

Confined Aquatic Disposal (CAD)

Dredging maintains safe passage for vessels making their way through the navigation channels that serve the Port of Baltimore, a key economic driver for waterborne commerce in Maryland. Removing sediment annually from the channels ensures the safety of our marine highway and helps businesses at the Port continue to thrive.

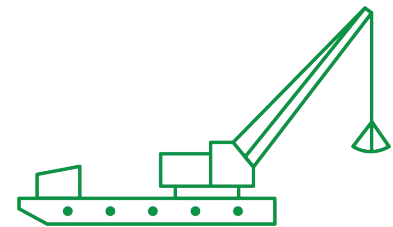
Finding new placement capacity is a challenge in the Baltimore region. In addition to dredged material containment facilities (DMCF) or innovative reuse and beneficial uses of dredged material, a third management option is being investigated called Confined Aquatic Disposal, or CAD.

Underwater locations suitable for a CAD site include sandy material that can be recovered/dredged and used in innovative or beneficial used projects. Sediment removed from the shipping channel is then confined in the resulting depression.

A successful CAD Pilot Project was constructed and filled in Baltimore Harbor in 2016-2017 and studied extensively. CAD has been used in Boston, Newark Bay, and multiple west coast locations.



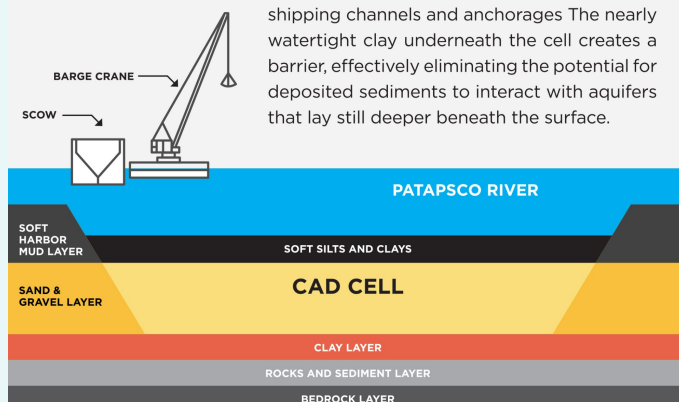
MPA is responsible for waterborne commerce in the State of Maryland, which requires significant maintenance dredging of the navigation channel system.



CAD is being investigated as a potential dredged material management solution used as part of the Maryland Port Administration (MPA) Dredged Material Management Program (DMMP), which identifies options for dredged material placement for channels serving the Port of Baltimore.

How Does CAD Work?

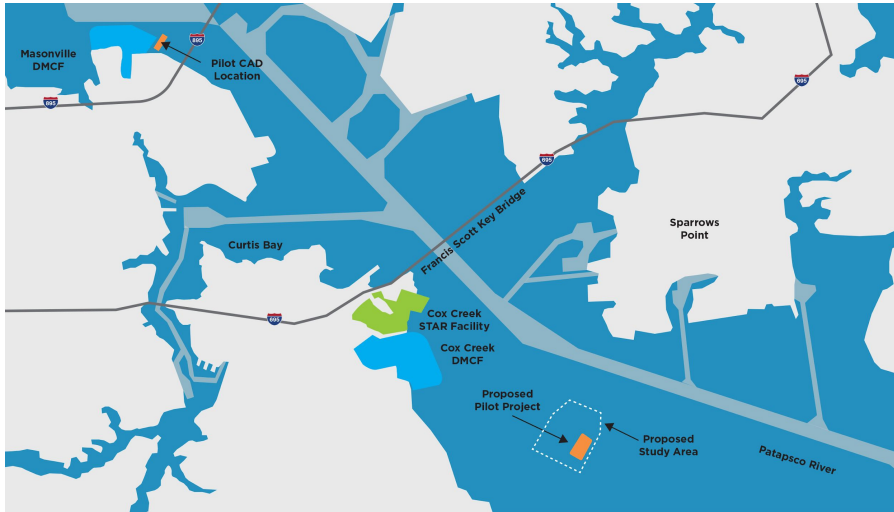
For the Port of Baltimore, construction of a CAD cell would usually begin by dredging a thin layer of silt and clay on the river bottom and placing it in a DMCF. Next, a layer of sand and gravel would be removed to deepen the cell, but only in the areas underlain by a relatively thick impervious clay layer known as the Arundel Formation. That depression is then filled with dredged material from projects such as maintaining shipping channels and anchorages. The nearly watertight clay underneath the cell creates a barrier, effectively eliminating the potential for deposited sediments to interact with aquifers that lay still deeper beneath the surface.



CAD has three key stages:

1. A depression (or cell) is excavated into the sand layer of the river bottom.
2. Excavated sand is used in a beneficial or innovative manner, such as wetland creation or structural fill.
3. The depression is then filled in with dredged material.

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CAD PILOT PROJECT A SUCCESS

Following the 2016 CAD Pilot Project, planning goals were identified to be taken into consideration while exploring a second CAD project: evaluate different site conditions that may influence other locations within the harbor region; operate a larger capacity cell with the potential for multi-use or multiple cells within an established area; and determine cost-effectiveness.

Preliminary site analysis included an environmental assessment, hydrodynamic modeling, and geotechnical investigations. Potential sites were refined and focused for further study, resulting in a recommended location in the open water region southeast of the Cox Creek DMCF. The geotechnical investigations at the proposed location identified a large volume of sand near the surface, allowing easier access and better value for removal and reuse.

Further coordination with the regulatory and resource agencies is needed before proceeding with the project. Focused stakeholder and community outreach began to ensure feedback was incorporated into the CAD planning process.

GOAL

MPA aims to make CAD an implemented component of the DMMP in Maryland and to promote the long-term viability of the Port of Baltimore.

NEXT STEPS

Further progress on the CAD pilot project is paused while a comprehensive outreach and education strategy is developed and implemented.

Communities have raised concerns about the proposed location for the next CAD pilot, so the project has been paused to ensure a thorough education and outreach process.



CAD is an emerging dredged material management approach using underwater space created by newly excavated material to place Harbor dredged material safely and is a key component of the long-term success of the Port.



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