

Bristol Mills Dam ad hoc Advisory Committee

Minutes of Meeting Tuesday, October 24th, 2017
Bristol Town Office

Committee members present: James Albright, Pam Allen, Phil Averill, Claire Enterline, Chuck Farrell, John Freburger, James Hatch, Abby Ingraham

Absent: Bill Benner

Also present: Robert Davidson, Anne Gage, Jim Gage, Chris Hall (Town Administrator), Carol Jackson, Joe McLean (Wright-Pierce), Don Means, Mary-Rae Means, Lyn Prentice, David Ray, MaryAnne Peterson Ray, Rick Poland.

The meeting was called to order by chair Enterline at 6:04 pm with a quorum present, and the Pledge of Allegiance was recited.

A motion to accept the minutes of 10/04 was proposed by Farrell and seconded by Freburger. A friendly amendment was accepted to change the heading on page 3, paragraph 4, to "Review of 2017 Alewife Run (the Volunteer Coordinator's presentation is on file in the BDAC binder)". Passed 7 – 0 (Allen absent for this vote).

No amendments were offered to the agenda.

Presentation of First Draft of Wright-Pierce Report

Chair Enterline introduced Joe McLean of Wright-Pierce to present the first draft of their report.

McLean stressed that the report needs to be treated as the first draft it is. Some data is still missing, such as the Lake Level Monitoring Data (Appendix J) expected to be received in the near future. He is presenting this in twelve hard copy binders, so that members of the Committee can update sections as amendments and new data are generated. The final version of the hard copy report will have dividers for convenience of use.

He led the Committee through the report, pointing out those sections and appendices that the Committee had already seen and those which are new. New sections include Section I (introduction), part of IV (Hydrologic and Hydraulic Conditions), Section V (Fish Passage Options), part of Section VI (Firefighting Water Supply) incorporating feedback from the Fire Chief, Section VII (Recreation Alternatives) (which may need to be expanded to incorporate the Parks Commissioners' opposition to an access from Benner Road), Section 8 Cost Analysis) and Section 9 (Conclusion).

The Appendices present information previously discussed with the Committee, with certain additions, for example Appendix B (USGS Regression Calculation Worksheet), C (HEC-RAS Model Excerpts) and D (Denil Fishway Stage-Discharge Worksheet).

Appendix H is missing, awaiting PWA water quality data, as is Appendix J awaiting lake water levels. Appendix K presents a more detailed Fish Passage Conceptual Plan for a replacement structure at Benner Road, and Appendix M has been updated to reflect the meeting with the Parks Commission on October 17. Appendix N covers new Cost Estimate Worksheets for the several options, with calculations for each alternative dry hydrant site for fire suppression water.

Chair Enterline led a discussion on how to organize feedback from both the Committee and the public to Wright-Pierce. She noted that all Committee discussions should be on the public record, and asked that requests come to her in the form of emails identifying topics for review at a future meeting, rather than expressions of opinion.

Farrell asked whether it would be best to lace the report in a Word document in a common folder and use track changes for each member of the Committee to show their suggested amendments. After discussion it was agreed that this could create difficulty in case of multiple overlays of amendments. McLean added that certain parts of the report – wherever there is data, in particular – has to be able to be certified by Wright-Pierce to accepted engineering standards, thus he would be unable to agree to a completely open amending process. Hatch agreed that many sections are technical and have already been reviewed; it should be possible to focus on those sections which are new. Enterline pointed out that the Committee still has an editing responsibility to ensure that technical material is presented clearly and in a way that is easily understood by the public. McLean suggested an initial focus on Sections V, VII and VIII as these have much important new material.

Enterline noted that she has offered to Chief Leeman to attend the next Fire and Rescue monthly meeting to present the report, and would appreciate any members joining her in support. Hatch asked that the Chief be asked to send written comments for review and publication. Albright added that he felt the Committee should also present to Parks and Recreation, attending their meeting as a mark of respect, and solicit final comments from them too. McLean noted that he would be happy to attend both meetings.

Ingraham raised her concern about the naming of Option B. It appears deceptive to entitle this 'Full Dam Replacement' when in fact it is Full Dam Removal. Enterline asked that this be tabled until a later meeting, and noted the need to return to it.

Albright raised the question of whether, in options A and C, public access would be provided to the dam and fishway structures, perhaps through catwalks across the structure. Mclean pointed out that most dams do not encourage public access for liability reasons, but safe access could be incorporated for a price.

McLean described the thinking that led Wright-Pierce to revise their estimates for Option C. The use of jackhammers to remove part of the existing dam would, they felt, likely endanger the integrity of the remaining structure, and it would therefore be prudent to remove the entire dam and build a new, smaller one in its place. This is reflected in the cost estimates for Option C.

Hall questioned the discount rate used for expected future expenditures. There is no discount rate shown in the draft, and he requested that these be calculated for a range of discount rates. There was discussion as to whether this was required, but Hall, supported by Albright and Farrell, agreed that any business decision would incorporate Net Present Value calculations. Hall pointed out that this will dramatically change the cost figures. It was agreed that the next meeting of the Committee will focus on Sections 1 through 4 of the report.

Enterline asked for public comments. Jackson said she was just trying to understand and follow the options. Davison said that for an expenditure of the apparent size of \$800,000 or more, he would get a second opinion.

At 8.45 pm Enterline thanked and excused McLean, and asked the Committee to turn to consideration of communications and its remaining work.

Enterline reported that she had asked the Selectmen, at their meeting on October 18, whether they or the Committee should hold public hearings. She was told that the Committee should do so, as they (plus Wright-Pierce) have the expertise to respond to questions and compile public comments for the record. It was agreed that the Committee should hold a public meeting in hearing format and add a section to the binder of accumulated public comments.

Allen asked if the budget will allow Wright-Pierce's continued participation. Hall pointed out that the Town does not have authorized funds that can be added to the project. Enterline expressed the hope that either, the Nature Conservancy will grant additional funds to the Town for additional time by W-P, or alternatively that they will complete the project on a pro bono basis.

Albright asked when someone will make a decision. Enterline said that the Selectmen will have to decide, and would likely refer a final decision to a vote at Town Meeting. This would require a decision as to how to word a Warrant article, recommending one or other of the Options. Enterline added that she felt there is still a degree of confusion in the Town, and it would be best to widen the communications with the voters. A public meeting would still be based on the draft report, as the final report could incorporate feedback from the community. This meeting could be scheduled soon after the planned three Committee meetings to review the draft report, perhaps in December. Hatch suggested that, as a way to increase public understanding, a clear Executive Summary could be drafted as soon as possible.

There followed discussion of how best to make the draft report available. Enterline expressed concern that the draft was open to misunderstandings and should not be posted in its present form on the web site. Hall stated that this is a public document which should legally be made available to all, as an annex to the minutes of the meeting. The Chair proposed, and Hatch seconded, a motion that the draft report be made available to persons requesting it, both in hard copy at the Town Hall and electronically. Motion passed 7 – 0.

(NOTE: The address for downloading the Draft Report is:

https://wrightpierce.sharepoint.com/sites/Projects/_layouts/15/guestaccess.aspx?folderid=1a0a7381fd53c4848ab1b0c6b2a672afd&authkey=AU-ZBica44F4bcfC4aST9q0&expiration=2018-04-23T18%3a52%3a15.000Z)

In public comment, Davison stressed the need for stakeholders to make their final comments available to the public, and that McLean should be present for final meetings with Fire and Rescue and with Parks and Recreation.

Enterline noted that she had already received public comments, which she had referred to Wright-Pierce. Farrell noted that W-P's replies should come through the Committee, not directly. Enterline summarized those comments received as referring to the fish passage records – 2015 was a year of high, not low, water; and to the depth of the

bedrock between the dam and the Benner Road ledge, where soundings from a canoe show depths ranging from 18" to 2' 6", rather than the 13" number often referred to, which is the depth of water over the high point of that ledge when the dam is full.

On a motion from Farrell, the committee adjourned at 8.15 pm. The next meeting will be held Tuesday, November 7, 2017 at 6pm at the Bristol Congregational Church Parish House.

Respectfully submitted,
Chris Hall

COST OF ALTERNATIVE OPTIONS FOR BRISTOL MILLS DAM AND FISH PASSAGE

Using alternative discount rates for **future** expenditures (5% through 1%). Higher rates will have lower Net Present Value (NPV).
For NPV of fixed lump sums, calculated on: <https://financialmentor.com/calculator/present-value-calculator>
For present value of annual maintenance (annual interest compounding): <https://financialmentor.com/calculator/present-value-of-annuity-calculator>
Underlying cost estimates are from the INITIAL DRAFT of Wright-Pierce's report, "Bristol Mills Dam Feasibility Study", October 2017.
Cost estimates may change in later drafts of the report.

5% discount rate	Option A	Option B	Option C - partial removal / replacement	
	Repair dam	Remove dam, new weir at Benner Road	(a) without Ellingwood improvements	(b) with Ellingwood improvements
Initial cost (2018)	\$440,000.00	\$610,000.00	\$920,000.00	\$1,260,000.00
Annual maintenance (for 50 yrs)	\$6,000.00	\$1,500.00	\$7,000.00	\$7,000.00
Total maintenance, nominal dollars	\$300,000.00	\$75,000.00	\$350,000.00	\$350,000.00
NPV Maintenance in 2018 dollars	\$109,535.55	\$27,383.89	\$127,791.48	\$127,791.48
Future capital expenses 20 yrs	\$50,000.00	\$0.00	\$0.00	\$0.00
NPV in 2018 dollars	\$18,844.47			
Future capital expenses 40 yrs	\$50,000.00	\$0.00	\$0.00	\$0.00
NPV in 2018 dollars	\$7,102.28			
Future capital expenses 50 yrs	\$25,000.00	\$50,000.00	\$150,000.00	\$150,000.00
NPV in 2018 dollars	\$2,180.09	\$4,360.19	\$13,080.56	\$13,080.56
Total nominal dollars	\$865,000.00	\$735,000.00	\$1,420,000.00	\$1,760,000.00
Total 2018 'real' dollars	\$577,662.39	\$641,744.08	\$1,060,872.04	\$1,400,872.04

4% discount rate	Option A	Option B	Option C - partial removal / replacement	
	Repair dam	Remove dam, new weir at Benner Road	(a) without Ellingwood	(b) with Ellingwood
Initial cost (2018)	\$440,000.00	\$610,000.00	\$920,000.00	\$1,260,000.00
Annual maintenance (for 50 yrs)	\$6,000.00	\$1,500.00	\$7,000.00	\$7,000.00
Total maintenance, nominal dollars	\$300,000.00	\$75,000.00	\$350,000.00	\$350,000.00
NPV Maintenance in 2018 dollars	\$128,893.11	\$32,223.28	\$150,375.29	\$150,375.29
Future capital expenses 20 yrs	\$50,000.00	\$0.00	\$0.00	\$0.00
NPV in 2018 dollars	\$22,819.35			
Future capital expenses 40 yrs	\$50,000.00	\$0.00	\$0.00	\$0.00
NPV in 2018 dollars	\$10,414.45			
Future capital expenses 50 yrs	\$25,000.00	\$50,000.00	\$150,000.00	\$150,000.00
NPV in 2018 dollars	\$3,517.82	\$7,035.63	\$21,106.89	\$21,106.89
Total nominal dollars	\$865,000.00	\$735,000.00	\$1,420,000.00	\$1,760,000.00
Total 2018 'real' dollars	\$605,644.73	\$649,258.91	\$1,091,482.18	\$1,431,482.18

3% discount rate	Option A	Option B	Option C - partial removal / replacement	
	Repair dam	Remove dam, new weir at Benner Road	(a) without Ellingwood	(b) with Ellingwood
Initial cost (2018)	\$440,000.00	\$610,000.00	\$920,000.00	\$1,260,000.00
Annual maintenance (for 50 yrs)	\$6,000.00	\$1,500.00	\$7,000.00	\$7,000.00
Total maintenance, nominal dollars	\$300,000.00	\$75,000.00	\$350,000.00	\$350,000.00
NPV Maintenance in 2018 dollars	\$154,378.58	\$38,594.65	\$180,108.35	\$180,108.35
Future capital expenses 20 yrs	\$50,000.00	\$0.00	\$0.00	\$0.00
NPV in 2018 dollars	\$27,683.79			
Future capital expenses 40 yrs	\$50,000.00	\$0.00	\$0.00	\$0.00
NPV in 2018 dollars	\$15,327.84			
Future capital expenses 50 yrs	\$25,000.00	\$50,000.00	\$150,000.00	\$150,000.00
NPV in 2018 dollars	\$5,702.68	\$11,405.35	\$34,216.06	\$34,216.06
Total nominal dollars	\$865,000.00	\$735,000.00	\$1,420,000.00	\$1,760,000.00
Total 2018 'real' dollars	\$643,092.89	\$660,000.00	\$1,134,324.41	\$1,474,324.41

2% discount rate	Option A	Option B	Option C - partial removal / replacement	
	Repair dam	Remove dam, new weir at Benner Road	(a) without Ellingwood	(b) with Ellingwood
Initial cost (2018)	\$440,000.00	\$610,000.00	\$920,000.00	\$1,260,000.00
Annual maintenance (for 50 yrs)	\$6,000.00	\$1,500.00	\$7,000.00	\$7,000.00
Total maintenance, nominal dollars	\$300,000.00	\$75,000.00	\$350,000.00	\$350,000.00
NPV Maintenance in 2018 dollars	\$188,541.64	\$47,135.41	\$219,965.24	\$219,965.24
Future capital expenses 20 yrs	\$50,000.00	\$0.00	\$0.00	\$0.00
NPV in 2018 dollars	\$33,648.57			
Future capital expenses 40 yrs	\$50,000.00	\$0.00	\$0.00	\$0.00
NPV in 2018 dollars	\$22,644.52			
Future capital expenses 50 yrs	\$25,000.00	\$50,000.00	\$150,000.00	\$150,000.00
NPV in 2018 dollars	\$9,288.20	\$18,576.39	\$55,729.18	\$55,729.18
Total nominal dollars	\$865,000.00	\$735,000.00	\$1,420,000.00	\$1,760,000.00
Total 2018 'real' dollars	\$694,122.93	\$675,711.80	\$1,195,694.42	\$1,535,694.42

1% discount rate	Option A	Option B	Option C - partial removal / replacement	
	Repair dam	Remove dam, new weir at Benner Road	(a) without Ellingwood	(b) with Ellingwood
Initial cost (2018)	\$440,000.00	\$610,000.00	\$920,000.00	\$1,260,000.00
Annual maintenance (for 50 yrs)	\$6,000.00	\$1,500.00	\$7,000.00	\$7,000.00
Total maintenance, nominal dollars	\$300,000.00	\$75,000.00	\$350,000.00	\$350,000.00
NPV Maintenance in 2018 dollars	\$235,176.71	\$58,794.18	\$274,372.82	\$274,372.82
Future capital expenses 20 yrs	\$50,000.00	\$0.00	\$0.00	\$0.00
NPV in 2018 dollars	\$40,977.22			
Future capital expenses 40 yrs	\$50,000.00	\$0.00	\$0.00	\$0.00
NPV in 2018 dollars	\$33,582.66			
Future capital expenses 50 yrs	\$25,000.00	\$50,000.00	\$150,000.00	\$150,000.00
NPV in 2018 dollars	\$15,200.97	\$30,401.94	\$91,205.82	\$91,205.82
Total nominal dollars	\$865,000.00	\$735,000.00	\$1,420,000.00	\$1,760,000.00
Total 2018 'real' dollars	\$764,937.56	\$699,196.12	\$1,285,578.64	\$1,625,578.64