



Introduction

Ports are essential to the well-being of the United States and its citizens. They are indispensable for national and regional economic development and provide a link to the global marketplace. As vital hubs of transportation — where cargo moves from ship to truck or train or vice versa — impacts to air, land, and water are inevitable. The operations of all ports require monitoring, and impacts need to be measured and minimized. Operating in an environmentally sensitive manner requires operators at the Port of Baltimore to be aware of and address the environmental and health impacts of cargo movement.

The Environmental Strategy and Action Plan of the Maryland Port Administration (MPA) is a roadmap for meeting the agency’s environmental responsibilities, including voluntary goals for continuous improvement. The plan builds on the MPA’s existing record of environmental stewardship through progressive practices, policies, and active engagement with port users, employees, communities, and cargo owners.

The purpose of the plan is to ensure that all MPA operations and activities, from the movement of cargo and the dredging of shipping channels to energy conservation and the involvement of stakeholders, are accomplished in ways that

improve the environment and maximize efficiency. The plan also ensures a focused, coordinated effort across the MPA as it establishes a proactive, integrated strategy for reducing environmental impacts while achieving business growth.

Through a fully implemented Environmental Management System, the MPA has reviewed all its actions (land-based and water-based) and identified potential initiatives for reducing adverse impacts to the environment and for minimizing greenhouse gas emissions. The Environmental Strategy and Action Plan outlines these initiatives and specific steps that the agency will take to achieve its goals.

The MPA recognizes the synergy between environmental compliance, initiatives exceeding compliance, community engagement, effective cost management, and operational efficiencies. These elements are all necessary to sustain Maryland’s deep-water seaport industry, and their synergy is expressed through this plan. As a result, this plan outlines steps that make both environmental and economic sense.

Full implementation of this plan is expected by 2019. Because the plan is evolving and may require updates, it will be reviewed on a regular basis to ensure that it remains relevant and meets the goals of the MPA.

MPA Mission • The mission of the MPA is to stimulate the flow of waterborne commerce through Maryland in a manner that provides economic benefit to the citizens of the state. The MPA’s major responsibilities are to:

- Develop and maintain state-of-the-art marine facilities
- Construct, operate and maintain (or monitor) dredged material placement sites
- Promote the Port of Baltimore to the global marketplace
- Serve as a steward of the Chesapeake Bay and Maryland’s natural environment

MPA Environmental Policy • Stewardship and sustainability of the environment and protection of human health are essential elements of the MPA mission. The MPA is committed to:

- Environmental compliance and improvement
- Reduction of its energy consumption
- Continual improvement of environmental and energy performance
- Pollution prevention
- Effective engagement with employees, communities, port users, and cargo owners

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- GreenPort web site
- GreenPort newsletter (free)
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Air Quality

Background

The MPA recognizes the potential impacts of diesel engines associated with port activities and will therefore develop plans to reduce diesel emissions. The steps set forth below to reduce diesel emissions build on previous MPA initiatives that effectively reduced and/or mitigated the potential adverse impacts of diesel engines at its terminals, including:

- Retrofitting more than 80 pieces of equipment
- Installing diesel oxidation catalysts on 12 rubber tired gantry cranes
- Replacing more than 100 dray trucks and obtaining funding to replace at least another 30 dray trucks
- Purchasing hybrid vehicles when available
- Using only ultra-low sulfur fuel in diesel equipment
- Replacing a heating oil furnace with natural gas
- Reducing truck idling time through several truck gate technologies
- Working with the MD Department of the Environment on air emission inventories from MPA facilities

This plan promotes partnerships that are critical for tracking and reducing diesel emissions in the Baltimore area, and for improving air quality in general. It supports the comprehensive planning and regular communication needed to identify information gaps and enable better decision-making about air quality.

Strategy

Determine baseline emission data, evaluate reduction strategies (both technology and operational), define barriers/incentives to implementation of strategies, and develop short-term and long-term solutions/goals.

Air Quality Action Plan	
Air Emission Inventories	<ul style="list-style-type: none"> • Work with the MD Dept. of the Environment on inventories related to State Implementation Plan. • Continue involvement in industry efforts to develop standards, best management practices, and protocols for emission inventories. • Prepare an analysis of greenhouse gas emissions and options for reduction.
Operational Efficiencies	<ul style="list-style-type: none"> • Quantify air emission reductions related to truck gate efficiencies at the Seagirt Marine Terminal. • Evaluate gate operations at the Dundalk Marine Terminal to improve efficiencies and reduce air emissions.
Dray Trucks	<ul style="list-style-type: none"> • Characterize the Port of Baltimore dray truck fleet to understand the emissions profile. • Seek additional funding for the dray truck replacement program. • Evaluate the feasibility of "truck-owned" chassis and potential improvement of air quality. • Investigate the effectiveness of idle reduction technology for dray trucks and other equipment (Maryland's Idling Law Transportation Article §22-402).
Vessels	<ul style="list-style-type: none"> • Assess environmental incentives for vessels (Environmental Ship Index, slow steaming, etc.). • Evaluate feasibility of "capture" technology and alternative marine power for air emission reductions.
Landside	<ul style="list-style-type: none"> • Investigate alternative fuel vehicles and equipment, including financing opportunities. • Help tenants find grant opportunities for replacing and retrofitting cargo handling equipment. • Evaluate programs to incentivize terminal tenants to become a "green" terminal. • Create plan to develop partnerships with communities and local environmental groups and committees to assist with various air quality improvement tasks, such as tree planting, stream restoration, etc. • Perform cost/benefit and feasibility analyses of converting diesel/electric cranes at the Dundalk Marine Terminal to electric.
Locomotives	<ul style="list-style-type: none"> • Conduct a survey of locomotives that service the MPA, to collect information about engines (type, age), fuel types, operational procedures, and energy improvements. • Define opportunities for reducing emissions associated with locomotives.



Water Quality & Land

Background

The MPA will achieve its goals by expanding on the actions it is taking to meet the standards of state and federal water quality permits that protect the Chesapeake Bay and its rivers, as well as the wildlife and people who depend on them. These permits address a wide range of issues, including sediment, nutrients, chemicals, and stormwater runoff. By implementing this plan, the MPA will develop strategies that will serve as guides to improving and maintaining water quality, including the Water Quality Master Plan (for terminals); Institutional Stormwater Management Plan (construction/engineering); and Waste Load Allocation Implementation Plan (harbor development for dredge sites). Several best management practices and technologies are already completed or underway as a result of these efforts:

- Removal of all underground storage tanks
- Retrofitting of sand filters, wetlands, wet swales, and bioretention structures at several terminals
- Installation of several engineered stormwater quality treatment technologies featuring pretreatment and filtering systems
- Creation of hundreds of acres of wetlands and wildlife habitat
- Implementation of offsite projects, such as schoolyard greenings, wetland and shoreline restoration, and other community enhancements
- Demonstration of emerging technologies, such as floating wetlands and an algal turf scrubber

Strategy

Review and update water quality plans and programs, evaluate reduction strategies (onsite and offsite, both technology and operational), define barriers to implementation of strategies, and develop short-term and long-term solutions/goals.

Water Quality & Land Action Plan	
Water Quality Programs	<ul style="list-style-type: none"> • Continue implementation of the Master Water Quality Plan to reduce nutrients, as called for in the Total Maximum Daily Load (a federal mandate for pollution limits known as the TMDL). • Update the Institutional Stormwater Management Plan. • Implement the Nutrient Reduction Program. • Create a master list of offsite mitigation and enhancement options based on universal metrics. • Partner with local water quality organizations on projects that are mutually beneficial.
Land Programs	<ul style="list-style-type: none"> • Evaluate pilot projects for the beneficial reuse of dredged material as defined by Maryland statute. • Communicate and promote a litter reduction program on terminals, including the installation of a trash interceptor. • Determine feasibility of an equipment/cargo washing facility at the Dundalk Marine Terminal. • Ensure evaluation of environmental assessment requirements for port expansion by the appropriate MPA departments. • Establish a “reduce, reuse, recycle” program.



Energy

Background

The MPA initiated an energy performance contract in 2011 that has provided or will provide significant energy infrastructure upgrades, as well as reductions in energy consumption, greenhouse gases, and cost. The plan is to further evaluate other opportunities to reduce energy consumption, which will improve air quality, curb greenhouse gases, and ensure sustainable operations.

This plan recognizes that port-related activities are sources of greenhouse gases and builds on the MPA's past actions that reduced energy consumption at its facilities, maximized energy efficiency, and increased renewable energy usage. These initiatives include the following:

- Solar panels on the Cruise Terminal and Shed 10 at South Locust Point Marine Terminal
- Lighting upgrades, occupancy sensors, and programmable thermostats at MPA facilities
- Energy management control system at the World Trade Center
- Upgrades to HVAC system at the World Trade Center and Dundalk Marine Terminal
- Remote, computer-based, high mast lighting controls on marine terminals
- Conversion of heating oil to natural gas boiler at the Dundalk Marine Terminal

Strategy

Investigate technologies, operational improvements, and alternative fuels in order to reduce demand on electrical grid and diesel fuel, thus reducing greenhouse gases and improving air quality.

Energy Action Plan

- Explore financing/grants for energy initiatives.
- Determine feasibility of smaller energy projects, such as:
 - A windmill at the Dundalk Marine Terminal
 - Solar panels for the access control center
 - Converting exit lighting at the World Trade Center to LED
 - A "natural gas" generator installation at the World Trade Center to reduce electrical demand
- Evaluate fuel cell usage at terminals and the World Trade Center.
- Conduct an engineering study to determine the pros/cons of remote monitoring of building temperature and water/electric meters.

Other Environmental Action Plans

- Expand understanding of the Environmental Management System to employees at the World Trade Center.
- Evaluate various port certification programs (such as Green Marine) to determine if they are appropriate for the MPA.
- Determine the most effective way to communicate environmental activities and results to communities, employees, port users, external stakeholders, and other interested parties.
- Evaluate the West Coast Ports Sustainable Design and Construction Guidelines for use at the MPA terminals.