Draft
A Ports Primer for Communities

An Overview of Ports Planning and Operations
to Support Community Participation

United States
Environmental Protection
Agency

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1.0 INTRODUCTION

Welcome! This *Ports Primer for Communities* has been developed by the Environmental Protection Agency's (EPA's) Office of Transportation and Air Quality (OTAQ) in cooperation with the Mobile Source Technical Review Subcommittee (MSTRS) Ports Subgroup including community stakeholders for near-port communities interested in becoming more involved in <u>port</u> decisions that may impact local land use, the environment and quality of life. This *Primer* is intended to help community members participate effectively in the decision-making process by increasing local understanding of:

- The role of ports,

- How ports can impact local land use, economic trends and the environment, and

- Tools and resources that have been successful in other communities.

This document provides a general overview that can be used as a springboard for further exploration and learning. Links to additional resources have been provided throughout the document for more information. We also encourage you to reach out to us to explore further opportunities for engagement with OTAQ and EPA Regional Offices. Contact information is provided at the end of the *Primer*.

Sincerely,

Chris Grundler, Director

Office of Transportation and Air Quality

How to Use this Document

This document is designed to be an interactive experience for the user. The navigation bar along the bottom of each page allows users to:

- jump to the home page.

- jump to the previous page or the next page.

- refresh the current page to minimize its interactive features.

- jump from section to section.

- jump to the Appendix.

- jump to the Glossary, which contains definitions for words that are underlined throughout the document.

- jump to the Endnotes.

Within each section, buttons in the lower left, or in some cases icon buttons, reveal additional information and case studies.

Web links throughout the document allow users to access additional online resources.

Check the Community Action Roadmap

The Community Action Roadmap is a companion document that provides a step-by-step process to apply the information in the Primer for building capacity and empowering communities.

For more information: http://epa.gov/ports-initiative

2.0 The Role of Ports

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5.0 Land Use and Transportation

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Resource	Type							Description	Cost	Access
	Mobile Apps	Data Collection Tool	Data	Data Analysis	Spatial Data	Mapping Tool	Networking			
Air Data (EPA)			D	✓	O	✓		Provides reports, data visualization tools, data download and online mapping tools for air quality.	Free	C/I
AIRNow (EPA)	✓							Provides real-time, location-specific air quality information and forecasts.	Free	MP
Air Sensor Toolbox for Citizen Scientists (EPA)	✓	✓						Provides "information and guidance on new low-cost compact technologies for measuring air quality."	Free	C/I
Adapted from: U.S. EPA. Mapping Tools for Communities to Identify Assets and Hazards in Local Areas. Retrieved from: https://www.sustainablecommunities.gov/sites/sustainablecommunities.gov/files/docs/federal-mapping-resources-05-08-2013.pdf.										

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	Mobile Apps	Data Collection Tool	Data	Data Analysis	Spatial Data	Mapping Tool	Networking			
Alternative Fueling Station Locator (U.S. Dept. of Energy)	✔					✔		Provides the locations of alternative fueling stations, including places to buy fuels such as electricity, natural gas, biodiesel, E85, propane or hydrogen.	Free	MP/I
Area Health Resource Files (U.S. Dept. of Health and Human Services)			D	✔	D	✔		Provides access to county-level health data, an online mapping tool and health resources comparison tools. Some data may require special software to access.	Free	C/I, GIS
Census (U.S. Census Bureau)	✔		D		D	✔		Provides access to census and American Community Survey data in a variety of formats, including topical and location-based fact sheets, mobile applications, interactive maps, and geographic data and demographic datasets that can be downloaded for further analysis.	Free	C/I
Cleanups in My Community (EPA)					O	✔		A mapping tool that displays locations where pollution is being or has been cleaned up. Clicking on a site reveals additional information about its environmental status.	Free	
Common Sense Community (Common Sense)		✔						Common Sense develops mobile sensing technologies (hardware and software) that collect environmental data. The project is still in the pilot phase and aims to help communities "gather and analyze environmental data[, …] learn more about their environment, and influence environmental regulations and policy. Ultimately, the project seeks to empower citizens and novice users with opportunities to pursue the kinds of data collection and analysis that were once handled almost exclusively by professional scientists and analysts."	Tools and software were used in a pilot study and are not yet available for purchase.	
Adapted from: U.S. EPA. Mapping Tools for Communities to Identify Assets and Hazards in Local Areas. Retrieved from: https://www.sustainablecommunities.gov/sites/sustainablecommunities.gov/files/docs/federal-mapping-resources-05-08-2013.pdf.										

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Community Commons (Community Commons and IP3)					O	✓	✓	Community Commons provides educational resources, an interactive mapping tool and networking opportunities for sustainable communities. It includes over 7,000 GIS data layers and an online mapping tool that allows users to create and share maps of their own communities. Sources for data are provided, but data cannot be directly downloaded. It also includes profiles of many place-based community initiatives and peer learning forums.	Free	C/I
Community Planning and Development Maps (U.S. Dept. of Housing and Urban Development)					O	✓		An interactive online mapping service for mapping current U.S. Department of Housing and Urban Development (HUD) grant activities, local housing market and economic data, and census data.	Free	C/I
Data.gov (U.S. General Services Administration)	✓		D O		D O	✓		A vast collection of data, tools and resources based on federal datasets and data contributed by non-federal participants. Organized by topic and searchable by location and keyword.	Free	C/I
Digital Coast Tools (National Oceanic and Atmospheric Administration)			O	✓	O	✓		Digital Coast Tools provides data sets that range from economic data to satellite imagery. The site contains visualization tools, predictive tools, and tools that make data easier to find and use	Free	C/I
EJScreen (EPA)					O	✓		An online environmental justice (EJ) mapping tool that "provides EPA with a nationally consistent dataset and methodology for calculating "EJ indexes," which can be used for highlighting places that may be candidates for further review, analysis, or outreach as the agency develops programs, policies and other activities. The tool provides both summary and detailed information at the Census block group level or a user-defined area for both demographic and environmental indicators."	Free	C/I

Adapted from: U.S. EPA. Mapping Tools for Communities to Identify Assets and Hazards in Local Areas. Retrieved from: https://www.sustainablecommunities.gov/sites/sustainablecommunities.gov/files/docs/federal-mapping-resources-05-08-2013.pdf.

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Enforcement and Compliance History Online (ECHO) (EPA)			O		O	✓		Allows users to assess facilities' compliance with environmental regulations. Provides information on permit data, inspection dates and findings, violations, enforcement actions and penalties assessed	Free	C/I
EnviroAtlas (EPA)			O	✓	D	✓		Provides interactive tools and resources on ecosystem services (the many benefits people receive from nature). Key tools include an interactive mapping service and an Eco-Health Relationship browser which explores the relationship between ecosystems and human health.	Free	C/I, GIS
Envirofacts and Enviromapper (EPA)			D O		D	✓		An online search tool for accessing environmental data from EPA. Includes access to an interactive mapping tool. Provides a broad array of data including information on Superfund sites, drinking water, toxic and air releases, hazardous waste, water discharge permits, and grants.	Free	C/I
Environmental Public Health Tracking Network (U.S. Centers for Disease Control and Prevention)								Provides maps, tables and charts on "health, exposure, and hazard information and data from a variety of national, state, and city sources." Data can be accessed by topic or location.	Free	C/I
My Environment (EPA)			D	✓	O	✓		Provides a cross-section of environmental information based on the user's location.	Free	C/I
The National Map (U.S. Geological Survey)					D	✓		Provides access to free spatial data, including orthoimagery (aerial photographs), elevation, geographic names, hydrography, boundaries, transportation, structures and land cover. Also provides online mapping tools for some data types.	Free	C/I, GIS

Adapted from: U.S. EPA. Mapping Tools for Communities to Identify Assets and Hazards in Local Areas. Retrieved from: https://www.sustainablecommunities.gov/sites/sustainablecommunities.gov/files/docs/federal-mapping-resources-05-08-2013.pdf.

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National-Scale Air Toxics Assessment (NATA) Data (EPA)			D					Data from EPA's ongoing assessment of air toxics. The website includes a summary report with maps of cancer and non-cancer effects. For the expert user, data is available in MS Excel format from 1996, 1999, 2002 and 2005.	Free	
NEPAssist				✓	O	✓		NEPAssist is a tool that facilitates the environmental review process and project planning in relations to environmental considerations. The web-based application draws environmental data dynamically from EPA's Geographic Information System databases and web services and provides immediate screening of environmental indicators for a user-defined area of interest.	Free	C/I
nowCOAST (National Oceanic and Atmospheric Administration (NOAA)					O	✓		A mapping tool that "provides real time coastal observations and NOAA forecasts." Tool allows users to visually explore current snapshots of the weather and other environmental conditions in coastal communities.	Free	C/I
Smart Location Database (EPA)					D	✓		A "nationwide geographic data resource for measuring loca-tion efficiency. It includes more than 90 attributes summarizing characteristics such as housing density, diversity of land use, neighborhood design, destination accessibility, transit service, employment, and demographics. Most attributes are available for every census block group in the United States." The tool may be useful for mapping equity-related information.	Free	C/I
Sustainable Communities HOT Report (EPA-HUD-DOT Partnership for Sus-tainable Communities)			D	✓				An online tool that produces community sustainability comparison reports at the county level. Factors analyzed by the tool include transportation, housing, economic development, income and equity.	Free	C/I
Adapted from: U.S. EPA. Mapping Tools for Communities to Identify Assets and Hazards in Local Areas. Retrieved from: https://www.sustainablecommunities.gov/sites/sustainablecommunities.gov/files/docs/federal-mapping-resources-05-08-2013.pdf.										

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	Mobile Apps	Data Collection Tool	Data	Data Analysis	Spatial Data	Mapping Tool	Networking			
Transportation Infrastructure Funding Map (Committee on the Marine Trans-portation System)					O	✓		An interactive tool that maps five years of Federal infrastructure investment in the marine transportation system (MTS).The tool allows users to visually explore 15 datasets related to the MTS and is intended to inform future infrastructure investment decisions.	Free	C/I
Tox Town (National Institue of Health)			D	✓				Provides an introduction to toxic chemicals and environmental health risks that citizens may encounter in everyday life.	Free	C/I
Web-based Injury Statistics Query and Reporting System (WISQARS) (U.S. Centers for Disease Control and Prevention)			O		O	✓		A database that provides data on fatal and nonfatal injury, violent death, and cost of injury. The website includes a mapping tool that allows users to explore injury data at the state and county levels.	Free	C/I
Adapted from: U.S. EPA. Mapping Tools for Communities to Identify Assets and Hazards in Local Areas. Retrieved from: https://www.sustainablecommunities.gov/sites/sustainablecommunities.gov/files/docs/federal-mapping-resources-05-08-2013.pdf.										

Ballast water: Fresh or salt water, sometimes containing sediments, held in tanks and cargo holds of ships to increase stability and maneuverability during transit.

Breakbulk: General cargo that is not in containers but rather is stored in boxes, bales, pallets or other units to be loaded onto or discharged from ships or other forms of transportation. Examples include iron, steel, machinery, linerboard and wood pulp.

Bulk: Loose cargo (dry or liquid) that is loaded (shoveled, scooped, forked, mechanically conveyed or pumped) in volume directly into a ship's hold. Examples include grain, coal and oil.

Capacity: The available space for, or ability to handle, freight.

Cargo: The freight (goods, products) carried by a ship, barge, train, truck or plane.

Class I freight railroad: Defined by the American Association of Railroads each year based on annual operating revenue. A railroad is dropped from the Class I list if it fails to meet the annual revenue threshold for three consecutive years.

Clerks: When cargo is unloaded from a ship, a clerk checks the actual count of the goods versus the amount listed on the ship's manifest. The clerk will note shortages, overages or damage. This is used to make claims if needed.

Consolidator: The person or firm that consolidates (combines) cargo from a number of shippers into a container that will deliver the goods to several buyers.

Container: A box made of aluminum, steel or fiberglass used to transport cargo by ship, rail, truck or barge. Common dimensions are 20' x 8' x 8' (called a TEU or twenty-foot equivalent unit) or 40' x 8' x 8' (called an FEU or forty-foot equivalent unit).

Convention: An international agreement.

Diesel: A type of fuel typically used in a compression-ignition engine. In common maritime use, diesel can refer to several varieties of fuels including Marine Diesel Oil (MDO) and Marine Gas Oil (MGO). Diesel may also be labeled by its sulfur content, such as the case of LSD (low sulfur diesel with less than 500 parts per million (ppm) sulfur) or ULSD (ultra-low sulfur diesel with less than 15 ppm sulfur).

Draft: The depth of a loaded vessel in the water taken from the level of the waterline to the lowest point of the hull of the vessel; depth of water, or distance between the bottom of the ship and waterline.

Drayage: The transport of goods over a short distance

Drayage Terminal: A terminal with the capacity to handle truck pickup and dropoff.

Dredge: The process of removing sediment from harbor or river bottoms for safety purposes and to allow for deeper vessels.

Eminent Domain The right of a government or its agent to expropriate private property for public use, with payment of compensation.

Exports: Merchandise transported out of the United States to foreign countries.

Freight: Merchandise hauled by transportation lines.

Goods movement: The distribution of freight (including raw materials, parts and finished consumer products) by all modes of transportation including marine, air, rail and truck.

Gross domestic product (GDP): The total value of goods and services produced by labor and property located in the United States. As long as the labor and property are located in the United States, the supplier (workers, owners) may be either U.S. residents or residents of foreign countries.

Hostler (or hustler): An employee who drives a tractor for the purpose of moving cargo within a container yard.

Imports: Commodities of foreign origin entering the United States, as well as goods of domestic origin returned to the United States with no change in condition or after having been processed and/or assembled in other countries.

Intermodal: Used to indicate movements of cargo containers interchangeably between transport modes – i.e. motor, water and air carriers – and where the equipment is compatible within multiple systems. For example, boxes of hot sauce from Louisiana are stuffed into metal boxes called containers at the factory. That container is put onto a truck chassis (or a railroad flat car) and moved to a port. There the container is lifted off the vehicle and lifted onto a ship. At the receiving port, the process is reversed. Intermodal transportation uses few laborers and speeds up the delivery time.

Labor union: An organization of workers formed to serve members' collective interests with regard to wages and working conditions.

Landlord port: At a landlord port, the port authority owns the wharves, which it then rents or leases to a terminal operator (usually a stevedoring company). The operator invests in cargo-handling equipment (forklifts, cranes, etc.), hires longshore laborers to operate such lift machinery and negotiates contracts with ocean carriers (steamship services) to handle the unloading and loading of ship cargoes.

Longshoremen: Dock workers who load and unload ships or perform administrative tasks associated with the loading or unloading of cargo. They may or may not be members of labor unions. Longshore "gangs" are hired by stevedoring firms to work the ships. Longshoremen are also called stevedores.

Marine Terminal: Port facilities for docking, cargo-handling and storage.

Marine Transportation System (MTS): Consists of all the intermodal components that are part of the maritime domain, including ships, ports, inland waterways, intermodal rail and trucks, and other users of the maritime system.

Maritime: Located on or near the sea. Commerce or navigation by sea. The maritime industry includes people working for transportation (ship, rail, truck and towboat/barge) companies, freight forwarders and customs brokers; stevedoring companies; labor unions; chandlers; warehouses; ship building and repair firms; importers/exporters; pilot associations, etc.

Neo-bulk: Uniformly packaged goods, such as wood pulp bales, which stow as solidly as bulk, but are handled as general cargos.

On-dock Railyard: A railyard connected directly to a dock.

Operating port: A port where the port authority builds the wharves, owns the cranes and cargo-handling equipment, and hires the labor to move cargo in the sheds and yards. A stevedore hires longshore laborers to lift cargo between the ship and the dock, where the port's laborers pick it up and bring it to the storage site. (See landlord port.)

Particulate matter (PM): Refers to small particles in the air that can be measured to determine air quality and potential health impacts. Airborne PM can result from direct emissions of particles (primary PM) or from the condensation of certain gases that have themselves been directly emitted or chemically transformed in the atmosphere (secondary PM). PM is often classified by size:

- *$PM_{2.5}$* – Also known as "fine" particulate matter, $PM_{2.5}$ refers to the fraction of PM in a sample that is 2.5 microns in diameter or less. This size of PM is commonly associated with combustion and secondary PM.

- *PM_{10}* – Also known as "coarse" particulate matter, PM_{10} refers to the fraction of PM in a sample that is 10 microns in diameter or less.

Port: The harbor area where ships are docked.

Port Agency or Port Authority: A government entity. A port authority may own facilities in one or more ports, and a port authority's domain may include both seaports and airports. It may be difficult to tell visually where the control of a port authority ends. For example, port authorities do not control private terminals (except in as much as landlord ports can impose lease-based controls on private terminal tenants), military operations and industrial facilities located in or around port facilities.

- *Autonomous (independent) port authority:* a self-sustaining, self-governing public body

- *Semi-autonomous (semi-independent) port authority:* a public body subject to certain state controls

- *Bi-state or regional port authorities:* a public body created by agreement between two or more states

- *Port authorities with limited agency or power:* a public body limited to certain actions such as bonding

- *Divisions of state, county or municipal government:* a government department

- *Independent port or navigation districts:* entities that function as "special purpose" political subdivisions of a state with defined geographic boundaries over which they have authority

Roll-on/Roll-off (ro/ro): Cargo that can be driven directly into the belly of the ship via ramps that are lowered to the dock, rather than being lifted aboard. Examples include cars, buses, trucks or other vehicles.

Stevedores: Labor management companies that provide equipment and hire workers to transfer cargo between ships and docks. Stevedore companies may also serve as terminal operators. The laborers hired by the stevedoring firms are called stevedores or longshoremen.

Supply Chain: A network that supplies goods or services from the source of production through the point of consumption. A supply chain is considered to include people, organizations, transportation infrastructure, information technology and physical locations such as manufacturing plants, distribution centers, and retail outlets.

Terminal: A designated area of a port used for the transmission, care and convenience of cargo and/or passengers in the interchange of them between land and water carriers or between two water carriers. It includes wharves, warehouses, covered and/or open storage spaces, cold storage plants, grain elevators and/or bulk cargo loading and/or unloading structures, landings, and receiving stations.

Trucks: Heavy automotive vehicles used to transport cargo. In the maritime industry, cargo is often carried by tractor-trailers. The tractor is the front part of the vehicle, also called a cab. The trailer is the detachable wheeled chassis behind the tractor, on which containers or other cargoes are placed.

Twenty-Foot Equivalent Unit (TEU): A unit of measurement equal to the space occupied by a standard twenty-foot container. Used in stating the capacity of container vessel or storage area. One 40-foot container is equal to two TEUs.

Vessel: A ship or large boat.

Volatile organic compound (VOC): A very broad term used to describe the entire set of vapor-phase atmospheric organic chemicals.

A4. Endnotes and Image Sources

2.1 The Role of Ports
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