MINNEHAHA CREEK WATERSHED DISTRICT
QUALITY OF WATER QUALITY OF LIFE

Project Maintenance and Land Management Program 2015 Spring Update

Introduction

This report will provide an update on the District's Project Maintenance and Land Management (PMLM) Program (formerly the Operations & Maintenance Program) activities in the first quarter of 2015 including work completed on projects that are in warranty phase, as well as past capital projects and their associated maintenance activities. The next update will occur in September 2015. If there are questions regarding any elements of this report, please contact Laura Domyancich at (952) 641-4582 / ldomyancich@minnehahacreek.org or Tiffany Schaufler at (952) 641-4513 / tschaufler@minnehahacreek.org.

The PMLM Program oversees:

- Installation and management of vegetation components for 11 current capital project sites
- Contracted vegetation maintenance for 16 past capital project sites and lands under conservation easements
- Inspection of 50+ District projects and 25+ lands to identify maintenance needs
- Operating the Gray's Bay Dam
- Managing the inspection and contracted maintenance of 28 stormwater ponds
- Monitoring water levels, water quality, and vegetation establishment as needed for capital project permit requirements
- Coordinating restoration work on District properties and easements
- Managing Federal Emergency Management Agency (FEMA) funding and associated flood repair
- Developing new conservation easements with private property owners and developers
- Developing management plans for District properties
- Coordinating the development of a revised PMLM manual and Capital Reinvestment Plan

Program Updates

The PMLM Program has identified the need for a revision of the existing Operations and Maintenance Manual. Many capital projects and land acquisitions (fee and easement) have been undertaken since the manual was first written in 2000. Operations and maintenance of District lands and projects has advanced and grown accordingly, and the program's guiding document will be revised to reflect those changes.

Flood Response/FEMA Coordination

Inspections of District projects and lands during the spring of 2015 were largely focused on the effects of the historic flooding of 2014. Some projects that had only newly establishing vegetation were significantly damaged by prolonged high water. Work is now underway to complete repairs to those projects. Other projects with more established vegetation have responded well to the flooding. Plants such as dark green bulrush, soft-stem bulrush, and arrowhead expanded their localized populations in areas with high water. Those plants are persisting into the current growing season.

PMLM staff continue to coordinate with FEMA to submit documentation of flood-related damage and plan for debris removal and repair to the major creeks and infrastructure within the watershed. To date FEMA has approved approximately $400,000 in funding to the District for flood damage repair, while another approximately $660,000 in damage is under review by FEMA and is pending funding approval.

Stormwater Pond Surveys

On a three-year rotation, the District inspects a total of 28 stormwater ponds, of which 18 are the responsibility of the District to maintain. The District contracted with Wenck Associates to complete the 2015 pond inspections this spring for the three ponds of Pamela Park, the three ponds of Gleason Lake, Johnson/Rolling Hills Pond, Painter Marsh Pond, South Katrina Pond, and the Steiger Pond. Two of the Gleason Ponds and the Steiger Wetland Pond were identified to need maintenance. Gleason Ponds 2 and 3 have 57% and 68% accumulated sediment, respectively, and the Steiger Pond has 75% accumulated sediment. Staff will be working to develop bid documents for the removal of this sediment and site restoration to occur during the winter of 2015-16.

2015 Spring Inspections

As stated, spring inspections were primarily focused on the condition of sites following the prolonged flooding of 2014. Overall, sites with established vegetation are in good condition this spring. This effect is evident for the buffers around the Nokomis and Gideon Glen stormwater ponds.

Gideon Glen buffer, May 2015

Amelia Pond Buffer, June 2015

The ponds held a large amount of water that fluctuated in level throughout the growing season of 2014. Despite concern over prolonged high water causing bare ground and weediness, the seed bank and established vegetation have kept the buffers in good condition. Steiger Wetland Restoration also responded well to high water—arrowhead and boneset self-seeded and are flourishing this year.

Vegetation on lakeshores also managed high water effectively. Those species that tolerate fluctuation in water levels (dark green bulrush, Canada anemone, Canada blue-joint, blue flag iris) buffered wave action last summer and were in high abundance this spring.

Headwaters/Gray's Bay Buffer, June 2015

Steiger Wetland Restoration and Sandhill Cranes, May 2015

Conversely, sites with less established vegetation sustained damage during the prolonged flooding. The Reach 14 Streambank Restoration Project, which was in its second growing season in 2014, sustained major plant loss. The stream edges with exposed soil were hydro-seeded last fall, and the buffers will be replanted with larger plants in mid-June.

In the image below, the homeowners on the upper left participated in the Reach 14 project and had bio-rolls and native plants installed as part of the original installation. This streambank was also hydro-seeded in the fall of 2014. The homeowners on the right did not participate in the restoration project and lost a large amount of soil during high stream flows in 2014.

Restored (L) and not restored (R) Reach 14 Streambanks, April 2015

Prescribed Burning

On a 2-year rotation, sites within the 10 Site Vegetation Management Contract are managed with prescribed burning. During April and May, the buffers of the Nokomis stormwater ponds (Amelia, Gateway, and Knoll), Southwest Calhoun stormwater ponds, Cedar Meadows, Twin Lakes Park ponds, and Long Lake stormwater ponds were burned. These fires have been effective in limiting tree and shrub growth in the buffers and reducing or eliminating invasive plants that compete with desirable buffer plantings.

SW Calhoun Stormwater Ponds Prescribed Burn, April 2015

Management of District Lands

Following demolition of the Gould Barn last winter, site restoration including grading and seeding was completed. The site is regaining some upland prairie characteristics, but will require mowing this year to decrease weedy growth and promote the establishment of the seeding. PMLM staff are working with Great River Greening to develop an ecological restoration plan for this property including selective thinning of weed trees, seeding with native seed mixes in areas dominated by smooth brome, and planting of bur oak, hawthorn, and plum to restore the upland areas to oak-savanna.

Staff coordinated with Great River Greening this spring to apply for LCCMR grants available in 2016 to employ innovative restoration techniques and possibly volunteer events on District lands including the Gould, Rye, Chute, Barkus, Waldera, and Weis properties.

Plant Installation Oversight for Capital Projects under Construction

Long Lake Creek Wetland Restoration, June 2015

PMLM staff has been more closely involved in the development of planting plans and managing vegetation contractors for new capital projects. As vegetation in the Reach 20 project is becoming established, Long Lake Creek Wastewater Treatment Plant Restoration is nearing construction completion, and Cottageville Park construction is underway, staff has been working alongside the Planning team to consult on planting plans, vegetation performance standards, and warranty period vegetation management.

Capital Projects in Warranty Phase

Minnehaha Creek Reach 20 Restoration

- **Constructed:** 2013-2015
- **Summary:** The bituminous portion of the trail system was completed in spring 2015, and interpretive signage for the project is currently in production. As a result of flooding in 2014 and continued invasive species removal, areas needing additional planting became apparent during spring inspections. Staff are working with the vegetation management contractor for the project to complete enhancement plantings in advance of the ribbon-cutting for the project. Staff and the public have noted the high number and diversity of wildlife species observed within the remeandered stream and surrounding wetlands.
- **Maintenance**: Maintenance in 2015 will include selective spot spraying and mowing for invasive species that are typical following disturbance due to construction and flooding. Areas targeted for cattail management have been identified. Management will include hand-wicking of the cattails to prevent off-target damage to desirable native wetland species.

Minnehaha Creek Reach 14 Streambank Restoration

- **Constructed:** 2013
- **Summary:** Establishing plantings in the buffers on Reach 14 of Minnehaha Creek were badly damaged by flooding in 2014. Plans were developed in the fall of last year to complete a cover crop hydro-seeding followed by a replanting of the streambanks this spring with larger plant material. In spring assessment of the sites, staff has noted good germination from the original seed mix, the hydro-seeding, and possibly the seedbank in wetland areas. Minor repair work to edging and garden borders, as well as the installation of fresh hardwood mulch, will be completed within the next week. Planting will be started the week of June 15.
- **Maintenance:** 2015 will be the final year of warranty maintenance for the project. The replanting effort and proactive maintenance by the contractor for the project, Minnesota Native Landscapes, will serve to improve the condition of the project prior to maintenance of the buffers being assumed by the individual homeowners.

Six Mile Marsh Prairie Restoration (SMMPR)

- **Constructed:** 2013
- **Summary:** With all seeding and plug planting completed, restoration work in 2015 will focus on maintaining the restoration areas, inspecting the wetland buffers and their response to 2014 high water, and identifying any restoration enhancements, such as focal area planting, which may be needed. Staff are working with Great River Greening to explore options such as grazing and haying to manage non-native species and decrease herbicide use on the upland areas.
- **Maintenance:** This project is in its third year of a three-year vegetation maintenance and establishment period. Spot mowing and spot spraying will be completed in areas with persistent weed growth. A controlled burn last fall in the woodland/savanna areas was successful in managing undesirable tree seedlings, and the subsequent dormant seeding will encourage a more diverse understory. A prescribed burn of the prairie vegetation is scheduled for this fall.

Hop sedge at Six Mile Marsh Prairie, June, 2015

Big Island – Three Rivers Park District Project

- **Constructed:** 2013
- **Summary:** MCWD and Three Rivers Park District entered into a partnership to restore approximately 1,200 feet of eroding shoreline and bluff on Three Rivers Park District land.
- **Maintenance**: Areas damaged by heavy rains and wave action during high water in 2014 were repaired in fall 2014. New, weed-free topsoil was replaced in the biolog and fascine locations where topsoil was eroded. The addition of topsoil was prioritized in areas with the highest degree of washout. These areas were further stabilized by the installation of additional fascines. The new topsoil was seeded and mulched according to original construction plans. This area totaled approximately 100 square yards. Trees lost to high lake levels were replaced with nursery stock from Three Rivers Park District. Staff will be inspecting the repair work with the installation contractor, Wetland Habitat Restorations, this summer to gauge the efficacy of the repair work and determine if additional repair is needed to stabilize the slopes.

Langdon Saunders Raingardens

- **Constructed:** 2012
- **Summary:** Four curb-cut raingardens were constructed and planted in the South Saunders Neighborhood in the fall of 2012 to help reduce runoff volumes.
- **Maintenance**: Raingardens performed well during the heavy precipitation events of 2014. A small number of plants were replaced to correct original plant placement and species selection, and the raingardens now have established and healthy plantings. District staff will perform vegetation maintenance on the raingardens throughout the growing season of 2015; this will be the final year of warranty period maintenace provided by the District. The focus this year will be to educate the homeowners on proper raingarden maintenance to prepare them to manage the plantings and perform seasonal maintenance.

Saunders Raingarden, June 2015

Maintenance of Past Capital Projects

The 10 Site Vegetation Maintenance contract continues through 2015. Management of these sites in 2015 will be focused on invasive species management, supporting the expansion of wetland plant populations that became established during 2014 flooding. Specifically, management will include:

Independence Wetland: Winter 2014-15 cattail mowing and spot herbicide application to Canada thistle, musk thistle, leafy spurge, birds-foot trefoil, and common burdock. Invasive species removal focused near areas of high-quality wetland vegetation.

Gideon Glen Pond Buffers: Continued reduction of garlic mustard encroaching from the woodland areas, cool season grass herbicide application, and a full site re-set mowing in mid-spring.

Long Lake Stormwater Pond Buffers and Shoreline: Spring prescribed burn. Manage cup plant height near viewsheds. Herbicide management of cattail in north pond by hand-wicking.

Minnehaha Creek Headwaters Shoreline: Full site re-set mowing in mid-spring to control cool-season grasses, Canada thistle, and crown vetch. Manage willow and dogwood by pruning, especially along paths.

Twin Lakes Park Pond Buffer: Spring prescribed burn. Selective spot herbicide treatment of Canada thistle, purple loosestrife, and sweet clover.

Cedar Meadows Pond Buffers: Winter 2014-15 cattail mowing. Spot herbicide treatment of Canada thistle, reed canary grass, and cattails.

Lake Calhoun Southwest Stormwater Pond Buffers: Spring prescribed burn to manage encroachment of woody vegetation. Monitor pond edge for weeds and bare areas due to 2014 flooding. Replanting of pond edges may be needed in 2015.

Lake Nokomis Knoll Stormwater Pond Buffer: Spring prescribed burn. Selective spot herbicide application of cattails and Canada thistle. Many trees killed by inundation in 2014 were removed by MPRB during the winter on 2014-15.

Lake Nokomis Amelia Stormwater Pond Buffer: Spring prescribed burn. Hand-wicking of encroaching cattails will occur in mid-June to protect desirable native plant growth under the cattails. Excellent wetland plant diversity is expanding in the buffer.

Amelia Pond milkweed and bulrush, June 2015

Lake Nokomis Gateway Stormwater Pond Buffer: Spring prescribed burn. Spot herbicide application to Canada thistle, curly dock, and Virginia pepperweed.

Continued vegetation management is also occurring at the **Johnson/Rolling Hills Prairie** and the **County Road 26 Painter Creek Remeander**. Invasive species management of cattails and reed canary grass was delayed in 2014 due to high water conditions in the remeander. The vegetation contractor for this site, Applied Ecological Services, will be aggressively treating these species in 2015 with early season mowing followed by spot herbicide application targeting areas where invasive plants threaten populations of desirable wetland species. Spot herbicide application will also be employed on the Johnson Prairie to manage Canada thistle and buckthorn encroaching from neighboring woodlands.