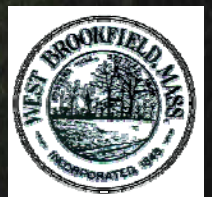




TOWN OF WEST BROOKFIELD MASSACHUSETTS

Lake Wickaboag Dredging Prospectus

August 2010





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August 2010



Purpose: To improve the water quality of the Lake. The Lake is experiencing siltation and eutrophication and dredging is needed to remove shallow phosphorus - laden sediments. Phosphorus levels, algal blooms, and weeds, including the nuisance invasive weed milfoil, in the shallow water are an ongoing problem which in turn depletes the Lake of oxygen.

Project: The Project Plan calls for the removal of 200,000 to 500,000 cubic yards of sediment from fifty to seventy-acres in the north end of the Lake to increase the water depth to a minimum of between four feet and eight feet. It is expected the project will take between one and two years to complete, worth an overall projected cost of between \$2.5 and \$4.0 million. The deepening will be constructed in a manner that facilitates beneficial sediment withdrawal from the water column at the Lake inlet, simultaneously improving water quality and sedimentation patterns in the Lake, resulting in long-term stability of the Lake ecosystem.

Contact: Mr. Albert F. Collings, Town of West Brookfield Project Liaison (tel. 508.867.7165)





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Lake Wickaboag Past...

The rich history and importance of the Lake and the Community are evidenced in reminiscences and recorded memories of residents, visitors, and historians.

- *"In the summer, Lake Wickaboag was home to many"*
- *"Some of my earliest memories include fishing on the Lake with my dad"*
- *"The Lake was full of colorful sails, as the sunfish regattas zigzagged across the Lake surface leaving trails of ripples in their wake, glinting in the sun"*
- *"The townspeople made many changes to the beach and surrounding landscape"*
- *"They tried to update it according to changing tastes, but the lake itself stayed forever the same"*
- *"Finally, winter came when the Lake once again became a playground for the town"*

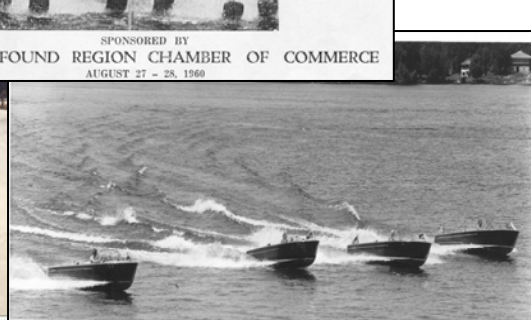
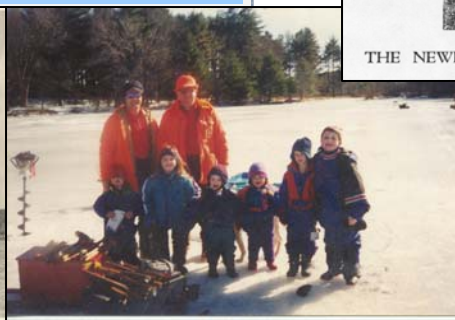


Water Ski Show

*Presented By
The Lake Wickaboag Ski Club
of
West Brookfield, Mass.*



SPONSORED BY
THE NEWFOUND REGION CHAMBER OF COMMERCE
AUGUST 27 - 28, 1960



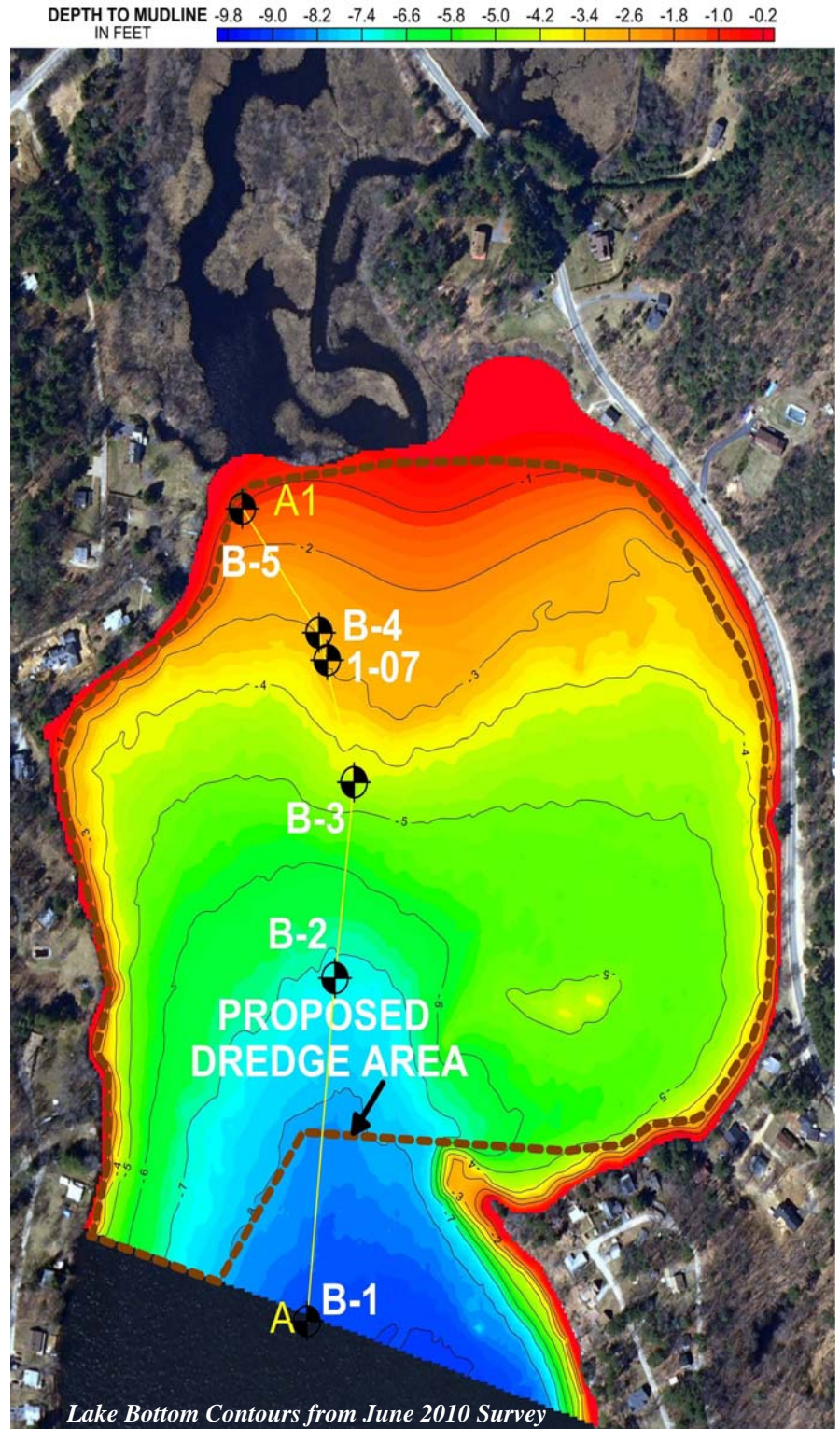
Lake Wickaboag is a 320-acre Lake located north of Route 9, about a quarter mile west of West Brookfield Center. The pond is characterized by a water transparency of eight feet. Mean and maximum depths have historically ranged from between seven and eleven feet. Shoreline development is extensive, with summer cottages and year round homes. A town owned beach and access ramp is located in the southeast corner of the pond. Historically, the Lake functioned as a central resource for the Town; a mainstay for both recreational users and sportsmen and women, as well as a tremendous environmental resource for the entire Quabog Hills area.



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Lake Wickaboag Present...

Present Conditions: While remaining an important and vibrant resource for the community, the Lake has become shallow in key areas. Infiltration of phosphorus laden sediments has lowered water levels in the North end of the Lake. The capacity of the Lake to effectively incorporate additional sediment runoff has been greatly reduced, raising the spectre of potentially chocking-off portions of the Lake. Control of algal blooms and invasive species such as milfoil are currently conducted using chemical treatment methods – sediment removal and re-contouring of the Lake bottom is required to affect a permanent solution.

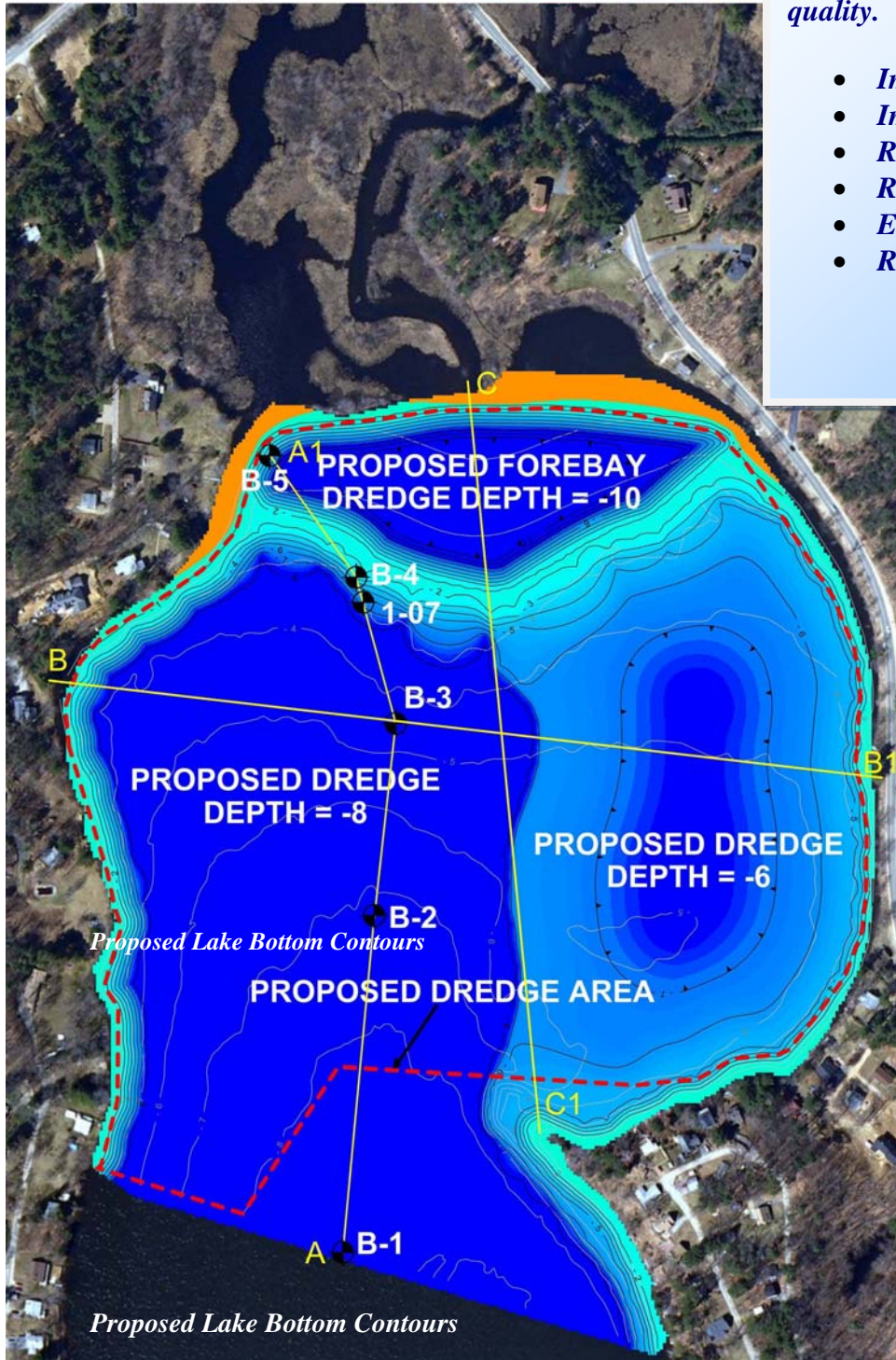
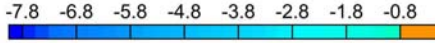




TOWN OF WEST BROOKFIELD MASSACHUSETTS Lake Wickaboag Dredging Prospectus

Lake Wickaboag Future...

DEPTH TO MUDLINE
IN FEET



The Concept Plan: Calls for the deepening of the North end of the Lake via hydraulic dredging, and the creation of a forebay settling basin to improve water flow and overall water quality. The benefits will be multifold:

- Improved water quality;
- Improved water clarity;
- Removal of over-nutritified sediments;
- Re-establishment of habitat;
- Eradication of nuisance weed; and
- Reversal of eutrophic conditions.



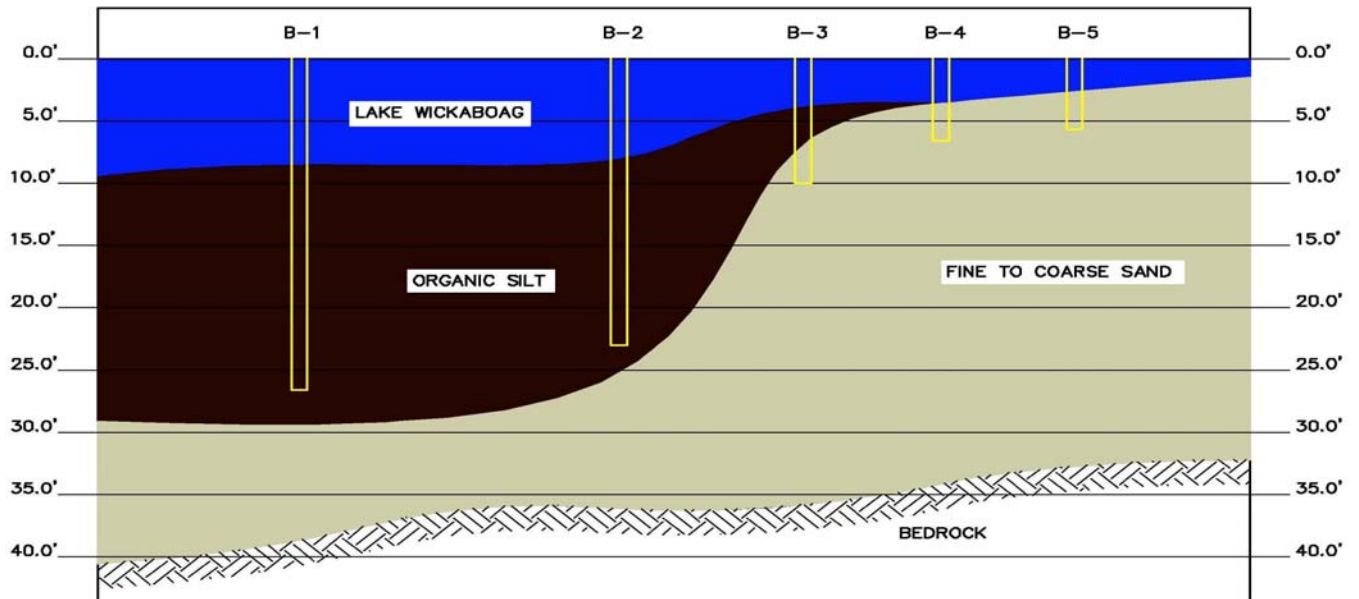
The Result:

- Better Water Quality for Recreation;
- Improved habitat and increased fish and wildlife population;
- Continued improvement in surrounding Property Values, providing strong tax revenues to the Town.
- Establishment of a sustainable aquatic system with resultant reduction in weed growth and attendant maintenance efforts.



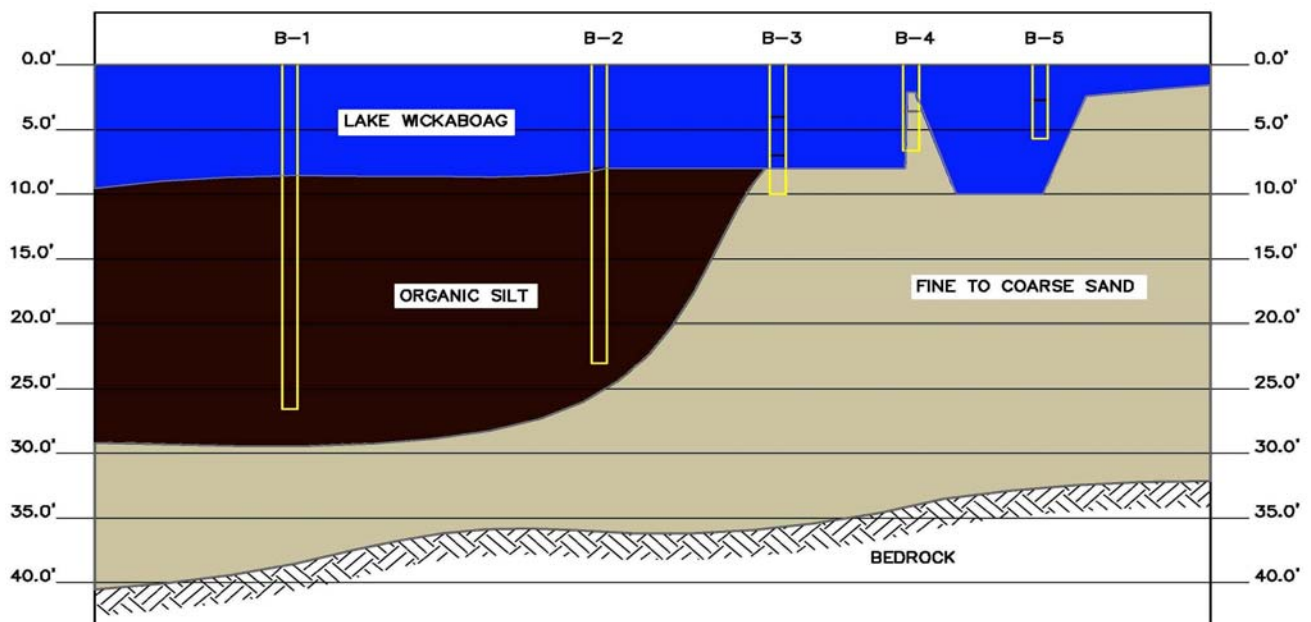
TOWN OF WEST BROOKFIELD MASSACHUSETTS Lake Wickaboag Dredging Prospectus

Concept and Status:



Existing Conditions Cross-Section

The Concept Plan calls for removal of organic silts and infilled sand and mud to restore depths at the North end of the Lake, and the creation of a settling forebay and weir to reduce sediment influx into the main body of the Lake.



Cross-Section of Proposed Engineered Solution



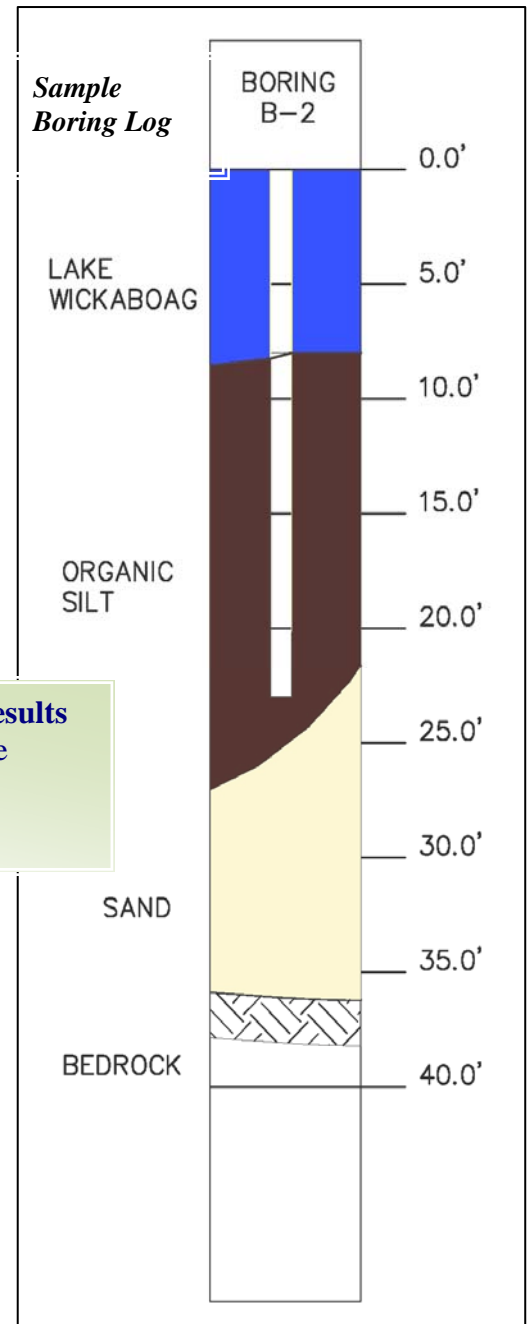


TOWN OF WEST BROOKFIELD MASSACHUSETTS
Lake Wickaboag Dredging Prospectus

Lake Wickaboag Timeline



Initial Testing of Lake Sediments...is underway. Thus far, **Results** are as expected and consistent with previous studies; a positive indication suggesting beneficial re-use of the sediment, once dredged, may be possible.



Sample cores of the sediments on the bottom of the Lake have been collected in order to characterize the materials to be removed.



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Mar. – Oct. 2010

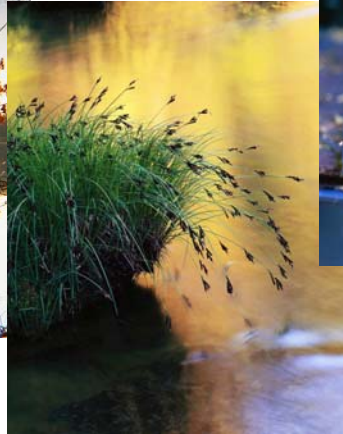
Oct. 2010 - Apr. 2011

Jun. 2011 - Jun. 2012

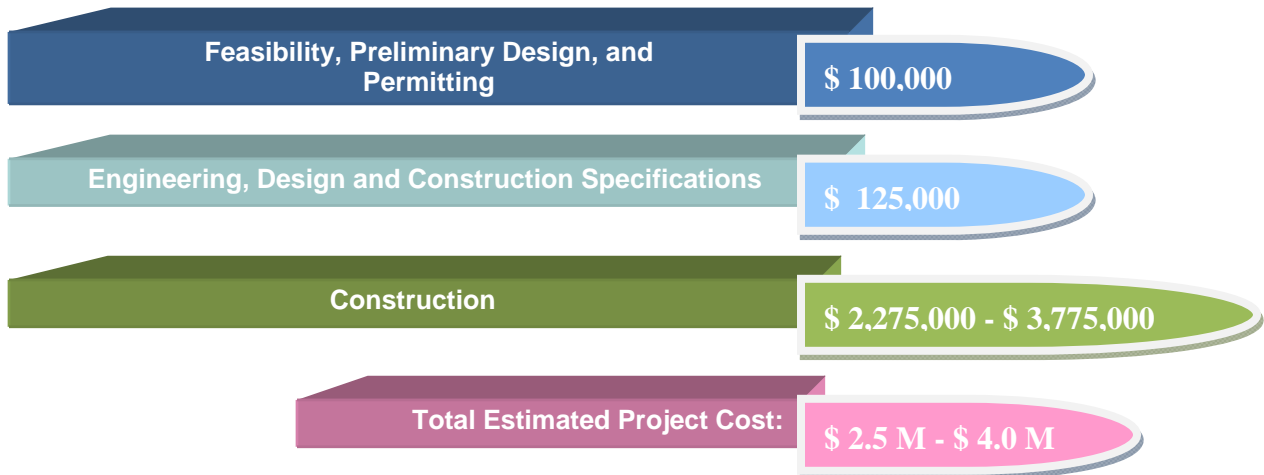
Conceptual Design

Permitting

Construction



Lake Wickaboag Budget Elements



Funding Status: The Town of West Brookfield and the Lake Wickaboag Preservation Association has recently raised \$23,000 from private sources to begin the sampling, survey, and conceptual design phase of the project. The Town expects to continue private fund raising efforts for the engineering and permitting funds, and is soliciting additional sources of funds in the form of grants and donations for the balance of the construction budget.





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History of Lake Wickaboag Management Activities

A 2003 Community Development Plan survey of West Brookfield resulted in identifying Lake Wickaboag as one of the two most significant assets of the town. Beginning in 1975 with the Lycott Environmental Eutrophic Study of Lake Wickaboag, The Board of Selection and Board of Health have encouraged management of the lake weed and algae problems. The Board of Health has been aggressively enforcing septic Title V requirements around the lake and to protect the water bodies of West Brookfield, town votes approved a Stormwater By-law in 2006 and an Open Space Residential Development By-law in 2007. The Lake Wickaboag Preservation Association was formed in 1990 to:

"...encourage, organize and support programs and activities that promote, restore and maintain the ecological health of Lake Wickaboag through involvement in issues of lake water quality and watershed protection and management."

Dredging the north end of the lake was an early objective of the lake association, but focusing on the cause of the sedimentation became a first priority. As can be seen from the studies, nonpoint pollution sources have been identified and the first step has been taken to correct one site on Wickaboag Valley Road with the award of a 319 grant in 2008. This project was completed in 2009 after which the lake association, working with the Stormwater Authority, will review additional sites to initiate further correction actions.



West Brookfield Ad HOC Dredging Committee

Melvin Dorman, Board of Health
Jason Paquette, Board of Health
John Frizzell, Board of Health
Sara Allan, Board of Health
Gordon DeWolf, Conservation Commission
Diane Oliver-Jensen Conservation Commission
Richard Aube, Zoning Board of Appeals
Merton Kenniston, Planning Board
Al Collings, Lake Wickaboag Preservation Association
Mary Beth Czaja, Lake Wickaboag Preservation Association

Town Contacts

John Frizzell, 508.867.7800
Sara Allan, 508.867.1421 x 310
Al Collings, 508.867.7165

