



Sustainable Ports: Strategies for Port Development and Operations

A GUIDE FOR COUNTY LEADERS



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INTRODUCTION

America's public ports are a powerhouse of economic activity and represent our nation's gateway to global trade. Ports serve as the point of intersection to the country's rivers, waterways and inland and deepwater ports. They allow crops grown in Iowa to be transported for food aid all around the world. Iron ore mined in Michigan and Minnesota is shipped to ports throughout the Great Lakes, and from there transported to steel mills across the U.S. or beyond for international exports.

Ports are a vital source of economic development for the counties in which they are located. Depending on their size, they can support hundreds to thousands of direct jobs, and generate millions of dollars in economic activity. For good reason, counties home to ports invest heavily in them. According to the 2007 Census of Governments, counties across the U.S. spent \$476,583,000 annually for the development, operation, maintenance and support of public waterways and ports.¹

While ports provide counties across the U.S. with a number of economic benefits, their development and operations are not without environmental concerns. Counties home to ports can experience air and water pollution, affecting both public health and local habitats and wildlife.

This issue brief explores the vital role that ports play in our communities, and what steps counties can take to ensure that they minimize their ports' environmental impact while remaining competitive in local and global commercial activities. Case studies highlight innovative work that counties are already doing, and offer ideas and additional resources to support counties in promoting more efficient and sustainable port development.

WHY PORTS MATTER

The U.S. is served by 360 public commercial ports, which are a significant driver of trade and other financial activity and have great economic impacts on the counties in which they are located.² From trade benefits and job opportunities to travel and leisure, ports are responsible for billions of dollars in annual economic activity.

Domestic Shipping and International Trade

Each year, ports and waterways carry more than two billion tons of domestic cargo as well as imported and exported cargo.³ Much of the total amount of goods produced for domestic consumption is shipped through ports, including those vital to:

- ▶ Food production, such as apples, corn, wheat, soybeans, rice and potatoes,
- ▶ Energy, such as crude petroleum, gasoline, natural gas and coal, and
- ▶ Manufacturing, including iron ore, steel, scrap steel, lumber, automobile parts and machinery.

Not only are ports critical for transporting goods domestically, they play a crucial role in exporting goods for international trade. In fact, U.S. seaports are responsible for exporting 99.4 percent of the nation's cargo overseas.⁴ This includes nearly two-thirds of wheat and wheat flour, one-third of soybeans and rice and two-fifths of cotton produced domestically.⁵

Jobs and Wages

One of the major economic benefits ports provide to counties is the creation and maintenance of jobs. In a 2007 survey of port-driven economic impacts, it was found that U.S. seaports provide

Port Authorities

A port authority is a governmental public authority run by a board or commission that has been created by a legislative body to maintain and operate a port and port-related activities. The powers of a port authority vary widely, but they generally have the power to purchase and own land, charge fees and levy taxes.¹⁶ Their authority can extend beyond operating port facilities and include airports, bridges, tunnels, rail yards, shipyards and even public parks.

Unlike in many other countries, there is no national port authority in the U.S. That means public ports can come under jurisdictional authority at the local, state or national level. There is also no standard for a port authority's governing body—of the 126 public port authorities, 77 are governed by appointees, 24 by elected members, four by indirectly elected members and 21 lack a governing body.¹⁷ In some instances, the local county commissioners automatically by law compose the port authority board.



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Port activities, like those pictured here at the Blount Island Marine Terminal in Duval County, Fla., provide nearly 471,000 direct jobs.

Source: Flickr / User: JAXPORT

nearly 471,000 direct jobs, with another 543,000 induced jobs resulting from port activities.⁶ When considering all of the jobs associated with port activities, such as employment in manufacturing and trade, nearly 13 million American jobs rely on commercial ports.⁷ The Port of Hueneme alone, for example, provides more than 9,400 direct, indirect and induced jobs in Ventura County, Calif. and the surrounding area.⁸ Across the country, these jobs result in \$23.2 billion in direct salaries to port workers, with an average annual salary of \$49,000 (\$12,000 more than the average wage in the U.S.⁹). These jobs are critical to supporting the economic health of the counties in which ports are located.

The U.S. Chamber of Commerce estimates that nearly 15,000 U.S. jobs are created for every \$1 billion in manufactured goods that are exported through the nation's ports. Imported goods that come through U.S. ports also support American jobs. Forty-five percent of imported goods are consumer goods, which support employment in transportation, logistics, wholesale and retail.¹⁰

Travel and Leisure

Commercial ports are not only important hubs for transporting goods across the nation and internationally. Ports along the eastern and western seaboard are also expected to play an ever-increasing role in supporting the growing domestic and international cruise line industry. The cruise industry has seen a 2,100 percent growth since 1970, making it the fastest growing segment of the travel industry.¹¹

Ports are vital for supporting the tourism and cruise industries. U.S. ports account for nearly 75 percent of all cruise ship departures around the world, and in 2009 alone, the U.S. cruise line industry generated more than \$35 billion and led to the creation of 314,000 new American jobs.¹²

Counties that are home to cruise destination ports can experience significant economic benefits when the ships come in to port. On average, 40 percent of cruise ship passengers stay one or more nights before or after their cruise. During this time, each passenger on average spends \$289 per day on lodging, shopping, dining and transportation.¹³ As the cruise line industry continues to grow, counties with destination ports can expect to see further economic growth from increased tourism.

Future Growth

Activity at ports all across the country is expected to grow, especially as a result of the expansion of the Panama Canal. Expected to be completed by 2015, the expansion will double the capacity of the Panama Canal and increase both the number and size of ships passing through. Post-expansion, ships using the canal will be



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twice their current size, transporting an extra 4.4 to 8 million containers each year.¹⁴ By 2020, the total amount of cargo transported through U.S. ports will grow by more than 50 percent compared to 2001 amounts. This increase is expected to have significant impacts on the U.S. economy, infrastructure and environment.

As port activity increases in the coming years, a greater toll will be placed on county roads and railways that connect to ports. To get to and from ports, goods are transported on the 174,000 miles of rail that crisscross the lower 48 states, as well as 160,000 miles of roadway—45 percent of which are owned and maintained by counties.¹⁵ Counties will be tasked with maintaining quality roads to accommodate increased freight traffic. They will also have to determine how to reduce vehicle congestion in and around access areas to ports, which are often near downtown commercial areas.

CASE STUDY

Inland and River Ports

While many of the nation's largest ports are along the eastern and western seaboards, inland and river ports play an important role in connecting sea ports to manufacturing and commercial sectors in counties all across the country. Often located on large rivers such as the Mississippi, Ohio, Allegheny and Missouri Rivers, river ports were at one time a necessity for the movement of goods before the modern highway system was built. Today, these ports are still vital to the movement of goods, and can provide a number of environmental and logistical benefits. Ships carrying cargo along the river and freight rail connections at ports can reduce congestion and emissions by removing trucks from the highway. The Greer Inland Port in Greenville and Spartanburg County, S.C., for example, opened in October 2013 and is expected to result in 25,000 fewer interstate truck trips to the Port of Charleston in its first year of operation.¹⁸

River ports also provide efficient and cost effective transportation of goods. Located in Orleans Parish, La., the Port of New Orleans is one of the country's busiest. More than 5,000 oceangoing vessels travel through the port each year along the Mississippi River, and port activities support 160,500 jobs throughout the state.¹⁹ The port's Board of Commissioners is made up of seven members from Orleans Parish, Jefferson Parish and St. Bernard Parish.

Intermodal transit is one of the main drivers behind the Port of New Orleans' operations. In addition to being served by ocean carriers, cruise lines, barge lines and interstate truck lines, the port is the only one in the U.S. that is served by six major railroads.



Ports like the Greer Inland Port in Greenville and Spartanburg County, S.C. use rail connectivity to ship goods in an efficient manner.

Source: Flickr / User: rmcallyay

This rail access ensures that the port can transport goods in a timely and cost-efficient manner. It takes just one day for goods to reach Memphis, two days to Chicago and three to Detroit via rail.²⁰

By shipping goods via rail, the port's customers see a decrease in shipping expenses due to lower fuel costs and improved travel time compared to trucks caught up in highway congestion. The port has seen an increase in activity because of these advantages, and with the expansion of the Panama Canal soon to be completed, it expects even more activity. To prepare for this, the port initiated a \$26 million project to be completed in 2014, which will improve its rail yard facility by significantly increasing its capacity to handle cargo and ensure that it remains competitive in the coming years.²¹



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ENVIRONMENTAL AND COMMUNITY CONCERNS

While ports and their associated activities drive economic growth, it is important for port authorities and counties to actively work to minimize pollution levels and environmental damage. Counties and communities where ports are located regularly deal with issues surrounding air quality, water quality and habitat degradation, among others.

Air Pollution

A number of port activities can contribute to decreased local air quality. For example, ports are heavily reliant on ships, trucks and cargo equipment that are powered by diesel engines, which release particulate matter, volatile organic compounds, nitrogen oxides and sulfur oxides into the atmosphere. Reducing these emissions can lower the risk of associated adverse effects on human health, including asthma and bronchitis.²²

Another way to improve air quality is to reduce ship engine idling. Ships spend a significant portion of their time resting at dock—upwards of 100 days each year.²³ While docked, ships still need to be powered to maintain functionality of systems like communication, lighting, heating/cooling and sanitation via onboard auxiliary engines. Lowering idling times at ports can help improve air quality around the port.

Traffic congestion also affects air quality. Traffic jams in and around port facilities are common occurrences, especially around port entrances where bottlenecks may occur. As trucks and other automobiles sit in traffic, idling engines contribute to increased emissions and worsened air quality. Improving traffic flow will lower idling emissions and minimize disruptions to other drivers, as well as nearby residents and businesses, caused by congestion.

Water Quality

Improper port maintenance and operations can impact water quality and local water ecosystems. One of the biggest water quality issues ports face is contamination from ballast and bilge water. As ships discharge their ballast water, they can inadvertently introduce non-native species, which can pose a threat to local species and environmentally-sensitive habitats.²⁴ Bilge water released to maintain stability can also pose threats to local marine life and habitats if it is contaminated with oil from machinery on-board ships.²⁵

The Port of Oakland in Alameda County, Calif. provides portside electricity to minimize ship engine idling.

Source: kropic1 / Shutterstock.com



CASE STUDY

Port of Cleveland Environment and Infrastructure Improvements

Located on the shores of Lake Erie in Cuyahoga County, Ohio, the Port of Cleveland is one of the largest ports in the Great Lakes and a major driver of Cuyahoga County's economy. Each year it handles 13 million tons of cargo, much of which is iron ore and limestone from other Great Lakes ports, as well as steel products that will be used to manufacture auto parts and consumer products.²⁷ Its activities support 17,832 jobs and generate \$1.08 billion in annual economic activity.²⁸ Cuyahoga County and the City of Cleveland appoint individuals to the nine-member Cleveland-Cuyahoga County Port Authority Board of Directors.

The Cuyahoga River and Lake Erie are vital for both port operations and county residents and businesses. Since 2011, the port has taken the lead in ensuring that the 6.5-mile long Cuyahoga River ship channel remains viable for all industrial, commercial and residential users.²⁹ Some of these strategies include:

- ▶ **Debris Removal:** Floating debris, including tree trunks and limbs, tires, bottles and cans are not only aesthetically unpleasing, but can also pose a threat to boats in the waterway. Debris commonly gathers together due to currents and wind, and can make it difficult for ships to navigate. After receiving a \$425,000 U.S. Environmental Protection Agency Great Lakes Restoration Initiative grant for debris removal in the harbor, the Port Authority designed and developed two specialized vehicles that will collect and remove floating debris. Since fall 2012, the two boats, named Flotsam and Jetsam, have cleared 240 tons of floating debris from the river.³⁰
- ▶ **Sustainable Sediment Plan:** Each year, the ship channel must be dredged to remove sediment that flows downstream in order to

keep the channel navigable, with some 200-250,000 cubic yards of sediment taken away. In the past, the sediment was considered a waste product and transferred to a confined disposal facility at a high cost. The Ohio Environmental Protection Agency determined in 2011, however, that this sediment could be used at commercial and industrial sites. Since then, the port has been working with a number of partners, including the Army Corps of Engineers and the City of Cleveland, to develop a sustainable sediment plan to use the sediment for brownfield remediation, landfill capping and highway development. Given the complexity of properly handling sediment materials, talks are still underway for how to reuse this material.

The Port's Sustainable Infrastructure department is also considering using a sediment collection device that could stop heavier sediments from reaching the ship channel. The department estimates that this could reduce annual dredging requirements by 20 percent.³¹ Recently, the Ohio Environmental Protection Agency determined that the intercepted sediments can be used for unrestricted upland purposes. One planned application is to use this sediment as clean fill.

- ▶ **Bulkhead Replacement:** Bulkheads along the 6.5-mile ship channel form a retaining wall which helps address erosion and flooding issues. A number of the steel bulkheads were installed more than 50 years ago and many are damaged or missing today. An underwater digital survey and assessment of bulkhead conditions for the entire ship channel revealed that approximately 12 percent of the total length were in serious condition. Authorities at the port are currently working with site owners to develop repair strategies, and are assisting the Cuyahoga County Planning Commission to develop habitat-friendly bulkhead features.



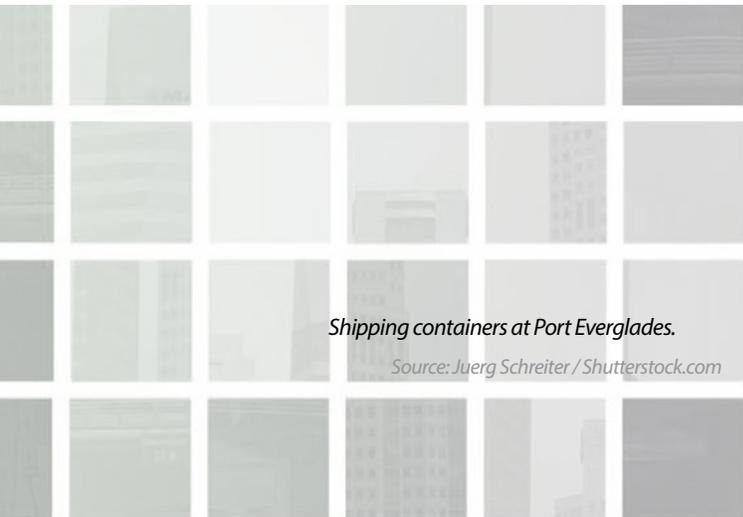
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Another concern is keeping ship channels clear. The waterways around ports must be occasionally dredged for a variety of reasons, including removing sediments and debris that build up over time in ship channels. These actions create new channels and deepen existing channels, allowing larger ships to pass through. Dredging, however, can impact local water quality by clouding the waters, disturbing plant life on the sea bed and releasing previously buried contaminants.²⁶ Dredging operations should take special care to minimize disturbances and dispose of dredged material in an environmentally responsible way.

Stormwater runoff at ports poses an additional threat to water quality. It is important for ports to address runoff in order to keep local waters healthy. The paved-to-unpaved surface ratio at ports is high, meaning that much of the land is covered in impervious surfaces which increase runoff. Efforts to reduce the amount of impervious surfaces will minimize contaminate runoff after heavy rainstorms.

As previously noted, port activities can also release nitrogen oxides into the air and water. When nitrogen levels in water bodies reach a certain threshold, it spurs rapid algae and plankton blooms. Preventing these blooms will help local fish and shellfish populations, as they won't have to compete with algae and plankton for oxygen in the water.



Shipping containers at Port Everglades.

Source: Juerg Schreiter / Shutterstock.com



Community Impacts

Many ports are located in close proximity to both residential and downtown districts, and for ports located in populous counties, port activities can pose a number of health and environmental threats to local communities. As previously noted, the air and water quality issues that arise from port activities can lead to health issues like asthma, bronchitis and even lung cancer.

Beyond air and water pollution, ports contribute to increased noise and light pollution. For ports located near residential neighborhoods, minimizing loud noises from ships, cranes, trucks and trains can lower the effects of prolonged noise pollution, such as hearing impairment, sleep deprivation and hypertension.³² Many ports operate 24 hours a day, and light from port operations can be a nuisance to neighbors. Taking care to reduce the visibility of bright, flashing lights from ships, forklifts and other machinery can help reduce stress and irritation caused by disrupted sleep patterns in those living near ports.³³

As port activity is expected to increase with the expansion of the Panama Canal, an increase in truck and vehicle activity can also be expected. Counties with heavily trafficked ports will need strategies to avoid road congestion and traffic jams. Increased congestion would not only affect local residents and businesses, but also lead to more air quality issues resulting from idling vehicles. Increased traffic from heavy trucks and vehicles can also damage county roads and cause them to prematurely degrade.



CASE STUDY

Port Everglades Expansion

Located in Broward County, Fla., Port Everglades is one of the most active cargo ports in the U.S. It is South Florida's main port for petroleum products, and is also one of the top three cruise ports worldwide.³⁴ The port provides 11,400 direct jobs, and supports a total of 202,700 jobs statewide.³⁵ Additionally, the port's economic activities are valued at \$26 billion.³⁶ The port is governed by the Broward County Board of Commissioners.

The port is currently undergoing a major expansion in order to remain competitive and accommodate increased commercial and cruise activity. Through the expansion, county officials and stakeholders plan for Port Everglades to continue to drive economic activity in Southern Florida, while minimizing its environmental impact. When the project is completed, the port will add up to five berths, bring freight rail directly to the port and widen and deepen the channel. The county expects these expansion projects to create 7,000 new local jobs and support another 135,000 jobs statewide over the next 15 years.³⁷ The largest source of funding for the expansion activities is from internal revenue from port operations, at nearly \$143 million. An estimated \$665 million in capital improvement projects will be funded through port user fees, a \$35 million stakeholder investment, \$133 million in state grants and a \$192.6 million federal share.³⁸

Guided by a 20-year Master Plan, the county and port have begun numerous expansion activities with the goal of not only improving the economic conditions in and around Broward County, but also the environmental conditions.³⁹

- ▶ An expansion project designed to lengthen the existing turning notch area for larger cargo ships and provide for additional cargo berths is also creating new saltwater wetland habitat and enhancing and restoring existing habitat with the addition of 70,000 new mangroves, shrubs, trees and other plants within the port.
- ▶ The port will deepen navigation channels with environmentally friendly bulkheads and seawalls. These bulkheads will not disrupt water and tidal flows at the shoreline and in critical habitat areas, reducing the impact on



The expansion of Port Everglades in Broward County, Fla. will allow it to handle more cargo and activity, while reducing its environmental impact on local air and water quality.

Source: Flickr / User JaxStrong,

water quality and local fish and plant species. Deepening the channel is expected to cost \$386.7 million, with the port funding \$175 million of it. No local taxes will be used for this project, which is projected to be completed by late 2017.

- ▶ Rail and transit connectivity will reduce traffic congestion and improve local air quality through reduced emissions. The Florida East Coast Railway (FEC) will open in July 2014 on a new intermodal container transit facility. Construction for the \$53 million facility is being funded by \$18 million in grants from the Florida Department of Transportation (FDOT) Strategic Intermodal System program, a \$30 million FDOT State Infrastructure Bank loan, and \$5 million from FEC's capital plan. By 2029, bringing freight rail directly to the port will eliminate 180,000 truck trips to transport shipping containers each year. Building a bypass road for buses, taxis and privately owned vehicles to access the cruise terminals will alleviate traffic congestion at the port's security gates.



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Container ship in berthing port.

Source: tcl / Shutterstock.com

WHAT CAN COUNTIES DO?

Given the critical economic role that ports play, it is vital that they remain competitive in local, national and global trade. With the upcoming expansion of the Panama Canal, attention to sustainable port development and operations will be key to ensure that county ports remain vibrant hubs of commerce, employment and leisure while also minimizing their impact on air, water, wildlife and local communities.

The following are strategies and best practices that counties can use to improve efficiency, reduce costs and improve the environmental quality of ports. Counties that do not operate their own ports should work with the local port authority to set and achieve goals.

Strategies for Improving Port Operations

- ▶ **Provide shoreside power.** When ships are at berth, their auxiliary engines — which continually run to provide power — produce significant amounts of emissions and pollution. By allowing these ships to plug in to electrical sources at the port rather than idle their engines, ports can dramatically reduce these emissions and improve air quality at the port. An additional option is providing a source of renewable energy or natural gas to power ships, which can lower the amount of emissions released. In 2001, the Port of Oakland followed this strategy by installing power plug-ins at its tugboat terminal to allow tugboats to turn off their engines while at berth and remain powered.⁴⁰
- ▶ **Incentivize ships to use cleaner fuels.** Ports are not able to regulate what type of fuels ships can use, but they can create incentives for them to use cleaner burning fuels or more efficient engines. Such incentives can include reduced harbor usage fees.
- ▶ **Upgrade/retrofit cargo equipment.** Equipment such as cranes, trucks and forklifts typically run on diesel fuel which can contribute to decreased air quality. By upgrading to newer equipment or retrofitting existing equipment to run on cleaner burning fuel, ports can significantly improve air quality by lowering emissions. For example, the Port of Los Angeles' efforts to reduce diesel exhaust have lowered particulate matter emissions by 77 percent and nitrogen oxides by 56 percent.⁴¹ For cargo-moving equipment that cannot be upgraded, switching to higher grade diesel can make engines more efficient and lower emissions rates.
- ▶ **Improve water quality.** Minimizing the amount of impervious surface at port facilities by using porous asphalt and concrete, as well as green roofs, can reduce stormwater runoff levels and thereby improve local water habitats. Reducing the amount of dredging needed can help lower turbidity and minimize the risk of



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unearthing buried pollutants. The Port of Houston uses an additional strategy, stormwater detention ponds, to prevent pollutants from contaminating Galveston Bay.⁴²

- ▶ **Improve infrastructure connections.** As port activity continues to grow (with trade doubling from 2001 levels by 2020), roads and rail connections will be vital to ensuring efficient transportation of goods. While improving rail connectivity will allow for more organized movement of goods to and from the port, often times a simple solution, such as providing left-hand traffic signals for trucks leaving ports or providing at-grade rail crossings, can reduce bottlenecks and traffic jams.⁴³ In some instances, diverting trucks from local roads and providing direct access from the port to highways can also reduce congestion.
- ▶ **Minimize noise and light pollution.** For ports near downtown and residential neighborhoods, efforts to reduce noise and light pollution can mitigate impacts on local residents and businesses. Limiting the use of bright lights at night will lower glare and disturbances at night, and restricting the length of time that ships, trucks and other equipment can idle at port can help reduce noise pollution from engines.
- ▶ **Seek state and federal funding.** To help fund practices and upgrades like those above, counties and ports can seek funding from state and federal sources. The Port of Houston, for example, received a \$66,500 Solid Waste grant from the Houston–Galveston Area Council and the Texas Commission on Environmental Quality to help fund projects to prevent litter, promote recycling and remove floating debris in channels.⁴⁴ Under the Energy Policy Act of 2005, the Diesel Emissions Reduction Act (DERA) authorizes up to \$100 million each year for projects that reduce diesel emissions. The ports of Seattle, Hueneme, Tacoma and Los Angeles were four of six ports that recently received a total of \$4.2 million in DERA grants to help lower their emissions.⁴⁵ The U.S. Environmental Protection Agency’s National Clean Diesel Campaign (NCDC) also offers guidance and funding opportunities for projects looking to reduce diesel emissions by retrofitting diesel devices, replacing older vehicles and equipment and using cleaner fuels.⁴⁶ More information on technical guidance and funding opportunities can be found at the NCDC’s website: www.epa.gov/cleandiesel.

Ports are a major economic driver in counties across the nation. They are also competitive environments, and are constantly vying for new business while maintaining current relationships. As more and more major national and international companies, manufacturers, retailers and cruise operators are looking to improve their environmental record, they will be examining how sustainable their entire shipping process is. Ports which are able to demonstrate their sustainable operations are likely to catch the eye of such organizations. These ports will be able to remain competitive in the global market and support local communities by creating and sustaining employment opportunities; improving local infrastructure; improving local air and water quality; and minimizing environmental degradation to habitats and wildlife.



ADDITIONAL RESOURCES

American Association of Port Authorities

- ▶ American Association of Port Authorities: www.aapa-ports.org

Broward County, Fla.

- ▶ Broward County: <https://broward.org>
- ▶ Port Everglades: www.porteverglades.net

Cuyahoga County, Ohio

- ▶ Cuyahoga County: www.cuyahogacounty.us
- ▶ Port of Cleveland: www.portofcleveland.com

Harris County, Tex.

- ▶ Harris County: www.harriscountytexas.gov
- ▶ Port of Houston: www.portofhouston.com

National Oceanic and Atmospheric Administration

- ▶ National Oceanic and Atmospheric Administration: www.noaa.gov
- ▶ Port Resilience Planning Tool: www.csc.noaa.gov/digitalcoast/tools/port

Orleans Parish, La.

- ▶ Orleans Parish: http://louisiana.gov/Government/Parish_Orleans
- ▶ Port of New Orleans: www.portno.com

U.S. Environmental Protection Agency

- ▶ U.S. Environmental Protection Agency: www.epa.gov
- ▶ National Clean Diesel Campaign: www.epa.gov/diesel
- ▶ National Clean Diesel Funding Assistance Program: www.epa.gov/cleandiesel/prgnational.htm
- ▶ State Clean Diesel Grant Program: www.epa.gov/cleandiesel/prgstate.htm

Ventura County, Calif.

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About the National Association of Counties

The National Association of Counties (NACo) is the only national organization that represents county governments in the United States. Founded in 1935, NACo provides essential services to the nation's 3,069 counties. NACo advances issues with a unified voice before the federal government, improves the public's understanding of county government, assists counties in finding and sharing innovative solutions through education and research and provides value-added services to save counties and taxpayers money. For more information about NACo, visit www.naco.org.

About the Green Government Initiative

Since 2007, the NACo Green Government Initiative (GGI) has served as a catalyst between local governments and the private sector to facilitate green government practices, products and policies that result in financial and environmental savings. GGI provides comprehensive resources on high-priority topics including renewable energy and energy efficiency, air and water quality, transportation and land use, sustainable purchasing and procurement and waste reduction.

Through the initiative, NACo:

- ▶ Develops strategies to save counties money while reducing their environmental impact,
- ▶ Educates counties on techniques for implementing green strategies,
- ▶ Provides tools for counties to educate their communities on environmental initiatives,
- ▶ Promotes environmentally preferable purchasing, and
- ▶ Facilitates an open exchange with the private sector.

For more information, visit www.naco.org/greencounties.

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