

“Save the Reservoir”

TABLE OF CONTENTS

- 1) Project Overview
 - Background/Objectives/Approach
 - Map
 - Project Phases
 - Sedimentation Control
- 2) Mission Statement
- 3) Dredging Process
- 4) Estimated Project Costs
 - Launch & Maintenance Area
 - Hiring Professional Contractor (Option A)
 - Purchase Dredge /Equipment (Option B)
- 5) Clear Lake Dredging Project
- 6) Clear Lake Valuing Preservation and Improvements
- 7) Informational Measurement Guides
- 8) Benefits to Jamesville Beach Park
 - Partnerships
 - Future Park Enhancements
 - Marketing
- 9) Support Survey
- 10) Project Funding & Logo “Branding”
- 11) Contact List
- 12) Research Resources

PROJECT OVERVIEW

BACKGROUND

The *Jamesville Reservoir* was one of four reservoirs built as feeders for the middle division of the historic Erie Canal between 1872 and 1874. These reservoirs were designed to maintain water levels during dry seasons. The original size of the *Jamesville Reservoir* was 252 acres with an average depth of 16.4 feet.

Over the years, *Jamesville Reservoir* has had considerable silt build-up at the south end where the channel of Butternut Creek enters. The path and condition of Butternut Creek has deteriorated causing large trees, stumps and debris to fall in causing accelerated water velocities down stream of the deposited material. Previous to the last several years, it would take a significant rain event to cloud the normally clear water. Currently, the slightest rainfall emits large plumes of muddy water into and covering the entire reservoir. To date, approximately 50 acres of open water has been filled in with silt causing swampy areas, decreased water quality and limited navigation.

OBJECTIVES

Obtain support and funding to dredge areas affected by sediments being deposited into the waters and prepare for future maintenance of the *Jamesville Reservoir* in a cost effective manner.

APPROACH

- Obtain necessary environmental permits to dredge approximately 30 acres of silt-filled area at the south end where Butternut Creek enters the *Jamesville Reservoir* (see Dredging Process).
- Remove dead trees and debris from Butternut Creek to return the creek to a more natural state.
- Design and create additional entry points for Butternut Creek to decrease water velocity during rain surges.
- Seek permission from Onondaga County Parks to dispose of dredge material in the recently purchased land containing a former quarry on southeast side of Jamesville Beach Park property.
- Seek permission from Onondaga County Parks to create access to the back pond at Jamesville Beach Park for a dock and launch site for a maintenance barge.
- Develop marketing strategies to promote the “*Save the Reservoir*” campaign.

- Create volunteer work force and obtain independent financial support for future maintenance.

PROJECT PHASES

- I. Present General Outline to Jamesville Reservoir Residents

- II. Revise Plan or Survey Residents to Sign Petition of Support (to Present to County Parks)

- III. Form Project Committees
 - a. Dredge & Butternut Creek Technical
 - i. Research Equipment and Cost
 - ii. Research Launch Ramp, Dock and Cost
 - iii. Assess Butternut Creek Cleanup & Recruit Volunteers
 - iv. Obtain Permits
 - b. Project Presentation
 - i. Interview Consultants
 - ii. County Parks
 - iii. County Executive
 - iv. Canal Corporation
 - c. Nature Art Path (or other promotional ideas)
 - i. Meet with Syracuse University Art Department
 - ii. Design Path Layout
 - iii. Number of Pedestals for Sculptures
 - iv. Form Committee to Select Type of Artwork
 1. Native American
 2. Modern
 3. Natural History
 4. Other
 - v. Evaluate Value of Donor Plaques
 - d. Website
 - i. Dredge Updates
 - ii. Promotional Items

- iii. Banner Ads for Donors with Links
 - iv. Accept Credit Cards
 - e. Funding
 - i. Potential Grants
 - ii. Fundraising Activities & Events
 - iii. Promotional Items
 - f. Branding
 - i. "Save the Reservoir" Logo
 - ii. "Reach Goal" Sign in Jamesville
 - iii. Donor Banner Ads
 - iv. Contact Project Sponsors
- IV. Execute Reservoir Dredging & Butternut Creek Cleanup
- V. Develop Plan for Future Maintenance of Creek and Reservoir

REASONS FOR CONTROLLING SEDIMENTATION

Environmental Reasons

- Sediment in water bodies can cover the eggs of fish and other organisms, preventing them from reproducing.
- Excess sediment that is suspended in streams and rivers acts like sandpaper on fish and other organisms. Suspended sediment can also abrade the tissues of plants that live in the water.
- Sediment in water bodies can clog the gills of fish and other organisms that have gills, making breathing difficult.
- Sediment reduces light penetration, making photosynthesis more difficult for water plants.
- While blocking light penetration, the soil particles absorb the heat from sunlight and later release it, thereby raising the temperature of the water and driving off desirable fish populations.

Aesthetic & Recreational Reasons

- Clear water is more desirable for swimming, boating, canoeing and fishing than mud-filled water.
- Excess sediments build up in lakes and rivers. This raises the water level but reduces water depth, which decreases canoeing and fishing opportunities.

Economic Reasons

Other pollutants such as pesticides, herbicides and oil, can become attached to eroded soils and enter water bodies along with the soil. These contaminants can make swimming unhealthy for children and adults.

MISSION STATEMENT

To improve the recreational quality of *Jamesville Reservoir* by removing sediment deposits from Butternut Creek and to initiate plans for future management and preservation of these natural resources.

DREDGING PROCESS

What Is Dredging?

Dredging is the removal of bottom material from lakes, rivers, harbors, and water treatment settling ponds. Dredging is done to remove sediments and undisturbed bottom materials to increase water depth to permit the passage of ships and barges, to increase the capacity of water storage reservoirs, for recreation boating, to rebuild beaches, and to remove sludge from water treatment ponds.

There are two basic types of dredging:

1. Hydraulic Dredging (recommended)

Hydraulic dredging involves removing bottom sediments without draining the reservoir.

A hydraulic dredge consists of a floating barge. There is a boom (ladder) that is lowered into the mud. The end of the ladder has a device called a cutter head. The cutter head rotates and excavates the material. There is a large pump in the hull of the dredge. The excavated material is sucked from inside the cutter head

through a pipe to the dredge pump. The pump then pumps the slurry to a spoil area. The pipeline contains about 20% mud and 80% additional water. □□The spoil area has levees around it to contain the mud and water and also provide the means for the mud to settle and the water to become clear, so it can be returned to the lake. The spoil area should be 1.3 times the volume of material to be dredged, plus at least 1 foot of freeboard (distance between deck and the level of water). A weir (barrier for diverting water flow) must be installed in the spoil area to remove the clear water so it can be returned to the reservoir. The clear water is returned by pumping in a pipeline or by gravity in a ditch. Hydraulic dredges come in many sizes and production capacities. They weigh from 10 tons to 50 tons and more. To transport the dredge, pipeline and support equipment, will require 3 to 10 truckloads. A large crane is needed to assemble and launch the dredge. The pipeline from the dredge to the spoil area must be assembled. The dredge and pipeline must be disassembled and hauled from the site when the work is completed. This is called mobilization and demobilization.

2. Mechanical Dredging

Mechanical dredging is generally done with a barge-mounted crane using a clam bucket or dragline bucket. A hydraulic excavator can also be used. The material is excavated and placed in a barge. A boat (towboat / tugboat) moves the barge to the disposal area. On inland lakes and rivers, the barge is generally moved to the shore and the mud is unloaded with a crane using a clam bucket. The mud is placed in dump trucks, and hauled to a disposal site. □On coastal dredging, the material is placed in a barge. The barge is then towed to an approved area that is generally far out in the ocean and the mud is bottom dumped from the barge. The barge can also be unloaded by pumping for beach repair, or the mud can be pumped to a spoil area. □

How Dredging Work Is Priced

Dredging work is priced by the cubic yard of material that is dredged. To determine the cubic yards to be dredged, take the acres to be dredged x 1,600 cubic yards per foot of material depth (there are 43,560 square feet in one acre).

Example:

If you have a 10 acre lake and a 5 foot depth of material to be dredged:

$$10 \times 5 \times 1,600 = 80,000 \text{ cubic yards.}$$

Another method is to take the □ (length x width x depth of material to dredge) / 27 = cubic yards to be dredged.

Hydraulic Dredging Costs

Cost to design and build the spoil area, and dredge the material: \$4.00 to \$8.00 per cubic yard.

Combined charge for mobilization and demobilization: \$20,000 to \$50,000.

DREDGING PROJECT COSTS (Estimated)

Construction of Access Launch & Maintenance Area

\$20,000 (Maintenance Dock)

\$50,000 (Utility Barge)

\$30,000 (Launch Excavation & Ramp)

Total Preliminary Construction Costs: \$100,000

Dredging Option A: Hire Professional Contractor

30 acres x 3' deep x 1,600 cu. yd./acre = 144,000 cubic yards

144,000 cu. yd. x \$10.00/yd. = \$1,440,000 (spoil area & dredging costs)

\$50,000 (cost for mobilization/demobilization dredge equipment)

Total Option A: \$1,490,000

Dredging Option B: Purchase Dredge Barge & Hire Local Operator

Pre-owned Nessie Cat Powered Diesel Engine 3208 with Nibro Nickel Brass Pump (5,500 gallons per minute) (current owner located in Central New York):
\$100,000

Equipment Maintenance, Set-up & Operator Training: \$50,000

Construction of Spoil Areas: \$250,000

Labor (\$40/hr. x 8 x 5 x 30): \$48,000

Daily Operating Expenses (permits/fuel/insurance): \$52,800

Note: Estimated 3-5 days to dredge 1 acre x 3' deep (30 weeks for 30 acres)

Note: Spoil area less than 2,000' and 10' static head pressure

Total Option B: \$500,800

Clear Lake Dredge Project Info Inserted Here:

Mike pulled from various sources

Tab 5

<http://www.clearproject.net/dredgeflyer.pdf>

<http://www.clearproject.net/DredgingPPT.pdf>

http://www.friendsofclearlake.com/pdfs/ppt_presentation.pdf

Tab 6

<http://limnology.eeob.iastate.edu/Studies/ClearLake/ClearLakeReport012002/Chapter%202%20-%20Valuing%20Preservationa.htm>

Tab 7

<http://www.ghostseekers.com/Conversions.htm>

<http://ga.water.usgs.gov/edu/waterproperties.html>

BENEFITS TO JAMESVILLE COUNTY PARK

The proposed dredging project would increase attendance for additional recreational activities at Jamesville County Park.

- After dredging the back pond, the area would be suitable for training beginner kayakers and canoeists.
- Cleaning debris from Butternut Creek from the steel bridge (near quarry) to the back pond would provide a safe, pleasant waterway for tubing, canoeing and kayaking.
- The steel bridge would provide easy access to Butternut Creek and the existing road would require only low cost improvements.
- Low cost improvements to the existing trail network at the south end of the park property would attract walking, biking and bird watching enthusiasts.
- The proposed Nature and Art Path would be intriguing to individuals and families who appreciate nature and art, as well as educational groups.
- Fishing conditions at the south end of the Reservoir would be substantially improved.

All of the above recreational opportunities would increase park attendance and revenue to further support capital improvements and operating expenses.

Partnerships

A critical component for ensuring the success of any major capital improvement project on Jamesville Reservoir is to develop a cooperative partnership with Jamesville Beach Park and the Onondaga County Executive office.

- Onondaga County and the Canal Corporation are resources for information and technical expertise
- Onondaga County property is the only land available for creating dredge spoil areas; without the support of Onondaga County, there is no dredge project
- Initial funding from Onondaga County, then advance efforts to the State level and private business sector

“Save the Reservoir” committee would recruit a few members whose primary objective would be to present the project to Onondaga County officials in an effort to secure funding for the dredging process, as well as the preservation and future maintenance of the Reservoir and Butternut Creek. A credible presentation would require the support of as many local residents as possible to convey the importance of this undertaking.

FUTURE JAMESVILLE COUNTY PARK ENHANCEMENTS **Direct Benefits from Dredging**

1. In keeping with the mission of improving the aesthetic quality of *Jamesville Reservoir*, the possible creation of a **Nature Art Path** along Butternut Creek would attract a more diverse audience to Jamesville Beach Park, not only for its recreational opportunities, but to also enjoy the beauty of Butternut Creek’s natural surroundings.

When Butternut Creek has been cleaned out and navigation is made possible, the idea of a **Nature Art Path** would be to exhibit artwork on stone or concrete pedestals placed strategically along a nature path. Sections could be designated for different types of art (i.e. Native American, woodcarving, sculptures). Existing topography and natural resources would be utilized.

Marketing efforts would include organizing a committee, perhaps involving Syracuse University artists and other organizations, to increase public awareness and promote enjoyment of the Jamesville Reservoir and Butternut Creek by foot and by water.

A **Nature Art Path** would also create opportunities for other naturalistic activities, such as bird watching.

Art pedestals would recognize sponsors for 1-5 years or longer with names engraved on plaques. Potential sponsors include: Hanson Quarry, Eastern Mountain Sports, Time Warner, Syracuse University, Wegmans, National Grid, Syracuse New Times, Radio or TV stations.

2. Once Butternut Creek is cleaned out and navigation is made possible, promote canoeing, kayaking, and tubing using sponsors such as Eastern Mountain Sports and other canoe and kayak manufacturers.

INCREASE ATTENDANCE AT JAMESVILLE COUNTY PARK

Dredging and cleaning out Butternut Creek will directly benefit Jamesville County Park by enhancing existing activities and creating new opportunities utilizing natural features within the Park.

Enhanced Features:

1. Canoe and Kayak Rental
2. Trail Walking
3. Increase in Picnic Areas

New Features:

1. A cleaned out Butternut Creek will allow safe recreational tubing, kayaking, and canoeing entering to the south of the existing bridge over Butternut Creek.
2. Additional trails on both sides of Butternut Creek will increase trail walking for new audiences (bird watching, potential art path, general hiking).
3. Recreational biking on select trails will add to additional source of attendance.
4. The bridge within Jamesville Park can be used to complete a walkway loop around Jamesville Reservoir connecting neighborhoods, business hamlet and community residents, reinforcing the value of the County Park (see map).
5. Jamesville Reservoir dredge will make possible additional fishing areas (i.e. back pond, Butternut Creek closer to park area).
6. Access boat ramp into back pond area will provide a safe and easy access for small fishing boats, kayak training in back pond area, and additional boating.
7. Select undeveloped land within the park can be used for camping, utilizing new and enhanced activities to draw new attendees.

Goal:

Align mutually beneficial ideas to seek out support from County Executive Joannie Mahoney and New York State Congressman Dale Sweetland or Dan Maffei for funding.

SUPPORT SURVEY

Mission: To improve the aesthetic quality of the **Jamesville Reservoir** by dredging the area threatened by sediment deposits from **Butternut Creek** and to initiate plans for future enhancement and preservation of these natural resources.

Question	Yes	No	Unsure
1. Do you support the proposed dredge project and future maintenance plan for @ 30 acres at the south end of Jamesville Reservoir?			
2. Do you support the plan to clean out Butternut Creek within the Jamesville Beach Park property?			
3. Would you encourage additional kayaking, canoeing and tubing opportunities on Butternut Creek and the Jamesville Reservoir?			
4. Do you support expanding the Jamesville Beach Park trail network to include the property along Butternut Creek?			
5. Would you support developing designated trails for recreational biking?			
6. Would you support developing camping areas within Jamesville County Park?			
7. Would you support creating a loop around the entire Reservoir to be used as a walking path?			

FUNDING

Sources of funding for the dredging project would need to be sought out. Following are just a few possible financial resources and fundraising ideas to consider.

Grants

- Jamesville Beach Park Capital Improvements
- County Project Funding
- Government agencies, private and business foundations
- Environmental companies

Donations

- Corporate Sponsorships (i.e. Hanson Aggregates, Eastern Mt. Sports, SUNY-ESF, M&T Bank)
- Jamesville Business Owners
- Waterfront Owners (i.e. \$1.00-\$5.00 per lin. ft. of shoreline?)

Activities & Events

- Kayak Festival
- Booth at 2009 Balloonfest

Promotional Items

- T-shirts, sweatshirts, windsocks, bumper stickers, etc.
- Chairs purchased from website

The funding process could be enhanced by hiring an experienced environmental engineering firm to assist with grant writing and applications for public funding (i.e., C&S Engineers, CME Associates, Environmental Resources Management, Atlantic States Testing, Barton & Loguidice, Parsons Environmental, Shaw Environmental).

CONTACT LIST

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John H. Mulroy Civic Center, 14th Floor
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8305 St. Rt. 80
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www.pizzazzladies.com
sweetny@twcny.rr.com
315-683-9488

Howard Goble (spoke with)
Hydrologist, Canal Corp.
315-438-2344

Laura Ortiz (spoke with 3/21/08)
Core of Engineers
Buffalo, NY

Jim Burke
DEC Reg. of Eng.
315-426-7500
315-476-7500

Dave Coburn
Director of Environmental Affairs, Onondaga County
315-435-2647

Pete Wisbecker
Permit Process, DEC

John Eallando (spoke with 3/21/08 8/7/08)
Facilities Engineer, County Parks
Liverpool, NY
315-451-7275 Ex. 108
Call to set up appointment

Lou Anelli Jr. (spoke with, met with maps 3/1/08)
Civil Engineer, Canal Corp.
315-438-2302

Dan McDougal (spoke with)
Dredge America
816-330-3100
3 acre minimum \$10.00/cubic yard + \$35,000
Does not include settlement basin

RESEARCH RESOURCES

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