

SUSTAINABLE AND HEALTHY COMMUNITIES RESEARCH

The Community modeling system for near-PORT (C-PORT) Tool

Background

Ports are a critical feature of the nation's economy. In 2014, commercial port activities supported the employment of more than 23 million Americans and contributed approximately \$4.6 trillion to the U.S. economy. Further, ports are a direct link to the global economy. They serve as the point of entry for some 95 percent of all foreign goods, by weight, imported each year, representing 11 percent of the gross domestic product.¹ These bustling sites serve as critical hubs for the flow of agricultural and consumer products that are the foundation of financial health from coastal communities to the nation's heartland.

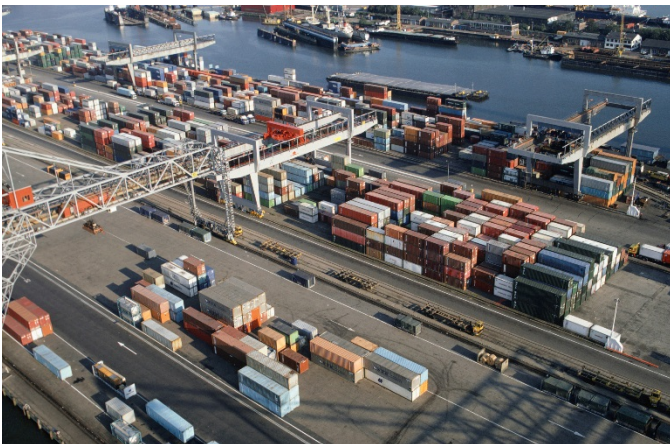


Figure 1. Ports are a critical feature of the nation's economy.

U.S. ports are facing major challenges driven by the projected growth in the number and size of ships (primarily due to the expansion of the Panama Canal) and linked transportation systems, especially rail and trucking. Furthermore, emerging and evolving fuel markets, such as liquefied natural gas displacing other fuel types, can be expected to affect both energy transport and use by the shipping industry.

EPA researchers are developing tools to provide insights into what risks might unfold under alternative development scenarios and help ports and port communities address these future challenges.

Making a Visible Difference in Port Communities

To aid communities in evaluating impacts from port activities, the Community modeling system for near-PORT (C-PORT) Tool is being made available for beta testing. We are asking beta testers to provide technical and usability feedback for the model.

C-PORT provides a platform for air quality modeling and visualization that can inform interested users about ways that emissions from commercial ports can impact local air quality. The model allows users to visualize and evaluate different planning scenarios, helping them identify the impacts of development alternatives to help make better

¹ American Association of Port Authorities. U.S. Public Ports Facts. Available: <http://www.aapa-ports.org/Industry/content.cfm?ItemNumber=1032w>

long-term decisions that protect community health and promote sustainability.

Using C-PORT, for example, users can model the impact of proposed or potential development scenarios which might include increased transport, alternative trucking routes, or alternative energy sources. In addition, C-PORT can help local government and community leaders identify local hotspots and estimate relative contributions from different source sectors, focus on specific nearby populations and locations, or incorporate input from citizen science and data collection activities. This can help to identify where additional mitigation (e.g. tree buffers) might further reduce potential impacts.

The web-based and easy-to-use computer model currently includes data from 21 seaports mainly in the southeastern U.S., featuring a map-based interface similar to the widely used *Google Earth*. The screening-level tool has been developed for visualizing changes in air quality due to changing development scenarios, and is not intended to replace any regulatory models or be used to make enforcement decisions. Results from C-PORT will help users and stakeholders prioritize where to conduct more refined and scientifically rigorous analysis, depending upon their intended uses.

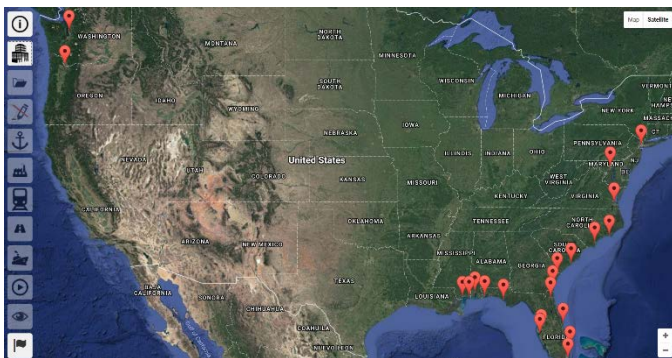


Figure 2. Map of the 21 ports currently included in EPA's C-PORT model.

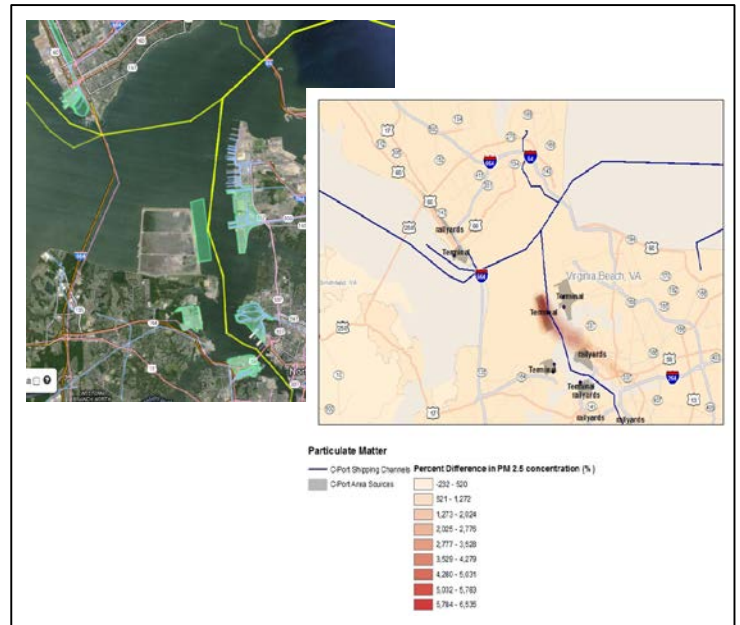


Figure 3. Example screen shot from C-PORT showing planned construction of Craney Island (Port of Virginia) to accommodate increased container volumes (on the left) and the percent change in fine particulate (PM_{2.5}) concentrations resulting from the proposed port expansion (on the right).

Interested in exploring the beta version and potential collaboration?

Please go to <https://www.cmascenter.org/c-tools> to register.

Technical Questions?

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To learn more about ways that EPA is making a visible difference in communities, visit:

www2.epa.gov/healthresearch/community-public-health-research.

To learn more about what EPA's Office of Transportation Air Quality is doing to address Port emissions: <https://www.epa.gov/ports-initiative>.