PORT OF DETROIT DECARBONIZATION AND AIR QUALITY IMPROVEMENT PLAN

2024 UPDATE REPORT

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MOTIVATION FOR THE DECARBONIZATION AND AIR QUALITY PLAN

Climate change poses a significant challenge to the environment, requiring mitigation measures at the international, national, and local levels. It has already caused significant damage to businesses, natural systems, and communities. This is caused by an increase in greenhouse gas (GHG) emissions, predominantly carbon emissions, in the atmosphere due to human activity. Industrial processes such as cement and steel production, along with transportation-related emissions like trucking, contribute to GHG emissions and have been strongly linked to negative health outcomes in nearby communities. The Port Authority has taken on the responsibility to reduce carbon emissions within this Port region and improve air quality to protect the health of residents, workers, and visitors with the goal of reaching Net Zero by 2040. This effort is being carried out in tandem with the privately owned terminals that make up the Port of Detroit. The Port spans over 1,000 acres along the Detroit and Rouge Rivers and continues to generate significant economic benefit for the region.

Our work on this plan would be meaningless if it were not informed by the lived experience of community members who have endured the impacts of port and related industrial activity for decades. Through community meetings, engagement with community organizations, and residents, we understand deeply how port activity affects people. Of course, jobs and income are vital, and most agree that our economy needs a thriving port to provide raw materials for our factories, construction, roads, and fuel for our homes and businesses. However, the health of our people should be paramount, and for most of the history of this industrial region, the impact on the community and the health of people has been secondary, if not wholly ignored. For ports across the country, the health impacts of port-related industrial pollution disproportionately affect Black and Brown communities [1]. This is found to be true for the minority communities representing the industrial areas along the Detroit and Rouge Rivers.

Port of Detroit Decarbonization and Air Quality Improvement Plan (the “Plan”) is centered on environmental justice and ensuring that the communities neighboring the terminal sites will have input into the decisions regarding development and the steps toward decarbonization. The expected federal and state investments in alternative fuels are essential to ensure that these communities and local businesses have access to the contracts and the jobs that benefit from those investments. #GreenPortDetroit must support all stakeholders to ensure longevity and a sustainable future.

Acknowledgments

The Detroit/Wayne County Port Authority (the "Port Authority") would like to thank the State of Michigan, and Senator Stephanie Chang, for providing funding for the development of The Port of Detroit Decarbonization and Air Quality Improvement Plan and challenging the Port Authority to take bold action to reduce carbon emissions within the port region.

With this funding, the Port Authority was able to engage Tunley Environmental to provide expert technical consulting services in developing the baseline carbon calculations, conducting scientific research into the proposed solutions, and in leading the engagement with Port of Detroit terminal participants. The terminals who participated in this project are to thank for the continued success of this Plan, and we look forward to continuing collaboration. The support of the Board of Directors of the Detroit/Wayne County Port Authority, who approved our vision and contracts necessary to carry out the work of the baseline and reassessment.

Figure 1: *EPA Clean Ports Program grant recipient announcement ceremony at the Amrize (previously Holcim/LaFarge) terminal.*

CARBON ASSESSMENT METHODOLOGY

Port of Detroit Emissions Boundary

This carbon emissions reassessment builds upon the Baseline Emissions Report, which was based on 2022 calendar year data, and is available on the Port Authority's website. The reassessment uses 2024 calendar year data provided directly by the port terminals. For the entities that did not choose to participate, emissions were estimated based on publicly available data. The same core methodology was used for this reassessment, with enhanced efforts to improve data accuracy. All 24 privately owned entities were asked to voluntarily contribute their operational data to reflect a strong commitment to transparency and continuous improvement across the Port of Detroit. This year, 18 terminals provided data, compared with 20 for the baseline report.

The scope of emissions in this assessment includes three key components of the movement of goods within the Port of Detroit: shipping, goods handling, and drayage. Shipping emissions are calculated within a physically defined 28-mile boundary along the Detroit and Rouge Rivers, representing the distance traveled by vessels calling on businesses within the port. Goods handling refers to emissions generated from loading and unloading cargo on-site at terminal facilities. Drayage encompasses the local movement of goods by truck or rail from port terminals to end users, limited to a 15-mile radius from the port. For the purposes of this report, the 'scope of emissions' is defined as carbon dioxide generated from the movement of goods by water, terminal equipment, and short-distance land transport. Figure 2 provides a visual representation of these defined boundaries, illustrating both the shipping corridor and the drayage radius that shape the Port's emissions profile.

This boundary only includes port-related operations (with industrial operations excluded) where goods moved by water at some point in their journey are considered in the scope of this study.

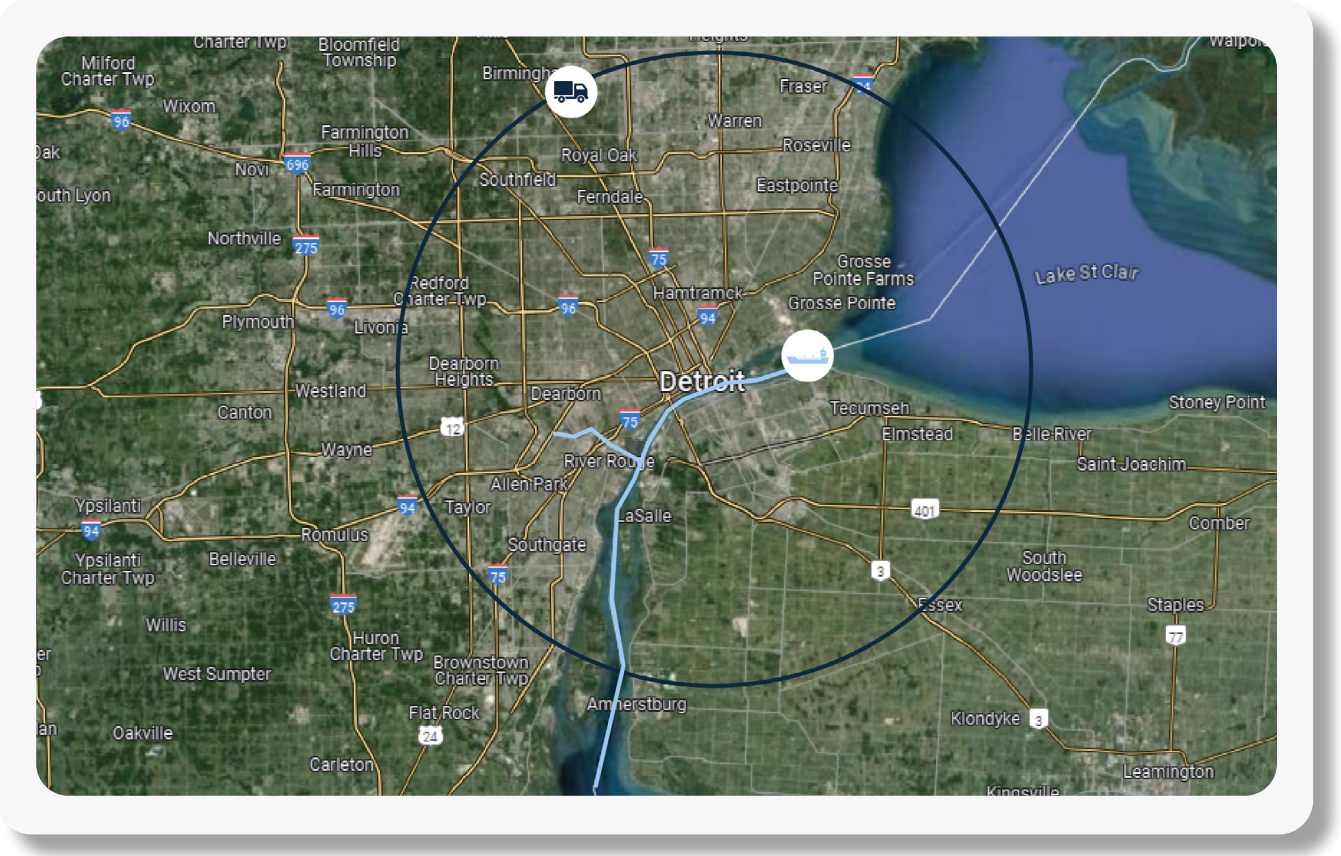


Figure 2: *Geographical emission inventory boundary diagram for ship, truck, and rail movements within the Port of Detroit region. Goods handling and local boat traffic along the river are also included.*

The Port Authority owns and operates a public dock, primarily serving cruise ships, along with a facility that hosts over 100 events each year. For purposes of this study, the Port Authority has undergone a more thorough assessment, including Scope 3 emissions for the cruise ship and catering operations, in addition to its administrative office space. The Port Authority is Green Marine certified as of 2024 and is urging all terminals and other Port of Detroit entities to pursue this certification. The Green Marine certification is explained in more detail in this report.

Administrative emissions for all terminals are included in this assessment, as they relate to the operations of a terminal. This includes port employee commuting and office utility use. Although a much smaller portion of total emissions, it is important to capture this data, as a reminder that reducing carbon in all of our activities is required to reduce the global impact of climate change. Administrative emissions for the purposes of this report have been estimated based on the number of employees and office square footage at most terminals.

Types of Activity Data Collected for the Assessment

The three categories of emissions defined for the boundary of this assessment included shipping, goods handling, and drayage. To quantify a terminals activity into their carbon footprint, specific types of data were collected. Below are some potential types of data for each category of emissions, listed from the highest to the lowest quality.

Shipping: Fuel consumption of each vessel (annually or the rate per mile), the total tonnage and type of product moved, or the number of vessels per year.

Goods Handing: Fuel consumption for goods handling equipment (annual or broken down by equipment piece), the spend on fuel (annual purchased), total hours of use of equipment, or the type of equipment and the tonnage moved by that equipment.

Drayage: Fuel consumption (total truck/rail consumption rates), the number of trucks that moved product to/from site, or the total tonnage moved by truck/rail. If no data was provided, it was assumed all tonnage moved in by ship was moved off site by truck.

Additionally, administrative emissions were considered essential for port operations. This category includes employee commuting (number of employees and average commute) and utilities (electricity and natural gas use). Where not provided, the size of the office was used.

Data Accuracy Assessment

Due to the reliance on raw data from private businesses, an assessment of the quality of data has been made and is detailed in this report. Each terminal was provided with a data accuracy score for each category of data, along with recommendations for quality improvement.

The data scoring runs from 1-6, with 1 being the most accurate and reliable, and 6 being the least accurate with no participation from terminals and instead estimated emissions using publicly available data. Table 1 provides details of the data accuracy assessment used to score each terminal. Additionally, each score included a note on opportunities for improvement for each data category. The Port Authority believes in continuous improvement around the quality of data provided for this assessment, with the understanding that an improvement in data quality will lead to variations year-to-year in the emission quantifications.

Accuracy Score	Score Description
1	Activity data accurately measured, fully accounted for and/or reported, with original reporting documents (for example, utility bill)
2	Activity data provided directly by company/organization; few generalizations made.
3	Activity data produced based on information provided by company/ organization by estimates from an individual.
4	Activity data assumption based on similar product/event reports by the same company/organization.
5	Activity data assumption based on product/event reports by a similar company/organization.
6	Activity data assumptions made based only on publicly available information.

Table 1: *Data accuracy scoring system guide.*

Emissions Calculation Methodology

This carbon assessment has been carried out using methodology consistent with the principles of the Greenhouse Gas (GHG) Protocol [2]. Global Warming Potentials are stated from IPCC Sixth Assessment Report, 2021 [3]. Emissions are reported in metric tons of carbon dioxide (t CO_2e), in alignment with the GHG Protocol.

The emission factors used in this assessment come from the United States Environmental Protection Agency (U.S. EPA) [4] where possible, as it is best practice to have a geographically relevant database. Emission factors for shipping are from the International Maritime Organization (IMO) [5] and the UK's Department for Energy Security and Net Zero (DESNZ) [6] when the U.S. specific database could not provide an emission factor in alignment with provided data.

Quantification Process

To determine GHG emissions, Tunley Environmental and the Port Authority conducted a business carbon assessment (BCA). The first step is to collect activity data from each terminal operator. Once data is collected, the correct emission factor for each emissions source is selected from the appropriate database (U.S. EPA, where possible). It is important to ensure the units for the activity data align with the emission factor units. Convert the activity data units if needed using standard unit conversion factors. The general equation to quantify emissions is as follows:

$$\text{Emission [kg } CO_2e\text{]} = \text{Activity Data [unit]} \times \text{Emission Factor [kg } CO_2e\text{/unit]}$$

For the Port of Detroit, the GHG emissions are reported in units of metric tons of carbon dioxide equivalents (t CO_2e). Any emissions quantified as kg CO_2e can be divided by 1,000 to convert to t CO_2e. This standard reporting metric is the methodology laid out in the GHG Protocol [2]. Carbon dioxide is the mode abundant greenhouse gas, so it is used to represent the global warming potential of all other GHGs in the unit of CO_2e (carbon dioxide equivalent). This includes carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and other refrigerants, as suggested by the IPPC report on climate change [3].

This standard procedure was applied to each of the terminals identified in the Port of Detroit, with the specific boundary of emission sources that fall within the movement of

goods operation. Additionally, administration emissions were quantified as they relate to port operations.

This study aims to quantify carbon emissions from port-related activities, but its accuracy is limited by incomplete data and variability in terminal participation. Some terminals did not contribute data, requiring reliance on public sources and industry assumptions, which introduces uncertainty. Emissions from larger terminals are used to approximate regional totals, and year-to-year comparisons may be skewed as data quality improves, potentially overstating past emissions due to uncertainties in terminal activity. To enhance accuracy and track progress toward net zero, the Port Authority should reduce uncertainty by engaging more terminals, incentivizing participation, improving data collection, and advocating for standardized reporting at the state or federal level.

BASELINE ASSESSMENT: 2022 CARBON EMISSIONS

The Port Authority undertook an initiative to establish a baseline carbon emission inventory for the Port of Detroit. Industrial terminals, as well as smaller vessels used in essential service operations, were included in this baseline. The total annual emissions for the baseline year of 2022 were determined to be 30,269 t CO_2e. This number includes the movement of goods in the port region during shipping, goods handling, and drayage, as well as port-related administrative functions of office utilities and port employee commuting. Figure 3 provides a breakdown summary of the baseline carbon emissions for the Port of Detroit region.

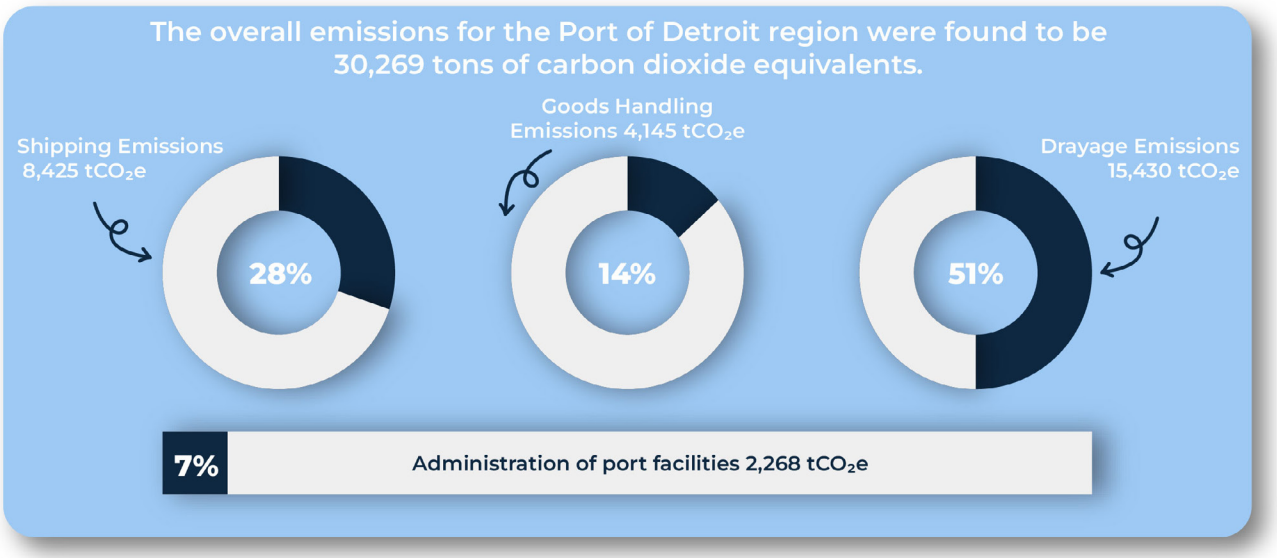


Figure 3: *The total port-wide baseline emissions are shown above, including administrative and movement of goods related emissions.*

The Port Authority has been able to build on the work outlined in the baseline report through successful grant applications for clean infrastructure development. Three terminals in the Port of Detroit will benefit from funding to implement some of the strategies outlined in the baseline report and plan to decarbonize. The EPA Clean Ports Program award is detailed further in this report and on the Port Authority's website.

Regular reporting of the port-wide GHG emissions will be carried out to track progress made by implementation efforts of the Port Authority and the terminal operators in the Port of Detroit. Progress will be made in comparison to the baseline GHG inventory from 2022 every two years, until the goal of net zero is reached in the Port of Detroit.

EMISSION RESULTS: 2024 CARBON EMISSIONS

The overall GHG emissions for the 2024 calendar year were determined to be **29,422 t CO_2e**. The main source of emissions comes from the movement of goods in the port region. This includes any movement to or from a terminal, and the movement of those goods on site. The total emissions due to the movement of goods are **27,545 t CO_2e**. The remainder of emissions come from essential administrative functions, including utilities and employee commuting. The total administrative emissions in the Port of Detroit are **1,877 t CO_2e**.

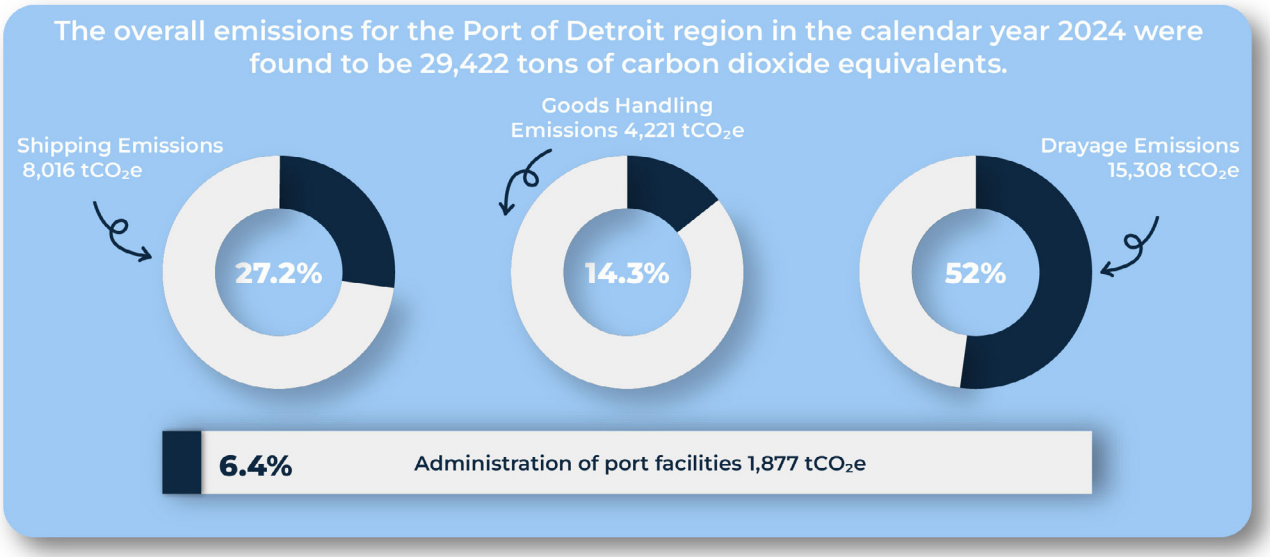


Figure 4: *The total port-wide baseline emissions are shown above, including administrative and movement of goods related emissions, for the 2024 calendar year.*

Each terminal's emissions are given, broken down by category for the movement of goods emissions by shipping, goods handling, and drayage in Table 2 and Figure 5. Terminals willingly provided data for this assessment, as it is a voluntary study, with participation highly encouraged by the Port Authority. Those who chose to participate are listed in this report. Those who refused to participate after a six-month engagement period are noted, and their estimated emissions are highlighted in the tables and figures. All known terminals with port-related operations have had their emissions quantified to determine the total GHG emissions for the Port of Detroit resulting from goods movement.

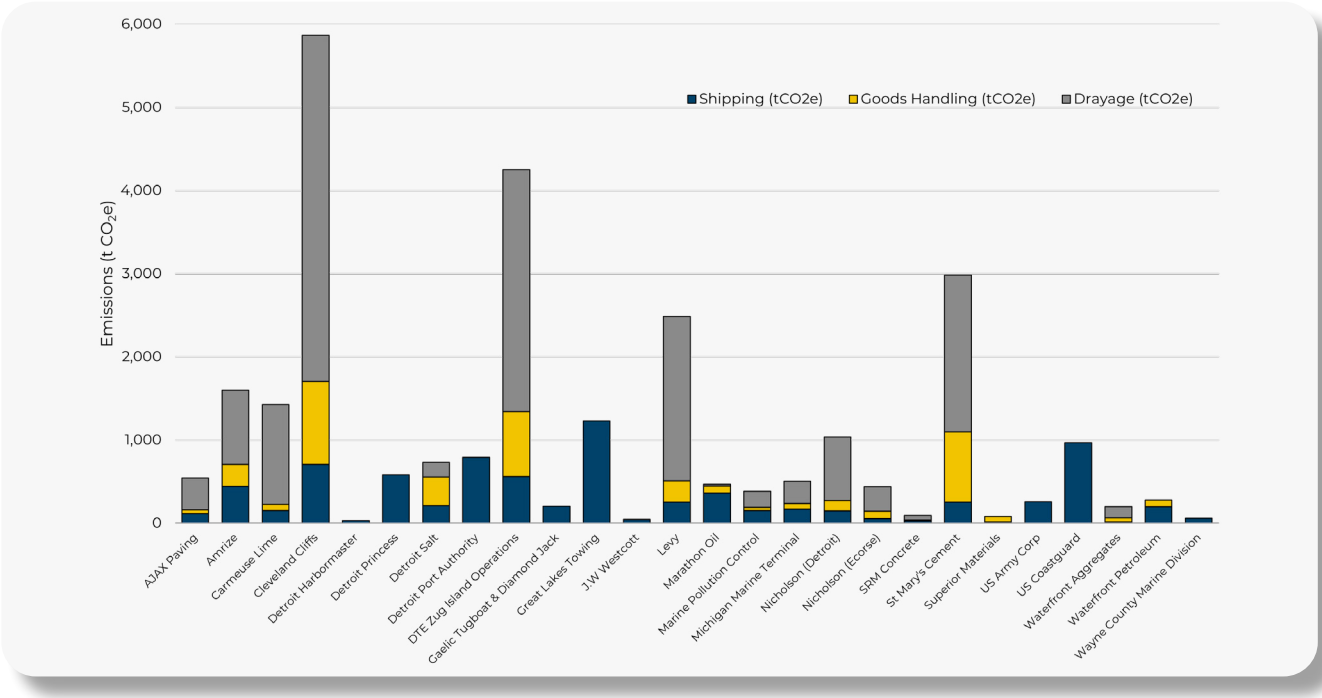


Figure 5: *Emissions by terminal, showing the breakdown between emission categories.*

Terminal Name	Industry Type	Shipping (t CO_2e)	Goods Handling (t CO_2e)	Drayage (t CO_2e)	Total Emissions t CO_2e)
AJAX Asphalt	Liquid Asphalt Terminal	116.1	46.0	381.1	**543.2**
Amrize (previously Holcim/La Farage)	Cement	441.2	267.8	889.6	**1,598.6**
Carmeuse Lime	Limestone	154.3	75.5	1,198.8	**1,428.6**
Cleveland Cliffs	Steelmaking	708.7	994.2	4,161.6	**5,864.6**
Detroit Harbormaster	Police, Marine Unit	32.0	0.0	0.0	**32.0**
Detroit Princess	Dinner Cruise Boat	580.6	0.0	0.0	**580.6**
Detroit Salt Co.	Salt	212.3	345.1	175.9	**733.3**
Detroit/Wayne County Port Authority	Port Authority & Cruise Ship Dock	793.9	0.0	0.0	**793.9**
DTE Zug Island (EES Coke Battery)	Coke Production for Steelmaking	561.5	780.5	2,910.6	**4,252.6**
Gaelic Tugboat and Diamond Jack	Tugboat and Tour Cruises	203.1	0.0	0.0	**203.1**
Great Lakes Towing	Tugboat Company	1,229.0	0.0	0.0	**1,229.0**
J.W. Westcott Co.	Mail Delivery & Patrol	44.0	0.3	0.0	**44.3**
Levy	Cement/Aggregates	254.5	254.0	1,977.1	**2,485.6**
Marathon Oil Co.	Oil Terminal	364.1	84.3	20.3	**468.7**
Marine Pollution Control	Spill Cleanup	152.9	38.2	191.1	**382.2**
Michigan Marine Terminal	Oil and Gas Terminal	169.0	68.6	267.0	**504.5**
Nicholson Terminal and Dock (Detroit)	General Cargo Dock	56.5	88.6	292.2	**437.3**
Nicholson Terminal and Dock (Ecorse)	General Cargo Dock	148.1	125.2	764.6	**1,037.9**
SRM Concrete	Cement	27.5	9.2	57.8	**94.5**
St Mary's Cement	Cement	254.9	844.3	1,884.4	**2,983.5**
Superior Materials (Levy Owned)	Cement	15.4	66.3	0.0	**81.7**
U.S. Army Corp of Engineers	River Dredging	259.3	0.0	0.0	**259.3**
U.S. Coastguard	Coastguard	968.0	0.0	0.0	**986.0**
Waterfront Petroleum Aggregates	Aggregate Storage	11.5	52.9	136.3	**200.7**
Waterfront Petroleum Fuel Center	Fuel Station and Storage	197.1	80.3	0.0	**277.4**
Wayne County Sheriff Department Marine Division	Police, Marine Unit	60.0	0.0	0.0	**60.0**
Port of Detroit Total GHG Emissions		**8,016**	**4,221**	**15,308**	**27,545**

Table 2: *This table provides the emissions for each terminal, broken down by shipping, goods handling, and drayage. Those highlighted grey are non-participating terminals whose emissions were estimated using publicly available data.*

2024 Emission Results: Essential Administrative Functions

In addition to quantifying the emissions due to the movement of goods in the Port of Detroit, administrative functions deemed essential to the operation of each terminal port-related operations were included in this study. This includes the office spaces required to support port operations. A portion of the utilities (electricity and natural gas use) and employee commuting were estimated based on the office space only at each terminal.

The office square footage and standard values from the Energy Information Administration (EIA) [7], [8] were utilized to estimate the total energy use in these office spaces. The full estimation process for terminal administrative emissions for the utilities can be found in the baseline assessment in more detail. Administrative emissions in the Port of Detroit region totaled **1,877 t CO_2e** for the 2024 calendar year. Approximately 55% of this total is due to employee commuting, with the remainder of administrative emissions resulting from utility energy use.

Administrative Category	Emissions (t CO_2e)
Electricity	740
Natural Gas	114
Employee Commuting	1,023
Total Administrative Emissions	**1,877**

Table 3: *Total administrative emissions for the Port of Detroit region, in tons of carbon dioxide equivalents.*

Terminal Engagement

Participating Terminals

The Port Authority thanks each of the 18 entities in the Port of Detroit who shared data and engaged in the decarbonization plan for this second iteration of the assessment. The aim of this study, in addition to understanding the region's carbon emissions, is to improve collaboration and communication across all terminal operators in the port.

The Port Authority is seeking to build partnerships with all terminal entities on the water, and desires to support these terminals in efforts to reduce their emissions. All terminals are encouraged to bring forward project ideas to collaboratively seek investment in their port facilities and the overall health and wellbeing of the port and nearby communities.

Non-Participating Terminals

All active terminals and entities in the Port of Detroit were strongly encouraged to participate in the 2024 decarbonization assessment. Not all chose to do so. Those terminals that did not provide data to the Port Authority are highlighted in this report, and it is noted that their emissions for the 2024 calendar year were estimated. Data used to estimate emissions was from publicly available sources including revenue, regional tonnage information, and visual inspections of site and equipment type used.

The six non-participating terminals for the 2024 calendar year were: AJAX Asphalt, Cleveland Cliffs, DTE Zug Island's EES Coke Battery Plant, Marine Pollution Control, Michigan Marine Terminal, and SRM Concrete. The Port Authority hopes for 100% engagement from any Port of Detroit located terminal in the future.

YEAR-TO-YEAR GHG EMISSION COMPARISON

Emission Reduction Progress: Baseline Comparison

The Port Authority is working to collectively reduce the overall GHG emissions in the Port of Detroit region. This will largely be achieved through lower emission fuel use in the transportation sector and investment in zero emission technology on-site. Some small but not insignificant emission reductions can occur through improved operational efficiency. The Port Authority is hoping to document progress towards the net zero targets for port-related movement of goods.

Note the Port of Detroit terminals did not implement any known low carbon fuel or zero-emissions equipment. The overall emissions in the port region saw a slight decrease from the baseline total to the 2024 numbers. This is primarily due to improvements in data accuracy as terminals were better prepared to track this data required for the GHG assessment. Terminals felt more comfortable sharing their operational data, so previous assumptions were adjusted.

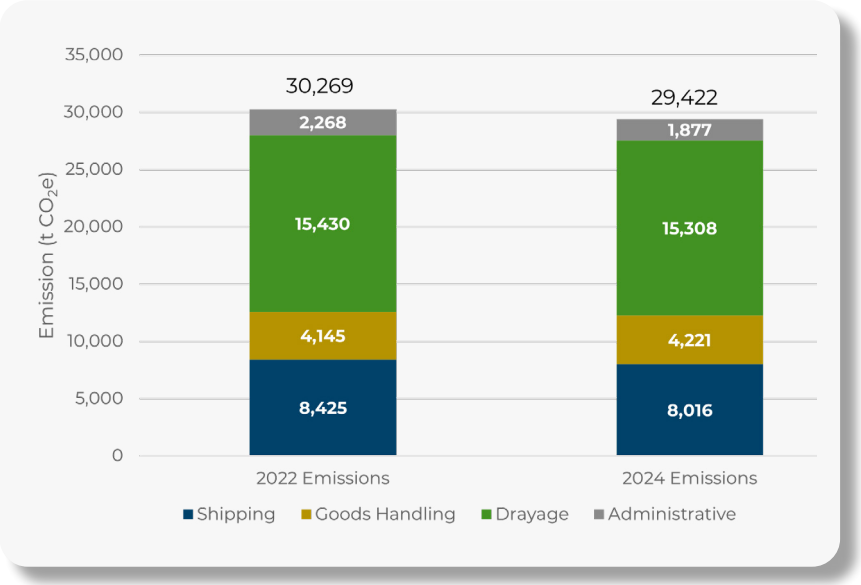


Figure 6: *Year to year comparison of emissions (by source), 2024 to the baseline GHG emission inventory.*

A reduction in GHG emissions for the next iteration of this assessment is expected, as some zero-emissions equipment funding will allow for implementation in the coming years. In addition, expansion of biodiesel fuels within the Port is also expected in the next two years.

Emission Intensity Ratio

It is also important to consider that the tonnage of cargo moved in and out of the Port changes on an annual basis, depending on demand for commodities, the economy, tariffs, supply chain costs, and other factors. To account for tonnage fluctuations, this report includes an intensity ratio, which is a measure of the total carbon emissions for the movement of goods divided by the total tonnage handled. Over time, and as the Port of Detroit increases or decreases in tonnage flowing through the port, the intensity ratio will reflect the true improvement in carbon efficiency.

The report does not identify the intensity ratio at each terminal, as that would reveal individual tonnage figure and violate non-disclosure commitments. Instead, the intensity ratio was calculated by using the total emissions and tonnages for the 14 terminals handling bulk products (oil or other liquid fuels, cement, aggregates, coal, lime, iron ore, etc.).

The aggregated intensity ratio for the large terminals in the Port of Detroit was 2.35 kg CO_2e/U.S. ton of product handled for the 2024 year. The 2022 baseline intensity ratio was 2.51 kg CO_2e/U.S. ton of product handled. This shows a slight reduction of emissions per ton of cargo moved in the Port. Note that this perceived reduction is due to improvement in data tracking by these terminals rather than actionable reduction measures, as no known zero-emissions technology or efficiency measures were implemented.

PATHWAY & PROGRESS TOWARDS A NET ZERO PORT BY 2040

The net zero pathway for the Port of Detroit has been outlined collectively and individually for all dock operations, and if followed, will result in a net zero port in the year 2040. Most emissions can be reduced through changing diesel for biodiesel, the electrification of goods handling equipment and smaller vessels, the purchase and/or generation of renewable electricity within the Port of Detroit, and the transition towards low carbon fuel use within large vessels on the Great Lakes. These strategies will get the Port of Detroit to near zero carbon emissions; however, offsetting will likely be required to reach net zero for residual emissions by the 2040 goal.

The baseline report dives into more depth on the specific initiatives and timeline of the decarbonization plan. The highlights of the plan are that by 2040, the Port of Detroit aims to:

1. **Cut direct CO_2** and **local pollutant emissions to zero** across all port-related operations.
2. Transition vessels and shore side equipment to **biodiesel, battery-electric**, and **hydrogen**.
3. Fully power itself with **renewable electricity**, whether purchased from the grid or through on-site solar power, supported by significant federal and state funding where possible.
4. Maintain **community engagement** and **transparency**, ensuring environmental justice in near-port communities
5. Position itself as a **leader in decarbonization among the Great Lakes Ports,** supporting regional industry collaboration and decarbonization efforts.

This transformative strategy is backed by robust technical planning, funding, and stakeholder partnerships. Implementation of the Decarbonization and Air Quality Improvement Plan positions the Port to reduce GHG emissions and lead in healthy, sustainable urban-industrial development, in alignment with global shipping emissions standards.

This project could not have been accomplished without the voluntary commitments of the terminal operators and other port participants who came forward to share their emissions data and worked toward developing the solutions detailed below. Continued collaboration within the Port of Detroit terminals and the wider region will be essential to successful decarbonization of port-related emissions from the movement of goods by 2040. The Port of Detroit is only a small portion of overall emissions in the Detroit region. Entities included in the Port of Detroit, as well as regional heavy industry and transportation companies are encouraged to partner with the Port and other entities to reduce their GHG emissions and air pollution as a region.

EPA CLEANS PORTS PROGRAM GRANT

In 2025, the United States Environmental Protection Agency (EPA) awarded the Port Authority **$24.9 million** under its Clean Ports Program. This funding comes from the Biden-Harris administration's Inflation Reduction Act where $3 billon was allocated for Ports across the country.

$21.9 million was awarded to the Port of Detroit for a Zero-Emission Technology Deployment program to cut air pollution from equipment operating at port terminals and docks. The grant will fund a portion of the acquisition costs of battery-electric forklift trucks, cranes, rail car movers, boats and motors, as well as the installation of charging equipment and solar panels in the Port. The new equipment will replace gas and diesel-powered equipment, to accelerate the reduction in carbon emissions and improve air quality in Southwest Detroit, Ecorse and River Rouge. Three privately owned Port of Detroit terminals will be the primary beneficiaries of the equipment grant and will provide matching funds totaling over $3.2 million. In addition, the City of Detroit's Harbormaster and the Wayne County Sheriff's Marine Division will each receive a new patrol boat and four outboard motors – all electric. The grant funds will also support the installation of DC fast chargers and related electrical infrastructure at each site. All construction work will be performed by union-represented workers, including the International Brotherhood of Electrical Workers, Local 58.

In addition, the Port Authority received a **$3 million** planning grant to study and develop a plan to transition fuel for port operations to hydrogen, educating and training workers for transition to hydrogen-fueled technology, and to study the feasibility of a zero-emission fuel cell barge to power vessels while docked. Southwest Detroit Environmental Vision (SDEV), with support from Michigan Clean Cities (MICC) and NextEnergy will lead the planning project for the transition to hydrogen fuel and hydrogen jobs within the Port. They will help ensure that the environmental justice goals of the grant are met, and that residents within the Port region receive education about the new technology, fuels and economic opportunities.

The American Bureau of Shipping (ABS), which has led marine and offshore energy innovation, development of vessel standards for over 150 years, will lead the fuel barge portion of the planning grant. This exciting new technology, if feasible, could lead to the deployment of a zero-emission barge to provide approximately 5 megawatts of clean electricity (from hydrogen or green methanol) for cargo ships unloading within the Port of Detroit. The study will include a determination of the equipment modifications on the ships serving the port and the cost thereof. If feasible, the zero-emission mobile power barge concept can be deployed in other Great Lakes ports, most of which handle similar cargo hauled by the same fleet of cargo ships. The University of Michigan's Department of Naval Architecture and Marine Engineering Department will work with ABS to provide critical support to the charge barge research.

COMMUNITY IMPACT & COLLABORATIONS

As the Port of Detroit implements the emission reduction strategies of the Plan, the Port Authority takes seriously its commitment to community engagement and shared accountability in reaching Net-zero by 2040. Southwest Detroit and the Downriver communities of Dearborn, Ecorse, River Rouge, Trenton and Wyandotte have historically high levels of exposure to criteria air pollutants (including $PM_{2.5}$, PM_{10}, SO_x, NO_x). These air pollutants from port and industrial activity have direct negative impacts on human health, including asthma, lung cancer and other respiratory-related illnesses. In 2022, the Asthma and Allergy Foundation's Asthma Capitals Report [9] listed Detroit as the worst city in the U.S. to live in if a person suffered from a breathing ailment. For decades, the community members living within Ecorse, River Rouge and the 48217 zip code of Detroit have protested the air pollution affecting their livelihood and have demanded improvements. The baseline report benefitted greatly from the work and input from The Original United Citizens of Southwest Detroit and the Tri-City Community. The Port Authority will continue to collaborate with these local organizations.

To support the Decarbonization and Air Quality Improvement Plan and ensure ongoing engagement with both community members and terminal operators, the Port Authority established the Community Advisory Board and the Low Carbon Port Committee—each serving as a dedicated forum representing their respective stakeholder groups.

Community Advisory Board

The Port Authority hosted two informational sessions related to the Community Advisory Board since 2024 to inform local stakeholders, such as residents, local businesses, faith leaders, elected officials, and community organizations of the goals and expectations of the Plan. The role of the advisory board is to hold the Port Authority and terminal operators accountable for achieving reductions in carbon emissions and other harmful emissions. Members will recommend solutions and act as Port Ambassadors to ensure the community stays up-to-date and informed about decarbonization activities in the Port.

The first Community Advisory Board meeting was held at the Port Authority office building and included representatives from each stakeholder group. The discussion was both productive and insightful, as participants shared their aspirations for the Board and ideas for shaping a community-driven roadmap to 2040. Moving forward, the Board will meet quarterly and be led by an elected Chairperson responsible for setting the agenda and guiding the meeting objectives. The Chairperson will be selected by the Board members and serve for a two-year term. The Port Authority will provide a dedicated budget to support the Board's work, including funding for food, meeting venues, and other essential resources.

Low Carbon Port Committee

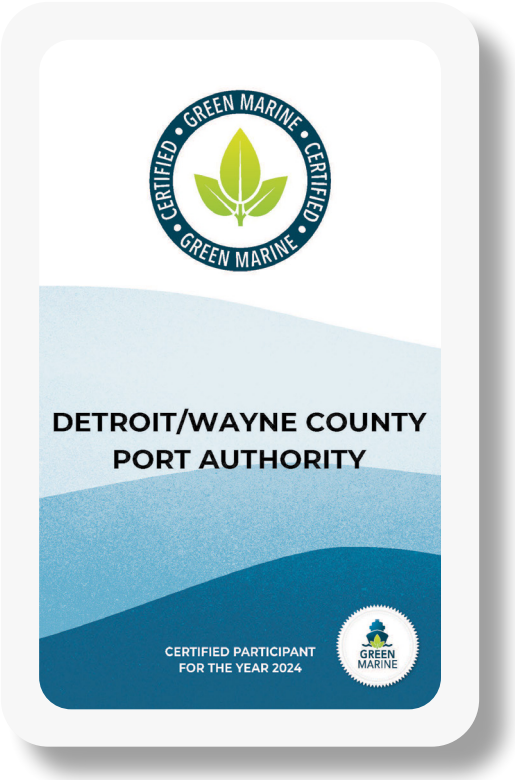
The Low Carbon Port Committee is composed of private terminal operators within the Port of Detroit. This voluntary body is facilitated by the Port Authority and serves as a space for operators to engage in shared learning, policy updates, and strategy alignment in support of the Port's Decarbonization and Air Quality Improvement Plan. This Committee meets quarterly to discuss ongoing grant-funded initiatives, updates on federal and state environmental regulations, and the adoption of sustainable maritime practices.

To further support operator education and innovation, the Port Authority also hosts the "Portside Progress: Lunch & Learn" webinar series. These sessions feature guest speakers from leading businesses and organizations in the sustainable maritime sector who

present emerging technologies and clean fuel solutions, including biodiesel, hydrogen fuel, electrification, and other low-emission alternatives. These informative webinars have attracted participation from 8 to 12 terminal operators per session and have become an important tool in promoting awareness and adoption of sustainable practices across the Port.

The Port Authority is committed to convening, facilitating, and documenting all Committee meetings, and will continue to encourage active participation and collaboration among terminal operators. Through this ongoing engagement, the Committee plays a vital role in aligning private sector efforts with the Port's broader environmental and climate goals, helping to drive measurable progress toward a low-carbon, resilient port system.

Green Marine Certified



The Detroit/Wayne County Port Authority is proud to announce that it is now Green Marine Certified, having completed its first independent assessment in 2025, for its operations in 2024.

Green Marine is an environmental certification in the maritime industry, pushing ports and ship owners to go beyond compliance and tackle real challenges like air and water quality, biodiversity, and community impact. Green Marine sets achievable standards for environmental excellence in maritime operations. The program also provides useful guidance in making progress on other important environmental issues in the Port of Detroit, including mitigating fugitive dust, sound, vibrations, and the impact of truck traffic and idling in nearby communities.

Terminal operators, ship owners and port authorities can join and agree to annual improvements in operations to achieve those standards. That is why the Port Authority encourages all port entities to join the internationally recognized Green Marine certification program, with a goal of having all participants in the Port of Detroit achieve the highest level of certification and maintain that level for years to come. This milestone is more than a badge—it's a bold step forward in the Port Authority's mission to drive sustainable maritime practices and reach net-zero emissions by 2040. As stated earlier, the Plan is not just concerned about reducing carbon emissions but also improving local air quality.

CONCLUSION

For up-to-date GHG emissions data for each terminal in the Port of Detroit, please refer to the website and interactive mapping tool to see the emissions breakdown and terminal locations.

The urgency of climate change is clear. It is impacting our water levels, causing dramatic weather pattern shifts and is affecting our ability to grow food. The goal of limiting the rise in global temperatures to no more than 1.5 degrees Celsius is in jeopardy if we do not change course and begin reducing our usage of carbon emitting fossil fuels like oil, natural gas and diesel immediately. There are technologies to make this happen and resources are now flowing from the federal government to make these changes rapidly and in a lasting way. **All that's needed is the collective will and energy to change.**

This plan is a call to action for all of those who live, work, and are active in the area known as the Port of Detroit. Each of us can get involved by advocating for and demanding that our businesses, governments, organizations, and individuals take action now. This plan is an opportunity to rebuild the Port of Detroit in a way that respects nature, that values human life and the health of all our people.

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DETROIT/WAYNE COUNTY PORT AUTHORITY

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Visit the Port Authority's Website to view the Decarbonization Plan and Port of Detroit Interactive Maps