

# Maritime Clean Air Strategy

Health Risk Assessment for the Port's Marine Cargo Terminals



## Frequently Asked Questions

The Port of San Diego has prepared this Frequently Asked Questions, in consultation with the San Diego Air Pollution Control District (APCD) and the California Air Resources Board (CARB), as a supplement to the Health Risk Assessment (HRA) to clearly communicate the analysis methodology, emissions data analyzed, and the resulting estimated health risks associated with operations of the Tenth Avenue Marine Terminal, National City Marine Terminal, and the transbay commuter ferry.

### Using the Results

#### How are the results of the HRA going to be used by the Port?

In concert with the Maritime Clean Air Strategy (MCAS) and other emission reduction plans, the HRA and other relevant information will be used to inform decisions regarding allocation of resources, prioritization of emission reduction strategies, targeting grant funding opportunities, or to develop and/or amend policies. Specifically, the HRA establishes a foundation to compare how future investments and actions in emission reducing technology, led by the Port, benefits public health.

#### How can the HRA be used to advance the Community Emissions Reduction Plan (CERP) being led by the San Diego APCD?

CERP Goal #7 and MCAS Health Objective 1 & 2 (combined) direct the preparation of a foundational Health Risk Assessment for the two marine cargo terminals to establish baseline, or existing community health risk, from terminal operations. Results of the Port's HRA may inform decisions involving various CERP goals and actions being led and administered by the APCD such as financial investments or new funding programs; advance research and emission reduction program development and implementation; and provide a baseline to support future comparative analysis and measure progress towards improving environmental quality and public health.

### Emission Analysis

#### How are truck, train and ocean-going vessel emissions included in the HRA?

Emissions originating at the marine cargo terminals, such as cargo handling equipment and oceangoing vessels at berth, are fully accounted for in the risk estimates. However, some emissions need to be scaled because the source is mobile and leaves the cargo terminal boundaries; that is, not all emissions are included in the risk estimates because at a certain distance and direction away from the marine terminals, those emissions (specifically Diesel Particulate Matter, DPM) no longer affect the estimated health risks. For example, diesel emissions generated by trucks visiting one of the marine terminals traveling through the Portside Community boundary, including entering and leaving the boundary, were included in the emissions analysis.



Nonetheless, a truck transporting Port-related cargo in northern San Diego County is not expected to cause health risk to the Portside Community because the distance is too far; once the truck is approximately eight miles away from the marine terminals, the DPM emissions either have no or negligible effect on health risk estimations and are therefore not included. To assess health risk, only those emissions within close proximity (approximately eight miles) to the Portside Community were included in the HRA analysis. Detailed information on how emission sources were represented in the air dispersion model can be found in Appendix B of the Health Risk Assessment.

## Emission Analysis cont.

### Which emissions sources are NOT included in the HRA?

The HRA focused on emissions generated from the Port's marine cargo terminals consistent with MCAS Health Objective 1. The following emissions are not associated with moving freight to or from the marine cargo terminals, and were not included in the HRA analysis:

- Cruise Ship Terminal operations
- Shipyard operations
- Commercial and sport fishing
- Boating excursions (sightseeing, whale watching)
- Other harbor craft or truck activity that do not serve or operate near the marine cargo terminals

### How much of the emissions targeted for reduction in the MCAS are analyzed in the HRA?

The table below displays the tons of DPM emissions from the 2019 MCAS Emissions Inventory and those emissions analyzed in the HRA, which are only associated with operations at the two marine cargo terminals and mobile sources, such as trucks and harbor craft within eight miles of the marine cargo terminals. The MCAS Inventory captured emissions from maritime activities throughout San Diego Bay, excluding the US Navy.

Source	2019 MCAS Inventory (tons) - Baywide	HRA Inventory (tons) – Cargo Terminals
Oceangoing Vessels	6.7	2.8
Harbor Craft	9.1	0.2
Cargo Handling Equipment	0.1	0.1
Freight Rail	1.2	0.4
Port Trucks	0.5	0.04
<b>Total DPM</b>	<b>17.6</b>	<b>3.5</b>

### The shipyards are right next to the Portside Community, why aren't they included in the HRA?

There are several emission sources that originate adjacent to the Port's marine terminals but are not associated with cargo movement occurring at the marine terminals, such as the shipyards. Emissions associated with the shipyards are regulated by the San Diego APCD and/or CARB. Shipyards are generally required to complete their own site-specific HRAs (every four years) as part of San Diego APCD's Hot Spots program. These HRAs are limited to stationary sources, not mobile sources like trucks or harbor craft, and typically focus on non-diesel engine emissions which can contribute to health risks. Often these HRAs lead to explicit actions required by the shipyards to reduce specific toxic air contaminant emissions. In contrast, the Port's HRA focused on diesel emissions from the two marine cargo terminals.

### How accurate is weather data from 2010 to 2012, given the increase in average and high temperatures due to climate change?

Weather (meteorological) data for the air dispersion modeling was based on data from the APCD monitoring station at Perkins Elementary School from 2010-2012. Data from this location was used consistent with APCD's recommendation. Figure B-14 through Figure B-16 found in Appendix B of the HRA, display the predominant wind patterns, both day and night (wind roses) for the Perkins Elementary School station. The air dispersion model uses predominant wind patterns with three-year averages. There is no evidence to suggest that predominant wind patterns have changed from the influences of climate change.

# Maritime Clean Air Strategy

Health Risk Assessment for the Port's Marine Cargo Terminals



## Reduced Health Risk

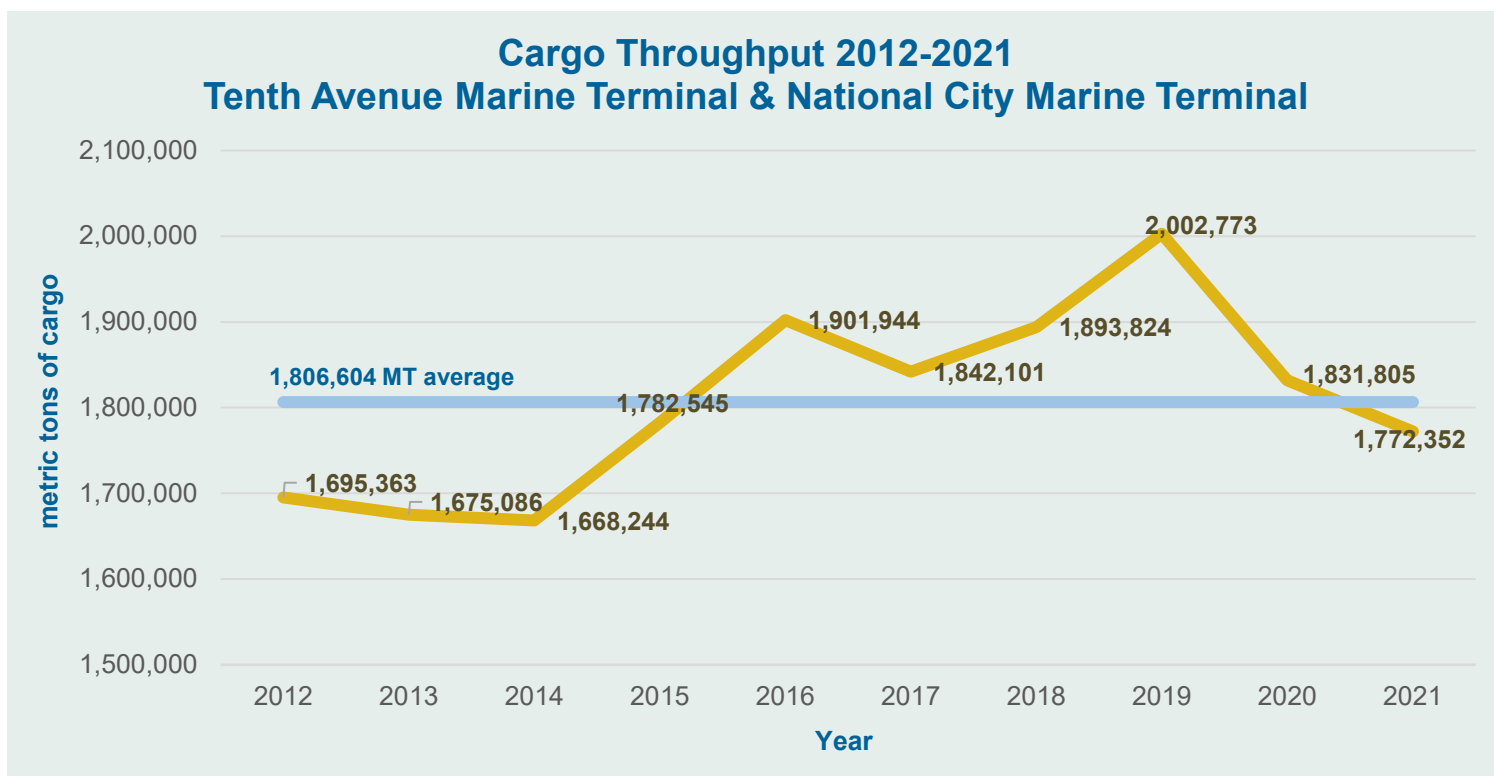
### Why doesn't the HRA assess future health risk along with future growth in marine terminal activities?

To evaluate the potential results from implementing the short-term and long-term MCAS goals and objectives on the forecasted (future) cancer risk, the risk modeling for 2026 and 2030 maintained the same 2019 operational assumptions used to establish the 2019 Baseline Risk. In other words, keeping cargo throughput, hours of operation, fuel consumption, number of vessel calls and truck trips, and other operational parameters the same as the 2019 activity levels, the highest cargo volume over the past ten years, allows for an assessment of how the different MCAS strategies could reduce risk and improve public health without the complexity of speculative future growth in cargo throughput at the marine terminals or new regulations aimed at curbing emissions in the future.



### Why not use historic cargo throughput trends to forecast cargo growth and future cancer risk?

An absolute trend from the last ten years of cargo throughput is not obvious. The volume of throughput from the two marine cargo terminals combined has been relatively stable over the past 10 years (2012 – 2021), varying between approximately 1.6 and 2.0 million metric tons (MT) annually, as can be seen in the chart below. Average throughput was 1,806,604 MT in that period. In 2019, the year corresponding to the MCAS Emissions Inventory used in the HRA analysis, 2,002,773 MT of cargo traveled through the two marine terminals, coincidentally the highest volume and busiest year within the 10-year period. Throughput in 2020 fell 8.5% to 1,831,805 MT and another 3.5% (11.5% total) to 1,772,352 MT in 2021.



# Maritime Clean Air Strategy

Health Risk Assessment for the Port's Marine Cargo Terminals

## Heavy Duty Trucks

### Was the designated truck route used for modeling truck activity along local surface streets?

Most truck activity analyzed in the HRA was located along the City of San Diego designated truck route, updated in 2020. However, due to stakeholder feedback that not all trucks travel along the designated truck route, the Port remodeled truck emissions using the results of a truck route study commissioned in 2017, which evaluated truck traffic to and from the Tenth Avenue Marine Terminal, by redistributing truck activity along the designated and non-designated routes. The study identified three non-designated routes (Sigsbee St. to Freeway; Cesar Chavez Parkway to Freeway; Main St. to 28th St.) where approximately 14% of Port-related trucks were observed. The HRA modeling assumed the non-designated truck routes were used for outbound trips only, whereas inbound trucks used the designated truck routes. No such deviation from standard travel routes were modeled for the National City Marine Terminal.

The following graphic depicts the designated truck route, and the modeled routes and freeways used by Port-related trucking activity, including emissions generated along the freeways that bisect and affect health risk within the Portside Community.





# Maritime Clean Air Strategy

## Health Risk Assessment for the Port's Marine Cargo Terminals



### Why is the health risk associated with trucking activity different between the Port's HRA and CARB's Risk Modeling?

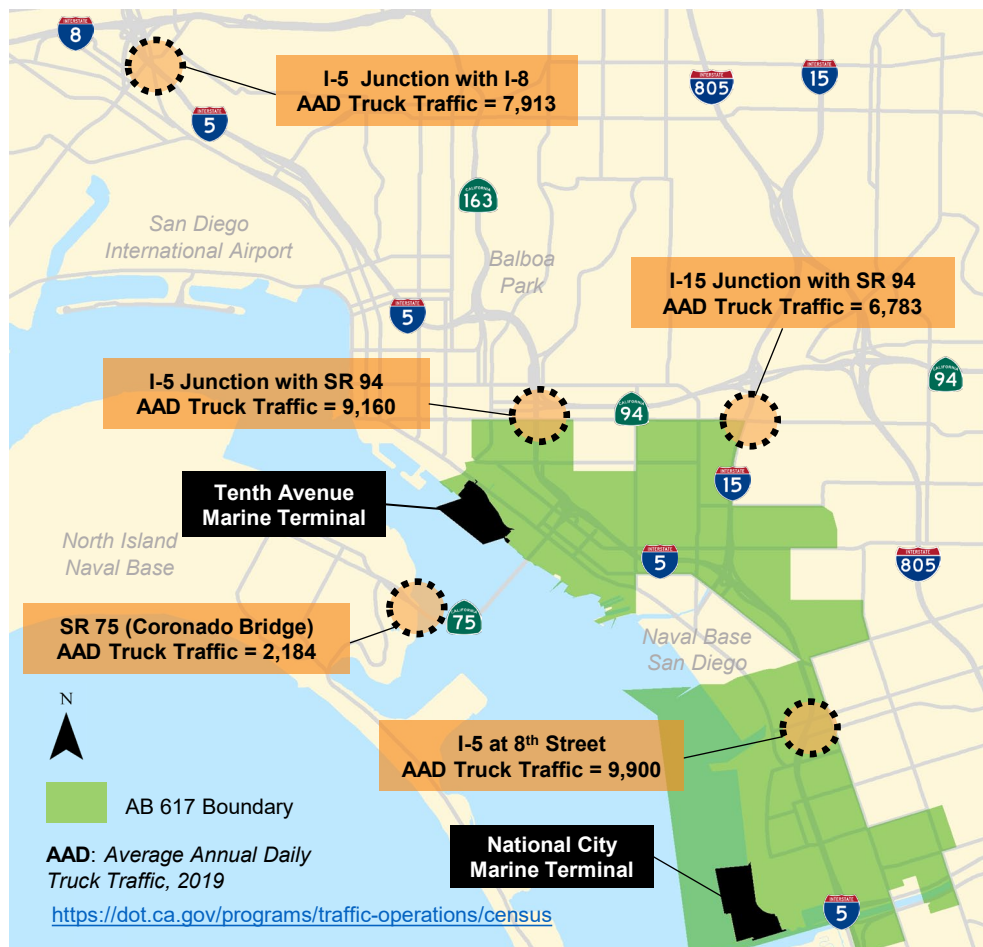
CARB's Risk Modeling accounts for all trucks (medium and heavy duty) transecting the Portside Community whereas the Port HRA only evaluates heavy-duty trucks associated with the marine cargo terminal operations. The HRA found that trucks associated with marine terminal operations produce less emissions and pose less risk to public health when compared to the other sources of diesel emissions. Emissions from cargo handling equipment and oceangoing vessels at berth (dock) have a greater influence on health risk even though they don't travel through the community like trucks.

The Port's HRA accounts for trucking activities associated with the two marine cargo terminal operations (trucks operating inside terminal boundaries and along surface streets, freeway onramps and offramps, and freeway mainlines, including Interstate 5 and Interstate 15 up to eight miles from the marine terminals), but not all trucks that travel within the Portside Community that are captured in the CARB analysis and not associated with the marine terminals.

The graphic at left shows the Average Annual Daily Truck Traffic data from Caltrans.

The data indicates over 9,000 Heavy and Medium-duty trucks travel along I-5 through the AB 617 Boundary (Traffic Census Program 2019 Average Annual Daily Truck Traffic (AADT)).

Average daily truck traffic from the two marine cargo terminals combined is 237 AAD Truck Traffic, or about 2.5-3.5% of the total truck traffic on I-5, depending on segment.



### The model year of a truck is important to determine the emissions it may produce. How were the model years of trucks determined for the HRA?

The average model year of trucks was determined through survey responses provided by truck operators transporting cargo to and from the Port's marine cargo terminals. The average model year was 2014 for Tenth Avenue Marine Terminal and 2016 for National City Marine Terminal.

The Port is actively working toward an automated Truck Registry System for both marine terminals. The Registry will collect data on all truck activity at the Port's marine terminals, which is anticipated to provide more accurate model year data and other information that can be used in future air quality analyses.

# Maritime Clean Air Strategy

Health Risk Assessment for the Port's Marine Cargo Terminals



## Next Steps

### Will the HRA be updated with forecasted growth in cargo throughput?

The Port evaluated the health effects associated with Port operations based on its 2019 Emissions Inventory, which did not include projected growth in cargo throughput. Future implementation of state regulations addressing emissions from oceangoing vessels at-berth, harbor craft and heavy-duty trucks were also excluded from the analysis even though they're anticipated to result in significant emissions reduction. The HRA was commissioned to identify baseline health risk and evaluate the effect of attaining the objectives identified in the MCAS.

Port staff anticipates 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.

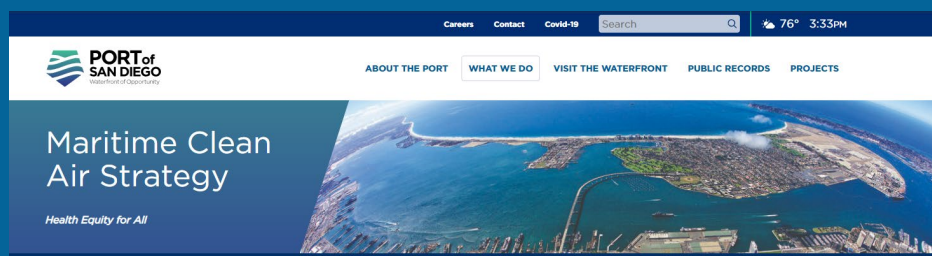
### Will potential impacts to the HRA results, MCAS and the CERP be analyzed as part of the approval process for new projects?

The health risk results published in the Port's HRA represent a point in time given numerous factors and assumptions, all of which are detailed in the report and appendices. The Port does not intend to update the HRA report and remodel the baseline or future risk each time a project is approved or an increase in cargo throughput occurs.

Individual projects proposed at either marine terminal require an analysis consistent with the California Environmental Quality Act (CEQA) wherein a specific project is evaluated for its potential impacts on the environment, including air quality impacts and their negative effects on human health. Project specific evaluations will determine the air quality impacts and health effects for that proposed project, if any, based on the significance thresholds established by the applicable regulatory agency, typically the CARB or San Diego APCD.

Results from the HRA, the MCAS and Climate Action Plan all can inform the decision-making process when considering new projects for approval, in addition to project specific analyses indicated above.

## Maritime Clean Air Strategy - *Health Equity for All*



Go to the MCAS webpage to learn about what the Port of San Diego is doing to improve air quality for all who live, work and play on and around San Diego Bay: [portofsandiego.org/mcas](https://portofsandiego.org/mcas)