

FINAL REPORT, December 29, 2016

Title of Project: Nutrient Reduction through Innovative Land Use Techniques: Overcoming Municipal Implementation Barriers

NEI Job Code: 315-002 **Project Code:** 2014-023
(CE96184201 NBEP SNE Partnership Nutrient Grants)

Contractor: Mass Audubon

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Project Period: 11/3/2014 to 6/30/2016, extended to 12/30/16 per Amendment #1, 4/26/16

Final Report: 11/3/2014 to 12/30/2016

- **Synopsis of overall project: goals, approaches, timetable:**

This project was designed to enhance municipal capacity in the adoption of innovative techniques to reduce and remediate nutrient pollution from stormwater. We developed and disseminated information on cost-effectiveness of green infrastructure and Low Impact Development (LID) techniques. We conducted workshops in the Massachusetts Blackstone watershed and directly assisted five communities with nutrient-impaired waters to implement LID land use and/or stormwater regulations. In addition to the five communities where direct assistance was provided, we conducted educational outreach throughout the Massachusetts portion of the Narragansett Bay watershed in the Blackstone, Taunton, and Ten-Mile watersheds.

- **Task List and Status:**

- Task A – Convene and Coordinate Project Team (Mass Audubon, Central Massachusetts Regional Planning Commission (CMRPC), Horsley Witten (HW), and Blackstone River Coalition (BRC)) (completed)
- Task B – LID Cost-Effectiveness Information and Case Studies
 - Task B1. Develop Information and Case Studies (completed)
 - Task B2. Disseminate Information (completed and ongoing)
- Task C – Networking with Blackstone Watershed Municipalities (completed, we remain available as resource)
- Task D – Workshops (completed)
- Task E – Technical Assistance for Implementation of LID into Local Land Use Rules (completed)
 - Task E1. Develop & Distribute Offer of Assistance to Blackstone Communities (completed)
 - Task E2. Review Community Requests and Select Projects (completed)
 - Task E3. Conduct Community Technical Assistance Projects (completed)
- Task F – LID Retrofit Demonstration Project at Broad Meadow Brook (completed, ongoing public education)

- **Summary of Activity by Task:** All tasks have been completed. We continue to distribute the materials developed through this project and conduct educational outreach and support to municipalities in the target area and beyond, through the Shaping program with other funding sources.
 - Task A – Mass Audubon coordinated the project team through every phase of the project. We convened 20 team meetings as well as numerous phone conferences. We kept track of the status of all of the project elements, coordinated everyone’s work, and kept records of time and expenditures spent.
 - Task B – Produced 5 fact sheets on *Greening Your Community with Cost Effective LID Solutions*:
 1. Intro: *Preserving Natural Assets – Nature Based Solutions*
 2. *Conservation Design*
 3. *LID BMPs – example techniques*
 4. *LID in Local Zoning and Regulations*
 5. *Urban Water Quality Improvements – Leominster retrofits*

The fact sheets incorporated information from on Green Infrastructure and LID from many sources, focusing on community benefits, cost-effectiveness, and examples from Massachusetts and Rhode Island. They are written for a non-technical audience of local volunteer officials and concerned citizens, providing information designed to motivate local adoption of LID as the preferred approach to development. We included answers to questions we most frequently received during workshops, meetings and phone calls with municipal officials and staff, and the local technical assistance projects.

The fact sheets have been distributed via regular mail to planning boards and conservation commissions in the project target area (Massachusetts portion of Blackstone watershed, Taunton watershed, and Ten Mile watershed). They are also being distributed via email with web download links to many other local officials (e.g. Selectmen, DPW and others) in the target area and well beyond – throughout central MA and MetroWest and to contacts and networks in both MA and RI.

The fact sheets are available on the web at www.massaudubon.org/LIDCost along with reference lists keyed to the fact sheets for additional information.

- Task C – Outreach to local officials and staff in the Blackstone watershed: At the beginning of the project, we reached out to all the communities in the Massachusetts portion of the Blackstone watershed. We spoke with 27 staff and/or local officials from 16 communities and asked them about their familiarity with LID and whether or not the community had adopted bylaws and/or otherwise implemented any LID projects. We asked about concerns and barriers. Questions about costs and maintenance frequently arose, and most of the communities had not updated their bylaws to fully embrace LID as the preferred method of development. We utilized the feedback we received in these conversations to develop the workshops, technical assistance program, and fact sheets. This direct outreach aspect of the project was also instrumental in raising awareness of the project and increasing participation in workshops and the technical assistance phase.
- Task D – Workshops: We conducted a kick-off introductory workshop at CMPRC on January 21, 2015 and five community hosted workshops, with 114 total attendees:
 - Millbury 6/8/15
 - Millville 6/15/15
 - Worcester 9/30/15
 - Grafton 10/7/15
 - Uxbridge 10/27/15

Feedback was positive, and we provided follow-up information based on questions received. We have also given similar or related presentations at several regional and statewide conferences, and at additional workshops organized in other locations through the Shaping program (with other funding). To date these other presentations have reached over 500 people, and we will continue to conduct further workshops and outreach using the materials developed through this project after the project has concluded.

- Task E – Technical Assistance to Five Municipalities: We issued a “Local Assistance Call for Projects” through CMPRC, offering assistance with review of local bylaws and regulations in relation to LID; Green Infrastructure maps in relation to water resources, open space protection, and development; and/or LID site specific projects. Eight applications were received. The team met, reviewed the applications and made selections, then met with finalists and signed scopes for the work including commitments for municipal participation. We issued a press release announcing the projects. Media coverage included articles in the Worcester Telegram and Gazette and EcoRI:
<http://www.telegram.com/article/20151206/NEWS/151209463>;
<http://www.ecori.org/smart-growth/2015/12/2/communities-receive-help-in-protecting-blackstone-river>.

We conducted bylaw and regulatory review for four communities (Auburn, Grafton, Mendon, and Worcester). We developed a detailed template for review of local zoning, subdivision control, site plan review, and stormwater regulations in relation to LID. CMPRC prepared Green Infrastructure and GI/Zoning maps for the four communities, with input from the communities and the project team members. Each project included at least two meetings with local officials, and the final recommendations were presented at public meetings in Auburn (Bylaw Review Committee), Grafton (Planning Board), and Mendon (Planning Board). In Worcester, the recommendations were presented to a multidepartmental group (Planning, Conservation, DPW, Finance).

We have posted the regulatory review template on our website, and are also applying it to five communities in the MetroWest area (funded by the Foundation for MetroWest). We are disseminating this template through many of our contacts and partners and have been told by EPA and DEP that it is a useful tool for communities to meet the local regulatory review requirements of the new MS4 permit.

The fifth project involved preliminary design analysis for LID retrofits and greening of the Millbury downtown area. This involved extensive community engagement, with four public meetings (12/10/15, 1/21/16, 2/25/16, and 3/24/16) with 65 attendees. The Town hired Weston and Sampson to provide additional technical support and graphics.

We also flexed some additional resources from private donor funds to obtain additional time from CMRPC and HW to help with the technical assistance projects.

- Task F – LID Retrofit Demonstration Project at Broad Meadow Brook – Construction is complete. We produced and installed an interpretative sign panel and prepared and distributed an educational brochure. Held a public workshop and tour on LID at Broad Meadow Brook on 6/14/16, and additional tours at other Mass Audubon sponsored events such as the August Butterfly Festival. These programs have reached over 130 people to date, plus numerous visitors who see the signs and brochure on a daily basis.

- **Problems Encountered:**

- There were some changes in staff at Mass Audubon (Stefanie Covino replaced Val Massard) and CMRPC (Danielle Muccarione replaced Eric Smith) during the project but these were handled smoothly as there was overlap among staff during the transitions.
- Task B fact sheets were delayed until the end of the project, as it took a good deal more time and effort than we had anticipated to sift through the extensive literature available on the topic and distill it into information focused on the cost-effectiveness angle and targeted for Massachusetts volunteer municipal officials and the general public. In the end, postponing the fact sheets until the latter part of the project resulted in better publications, because we were able to incorporate a good deal of information focused specifically on the most common questions and concerns we heard during the other phases of the project.
- Communities often face significant barriers to actually adopting LID in all their land use practices, even when we've worked together to identify local priorities. Staff time and resources are tight; bylaw and regulations changes require a local champion to make the long-term commitment necessary for implementation; and public safety concerns or simple inertia and reliance on the status quo often challenge the viability of road diets and innovative design standards. **One of the key issues this project brought to light is the fact that many stand-alone stormwater bylaws purporting to support LID are not resulting in implementation at the project level due to conflicts with outdated zoning, subdivision, and site plan review rules.** This is an important point and one that we intend to continue to focus on for greater public awareness and action.

Even with these challenges, our collaborative partnerships provide ongoing networks of support and we are encouraged that several of the communities we have reached are taking steps toward implementation. Sharing local success stories also provides a model for other municipalities to follow.

- **Changes Anticipated:**

None other than additional, ongoing related work.

- **Ongoing work and further dissemination of the information developed through this project**

- We remain available as a resource to the communities, and continue to partner with CMRPC, BRC, and HW.
- We have secured additional grants, including projects presently underway in the MetroWest area funded by the Foundation for MetroWest and in central Massachusetts funded by the Massachusetts Environmental Trust. We are also integrating the information into other projects Mass Audubon is working on (EPA Healthy Communities Municipal Resiliency Training in Taunton watershed, Lookout Foundation outreach in SE and Central MA on forest and farmland preservation, and SNEP grant on Ecosystems Services in the Narragansett Bay watershed). The information and materials are available on an ongoing basis on our website at www.massaudubon.org/LIDCost. We will also be presenting at statewide conservation and planning conferences and at additional workshops sponsored by the Shaping program.
- The permanent signage and brochure at Broad Meadow Brook continue to educate thousands of visitors annually about the LID retrofits there and how they can apply similar concepts in their own neighborhoods and communities.

- **Financial**

- The project was accomplished within budget, and more than exceeding the required match. The experience and materials produced through this project also enabled the leveraging of additional private and public funds for additional related outreach and technical assistance work. Detailed accounting will be submitted separately in January, 2017.