	0.5	0.5	0.5	0.1	9,163	0.24	0.74	9,247
UP	26.4	1.1	1.1	30.8	0.5	0.5	0.5	0.1	9,248	0.24	0.75	9,334
Off-dock IPI Rail	20.9	0.9	0.9	24.3	0.4	0.4	0.4	0.1	7,305	0.19	0.59	7,372
BNSF	4.8	0.2	0.2	5.6	0.1	0.1	0.1	0.0	1,670	0.04	0.14	1,686
UP	5.7	0.2	0.2	6.6	0.1	0.1	0.1	0.0	1,982	0.05	0.16	2,000

Table 165. SCAB Line Haul Annual Emissions

(tpy)	Alt 4 - No Backland Imp. CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	(metric tons per year) CO2	N2O	CH4	CO2e
2013 Base Year												
All IPI Rail												
On-dock IPI Rail												
BNSF												
UP												
Off-dock IPI Rail												
BNSF												
UP												
2018 Construction Year												
All IPI Rail	24.2	3.8	4.0	98.3	2.5	2.5	2.3	0.1	8,486	0.22	0.69	8,565
On-dock IPI Rail	15.5	2.4	2.6	62.8	1.6	1.6	1.4	0.1	5,420	0.14	0.44	5,470
BNSF	5.0	0.8	0.8	20.5	0.5	0.5	0.5	0.0	1,766	0.05	0.14	1,782
UP	2.8	0.4	0.5	11.4	0.3	0.3	0.3	0.0	988	0.03	0.08	997
Off-dock IPI Rail	0.7	0.1	0.1	2.9	0.1	0.1	0.1	0.0	247	0.01	0.02	249
BNSF	0.1	0.0	0.0	0.4	0.0	0.0	0.0	0.0	37	0.00	0.00	38
UP	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	45	0.00	0.00	46
CEQA 2019 Base + Everport 2019 Opening Year												
All IPI Rail	24.4	3.6	3.8	94.6	2.3	2.3	2.1	0.1	8,559	0.23	0.69	8,638
On-dock IPI Rail	16.6	2.4	2.6	64.1	1.6	1.6	1.4	0.1	5,801	0.15	0.47	5,855
BNSF	5.4	0.8	0.8	20.8	0.5	0.5	0.5	0.0	1,883	0.05	0.15	1,900
UP	3.0	0.4	0.5	11.6	0.3	0.3	0.3	0.0	1,046	0.03	0.08	1,056
Off-dock IPI Rail	0.8	0.1	0.1	2.9	0.1	0.1	0.1	0.0	266	0.01	0.02	268
BNSF	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	41	0.00	0.00	42
UP	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	47	0.00	0.00	48
CEQA 2026 Base + Everport 2026 Interim Year												
All IPI Rail	39.6	3.7	3.9	102.7	2.2	2.2	2.1	0.2	13,878	0.37	1.12	14,007
On-dock IPI Rail	26.8	2.5	2.6	69.5	1.5	1.5	1.4	0.1	9,382	0.25	0.76	9,469
BNSF	6.7	0.6	0.7	17.3	0.4	0.4	0.3	0.0	2,335	0.06	0.19	2,356
UP	6.7	0.6	0.7	17.4	0.4	0.4	0.3	0.0	2,357	0.06	0.19	2,378
Off-dock IPI Rail	1.2	0.1	0.1	3.2	0.1	0.1	0.1	0.0	436	0.01	0.04	440
BNSF	0.3	0.0	0.0	0.7	0.0	0.0	0.0	0.0	99	0.00	0.01	100
UP	0.3	0.0	0.0	0.9	0.0	0.0	0.0	0.0	119	0.00	0.01	120
CEQA 2033 Base + Everport 2033 Horizon Year												
All IPI Rail	195.8	11.0	11.6	316.3	5.9	5.9	5.4	0.8	68,561	1.80	5.55	69,195
On-dock IPI Rail	105.2	5.9	6.2	169.9	3.2	3.2	2.9	0.4	36,822	0.97	2.98	37,162
BNSF	26.2	1.5	1.6	42.3	0.8	0.8	0.7	0.1	9,163	0.24	0.74	9,247
UP	26.4	1.5	1.6	42.7	0.8	0.8	0.7	0.1	9,248	0.24	0.75	9,334
Off-dock IPI Rail	13.9	0.8	0.8	22.5	0.4	0.4	0.4	0.1	4,868	0.13	0.39	4,913
BNSF	3.2	0.2	0.2	5.1	0.1	0.1	0.1	0.0	1,113	0.03	0.09	1,123
UP	3.8	0.2	0.2	6.1	0.1	0.1	0.1	0.0	1,321	0.03	0.11	1,333
CEQA 2038 Base + Everport 2038 Horizon Year												
All IPI Rail	195.8	8.1	8.5	228.0	3.7	3.7	3.4	0.8	68,561	1.80	5.55	69,195
On-dock IPI Rail	105.2	4.3	4.6	122.5	2.0	2.0	1.8	0.4	36,822	0.97	2.98	37,162
BNSF	26.2	1.1	1.1	30.5	0.5	0.5	0.5	0.1	9,163	0.24	0.74	9,247
UP	26.4	1.1	1.1	30.8	0.5	0.5	0.5	0.1	9,248	0.24	0.75	9,334
Off-dock IPI Rail	13.9	0.6	0.6	16.2	0.3	0.3	0.2	0.1	4,868	0.13	0.39	4,913
BNSF	3.2	0.1	0.1	3.7	0.1	0.1	0.1	0.0	1,113	0.03	0.09	1,123
UP	3.8	0.2	0.2	4.4	0.1	0.1	0.1	0.0	1,321	0.03	0.11	1,333

Table 165. SCAB Line Haul Annual Emissions

	Alt 5 - Additional TICTF (metric tons per year)											
(tpy)	CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	CO2	N2O	CH4	CO2e
2013 Base Year												
All IPI Rail												
On-dock IPI Rail												
BNSF												
UP												
Off-dock IPI Rail												
BNSF												
UP												
2018 Construction Year												
All IPI Rail	24.2	3.8	4.0	98.3	2.5	2.5	2.3	0.1	8,486	0.22	0.69	8,565
On-dock IPI Rail	15.5	2.4	2.6	62.8	1.6	1.6	1.4	0.1	5,420	0.14	0.44	5,470
BNSF	5.0	0.8	0.8	20.5	0.5	0.5	0.5	0.0	1,766	0.05	0.14	1,782
UP	2.8	0.4	0.5	11.4	0.3	0.3	0.3	0.0	988	0.03	0.08	997
Off-dock IPI Rail	0.7	0.1	0.1	2.9	0.1	0.1	0.1	0.0	247	0.01	0.02	249
BNSF	0.1	0.0	0.0	0.4	0.0	0.0	0.0	0.0	37	0.00	0.00	38
UP	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	45	0.00	0.00	46
CEQA 2019 Base + Everport 2019 Opening Year												
All IPI Rail	27.4	4.0	4.2	106.0	2.6	2.6	2.4	0.1	9,596	0.25	0.78	9,685
On-dock IPI Rail	17.4	2.6	2.7	67.5	1.6	1.6	1.5	0.1	6,109	0.16	0.49	6,165
BNSF	7.3	1.1	1.1	28.2	0.7	0.7	0.6	0.0	2,553	0.07	0.21	2,577
UP	3.2	0.5	0.5	12.3	0.3	0.3	0.3	0.0	1,117	0.03	0.09	1,127
Off-dock IPI Rail	0.8	0.1	0.1	3.1	0.1	0.1	0.1	0.0	284	0.01	0.02	286
BNSF	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	41	0.00	0.00	42
UP	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	50	0.00	0.00	51
CEQA 2026 Base + Everport 2026 Interim Year												
All IPI Rail	49.5	4.6	4.9	128.3	2.8	2.8	2.6	0.2	17,331	0.46	1.40	17,491
On-dock IPI Rail	33.5	3.1	3.3	86.7	1.9	1.9	1.7	0.1	11,716	0.31	0.95	11,825
BNSF	8.3	0.8	0.8	21.6	0.5	0.5	0.4	0.0	2,915	0.08	0.24	2,942
UP	8.4	0.8	0.8	21.8	0.5	0.5	0.4	0.0	2,943	0.08	0.24	2,970
Off-dock IPI Rail	1.6	0.1	0.2	4.0	0.1	0.1	0.1	0.0	545	0.01	0.04	550
BNSF	0.4	0.0	0.0	0.9	0.0	0.0	0.0	0.0	124	0.00	0.01	125
UP	0.4	0.0	0.0	1.1	0.0	0.0	0.0	0.0	149	0.00	0.01	150
CEQA 2033 Base + Everport 2033 Horizon Year												
All IPI Rail	246.9	13.9	14.6	398.8	7.4	7.4	6.8	1.0	86,441	2.27	7.00	87,240
On-dock IPI Rail	124.5	7.0	7.4	201.2	3.7	3.7	3.4	0.5	43,606	1.15	3.53	44,009
BNSF	31.0	1.7	1.8	50.1	0.9	0.9	0.9	0.1	10,851	0.29	0.88	10,951
UP	31.3	1.8	1.9	50.5	0.9	0.9	0.9	0.1	10,952	0.29	0.89	11,053
Off-dock IPI Rail	20.6	1.2	1.2	33.3	0.6	0.6	0.6	0.1	7,221	0.19	0.58	7,288
BNSF	4.7	0.3	0.3	7.6	0.1	0.1	0.1	0.0	1,651	0.04	0.13	1,666
UP	5.6	0.3	0.3	9.0	0.2	0.2	0.2	0.0	1,959	0.05	0.16	1,977
CEQA 2038 Base + Everport 2038 Horizon Year												
All IPI Rail	246.9	10.2	10.7	287.5	4.6	4.6	4.3	1.0	86,441	2.27	7.00	87,240
On-dock IPI Rail	124.5	5.1	5.4	145.0	2.3	2.3	2.2	0.5	43,606	1.15	3.53	44,009
BNSF	31.0	1.3	1.3	36.1	0.6	0.6	0.5	0.1	10,851	0.29	0.88	10,951
UP	31.3	1.3	1.4	36.4	0.6	0.6	0.5	0.1	10,952	0.29	0.89	11,053
Off-dock IPI Rail	20.6	0.9	0.9	24.0	0.4	0.4	0.4	0.1	7,221	0.19	0.58	7,288
BNSF	4.7	0.2	0.2	5.5	0.1	0.1	0.1	0.0	1,651	0.04	0.13	1,666
UP	5.6	0.2	0.2	6.5	0.1	0.1	0.1	0.0	1,959	0.05	0.16	1,977

Table 165. SCAB Line Haul Annual Emissions

	Proposed Project (metric tons per year)											
(tpy)	CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	CO2	N2O	CH4	CO2e
2013 Base Year												
All IPI Rail												
On-dock IPI Rail												
BNSF												
UP												
Off-dock IPI Rail												
BNSF												
UP												
2018 Construction Year												
All IPI Rail	24.2	3.8	4.0	98.3	2.5	2.5	2.3	0.1	8,486	0.22	0.69	8,565
On-dock IPI Rail	15.5	2.4	2.6	62.8	1.6	1.6	1.4	0.1	5,420	0.14	0.44	5,470
BNSF	5.0	0.8	0.8	20.5	0.5	0.5	0.5	0.0	1,766	0.05	0.14	1,782
UP	2.8	0.4	0.5	11.4	0.3	0.3	0.3	0.0	988	0.03	0.08	997
Off-dock IPI Rail	0.7	0.1	0.1	2.9	0.1	0.1	0.1	0.0	247	0.01	0.02	249
BNSF	0.1	0.0	0.0	0.4	0.0	0.0	0.0	0.0	37	0.00	0.00	38
UP	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	45	0.00	0.00	46
CEQA 2019 Base + Everport 2019 Opening Year												
All IPI Rail	27.4	4.0	4.2	106.0	2.6	2.6	2.4	0.1	9,596	0.25	0.78	9,685
On-dock IPI Rail	17.4	2.6	2.7	67.5	1.6	1.6	1.5	0.1	6,109	0.16	0.49	6,165
BNSF	7.3	1.1	1.1	28.2	0.7	0.7	0.6	0.0	2,553	0.07	0.21	2,577
UP	3.2	0.5	0.5	12.3	0.3	0.3	0.3	0.0	1,117	0.03	0.09	1,127
Off-dock IPI Rail	0.8	0.1	0.1	3.1	0.1	0.1	0.1	0.0	284	0.01	0.02	286
BNSF	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	41	0.00	0.00	42
UP	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	50	0.00	0.00	51
CEQA 2026 Base + Everport 2026 Interim Year												
All IPI Rail	49.5	4.6	4.9	128.3	2.8	2.8	2.6	0.2	17,331	0.46	1.40	17,491
On-dock IPI Rail	33.5	3.1	3.3	86.7	1.9	1.9	1.7	0.1	11,716	0.31	0.95	11,825
BNSF	8.3	0.8	0.8	21.6	0.5	0.5	0.4	0.0	2,915	0.08	0.24	2,942
UP	8.4	0.8	0.8	21.8	0.5	0.5	0.4	0.0	2,943	0.08	0.24	2,970
Off-dock IPI Rail	1.6	0.1	0.2	4.0	0.1	0.1	0.1	0.0	545	0.01	0.04	550
BNSF	0.4	0.0	0.0	0.9	0.0	0.0	0.0	0.0	124	0.00	0.01	125
UP	0.4	0.0	0.0	1.1	0.0	0.0	0.0	0.0	149	0.00	0.01	150
CEQA 2033 Base + Everport 2033 Horizon Year												
All IPI Rail	244.6	13.8	14.5	395.1	7.4	7.4	6.8	1.0	85,649	2.25	6.94	86,440
On-dock IPI Rail	105.2	5.9	6.2	169.9	3.2	3.2	2.9	0.4	36,822	0.97	2.98	37,162
BNSF	26.2	1.5	1.6	42.3	0.8	0.8	0.7	0.1	9,163	0.24	0.74	9,247
UP	26.4	1.5	1.6	42.7	0.8	0.8	0.7	0.1	9,248	0.24	0.75	9,334
Off-dock IPI Rail	28.9	1.6	1.7	46.6	0.9	0.9	0.8	0.1	10,108	0.27	0.82	10,201
BNSF	6.6	0.4	0.4	10.7	0.2	0.2	0.2	0.0	2,312	0.06	0.19	2,333
UP	7.8	0.4	0.5	12.6	0.2	0.2	0.2	0.0	2,742	0.07	0.22	2,768
CEQA 2038 Base + Everport 2038 Horizon Year												
All IPI Rail	244.6	10.1	10.6	284.8	4.6	4.6	4.2	1.0	85,649	2.25	6.94	86,440
On-dock IPI Rail	105.2	4.3	4.6	122.5	2.0	2.0	1.8	0.4	36,822	0.97	2.98	37,162
BNSF	26.2	1.1	1.1	30.5	0.5	0.5	0.5	0.1	9,163	0.24	0.74	9,247
UP	26.4	1.1	1.1	30.8	0.5	0.5	0.5	0.1	9,248	0.24	0.75	9,334
Off-dock IPI Rail	28.9	1.2	1.3	33.6	0.5	0.5	0.5	0.1	10,108	0.27	0.82	10,201
BNSF	6.6	0.3	0.3	7.7	0.1	0.1	0.1	0.0	2,312	0.06	0.19	2,333
UP	7.8	0.3	0.3	9.1	0.1	0.1	0.1	0.0	2,742	0.07	0.22	2,768

Table 166. On Port Line Haul Annual Emissions

	Alt 2 - No Fed Action (metric tons per year)											
(tpy)	CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	CO2	N2O	CH4	CO2e
2013 Base Year												
All IPI Rail	13.9	3.6	3.8	64.4	2.4	2.4	2.2	0.1	4,878	0.13	0.39	4,923
On-dock IPI Rail	11.3	2.9	3.1	52.2	1.9	1.9	1.8	0.1	3,954	0.10	0.32	3,991
BNSF	7.0	1.8	1.9	32.2	1.2	1.2	1.1	0.0	2,434	0.06	0.20	2,457
UP	4.3	1.1	1.2	20.1	0.7	0.7	0.7	0.0	1,520	0.04	0.12	1,534
Off-dock IPI Rail	2.6	0.7	0.7	12.2	0.5	0.5	0.4	0.0	920	0.02	0.07	928
BNSF	1.7	0.4	0.5	7.9	0.3	0.3	0.3	0.0	596	0.02	0.05	602
UP	1.8	0.5	0.5	8.3	0.3	0.3	0.3	0.0	627	0.02	0.05	633
2018 Construction Year												
All IPI Rail	14.6	2.3	2.4	59.2	1.5	1.5	1.4	0.1	5,106	0.13	0.41	5,154
On-dock IPI Rail	12.0	1.9	2.0	48.7	1.2	1.2	1.1	0.0	4,202	0.11	0.34	4,241
BNSF	6.9	1.1	1.1	27.8	0.7	0.7	0.6	0.0	2,401	0.06	0.19	2,423
UP	4.3	0.7	0.7	17.4	0.4	0.4	0.4	0.0	1,501	0.04	0.12	1,515
Off-dock IPI Rail	2.6	0.4	0.4	10.5	0.3	0.3	0.2	0.0	906	0.02	0.07	915
BNSF	1.7	0.3	0.3	7.1	0.2	0.2	0.2	0.0	610	0.02	0.05	616
UP	1.7	0.3	0.3	7.0	0.2	0.2	0.2	0.0	600	0.02	0.05	606
CEQA 2019 Base + Everport 2019 Opening Year												
All IPI Rail	14.8	2.2	2.3	57.1	1.4	1.4	1.3	0.1	5,165	0.14	0.42	5,212
On-dock IPI Rail	12.1	1.8	1.9	46.9	1.1	1.1	1.0	0.0	4,249	0.11	0.34	4,288
BNSF	6.9	1.0	1.1	26.9	0.7	0.7	0.6	0.0	2,430	0.06	0.20	2,453
UP	4.3	0.6	0.7	16.8	0.4	0.4	0.4	0.0	1,516	0.04	0.12	1,530
Off-dock IPI Rail	2.6	0.4	0.4	10.1	0.2	0.2	0.2	0.0	918	0.02	0.07	926
BNSF	1.8	0.3	0.3	6.8	0.2	0.2	0.2	0.0	618	0.02	0.05	623
UP	1.7	0.3	0.3	6.7	0.2	0.2	0.2	0.0	608	0.02	0.05	614
CEQA 2026 Base + Everport 2026 Interim Year												
All IPI Rail	14.9	1.4	1.5	38.5	0.8	0.8	0.8	0.1	5,203	0.14	0.42	5,251
On-dock IPI Rail	12.0	1.1	1.2	31.2	0.7	0.7	0.6	0.0	4,218	0.11	0.34	4,257
BNSF	6.0	0.6	0.6	15.6	0.3	0.3	0.3	0.0	2,109	0.06	0.17	2,128
UP	6.0	0.6	0.6	15.6	0.3	0.3	0.3	0.0	2,109	0.06	0.17	2,128
Off-dock IPI Rail	2.8	0.3	0.3	7.3	0.2	0.2	0.1	0.0	986	0.03	0.08	995
BNSF	1.4	0.1	0.1	3.7	0.1	0.1	0.1	0.0	494	0.01	0.04	498
UP	1.4	0.1	0.1	3.7	0.1	0.1	0.1	0.0	494	0.01	0.04	498
CEQA 2033 Base + Everport 2033 Horizon Year												
All IPI Rail	33.0	1.9	2.0	53.3	1.0	1.0	0.9	0.1	11,559	0.30	0.94	11,666
On-dock IPI Rail	27.5	1.6	1.6	44.5	0.8	0.8	0.8	0.1	9,638	0.25	0.78	9,727
BNSF	13.8	0.8	0.8	22.2	0.4	0.4	0.4	0.1	4,820	0.13	0.39	4,864
UP	13.8	0.8	0.8	22.2	0.4	0.4	0.4	0.1	4,820	0.13	0.39	4,864
Off-dock IPI Rail	5.5	0.3	0.3	8.9	0.2	0.2	0.2	0.0	1,921	0.05	0.16	1,939
BNSF	2.7	0.2	0.2	4.4	0.1	0.1	0.1	0.0	960	0.03	0.08	969
UP	2.7	0.2	0.2	4.4	0.1	0.1	0.1	0.0	960	0.03	0.08	969
CEQA 2038 Base + Everport 2038 Horizon Year												
All IPI Rail	33.0	1.4	1.4	38.4	0.6	0.6	0.6	0.1	11,559	0.30	0.94	11,666
On-dock IPI Rail	27.5	1.1	1.2	32.1	0.5	0.5	0.5	0.1	9,638	0.25	0.78	9,727
BNSF	13.8	0.6	0.6	16.0	0.3	0.3	0.2	0.1	4,820	0.13	0.39	4,864
UP	13.8	0.6	0.6	16.0	0.3	0.3	0.2	0.1	4,820	0.13	0.39	4,864
Off-dock IPI Rail	5.5	0.2	0.2	6.4	0.1	0.1	0.1	0.0	1,921	0.05	0.16	1,939
BNSF	2.7	0.1	0.1	3.2	0.1	0.1	0.0	0.0	960	0.03	0.08	969
UP	2.7	0.1	0.1	3.2	0.1	0.1	0.0	0.0	960	0.03	0.08	969

Table 166. On Port Line Haul Annual Emissions

	Alt 1 - No CEQA Project (metric tons per year)											
(tpy)	CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	CO2	N2O	CH4	CO2e
2013 Base Year												
All IPI Rail	13.9	3.6	3.8	64.4	2.4	2.4	2.2	0.1	4,878	0.13	0.39	4,923
On-dock IPI Rail	11.3	2.9	3.1	52.2	1.9	1.9	1.8	0.1	3,954	0.10	0.32	3,991
BNSF	7.0	1.8	1.9	32.2	1.2	1.2	1.1	0.0	2,434	0.06	0.20	2,457
UP	4.3	1.1	1.2	20.1	0.7	0.7	0.7	0.0	1,520	0.04	0.12	1,534
Off-dock IPI Rail	2.6	0.7	0.7	12.2	0.5	0.5	0.4	0.0	920	0.02	0.07	928
BNSF	1.7	0.4	0.5	7.9	0.3	0.3	0.3	0.0	596	0.02	0.05	602
UP	1.8	0.5	0.5	8.3	0.3	0.3	0.3	0.0	627	0.02	0.05	633
2018 Construction Year												
All IPI Rail	14.6	2.3	2.4	59.2	1.5	1.5	1.4	0.1	5,106	0.13	0.41	5,154
On-dock IPI Rail	12.0	1.9	2.0	48.7	1.2	1.2	1.1	0.0	4,202	0.11	0.34	4,241
BNSF	6.9	1.1	1.1	27.8	0.7	0.7	0.6	0.0	2,401	0.06	0.19	2,423
UP	4.3	0.7	0.7	17.4	0.4	0.4	0.4	0.0	1,501	0.04	0.12	1,515
Off-dock IPI Rail	2.6	0.4	0.4	10.5	0.3	0.3	0.2	0.0	906	0.02	0.07	915
BNSF	1.7	0.3	0.3	7.1	0.2	0.2	0.2	0.0	610	0.02	0.05	616
UP	1.7	0.3	0.3	7.0	0.2	0.2	0.2	0.0	600	0.02	0.05	606
CEQA 2019 Base + Everport 2019 Opening Year												
All IPI Rail	14.8	2.2	2.3	57.1	1.4	1.4	1.3	0.1	5,165	0.14	0.42	5,212
On-dock IPI Rail	12.1	1.8	1.9	46.9	1.1	1.1	1.0	0.0	4,249	0.11	0.34	4,288
BNSF	6.9	1.0	1.1	26.9	0.7	0.7	0.6	0.0	2,430	0.06	0.20	2,453
UP	4.3	0.6	0.7	16.8	0.4	0.4	0.4	0.0	1,516	0.04	0.12	1,530
Off-dock IPI Rail	2.6	0.4	0.4	10.1	0.2	0.2	0.2	0.0	918	0.02	0.07	926
BNSF	1.8	0.3	0.3	6.8	0.2	0.2	0.2	0.0	618	0.02	0.05	623
UP	1.7	0.3	0.3	6.7	0.2	0.2	0.2	0.0	608	0.02	0.05	614
CEQA 2026 Base + Everport 2026 Interim Year												
All IPI Rail	14.9	1.4	1.5	38.5	0.8	0.8	0.8	0.1	5,203	0.14	0.42	5,251
On-dock IPI Rail	12.0	1.1	1.2	31.2	0.7	0.7	0.6	0.0	4,218	0.11	0.34	4,257
BNSF	6.0	0.6	0.6	15.6	0.3	0.3	0.3	0.0	2,109	0.06	0.17	2,128
UP	6.0	0.6	0.6	15.6	0.3	0.3	0.3	0.0	2,109	0.06	0.17	2,128
Off-dock IPI Rail	2.8	0.3	0.3	7.3	0.2	0.2	0.1	0.0	986	0.03	0.08	995
BNSF	1.4	0.1	0.1	3.7	0.1	0.1	0.1	0.0	494	0.01	0.04	498
UP	1.4	0.1	0.1	3.7	0.1	0.1	0.1	0.0	494	0.01	0.04	498
CEQA 2033 Base + Everport 2033 Horizon Year												
All IPI Rail	33.0	1.9	2.0	53.3	1.0	1.0	0.9	0.1	11,559	0.30	0.94	11,666
On-dock IPI Rail	27.5	1.6	1.6	44.5	0.8	0.8	0.8	0.1	9,638	0.25	0.78	9,727
BNSF	13.8	0.8	0.8	22.2	0.4	0.4	0.4	0.1	4,820	0.13	0.39	4,864
UP	13.8	0.8	0.8	22.2	0.4	0.4	0.4	0.1	4,820	0.13	0.39	4,864
Off-dock IPI Rail	5.5	0.3	0.3	8.9	0.2	0.2	0.2	0.0	1,921	0.05	0.16	1,939
BNSF	2.7	0.2	0.2	4.4	0.1	0.1	0.1	0.0	960	0.03	0.08	969
UP	2.7	0.2	0.2	4.4	0.1	0.1	0.1	0.0	960	0.03	0.08	969
CEQA 2038 Base + Everport 2038 Horizon Year												
All IPI Rail	33.0	1.4	1.4	38.4	0.6	0.6	0.6	0.1	11,559	0.30	0.94	11,666
On-dock IPI Rail	27.5	1.1	1.2	32.1	0.5	0.5	0.5	0.1	9,638	0.25	0.78	9,727
BNSF	13.8	0.6	0.6	16.0	0.3	0.3	0.2	0.1	4,820	0.13	0.39	4,864
UP	13.8	0.6	0.6	16.0	0.3	0.3	0.2	0.1	4,820	0.13	0.39	4,864
Off-dock IPI Rail	5.5	0.2	0.2	6.4	0.1	0.1	0.1	0.0	1,921	0.05	0.16	1,939
BNSF	2.7	0.1	0.1	3.2	0.1	0.1	0.0	0.0	960	0.03	0.08	969
UP	2.7	0.1	0.1	3.2	0.1	0.1	0.0	0.0	960	0.03	0.08	969

Table 166. On Port Line Haul Annual Emissions

(tpy)	Alt 3 - Reduced Wharf Imp. CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	(metric tons per year) CO2	N2O	CH4	CO2e
2013 Base Year												
All IPI Rail												
On-dock IPI Rail												
BNSF												
UP												
Off-dock IPI Rail												
BNSF												
UP												
2018 Construction Year												
All IPI Rail	14.0	2.2	2.3	56.7	1.4	1.4	1.3	0.1	4,895	0.13	0.40	4,941
On-dock IPI Rail	11.5	1.8	1.9	46.7	1.2	1.2	1.1	0.0	4,028	0.11	0.33	4,065
BNSF	6.6	1.0	1.1	26.7	0.7	0.7	0.6	0.0	2,302	0.06	0.19	2,324
UP	4.1	0.6	0.7	16.7	0.4	0.4	0.4	0.0	1,439	0.04	0.12	1,452
Off-dock IPI Rail	2.5	0.4	0.4	10.1	0.3	0.3	0.2	0.0	869	0.02	0.07	878
BNSF	1.7	0.3	0.3	6.8	0.2	0.2	0.2	0.0	585	0.02	0.05	590
UP	1.6	0.3	0.3	6.7	0.2	0.2	0.2	0.0	577	0.02	0.05	582
CEQA 2019 Base + Everport 2019 Opening Year												
All IPI Rail	13.9	2.0	2.1	53.7	1.3	1.3	1.2	0.1	4,859	0.13	0.39	4,904
On-dock IPI Rail	11.3	1.7	1.7	43.7	1.1	1.1	1.0	0.0	3,954	0.10	0.32	3,991
BNSF	6.9	1.0	1.1	26.9	0.7	0.7	0.6	0.0	2,430	0.06	0.20	2,453
UP	4.4	0.6	0.7	16.8	0.4	0.4	0.4	0.0	1,524	0.04	0.12	1,538
Off-dock IPI Rail	2.6	0.4	0.4	10.1	0.2	0.2	0.2	0.0	910	0.02	0.07	919
BNSF	1.7	0.3	0.3	6.7	0.2	0.2	0.1	0.0	606	0.02	0.05	612
UP	1.7	0.3	0.3	6.6	0.2	0.2	0.1	0.0	600	0.02	0.05	606
CEQA 2026 Base + Everport 2026 Interim Year												
All IPI Rail	18.2	1.7	1.8	47.1	1.0	1.0	0.9	0.1	6,363	0.17	0.52	6,422
On-dock IPI Rail	14.7	1.4	1.5	38.2	0.8	0.8	0.8	0.1	5,159	0.14	0.42	5,206
BNSF	7.4	0.7	0.7	19.1	0.4	0.4	0.4	0.0	2,579	0.07	0.21	2,603
UP	7.4	0.7	0.7	19.1	0.4	0.4	0.4	0.0	2,579	0.07	0.21	2,603
Off-dock IPI Rail	3.4	0.3	0.3	8.9	0.2	0.2	0.2	0.0	1,206	0.03	0.10	1,218
BNSF	1.7	0.2	0.2	4.5	0.1	0.1	0.1	0.0	604	0.02	0.05	610
UP	1.7	0.2	0.2	4.5	0.1	0.1	0.1	0.0	604	0.02	0.05	610
CEQA 2033 Base + Everport 2033 Horizon Year												
All IPI Rail	40.9	2.3	2.4	66.0	1.2	1.2	1.1	0.2	14,305	0.38	1.16	14,437
On-dock IPI Rail	27.5	1.6	1.6	44.5	0.8	0.8	0.8	0.1	9,638	0.25	0.78	9,727
BNSF	13.8	0.8	0.8	22.2	0.4	0.4	0.4	0.1	4,820	0.13	0.39	4,864
UP	13.8	0.8	0.8	22.2	0.4	0.4	0.4	0.1	4,820	0.13	0.39	4,864
Off-dock IPI Rail	13.3	0.8	0.8	21.5	0.4	0.4	0.4	0.1	4,669	0.12	0.38	4,712
BNSF	6.7	0.4	0.4	10.8	0.2	0.2	0.2	0.0	2,335	0.06	0.19	2,357
UP	6.7	0.4	0.4	10.8	0.2	0.2	0.2	0.0	2,335	0.06	0.19	2,357
CEQA 2038 Base + Everport 2038 Horizon Year												
All IPI Rail	40.9	1.7	1.8	47.6	0.8	0.8	0.7	0.2	14,305	0.38	1.16	14,437
On-dock IPI Rail	27.5	1.1	1.2	32.1	0.5	0.5	0.5	0.1	9,638	0.25	0.78	9,727
BNSF	13.8	0.6	0.6	16.0	0.3	0.3	0.2	0.1	4,820	0.13	0.39	4,864
UP	13.8	0.6	0.6	16.0	0.3	0.3	0.2	0.1	4,820	0.13	0.39	4,864
Off-dock IPI Rail	13.3	0.6	0.6	15.5	0.3	0.3	0.2	0.1	4,669	0.12	0.38	4,712
BNSF	6.7	0.3	0.3	7.8	0.1	0.1	0.1	0.0	2,335	0.06	0.19	2,357
UP	6.7	0.3	0.3	7.8	0.1	0.1	0.1	0.0	2,335	0.06	0.19	2,357

Table 166. On Port Line Haul Annual Emissions

	Alt 4 - No Backland Imp. (metric tons per year)											
(tpy)	CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	CO2	N2O	CH4	CO2e
2013 Base Year												
All IPI Rail												
On-dock IPI Rail												
BNSF												
UP												
Off-dock IPI Rail												
BNSF												
UP												
2018 Construction Year												
All IPI Rail	14.0	2.2	2.3	56.7	1.4	1.4	1.3	0.1	4,895	0.13	0.40	4,941
On-dock IPI Rail	11.5	1.8	1.9	46.7	1.2	1.2	1.1	0.0	4,028	0.11	0.33	4,065
BNSF	6.6	1.0	1.1	26.7	0.7	0.7	0.6	0.0	2,302	0.06	0.19	2,324
UP	4.1	0.6	0.7	16.7	0.4	0.4	0.4	0.0	1,439	0.04	0.12	1,452
Off-dock IPI Rail	2.5	0.4	0.4	10.1	0.3	0.3	0.2	0.0	869	0.02	0.07	878
BNSF	1.7	0.3	0.3	6.8	0.2	0.2	0.2	0.0	585	0.02	0.05	590
UP	1.6	0.3	0.3	6.7	0.2	0.2	0.2	0.0	577	0.02	0.05	582
CEQA 2019 Base + Everport 2019 Opening Year												
All IPI Rail	13.8	2.0	2.1	53.6	1.3	1.3	1.2	0.1	4,849	0.13	0.39	4,894
On-dock IPI Rail	11.3	1.7	1.7	43.6	1.1	1.1	1.0	0.0	3,945	0.10	0.32	3,981
BNSF	7.0	1.0	1.1	26.9	0.7	0.7	0.6	0.0	2,436	0.06	0.20	2,459
UP	4.4	0.6	0.7	16.9	0.4	0.4	0.4	0.0	1,528	0.04	0.12	1,542
Off-dock IPI Rail	2.6	0.4	0.4	10.1	0.2	0.2	0.2	0.0	912	0.02	0.07	921
BNSF	1.7	0.2	0.3	6.6	0.2	0.2	0.1	0.0	596	0.02	0.05	602
UP	1.8	0.3	0.3	6.8	0.2	0.2	0.2	0.0	620	0.02	0.05	625
CEQA 2026 Base + Everport 2026 Interim Year												
All IPI Rail	17.1	1.6	1.7	44.4	1.0	1.0	0.9	0.1	6,001	0.16	0.49	6,057
On-dock IPI Rail	13.9	1.3	1.4	36.0	0.8	0.8	0.7	0.1	4,866	0.13	0.39	4,911
BNSF	7.0	0.7	0.7	18.0	0.4	0.4	0.4	0.0	2,434	0.06	0.20	2,457
UP	7.0	0.7	0.7	18.0	0.4	0.4	0.4	0.0	2,434	0.06	0.20	2,457
Off-dock IPI Rail	3.2	0.3	0.3	8.4	0.2	0.2	0.2	0.0	1,137	0.03	0.09	1,147
BNSF	1.6	0.2	0.2	4.2	0.1	0.1	0.1	0.0	569	0.01	0.05	575
UP	1.6	0.2	0.2	4.2	0.1	0.1	0.1	0.0	569	0.01	0.05	575
CEQA 2033 Base + Everport 2033 Horizon Year												
All IPI Rail	38.4	2.2	2.3	62.0	1.2	1.2	1.1	0.2	13,447	0.35	1.09	13,571
On-dock IPI Rail	27.5	1.6	1.6	44.5	0.8	0.8	0.8	0.1	9,638	0.25	0.78	9,727
BNSF	13.8	0.8	0.8	22.2	0.4	0.4	0.4	0.1	4,820	0.13	0.39	4,864
UP	13.8	0.8	0.8	22.2	0.4	0.4	0.4	0.1	4,820	0.13	0.39	4,864
Off-dock IPI Rail	10.9	0.6	0.6	17.6	0.3	0.3	0.3	0.0	3,811	0.10	0.31	3,846
BNSF	5.4	0.3	0.3	8.8	0.2	0.2	0.2	0.0	1,905	0.05	0.15	1,923
UP	5.4	0.3	0.3	8.8	0.2	0.2	0.2	0.0	1,905	0.05	0.15	1,923
CEQA 2038 Base + Everport 2038 Horizon Year												
All IPI Rail	38.4	1.6	1.7	44.7	0.7	0.7	0.7	0.2	13,447	0.35	1.09	13,571
On-dock IPI Rail	27.5	1.1	1.2	32.1	0.5	0.5	0.5	0.1	9,638	0.25	0.78	9,727
BNSF	13.8	0.6	0.6	16.0	0.3	0.3	0.2	0.1	4,820	0.13	0.39	4,864
UP	13.8	0.6	0.6	16.0	0.3	0.3	0.2	0.1	4,820	0.13	0.39	4,864
Off-dock IPI Rail	10.9	0.4	0.5	12.7	0.2	0.2	0.2	0.0	3,811	0.10	0.31	3,846
BNSF	5.4	0.2	0.2	6.3	0.1	0.1	0.1	0.0	1,905	0.05	0.15	1,923
UP	5.4	0.2	0.2	6.3	0.1	0.1	0.1	0.0	1,905	0.05	0.15	1,923

Table 166. On Port Line Haul Annual Emissions

(tpy)	Alt 5 - Additional TICTF CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	(metric tons per year) CO2	N2O	CH4	CO2e
2013 Base Year												
All IPI Rail												
On-dock IPI Rail												
BNSF												
UP												
Off-dock IPI Rail												
BNSF												
UP												
2018 Construction Year												
All IPI Rail	14.0	2.2	2.3	56.7	1.4	1.4	1.3	0.1	4,895	0.13	0.40	4,941
On-dock IPI Rail	11.5	1.8	1.9	46.7	1.2	1.2	1.1	0.0	4,028	0.11	0.33	4,065
BNSF	6.6	1.0	1.1	26.7	0.7	0.7	0.6	0.0	2,302	0.06	0.19	2,324
UP	4.1	0.6	0.7	16.7	0.4	0.4	0.4	0.0	1,439	0.04	0.12	1,452
Off-dock IPI Rail	2.5	0.4	0.4	10.1	0.3	0.3	0.2	0.0	869	0.02	0.07	878
BNSF	1.7	0.3	0.3	6.8	0.2	0.2	0.2	0.0	585	0.02	0.05	590
UP	1.6	0.3	0.3	6.7	0.2	0.2	0.2	0.0	577	0.02	0.05	582
CEQA 2019 Base + Everport 2019 Opening Year												
All IPI Rail	14.8	2.2	2.3	57.1	1.4	1.4	1.3	0.1	5,167	0.14	0.42	5,214
On-dock IPI Rail	12.2	1.8	1.9	47.1	1.1	1.1	1.1	0.0	4,264	0.11	0.35	4,304
BNSF	7.0	1.0	1.1	27.0	0.7	0.7	0.6	0.0	2,446	0.06	0.20	2,468
UP	4.3	0.6	0.7	16.8	0.4	0.4	0.4	0.0	1,516	0.04	0.12	1,530
Off-dock IPI Rail	2.6	0.4	0.4	10.0	0.2	0.2	0.2	0.0	902	0.02	0.07	911
BNSF	1.8	0.3	0.3	6.9	0.2	0.2	0.2	0.0	627	0.02	0.05	633
UP	1.8	0.3	0.3	6.8	0.2	0.2	0.2	0.0	616	0.02	0.05	621
CEQA 2026 Base + Everport 2026 Interim Year												
All IPI Rail	19.2	1.8	1.9	49.6	1.1	1.1	1.0	0.1	6,706	0.18	0.54	6,768
On-dock IPI Rail	15.5	1.5	1.5	40.3	0.9	0.9	0.8	0.1	5,438	0.14	0.44	5,488
BNSF	7.8	0.7	0.8	20.1	0.4	0.4	0.4	0.0	2,719	0.07	0.22	2,744
UP	7.8	0.7	0.8	20.1	0.4	0.4	0.4	0.0	2,719	0.07	0.22	2,744
Off-dock IPI Rail	3.6	0.3	0.4	9.4	0.2	0.2	0.2	0.0	1,270	0.03	0.10	1,282
BNSF	1.8	0.2	0.2	4.7	0.1	0.1	0.1	0.0	635	0.02	0.05	641
UP	1.8	0.2	0.2	4.7	0.1	0.1	0.1	0.0	635	0.02	0.05	641
CEQA 2033 Base + Everport 2033 Horizon Year												
All IPI Rail	43.2	2.4	2.6	69.8	1.3	1.3	1.2	0.2	15,128	0.40	1.22	15,268
On-dock IPI Rail	30.0	1.7	1.8	48.4	0.9	0.9	0.8	0.1	10,488	0.28	0.85	10,585
BNSF	15.0	0.8	0.9	24.2	0.5	0.5	0.4	0.1	5,244	0.14	0.42	5,292
UP	15.0	0.8	0.9	24.2	0.5	0.5	0.4	0.1	5,244	0.14	0.42	5,292
Off-dock IPI Rail	13.3	0.7	0.8	21.4	0.4	0.4	0.4	0.1	4,642	0.12	0.38	4,685
BNSF	6.6	0.4	0.4	10.7	0.2	0.2	0.2	0.0	2,322	0.06	0.19	2,343
UP	6.6	0.4	0.4	10.7	0.2	0.2	0.2	0.0	2,322	0.06	0.19	2,343
CEQA 2038 Base + Everport 2038 Horizon Year												
All IPI Rail	43.2	1.8	1.9	50.3	0.8	0.8	0.7	0.2	15,128	0.40	1.22	15,268
On-dock IPI Rail	30.0	1.2	1.3	34.9	0.6	0.6	0.5	0.1	10,488	0.28	0.85	10,585
BNSF	15.0	0.6	0.7	17.4	0.3	0.3	0.3	0.1	5,244	0.14	0.42	5,292
UP	15.0	0.6	0.7	17.4	0.3	0.3	0.3	0.1	5,244	0.14	0.42	5,292
Off-dock IPI Rail	13.3	0.5	0.6	15.4	0.2	0.2	0.2	0.1	4,642	0.12	0.38	4,685
BNSF	6.6	0.3	0.3	7.7	0.1	0.1	0.1	0.0	2,322	0.06	0.19	2,343
UP	6.6	0.3	0.3	7.7	0.1	0.1	0.1	0.0	2,322	0.06	0.19	2,343

Table 166. On Port Line Haul Annual Emissions

	Proposed Project (metric tons per year)											
(tpy)	CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	CO2	N2O	CH4	CO2e
2013 Base Year												
All IPI Rail												
On-dock IPI Rail												
BNSF												
UP												
Off-dock IPI Rail												
BNSF												
UP												
2018 Construction Year												
All IPI Rail	14.0	2.2	2.3	56.7	1.4	1.4	1.3	0.1	4,895	0.13	0.40	4,941
On-dock IPI Rail	11.5	1.8	1.9	46.7	1.2	1.2	1.1	0.0	4,028	0.11	0.33	4,065
BNSF	6.6	1.0	1.1	26.7	0.7	0.7	0.6	0.0	2,302	0.06	0.19	2,324
UP	4.1	0.6	0.7	16.7	0.4	0.4	0.4	0.0	1,439	0.04	0.12	1,452
Off-dock IPI Rail	2.5	0.4	0.4	10.1	0.3	0.3	0.2	0.0	869	0.02	0.07	878
BNSF	1.7	0.3	0.3	6.8	0.2	0.2	0.2	0.0	585	0.02	0.05	590
UP	1.6	0.3	0.3	6.7	0.2	0.2	0.2	0.0	577	0.02	0.05	582
CEQA 2019 Base + Everport 2019 Opening Year												
All IPI Rail	14.8	2.2	2.3	57.1	1.4	1.4	1.3	0.1	5,167	0.14	0.42	5,214
On-dock IPI Rail	12.2	1.8	1.9	47.1	1.1	1.1	1.1	0.0	4,264	0.11	0.35	4,304
BNSF	7.0	1.0	1.1	27.0	0.7	0.7	0.6	0.0	2,446	0.06	0.20	2,468
UP	4.3	0.6	0.7	16.8	0.4	0.4	0.4	0.0	1,516	0.04	0.12	1,530
Off-dock IPI Rail	2.6	0.4	0.4	10.0	0.2	0.2	0.2	0.0	902	0.02	0.07	911
BNSF	1.8	0.3	0.3	6.9	0.2	0.2	0.2	0.0	627	0.02	0.05	633
UP	1.8	0.3	0.3	6.8	0.2	0.2	0.2	0.0	616	0.02	0.05	621
CEQA 2026 Base + Everport 2026 Interim Year												
All IPI Rail	19.2	1.8	1.9	49.6	1.1	1.1	1.0	0.1	6,706	0.18	0.54	6,768
On-dock IPI Rail	15.5	1.5	1.5	40.3	0.9	0.9	0.8	0.1	5,438	0.14	0.44	5,488
BNSF	7.8	0.7	0.8	20.1	0.4	0.4	0.4	0.0	2,719	0.07	0.22	2,744
UP	7.8	0.7	0.8	20.1	0.4	0.4	0.4	0.0	2,719	0.07	0.22	2,744
Off-dock IPI Rail	3.6	0.3	0.4	9.4	0.2	0.2	0.2	0.0	1,270	0.03	0.10	1,282
BNSF	1.8	0.2	0.2	4.7	0.1	0.1	0.1	0.0	635	0.02	0.05	641
UP	1.8	0.2	0.2	4.7	0.1	0.1	0.1	0.0	635	0.02	0.05	641
CEQA 2033 Base + Everport 2033 Horizon Year												
All IPI Rail	43.2	2.4	2.6	69.8	1.3	1.3	1.2	0.2	15,128	0.40	1.22	15,268
On-dock IPI Rail	27.5	1.6	1.6	44.5	0.8	0.8	0.8	0.1	9,638	0.25	0.78	9,727
BNSF	13.8	0.8	0.8	22.2	0.4	0.4	0.4	0.1	4,820	0.13	0.39	4,864
UP	13.8	0.8	0.8	22.2	0.4	0.4	0.4	0.1	4,820	0.13	0.39	4,864
Off-dock IPI Rail	15.7	0.9	0.9	25.3	0.5	0.5	0.4	0.1	5,492	0.14	0.44	5,543
BNSF	7.8	0.4	0.5	12.7	0.2	0.2	0.2	0.0	2,746	0.07	0.22	2,771
UP	7.8	0.4	0.5	12.7	0.2	0.2	0.2	0.0	2,746	0.07	0.22	2,771
CEQA 2038 Base + Everport 2038 Horizon Year												
All IPI Rail	43.2	1.8	1.9	50.3	0.8	0.8	0.7	0.2	15,128	0.40	1.22	15,268
On-dock IPI Rail	27.5	1.1	1.2	32.1	0.5	0.5	0.5	0.1	9,638	0.25	0.78	9,727
BNSF	13.8	0.6	0.6	16.0	0.3	0.3	0.2	0.1	4,820	0.13	0.39	4,864
UP	13.8	0.6	0.6	16.0	0.3	0.3	0.2	0.1	4,820	0.13	0.39	4,864
Off-dock IPI Rail	15.7	0.6	0.7	18.3	0.3	0.3	0.3	0.1	5,492	0.14	0.44	5,543
BNSF	7.8	0.3	0.3	9.1	0.1	0.1	0.1	0.0	2,746	0.07	0.22	2,771
UP	7.8	0.3	0.3	9.1	0.1	0.1	0.1	0.0	2,746	0.07	0.22	2,771

Table 167. Switch Locomotive Annual Emissions

	Alt 2 - No Fed Action (metric tons per year)											
(tpy)	CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	CO2	N2O	CH4	CO2e
2013 Base Year												
All IPI Rail	0.8	0.1	0.2	2.8	0.0	0.0	0.0	0.0	267	0.01	0.02	269
On-dock IPI Rail	0.6	0.1	0.1	1.5	0.0	0.0	0.0	0.0	215	0.01	0.02	217
BNSF	0.4	0.0	0.0	0.9	0.0	0.0	0.0	0.0	130	0.00	0.01	132
UP	0.2	0.0	0.0	0.6	0.0	0.0	0.0	0.0	84	0.00	0.01	85
Off-dock IPI Rail	0.2	0.1	0.1	1.3	0.0	0.0	0.0	0.0	52	0.00	0.00	53
BNSF	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	26	0.00	0.00	26
UP	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	26	0.00	0.00	26
2018 Construction Year												
All IPI Rail	0.8	0.1	0.1	2.7	0.0	0.0	0.0	0.0	272	0.01	0.02	274
On-dock IPI Rail	0.6	0.1	0.1	1.6	0.0	0.0	0.0	0.0	219	0.01	0.02	221
BNSF	0.4	0.0	0.0	0.9	0.0	0.0	0.0	0.0	133	0.00	0.01	134
UP	0.3	0.0	0.0	0.6	0.0	0.0	0.0	0.0	86	0.00	0.01	86
Off-dock IPI Rail	0.2	0.1	0.1	1.1	0.0	0.0	0.0	0.0	53	0.00	0.00	54
BNSF	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	27	0.00	0.00	27
UP	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	27	0.00	0.00	27
CEQA 2019 Base + Everport 2019 Opening Year												
All IPI Rail	0.8	0.1	0.1	2.7	0.0	0.0	0.0	0.0	275	0.01	0.02	277
On-dock IPI Rail	0.7	0.1	0.1	1.6	0.0	0.0	0.0	0.0	221	0.01	0.02	223
BNSF	0.4	0.0	0.0	1.0	0.0	0.0	0.0	0.0	134	0.00	0.01	136
UP	0.3	0.0	0.0	0.6	0.0	0.0	0.0	0.0	87	0.00	0.01	87
Off-dock IPI Rail	0.2	0.1	0.1	1.2	0.0	0.0	0.0	0.0	54	0.00	0.00	54
BNSF	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	27	0.00	0.00	27
UP	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	27	0.00	0.00	27
CEQA 2026 Base + Everport 2026 Interim Year												
All IPI Rail	0.9	0.1	0.1	2.4	0.0	0.0	0.0	0.0	318	0.01	0.02	321
On-dock IPI Rail	0.8	0.1	0.1	1.5	0.0	0.0	0.0	0.0	258	0.01	0.02	260
BNSF	0.4	0.0	0.0	0.7	0.0	0.0	0.0	0.0	129	0.00	0.01	130
UP	0.4	0.0	0.0	0.7	0.0	0.0	0.0	0.0	129	0.00	0.01	130
Off-dock IPI Rail	0.2	0.0	0.1	0.9	0.0	0.0	0.0	0.0	60	0.00	0.00	61
BNSF	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	30	0.00	0.00	30
UP	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	30	0.00	0.00	30
CEQA 2033 Base + Everport 2033 Horizon Year												
All IPI Rail	2.1	0.3	0.3	4.6	0.1	0.1	0.1	0.0	706	0.02	0.05	712
On-dock IPI Rail	1.8	0.2	0.2	3.4	0.0	0.0	0.0	0.0	589	0.01	0.04	594
BNSF	0.9	0.1	0.1	1.7	0.0	0.0	0.0	0.0	294	0.01	0.02	297
UP	0.9	0.1	0.1	1.7	0.0	0.0	0.0	0.0	294	0.01	0.02	297
Off-dock IPI Rail	0.3	0.1	0.1	1.2	0.0	0.0	0.0	0.0	117	0.00	0.01	118
BNSF	0.2	0.0	0.0	0.6	0.0	0.0	0.0	0.0	59	0.00	0.00	59
UP	0.2	0.0	0.0	0.6	0.0	0.0	0.0	0.0	59	0.00	0.00	59
CEQA 2038 Base + Everport 2038 Horizon Year												
All IPI Rail	2.1	0.1	0.2	2.3	0.0	0.0	0.0	0.0	706	0.02	0.05	712
On-dock IPI Rail	1.8	0.1	0.1	1.4	0.0	0.0	0.0	0.0	589	0.01	0.04	594
BNSF	0.9	0.1	0.1	0.7	0.0	0.0	0.0	0.0	294	0.01	0.02	297
UP	0.9	0.1	0.1	0.7	0.0	0.0	0.0	0.0	294	0.01	0.02	297
Off-dock IPI Rail	0.3	0.0	0.0	0.8	0.0	0.0	0.0	0.0	117	0.00	0.01	118
BNSF	0.2	0.0	0.0	0.4	0.0	0.0	0.0	0.0	59	0.00	0.00	59
UP	0.2	0.0	0.0	0.4	0.0	0.0	0.0	0.0	59	0.00	0.00	59

Table 167. Switch Locomotive Annual Emissions

	Alt 1 - No CEQA Project								(metric tons per year)			
(tpy)	CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	CO2	N2O	CH4	CO2e
2013 Base Year												
All IPI Rail	0.8	0.1	0.2	2.8	0.0	0.0	0.0	0.0	267	0.01	0.02	269
On-dock IPI Rail	0.6	0.1	0.1	1.5	0.0	0.0	0.0	0.0	215	0.01	0.02	217
BNSF	0.4	0.0	0.0	0.9	0.0	0.0	0.0	0.0	130	0.00	0.01	132
UP	0.2	0.0	0.0	0.6	0.0	0.0	0.0	0.0	84	0.00	0.01	85
Off-dock IPI Rail	0.2	0.1	0.1	1.3	0.0	0.0	0.0	0.0	52	0.00	0.00	53
BNSF	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	26	0.00	0.00	26
UP	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	26	0.00	0.00	26
2018 Construction Year												
All IPI Rail	0.8	0.1	0.1	2.7	0.0	0.0	0.0	0.0	272	0.01	0.02	274
On-dock IPI Rail	0.6	0.1	0.1	1.6	0.0	0.0	0.0	0.0	219	0.01	0.02	221
BNSF	0.4	0.0	0.0	0.9	0.0	0.0	0.0	0.0	133	0.00	0.01	134
UP	0.3	0.0	0.0	0.6	0.0	0.0	0.0	0.0	86	0.00	0.01	86
Off-dock IPI Rail	0.2	0.1	0.1	1.1	0.0	0.0	0.0	0.0	53	0.00	0.00	54
BNSF	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	27	0.00	0.00	27
UP	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	27	0.00	0.00	27
CEQA 2019 Base + Everport 2019 Opening Year												
All IPI Rail	0.8	0.1	0.1	2.7	0.0	0.0	0.0	0.0	275	0.01	0.02	277
On-dock IPI Rail	0.7	0.1	0.1	1.6	0.0	0.0	0.0	0.0	221	0.01	0.02	223
BNSF	0.4	0.0	0.0	1.0	0.0	0.0	0.0	0.0	134	0.00	0.01	136
UP	0.3	0.0	0.0	0.6	0.0	0.0	0.0	0.0	87	0.00	0.01	87
Off-dock IPI Rail	0.2	0.1	0.1	1.2	0.0	0.0	0.0	0.0	54	0.00	0.00	54
BNSF	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	27	0.00	0.00	27
UP	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	27	0.00	0.00	27
CEQA 2026 Base + Everport 2026 Interim Year												
All IPI Rail	0.9	0.1	0.1	2.4	0.0	0.0	0.0	0.0	318	0.01	0.02	321
On-dock IPI Rail	0.8	0.1	0.1	1.5	0.0	0.0	0.0	0.0	258	0.01	0.02	260
BNSF	0.4	0.0	0.0	0.7	0.0	0.0	0.0	0.0	129	0.00	0.01	130
UP	0.4	0.0	0.0	0.7	0.0	0.0	0.0	0.0	129	0.00	0.01	130
Off-dock IPI Rail	0.2	0.0	0.1	0.9	0.0	0.0	0.0	0.0	60	0.00	0.00	61
BNSF	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	30	0.00	0.00	30
UP	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	30	0.00	0.00	30
CEQA 2033 Base + Everport 2033 Horizon Year												
All IPI Rail	2.1	0.3	0.3	4.6	0.1	0.1	0.1	0.0	706	0.02	0.05	712
On-dock IPI Rail	1.8	0.2	0.2	3.4	0.0	0.0	0.0	0.0	589	0.01	0.04	594
BNSF	0.9	0.1	0.1	1.7	0.0	0.0	0.0	0.0	294	0.01	0.02	297
UP	0.9	0.1	0.1	1.7	0.0	0.0	0.0	0.0	294	0.01	0.02	297
Off-dock IPI Rail	0.3	0.1	0.1	1.2	0.0	0.0	0.0	0.0	117	0.00	0.01	118
BNSF	0.2	0.0	0.0	0.6	0.0	0.0	0.0	0.0	59	0.00	0.00	59
UP	0.2	0.0	0.0	0.6	0.0	0.0	0.0	0.0	59	0.00	0.00	59
CEQA 2038 Base + Everport 2038 Horizon Year												
All IPI Rail	2.1	0.1	0.2	2.3	0.0	0.0	0.0	0.0	706	0.02	0.05	712
On-dock IPI Rail	1.8	0.1	0.1	1.4	0.0	0.0	0.0	0.0	589	0.01	0.04	594
BNSF	0.9	0.1	0.1	0.7	0.0	0.0	0.0	0.0	294	0.01	0.02	297
UP	0.9	0.1	0.1	0.7	0.0	0.0	0.0	0.0	294	0.01	0.02	297
Off-dock IPI Rail	0.3	0.0	0.0	0.8	0.0	0.0	0.0	0.0	117	0.00	0.01	118
BNSF	0.2	0.0	0.0	0.4	0.0	0.0	0.0	0.0	59	0.00	0.00	59
UP	0.2	0.0	0.0	0.4	0.0	0.0	0.0	0.0	59	0.00	0.00	59

Table 167. Switch Locomotive Annual Emissions

(tpy)	Alt 3 - Reduced Wharf Imp. CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	(metric tons per year) CO2	N2O	CH4	CO2e
2013 Base Year												
All IPI Rail												
On-dock IPI Rail												
BNSF												
UP												
Off-dock IPI Rail												
BNSF												
UP												
2018 Construction Year												
All IPI Rail	0.8	0.1	0.1	2.6	0.0	0.0	0.0	0.0	261	0.01	0.02	263
On-dock IPI Rail	0.6	0.1	0.1	1.5	0.0	0.0	0.0	0.0	210	0.01	0.02	211
BNSF	0.4	0.0	0.0	0.9	0.0	0.0	0.0	0.0	127	0.00	0.01	128
UP	0.2	0.0	0.0	0.6	0.0	0.0	0.0	0.0	82	0.00	0.01	83
Off-dock IPI Rail	0.2	0.1	0.1	1.1	0.0	0.0	0.0	0.0	51	0.00	0.00	51
BNSF	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	26	0.00	0.00	26
UP	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	25	0.00	0.00	26
CEQA 2019 Base + Everport 2019 Opening Year												
All IPI Rail	0.8	0.1	0.1	2.7	0.0	0.0	0.0	0.0	272	0.01	0.02	274
On-dock IPI Rail	0.6	0.1	0.1	1.6	0.0	0.0	0.0	0.0	219	0.01	0.02	221
BNSF	0.4	0.0	0.0	0.9	0.0	0.0	0.0	0.0	133	0.00	0.01	134
UP	0.3	0.0	0.0	0.6	0.0	0.0	0.0	0.0	86	0.00	0.01	86
Off-dock IPI Rail	0.2	0.1	0.1	1.1	0.0	0.0	0.0	0.0	53	0.00	0.00	54
BNSF	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	27	0.00	0.00	27
UP	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	27	0.00	0.00	27
CEQA 2026 Base + Everport 2026 Interim Year												
All IPI Rail	1.2	0.2	0.2	3.0	0.0	0.0	0.0	0.0	389	0.01	0.03	392
On-dock IPI Rail	0.9	0.1	0.1	1.8	0.0	0.0	0.0	0.0	315	0.01	0.02	318
BNSF	0.5	0.1	0.1	0.9	0.0	0.0	0.0	0.0	158	0.00	0.01	159
UP	0.5	0.1	0.1	0.9	0.0	0.0	0.0	0.0	158	0.00	0.01	159
Off-dock IPI Rail	0.2	0.1	0.1	1.1	0.0	0.0	0.0	0.0	74	0.00	0.01	74
BNSF	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	37	0.00	0.00	37
UP	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	37	0.00	0.00	37
CEQA 2033 Base + Everport 2033 Horizon Year												
All IPI Rail	2.6	0.4	0.4	6.4	0.1	0.1	0.1	0.0	874	0.02	0.06	882
On-dock IPI Rail	1.8	0.2	0.2	3.4	0.0	0.0	0.0	0.0	589	0.01	0.04	594
BNSF	0.9	0.1	0.1	1.7	0.0	0.0	0.0	0.0	294	0.01	0.02	297
UP	0.9	0.1	0.1	1.7	0.0	0.0	0.0	0.0	294	0.01	0.02	297
Off-dock IPI Rail	0.8	0.2	0.2	3.0	0.1	0.1	0.1	0.0	285	0.01	0.02	288
BNSF	0.4	0.1	0.1	1.5	0.0	0.0	0.0	0.0	143	0.00	0.01	144
UP	0.4	0.1	0.1	1.5	0.0	0.0	0.0	0.0	143	0.00	0.01	144
CEQA 2038 Base + Everport 2038 Horizon Year												
All IPI Rail	2.6	0.2	0.2	3.5	0.1	0.1	0.1	0.0	874	0.02	0.06	882
On-dock IPI Rail	1.8	0.1	0.1	1.4	0.0	0.0	0.0	0.0	589	0.01	0.04	594
BNSF	0.9	0.1	0.1	0.7	0.0	0.0	0.0	0.0	294	0.01	0.02	297
UP	0.9	0.1	0.1	0.7	0.0	0.0	0.0	0.0	294	0.01	0.02	297
Off-dock IPI Rail	0.8	0.1	0.1	2.0	0.0	0.0	0.0	0.0	285	0.01	0.02	288
BNSF	0.4	0.1	0.1	1.0	0.0	0.0	0.0	0.0	143	0.00	0.01	144
UP	0.4	0.1	0.1	1.0	0.0	0.0	0.0	0.0	143	0.00	0.01	144

Table 167. Switch Locomotive Annual Emissions

(tpy)	Alt 4 - No Backland Imp. CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	(metric tons per year) CO2	N2O	CH4	CO2e
2013 Base Year												
All IPI Rail												
On-dock IPI Rail												
BNSF												
UP												
Off-dock IPI Rail												
BNSF												
UP												
2018 Construction Year												
All IPI Rail	0.8	0.1	0.1	2.6	0.0	0.0	0.0	0.0	261	0.01	0.02	263
On-dock IPI Rail	0.6	0.1	0.1	1.5	0.0	0.0	0.0	0.0	210	0.01	0.02	211
BNSF	0.4	0.0	0.0	0.9	0.0	0.0	0.0	0.0	127	0.00	0.01	128
UP	0.2	0.0	0.0	0.6	0.0	0.0	0.0	0.0	82	0.00	0.01	83
Off-dock IPI Rail	0.2	0.1	0.1	1.1	0.0	0.0	0.0	0.0	51	0.00	0.00	51
BNSF	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	26	0.00	0.00	26
UP	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	25	0.00	0.00	26
CEQA 2019 Base + Everport 2019 Opening Year												
All IPI Rail	0.8	0.1	0.1	2.6	0.0	0.0	0.0	0.0	264	0.01	0.02	266
On-dock IPI Rail	0.6	0.1	0.1	1.5	0.0	0.0	0.0	0.0	212	0.01	0.02	214
BNSF	0.4	0.0	0.0	0.9	0.0	0.0	0.0	0.0	129	0.00	0.01	130
UP	0.2	0.0	0.0	0.6	0.0	0.0	0.0	0.0	83	0.00	0.01	84
Off-dock IPI Rail	0.2	0.1	0.1	1.1	0.0	0.0	0.0	0.0	52	0.00	0.00	52
BNSF	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	26	0.00	0.00	26
UP	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	26	0.00	0.00	26
CEQA 2026 Base + Everport 2026 Interim Year												
All IPI Rail	1.1	0.2	0.2	2.8	0.0	0.0	0.0	0.0	367	0.01	0.03	370
On-dock IPI Rail	0.9	0.1	0.1	1.7	0.0	0.0	0.0	0.0	297	0.01	0.02	300
BNSF	0.4	0.1	0.1	0.9	0.0	0.0	0.0	0.0	149	0.00	0.01	150
UP	0.4	0.1	0.1	0.9	0.0	0.0	0.0	0.0	149	0.00	0.01	150
Off-dock IPI Rail	0.2	0.1	0.1	1.1	0.0	0.0	0.0	0.0	69	0.00	0.01	70
BNSF	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	35	0.00	0.00	35
UP	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	35	0.00	0.00	35
CEQA 2033 Base + Everport 2033 Horizon Year												
All IPI Rail	2.4	0.3	0.3	5.8	0.1	0.1	0.1	0.0	822	0.02	0.06	829
On-dock IPI Rail	1.8	0.2	0.2	3.4	0.0	0.0	0.0	0.0	589	0.01	0.04	594
BNSF	0.9	0.1	0.1	1.7	0.0	0.0	0.0	0.0	294	0.01	0.02	297
UP	0.9	0.1	0.1	1.7	0.0	0.0	0.0	0.0	294	0.01	0.02	297
Off-dock IPI Rail	0.7	0.1	0.1	2.4	0.1	0.1	0.0	0.0	233	0.01	0.02	235
BNSF	0.3	0.1	0.1	1.2	0.0	0.0	0.0	0.0	116	0.00	0.01	117
UP	0.3	0.1	0.1	1.2	0.0	0.0	0.0	0.0	116	0.00	0.01	117
CEQA 2038 Base + Everport 2038 Horizon Year												
All IPI Rail	2.4	0.2	0.2	3.1	0.1	0.1	0.0	0.0	822	0.02	0.06	829
On-dock IPI Rail	1.8	0.1	0.1	1.4	0.0	0.0	0.0	0.0	589	0.01	0.04	594
BNSF	0.9	0.1	0.1	0.7	0.0	0.0	0.0	0.0	294	0.01	0.02	297
UP	0.9	0.1	0.1	0.7	0.0	0.0	0.0	0.0	294	0.01	0.02	297
Off-dock IPI Rail	0.7	0.1	0.1	1.7	0.0	0.0	0.0	0.0	233	0.01	0.02	235
BNSF	0.3	0.0	0.0	0.8	0.0	0.0	0.0	0.0	116	0.00	0.01	117
UP	0.3	0.0	0.0	0.8	0.0	0.0	0.0	0.0	116	0.00	0.01	117

Table 167. Switch Locomotive Annual Emissions

(tpy)	Alt 5 - Additional TICTF CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	(metric tons per year) CO2	N2O	CH4	CO2e
2013 Base Year												
All IPI Rail												
On-dock IPI Rail												
BNSF												
UP												
Off-dock IPI Rail												
BNSF												
UP												
2018 Construction Year												
All IPI Rail	0.8	0.1	0.1	2.6	0.0	0.0	0.0	0.0	261	0.01	0.02	263
On-dock IPI Rail	0.6	0.1	0.1	1.5	0.0	0.0	0.0	0.0	210	0.01	0.02	211
BNSF	0.4	0.0	0.0	0.9	0.0	0.0	0.0	0.0	127	0.00	0.01	128
UP	0.2	0.0	0.0	0.6	0.0	0.0	0.0	0.0	82	0.00	0.01	83
Off-dock IPI Rail	0.2	0.1	0.1	1.1	0.0	0.0	0.0	0.0	51	0.00	0.00	51
BNSF	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	26	0.00	0.00	26
UP	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	25	0.00	0.00	26
CEQA 2019 Base + Everport 2019 Opening Year												
All IPI Rail	0.8	0.1	0.2	2.8	0.0	0.0	0.0	0.0	279	0.01	0.02	282
On-dock IPI Rail	0.7	0.1	0.1	1.6	0.0	0.0	0.0	0.0	224	0.01	0.02	226
BNSF	0.4	0.0	0.0	1.0	0.0	0.0	0.0	0.0	136	0.00	0.01	138
UP	0.3	0.0	0.0	0.6	0.0	0.0	0.0	0.0	88	0.00	0.01	89
Off-dock IPI Rail	0.2	0.1	0.1	1.2	0.0	0.0	0.0	0.0	55	0.00	0.00	55
BNSF	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	27	0.00	0.00	28
UP	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	27	0.00	0.00	27
CEQA 2026 Base + Everport 2026 Interim Year												
All IPI Rail	1.2	0.2	0.2	3.1	0.0	0.0	0.0	0.0	410	0.01	0.03	413
On-dock IPI Rail	1.0	0.1	0.1	1.9	0.0	0.0	0.0	0.0	332	0.01	0.02	335
BNSF	0.5	0.1	0.1	1.0	0.0	0.0	0.0	0.0	166	0.00	0.01	168
UP	0.5	0.1	0.1	1.0	0.0	0.0	0.0	0.0	166	0.00	0.01	168
Off-dock IPI Rail	0.2	0.1	0.1	1.2	0.0	0.0	0.0	0.0	78	0.00	0.01	78
BNSF	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	39	0.00	0.00	39
UP	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	39	0.00	0.00	39
CEQA 2033 Base + Everport 2033 Horizon Year												
All IPI Rail	2.8	0.4	0.4	6.7	0.1	0.1	0.1	0.0	924	0.02	0.07	932
On-dock IPI Rail	1.9	0.2	0.2	3.7	0.0	0.0	0.0	0.0	641	0.02	0.05	646
BNSF	1.0	0.1	0.1	1.8	0.0	0.0	0.0	0.0	320	0.01	0.02	323
UP	1.0	0.1	0.1	1.8	0.0	0.0	0.0	0.0	320	0.01	0.02	323
Off-dock IPI Rail	0.8	0.2	0.2	3.0	0.1	0.1	0.1	0.0	284	0.01	0.02	286
BNSF	0.4	0.1	0.1	1.5	0.0	0.0	0.0	0.0	142	0.00	0.01	143
UP	0.4	0.1	0.1	1.5	0.0	0.0	0.0	0.0	142	0.00	0.01	143
CEQA 2038 Base + Everport 2038 Horizon Year												
All IPI Rail	2.8	0.2	0.2	3.6	0.1	0.1	0.1	0.0	924	0.02	0.07	932
On-dock IPI Rail	1.9	0.1	0.1	1.5	0.0	0.0	0.0	0.0	641	0.02	0.05	646
BNSF	1.0	0.1	0.1	0.8	0.0	0.0	0.0	0.0	320	0.01	0.02	323
UP	1.0	0.1	0.1	0.8	0.0	0.0	0.0	0.0	320	0.01	0.02	323
Off-dock IPI Rail	0.8	0.1	0.1	2.0	0.0	0.0	0.0	0.0	284	0.01	0.02	286
BNSF	0.4	0.1	0.1	1.0	0.0	0.0	0.0	0.0	142	0.00	0.01	143
UP	0.4	0.1	0.1	1.0	0.0	0.0	0.0	0.0	142	0.00	0.01	143

Table 167. Switch Locomotive Annual Emissions

	Proposed Project (metric tons per year)											
(tpy)	CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	CO2	N2O	CH4	CO2e
2013 Base Year												
All IPI Rail												
On-dock IPI Rail												
BNSF												
UP												
Off-dock IPI Rail												
BNSF												
UP												
2018 Construction Year												
All IPI Rail	0.8	0.1	0.1	2.6	0.0	0.0	0.0	0.0	261	0.01	0.02	263
On-dock IPI Rail	0.6	0.1	0.1	1.5	0.0	0.0	0.0	0.0	210	0.01	0.02	211
BNSF	0.4	0.0	0.0	0.9	0.0	0.0	0.0	0.0	127	0.00	0.01	128
UP	0.2	0.0	0.0	0.6	0.0	0.0	0.0	0.0	82	0.00	0.01	83
Off-dock IPI Rail	0.2	0.1	0.1	1.1	0.0	0.0	0.0	0.0	51	0.00	0.00	51
BNSF	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	26	0.00	0.00	26
UP	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	25	0.00	0.00	26
CEQA 2019 Base + Everport 2019 Opening Year												
All IPI Rail	0.8	0.1	0.2	2.8	0.0	0.0	0.0	0.0	279	0.01	0.02	282
On-dock IPI Rail	0.7	0.1	0.1	1.6	0.0	0.0	0.0	0.0	224	0.01	0.02	226
BNSF	0.4	0.0	0.0	1.0	0.0	0.0	0.0	0.0	136	0.00	0.01	138
UP	0.3	0.0	0.0	0.6	0.0	0.0	0.0	0.0	88	0.00	0.01	89
Off-dock IPI Rail	0.2	0.1	0.1	1.2	0.0	0.0	0.0	0.0	55	0.00	0.00	55
BNSF	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	27	0.00	0.00	28
UP	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	27	0.00	0.00	27
CEQA 2026 Base + Everport 2026 Interim Year												
All IPI Rail	1.2	0.2	0.2	3.1	0.0	0.0	0.0	0.0	410	0.01	0.03	413
On-dock IPI Rail	1.0	0.1	0.1	1.9	0.0	0.0	0.0	0.0	332	0.01	0.02	335
BNSF	0.5	0.1	0.1	1.0	0.0	0.0	0.0	0.0	166	0.00	0.01	168
UP	0.5	0.1	0.1	1.0	0.0	0.0	0.0	0.0	166	0.00	0.01	168
Off-dock IPI Rail	0.2	0.1	0.1	1.2	0.0	0.0	0.0	0.0	78	0.00	0.01	78
BNSF	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	39	0.00	0.00	39
UP	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	39	0.00	0.00	39
CEQA 2033 Base + Everport 2033 Horizon Year												
All IPI Rail	2.8	0.4	0.4	6.9	0.1	0.1	0.1	0.0	924	0.02	0.07	932
On-dock IPI Rail	1.8	0.2	0.2	3.4	0.0	0.0	0.0	0.0	589	0.01	0.04	594
BNSF	0.9	0.1	0.1	1.7	0.0	0.0	0.0	0.0	294	0.01	0.02	297
UP	0.9	0.1	0.1	1.7	0.0	0.0	0.0	0.0	294	0.01	0.02	297
Off-dock IPI Rail	1.0	0.2	0.2	3.5	0.1	0.1	0.1	0.0	336	0.01	0.02	338
BNSF	0.5	0.1	0.1	1.8	0.0	0.0	0.0	0.0	168	0.00	0.01	169
UP	0.5	0.1	0.1	1.8	0.0	0.0	0.0	0.0	168	0.00	0.01	169
CEQA 2038 Base + Everport 2038 Horizon Year												
All IPI Rail	2.8	0.2	0.2	3.8	0.1	0.1	0.1	0.0	924	0.02	0.07	932
On-dock IPI Rail	1.8	0.1	0.1	1.4	0.0	0.0	0.0	0.0	589	0.01	0.04	594
BNSF	0.9	0.1	0.1	0.7	0.0	0.0	0.0	0.0	294	0.01	0.02	297
UP	0.9	0.1	0.1	0.7	0.0	0.0	0.0	0.0	294	0.01	0.02	297
Off-dock IPI Rail	1.0	0.1	0.1	2.4	0.1	0.1	0.0	0.0	336	0.01	0.02	338
BNSF	0.5	0.1	0.1	1.2	0.0	0.0	0.0	0.0	168	0.00	0.01	169
UP	0.5	0.1	0.1	1.2	0.0	0.0	0.0	0.0	168	0.00	0.01	169

Table 168. Peak Day Summary

(lb/day)	Alt 2 - No Fed Action CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	Alt 1 - No CEQA Project CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx
2013 Base Year																
Line Haul Locomotives On-Port	88.5	22.8	24.0	409.3	15.2	15.2	14.0	0.6	88.5	22.8	24.0	409.3	15.2	15.2	14.0	0.6
Line Haul Locomotives Off-Port	158.0	40.7	42.9	731.0	27.2	27.2	25.0	1.1	158.0	40.7	42.9	731.0	27.2	27.2	25.0	1.1
Switch Locomotives On-Port	3.7	0.4	0.5	9.0	0.1	0.1	0.1	0.0	3.7	0.4	0.5	9.0	0.1	0.1	0.1	0.0
Switch Locomotives Off-Port	0.9	0.4	0.5	7.4	0.2	0.2	0.2	0.0	0.9	0.4	0.5	7.4	0.2	0.2	0.2	0.0
2018 Construction Year																
Line Haul Locomotives On-Port	88.5	14.0	14.7	359.0	9.0	9.0	8.3	0.3	88.5	14.0	14.7	359.0	9.0	9.0	8.3	0.3
Line Haul Locomotives Off-Port	177.8	28.1	29.5	721.4	18.0	18.0	16.6	0.7	177.8	28.1	29.5	721.4	18.0	18.0	16.6	0.7
Switch Locomotives On-Port	3.8	0.4	0.5	9.2	0.1	0.1	0.1	0.0	3.8	0.4	0.5	9.2	0.1	0.1	0.1	0.0
Switch Locomotives Off-Port	0.9	0.4	0.4	6.8	0.1	0.1	0.1	0.0	0.9	0.4	0.4	6.8	0.1	0.1	0.1	0.0
CEQA 2019 Base + Everport 2019 Opening Year																
Line Haul Locomotives On-Port	88.5	13.0	13.7	342.4	8.3	8.3	7.6	0.3	88.5	13.0	13.7	342.4	8.3	8.3	7.6	0.3
Line Haul Locomotives Off-Port	181.9	26.6	28.1	703.8	17.1	17.1	15.7	0.7	181.9	26.6	28.1	703.8	17.1	17.1	15.7	0.7
Switch Locomotives On-Port	3.9	0.4	0.5	9.3	0.1	0.1	0.1	0.0	3.9	0.4	0.5	9.3	0.1	0.1	0.1	0.0
Switch Locomotives Off-Port	0.9	0.4	0.4	6.8	0.1	0.1	0.1	0.0	0.9	0.4	0.4	6.8	0.1	0.1	0.1	0.0
CEQA 2026 Base + Everport 2026 Interim Year																
Line Haul Locomotives On-Port	99.6	9.3	9.8	258.0	5.6	5.6	5.2	0.4	99.6	9.3	9.8	258.0	5.6	5.6	5.2	0.4
Line Haul Locomotives Off-Port	203.2	19.1	20.1	526.7	11.5	11.5	10.5	0.8	203.2	19.1	20.1	526.7	11.5	11.5	10.5	0.8
Switch Locomotives On-Port	4.5	0.5	0.6	8.8	0.1	0.1	0.1	0.0	4.5	0.5	0.6	8.8	0.1	0.1	0.1	0.0
Switch Locomotives Off-Port	1.1	0.3	0.3	5.5	0.1	0.1	0.1	0.0	1.1	0.3	0.3	5.5	0.1	0.1	0.1	0.0
CEQA 2033 Base + Everport 2033 Horizon Year																
Line Haul Locomotives On-Port	210.2	11.8	12.5	339.5	6.3	6.3	5.8	0.8	210.2	11.8	12.5	339.5	6.3	6.3	5.8	0.8
Line Haul Locomotives Off-Port	1006.0	56.7	59.7	1624.8	30.2	30.2	27.8	3.9	1006.0	56.7	59.7	1624.8	30.2	30.2	27.8	3.9
Switch Locomotives On-Port	10.4	1.2	1.3	20.1	0.2	0.2	0.2	0.0	10.4	1.2	1.3	20.1	0.2	0.2	0.2	0.0
Switch Locomotives Off-Port	2.1	0.4	0.4	7.3	0.2	0.2	0.1	0.0	2.1	0.4	0.4	7.3	0.2	0.2	0.1	0.0
CEQA 2038 Base + Everport 2038 Horizon Year																
Line Haul Locomotives On-Port	210.2	8.7	9.1	244.7	3.9	3.9	3.6	0.8	210.2	8.7	9.1	244.7	3.9	3.9	3.6	0.8
Line Haul Locomotives Off-Port	1006.0	41.6	43.8	1171.3	18.9	18.9	17.4	3.9	1006.0	41.6	43.8	1171.3	18.9	18.9	17.4	3.9
Switch Locomotives On-Port	10.4	0.6	0.6	8.4	0.1	0.1	0.1	0.0	10.4	0.6	0.6	8.4	0.1	0.1	0.1	0.0
Switch Locomotives Off-Port	2.1	0.3	0.3	5.0	0.1	0.1	0.1	0.0	2.1	0.3	0.3	5.0	0.1	0.1	0.1	0.0

Table 168. Peak Day Summary

(lb/day)	Alt 3 - Reduced Wharf Imp. CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	Alt 4 - No Backland Imp. CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx
2013 Base Year																
Line Haul Locomotives On-Port																
Line Haul Locomotives Off-Port																
Switch Locomotives On-Port																
Switch Locomotives Off-Port																
2018 Construction Year																
Line Haul Locomotives On-Port	88.5	14.0	14.7	359.0	9.0	9.0	8.3	0.3	88.5	14.0	14.7	359.0	9.0	9.0	8.3	0.3
Line Haul Locomotives Off-Port	163.4	25.8	27.2	663.0	16.6	16.6	15.2	0.6	163.4	25.8	27.2	663.0	16.6	16.6	15.2	0.6
Switch Locomotives On-Port	3.7	0.4	0.4	8.8	0.1	0.1	0.1	0.0	3.7	0.4	0.4	8.8	0.1	0.1	0.1	0.0
Switch Locomotives Off-Port	0.9	0.4	0.4	6.5	0.1	0.1	0.1	0.0	0.9	0.4	0.4	6.5	0.1	0.1	0.1	0.0
CEQA 2019 Base + Everport 2019 Opening Year																
Line Haul Locomotives On-Port	88.5	13.0	13.7	342.4	8.3	8.3	7.6	0.3	88.5	13.0	13.7	342.4	8.3	8.3	7.6	0.3
Line Haul Locomotives Off-Port	161.2	23.6	24.9	623.6	15.1	15.1	13.9	0.6	156.5	22.9	24.1	605.3	14.7	14.7	13.5	0.6
Switch Locomotives On-Port	3.8	0.4	0.5	9.2	0.1	0.1	0.1	0.0	3.7	0.4	0.4	8.9	0.1	0.1	0.1	0.0
Switch Locomotives Off-Port	0.9	0.4	0.4	6.7	0.1	0.1	0.1	0.0	0.9	0.4	0.4	6.5	0.1	0.1	0.1	0.0
CEQA 2026 Base + Everport 2026 Interim Year																
Line Haul Locomotives On-Port	121.7	11.4	12.0	315.4	6.9	6.9	6.3	0.5	110.6	10.4	10.9	286.7	6.2	6.2	5.7	0.4
Line Haul Locomotives Off-Port	304.1	28.6	30.1	788.2	17.1	17.1	15.8	1.2	270.5	25.4	26.7	701.1	15.2	15.2	14.0	1.1
Switch Locomotives On-Port	5.5	0.6	0.7	10.8	0.1	0.1	0.1	0.0	5.2	0.6	0.6	10.1	0.1	0.1	0.1	0.0
Switch Locomotives Off-Port	1.3	0.4	0.4	6.7	0.1	0.1	0.1	0.0	1.2	0.3	0.4	6.3	0.1	0.1	0.1	0.0
CEQA 2033 Base + Everport 2033 Horizon Year																
Line Haul Locomotives On-Port	254.4	14.3	15.1	410.9	7.6	7.6	7.0	1.0	243.4	13.7	14.4	393.1	7.3	7.3	6.7	1.0
Line Haul Locomotives Off-Port	1501.7	84.6	89.1	2425.4	45.1	45.1	41.5	5.9	1336.4	75.3	79.3	2158.4	40.2	40.2	36.9	5.2
Switch Locomotives On-Port	10.4	1.2	1.3	20.1	0.2	0.2	0.2	0.0	10.4	1.2	1.3	20.1	0.2	0.2	0.2	0.0
Switch Locomotives Off-Port	5.0	0.9	1.0	17.7	0.4	0.4	0.3	0.0	4.1	0.8	0.8	14.4	0.3	0.3	0.3	0.0
CEQA 2038 Base + Everport 2038 Horizon Year																
Line Haul Locomotives On-Port	254.4	10.5	11.1	296.2	4.8	4.8	4.4	1.0	243.4	10.1	10.6	283.4	4.6	4.6	4.2	1.0
Line Haul Locomotives Off-Port	1501.7	62.0	65.3	1748.5	28.2	28.2	25.9	5.9	1336.4	55.2	58.1	1556.0	25.1	25.1	23.1	5.2
Switch Locomotives On-Port	10.4	0.6	0.6	8.4	0.1	0.1	0.1	0.0	10.4	0.6	0.6	8.4	0.1	0.1	0.1	0.0
Switch Locomotives Off-Port	5.0	0.6	0.7	12.1	0.3	0.3	0.2	0.0	4.1	0.5	0.6	9.9	0.2	0.2	0.2	0.0

Table 168. Peak Day Summary

(lb/day)	Alt 5 - Additional TICTF CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	Proposed Project CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx
2013 Base Year																
Line Haul Locomotives On-Port																
Line Haul Locomotives Off-Port																
Switch Locomotives On-Port																
Switch Locomotives Off-Port																
2018 Construction Year																
Line Haul Locomotives On-Port	88.5	14.0	14.7	359.0	9.0	9.0	8.3	0.3	88.5	14.0	14.7	359.0	9.0	9.0	8.3	0.3
Line Haul Locomotives Off-Port	163.4	25.8	27.2	663.0	16.6	16.6	15.2	0.6	163.4	25.8	27.2	663.0	16.6	16.6	15.2	0.6
Switch Locomotives On-Port	3.7	0.4	0.4	8.8	0.1	0.1	0.1	0.0	3.7	0.4	0.4	8.8	0.1	0.1	0.1	0.0
Switch Locomotives Off-Port	0.9	0.4	0.4	6.5	0.1	0.1	0.1	0.0	0.9	0.4	0.4	6.5	0.1	0.1	0.1	0.0
CEQA 2019 Base + Everport 2019 Opening Year																
Line Haul Locomotives On-Port	99.6	14.6	15.4	385.2	9.3	9.3	8.6	0.4	99.6	14.6	15.4	385.2	9.3	9.3	8.6	0.4
Line Haul Locomotives Off-Port	184.5	27.0	28.5	714.0	17.3	17.3	15.9	0.7	184.5	27.0	28.5	714.0	17.3	17.3	15.9	0.7
Switch Locomotives On-Port	3.9	0.4	0.5	9.4	0.1	0.1	0.1	0.0	3.9	0.4	0.5	9.4	0.1	0.1	0.1	0.0
Switch Locomotives Off-Port	1.0	0.4	0.4	6.9	0.2	0.2	0.1	0.0	1.0	0.4	0.4	6.9	0.2	0.2	0.1	0.0
CEQA 2026 Base + Everport 2026 Interim Year																
Line Haul Locomotives On-Port	121.7	11.4	12.0	315.4	6.9	6.9	6.3	0.5	121.7	11.4	12.0	315.4	6.9	6.9	6.3	0.5
Line Haul Locomotives Off-Port	337.8	31.7	33.4	875.5	19.0	19.0	17.5	1.3	337.8	31.7	33.4	875.5	19.0	19.0	17.5	1.3
Switch Locomotives On-Port	5.8	0.7	0.7	11.3	0.1	0.1	0.1	0.0	5.8	0.7	0.7	11.3	0.1	0.1	0.1	0.0
Switch Locomotives Off-Port	1.4	0.4	0.4	7.1	0.2	0.2	0.1	0.0	1.4	0.4	0.4	7.1	0.2	0.2	0.1	0.0
CEQA 2033 Base + Everport 2033 Horizon Year																
Line Haul Locomotives On-Port	265.5	15.0	15.8	428.8	8.0	8.0	7.3	1.0	265.5	15.0	15.8	428.8	8.0	8.0	7.3	1.0
Line Haul Locomotives Off-Port	1684.9	94.9	100.0	2721.2	50.6	50.6	46.6	6.6	1669.5	94.1	99.0	2696.3	50.2	50.2	46.2	6.5
Switch Locomotives On-Port	11.3	1.3	1.4	21.9	0.2	0.2	0.2	0.0	10.4	1.2	1.3	20.1	0.2	0.2	0.2	0.0
Switch Locomotives Off-Port	5.0	0.9	1.0	17.6	0.4	0.4	0.3	0.0	5.9	1.1	1.1	20.8	0.4	0.4	0.4	0.0
CEQA 2038 Base + Everport 2038 Horizon Year																
Line Haul Locomotives On-Port	265.5	11.0	11.6	309.1	5.0	5.0	4.6	1.0	265.5	11.0	11.6	309.1	5.0	5.0	4.6	1.0
Line Haul Locomotives Off-Port	1684.9	69.6	73.3	1961.8	31.6	31.6	29.1	6.6	1669.5	69.0	72.6	1943.9	31.4	31.4	28.8	6.5
Switch Locomotives On-Port	11.3	0.6	0.7	9.1	0.1	0.1	0.1	0.0	10.4	0.6	0.6	8.4	0.1	0.1	0.1	0.0
Switch Locomotives Off-Port	5.0	0.6	0.7	12.0	0.3	0.3	0.2	0.0	5.9	0.8	0.8	14.2	0.3	0.3	0.3	0.0

Table 169. SCAB Line Haul Peak Day Emissions

(lb/day)	Alt 2 - No Fed Action CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	Alt 1 - No CEQA Project CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx
2013 Base Year																
All IPI Rail	158.0	40.7	42.9	731.0	27.2	27.2	25.0	1.1	158.0	40.7	42.9	731.0	27.2	27.2	25.0	1.1
On-dock IPI Rail	108.8	28.0	29.5	503.1	18.7	18.7	17.2	0.8	108.8	28.0	29.5	503.1	18.7	18.7	17.2	0.8
BNSF	47.2	12.2	12.8	218.2	8.1	8.1	7.5	0.3	47.2	12.2	12.8	218.2	8.1	8.1	7.5	0.3
UP	18.3	4.7	5.0	84.7	3.1	3.1	2.9	0.1	18.3	4.7	5.0	84.7	3.1	3.1	2.9	0.1
Off-dock IPI Rail	4.6	1.2	1.2	21.2	0.8	0.8	0.7	0.0	4.6	1.2	1.2	21.2	0.8	0.8	0.7	0.0
BNSF	2.1	0.5	0.6	9.6	0.4	0.4	0.3	0.0	2.1	0.5	0.6	9.6	0.4	0.4	0.3	0.0
UP	2.5	0.6	0.7	11.6	0.4	0.4	0.4	0.0	2.5	0.6	0.7	11.6	0.4	0.4	0.4	0.0
2018 Construction Year																
All IPI Rail	177.8	28.1	29.5	721.4	18.0	18.0	16.6	0.7	177.8	28.1	29.5	721.4	18.0	18.0	16.6	0.7
On-dock IPI Rail	109.5	17.3	18.2	444.3	11.1	11.1	10.2	0.4	109.5	17.3	18.2	444.3	11.1	11.1	10.2	0.4
BNSF	47.5	7.5	7.9	192.6	4.8	4.8	4.4	0.2	47.5	7.5	7.9	192.6	4.8	4.8	4.4	0.2
UP	18.4	2.9	3.1	74.8	1.9	1.9	1.7	0.1	18.4	2.9	3.1	74.8	1.9	1.9	1.7	0.1
Off-dock IPI Rail	4.6	0.7	0.8	18.7	0.5	0.5	0.4	0.0	4.6	0.7	0.8	18.7	0.5	0.5	0.4	0.0
BNSF	2.2	0.3	0.4	8.8	0.2	0.2	0.2	0.0	2.2	0.3	0.4	8.8	0.2	0.2	0.2	0.0
UP	2.6	0.4	0.4	10.5	0.3	0.3	0.2	0.0	2.6	0.4	0.4	10.5	0.3	0.3	0.2	0.0
CEQA 2019 Base + Everport 2019 Opening Year																
All IPI Rail	181.9	26.6	28.1	703.8	17.1	17.1	15.7	0.7	181.9	26.6	28.1	703.8	17.1	17.1	15.7	0.7
On-dock IPI Rail	112.0	16.4	17.3	433.4	10.5	10.5	9.7	0.4	112.0	16.4	17.3	433.4	10.5	10.5	9.7	0.4
BNSF	48.6	7.1	7.5	187.9	4.6	4.6	4.2	0.2	48.6	7.1	7.5	187.9	4.6	4.6	4.2	0.2
UP	18.9	2.8	2.9	73.0	1.8	1.8	1.6	0.1	18.9	2.8	2.9	73.0	1.8	1.8	1.6	0.1
Off-dock IPI Rail	4.7	0.7	0.7	18.3	0.4	0.4	0.4	0.0	4.7	0.7	0.7	18.3	0.4	0.4	0.4	0.0
BNSF	2.2	0.3	0.3	8.6	0.2	0.2	0.2	0.0	2.2	0.3	0.3	8.6	0.2	0.2	0.2	0.0
UP	2.6	0.4	0.4	10.2	0.2	0.2	0.2	0.0	2.6	0.4	0.4	10.2	0.2	0.2	0.2	0.0
CEQA 2026 Base + Everport 2026 Interim Year																
All IPI Rail	203.2	19.1	20.1	526.7	11.5	11.5	10.5	0.8	203.2	19.1	20.1	526.7	11.5	11.5	10.5	0.8
On-dock IPI Rail	137.4	12.9	13.6	356.1	7.7	7.7	7.1	0.5	137.4	12.9	13.6	356.1	7.7	7.7	7.1	0.5
BNSF	34.2	3.2	3.4	88.6	1.9	1.9	1.8	0.1	34.2	3.2	3.4	88.6	1.9	1.9	1.8	0.1
UP	34.5	3.2	3.4	89.4	1.9	1.9	1.8	0.1	34.5	3.2	3.4	89.4	1.9	1.9	1.8	0.1
Off-dock IPI Rail	6.4	0.6	0.6	16.6	0.4	0.4	0.3	0.0	6.4	0.6	0.6	16.6	0.4	0.4	0.3	0.0
BNSF	1.5	0.1	0.1	3.8	0.1	0.1	0.1	0.0	1.5	0.1	0.1	3.8	0.1	0.1	0.1	0.0
UP	1.7	0.2	0.2	4.5	0.1	0.1	0.1	0.0	1.7	0.2	0.2	4.5	0.1	0.1	0.1	0.0
CEQA 2033 Base + Everport 2033 Horizon Year																
All IPI Rail	1006.0	56.7	59.7	1624.8	30.2	30.2	27.8	3.9	1006.0	56.7	59.7	1624.8	30.2	30.2	27.8	3.9
On-dock IPI Rail	717.7	40.4	42.6	1159.2	21.6	21.6	19.8	2.8	717.7	40.4	42.6	1159.2	21.6	21.6	19.8	2.8
BNSF	178.6	10.1	10.6	288.4	5.4	5.4	4.9	0.7	178.6	10.1	10.6	288.4	5.4	5.4	4.9	0.7
UP	180.3	10.2	10.7	291.1	5.4	5.4	5.0	0.7	180.3	10.2	10.7	291.1	5.4	5.4	5.0	0.7
Off-dock IPI Rail	24.1	1.4	1.4	39.0	0.7	0.7	0.7	0.1	24.1	1.4	1.4	39.0	0.7	0.7	0.7	0.1
BNSF	5.5	0.3	0.3	8.9	0.2	0.2	0.2	0.0	5.5	0.3	0.3	8.9	0.2	0.2	0.2	0.0
UP	6.6	0.4	0.4	10.6	0.2	0.2	0.2	0.0	6.6	0.4	0.4	10.6	0.2	0.2	0.2	0.0
CEQA 2038 Base + Everport 2038 Horizon Year																
All IPI Rail	1006.0	41.6	43.8	1171.3	18.9	18.9	17.4	3.9	1006.0	41.6	43.8	1171.3	18.9	18.9	17.4	3.9
On-dock IPI Rail	717.7	29.7	31.2	835.7	13.5	13.5	12.4	2.8	717.7	29.7	31.2	835.7	13.5	13.5	12.4	2.8
BNSF	178.6	7.4	7.8	208.0	3.4	3.4	3.1	0.7	178.6	7.4	7.8	208.0	3.4	3.4	3.1	0.7
UP	180.3	7.4	7.8	209.9	3.4	3.4	3.1	0.7	180.3	7.4	7.8	209.9	3.4	3.4	3.1	0.7
Off-dock IPI Rail	24.1	1.0	1.0	28.1	0.5	0.5	0.4	0.1	24.1	1.0	1.0	28.1	0.5	0.5	0.4	0.1
BNSF	5.5	0.2	0.2	6.4	0.1	0.1	0.1	0.0	5.5	0.2	0.2	6.4	0.1	0.1	0.1	0.0
UP	6.6	0.3	0.3	7.6	0.1	0.1	0.1	0.0	6.6	0.3	0.3	7.6	0.1	0.1	0.1	0.0

Table 169. SCAB Line Haul Peak Day Emissions

(lb/day)	Alt 3 - Reduced Wharf Imp. CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	Alt 4 - No Backland Imp. CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx
2013 Base Year																
All IPI Rail																
On-dock IPI Rail																
BNSF																
UP																
Off-dock IPI Rail																
BNSF																
UP																
2018 Construction Year																
All IPI Rail	163.4	25.8	27.2	663.0	16.6	16.6	15.2	0.6	163.4	25.8	27.2	663.0	16.6	16.6	15.2	0.6
On-dock IPI Rail	100.7	15.9	16.7	408.3	10.2	10.2	9.4	0.4	100.7	15.9	16.7	408.3	10.2	10.2	9.4	0.4
BNSF	43.6	6.9	7.2	177.0	4.4	4.4	4.1	0.2	43.6	6.9	7.2	177.0	4.4	4.4	4.1	0.2
UP	17.0	2.7	2.8	68.8	1.7	1.7	1.6	0.1	17.0	2.7	2.8	68.8	1.7	1.7	1.6	0.1
Off-dock IPI Rail	4.2	0.7	0.7	17.2	0.4	0.4	0.4	0.0	4.2	0.7	0.7	17.2	0.4	0.4	0.4	0.0
BNSF	2.0	0.3	0.3	8.1	0.2	0.2	0.2	0.0	2.0	0.3	0.3	8.1	0.2	0.2	0.2	0.0
UP	2.4	0.4	0.4	9.6	0.2	0.2	0.2	0.0	2.4	0.4	0.4	9.6	0.2	0.2	0.2	0.0
CEQA 2019 Base + Everport 2019 Opening Year																
All IPI Rail	161.2	23.6	24.9	623.6	15.1	15.1	13.9	0.6	156.5	22.9	24.1	605.3	14.7	14.7	13.5	0.6
On-dock IPI Rail	110.7	16.2	17.1	428.4	10.4	10.4	9.6	0.4	107.5	15.7	16.6	415.8	10.1	10.1	9.3	0.4
BNSF	47.6	7.0	7.3	184.3	4.5	4.5	4.1	0.2	41.6	6.1	6.4	161.0	3.9	3.9	3.6	0.2
UP	18.6	2.7	2.9	71.9	1.7	1.7	1.6	0.1	18.0	2.6	2.8	69.8	1.7	1.7	1.6	0.1
Off-dock IPI Rail	4.7	0.7	0.7	18.3	0.4	0.4	0.4	0.0	4.6	0.7	0.7	17.7	0.4	0.4	0.4	0.0
BNSF	2.1	0.3	0.3	8.1	0.2	0.2	0.2	0.0	2.1	0.3	0.3	8.1	0.2	0.2	0.2	0.0
UP	2.5	0.4	0.4	9.7	0.2	0.2	0.2	0.0	0.8	0.1	0.1	3.2	0.1	0.1	0.1	0.0
CEQA 2026 Base + Everport 2026 Interim Year																
All IPI Rail	304.1	28.6	30.1	788.2	17.1	17.1	15.8	1.2	270.5	25.4	26.7	701.1	15.2	15.2	14.0	1.1
On-dock IPI Rail	205.6	19.3	20.3	532.9	11.6	11.6	10.7	0.8	182.9	17.2	18.1	474.0	10.3	10.3	9.5	0.7
BNSF	51.2	4.8	5.1	132.6	2.9	2.9	2.7	0.2	45.5	4.3	4.5	117.9	2.6	2.6	2.4	0.2
UP	51.6	4.8	5.1	133.8	2.9	2.9	2.7	0.2	45.9	4.3	4.5	119.0	2.6	2.6	2.4	0.2
Off-dock IPI Rail	9.6	0.9	0.9	24.8	0.5	0.5	0.5	0.0	8.5	0.8	0.8	22.0	0.5	0.5	0.4	0.0
BNSF	2.2	0.2	0.2	5.6	0.1	0.1	0.1	0.0	1.9	0.2	0.2	5.0	0.1	0.1	0.1	0.0
UP	2.6	0.2	0.3	6.8	0.1	0.1	0.1	0.0	2.3	0.2	0.2	6.0	0.1	0.1	0.1	0.0
CEQA 2033 Base + Everport 2033 Horizon Year																
All IPI Rail	1501.7	84.6	89.1	2425.4	45.1	45.1	41.5	5.9	1336.4	75.3	79.3	2158.4	40.2	40.2	36.9	5.2
On-dock IPI Rail	717.7	40.4	42.6	1159.2	21.6	21.6	19.8	2.8	717.7	40.4	42.6	1159.2	21.6	21.6	19.8	2.8
BNSF	178.6	10.1	10.6	288.4	5.4	5.4	4.9	0.7	178.6	10.1	10.6	288.4	5.4	5.4	4.9	0.7
UP	180.3	10.2	10.7	291.1	5.4	5.4	5.0	0.7	180.3	10.2	10.7	291.1	5.4	5.4	5.0	0.7
Off-dock IPI Rail	142.4	8.0	8.4	230.0	4.3	4.3	3.9	0.6	94.9	5.3	5.6	153.3	2.9	2.9	2.6	0.4
BNSF	32.6	1.8	1.9	52.6	1.0	1.0	0.9	0.1	21.7	1.2	1.3	35.0	0.7	0.7	0.6	0.1
UP	38.6	2.2	2.3	62.4	1.2	1.2	1.1	0.2	25.8	1.5	1.5	41.6	0.8	0.8	0.7	0.1
CEQA 2038 Base + Everport 2038 Horizon Year																
All IPI Rail	1501.7	62.0	65.3	1748.5	28.2	28.2	25.9	5.9	1336.4	55.2	58.1	1556.0	25.1	25.1	23.1	5.2
On-dock IPI Rail	717.7	29.7	31.2	835.7	13.5	13.5	12.4	2.8	717.7	29.7	31.2	835.7	13.5	13.5	12.4	2.8
BNSF	178.6	7.4	7.8	208.0	3.4	3.4	3.1	0.7	178.6	7.4	7.8	208.0	3.4	3.4	3.1	0.7
UP	180.3	7.4	7.8	209.9	3.4	3.4	3.1	0.7	180.3	7.4	7.8	209.9	3.4	3.4	3.1	0.7
Off-dock IPI Rail	142.4	5.9	6.2	165.8	2.7	2.7	2.5	0.6	94.9	3.9	4.1	110.5	1.8	1.8	1.6	0.4
BNSF	32.6	1.3	1.4	37.9	0.6	0.6	0.6	0.1	21.7	0.9	0.9	25.3	0.4	0.4	0.4	0.1
UP	38.6	1.6	1.7	45.0	0.7	0.7	0.7	0.2	25.8	1.1	1.1	30.0	0.5	0.5	0.4	0.1

Table 169. SCAB Line Haul Peak Day Emissions

(lb/day)	Alt 5 - Additional TICTF CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	Proposed Project CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx
2013 Base Year																
All IPI Rail																
On-dock IPI Rail																
BNSF																
UP																
Off-dock IPI Rail																
BNSF																
UP																
2018 Construction Year																
All IPI Rail	163.4	25.8	27.2	663.0	16.6	16.6	15.2	0.6	163.4	25.8	27.2	663.0	16.6	16.6	15.2	0.6
On-dock IPI Rail	100.7	15.9	16.7	408.3	10.2	10.2	9.4	0.4	100.7	15.9	16.7	408.3	10.2	10.2	9.4	0.4
BNSF	43.6	6.9	7.2	177.0	4.4	4.4	4.1	0.2	43.6	6.9	7.2	177.0	4.4	4.4	4.1	0.2
UP	17.0	2.7	2.8	68.8	1.7	1.7	1.6	0.1	17.0	2.7	2.8	68.8	1.7	1.7	1.6	0.1
Off-dock IPI Rail	4.2	0.7	0.7	17.2	0.4	0.4	0.4	0.0	4.2	0.7	0.7	17.2	0.4	0.4	0.4	0.0
BNSF	2.0	0.3	0.3	8.1	0.2	0.2	0.2	0.0	2.0	0.3	0.3	8.1	0.2	0.2	0.2	0.0
UP	2.4	0.4	0.4	9.6	0.2	0.2	0.2	0.0	2.4	0.4	0.4	9.6	0.2	0.2	0.2	0.0
CEQA 2019 Base + Everport 2019 Opening Year																
All IPI Rail	184.5	27.0	28.5	714.0	17.3	17.3	15.9	0.7	184.5	27.0	28.5	714.0	17.3	17.3	15.9	0.7
On-dock IPI Rail	129.5	19.0	20.0	501.0	12.2	12.2	11.2	0.5	129.5	19.0	20.0	501.0	12.2	12.2	11.2	0.5
BNSF	49.0	7.2	7.6	189.7	4.6	4.6	4.2	0.2	49.0	7.2	7.6	189.7	4.6	4.6	4.2	0.2
UP	19.1	2.8	3.0	74.1	1.8	1.8	1.7	0.1	19.1	2.8	3.0	74.1	1.8	1.8	1.7	0.1
Off-dock IPI Rail	4.9	0.7	0.7	18.8	0.5	0.5	0.4	0.0	4.9	0.7	0.7	18.8	0.5	0.5	0.4	0.0
BNSF	2.2	0.3	0.3	8.6	0.2	0.2	0.2	0.0	2.2	0.3	0.3	8.6	0.2	0.2	0.2	0.0
UP	2.6	0.4	0.4	10.2	0.2	0.2	0.2	0.0	2.6	0.4	0.4	10.2	0.2	0.2	0.2	0.0
CEQA 2026 Base + Everport 2026 Interim Year																
All IPI Rail	337.8	31.7	33.4	875.5	19.0	19.0	17.5	1.3	337.8	31.7	33.4	875.5	19.0	19.0	17.5	1.3
On-dock IPI Rail	228.4	21.4	22.6	591.9	12.9	12.9	11.8	0.9	228.4	21.4	22.6	591.9	12.9	12.9	11.8	0.9
BNSF	56.8	5.3	5.6	147.3	3.2	3.2	2.9	0.2	56.8	5.3	5.6	147.3	3.2	3.2	2.9	0.2
UP	57.4	5.4	5.7	148.7	3.2	3.2	3.0	0.2	57.4	5.4	5.7	148.7	3.2	3.2	3.0	0.2
Off-dock IPI Rail	10.6	1.0	1.1	27.5	0.6	0.6	0.6	0.0	10.6	1.0	1.1	27.5	0.6	0.6	0.6	0.0
BNSF	2.4	0.2	0.2	6.2	0.1	0.1	0.1	0.0	2.4	0.2	0.2	6.2	0.1	0.1	0.1	0.0
UP	2.9	0.3	0.3	7.5	0.2	0.2	0.2	0.0	2.9	0.3	0.3	7.5	0.2	0.2	0.2	0.0
CEQA 2033 Base + Everport 2033 Horizon Year																
All IPI Rail	1684.9	94.9	100.0	2721.2	50.6	50.6	46.6	6.6	1669.5	94.1	99.0	2696.3	50.2	50.2	46.2	6.5
On-dock IPI Rail	850.0	47.9	50.4	1372.8	25.5	25.5	23.5	3.3	717.7	40.4	42.6	1159.2	21.6	21.6	19.8	2.8
BNSF	211.5	11.9	12.5	341.6	6.4	6.4	5.8	0.8	178.6	10.1	10.6	288.4	5.4	5.4	4.9	0.7
UP	213.5	12.0	12.7	344.8	6.4	6.4	5.9	0.8	180.3	10.2	10.7	291.1	5.4	5.4	5.0	0.7
Off-dock IPI Rail	140.7	7.9	8.3	227.3	4.2	4.2	3.9	0.5	197.0	11.1	11.7	318.2	5.9	5.9	5.4	0.8
BNSF	32.2	1.8	1.9	52.0	1.0	1.0	0.9	0.1	45.1	2.5	2.7	72.8	1.4	1.4	1.2	0.2
UP	38.2	2.2	2.3	61.7	1.1	1.1	1.1	0.1	53.5	3.0	3.2	86.3	1.6	1.6	1.5	0.2
CEQA 2038 Base + Everport 2038 Horizon Year																
All IPI Rail	1684.9	69.6	73.3	1961.8	31.6	31.6	29.1	6.6	1669.5	69.0	72.6	1943.9	31.4	31.4	28.8	6.5
On-dock IPI Rail	850.0	35.1	37.0	989.7	16.0	16.0	14.7	3.3	717.7	29.7	31.2	835.7	13.5	13.5	12.4	2.8
BNSF	211.5	8.7	9.2	246.3	4.0	4.0	3.7	0.8	178.6	7.4	7.8	208.0	3.4	3.4	3.1	0.7
UP	213.5	8.8	9.3	248.6	4.0	4.0	3.7	0.8	180.3	7.4	7.8	209.9	3.4	3.4	3.1	0.7
Off-dock IPI Rail	140.7	5.8	6.1	163.9	2.6	2.6	2.4	0.5	197.0	8.1	8.6	229.4	3.7	3.7	3.4	0.8
BNSF	32.2	1.3	1.4	37.5	0.6	0.6	0.6	0.1	45.1	1.9	2.0	52.5	0.8	0.8	0.8	0.2
UP	38.2	1.6	1.7	44.5	0.7	0.7	0.7	0.1	53.5	2.2	2.3	62.2	1.0	1.0	0.9	0.2

Table 170. On Port Line Haul Peak Day Emissions

(lb/day)	Alt 2 - No Fed Action CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	Alt 1 - No CEQA Project CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx
2013 Base Year																
All IPI Rail	88.5	22.8	24.0	409.3	15.2	15.2	14.0	0.6	88.5	22.8	24.0	409.3	15.2	15.2	14.0	0.6
On-dock IPI Rail	77.4	20.0	21.0	358.1	13.3	13.3	12.2	0.5	77.4	20.0	21.0	358.1	13.3	13.3	12.2	0.5
BNSF	44.2	11.4	12.0	204.6	7.6	7.6	7.0	0.3	44.2	11.4	12.0	204.6	7.6	7.6	7.0	0.3
UP	33.2	8.6	9.0	153.5	5.7	5.7	5.2	0.2	33.2	8.6	9.0	153.5	5.7	5.7	5.2	0.2
Off-dock IPI Rail	22.1	5.7	6.0	102.3	3.8	3.8	3.5	0.2	22.1	5.7	6.0	102.3	3.8	3.8	3.5	0.2
BNSF	11.1	2.9	3.0	51.2	1.9	1.9	1.7	0.1	11.1	2.9	3.0	51.2	1.9	1.9	1.7	0.1
UP	11.1	2.9	3.0	51.2	1.9	1.9	1.7	0.1	11.1	2.9	3.0	51.2	1.9	1.9	1.7	0.1
2018 Construction Year																
All IPI Rail	88.5	14.0	14.7	359.0	9.0	9.0	8.3	0.3	88.5	14.0	14.7	359.0	9.0	9.0	8.3	0.3
On-dock IPI Rail	77.4	12.2	12.9	314.1	7.9	7.9	7.2	0.3	77.4	12.2	12.9	314.1	7.9	7.9	7.2	0.3
BNSF	44.2	7.0	7.4	179.5	4.5	4.5	4.1	0.2	44.2	7.0	7.4	179.5	4.5	4.5	4.1	0.2
UP	33.2	5.2	5.5	134.6	3.4	3.4	3.1	0.1	33.2	5.2	5.5	134.6	3.4	3.4	3.1	0.1
Off-dock IPI Rail	22.1	3.5	3.7	89.7	2.2	2.2	2.1	0.1	22.1	3.5	3.7	89.7	2.2	2.2	2.1	0.1
BNSF	11.1	1.7	1.8	44.9	1.1	1.1	1.0	0.0	11.1	1.7	1.8	44.9	1.1	1.1	1.0	0.0
UP	11.1	1.7	1.8	44.9	1.1	1.1	1.0	0.0	11.1	1.7	1.8	44.9	1.1	1.1	1.0	0.0
CEQA 2019 Base + Everport 2019 Opening Year																
All IPI Rail	88.5	13.0	13.7	342.4	8.3	8.3	7.6	0.3	88.5	13.0	13.7	342.4	8.3	8.3	7.6	0.3
On-dock IPI Rail	77.4	11.3	11.9	299.6	7.3	7.3	6.7	0.3	77.4	11.3	11.9	299.6	7.3	7.3	6.7	0.3
BNSF	44.2	6.5	6.8	171.2	4.2	4.2	3.8	0.2	44.2	6.5	6.8	171.2	4.2	4.2	3.8	0.2
UP	33.2	4.9	5.1	128.4	3.1	3.1	2.9	0.1	33.2	4.9	5.1	128.4	3.1	3.1	2.9	0.1
Off-dock IPI Rail	22.1	3.2	3.4	85.6	2.1	2.1	1.9	0.1	22.1	3.2	3.4	85.6	2.1	2.1	1.9	0.1
BNSF	11.1	1.6	1.7	42.8	1.0	1.0	1.0	0.0	11.1	1.6	1.7	42.8	1.0	1.0	1.0	0.0
UP	11.1	1.6	1.7	42.8	1.0	1.0	1.0	0.0	11.1	1.6	1.7	42.8	1.0	1.0	1.0	0.0
CEQA 2026 Base + Everport 2026 Interim Year																
All IPI Rail	99.6	9.3	9.8	258.0	5.6	5.6	5.2	0.4	99.6	9.3	9.8	258.0	5.6	5.6	5.2	0.4
On-dock IPI Rail	77.4	7.3	7.7	200.7	4.4	4.4	4.0	0.3	77.4	7.3	7.7	200.7	4.4	4.4	4.0	0.3
BNSF	44.2	4.2	4.4	114.7	2.5	2.5	2.3	0.2	44.2	4.2	4.4	114.7	2.5	2.5	2.3	0.2
UP	44.2	4.2	4.4	114.7	2.5	2.5	2.3	0.2	44.2	4.2	4.4	114.7	2.5	2.5	2.3	0.2
Off-dock IPI Rail	22.1	2.1	2.2	57.3	1.2	1.2	1.1	0.1	22.1	2.1	2.2	57.3	1.2	1.2	1.1	0.1
BNSF	11.1	1.0	1.1	28.7	0.6	0.6	0.6	0.0	11.1	1.0	1.1	28.7	0.6	0.6	0.6	0.0
UP	11.1	1.0	1.1	28.7	0.6	0.6	0.6	0.0	11.1	1.0	1.1	28.7	0.6	0.6	0.6	0.0
CEQA 2033 Base + Everport 2033 Horizon Year																
All IPI Rail	210.2	11.8	12.5	339.5	6.3	6.3	5.8	0.8	210.2	11.8	12.5	339.5	6.3	6.3	5.8	0.8
On-dock IPI Rail	177.0	10.0	10.5	285.9	5.3	5.3	4.9	0.7	177.0	10.0	10.5	285.9	5.3	5.3	4.9	0.7
BNSF	88.5	5.0	5.3	142.9	2.7	2.7	2.4	0.3	88.5	5.0	5.3	142.9	2.7	2.7	2.4	0.3
UP	88.5	5.0	5.3	142.9	2.7	2.7	2.4	0.3	88.5	5.0	5.3	142.9	2.7	2.7	2.4	0.3
Off-dock IPI Rail	44.2	2.5	2.6	71.5	1.3	1.3	1.2	0.2	44.2	2.5	2.6	71.5	1.3	1.3	1.2	0.2
BNSF	22.1	1.2	1.3	35.7	0.7	0.7	0.6	0.1	22.1	1.2	1.3	35.7	0.7	0.7	0.6	0.1
UP	22.1	1.2	1.3	35.7	0.7	0.7	0.6	0.1	22.1	1.2	1.3	35.7	0.7	0.7	0.6	0.1
CEQA 2038 Base + Everport 2038 Horizon Year																
All IPI Rail	210.2	8.7	9.1	244.7	3.9	3.9	3.6	0.8	210.2	8.7	9.1	244.7	3.9	3.9	3.6	0.8
On-dock IPI Rail	177.0	7.3	7.7	206.1	3.3	3.3	3.1	0.7	177.0	7.3	7.7	206.1	3.3	3.3	3.1	0.7
BNSF	88.5	3.7	3.9	103.0	1.7	1.7	1.5	0.3	88.5	3.7	3.9	103.0	1.7	1.7	1.5	0.3
UP	88.5	3.7	3.9	103.0	1.7	1.7	1.5	0.3	88.5	3.7	3.9	103.0	1.7	1.7	1.5	0.3
Off-dock IPI Rail	44.2	1.8	1.9	51.5	0.8	0.8	0.8	0.2	44.2	1.8	1.9	51.5	0.8	0.8	0.8	0.2
BNSF	22.1	0.9	1.0	25.8	0.4	0.4	0.4	0.1	22.1	0.9	1.0	25.8	0.4	0.4	0.4	0.1
UP	22.1	0.9	1.0	25.8	0.4	0.4	0.4	0.1	22.1	0.9	1.0	25.8	0.4	0.4	0.4	0.1

Table 170. On Port Line Haul Peak Day Emissions

(lb/day)	Alt 3 - Reduced Wharf Imp. CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	Alt 4 - No Backland Imp. CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx
2013 Base Year																
All IPI Rail																
On-dock IPI Rail																
BNSF																
UP																
Off-dock IPI Rail																
BNSF																
UP																
2018 Construction Year																
All IPI Rail	88.5	14.0	14.7	359.0	9.0	9.0	8.3	0.3	88.5	14.0	14.7	359.0	9.0	9.0	8.3	0.3
On-dock IPI Rail	77.4	12.2	12.9	314.1	7.9	7.9	7.2	0.3	77.4	12.2	12.9	314.1	7.9	7.9	7.2	0.3
BNSF	44.2	7.0	7.4	179.5	4.5	4.5	4.1	0.2	44.2	7.0	7.4	179.5	4.5	4.5	4.1	0.2
UP	33.2	5.2	5.5	134.6	3.4	3.4	3.1	0.1	33.2	5.2	5.5	134.6	3.4	3.4	3.1	0.1
Off-dock IPI Rail	22.1	3.5	3.7	89.7	2.2	2.2	2.1	0.1	22.1	3.5	3.7	89.7	2.2	2.2	2.1	0.1
BNSF	11.1	1.7	1.8	44.9	1.1	1.1	1.0	0.0	11.1	1.7	1.8	44.9	1.1	1.1	1.0	0.0
UP	11.1	1.7	1.8	44.9	1.1	1.1	1.0	0.0	11.1	1.7	1.8	44.9	1.1	1.1	1.0	0.0
CEQA 2019 Base + Everport 2019 Opening Year																
All IPI Rail	88.5	13.0	13.7	342.4	8.3	8.3	7.6	0.3	88.5	13.0	13.7	342.4	8.3	8.3	7.6	0.3
On-dock IPI Rail	77.4	11.3	11.9	299.6	7.3	7.3	6.7	0.3	77.4	11.3	11.9	299.6	7.3	7.3	6.7	0.3
BNSF	44.2	6.5	6.8	171.2	4.2	4.2	3.8	0.2	44.2	6.5	6.8	171.2	4.2	4.2	3.8	0.2
UP	33.2	4.9	5.1	128.4	3.1	3.1	2.9	0.1	33.2	4.9	5.1	128.4	3.1	3.1	2.9	0.1
Off-dock IPI Rail	22.1	3.2	3.4	85.6	2.1	2.1	1.9	0.1	22.1	3.2	3.4	85.6	2.1	2.1	1.9	0.1
BNSF	11.1	1.6	1.7	42.8	1.0	1.0	1.0	0.0	11.1	1.6	1.7	42.8	1.0	1.0	1.0	0.0
UP	11.1	1.6	1.7	42.8	1.0	1.0	1.0	0.0	11.1	1.6	1.7	42.8	1.0	1.0	1.0	0.0
CEQA 2026 Base + Everport 2026 Interim Year																
All IPI Rail	121.7	11.4	12.0	315.4	6.9	6.9	6.3	0.5	110.6	10.4	10.9	286.7	6.2	6.2	5.7	0.4
On-dock IPI Rail	99.6	9.3	9.8	258.0	5.6	5.6	5.2	0.4	88.5	8.3	8.8	229.3	5.0	5.0	4.6	0.3
BNSF	55.3	5.2	5.5	143.3	3.1	3.1	2.9	0.2	44.2	4.2	4.4	114.7	2.5	2.5	2.3	0.2
UP	55.3	5.2	5.5	143.3	3.1	3.1	2.9	0.2	44.2	4.2	4.4	114.7	2.5	2.5	2.3	0.2
Off-dock IPI Rail	22.1	2.1	2.2	57.3	1.2	1.2	1.1	0.1	22.1	2.1	2.2	57.3	1.2	1.2	1.1	0.1
BNSF	11.1	1.0	1.1	28.7	0.6	0.6	0.6	0.0	11.1	1.0	1.1	28.7	0.6	0.6	0.6	0.0
UP	11.1	1.0	1.1	28.7	0.6	0.6	0.6	0.0	11.1	1.0	1.1	28.7	0.6	0.6	0.6	0.0
CEQA 2033 Base + Everport 2033 Horizon Year																
All IPI Rail	254.4	14.3	15.1	410.9	7.6	7.6	7.0	1.0	243.4	13.7	14.4	393.1	7.3	7.3	6.7	1.0
On-dock IPI Rail	177.0	10.0	10.5	285.9	5.3	5.3	4.9	0.7	177.0	10.0	10.5	285.9	5.3	5.3	4.9	0.7
BNSF	88.5	5.0	5.3	142.9	2.7	2.7	2.4	0.3	88.5	5.0	5.3	142.9	2.7	2.7	2.4	0.3
UP	88.5	5.0	5.3	142.9	2.7	2.7	2.4	0.3	88.5	5.0	5.3	142.9	2.7	2.7	2.4	0.3
Off-dock IPI Rail	88.5	5.0	5.3	142.9	2.7	2.7	2.4	0.3	77.4	4.4	4.6	125.1	2.3	2.3	2.1	0.3
BNSF	44.2	2.5	2.6	71.5	1.3	1.3	1.2	0.2	44.2	2.5	2.6	71.5	1.3	1.3	1.2	0.2
UP	44.2	2.5	2.6	71.5	1.3	1.3	1.2	0.2	44.2	2.5	2.6	71.5	1.3	1.3	1.2	0.2
CEQA 2038 Base + Everport 2038 Horizon Year																
All IPI Rail	254.4	10.5	11.1	296.2	4.8	4.8	4.4	1.0	243.4	10.1	10.6	283.4	4.6	4.6	4.2	1.0
On-dock IPI Rail	177.0	7.3	7.7	206.1	3.3	3.3	3.1	0.7	177.0	7.3	7.7	206.1	3.3	3.3	3.1	0.7
BNSF	88.5	3.7	3.9	103.0	1.7	1.7	1.5	0.3	88.5	3.7	3.9	103.0	1.7	1.7	1.5	0.3
UP	88.5	3.7	3.9	103.0	1.7	1.7	1.5	0.3	88.5	3.7	3.9	103.0	1.7	1.7	1.5	0.3
Off-dock IPI Rail	88.5	3.7	3.9	103.0	1.7	1.7	1.5	0.3	77.4	3.2	3.4	90.2	1.5	1.5	1.3	0.3
BNSF	44.2	1.8	1.9	51.5	0.8	0.8	0.8	0.2	44.2	1.8	1.9	51.5	0.8	0.8	0.8	0.2
UP	44.2	1.8	1.9	51.5	0.8	0.8	0.8	0.2	44.2	1.8	1.9	51.5	0.8	0.8	0.8	0.2

Table 170. On Port Line Haul Peak Day Emissions

(lb/day)	Alt 5 - Additional TICTF CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	Proposed Project CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx
2013 Base Year																
All IPI Rail																
On-dock IPI Rail																
BNSF																
UP																
Off-dock IPI Rail																
BNSF																
UP																
2018 Construction Year																
All IPI Rail	88.5	14.0	14.7	359.0	9.0	9.0	8.3	0.3	88.5	14.0	14.7	359.0	9.0	9.0	8.3	0.3
On-dock IPI Rail	77.4	12.2	12.9	314.1	7.9	7.9	7.2	0.3	77.4	12.2	12.9	314.1	7.9	7.9	7.2	0.3
BNSF	44.2	7.0	7.4	179.5	4.5	4.5	4.1	0.2	44.2	7.0	7.4	179.5	4.5	4.5	4.1	0.2
UP	33.2	5.2	5.5	134.6	3.4	3.4	3.1	0.1	33.2	5.2	5.5	134.6	3.4	3.4	3.1	0.1
Off-dock IPI Rail	22.1	3.5	3.7	89.7	2.2	2.2	2.1	0.1	22.1	3.5	3.7	89.7	2.2	2.2	2.1	0.1
BNSF	11.1	1.7	1.8	44.9	1.1	1.1	1.0	0.0	11.1	1.7	1.8	44.9	1.1	1.1	1.0	0.0
UP	11.1	1.7	1.8	44.9	1.1	1.1	1.0	0.0	11.1	1.7	1.8	44.9	1.1	1.1	1.0	0.0
CEQA 2019 Base + Everport 2019 Opening Year																
All IPI Rail	99.6	14.6	15.4	385.2	9.3	9.3	8.6	0.4	99.6	14.6	15.4	385.2	9.3	9.3	8.6	0.4
On-dock IPI Rail	77.4	11.3	11.9	299.6	7.3	7.3	6.7	0.3	77.4	11.3	11.9	299.6	7.3	7.3	6.7	0.3
BNSF	44.2	6.5	6.8	171.2	4.2	4.2	3.8	0.2	44.2	6.5	6.8	171.2	4.2	4.2	3.8	0.2
UP	33.2	4.9	5.1	128.4	3.1	3.1	2.9	0.1	33.2	4.9	5.1	128.4	3.1	3.1	2.9	0.1
Off-dock IPI Rail	22.1	3.2	3.4	85.6	2.1	2.1	1.9	0.1	22.1	3.2	3.4	85.6	2.1	2.1	1.9	0.1
BNSF	11.1	1.6	1.7	42.8	1.0	1.0	1.0	0.0	11.1	1.6	1.7	42.8	1.0	1.0	1.0	0.0
UP	11.1	1.6	1.7	42.8	1.0	1.0	1.0	0.0	11.1	1.6	1.7	42.8	1.0	1.0	1.0	0.0
CEQA 2026 Base + Everport 2026 Interim Year																
All IPI Rail	121.7	11.4	12.0	315.4	6.9	6.9	6.3	0.5	121.7	11.4	12.0	315.4	6.9	6.9	6.3	0.5
On-dock IPI Rail	99.6	9.3	9.8	258.0	5.6	5.6	5.2	0.4	99.6	9.3	9.8	258.0	5.6	5.6	5.2	0.4
BNSF	55.3	5.2	5.5	143.3	3.1	3.1	2.9	0.2	55.3	5.2	5.5	143.3	3.1	3.1	2.9	0.2
UP	55.3	5.2	5.5	143.3	3.1	3.1	2.9	0.2	55.3	5.2	5.5	143.3	3.1	3.1	2.9	0.2
Off-dock IPI Rail	33.2	3.1	3.3	86.0	1.9	1.9	1.7	0.1	33.2	3.1	3.3	86.0	1.9	1.9	1.7	0.1
BNSF	22.1	2.1	2.2	57.3	1.2	1.2	1.1	0.1	22.1	2.1	2.2	57.3	1.2	1.2	1.1	0.1
UP	22.1	2.1	2.2	57.3	1.2	1.2	1.1	0.1	22.1	2.1	2.2	57.3	1.2	1.2	1.1	0.1
CEQA 2033 Base + Everport 2033 Horizon Year																
All IPI Rail	265.5	15.0	15.8	428.8	8.0	8.0	7.3	1.0	265.5	15.0	15.8	428.8	8.0	8.0	7.3	1.0
On-dock IPI Rail	188.1	10.6	11.2	303.7	5.7	5.7	5.2	0.7	177.0	10.0	10.5	285.9	5.3	5.3	4.9	0.7
BNSF	99.6	5.6	5.9	160.8	3.0	3.0	2.8	0.4	88.5	5.0	5.3	142.9	2.7	2.7	2.4	0.3
UP	99.6	5.6	5.9	160.8	3.0	3.0	2.8	0.4	88.5	5.0	5.3	142.9	2.7	2.7	2.4	0.3
Off-dock IPI Rail	88.5	5.0	5.3	142.9	2.7	2.7	2.4	0.3	99.6	5.6	5.9	160.8	3.0	3.0	2.8	0.4
BNSF	44.2	2.5	2.6	71.5	1.3	1.3	1.2	0.2	55.3	3.1	3.3	89.3	1.7	1.7	1.5	0.2
UP	44.2	2.5	2.6	71.5	1.3	1.3	1.2	0.2	55.3	3.1	3.3	89.3	1.7	1.7	1.5	0.2
CEQA 2038 Base + Everport 2038 Horizon Year																
All IPI Rail	265.5	11.0	11.6	309.1	5.0	5.0	4.6	1.0	265.5	11.0	11.6	309.1	5.0	5.0	4.6	1.0
On-dock IPI Rail	188.1	7.8	8.2	219.0	3.5	3.5	3.2	0.7	177.0	7.3	7.7	206.1	3.3	3.3	3.1	0.7
BNSF	99.6	4.1	4.3	115.9	1.9	1.9	1.7	0.4	88.5	3.7	3.9	103.0	1.7	1.7	1.5	0.3
UP	99.6	4.1	4.3	115.9	1.9	1.9	1.7	0.4	88.5	3.7	3.9	103.0	1.7	1.7	1.5	0.3
Off-dock IPI Rail	88.5	3.7	3.9	103.0	1.7	1.7	1.5	0.3	99.6	4.1	4.3	115.9	1.9	1.9	1.7	0.4
BNSF	44.2	1.8	1.9	51.5	0.8	0.8	0.8	0.2	55.3	2.3	2.4	64.4	1.0	1.0	1.0	0.2
UP	44.2	1.8	1.9	51.5	0.8	0.8	0.8	0.2	55.3	2.3	2.4	64.4	1.0	1.0	1.0	0.2

Table 171. On Port Line Haul Peak Day Emissions

	Alt 2 - No Fed Action								Alt 1 - No CEQA Project							
(lb/day)	CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx
2013 Base Year																
All IPI Rail	4.7	0.9	0.9	16.5	0.3	0.3	0.2	0.0	4.7	0.9	0.9	16.5	0.3	0.3	0.2	0.0
On-dock IPI Rail	3.7	0.4	0.5	9.0	0.1	0.1	0.1	0.0	3.7	0.4	0.5	9.0	0.1	0.1	0.1	0.0
BNSF	2.3	0.3	0.3	5.5	0.1	0.1	0.0	0.0	2.3	0.3	0.3	5.5	0.1	0.1	0.0	0.0
UP	1.5	0.2	0.2	3.5	0.0	0.0	0.0	0.0	1.5	0.2	0.2	3.5	0.0	0.0	0.0	0.0
Off-dock IPI Rail	0.9	0.4	0.5	7.4	0.2	0.2	0.2	0.0	0.9	0.4	0.5	7.4	0.2	0.2	0.2	0.0
BNSF	0.5	0.2	0.2	3.7	0.1	0.1	0.1	0.0	0.5	0.2	0.2	3.7	0.1	0.1	0.1	0.0
UP	0.5	0.2	0.2	3.7	0.1	0.1	0.1	0.0	0.5	0.2	0.2	3.7	0.1	0.1	0.1	0.0
2018 Construction Year																
All IPI Rail	4.8	0.8	0.9	16.0	0.2	0.2	0.2	0.0	4.8	0.8	0.9	16.0	0.2	0.2	0.2	0.0
On-dock IPI Rail	3.8	0.4	0.5	9.2	0.1	0.1	0.1	0.0	3.8	0.4	0.5	9.2	0.1	0.1	0.1	0.0
BNSF	2.3	0.3	0.3	5.6	0.1	0.1	0.0	0.0	2.3	0.3	0.3	5.6	0.1	0.1	0.0	0.0
UP	1.5	0.2	0.2	3.6	0.0	0.0	0.0	0.0	1.5	0.2	0.2	3.6	0.0	0.0	0.0	0.0
Off-dock IPI Rail	0.9	0.4	0.4	6.8	0.1	0.1	0.1	0.0	0.9	0.4	0.4	6.8	0.1	0.1	0.1	0.0
BNSF	0.5	0.2	0.2	3.4	0.1	0.1	0.1	0.0	0.5	0.2	0.2	3.4	0.1	0.1	0.1	0.0
UP	0.5	0.2	0.2	3.4	0.1	0.1	0.1	0.0	0.5	0.2	0.2	3.4	0.1	0.1	0.1	0.0
CEQA 2019 Base + Everport 2019 Opening Year																
All IPI Rail	4.8	0.8	0.9	16.1	0.2	0.2	0.2	0.0	4.8	0.8	0.9	16.1	0.2	0.2	0.2	0.0
On-dock IPI Rail	3.9	0.4	0.5	9.3	0.1	0.1	0.1	0.0	3.9	0.4	0.5	9.3	0.1	0.1	0.1	0.0
BNSF	2.3	0.3	0.3	5.6	0.1	0.1	0.0	0.0	2.3	0.3	0.3	5.6	0.1	0.1	0.0	0.0
UP	1.5	0.2	0.2	3.6	0.0	0.0	0.0	0.0	1.5	0.2	0.2	3.6	0.0	0.0	0.0	0.0
Off-dock IPI Rail	0.9	0.4	0.4	6.8	0.1	0.1	0.1	0.0	0.9	0.4	0.4	6.8	0.1	0.1	0.1	0.0
BNSF	0.5	0.2	0.2	3.4	0.1	0.1	0.1	0.0	0.5	0.2	0.2	3.4	0.1	0.1	0.1	0.0
UP	0.5	0.2	0.2	3.4	0.1	0.1	0.1	0.0	0.5	0.2	0.2	3.4	0.1	0.1	0.1	0.0
CEQA 2026 Base + Everport 2026 Interim Year																
All IPI Rail	5.6	0.8	0.9	14.3	0.2	0.2	0.2	0.0	5.6	0.8	0.9	14.3	0.2	0.2	0.2	0.0
On-dock IPI Rail	4.5	0.5	0.6	8.8	0.1	0.1	0.1	0.0	4.5	0.5	0.6	8.8	0.1	0.1	0.1	0.0
BNSF	2.3	0.3	0.3	4.4	0.0	0.0	0.0	0.0	2.3	0.3	0.3	4.4	0.0	0.0	0.0	0.0
UP	2.3	0.3	0.3	4.4	0.0	0.0	0.0	0.0	2.3	0.3	0.3	4.4	0.0	0.0	0.0	0.0
Off-dock IPI Rail	1.1	0.3	0.3	5.5	0.1	0.1	0.1	0.0	1.1	0.3	0.3	5.5	0.1	0.1	0.1	0.0
BNSF	0.5	0.1	0.2	2.7	0.1	0.1	0.1	0.0	0.5	0.1	0.2	2.7	0.1	0.1	0.1	0.0
UP	0.5	0.1	0.2	2.7	0.1	0.1	0.1	0.0	0.5	0.1	0.2	2.7	0.1	0.1	0.1	0.0
CEQA 2033 Base + Everport 2033 Horizon Year																
All IPI Rail	12.4	1.6	1.7	27.4	0.3	0.3	0.3	0.0	12.4	1.6	1.7	27.4	0.3	0.3	0.3	0.0
On-dock IPI Rail	10.4	1.2	1.3	20.1	0.2	0.2	0.2	0.0	10.4	1.2	1.3	20.1	0.2	0.2	0.2	0.0
BNSF	5.2	0.6	0.6	10.0	0.1	0.1	0.1	0.0	5.2	0.6	0.6	10.0	0.1	0.1	0.1	0.0
UP	5.2	0.6	0.6	10.0	0.1	0.1	0.1	0.0	5.2	0.6	0.6	10.0	0.1	0.1	0.1	0.0
Off-dock IPI Rail	2.1	0.4	0.4	7.3	0.2	0.2	0.1	0.0	2.1	0.4	0.4	7.3	0.2	0.2	0.1	0.0
BNSF	1.0	0.2	0.2	3.6	0.1	0.1	0.1	0.0	1.0	0.2	0.2	3.6	0.1	0.1	0.1	0.0
UP	1.0	0.2	0.2	3.6	0.1	0.1	0.1	0.0	1.0	0.2	0.2	3.6	0.1	0.1	0.1	0.0
CEQA 2038 Base + Everport 2038 Horizon Year																
All IPI Rail	12.4	0.9	0.9	13.3	0.2	0.2	0.2	0.0	12.4	0.9	0.9	13.3	0.2	0.2	0.2	0.0
On-dock IPI Rail	10.4	0.6	0.6	8.4	0.1	0.1	0.1	0.0	10.4	0.6	0.6	8.4	0.1	0.1	0.1	0.0
BNSF	5.2	0.3	0.3	4.2	0.1	0.1	0.0	0.0	5.2	0.3	0.3	4.2	0.1	0.1	0.0	0.0
UP	5.2	0.3	0.3	4.2	0.1	0.1	0.0	0.0	5.2	0.3	0.3	4.2	0.1	0.1	0.0	0.0
Off-dock IPI Rail	2.1	0.3	0.3	5.0	0.1	0.1	0.1	0.0	2.1	0.3	0.3	5.0	0.1	0.1	0.1	0.0
BNSF	1.0	0.1	0.1	2.5	0.1	0.1	0.0	0.0	1.0	0.1	0.1	2.5	0.1	0.1	0.0	0.0
UP	1.0	0.1	0.1	2.5	0.1	0.1	0.0	0.0	1.0	0.1	0.1	2.5	0.1	0.1	0.0	0.0

Table 171. On Port Line Haul Peak Day Emissions

(lb/day)	Alt 3 - Reduced Wharf Imp. CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	Alt 4 - No Backland Imp. CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx
2013 Base Year																
All IPI Rail																
On-dock IPI Rail																
BNSF																
UP																
Off-dock IPI Rail																
BNSF																
UP																
2018 Construction Year																
All IPI Rail	4.6	0.8	0.8	15.3	0.2	0.2	0.2	0.0	4.6	0.8	0.8	15.3	0.2	0.2	0.2	0.0
On-dock IPI Rail	3.7	0.4	0.4	8.8	0.1	0.1	0.1	0.0	3.7	0.4	0.4	8.8	0.1	0.1	0.1	0.0
BNSF	2.2	0.3	0.3	5.4	0.1	0.1	0.0	0.0	2.2	0.3	0.3	5.4	0.1	0.1	0.0	0.0
UP	1.4	0.2	0.2	3.5	0.0	0.0	0.0	0.0	1.4	0.2	0.2	3.5	0.0	0.0	0.0	0.0
Off-dock IPI Rail	0.9	0.4	0.4	6.5	0.1	0.1	0.1	0.0	0.9	0.4	0.4	6.5	0.1	0.1	0.1	0.0
BNSF	0.5	0.2	0.2	3.3	0.1	0.1	0.1	0.0	0.5	0.2	0.2	3.3	0.1	0.1	0.1	0.0
UP	0.4	0.2	0.2	3.2	0.1	0.1	0.1	0.0	0.4	0.2	0.2	3.2	0.1	0.1	0.1	0.0
CEQA 2019 Base + Everport 2019 Opening Year																
All IPI Rail	4.8	0.8	0.9	15.9	0.2	0.2	0.2	0.0	4.6	0.8	0.8	15.5	0.2	0.2	0.2	0.0
On-dock IPI Rail	3.8	0.4	0.5	9.2	0.1	0.1	0.1	0.0	3.7	0.4	0.4	8.9	0.1	0.1	0.1	0.0
BNSF	2.3	0.3	0.3	5.6	0.1	0.1	0.0	0.0	2.3	0.3	0.3	5.4	0.1	0.1	0.0	0.0
UP	1.5	0.2	0.2	3.6	0.0	0.0	0.0	0.0	1.5	0.2	0.2	3.5	0.0	0.0	0.0	0.0
Off-dock IPI Rail	0.9	0.4	0.4	6.7	0.1	0.1	0.1	0.0	0.9	0.4	0.4	6.5	0.1	0.1	0.1	0.0
BNSF	0.5	0.2	0.2	3.4	0.1	0.1	0.1	0.0	0.5	0.2	0.2	3.3	0.1	0.1	0.1	0.0
UP	0.5	0.2	0.2	3.4	0.1	0.1	0.1	0.0	0.5	0.2	0.2	3.3	0.1	0.1	0.1	0.0
CEQA 2026 Base + Everport 2026 Interim Year																
All IPI Rail	6.8	1.0	1.0	17.5	0.2	0.2	0.2	0.0	6.5	0.9	1.0	16.5	0.2	0.2	0.2	0.0
On-dock IPI Rail	5.5	0.6	0.7	10.8	0.1	0.1	0.1	0.0	5.2	0.6	0.6	10.1	0.1	0.1	0.1	0.0
BNSF	2.8	0.3	0.3	5.4	0.0	0.0	0.0	0.0	2.6	0.3	0.3	5.1	0.0	0.0	0.0	0.0
UP	2.8	0.3	0.3	5.4	0.0	0.0	0.0	0.0	2.6	0.3	0.3	5.1	0.0	0.0	0.0	0.0
Off-dock IPI Rail	1.3	0.4	0.4	6.7	0.1	0.1	0.1	0.0	1.2	0.3	0.4	6.3	0.1	0.1	0.1	0.0
BNSF	0.6	0.2	0.2	3.4	0.1	0.1	0.1	0.0	0.6	0.2	0.2	3.2	0.1	0.1	0.1	0.0
UP	0.6	0.2	0.2	3.4	0.1	0.1	0.1	0.0	0.6	0.2	0.2	3.2	0.1	0.1	0.1	0.0
CEQA 2033 Base + Everport 2033 Horizon Year																
All IPI Rail	15.4	2.1	2.2	37.8	0.6	0.6	0.5	0.1	14.5	1.9	2.0	34.5	0.5	0.5	0.4	0.0
On-dock IPI Rail	10.4	1.2	1.3	20.1	0.2	0.2	0.2	0.0	10.4	1.2	1.3	20.1	0.2	0.2	0.2	0.0
BNSF	5.2	0.6	0.6	10.0	0.1	0.1	0.1	0.0	5.2	0.6	0.6	10.0	0.1	0.1	0.1	0.0
UP	5.2	0.6	0.6	10.0	0.1	0.1	0.1	0.0	5.2	0.6	0.6	10.0	0.1	0.1	0.1	0.0
Off-dock IPI Rail	5.0	0.9	1.0	17.7	0.4	0.4	0.3	0.0	4.1	0.8	0.8	14.4	0.3	0.3	0.3	0.0
BNSF	2.5	0.5	0.5	8.8	0.2	0.2	0.2	0.0	2.0	0.4	0.4	7.2	0.2	0.2	0.1	0.0
UP	2.5	0.5	0.5	8.8	0.2	0.2	0.2	0.0	2.0	0.4	0.4	7.2	0.2	0.2	0.1	0.0
CEQA 2038 Base + Everport 2038 Horizon Year																
All IPI Rail	15.4	1.2	1.3	20.5	0.4	0.4	0.3	0.1	14.5	1.1	1.2	18.2	0.3	0.3	0.3	0.0
On-dock IPI Rail	10.4	0.6	0.6	8.4	0.1	0.1	0.1	0.0	10.4	0.6	0.6	8.4	0.1	0.1	0.1	0.0
BNSF	5.2	0.3	0.3	4.2	0.1	0.1	0.0	0.0	5.2	0.3	0.3	4.2	0.1	0.1	0.0	0.0
UP	5.2	0.3	0.3	4.2	0.1	0.1	0.0	0.0	5.2	0.3	0.3	4.2	0.1	0.1	0.0	0.0
Off-dock IPI Rail	5.0	0.6	0.7	12.1	0.3	0.3	0.2	0.0	4.1	0.5	0.6	9.9	0.2	0.2	0.2	0.0
BNSF	2.5	0.3	0.3	6.0	0.1	0.1	0.1	0.0	2.0	0.3	0.3	4.9	0.1	0.1	0.1	0.0
UP	2.5	0.3	0.3	6.0	0.1	0.1	0.1	0.0	2.0	0.3	0.3	4.9	0.1	0.1	0.1	0.0

Table 171. On Port Line Haul Peak Day Emissions

(lb/day)	Alt 5 - Additional TICTF CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	Proposed Project CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx
2013 Base Year																
All IPI Rail																
On-dock IPI Rail																
BNSF																
UP																
Off-dock IPI Rail																
BNSF																
UP																
2018 Construction Year																
All IPI Rail	4.6	0.8	0.8	15.3	0.2	0.2	0.2	0.0	4.6	0.8	0.8	15.3	0.2	0.2	0.2	0.0
On-dock IPI Rail	3.7	0.4	0.4	8.8	0.1	0.1	0.1	0.0	3.7	0.4	0.4	8.8	0.1	0.1	0.1	0.0
BNSF	2.2	0.3	0.3	5.4	0.1	0.1	0.0	0.0	2.2	0.3	0.3	5.4	0.1	0.1	0.0	0.0
UP	1.4	0.2	0.2	3.5	0.0	0.0	0.0	0.0	1.4	0.2	0.2	3.5	0.0	0.0	0.0	0.0
Off-dock IPI Rail	0.9	0.4	0.4	6.5	0.1	0.1	0.1	0.0	0.9	0.4	0.4	6.5	0.1	0.1	0.1	0.0
BNSF	0.5	0.2	0.2	3.3	0.1	0.1	0.1	0.0	0.5	0.2	0.2	3.3	0.1	0.1	0.1	0.0
UP	0.4	0.2	0.2	3.2	0.1	0.1	0.1	0.0	0.4	0.2	0.2	3.2	0.1	0.1	0.1	0.0
CEQA 2019 Base + Everport 2019 Opening Year																
All IPI Rail	4.9	0.8	0.9	16.3	0.2	0.2	0.2	0.0	4.9	0.8	0.9	16.3	0.2	0.2	0.2	0.0
On-dock IPI Rail	3.9	0.4	0.5	9.4	0.1	0.1	0.1	0.0	3.9	0.4	0.5	9.4	0.1	0.1	0.1	0.0
BNSF	2.4	0.3	0.3	5.7	0.1	0.1	0.1	0.0	2.4	0.3	0.3	5.7	0.1	0.1	0.1	0.0
UP	1.5	0.2	0.2	3.7	0.0	0.0	0.0	0.0	1.5	0.2	0.2	3.7	0.0	0.0	0.0	0.0
Off-dock IPI Rail	1.0	0.4	0.4	6.9	0.2	0.2	0.1	0.0	1.0	0.4	0.4	6.9	0.2	0.2	0.1	0.0
BNSF	0.5	0.2	0.2	3.5	0.1	0.1	0.1	0.0	0.5	0.2	0.2	3.5	0.1	0.1	0.1	0.0
UP	0.5	0.2	0.2	3.4	0.1	0.1	0.1	0.0	0.5	0.2	0.2	3.4	0.1	0.1	0.1	0.0
CEQA 2026 Base + Everport 2026 Interim Year																
All IPI Rail	7.2	1.0	1.1	18.4	0.2	0.2	0.2	0.0	7.2	1.0	1.1	18.4	0.2	0.2	0.2	0.0
On-dock IPI Rail	5.8	0.7	0.7	11.3	0.1	0.1	0.1	0.0	5.8	0.7	0.7	11.3	0.1	0.1	0.1	0.0
BNSF	2.9	0.3	0.4	5.7	0.0	0.0	0.0	0.0	2.9	0.3	0.4	5.7	0.0	0.0	0.0	0.0
UP	2.9	0.3	0.4	5.7	0.0	0.0	0.0	0.0	2.9	0.3	0.4	5.7	0.0	0.0	0.0	0.0
Off-dock IPI Rail	1.4	0.4	0.4	7.1	0.2	0.2	0.1	0.0	1.4	0.4	0.4	7.1	0.2	0.2	0.1	0.0
BNSF	0.7	0.2	0.2	3.5	0.1	0.1	0.1	0.0	0.7	0.2	0.2	3.5	0.1	0.1	0.1	0.0
UP	0.7	0.2	0.2	3.5	0.1	0.1	0.1	0.0	0.7	0.2	0.2	3.5	0.1	0.1	0.1	0.0
CEQA 2033 Base + Everport 2033 Horizon Year																
All IPI Rail	16.3	2.2	2.3	39.5	0.6	0.6	0.5	0.1	16.3	2.3	2.4	40.9	0.6	0.6	0.6	0.1
On-dock IPI Rail	11.3	1.3	1.4	21.9	0.2	0.2	0.2	0.0	10.4	1.2	1.3	20.1	0.2	0.2	0.2	0.0
BNSF	5.6	0.7	0.7	10.9	0.1	0.1	0.1	0.0	5.2	0.6	0.6	10.0	0.1	0.1	0.1	0.0
UP	5.6	0.7	0.7	10.9	0.1	0.1	0.1	0.0	5.2	0.6	0.6	10.0	0.1	0.1	0.1	0.0
Off-dock IPI Rail	5.0	0.9	1.0	17.6	0.4	0.4	0.3	0.0	5.9	1.1	1.1	20.8	0.4	0.4	0.4	0.0
BNSF	2.5	0.5	0.5	8.8	0.2	0.2	0.2	0.0	3.0	0.5	0.6	10.4	0.2	0.2	0.2	0.0
UP	2.5	0.5	0.5	8.8	0.2	0.2	0.2	0.0	3.0	0.5	0.6	10.4	0.2	0.2	0.2	0.0
CEQA 2038 Base + Everport 2038 Horizon Year																
All IPI Rail	16.3	1.3	1.4	21.1	0.4	0.4	0.3	0.1	16.3	1.4	1.4	22.6	0.4	0.4	0.4	0.1
On-dock IPI Rail	11.3	0.6	0.7	9.1	0.1	0.1	0.1	0.0	10.4	0.6	0.6	8.4	0.1	0.1	0.1	0.0
BNSF	5.6	0.3	0.3	4.6	0.1	0.1	0.1	0.0	5.2	0.3	0.3	4.2	0.1	0.1	0.0	0.0
UP	5.6	0.3	0.3	4.6	0.1	0.1	0.1	0.0	5.2	0.3	0.3	4.2	0.1	0.1	0.0	0.0
Off-dock IPI Rail	5.0	0.6	0.7	12.0	0.3	0.3	0.2	0.0	5.9	0.8	0.8	14.2	0.3	0.3	0.3	0.0
BNSF	2.5	0.3	0.3	6.0	0.1	0.1	0.1	0.0	3.0	0.4	0.4	7.1	0.1	0.1	0.1	0.0
UP	2.5	0.3	0.3	6.0	0.1	0.1	0.1	0.0	3.0	0.4	0.4	7.1	0.1	0.1	0.1	0.0

Table 172. Line-Haul Locomotives Emission Factors (g/bhp-hr)

	CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	CO2	N2O	CH4
2013	1.28	0.33	0.35	5.92	0.22	0.22	0.20	0.009	494	0.013	0.04
2018	1.28	0.20	0.21	5.19	0.13	0.13	0.12	0.005	494	0.013	0.04
2019	1.28	0.19	0.20	4.95	0.12	0.12	0.11	0.005	494	0.013	0.04
2026	1.28	0.12	0.13	3.32	0.07	0.07	0.07	0.005	494	0.013	0.04
2033	1.28	0.07	0.08	2.07	0.04	0.04	0.04	0.005	494	0.013	0.04
2038	1.28	0.05	0.06	1.49	0.02	0.02	0.02	0.005	494	0.013	0.04

Notes:

1. 2013 emission rates are based on the POLA 2013 Air Emissions Inventory.

2. Future emission factors for VOC, NOx, and PM10 were calculated from g/gal factors published in EPA *Technical Highlights: Emission Factors for Locomotives* , EPA-420-F-09-025, April 2009.

3. VOC emission factors equal 1.053 x HC emission factors, per EPA Technical Highlights: Emission Factors for Locomotives (EPA-420-F-09-025), April 2009, page 4.

4. PM2.5 emissions are assumed to be 92% of PM10 emissions (SCAQMD 2014 PM Size Profile, Diesel Vehicle Exhaust).

5. CO, SO2, and GHG emissions factors (CO2, N2O, and CH4) are from the POLA 2014 Air Emissions Inventory, Table 6.3.

6. PM10, and DPM emissions from locomotives are assumed to be equivalent (POLA 2014 Air Emissions Inventory, Table 6.3).

7. Emission factors assume a line haul locomotive fuel consumption rate of 20.8 bhp-hr per gallon of fuel, from EPA Technical Highlights: Emission Factors for Locomotives, EPA-420-F-09-025, April 2009.

Large Line-Haul	20.8	bhp-hr/gal	*EPA. 2009. Technical Highlights: Emission Factors for Locomotives. EPA-420-F-09-025. April.*
Switching	15.2	bhp-hr/gal	*EPA. 2009. Technical Highlights: Emission Factors for Locomotives. EPA-420-F-09-025. April.*
TOG/VOC	1.016		*EPA. 2010. Conversion Factors for Hydrocarbon Emission Components.EPA-420-R-10-015. July.*
VOC/HC	1.053		*EPA. 2009. Technical Highlights: Emission Factors for Locomotives. EPA-420-F-09-025. April.*
PM2.5/PM10	0.92		*SCAQMD. 2014. PM Size Profile (42505 & 42514 Diesel Vehicle Exhaust 2005 & 2014). August.*
PM10/PM	1		*SCAQMD. 2014. PM Size Profile (42505 & 42514 Diesel Vehicle Exhaust 2005 & 2014). August.*
S content	15	ppm	CARB, EPA, 2013 and beyond
Molecular weight	64	g SO2	
	32	g S	
Fuel density	3200	g/gal	

Table 173. Switch Locomotives - On Dock Emission Factors (g/bhp-hr)

	CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	CO2	N2O	CH4
PHL Tier 3	1.83	0.26	0.27	4.50	0.036	0.036	0.033	0.006	678	0.017	0.05
PHL Genset	1.51	0.04	0.04	3.37	0.05	0.05	0.05	0.005	578	0.015	0.05
Tier 4	1.83	0.08	0.08	1.00	0.015	0.015	0.01	0.006	678	0.017	0.05

Sources: PHL - POLA 2013 Air Emissions Inventory, Table 6.1. (No new data available in 2014 Inventory.)
Tier 4 - EPA. 2009. Technical Highlights: Emission Factors for Locomotives. EPA-420-F-09-025. April.

Table 174. PHL Fleet Mix

	Tier 3	Genset	Tier 4	Total
2013	16	6	0	22
2018	16	6	0	22
2019	16	6	0	22
2026	16	0	6	22
2033	16	0	6	22
2038	3	0	19	22

Source: YTI

Table 175. Switch Locomotives - On Dock Emission Factors (g/bhp-hr)

	CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	CO2	N2O	CH4
2013	1.74	0.20	0.21	4.19	0.04	0.04	0.04	0.006	651	0.016	0.05
2018	1.74	0.20	0.21	4.19	0.04	0.04	0.04	0.006	651	0.016	0.05
2019	1.74	0.20	0.21	4.19	0.04	0.04	0.04	0.006	651	0.016	0.05
2026	1.83	0.21	0.22	3.55	0.03	0.03	0.03	0.006	678	0.017	0.05
2033	1.83	0.21	0.22	3.55	0.03	0.03	0.03	0.006	678	0.017	0.05
2038	1.83	0.10	0.11	1.48	0.02	0.02	0.02	0.006	678	0.017	0.05

Table 176. Switch Locomotives - Off Dock Emission Factors (g/bhp-hr)

	CO	HC	VOC	NOx	DPM	PM10	PM2.5	SOx	CO2	N2O	CH4
2013	1.83	0.88	0.92	14.80	0.33	0.33	0.30	0.006	678	0.017	0.05
2018	1.83	0.76	0.80	13.29	0.29	0.29	0.27	0.006	678	0.017	0.05
2019	1.83	0.75	0.79	13.16	0.29	0.29	0.27	0.006	678	0.017	0.05
2026	1.83	0.50	0.53	9.47	0.20	0.20	0.19	0.006	678	0.017	0.05
2033	1.83	0.34	0.35	6.45	0.14	0.14	0.13	0.006	678	0.017	0.05
2038	1.83	0.24	0.25	4.41	0.09	0.09	0.08	0.006	678	0.017	0.05

Sources: EPA. 2009. Technical Highlights: Emission Factors for Locomotives. EPA-420-F-09-025. April.
POLA 2013 Air Emissions Inventory, Table 6.1. (No new data available in 2014 Inventory.)

Table 177. Rail Data Summary

	Annual Average											
	Locomotive/Train						Locomotive/Day					
	Alt 2 - No Fed Action	Alt 1 - No CEQA Project	Alt 3 - Reduced Wharf Imp.	Alt 4 - No Backland Imp.	Alt 5 - Additional TICTF	Proposed Project	Alt 2 - No Fed Action	Alt 1 - No CEQA Project	Alt 3 - Reduced Wharf Imp.	Alt 4 - No Backland Imp.	Alt 5 - Additional TICTF	Proposed Project
2013 Base Year												
All IPI Rail	4.31	4.31					6.90	6.90				
On-dock IPI Rail	4.30	4.30					5.59	5.59				
BNSF	4.30	4.30					3.44	3.44				
UP	4.30	4.30					2.15	2.15				
Off-dock IPI Rail	4.33	4.33					1.30	1.30				
BNSF	4.21	4.21					0.84	0.84				
UP	4.44	4.44					0.89	0.89				
2018 Construction Year												
All IPI Rail	4.30	4.30	4.30	4.30	4.30	4.30	7.22	7.22	6.93	6.93	6.93	6.93
On-dock IPI Rail	4.29	4.29	4.29	4.29	4.29	4.29	5.94	5.94	5.70	5.70	5.70	5.70
BNSF	4.29	4.29	4.29	4.29	4.29	4.29	3.40	3.40	3.26	3.26	3.26	3.26
UP	4.29	4.29	4.29	4.29	4.29	4.29	2.12	2.12	2.03	2.03	2.03	2.03
Off-dock IPI Rail	4.32	4.32	4.32	4.32	4.32	4.32	1.28	1.28	1.23	1.23	1.23	1.23
BNSF	4.36	4.36	4.36	4.36	4.36	4.36	0.86	0.86	0.83	0.83	0.83	0.83
UP	4.29	4.29	4.29	4.29	4.29	4.29	0.85	0.85	0.81	0.81	0.81	0.81
CEQA 2019 Base + Everport 2019 Opening Year												
All IPI Rail	4.30	4.30	4.30	4.29	4.30	4.30	7.31	7.31	6.87	6.86	7.31	7.31
On-dock IPI Rail	4.29	4.29	4.30	4.29	4.31	4.31	6.01	6.01	5.59	5.58	6.03	6.03
BNSF	4.29	4.29	4.30	4.31	4.32	4.32	3.44	3.44	3.44	3.45	3.46	3.46
UP	4.29	4.29	4.31	4.32	4.29	4.29	2.15	2.15	2.16	2.16	2.14	2.14
Off-dock IPI Rail	4.32	4.32	4.29	4.30	4.25	4.25	1.30	1.30	1.29	1.29	1.28	1.28
BNSF	4.36	4.36	4.29	4.21	4.43	4.43	0.87	0.87	0.86	0.84	0.89	0.89
UP	4.29	4.29	4.24	4.38	4.35	4.35	0.86	0.86	0.85	0.88	0.87	0.87
CEQA 2026 Base + Everport 2026 Interim Year												
All IPI Rail	4.33	4.33	4.33	4.33	4.33	4.33	7.36	7.36	9.00	8.49	9.49	9.49
On-dock IPI Rail	4.33	4.33	4.33	4.33	4.33	4.33	5.97	5.97	7.30	6.88	7.69	7.69
BNSF	4.33	4.33	4.33	4.33	4.33	4.33	2.98	2.98	3.65	3.44	3.85	3.85
UP	4.33	4.33	4.33	4.33	4.33	4.33	2.98	2.98	3.65	3.44	3.85	3.85
Off-dock IPI Rail	4.33	4.33	4.33	4.33	4.33	4.33	1.39	1.39	1.70	1.61	1.80	1.80
BNSF	4.33	4.33	4.33	4.33	4.33	4.33	0.70	0.70	0.85	0.80	0.90	0.90
UP	4.33	4.33	4.33	4.33	4.33	4.33	0.70	0.70	0.85	0.80	0.90	0.90
CEQA 2033 Base + Everport 2033 Horizon Year												
All IPI Rail	4.33	4.33	4.33	4.33	4.33	4.33	16.35	16.35	20.24	19.02	21.40	21.40
On-dock IPI Rail	4.33	4.33	4.33	4.33	4.33	4.33	13.63	13.63	13.63	13.63	14.84	13.63
BNSF	4.33	4.33	4.33	4.33	4.33	4.33	6.82	6.82	6.82	6.82	7.42	6.82
UP	4.33	4.33	4.33	4.33	4.33	4.33	6.82	6.82	6.82	6.82	7.42	6.82
Off-dock IPI Rail	4.33	4.33	4.33	4.33	4.33	4.33	2.72	2.72	6.60	5.39	6.57	7.77
BNSF	4.33	4.33	4.33	4.33	4.33	4.33	1.36	1.36	3.30	2.70	3.28	3.88
UP	4.33	4.33	4.33	4.33	4.33	4.33	1.36	1.36	3.30	2.70	3.28	3.88
CEQA 2038 Base + Everport 2038 Horizon Year												
All IPI Rail	4.33	4.33	4.33	4.33	4.33	4.33	16.35	16.35	20.24	19.02	21.40	21.40
On-dock IPI Rail	4.33	4.33	4.33	4.33	4.33	4.33	13.63	13.63	13.63	13.63	14.84	13.63
BNSF	4.33	4.33	4.33	4.33	4.33	4.33	6.82	6.82	6.82	6.82	7.42	6.82
UP	4.33	4.33	4.33	4.33	4.33	4.33	6.82	6.82	6.82	6.82	7.42	6.82
Off-dock IPI Rail	4.33	4.33	4.33	4.33	4.33	4.33	2.72	2.72	6.60	5.39	6.57	7.77
BNSF	4.33	4.33	4.33	4.33	4.33	4.33	1.36	1.36	3.30	2.70	3.28	3.88
UP	4.33	4.33	4.33	4.33	4.33	4.33	1.36	1.36	3.30	2.70	3.28	3.88

Table 177. Rail Data Summary

	Locomotive/Year						Average Train Weight (gross ton-mi/year)					
	Alt 2 - No Fed Action	Alt 1 - No CEQA Project	Alt 3 - Reduced Wharf Imp.	Alt 4 - No Backland Imp.	Alt 5 - Additional TICTF	Proposed Project	Alt 2 - No Fed Action	Alt 1 - No CEQA Project	Alt 3 - Reduced Wharf Imp.	Alt 4 - No Backland Imp.	Alt 5 - Additional TICTF	Proposed Project
2013 Base Year												
All IPI Rail	2519	2519					850,304,000	850,304,000				
On-dock IPI Rail	2042	2042					576,992,000	576,992,000				
BNSF	1257	1257					188,048,000	188,048,000				
UP	785	785					105,120,000	105,120,000				
Off-dock IPI Rail	475	475					26,280,000	26,280,000				
BNSF	308	308					4,088,000	4,088,000				
UP	324	324					4,672,000	4,672,000				
2018 Construction Year												
All IPI Rail	2637	2637	2528	2528	2528	2528	912,371,297	912,371,297	838,497,457	838,497,457	838,497,457	838,497,457
On-dock IPI Rail	2170	2170	2080	2080	2080	2080	582,647,418	582,647,418	535,471,009	535,471,009	535,471,009	535,471,009
BNSF	1240	1240	1189	1189	1189	1189	189,841,341	189,841,341	174,470,068	174,470,068	174,470,068	174,470,068
UP	775	775	743	743	743	743	106,195,368	106,195,368	97,596,830	97,596,830	97,596,830	97,596,830
Off-dock IPI Rail	468	468	449	449	449	449	26,548,548	26,548,548	24,398,937	24,398,937	24,398,937	24,398,937
BNSF	315	315	302	302	302	302	3,996,698	3,996,698	3,673,089	3,673,089	3,673,089	3,673,089
UP	310	310	298	298	298	298	4,853,138	4,853,138	4,460,184	4,460,184	4,460,184	4,460,184
CEQA 2019 Base + Everport 2019 Opening Year												
All IPI Rail	2667	2667	2509	2504	2668	2668	933,232,000	933,232,000	923,304,000	845,632,000	948,124,000	948,124,000
On-dock IPI Rail	2194	2194	2042	2037	2202	2202	595,972,000	595,972,000	588,380,000	573,196,000	603,564,000	603,564,000
BNSF	1255	1255	1255	1258	1263	1263	194,180,000	194,180,000	192,136,000	186,004,000	252,288,000	252,288,000
UP	783	783	787	789	783	783	108,624,000	108,624,000	106,872,000	103,368,000	110,376,000	110,376,000
Off-dock IPI Rail	474	474	470	471	466	466	27,156,000	27,156,000	27,156,000	26,280,000	28,032,000	28,032,000
BNSF	319	319	313	308	324	324	4,088,000	4,088,000	4,088,000	4,088,000	4,088,000	4,088,000
UP	314	314	310	320	318	318	4,964,000	4,964,000	4,964,000	4,672,000	4,964,000	4,964,000
CEQA 2026 Base + Everport 2026 Interim Year												
All IPI Rail	2687	2687	3286	3099	3463	3463	1,030,251,807	1,030,251,807	1,541,647,402	1,371,229,787	1,712,318,886	1,712,318,886
On-dock IPI Rail	2178	2178	2664	2513	2808	2808	696,501,531	696,501,531	1,042,230,423	927,019,627	1,157,612,846	1,157,612,846
BNSF	1089	1089	1332	1257	1404	1404	173,315,428	173,315,428	259,345,605	230,676,884	288,057,034	288,057,034
UP	1089	1089	1332	1257	1404	1404	174,935,338	174,935,338	261,769,606	232,832,929	290,749,389	290,749,389
Off-dock IPI Rail	509	509	623	587	656	656	32,389,484	32,389,484	48,466,951	43,109,291	53,832,592	53,832,592
BNSF	255	255	312	294	328	328	7,352,733	7,352,733	11,002,477	9,786,235	12,220,530	12,220,530
UP	255	255	312	294	328	328	8,842,009	8,842,009	13,230,999	11,768,411	14,695,766	14,695,766
CEQA 2033 Base + Everport 2033 Horizon Year												
All IPI Rail	5969	5969	7387	6944	7812	7812	5,099,318,193	5,099,318,193	7,612,033,378	6,774,081,167	8,540,688,010	8,462,443,412
On-dock IPI Rail	4977	4977	4977	4977	5416	4977	3,638,117,962	3,638,117,962	3,638,117,962	3,638,117,962	4,308,456,879	3,638,117,962
BNSF	2489	2489	2489	2489	2708	2489	905,298,756	905,298,756	905,298,756	905,298,756	1,072,103,955	905,298,756
UP	2489	2489	2489	2489	2708	2489	913,760,225	913,760,225	913,760,225	913,760,225	1,082,124,485	913,760,225
Off-dock IPI Rail	992	992	2411	1968	2397	2836	122,326,803	122,326,803	721,724,513	480,998,269	713,444,865	998,673,731
BNSF	496	496	1206	984	1199	1418	27,952,725	27,952,725	165,025,839	109,962,784	163,131,674	228,393,318
UP	496	496	1206	984	1199	1418	33,210,676	33,210,676	195,836,418	130,536,351	193,590,759	270,943,547
CEQA 2038 Base + Everport 2038 Horizon Year												
All IPI Rail	5969	5969	7387	6944	7812	7812	5,099,318,193	5,099,318,193	7,612,033,378	6,774,081,167	8,540,688,010	8,462,443,412
On-dock IPI Rail	4977	4977	4977	4977	5416	4977	3,638,117,962	3,638,117,962	3,638,117,962	3,638,117,962	4,308,456,879	3,638,117,962
BNSF	2489	2489	2489	2489	2708	2489	905,298,756	905,298,756	905,298,756	905,298,756	1,072,103,955	905,298,756
UP	2489	2489	2489	2489	2708	2489	913,760,225	913,760,225	913,760,225	913,760,225	1,082,124,485	913,760,225
Off-dock IPI Rail	992	992	2411	1968	2397	2836	122,326,803	122,326,803	721,724,513	480,998,269	713,444,865	998,673,731
BNSF	496	496	1206	984	1199	1418	27,952,725	27,952,725	165,025,839	109,962,784	163,131,674	228,393,318
UP	496	496	1206	984	1199	1418	33,210,676	33,210,676	195,836,418	130,536,351	193,590,759	270,943,547

Table 177. Rail Data Summary

	Yard Locomotive Use (hp-hr/year)						Port to SCAB Border Distance (train-mi/train) - Annual Average					
	Alt 2 - No Fed Action	Alt 1 - No CEQA Project	Alt 3 - Reduced Wharf Imp.	Alt 4 - No Backland Imp.	Alt 5 - Additional TICTF	Proposed Project	Alt 2 - No Fed Action	Alt 1 - No CEQA Project	Alt 3 - Reduced Wharf Imp.	Alt 4 - No Backland Imp.	Alt 5 - Additional TICTF	Proposed Project
2013 Base Year												
All IPI Rail	406,845	406,845					114	114				
On-dock IPI Rail	329,791	329,791					117	117				
BNSF	200,457	200,457					115	115				
UP	129,335	129,335					120	120				
Off-dock IPI Rail	77,053	77,053					100	100				
BNSF	38,669	38,669					70	70				
UP	38,384	38,384					80	80				
2018 Construction Year												
All IPI Rail	414,376	414,376	397,246	397,246	397,246	397,246	111	111	111	111	111	111
On-dock IPI Rail	335,896	335,896	322,011	322,011	322,011	322,011	112	112	112	112	112	112
BNSF	204,168	204,168	195,728	195,728	195,728	195,728	119	119	119	119	119	119
UP	131,730	131,730	126,284	126,284	126,284	126,284	124	124	124	124	124	124
Off-dock IPI Rail	78,480	78,480	75,236	75,236	75,236	75,236	103	103	103	103	103	103
BNSF	39,385	39,385	37,757	37,757	37,757	37,757	70	70	70	70	70	70
UP	39,095	39,095	37,479	37,479	37,479	37,479	85	85	85	85	85	85
CEQA 2019 Base + Everport 2019 Opening Year												
All IPI Rail	419,086	419,086	414,474	402,511	425,497	425,497	111	111	116	113	112	112
On-dock IPI Rail	339,715	339,715	335,975	326,279	344,911	344,911	112	112	119	116	114	114
BNSF	206,488	206,488	204,214	198,321	209,646	209,646	119	119	118	114	120	120
UP	133,227	133,227	131,761	127,957	135,264	135,264	124	124	122	118	126	126
Off-dock IPI Rail	79,373	79,373	78,499	76,233	80,586	80,586	103	103	103	100	107	107
BNSF	39,832	39,832	39,394	38,258	40,443	40,443	70	70	70	70	70	70
UP	39,539	39,539	39,103	37,975	40,143	40,143	85	85	85	80	85	85
CEQA 2026 Base + Everport 2026 Interim Year												
All IPI Rail	468,826	468,826	573,499	540,873	604,411	604,411	113	113	113	113	113	113
On-dock IPI Rail	380,034	380,034	464,882	438,435	489,940	489,940	116	116	116	116	116	116
BNSF	190,017	190,017	232,441	219,218	244,970	244,970	116	116	116	116	116	116
UP	190,017	190,017	232,441	219,218	244,970	244,970	117	117	117	117	117	117
Off-dock IPI Rail	88,792	88,792	108,616	102,437	114,471	114,471	99	99	99	99	99	99
BNSF	44,396	44,396	54,308	51,219	57,235	57,235	90	90	90	90	90	90
UP	44,396	44,396	54,308	51,219	57,235	57,235	108	108	108	108	108	108
CEQA 2033 Base + Everport 2033 Horizon Year												
All IPI Rail	1,041,685	1,041,685	1,289,215	1,211,938	1,363,430	1,363,430	113	113	110	111	111	110
On-dock IPI Rail	868,559	868,559	868,559	868,559	945,196	868,559	116	116	116	116	116	116
BNSF	434,280	434,280	434,280	434,280	472,598	434,280	116	116	116	116	116	116
UP	434,280	434,280	434,280	434,280	472,598	434,280	117	117	117	117	117	117
Off-dock IPI Rail	173,126	173,126	420,655	343,379	418,234	494,871	98	98	98	98	98	98
BNSF	86,563	86,563	210,328	171,689	209,117	247,436	90	90	90	90	90	90
UP	86,563	86,563	210,328	171,689	209,117	247,436	107	107	107	107	107	107
CEQA 2038 Base + Everport 2038 Horizon Year												
All IPI Rail	1,041,685	1,041,685	1,289,215	1,211,938	1,363,430	1,363,430	113	113	110	111	111	110
On-dock IPI Rail	868,559	868,559	868,559	868,559	945,196	868,559	116	116	116	116	116	116
BNSF	434,280	434,280	434,280	434,280	472,598	434,280	116	116	116	116	116	116
UP	434,280	434,280	434,280	434,280	472,598	434,280	117	117	117	117	117	117
Off-dock IPI Rail	173,126	173,126	420,655	343,379	418,234	494,871	98	98	98	98	98	98
BNSF	86,563	86,563	210,328	171,689	209,117	247,436	90	90	90	90	90	90
UP	86,563	86,563	210,328	171,689	209,117	247,436	107	107	107	107	107	107

Table 177. Rail Data Summary

	SCAB to CA Distance (mi/train)					
	Alt 2 - No Fed Action	Alt 1 - No CEQA Project	Alt 3 - Reduced Wharf Imp.	Alt 4 - No Backland Imp.	Alt 5 - Additional TICTF	Proposed Project
2013 Base Year						
All IPI Rail	188	188				
On-dock IPI Rail	188	188				
BNSF	191	191				
UP	184	184				
Off-dock IPI Rail	188	188				
BNSF	191	191				
UP	184	184				
2018 Construction Year						
All IPI Rail	188	188	188	188	188	188
On-dock IPI Rail	188	188	188	188	188	188
BNSF	191	191	191	191	191	191
UP	184	184	184	184	184	184
Off-dock IPI Rail	188	188	188	188	188	188
BNSF	191	191	191	191	191	191
UP	184	184	184	184	184	184
CEQA 2019 Base + Everport 2019 Opening Year						
All IPI Rail	188	188	188	188	188	188
On-dock IPI Rail	188	188	188	188	188	188
BNSF	191	191	191	191	191	191
UP	184	184	184	184	184	184
Off-dock IPI Rail	188	188	188	188	188	188
BNSF	191	191	191	191	191	191
UP	184	184	184	184	184	184
CEQA 2026 Base + Everport 2026 Interim Year						
All IPI Rail	188	188	188	188	188	188
On-dock IPI Rail	188	188	188	188	188	188
BNSF	191	191	191	191	191	191
UP	184	184	184	184	184	184
Off-dock IPI Rail	188	188	188	188	188	188
BNSF	191	191	191	191	191	191
UP	184	184	184	184	184	184
CEQA 2033 Base + Everport 2033 Horizon Year						
All IPI Rail	188	188	188	188	188	188
On-dock IPI Rail	188	188	188	188	188	188
BNSF	191	191	191	191	191	191
UP	184	184	184	184	184	184
Off-dock IPI Rail	188	188	188	188	188	188
BNSF	191	191	191	191	191	191
UP	184	184	184	184	184	184
CEQA 2038 Base + Everport 2038 Horizon Year						
All IPI Rail	188	188	188	188	188	188
On-dock IPI Rail	188	188	188	188	188	188
BNSF	191	191	191	191	191	191
UP	184	184	184	184	184	184
Off-dock IPI Rail	188	188	188	188	188	188
BNSF	191	191	191	191	191	191
UP	184	184	184	184	184	184

Table 177. Rail Data Summary

	Peak Day											
	Locomotive/Train						Locomotive/Day					
	Alt 2 - No Fed Action	Alt 1 - No CEQA Project	Alt 3 - Reduced Wharf Imp.	Alt 4 - No Backland Imp.	Alt 5 - Additional TICTF	Proposed Project	Alt 2 - No Fed Action	Alt 1 - No CEQA Project	Alt 3 - Reduced Wharf Imp.	Alt 4 - No Backland Imp.	Alt 5 - Additional TICTF	Proposed Project
2013 Base Year												
All IPI Rail	4.30	4.30					8	8				
On-dock IPI Rail	4.29	4.29					7	7				
BNSF	4.28	4.28					4	4				
UP	4.30	4.30					3	3				
Off-dock IPI Rail	4.33	4.33					2	2				
BNSF	4.33	4.33					1	1				
UP	4.33	4.33					1	1				
2018 Construction Year												
All IPI Rail	4.30	4.30	4.30	4.30	4.30	4.30	8	8	8	8	8	8
On-dock IPI Rail	4.29	4.29	4.29	4.29	4.29	4.29	7	7	7	7	7	7
BNSF	4.29	4.29	4.29	4.29	4.29	4.29	4	4	4	4	4	4
UP	4.31	4.31	4.31	4.31	4.31	4.31	3	3	3	3	3	3
Off-dock IPI Rail	4.35	4.35	4.35	4.35	4.35	4.35	2	2	2	2	2	2
BNSF	4.19	4.19	4.19	4.19	4.19	4.19	1	1	1	1	1	1
UP	4.21	4.21	4.21	4.21	4.21	4.21	1	1	1	1	1	1
CEQA 2019 Base + Everport 2019 Opening Year												
All IPI Rail	4.30	4.30	4.30	4.30	4.30	4.30	8	8	8	8	9	9
On-dock IPI Rail	4.29	4.29	4.29	4.30	4.31	4.31	7	7	7	7	7	7
BNSF	4.29	4.29	4.32	4.32	4.31	4.31	4	4	4	4	4	4
UP	4.31	4.31	4.33	4.32	4.30	4.30	3	3	3	3	3	3
Off-dock IPI Rail	4.35	4.35	4.29	4.30	4.29	4.29	2	2	2	2	2	2
BNSF	4.19	4.19	4.47	4.33	4.25	4.25	1	1	1	1	1	1
UP	4.21	4.21	4.44	4.28	4.32	4.32	1	1	1	1	1	1
CEQA 2026 Base + Everport 2026 Interim Year												
All IPI Rail	4.33	4.33	4.33	4.33	4.33	4.33	9	9	11	10	11	11
On-dock IPI Rail	4.33	4.33	4.33	4.33	4.33	4.33	7	7	9	8	9	9
BNSF	4.33	4.33	4.33	4.33	4.33	4.33	4	4	5	4	5	5
UP	4.33	4.33	4.33	4.33	4.33	4.33	4	4	5	4	5	5
Off-dock IPI Rail	4.33	4.33	4.33	4.33	4.33	4.33	2	2	2	2	3	3
BNSF	4.33	4.33	4.33	4.33	4.33	4.33	1	1	1	1	2	2
UP	4.33	4.33	4.33	4.33	4.33	4.33	1	1	1	1	2	2
CEQA 2033 Base + Everport 2033 Horizon Year												
All IPI Rail	4.33	4.33	4.33	4.33	4.33	4.33	19	19	23	22	24	24
On-dock IPI Rail	4.33	4.33	4.33	4.33	4.33	4.33	16	16	16	16	17	16
BNSF	4.33	4.33	4.33	4.33	4.33	4.33	8	8	8	8	9	8
UP	4.33	4.33	4.33	4.33	4.33	4.33	8	8	8	8	9	8
Off-dock IPI Rail	4.33	4.33	4.33	4.33	4.33	4.33	4	4	8	7	8	9
BNSF	4.33	4.33	4.33	4.33	4.33	4.33	2	2	4	4	4	5
UP	4.33	4.33	4.33	4.33	4.33	4.33	2	2	4	4	4	5
CEQA 2038 Base + Everport 2038 Horizon Year												
All IPI Rail	4.33	4.33	4.33	4.33	4.33	4.33	19	19	23	22	24	24
On-dock IPI Rail	4.33	4.33	4.33	4.33	4.33	4.33	16	16	16	16	17	16
BNSF	4.33	4.33	4.33	4.33	4.33	4.33	8	8	8	8	9	8
UP	4.33	4.33	4.33	4.33	4.33	4.33	8	8	8	8	9	8
Off-dock IPI Rail	4.33	4.33	4.33	4.33	4.33	4.33	4	4	8	7	8	9
BNSF	4.33	4.33	4.33	4.33	4.33	4.33	2	2	4	4	4	5
UP	4.33	4.33	4.33	4.33	4.33	4.33	2	2	4	4	4	5

Table 177. Rail Data Summary

	Average Train Weight (gross ton-mi/day)						Yard Locomotive Use (hp-hr/day)					
	Alt 2 - No Fed Action	Alt 1 - No CEQA Project	Alt 3 - Reduced Wharf Imp.	Alt 4 - No Backland Imp.	Alt 5 - Additional TICTF	Proposed Project	Alt 2 - No Fed Action	Alt 1 - No CEQA Project	Alt 3 - Reduced Wharf Imp.	Alt 4 - No Backland Imp.	Alt 5 - Additional TICTF	Proposed Project
2013 Base Year												
All IPI Rail	2,733,600	2,733,600					1,204	1,204				
On-dock IPI Rail	1,881,600	1,881,600					976	976				
BNSF	816,000	816,000					593	593				
UP	316,800	316,800					383	383				
Off-dock IPI Rail	79,200	79,200					228	228				
BNSF	36,000	36,000					114	114				
UP	43,200	43,200					114	114				
2018 Construction Year												
All IPI Rail	3,076,068	3,076,068	2,827,002	2,827,002	2,827,002	2,827,002	1,226	1,226	1,175	1,175	1,175	1,175
On-dock IPI Rail	1,894,280	1,894,280	1,740,902	1,740,902	1,740,902	1,740,902	994	994	953	953	953	953
BNSF	821,231	821,231	754,737	754,737	754,737	754,737	604	604	579	579	579	579
UP	319,102	319,102	293,265	293,265	293,265	293,265	390	390	374	374	374	374
Off-dock IPI Rail	79,775	79,775	73,315	73,315	73,315	73,315	232	232	223	223	223	223
BNSF	37,542	37,542	34,503	34,503	34,503	34,503	117	117	112	112	112	112
UP	44,582	44,582	40,972	40,972	40,972	40,972	116	116	111	111	111	111
CEQA 2019 Base + Everport 2019 Opening Year												
All IPI Rail	3,146,400	3,146,400	2,788,000	2,706,400	3,192,000	3,192,000	1,240	1,240	1,226	1,191	1,259	1,259
On-dock IPI Rail	1,937,600	1,937,600	1,915,200	1,859,200	2,240,000	2,240,000	1,005	1,005	994	965	1,021	1,021
BNSF	840,000	840,000	824,000	720,000	848,000	848,000	611	611	604	587	620	620
UP	326,400	326,400	321,600	312,000	331,200	331,200	394	394	390	379	400	400
Off-dock IPI Rail	81,600	81,600	81,600	79,200	84,000	84,000	235	235	232	226	238	238
BNSF	38,400	38,400	36,000	36,000	38,400	38,400	118	118	117	113	120	120
UP	45,600	45,600	43,200	14,400	45,600	45,600	117	117	116	112	119	119
CEQA 2026 Base + Everport 2026 Interim Year												
All IPI Rail	3,515,434	3,515,434	5,260,422	4,678,922	5,842,789	5,842,789	1,387	1,387	1,697	1,600	1,788	1,788
On-dock IPI Rail	2,376,608	2,376,608	3,556,307	3,163,184	3,950,016	3,950,016	1,124	1,124	1,376	1,297	1,450	1,450
BNSF	591,388	591,388	884,941	787,118	982,911	982,911	562	562	688	649	725	725
UP	596,916	596,916	893,212	794,474	992,097	992,097	562	562	688	649	725	725
Off-dock IPI Rail	110,520	110,520	165,379	147,098	183,688	183,688	263	263	321	303	339	339
BNSF	25,089	25,089	37,543	33,393	41,699	41,699	131	131	161	152	169	169
UP	30,171	30,171	45,147	40,156	50,145	50,145	131	131	161	152	169	169
CEQA 2033 Base + Everport 2033 Horizon Year												
All IPI Rail	17,399,935	17,399,935	25,973,843	23,114,575	29,142,606	28,875,619	3,082	3,082	3,815	3,586	4,034	4,034
On-dock IPI Rail	12,414,016	12,414,016	12,414,016	12,414,016	14,701,352	12,414,016	2,570	2,570	2,570	2,570	2,797	2,570
BNSF	3,089,068	3,089,068	3,089,068	3,089,068	3,658,242	3,089,068	1,285	1,285	1,285	1,285	1,398	1,285
UP	3,117,940	3,117,940	3,117,940	3,117,940	3,692,434	3,117,940	1,285	1,285	1,285	1,285	1,398	1,285
Off-dock IPI Rail	417,405	417,405	2,462,674	1,641,266	2,434,422	3,407,683	512	512	1,245	1,016	1,238	1,464
BNSF	95,381	95,381	563,103	375,216	556,639	779,326	256	256	622	508	619	732
UP	113,322	113,322	668,235	445,417	660,572	924,516	256	256	622	508	619	732
CEQA 2038 Base + Everport 2038 Horizon Year												
All IPI Rail	17,399,935	17,399,935	25,973,843	23,114,575	29,142,606	28,875,619	3,082	3,082	3,815	3,586	4,034	4,034
On-dock IPI Rail	12,414,016	12,414,016	12,414,016	12,414,016	14,701,352	12,414,016	2,570	2,570	2,570	2,570	2,797	2,570
BNSF	3,089,068	3,089,068	3,089,068	3,089,068	3,658,242	3,089,068	1,285	1,285	1,285	1,285	1,398	1,285
UP	3,117,940	3,117,940	3,117,940	3,117,940	3,692,434	3,117,940	1,285	1,285	1,285	1,285	1,398	1,285
Off-dock IPI Rail	417,405	417,405	2,462,674	1,641,266	2,434,422	3,407,683	512	512	1,245	1,016	1,238	1,464
BNSF	95,381	95,381	563,103	375,216	556,639	779,326	256	256	622	508	619	732
UP	113,322	113,322	668,235	445,417	660,572	924,516	256	256	622	508	619	732

Days operation per year	365	days/year				
Train weight	1	gross ton/foot train length		(YTI)		
Fuel consumption	0.000985	gallons/gross ton-mile		(POLA 2013 EI p.160)		
Average Line Haul Locomotive Size	4000	hp	(YTI)			
On-Dock Line Haul Locomotive load factor	0.28					
Line Haul Locomotive Operating Hours on Port	1	hours/locomotive		westbound/inbound/exports	(POLA 2014 EI Table 6.4)	
	2.5	hours/locomotive		eastbound/outbound/import	(POLA 2014 EI Table 6.4)	
Distance from SCAB to CA Border - BNSF	191	miles/train	(YTI)			
Distance from SCAB to CA Border - UP	184	miles/train	(YTI)			
Peak Day On-Dock Rail Factor	1.08			(YTI)		
Average Daily PHL Switch Engine Use On-Dock	5.7	locomotive-hour/day for		955	TEU/day	(YTI)
	0.006	locomotive-hour/TEU				
Average Yard Locomotive Size	240	hp		(YTI)		
On-Dock Rail Yard Operating Hours	16	hours/day		(YTI)		
	7	days/week		(YTI)		
Off-Dock Rail Operations	24	hrs/day				

Table 178. 2013 Cargo Handling Equipment - Everport

Equipment Type	Engine MY	Engine Size, kW	Fuel	Hrs/Year	Load Factor	On-Road Engine?	No. of Units	Engine Age in 2013, yrs	Useful Life, years	
Electric Pallet Jack	1997	0	Electric	0	0.51	No	7	16	16	
Electric Wharf Crane	1997	0	Electric	0	0.43	No	8	16	24	
Forklift	2004	113	Diesel	1548	0.30	No	1	9	16	
Forklift	2004	113	Diesel	1548	0.30	Yes	2	9	16	
Forklift	2012	129	Diesel	1548	0.30	Yes	1	1	16	
Forklift	2004	123	LPG	559	0.30	No	1	9	16	
Forklift	2004	123	LPG	317	0.30	No	1	9	16	
Forklift	2004	123	LPG	368	0.30	No	1	9	16	
Forklift	2004	123	LPG	571	0.30	No	1	9	16	
Forklift	2004	123	LPG	211	0.30	No	1	9	16	
Forklift	2004	123	LPG	343	0.30	No	1	9	16	
Forklift	2004	123	LPG	226	0.30	No	1	9	16	
Rub-trd Gantry Crane	2003	399	Diesel	1160	0.20	No	10	10	24	
Rub-trd Gantry Crane	2003	580	Diesel	1160	0.20	No	1	10	24	
Rub-trd Gantry Crane	2006	456	Diesel	1160	0.20	No	3	7	24	
Side pick	2004	179	Diesel	2153	0.59	No	6	9	16	
Sweeper	2006	75	Diesel	367	0.68	No	1	7	16	
Top handler	2000	246	Diesel	2323	0.59	No	1	13	16	
Top handler	2004	246	Diesel	2323	0.59	No	15	9	16	
Top handler	2012	190	Diesel	2323	0.59	No	2	1	16	
Truck	1975	175	Diesel	131	0.51	Yes	1	38	24	
Truck	1993	175	Diesel	1060	0.51	Yes	1	20	24	
Truck	1998	175	Diesel	1562	0.51	Yes	1	15	24	
Yard tractor	2004	129	Diesel	1928	0.39	No	37	9	12	
Yard tractor	2007	164	Diesel	1928	0.39	Yes	10	6	12	
Yard tractor	2008	164	Diesel	1928	0.39	Yes	14	5	12	
Yard tractor	2011	179	Diesel	1928	0.39	Yes	9	2	12	
Yard tractor	2012	179	Diesel	1928	0.39	Yes	23	1	12	
Yard tractor	2013	179	Diesel	1928	0.39	Yes	30	0	12	
							191			

Table 179. 2013 Baseline Cargo Handling Equipment Emission Factors

	Loaded Emission Factors, g/kW-hr									
Equipment Type	**PM10**	**PM2.5**	**DPM**	**NOx**	**CO**	**HC**	**CO2**	**N2O**	**CH4**	**CO2e**
Electric Pallet Jack	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electric Wharf Crane	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Forklift	0.0566	0.0521	0.0566	7.1480	4.7690	0.5207	761.9960	0.0228	0.0382	0.0000
Forklift	0.3776	0.3471	0.3776	7.1480	4.7690	0.5207	761.9960	0.0228	0.0382	0.0000
Forklift	0.0131	0.0118	0.0131	3.0023	3.9164	0.1518	761.9960	0.0228	0.0382	0.0000
Forklift	0.0800	0.0800	0.0000	4.3860	27.9799	0.7490	903.9953	0.0000	0.0000	0.0000
Forklift	0.0800	0.0800	0.0000	3.4180	25.5599	0.5070	903.9953	0.0000	0.0000	0.0000
Forklift	0.0800	0.0800	0.0000	3.6220	26.0699	0.5580	903.9953	0.0000	0.0000	0.0000
Forklift	0.0800	0.0800	0.0000	4.4340	28.0999	0.7610	903.9953	0.0000	0.0000	0.0000
Forklift	0.0800	0.0800	0.0000	2.9940	24.4999	0.4010	903.9953	0.0000	0.0000	0.0000
Forklift	0.0800	0.0800	0.0000	3.5220	25.8199	0.5330	903.9953	0.0000	0.0000	0.0000
Forklift	0.0800	0.0800	0.0000	3.0540	24.6499	0.4160	903.9953	0.0000	0.0000	0.0000
Rub-trd Gantry Crane	0.1614	0.1485	0.1614	6.3373	1.5229	0.3887	761.9960	0.0190	0.0338	0.0000
Rub-trd Gantry Crane	0.2624	0.2415	0.2624	9.5308	1.5229	0.4394	761.9960	0.0199	0.0346	0.0000
Rub-trd Gantry Crane	0.0263	0.0242	0.0263	3.4898	1.4565	0.3176	761.9960	0.0199	0.0346	0.0000
Side pick	0.1301	0.1197	0.1301	6.9237	0.8646	0.2151	761.9960	0.0228	0.0204	0.0000
Sweeper	0.2052	0.1886	0.2052	5.8817	3.9011	0.2240	761.9960	0.0228	0.0382	0.0000
Top handler	0.0394	0.0362	0.0394	9.5308	1.5229	0.4394	761.9960	0.0190	0.0338	0.0000
Top handler	0.0292	0.0268	0.0292	6.3373	1.5226	0.3886	761.8568	0.0190	0.0338	0.0000
Top handler	0.0134	0.0120	0.0134	1.8335	1.3814	0.1497	761.9960	0.0228	0.0382	0.0000
Truck	0.5099	0.4691	0.5099	7.3643	6.6952	0.3940	761.9960	0.0099	0.0126	0.0000
Truck	0.4807	0.4421	0.4807	5.7278	4.7698	0.3371	761.9960	0.0099	0.0126	0.0000
Truck	0.1844	0.1700	0.1844	4.4693	1.6248	0.1585	761.9960	0.0100	0.0126	0.0000
Yard tractor	0.2643	0.2430	0.2643	7.1480	1.4307	0.1562	761.9960	0.0228	0.0114	0.0000
Yard tractor	0.0132	0.0118	0.0132	1.5119	1.6248	0.1275	761.9960	0.0100	0.0126	0.0000
Yard tractor	0.0131	0.0116	0.0131	1.5045	1.6107	0.1240	761.9960	0.0100	0.0126	0.0000
Yard tractor	0.0093	0.0083	0.0093	0.2417	1.4222	0.0561	761.9960	0.0100	0.0126	0.0000
Yard tractor	0.0088	0.0078	0.0088	0.2361	1.3594	0.0448	761.9960	0.0100	0.0126	0.0000
Yard tractor	0.0110	0.0099	0.0110	1.3098	1.2939	0.0812	761.9960	0.0189	0.0305	0.0000

Table 180. Cargo Handling Equipment Emission Factors (Proposed Project)

Year	CHE Type	No. of Units	Fuel	Avg Size (kW)	Load Factor	Per Unit Hrs/Peak Week	Per Unit Hrs/Peak Day	Per Unit Hrs/Year	PM	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
TEUs	1,240,773																	
2013	Rubber-tired gantry crane	14	Diesel	424	0.20	71	12	1160	0.1402	0.1290	0.1402	5.9932	0.0077	1.5076	0.3772	761.9960	0.0193	0.034076
2013	Side pick	6	Diesel	179	0.59	61	10	2153	0.1301	0.1197	0.1301	6.9237	0.0088	0.8646	0.2151	761.9960	0.0228	0.0203519
2013	Top handler	6	Diesel	240	0.59	64	11	2323	0.0284	0.0261	0.0284	6.1228	0.0078	1.5102	0.3704	761.8770	0.0193	0.0342149
2013	Top handler (IY)	12	Diesel	240	0.59	39	6	2323	0.0284	0.0261	0.0284	6.1228	0.0078	1.5102	0.3704	761.8770	0.0193	0.0342149
2013	Yard tractor	37	Diesel	129	0.39	55	9	1928	0.2643	0.2430	0.2643	7.1480	0.0088	1.4307	0.1562	761.9960	0.0228	0.0114479
2013	Yard tractor	86	On Road Diesel	175	0.39	54	9	1928	0.0108	0.0097	0.0108	0.9661	0.0088	1.4149	0.0812	761.9960	0.0132	0.0188413
2013	Forklift	1	Diesel	113	0.30	36	6	1548	0.0566	0.0521	0.0566	7.1480	0.0088	4.7690	0.5207	761.9960	0.0228	0.0381598
2013	Forklift	3	On Road Diesel	121	0.30	36	6	1548	0.2561	0.2353	0.2561	5.7661	0.0088	4.4848	0.3977	761.9960	0.0228	0.0381598
2013	Forklift	7	LPG	123	0.30	9	1	371	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0
2013	Sweeper	1	Diesel	75	0.68	8	1	367	0.2052	0.1886	0.2052	5.8817	0.0088	3.9011	0.2240	761.9960	0.0228	0.0381598
2013	Truck	3	On Road Diesel	175	0.51	21	4	918	0.3916	0.3604	0.3916	5.8538	0.0088	4.3633	0.2965	761.9960	0.0099	0.0125999
TOTALS		176																
TEUs	1,211,500																	
2018	Rubber-tired gantry crane	15	Diesel	424	0.20	69	12	1133	0.0166	0.0150	0.0166	1.5196	0.0077	1.3839	0.1672	761.9960	0.0198	0.0344651
2018	Side pick	14	Diesel	179	0.59	71	12	2102	0.0174	0.0158	0.0174	1.7000	0.0088	1.5180	0.1982	761.9960	0.0228	0.0381598
2018	Top handler	4	Diesel	240	0.59	60	10	2268	0.0207	0.0189	0.0207	2.9974	0.0088	1.5770	0.2628	761.9960	0.0228	0.0381598
2018	Top handler (IY)	11	Diesel	240	0.59	36	6	2268	0.0207	0.0189	0.0207	2.9974	0.0088	1.5770	0.2628	761.9960	0.0228	0.0381598
2018	Yard tractor	24	Diesel	129	0.39	49	8	1883	0.0085	0.0075	0.0085	0.4094	0.0088	1.2888	0.0331	761.9960	0.0100	0.0125999
2018	Yard tractor	56	On Road Diesel	175	0.39	49	8	1883	0.0085	0.0075	0.0085	0.4094	0.0088	1.2888	0.0331	761.9960	0.0100	0.0125999
2018	Forklift	1	Diesel	113	0.30	35	6	1511	0.0332	0.0332	0.0332	1.2564	0.0088	2.0061	0.1101	761.9960	0.0164	0.0253799
2018	Forklift	3	On Road Diesel	121	0.30	35	6	1511	0.0332	0.0332	0.0332	1.2564	0.0088	2.0061	0.1101	761.9960	0.0164	0.0253799
2018	Forklift	7	LPG	123	0.30	8	1	362	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0
2018	Sweeper	1	Diesel	75	0.68	8	1	358	0.0542	0.0542	0.0542	2.9029	0.0088	2.9898	0.2914	761.9960	0.0099	0.0125999
2018	Truck	3	On Road Diesel	175	0.51	21	3	896	0.0542	0.0542	0.0542	2.9029	0.0088	2.9898	0.2914	761.9960	0.0099	0.0125999
TOTALS		139																
TEUs	1,297,656																	
2019	Rubber-tired gantry crane	21	Diesel	424	0.20	74	12	1213	0.0163	0.0147	0.0163	1.3428	0.0077	1.3930	0.1638	761.9960	0.0198	0.0344769
2019	Side pick	23	Diesel	179	0.59	64	11	2252	0.0171	0.0155	0.0171	1.4092	0.0088	1.5403	0.1956	761.9960	0.0228	0.0381598
2019	Top handler	6	Diesel	240	0.59	67	11	2429	0.0197	0.0179	0.0197	2.4949	0.0088	1.5778	0.2460	761.9960	0.0228	0.0381598
2019	Top handler (IY)	11	Diesel	240	0.59	41	7	2429	0.0197	0.0179	0.0197	2.4949	0.0088	1.5778	0.2460	761.9960	0.0228	0.0381598
2019	Yard tractor	24	Diesel	129	0.39	57	10	2016	0.0083	0.0074	0.0083	0.3677	0.0088	1.2760	0.0294	761.9960	0.0100	0.0125999
2019	Yard tractor	56	On Road Diesel	175	0.39	57	9	2016	0.0083	0.0074	0.0083	0.3677	0.0088	1.2760	0.0294	761.9960	0.0100	0.0125999
2019	Forklift	1	Diesel	113	0.30	37	6	1619	0.0259	0.0259	0.0259	1.0555	0.0088	2.0082	0.1016	761.9960	0.0100	0.0125999
2019	Forklift	3	On Road Diesel	121	0.30	37	6	1619	0.0259	0.0259	0.0259	1.0555	0.0088	2.0082	0.1016	761.9960	0.0100	0.0125999
2019	Forklift	7	LPG	123	0.30	9	1	388	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0
2019	Sweeper	1	Diesel	75	0.68	9	1	384	0.0511	0.0511	0.0511	2.6057	0.0088	2.8428	0.2730	761.9960	0.0099	0.0125999
2019	Truck	3	On Road Diesel	175	0.51	22	4	960	0.0511	0.0511	0.0511	2.6057	0.0088	2.8428	0.2730	761.9960	0.0099	0.0125999
TOTALS		156																

Table 180. Cargo Handling Equipment Emission Factors (Proposed Project)

Year	CHE Type	No. of Units	Fuel	Avg Size (kW)	Load Factor	Per Unit Hrs/Peak Week	Per Unit Hrs/Peak Day	Per Unit Hrs/Year	PM	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
TEUs	1,843,297																	
2026	Rubber-tired gantry crane	21	Diesel	424	0.20	106	18	1723	0.0156	0.0141	0.0156	0.7075	0.0077	1.4276	0.1535	761.9960	0.0199	0.0345309
2026	Side pick	23	Diesel	179	0.59	91	15	3199	0.0155	0.0140	0.0155	0.4268	0.0088	1.5442	0.1596	761.9960	0.0228	0.0381598
2026	Top handler	6	Diesel	240	0.59	96	16	3451	0.0160	0.0144	0.0160	0.4503	0.0088	1.5774	0.1721	761.9960	0.0228	0.0381598
2026	Top handler (IY)	11	Diesel	240	0.59	58	10	3451	0.0160	0.0144	0.0160	0.4503	0.0088	1.5774	0.1721	761.9960	0.0228	0.0381598
2026	Yard tractor	24	Diesel	129	0.39	81	14	2864	0.0077	0.0068	0.0077	0.2298	0.0088	1.2337	0.0162	761.9960	0.0100	0.0125999
2026	Yard tractor	56	On Road Diesel	175	0.39	81	13	2864	0.0077	0.0068	0.0077	0.2298	0.0088	1.2337	0.0162	761.9960	0.0100	0.0125999
2026	Forklift	1	Diesel	113	0.30	53	9	2300	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0100	0.0125999
2026	Forklift	3	On Road Diesel	121	0.30	53	9	2300	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0228	0.0381598
2026	Forklift	7	LPG	123	0.30	13	2	551	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0
2026	Sweeper	1	Diesel	75	0.68	13	2	545	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0125999
2026	Truck	3	On Road Diesel	175	0.51	32	5	1363	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0125999
TOTALS		156																
TEUs	2,379,525																	
2033	Rubber-tired gantry crane	21	Diesel	424	0.20	137	23	2225	0.0150	0.0135	0.0150	0.4531	0.0077	1.4276	0.1433	761.9960	0.0199	0.0345554
2033	Side pick	23	Diesel	179	0.59	117	20	4129	0.0156	0.0140	0.0156	0.3883	0.0088	1.5475	0.1584	761.9960	0.0228	0.0381598
2033	Top handler	6	Diesel	240	0.59	123	21	4455	0.0160	0.0144	0.0160	0.3928	0.0088	1.5776	0.1689	761.9960	0.0228	0.0381598
2033	Top handler (IY)	11	Diesel	240	0.59	75	12	4455	0.0160	0.0144	0.0160	0.3928	0.0088	1.5776	0.1689	761.9960	0.0228	0.0381598
2033	Yard tractor	24	Diesel	129	0.39	105	17	3697	0.0077	0.0068	0.0077	0.2300	0.0088	1.2337	0.0159	761.9960	0.0100	0.0125999
2033	Yard tractor	56	On Road Diesel	175	0.39	104	17	3697	0.0077	0.0068	0.0077	0.2300	0.0088	1.2337	0.0159	761.9960	0.0100	0.0125999
2033	Forklift	1	Diesel	113	0.30	69	11	2969	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0100	0.0125999
2033	Forklift	3	On Road Diesel	121	0.30	69	11	2969	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0228	0.0381598
2033	Forklift	7	LPG	123	0.30	16	3	711	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0
2033	Sweeper	1	Diesel	75	0.68	16	3	704	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0125999
2033	Truck	3	On Road Diesel	175	0.51	41	7	1760	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0125999
TOTALS		156																
TEUs	2,379,525																	
2038	Rubber-tired gantry crane	21	Diesel	424	0.20	137	23	2225	0.0149	0.0134	0.0149	0.3879	0.0077	1.4273	0.1401	761.9960	0.0199	0.0345598
2038	Side pick	23	Diesel	179	0.59	117	20	4129	0.0156	0.0140	0.0156	0.3873	0.0088	1.5475	0.1584	761.9960	0.0228	0.0381598
2038	Top handler	6	Diesel	240	0.59	123	21	4455	0.0160	0.0144	0.0160	0.3915	0.0088	1.5777	0.1688	761.9960	0.0228	0.0381598
2038	Top handler (IY)	11	Diesel	240	0.59	75	12	4455	0.0160	0.0144	0.0160	0.3915	0.0088	1.5777	0.1688	761.9960	0.0228	0.0381598
2038	Yard tractor	24	Diesel	129	0.39	105	17	3697	0.0077	0.0068	0.0077	0.2300	0.0088	1.2337	0.0159	761.9960	0.0100	0.0125999
2038	Yard tractor	56	On Road Diesel	175	0.39	104	17	3697	0.0077	0.0068	0.0077	0.2300	0.0088	1.2337	0.0159	761.9960	0.0100	0.0125999
2038	Forklift	1	Diesel	113	0.30	69	11	2969	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0100	0.0125999
2038	Forklift	3	On Road Diesel	121	0.30	69	11	2969	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0228	0.0381598
2038	Forklift	7	LPG	123	0.30	16	3	711	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0
2038	Sweeper	1	Diesel	75	0.68	16	3	704	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0125999
2038	Truck	3	On Road Diesel	175	0.51	41	7	1760	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0125999
TOTALS		156																
Note																		
2013 EFs are based on Actual POLA 2013 EI																		
2017+ EF are based on forecasting assumptions of growth, attrition and California Air Resources Boards adopted regulations.																		

Table 181. Cargo Handling Equipment Emission Factors (Alternative 3)

						Per Unit	Per Unit	Emission Factors, g/kW-hr									
Year	CHE Type	No. of Units	Fuel	Avg Size (kW)	Load Factor	Hrs/Peak Week	Hrs/Year	PM	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
TEUs	1,240,773																
2013	Rubber-tired gantry crane	14	Diesel	424	0.20	71	1,160	0.1402	0.1290	0.1402	5.9932	0.0077	1.5076	0.3772	761.9960	0.0193	0.0341
2013	Side pick	6	Diesel	179	0.59	61	2,153	0.1301	0.1197	0.1301	6.9237	0.0088	0.8646	0.2151	761.9960	0.0228	0.0204
2013	Top handler	6	Diesel	240	0.59	64	2,323	0.0284	0.0261	0.0284	6.1228	0.0078	1.5102	0.3704	761.8770	0.0193	0.0342
2013	Top handler (IY)	12	Diesel	240	0.59	39	2,323	0.0284	0.0261	0.0284	6.1228	0.0078	1.5102	0.3704	761.8770	0.0193	0.0342
2013	Yard tractor	37	Diesel	129	0.39	55	1,928	0.2643	0.2430	0.2643	7.1480	0.0088	1.4307	0.1562	761.9960	0.0228	0.0114
2013	Yard tractor	86	On Road Diesel	175	0.39	54	1,928	0.0108	0.0097	0.0108	0.9661	0.0088	1.4149	0.0812	761.9960	0.0132	0.0188
2013	Forklift	1	Diesel	113	0.30	36	1,548	0.0566	0.0521	0.0566	7.1480	0.0088	4.7690	0.5207	761.9960	0.0228	0.0382
2013	Forklift	3	On Road Diesel	121	0.30	36	1,548	0.2561	0.2353	0.2561	5.7661	0.0088	4.4848	0.3977	761.9960	0.0228	0.0382
2013	Forklift	7	LPG	123	0.30	9	371	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0.0000
2013	Sweeper	1	Diesel	75	0.68	8	367	0.2052	0.1886	0.2052	5.8817	0.0088	3.9011	0.2240	761.9960	0.0228	0.0382
2013	Truck	3	On Road Diesel	175	0.51	21	918	0.3916	0.3604	0.3916	5.8538	0.0088	4.3633	0.2965	761.9960	0.0099	0.0126
TOTALS		176															
TEUs	1,211,500																
2018	Rubber-tired gantry crane	15	Diesel	424	0.20	69	1,133	0.0166	0.0150	0.0166	1.5196	0.0077	1.3839	0.1672	761.9960	0.0198	0.0345
2018	Side pick	14	Diesel	179	0.59	71	2,102	0.0174	0.0158	0.0174	1.7000	0.0088	1.5180	0.1982	761.9960	0.0228	0.0382
2018	Top handler	4	Diesel	240	0.59	60	2,268	0.0207	0.0189	0.0207	2.9974	0.0088	1.5770	0.2628	761.9960	0.0228	0.0382
2018	Top handler (IY)	11	Diesel	240	0.59	36	2,268	0.0207	0.0189	0.0207	2.9974	0.0088	1.5770	0.2628	761.9960	0.0228	0.0382
2018	Yard tractor	24	Diesel	129	0.39	49	1,883	0.0085	0.0075	0.0085	0.4094	0.0088	1.2888	0.0331	761.9960	0.0100	0.0126
2018	Yard tractor	56	On Road Diesel	175	0.39	49	1,883	0.0085	0.0075	0.0085	0.4094	0.0088	1.2888	0.0331	761.9960	0.0100	0.0126
2018	Forklift	1	Diesel	113	0.30	35	1,511	0.0332	0.0332	0.0332	1.2564	0.0088	2.0061	0.1101	761.9960	0.0164	0.0254
2018	Forklift	3	On Road Diesel	121	0.30	35	1,511	0.0332	0.0332	0.0332	1.2564	0.0088	2.0061	0.1101	761.9960	0.0164	0.0254
2018	Forklift	7	LPG	123	0.30	8	362	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0.0000
2018	Sweeper	1	Diesel	75	0.68	8	358	0.0542	0.0542	0.0542	2.9029	0.0088	2.9898	0.2914	761.9960	0.0099	0.0126
2018	Truck	3	On Road Diesel	175	0.51	21	896	0.0542	0.0542	0.0542	2.9029	0.0088	2.9898	0.2914	761.9960	0.0099	0.0126
TOTALS		139															
TEUs	1,264,037																
2019	Rubber-tired gantry crane	19	Diesel	424	0.20	73	1,182	0.0163	0.0147	0.0163	1.3428	0.0077	1.3930	0.1638	761.9960	0.0198	0.0345
2019	Side pick	20	Diesel	179	0.59	69	2,193	0.0171	0.0155	0.0171	1.4092	0.0088	1.5403	0.1956	761.9960	0.0228	0.0382
2019	Top handler	5	Diesel	240	0.59	69	2,367	0.0197	0.0179	0.0197	2.4949	0.0088	1.5778	0.2460	761.9960	0.0228	0.0382
2019	Top handler (IY)	11	Diesel	240	0.59	42	2,367	0.0197	0.0179	0.0197	2.4949	0.0088	1.5778	0.2460	761.9960	0.0228	0.0382
2019	Yard tractor	24	Diesel	129	0.39	55	1,964	0.0083	0.0074	0.0083	0.3677	0.0088	1.2760	0.0294	761.9960	0.0100	0.0126
2019	Yard tractor	56	On Road Diesel	175	0.39	55	1,964	0.0083	0.0074	0.0083	0.3677	0.0088	1.2760	0.0294	761.9960	0.0100	0.0126
2019	Forklift	1	Diesel	113	0.30	36	1,577	0.0259	0.0259	0.0259	1.0555	0.0088	2.0082	0.1016	761.9960	0.0100	0.0126
2019	Forklift	3	On Road Diesel	121	0.30	36	1,577	0.0259	0.0259	0.0259	1.0555	0.0088	2.0082	0.1016	761.9960	0.0100	0.0126
2019	Forklift	7	LPG	123	0.30	9	378	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0.0000
2019	Sweeper	1	Diesel	75	0.68	9	374	0.0511	0.0511	0.0511	2.6057	0.0088	2.8428	0.2730	761.9960	0.0099	0.0126
2019	Truck	3	On Road Diesel	175	0.51	22	935	0.0511	0.0511	0.0511	2.6057	0.0088	2.8428	0.2730	761.9960	0.0099	0.0126
TOTALS		150															

Table 181. Cargo Handling Equipment Emission Factors (Alternative 3)

						Per Unit	Per Unit	Emission Factors, g/kW-hr									
Year	CHE Type	No. of Units	Fuel	Avg Size (kW)	Load Factor	Hrs/Peak Week	Hrs/Year	PM	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
TEUs	1,749,023																
2026	Rubber-tired gantry crane	19	Diesel	424	0.20	104	1,635	0.0156	0.0141	0.0156	0.7075	0.0077	1.4276	0.1535	761.9960	0.0199	0.0345
2026	Side pick	20	Diesel	179	0.59	98	3,035	0.0155	0.0140	0.0155	0.4268	0.0088	1.5442	0.1596	761.9960	0.0228	0.0382
2026	Top handler	5	Diesel	240	0.59	98	3,275	0.0160	0.0144	0.0160	0.4503	0.0088	1.5774	0.1721	761.9960	0.0228	0.0382
2026	Top handler (IY)	11	Diesel	240	0.59	59	3,275	0.0160	0.0144	0.0160	0.4503	0.0088	1.5774	0.1721	761.9960	0.0228	0.0382
2026	Yard tractor	24	Diesel	129	0.39	78	2,718	0.0077	0.0068	0.0077	0.2298	0.0088	1.2337	0.0162	761.9960	0.0100	0.0126
2026	Yard tractor	56	On Road Diesel	175	0.39	78	2,718	0.0077	0.0068	0.0077	0.2298	0.0088	1.2337	0.0162	761.9960	0.0100	0.0126
2026	Forklift	1	Diesel	113	0.30	50	2,182	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0100	0.0126
2026	Forklift	3	On Road Diesel	121	0.30	50	2,182	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0228	0.0382
2026	Forklift	7	LPG	123	0.30	12	523	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0.0000
2026	Sweeper	1	Diesel	75	0.68	12	517	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0126
2026	Truck	3	On Road Diesel	175	0.51	30	1,294	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0126
TOTALS		150															
TEUs	2,250,000																
2033	Rubber-tired gantry crane	19	Diesel	424	0.20	134	2,104	0.0150	0.0135	0.0150	0.4531	0.0077	1.4276	0.1433	761.9960	0.0199	0.0346
2033	Side pick	20	Diesel	179	0.59	126	3,904	0.0156	0.0140	0.0156	0.3883	0.0088	1.5475	0.1584	761.9960	0.0228	0.0382
2033	Top handler	5	Diesel	240	0.59	127	4,212	0.0160	0.0144	0.0160	0.3928	0.0088	1.5776	0.1689	761.9960	0.0228	0.0382
2033	Top handler (IY)	11	Diesel	240	0.59	76	4,212	0.0160	0.0144	0.0160	0.3928	0.0088	1.5776	0.1689	761.9960	0.0228	0.0382
2033	Yard tractor	24	Diesel	129	0.39	101	3,496	0.0077	0.0068	0.0077	0.2300	0.0088	1.2337	0.0159	761.9960	0.0100	0.0126
2033	Yard tractor	56	On Road Diesel	175	0.39	101	3,496	0.0077	0.0068	0.0077	0.2300	0.0088	1.2337	0.0159	761.9960	0.0100	0.0126
2033	Forklift	1	Diesel	113	0.30	65	2,807	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0100	0.0126
2033	Forklift	3	On Road Diesel	121	0.30	65	2,807	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0228	0.0382
2033	Forklift	7	LPG	123	0.30	16	672	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0.0000
2033	Sweeper	1	Diesel	75	0.68	15	666	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0126
2033	Truck	3	On Road Diesel	175	0.51	38	1,664	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0126
TOTALS		150															
TEUs	2,250,000																
2038	Rubber-tired gantry crane	19	Diesel	424	0.20	134	2,104	0.0149	0.0134	0.0149	0.3879	0.0077	1.4273	0.1401	761.9960	0.0199	0.0346
2038	Side pick	20	Diesel	179	0.59	126	3,904	0.0156	0.0140	0.0156	0.3873	0.0088	1.5475	0.1584	761.9960	0.0228	0.0382
2038	Top handler	5	Diesel	240	0.59	127	4,212	0.0160	0.0144	0.0160	0.3915	0.0088	1.5777	0.1688	761.9960	0.0228	0.0382
2038	Top handler (IY)	11	Diesel	240	0.59	76	4,212	0.0160	0.0144	0.0160	0.3915	0.0088	1.5777	0.1688	761.9960	0.0228	0.0382
2038	Yard tractor	24	Diesel	129	0.39	101	3,496	0.0077	0.0068	0.0077	0.2300	0.0088	1.2337	0.0159	761.9960	0.0100	0.0126
2038	Yard tractor	56	On Road Diesel	175	0.39	101	3,496	0.0077	0.0068	0.0077	0.2300	0.0088	1.2337	0.0159	761.9960	0.0100	0.0126
2038	Forklift	1	Diesel	113	0.30	65	2,807	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0100	0.0126
2038	Forklift	3	On Road Diesel	121	0.30	65	2,807	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0228	0.0382
2038	Forklift	7	LPG	123	0.30	16	672	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0.0000
2038	Sweeper	1	Diesel	75	0.68	15	666	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0126
2038	Truck	3	On Road Diesel	175	0.51	38	1,664	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0126
TOTALS		150															

Note
2013 EFs are based on Actual POLA 2013 EI
2017+ EF are based on forecasting assumptions of growth, attrition and California Air Resources Boards adopted regulations.

Table 182. Cargo Handling Equipment Emission Factors (Alternative 4)

						Per Unit	Per Unit	Emission Factors, g/kW-hr									
Year	CHE Type	No. of Units	Fuel	Avg Size (kW)	Load Factor	Hrs/Peak Week	Hrs/Year	PM	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
TEUs	1,240,773																
2013	Rubber-tired gantry crane	14	Diesel	424	0.20	71	1,160	0.1402	0.1290	0.1402	5.9932	0.0077	1.5076	0.3772	761.9960	0.0193	0.0341
2013	Side pick	6	Diesel	179	0.59	61	2,153	0.1301	0.1197	0.1301	6.9237	0.0088	0.8646	0.2151	761.9960	0.0228	0.0204
2013	Top handler	6	Diesel	240	0.59	64	2,323	0.0284	0.0261	0.0284	6.1228	0.0078	1.5102	0.3704	761.8770	0.0193	0.0342
2013	Top handler (IY)	12	Diesel	240	0.59	39	2,323	0.0284	0.0261	0.0284	6.1228	0.0078	1.5102	0.3704	761.8770	0.0193	0.0342
2013	Yard tractor	37	Diesel	129	0.39	55	1,928	0.2643	0.2430	0.2643	7.1480	0.0088	1.4307	0.1562	761.9960	0.0228	0.0114
2013	Yard tractor	86	On Road Diesel	175	0.39	54	1,928	0.0108	0.0097	0.0108	0.9661	0.0088	1.4149	0.0812	761.9960	0.0132	0.0188
2013	Forklift	1	Diesel	113	0.30	36	1,548	0.0566	0.0521	0.0566	7.1480	0.0088	4.7690	0.5207	761.9960	0.0228	0.0382
2013	Forklift	3	On Road Diesel	121	0.30	36	1,548	0.2561	0.2353	0.2561	5.7661	0.0088	4.4848	0.3977	761.9960	0.0228	0.0382
2013	Forklift	7	LPG	123	0.30	9	371	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0.0000
2013	Sweeper	1	Diesel	75	0.68	8	367	0.2052	0.1886	0.2052	5.8817	0.0088	3.9011	0.2240	761.9960	0.0228	0.0382
2013	Truck	3	On Road Diesel	175	0.51	21	918	0.3916	0.3604	0.3916	5.8538	0.0088	4.3633	0.2965	761.9960	0.0099	0.0126
TOTALS		176															
TEUs	1,211,500																
2018	Rubber-tired gantry crane	15	Diesel	424	0.20	69	1,133	0.0166	0.0150	0.0166	1.5196	0.0077	1.3839	0.1672	761.9960	0.0198	0.0345
2018	Side pick	14	Diesel	179	0.59	71	2,102	0.0174	0.0158	0.0174	1.7000	0.0088	1.5180	0.1982	761.9960	0.0228	0.0382
2018	Top handler	4	Diesel	240	0.59	60	2,268	0.0207	0.0189	0.0207	2.9974	0.0088	1.5770	0.2628	761.9960	0.0228	0.0382
2018	Top handler (IY)	11	Diesel	240	0.59	36	2,268	0.0207	0.0189	0.0207	2.9974	0.0088	1.5770	0.2628	761.9960	0.0228	0.0382
2018	Yard tractor	24	Diesel	129	0.39	49	1,883	0.0085	0.0075	0.0085	0.4094	0.0088	1.2888	0.0331	761.9960	0.0100	0.0126
2018	Yard tractor	56	On Road Diesel	175	0.39	49	1,883	0.0085	0.0075	0.0085	0.4094	0.0088	1.2888	0.0331	761.9960	0.0100	0.0126
2018	Forklift	1	Diesel	113	0.30	35	1,511	0.0332	0.0332	0.0332	1.2564	0.0088	2.0061	0.1101	761.9960	0.0164	0.0254
2018	Forklift	3	On Road Diesel	121	0.30	35	1,511	0.0332	0.0332	0.0332	1.2564	0.0088	2.0061	0.1101	761.9960	0.0164	0.0254
2018	Forklift	7	LPG	123	0.30	8	362	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0.0000
2018	Sweeper	1	Diesel	75	0.68	8	358	0.0542	0.0542	0.0542	2.9029	0.0088	2.9898	0.2914	761.9960	0.0099	0.0126
2018	Truck	3	On Road Diesel	175	0.51	21	896	0.0542	0.0542	0.0542	2.9029	0.0088	2.9898	0.2914	761.9960	0.0099	0.0126
TOTALS		139															
TEUs	1,227,556																
2019	Rubber-tired gantry crane	20	Diesel	424	0.20	73	1,148	0.0163	0.0147	0.0163	1.3428	0.0077	1.3930	0.1638	761.9960	0.0198	0.0345
2019	Side pick	18	Diesel	179	0.59	72	2,130	0.0171	0.0155	0.0171	1.4092	0.0088	1.5403	0.1956	761.9960	0.0228	0.0382
2019	Top handler	5	Diesel	240	0.59	65	2,298	0.0197	0.0179	0.0197	2.4949	0.0088	1.5778	0.2460	761.9960	0.0228	0.0382
2019	Top handler (IY)	11	Diesel	240	0.59	36	2,298	0.0197	0.0179	0.0197	2.4949	0.0088	1.5778	0.2460	761.9960	0.0228	0.0382
2019	Yard tractor	24	Diesel	129	0.39	60	1,907	0.0083	0.0074	0.0083	0.3677	0.0088	1.2760	0.0294	761.9960	0.0100	0.0126
2019	Yard tractor	56	On Road Diesel	175	0.39	60	1,907	0.0083	0.0074	0.0083	0.3677	0.0088	1.2760	0.0294	761.9960	0.0100	0.0126
2019	Forklift	1	Diesel	113	0.30	35	1,532	0.0259	0.0259	0.0259	1.0555	0.0088	2.0082	0.1016	761.9960	0.0100	0.0126
2019	Forklift	3	On Road Diesel	121	0.30	35	1,532	0.0259	0.0259	0.0259	1.0555	0.0088	2.0082	0.1016	761.9960	0.0100	0.0126
2019	Forklift	7	LPG	123	0.30	8	367	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0.0000
2019	Sweeper	1	Diesel	75	0.68	8	363	0.0511	0.0511	0.0511	2.6057	0.0088	2.8428	0.2730	761.9960	0.0099	0.0126
2019	Truck	3	On Road Diesel	175	0.51	21	908	0.0511	0.0511	0.0511	2.6057	0.0088	2.8428	0.2730	761.9960	0.0099	0.0126
TOTALS		149															

Table 182. Cargo Handling Equipment Emission Factors (Alternative 4)

						Per Unit	Per Unit	Emission Factors, g/kW-hr									
Year	CHE Type	No. of Units	Fuel	Avg Size (kW)	Load Factor	Hrs/Peak Week	Hrs/Year	PM	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
TEUs	1,649,522																
2026	Rubber-tired gantry crane	20	Diesel	424	0.20	104	1,542	0.0156	0.0141	0.0156	0.7075	0.0077	1.4276	0.1535	761.9960	0.0199	0.0345
2026	Side pick	18	Diesel	179	0.59	103	2,862	0.0155	0.0140	0.0155	0.4268	0.0088	1.5442	0.1596	761.9960	0.0228	0.0382
2026	Top handler	5	Diesel	240	0.59	92	3,088	0.0160	0.0144	0.0160	0.4503	0.0088	1.5774	0.1721	761.9960	0.0228	0.0382
2026	Top handler (IY)	11	Diesel	240	0.59	51	3,088	0.0160	0.0144	0.0160	0.4503	0.0088	1.5774	0.1721	761.9960	0.0228	0.0382
2026	Yard tractor	24	Diesel	129	0.39	86	2,563	0.0077	0.0068	0.0077	0.2298	0.0088	1.2337	0.0162	761.9960	0.0100	0.0126
2026	Yard tractor	56	On Road Diesel	175	0.39	85	2,563	0.0077	0.0068	0.0077	0.2298	0.0088	1.2337	0.0162	761.9960	0.0100	0.0126
2026	Forklift	1	Diesel	113	0.30	48	2,058	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0100	0.0126
2026	Forklift	3	On Road Diesel	121	0.30	48	2,058	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0228	0.0382
2026	Forklift	7	LPG	123	0.30	11	493	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0.0000
2026	Sweeper	1	Diesel	75	0.68	11	488	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0126
2026	Truck	3	On Road Diesel	175	0.51	28	1,220	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0126
TOTALS		149															

TEUs	2,115,133																
2033	Rubber-tired gantry crane	20	Diesel	424	0.20	134	1,977	0.0150	0.0135	0.0150	0.4531	0.0077	1.4276	0.1433	761.9960	0.0199	0.0346
2033	Side pick	18	Diesel	179	0.59	133	3,670	0.0156	0.0140	0.0156	0.3883	0.0088	1.5475	0.1584	761.9960	0.0228	0.0382
2033	Top handler	5	Diesel	240	0.59	118	3,960	0.0160	0.0144	0.0160	0.3928	0.0088	1.5776	0.1689	761.9960	0.0228	0.0382
2033	Top handler (IY)	11	Diesel	240	0.59	66	3,960	0.0160	0.0144	0.0160	0.3928	0.0088	1.5776	0.1689	761.9960	0.0228	0.0382
2033	Yard tractor	24	Diesel	129	0.39	110	3,287	0.0077	0.0068	0.0077	0.2300	0.0088	1.2337	0.0159	761.9960	0.0100	0.0126
2033	Yard tractor	56	On Road Diesel	175	0.39	110	3,287	0.0077	0.0068	0.0077	0.2300	0.0088	1.2337	0.0159	761.9960	0.0100	0.0126
2033	Forklift	1	Diesel	113	0.30	61	2,639	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0100	0.0126
2033	Forklift	3	On Road Diesel	121	0.30	61	2,639	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0228	0.0382
2033	Forklift	7	LPG	123	0.30	15	632	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0.0000
2033	Sweeper	1	Diesel	75	0.68	14	626	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0126
2033	Truck	3	On Road Diesel	175	0.51	36	1,564	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0126
TOTALS		149															

TEUs	2,115,133																
2038	Rubber-tired gantry crane	20	Diesel	424	0.20	134	1,977	0.0149	0.0134	0.0149	0.3879	0.0077	1.4273	0.1401	761.9960	0.0199	0.0346
2038	Side pick	18	Diesel	179	0.59	133	3,670	0.0156	0.0140	0.0156	0.3873	0.0088	1.5475	0.1584	761.9960	0.0228	0.0382
2038	Top handler	5	Diesel	240	0.59	118	3,960	0.0160	0.0144	0.0160	0.3915	0.0088	1.5777	0.1688	761.9960	0.0228	0.0382
2038	Top handler (IY)	11	Diesel	240	0.59	66	3,960	0.0160	0.0144	0.0160	0.3915	0.0088	1.5777	0.1688	761.9960	0.0228	0.0382
2038	Yard tractor	24	Diesel	129	0.39	110	3,287	0.0077	0.0068	0.0077	0.2300	0.0088	1.2337	0.0159	761.9960	0.0100	0.0126
2038	Yard tractor	56	On Road Diesel	175	0.39	110	3,287	0.0077	0.0068	0.0077	0.2300	0.0088	1.2337	0.0159	761.9960	0.0100	0.0126
2038	Forklift	1	Diesel	113	0.30	61	2,639	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0100	0.0126
2038	Forklift	3	On Road Diesel	121	0.30	61	2,639	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0228	0.0382
2038	Forklift	7	LPG	123	0.30	15	632	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0.0000
2038	Sweeper	1	Diesel	75	0.68	14	626	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0126
2038	Truck	3	On Road Diesel	175	0.51	36	1,564	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0126
TOTALS		149															

Note
2013 EFs are based on Actual POLA 2013 EI
2017+ EF are based on forecasting assumptions of growth, attrition and California Air Resources Boards adopted regulations.

Table 183. Cargo Handling Equipment Emission Factors (Alternative 5)

						Per Unit	Per Unit	Emission Factors, g/kW-hr									
Year	CHE Type	No. of Units	Fuel	Avg Size (kW)	Load Factor	Hrs/Peak Week	Hrs/Year	PM	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
TEUs	1,240,773																
2013	Rubber-tired gantry crane	14	Diesel	424	0.20	71	1,160	0.1402	0.1290	0.1402	5.9932	0.0077	1.5076	0.3772	761.9960	0.0193	0.0341
2013	Side pick	6	Diesel	179	0.59	61	2,153	0.1301	0.1197	0.1301	6.9237	0.0088	0.8646	0.2151	761.9960	0.0228	0.0204
2013	Top handler	6	Diesel	240	0.59	64	2,323	0.0284	0.0261	0.0284	6.1228	0.0078	1.5102	0.3704	761.8770	0.0193	0.0342
2013	Top handler (IY)	12	Diesel	240	0.59	39	2,323	0.0284	0.0261	0.0284	6.1228	0.0078	1.5102	0.3704	761.8770	0.0193	0.0342
2013	Yard tractor	37	Diesel	129	0.39	55	1,928	0.2643	0.2430	0.2643	7.1480	0.0088	1.4307	0.1562	761.9960	0.0228	0.0114
2013	Yard tractor	86	On Road Diesel	175	0.39	54	1,928	0.0108	0.0097	0.0108	0.9661	0.0088	1.4149	0.0812	761.9960	0.0132	0.0188
2013	Forklift	1	Diesel	113	0.30	36	1,548	0.0566	0.0521	0.0566	7.1480	0.0088	4.7690	0.5207	761.9960	0.0228	0.0382
2013	Forklift	3	On Road Diesel	121	0.30	36	1,548	0.2561	0.2353	0.2561	5.7661	0.0088	4.4848	0.3977	761.9960	0.0228	0.0382
2013	Forklift	7	LPG	123	0.30	9	371	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0.0000
2013	Sweeper	1	Diesel	75	0.68	8	367	0.2052	0.1886	0.2052	5.8817	0.0088	3.9011	0.2240	761.9960	0.0228	0.0382
2013	Truck	3	On Road Diesel	175	0.51	21	918	0.3916	0.3604	0.3916	5.8538	0.0088	4.3633	0.2965	761.9960	0.0099	0.0126
TOTALS		176															
TEUs	1,211,500																
2018	Rubber-tired gantry crane	15	Diesel	424	0.20	69	1,133	0.0166	0.0150	0.0166	1.5196	0.0077	1.3839	0.1672	761.9960	0.0198	0.0345
2018	Side pick	14	Diesel	179	0.59	71	2,102	0.0174	0.0158	0.0174	1.7000	0.0088	1.5180	0.1982	761.9960	0.0228	0.0382
2018	Top handler	4	Diesel	240	0.59	60	2,268	0.0207	0.0189	0.0207	2.9974	0.0088	1.5770	0.2628	761.9960	0.0228	0.0382
2018	Top handler (IY)	11	Diesel	240	0.59	36	2,268	0.0207	0.0189	0.0207	2.9974	0.0088	1.5770	0.2628	761.9960	0.0228	0.0382
2018	Yard tractor	24	Diesel	129	0.39	49	1,883	0.0085	0.0075	0.0085	0.4094	0.0088	1.2888	0.0331	761.9960	0.0100	0.0126
2018	Yard tractor	56	On Road Diesel	175	0.39	49	1,883	0.0085	0.0075	0.0085	0.4094	0.0088	1.2888	0.0331	761.9960	0.0100	0.0126
2018	Forklift	1	Diesel	113	0.30	35	1,511	0.0332	0.0332	0.0332	1.2564	0.0088	2.0061	0.1101	761.9960	0.0164	0.0254
2018	Forklift	3	On Road Diesel	121	0.30	35	1,511	0.0332	0.0332	0.0332	1.2564	0.0088	2.0061	0.1101	761.9960	0.0164	0.0254
2018	Forklift	7	LPG	123	0.30	8	362	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0.0000
2018	Sweeper	1	Diesel	75	0.68	8	358	0.0542	0.0542	0.0542	2.9029	0.0088	2.9898	0.2914	761.9960	0.0099	0.0126
2018	Truck	3	On Road Diesel	175	0.51	21	896	0.0542	0.0542	0.0542	2.9029	0.0088	2.9898	0.2914	761.9960	0.0099	0.0126
TOTALS		139															
TEUs	1,297,656																
2019	Rubber-tired gantry crane	21	Diesel	424	0.20	74	1,213	0.0163	0.0147	0.0163	1.3428	0.0077	1.3930	0.1638	761.9960	0.0198	0.0345
2019	Side pick	23	Diesel	179	0.59	64	2,252	0.0171	0.0155	0.0171	1.4092	0.0088	1.5403	0.1956	761.9960	0.0228	0.0382
2019	Top handler	6	Diesel	240	0.59	67	2,429	0.0197	0.0179	0.0197	2.4949	0.0088	1.5778	0.2460	761.9960	0.0228	0.0382
2019	Top handler (IY)	11	Diesel	240	0.59	41	2,429	0.0197	0.0179	0.0197	2.4949	0.0088	1.5778	0.2460	761.9960	0.0228	0.0382
2019	Yard tractor	24	Diesel	129	0.39	57	2,016	0.0083	0.0074	0.0083	0.3677	0.0088	1.2760	0.0294	761.9960	0.0100	0.0126
2019	Yard tractor	56	On Road Diesel	175	0.39	57	2,016	0.0083	0.0074	0.0083	0.3677	0.0088	1.2760	0.0294	761.9960	0.0100	0.0126
2019	Forklift	1	Diesel	113	0.30	37	1,619	0.0259	0.0259	0.0259	1.0555	0.0088	2.0082	0.1016	761.9960	0.0100	0.0126
2019	Forklift	3	On Road Diesel	121	0.30	37	1,619	0.0259	0.0259	0.0259	1.0555	0.0088	2.0082	0.1016	761.9960	0.0100	0.0126
2019	Forklift	7	LPG	123	0.30	9	388	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0.0000
2019	Sweeper	1	Diesel	75	0.68	9	384	0.0511	0.0511	0.0511	2.6057	0.0088	2.8428	0.2730	761.9960	0.0099	0.0126
2019	Truck	3	On Road Diesel	175	0.51	22	960	0.0511	0.0511	0.0511	2.6057	0.0088	2.8428	0.2730	761.9960	0.0099	0.0126
TOTALS		156															

Table 183. Cargo Handling Equipment Emission Factors (Alternative 5)

						Per Unit	Per Unit	Emission Factors, g/kW-hr									
Year	CHE Type	No. of Units	Fuel	Avg Size (kW)	Load Factor	Hrs/Peak Week	Hrs/Year	PM	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
TEUs	1,843,297																
2026	Rubber-tired gantry crane	21	Diesel	424	0.20	106	1,723	0.0156	0.0141	0.0156	0.7075	0.0077	1.4276	0.1535	761.9960	0.0199	0.0345
2026	Side pick	23	Diesel	179	0.59	91	3,199	0.0155	0.0140	0.0155	0.4268	0.0088	1.5442	0.1596	761.9960	0.0228	0.0382
2026	Top handler	6	Diesel	240	0.59	96	3,451	0.0160	0.0144	0.0160	0.4503	0.0088	1.5774	0.1721	761.9960	0.0228	0.0382
2026	Top handler (IY)	11	Diesel	240	0.59	58	3,451	0.0160	0.0144	0.0160	0.4503	0.0088	1.5774	0.1721	761.9960	0.0228	0.0382
2026	Yard tractor	24	Diesel	129	0.39	81	2,864	0.0077	0.0068	0.0077	0.2298	0.0088	1.2337	0.0162	761.9960	0.0100	0.0126
2026	Yard tractor	56	On Road Diesel	175	0.39	81	2,864	0.0077	0.0068	0.0077	0.2298	0.0088	1.2337	0.0162	761.9960	0.0100	0.0126
2026	Forklift	1	Diesel	113	0.30	53	2,300	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0100	0.0126
2026	Forklift	3	On Road Diesel	121	0.30	53	2,300	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0228	0.0382
2026	Forklift	7	LPG	123	0.30	13	551	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0.0000
2026	Sweeper	1	Diesel	75	0.68	13	545	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0126
2026	Truck	3	On Road Diesel	175	0.51	32	1,363	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0126
TOTALS		156															

TEUs	2,379,525																
2033	Rubber-tired gantry crane	21	Diesel	424	0.20	134	2,225	0.0150	0.0135	0.0150	0.4531	0.0077	1.4276	0.1433	761.9960	0.0199	0.0346
2033	Side pick	23	Diesel	179	0.59	118	4,129	0.0156	0.0140	0.0156	0.3883	0.0088	1.5475	0.1584	761.9960	0.0228	0.0382
2033	Top handler	6	Diesel	240	0.59	113	4,455	0.0160	0.0144	0.0160	0.3928	0.0088	1.5776	0.1689	761.9960	0.0228	0.0382
2033	Top handler (IY)	11	Diesel	240	0.59	78	4,455	0.0160	0.0144	0.0160	0.3928	0.0088	1.5776	0.1689	761.9960	0.0228	0.0382
2033	Yard tractor	24	Diesel	129	0.39	103	3,697	0.0077	0.0068	0.0077	0.2300	0.0088	1.2337	0.0159	761.9960	0.0100	0.0126
2033	Yard tractor	56	On Road Diesel	175	0.39	103	3,697	0.0077	0.0068	0.0077	0.2300	0.0088	1.2337	0.0159	761.9960	0.0100	0.0126
2033	Forklift	1	Diesel	113	0.30	69	2,969	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0100	0.0126
2033	Forklift	3	On Road Diesel	121	0.30	69	2,969	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0228	0.0382
2033	Forklift	7	LPG	123	0.30	16	711	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0.0000
2033	Sweeper	1	Diesel	75	0.68	16	704	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0126
2033	Truck	3	On Road Diesel	175	0.51	41	1,760	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0126
TOTALS		156															

TEUs	2,379,525																
2038	Rubber-tired gantry crane	21	Diesel	424	0.20	134	2,225	0.0149	0.0134	0.0149	0.3879	0.0077	1.4273	0.1401	761.9960	0.0199	0.0346
2038	Side pick	23	Diesel	179	0.59	118	4,129	0.0156	0.0140	0.0156	0.3873	0.0088	1.5475	0.1584	761.9960	0.0228	0.0382
2038	Top handler	6	Diesel	240	0.59	113	4,455	0.0160	0.0144	0.0160	0.3915	0.0088	1.5777	0.1688	761.9960	0.0228	0.0382
2038	Top handler (IY)	11	Diesel	240	0.59	78	4,455	0.0160	0.0144	0.0160	0.3915	0.0088	1.5777	0.1688	761.9960	0.0228	0.0382
2038	Yard tractor	24	Diesel	129	0.39	103	3,697	0.0077	0.0068	0.0077	0.2300	0.0088	1.2337	0.0159	761.9960	0.0100	0.0126
2038	Yard tractor	56	On Road Diesel	175	0.39	103	3,697	0.0077	0.0068	0.0077	0.2300	0.0088	1.2337	0.0159	761.9960	0.0100	0.0126
2038	Forklift	1	Diesel	113	0.30	69	2,969	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0100	0.0126
2038	Forklift	3	On Road Diesel	121	0.30	69	2,969	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0228	0.0382
2038	Forklift	7	LPG	123	0.30	16	711	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0.0000
2038	Sweeper	1	Diesel	75	0.68	16	704	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0126
2038	Truck	3	On Road Diesel	175	0.51	41	1,760	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0126
TOTALS		156															

Note
2013 EFs are based on Actual POLA 2013 EI
2017+ EF are based on forecasting assumptions of growth, attrition and California Air Resources Boards adopted regulations.

Table 184. Cargo Handling Equipment Emission Factors (No Action/No Project)

						Per Unit	Per Unit	Emission Factors, g/kW-hr									
Year	CHE Type	No. of Units	Fuel	Avg Size (kW)	Load Factor	Hrs/Peak Week	Hrs/Year	PM	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
TEUs	1,240,773																
2013	Rubber-tired gantry crane	14	Diesel	424	0.20	71	1,160	0.1402	0.1290	0.1402	5.9932	0.0077	1.5076	0.3772	761.9960	0.0193	0.0341
2013	Side pick	6	Diesel	179	0.59	61	2,153	0.1301	0.1197	0.1301	6.9237	0.0088	0.8646	0.2151	761.9960	0.0228	0.0204
2013	Top handler	6	Diesel	240	0.59	64	2,323	0.0284	0.0261	0.0284	6.1228	0.0078	1.5102	0.3704	761.8770	0.0193	0.0342
2013	Top handler (IY)	12	Diesel	240	0.59	39	2,323	0.0284	0.0261	0.0284	6.1228	0.0078	1.5102	0.3704	761.8770	0.0193	0.0342
2013	Yard tractor	37	Diesel	129	0.39	55	1,928	0.2643	0.2430	0.2643	7.1480	0.0088	1.4307	0.1562	761.9960	0.0228	0.0114
2013	Yard tractor	86	On Road Diesel	175	0.39	54	1,928	0.0108	0.0097	0.0108	0.9661	0.0088	1.4149	0.0812	761.9960	0.0132	0.0188
2013	Forklift	1	Diesel	113	0.30	36	1,548	0.0566	0.0521	0.0566	7.1480	0.0088	4.7690	0.5207	761.9960	0.0228	0.0382
2013	Forklift	3	On Road Diesel	121	0.30	36	1,548	0.2561	0.2353	0.2561	5.7661	0.0088	4.4848	0.3977	761.9960	0.0228	0.0382
2013	Forklift	7	LPG	123	0.30	9	371	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0.0000
2013	Sweeper	1	Diesel	75	0.68	8	367	0.2052	0.1886	0.2052	5.8817	0.0088	3.9011	0.2240	761.9960	0.0228	0.0382
2013	Truck	3	On Road Diesel	175	0.51	21	918	0.3916	0.3604	0.3916	5.8538	0.0088	4.3633	0.2965	761.9960	0.0099	0.0126
TOTALS		176															
TEUs	1,249,538																
2018	Rubber-tired gantry crane	15	Diesel	424	0.20	71	1,168	0.0166	0.0150	0.0166	1.5196	0.0077	1.3839	0.1672	761.9960	0.0198	0.0345
2018	Side pick	14	Diesel	179	0.59	73	2,168	0.0174	0.0158	0.0174	1.7000	0.0088	1.5180	0.1982	761.9960	0.0228	0.0382
2018	Top handler	4	Diesel	240	0.59	62	2,339	0.0207	0.0189	0.0207	2.9974	0.0088	1.5770	0.2628	761.9960	0.0228	0.0382
2018	Top handler (IY)	11	Diesel	240	0.59	37	2,339	0.0207	0.0189	0.0207	2.9974	0.0088	1.5770	0.2628	761.9960	0.0228	0.0382
2018	Yard tractor	24	Diesel	129	0.39	50	1,942	0.0085	0.0075	0.0085	0.4094	0.0088	1.2888	0.0331	761.9960	0.0100	0.0126
2018	Yard tractor	56	On Road Diesel	175	0.39	50	1,942	0.0085	0.0075	0.0085	0.4094	0.0088	1.2888	0.0331	761.9960	0.0100	0.0126
2018	Forklift	1	Diesel	113	0.30	36	1,559	0.0332	0.0332	0.0332	1.2564	0.0088	2.0061	0.1101	761.9960	0.0164	0.0254
2018	Forklift	3	On Road Diesel	121	0.30	36	1,559	0.0332	0.0332	0.0332	1.2564	0.0088	2.0061	0.1101	761.9960	0.0164	0.0254
2018	Forklift	7	LPG	123	0.30	9	373	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0.0000
2018	Sweeper	1	Diesel	75	0.68	9	370	0.0542	0.0542	0.0542	2.9029	0.0088	2.9898	0.2914	761.9960	0.0099	0.0126
2018	Truck	3	On Road Diesel	175	0.51	21	924	0.0542	0.0542	0.0542	2.9029	0.0088	2.9898	0.2914	761.9960	0.0099	0.0126
TOTALS		139															
TEUs	1,278,107																
2019	Rubber-tired gantry crane	15	Diesel	424	0.20	73	1,195	0.0163	0.0147	0.0163	1.3428	0.0077	1.3930	0.1638	761.9960	0.0198	0.0345
2019	Side pick	14	Diesel	179	0.59	75	2,218	0.0171	0.0155	0.0171	1.4092	0.0088	1.5403	0.1956	761.9960	0.0228	0.0382
2019	Top handler	4	Diesel	240	0.59	63	2,393	0.0197	0.0179	0.0197	2.4949	0.0088	1.5778	0.2460	761.9960	0.0228	0.0382
2019	Top handler (IY)	11	Diesel	240	0.59	38	2,393	0.0197	0.0179	0.0197	2.4949	0.0088	1.5778	0.2460	761.9960	0.0228	0.0382
2019	Yard tractor	24	Diesel	129	0.39	51	1,986	0.0083	0.0074	0.0083	0.3677	0.0088	1.2760	0.0294	761.9960	0.0100	0.0126
2019	Yard tractor	56	On Road Diesel	175	0.39	51	1,986	0.0083	0.0074	0.0083	0.3677	0.0088	1.2760	0.0294	761.9960	0.0100	0.0126
2019	Forklift	1	Diesel	113	0.30	37	1,595	0.0259	0.0259	0.0259	1.0555	0.0088	2.0082	0.1016	761.9960	0.0100	0.0126
2019	Forklift	3	On Road Diesel	121	0.30	37	1,595	0.0259	0.0259	0.0259	1.0555	0.0088	2.0082	0.1016	761.9960	0.0100	0.0126
2019	Forklift	7	LPG	123	0.30	9	382	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0.0000
2019	Sweeper	1	Diesel	75	0.68	9	378	0.0511	0.0511	0.0511	2.6057	0.0088	2.8428	0.2730	761.9960	0.0099	0.0126
2019	Truck	3	On Road Diesel	175	0.51	22	945	0.0511	0.0511	0.0511	2.6057	0.0088	2.8428	0.2730	761.9960	0.0099	0.0126
TOTALS		139															

Table 184. Cargo Handling Equipment Emission Factors (No Action/No Project)

						Per Unit	Per Unit	Emission Factors, g/kW-hr									
Year	CHE Type	No. of Units	Fuel	Avg Size (kW)	Load Factor	Hrs/Peak Week	Hrs/Year	PM	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
TEUs	1,429,798																
2026	Rubber-tired gantry crane	15	Diesel	424	0.20	104	1,337	0.0156	0.0141	0.0156	0.7075	0.0077	1.4276	0.1535	761.9960	0.0199	0.0345
2026	Side pick	14	Diesel	179	0.59	106	2,481	0.0155	0.0140	0.0155	0.4268	0.0088	1.5442	0.1596	761.9960	0.0228	0.0382
2026	Top handler	4	Diesel	240	0.59	90	2,677	0.0160	0.0144	0.0160	0.4503	0.0088	1.5774	0.1721	761.9960	0.0228	0.0382
2026	Top handler (IY)	11	Diesel	240	0.59	54	2,677	0.0160	0.0144	0.0160	0.4503	0.0088	1.5774	0.1721	761.9960	0.0228	0.0382
2026	Yard tractor	24	Diesel	129	0.39	73	2,222	0.0077	0.0068	0.0077	0.2298	0.0088	1.2337	0.0162	761.9960	0.0100	0.0126
2026	Yard tractor	56	On Road Diesel	175	0.39	73	2,222	0.0077	0.0068	0.0077	0.2298	0.0088	1.2337	0.0162	761.9960	0.0100	0.0126
2026	Forklift	1	Diesel	113	0.30	41	1,784	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0100	0.0126
2026	Forklift	3	On Road Diesel	121	0.30	41	1,784	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0228	0.0382
2026	Forklift	7	LPG	123	0.30	10	427	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0.0000
2026	Sweeper	1	Diesel	75	0.68	10	423	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0126
2026	Truck	3	On Road Diesel	175	0.51	24	1,057	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0126
TOTALS		139															

TEUs	1,818,000																
2033	Rubber-tired gantry crane	15	Diesel	424	0.20	134	1,700	0.0150	0.0135	0.0150	0.4531	0.0077	1.4276	0.1433	761.9960	0.0199	0.0346
2033	Side pick	14	Diesel	179	0.59	137	3,155	0.0156	0.0140	0.0156	0.3883	0.0088	1.5475	0.1584	761.9960	0.0228	0.0382
2033	Top handler	4	Diesel	240	0.59	116	3,404	0.0160	0.0144	0.0160	0.3928	0.0088	1.5776	0.1689	761.9960	0.0228	0.0382
2033	Top handler (IY)	11	Diesel	240	0.59	69	3,404	0.0160	0.0144	0.0160	0.3928	0.0088	1.5776	0.1689	761.9960	0.0228	0.0382
2033	Yard tractor	24	Diesel	129	0.39	94	2,825	0.0077	0.0068	0.0077	0.2300	0.0088	1.2337	0.0159	761.9960	0.0100	0.0126
2033	Yard tractor	56	On Road Diesel	175	0.39	94	2,825	0.0077	0.0068	0.0077	0.2300	0.0088	1.2337	0.0159	761.9960	0.0100	0.0126
2033	Forklift	1	Diesel	113	0.30	52	2,268	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0100	0.0126
2033	Forklift	3	On Road Diesel	121	0.30	52	2,268	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0228	0.0382
2033	Forklift	7	LPG	123	0.30	13	543	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0.0000
2033	Sweeper	1	Diesel	75	0.68	12	538	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0126
2033	Truck	3	On Road Diesel	175	0.51	31	1,345	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0126
TOTALS		139															

TEUs	1,818,000																
2038	Rubber-tired gantry crane	15	Diesel	424	0.20	134	1,700	0.0149	0.0134	0.0149	0.3879	0.0077	1.4273	0.1401	761.9960	0.0199	0.0346
2038	Side pick	14	Diesel	179	0.59	137	3,155	0.0156	0.0140	0.0156	0.3873	0.0088	1.5475	0.1584	761.9960	0.0228	0.0382
2038	Top handler	4	Diesel	240	0.59	116	3,404	0.0160	0.0144	0.0160	0.3915	0.0088	1.5777	0.1688	761.9960	0.0228	0.0382
2038	Top handler (IY)	11	Diesel	240	0.59	69	3,404	0.0160	0.0144	0.0160	0.3915	0.0088	1.5777	0.1688	761.9960	0.0228	0.0382
2038	Yard tractor	24	Diesel	129	0.39	94	2,825	0.0077	0.0068	0.0077	0.2300	0.0088	1.2337	0.0159	761.9960	0.0100	0.0126
2038	Yard tractor	56	On Road Diesel	175	0.39	94	2,825	0.0077	0.0068	0.0077	0.2300	0.0088	1.2337	0.0159	761.9960	0.0100	0.0126
2038	Forklift	1	Diesel	113	0.30	52	2,268	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0100	0.0126
2038	Forklift	3	On Road Diesel	121	0.30	52	2,268	0.0201	0.0201	0.0201	0.7018	0.0088	2.0717	0.0983	761.9960	0.0228	0.0382
2038	Forklift	7	LPG	123	0.30	13	543	0.0800	0.0800	0.0000	3.6328	0.0000	26.0970	0.5607	903.9953	0.0000	0.0000
2038	Sweeper	1	Diesel	75	0.68	12	538	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0126
2038	Truck	3	On Road Diesel	175	0.51	31	1,345	0.0323	0.0323	0.0323	1.4656	0.0088	2.1538	0.1889	761.9960	0.0099	0.0126
TOTALS		139															

Note
2013 EFs are based on Actual POLA 2013 EI
2017+ EF are based on forecasting assumptions of growth, attrition and California Air Resources Boards adopted regulations.

Table 185. High Mast Poles - GHG Emissions

	CO2	CH4	N2O
lb/MWh	1135.00	0.02849	0.00603
Existing (MT/yr)	2337.91	0.0587	0.0124
LED (MT/yr)	1080.20	0.0271	0.0057
Difference (MT/yr)	-1257.71	-0.0316	-0.0067

Electricity Usage

4,541	MWh/year	existing
2,098	MWh/year	LED

Data

12	fixtures/pole
1080	W/existing fixture
499	W/LED fixture
12	hours/day operation
365	days/year
80	poles

Unit Conversion

0.000001	MW/W
453.59	grams per pound
1.00E-06	metric tons/gram

Sources:

CO2 emission factor from LADWP 2014 Power Integrated Resource Plan

CH4 and N2O emission factors are from The Climate Registry, 2015 Default Emission Factors, Table 14.1 (US Emission Factors by eGrid Subregion CAMX).

High mast pole data from V. Haddadian, POLA, High Mast LED Lighting Conversion 4/2/15