Maritime Clean Air Strategy

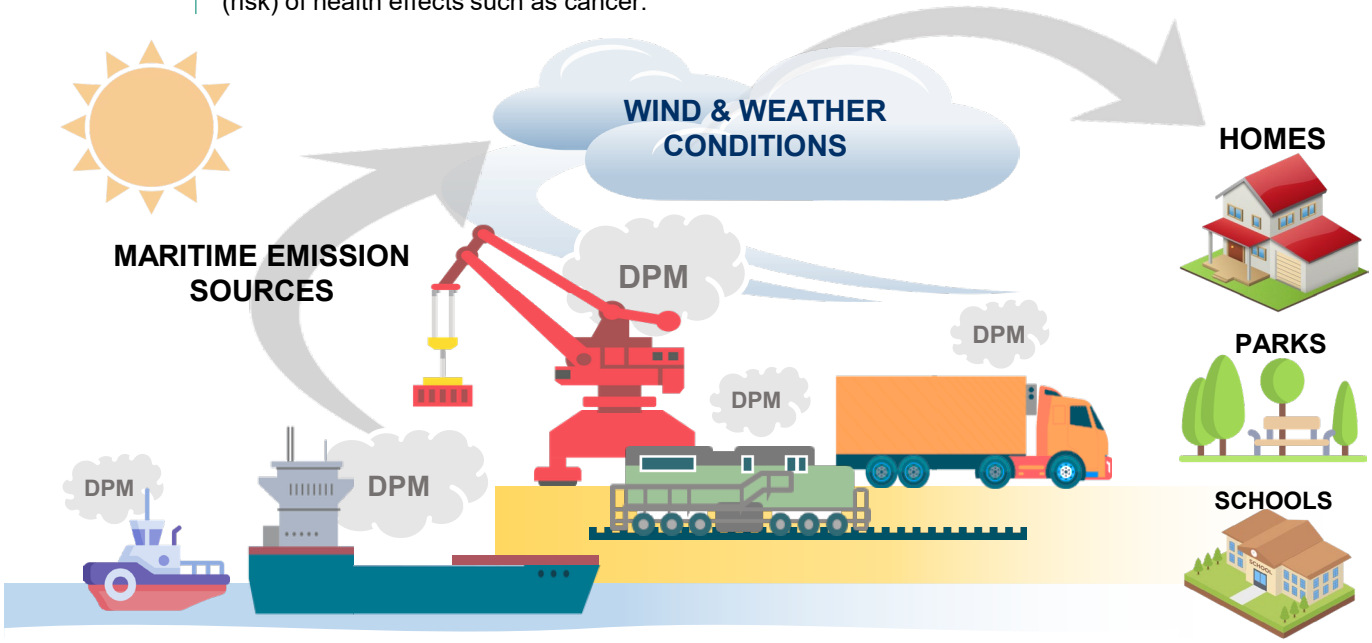
Health Risk Assessment for the Port's Marine Cargo Terminals

The Health Risk Assessment (HRA) was commissioned to identify baseline health risk(s) associated with Diesel Particulate Matter (DPM) and evaluate the effect of attaining certain objectives identified in the Maritime Clean Air Strategy (MCAS). This HRA was conducted in accordance with methodologies and procedures recommended by the Office of Environmental Health Hazard Assessment (OEHHA), California Air Resources Board (CARB), and the San Diego Air Pollution Control District (APCD).

The **Maritime Clean Air Strategy** (MCAS) is a transformational policy document that provides pathways to a healthy, sustainable, and thriving future. Through a human health–centered vision, *Health Equity For All*, the MCAS holistically and inclusively advances public health with precedent-setting maritime-related goals and objectives for cleaner air and a suite of co-benefits that establish the Port of San Diego as a leader in addressing air quality emissions associated with maritime operations.

HRA Process

First, emission sources are identified (such as DPM from engines) and land uses (such as homes, parks, and schools) where people spend lots of time and by virtue of their age and health may be deemed sensitive receptor locations. Then, local wind and weather data is used in combination with the volume of emissions from recognized emission sources to calculate the likelihood and severity (risk) of health effects such as cancer.

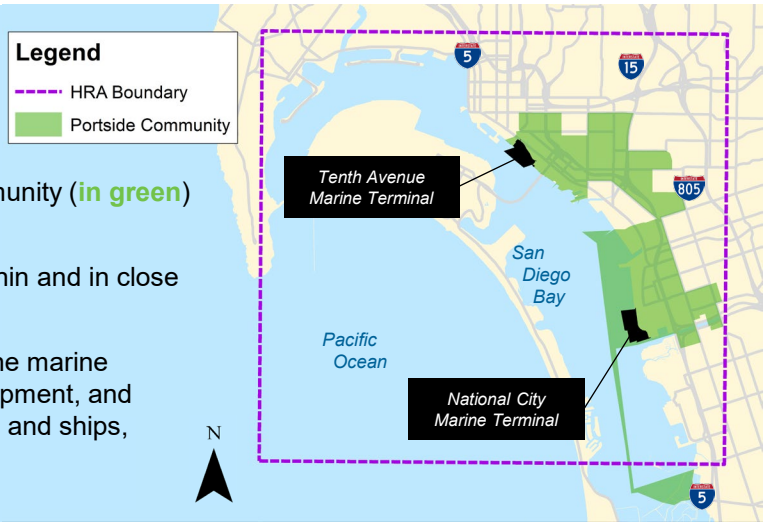


Emissions Inventory & Modeling Boundary

The HRA Boundary (**in purple**) includes the Portside Community (**in green**) and is approximately eight miles square.

The HRA boundary is used to capture emission sources within and in close proximity to the Portside Community.

The HRA evaluated the emission sources associated with the marine terminals, both on the terminal, such as cargo handling equipment, and sources that travel to and from the terminals, such as trucks and ships, while traveling within the HRA Boundary.



For additional information about the Maritime Clean Air Strategy or to review the Health Risk Assessment report, please visit the MCAS webpage at: portofsandiego.org/mcas

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PORT of SAN DIEGO

Why Health Risk Assessments Are Important

HRAs are an important tool for estimating health effects from various emissions sources for state and regional rulemaking, environmental documentation, or to track progress of emission reduction plans. HRA results can better identify and prioritize future emission reduction strategies that reduce emissions and lower health risks in our community.

Emission Sources Analyzed

Source Type	Emission Source Summary (2019)
Oceangoing Vessels	**329 calls**
Commercial Harbor Craft	**2 Assist Tugs** **2 Commuter Ferries**
Cargo Handling Equipment	**184 pieces**
Trucks to/from Cargo Terminals	**~86,600 trips total** (~237 average daily trips)
Freight Line Haul & Switching	**2.725 million tons**

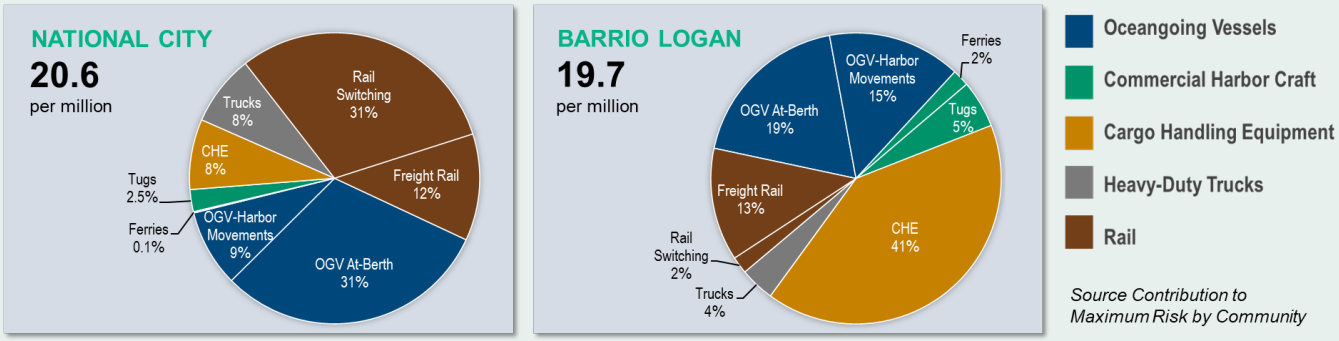
Types of Risk Evaluated

- Cancer risk for the maximally exposed individual residence near the terminals, based on 30 years of exposure at that specific location.
- Population-weighted cancer risk for residents located within census tracts or neighborhoods in the Portside Community, based on a 70-year lifetime exposure for the entire community.
- Risk calculations are consistent with guidance from the Office of Environmental Health Hazard Assessment, California Air Resources Board, and San Diego Air Pollution Control District.

The HRA established the 2019 Baseline Cancer Risk at individual residences near the two marine terminals (maximally exposed residence). The Baseline Risk was calculated so that progress in reducing emissions and risk can be monitored.

Cancer risk is often expressed as the maximum number of new cases of cancer projected to occur in a population of one million people due to exposure to the cancer-causing substance, which in this HRA is Diesel Particulate Matter (DPM).

Maximum Residential Cancer Risk Results – Baseline (2019)



Percentages on the pie charts indicate the individual emission sources' contribution to the maximum per million risk calculation.

Next Steps

It is anticipated that future HRAs commissioned in support of MCAS implementation may present various throughput growth scenarios coupled with MCAS implementation to forecast health risk at certain points in the future. Prior to future HRA efforts, the Port will be updating the emissions inventory with data from 2022.

In concert with the Regional Toxic Air Modeling in the AB 617 Portside Community information from CARB and other relevant studies and monitoring data, additional conclusions and comparisons to the Port HRA may be possible and lead to additional insights supporting or cautioning future actions to improve air quality in the San Diego region.

Maritime Clean Air Strategy

Health Equity for All

Visit the MCAS webpage to learn about what the Port of San Diego is doing to improve air quality and find resources to do your part!

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