

# Lake Sediment Removal Utilizing Hydraulic Dredging and Mechanical Dewatering

Presented by  
Frank Senske and Stephen Simpson  
Mobile Dredging and Video Pipe Inc.  
3100 Bethel Road, Chester, PA, 19013

## Carylon Sediments Group



Metropolitan  
Environmental  
Services, Inc.

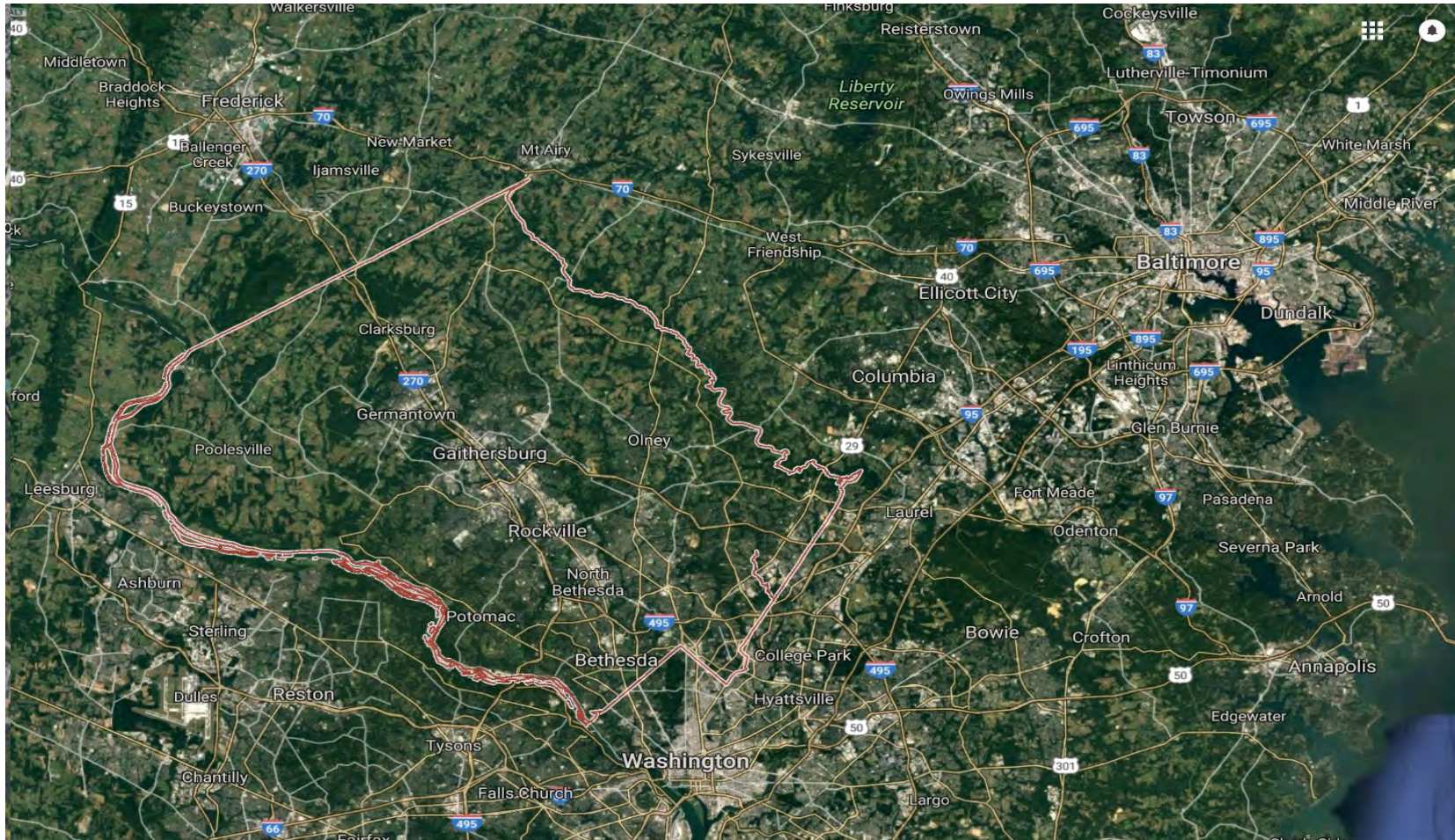
Mobile  
Dredging and  
Video Pipe, Inc.

Bio-Nomic  
Services, Inc.

# Project Location:

## Montgomery County, Maryland

### Lake Whetstone and Gunners Lake



- 175 km West from Montgomery Village, MD
- 60 mi East from Washington, D.C.
- 6 mile/15 minute drive between lake locations

# Overview

- Man made lakes created during implementation of residential and commercial development
- Lakes utilized as runoff collection basins for adjacent residential development and neighboring communities
- County Government now responsible for maintenance of each lake
- Issues caused by sedimentation of both lakes:
  - Increased growth of aquatic vegetation
  - Deterioration of fish and wildlife habitats
  - Recreational use of the lake was limited due to reduced water depths
- Reduced capacity for storm water runoff

# Existing Site Conditions

- Park and residential developments surrounding both lakes
- 20,000 cubic yards of sediment to be dredged, dewatered, and disposed of in each lake
- Approximately 35,000 sq. ft. of area set aside for mechanical dewatering area in each park



# Project Restrictions/Requirements

- Water Quality Filtrate Samples
  - Cannot Exceed a 50 NTU (Nephelometric Turbidity Unit) Monthly Average
  - Cannot Exceed 150 NTU for any given sample
- Daily water quality and sound readings were taken and reported by MDVPINC and Engineer
- Noise Disturbance Levels
  - Not to exceed 75 dB at any given time
- All dewatered material must be disposed of at a County approved disposal site
- Monthly hydrographic progress surveys for payment and quality control

# Lake Whetstone:

## Site Preparations and Equipment Installation

- 220 Ton Crane
- 8 inch Cutter Suction Dredge
- 1,500 feet of HDPE Pipe



# Lake Whetstone Dewatering Layout/Production

- 5 Belt Filter Presses
- TriFlo Sediment Separation Unit
- 2 Mix Tanks
- 350 kW Generator
- 40,000 gal. Clarifier Tank
- Slurry Thickener System

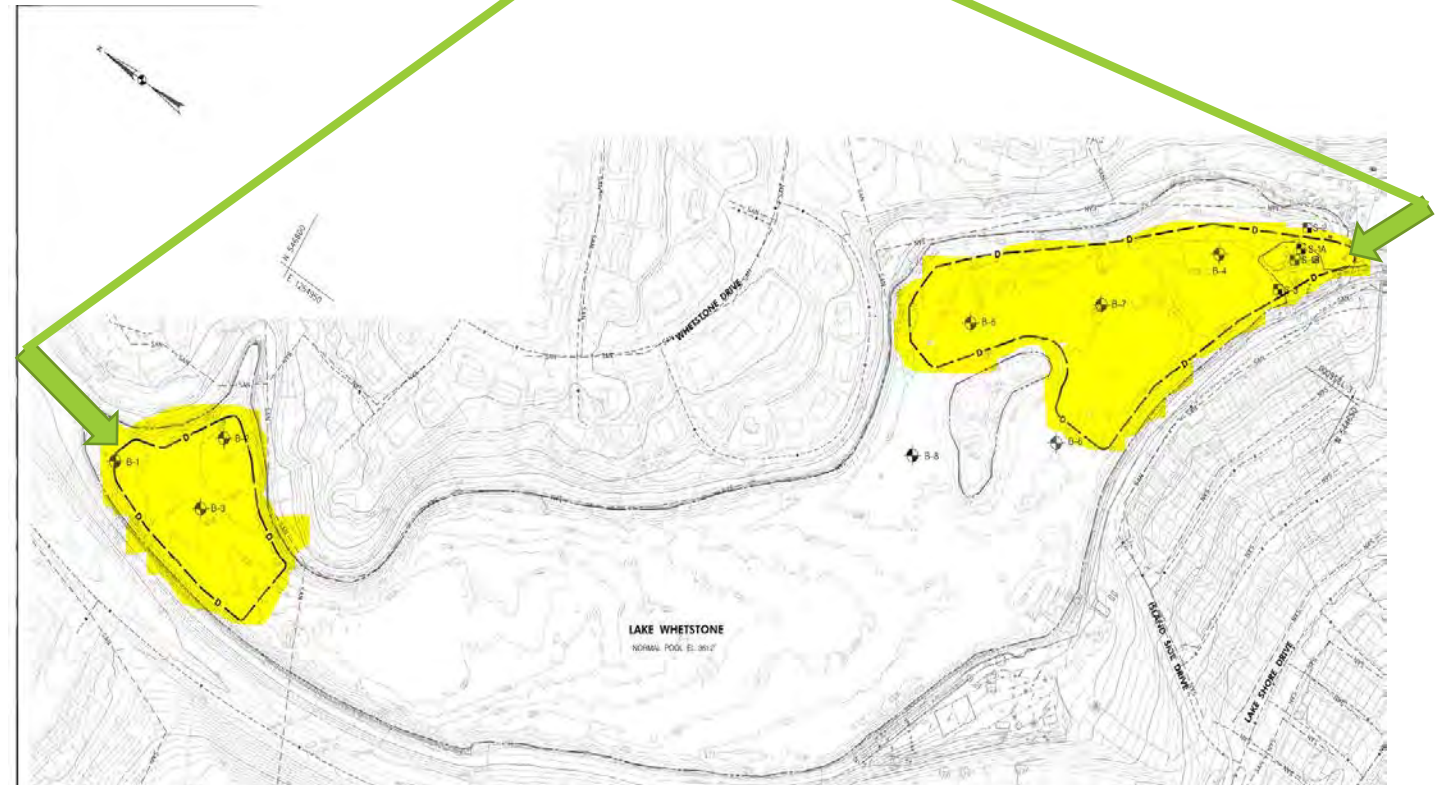
Dredge Fe



# Lake Whetstone Dredging Plan

- 2 streams discharge into each end of the lake
- Heron Rookery to be protected throughout the project
- Maryland Department of Natural Resources provided scheduled windows to complete construction activities
- Two Dredge areas completed in phases based on permits

Stream Discharge Points





# Lake Whetstone Geotube Dewatering

- Utilized during colder months to limit downtime due to frozen pipelines
- Applied Geotubes while digging south eastern end of lake
- 2,000 cubic yards of capacity



# Lake Whetstone Dredging Results

Before



After



# Gunners Lake Site Construction

- 1000ft constructed entrance created to reach dewatering pad
- Approximately 40% of stone from Lake Whetstone site construction was reused at Gunners Lake
- 85% of stone and asphalt from both sites was sent for beneficial reuse
- Approximately 2,000 feet of Erosion and Sediment control installed around site



# Gunners Lake Dredging and Dewatering

- 2 small streams discharge into the dredge area
- Same equipment layout as Lake Whetstone



Stream Discharge Points

# Gunners Lake Dredging Results

Before



After



# Transition Between Lakes

- Transition period between lakes took approximately 2 months
- Equipment staged at Lake Whetstone while site construction was completed at Gunners Lake
- Once equipment was moved from one lake to another final punch list items were completed before a final site walkthrough and County signoff



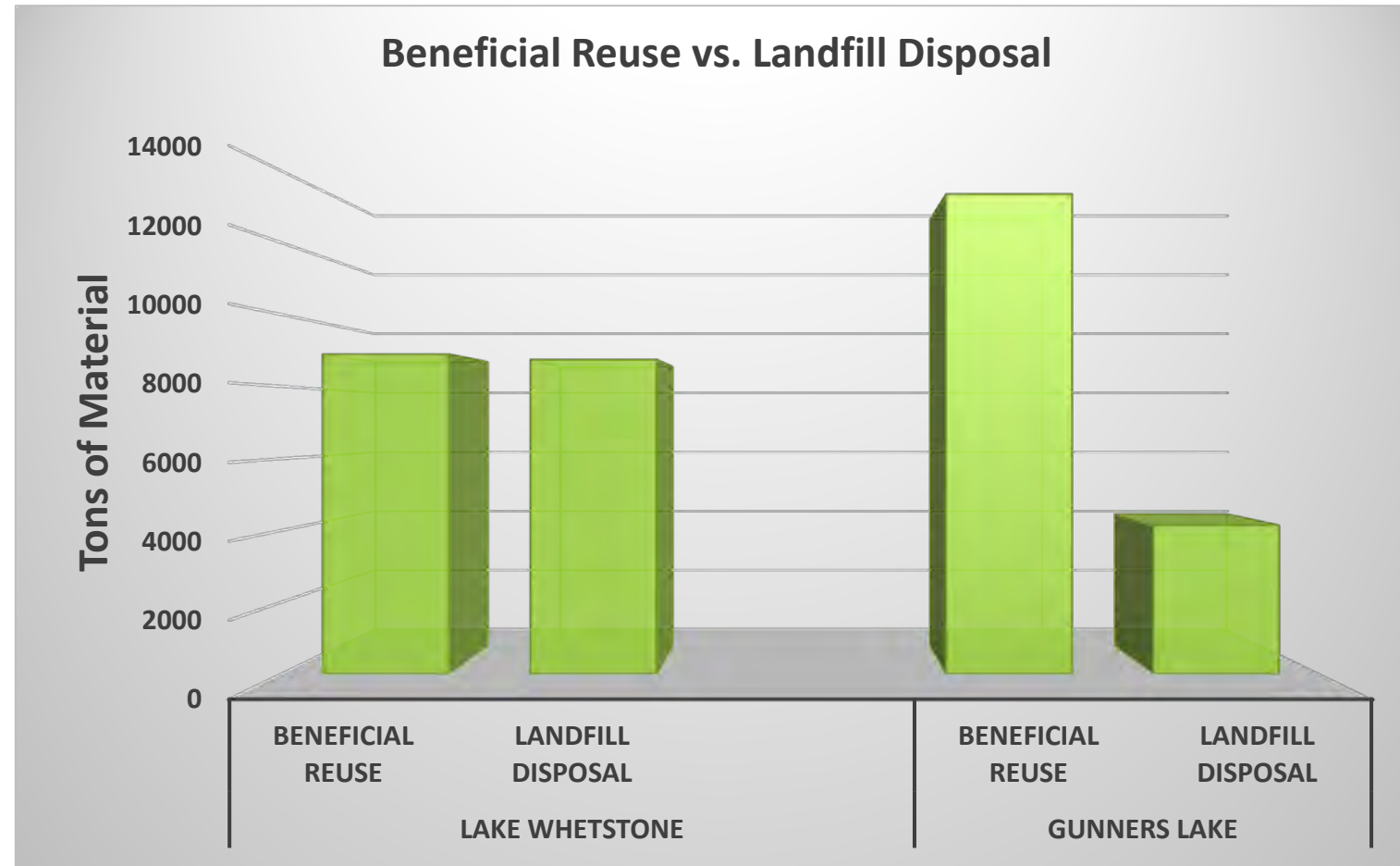
# Site Restoration

- All damaged asphalt/concrete was repaired or replaced
- Park area that was used for dewatering area was regraded and covered with sod
- Each lake restored as viable recreational areas



# Project Disposal Breakdown

- County DEP provided multiple approved disposal locations with bid documents
- Additional disposal locations were allowed after review and approval from County DEP
- MDVPINC took additional samples of dredge material for additional site approval





# Conclusions

- Approximately 34,000 cubic yards of material removed from lakes
- Multiple dewatering methods and sediment disposal/reuse methods can be applied to dredging project to improve the project schedule and cost
- Hydraulic dredging and mechanical dewatering is a proven option for storm water remediation of lakes and basins

# Questions?



**Frank Senske PE**  
**Vice President**  
**Mobile Dredging and Video Pipe Inc.**  
[Fsenske@mdvpinc.com](mailto:Fsenske@mdvpinc.com)  
**973-477-2837**

**Please Feel Free to Contact Us**



DREDGING EXPO & SUMMIT '17

**Stephen Simpson**  
**Project Manager**  
**Mobile Dredging and Video Pipe Inc.**  
[Ssimpson@mdvpinc.com](mailto:Ssimpson@mdvpinc.com)  
**610-742-3146**