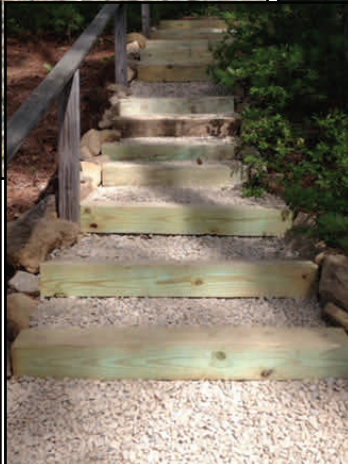


Final Report

Great East Lake & Wilson Lake Watershed Implementation - Phase 2 2015RR02



Septic Systems

How do they work?
How do you maintain them?



Great East Lake
Improvement Association
PO Box 911
Sanbornville, NH 03872
www.greateastlake.org

In partnership with
Acton Wakefield Watersheds Alliance



PO Box 235, 254 Main Street
Union, NH 03887
www.AWwatersheds.org



Grantee: Acton Wakefield Watersheds Alliance
Project Manager: Linda Schier, Executive Director
Start Date: April 10, 2015
End Date: November 10, 2016

Funding for this project, in part, was provided by the U.S. Environmental Protection Agency under Section 319 of the Clean Water Act. The funding is administered by the Maine Department of Environmental Protection in partnership with EPA. EPA does not endorse any commercial products or services mentioned.

PROJECT OVERVIEW

PURPOSE

The purpose of this project is to reduce erosion and polluted runoff sources to Great East Lake, Wilson Lake and therefore the Salmon Falls River by: installing BMPs at two (2) private road NPS sites and ten (10) priority residential sites; providing additional technical assistance to at least another ten (10) landowners; and providing education and outreach. Ultimately, the goal is to protect or improve the water quality of Great East Lake, Wilson Lake and the downstream waterbodies.

PROJECT HIGHLIGHTS

The project objectives were met and some exceeded.

- BMPs were installed at two high priority sites on Lakeside Drive in Acton. BMPs include road grading and crowning, culvert and ditch enhancements, level spreaders, plunge pools, sediment basins, and paving. Approximately 1300' of road was rehabilitated reducing the pollutant loading to Great East Lake by over 40 tons of sediment per year.
- In addition to the scheduled work, AWWA was able to provide the Lakeside Drive and Abbott Road/Jericho Way road associations with partial funding to hire an engineer from the YCSWCD to develop plans for additional road projects to correct erosion issues that are delivering road material to Great East Lake.
- The AWWA Youth Conservation Corps - directed by Program Manager Sam Wilson and staffed by Crew Leaders Jordan Shepherd, Seth Fogg and Amy Arsenault, and six local high school crew members - installed 34 BMPs on 11 properties in the project area reducing the pollutant load by an estimated 16 tons/year. Technical assistance visits were delivered to 11 YCC project hosts and 22 additional landowners to provide site specific advice for stormwater runoff mitigation.
- Septic surveys were conducted on Great East and Wilson Lakes. AWWA published reports with data analyzed from the over 30% response rate questionnaires. The septic survey reports were published on both the GELIA and WLA websites. The reports recommend future action for the lake associations, AWWA and the towns.
- Articles about the project progress, successes and outcomes were published in three editions each of the GELIA and WLA newsletters as well as email blasts and multiple posts on the AWWA website www.AWwatersheds.org.
- Video of the 2016 YCC tour is posted on the AWWA website. Technical difficulties interfered with the production of the 2015 tour but all the details are included in the 2015 YCC Season Report.

KEY PERSONNEL

Key project personnel included AWWA staff - Linda Schier, Executive Director; Sam Wilson, Program Manager; Amy Arsenault, Program Assistant; and Dave Waddell of Maine DEP.

CHANGES IN PROJECT SCOPE

Due to lower than expected project costs we were able to develop engineered designs for additional BMPs on Lakeside Drive and Abbott Rd/Jericho Way.

TASK SUMMARY

Task#1 – Project Management

All aspects of project management were conducted as required by grant guidelines and completed in a timely manner.

- The grant agreement was signed and adhered to.
- Project costs and match were carefully documented and reported and progress reports submitted.
- YCC and Road projects are documented in tracking spreadsheets.
- Pollutant Controlled Reports were submitted for 2015 and 2016.
- Review of phosphorus and Secchi data from UNHLLMP has not indicated any significant trend during the project period but comprehensive monitoring will continue and results will be analyzed on a regular basis.

Projected Cost: Grant: \$4,730 Match: \$0 Total: \$4,730

ACTUAL COST: Grant: \$4,916 Match: \$0 Total: \$4,916

Task #2 – Steering Committee Meetings

The project steering committee only met formally once during the project period, in the fall of 2015. Although four meetings were originally planned, given that the road work was completed within two months of the project start, all project partners agreed this was sufficient as communication between partners was regular and informative via email and as needed to see the successful completion of the project goals. Road project partners met at the site before, during, and after the installation and several times later to monitor BMP performance.

Steering Committee members:

Linda Schier, AWWA

Sam Wilson, AWWA

Wendy Garland, MEDEP

Ed Silva, Lakeside Drive Road Association

Arnie Murray, Great East Lake Improvement Association

Jeanne Achille, Wilson Lake Association

Agenda and minutes of the meeting are on file at the AWWA office.

Projected Cost: Grant: \$1,430 Match: \$1,649 Total: \$3,079

ACTUAL COST: Grant: \$ 230 Match: \$ 294 Total: \$ 524

Task #3- General Landowner Technical Assistance, Without Cost Sharing

A total of 23 landowners received site specific recommendations for conservation practices on their lakefront properties. A summary table of the TA sites is included in Deliverable #2.

Projected Cost: Grant \$2,852 Match \$ 804 Total: \$3,656

ACTUAL COST: Grant: \$3,240 Match: \$ 2,017 Total: \$5,257

Task #4- NPS Abatement Projects, With Cost Sharing

Erosion and runoff problems were corrected on two road sites and two additional engineered designs were provided. The two road sites were adjacent on Lakeside Drive on Great East Lake and are detailed in Deliverable #3 – Lakeside Drive NPS Site Report. AWWA partnered with the Maine DEP for engineering recommendations for Lakeside Drive and York County Soil & Water Conservation District for the additional designs for Lakeside Drive and Abbott Road/Jericho Way.

The road association members involved with the projects were dedicated and involved partners and did an excellent job reaching out to their memberships with detailed project information and outreach about how important road

maintenance is to the health of their lakes as well as amassing the required cash match.

- Lakeside Drive: Lakeside Drive experienced nonpoint source (NPS) runoff from the Hill on Buzzell Road transitioning into Lakeside Drive. Roadbed was highly unstable due to lack of ditching or grading. Steep slopes on the hill exacerbated the problem. In some instances, NPS runoff flowed down a right -of-way, bringing tons of sediment into Great East Lake. As the road turned to run along the side of the lake runoff overwhelmed and gullied out driveways, further adding to the NPS runoff entering Great East Lake. Existing ditches had been all but filled in, and the roadbed was further degraded by erosive water staying on the road. Water from the Lakeside Drive hill also flowed onto Foley Way, passing through undersized culverts and unarmored ditching before being passed over a resident's land and into the lake.

New roadbed material was added to the top of hill and graded properly into woodlands to allow water to disperse before reaching the steepest section of slope. Occasional turnouts and level lip spreaders were utilized to eliminate conveyance of polluted stormwater downslope. 110 feet of the hill was paved directing water into ditches on both sides. One rip rap filled ditch ended with a large sediment basin before wrapping onto the side of Foley Way. Improperly sized Foley Way culverts were resized to convey stormwater into an armored sediment basin before dispersing into existing native vegetation. Another ditch on the paved hill was armored with 1.5" crushed stone on interior side as well as turf reinforcement mat and vegetation on the far side to prevent erosion from occurring within ditch at edge of road. The roadbed was stabilized with substrate recommended in Maine Camp Road Maintenance Manual and the road was pitched to properly drain water into stormwater control measures. Finally, an apron was paved on Foley Way to prevent vehicles from damaging road materials as they transition from gravel to paved road.

- Match Source: Lakeside Drive Road Association, volunteer time
- Sediment Reduction (tons/yr): 47

Projected Cost: Grant: \$26,743	Match: \$17,487	Total: \$44,229
ACTUAL COST: Grant: \$31,164	Match: \$22,439	Total: \$53,603

Task #5 – Youth Conservation Corps (YCC)

In its 10th and 11th seasons, the AWWA YCC continued to install effective BMPs on residential properties throughout the AWWA watersheds. The YCC Steering Committee oversaw hiring of YCC staff, project selection and offered regular oversight through monthly board meetings. In the 2015-16 project period the YCC installed 34 BMPs on 11 project sites (10 planned) in the project area on Great East Lake and Wilson Lake resulting in an estimated sediment load reduction of 16 tons/yr. Three projects were completed on Wilson Lake and eight on Great East Lake. Five of the projects were on roads that have been rehabilitated with grant projects which indicated the buy-in associated with a road project and face-to-face time with the AWWA Program Manager.

BMPs installed on these project sites were 2 areas stabilized with crushed stone, 2 detention basins, 6 dripline trenches, 1 ECM, 1 Firehose Diverter, 2 sets of infiltration steps, 2 infiltration pathways, 1 native vegetation, 3 open top culverts, 2 rain gardens, 2 retrofit infiltration steps, 3 rubber razors, and 7 waterbars. The homeowners reported spending \$4,990 on materials. At the ends of the seasons Program Manager Sam Wilson sent a thank you letter, survey and assessment of the resources used on each project with a suggested donation of 20% of the labor costs. The resulting donations totaled \$2,466.

Projected Cost: Grant: \$12,681	Match: \$23,266	Total: \$35,947
ACTUAL COST: Grant: \$ 9,321	Match: \$29,221	Total: \$38,542

Task #6 – Education and Outreach

All the requirements of the education and outreach task were reached with articles in the Fall 2015, and Spring and Fall 2016 editions of the GELIA Newichawannock News; and articles in the Spring and Fall 2015 and 2016 editions of the Wilson Lake News. Linda Schier and Sam Wilson addressed each of the associations' annual meetings and manned the AWWA display booth, handing out informational materials. Regular updates on the AWWA website and Facebook kept the associations and communities apprised of project progress and successes.

Signage for the YCC project sites continues to be a sought after recognition and all 11 project area projects proudly boasted with the eye-catching AWWA signs. Videos of the 2016 YCC season end tours is available for viewing on the AWWA website and YouTube.

Projected Cost: Grant: \$0	Match: \$9,425	Total: \$9,425
ACTUAL COST: Grant: \$2,283	Match: \$2,201	Total: \$5,114

Task #7 – Septic Surveys

Septic surveys were developed for Great East and Wilson lakes to gather information about the status of the septic systems around the lakes, educate the landowners about the connections between wastewater and lake water quality, and to encourage landowners to evaluate and maintain their systems. 444 surveys, along with a brochure explaining how septic systems works and why they are important to water quality, were sent to Great East homeowners with a 34% response rate of 154 surveys. 138 surveys and brochures were sent to Wilson homeowners with a 36% response rate of 50 surveys. A chance to win a \$100 gift certificate to a local restaurant provided the incentive to return the survey. The survey reports, surveys and brochures are detailed in Deliverable #6. The surveys were designed as an outreach effort to increase knowledge of the relationship between septic systems and water quality. Next steps for the lake associations and towns were suggested.

Projected Cost: Grant: \$6,370	Match: \$1,778	Total: \$8,148
ACTUAL COST: Grant: \$3,879	Match: \$3,684	Total: \$7,563

Task #8 – Pollutant Reduction Estimates

NPS pollutant load reductions were calculated using the EPA Region 5 Load Estimation Model or the federal WEPP Road Model as appropriate and standard PCR reports were submitted in a timely manner. NPS abatement projects resulted in an estimated pollutant load reduction of 2.7 tons/yr of sediment and 2.2 lbs/yr of phosphorus to Wilson Lake and 13.0 tons/yr of sediment and 11.7 lbs of phosphorus to Great East Lake.

Projected Cost: Grant: \$1,270	Match: \$0	Total: \$1,270
ACTUAL COST: Grant: \$ 324	Match: \$281	Total: \$ 605

DELIVERABLES SUMMARY

1. Progress Reports (semi-annual) were submitted in a timely manner, NPS site tracking spreadsheets for Great East and Wilson lakes is on file at the AWWA office and the Final Project Report (Task 1) is submitted herewith.
2. Landowner TA Summary Table, listing NPS Site, landowner name, brief description of problem, BMPs recommended, and BMPs implemented if any (Task 3) was submitted as Deliverable #2.
3. The Lakeside Drive NPS report (Task 4) was submitted in July 2015.
4. The 2015 and 2016 YCC Season reports were submitted following each YCC season (Task 5).
5. Newsletter articles were printed in each edition of the Newichawannock News and Wilson Lake Newsletter, printed pieces were produced to highlight the Lakeside Drive project and updates to the AWWA website were regular (Task 6).
6. Great East Lake and Wilson Lake Septic Survey reports were distributed in the summer of 2016 (Task 7).
7. Pollutants Controlled Reports were submitted for 2015 and 2016 (Task 8).

PROJECT OUTCOMES

Major Outcomes

34 Best Management Practices erosion control features were installed on 11 YCC project sites. NPS abatement projects corrected chronic road erosion issues on two road sites. The Septic Surveys on Great East and Wilson Lakes each received over 30% response rate.

Environmental Results

NPS abatement projects resulted in an estimated pollutant load reduction of 2.7 tons/yr of sediment and 2.2 lbs/yr of phosphorus to Wilson Lake and 60 tons/yr of sediment and 51.4 lbs of phosphorus to Great East Lake.

Lessons Learned

What made the project more effective?

The Lakeside Drive Road Association went from nonexistence to full speed ahead with both financial and physical commitment. They raised the necessary matching funds within a year and recruited volunteers to help with the installation and side projects. When adjustments needed to be made they were able to rally over a dozen workers on a Saturday. The group monitors the effectiveness of the BMPs and makes any adjustments as needed, when needed. Their enthusiasm to tackle this issues at the other end of the road led to additional fundraising and successful proposal for Phase 3.

The lake associations – Great East Lake Improvement Association and Wilson Lake Association supported the projects with significant financial commitments and publicized the projects thoroughly in their newsletters and websites.

What did not work well?

There were no setbacks in this project other than a delayed start due to state funding issues. The only negative is that we have not figured out how to take the next steps with the septic survey. In NH we were able to use 319 funds to offer free septic inspections to high risk properties identified in the septic surveys and then offer cost-share funds to upgrade failed systems. While those funds are not available in ME, the town and lake associations could consider trying to develop similar programs. Additional on the ground surveys could be undertaken to reach those that did not respond to the surveys.

Overall, the project went very smoothly, accomplished all that we had hoped and more with terrific local buy-in. Our expectations for continued improvements to the properties around Great East and Wilson lakes are high and hopeful.

SUMMARY OF TOTAL EXPENDITURES

	<u>NPS Grant</u>	<u>Non-Federal Match</u>
Grant agreement Amount	<u>\$55,356</u>	<u>\$54,210</u>
Funds Expended	<u>\$55,356</u>	<u>\$60,768</u>
Funds Balance	<u>\$ 0</u>	<u>\$ (6,558)</u>

APPENDICES

Appendix A: Non-Federal Match Documentation / Certification

APPENDIX A

Non-Federal Match Documentation / Certification

Grantees need to document matching funds or services contributed to the project. The amount of match required is listed under BUDGET INFORMATION in the project work plan. Grantees must submit this form, "Non-federal Match Documentation / Certification" as part of the Final Project Report.

The Grantee must certify in writing that match has been documented before closeout of the Grant Agreement. The following information is needed to adequately document match. To efficiently meet documentation requirements, Grantees should accumulate match information as the project proceeds and record information in a table. See Attachment C for an example.

1. Source Identify the source of the funds or services;
2. Activity Describe the activity and the amount of activity; and
3. Valuation Describe the basis for assigning the amount of dollar value to the activity.

Important: This signed certification form must be accompanied by supporting information that documents (source, activity and valuation) the matching funds or services claimed by the Grantee. The Certification Statement alone is not sufficient to document the non-federal match.

GRANTEE INFORMATION:

Name: Acton Wakefield Watersheds Alliance
Address: PO Box 235
254 Main Street
Union, NH 03887
Telephone: (603) 473-2500
Contact Person: Linda Schier

PROJECT INFORMATION:

Project Title: Great East Lake and Wilson Lake Watershed Protection Project (Phase 2 Maine)
Project ID#: 2015RR02

Match Amount planned under the Grant Agreement	\$54,210.00
Match Amount Claimed	\$60,767.51

CERTIFICATION STATEMENT:

I certify that the non-federal match detailed in the attached information were expended in the course of completing work described in the Grant Agreement for the Project referenced above, and that detailed documentation of the match information is on file and available for review at the Grantee address shown above.



Date 11/18/2016

Signature of Grantee - Authorized Official