Lake Hallowell
Sediment Removal Project

Public Meeting, February 12, 2018

Montgomery County Department of Environmental Protection
Watershed Management Operations Division
Introductions

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Anchor QEA
Tonight’s Agenda

- Montgomery County Stormwater Facility Maintenance Program Overview
- Project Objectives
- Project Impacts and Benefits
- What to Expect During Construction
- Project Schedule
- Questions/Comments
Montgomery County, MD

- Over 1,000,000 people
- 500 sq. miles
- About 12% impervious* surface overall
  - About the size of Washington DC
- Over 1,500 miles of streams
- Two major river basins:
  - Potomac
  - Patuxent
- Eight local watersheds

*Impervious: Not allowing water to soak into the ground.
What Is a Watershed?

- A **watershed** is an area from which the water above and below ground drains to the same place.
- Different scales of watersheds:
  - Chesapeake Bay
  - Eight local watersheds
  - Neighborhood (drains water to a storm drain)
- Hawlings River Watershed
Development and watersheds

Before development
- most water slowly filters through plants and earth.
- Evaporation
- Absorption by plants and soil
- Surface runoff
- Ground Water flow

After development
- most water rapidly runs off surfaces.
- Evaporation
- Surface runoff
- Ground water flow

- Evaporation
- Infiltration into ground water
- Less issues with runoff

- Less evaporation
- Less infiltration into ground water
- MORE runoff!
What Is Runoff?

- Water that does not soak into the ground becomes surface runoff. This runoff flows over hard surfaces like rooftops, driveways, and parking lots, collects potential contaminants, and flows to the following places:
  - Directly into streams
  - Into storm drain pipes, eventually leading to streams
  - Into stormwater management facilities, then streams

Two Major Issues:
- Volume/Timing of Runoff
- Water Quality
What is the Water Quality Protection Charge?

- Part of Montgomery County property tax bill.
- Rates based on the potential for a property to contribute to stormwater runoff.
- All property owners in Montgomery County pay the WQPC, including businesses, HOAs, and non-profit organizations.
- The WQPC raises funds to improve the water quality of our streams and reduce the impacts of stormwater runoff.
Stormwater Facility Maintenance Program

- DEP is responsible for inspection of all stormwater management facilities
- DEP is responsible for ensuring all stormwater facilities are functioning properly
- Funded by Water Quality Protection Charge
Maintenance Responsibility

- DEP is responsible for inspecting and structural maintenance
- Property owner is responsible for non-structural maintenance.
Non-Structural Maintenance

- Landscaping
- Mowing
- Over grown vegetation

- Woody vegetation
- Trash removal
- Aesthetics
Structural Maintenance

- Routine Maintenance
  - Blocked low flow
  - Animal burrows
  - Minor sediment removal

- Sand filter tilling
- Flow splitter cleaning
- Cleaning UG facilities
- Etc.
Structural Maintenance, cont.

- Capital Projects:
  - Major Repairs
  - Dredging
  - Spillway work
  - Valve Replacement
  - Safety improvements
  - Retrofits
Lake Hallowell Facts

- Built in 1989
- Drainage Area=800 acres
- Dam Height=29 ft
- Surface area= 15.9 acres
- Max. pond depth=15.8 ft
- Designated Low Hazard Dam by MDE
Project Selection

- Dredging requested by Lake Hallowell HOA
- Pond has never been dredged
- Located in a key watershed (Hawlings River)

Project Goal

- Improve stormwater function and water quality within the watershed
- Remove 10,000 cy of sediment within the targeted area

In 2018 County contracted with Anchor QEA to design the dredging project.
Overview of Dredging and Dewatering Activities

Presented by
Walter Dinicola, PE
Dredging Options

- Mechanical dredging involves mechanically digging or gathering sediment from the bottom surface of a body of water, typically through use of a bucket.
- Hydraulic dredges work by sucking a mixture of bottom sediments and water from the lake. A cutterhead is a mechanical device that has rotating blades or teeth to break up or loosen the bottom sediments so that it can be pumped through the dredge.
Mechanical Dredging “in the Dry”

- Partial lake drawdown to allow sediment to dry and provide visible removal of lake sediment
- Installation of temporary roads
- Mechanical removal of lake sediment with an excavator and loading of sediments into haul trucks
- Haul trucks to transport sediments from the Lake to the staging area
Turbidity Curtains

- **Turbidity** is a measure of water clarity, specifically how much material suspended in water decreases the passage of light through the water.
Dredged Material Stabilization and Transport

- Dredged material is stockpiled in the staging area
- Stockpiles may be mixed with general fill to stabilize dredged material
- Dredged material is then loaded into haul trucks and transported off site to approved disposal facility located outside the County
Lake Hallowell
Bathymetric Survey

- A sediment depth analysis was performed by JMT in June 2015
- GEOmatx conducted hydrographic survey in October 2017
- 2017 survey compared to 1991 As-Built survey indicates approximately 10,000 cubic yards of sediment accumulation
Lake Hallowell Dredging

- Project proposed to dredge approximately 10,000 cubic yards of sediment from the Lake
- Excavation to occur in southern end of the Lake where sediment has accumulated
- Lake to be drawn down partially in order to allow mechanical dredging in the dry
- Approximately 1,000 truckloads of sediment to be removed from the Lake after being processed
Dredging Area – Southern End

Dredge footprint divided into three areas
Sediment Characteristics

- In September 2017, nine sediment samples were taken and analyzed for contaminants.
- Chemical results indicated elevated levels of Polycyclic Aromatic Hydrocarbons (PAHs) and metals in the sediment that are common in stormwater retention ponds.
- Chemical results are consistent with background soil levels, and the most likely source is runoff.
- The recommended disposal option is a regional landfill.
Sediment Characteristics

- Sediment samples were collected using a pontoon boat mounted with a drill rig
- Testing used to determine how easily the sediments can be excavated and stabilized
Sediment Sample Locations
Access Road and Staging Area

- Truck traffic 7 am to 4 pm week days (County standard work hours) except state and federal holidays
- Traffic to comply with County’s Noise Ordinance
- Potentially 1,000 truckloads of sediment hauled away from site over a 10-month period
Staging Area

- Existing area adjacent to northwest perimeter of the Lake
- Area to be cleared and graded with installation of E&S controls and perimeter security fencing
- Staging area will be used for office trailers, sanitary facilities, equipment storage, and sediment processing
- Access to the site will be from Old Baltimore Road
Restoration of Site

- Staging area to be restored to existing conditions after completion of the dredging
Permits

- Joint Permit Application (MDE/USACE)
  - Water Quality Certification (WQC) included in Joint Permit
- MDE Dam Safety Permit
- Forest Conservation Permit
- General Waterways Construction Permit
- Soil Erosion Control Permit
- Traffic Control Permit
Project Impacts

- **Recreational** – Partial closure of Lake Hallowell walking trail for resident safety
- **Traffic** – Construction traffic enters and exits construction site, and Old Baltimore Road will be shared by residents and construction trucks for the duration of the project
- **Neighborhood** – Construction and traffic noise will typically occur Monday to Friday, 7 am to 4 pm except state and federal holidays, with Saturdays reserved for equipment maintenance

Contractor to comply with County Noise Ordinances
Project Impacts

- **Environmental**
  - Limited tree removal is anticipated
  - Turbidity – Contractor must comply with Maryland Department of the Environment requirement for turbidity for any potential water discharged back to the Lake
  - Aquatic biota – organisms living in or depending on the aquatic environment
    - Minimal impact to aquatic biota in northern end of Lake
    - Drawdown area at southern end of Lake may experience temporary impacts to aquatic biota; however, biota are expected to relocate to northern end of Lake
Project Benefits

- **Environmental** – Improve stormwater management function and water quality of the Lake
- **Recreation** – Aesthetics
What to Expect During Dredging

- **Duration**
  - Site preparation and mobilization: Approximately 3 month
  - Excavation: Approximately 5 months
  - Site restoration and demobilization: Approximately 2 month

- **Construction Hours**
  - Monday through Friday, 7 am to 4 pm except state and federal holidays
  - Some work may be performed after 4 pm or on weekends for maintenance of equipment, subject to MCDEP approval

- **Noise**
  - The Contractor is required to comply with the Montgomery County Noise Ordinance
    https://www.montgomerycountymd.gov/DEP/contact/noise.html
What to Expect During Dredging

- **Safety**
  - Site will be fenced, and access to the public will be restricted

- **Traffic**
  - There will be impacts to traffic from trucks entering and exiting construction site during the day; Old Baltimore Road will see increased traffic

- **Sediment**
  - The Contractor will be required to comply with the Montgomery County Sediment Control Permit and not track dirt onto roads
Tentative Project Schedule

- Survey and Site Analysis – Fall 2017
- Public meeting to discuss concept designs – February 2018
- Permit submittal – April 2018
- Design Plans – May 2018 to 2019
- Permit approvals – April 2019
- Contractor selection – December 2019
- Construction – Spring/Summer 2020
Questions?

For More Information
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Lake Hallowell Dredging Project Page: