

Fawn Lake Committee
Minutes of Meeting
April 15, 2015
Department of Public Works Conference Room
314 Great Road, Bedford, MA

PRESENT: Margot Fleischman; Sharon McDonald; Allan Wirth; Michael Barbehenn;
Elizabeth Cowles; Linda Oustinow; John Zupkus

Adrienne St. John, DPW; Dennis Freeman, DPW
Elizabeth Bagdonas, Conservation Administrator

Jessica Cajigas, CEI Consultants; Matthew Lundsted, CEI Consultants

ABSENT: Robert "Schorr" Berman; Bill Simons

The meeting was called to order at 7:35 pm. Mr. Wirth began the meeting as the facilitator by stating his membership on the Bedford Conservation Commission and the goal that had been developed for Fawn Lake by the commission, and presented to the Selectmen and Town in the course of previous Fawn Lake aquatic vegetation management projects. He described Fawn Lake as the gem of the Bedford conservation areas, being used by many people for different purposes. The area was bought with Self-Help and Land and Water Conservation funds in the late 1970s, and the Town had approved assigning management to the commission under Massachusetts statute, Chapter 40, section 8C. This statute is established to promote the preservation of water and natural resources, which creates many challenges. If the commission were to follow state guidelines strictly, the first choice option might be to remove the dam; on the other hand, a "do nothing" approach might be perceived as having the smallest immediate impact. The commission hoped to balance recreation and natural resource values; in its report, CEI Consultants, Inc. had set forth 15 different alternatives.

Mr. Wirth concluded by stating that the committee should elect officers at a later point in the meeting. He then began a round-table of introductions, during which each member of the committee, staff and consultants gave some information about his or her role, other associations, experience and interests.

CEI then presented a powerpoint summary of previous public meetings and the results of their final report. CEI had been formed 30 years ago with a focus on projects for reclaiming lakes and ponds, with Mr. Lundsted having worked in this area for 20 years. He stated that CEI had conducted deeper research after reviewing the results of the two meetings; he perceived that the Town's commitment was based upon how the land was obtained and in accordance with the resource goal from the CPC application for funding the hydrorake project. He presented a summary of watershed facts, a schedule of past actions and costs, bathymetry results, map reviews, plant species, sediment depths, alternative strategies and a table of alternatives analysis.

Ms. Fleishman commented that it seems that some options can be paired as compared with others; she recommended assistance with showing which strategies would work together. Mr. Lundsted and Ms. Bagdonas offered examples of how this had taken place, both on other sites and at Fawn Lake. Mr. Lundsted recommended a cross-reference check box, stating that the committee might want to have a discussion on how the selections would be made, perhaps by developing a weighing system for the alternatives considerations/comparison list. Ms. Fleischman asked if two could be chosen, such as hydroraking/ herbicide treatment versus dredging. Mr. Lundsted said that an Excel sheet for this purpose could be broken up in several ways.

Mr. Wirth then suggested that the committee engage in a general discussion with both questions and comments.

Ms. St. John began by stating that she felt all possible methods had been included.

Mr. Zupkus commented that phosphorus was the limiting nutrient in most lakes, and asked if all sediment needed to be removed. Ms. Cajigas explained that CEI had taken sediment samples, but did not get a figure for the whole lake. There was also the issue of presently reduced dissolved oxygen, and that a more detailed water quality study would probably be needed. Mr. Zupkus stated that he was discounting stormwater impacts at present, as stormwater was fairly simple to treat, most usefully in this situation by binding it to soils. He added that the lawn area could be managed better, with consideration given to the issue of phosphorus in the sediment. Mr. Lundsted agreed that it was best to remove as much phosphorus as possible.

Mr. Zupkus then inquired about mechanical dredging, asking if the hardpan was really thick. He stated that he was concerned about penetrating the hardpan, which was probably established when the lake was created, in order to prevent the pond from draining. Mr. Lundsted explained that any dredging project would require borings, and that the pond hydraulics needed to be studied. Each of the alternatives has detail wrapped up in it; he also added that any dredging has a lot of cost based on the equipment needed.

Ms. Oustinow asked about total depths. Ms. Cowles had questions about long-term effects. Ms. Cajigas responded that there was no record of how the lake had been maintained, and that the average rate of full sedimentation after dredging was 60 years. Ms. Fleischman stated that any alternative promising a 10-year effectiveness period was not acceptable, and that the Town would be looking for the most definitive treatment. Mr. Lundsted stated that the level of regrowth was observed in how the water lilies had come back. Ms. Oustinow asked if achieving a maximum depth of 10-12 feet would be enough to discourage water lily regrowth. Mr. Lundsted commented that it was unlikely that the pond would be drained by over-excavating.

Mr. Barbehenn asked for some ball park numbers. Mr. Lundsted responded by stating that based on past dredging projects, the order of magnitude report numbers would be reviewed during the general permitting process. Mr. Barbehenn asked if an approach could be made based on relative costs, such as a 10-year cost approach. Mr. Wirth stated that the 10-year benefit would also have to be predicted. Mr. Barbehenn mentioned "normalizing costs".

Ms. Fleischman asked if long-term efficacy would be related to deeper dredging, and if a smaller-depth project would be a better use of the money. Mr. Lundsted commented that a limited management area would eliminate that area for inclusion in the project, and that the area shown on the map for limited management was one of the more shallow areas in any case. He advised choosing a project area more in the center of the lake, avoiding areas where springs are believed to occur, and choosing areas strategically for dredging selectively deeper and providing appropriate maintenance. Ms. Fleischman stated that there were ramifications for preserving shallower shoreline areas, as they might tend to creep toward the center and at the same time revert to wetland at the edges; sloping off from these areas toward the center might also occur. She commented that the 2001 goal was to create more open water.

Mr. Wirth wanted to know how cost plays out with respect to the limited management area. Mr. Lundsted stated that dredging the whole lake would last for 10 years, but would have to include dealing with stressors such as stormwater; however, nearby development was not intense. He also added that a “10-year open lake” does not produce plants, especially with long-term post-dredging maintenance. Ms. Bagdonas asked if that might be hydroraking and herbicide application. Mr. Wirth stated that this possibility brought the issue back to the Conservation Commission and its role.

Mr. Zupkus asked what is cost-driven. Mr. Lundsted stated that hydraulic dredging was the most economical, but produced the same amount of material to dispose of. He added that there were implications associated with each dredging process, the use of hoses and pumps, dewatering areas, frac tanks and different methods of processing the dredged spoils. He also cited the method of compressing the material, the issues of neighborhood tolerance for various processes, construction/hauling contracts, ending by observing that the disposal process is identified in the permitting process. Ms. Fleischman thought that there would be more disposal options because of the high quality of the material. Mr. Lundsted agreed, stating that there were no high numbers (for contaminants) in the sediment sample analyses; he added that there were still issues of marketability. Some towns had the experience of bad timing in predicting the success of disposal. Regarding another option sometimes used in large projects – using the dredged material to fill nearby lands – there are large-scale trade-offs.

Ms. Fleischman had several questions about dams. Ms. St. John explained the Town’s experience with dam replacement, and the different situations with high-and low-hazard dams. She added that the Fawn Lake dam would definitely be a factor in the future. There followed questions about relocating or raising the dam. Ms. St. John explained that the present outflow is at the natural low point.

Mr. Barbehenn asked if there were any biological controls available, such as using carp to feed on invasive grass-like aquatics in other parts of the country. Mr. Lundsted was not familiar with any, and felt that biological controls would end up recycling the plants rather than removing them. Regarding bio-dredging, Mr. Barbehenn thought that the real issue is surface conditions, not necessarily water depth, and that a 20-30% reduction might give the desired effect.

Mr. Zupkus stated that bio-dredging converts organics to inorganics, of no use to plants, which works in theory; however, he felt that if it really worked, it would be more in use as a treatment option. He added that temperature was also a factor in this method. Ms. Cajigas observed that there did not appear to be information available on how it works in New England.

Ms. Fleischman stated that some methods require constant repetition, rather like mowing a lawn. She asked if bio-dredging could be part of long-term maintenance. She did not envision bio-dredging as a primary solution now, but perhaps useful as a preservation strategy. For example, bio-dredging might be effective with post-dredging to reduce the biomass. Mr. Wirth observed that there would have to be on-going monitoring.

Ms. Cowles stated that there may be a linear component to sediment traced over a 100-year period, in that the accumulation might be exponential at a certain depth; she wondered if there was a "slow" cycle. Mr. Lundsted stated that at a certain point in the restoration process it would be necessary to institute watershed controls, such as yard maintenance and stormwater treatment. A discussion followed on other maintenance options, such as benthic barriers, spot treatment and cutting off plants. Ms. Fleischman wondered about the magnitude of disturbance to lake ecology from the various methods. Ms. St. John added that "limited maintenance areas" would not be affected by hydroraking or dredging, versus the overall impacts of a lake drawdown. There was also the concern about impacts from colonization of cleared lake areas by non-native, invasive aquatic plants. Ms. Fleischman asked if there was a high risk for this at Fawn Lake. Mr. Lundsted said that it was probably a low risk in this location, especially since there was no soil transport into the lake.

The committee discussed proceeding to the next step, which would involve more analysis of each alternative, accompanied by weighing and ranking alternatives. Ms. Fleischman stated that the Selectmen had been using a method of weighing a list by coming to a consensus on pairs of alternatives, working toward establishing value as a group. This is helpful with multiple criteria. Mr. Wirth suggested breaking alternatives down into small parts.

It was agreed that the next agenda would include "pair-wise ranking", with Mr. Barbehenn recommending "high, medium and low" values. Ms. Fleishman thought that taking this approach would go quickly, and that there already appears to be some consensus.

Questions were again raised about the status of the Fawn Lake dam. Ms. St. John stated that low hazard dams would probably not be targeted for repair or removal for another 5 years. Required work could be scheduled along with a chosen method for lake improvement. The standard for low hazard dam longevity is predicted to last for 100 years. It was noted that the cost estimate to rehabilitate the Fawn Lake dam is \$100,000.

Ms. St. John asked Ms. Fleischman if she would set up a matrix for the pair-wise ranking methodology.

Mr. Zupkus raised the issue of possible hurdles in developing a strategy for approvals. Mr. Lundsted offered a brief description of such approvals/permits, and stated that he could develop something similar to a decision tree. He pointed out that some permits could be applied for concurrently, such as those from the Department of Environmental Protection (DEP), the Corps of Engineers (COE), the Conservation Commission, Chapter 91 and the Massachusetts Environmental Policy Act (MEPA). He added that some permits require other steps, such as comment from historical societies, and he will work on a matrix setting out these steps and areas of jurisdiction.

Ms. Oustinow asked if financial constraints would contribute to a decision based on the CEI report. Ms. Fleischman responded that the committee would need to weigh costs, with some overlap to be expected between the various options. The Finance Committee will have questions about the relationship between value and cost; however, she commented that the options that looked the most effective also appeared to be the most costly. Ms. Oustinow asked if there was grant funding available; Mr. Lundsted said that there currently was none; however, there was some funding through the Department of Conservation and Recreation (DCR) for dam work, but that it was available mainly in relation to fish passage.

Ms. St. John reminded the committee that CEI Consultants was at the end of its contract with the Town, although they wished to continue to attend meetings when possible. However, Mr. Lundsted stated that CEI would be able to respond to the ideas and requests mentioned at this evening's meeting. Ms. Fleishman advised the committee to keep in mind future funding cycles and deadlines. Mr. Lundsted stated that he would provide an electronic Excel version of the comparison matrix, as well as a summary of permitting.

The Election of Officers was held as follows:

A motion was made by Ms. Fleischman and seconded by Mr. Zupkus to nominate Mr. Wirth for the position of Chair of the Committee. The motion passed 7-0-0.

A motion was made by Mr. Wirth and seconded by Mr. Zupkus to nominate Ms. McDonald for the position of Clerk. The motion passed 7-0-0.

The committee members agreed to send out a poll to determine members' availability for a meeting to be held on either Wednesday, May 6th, Thursday, May 14th or Thursday, May 28th.

At 9:30 pm a motion was made by Mr. Barbehenn and seconded by Ms. Cowles to adjourn the meeting; the motion passed 7-0-0.

Minutes prepared by Elizabeth Bagdonas.

Minutes approved at meeting of May 6, 2015.