MDOT MPA Dredged Material Management Program

Annual Report 2020

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Dredged Material Management Act
Commemorating 20 Years
2001-2021

FORWARD PROGRESS DURING OUR MOST CHALLENGING YEAR

Q1
Jan-Mar

- Masonville Tipping Fee Memorandum of Agreement executed with the Corps for placement of dredged material from federal navigation channel
- MD Approach Channel dredging and placement at Poplar Island commenced
- Cox Creek Expansion construction progressed on schedule

Q2
Apr-Jun

- Completed dike raising at Masonville Dredged Material Containment Facility (DMCF) to +18 feet
- Pivoted to virtual stakeholder engagement
- MDOT Secretary's Grant that funded water supply line from Town of Cecilton to properties within Pearce Creek Service Area completed

Q3
Jul-Sep

- Welcomed new MDOT MPA Executive Director William P. Doyle
- Environmental, geotechnical, hydrographic, and aerial surveys completed for Mid-Bay Project Pre-Construction Engineering and Design phase
- Completed Poplar Island Expansion dike construction
- MD Board of Public Works approved first Innovative Reuse contract to study feasibility of dredged sediment for manufacturing bricks and pavers

Q4
Oct-Dec

- Commenced Seagirt Loop Feasibility Study
- Critical Area Commission unanimously approved Cox Creek Expansion mitigation plans for dike raising to +60 feet
- Executive Committee approval of Innovative Reuse and Beneficial Use (IRBU) Strategy expected
- Agreement with DNR and MES outlining roles and responsibilities at Hart Miller Island over the next decade is expected by the end of the year

► Reporting In On 2020

This report provides the Dredged Material Management Program (DMMP) Executive Committee with a brief overview of the Maryland Department of Transportation Port Administration's (MDOT MPA) long-term dredged material management plans, highlighting accomplishments for the year, and providing recommendations for 2021. Across the board, 2020 continues to be a year of unprecedented uncertainty and challenges but the DMMP has been able to adjust and adapt in order to continue delivering on the mission to maintain the Port's 50-foot deep channel system and its commitment to science-informed decision-making, monitoring, and communication. The program's strengths in strategic planning, proactive technical analysis, and resourcefulness were demonstrated through the ability to advance planned inflow projects, despite cost-containment measures and schedule changes to construction projects, while also maintaining ongoing, robust stakeholder coordination and community engagement.

New environmental education virtual learning tools were developed, and a record number of volunteer committee members were trained and participated in numerous virtual committee meetings. These results are an incredible testament to the relationships built over many years throughout the DMMP and the importance of the program and its role in the Port of Baltimore's overall success, all of which will support the region's economic recovery as we emerge from COVID-related impacts.

MDOT MPA's Mission: Keep Things Moving

The mission of the MDOT MPA is to increase the flow of waterborne commerce through the State of Maryland in a manner that benefits the citizens of the State. In service of that mission, the Office of Harbor Development aids in the maintenance of the navigation channels that serve the Port of Baltimore by providing a 20-year dredged material capacity plan, promoting environmental stewardship to benefit the Chesapeake Bay, and actively engaging and partnering with stakeholders to drive outcomes that benefit the state economically, environmentally, and socially. In support, the advisory committees and structure that make up the DMMP were established to manage the state's dredging needs and capacity constraints. The DMMP works collaboratively to identify long-term placement and capacity solutions that serve the best interests of the state, are cost-effective and technically sound from an engineering and environmental perspective, are in full compliance with applicable laws and regulations, and are supported by our stakeholders, all while driving forward the innovation and beneficial outcomes that are a hallmark of the program.

In 2001, the Maryland General Assembly enacted the Dredged Material Management Act (DMMA) that established the DMMP to ensure that federal navigation channels in the Chesapeake Bay and Baltimore Harbor remain open, safe, and efficient for waterborne commerce. The DMMA continues to guide these efforts, almost twenty years later, providing a sound programmatic structure for a multi-faceted dredged material management program that utilizes a range of solutions, from beneficial use to expansion of existing facilities, for four separate segments of the Port of Baltimore's 130+ mile channel system.

► This Year's Key Issues

The Port is at the heart of Maryland's economic and supply chain infrastructure and will continue to play a vital role in assisting the state in recovering from the challenges of 2020. To support the safe and efficient movement of commerce in and out of the Port, the shipping channels must remain open. These arteries, which are so important to the vitality of the Port and the state's supply chain, require regular maintenance dredging. In order to keep those channels deep and wide enough for the cost-effective transport of cargo, MDOT MPA must successfully meet federal and private sector dredging needs within the available planned placement capacity options. To accomplish this, the team engages in a wide range of planning and implementation efforts, including long-range capacity planning, site engineering, optimizing operations at dredged material placement sites, as well as timely permit acquisition and consistent compliance. In reviewing this year's work, it is clear that several key issues remain, and new challenges have arisen that are critical to a successful DMMP and should be brought to the attention of the Executive Committee for the purpose of planning strategically for 2021 and beyond. These key issues are presented below in greater detail.

» Funding & Policy

New Budget Realities Demand Prioritizing Critical Projects: 2020 presented unprecedented budget challenges, which pushed staff to work more creatively, more collaboratively, and more strategically to deliver on our mission while weathering severe funding constraints. Policy coordination among agencies became more critical than ever. In order to maintain progress on the most critical projects and meet dredged material management goals while reducing costs, MDOT MPA prioritized the funding of Mid-Bay Islands, Cox Creek Expanded, acquisition of the Tronox property and advancing Innovative Reuse, as well as the Seagirt Loop Feasibility Study and Berth 3 deepening. MDOT MPA maintained funding to invest in Innovative Reuse projects, while deferring significant costs related to Masonville Dredged Material Containment Facility (DMCF) expansion by delaying the next phase of planned base dike widening and dike raising. With this plan in place, MDOT MPA can accommodate all anticipated U.S. Army Corps of Engineers (Corps) and private sector maintenance dredging projects already programmed in the Long-Range Capacity plan, as well as the Seagirt Loop (pending completion of the Feasibility Study) and the new 50-foot deep berth at Seagirt. MDOT MPA will also continue to work diligently for timely restoration of funding for Masonville DMCF expansion in addition to advancing some innovative and low-cost capacity recovery efforts in the interim to maximize productivity during this period.

Priorities for a Preeminent Port

One of the hallmarks of the Port of Baltimore is shipping lanes that can accommodate some of the largest container ships in the world. In order to maintain those depths and widths, nearly five million cubic yards (mcy) of dredged material must be removed every year, which is why ensuring adequate long-term capacity for that material is vital to the continued success of the Port and its many opportunities for continued economic growth.

Because of the enormous cost and time required to create new dredged material containment facilities, ensuring long-term capacity is a continual challenge. For this reason, funding Harbor Development's critical projects at their current levels is vital. In order to assure this funding, both at the state and federal levels, MDOT MPA regularly meets with the Maryland Congressional delegation and other federal partners, while at the same time making every effort to contain costs, seek solutions to any foreseeable challenges, and coordinate with all partners.

1. Mid-Bay Islands: Our #1 Priority: The Mid-Chesapeake Bay Island Ecosystem Restoration (Mid-Bay) Project is located on the islands of James and Barren in western Dorchester County and will restore remote island habitat to provide hundreds of acres of wetland and terrestrial habitat through the beneficial use of dredged material. It has consistently been identified as the Port of Baltimore's number one federal priority when briefing the Maryland Congressional delegation, the Corps, the Assistant Secretary of the Army for Civil Works (ASA-CW), and the Office of Management and Budget (OMB). Once Poplar Island reaches capacity, Mid-Bay is the recommended plan to accept 2-3 mcy of annual maintenance dredged material from the Maryland Chesapeake Bay channel segments. Final design is currently underway, and the first phase of construction at Barren Island is imminent. Therefore, MDOT MPA increased engagement with the Maryland Congressional delegation this year in preparation to request $38 million dollars (M) in federal construction funds be included for the project in the President's Fiscal Year (FY) 2022 Budget. Adequate federal construction funding must be secured in order to avoid the risk of deauthorization in June 2024. The most critical goal: timely advancement of the Mid-Bay Islands final site design while obtaining sufficient federal funding for construction. Barren Island construction is slated to begin in 2022 and James Island in 2024, with the expectation for being available to receive inflow starting in 2029, prior to Poplar Island reaching maximum capacity in 2032/2033.

Without Mid-Bay, the 50-foot channel segments in the Bay will shoal to a controlling depth of 45 feet within 2 -3 years.

The critical path focus in 2021 is to advance the project as authorized with a 65% federal/35% state cost-share aquatic ecosystem restoration project while coordinating with our federal delegation partners, the ASA-CW, Corps Headquarters, and OMB. MDOT MPA also works closely with the Corps' Baltimore District, coordinating at every level. At the peak of construction, MDOT MPA will need $25 M per year for eight years beginning in FY26. If federal construction funds are not included in the

President's FY22 Budget, MDOT MPA and the Maryland Congressional Delegation may need to prepare to include language in the next Water Resources Development Act (WRDA) to extend the authorization of the project or identify other creative solutions for advancing the project.

Increasing capacity at the Cox Creek facility is critical to maintaining a long-term plan for placement capacity of Harbor material and maintaining the 50-foot channel system necessary for the competitive movement of cargo and thousands of jobs associated with the Port.

2. Building A Better Cox Creek Dredged Material Containment Facility (DMCF): Vertical and lateral expansion of the Cox Creek DMCF (combined with the vertical expansion of the Masonville DMCF) satisfies the 20-year plan for Harbor maintenance material and some new work (private sector new work material currently not accepted) dredging projects. If expansion activities were to cease at Cox Creek, MDOT MPA would only be able to accept federal maintenance material inflows (with no capacity available for private maintenance work or state projects such as Seagirt Berth 3 or Seagirt Loop) through FY26, at which point maximum capacity in the Harbor DMCFs would be reached. MDOT MPA needs to meet its statutory mandate (Md. Code Ann., Envir. § 5-1104.2) to provide a rolling, long-term 20-year plan for dredged material management and adequate capacity to maintain the Port of Baltimore channels. To maintain continuity of operations and capacity planning, MDOT MPA will need to work to restore funding for the expansion of Masonville DMCF as Cox Creek Expansion construction is completed (FY24).

3. Making Innovative Use of the Tronox Property: MDOT MPA is currently in discussions with Tronox to acquire the approximately 170-acre site, a former industrial facility located immediately north of the Cox Creek DMCF, for the primary purpose of furthering long-term capacity recovery efforts through large-scale innovative reuse of dredged material, as well as for future cargo terminal/maritime use.

Maryland is on the brink of cost-effective, sustainable capacity recovery, which will provide much-needed capacity for Port growth.

The Tronox Property acquisition and large-scale innovative reuse (IR) activities anticipated to take place there are necessary for continuing the strategic planning for long-term dredged material management capacity and facilitating port growth opportunities. Along with Cox Creek DMCF and Masonville DMCF, IR at Tronox is needed to optimize the life of both Harbor containment facilities and minimize any future


HART-MILLER ISLAND
PEARCE CREEK
MASONVILLE
COX CREEK
DELAWARE BAY
POPLAR ISLAND
MID-BAY ISLANDS
CHESAPEAKE BAY
ATLANTIC OCEAN
WOLF TRAP ALTERNATE
50' CHANNEL SYSTEM
35' CHANNEL SYSTEM
ACTIVE PLACEMENT SITES
PLANNED PLACEMENT SITES
INACTIVE PLACEMENT SITES

need to identify and construct a third Baltimore Harbor DMCF (which can take anywhere from 8-15 years to complete, assuming there is a viable property with public support and significant funding available).

4. Deep-Water Loop At Seagirt: MDOT MPA requested the Corps study deepening the entire Seagirt-Dundalk access channel system, allowing for ships to loop through the channel and remove the inefficient need to back-up and turn around, and that the Corps maintain these improvements as part of the authorized Baltimore Harbor and Channels 50-foot MD & VA federal navigation project. The Seagirt Loop Feasibility Study and Berth 3 Improvements relieve the terminal's berth capacity bottleneck, thereby increasing operational and commercial flexibility and enable vessels to more efficiently move in and out of the terminal. Together these projects support the region's containerized cargo growth demand to remain competitive with other ports.

Once completed, the Seagirt Loop and Berth 3 Improvement projects will provide additional capacity and cargo handling capabilities to better accommodate ultra-large container vessels as well as provide efficient and safe navigation.

The Corps Baltimore District was awarded $1.5 M in the FY20 Corps Work Plan to conduct a Feasibility Study evaluating the need and justification for deepening the Seagirt Loop Channel. The Feasibility Study is cost-shared 50/50 with MDOT MPA as the non-federal sponsor. A Feasibility Cost Share Agreement has been finalized, and the three-year study started in October. The study will assess inefficiencies and safety concerns as vessels transit to the shallower Seagirt Berths 1-2 while the deeper 50-foot Berth 4 (and soon to be 50-foot deep Berth 3) are occupied with the largest vessels transiting the Panama Canal. Assuming the study justifies the project is in the federal interest, MDOT MPA will then work with federal partners to include it in subsequent WRDA legislation and appropriations bills. The total construction is estimated at $33M and would be executed with a 75% federal/25% state cost-share, resulting in an MDOT MPA contribution of approximately $9M.

The Seagirt Berth 3 improvements, currently underway through a federal Better Utilizing Investments to Leverage Development (BUILD) Transportation Grant and in partnership with Ports America Chesapeake, includes deepening a second 50 foot berth at the Seagirt Marine Terminal and dredging wideners to accommodate the safe navigation of Ultra Large Container Vessels coming into and out of the berths. It also includes performing maintenance dredging

MDOT MPA's Goal: to ensure long-term, sustainable capacity for dredged material management that can meet both maintenance and new work dredging needs.

of the channel leading up to the berth. Overall this project includes approximately 600,000 cy of dredging to be completed in time for the new cranes to be delivered to the Seagirt Marine Terminal, currently projected for April 2021.

» Planning & Operations

Capacity Planning for the Long Run: With so much at stake, capacity planning is imperative; the DMMP must take into consideration every possible challenge and all potential solutions. External challenges include: the effects of climate change and sea-level rise on dredging and placement capacity, property acquisition, funding challenges, permitting delays or obstacles, procedural requirements, and others. Additionally, planning accounts for the possibility of changing dredging inflow demands due to the expansion of existing private terminals and potential future public and private marine terminals.

Bay Channels: With Poplar Island reaching capacity by 2032/2033, securing adequate and timely funding to bring Mid-Bay into operation no later than 2029 is all-important. Without it, the Port's 50-foot channel segments will quickly shoal, jeopardizing businesses that rely on the 50' channel system and putting the health of the Port, and all of its economic advantages, at risk. Once completed, Mid-Bay will accommodate an estimated 90 - 95 mcy of dredged sediment, providing placement capacity for more than 30 years.

MDOT MPA is a nationally-renowned leader in the beneficial use of dredged material.

Harbor Channels: There are pinch points in the current 20-year capacity plan for material removed from the Baltimore Harbor channel segments. Even in an ideal funding scenario, the 20-year plan is constrained and does not facilitate port growth because of the ongoing moratorium on private sector new work dredging inflows. Through FY27 MDOT MPA can accommodate all anticipated Corps maintenance inflow as well as planned private sector maintenance dredging projects, including the new 50-foot deep berth at Seagirt and the Seagirt Loop (pending completion of the Feasibility Study). As a result of COVID-related funding impacts, the second phase of dike raising to +30 feet at Masonville has been placed on hold. MDOT MPA continues to work diligently to restore this funding in addition to advancing cost-effective efforts in the interim to maximize productivity, recover capacity, and continue to pursue innovative, creative alternative dredged material management solutions.

The Many Benefits of Innovative and Beneficial Reuse of Dredged Material: As new ways to recycle dredged material evolve, abilities for placement even beyond containment facilities expand. This is why Innovative Reuse and Beneficial Use (IRBU) is a priority for the Governor, MDOT, and MDOT MPA.

Innovative reuse
the use of dredged material in the development or manufacturing of commercial, industrial, horticultural, agricultural, or other products and includes upland uses of dredged material

Beneficial use
the use of dredged material for the restoration of underwater grasses, island restoration, stabilization of eroding shorelines, the creation, or restoration of wetlands, and the creation, restoration or enhancement of fish or shellfish habitats

Roadmap to Innovation: In 2020, an updated IRBU Strategy was developed with input from both the Innovative Reuse and Management Committees. It includes detailed strategies related to the policy, regulatory, and technical aspects of the program as well as expanding education and stakeholder engagement efforts. The 2020 Strategy recognizes the significant advancements of the IR program since the 2014 Strategy was released and provided a clear framework for action. This new Strategy builds on those lessons learned and further points the program in an ambitious, yet attainable, direction for implementing large-scale IR as the sustainable future for Harbor material capacity planning. The 2020 IRBU Strategy is being presented to the Executive Committee for final approval later this year.

Recovering Capacity at Cox Creek DMCF: Dredged material continues to be excavated, dewatered, and stockpiled onsite at Cox Creek DMCF to be used for small-scale projects and other opportunities to further the IRBU program. Over the past year, approximately 32,000 cy of material has been dewatered and transported for use in offsite projects. The dewatered volume is equivalent to approximately 100,000 cy of recovered capacity in the Cox Creek DMCF! Without acquisition of the Tronox property, there will be limited space and opportunity for these critically needed dredged material recovery operations.

Breaking New Ground at Ridgley's Cove: Several small volume innovative reuse demonstration projects have been completed with the most recent collaboration currently underway at Ridgley's Cove. Ridgley's Cove is an overgrown, under-utilized park located behind the Horseshoe Casino parking garage in Baltimore City. As part of the upland remediation efforts associated with the City's development of a TopGolf facility, MDOT MPA, in close coordination with Maryland

Department of the Environment (MDE), Baltimore City, TopGolf, and Baltimore Development Corporation, is providing 22,000 cy of blended dredged material for use as remedial capping material to assist in reactivating Ridgley's Cove as a recreational asset.

In September, the Maryland Board of Public Works approved a contract to study the feasibility of using dredged sediment for manufacturing bricks and pavers.

Introducing our Innovation Hub: The Cox Creek DMCF is well-positioned to be the future innovation hub for IRBU. In 2019, MDOT MPA issued a Request for Proposals (RFP) to support applied research & development projects to explore feasible reuse applications for Harbor dredged material. This RFP will help MDOT MPA better understand the potential for long-term, large-scale, cost-effective capacity recovery with IRBU. A series of contract awards is underway and will continue into 2021. Results of these projects will allow MDOT MPA to identify high-volume, sustainable reuse applications to support long-term strategic planning and identify the key steps to making large-scale innovative reuse a reality at the Port of Baltimore.

Taking Steps to Address Climate Resilience: Given the Port's status as a highly water-dependent use, MDOT MPA is committed to making every effort to become as resilient in the face of changing climate conditions as possible. Working with local, state and federal partners to research, plan for, and implement sound climate resilience and adaptation policies and projects is key to making progress. Beneficial use of dredged material can be one important tool in this effort. Advancements continue under the 2020 IRBU Strategy which calls for MDOT MPA to "Investigate how beneficial use of dredged material can be expanded to address Maryland's Coastal Resiliency needs" by addressing policy, regulatory and technical issues, implementing programs and projects, and enhancing education and stakeholder engagement opportunities. Collaboration will be critical, beyond just the work of the DMMP. MDOT MPA is an active participant in the Maryland Commission on Climate Change (MCCC) and continues to work closely with MDOT, MDE, Maryland Department of Natural Resources (DNR), the University of Maryland Center for Environmental Science (UMCES), and other partners to identify opportunities to proactively plan ahead and implement preventive measures to address climate change impacts.

Current specific efforts include:

- Mid-Bay encompasses the islands of James and Barren in western Dorchester County and is focused on restoring remote island habitat to provide hundreds of acres of wetland and terrestrial habitat through the beneficial use of dredged material. The islands, restored to their former glory, will act as a buffer against land loss by reducing wave heights to protect waterfront communities on the Eastern Shore, whose banks have been steadily eroding. The Mid-Bay project will restore approximately 2,144 acres of remote island habitat, including 1,212 acres of tidal wetlands. In addition, this restoration will protect existing Island remnant habitats while also protecting existing seagrass beds and promoting their future growth. [1]

- In 2019, a local community partner, the Turner Station Conservation Teams, was awarded an MDOT Secretary's Grant in the amount of $500,000 to support the Fleming Park Shoreline Restoration and Beneficial Use of Dredged Material Project which involves the revitalization of a recreational asset in Baltimore County by reusing dredged material in both upland and in-water applications. The Fleming Park project will be a showcase for beneficially using Harbor channel dredged material in the Baltimore Harbor area to address coastal resiliency challenges such as the impacts of erosion, flooding, and inundation from rising sea-level.

- MDOT MPA continues to share relevant scientific data with the MCCC and UMCES, including specific information related to carbon sequestration in marshes on Poplar Island. This information could play a part in the International Blue Carbon Initiative, a coordinated, global program focused on mitigating climate change through the conservation and restoration of coastal and marine ecosystems.

There is much to be learned from the application of dredged material to address coastal resilience. The challenge will be doing it in a manner that is cost-effective. MDOT MPA is committed to exploring innovative and alternative funding sources and partnerships to continue this work.

The Future of Confined Aquatic Disposal

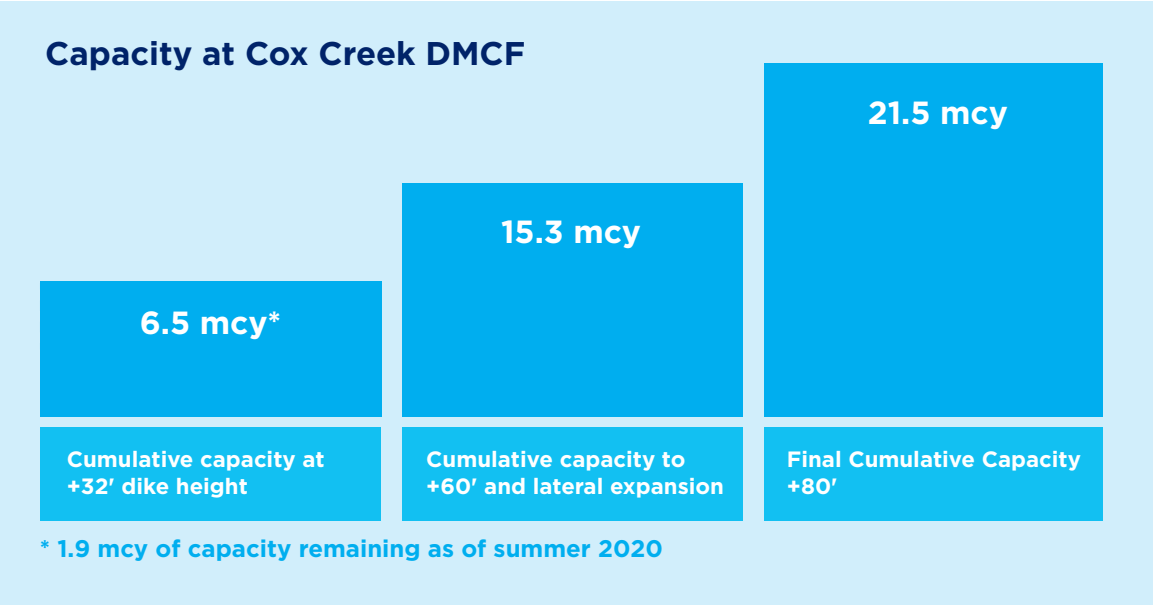
MDOT MPA successfully completed the final monitoring for the Confined Aquatic Disposal (CAD) pilot project in February 2019 and has been working to evaluate the lessons learned from the pilot and to determine the next steps for the program. Planning and investigative efforts are underway, including geotechnical investigations and hydrodynamic modeling within Baltimore Harbor, to gather additional information that is needed to help inform the siting of the locations for the next CAD pilot cells, based on lessons learned from the first pilot project with the goal of identifying a site by the end of 2020.

CAD and IRBU provide for flexibility and agility in Harbor capacity planning strategies.

DMCF Operations Continue Apace

DMCF operations continued throughout 2020 with minimal impacts from COVID. Harbor dredging projects including 50 foot channel maintenance, Baltimore City Fleetweek (Inner Harbor), TradePoint Atlantic, and Seagirt Berth 3 have or will lead to inflow into the Masonville and Cox Creek DMCFs this year. These two sites, working together as a system, are able to accommodate the current harbor maintenance dredging demands in an efficient and effective way while managing water discharge and crust management at each site.

[1] In 2020, Management Committee members discussed and proposed an opportunity to provide comments on the environmental, coastal resiliency, and habitat design of the Mid-Bay Project. MDOT MPA will coordinate with Management Committee representatives to provide comments to the Corps and consider formation of a Mid-Bay working group and coastal resilience sub-group at the appropriate phase of the project. The Corps will continue to provide construction design updates to the Management Committee during the appropriate timeline of the project.



Cox Creek Expanded: MDOT MPA is on schedule with the Cox Creek DMCF expansion by vertically raising the dikes and building onto the MDOT MPA-owned upland property, as recommended by the Harbor Team in 2011. Construction of the base dike continued with completion projected in spring 2021. The site re-opened to receive dredged material this fall, and the expansion to +60 feet is on schedule to start in early 2021 and be completed in 2024, with active coordination with MDE and Corps on permitting.

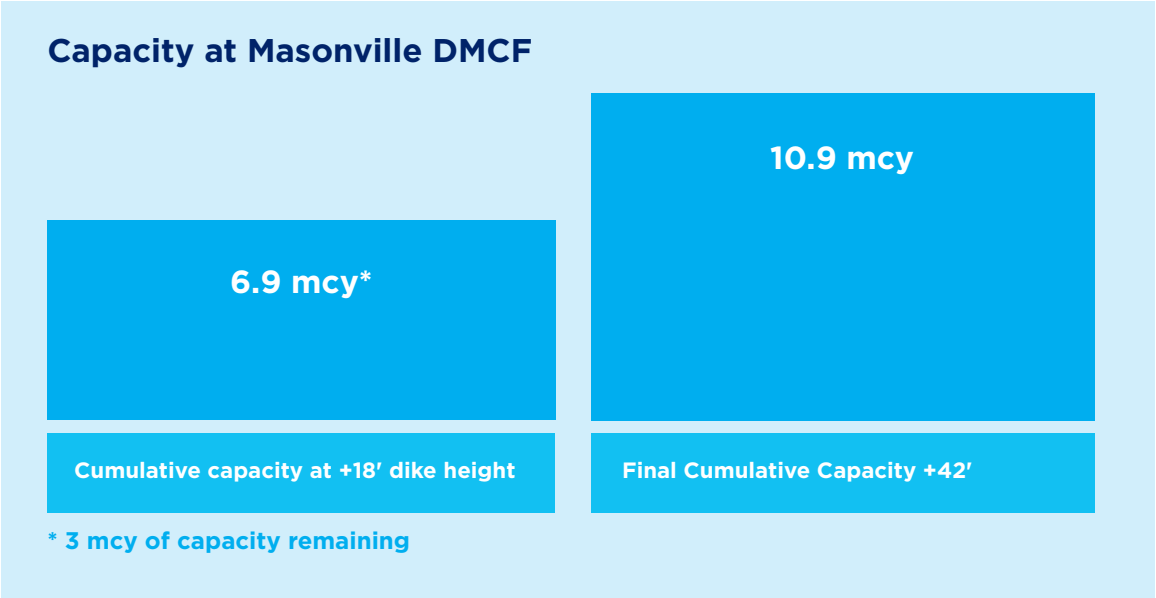
The expansion involved demolishing 26 old industrial buildings and remediation during which over 124,000 tons of concrete, steel, and asphalt were recycled. Additionally, over 123,600 tons of concrete, stone, and glass debris from stockpiles left by a previous tenant at the Cox Creek site was found suitable and used as fill material in a construction project at the Masonville DMCF. Remediation and removal of Building 201 were completed in 2020, and the closure report was accepted by EPA in August 2020.

During this demolition work, 100% of the asphalt removed was recycled; 88% of steel was recycled, and 77% of the concrete removed was recycled.

Cox Creek DMCF has experienced recurring water quality issues that have prevented discharge from the site, including high total volatile suspended solids (TVSS), as well as elevated nutrient levels, and high pH. The high TVSS levels warranted conducting a pilot flocculant study[2] to determine the effectiveness of the removal of TVSS to meet water quality standards as stated in the discharge permit. If the results of the pilot project are favorable, MDOT MPA may move forward with a discharge permit modification for this treatment method to be implemented at the site.

[2] Water from the Cox Creek DMCF basin will be pumped and then discharged into a "launder system" composed of 12-inch diameter corrugated split pipe attached inside the perimeter of two 20,000-gallon double-walled baffled frac tanks. The water in the launder system will contact Floc Logs and then flow through the two frac tanks where the flocculated particles will settle and be captured. Ultimately, the water will be discharged into one of the two disposal frac tanks.

The Cox Creek Citizens Oversight Committee continues to provide input, feedback, and advice to MDOT MPA regarding the operation of the facility and minimizing potential impacts it may have on the nearby communities and natural resources in the area. MDOT MPA staff and Cox Creek COC members have worked together to develop a prioritized list of community enhancements that could be completed as a supplement to the required mitigation, and work has begun on the top three priority projects.



Masonville: Harbor Development = Habitat Development: All on-site and off-site mitigation projects for the construction of the Masonville DMCF were completed in 2020, culminating with plans to install a fourth trash interceptor at Gwynns Falls in partnership with the Waterfront Partnership of Baltimore. The first lift of dike raising (+18 feet) was completed in April 2020, bringing the cumulative capacity of the site to 6.9 mcy. The second lift of dike raising (+30 feet) is on hold due to COVID-related state budget constraints. To maintain continuity of operations and capacity planning, MDOT MPA will need to work to restore funding for the expansion of Masonville DMCF as Cox Creek Expanded construction is completed (FY24).

At the adjacent and bustling Masonville Cove campus, this once neglected and contaminated industrial dumping ground is now home to over 300 species of birds and animals. People are welcome too! The Masonville Cove Partnership organizations (MDOT MPA, Living Classrooms Foundation, National Aquarium, and U. S. Fish and Wildlife Service) each provide numerous opportunities and environmental education programs that allow neighbors and students to interact with wildlife and the natural environment, inspiring all people to explore, discover, and respect nature, growing the next generation of environmental stewards. The Partnership completed a strategic plan in 2020 including an updated collective mission, vision, and logo. Implementation of the plan has

Masonville Cove is home to the only known pair of nesting eagles within Baltimore City.

In 2020, Captain Trash Wheel removed almost 4 tons of floatable debris, keeping it from entering the Patapsco River.

begun with the goal of becoming a national leader in urban conservation, known for superior educational programs and as a community asset and recreation destination where everyone has equal opportunity to benefit from meaningful outdoor and stewardship experiences. The Masonville Cove campus will be entered into a conservation easement held jointly by Maryland Environmental Trust and Baltimore Greenspace, a local land trust, to protect the area as a natural environment into the future.

MDOT MPA received notification in February that the Federal Lands Access Program (FLAP) application was approved, though it is still unknown when and how much funding will be available, which will determine the final project scope. The purpose of the FLAP grant would be to further investigate the design and creation of a pedestrian and bicycle trail to Masonville Cove and provide linkages to other access initiatives in the area.

Poplar Island: An International Model: The Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island is world-renowned for the beneficial use of dredged material restoring important, scarce remote island habitat and wetlands, with the potential to mitigate the effects of sea-level rise. Expansion activities began in March 2017 and were completed in 2020, with the first inflow into the expanded area expected in the Corps' next dredging cycle. The expansion provides an additional 575 acres of habitat development and 30.3 mcy of capacity, bringing the total of Poplar Island to 69.8 mcy. The restored island is a popular stopover site along the mid-Atlantic flyway for migratory birds and provides a home to a wide variety of other wildlife. Winter bird censuses have reported over 15,000 birds in one day. Poplar Island also hosts a thriving Diamondback Terrapin population with as many as 1,600 terrapins hatched onsite in a single year.

Poplar Island offers remote island habitat that attracted 145 bird species this year. One pair of Northern Shovelers successfully bred – this is the only known breeding pair in Maryland.

Wolf Trap Alternate: Renewed Coordination & Deliberation with Virginia: Concerns have been raised by the Virginia Marine Resources Commission (VMRC) regarding protection of overwintering crab populations in Virginia's open water placement site, Wolf Trap Alternate Open Water Placement Site (WTAPS). Maintenance material removed from the York Spit channel, which serves the Port of Baltimore, is placed every three to five years in WTAPS, which is the federal standard, or base plan, as approved by the Corps and memorialized in a 1981 agreement between Maryland and Virginia. VMRC recommended use of an extension of the existing WTAPS site to the north for this most recent dredging cycle of the York Spit channel. This placement option resulted in increased transportation costs, which were required to be borne by MDOT MPA as the non-federal sponsor because the WTAPS northern extension is not part of the Corps' base plan.

Moving forward, MDOT MPA, the Corps, and VMRC are actively coordinating a workgroup with scientific, regulatory, and technical managers in order to identify potential alternative solutions and recommended options for placement of dredged material in the Commonwealth of Virginia from the Virginia Chesapeake Bay Approach Channels subset of the Baltimore Harbor and Channels Civil Works Project. Viable solutions must be environmentally acceptable, cost-effective, and logistically efficient. Determination on an agreed-upon solution or placement site is the workgroup's goal in advance of the next York Spit channel dredging cycle, anticipated to be needed in the next 3-5 years.

Hart-Miller Island: A Haven for Boaters and Wildlife: Hart-Miller Island has become a haven for boaters in the northern Chesapeake Bay, providing the public with recreational opportunities and the chance to encounter many different species of plants, insects, and wildlife, including abundant migrating bird populations. Already this year, nearly 70,000 people have visited to camp, boat, swim, bike, or hike. DNR owns the island and manages recreational activities offered in the South Cell. Upon restoration of the North Cell, the entire site will be managed by DNR as a State Park.

MDOT MPA and DNR are collaborating on the final restoration design for the North Cell and continue to work with the Hart-Miller Island Citizens Oversight Committee (HMI COC) to implement the long-term North Cell habitat development and management plan. The HMI COC, created by the General Assembly in 1981, has provided open dialogue with the communities surrounding the site and advised MDOT MPA on dredged material inflow and operations activities. Since inflow ceased at HMI in late 2009, the HMI COC has shifted its focus to the development of a site closure plan and is working to create a Friends of Hart-Miller Island volunteer group.

» Outreach & Education

Together is Better: A central component of DMMP success has been the drive to educate and engage with a widening diversity of Port stakeholders - the more, the better. Comprehensive outreach and education programs have been accomplished through a combination of the formal DMMP committee structure, supported by both adult and student-focused education programs, and stakeholder partnerships.

Connect with us at the virtual home of the DMMP — Maryland-DMMP. com for information, events, and more.

Engagement Goes Online: MDOT MPA has built a model outreach program to help Marylanders understand the importance of the Port of Baltimore and engage in initiatives that restore the environment and enhance the quality of life throughout our communities. It is a top priority to make these educational opportunities widely accessible and to equitably collaborate with all Port stakeholders.

With the arrival of the pandemic, the program's site tours and in-person meetings needed to pivot to virtual engagement. Within weeks of the state-imposed social-distancing requirements, MDOT MPA transferred materials to an all-digital format and transitioned many of their meetings to a virtual platform, with a surprising increase in both attendance and participation by the DMMP Committee members. Not stopping there, MDOT MPA is now creating new digital assets, including human interest videos and virtual tours, and will continue to find ways to create meaningful outreach opportunities, maintain close coordination with partners, and establish new partnerships in this changing environment.

Widely accessible educational opportunities and equitable collaboration with Port stakeholders is a top priority.

New guidelines for providing public access to DMMP sites are being developed to adhere to all state-mandated safety protocols in preparation for the phased reopening of public spaces. Additional planning for outreach in 2021 is well underway with enhanced connection and communications at the core. It is anticipated that the majority of the 2021 DMMP meetings will be held virtually, and a new quarterly live webinar series will enable stakeholders to deeply engage with the Port to learn more about relevant topics such as climate resiliency, the Mid-Bay Project, Port environmental initiatives, and other important matters. Great strides in improving the accessibility and consumability of DMMP-related information were made in 2020, with more innovations to come in 2021.

Going Virtual One Class at a Time: MDOT MPA's Environmental Education Program, a unique component of the DMMP, has developed a suite of virtual learning tools to reach, connect with, and inform students about the Port of Baltimore. In light of COVID constraints, the education team was challenged to craft new ways to support and engage with students. They quickly responded by creating online learning portals, including games, virtual classrooms and presentations, social media outreach, and other means of active interaction. All lessons and activities were converted to a digital format, creating an E-Portal for lesson plans and fun digital activities such as Eagle Expedition and Terrapin Travels.

Engagement through MDOT MPA's environmental education programs, with Masonville Cove as a certified Green Center, also continues to support Maryland schools applying for or maintaining Maryland Green School Certification offered through the Maryland Association for Environmental and Outdoor Education.

Rooting For The Terps: Since 2009, the Terrapin Education and Research Partnership (TERP) has been giving terrapin hatchlings the chance for maximum growth during a life stage when they are especially vulnerable to predation and mortality. This "head-start" program also allows Maryland students (elementary, middle, and high school) the rare opportunity to study first-hand terrapin biology and participate in animal care and research, all while learning about the Port of Baltimore

and its Poplar Island ecosystem restoration and habitat development project, where the terrapins are ultimately released at the end of each school year. During the 2019-20 school year, over 150 Poplar Island hatchlings were head-started in classrooms across Maryland. When schools closed in March, staff quickly pivoted, gathering turtles from classrooms across the state and filming the balance of their journeys - from vet check to tagging to release - to share with students and preserve their ability to complete this impactful and enriching experience.

BEESMART Buzzes Along: The Baltimore Environmental Education Science, Math, and Reading Trailblazers (BEESMART) summer program typically hosted by Living Classrooms Foundation at Masonville Cove each summer was completely re-created this year, but continued to incorporate the established core values of combating summer learning loss and promoting literacy through environmental science. This program was converted to a 100% virtual delivery platform with 53 student participants; by the end of the program, 100% of students increased their literacy level.

Baltimore Port Alliance Brings People Together: MDOT MPA continued productive collaboration with Port stakeholders through the Baltimore Port Alliance (BPA) by supporting the successful update of the BPA website and creating an expanded engagement plan. The BPA's annual Hiring & Career Expo was postponed due to COVID, but planning for a modified event is underway with great interest from partners.

► 2021: The Launchpad Into A New Era Of Growth And Success

The DMMP has successfully navigated a highly challenging year in 2020, leveraging technical expertise, inclusive partnerships, and a commitment to pursuing outcomes that equitably benefit all Marylanders. Now we prepare for the arrival of 2021 with hope, optimism, and resolve, as well as the belief that the challenges of 2020 have helped forge the Management Committee, and all the DMMP Committees, into an even more creative, resilient, and effective group. We put forward these recommendations, determined to usher the Port of Baltimore into a new period of growth and innovation in ways that will benefit our region economically, environmentally, and socially for years to come.

» Funding & Policy Recommendations

Engage the Congressional delegation as well as federal and state partners to support sufficient funding for priority DMMP projects and ensure available funding is optimized.

Work via the American Association of Port Authorities to ensure favorable legislation for the Corps navigation program and projects that benefit Port channels.

Evaluate external risks and assure the DMMP successfully adapts to changing fiscal and other circumstances while accommodating port growth and dredging needs.

» Planning & Operations Recommendations

Conduct capacity and demand planning beyond a 20-year timeframe to support long-term sustainable dredged material management options and considerations related to climate resiliency.

Incorporate the potential impacts resulting from climate change into DMMP project planning, DMCF design, and project implementation while leveraging the best science available to quantify carbon sequestration benefits from beneficially using dredged material.

Implement the 2020 Innovative Use and Beneficial Reuse Strategy and continue to pursue the acquisition of the Tronox property for implementation of long-term, large-scale Innovative Reuse and capacity recovery efforts.

Advance MDOT MPA Critical Project priorities:

- Expansion of Cox Creek DMCF
- Mid-Chesapeake Bay Island Ecosystem Restoration Project
- Seagirt Marine Terminal Loop Study & Berth 3 Improvements
- Restore funding for Masonville DMCF vertical expansion

Evaluate future alternative management solutions such as CAD in Baltimore Harbor.

Establish an agreement with DNR to clearly establish roles and responsibilities regarding habitat design and future management of the HMI site.

Engage the Corps, Commonwealth of Virginia, resource agencies, and other stakeholders to identify suitable, cost-effective dredged material placement options for the Virginia Channels.

» Outreach & Education Recommendations

Engage all stakeholders equitably to increase the public's knowledge of the Port of Baltimore, port operations and dredging program, and their importance to the State of Maryland.

Recruit DMMP committee members and engage stakeholders that reflect the diversity of the communities adjacent to, and impacted by, the Port of Baltimore, and ensure the benefits of MDOT MPA restoration projects and programs are distributed equitably without disproportionate impacts on vulnerable populations.

Pivot outreach and education programs to align with COVID precautions while continuing to effectively engage a diverse array of constituents in decisions regarding dredged material management to ensure that the DMMP is executed in an inclusive, timely, and mutually-beneficial manner.

► Emerging Even Stronger

In the face of daunting and potentially long-lasting programmatic challenges and unprecedented budget concerns, the DMMP has proven adaptable and resilient, maintaining the Port's channels and overall progress on the 20-year plan while also honoring its commitments to our community partners and a healthy Chesapeake Bay. Despite the hurdles, Port Commissioners, elected officials, DMMP committee members, MDOT MPA staff, and many other stakeholders have worked tirelessly to ensure uninterrupted progress. The Management Committee is confident that continued strategic planning, scenario analysis, and expanding collaboration will enable MDOT MPA and the State of Maryland to meet each challenge head-on and drive even more versatile results and shared successes in 2021.

Dredged Material Management Act
Commemorating 20 Years
2001-2021