PROJECT TITLE: Jefferson County MRC Operations and Projects

DELIVERABLES FOR TASK NO: 3-Rain Gardens

T3.6 Rain Garden Summary Report

PROGRESS REPORT: [ ] FINAL REPORT [ X ]

PERIOD COVERED: July 1, 2018 – September 30, 2018

DATE SUBMITTED: Oct. 15, 2018

(see Task 3.5 for RG#2 photos, PR, permit, etc.)
This report is a summary of the two 2018 JCMRC rain garden projects with background information, photos, media coverage, drawings and permits.

2018 Installations

The two new 2018 rain gardens were installed in areas identified as priority storm water management areas. This completes the Jefferson MRC’s Puget Sound Partnership’s 2016 Action Agenda NTA #2016-0109 (Hood Canal LIO).

A 2016 Assessment and Prioritization for Bioretention Projects in East Jefferson County Report created an initial working list of priority sites for the MRC. Although we used this Report In 2016 and 2017 to identify sites, it was meant to be a guidance and not a checklist, due to the following considerations:

- Some of the “sites” were general target areas to explore rather than specific sites.
- City of Port Townsend continued to develop its Stormwater Management Plan
- Jefferson County Water Quality Dept has continued to collect new information about problem areas and determine potential causes of high E. coli counts
- WSU Extension partner Bob Simmons, Associate Professor in Water Resources, continued looking into various sites, some of which turned out to be unsuitable for rain gardens due to drainage considerations, permitting or ownership considerations.

This year, WSU Extension worked with the City of Port Townsend and Jefferson County to identify sites where rain gardens could be installed in 2018 and 2019. The two selected sites for 2018 were high visibility sites for the public, vetted and approved by the MRC Rain Garden subcommittee:

- Another rain garden on Garfield St (NW corner of Garfield and Madison) in Port Townsend that intercepts stormwater coming from a different drainage area than the previous Garfield St installations. It eventually still feeds into the same Monroe St outfall pipe.
- The corner of Van Buren and Lincoln rain garden gets a lot of flow, including several streets and the large St Mary’s Church parking lot. The water ultimately flows to the Lawrence St stormwater conveyance which ends up in Port Townsend Bay via an outfall at the end of Kearny Street.

Bob Simmons developed both rain garden designs, worked with the Assistant City Engineer and public works staff, obtained approval from landowners, and arranged for all the necessary permits. Bob also supervised and worked with the City’s Public Works staff, who excavated and graded both of the 2018 rain garden sites per Bob’s design, backfilled with appropriate rain garden soil mix and placed rock as necessary to prevent erosion.
The Jefferson MRC subcommittee discussed and approved the proposed sites. MRC staff coordinated volunteer recruitment, helped with logistics and managed the administrative end, including invoices.

The MRC also worked with the Native Plant Salvage Foundation (experts in rain garden installations and affiliated with WSU Extension in Thurston County). Their staff procured the plants and other materials for both rain gardens, provided tools for volunteers and assisted with educational efforts using their AmeriCorps staff. Their staff helped direct the planting and mulch placement, which was done with the assistance of MRC members, WSU Master Gardeners and other interested community members, including a school group.

The new Garfield/Madison Street rain garden was installed on June 26, 2018. Adjacent landowner Jan Burr is committed to maintaining the installation. Dimensions are 16’ x 30’.

The Van Buren Street rain garden was installed on Sept 25, 2018. Adjacent landowners Sarah and Owen Fairbank have made a commitment to maintain the installation. Dimensions are approximately 14’ x 40’.

An exemption for the cost of both permits was approved by the City of PT as part of the City’s contribution to that project.

Some of the WSU Extension’s expertise was invoiced (up to the allocated budget) and the remaining time was tracked as volunteer match, since Bob continued to work on both projects as part of his WSU Extension duties.

Both rain gardens are functioning well after several rainfall events.

**Square Footage Area of 2018 Rain Gardens Installed: 1,040 square feet**

- Garfield/Madison - 480 sq ft
- VanBuren/Lincoln – 560 sq ft

Total cumulative area of all eight MRC-co-sponsored rain gardens: **6,572 sq ft**

**Community Engagement and Outreach**

MRC staff helped recruit volunteers for both rain garden installations. A total of 31 community volunteers (12 in June and 19 in September) donated 138.5 hours. Twenty-six (26) of these volunteers are not regular MRC volunteers, although a few were involved in previous rain garden installations in Port Townsend. These numbers include the nine students and one teacher from the Port Townsend School District’s OCEAN program who participated in the September planting.
Bob gave brief status reports about the rain gardens at two BOCC public meetings, which led to nice article in the Port Townsend Leader, written by one of their reporters.

In September, interpretive signs were installed at the 2017 Chetzemoka Park site and the Van Buren/Lincoln site.

**2019 Rain Gardens**

We applied what we’d learned during the 2017 installations, and the 2018 rain garden installations went very smoothly.

We also started conversations with a new landowner about a rain garden installation adjacent to Center Rd at the north end of the Quilcene community. (A teacher at the Quilcene Middle/High School helped install a rain garden on that campus last year.) The landowner was very receptive to the idea, so we approached Jefferson County about associated curb work along this County Road. They had already been planning to do some road work there in 2019, so we are now working in collaboration to make that happen next year. We may end up doing one large rain garden there, rather than two small ones, but will know more once drainage calculations are completed.

The Quilcene rain garden will catch stormwater that now flows into a storm drain that dumps it directly into Cemetery Ditch, which flows directly to Quilcene Bay a short distance away. Some of the MRC Rain Garden subcommittee members met out there and identified this potential site.

**Evaluation of Rain Garden Effectiveness**

**Regional:**

New regional protocols are part of a two-year project funded by WA Department of Ecology to develop a standard method to evaluate the effectiveness of rain gardens in managing polluted runoff and serving as community amenities. Other partners on this project, besides Washington State University, include the City of Puyallup and the non-profit organization Stewardship Partners.

These citizen-science protocols involve various techniques for monitoring rain garden functions, community value, and aesthetic appeal. Some of the research questions under this project include:

- Does the rain garden infiltrate stormwater during storm events?
- Is the facility supporting plant growth?
- Do existing vegetation community conditions create enhanced green spaces?
- How well do soils reflect infiltration conditions?
- Do site design, construction and maintenance activities correlate with other signs of rain garden success?
- Does the rain garden offer community value to neighbors and passersby?
- Does the rain garden age correlate with other signs of functional success and community acceptance?

The “beta” version of these protocols have been used on all of the rain gardens installed by the Jefferson MRC, except the one located at Taylor and Clay Streets. Data was collected this past year by WSU Extension but will not be fully assessed prior to November 30, 2018.

**Local Evaluation of Inflow - Outflow Data:**

In order to measure effectiveness of the rain gardens built early in 2015, WSU Extension and MRC also installed small monitoring wells, water flow meters and weirs to measure inflow and outflow. The monitoring was intended to measure the reduction in the volume of water entering the Monroe Street storm water pipe (that flows directly to Port Townsend Bay) as a result of the two 2015 rain garden installations on Garfield Street. We had problems in the winter of 2015-16 with mulch and leaves clogging the weirs and malfunctioning with data loggers and were unable to collect useful data. The data loggers were not deployed in the winter of 2017-18.

Anecdotally, no overflow and discharge was observed at the outflow of the second downstream Garfield Street rain garden in 2016 or 2017, although some outflow was observed in 2015. The two rain gardens in combination seem to be functioning well in reducing a significant amount of stormwater from the drainage area they are designed to serve.

**2018 Partnerships**

**Total of Matching In-Kind Services and Materials:** $16,379

**Grant Funds Expended:** $19,500

**Sources of Matching Funds:**

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<tr>
<th>Amount</th>
<th>Description</th>
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<tr>
<td>$3,928</td>
<td>Community/AmeriCorps volunteers: 135.5 hrs @ $28.99/hr (PSP approv’d rate)</td>
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<tr>
<td>$8,111</td>
<td>WSU Extension contribution: 131 hrs donated staff time for 2 RG</td>
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<td>$4,340</td>
<td>City of Port Townsend’s staff time, site work, materials, permit waiver**</td>
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City’s contribution comes to $2,170 total per Rain Garden. 2018 Estimates of City contribution (calculated by WSU Extension) assumes wages from WA OES Databook + 40% benefits:

- 25 hrs public works/excavator operators & staff @$40/hour w benefits = $1,000/RG
- Environmental review – city staff = 2.5 hours @ $45/hour = $112/RG
- Minor Improvement permit fees donated = $240/RG
- Bioretention soil 15 cubic yards @$30/ycd = $450/RG
- 8 yds mulch @ $16/ycd = $128/RG
- Soil transport costs for three 5-yard loads @ $75/load = $240/RG

Attachments (below):

1. Map with locations of new rain gardens
2. Photos of completed rain gardens
3. Drawing of RG design #1 and #2
4. Media articles (PT Leader, PTMSC Volunteer News, WSU Beach Naturalist news)
5. Sign-in sheets for volunteers from June and September 2018.
6. Permits

Rain Garden Locations in Port Townsend
Photos

Photos by Cheryl Lowe unless otherwise noted.


Garfield/Madison Rain Garden planted but not yet mulched
Volunteers planting the Van Buren/Lincoln Rain Garden.

Van Buren/Lincoln Rain Garden during first rains (photo by Sarah Fairbank).