Financing An Aberdeen Creek Dredging Project Using A Tax Increment Financing Approach

Aberdeen Creek Dredging Study, Tax Increment Financing Analysis and Feasibility Study

November 15, 2014

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Table of Content

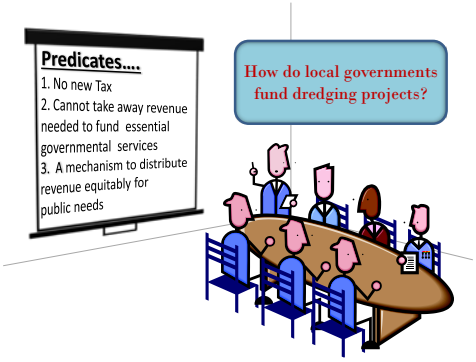
Illustrations

Executive Summary

The purpose of this report is to examine the feasibility of Gloucester County utilizing a Tax Increment Financing (TIF) approach to fund a dredging project along Aberdeen Creek, an important harbor for waterfront homeowners and commercial fishing operations along the York River. Historically, the Army Corp of Engineers financed and performed dredging operations for Aberdeen Creek and 16 other federal navigation channels located within the Middle Peninsula. In recent years funding cuts within the agency has led to local governments shouldering the full cost of dredging the channels within their borders.

Gloucester County leadership recognizes the economic importance of working waterfronts and requested that the Middle Peninsula Planning District Commission's Technical Assistance Program conduct a feasibility study of a public financing policy that could help the County pay for the costs of dredging and maintaining the harbor. County leadership mandated that the proposed policy;

- not raise revenue through a new tax
- not divert revenue used presently to fund essential services and
- distribute revenue equitably in a manner that serves the public need.



Tax Increment Financing approach or TIF meets these requirements and has been deployed by localities throughout Virginia with varying results. TIF is a financially sustainable, low-risk approach that Gloucester County can utilize to finance the dredging of Aberdeen Creek. Instead of raising taxes or diverting current spending, TIF allows municipalities to pay for public improvements using earmarked gains in future property tax revenue. In essence, TIF is a way for local governments to "cut the pie" differently to pay for needed public improvements.

With funding provided through the Virginia Coastal Zone Management grant program, grant number NA13NOS4190135, the Middle Peninsula Planning District Commission (MPPDC) partnered with Virginia Institute of Marine Science (VIMS) Shoreline Studies Program to conduct an analysis of the current conditions along the Aberdeen Creek channel including shoreline changes and infrastructure conditions. For purposes of this report, VIMS has provided an analysis of the sediment to be removed during the dredging project and based on its components, determine placement options for dredged materials.

Under the same grant, MPPDC also partnered with Virginia Sea Grants Program to provide assistance with TIF district modeling and revenue generation scenarios that could be used to help shape future TIF policy. The results from both studies are compiled into this report and will later serve as the foundation for a long range management plan for Aberdeen Creek.

This report provides an overview of TIF program and how it could be utilized to finance the dredging of the Aberdeen Creek through various traditional and nontraditional examples of how localities in Virginia are using TIF. The report details the existing conditions of Aberdeen Creek and its working waterfront infrastructure. Next, the report explains the cost associated with dredging the creek and the methodology employed in the Aberdeen Creek TIF district feasibility study to cover those costs. The report provides and compares the findings of the feasibility report for scenarios presented by deploying TIF using various district configurations. The final section of the report will provide recommendation on how to best deploy TIF utilizing other supplemental methods or revenue generation.

Aberdeen Creek

Aberdeen Creek is a shallow federally identified draft navigation channel that connects to the upper York River in Gloucester County, Virginia. A well-used harbor by commercial fisherman, Aberdeen Creek provides working waterfront support through use of a public boat landing and a private commercial property with additional support infrastructure, both of which are in need of repair and regular upkeep.[1] The waterfront property surrounding the creek consists primarily of single-family homes with private docks, as well as a defunct commercial processing facility that provides private docking facilities. The future site of the Commonwealth of Virginia's Middle Peninsula State Park borders the northeastern portion of the creek. The park's design includes a canoe launch on the eastern shore of the creek.[2] Based on the land use surrounding the creek and existing infrastructure within, it is clear that both the public and private sector have invested in Aberdeen Creek's function as a navigable harbor.

Aberdeen Creek's economic importance is derived from its geographic location and existing public infrastructure, which benefit homeowners and commercial fishermen alike. The Creek adds value to abutting properties which is further enhanced through construction and improvements made by property owners that include private docks and/or piers that provide access to a navigable waterway.[3] Aberdeen Creek's working waterfront provides watermen a strategic location for landing, docking, and mooring in close proximity to oyster and crabbing grounds on the Upper York River.[4] This proximity allows commercial fisherman to reduce transportation time and costs while contributing greatly to Gloucester County's maritime economy. Tom Murray, Associate Director for Advisory Services at the Virginia Institute of Marine Science is completing an economic impact study valuing commercial seafood as an industry for Aberdeen Creek. This study is scheduled to be completed in the Spring of 2015.

Deteriorating public infrastructure and shoaling are the two most significant threats to the continued use of Aberdeen Creek as a harbor. The public boat-landing site has been in use since the 1940's but has lacked a consistent maintenance schedule, which has resulted in deterioration of the two piers.[5] This deterioration has the potential to make docking, mooring, and unloading dangerous for boaters using the pier. Furthermore, the existing two piers cannot serve the needs of most commercial fisherman, who contend that larger boat slips are needed to accommodate their vessels, assuming dredging issues can be addressed.

The greatest threat facing the viability of Aberdeen Creek as a harbor is shoaling, which over time prevents vessels from entering and navigating the waterway. Historically, the Army Corps of Engineers has dredged Aberdeen Creek to allow for its continued use as a harbor, with the Corps last dredging the creek in 1974. However, due to budget cuts, the Army Corp of Engineers will no longer finance the dredging of Aberdeen Creek, which is projected to cost between $608,000 and $1,592,000, depending on the life cycle of the dredging process.[6] Currently, the projected annual cost to dredge and maintain the creek is estimated at

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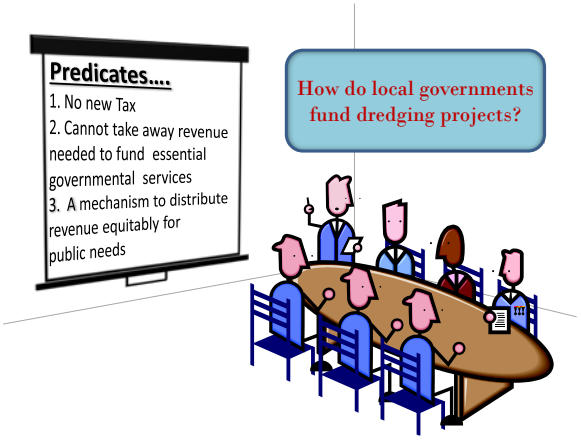
[1] Middle Peninsula Planning District Commission, *Aberdeen Creek Harbor Master Plan Draft Report*
[2] Virginia Department of Conservation and Recreation, *Middle Peninsula State Park Master Plan Executive Summary*
[3] Robert L. Hicks & Bonnie M. Queen, 2007. "Valuing Historical and Cultural Amenities with Hedonic Property Valuation Models," CRE Working Papers (Documents de treball del CRE) 2007/05, Centre de Recerca Econòmica (UIB ·"Sa Nostra"), revised Jan 2007.
[4] Middle Peninsula Planning District Commission, *Aberdeen Creek Harbor Master Plan Report*
[5] Middle Peninsula Planning District Commission, *Aberdeen Creek Harbor Master Plan Report*
[6] Middle Peninsula Planning District Commission, *Shallow Draft Navigation and Sediment Management Plan for the Middle Peninsula Chesapeake Bay Public Access Authority.*

$93,000 annually. Unfortunately, there is no funding available in the Gloucester County budget to pay for continuous maintenance of the creek nor a continuous funding source available to assist the locality with subsidizing the dredging project. If dredging is not financed and shoaling continues unabated, Aberdeen Creek will cease function as a working harbor, decreasing the property values fronting the creek, frustrating the businesses of commercial watermen and weakening Gloucester diverse economic base.

Gloucester County leadership has historically recognized the economic importance of Aberdeen Creek's function as a working waterfront harbor and has taken numerous actions to see the working waterfront activity continue to thrive along the Creek. Most recently, Gloucester County commissioned the MPPDC to draft an Aberdeen Creek Harbor Master Plan that focused on identifying local code regulations impacting the use of working waterfront properties and infrastructure along Aberdeen Creek. The project was partially funded through Virginia Coastal Zone Management Program at the Department of Environmental Quality through Task 56, Grant #NA11NOS4190122 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration. As a follow up to the Aberdeen Creek Harbor Master Plan, Gloucester County leadership requested a public financing policy that could pay for the full cost of dredging the creek. County leadership directed that the proposed policy;

- not raise revenue through a new tax,
- not divert revenue used presently to fund essential services and
- distribute revenue equitably in a manner that serves the public need.



Given these mandates and the limitation of Virginia state law, Tax Increment Financing (TIF) is the most likely local policy option available to Gloucester County and is the subject of this report.

Tax Increment Financing (TIF) Overview

Tax Increment Financing (TIF) is an economic development tool that allows municipalities to pay for public improvements without raising taxes or diverting current funds, but rather through the earmarking of future property tax revenue within the area in which the improvements are to occur, known as the TIF district.[7]

[7] LISC Milwaukee & Council of Development Finance Agencies, *City of Milwaukee Tax Increment Financing White Paper & Recommendations.*

Authorized under Section 58.1-3245.2 of the Virginia State Code, TIF uses future revenue from property value increases to be allocated to projects in designated areas. A TIF district is created when a project need has been identified, the area in which the project will take place has been designated and funding is allocated through future tax revenue generation to finance the project. Specific parcels are outlined, composing the TIF district and the details of how the funding will be allocated are defined by the adoption of a policy by the local government. **Unlike special districts, it is not a new tax, but redirects and segregates the increased property tax revenues generated in a specific area to a specific purpose.** While traditionally, property tax revenue has been the only object of TIFs, personal property tax, sales tax and other fees have also been included to boost revenue generation.

Once a TIF district is established, a year establishing the base valuation for properties in that district is set, allowing for revenue generated from property value increases to be used to fund the project for which the district was created. In other words, the property values at the established year serves as the base line assessment value. Annual property tax revenue that exceeds the revenue of the specified year is deposited into the TIF district fund on an annual basis for the life of the project or until the debt for the project is paid.

The Virginia State Code provides TIF powers to localities with taxing authority, however, there are several ways local governments may create TIF districts. One way is through agreements between a locality and a third party entity commonly referred to as Community Development Association (CDA). In this case, local government creates the TIF district, however, the CDA is responsible for carrying out the guideline of the policy which are outlined in an agreement between the locality and the CDA. The CDA is responsible for ensuring that the project requirements are met.

Another way TIF districts may be created is through zoning code. Like overlay districts, localities may amend their codes to include a TIF district, however this is the least preferred method as it is very rigid and takes much longer to implement.

Most local governments in Virginia that have used TIF districts prefer TIF district creation by policy rather than through local codes and legislation. TIF by policy allows local governments the flexibility to establish multiple districts with variations in terms to meet the need for which each was established with amending local law. Revenues generated from TIF are projected to help determine the life of the district. Because most TIF districts have a life span that is also flexible, TIF creation by policy is more efficient than code amendments to amend the policy as needed and/or dissolve the district once the goals are fulfilled.

Creating a TIF District

The Virginia State Code authorizes local governments to adopt Tax Increment Financing districts and outlines the criteria for TIF districts in Section 58.1-3245.2 through 58.1-3245.4.

58.1-3245.2 allows for the governing body of any county, city or town to adopt tax increment financing by passing an ordinance designating a development project area and providing that real estate taxes in the development project area shall be assessed, collected and allocated in the following manner for so long as any obligations or development project cost commitments secured by the Tax Increment Financing Fund, hereinafter authorized, are outstanding and unpaid.

Section 58.1-3245.3 requires that the ordinance creating the TIF district be provided to the real estate assessor and that the properties encompassing the TIF district are identified. Section 58.1-3245.4 outlines how funding creating under the TIF district may be obligated. State law does not limit the number of years TIF district may be in place.

Once authority has been established, a need for a plan or project has to be established before a policy is created. State law requires the governing body to hold a public hearing on the need for tax increment financing in the county, city or town prior to adopting a tax increment financing ordinance. Identifying specifically where and how the funds will be spent is the next step in the process and also a requirement of the state code. This step also involves public outreach.

A study outlining the projects timeline and associated costs should be conducted to determine if TIF is the most economically feasible method of financing the project. Factors such time and cost will also influence the rate at which allocations are set and possibly district area boundaries. The study should also include revenue projections and various scenarios based on economic changes.

After the need has been establish and the goals and objectives of the project identified, the policy must be drafted and adopted. Localities in Virginia have favored enacting TIF districts through the adoption an ordinance outlining the details of the plan. As mentioned earlier, this method allows more efficiency and flexibility when monitoring the plan and ensuring objectives are met. Section 58.1-3245.3 requires that certain criteria be provided when creating the TIF district. These criteria are generally adopted as a part of the ordinance and are as follows:

A designated project area defined in a boundary map
Description of the properties included in the TIF district
The manner in which taxes will be collecting and allocated

The base valuation year is established in the ordinance as well as terms and timeline of TIF district and disposal of excess funds. Funding generated from the TIF district may be spent all or in part in that district, however, state law requires that the adopted ordinance outlines how the funds will be spent. Residual or excess funding (surplus) may go towards another project or into the general fund.

Project boundaries are generally determined by targeting those properties needing the benefit of the development of the district. Other factors such as pace of revenue generation to cover cost may also be a factor in determining the boundaries. The law requires that the boundaries of the district are illustrated in a map as well as individually and the information be provided to the real estate assessment official. Once boundaries are chosen, base valuation of property tax for properties within the boundaries of the district are frozen. Tax revenue for the base evaluations continues to be allocated accordingly while the increased value above the base, or a portion thereof, is contributed to a TIF fund annually.

TIF *Tax Incremental Financing*

- NOT a new tax
- Does NOT take away revenue needed today to fund essential government services
- Provides a mechanism to distribute revenue equitably for public needs

Today's Assessed Value

Land and Building Assessed Value	$100,000
Taxable Units	1000
Levy	75 cents per hundred or 1000 taxing units
Tax Revenue Generated	$750

Reassessed

Land and Building assessed Value	$110,000
Taxable Units	1100
Levy	75 cents per hundred or 1100 taxing units
Tax Revenue Generated	$825

New Revenue Generated

the difference between annual generated tax revenue

$75

a TIF policy can dedicate a percentage (1 to 100%) of new revenues to a fund public needs

For Instance: A TIF policy could dedicate 50% of new revenues to a specific dredging fund. Therefore $37.50 would be directed to the dredging fund.

A process for monitoring and evaluating the performance of the district should be included in the plan. Monitoring should determine if TIF revenue generation is meeting targeted funding expectations or if other measures such as amending the allocation rate or providing supplemental funding methods will be required.

Examples of TIF Projects in the Commonwealth

TIF is popular throughout much of the United States and has experienced relative success in Virginia. It is frequently used in support of development and/or redevelopment projects capitalizing on the projected increase in property tax revenue from improvements and reinvestment in the district. Arlington County and Virginia Beach have successfully implemented TIF districts in the past decade. Traditionally TIF districts have been used to fund public infrastructure redevelopment projects. The following examples of TIF districts will provide more insight into how TIFs are being created, the type of projects they are being created for and how TIF is being supplemented to meet the goals of the project.

Arlington, Virginia has used TIF as a funding mechanism for several public projects since 2002 including three TIF districts created to fund public parking projects from 2002 to 2006. One of the most notable Arlington TIF district was the Crystal City TIF district. In October 2010 Arlington County Board of Supervisors established the Crystal City TIF district, consisting of Crystal City, Pentagon City and Potomac Yards, to pay for transportation system upgrades and a street car system. (Appendix 1) Due to the high percentage of military and defense contractors in Arlington County, these areas experience significant impacts in terms of blight due the realignment and closure of military bases and other facilities. The Board's policy

allocated thirty three percent of the annual increase in real estate tax revenue to the Crystal City TIF fund to infrastructure and transportation improvements. These improvements plant the seed for new investments and redevelopment in the project area, paying for itself over time through revenue from increased property values.

Other localities closer to the Middle Peninsula region that have experienced relative success with TIF include the cities of Virginia Beach, Chesapeake and Hampton. City of Virginia Beach has had as many as three TIF districts dating back to the late 1990's. The city used TIF as a means of spurring commercial and redevelopment growth with the Central Business District-South (Town Center) TIF district and the Lynnhaven Mall TIF district. The city also used TIF as a means to generate revenue for beach replenishment at Sandbridge.

Lynnhaven Mall TIF district was established in 1998 by the City Council of Virginia Beach as a public private partnership with the property owner to expand and revitalize the Lynnhaven Mall. At the time Lynnhaven Mall was the third largest shopping mall in Virginia and an important asset to the City's retail economy. The development was financed through a note between the developer and the City which required the developer to pay TIF eligible expenses upfront with reimbursement by the City over a 16 year period. The TIF was designed to contribute $11.5 million over a 16 year period to pay for remodeling the parking garage, upgrading the drainage system servicing the mall as well as improving public transit and roadway around the mall area. The note was paid in 14 years, two years above schedule.

The City of Hampton established a TIF district Peninsula Town Center which was administered through a Community Development Authority. The CDA received approximately $93 million in revenue generate through various funding methods including TIF districts, special tax districts and retail special assessment to assist with redevelopment of the Coliseum Mall. Public improvements included a parking structure and on site utilities and infrastructure associated with the project including, streets, sidewalks, drainage and utilities.

In 2004, Chesapeake City Council unanimously adopted the formation of a Greenbrier Area Commercial Tax Increment Financing (TIF) district through code amendment. Planned projects included improved pedestrian access, parking decks, City Park improvements, a new internal transit system and streetscapes. Parking garages, sewer and water lines, sidewalks, a bus line and even a full-service hotel are planned for the 1,920 acres that is officially the Greenbrier Area Commercial District in Chesapeake. The City Council authorized the TIF district to become effective beginning January 2005 for the life of the outstanding debt. Unlike in previous examples, no supplemental funding methods have been identified, explaining the indefinite term of the district.

One of the more unique instances of employing the TIF district where redevelopment and reinvestment are not direct outcome is the Sandbridge Beach TIF district in the City of Virginia Beach. The City of Virginia Beach used TIF district as one of several funding mechanisms to raise revenue for a sand and shoreline restoration project on its invaluable Sandbridge Beach. TIF funding was supplemented by federal cost sharing and creating a Sandbridge Special Services Tax District. Virginia Beach's use of the Sandbridge TIF district is very similar to the Aberdeen Creek TIF proposed later in this report, in that it is one of the more innovative ways of using TIF without reliance on the redevelopment aspect to increase revenue. Both are used to fund projects that were previously subsidized by federal funding.

Established in 1995, Sandbridge TIF district was devised to accumulate funding over a period of three years before being spent in order to fully fund a sand replenishment project rather than being spent as it was accumulated. The City funded the first sand replenishment in 1998 at a cost of $8.1 million to spread 1.1 million cubic yards of sand. The first federally cost-shared project was performed in 2003 at a cost to the City of $3.9 million to spread 2 million cubic yards of sand. In 2005, the federal government announced its intention to no

longer participate in beach restoration projects and in 2006 funded the last $3.0 million sand replenishment project at Sandbridge. In 2007, the City paid $9.7 million of the $12.7 million total project costs to spread 2.1 million cubic yards of sand onto the beach. In 2009, $9.0 million in TIF revenues were declared to be in excess of the long-term obligations for beach and shoreline restoration. This amount was transferred to the General Fund to reduce the TIF fund balance to be in line with expected future project costs.

The cumulative assessment growth rate of the resort community of Sandbridge since the districts inception in 1997 to 2008 was 510%, more than double the citywide assessment growth rate due mainly to faster appreciation of the mostly residential properties within the District. The beach replenishments and the installation of sanitary sewers contributed largely to this growth. A term of the policy directs excess funds in the TIF to fund Capital Improvement Programs roadway projects.

These are a few examples of the methods employed by localities in the Commonwealth that include the creation of a TIF district. Majority of the TIF projects explained here used supplemental funding sources in addition to the TIF districts. There is an example of TIF by agreement however, majority of TIFs surveyed are implemented through the locality. Also commonly found throughout these examples are various supplemental funding mechanisms used to finance TIF projects.

Establishing the Need For A Dredging Project Along Aberdeen Creek

Dredging is the removal of sediment and debris from the bottom of lakes, rivers, harbors and other water bodies. Dredging is performed to a) maintain and deepen navigation channels for the safe passage of boats and ships or b) remove harmful contaminants from the body of water, a variation of dredging called environmental dredging. Aberdeen Creek is a shallow-draft Federal navigation channel that requires dredging in order for boats to pass safely in and out of the waterway. Besides information from users of the Creek, how do we know if a dredging project is necessary?

The User's Guide to Dredging in Tidewater Virginia created by the Middle Peninsula Planning District in 2011 through funding from Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grant #NA10NOS4190205 Task 44 provides guidance on a dredging projects - from the identification of a dredging need, to identification of sediment disposal site, to applying for a dredging permit, to the dredging of a channel. The guide outlines the common components that factor into a successful dredging project within Tidewater Virginia as: (1) identification of a channel with a dredging need, (2) conducting a pre-dredge bathymetric survey to determine the current condition of the channel and volume of material to be removed, (3) identification and selection of a dredge disposal site, typically public or, private beaches and/or, private or public upland containment sites, (4)applying for and receiving the necessary permits via the submission of the Commonwealth of Virginia's Standard Joint Permit Application (JPA) and attendance, as necessary, at one or more required public hearings, (5) selection of a contractor and execution of the contract, (6) convening a pre-dredging conference with representatives from the appropriate regulatory agencies, (7) initiation and completion of the proposed dredging project, and (8) submission of a post-dredge bathymetric survey to permitting authorities for determination of permit compliance. As each component influences the overall cost of a dredging project it is important that applicants, whether a public entity, private entity or a public private partnership, weigh the various options as federal funding to maintain shallow draft navigable waterways will likely no longer be available in the future.

With funding from the Coastal Zone Management Program, the Middle Peninsula Planning District partnered with Virginia Institute of Marine Science Shoreline Studies Program (VIMS) to assist in creating a master plan for dredging and maintenance of the Aberdeen Creek channel. The information provided through the work by VIMS will help to assess the dredging needs of the creek and better quantify the historic shoreline changes in the vicinity of Aberdeen Creek and the additional rate changes. This information will be used to better assess the future dredging needs of Aberdeen Creek.

The report will also provide an assessment of the current conditions of existing public and private infrastructure associated with working waterfronts along Aberdeen Creek.

Last, the report will include the results of a survey of the creek, producing bathymetric contours and sediment sampling to determine the depth and volume of dredging and the types of materials in the channel along the Aberdeen Creek area and options for placement of materials.

Methods used by the Virginia Institute of Marine Science's (VIMS) Shoreline Studies program coincide with the components identified in the dredging guide to help determine project need. The information by VIMS included in this report will address establishing the need through a survey of changes in the shoreline, identification of dredge materials and selections of disposal sites, required permits and the permitting process and the associated cost of dredging as well as maintenance of the existing working waterfront infrastructure along Aberdeen Creek.

Introduction and Statement of the Problem

Aberdeen Creek is located in Gloucester County, Virginia. A Federal navigation channel from the York River into Aberdeen Creek was established in 1962 (USACE, 1975). The one mile channel was dredged to 80 feet wide with a controlling depth 6 feet (Figure 2). Approximately 200,000 cubic yards of dredge material was placed in a tidal marsh complex about one mile upriver (Figure 2). Maintenance dredging was performed in 1974 when 68,000 cubic yards (cy) of material was placed upriver. No substantive maintenance dredging has since occurred. Today, narrowing of the channel at the entrance to Aberdeen Creek makes it difficult for ingress and egress of commercial vessels to the public landing at the end of Aberdeen Creek Road. The purpose of this project is to evaluate the working waterfront infrastructure (docks) and access at Aberdeen Creek.

In 2010, the USACE discontinued its long time maintenance program for Federal Channels in the Middle Peninsula and Northern Neck. In order to help localities transition to this significant change, the Corps developed the Shallow Draft Navigation and Sediment Management Plan for the Middle Peninsula Chesapeake Bay Public Access Authority. It outlined the various Federal channels, their history and a plan to utilize limited funding to target and coordinate projects including the beneficial use of dredge material. Sandy material is recommended for shore line protection within one mile up and down river of most navigation channels in the Middle Peninsula including Aberdeen Creek.

Methods

Historic Shore and Land Use Change

Utilizing the Shoreline Studies Program's Shore Evolution database, the historic shoreline change in the vicinity of Aberdeen Creek was described (Milligan *et al*., 2010). The Evolution database consists of ortho-rectified historic aerial photos for various dates between 1937 and 2009, and their corresponding digitized shorelines. These data are useful in determining sediment transport patterns at the channel as well as defining past disposal areas and possible future ones.

Assessing Waterfront Infrastructure

The working waterfront infrastructure at the end of Aberdeen Creek Road includes both public docks and a private commercial building. This assessment focuses on the public boat dock and the adjacent shoreline and their condition. VIMS personnel surveyed with a Real-Time Kinematic Global Positioning System (RTK-GPS). Horizontal and vertical control was established by processing a 2.7 hour occupation through the online positioning (OPUS). Data was converted to MLLW using the Shoreline Studies Program's Google Earth kml (Hardaway *et al*., 2010) file that depicts the elevation difference between MLLW and the 1988 North American Vertical Datum (NAVD88). At Aberdeen Creek, NAVD88+1.8 ft = MLLW. This survey of infrastructure along with ground photography is used to document site conditions. A series of photos can be found in Appendix A.

Survey and Sediment Sampling of the Navigation Channel

The Aberdeen Creek Federal Navigation channel was surveyed on June 12, 2014 using an Odom Hydrographic Echotrac sub-bottom profiler. The data was processed and the bottom reflector digitized in Chesapeake Technology, Inc.'s SonarWiz software. The data were adjusted to mean lower low water (MLLW) by interpolating time and tide level using predicted tide levels at Cheatham Annex and verified data at the Yorktown USCG Training Center gauge. The data were plotted as contours. Cross-sectional profiles were cut at various locations along the channel. The data were plotted in the Beach Morphology Analysis Program (BMAP) (Veri-Tech, 2014) and are shown in Appendix B. Volume calculations between the existing bottom and the dredge channel template were calculated with BMAP's volume function.

Sediment samples were taken along the Federal channel in Aberdeen Creek. Inside the creek, a hand auger was used to sample the bottom. Two samples were generally taken: one at the surface and one at depth to determine how far the material extends. Just outside the creek mouth, grab samples were taken of the surficial sediments. Each sample was given a field classification based on Unified Soil Classification System. Sediment samples were located with a hand-held GeoXH GPS unit.

The dredge channel template was located for this project by scanning the map from USACE (1975) and geo-rectifying in Esri Arcmap. As such, some error occurs in the placement of the channel template on the aerial photos and for the data analysis.

Results

Historic Shore and Land Use Change

In 1937, aerial imagery shows the entrance channel to be about 130 feet wide and oriented east – west as one enters from the York River. It then takes about a 90 degree bend to the north into Aberdeen Creek (Figure 3). Aberdeen Creek widens to about 700 to 800 feet for about 2,000 feet north of the entrance to where it divides into two branches, one continuing north and one going east. These two prongs narrow quickly and become narrow meandering tidal channels with adjacent marsh. The land use around the creek was mostly agricultural with a sparsely treed shoreline and a few houses on the creek. The west side of the creek is a peninsula that widens quickly north of the entrance. The north side of the entrance channel is defined by sand spit vegetated with high and low marsh. This feature has formed over the years of southward transport of eroding bank sediment along the York River. A sandy spit also occurs on the south side of the channel. This spit had moved across a small tidal channel/marsh coming into Aberdeen Creek from the southeast. At the time, no piers or docks existed along the Creek, and no road to the water is visible.

By 1953, a T-head dock can be seen just inside the entrance (Figure 4). This is likely one of the deepest part of the Creek at this time. A few piers also can be seen as well as shoreline infrastructure at the end of Aberdeen Creek Road, docks, wharfs and buildings to support the local seafood industry. A few more waterfront homes can be seen on the York River shoreline and on the east and west side of Aberdeen Creek as evidenced by the occurrence of piers. The north and south inlet spits had receded making the channel slightly wider.

In 1960, more housing along the York River and both sides of Aberdeen Creek can be seen. Remnants of the marsh fringe exist along the York, and a small dredged channel very close to the east side of Aberdeen Creek can be seen (Figure 5). The Federal navigation channel was dredged in Sep-Oct 1962, and a total of 200,290 cy were removed (USACE, 1989). Aerial imagery in 1968 shows the disposal site in an unnamed tidal creek/marsh about 1 mile north up the York River (Figure 6). The navigation channel template is now added to the imagery. The channel consists of two main sections as depicted by the U.S. Army Corps of Engineers (Figure 6). The out/inbound channel starts near the entrance to Aberdeen Creek and extends southwestward about 2,600 feet into the York River. The Aberdeen Creek leg starts at the creek entrance and extends northward to the public landing at the end of Aberdeen Creek Road, about 2,575 feet (Figure 2). A turning basin is included.

The channel was maintenance dredged (68,416 cy) in October 1974 (USACE, 1975) and deposited in the same disposal site. This may have been material from the entrance area of the channel where infilling is more chronic. Aerial imagery in 1978 shows more development along the York River and Aberdeen Creek (Figure 7). The bounding channel spits remained in about the same configuration.

By 1994, the north and south spits were advancing into the entrance channel as a sandy salient (Figure 8). Significant shoreline hardening northward along the York River coast was also occurring. This is evidenced by the lack of beach along the middle of the developed shore line to the north. Evidence also exists of shoreline hardening along the York River shorelines south of Aberdeen Creek. By 2002, much of the coast north and south had been hardened. Generally, this reduces the amount of sediment entering the river from the banks. Bulkheads also can have a reflective effect on incoming waves, causing scour and increasing sediment transport along the shoreline and nearshore. Sand continued to advance from mostly the north spit into the channel. Sand transport along the nearshore is also a factor and consequent sand transport into the north side of the channel.

In 2006, the York River shoreline to the north has been further protected by a series of offshore breakwaters which may impact sand movement, reducing alongshore sands. However, the sand salient

advancing from the north spit has closed over half of the established channel. Commercial boat traffic must swerve along the south side of the entrance channel. Aerial imagery in 2009 clearly illustrates the shoaling of the navigation channel (Figure 9). The out/inbound channel narrowed out 1,200 feet with infilling from both north and south. The near shore section within 400 feet of the entrance has significantly infilled mostly from the north, and the entrance has almost completely been blocked by the advancing salient from the north spit. Traffic must continue to use the naturally flowing channel along the south side.

Shorelines along the York River both north and south of the entrance to Aberdeen Creek have a history of erosion (Figure 11). The eroding bank sediments have over time been transported up and down river and have entered the mouth and created these spit features. The shorelines within Aberdeen Creek have a history of shoreline recession but at a much lesser rate. The construction of breakwaters north of Aberdeen Creek has resulted in a net positive shoreline change as indicated as accretion on Figure 11. The bulkhead south of the Creek has maintained the shoreline location as indicated by the very low erosion rate.

Assessing Waterfront Infrastructure

Two connected public boat docks are currently being utilized (Figure 12). These are two L-heads which almost meet. Each has a wide land section so trucks can back out to the narrower shore parallel docks. The truck docks are about 12 ft wide and built much stronger with 10 inch x10 inch cross beams on top of X braces connecting the pilings (Appendix A). The pilings and cross beams on the north dock have a riverward lean due to pressure exerted by exiting trucks. Wood bulkheads support the road where the wide docks come ashore. They are old and showing signs of decay. The L-docks are narrower and many of the cross-braces are decayed to a point where they offer no structural support, but the piles are still intact.

The shoreline between the two docks is about 70 feet long and occurs as an eroding upland bank with over hanging trees. Various bits of debris, bricks, bottles, etc. occur in the intertidal areas. The public shoreline south of the south dock has an old completely dilapidated small dock. The upland bank is scarped and extends from south dock about 60 feet to the adjacent stone revetment which continues along private property down creek. The backshore at the northernmost dock is +8.7 ft MLLW and climbs to +12 ft MLLW at the southernmost dock.

The bottom elevation survey indicates that northernmost section of the public dock is the deepest at -3.6 ft MLLW. However, the bottom depth decreases for the other section of docks. At the tip of the L of the southernmost dock, the elevation is only -1.5 ft below MLLW.

The adjacent private property is a series of seafood related structures which, over time, have fallen into serious disrepair. A shoreline survey was done along this waterfront along with documentation of site conditions by a series of ground photography (Appendix A).

Survey and Sediment Sampling of the Navigation Channel

Assuming the channel was initially dredged and subsequently maintained to a depth of -6 ft MLW then most of the channel has in filled over time (Figure 13). Entering the outboard channel toward Aberdeen Creek,

the -6 contour occurs about 1,330 feet from red channel marker, and the depths get progressively shallower. Using the -3 ft contour as a guide, the shoaling becomes significant along the north side of the channel where depths go to -2 ft MLLW. There are also two elongated "holes" along the south side where the depths go to -7 feet. At the throat of the channel, the -2 ft contour resides in the middle of the Federal channel, but slightly deeper areas occur along the south side until finally entering Aberdeen creek with two or three more troughs measuring to -8 and -9 ft MLLW along the east side. Infilling of the channel in Aberdeen Creek increased toward the turning basin where depths of -3 ft MLLW are typical.

Cross-sectional profiles created along the channel depict the bottom elevations along Aberdeen Creek (Figure 14). The plots are shown in Appendix B. Overall, the cross-sections show that the channel is still functional, but has shifted and become more narrow in some areas, particularly at the throat. The area closest to the docks is very shallow. Between profile 152 and 786, very little of the original channel exists. Between 973 and 1678, the channel exists but will require dredging. Profile 2020 show the channel exists with the dredge channel template and is in fact deeper than the template. Profile 2178 shows the influence of the sand being transported into the channel from the north. The channel is nearly completely within the dredge channel template, but the deeper section has shifted south making the entrance still passable but not in a marked channel. Profiles 2251, 2326 and 2258 also show the infilling from the north by alongshore sediment transport. Profiles 2675 and 2964 are shoaled in from transport across the nearshore region with adjacent depths of -1.5 and -2.5 MLW respectively. Farther offshore, the profiles show that the channel is still generally within the dredge channel template. The channel is shallow closer to the creek mouth than farther offshore. Profile 3820 shows that the channel no longer needs dredged between it and the channel marker.

The locations of auger samples and surface grab samples are shown on Figure 14. The field classification of the samples is also shown. Material in the interior portion is mostly very soft black clays down to at least four feet. Coarse sands occur at the confluence of the Creek and the York River at shallow depths. Farther out into the York River fine sands with mud and clay are found.

Findings

Aberdeen Creek is a sub-estuary of the York River with a drainage area of about 3.26 square miles and about 3.4 miles of tidal shoreline (Figure 15). It resides in the Jones Creek-York River subwatershed. Three small millponds occupy the watershed. Due to the amount of natural flow, it is highly unlikely that the channel into Aberdeen Creek will completely close.

Sedimentation in and adjacent to Aberdeen Creek comes not only from eroding upland banks but also from runoff of adjacent agricultural lands. The distribution of bottom sediments is a function of source where fine material, silts and clays, are often supplied by upland runoff and sandier material from eroding banks sediment. The finer material is usually found in interior waters, sand at the channel entrance and a combination of fines and sands in nearshore region.

In their classification of the York River estuary, Dellapenna *et al*. (2003) found that in the area of Aberdeen Creek, the York River is non-depositional, and in some areas, erosional, between the River's main navigation channel and the shoreline. In fact, the main navigational channel seems to be migrating toward the northeast shoreline as it fills in from the southwestern side. This can help account for the general lack of infilling in the farthest reaches of the Aberdeen Creek channel.

The 2.5 foot tide range in Aberdeen Creek allows passage for commercial vessels with drafts less than 2 feet within much of the Federal Navigation channel boundaries at MHW. Large vessels still need caution in making the turn at 2178. As the tide drops the Federal channel needs to be passed generally along the south side. Once in Aberdeen Creek the channel is passable to about 786 where the remainder of the Fed channel is -3 feet MLLW.

The maintenance dredging of Aberdeen Creek will involve two phases or at least two types of material, the sandy approach channel sediments and the soft clay within Aberdeen Creek. The sand appears suitable for beach nourishment whereas the soft clay will have to be disposed in an approved upland site. The Shallow Draft Navigation and Sediment Plan (USACE 2010) outlines the history of all Federally-maintained channels in the Middle Peninsula and Northern Neck. As part of the study for Middle Peninsula channels, the use of beach quality material is discussed. In the case of Aberdeen Creek, the York River shorelines 1 mile north or south of the channel might be appropriate. We have further identified areas that might be suitable for beach fill that is hydraulically-dredged (Figure 16). These are shown as site N-1 and S-1 where the approx. 12,000 cy of sandy material could be either split between the two or sent to just one. Acquiring permits and permission for these will require additional effort.

The conditions of the public facilities were assessed in terms of obvious structural defects. These were the wooden docks and bulkheads, and although some of the cross members are decayed along the L-section, the wharf is still usable. The bulkheads at the large dock/land interface are in bad shape as evidenced by occasional addition of fill to "washouts" (personal communication with Bubba). Generally, the cost to repair the heavy-duty section of the docks could cost approximately $\$50/ft^2$. The lighter-duty L-section of the dock could cost about half of that to repair or about $\$25/ft^2$. The bulkhead replacement will vary depending on the replacement method. If the bulkhead is replaced with a similar structure, it could cost $300-$350 per foot. However, a more cost-efficient method would be to use rock in front of the structure. This method could cost $250-$275 per foot and has the advantage of being a longer- term solution than bulkhead replacement. In addition, a living shoreline could be installed between the structures and between the second pier and adjacent revetment in order to prevent undercutting of the upland bank. The adjacent privately owned wharfs and building are in serious disrepair. Portions of the concrete capped wharfs have completely failed and are a hazard. Costs to repair/replace the wharfs and buildings were beyond the scope of this study but will be significant.

Finally, the ongoing need for working waterfront infrastructure and access will require innovative local solutions to each site. Various grant funding and other planning vehicles available to the MPPDC and its partners will be required to address the commercial need and the up and coming aquaculture industry to insure seafood viability for the Commonwealth.

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Photos of Aberdeen Creek

Page 1: Condition of public infrastructure
Page 2: Usage
Page 3: Condition of private infrastructure

Dredge Channel Cross-Sections with Channel Template

Aberdeen Creek TIF Analysis

Using Tax Increment Financing to Finance Dredging of Aberdeen Creek

When considering a dredging project, it is necessary to look at the project's timeline and cost. The Middle Peninsula Planning District Commission partnered with the Middle Peninsula Chesapeake Bay Public Access Authority to determine three cost scenarios for the dredging of Aberdeen Creek, which are expressed in Table 1 below. These cost estimates were used as the estimates for the three TIF District scenarios in the feasibility study.

Table 1-Cost Scenarios for Three TIF Districts

Cost Scenario	Estimated Most Probable Dredging Cycle (years)	Estimated Most Probable Average Annual Cost	Estimated Total Cost
Low-Bound Annual Cost	16	$38,000	$608,000
Most Probable Annual Cost	8	$93,000	$744,000
High-Bound Annual Cost	4	$398,000	$1,592,000

Cost Scenario Definition: Table 1 provides three cost scenarios for the dredging of Aberdeen Creek: the Low-Bound Annual Cost, the Most Probable Annual Cost, and the High Bound Annual Cost. The cost of dredging the creek depends on the individual costs of a number of different components. Each of the three costs presented in Table 1 represent the average annual cost of dredging based on having high, average, or low individual component cost. For example, the Low-Bound Annual Cost represents the projected cost of dredging the creek given that the average cost of individual cost components is low. Three examples of individual cost components are listed below.

Dimensions of the Project

The size of the dredging project influences the cost of the project, with larger projects costing more. The authorized dimensions for the Aberdeen Creek dredging project is 5,280 ft. long, 80 feet wide, and 6 ft. deep for the creek's channel and 450 ft. long 400 ft. wide, and 6 feet deep for the creek's turning basin.

Sediment Disposal

Once a channel is identified as having a dredging need, a disposal site location must be selected. The disposal site should be prepared to receive and permanently contain the dredged material. The cost of disposing dredged material depends on the location of the disposal site. For example, sandy dredged material deposited on public beaches costs $0.05 per square foot, which is the encroachment fee charged by the Virginia Marine Resources Commission to private dredging projects. Since the dredging of Aberdeen Creek will be funded by Gloucester County, the Middle Peninsula State Park could possibly serve as the containment site for dredged material. By this being a local government project, it is exempt from dredging fees and royalties.

Permit Fees:

Permit fees contribute to the cost of dredging projects. The number of permits depends on the requirements of the projects, meaning Gloucester County could be required to obtain permitting from the following groups:

- The Virginia Marine Resources Commission ($100 permit fee for projects exceeding the cost of $10,000)
- The Virginia Department of Environmental Quality (Depending on permit requirements)
- The US Army Corp of Engineers (individual permits may cost up to $100)

Dredging Cycle Defined:

Dredging Aberdeen Creek is a long- term commitment. Shoaling, or sediment build up in a waterway's riverbed, is a natural process that over time makes a waterway shallow and impassable. Dredging is required in cycles to prevent this from happening. Within this report, the median number of years that pass between the dredging of a waterway is referred to as the median dredging cycle. The three projections in Table 1 are based on projected rate of shoaling, with the Low-Bound Dredging Cycle representing the slowest rate of shoaling, the Probable Dredging Cycle representing a medium dredging rate, and the High-Bound Dredging Cycle representing the fastest rate of shoaling.

Feasibility Study Description

The purpose of the feasibility study is to determine the timeline for dredging Aberdeen Creek using funds solely from an established TIF district. The study includes three potential TIF districts within Gloucester County and projects the revenue generated from each one. The study then factors in the cost of dredging to determine in what year the funds from the TIF district could pay for the dredging of Aberdeen Creek. The project methodology of the TIF Financed Aberdeen Creek Dredging Project is detailed in the next section.

Feasibility Study Methodology

Step One: Determine project cost

The first step in the feasibility study was determining the cost of the TIF project. The Middle Peninsula Planning District Commission partnered with the Middle Peninsula Chesapeake Bay Public Access Authority to determine three cost scenarios for the dredging of Aberdeen Creek, which are expressed in Table 2 below. These cost estimates were used as the estimates for the three TIF District scenarios in the feasibility study.

Table 2-Cost Scenarios for Three TIF Districts

Cost Scenario	Estimated Most Probable Dredging Cycle (years)	Estimated Most Probable Average Annual Cost ($)	Estimated Total Cost ($)
Low-Bound Annual Cost	16	38,000	608,000
Most Probable Annual Cost	8	93,000	744,000
High-Bound Annual Cost	4	398,000	1,592,000

Step Two: Determine project-financing options

The second step in the feasibility study was determining how Gloucester County would finance the TIF project. Traditionally, a municipality will either a) issue bonds to finance the cost of the project upfront and then use annual tax increments to pay off the bonds plus interest or b) finance the cost of the project on a "pay as you go" basis in which annual tax increments from the district goes directly towards paying for the cost of the project. Since Gloucester County leadership does not wish to incur debt in paying for the dredging of Aberdeen Creek, the feasibility study assumes that annual tax increments will accrue in a TIF fund that will then be used to pay for the cost of dredging over the life of the cycle outright on a 'pay as you go basis".

Step Three: Determine the economic impact of the project.

The third step in the feasibility study was determining the economic benefit of the completed TIF project. The economic benefit of dredging Aberdeen Creek is an increase in property values and tax revenue within the TIF district. These benefits were determined by a comparative analysis of waterfront home values on Aberdeen Creek, which revealed that houses with docks were worth 22.8% more than houses without docks, showing the added value navigable water access gives to waterfront property.[8] The feasibility study assumes that a fully shoaled Aberdeen Creek will negate the added value of docks for waterfront homes, thus lowering home values and tax revenue for the County.

Step Four- Determine the size of the TIF District

The fourth step in the feasibility study was determining the size of the TIF district. Traditionally, a TIF district is comprised of the properties that directly benefit from the TIF project. The feasibility study examined three potential TIF districts for the dredging of Aberdeen Creek.

A. *TIF District #1* consists of 40 properties, each of which directly front Aberdeen Creek. The majority of these properties are single-family homes with private docks granting access to the creek. These

[8]The study found that waterfront homes on Aberdeen Creek with docks have an average assessed value per square ft. of $98.67 compared to waterfront homes on Aberdeen Creek without docks, which have an average assessed value of $80.30 per square ft.

waterfront properties directly benefit from the dredging of Aberdeen Creek, as navigable water access is positively correlated with an increase in home values.

B. *TIF District #2* consists of 131 properties, the majority of which are waterfront homes that front either Aberdeen Creek or the York River. The dredging of Aberdeen Creek directly benefits the properties fronting the creek through increased home values and benefits all properties in the district by providing a "hurricane hole" for homeowners with boats.

C. *TIF District #3* consists of 619 properties, including the properties fronting Aberdeen Creek. The majority of properties in TIF District #3 are located east of Aberdeen Creek and include single family homes and as well as farmland. The dredging of Aberdeen Creek directly benefits the properties fronting the creek through increased home values, but provides no direct benefit to the remaining properties in the district.

Maps of TIF Districts #1, #2 and #3

Step Five- Determine the Base Total Assessed Value (BTAV) for each TIF District.

The fifth step in the feasibility study was determining the Base Total Assessed Value (BTAV) for each TIF district. The BTAV was determined by summing the current assessed value of each parcel included in the TIF District.[9] The BTAV of each TIF District is presented in Table 3.

Table 3-Base Total Assessed Value of TIF district ($)

TIF District # 1	TIF District #2	TIF District #3
7,455,600	34,955,100	104,122,300

Step Six- Determine the Base Value of Tax Revenue of Each TIF District.

The sixth step in the feasibility study was determining the base value of tax revenue for each TIF district. The base value of tax revenue is the total amount of property tax collected from the TIF district in its base year. The base value of tax revenue was determined by dividing the BTAV of the district by 100 and then multiplying this value by 0.65, since the Gloucester County Real Estate Tax rate is $0.65 per $100 of assessed value.[10] The base value of tax revenue for each TIF district is presented in Table 4.

Table 4-Base Value of Tax Revenue for each TIF District ($)

TIF District	Base Total Assessed Value	Gloucester County Real Estate Tax Rate	Base Value of TIF District
TIF District #1	7,455,600	$0.65 per $100 of Assessed Value	48,461.40
TIF District #2	34,955,100	$0.65 per $100 of Assessed Value	227,208.15
TIF District #3	104,122,300	$0.65 per $100 of Assessed Value	676,794.95

Step Seven-Calculate the Projected Annual Increase in Property Values

The seventh step in the feasibility study was calculating the projected annual increase in property values for each of the TIF districts. The model assumes that properties within each of the TIF districts will increase at a fixed annual rate of 2.5%.

[9] The current assessed values for parcels in Gloucester County were taken from the Gloucester County Real Estate Assessment website.

Step Eight-Calculate the Total Assessed Value, Revenue Value, and Tax Increment Value for each year of the TIF district.

The eighth step in the feasibility study was calculating the Total Assessed Value, Revenue Value, and Tax Increment Value for each year of the life of the three TIF districts. To do this, the model increases the TAV of the TIF district by the projected growth rate of 2.5% for each year. The model then calculates the Revenue Value for each year by dividing the year's TAV by 100 and multiplying this value by 0.65, the real estate tax rate per $100 of assessed value. Finally, the model calculates the Tax Increment Value for each year by subtracting the TIF district's Base Total Assessed Value of revenue from the revenue value for that year. Table 5 shows these three calculations for year one of TIF District #1.

Table 5-Year One Calculation for TIF District #1

Year One Assessed Value of District	Year One Revenue	Year One Tax Increment Value
7,641,990	(7,641,990/100)*0.65= 49,672.94	49,672.94-48,461.40= 1,211.54

Step Nine-Calculate the value of the TIF fund for each year of the life of the district.

The ninth step in the feasibility study was calculating the value of the TIF fund for each year of the life of the three TIF districts. Using the data collected in Step 8, the model sums 100% of the Tax Increment Value collected from each year to determine the value of the TIF Fund at the end of each year. Table 6 shows the value of the TIF fund in the first five years for TIF District #2.

Table 6- TIF District #2 TIF Fund Value

Year	TIF Increment Value	Total Value of TIF Fund
1	5,680.20	5,680.20
2	11,502.41	17,182.62
3	17,470.18	34,652.79
4	23,587.13	58,239.93
5	29,857.02	58,239.93

Step Ten- For each of the three TIF districts; determine the year in which the TIF fund can begin paying outright for the projected cost of dredging without running out of funds for the life of the payment schedule.

The tenth and final step in the feasibility study was determining the year in which each TIF district, using money solely from the TIF fund, could begin paying outright for the projected cost of dredging without

running out of funds for the life of the payment schedule. The model uses the three cost estimates presented in Step 1. The model subtracts the projected annual cost of dredging for each year of the dredging cycle from the value of the TIF fund, which continues to receive each year's tax increment value. Therefore, the cost of dredging is paid for by money that has accumulated in the TIF fund and the tax increment value that comes in for each year of the dredging cycle. Table Seven shows this process for the High-Bound Annual Cost scenario of TIF District #3, which has an average annual cost of $398,000 and a payment cycle of 4 years.

Table Seven-TIF District #3 High-Bound Annual Cost Scenario

Year	TIF Increment	Total Value of Slush Fund	TIF Fund Value After One Year Dredging Cost	TIF Fund Value After Two Year Dredging Cost	TIF Fund Value After Three Year Dredging Cost	TIF Fund After Four Year Dredging Cost
7	127,701.57	498,199.52	100,199.52	-149.986.50	-379,557.30	-587,997.49
8	147,813.98	646,013.50	248,013.50	18,442.70	-189,997.49	-376,778.82
9	168,429.20	814,442.70	416,442.70	208,002.51	21,221.18	-143,359.80
10	189,559.81	1,004,002.5	606,002.51	419,221.18	254,640.20	112,814.56

As seen in Table Seven, Year 10 is the year in which Gloucester County could begin to fully fund the High-Bound Cost of dredging Aberdeen Creek using money solely from the TIF fund for the life of the payment schedule. This year is referred to as First Year of Payment in the report.

Feasibility Report Findings

TIF District #1:

TIF District #1 is the smallest of the three TIF districts, consisting of 40 parcels of waterfront property fronting Aberdeen Creek with a Base Total Assessed Value of $7,455,600. Table Eight shows the First Year of Payment for each of the three cost scenarios in TIF District #1.

Table Eight-First Year of Payment For TIF District #1

Cost Scenario	Estimated Most Probable Dredging Cycle (years)	Estimated Most Probable Average Annual Cost	First Year of Payment
Low-Bound Annual Cost	16	$38,000	Year 14 of TIF Fund
Most Probable Annual Cost	8	$93,000	Year 24 of TIF Fund
High-Bound Annual Cost	4	$398,000	Year 40 of TIF Fund

As seen in Table Eight, Gloucester County can begin paying for the most probable cost of dredging Aberdeen Creek 24 years into the life of TIF District #1, meaning the creek dredging process will not be complete until 32 years after the creation of the TIF District. TIF District #1 has the longest timeframe for each of the three cost scenarios tested within the feasibility study.

TIF District # 2:

TIF District #2 is the second largest TIF district, consisting of 131 parcels of waterfront property on both Aberdeen Creek and the York River. The district has a BATV of $34,955,100. Table Nine shows the First Year of Payment for each of the three cost scenarios in TIF District #2.

Table Nine-First Year of Payment For District #2

Cost Scenario	Estimated Most Probable Dredging Cycle (years)	Estimated Most Probable Average Annual Cost	First Year of Payment
Low-Bound Annual Cost	16	$38,000	Year 4 of TIF Fund
Most Probable Annual Cost	8	$93,000	Year 8 of TIF Fund
High-Bound Annual Cost	4	$398,000	Year 19 of TIF Fund

As seen in Table Nine, Gloucester County can begin paying for the most probable cost of dredging Aberdeen Creek 8 years into the life of TIF District #1, meaning the creek dredging process will not be complete until 16 years after the creation of the TIF District. TIF District #2 has the second longest timeframe for each of the three cost scenarios tested within the feasibility study.

TIF District # 3:

TIF District #3 is the largest of the three districts, consisting of 619 parcels that span from waterfront property on Aberdeen Creek to Hickory Rd. TIF District #3 has a BATV of $104,122,300, which is the highest of the three districts. Table Ten shows the First Year of Payment for each of the cost scenarios

Table Ten-First Year of Payment For District #2

Cost Scenario	Estimated Probable Dredging Cycle (years)	Estimated Probable Average Annual Cost	First Year of Payment
Low-Bound Annual Cost	16	$38,000	Year 2 of TIF Fund
Most Probable Annual Cost	8	$93,000	Year 4 of TIF Fund
High-Bound Annual Cost	4	$398,000	Year 10 of TIF Fund

As seen in Table Ten, Gloucester County can begin paying for the most-probable cost of dredging Aberdeen Creek 4 years into the life of TIF District #1, meaning the creek dredging process will not be complete until 12 years after the creation of the TIF District. TIF District #3 has the shortest timeframe for each of the three cost scenarios tested within the feasibility study.

Recommendations

TIF District Selection:

It is recommended that Gloucester County implement the TIF district that matches the desired timeline for completion of the project. As of the writing of this report, commercial fishermen have stated that portions of Aberdeen Creek are problematic to navigate due to shoaling. Once the extent of shoaling of Aberdeen Creek becomes clear, the County can decide which TIF district will addresses the problem in an appropriate timeframe.

Permits for Commercial Docking:

It is recommended that Gloucester County fund a professional assessment of the annual cost of maintaining the public boat landing on Aberdeen Creek. After determining the annual cost of maintaining the public boat landing, it is recommended that Gloucester County require commercial fisherman to purchase permits in order to use the public landing. The revenue raised through permit sales will be used for the maintenance of the public landing.