



The Port OF Hueneme

Oxnard Harbor District

AIR QUALITY MONITORING PROGRAM

ENVIRONMENTAL PROTECTION AGENCY

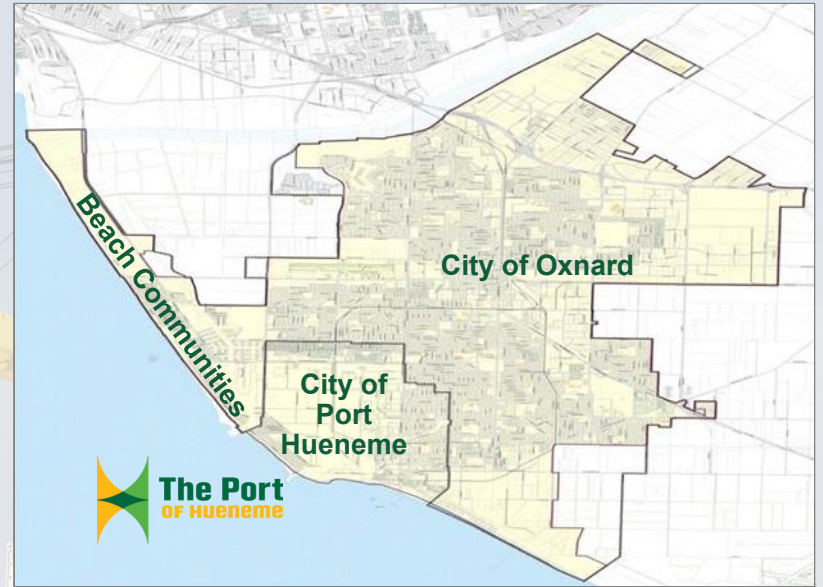
JUNE 7, 2021

Giles Pettifor, MS, Environmental Manager
Miguel Rodriguez, BA, Community Outreach Manager

PORT GOVERNANCE



2021 BOARD STRUCTURE



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ENVIRONMENTAL FRAMEWORK – www.portof.org/green

AIR QUALITY FOCUS

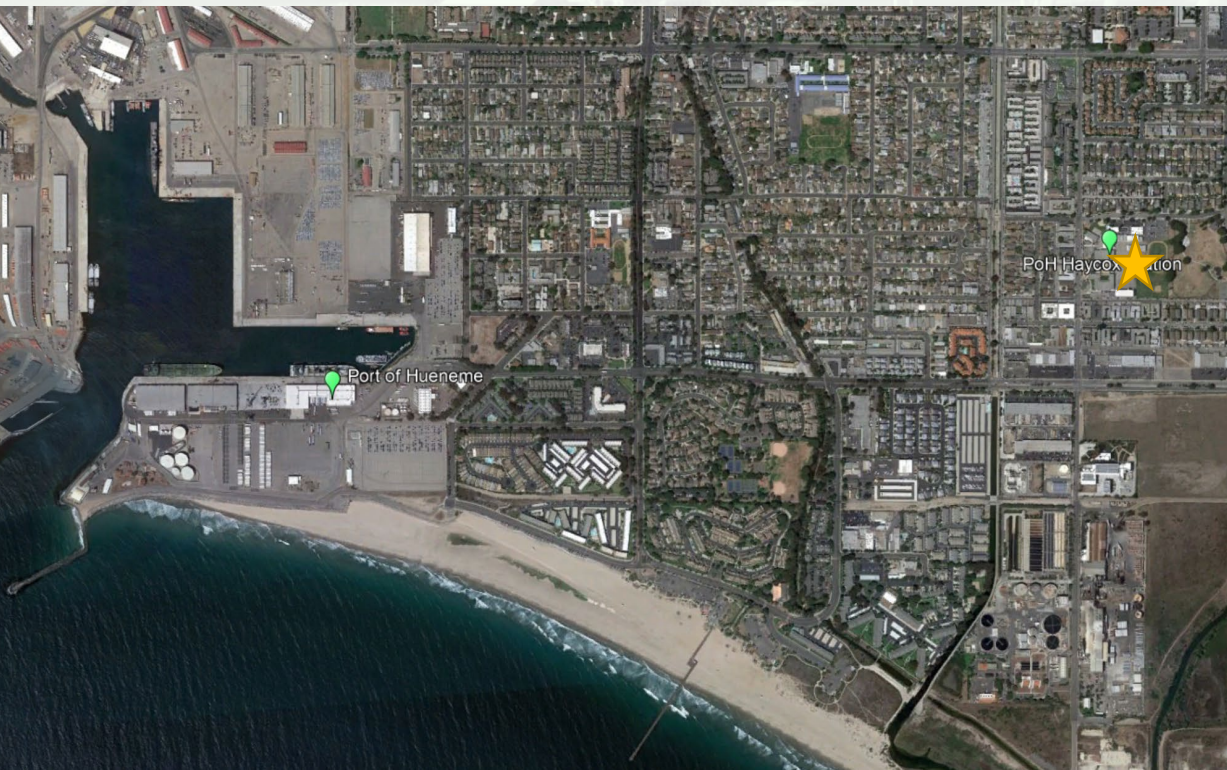
As California's Ports Expand, Neighboring Communities Fight Back Against Pollution

By Claudia Boyd-Barrett • Mar 18, 2019



- **\$145k Port Investment + Ongoing Costs (Non-budgeted)**
- **Reference Grade Monitors Purchased and Installed at Haycox Elementary (Per Community Request)**
- **Community Specific High-Quality Data**
- **Local Community Ownership of Data**
- **Help set realistic Zero Emission timeline**

PORT OF HUENEME AIR QUALITY MONITORING



- Station located at Art Haycox Elementary School
- Located 1.7 km east of Port of Hueneme
- Monitoring commenced in December 2019

AIR QUALITY MONITORING STATION

Station components:

- Particulate Matter < 10 micrometers (PM₁₀)
- Particulate Matter < 2.5 micrometers (PM_{2.5})
- Particulate Matter < 1.0 micrometers (PM₁)
- Black Carbon (BC)
- Wind Speed (WS)
- Wind Direction (WD)
- Temperature (T)



COVID-19 EMERGENCY RESPONSE

- 49 community food distribution events
- 1 million+ pounds of produce to 35,000 families

COMMITTED TO COMMUNITY DRIVE



#50

FOOD DISTRIBUTION

SATURDAY JUNE 12

9-11 AM

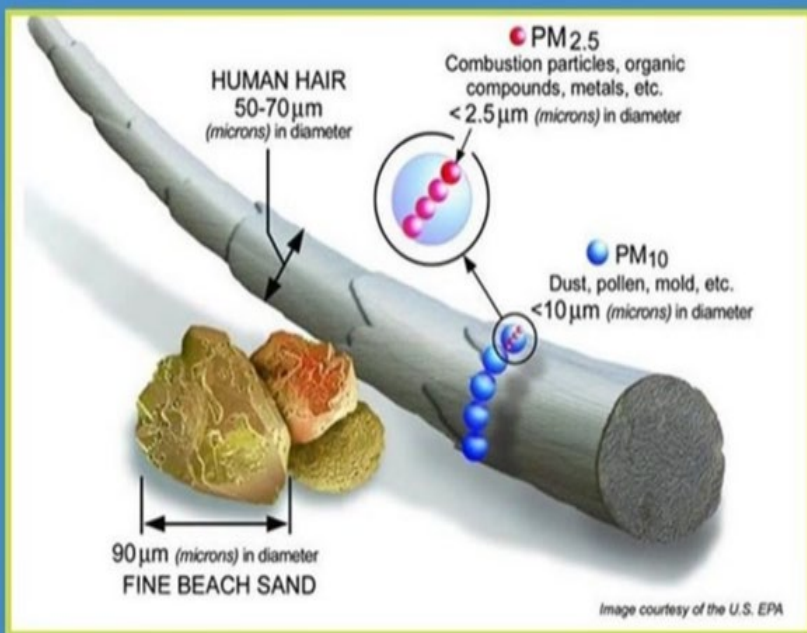
SOUTHWINDS PARK

300 W. CLARA STREET



HEALTH IMPACTS PARTICULATE MATTER & BLACK CARBON

Air Quality Awareness Week



PM₁₀

Large particles impact upper airways
(e.g. – nasal passages and esophagus)

PM_{2.5}

Fine particles impact lower airways
(e.g - lungs and alveoli sacs)

PM₁ / BC

Ultrafine particles can translocate into
blood and deposit in organs
(e.g. - lungs, liver, spleen, brain, etc.)

Source: World Health Organization (WHO);
<https://www.who.int/airpollution/household/pollutants/combustion/en/>

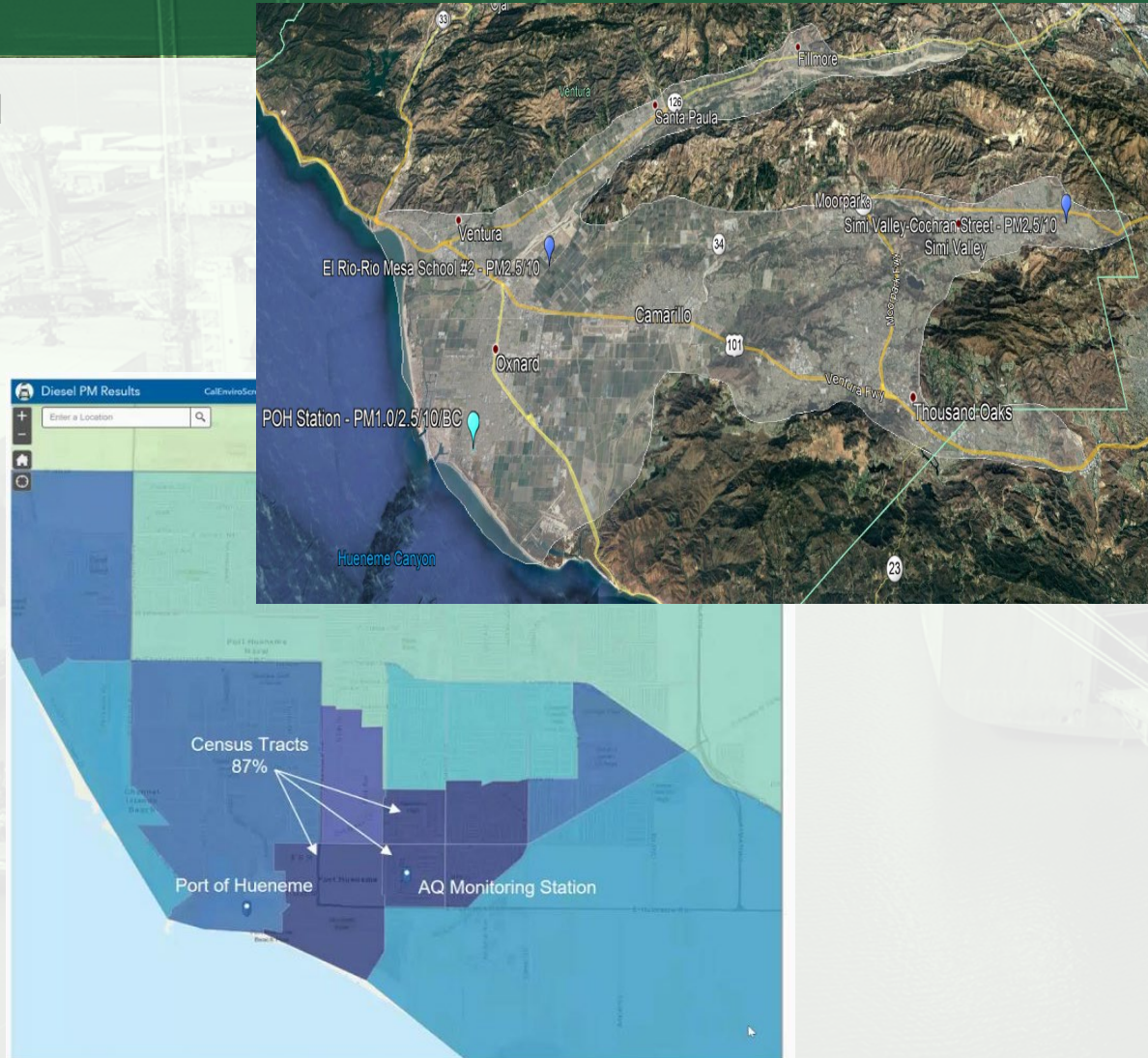
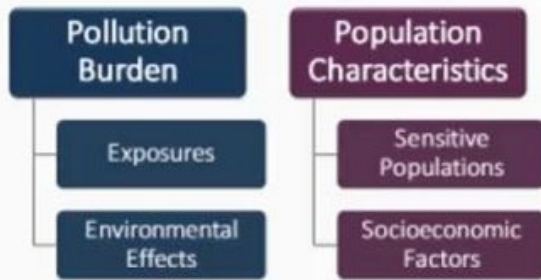


air pollution control district
SANTA BARBARA COUNTY

VENTURA COUNTY AIR BASIN

CalEnviroScreen 3.0 Model – DPM Indicator Map

- Census tract adjacent to Port of Hueneme has a diesel PM percentile of 87, meaning that it is higher than 87% of the census tracts in California
- CalEnviroScreen 3.0 model is made up of 4 components:



INTENTIONAL COMMUNITY EDUCATION



BLACK CARBON DEFINITION AND SOURCES

- Black carbon is a 0.1 - 0.5 μg particulate matter cluster of different compounds produced by the incomplete burning of:
 - fossil fuels (primarily oil, diesel and fuel oil)
 - biomass (wood, coal, etc.)

- Diesel particulate matter (DPM) is considered a toxic air contaminant.
- Since DPM is a complex mixture of gases and particulates, ambient concentrations cannot be measured directly.
- However, BC is considered a surrogate for DPM emissions by many regulatory agencies, including CARB and local air districts.

Impacts of Inversion Layer on Air Quality

Inversion Layer

- Does not allow transport of pollutants to free atmosphere

Impacts of Inversion Layer on Air Quality

Monitoring Results – Understanding Wind Roses

Per CARB, annual ambient black carbon concentrations $\sim 0.20 \mu\text{g}/\text{m}^3$ in California since 2010.

BC Pollution Plot with Wind Speed

August 2020

Fires (8/19 - 8/24)

No Fires (8/1 - 8/18 and 8/25 - 8/31)

BC Pollution Plot – March 2020

Ships In Port

No Ships In Port

BC ($\mu\text{g}/\text{m}^3$)

- 0 - 1
- 1 - 2
- 2 - 3

Ships In Port: March 2019 = 30, March 2020 = 30

WILDFIRES & BLACK CARBON EMISSIONS

- Wildfire emissions can release large amounts of BC particulates into the atmosphere
- Studies have demonstrated that during wildfire events:
 - 1) Average BC concentrations can increase 20x compared to background BC levels.
 - 2) Peak BC concentrations can increase 100x compared to background BC levels.



Source: Ditas, J., et al., (2018); *Strong impact of wildfires on the abundance and again of black carbon in the lower most stratosphere*; Proceeding of the Naitonal Academy of Sciences. <https://www.pnas.org/content/115/50/E11595>

2020

HISTORIC CALIFORNIA WILDFIRE SEASON



- Wildfire in CA in 2020 estimated to have released 80 MMT CO₂e
- Equal to 3 months of all GHG from France or Italy!

BC MONITORING RESULTS

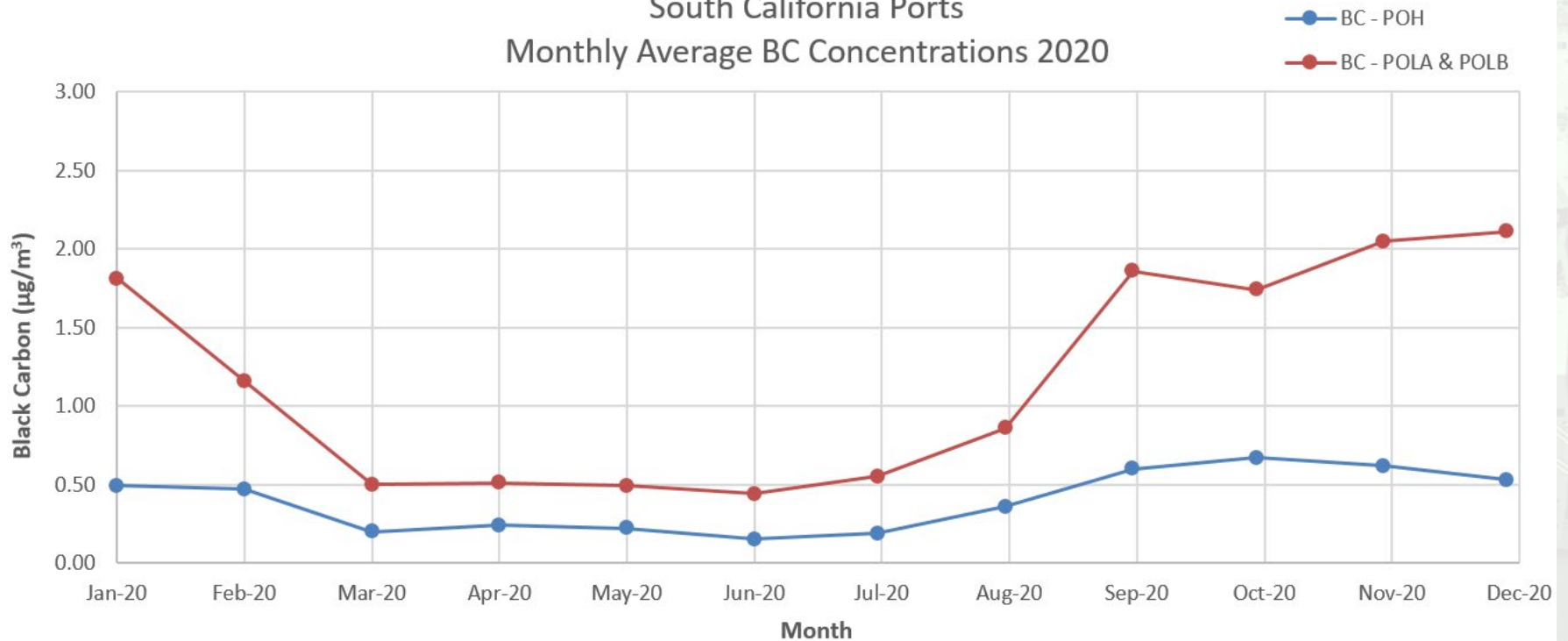
Month	Black Carbon ($\mu\text{g}/\text{m}^3$)
January 2020	0.49
February 2020	0.47
March 2020	0.20
April 2020	0.24
May 2020	0.22
June 2020	0.15
July 2020	0.19
August 2020	0.36
September 2020	0.60
October 2020	0.67
November 2020	0.62
December 2020	0.53
2020 Annual Average:	0.40

Strong wildfire influence on monthly BC concentrations during August - December 2020.



BC MONITORING RESULTS

South California Ports
Monthly Average BC Concentrations 2020



During winter months, average BC concentrations at PoH are < 70% lower than PoLA / PoLB.

During spring/summer months, average BC concentrations at PoH are < 50% lower than PoLA / PoLB.

GOING IN THE RIGHT DIRECTION

**CARGO
GROWTH**

*SINCE
2008*

+ 26%

**OGV
EMISSIONS**

SO_x -97%

PM_{2.5} -82%

DPM -84%

NO_x -36%

*SINCE
2008*



**Port of
Hueneme
Reducing
Emissions
Supporting
Health**

PHRESH

CLEAN AIR PLAN

VCAPCD – LOCAL PLAN

MEASURABLE PROGRESS

OBJECTIVE	GOAL	CURRENT PROGRESS	ENGAGEMENT
ZERO EMISSIONS	TRANSITION PORT EQUIPMENT TO ZE SUPPORT WORK FORCE	HYBRID CRANES AND UTR'S CEC ZE STUDY GRANT WORK WITH WDB/LACI	WORK WITH COMMUNITY & COLLABORATE WITH CUSTOMERS AND COMMUNITY MEMBERS
REDUCE DIESEL EMISSIONS	INVEST IN ZE AND ALTERNATIVE FUEL DEVELOPMENT AND INFRASTRUCTURE MORE SHOREPOWER/EMISSIONS CONTROL	INFRA GRANT SUBMITTED FOR \$10 MILLION WITH EARMARK TO SUPPORT OXNARD COLLEGE WORKING WITH CUSTOMERS ON RORO ZE OPERATIONS	30+ SUPPORT LETTERS SUBMITTED INCLUDING: SCAG, CAL-TRANS AND REPS BROWNLEY AND CARBAJAL
CLEAN AIR MONITORING	RAISE AWARENESS AND OWNERSHIP OF ENVIRONMENTAL DATA	PRESENT AIR QUALITY DATA	PRESENTATIONS TO PUBLIC, GROUPS, SCHOOLS ETC.

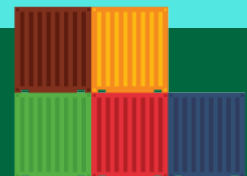
ENVIRONMENTAL HIGHLIGHTS



SHORESIDE POWER

A CLEAN GREEN PORT

SHIP TO STORE – GREEN TRUCKING



ENVIRONMENTAL HIGHLIGHTS



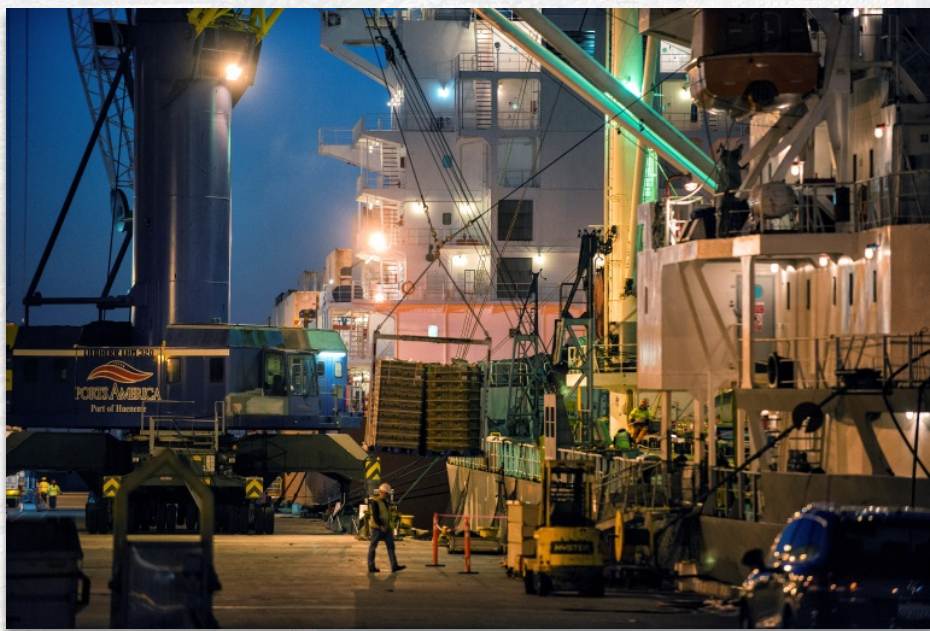
**HYBRID
ELECTRIC
CRANES**

ENVIRONMENTAL HIGHLIGHTS



**ENERGY
EFFICIENT
OFF-GRID
BATTERY
CONSUMPTION**

ENVIRONMENTAL HIGHLIGHTS



LED LIGHTING

49% DIESEL PARTICULAR MATTER REDUCTION SINCE 2017!



Environmental Topics

About

Proposition 65

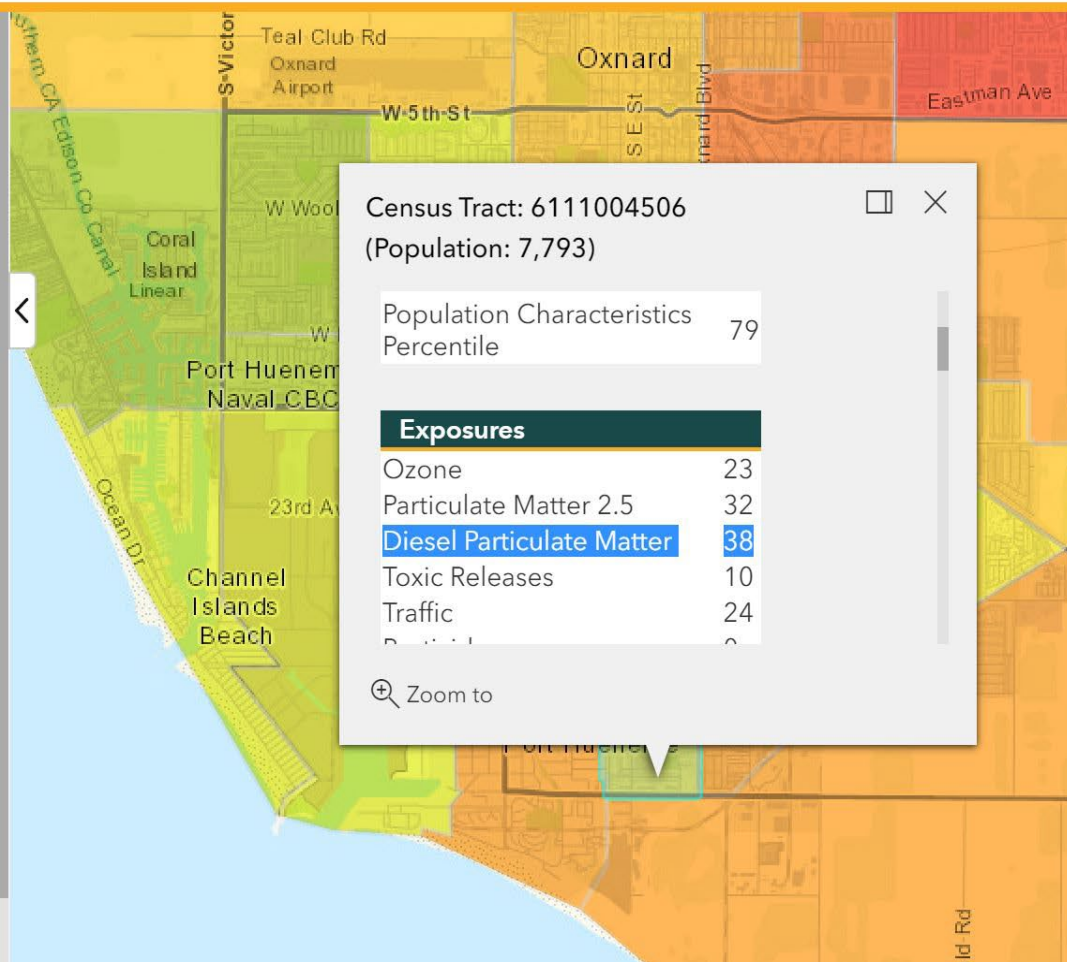
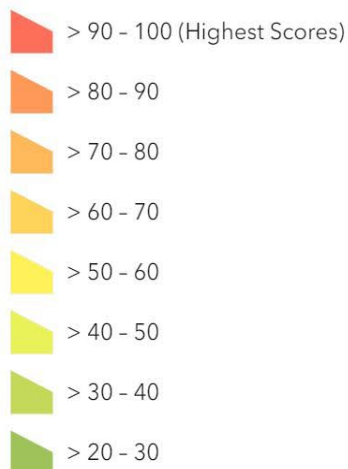
News and Events

dock icon.

- Learn more about a particular indicator by clicking on its name in the pop-up window.
- Learn more about Draft CalEnviroScreen 4.0 and how this map was created [here](#).
- Click the links in the header to view additional maps related to Draft CalEnviroScreen 4.0.

Legend

Draft CalEnviroScreen 4.0 Results



ENVIRONMENTAL RESPONSIBILITY

The Port of Hueneme - A Case for Success

Hearing on "Practical Steps Toward a Carbon-Free Maritime Industry..."



DECISION ON THE VISION

What does the future look like?

THE FUTURE LOOKS LIKE COMMUNITY!



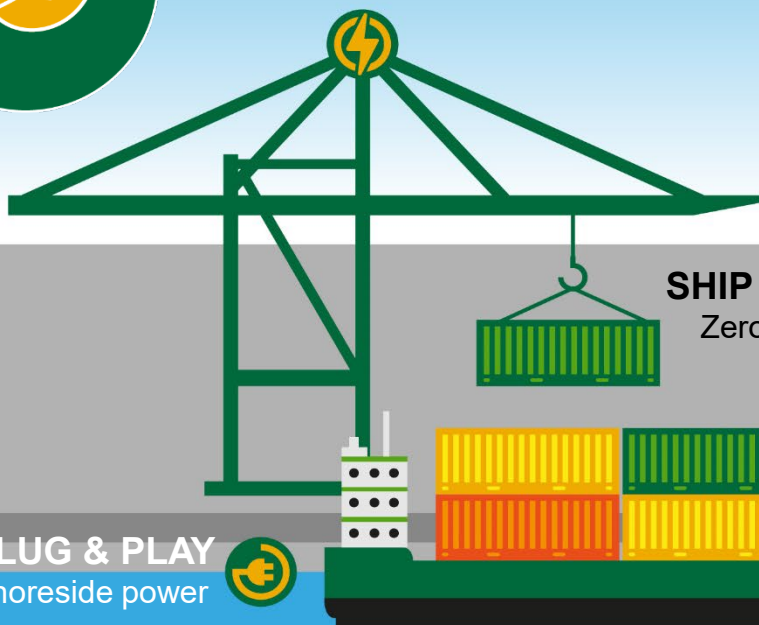
GOING GREEN

TRANSITIONING TO A CARBON-FREE WORLD



CLEAN EFFICIENCY

Powered by electricity



PLUG & PLAY
Shoreside power



BATTERY STORAGE

Peak saving, store energy



SHIP TO STORE

Zero emissions



CLEAN AIR

PHRESH plan will assess Port's goals for the future

YARD EQUIPMENT

State-of-the-art

MORE SPACE

Demo of obsolete buildings allows less congestion, fewer emissions



LED LIGHTING

Longer lasting and more efficient than traditional lighting



NEW ERA

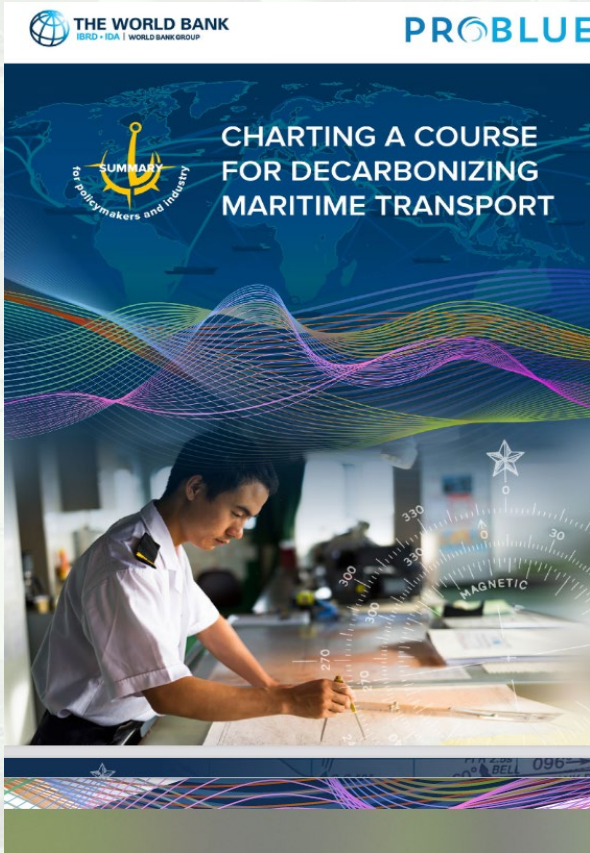
Cords and plugs to power future equipment



GOING DEEP

35-40ft, sand renourishes beaches

ENVIRONMENTAL FORESIGHT



- Maritime transport accounts for about three percent of global greenhouse gas (GHG) emissions, and emits around 15 percent of some of the world's major air pollutants annually
- To achieve the required GHG emissions reductions, an energy transition from fossil to zero-carbon bunker fuels will be needed in shipping
- The assessment identified ammonia and hydrogen as the most promising zero-carbon bunker fuels to date



The Port OF Hueneme

Oxnard Harbor District

THANK YOU

www.portofh.org

