
2. PROBLEM IDENTIFICATION AND STUDY NEED

A core mission of the USACE is to provide safe, reliable, and efficient channels, harbors, and waterways for movement of commerce, national security needs, and recreation. Operating and maintaining the nation's harbors and waterways, which includes the placement and/or management of dredged material, is an increasingly challenging task as commercial ships become larger and populations near waterways increase.

2.1 PROBLEM IDENTIFICATION

Identification of problems and opportunities for solutions is the foundation for the planning process. Problem and opportunity statements reflect the priorities and preferences of the Federal Government, the non-Federal sponsors, and other stakeholder groups participating in the study process.

More than 130 miles of dredged shipping channels serve the Port of Baltimore, and the USACE-Baltimore District, USACE-Philadelphia District, and the MPA are responsible for ensuring that the Federal and State shipping channels are maintained at an appropriate depth and width to remain safe for the vessels that use the waterways and the Port of Baltimore. As part of that responsibility, USACE-Baltimore District, USACE-Philadelphia District, and MPA coordinate maintenance of the Port of Baltimore's channel system, and continually assess dredging needs and placement capacity. Channel maintenance and improvement projects require that approximately 4-5 mcy of sediment be dredged from the Federal and State channels each year. The State of Maryland's Dredged Material Management Act of 2001 initiated a process to phase out open water placement of dredged material within Maryland waters by 2010. The loss of open water placement options in Maryland waters reduced the ability of USACE-Baltimore, USACE-Philadelphia, and MPA to meet dredged material placement capacity needs past 2009. Placement capacity remaining after 2009 will be insufficient to meet the annual need for maintenance dredging activity, unless new options are developed. Existing placement locations for the Maryland Chesapeake Bay channels include the Pooles Island Open Water Placement Sites and the PIERP (Figure 2-1). Existing placement sites for dredged material from Baltimore Harbor (Patapsco River west of North Point / Rock Point line) include the Hart-Miller Island Dredged Material Containment Facility and the Cox Creek Dredged Material Containment Facility (Figure 2-1).

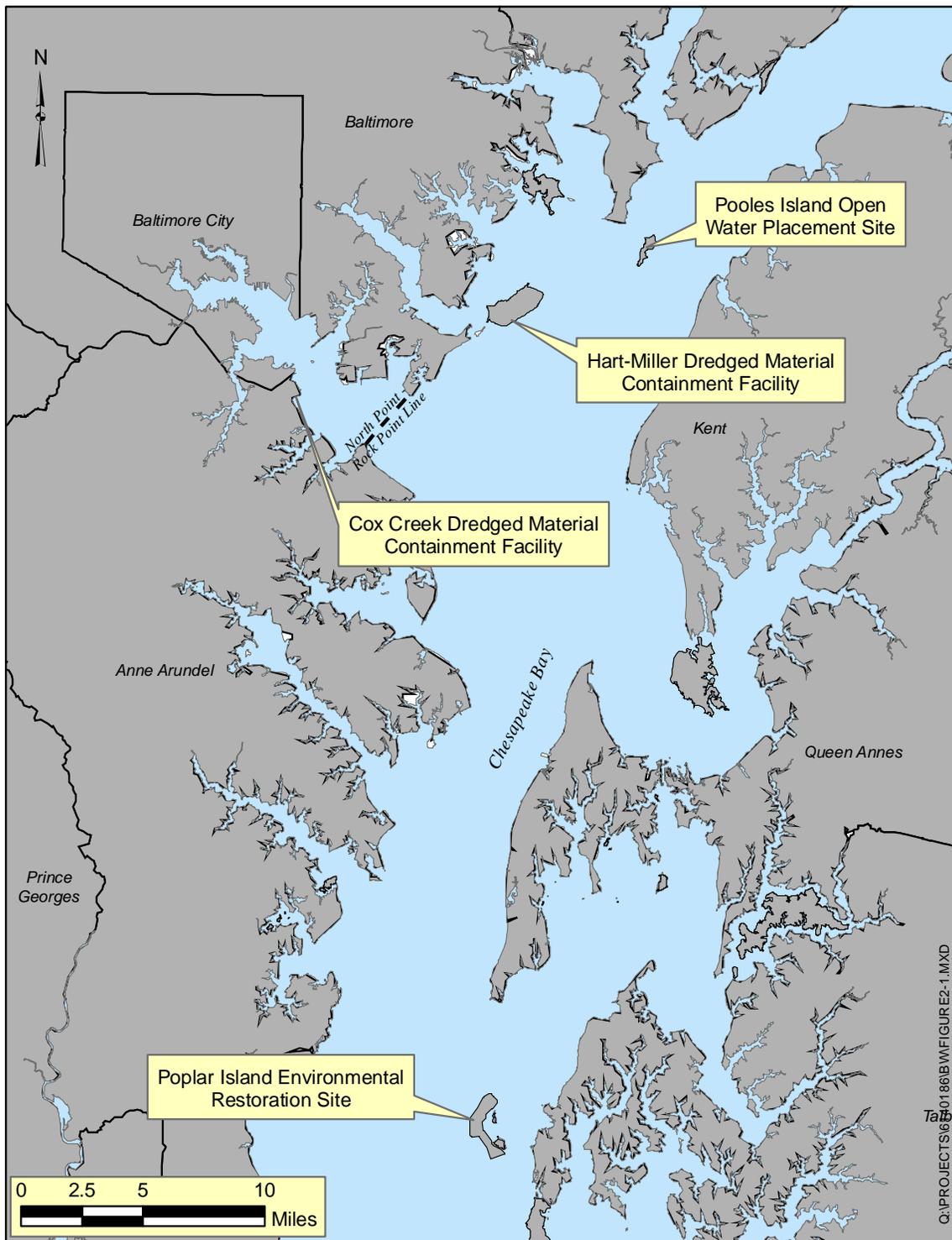


Figure 2-1. Map of Existing Placement Locations (Hart-Miller Island, Pooles Island, Cox Creek Facility, and Poplar Island)

Maintenance dredging of the Federal navigation channels is conducted pursuant to the existing authorities for individual project operation and maintenance, as provided in the public laws that authorized the specific Baltimore Harbor and Channels and Inland Waterway Delaware River to Chesapeake Bay, Chesapeake and Delaware (C&D) Canal projects. The authorized Baltimore Harbor and Channels projects provide for improvements and maintenance of Federal and State channels between Cape Henry, Virginia and Fort McHenry at Baltimore, a series of branch channels and anchorages that provide access to various public and private terminals serving the Port of Baltimore, and connecting channels to the C&D Canal (see Section 1.8.1.a). Currently, only dredged material from Federally authorized Upper Chesapeake Bay Approach Channels to the Port of Baltimore specifically identified in the Poplar Island EIS (USACE/MPA, 1996) is accepted for placement at PIERP. Under the Poplar Island project cooperation agreement (April 1997), dredged material approved for placement at PIERP is limited to eight Upper Chesapeake Bay Federal navigation channels: the Craighill Entrance Channel, the Craighill Channel, the Craighill Angle, the Craighill Upper Range, the Cutoff Angle, the Brewerton Channel Eastern Extension, the Tolchester Channel, and the Swan Point Channel (Figure 1-3). The average quantities of material dredged for the Upper Chesapeake Bay Approach Channels between 1996 and 2004 are summarized in Table 2-1.

Table 2-1. Upper Chesapeake Bay Approach Channel Federally Authorized Maintenance Dredging

Channel Section	Length* (nautical miles)	Authorized Width* (ft)	Authorized Depth (ft MLLW)*	Maintenance Dredging Average Quantity (1996-2004)* (cubic yards)
Craighill Entrance	3.1	700	50	193,983
Craighill Channel	2.8	700	50	100,668
Craighill Angle	1.6	1,258	50	396,742
Craighill Upper Range	2.1	700	50	56,889
Cutoff Angle	0.9	1,220	50	188,855
Brewerton Eastern Extension	5.0	600	35	439,906
Swan Point	1.7	600	35	103,465
Tolchester	6.5	600	35	208,787

Source: Final Baltimore Harbor and Channels Dredged Material Management Plan and Tiered Environmental Impact Statement (USACE, 2005).

* Information provided by USACE-Baltimore District

Approximately 12 mcy of dredged material has been placed at PIERP over the past four years (2001-2004). As currently designed, the optimum annual placement volume is 2 mcy. The average annual placement (approximately 3 mcy to date) exceeded the optimum volume during the first few years of operation due to inflow of material from new work projects (i.e., widening of the Brewerton Channel Eastern Extension and straightening of the Tolchester

Channel S-Turn) that was originally slated for open water placement. This overloading has shortened the overall project life of the PIERP, but has neither decreased the total estimated placement capacity of 40 mcy nor inhibited habitat development.

Dredged material from the Inland Waterway Delaware River to Chesapeake Bay, C&D Canal Federal navigation channels north of Tolchester and south of the Sassafras River, specifically the southern approach channels to the C&D Canal, is currently placed at the Pooles Island Open Water Site (Figure 1-4). The Pooles Island Placement Site is set to close by 2010 (by State of Maryland law), necessitating another option for dredged material placement for these channels. The Chesapeake and Delaware Canal Project authorizes maintenance dredging of the approach channels to the C&D Canal (Section 1.8.1.c). The average (historical) quantity of material dredged for the southern approach channels to the C&D Canal between 1975-1994 is summarized in Table 2-2.

Table 2-2. Southern Approach Channels to C&D Canal Federally Authorized Maintenance Dredging

Channel Section	Length* (nautical miles)	Authorized Width* (ft)	Authorized Depth (ft MLLW)*	Maintenance Dredging Average Annual Pay Quantity (1975-1994)* (cubic yards)
Southern Approach Channels to C&D Canal	15	450	35	875,000

*Source: Final Baltimore Harbor and Channels Dredged Material Management Plan and Tiered Environmental Impact Statement (USACE, 2005). * Information provided by USACE-Baltimore District*

2.2 OPPORTUNITIES

2.2.1 Remote Island Habitat Restoration

Land subsidence, rising sea level, and wave action are causing valuable remote island habitats to be lost because of erosion throughout the Chesapeake Bay. In the last 150 years, it has been estimated that 10,500 acres of island habitat have been lost in the eastern portion of the middle reach of the Chesapeake Bay alone (Wray et al., 1995). Remote island habitat is an ideal and attractive habitat for a wide range of migratory birds, as well as other fish and wildlife species.

Restoration, expansion, and enhancement of island habitat through the beneficial use of dredged material offers the following ecosystem restoration benefits:

- Creation of island habitat, which is preferentially selected by many species of migratory birds, as well as fish and other wildlife species, as resting/nesting/foraging/production areas. Even though similar vegetative communities may occur on the mainland, isolation, lack of human disturbance, and fewer predators make islands more attractive.

-
- Prevention of further island loss within the Bay, which locally decreases sediment inputs from erosion and can improve local water clarity substantially, leading to conditions that are more conducive to restoration/protection of submerged aquatic vegetation (SAV).
 - Creation of wetlands and shallow water areas that provide spawning and sheltered habitat for juvenile and forage fish species, epibenthic invertebrates, and benthic infauna.
 - Restoration of shallow and protected water areas with suitable conditions for the sustainable growth of submerged aquatic vegetation.
 - Restoration of wetlands and shallow water habitat that are essential nursery and foraging habitat to anadromous fish.
 - Protection of environmentally, historically, and culturally significant remnant island habitat.
 - Protection of shoreline for avian, reptilian, and mammalian species resting/nesting/foraging areas.

Offshore islands are a critical ecosystem component in the Chesapeake Bay watershed. Island habitats within the Chesapeake Bay have historically supported, and on some remaining remnant islands continue to support, numerous avian species including Ospreys (*Pandion haliaetus*); Canvasback (*Aythya valisineria*), American Black Ducks (*Anas rubripes*); Redhead Ducks (*Aythya americana*); egrets; terns; cormorants; Great Blue Herons (*Ardea herodias*); Little Blue Herons (*Egretta caerulea*); and Green Backed Herons (*Butorides striatus*); Black Skimmers (*Rynchops niger*); pelicans; and the threatened Bald Eagle (*Haliaeetus leucocephalus*). Diamondback terrapins and other turtle species nest on the beaches of remnant islands in the Chesapeake Bay. Finfish such as bluefish (*Pomatomus saltatrix*), summer flounder (*Paralichthys dentatus*), Atlantic menhaden (*Brevoortia tyrannus*), shad, and striped bass (*Morone saxatilis*) frequent the shallow waters adjacent to the mid-bay islands.

The significance of the fish and wildlife resources of the Chesapeake Bay is widely recognized by resource agencies, the public, and academic institutions. For more than 20 years, extensive efforts have been expended to support natural resources management and restoration plans in the Chesapeake Bay region. Through the beneficial use of dredged material, a restored island can be constructed to replace hundreds of acres of lost wetland and upland habitat. This habitat will afford improved productivity to the surrounding area, while providing an environmentally sound method for the use of dredged material from the Chesapeake Bay approach channels to the Port of Baltimore.

2.2.2 Beneficial Use of Dredged Material

To plan for the predicted dredged material placement capacity shortfall, both USACE-Baltimore District and MPA initiated processes and studies to evaluate long-term (20 years) placement; to address the dredging needs of Federal, State, and local projects; and to maximize the use of dredged material as a beneficial resource. Corps' guidance (Policy Guidance Letter No. 40) specifies that expansion of existing sites (such as the PIERP) should be considered for placement capacity before new sites are proposed.

Starting in 2009, as other placement sites close, overloading (filling a site beyond its optimal, planned capacity) of existing sites will begin to occur. Overloading is defined as annual placement that would result in a lift (the layer of dredged material placed in a wetland or upland cell in each year) thickness more than approximately 120 percent of the ideal annual placement volume for the cell. When the optimum lift thickness is significantly exceeded, the lower portion of the dredged material cannot be effectively dewatered and consolidated by conventional crust management techniques, increasing the time required for dewatering and consolidation of the dredged material and reducing the overall cell capacity because of the trapping of excess water. Overloading of cells would shorten the predicted capacity and lifespan of the existing PIERP project.

If annual placement at the existing PIERP increases from 2.0 mcy per year to 3.2 mcy per year after Pooles Island is closed, it is anticipated that the PIERP, in its existing configuration, would reach final capacity by 2015, with 2014 being the last year in which the full 3.2 mcy of annual dredged material could be accommodated. Under this scenario, the upland cells at PIERP would be overloaded beginning in approximately 2010.

The Federal and State studies that evaluate the regional options to offset the predicted dredged material capacity shortfall are briefly described in the following sections.

2.3 FEDERAL DREDGED MATERIAL MANAGEMENT PLAN

The Corps' ER 1105-2-100 (22 April 2000) mandates that Corps' Districts develop a DMMP for all Federal harbor projects where there is an indication of insufficient placement capacity to accommodate maintenance dredging for the next 20 years. The DMMP is a planning document that ensures maintenance-dredging activities are performed in an environmentally acceptable manner, use sound engineering techniques, and are economically warranted. The plan addresses a full range of placement alternatives to ensure that sufficient placement capacity is identified for the next 20 years. The USACE-Baltimore District's goal was to develop a comprehensive, regionally supported DMMP that produced a long-term strategy for providing viable placement alternatives for the dredging of the Port of Baltimore Federal Channels. The Baltimore District's DMMP covers the dredging of the channels from the mouth of the Chesapeake Bay in Virginia to and including the Port of Baltimore and the southern approach channels to the C&D Canal as far north as the Sassafra River (Figures 1-3, 1-4, 1-6, and 1-7).

The Federal DMMP addresses navigation and dredging needs, annual placement capabilities, existing capacity of placement areas, placement site management practices, environmental compliance requirements, potential beneficial use of dredged materials and an assessment of the economic viability of continued maintenance. The DMMP identified, evaluated, screened, prioritized, and ultimately optimized such alternatives resulting in the recommendation of a specific viable plan of action for the placement of dredged materials over the next 20 years. The plan also considered non-Federal, permitted dredging within the related geographic area, as placement of material from these sources will affect the size and capacity of placement areas required for the Federal project.

2.3.1 Federal DMMP Study Summary

A Preliminary Assessment of the Federal dredged material management needs for the next 20 years was completed in September 2001 (USACE, 2001a). The Preliminary Assessment had three primary conclusions: (1) that there was insufficient capacity remaining to accommodate the dredging needs of USACE-Baltimore District and MPA in the next 20 years, (2) that there was insufficient time to develop new placement sites, and (3) that unless new placement sites were identified, the existing sites would not be efficiently managed, resulting in overloading, which would reduce site capacity and increase costs. The Preliminary Assessment recommended that studies of the feasible alternatives be conducted to offset the capacity shortfall. These studies included an assessment of increasing the capacity of PIERP by raising the upland cells or constructing a lateral expansion.

In May 2002, the USACE-Baltimore District issued the NOI [Federal Register: February 11, 2005 (Volume 70, Number 28), Page 7256-7257] to prepare the *Baltimore Harbor and Channels Dredged Material Management Plan and Tiered Environmental Impact Statement* [USACE, 2005] (Federal DMMP study) for the Port of Baltimore. The Federal DMMP study was placed in the Federal Register on May 24, 2002 and was initiated in January 2003. Details of the Federal DMMP process, placement sites evaluation, the screening and ranking process, and results can be found in the *Baltimore Harbor & Channels Dredged Material Management Plan and Tiered EIS* (USACE, 2005).

The purpose of the Federal DMMP was to identify, evaluate, screen, and recommend dredged material management alternatives so that dredging and placement operations could be conducted in a timely, environmentally sensitive, and cost-effective manner. The Federal DMMP established the "Federal Standard" for the placement of sediment dredged from the channels serving the Port of Baltimore. The Federal standard is defined as the least costly, environmentally acceptable method of discharging the dredged material, consistent with sound engineering practices (33 CFR Part 335). The Federal standard was developed from a national perspective and considers, but is not bound by, State or local regulations. The Federal standard may therefore, include alternatives that fully comply with Federal law, but may be restricted by State laws. For example, the State of Maryland has passed laws that severely restrict the placement of material in the open waters of the Chesapeake Bay and limit placement of material from Baltimore Harbor to existing containment sites that have defined closure and capacity restraints. The Federal standard includes options, that in the absence of

these State laws, could provide sufficient potential capacity for 20 years of anticipated Federal maintenance needs, comply with Federal laws, and are based on sound engineering practices. Currently, the Federal standard for material dredged from Baltimore Harbor (upstream of the North Point to Rock Point line in the Patapsco River) is Hart-Miller Island (Figure 2-1); for dredged material from the C&D Canal Southern Approach Channels, the Federal standard is open water placement at the Pooles Island placement sites (Figure 2-1); and for the Chesapeake Bay (Baltimore Harbor Approach) channels, the Federal standard is open water placement in the Deep Trough (Figure 1-8).

General authorities relating to beneficial uses of dredged material supplement specific project authorities. Because beneficial use projects are typically more costly, they are not usually part of the Federal standard for the navigation purposes and are pursued under relevant authorities and separate funding sources than the navigation projects. The costs of management plan studies for continued maintenance of existing Federal navigation projects are operation and maintenance costs, and shall be federally funded (100 percent). Costs for beneficial uses that are consistent with, and part of, the Federal standard are also considered Federal operation and maintenance costs. However, study costs for beneficial uses that are not part of the Federal standard, beyond those reconnaissance-level studies needed to identify these potential uses as part of management plan studies, are either a non-Federal responsibility or are a shared Federal and non-Federal responsibility, depending on the type of beneficial use. For ecosystem restoration projects (such as the PIERP), the incremental costs above the Federal standard for the use of dredged material to restore and protect environmental resources, pursuant to Section 204 of WRDA 92 or Section 207 of WRDA 1996, must be cost shared on a 75 percent Federal and 25 percent non-Federal basis, with a qualified non-Federal sponsor.

In many cases, a Non-Federal local sponsor is required to identify the project's dredged material placement sites. A locally preferred plan can be identified other than the Federal standard. In such instances, the costs above those required for the Federal Standard are either a non-Federal or shared responsibility, depending on the placement site. If the placement site is an approved Federal project, costs above the Federal Standard are shared between the USACE and the Non-Federal sponsor. If the placement site is not an approved Federal project, the Non-Federal sponsor would be responsible for all costs above the Federal Standard costs. For this project, the Non-Federal (local) sponsor is the MPA.

It is also USACE policy to fully consider all aspects of the dredging and placement operations while maximizing benefits to the public. Beneficial use options for the dredged material are given full and equal consideration with other alternatives. The Federal DMMP integrated a detailed assessment of all feasible beneficial use alternatives, such as agricultural use (topsoil), shoreline protection, wetland restoration, and creating wildlife habitats.

2.3.2 Assessment of Existing Dredged Material Placement Capacity

To define the scope for the Federal DMMP, an assessment of the remaining capacity at the existing dredged material placement sites was conducted to quantify the magnitude of the

dredged material shortfall predicted in the Preliminary Assessment (USACE, 2001a). This assessment formed the basis of the “No-Action Alternative” for the Federal DMMP and assumed the continuation of the current maintenance dredging at the currently maintained channel dimensions (see Section 1.8.1) and placement of the dredged material at the existing placement sites as currently constructed (USACE, 2005). Results of the placement capacity assessment for the 20-year planning period indicated:

- For the Baltimore Harbor Channels and Anchorages, the two existing placement sites – Hart-Miller Island Dredged Material Containment Facility and Cox Creek Confined Disposal Facility – have an estimated remaining capacity of 10 and 6 mcy, respectively. The projected dredging need for the Harbor Channels and Anchorages is estimated to be 33 mcy, resulting in a capacity shortfall of 17 mcy.
- For the Upper Chesapeake Bay Approach Channels in Maryland, the PIERP is the only existing placement site. The PIERP is estimated to have a remaining placement capacity of 27 mcy. The projected dredging need for the Upper Chesapeake Bay Approach Channels is estimated to be 43 mcy, resulting in a capacity shortfall of 16 mcy.
- For the southern approach channels to the C&D Canal, the existing placement site is the Pooles Island Open Water Site, with an estimated remaining capacity of 6 mcy. The projected dredging need for the southern approach channels to the C&D Canal is estimated to be 30 mcy (approximately 1.2 mcy per year), resulting in a capacity shortfall of 24 mcy.
- For the Virginia Chesapeake Bay approach channels in Virginia, the four existing placement sites – Rappahannock Shoal Deep Alternate Open Water Site, Wolf Trap Alternate Open Water Site, Norfolk Ocean Open Water Site, and Dam Neck Ocean Open Water Site – have sufficient capacity to handle the projected quantity of dredged material from the Virginia channels.

Based on the evaluation of remaining capacity in existing placement sites (Table 2-3), the Federal DMMP identified the need for an additional 17 mcy of additional placement capacity for dredged material from Baltimore Harbor, and an additional 40 mcy of additional placement capacity for dredged material from the Upper Chesapeake Bay Approach Channels, including the southern approach channels to the C&D Canal, within the next 20 years (USACE, 2005).

Table 2-3. Projected Dredging Need and Capacity Shortfall through 2025

Channel Reach	Need (mcy)	Existing Sites	Capacity (mcy)	Shortfall (mcy)
Baltimore Harbor Channels	33	Hart-Miller Island and Cox Creek	16	17
Chesapeake Bay Approach Channels (MD)	43	PIERP	27	16
Southern Approach Channels to C&D Canal	30	Pooles Island Open Water Placement Site	6	24
Virginia Channels	16	Dam Neck, Norfolk Ocean, Wolf Trap Alternate and Rappahannock Deep Alternate	Sufficient	None

Source: Final Baltimore Harbor and Channels Dredged Material Management Plan and Tiered Environmental Impact Statement (USACE, 2005).

2.3.3 Screening Process for the Federal DMMP

The Federal DMMP process included the evaluation of 35 options (Table 2-4) for dredged material from four locations: (1) the Baltimore Harbor channels (Figure 1-7), (2) C&D Canal approach channels (Figure 1-4), (3) Chesapeake Bay approach channels in Maryland (Figure 1-3), and (4) Virginia Chesapeake Bay approach channels in Virginia (Figure 1-6), for a total of 79 alternatives (USACE, 2005). The screening process for the Federal DMMP is briefly summarized in the following sections.

The screening criteria for the Federal DMMP included three main quantitative criteria – capacity of the placement alternative; cost to dredge, construct, operate, and maintain each placement alternative; and the environmental benefit or impact caused by each placement alternative (USACE, 2005). Two qualitative criteria were also considered – technical and logical risk, and acceptability risk (USACE, 2005).

In the Federal DMMP screening process, the alternatives scoring matrix developed by the Bay Enhancement Working Group (BEWG) (see Section 2.4) was used to evaluate the environmental benefit and/or impact of a placement alternative. The BEWG alternatives scoring matrix included 52 criteria grouped under the following subsets: water quality, shallow water habitat, wetlands, aquatic biology, rare/threatened/endangered species, waterbirds, terrestrial, physical parameters, human use attributes, and beneficial attributes. Each criterion was assigned a weighting factor that represented the BEWG’s assessment of the relative importance of that criterion in the screening process. The BEWG assigned a score, either a +1 for beneficial impact, 0 for little or no impact, or a -1 for negative impact, for each alternative for each criterion. When the score for each alternative was multiplied by the weight for each criterion, a total score was calculated and then evaluated against the full list of alternatives. Also included in the alternatives evaluation for the Federal DMMP were concept-level design assumptions for each alternative that included life-cycle cost estimates.

Table 2-4. Placement Options Evaluated in the Federal DMMP

<ul style="list-style-type: none">• Agricultural Placement- Maryland (MD)• Agricultural Placement- Virginia (VA)• Artificial Island Creation- Lower Bay• Artificial Island Creation- Upper Bay• Beach Nourishment- Virginia• Building Products• C&D Canal Upland Sites Expansion• Capping- Landfill/Brownfields• Capping- Elizabeth River, VA• Capping- Patapsco River, MD• Confined Aquatic Disposal Area- Patapsco River, MD• Confined Disposal Facility- Lower Bay• Confined Disposal Facility- Patapsco River, MD• Cox Creek Expansion• Hart-Miller Island Expansion• Large Island Restoration- Lower Bay• Large Island Restoration- Mid Bay• Mine Placement- Cecil County, MD• Mine Placement- Western Maryland• Norfolk Ocean Open Water Placement• Pooles Island Open Water Site Expansion• PIERP Expansion• Rappahannock Shoal Deep Alternate Open Water Site Expansion• Shoreline Restoration- Lower Bay• Shoreline Restoration- Mid Bay• Shoreline Restoration- Upper Bay• Small Island Restoration- Lower Bay• Small Island Restoration- Mid Bay• Wetland Restoration- Dorchester County, MD• Dam Neck Ocean Open Water Placement (Existing)• Hart-Miller Island (Existing)• New Open Water Placement – Mid Bay (Deep Trough)• Pooles Island Open Water Site (Existing)• Rappahannock Shoal Deep Alternate Open Water Site (Existing)• Wolf Trap Alternate Open Water Placement (Existing)

Source: USACE, 2005

Seven alternatives were selected as the recommended plan to meet the 20-year dredged material capacity needs of the Port of Baltimore, and were evaluated in the Programmatic DMMP and Tiered EIS Evaluation (USACE, 2005). Five of the seven alternatives were applicable to dredged material placement for the Upper Chesapeake Bay Approach Channels to the Port of Baltimore (Figure 1-3):

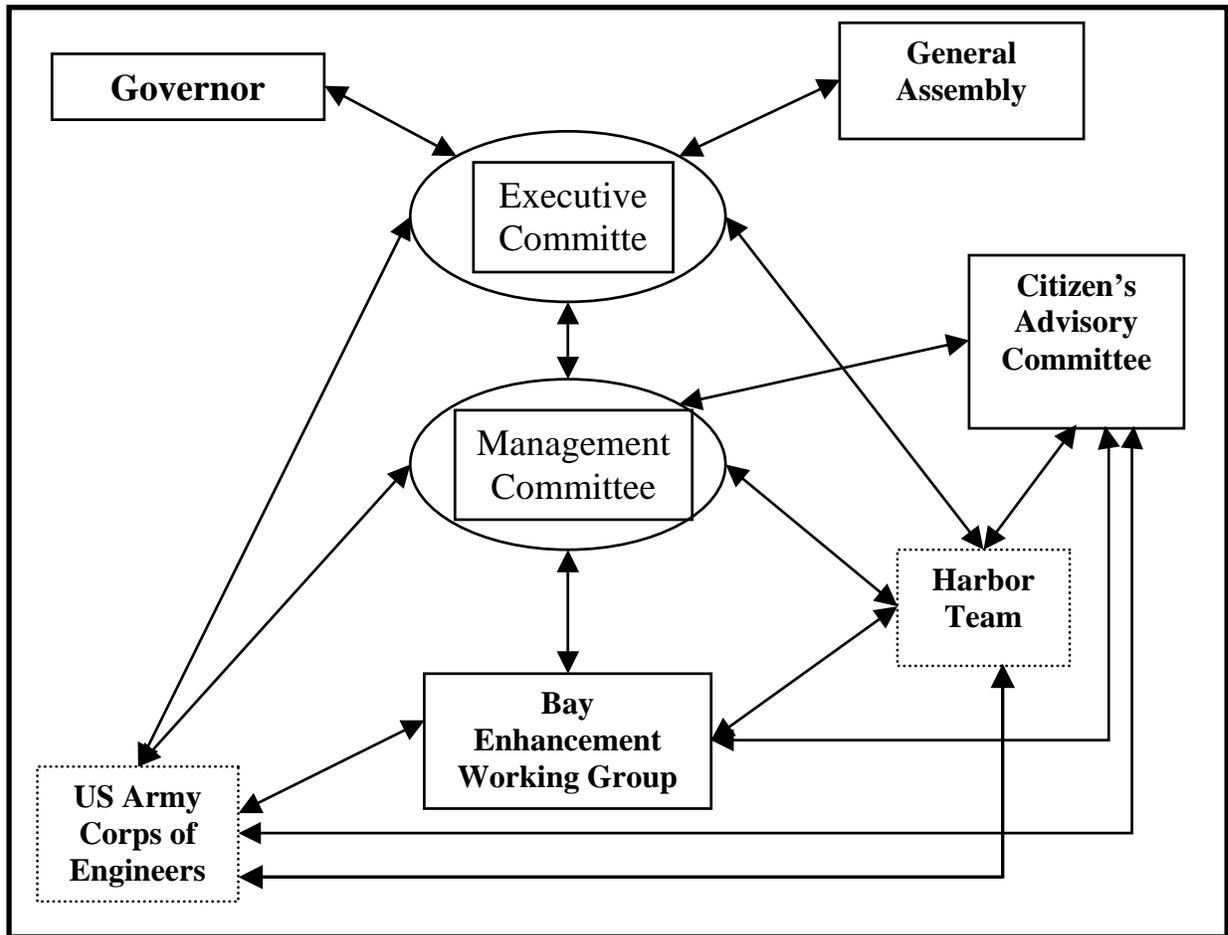
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- PIERP Expansion
 - Optimized use of existing dredged material management sites in Maryland, including PIERP, Pooles Island Open Water Site, Hart-Miller Dredged Material Containment Facility, and Cox Creek Dredged Material Containment Facility.
 - Large Island Restoration – Middle Chesapeake Bay
 - Wetland Restoration – Dorchester County
 - Continue to work with the State of Maryland to investigate innovative use alternatives

The other two alternatives evaluated in the Federal DMMP were continued use of open water placement sites in Virginia for dredged material from the three Federal navigation channels located in the Virginia portion of the Chesapeake Bay, and multiple confined disposal facilities in the Patapsco River for Baltimore Harbor dredged material.

2.4 STATE DREDGED MATERIAL MANAGEMENT PROGRAM

The Dredged Material Management Program for MPA (State of Maryland DMMP) is a comprehensive process used to establish long-term dredging placement plans and to identify potential new placement sites. The State of Maryland's DMMP relies on input from a variety of stakeholders including citizens and environmental groups, and State and Federal agencies. Stakeholders are organized into three committees – the Executive Committee, the Management Committee, and the CAC – and are supported by several technical working groups, including the BEWG and the Harbor Team (HT) (Figure 2-2), that are tasked with identifying, studying, reviewing, and prioritizing potential dredged material placement sites.

The State of Maryland's DMMP program is an on-going process that continuously reevaluates dredging options in response to changes in the short- and long-term dredging requirements. Over 100 individuals are included in the committee structure - the Executive Committee meets bi-annually, the Management Committee meets quarterly, the BEWG meets monthly, the CAC meets bimonthly, and the Harbor Team meets quarterly, although the committees have met more regularly when necessary.



Source: DMMP, 2002

Figure 2-2. Committee Structure and Information Flow in the State of Maryland's DMMP

The following committees form the framework of the State of Maryland's DMMP process (DMMP, 2002):

- Executive Committee – The Executive Committee is composed of eight members who oversee the development of the DMMP and report directly to the Governor of the State of Maryland. Members include Secretaries of the State Departments of Natural Resources, Environment, and Transportation, a representative from the Management Committee, as well as the USACE District Commanders from Baltimore and Philadelphia, a Governor-appointed citizen representative, and the Chesapeake Bay Foundation.
- Management Committee – The Management Committee is composed of State and Federal agencies, Port-related industry representatives, and other stakeholder group representatives. This committee reviews both the technical work of the BEWG and

input from the CAC, as well as considering additional factors such as costs, timing, and need. This committee makes recommendations to the Executive Committee on an annual basis and manages the overall progress of dredged material management option selection.

- Citizens' Advisory Committee (CAC) – The CAC is composed of representatives from citizens groups, community groups, and local governments interested in the environmental health and economic development of the Bay. The CAC reviews BEWG ranking information and provides input to the Management and Executive Committees regarding potential social, community, and local government concerns for each potential placement options and management strategy.
- Bay Enhancement Working Group (BEWG) – The BEWG is composed of technical personnel from State and Federal agencies and other organizations with expertise in the environmental issues of the Chesapeake Bay region. This BEWG is the primary group tasked with evaluating management options for dredged material. The BEWG has created a technical matrix within which management options can be scored to assess environmental impacts or benefits and ranked relative to one another.
- Harbor Team (HT) – The Harbor Team was established in 2003 to develop recommendations for dredged material management options specific to Baltimore Harbor for the next 20 years. Team members include representatives of local governments, community and environmental groups, and businesses with local interests.
- Other Task Forces – Additional tasks forces are added to the State of Maryland's DMMP as needed to support the decision making process for dredged material placement options.

The State of Maryland's DMMP Executive Committee is responsible for reviewing and recommending options to meet the short- and long-term placement capacity requirements for maintenance and new work dredging projects in Maryland waters, and presenting those recommendations to the Governor and Maryland General Assembly. The Dredged Material Management Act of 2001 tasked the Executive Committee with the responsibility of evaluating short- and long-term placement capacity requirements based on the following hierarchy of preference:

- Beneficial use and innovative reuse of dredged material,
- Upland sites and other environmentally sound confined capacity,
- Expansion of existing dredged material placement capacity other than Hart-Miller Island and Pooles Island, and
- Other dredged material placement options to meet long-term placement needs, with the exception of unconfined placement sites.

A subset of highly ranked potential placement sites was identified and taken through a series of conceptual, pre-feasibility, and feasibility studies to examine environmental, engineering, geotechnical, and social considerations and constraints for each site. The technical experts involved in the BEWG developed a matrix to evaluate positive and negative environmental impacts for each option. A total of 52 environmental factors (Table 2-5) were identified and used to rank the 28 options identified as potential placement sites (Table 2-6).

Table 2-5. Environmental Factors Considered in the State of Maryland’s DMMP Screening Process

• Dissolved Oxygen	• Thermal Refuge	• CERCLA/UXO Potential
• Nutrient Enrichment	• Recreational Fishery	• Fossil Shell Mining
• Turbidity	• Protected Species	• Floodplains
• Salinity	• Habitat of Particular Concern	• Recreational Value
• Groundwater	• Waterfowl Use	• Aesthetics and Noise
• Benthic Community	• Wading and Shorebird Use	• Cultural Resources
• Shallow Water Habitat	• Wildlife Habitat	• Navigation
• Submerged Aquatic Vegetation	• Forests	• Beneficial Use – Wetlands
• Tidal Wetlands	• Streams	• Beneficial Use – Uplands
• Non-tidal Wetlands	• Lakes and Ponds	• Beneficial Use – Faunal
• Finfish Spawning Habitat	• Other Natural Avian Habitat	• Beneficial Use – Recreational Enhancement
• Finfish Rearing Habitat	• Toxic Contaminants	• Hydrodynamic Effects
• Larval Transport	• Substrate/Soil Characteristics	• Essential Fish Habitat
• Air Quality	• Public Health	• Infrastructure
• Socioeconomics – Commercial Income and Assets	• Public Safety	• Existing Land Use
• Socioeconomics – Residential Assets	• Environmental Justice	• Shoreline Protection
• Commercially Harvested Species and Habitat	• Prime or Unique Agricultural Land	• Beneficial Use – Adjacent Habitat Enhancement
• Noise		

Source: DMMP, 2002

Potential placement sites were screened using five sorting variables – (1) environmental screening, (2) the year the placement site would become available, (3) annual capacity of the placement site, (4) capacity through 2022, and (5) unit cost. Based on the results of the screening process, sites were next prioritized (high priority, low priority, or not feasible), and additional studies were conducted (or are on-going) as needed.

Table 2-6. Placement Options Included in the State of Maryland’s DMMP Screening Process

<ul style="list-style-type: none"> • Aberdeen Proving Ground • Agriculture • Barren Island • Dead Ship Anchorage • Furnace Bay • Hawkins Point/Thomas Cove • Holland Island • Innovative Use at Cox Creek • James Island • Lower Eastern Neck Island • MD – C&D Placement Sites (6) • Mines and Quarries • Ocean Placement • Parsons Island 	<ul style="list-style-type: none"> • Poplar Island Modification (Dike Raising) • Poplar Island Modification (Lateral Expansion) • Sharps Island • Site 170 (Mouth of Patapsco) • Site 1 – Tolchester West • Site 2 – Tolchester/Brewerton Angle • Site 3 – Swan Point West • Site 3S – Swan Point West • Site 4a – Pooles Island • Site 4b – Pooles Island • Site 4br – Pooles Island • Sollers Point • Sparrows Point • Wetland Thin Layering (Dorchester County)
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Source: DMMP, 2002

As of 2004, the State of Maryland’s DMMP Executive Committee recommendations for dredged material from the open bay channels were (DMMP, 2004):

- Poplar Island Re-Evaluation - Conclude the feasibility study of expanding, through dike raising and/or lateral expansion, the PIERP off of Talbot County, Maryland.
- Mid-Bay Island Restoration - Conclude the feasibility study of restoring James Island and Barren Island, both located off of Dorchester County, Maryland.

Recommendations of the Executive Committee also included the initiation or continuation of feasibility studies for three potential containment facilities (Masonville, BP-Fairfield, and Sparrows Point Containment Facilities) to manage dredged material from the Baltimore Harbor channels. Each containment facility has a suite of community enhancements associated with the project. Masonville Cove restoration/enhancement would include the development of either Masonville or the BP-Fairfield Facility. For Sparrows Point, the suite of enhancements includes wetlands creation at Sparrows Point and Sollers Point (east), Jones Creek Community enhancements of shoreline restoration and wetlands creation, Bear Creek and Old Road Bay cleanup, Sollers Point (west) Community enhancements, and a “Heritage Trail” Community enhancement. The Executive committee also recommended developing a strategy for incorporating innovative re-use of dredged material options into the State of Maryland’s DMMP.

2.5 DIFFERENCES BETWEEN THE FEDERAL AND STATE DMMP

The USACE-Baltimore District's and State of Maryland's DMMP processes both have similar goals of identifying suitable placement sites to contain dredged material from the Federal, State, and local non-Federal channels over at least the next 20 years. However, the USACE-Baltimore District plan is conducted from a Federal perspective and it is intended to ensure that the Port's Federal navigation projects continue to be completed and maintained in an environmentally acceptable and cost-effective manner, thereby justifying an ongoing investment of Federal funds.

The Federal DMMP differs from the State's DMMP in that the Baltimore District's DMMP is more inclusive geographically, encompassing all of the Baltimore Harbor and Channels project channels located in Virginia waters in addition to those located in Maryland waters. The Baltimore District's DMMP includes an economic evaluation to determine the Federal interest in continued maintenance of the channels, which is not required in the State's DMMP process. The Baltimore District's DMMP addresses a wide range of dredged material placement alternatives, including some that may be prohibited by Maryland State law, to determine the appropriate Federal authorities for constructing and cost sharing dredged material placement sites. Because Federal actions require NEPA evaluation and a NEPA decision document, Baltimore District's DMMP also includes a programmatic tiered EIS that addresses the placement alternatives and updates the NEPA documentation for dredging all of the Baltimore Harbor and Channels project channels.

USACE-Baltimore District is an integral player in the State's program and has representatives on the State's Executive and Management Committees and working groups. The USACE has adopted the State's DMMP process for the Baltimore District's DMMP, as well as for the Poplar Island Expansion Study and the Mid-Bay studies. The Baltimore District also attends and provides periodic briefings to the State's CAC and Harbor Team. Dredging and dredged material management for the Chesapeake Bay and Baltimore Harbor Channels is a cooperative process that benefits from the involvement of key government and non-government stakeholders. The USACE-Baltimore District works closely with the State to integrate the two processes, share information, and prevent the duplication of effort. However, results from the State's DMMP process cannot be used to justify Federal projects and are not legally sufficient documentation to ensure compliance with environmental laws. This close coordination between USACE-Baltimore District and the State has been essential in developing a comprehensive program for the Port of Baltimore, providing cost effective dredging and placement operations, and protecting, conserving, and restoring coastal resources.

Despite the differences outlined above, the outcomes of both the Federal and State DMMP processes recommended that the optimization of the PIERP by lateral and/or vertical expansion be evaluated as one alternative to offset the projected dredged material placement capacity shortfall (USACE, 2005; DMMP, 2004).