



Maryland Green Registry MEMBER

The Maryland Green Registry promotes and recognizes sustainable practices at organizations of all types and sizes. Members agree to share at least five environmental practices and one measurable result while striving to continually improve their environmental performance.

Maryland Port Administration



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State Government
Member since June 2011

Management and Leadership

Environmental Policy Statement

The Maryland Department of Transportation Maryland Port Administration's (MDOT MPA) Environmental Policy: Stewardship and sustainability of the environment and protection of human health are essential elements of the MDOT MPA mission. MDOT 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*

Environmental Team

MDOT MPA's environmental team has the mission of continued management of a fully-implemented Environmental Management System (EMS) based on the ISO Standard 14001 certification. The Team reviews its land-based and water-based actions and identifies potential initiatives for reducing adverse impacts to the environment and for minimizing greenhouse gas emissions.

MDOT MPA was recertified in 2017 and has again achieved recertification in the review of international standards for environmental management in 2020. The certification, awarded by NSF International, is recognized internationally.

The Safety, Environment and Risk Management (SERM) office of MDOT MPA has developed a Sustainability Strategy for 2020- 2023. The strategy sets short-term goals and focuses on safety and risk management, water quality, air and energy management, and community outreach.

MDOT MPA believes that stewardship and sustainability of the environment and protection of public health are essential elements to accomplish its mission to promote the flow of waterborne cargo through the Port.



Annual Environmental Goals

MDOT MPA's annual environmental goals include:

- *Continuing to reduce air emissions at the Port of Baltimore*
- *Improving recycling and sustainability goals*
- *Actively working with State and local partners to meet standards for water quality in the Chesapeake Bay, known as Total Maximum Daily Loads (TMDLs)*
- *Going beyond compliance with stormwater requirements by implementing runoff pollution control measures in advance of regulatory deadlines and developing new and innovative nutrient and sediment reduction technologies where practical*
- *Reducing energy consumption and greenhouse gas emissions*

MDOT MPA has been improving water and air quality, resolving flooding problems, engaging the community, and extending its conservation efforts well beyond the Port's property line.



Environmentally Preferable Products and Services

MDOT MPA has made its publications, newsletters, and general Port-related information available online to reduce paper use. Social media use increased by 120% across the various Port of Baltimore social media platforms in 2018. As of 2021, Captain Trash Wheel has over 4,222 social media followers across its three accounts after being introduced to social media platforms. There are currently 520 subscribers to the GreenPort Newsletter with 41 new subscribers in 2020.

Environmentally Preferable Purchasing

MDOT MPA utilizes service contracts for recycled and environmentally preferable products available through the Department of General Services (DGS) for office supplies.

MDOT MPA recognizes the potential impacts of diesel engines associated with Port activities and is working to reduce diesel emissions. Since 2012, a total of 251 trucks have been replaced through the Dollars for Drays program. In addition to dray trucks, the Port's Diesel Equipment Upgrade Program has replaced, repowered or retrofitted a variety of cargo-handling equipment, locomotive engines and marine engines. Overall, the Port's diesel emission reduction projects have helped lessen air pollution emissions at the Port by more than 5,100 tons. Other initiatives include:

- *Purchasing hybrid vehicles when available*
- *Using ultra-low sulfur bio-diesel fuel on its diesel-powered vehicles and equipment*
- *Replacing a heating oil furnace with natural gas*

Environmental Restoration or Community Environmental Projects

When developing new dredged material placement facilities, MDOT MPA mitigates its environmental impact in ways that benefit nearby communities as well as the Chesapeake Bay ecosystem. Examples include:

Masonville Dredged Material Containment Facility:

As part of the development of the Masonville Dredged Material Containment Facility (DMCF) project, MDOT MPA cleaned and restored a shoreline that was severely polluted by decades of industrial activity. We removed 27 abandoned vessels and more than 61,000 tons of trash. Today, visitors can enjoy trails and observe many species of birds and waterfowl at Masonville Cove. Additional improvements include:

- *Funded trash interceptors, eel passage, and fish stocking, and performed stream restoration*
- *Created the Masonville Cove Environmental Education Center - equipped with walking trails, a fishing pier, and a floating dock*
- *Made it possible for nearly 1,000 new trees to take root at Masonville Cove, enhancing bird habitat and reducing the flow of stormwater runoff into the Patapsco River*

- *Opened 25-acres to the public in a new portion of the Masonville Cove upland area in 2017.*

In 2013, Masonville Cove was designated as the nation's first Urban Wildlife Refuge Partnership by the U.S. Fish and Wildlife Service, connecting city dwellers to nature. These partnerships inspire a constituency of people who support fish and wildlife conservation.

MDOT MPA restored public access to a portion of the Patapsco River and constructed the Masonville Cove Environmental Education Center.

Masonville Cove is also a place where the community comes together for cleanups and other activities. The Living Classrooms Foundation and the National Aquarium provide educational and environmental programs at the center that have been attended by about 2,000 students annually. Masonville Cove welcomed 561 visitors to its 14 special anniversary events in 2019. To help stop the spread of Covid-19 in 2020, the Masonville Cove Environmental Education Center was closed but visitors had the opportunity to walk the property, providing a way to recreate responsibly and find solace in nature. In fact, Masonville welcomed its second highest number of annual visitors despite a four-month closure for the pandemic.

In 2019, Masonville Cove was the home to the only known pair of bald eagles currently nesting in Baltimore City. (Additionally, two eaglets thrived at Swan Creek Wetlands and Cox Creek DMCF). For the third consecutive year, two bald eagles have taken up residence at the Masonville Cove Environmental Education Center. The eagles have raised four eaglets there over the past two years and could raise more this spring. The public is invited to watch the eagles through a live streaming camera installed recently near their nest. It can be viewed at masonvillecove.org/eagles and can also be seen live on the eagle cam on MDOT MPA's [YouTube channel!](#)

Safety and outdoor fun highlighted Masonville Cove's seventh annual BioBlitz. Implementing all of the necessary precautions to prevent the spread of COVID-19, forty-one (41) participants found a total of 134 species during 230 recorded observations. Visitors were also treated to guided kayak tours.

Innovative and Beneficial Reuse of Dredged Material:

MDOT MPA's Dredged Material Management Program looks for beneficial and innovative ways to reuse the dredged material including wetland restoration and island recreation. MDOT MPA is the largest creator of wetlands in Maryland.

In 2020, a new Innovative Reuse & Beneficial Use Strategy was developed to guide the use of dredged material, with a focus on climate resiliency.

In 2021, the Board of Public Works (BPW) approved contracts with two Maryland companies to study the use of sediment from shipping channels leading to the Port of Baltimore for innovative purposes such as creation of structural concrete. The contracts follow three others recently approved by the BPW to test use of dredged material to make bricks and pavers, concrete barriers, and shoreline protection structures, as well as a soil amendment for sod production. Ceramic bricks and permeable pavers could be put to use to help with stormwater management.

Approximately 20,000 cubic yards of blended dredged material from the Cox Creek Dredged Material Containment Facility (DMCF) will be reused as soil to support growth of new vegetative cover for shoreline park restoration near Ridgely's Cove. The site's revitalization is part of the new TopGolf facility in Baltimore City being restored as a recreational facility with walking trails. The blended material has been approved by MDE and will be used at Ridgely's Cove for remedial capping and vegetative cover. Ridgely's Cove is the latest example of MDOT MPA using dredged sediment in innovative ways. In the past year, more than 32,000 cubic yards of sediment have been dewatered and transported for offsite restoration projects.

Two Maryland islands have been restored to their approximate "historical" size before erosion using dredged material – Poplar Island and Hart-Miller Island.

Poplar Island Ecosystem Restoration:

The 575-acre expansion project has been completed with capacity for 28 million cubic yards of dredged material from shipping channels. Once dwindled to less than 10 acres due to erosion, the island has been rebuilt to its original 1,150-acre footprint through a MDOT MPA and U.S. Army Corps of Engineers partnership. The Poplar Island restoration is internationally recognized, and today the island is home to hundreds of species of wildlife and waterfowl.

Poplar Island is an important nesting ground for terrapins. The "headstart" program shields young terrapin from harsh weather, strengthens their growth, and hopefully improves their survival rate after a spring release on Poplar Island. More than 2,000 terrapins have been head-started since the program began, and 13,650 diamondback terrapins have hatched on Poplar Island since 2002.

Hart-Miller Island:

Hart-Miller Island, a DMCF now closed to further placement of dredged material, has become a major stop for migratory shorebirds. The National Audubon Society lists Hart-Miller Island among its important bird areas.

A system of trails was completed to enable hikers and cyclists to explore the south cell of Hart-Miller Island, which was restored using dredged material. The 1,100-acre island was built using dredged sediment from shipping channels that serve the Port of Baltimore.

Cox Creek DMCF:

Environmental restoration at Swan Creek, adjacent to the Cox Creek DMCF, not only revived wetland habitat but created a setting that draws birdwatchers to an area where “hard to find” species have been seen. The 126-acre Swan Creek wetlands area will be preserved in perpetuity.

DMCFs rank in the top 25 locations for birding hotspots in Maryland, with Cox Creek being the top location.

An open house was held for the community to tour the recently completed Cox Creek Operations & Maintenance building in October 2019. The complex includes LED lighting, waste oil space heaters to heat the shop and storage buildings, and an innovative system of five water quality micro-bioretenion detention facilities to treat 3.5 acres of new impervious area.

An innovative reuse demonstration project is using dried dredged material from the Cox Creek DMCF as Alternative Daily Cover (ADC) at the Quarantine Road Landfill. In December 2018, MDOT MPA provided approximately 6,000 cubic yards of dewatered dredged material from Cox Creek DMCF for use as ADC at the Baltimore City-owned Quarantine Road Landfill. To date, 3,000 cubic yards have been used.

Mid-Chesapeake Bay Island Ecosystem Restoration Project:

Federal funding was recently secured to begin engineering and design work on the Mid-Bay Island Restoration Project. The project will include restoring two eroding Chesapeake Bay islands, James and Barren islands. Both will be rebuilt using sediment dredged from shipping channels and create more wildlife habitat while also providing more protection from erosion by reducing wave heights. Once completed, this project will restore approximately 2,144 acres of remote island habitat, including 1,212 acres of tidal wetlands.

Benefiting nearby Communities as well as the Chesapeake Bay Ecosystem:

More than 2,000 trees have been planted at MDOT MPA's Hawkins Point Terminal, a closed dredged material placement site. MDOT MPA will conduct monitoring to ensure survivability of the trees and will control invasive species to ensure the site regenerates as a viable native habitat.

In a partnership with Blue Water Baltimore, MDOT MPA has planted over 1,000 trees in Baltimore since 2017 to improve the urban tree canopy.

MDOT MPA worked with DNR to develop an eel ladder at Daniel Dam in the Patapsco Valley State Park. The ladder helps eels move upstream in the river to reach areas of habitat that are otherwise blocked by the dam.

An oyster reef created beside Fort Carroll in the Patapsco River is in excellent condition, with most of the three million young oysters surviving and growing rapidly. The once tiny oyster "spat," barely visible to the eye, are much larger and the restored reef provides a home to other marine life.

In 2019, a popular place for field trips and summer camps will soon have a new living shoreline with 5,000 native plants. The three-year project at Arlington Echo Outdoor Education Center on the Severn River in Millersville involves the MDOT MPA, MES, Anne Arundel County Public Schools, and the Chesapeake Bay Trust.

MDOT MPA and The Maryland Zoo in Baltimore joined forces on stormwater restoration projects at the zoo to stop erosion, provide habitat for local wildlife, and improve the quality of water that flows into the Jones Falls and ultimately into the Chesapeake Bay.

A 16-acre Baltimore County park is gearing up for environmental improvements with the support of a \$500,000 MDOT MPA grant awarded to the County's Turner Station community that will help restore public recreation areas, add walking trails and a boardwalk, and strengthen 2,600 feet of shoreline. Fleming Park, located close to the Port of Baltimore, will be restored using sediment dredged from channels leading to the Port.



Independently-Audited Environmental Management System

MDOT MPA uses an Environmental Management System (EMS) to blend environmental stewardship into the daily tasks and long-term planning of Port operations. In 2011, MDOT MPA won recognition for its EMS by receiving ISO 14001-2004 certification, which signals that the MDOT MPA has met globally

recognized standards for environmental management. MDOT MPA was recertified in 2017 and again in 2020.

Waste

Solid Waste Reduction and Reuse

MDOT MPA is a leader in solid waste reduction and reuse. Examples include:

- *The reuse of up to 1,000 tons of concrete accumulated during the cleanup at the former Kurt Iron & Metal shipyard for substrate improvement at Masonville Cove*
- *The removal of 5,400 tons of sunken wooden barges from the Patapsco River at Masonville which were then shipped via water to a recycler in Virginia*
- *The reuse of waste oil from construction equipment for heating facilities at dredged material placement sites*
- *The replacement of steel and bituminous safety stops along wharf edges with stops made from recycled plastic*

Recycling

In 2020 MDOT MPA recycled 5,918 tons of waste including cardboard, bottles and cans, antifreeze, asphalt, computers, concrete, glass, fluorescent light tubes, batteries, scrap metal, motor oil, tires, railroad ties, office paper, etc. from Dundalk Marine Terminal and the World Trade Center.

MDOT MPA is committed to 100% recycling of oil and fluids, fuel filters, wire rope from cranes, scrap metal, tires, batteries, fluorescent tubes, ballasts, paper, cardboard, bottles and cans at all MDOT MPA facilities. Asphalt and concrete are recycled. A universal waste collection and disposal system was installed.

Governor Hogan issued an executive order to encourage the recycling of dredged material. The order establishes as state policy that Maryland will minimize the environmental impacts of materials management. State agencies shall consider innovative reuse and beneficial uses of dredged material when economically feasible and in conformance with all environmental standards.

Energy

Energy Efficiency

MDOT MPA entered into an energy performance contract that implements energy conservation measures including lighting upgrades, HVAC upgrades, high mast lighting controls that significantly reduce energy consumption, and greenhouse gases. Solar panels were installed on the Cruise Terminal and Shed 10 at South Locust Point Marine Terminal.

MDOT MPA's electrical maintenance department installed new LED lighting inside four sheds at the Dundalk Marine Terminal in preparation for use by Port tenant, [BalTerm](#), which handles cargo for many of the world's largest forest product companies. The new lighting will result in an energy cost savings of more than \$70,000 per year and is expected to remove 559 equivalent tons of carbon dioxide (CO₂). This is equal to the emissions from the electricity used by 70 homes during the course of one year or the greenhouse gas emissions from 93 passenger cars per year.

A significant upgrade project at the Fairfield Marine Terminal where 33 metal halide fixtures, a technology developed in the 1960s, were replaced with LED fixtures.

The Masonville Cove Environmental Education Center is a net-zero energy-efficient building including geothermal heating, solar panels, solar hot water heater, efficient building envelope, double insulated windows, occupancy sensor-controlled lighting, CFL bulbs, moon tube lighting, recycled and local materials, and minimal water-use restrooms.

Four massive electric-powered ship-to-shore container cranes are operating at the Seagirt Marine Terminal that yield increases in productivity and result in significant energy savings. The cranes do not burn fuel; they use heavy-duty electric cables to connect directly to the power grid, running on 13,200 volts, which is significantly higher power than the older cranes. The higher voltage results in less demand on the power grid.

Since 2012, a total of 251 trucks have been replaced through the Dollars for Drays program. In addition to dray trucks, the Port's Diesel Equipment Upgrade Program has replaced, repowered or retrofitted a variety of cargo-handling equipment, locomotive engines and marine engines. Overall, the Port's diesel emission reduction projects have helped lessen air pollution emissions at the Port by more than 5,100 tons.

Two different projects, both improving vehicles at the Port of Baltimore, are proposed to be funded through the Volkswagen settlement as a result of the automaker's violation of the Clean Air Act. The dray truck program is slated to receive \$2 million to continue helping short-haul truck owners replace older, less efficient models with new, cleaner vehicles. An additional \$3.46 million from the settlement would replace cargo-handling equipment and other diesel engines owned by MODT MPA with newer, cleaner diesel equipment. The Port is also planning to replace some diesel terminal tractors and forklifts with electric versions.

An Eco-Minute video presented on social media and the Green Port web page features Canton Railroad. A grant helped Canton Railroad (which operates at the Port) install idle reduction technology on six (6) locomotives, saving fuel and reducing emissions. These systems reduce idling times, cut fuel use, oil emissions, and decrease noise.

MDOT MPA has worked closely with its tenants and port users to identify and implement air emission reduction strategies for terminal activities by conducting air emissions inventories (EI) from cargo-related operations every four (4) years. The EI data shows that between 2012 and 2016, the cargo throughput at MDOT MPA terminals increased by 10%, and at the same time, emissions per ton of cargo handled decreased by an average of 19% for all pollutants. MDOT MPA is currently preparing an EI using data from 2020.

Ports America Chesapeake installed a Gate Management System at MDOT MPA's Seagirt Terminal that incorporates weigh-in-motion scales, optical character recognition equipment, and technologies to promote more efficient truck turn times.

MDOT MPA and its tenants have been reviewing air emission reduction improvements on cargo handling equipment (CHE). Positive strides have been made. The CHE emission inventory helps identify the pieces of equipment that can be targeted for retrofits, repowers, or replacement. The inventory report found significant decreases in total tons of emissions and in the rate of emissions in tons per hour for each pollutant measured.

A voluntary agreement was signed in 2015, committing MDOT, MDOT MPA, and MDE to develop and implement projects that reduce emissions or increase energy efficiency. The Agreement covers the voluntary implementation of air quality & energy efficiency projects. The agencies have been meeting monthly to collaborate on project implementation and stakeholder engagement with an emphasis on underserved/environmental justice communities. MPA completed the fifth successful year working with MDE in implementing air quality improvement projects under the Voluntary Air Agreement.

MDOT MPA recently partnered with MDE’s regional team as a part of a Department of Energy (DOE) grant to advance electric charging stations in the mid-Atlantic region. There is a large push to move to electric vehicles; however, there are not enough charging stations throughout the country to support them. The DOE grant will support a study to determine optimal placement of charging stations in the region.

Renewable Energy

MDOT MPA has initiated many activities to reduce its use of energy at the World Trade Center and its facilities at Port terminals. Solar panels have been installed on the rooftops of the Port of Baltimore Cruise Terminal and Shed 10 of the South Locust Point Marine Terminal. The 750-kilowatt photovoltaic system is expected to produce 379,518 kilowatt hours a year – energy that is worth \$37,952 which will reduce demand by 2,024 kilowatts.

Masonville Cove has an environmental education center has a solar hot water panel, two large photovoltaic panels for generating electricity, a geothermal heating system, and recycled materials were utilized in construction of the facility.

A grant from the Maryland Energy Administrations (MEA) will allow MDOT MPA to complete a feasibility study to investigate microgrid options. Microgrids are localized electric grids that can disconnect from a traditional grid to operate autonomously. MDOT MPA’s feasibility study will look at microgrids for wind, solar, batteries, and fuel cells. This study will develop a conceptual design of a microgrid to serve one of the Maintenance Buildings at the Dundalk Marine Terminal.

Transportation

Efficient Business Travel

MDOT MPA utilizes teleconferencing in lieu of business travel whenever practical.

Fleet Vehicles

All MDOT MPA diesel-powered vehicles and equipment use ultra-low sulfur-bio diesel fuel, including the diesel-powered cranes and rubber tire gantry cranes. Flex-fuel vehicles, alternative fuel vehicles, and hybrid vehicles have been introduced into the MDOT MPA fleet.

For the fifth year, MDOT MPA hosted a Climate Corps fellow from the Environmental Defense Fund (EDF) who conducted valuable research on the role of electric vehicles at the Port of Baltimore, including the potential environmental benefits achieved through the use of alternative fuels and more efficient engines and infrastructure needs.

See additional information about MDOT's MPA efforts to reduce emissions from dray trucks and other equipment and the installation of EV charging stations under the Energy Efficiency heading.

Water

Water Conservation

MDOT MPA redesigned its fire pumps to recirculate fire pump test water resulting in a savings of approximately 14 million gallons of water and improving the water quality of the Harbor by eliminating the discharge of chlorinated water.

Stormwater Management and Site Design

MDOT MPA is committed to meeting the new federal pollution limits for the Chesapeake Bay, known as TMDLs, and has developed a Water Quality Master Plan that characterizes MDOT MPA facilities, identifies areas for improvement, and recommends strategies for supporting TMDLs through its Environmental Management System.

MDOT MPA is working in collaboration with MDE to go beyond simple compliance with TMDL and stormwater requirements by implementing stormwater pollution control practices in advance of regulatory deadlines; developing new and innovative nutrient and sediment reduction technologies; evaluating and quantifying the water quality benefits associated with air emissions reductions at Port facilities; and registering those practices with MDE to assist in development of the State's nutrient credit trading program and meeting the State's TMDL requirements.

MDOT MPA is working collaboratively with MDE to evaluate air quality improvements resulting from these efforts and develop methods for quantifying nutrient credits that can be applied to the TMDL. This can provide an additional financial incentive for both public and private sector facilities to conserve energy and control emissions while improving water quality at the same time.

MDOT MPA is monitoring and working to reduce the release of nutrients and sediments in outflow from dredged material placement sites, MDOT MPA terminals, and other facilities. MDOT MPA monitors water around the Hart-Miller Island, Masonville, and Cox Creek placement sites and has found no adverse impacts from discharges.

All MDOT MPA's tenants that hold a General Discharge Permit for Industrial Activities are required to have stormwater management plans in place for their operations.

A stormwater vault at the Seagirt Marine Terminal, installed by Ports America Chesapeake, collects and treats stormwater before releasing it to the harbor.

A Perk Filter was installed in a storm drain inlet at the Dundalk Marine Terminal as a stormwater retrofit. The filter is designed to treat impervious surfaces removing a variety of contaminants from stormwater and prevent them from eventually reaching downstream waterways. The Perk Filter removes 80 percent of total suspended solids and 40 percent of total phosphorus. This innovative technology also retains oil, metals, and trash from discharged stormwater.

At the Dundalk Marine Terminal, an algal turf scrubber was installed as a demonstration project to test how well controlled algae growth can remove potentially harmful nutrients from the water column. The 300-foot-long scrubber pumps water from the Patapsco River into a shallow screened trough. The water flows through the trough, where the growth of natural algae takes up nutrients from the water and releases dissolved oxygen. This improves water quality by reducing nutrients and increasing the amount of dissolved oxygen available to fish and other aquatic creatures. The pilot project successfully demonstrated the ability to improve water quality, convert waste algae into biogas, and produce electricity using a fuel cell.

The Cox Creek Operations & Maintenance Complex, completed in 2019, includes an innovative system of five water quality micro-bioretenion detention facilities to treat 3.5 acres of new impervious area.

MDOT MPA, supported by a \$648,000 grant from the DNR, installed a lightweight green roof system. This demonstration project evaluates the effectiveness of a green roof that is much lighter than traditional designs and could be used on buildings that can't support greater weight. Moss and drought-resistant plants are growing in a section of the roof.

MDOT MPA has installed a new state-of-the-art stormwater treatment system as part of the redevelopment of the Fairfield Marine Terminal. The underground system, known as the Jellyfish[®], treats stormwater for pollutants such as nitrogen, phosphorus, sediment, trash, and metals before the water is discharged into the Patapsco River. The unit can treat stormwater runoff from a three-acre area.

One of the newest stormwater management systems in the Port of was completed in 2020 at the Fairfield Marine Terminal. A large underground sand filter will absorb and treat the runoff from nearly 14 acres of the terminal. The project used material dredged during the widening of the Seagirt Marine Terminal's navigation channels to fill an antiquated wet basin to allow for construction of the new terminal. The sand filters help to complete the project, treat runoff from the surrounding area, and ensure that only clean stormwater enters Baltimore Harbor.

MDOT MPA developed unproductive land that was previously used to handle imports of fruit to create additional space to accommodate the growing volume of automobiles that move through the Port of Baltimore. The work included the installation of three surface sand filters that created 1.55 acres of new impervious surface, but the project incorporated 7.05 acres of stormwater treatment for a net impervious surface restoration of 5.5 acres.

Upgrading the Dundalk Marine Terminal's drainage system to prevent damaging flooding has proven to be beneficial. Prolonged rainstorms that flooded the terminal lots led the Port to update its 1929 drainage system. MDOT MPA installed storage vaults that hold 56,200 and 101,834 cubic feet total capacities of runoff, provides water quality treatment through a sand filter and pumps the filtered water into Colgate Creek.

Dredged material was used as engineered fill to prepare for a new algal flow-way (AFW) at the retired Hawkins Point DMCF. The AFW, developed and refined through a pilot project at the Dundalk Marine Terminal funded by MDOT-MPA, promotes the growth of algae and helps improve water quality by removing nitrogen, phosphorus, and sediment. Waste algae could be converted into biogas, a sustainable energy source.

The City of Baltimore is home to more than 1,000 new trees through MDOT MPA's Urban Forestry Partnership with the nonprofit group Blue Water Baltimore. Increasing Baltimore's tree canopy helps offset sources of carbon dioxide, reduces stormwater runoff, creates wildlife habitat, saves energy, improves property values, and deepens the connection to nature for city residents.

Trees have been planted in Cherry Hill, Brooklyn, Belair-Edison, Clifton Park, Highlandtown, along Route 40, and most recently, along Broening Highway, one of the main thoroughfares to the Port.

MDOT MPA has provided funding to help restore oyster beds in the Chesapeake Bay. This initiative allows oysters to filter pollutants from the river and create food and habitat for other species.

Trash Wheels:

MDOT MPA helped fund the first trash wheel owned and maintained by the Waterfront Partnership of Baltimore. The Inner Harbor Trash Wheel located at the mouth of the Jones Falls is powered by sun and water. After clearing litter from Baltimore waters for a full year it collected more than 150 tons of trash and debris equal to the weight of about fifteen school buses.

The success of this project led to the installation of three MDOT MPA-funded trash interceptors in Baltimore City. Powered by river current and solar energy, these internationally renowned trash wheels lift floating bags, bottles and other trash onto a dumpster barge. The three Trash Wheels are affectionately named — Mr. Trash Wheel, Professor Trash Wheel, and Captain Trash Wheel. The Trash Wheel Family has collected 1,561 tons of trash and debris.

Baltimore's fourth trash wheel is arriving soon at the mouth of the Gwynns Falls in southwest Baltimore. This newest machine will face about 400 tons of litter and debris that flow into the Chesapeake Bay and the Patapsco River annually. Baltimore's trash wheels have become models for many other cities.

Smart Cans:

MDOT MPA originally purchased and installed six Big Belly solar powered trash receptacles that look like mailboxes. The waste receptacles have a solar panel on top that supplies the power used to compact the trash.

To help stop litter in Baltimore City and the surrounding waterways, MDOT MPA funded more than 200 Smart Cans. Baltimore's central business district and other high-profile business and commuter corridors received another 197 cans funded by MDOT MPA.

Street Sweeping:

MDOT MPA and its tenants conduct regular street sweepings which remove trash and sediment and installed trash collectors in several storm drains as part of its Clean Port Initiative to reduce waterborne litter. In 2020, MDOT MPA and its tenants collected and disposed of 228 tons of street sweepings and an additional 255 tons from stormdrain cleaning. MDOT MPA annually inspects 25% of all stormdrain structures to determine if cleaning is needed. Stormdrain cleaning removes sediment and nutrients from the stormwater system before it can reach the Patapsco River.

Anti-Litter Campaign:

“Throw away, don’t blow away!” The slogan cropped up all over the Dundalk Marine Terminal as part of an anti-litter campaign by MDOT MPA and Wallenius-Wilhelmsen Logistics. As part of the Trash-Free Port Initiative, the campaign aims to reduce the amount of litter that enters and harms nearby waterways.

Always striving to be a good neighbor, MPA became part of the Sponsor-a-Road program in Baltimore City, sponsoring a monthly debris cleanup along one mile of road at five locations in the Brooklyn, Curtis Bay, and Cherry Hill communities. Since the program began in October 2019, MPA’s sponsorship led to 205 bags of debris being removed from the roadways.

Environmental Certification Programs, Awards, and Other Activities



Climate Change:

MDOT MPA will continue to consider and assess the impacts and opportunities to the Dredged Material Management Program resulting from climate change. With more than 3,100 miles of tidal shoreline and approximately 70 percent of residents living within the coastal zone, Maryland is susceptible to sea-level rise and storm surge, which threatens property, lives, and the economy. MDOT MPA actively participates on the Maryland Commission on Climate Change’s Adaptation and Resiliency Work Group.

In 2020, as the Innovative & Beneficial Use Strategy is re-evaluated, opportunities to address climate change in the strategy will continue to be considered. MDOT MPA will also focus on the carbon sequestration opportunities associated with beneficial use.

To fulfill its mission, MDOT MPA must operate along the water's edge, making it susceptible to the impacts of climate change. Marine terminals and other facilities, due to their location, may be subject to flooding and tidal inundation from projected sea level rise and severe weather events. Since marine activities require direct access to water as an integral part of their function, marine terminals cannot be relocated and must adapt in place. As a water-dependent use, MDOT MPA is continuously working to make sure its engineering, facility and operations personnel, as well as those of our private-sector partners, are aware of potential climate change impacts, and are working to become more resilient.

Recognizing that port operations may be threatened by changing climate conditions, MDOT MPA has adopted a four-pronged model to assess future actions, as follows:

MIGRATE:

Move terminal functions out of the flood plain, when feasible. Many terminal functions must be in proximity to the water, making this difficult to execute. MDOT MPA may, however, move activities out of the flood plain if they are not directly related to cargo operations, including administrative activities.

ELEVATE:

All new MDOT MPA facilities or structures sensitive to damage that must remain on the terminals will be designed to be 2 feet above the 100-year flood elevation if operationally feasible.

MITIGATE:

Those facilities or structures that cannot be migrated or elevated, will be reinforced or strengthened with non-corrosive materials that can handle inundation or limit potential weather damage, whenever significant maintenance is required, or capital investments are being made.

OPERATE:

In the face of climate related events (and other disruptive events/disasters), the Port has operational plans in place so that normal operations can resume as quickly as possible.

In 2020, MDOT MPA announced that it will receive \$10 million in federal funds to help protect the Port of Baltimore's Dundalk Marine Terminal against severe weather events, future sea-level rise, and potential climate change

impacts. Components of the Port's flood mitigation project include deployment of berth and landside sea curbs, installation of storm drain backflow preventers, and construction of a box culvert/water storage structure to prevent flooding caused by storm surge and microburst storms.

In January 2020, MDOT MPA's Manager of Strategic Planning and Special Projects, Jill Lemke, was one of 40 professionals recognized by Maryland Governor Larry Hogan as Maryland's first Certified Climate Change Professionals®, an international credential administered by the Association of Climate Change Officers.

Public Outreach:

MDOT MPA publishes GreenPort, a bi-monthly e-newsletter about MDOT MPA's projects, programs, and events that help protect natural resources in the Chesapeake Bay region. The information is available online at: www.marylandports.com and by clicking on the GreenPort icon.

MDOT MPA launched an outreach campaign, "Sediment to Solutions: Channeling Innovation," by creating a You Tube video, and an Infographic to promote awareness and encourage public support for the beneficial and innovative uses of dredged material.

Tours at Maryland's dredged material placement sites have proven to be excellent teaching tools for both students and adults. Meaningful field experiences at Hart-Miller Island, Masonville Cove, Poplar Island, and Swan Creek (at Cox Creek) help students meet environmental literacy graduation requirements as set forth in Governor Hogan's Executive Order on Project Green Classrooms.

Twice yearly tours are provided to community stakeholders which have been highly successful in building community relationships and a better understanding about Port environmental projects and programs.

In 2019, 20,992 people learned about the Port of Baltimore at approximately 500 outreach events by visiting DMCFs and participating in community events, meetings, conferences, and educational programs. To help stop the spread of Covid-19, most in-person group events were canceled. Many public meetings shifted to virtual formats with high participation.

At the Association for Environmental and Outdoor Education's annual conference in Ocean City in February 2020, a workshop called Port Project WET (Water Education for Teachers) centered on issues related to water resources

and conservation, as well as the Port's efforts to mitigate stormwater runoff, erosion, and shoreline damage.

The American Association of Port Authorities presented MPA with its prestigious Mitigation Award of Excellence for the algal flow-way project. The algal flow-way, which was in operation at the Dundalk Marine Terminal, diverted the Patapsco River's nutrient and sediment-rich water to grow algae, which then trapped or consumed the pollutants.

Annually, MDOT gives out environmental excellence awards, where each Transportation Business Unit submits projects and competes for the award. MPA won two awards in 2020 for the stormwater pond and stream restoration projects installed at the Maryland Zoo in Baltimore.

MPA's commitment to environmental stewardship during the global pandemic has not slowed. There has been a successful pivot to virtual meetings with stakeholders, online platforms, webinars, and workshops. A record 115 attendees participated in the first virtual Dredged Material Management Program (DMMP) Annual Meeting on November 6, 2020.

Virtual educational resources from the Port of Baltimore are available on an Environmental Education E-Learning Portal.

There is a Facebook page that includes the Poplar Island Head Start terrapins. Visitors can watch recaptures and see teachers' reactions to seeing their "babies" return. Visit: www.poplarislandrestoration.com

Coming soon! Virtual tours of Cox Creek, Hart-Miller Island, Masonville Cove, and Poplar Island DMCFs.

Profile Updated April 2021



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