2019 DREDGED MATERIAL MANAGEMENT PROGRAM

ANNUAL REPORT TO THE DMMP EXECUTIVE COMMITTEE

PREPARED & APPROVED BY THE DMMP MANAGEMENT COMMITTEE
NOVEMBER 8, 2019

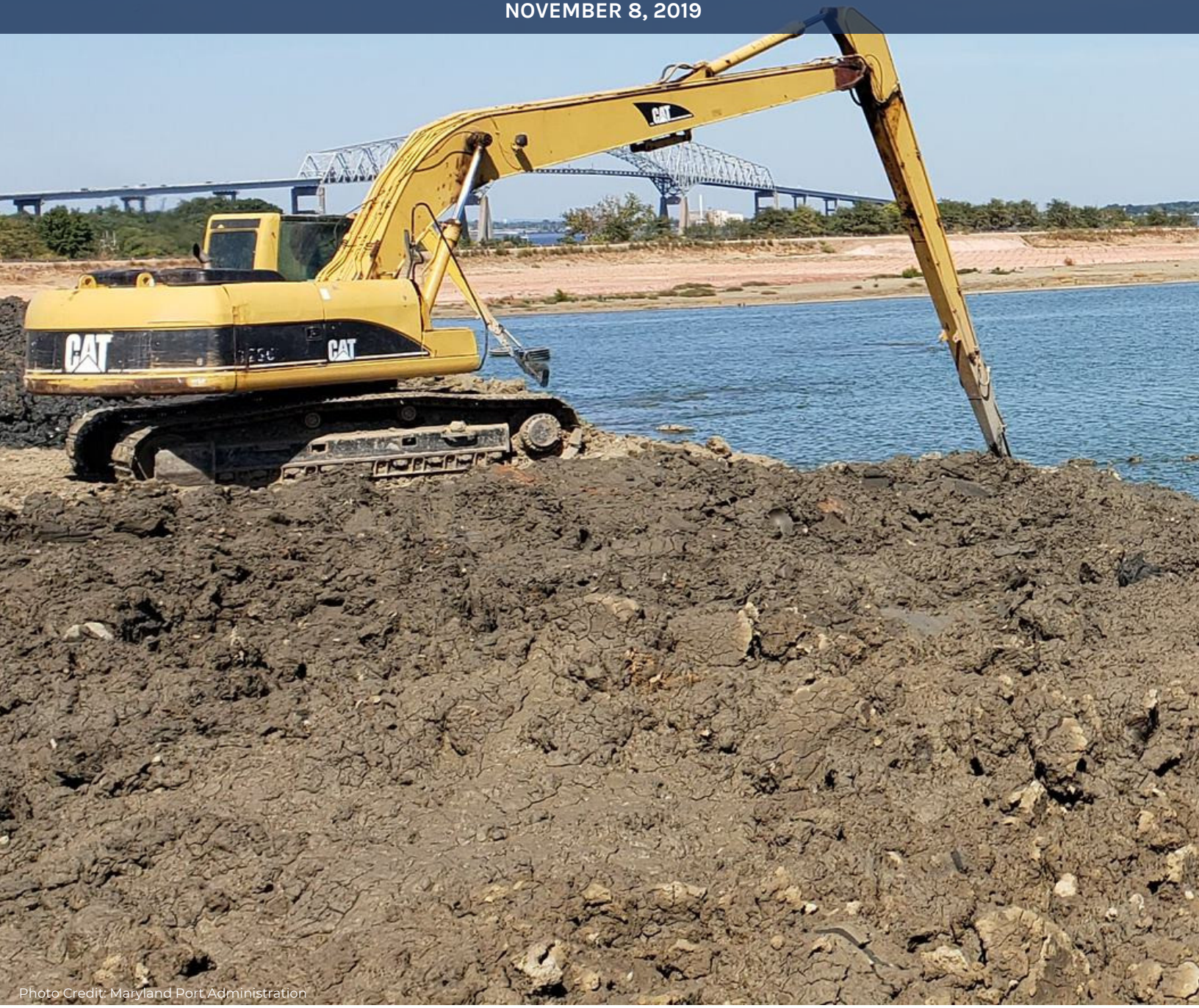


Photo Credit: Maryland Port Administration

FINAL DRAFT

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND PORT ADMINISTRATION

PORT OF BALTIMORE 1706 Helen Delich Bentley

CONTENTS

Executive Summary 1

Recommendations for 2020 5

Report Narrative 7

- Key Issues
- Program Management
- Innovative Reuse and Beneficial Use
- Stakeholder Engagement
- Baltimore Harbor Channel Placement Sites
- Chesapeake Bay Channel Placement Sites
- Long Range Capacity Planning

Appendix 1: Members of the DMMP Executive Committee 32

Appendix 2: Members of the DMMP Management Committee 33

Appendix 3: Current 20-Year Dredged Material Placement Plan 34

Appendix 4: Harbor Team Recommendations For Further Study Coke Point Backup Options 35

Appendix 5: Elements of the Maryland DMMP 36

EXECUTIVE SUMMARY

This Annual Report serves as an overview of the Maryland Dredged Material Management Program's (DMMP) 2019 accomplishments and identifies recommendations to focus on in 2020. It is organized by key topic areas that are fundamental to the ongoing success of the Maryland Department of Transportation Maryland Port Administration's (MDOT MPA) DMMP.

"Our Port is one of a few on the east coast of the United States with the necessary water depth and infrastructure to accommodate some of the world's largest container ships. In 2019, we welcomed the largest container ship to ever visit Maryland, the Evergreen Triton."

Capacity, Authority, and Funding:

The timely implementation of planned dredged material management solutions continues to be imperative to maintaining the federal navigation channels which serve as the marine highway to the Port of Baltimore (POB). MDOT MPA has a 20-year capacity plan for dredged material management, but some planned projects face property acquisition, funding challenges, permitting, federal procedural requirements, or other impediments to implementation.

Capacity for maintenance dredged material from the main Chesapeake Bay channels that will be needed when the Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island (Poplar Island) and its expansion are completed will rely on timely design and construction of the Mid- Chesapeake Bay Island Ecosystem Restoration project (Mid-Bay). This project is currently under pre-construction engineering and design (PED) by the U.S. Army Corps of Engineers (Corps) Baltimore District in cooperation with MDOT MPA. The Mid-Bay project faces stiff competition for future, adequate federal construction funding amongst many new national project authorizations that were included in recent federal Water Resources Development Acts (WRDA) and because of federal budget reductions, changing federal priorities and increasing federal emphasis on alternative cost-sharing agreements with non-federal sponsors.

MDOT MPA continues to reach out directly to key leadership at the Corps and the federal Office of Management and Budget (OMB) and is working diligently through the American Association of Port Authorities (AAPA) regarding funding for maintenance and new work dredging, dredged material management solutions, and for future WRDA legislation that will be favorable to MDOT MPA projects and the port industry.

Climate Change:

MDOT MPA will continue to consider and assess the impacts and opportunities to the DMMP resulting from climate change. The State of Maryland is a leader in addressing 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. 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.

Program Coordination:

MDOT MPA is working closely with the Corps Baltimore District as the District implements its 20-year Dredged Material Management Plan. This plan is a roadmap for timely and quality project delivery of maintaining the channels and providing cost-effective dredged material management capacity for the Port of Baltimore for the next 20 years. The updated plan aligns well with MDOT MPA's 20-year DMMP plan. The Corps Baltimore District's Dredged Material Management Plan for the Baltimore Harbor and Channels 50-foot Project was approved by Corps Headquarters on October 31, 2017. An additional update to the Federal DMMP to address dredged material placement options for the Chesapeake Bay Approach Channels in Virginia is planned for initiation in 2020 by the Corps Baltimore District.

MDOT MPA will continue to seek consistency between the Federal Dredged Material October 11, 2019 4 Management Plan and the Maryland DMMP plan as the state and federal partners work together to identify acceptable, cost-effective placement sites.

Innovative and Beneficial Use:

Innovative and beneficial use of Harbor channel dredged material is a key component of the DMMP and implementation of the 2014 Innovative and Beneficial Use Strategy continues to be an MDOT MPA priority in planning for sustainable dredged material management solutions. Several of the Strategy's action items are advancing and, due to strong coordination and collaboration with key partners and stakeholders, various innovative reuse demonstration projects are underway. In 2020, with input from DMMP stakeholders, MDOT MPA will recommend revisions to the 2014 Strategy. Innovative reuse of Harbor Channel material is moving toward the long-term, large volume annual goal to recover 500,000 cubic yards of capacity.

Stakeholder Engagement:

Public outreach, education and stakeholder engagement remain the cornerstone of MDOT MPA's successful DMMP. In 2019, more than 15,841 people (as of September 30, 2019) learned about the POB by visiting dredged material containment facilities (DMCFs) and participating in community events, meetings, conferences, and educational programs. Efforts in 2019 focused on expansion of the Cox Creek DMCF and Masonville Cove Decade of Dedication. MDOT MPA has continued to strengthen existing and build new relationships, engage the public, and leverage a range of communication channels to connect the residents of Maryland with the Port, growing the public's knowledge of MDOT MPA, the POB and its operations and their importance to the State of Maryland. During 2019, MDOT MPA engaged directly with various DMMP advisory committees to delve further into key issues to gain a better awareness of stakeholders' views and opinions, respond to issues of concern, and engage new partners.

Baltimore Harbor Channel Placement Sites:

The Cox Creek and Masonville DMCFs are currently the only options available for placement of Harbor dredged material. MDOT MPA is expanding the Cox Creek DMCF by raising the dikes on the existing DMCF and expanding onto adjacent MDOT MPA-owned uplands. MDOT MPA is also exploring acquisition of the adjacent Tronox (formerly Cristal USA) site for further long-term capacity recovery at Cox Creek. In 2019 MDOT MPA began raising the dikes at the Masonville DMCF and completed remediation and habitat restoration in Masonville Cove. MDOT MPA, Baltimore City, and other partners continue to collaborate on trash interceptor mitigation projects.

MDOT MPA remains interested in the Coke Point property as a potential location for a third Harbor area DMCF.

Extensive monitoring data collected from the Confined Aquatic Disposal (CAD) pilot project, which was completed in early 2018, continues to inform the evaluation of potential additional CAD cells to be used as a dredged material management tool in the future. MDOT MPA continues to work with the Maryland Department of Natural Resources (DNR) and the Hart-Miller Island (HMI) Citizens Oversight Committee (COC) to implement the long-term HMI North Cell habitat development and management plan.

Chesapeake Bay Channel Placement Sites:

The Corps has placed a total of 34.3 million cy of material at Poplar Island and has created 372 acres of wetland habitat. The final dike construction for the Poplar Island expansion is underway and on schedule to be completed in October 11, 2019 5 mid-2020. Poplar Island is expected to provide placement capacity for the Maryland approach channels to Baltimore Harbor through the 2032/2033 dredging season. When Poplar Island Expansion reaches capacity, the Mid-Bay Island restoration project will receive Bay channel maintenance material.

Chesapeake and Delaware (C&D) Canal Upland Site:

The Pearce Creek DMCF received dredged material inflow from the approach channels to the C&D Canal during the 2018-2019 dredging season. The MDOT MPA-funded construction of a new public water supply system to communities near the DMCF was completed in 2018 and all final construction closeout items were addressed throughout 2019.

Long Range Planning:

In 2018, MDOT MPA completely reassessed dredging demand and placement capacity supply planning numbers by examining fundamental assumptions regarding maintenance dredging volumes, new work dredging demands and placement option capacities. The reassessment concluded that the current 20-year dredged material management plan is founded on sound planning estimates that are conservative. Moving forward, the potential effect of climate change on maintenance dredging volumes will be taken into consideration during the planning process. Assuming that all anticipated dredging projects will move forward as planned, capacity to support planned maintenance and new work dredging will be met.

Projected New Work Dredging:

Several significant projects will require new work (i.e., not maintenance material) dredging in the future. These include completion of the Baltimore Harbor and Channels 50-foot Widening Project to its congressionally authorized widths within the Chesapeake Bay, a new 50-foot deep berth at Seagirt Marine Terminal and deepening of the Seagirt Marine Terminal West Channel to 50 feet. These new work projects have been factored into MDOT MPA's revised estimate of placement capacity needs; however, to accommodate capacity needs for the expansion of existing private terminals and potential future public and private marine terminals, additional dredged material management solutions would need to be implemented.

Contingency Planning – Ocean Placement:

Ocean placement of Bay sediments in an existing ocean site is an alternative that is included in the Maryland DMMP plan as a contingency option if all other Bay placement options are not available. Triennial sediment testing was conducted in early 2018. Coordination with the U.S. Environmental Protection Agency (EPA) on the results from the sediment testing is currently ongoing. Prior to use of this option, the Corps would be required to complete an Environmental Assessment and provide public notice to Maryland and Virginia.

RECOMMENDATIONS FOR 2020

Building on the accomplishments and project milestones achieved in 2019, the following recommendations will guide our work to ensure a successful DMMP in 2020 and beyond:

Engage directly with the Congressional delegation and other federal partners to support sufficient funding

and constructive policies for the Corps' dredging program serving the Port of Baltimore, emphasizing the necessary funding needed for the Mid-Bay site design and for initiating construction of Barren Island in 2022 and James Island in 2024 with the goal for acceptance of dredged material by 2029. Specific focus should be made on advancing the project as authorized as a 65%-35% federal/state cost-shared aquatic ecosystem restoration project. Continue coordination efforts with the Corps at the District, Division, and Headquarters levels, the Assistant Secretary of the Army for Civil Works, and the OMB on dredging and dredged material management funding needs, approvals, and planning to meet the current growth and long-term demands of the POB as a nationally significant economic engine.

a. Work closely with the Corps' Baltimore and Philadelphia Districts to implement their Dredged Material Management Plans so that the plans and schedules are approved, fully coordinated, and available funding is optimized.
b. Continue coordination with the Corps, NMFS and Virginia to address questions related to overwintering female crabs and the Virginia channels dredged material placement sites.
c. Develop a State strategy to evaluate external risks and assure the DMMP successfully adapts to changing fiscal and other circumstances while accommodating port growth and dredging needs.

Work with the Corps, directly and through AAPA, to ensure favorable legislative language for the Corps navigation program

and projects that benefit the Port's Baltimore Harbor and Approach Channels project is reflected in WRDA 2020, should it be enacted.

OUR IMPACT

35,000

Students Educated

740+

Animal Species

400+

Bird Species

Focus on capacity and demand planning beyond the 20-year timeframe, including ongoing refinement of data to inform and support long-term sustainable dredged material management options including considerations related to climate resiliency.

a. Incorporate into DMMP project planning and implementation the potential impacts resulting from climate change, including co-benefits from using dredged material in beneficial use projects.
b. To the extent practicable, quantify carbon sequestration benefits. In project planning across MDOT MPA, recognize the carbon sequestration benefits from using dredged material in Port related infrastructure projects.

Continue to review and evaluate the 2011 Harbor Team recommendations (Appendix 4) and advance where feasible.

Based on additional studies and more recent stakeholder feedback, the recommendations to continue to be pursued in 2020 include:

a. Implement the Cox Creek Expanded (CCE) Project on MDOT MPA-owned property (Stage 1 Expansion) and pursue acquisition of the Tronox (formerly Cristal USA) property for CCE Stage 2.
b. Begin evaluating the potential future of CAD as a dredged material management option based on lessons learned from the pilot project.

With input from the Innovative Reuse and Management Committees, review the June 2014 Innovative and Beneficial Use Strategy and update as necessary with refined goals and new action items, deliverables and deadlines.

a. Submit revised strategy to DMMP Executive Committee for approval by the end of 2020. b. Recommendations from the 2019 Workshop on the Use of Dredged Material to Protect Low-Lying Areas of the Chesapeake Bay will be considered in the strategy update.

Support the MPA's mission by working with all stakeholders to increase MDOT MPA's visibility and enhance the public's knowledge of MDOT MPA, the POB, port operations and dredging program, and their importance to the State of Maryland.

Chart a clear course for increased outreach, engaging communications, meaningful educational opportunities and improved measurement of the impact of these activities:

a. Build and maintain respectful, productive and mutually-beneficial relationships with all stakeholders, especially with younger and more diverse audiences, as well as colleagues in the scientific and seaport industry to generate a high level of support for the MDOT MPA DMMP.
b. Effectively engage stakeholders as partners in securing future dredged material placement sites and alternative uses that facilitate Port operations, growth and expansion.

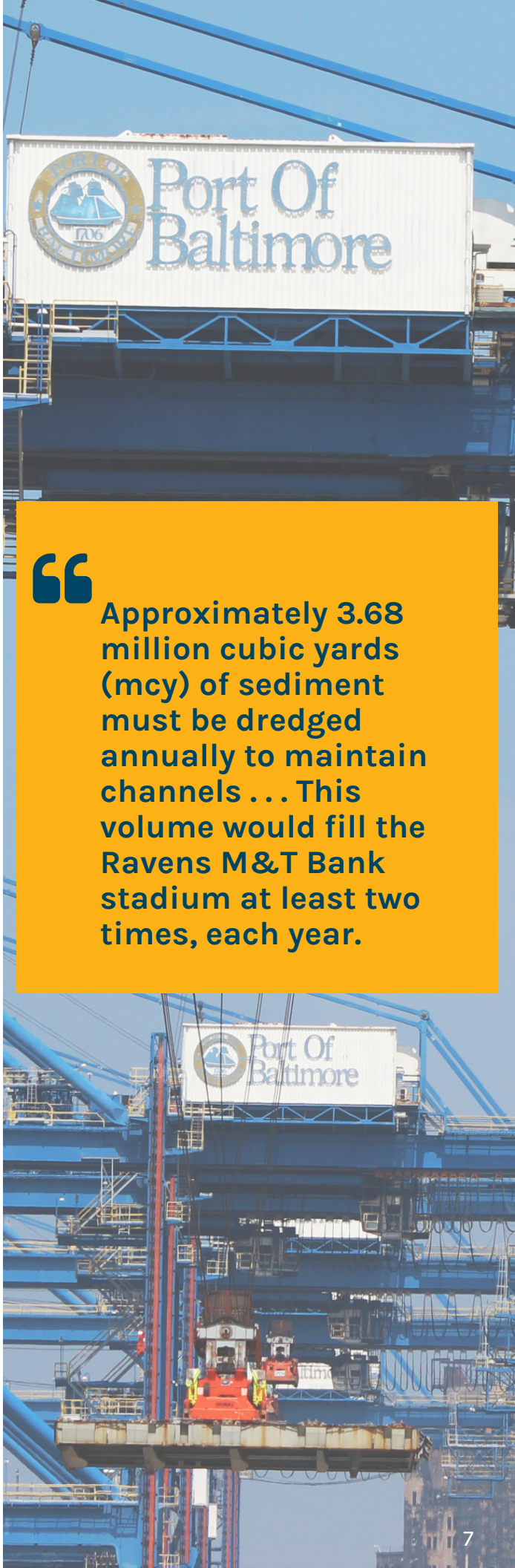
Continue to partner with the MD Department of Natural Resources on revised HMI North Cell habitat design concepts and refine the preferred design.

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

REPORT NARRATIVE

Maryland's Dredged Material Management Program (DMMP) is a rolling 20-year plan outlining the management of the State's dredging requirements, the need to regularly remove sediment from the Port of Baltimore's shipping channels, and the identification of adequate placement capacity for dredged material and alternative management solutions, such as reuse. Because of the 20-year timeframe of the DMMP, the complexity of the program, and need for coordination with multiple parties, changes generally occur incrementally, and the program is adjusted as necessary. This report is provided annually by the Management Committee to inform the Executive Committee of the year's accomplishments as well as to highlight future opportunities and challenges with specific recommendations for 2020. *Memberships of the Executive Committee and the Management Committee are shown in Appendices 1 and 2 respectively.*

Maintaining the shipping channels is critical to the continued success of the Port of Baltimore (POB). Approximately 3.68 million cubic yards (mcy) of sediment must be dredged annually to maintain channels and anchorages at their current depths and widths to ensure reliable navigation for vessels calling on the POB. This volume would fill the Ravens M&T Bank stadium at least two times, each year. Of that total volume, 3.59 mcy is federal maintenance dredging and 0.09 mcy is from MDOT MPA and private sector partners maintenance dredging projects. An additional 0.96 mcy per year of new work dredging is projected. Altogether, federal and state new work and maintenance dredging, as well as private sector maintenance dredging projects generate 4.7 mcy of material annually, or a planning estimate of 92.6 mcy over a 20-year horizon. All dredged material must be placed in approved placement sites or innovatively/beneficially used.



> **Approximately 3.68 million cubic yards (mcy) of sediment must be dredged annually to maintain channels . . . This volume would fill the Ravens M&T Bank stadium at least two times, each year.**

MDOT MPA's public-private partnership agreement with Ports America Chesapeake has allowed the POB to attract the ultra-large container vessels associated with the Panama Canal expansion. It is critical that the Port of Baltimore have sufficient dredged material placement capacity to support maintenance of its 50-foot deep channel to continue to capitalize on cargo growth and to maintain existing business demands. The Port of Baltimore is one of a few U.S. East Coast ports with the necessary water depth and infrastructure to accommodate some of the world's largest container ships. Earlier this year, the POB welcomed the largest container ship to ever visit Maryland, the Evergreen Triton, which carried 14,424 twenty-foot equivalent units (TEUs).

Ports America Chesapeake, which operates the Seagirt Marine Terminal, in coordination with MDOT MPA is deepening a second 50-foot deep container berth. Construction will begin later this year and the new berth is expected to be operational by 2021. A second 50-foot deep-draft berth will allow the POB to handle two supersized ships simultaneously.

MDOT MPA is fortunate to have an active, engaged constituency of advisory committees and stakeholders that are integral to the State's DMMP. These include private sector businesses, community members, academia, government agencies, elected officials, and non-government organizations. The POB generates about 15,330 direct jobs with more than 139,180 jobs overall linked to POB activities. The average salary for people with direct jobs at the POB is 9.5 percent higher than the average annual wage in Maryland. This represents $3.3 billion in personal wages and salaries, $2.6 billion in business revenues and $395 million in state and local tax revenues. Among U.S. Ports, Baltimore ranks 9th for the total value of foreign cargo and 11th for foreign cargo tonnage.

I. KEY ISSUES

This Management Committee report highlights the progress made on 2019 DMMP activities. In reviewing the year's work, it is clear that several key issues remain critical to the success of the DMMP and should be brought to the attention of the Executive Committee for the purpose of planning strategically for 2020. These key issues, presented below in greater detail are: Capacity; Budget Priorities and Funding; and Climate Change.

> It is critical that the Port of Baltimore have sufficient dredged material placement capacity to support maintenance of its 50-foot deep channel to continue to capitalize on cargo growth and to maintain existing business demands.

A. Capacity

Maritime dredging is driven by the needs and schedules of the Port's public and private sectors throughout the entire Harbor and Chesapeake Bay channel system. Maintaining sufficient long- term capacity for management of dredged material from both Harbor and Bay channels continues to be a significant challenge to the Maryland DMMP. Ensuring that adequate capacity is available for sediments dredged as part of navigation maintenance is vital not only to the continued success of the POB but its opportunities for growth.

Harbor Channel Material

Maximizing the efficient use of the current and future capacities at the Harbor DMCFs is crucial. MDOT MPA and the Maryland Environmental Service (MES) have been actively managing the permitted discharge of water from the Cox Creek and Masonville DMCFs and working to identify best management practices to decrease water retention and increase capacity recovery.

Due to the relatively small surface areas and permit discharge limits, the Harbor DMCFs do not allow for dewatering and consolidation operations in the same way that was experienced with Hart Miller Island (HMI), considering HMI is approximately 10 times the size of the Harbor DMCFs. To allow for drying and consolidation (known as crust management), which is needed to optimize capacity for dredged material placement, dewatering is essential. Additionally, recirculation of water during, and discharge immediately after, inflow events results in less water entering and remaining in a site, thereby allowing for longer crust management time throughout the year. This, in addition to other opportunities to either generate additional capacity through site expansion, or to divert dredged material to innovative and beneficial use strategies, are essential to sustainable implementation of the overall DMMP. In addition to capacity demand from annual maintenance material volumes, federal and state new work dredging projects are also anticipated in the foreseeable future. These projects will stretch the limits of the small Harbor DMCFs even more than routine maintenance projects.

Both Harbor sites, Masonville DMCF and Cox Creek DMCF, are undergoing active construction and expansion over the next several years to increase overall capacity for dredged material. Additional capacity will still be necessary beyond the 20-year planning horizon, and properties best suited for development of new DMCFs are scarce. In addition, it is important that existing and expanded sites are operated in the most efficient manner to ensure optimal capacity.

Innovative reuse options are still in the planning stage and, if feasible, will likely be developed incrementally over time to achieve the goal of recovering nearly half of the annual capacity needed for Harbor material, approximately 500,000 cy/yr.

Bay Channel Material

The Corps' Baltimore District began a study to evaluate the potential of widening the 50-foot channels to their originally authorized widths. The study progressed far enough to determine that, while Harbor channels (west of the North Point-Rock Point line) will not be widened, channel widths in the lower Bay would generally increase from 800 feet to 1,000 feet and main channel widths in the upper Bay would increase from 700 feet to 800 feet, generating a significant volume of new work material. This project would accelerate the timeframe in which acceptable and additional placement capacity is needed for lower and upper Bay dredged material.

Completion of the study was terminated by the Corps in 2019 in direct response to concerns raised by the Virginia Marine Resources Commission (VMRC) regarding protection of overwintering crab populations in the Virginia open water placement sites. VMRC has recommended an area directly north of the existing placement site (Wolf Traps Alternate Placement Sites, WTAPS) for evaluation and interim use. Additionally VMRC has indicated a preference for beneficial use as the long-term management practice. The Corps is currently conducting an environmental assessment for use of the northern extension of WTAPS for the 2019 dredging cycle of the York Spit Channel. The Corps plans to identify placement options for the York Spit Channel in a federal Dredged Material Management Plan Update to

be initiated in federal fiscal year 2020. Additionally, the Corps will work with MDOT MPA on a resumption or follow-on study to the 50-foot channel widening study as soon as a suitable placement site for the York Spit Channel is identified.

Poplar Island serves as the primary placement site for material dredged from the Chesapeake Bay Approach Channels in Maryland waters. This project will provide sufficient capacity to handle approximately 2 mcy per year on average through 2035. The Corps forecasts that the Mid-Bay Island Ecosystem Restoration project will begin with the restoration of Barren Island in 2022 followed by the rebuilding of James Island in 2024 so that it can receive dredged material as Poplar Island is reaching final capacity. Overlap of placement at both Poplar Island and the Mid-Chesapeake Bay Ecosystem Restoration Project in the final placement years at Poplar will prevent overloading and allow the site to accommodate projected volumes of dredged material.

The overall strategy to accommodate the maintenance and new work dredging for the next 20 years is charted in Appendix 3 for annual approval by the Executive Committee so that options can be developed and made operational as needed. This chart is based on evaluation of recent dredging records, projected new work dredging needs, and updated information on dredged material containment facility operations/capacities.

Challenge:

Although the DMMP identifies dredged material management solutions with sufficient capacity for 20 years, construction funding and permitting pose significant challenges to timely and successful implementation of those projects within the planning horizon. The Corps forecasts that the Mid-Bay Island Ecosystem Restoration project will begin with restoration of Barren Island in 2022 followed by the rebuilding of James Island in 2024 so that it can receive dredged material as Poplar Island is reaching final capacity. Coordination with the Commonwealth of Virginia for a long-term placement site for the York Spit channel maintenance and future widening material will be necessary to avoid any future impacts to these dredging activities.

> Overlap of placement at both Poplar Island and the Mid-Chesapeake Bay Ecosystem Restoration Project in the final placement years at Poplar will prevent overloading and allow the site to accommodate projected volumes of dredged material.

B. Budget Priorities and Funding

Changes in budget priorities, project funding levels, federal law, and policies continue to pose risks to the timely implementation of planned maintenance and new work dredging projects and capacity options. One or more of these issues affects every aspect of MDOT MPA's DMMP.

As has been the case in recent years, constrained federal budgets coupled with a significant navigation back-log nationally continue to result in fewer funds programmed for important dredging projects, studies, construction of environmental improvements, and containment projects across the country. While Water Resources Reform and Development Act (WRRDA) 2014, WRDA 2016 (WRDA 2016 is part of Water Infrastructure Improvements for the Nation enacted in 2016) and WRDA 2018 (WRDA 2018 is part of America's Water Infrastructure Act of 2018) include many advantageous provisions, there continues to be a significant demand on and competition for the Corps' construction budget.

A prime example of uncertainty in the federal budget, and as this constrained funding relates to potential policy changes, is the ongoing difficulty in securing a firm federal commitment for sufficient construction funds for the congressionally authorized aquatic ecosystem restoration Mid-Bay project, at the 65% - 35% federal/state cost share. In an Office of Management and Budget (OMB) letter to the Assistant Secretary of Army for Civil Works dated May 29, 2019, the Deputy Associate Director of Science and Water agreed with the recommendation of the Corps to beneficially use dredged material to construct James and Barren Island in the Chesapeake Bay. However, OMB noted that costs of the project in excess of the Corps' least cost plan (the Deep Trough) should be the responsibility of nonfederal parties.

MDOT MPA continues to work closely with its congressional delegation, the Corps and other federal partners to provide strong analysis of project funding needs and construction timeframes in order to ensure the continued sustainability of safe and reliable navigation channels.

Challenge:

MDOT MPA must continue to monitor the Corps' budget very closely to identify any issues that could adversely affect vital maintenance and new work projects for the Port's navigation infrastructure. As design of the Mid-Bay project proceeds in 2020, MDOT MPA will in parallel devote great emphasis on securing a federal commitment for future construction of the Mid-Bay project in light of the recent OMB letter which overlooks the project's authorization and justification as a cost-shared aquatic ecosystem restoration project. The POB must continue its enhanced advocacy for reasonable and fair consideration in the application of federal budgeting strategies. Identifying acceptable funding strategies will be a critical challenge and focus in 2020.

C. Climate Change

The State of Maryland is a leader in addressing the impacts from climate change. Additionally, Maryland's residents and infrastructure are vulnerable to sea level rise and storm surge as the state has some of the most extensive shoreline of any state in the country. In 2009, Maryland adopted the Greenhouse Gas Reduction Act (GGRA). The GGRA was amended in 2015 by establishing a goal to reduce greenhouse gas emissions (ghg) by 40% (from 2006 levels) by 2030. In 2019, Maryland Department of the Environment (MDE) developed a draft plan for public comment that outlines progress towards meeting the 40% reduction by 2030 goal. The Maryland Commission on Climate Change (MCCC) provides advice to the Governor and General Assembly "on ways to mitigate the causes of, prepare for, and adapt to the consequences of climate change." MDOT MPA has been monitoring MDE's development of the draft plan as well as participating in deliberations of the MCCC. MDOT MPA will factor into the DMMP the affects, impacts, and opportunities resulting from climate change and associated state management policies. This includes how the innovative and beneficial use program can effectively use dredged material in resiliency planning related to climate change. This includes how the innovative and beneficial use program can effectively use dredged material in resiliency planning related to climate change and monitoring the impacts of climate change on MDOT MPA environmental restoration sites related to erosion and marsh elevations to inform long-term management and planning.

> "The State of Maryland is a leader in addressing the impacts from climate change.

Co-benefits from the beneficial use of dredged material such as shoreline/island restoration, habitat creation, carbon sequestration, and protection of vulnerable communities will be considered in project planning and implementation. The extent to which climate change results in increased sedimentation in the navigation channels will be given consideration in capacity planning estimates. MDOT MPA will also consider how dredged material can effectively be used at POB facilities during infrastructure resiliency planning. Programs and projects implemented by the DMMP addressing climate change will be consistent with the Sustainability Plan established by MDOT MPA's Safety, Environment & Risk Management office that establishes a goal to reduce GHG emissions.

Challenge:

MDOT MPA must consider the potential impacts of climate change as well as opportunities for using dredged material to address climate change resiliency into DMMP program and project planning. The co-benefits from using dredged material to address sea level rise and storm surge will continually need to be communicated to key stakeholders.

II. PROGRAM MANAGEMENT

Maryland's DMMP was created in recognition of the importance of the long-range planning and collaboration necessary to keep the dredging program on course and the maritime industry flourishing in the State of Maryland. A committee hierarchy (see Appendix 5) was developed to ensure the success of this complex process. Committee members represent various federal and state agencies, port-related businesses, academia, environmental and resident groups. The broad- based committee structure works cooperatively to study, evaluate, and proactively plan to ensure that dredging needs and dredged material management options for today and the future will be met.

A. Dredged Material Management Plans

Maryland's DMMP and the Corps Dredged Material Management Plan coexist and are mutually supportive. Collaborative efforts continue to greatly aid in the development and implementation of both plans. The Corps Headquarters approved the Baltimore District's updated Dredged Material Management Plan on October 31, 2017 which reaffirmed the Mid-Bay project as an essential element of its long-term dredged material placement strategy.

On February 5, 2018, the Corps Chief of Engineers signed a Supplemental Chief's Report re-affirming Mid-Bay as the recommended option for placement capacity after completion of the Poplar Island Expansion. On June 14, 2019, the ASA(CW) concurred on the findings of the Supplemental Chief's Report and a Record of Decision was signed on June 14, 2019. This action paved the way for the Corps and MDOT MPA to sign a Memorandum of Agreement in August 2019 to proceed with design of the Mid-Bay project.

The Management Committee believes that the structure, transparency, and operation of the Maryland DMMP as a collaborative and responsive process with the POB's stakeholders has been successful and should be maintained and enhanced in 2020 and beyond.

B. MDOT MPA and Corps Collaboration

Given the need to closely coordinate MDOT MPA and the Corps' DMMP efforts, the Management Committee continues to encourage regular executive level strategy meetings between MDOT MPA and the Corps. These lines of communication are important to establishing a greater understanding of the POB's business plans, local, regional and national economic impacts, and expectations for growth that drive the needs of the DMMP. These interactions are critical to provide a forum for issue resolution which help minimize delays or lengthening of project schedules that could adversely impact port operations.

Throughout 2019, MDOT MPA continued to employ an effective, coordinated outreach strategy to advocate for funding and resolve project issues at all levels of the Corps. This included strategic meetings with the Corps North Atlantic Division (NAD), Corps Headquarters, ASA(CW) and OMB. The purpose of these meetings is to maintain relationships and updated communication with all levels of decision makers within the Corps and the agencies responsible for federal policy interpretation, budget recommendations, and project implementation. One result of these efforts was appropriation of the vast majority of the federal funding needed to prepare the engineering design of the Mid-Bay project. MDOT MPA also holds quarterly meetings with the Corps' NAD, Baltimore and Philadelphia Districts to review the status of all projects and to proactively address technical, programming, and scheduling issues that are critical to keeping all federal-MDOT MPA dredging and placement projects moving forward. In addition, MDOT MPA has worked with the Corps' Norfolk District to coordinate communications and resolution of environmental issues regarding placement sites for dredged material from the Virginia Approach Channels to the Baltimore Harbor project.

Shortfalls in the Corps' dredging budget generally impact the amount and distribution of funding across U.S. ports, which can influence the timing of maintenance dredging and funding for new work dredging. Regular sequencing and timing of funding expenditures that coincide with dredging needs is essential to navigation safety and reliability. Working primarily with the Corps' Baltimore District and other Corps offices, MDOT MPA continues to advocate for an adequate federal budget to meet all needs for fiscal year 2021. It also advocates for its projects that could benefit from increased or new funding in the Corps fiscal year 2020 Work Plan. The Work Plan identifies how discretionary navigation funding that is provided by Congress may be directed by Corps HQ to augment or start important Corps navigation studies, for design and construction, and for maintenance and other operational activity.

In the case of the Mid-Bay project, funding is provided through the ecosystem restoration portion of the budget, where funding levels are limited and thus more competitive. Nonetheless, the same process for use of discretionary work plans to augment budgetary funding is used by the Corps and could benefit the Mid-Bay project's completion.

MDOT MPA continues to work with the AAPA to explore opportunities on how future WRDAs, including WRDA 2020 which is now being formulated, can be utilized to enhance the Corps national navigation program and favorably affect Port projects. Greater assurance of full use of the Harbor Maintenance Trust Fund, favorable cost-sharing policies, and streamlining of Corps programs are all of interest and continue to be supported by MDOT MPA through AAPA and other avenues.

Challenge:

Maryland and the Corps must continue to work cooperatively in Maryland's DMMP activities as well as in the implementation of the Corps' updated Dredged Material Management Plan to ensure timely information sharing, resolution of issues, development of innovative ideas and approaches, and identification of mutually beneficial solutions. With ever-increasing constraints on federal funds, coordination among MDOT MPA, the Corps, POB customers, stakeholders, and the Pilots must remain strong and active. In addition, MDOT MPA must continue to communicate with all levels of decision makers within the Corps at the District, Division, Headquarters, ASA-CW and at OMB. As the Corps budget and appropriation processes have evolved in recent years, MDOT MPA must continue to work with the Corps on how discretionary Work Plan funds are allocated since they have increasingly become a significant source of project funding.

C. Achieving Bay Restoration Goals

EPA development of total maximum daily load (TMDL) requirements for the Bay and its tributaries will increase operational and budgetary needs of both MDOT MPA and Corps facilities in 2020 and beyond. In 2010, EPA and Bay watershed states began the process of establishing Watershed Implementation Plans (WIPs) to achieve target levels for nutrient (nitrogen and phosphorus) and sediment contaminants as documented in the Chesapeake Bay TMDL. October 11, 2019 15 Port and dredging facilities have been assigned target load reductions through WIPs that were finalized in early 2012. All pollutant sources are being considered in the WIPs. This means, in addition to the direct surface water discharges from the DMCFs, stormwater loadings from existing marine terminals also have to be reduced or have their loads offset. The draft WIP III was released in April 2019 and no changes to the wasteload allocations are anticipated for MDOT MPA DMCFs or Poplar Island.

> With ever-increasing constraints on federal funds, coordination among MDOT MPA, the Corps, Port of Baltimore customers, stakeholders, and the Pilots must remain strong and active.

MDOT MPA continues to meet with MDE to discuss offsetting options. Additional TMDLs for polychlorinated biphenyls (PCBs), metals, and trash have been developed or are in development. In 2014, MDOT MPA's TMDL Work Group finalized a report detailing concepts to achieve the discharge permit reductions and the need for additional data collection.

MDOT MPA continued conducting recirculation and mass balance studies at the Harbor DMCFs in 2019 and began analyzing data from the past five years to determine the effectiveness of recirculation as a nutrient reduction best management practice. The initial assessment shows total nitrogen concentrations increase during recirculation and decrease after recirculation, but never decreased to concentrations prior to the first recirculation inflow. Total phosphorus concentrations increased in the months after recirculation ends and remain at elevated concentrations with slight occasional fluctuations. Data collection and analysis will continue in 2020.

Water quality related activities implemented within the DMMP will be consistent with MDOT MPA's Sustainability Plan, which has a goal to implement cost-effective technologies and practices that protect and improve water quality.

Challenge:

Current and future TMDLs have the potential for requiring additional monitoring, treatment, and/or offset purchases and will need to be considered in setting budgets into the future.

III. INNOVATIVE REUSE & BENEFICIAL USE

Implementation of the 2014 Innovative and Beneficial Use Strategy continues to be an MDOT MPA priority in planning for sustainable dredged material management solutions. Throughout 2019, MDOT MPA has kept the Innovative Reuse Committee and other DMMP Committees informed of innovative and beneficial use activities. Due to strong coordination and collaboration with key stakeholders, several of the Strategy's action items are advancing or have been completed. Due to the successful implementation of the 2014 Strategy, there is a need to reassess and identify new actions with deliverables. A major effort in 2020 will be to update the Strategy with input from DMMP stakeholders. MDOT MPA will recommend Strategy revisions to the DMMP Executive Committee by the end of 2020.

A. Interagency Coordination

Dredged material reuse is being promoted through productive and extensive interagency coordination.

1. Maryland Department of Environment (MDE): MDOT MPA continues to work with MDE on the implementation of the MDE Innovative Reuse and Beneficial Use of Dredged Material Guidance Document and Technical Screening Criteria. This guidance document has provided regulatory certainty, which has aided in advancing dredged material reuse. The MDE guidance has garnered significant interest and facilitated innovative reuse opportunities in Maryland among both industry and agency partners. MDOT MPA continues to build awareness and generate ideas for innovative reuse of dredged material by presenting to a diverse and broad set of stakeholders.

2. Sustainable Materials Management Maryland (SM3): Since its formation in 2017, MDOT MPA has been actively involved in the Sustainable Materials Management Maryland, or SM3 initiative, committed to meeting the goals outlined in the Governor's Waste Reduction and Resource Recovery Executive Order 01.01.2017.13, which recognizes dredged material as a valuable resource having vast opportunities for reuse and calling on state agencies to be a leader in innovative reuse where economically reasonable and in conformance with all environmental regulations. MDOT MPA's input has successfully introduced dredged material into the dialogue of SM3 participants. As such, dredged material is recognized as one component of the larger solution to improve sustainable materials management in Maryland, thus elevating the level of interest of dredged material among SM3 participants, resulting in collaborative dialogue about potential reuse projects.

3. HB 171 Workgroup: In 2017, Governor Larry Hogan signed House Bill 171 (HB 171) entitled Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure – Study. The bill required the MDE in consultation with stakeholders to study, review, explore, identify, and make recommendations regarding specified matters related to the diversion of yard waste, food residuals, and other organic materials from refuse disposal facilities; and to evaluate the status of infrastructure in the State. MDOT MPA participated as an active stakeholder in the HB 171 process to emphasize the value and reuse potential of dredged sediments. The final HB 171report was released in September 2019 and one of the report recommendations includes: Collaborate on research and development. State agency partners, including the MDE, MDOT MPA, MES, and Maryland Department of Agriculture, should identify research and development opportunities around the use of dredged materials, compost, and digestate for different uses and to conduct an analysis to identify existing markets for these materials. MDOT MPA will contribute to the aforementioned recommendation, where feasible, and continue to monitor progress on the HB 171 report recommendations.

4. State Highway Administration (SHA): MDOT State Highway Administration (SHA) continues to play an important role in the research and review of blended dredged material to be used in manufactured topsoil or engineered fill that could then be approved and utilized in MDOT SHA or MDOT SHA-related projects. Geotechnical and environmental testing and studies concluded in 2019 and will be used to inform the potential application and end uses of dredged material in MDOT SHA projects. MDOT MPA also worked diligently with MDOT SHA in 2018 to update to the 920 Furnished Topsoil Specification to remove the words "dredge spoil" from the harmful materials provision, thereby allowing dredged material to be used in SHA topsoil applications, given the material meets the criteria defined in the specification. Supplementary coordination with MDOT SHA is accomplished through the Recycled Materials Task Force (RMTF). MDOT MPA leads the RMTF Dredged Material Subcommittee whose mission is: To identify and address existing barriers prohibiting or hindering the acceptance of dredged material in MDOT SHA or MDOT SHA-related projects and to facilitate the approval of innovative and beneficial use of dredged material by and/or for MDOT SHA and other related projects.

B. Demonstration Projects

Several small volume innovative reuse demonstration projects are being implemented. Approximately 10,500 cubic yards (cy) of dredged material has been removed from the Cox Creek DMCF for demonstration projects: 4,500 cy for engineered fill at Hawkins Point and 6,000 cy for alternative daily cover (ADC) at the Quarantine Road Landfill (QRL). QRL has been actively using the material for ADC and have reported positive results. Most importantly, the 10,500 cy refers to the volume of the dewatered material and in terms of capacity recovery within the facility, approximately double the dewatered volume has been recovered.

Dredged material will be reused in the HMI North Cell Habitat Development Pilot Project creating different habitat structures with the existing onsite dredged material in a designated area of the north cell. The goals of this project are to engage and educate stakeholders, optimize overall operation and maintenance costs for the HMI North Cell, and create a diverse habitat. MDOT MPA has been working with DNR to develop a comprehensive habitat plan for the HMI North Cell, and if the pilot project is successful, there could be opportunities to expand the design to other areas within the North Cell. Construction is expected to commence by the end of 2019 followed by three years of adaptive management and monitoring.

MDOT MPA is contributing blended dredged material for the Ridgely's Cove Remedial Capping Project as another innovative reuse demonstration project. Ridgely's Cove is located adjacent to the Middle Branch of the Patapsco River, and has areas that require both off-shore and on-land remediation. Remediation of the Ridgely's Cove area is part of the MDE mitigation package associated with the Topgolf development in Baltimore. MDOT MPA has partnered with the Baltimore Development Corporation and their partners to offer approximately 23,000 cy of blended dredged material to serve as the remedial cap and vegetative substrate for the on-land portion of the project. The Ridgely's Cove remediation project is in the permitting phase and will correspond with the Topgolf development schedule.

As an outgrowth from the 2017 Design with Dredge collaborative program between MDOT MPA, Mahan Rykiel Associates, and several key DMMP stakeholders, significant progress was made in 2019 towards planning and implementing a shoreline restoration project using dredged material in the Turner Station community of Baltimore County. The use of dredged material along the shoreline at Fleming Park, a Baltimore County-owned property, would help protect the community from sea level rise, restore wildlife habitat, and increase community access to Bear Creek. Restoration plans also involve the use of dredged material to restore under-utilized recreational areas in the upland portions of Fleming Park. The project is in the planning stages and is being led by the Turner Station Conservation Teams in partnership with other affiliates including the Chesapeake Bay Foundation, Mahan Rykiel Associates and The Nature Conservancy. Funds for project planning have been received from private donors as well as a DNR Coastal Resiliency Grant.

Working with the University of Maryland Center for Environmental Science (UMCES), MDOT- MPA held a workshop entitled Using Dredged Material to Protect Low-Lying Areas of the Chesapeake in January 2019. The purpose of the workshop was to address how Chesapeake Bay shorelines, which are increasingly vulnerable to storm inundation and sea-level rise, might be protected using material dredged from navigation channels. A report of the workshop proceedings and recommendations was issued. UMCES and MDOT MPA, with input from the BEWG, will follow up on implementation of the recommendations in 2020.

As the Innovative and Beneficial Use Strategy is reviewed and recommendations developed to update it in 2020, MDOT MPA will factor in both the impacts from climate change and opportunities to utilize dredged material to address sea level rise. There are opportunities for beneficial use applications to replenish/rehabilitate shorelines as an adaptation and response approach to the impacts resulting from climate change.

This approach can also aid in restoring lost habitat and protecting vulnerable communities. Poplar Island is an example of a very successful large-scale beneficial use project. The same opportunity exists with the Mid-Bay Project. In follow up to the January 2019 Workshop on the Use of Dredged Material to Protect Low-Lying Areas of the Chesapeake Bay, MDOT MPA will engage the BEWG to address the recommendations from the workshop. An updated Innovative and Beneficial Use Strategy has the potential to be a key tool in the state's implementation of actions to address climate change resiliency.

MDOT MPA and its Capacity Recovery Team (CRT) completed a feasibility analysis report that investigated on-site operational efficiencies at Cox Creek DMCF to support increased, long-term sustainable capacity recovery at the Cox Creek DMCF as well as continuing to stockpile material for use in on-site construction and demonstration projects.

Challenge:

Identification of adequate space to implement innovative and beneficial use on a meaningful scale in the near and long-term is a priority. MDOT MPA will continue to work with other agencies to update policies that historically have prohibited use of dredged material. MDOT MPA will continue to plan and implement demonstration projects with other external partners to establish additional models of success in terms of regulatory, geotechnical, environmental and public approvals.

IV. STAKEHOLDER ENGAGEMENT

A. Community Outreach

Stakeholder understanding and commitment are crucial to DMMP success. MDOT MPA continues efforts to increase its visibility and the public's knowledge of the Port of Baltimore, its operations and projects, and their importance to the State of Maryland. MDOT MPA conducts extensive outreach within the communities near the DMCFs to ensure they are aware of current and future activities. The various citizen oversight committees and citizen advisory committees are active and play a key role in providing a forum for stakeholders near the DMCFs to engage with MDOT MPA.

> MDOT MPA continues efforts to increase its visibility and the public's knowledge of the Port of Baltimore, its operations and projects, and their importance to the State of Maryland.

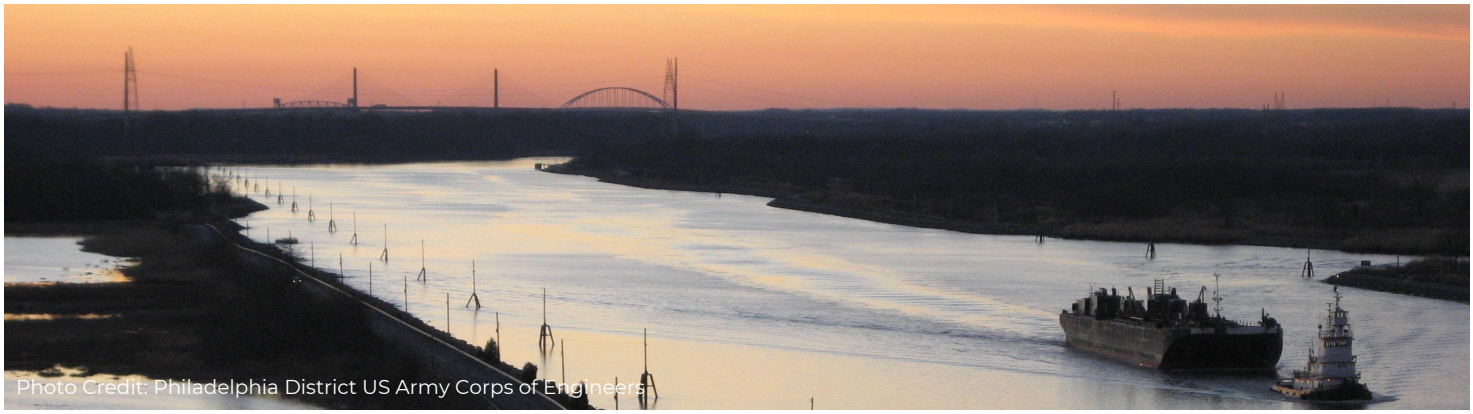


Photo Credit: Philadelphia District US Army Corps of Engineers

As part of its continuing efforts to improve collaboration, inclusiveness, and transparency with its partners, as well as to improve outreach, Port education, communications, and visibility of Port programs, MDOT MPA has increased its use of and promotion through social media. Social media use has increased by 120% across the various POB social media platforms in 2018. Captain Trash Wheel, which launched in 2018, now has almost 1,000 social media followers after being introduced to social media platforms at the beginning of 2019. Subscribers to the GreenPort eNewsletter have increased by approximately 5%. In 2019 more than 15,841 (as of September 30, 2019) people learned about the Port of Baltimore by visiting DMCFs and participating in off-site events such as community events, meetings, conferences, and educational programs. This includes many new stakeholders participating in tours of DMCFs.

On October 26, MDOT MPA hosted a public Open House at Cox Creek DMCF to provide the surrounding communities and stakeholders an opportunity to visit and receive a tour of the site. More than 50 people attended the Open House event to learn about and discuss the current status and future construction activities of the site and participate in on-site interactive and educational activities.

Photo by Chesapeake Bay Program

OUR IMPACT

15,841

people learned about the Port of Baltimore by visiting DMCFs and participating in community events, meetings, conferences, and educational programs.

Nearly 1,000 social media followers

5%

Increase in subscribers to GreenPort eNewsletter

Masonville Cove – Decade of Dedication

This year marked the 10th anniversary of access to Masonville Cove Environmental Education Center. MDOT MPA worked with Living Classrooms Foundation, the National Aquarium, U.S. Fish and Wildlife Service (USFWS), and MES to organize special events to celebrate "A Decade of Dedication" at the site. Extended hours on the first Thursday of each month featured activities such as Movie Night with the screening of "The Lorax", Yoga Night, and Fishing and Kayaking at the Cove. To further encourage engagement with the diverse community, all special event flyers are now also distributed in Spanish. USFWS's Urban Wildlife Refuge Partnership at Masonville has also offered expanded opportunities for environmental stewardship by providing funding, internships, and wildlife management. Other activities organized through the Hispanic Access Foundation and other Masonville Cove partners allow MDOT MPA to connect with Baltimore City church leaders and engage the local Hispanic church congregations in education and conservation activities centered on urban watershed issues.

In September, it was announced that the AAPA recognized MDOT MPA's 10-year stewardship of community education and outreach programs at Masonville Cove with an Award of Distinction in the Stakeholder Awareness, Education & Involvement category in the 2019 AAPA Environmental Improvement Awards.

In June, 175 specialists and volunteers worked together for the BioBlitz at Masonville Cove where 217 species of plants and animals were recorded from 496 observations – the second highest species count for this event. The BioBlitz was also a great day to celebrate Captain Trash Wheel's first birthday. MDOT MPA remains committed to improving public access to Masonville Cove and is working with stakeholders and community organizations to identify viable options and funding. MDOT MPA also provides support to Masonville Cove stakeholders as they explore partnership opportunities with other state and federal agencies that can help strengthen the Masonville Cove Environmental Education Center campus and programs. In the decade since the site opened, more than 35,000 students have been served, and over 10,000 people participated in family programs.

Terrapin Head Start Program

The Terrapin Education and Research on Poplar (TERP) program is a head-starting program giving terrapin hatchlings the chance for maximum growth during a life stage when they are especially vulnerable to predation and mortality; head-starting also allows Maryland schoolchildren the opportunity to study terrapin biology, participate in animal care and research, while also learning about the Poplar Island ecosystem restoration project and its importance to the POB. During the 2018-19 school year, 154 Poplar Island hatchlings were head-started in classrooms in Anne Arundel, Baltimore, Dorchester and Calvert Counties, and Baltimore City. Efforts are underway to expand the program to Prince Georges County. Since the head-start program began, more than 2,000 terrapins have graduated.

Teacher Training & Industry Hiring Expo

Each year, as part of its outreach to communities, MDOT MPA coordinates with the Baltimore Port Alliance Education and Outreach Committee to organize a week- long summer externship to provide educators and industry job trainers a firsthand look at the importance and scope of the Port of Baltimore. Working collaboratively with the Community College of Baltimore County, 22 participants spent time with various maritime professionals learning about careers in and training pathways to the

maritime industry, touring the vast Port infrastructure, and witnessing the coordination needed to deliver cargo between ports. In 2019, the committee expanded its efforts by organizing the POB's first hiring event and job fair, with over 30 participating organizations, and nearly 300 job seekers. Several organizations provided on-the-spot interviews and offered opportunities for potential employment.

B. Port & Environmental Education Outreach

Meaningful, hands-on field experiences at HMI, Masonville Cove, Poplar Island and Cox Creek's Swan Creek wetlands will help visitors learn about the connection between dredging and habitat restoration, and enable students to meet environmental literacy graduation requirements set forth in Governor Hogan's Executive Order on Project Green Classrooms. Engagement through MDOT MPA's environmental education programs provided by MES in the classroom and at these sites, also support schools applying for or maintaining Maryland Green School Certification offered through the Maryland Association for Environmental and Outdoor Education (MAEOE).

In addition to providing engaging educational opportunities, MDOT MPA continued to increase public awareness of the Port and its environmental stewardship efforts through outreach. MDOT MPA participated in new community outreach events and made presentations about MDOT MPA programs to new audiences such as the North American Association for Environmental Education (NAAEE), Maryland Quality Imitative Conference, Society of Wetland Scientists Conference and the Chesapeake Bay Watershed Forum.

Additionally, MDOT MPA attended the Western Dredging Association (WEDA) Annual Conference and presented information on the successful implementation of the Confined Aquatic Disposal (CAD) Pilot Project. WEDA is a non-profit technical professional organization committed to the exchange of knowledge in the fields related to dredging, navigation, marine engineering and construction. MDOT MPA is also an active participant in the WEDA Beneficial Use of Dredged Material Working Group that is developing international guidance on the reuse of dredged materials. MDOT MPA will continue to serve as an active WEDA member on behalf of the Port of Baltimore to enhance stakeholder diversity and cultivate new industry partners.

Challenge:

MDOT MPA has built a strong foundation of community support over the years through extensive outreach, engagement and education. While many stakeholders and area organizations are strong advocates for the POB and understand the importance of dredging of the shipping channels, there continues to be a need to maintain those relationships and reach broader and new audiences as our projects and environmental initiatives evolve. MDOT MPA must strive to educate the public more effectively using improved communication methods.

Photo credit: Charles Schelle

V. BALTIMORE HARBOR CHANNEL PLACEMENT SITES

A. Cox Creek Dredged Material Containment Facility

In 2019, MDOT MPA made significant progress in the design and construction of the expansion of the Cox Creek DMCF onto adjacent MDOT MPA-owned property. Extensive geotechnical investigations and coordination with MDE began in 2016 to design and construct a strong and stable foundation (base dike) for the expansion of the DMCF. The design for the base dike was completed in January 2018, the construction permit application was approved by MDE, and the project awarded in late summer 2018. Construction of the base dike is underway with completion projected in spring 2021. Due to active base dike widening activities, no dredged material placement into the facility occurred in 2019. The next inflow is scheduled for 2021-2022 dredging cycle. The concept design plans for the +60 foot MLLW dike were completed in April 2018, with final +60 foot MLLW dike design plans scheduled to be completed at the end of 2019. The final design plans will be reviewed by the MDE Dam Safety Division.

MDOT MPA continues to coordinate with the EPA and MDE Land Management Administration on the upland soil remediation, including work to characterize and address the extent of areas with elevated metals, PCBs, and historic petroleum waste products. The remediation, disposal, and demolition of Building 201 began in fall 2018. The superstructure has been demolished and is currently being removed from the site and disposed of under an EPA-approved plan. Slab demolition and soil remediation was completed late fall 2019.

A contract to construct the Operations and Maintenance Complex was awarded and construction was completed in the fall. Outreach to interested stakeholders is continuing, and the Cox Creek COC held quarterly meetings throughout 2019. The Cox Creek COC provided MDOT MPA a prioritized list of recommended community enhancements to be considered after required mitigation is complete. Separately, MDOT MPA is exploring the possible acquisition of the Tronox site (formerly known as Millennium Inorganic Chemicals/Cristal USA) adjacent to MDOT MPA's Cox Creek property. Active discussions between MDOT MPA and Tronox have been ongoing in 2019.

B. Masonville Dredged Material Containment Facility

During 2019 an estimated 761,164 cy of dredged material was placed into the Masonville DMCF. During the 2019-2020 dredging cycle, an estimated 635,000 cy from the Brewerton Channel, Brewerton Angle and the Northwest Branch East Channel and an additional 300,000 cy from private sector maintenance dredging projects is scheduled to be placed at Masonville.

Dike raising is underway to provide the next planned increment of capacity at the Masonville DMCF. Currently, the dikes average 10 feet above mean lower low water (MLLW) and the DMCF's total capacity is 5.3 mcy. When the first phase of the dike raising is complete, in early 2020, the dikes will be 18 feet above MLLW, and the cumulative capacity will have increased to 6.9 mcy. Ultimately, the dikes will top out at 42 feet above MLLW to provide an estimated total cumulative capacity for the DMCF of 10.9 mcy.

Remediation and habitat restoration were completed in Masonville Cove. Planting of approximately 11.2 acres of trees was completed in the fall of 2018 in Masonville Cove as mitigation for impacts to the Critical Area. Supplemental Spartina alterniflora planting of the Masonville Cove tidal wetlands, along the entire shoreline of Access Zone 2 and the southern shoreline of Access Zone 3, was completed in September 2019. Goose fencing was put in place to protect the new plantings from predation and wire fencing was installed along the waterside shoreline to help reduce impacts from woody debris and the wrack line. Monitoring of the tidal wetland plantings will take place in the spring, summer, and fall of 2020 to determine if further supplemental planting is necessary. With the completion of remediation activities in Access Zone 3, MDOT MPA worked with MDE on a completion report and environmental covenant for the area which are the final steps to closing out the consent order for Masonville Cove. Masonville Cove will be entered into conservation easement held jointly by Maryland Environmental Trust and Baltimore Greenspace, a local land trust, to protect the Cove as a natural environment into the future.

In 2019, MDOT MPA continued progress on Masonville off-site mitigation projects. In coordination with the City of Baltimore, MDOT MPA completed installation and began collecting usage data from solar compacting trash cans in neighborhoods near Masonville Cove. Currently, MDOT MPA is working on plans with the Waterfront Partnership to install a fourth trash interceptor at Gwynns Falls. MDOT MPA continues to coordinate with several partners on the development of water quality improvement projects as part of the mitigation package for the Masonville DMCF.

A new tipping fee agreement was prepared by the Corps' Baltimore District to document and determine the appropriate fee to be collected by MDOT MPA for use of Masonville for placement of dredged material from the federal navigation channel. This fee reflects the latest expansion costs and site capacity. As of the time of this writing, and Memorandum of Agreement (MOA) is under review by MDOT MPA and is expected to be in place by January 2020.

C. Hart-Miller Island (HMI)

The South Cell of HMI opened for public access for the fourth season in May 2019. Under an interagency agreement among MDOT MPA, DNR, and MES, the success of the South Cell public access will be evaluated over a five-year period that will conclude in December 2020 to document visitor usage, need for future amenities, and identification of opportunities for local partnerships to implement environmental education programming. The agencies will continue to work with the HMI Citizens Oversight Committee (COC) on the implementation of the agreement and the development of a "Friends of Hart- Miller Island" group, which also has a presence on social media.

During the summer of 2019, DNR provided bike rentals for the public. A 5-mile run around the island, with 80 runners and 20 guest attendees, was held on October 12, 2019. There have been 2,142 hikers, campers, bikers and park program attendees (from May 25, 2018 through September 30, 2019) in the HMI South Cell.

Liming the North Cell water in preparation for dewatering continued throughout 2019. Frequent storm events and accumulated water have slowed discharge progress due to issues with water quality and the flow limitation in the discharge permit. Vegetation test strips, initially planted in the North Cell in

2017, were reseeded in 2018 with annual and perennial grasses and woody vegetation with moderate tolerance to salinity, low pH, and a wide range of soil moistures. Monitoring of the vegetation will continue throughout the 2020 growing season and the monitoring results will be used to inform North Cell planting plans.

MDOT MPA continues to work with DNR on North Cell habitat development plans to incorporate a mosaic October 11, 2019 24 of habitats including uplands, wetlands, and open water to provide desirable habitat for migrating species. A new hydraulic study was conducted to evaluate the feasibility of increasing pond size and transitional zones while decreasing uplands. The priorities outlined by DNR for the North Cell development include migratory bird habitat; no pumping; minimal long-term operations and maintenance costs; and providing an engaging park visitor experience. Refined design concepts were evaluated in the fall of 2019 with DNR and other HMI stakeholders.

D. Coke Point

In 2003 the Harbor Team recommended Coke Point as a third potential DMCF for Harbor material, a recommendation that was reaffirmed in 2011 and MDOT MPA completed a Draft Feasibility Study Report for Coke Point in 2012. In 2019 MDOT MPA and the property owner, Tradepoint Atlantic, have discussed the potential for a DMCF at the Coke Point site. These discussions are ongoing.

E. Confined Aquatic Disposal (CAD)

As a backup to Coke Point, the Harbor Team 2011 Recommendations (Appendix 4) suggested conducting a CAD pilot project to evaluate as a potential dredged material management option. CAD is defined as excavation of cells by dredging in areas where there is commercial-grade sand and gravel underneath river bottom. These cells are backfilled with material from maintenance dredging. In most cases, overburden material would have to be removed to access the sand and gravel. This overburden material would be placed in a dredged material containment facility or innovatively reused. The commercial-grade sand and gravel would be used in upland construction projects or possibly in beneficial use projects such as capping contaminated areas elsewhere in the harbor.

The CAD pilot project cell that was constructed in October 2016 was filled by the Corps using dredged material from maintenance dredging of the Ferry Bar channel in February 2017. The CAD pilot project study concluded that construction and placement into a CAD cell can be conducted successfully, nutrient and turbidity concentrations during placement were low, and the primary storage capabilities are effective at containing dredged material. Consolidation monitoring through 2018 showed the site is stable after a limited area of erosion was observed in early 2018. Data collected and lessons learned from the pilot project are currently being used to develop metrics for identification and evaluation of future CAD sites. Site specific information throughout Baltimore Harbor related to port operations, geotechnical evaluation, hydrodynamics, engineering design, environmental factors, project implementation, and public and stakeholder coordination is being gathered and assessed to identify potential data gaps that would warrant further study. As data gaps are filled, the feasibility of future sites will be evaluated and likely sites will be ranked for implementation.

Challenge:

Harbor placement capacity remains a challenge. With active stakeholder engagement and working with key partners, MDOT MPA will continue to focus on the implementation of these projects to their completion.

VI. CHESAPEAKE BAY CHANNEL PLACEMENT SITES

A. Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island and Poplar Island Expansion

The Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island is focused on restoring/expanding remote island habitat to provide hundreds of acres of wetland and terrestrial habitat for fish and wildlife through the beneficial use of approximately 68 mcy of dredged material from the approach channels of the Baltimore Harbor and Channels navigation project. This is the total amount including the expansion project. The project is being constructed in two major increments. The first portion of the project has been completed. A lateral expansion is under construction to provide additional dredged material capacity and habitat. Sufficient funding was provided in federal fiscal year 2019 to continue construction of the expansion, which will provide an additional 28 mcy of dredged material placement capacity. The third contract for the lateral expansion was awarded in 2018 and will be completed in the summer of 2020. Inflow during the 2020/2021 dredging cycle is scheduled to be placed in the expansion. Poplar Island remains the only placement option for sediments dredged from Bay channels in Maryland waters south of Pooles Island. On average, the project receives 2.0 mcy of material per year.

Through 2019, over 370 acres of tidal wetland were restored and over 33 mcy of material were placed at the project. Infilling of the project with dredged material will continue through the 2032 dredging cycle based on projected dredging volumes. By 2029, it is anticipated that dredged material will concurrently need to be placed at the Mid-Bay project, now under design, to avoid overloading at Poplar Island. When completed, the dredged material will restore 1,715 acres of remote island habitat including 776 acres of wetland, 829 acres of upland, and 110 acres of open water embayment.

The project continues to be a national showcase for the beneficial use of dredged material. Although several years of project development remain, significant environmental benefits have already been achieved. Poplar Island habitat hosts a nationally protected migratory waterfowl, the American black duck, and two State- listed ground nesting colonial water birds, the common tern and the least tern. On its list of rare threatened, and endangered animals, DNR lists the least tern as “threatened” and the common tern as “endangered.” Both tern species nest at Poplar Island which has been the most successful common tern nesting colony.

Photo by Tim Carney

statewide since 2017. Over 200 different bird species have been identified onsite or just offshore. Additionally, diamondback terrapins nest on the island.

Maintenance dredging inflow to Poplar Island is scheduled for the 2019/2020 dredging cycle. Approximately, 2.1 mcy will be placed from the Brewerton Extension and Tolchester channels. Barren Island is one of the two islands comprising the Mid-Bay Project. Federal appropriations for fiscal year 2019 included $21 million for the Poplar Island Project, a strong signal of continuing federal support for the project given its numerous environmental and economic benefits for the Port of Baltimore. In 2020, MDOT MPA will continue to work with all parties involved in the federal budget process to advocate for sufficient and sustained budgetary resources to continue habitat build-out using dredged material.

Challenge:

MDOT MPA must work with all levels of the Corps, OMB, and the Maryland Congressional Delegation to ensure sufficient funding in the Corps' budget in federal fiscal year 2021 and beyond to continue habitat buildout of Poplar Island using dredged material.

B. Mid-Chesapeake Bay Island Ecosystem Restoration Project - James Island and Barren Island (Mid-Bay)

After Poplar Island and its expansion have been fully utilized, it is expected that Bay channel dredged material would be used to rebuild two eroding islands; James Island and Barren Island, slightly farther south of Poplar Island in the Bay, in Dorchester County. The two islands, known as the Mid-Chesapeake Bay Island Ecosystem Restoration Project (Mid-Bay), would restore 2,144 acres of remote island habitat and provide 95 mcy of total placement capacity. The plans are for Barren Island to be restored first followed by James Island, which would be constructed to receive the bulk of annual Maryland Bay Channels maintenance dredged material.

Timing for construction of the Mid-Bay project is critical to provide sustained dredged material placement capacity for approximately 3.2 mcy of material annually dredged from these approach channels. The Mid-Bay project has the strong support of the Dorchester County government and local residents. A four-year, $9 million engineering and design phase of the project began this year, utilizing 65 percent federal funding and 35 percent state funding. A Design Agreement was executed between the Corps and MDOT MPA in August 2019. Pending permits, restoration at Barren Island could begin in 2022, with James Island following in 2024. The current Corps' schedule is for the Mid-Bay Project to be ready to receive dredged material by 2029. This will avoid overloading of Poplar Island and achieve needed placement efficiency for the two projects as Poplar Island is eventually completed by 2035. The Corps will turn the project over to the state when the habitat development is complete.

> "The Mid-Bay project has the strong support of the Dorchester County government and local residents.

The Corps received $4.259 million in the federal fiscal year (FFY) 2019 work plan to continue Pre-construction Engineering and Design (PED). These funds, combined with $644,000 designated in FFY18 work plan, provide a total of $4.9 million in federal funds for design of the Mid-Bay project.

This is a significant and positive step in advancing efforts to build Mid-Bay in a timely, cost-effective manner so that (1) it avoids automatic deauthorization in June 2024 (deauthorization is triggered if no federal construction dollars have been spent), and (2) the site is ready to receive the full amount of annual Bay channel maintenance material by the time that capacity at Poplar Island Expansion is exhausted. Timely construction of the Mid-Bay project is contingent on a variety of critical and inter-related actions. These include: 1) Completion of the PED (design) by the Corps by 2023. This will require an additional $822,000 of federal funds to assure design completion which will need to be identified in the Corps FFY20 or subsequent fiscal year workplan.

2) Line item construction funds in the Federal budget by 2024 to enable initiation of construction by 2027 and avoid deauthorization in June 2024, and 3) Potential need for WRDA language to extend the construction authorization for the Mid-Bay project beyond 2024 to ensure that deauthorization does not occur and further jeopardize the project if federal funding is delayed. Construction authorization for the Mid-Bay project was extended to June 2024 by WRDA 2014.

Funding for the Mid-Bay project was not included in the FFY20 President's Budget, despite MDOT MPA efforts. The next allocation of federal funding would need to be part of the Corps' FFY20 work plan, which MDOT MPA will advocate for funds to continue PED. MDOT MPA and the Maryland congressional delegation will continue to advocate for inclusion of PED completion funding in the Corps' FFY20 Work Plan and/or the President's FFY21 budget. The design of Barren Island is expected to take 27 months and the design of James Island will take approximately 47 months.

Challenge:

MDOT MPA will need to work closely with stakeholders, federal decision makers, and elected officials to ensure that the Mid-Bay project receives federal construction funding in FFY22.

C. Chesapeake and Delaware Canal Upland Sites

The 35-foot deep C&D Canal is important to the POB as it provides shippers the shortest route to/from the Atlantic Ocean and is particularly favored by many auto-carrier ships making the journey between Baltimore and ports in Wilmington/Philadelphia, New York/New Jersey, New England and Northern Europe.

The Corps' Philadelphia District is responsible for maintenance of the upper Bay approach channels and the C&D Canal proper. The Philadelphia District owns the DMCFs along the approach channels and the Canal itself. The Philadelphia District has historically used the Courthouse Point and Pearce Creek DMCFs for placement of approach channel material. The Philadelphia District also utilizes local DMCFs along the Canal (including Bethel and Chesapeake City) for material dredged from the Canal proper.

In March 2019, MDE renewed the Corps' Water Quality Certificate (WQC) for the Pearce Creek DMCF, which extended the authorization to March 31, 2020. Installation of the DMCF liner was completed in 2017 and the DMCF has received annual inflows of dredged material since the 2017/2018 dredging cycle. Since the site has become operational, the Corps has maintained compliance with groundwater monitoring and surface water discharge monitoring, both of which are required per the WQC conditions.

Per the Special Conditions in the WQC, MDOT MPA has funded a water supply line from the Town of Cecilton to properties within the Pearce Creek Service Area, or zone of influence of previous groundwater contamination. Construction of the transmission main and distribution main waterlines were completed in September 2017. All scheduled in-home connections and well abandonments have been completed. Ongoing outreach will continue in the communities of West View Shores, Bay View Estates, and Sunset Pointe.

Community members and government agencies formed the Pearce Creek Implementation Committee in 2015 to share information and receive feedback on the progress of the project. The Committee meets regularly in Cecilton. The committee brings together MDOT MPA, the Corps, Cecil County, the Town of Cecilton, and the leadership of communities surrounding the Pearce Creek site for quarterly updates about project progress. This forum and the outreach website remain important resources for residents and representatives of agencies alike to exchange information, ask questions and express concerns, and generate ideas in order to ensure timely responsiveness throughout every phase of the project.

Challenge:

Continued collaboration and coordination among the Corps, MDOT MPA, MDE, Town of Cecilton, Cecil County agencies, and community members are needed to ensure that monitoring activities associated with DMCF operations are being completed.

D. Lower Bay Sites

Most ocean-going vessels travel to and from the Port of Baltimore through the southern approach commonly referred to as the 50-foot channel, a deep north-south route extending 150 miles from the POB to the Atlantic Ocean at Cape Henry, Virginia. The Lower Bay channels servicing Port-bound vessels include Cape Henry, York Spit, and Rappahannock Shoal. The currently designated placement sites include the Norfolk Ocean Disposal Site, the Dam Neck Ocean Disposal site, the Wolf Trap Alternate Placement Site, and the Rappahannock Shoal Deep Alternate Placement Site.

The Corps is working closely with MDOT MPA and the Virginia and federal resource agencies to address comments on impacts to overwintering blue crabs received from the National Marine Fisheries Service (NMFS) on the Essential Fish Habitat Assessment and from the Virginia Marine Resources Commissions (VMRC) for the Baltimore Harbor and Channels 50-foot Project General Reevaluation Report. VMRC and NMFS requested that the Wolf Trap Alternate Placement Site no longer be used for dredged material placement since it is located within a designated blue crab sanctuary and is utilized by female blue crabs to overwinter. VMRC and the Virginia Institute of Marine Science (VIMS) identified a Northern Extension of the Wolf Trap Alternate Placement Site (WTAPSNE) as a temporary alternative, which is expected to minimize impacts to overwintering female blue crabs. An Environmental Assessment for the Northern Extension was completed to determine the significance of the effects from the proposed action on the human environment (the natural and physical environment and the relationship of people with that environment).

The Corps is working to advance all necessary environmental reviews, permitting and public notice requirements as expeditiously as possible, so that the Northern Extension location could be available for dredged material placement from the planned federal fiscal year 2020 York Spit maintenance dredging cycle.

VMRC also requested that long-term dredged material management from the York Spit Channel include an analysis of beneficial use in Virginia waters. To respond to and address this request, the Baltimore District is planning to initiate a DMMP Update for the Virginia Channels, which will further evaluate feasibility of potential dredged material management alternatives including beneficial use of material from Virginia channels. MDOT MPA continues to monitor the progress of these efforts to ensure the FY 20 dredging of the York Spit Channel and placement at WTAPSNE contributes to a long-term solution for dredged material placement.

Challenge:

MDOT MPA and the Corps Baltimore District must work closely and expeditiously with VMRC, VIMS, and NMFS in conducting a timely and thorough DMMP Update for the Virginia channels material. The DMMP Update will re-evaluate the Corps' base plan (i.e. Federal standard) as well as potential alternative placement sites/solutions including beneficial use options. The recommended plan put forward by the DMMP Update could have significant and time-consuming financial, permitting and/or public acceptance implications.

VII. LONG RANGE CAPACITY PLANNING

MDOT MPA evaluates dredged material placement capacity needs annually. This in-depth analysis includes the placement needs from planned maintenance and new work dredging projects. In 2019, MDOT MPA streamlined its process for private applicants seeking approval for placement capacity. This new process is more efficient for both applicants and MDOT MPA.

> In 2019, MDOT MPA streamlined its process for private applicants seeking approval for placement capacity.

A. Refined Data

MDOT MPA rolled out a reassessment of dredging demand and placement capacity supply planning numbers to all of the DMMP committees in 2018. This reassessment examined fundamental assumptions regarding maintenance dredging and new work dredging demands and placement option capacities. The reassessment had three main conclusions. First, the 20-year dredged material management plan is founded on sound planning estimates. Second, the planning numbers are conservative. On the dredging demand side, MDOT MPA now knows that there will be no widening of the 50-foot channel inside the Harbor, but retained that volume in the 20-year planning estimates as a contingency to protect against uncertainties. On the placement capacity supply side, there is not yet allowance for increased capacity due to the potential acquisition of the Tronox (formerly Cristal USA) property, capacity recovery through innovative reuse or the potential for capacity at a potential future CAD site(s). Lastly, MDOT MPA must plan even beyond the 20-year horizon due to the long lead time needed to develop sustainable dredged material placement capacity. During the reassessment of MDOT MPA's long-range capacity planning estimates, the Management Committee raised the issue of climate change and how that may impact dredged material placement capacity needs. Specifically, climate and associated extreme weather may result in additional channel sedimentation and required dredging and more recent data, rather than long-term averages, could be used as a means for developing a more refined data point.

Updated Right of Entry for Dredged Material Placement at MDOT MPA DMCFs

In 2019, MDOT MPA updated the dredged material placement right of entry application, - the process that private applicants use to request placement capacity at MDOT MPA-owned DMCFs. The application streamlines the process, provides clarity on requirements, and improves user experience. Key updates included: electronically available application form, updated and clarified testing requirement, inclusion of guidance materials for sampling, and electronic data submission requirements and instructions. The updated application can be found on the MDOT MPA website at MDOT MPA Right of Entry.

B. Projected New Work Dredging

Several significant projects will require new work (i.e., not maintenance) dredging in the future.

Seagirt 50' Berth 3

MDOT MPA began developing plans for the dredging of a second 50-foot deep berth to increase the capabilities of the Seagirt Marine Terminal to efficiently accommodate two post-Panamax vessels at the same time. The project will include approximately 450,000 cy of new work dredging to deepen the existing Berth 3, increase the width of some sections of the existing channel, and establish a turning basin for vessels in excess of 1,300 feet in length. The dredging is expected to commence in 2020.

Channel Widening

While the study to evaluate the need for widening the 50-foot project to the authorized widths was terminated to address the environmental concerns with the WTAPS open water placement site raised by the Commonwealth of Virginia resource agencies, the estimated volume of material that is likely to be dredged as part of the Widening activities remains incorporated in MDOT MPA's 20-year planning horizon, as the study is expected to be re-initiated once a suitable placement site for the York Spit Channel is identified.

Completion of the congressionally authorized second phase of the Baltimore Harbor and Channels 50-foot Widening Project would bring some of the channel segments in the system from their current widths to their authorized widths. Generally, in the lower Bay, channel widths could increase from 800 feet to 1,000 feet and, in the upper Bay, main channel widths could increase from 700 feet to 800 feet. No widening is necessary within Baltimore Harbor. Completion of the project would require dredging of approximately 7 mcy in Maryland and Virginia waters.

Other New Work

Future new work dredging may include modifications of channels, berths, and anchorages as maritime commerce continues to grow. MDOT MPA has requested the Corps' Baltimore District to evaluate the potential deepening and widening of the West Seagirt Branch Access Channel to complete a loop channel. This project, if funded, would require dredging of approximately 1.5 mcy.

C. Contingency Planning - Ocean Placement

Placing dredged material from the Maryland Bay Channels at the Norfolk Ocean Disposal Site is an alternative that is included in the Maryland DMMP as a contingency option if other placement options are not available. Ocean placement of dredged material is regulated under Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972, which requires that any proposed placement of dredged material into ocean waters be evaluated using criteria published by EPA.

The EPA and the Corps' Baltimore District established a schedule for conducting triennial sediment testing as a requirement of maintaining authorization for ocean placement. Triennial sediment testing was conducted in early 2018. The Corps has submitted a request for concurrence of the sediment testing findings to EPA. Obtaining the necessary authorizations from the EPA will allow the retention of the ocean placement option as a contingency component of the overall DMMP planning efforts.

Prior to use of this option, the Corps would be required to complete an Environmental Assessment and provide public notice to Maryland and Virginia. The Corps indicates that federal cost sharing would not be available for ocean placement because it is not the federal standard. This means that MDOT MPA would have to pay the considerable additional costs for transporting dredged material from the current federal standard to the ocean site.

Challenge:

Sufficient dredged material placement capacity for new work dredging projects will be needed in order to meet the needs of a growing port and economy over the next 20 to 30 years.

APPENDIX 1: MEMBERS OF THE DMMP EXECUTIVE COMMITTEE

Chesapeake Bay Foundation
Alison Prost
Maryland Executive Director

DMMP Citizens Advisory Committee Liaison
Adam Lindquist
Waterfront Partnership of Baltimore

DMMP Management Committee Liaison
Peter Goodwin
University of Maryland Center for Environmental Science

Maryland Department of Natural Resources
The Honorable Jeannie Haddaway-Riccio (Co-Chairman)
Secretary

Maryland Department of the Environment
The Honorable Ben Grumbles
Secretary

Maryland Department of Transportation
The Honorable Pete K. Rahn (Co-Chairman)
Secretary

U.S. Army Corps of Engineers
Colonel John T. Litz
District Engineer, Baltimore

U.S. Army Corps of Engineers
Lt. Colonel David Park
District Engineer, Philadelphia

APPENDIX 2: MEMBERS OF THE DMMP MANAGEMENT COMMITTEE

Chesapeake Bay Foundation
Alison Prost
Maryland Executive Director

Baltimore Port Alliance
Rupert Denney

Chesapeake Bay Foundation
Doug Myers

DMMP Citizens Advisory Committee
Adam Lindquist

EPA Region III
Sherilyn Lau

Maryland Department of the Environment
Matthew Rowe

Maryland Environmental Service
Roy McGrath

Maryland Geological Survey
Richard Ortt

Maryland Port Administration
Kristen Fidler

Maryland Department of Natural Resources
Bruce Michael

Maryland Department of Transportation Policy & Governmental Affairs
Jeff Stockdale

National Marine Fisheries Service
Kristy Beard

NOAA Chesapeake Bay Office
Vacant

Rukert Terminal Corporation
Steve Landess, P.E.

U.S. Army Corps of Engineers, Baltimore
Kevin Brennan
Justin Callahan (alternate)

U.S. Army Corps of Engineers, Philadelphia
Mike Landis
Gavin Kaiser (alternate)

U.S. Fish & Wildlife Service
Genevieve LaRouche
Chris Guy (alternate)

Univ. of Maryland Center for Environmental Science
Peter Goodwin (DMMP Management Committee Liaison)
David Nemazie (alternate)

Dredging Demand vs. Capacity Supply

DREDGING DEMAND VS. CAPACITY SUPPLY

Planning Estimates (mcy)
June 30, 2018

Channel Segment	Average Annual Demand	20-year Demand	Available/ Planned Capacity Supply	20 year Capacity Deficit (-) or Surplus (+)
Harbor	1.2	23.1	23.1	- -
MD Bay	1.9	38.3	127.7	+89.4
C&D Approaches	0.7	14	17.9	+3.9
VA Bay	0.9	17.3	>30	+>12.7
Total	4.7	92.7	>198.7+	+106

APPENDIX 4: HARBOR TEAM RECOMMENDATIONS FOR FURTHER STUDY COKE POINT BACKUP OPTIONS

Report to the Management Committee and Executive Committee of Maryland's Dredged Material Management Program
September 15, 2011

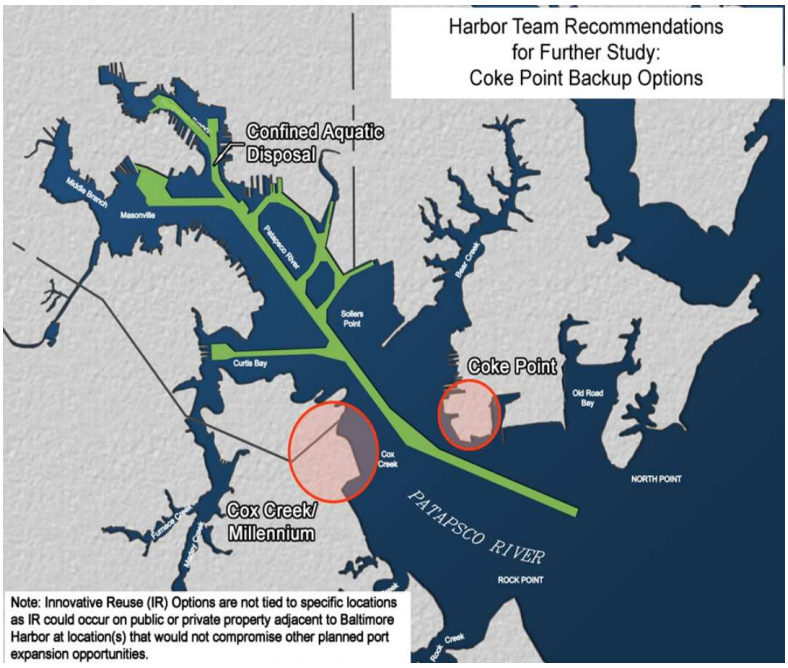
EXECUTIVE SUMMARY

The Harbor Team considered 23 potential options for backup to Coke Point over a period of one year. The Harbor Team agreed to the following recommendations: Strengthening the standards that apply to all dredged material management and community enhancement options; Convening a committee to investigate and recommend innovative methods of funding community enhancement projects; Pursuing a placement site with community enhancements at Coke Point as vigorously as possible – with Coke Point remaining the Harbor Team's highest priority; Conducting a feasibility study to assess innovative reuses already under consideration with a goal of innovatively reusing at least 500,000 cubic yards of dredged material per year by 2023 and answering questions necessary to determine if innovative reuse can become a viable part of the State's Dredged Material Management Program; Coordinating a plan to conduct a pilot test of Confined Aquatic Disposal (CAD) to determine if MPA could obtain the necessary permits to conduct a pilot test; conducting a pilot test if permits are issued; and, if pilot tests results are favorable, conducting a feasibility study of the use of CAD for harbor materials;

Ranking the Combined Cox Creek Millennium option as the highest priority of the land-based backup options to Coke Point for further study with two provisos:

1. Conducting community outreach to determine whether or not raising the dikes on the existing Cox Creek Dredged Material Containment Facility would be acceptable; if not, this feature would be dropped from further consideration.

2. Holding public information meetings in Anne Arundel County and Baltimore City as close to the zip code of the option as possible.



APPENDIX 5: ELEMENTS OF THE MARYLAND DMMP

Dredged Material Management Program Committee Structure

This is how Maryland engages stakeholders in dredged material management – from challenge identification through site operation and end use.