Introduction
The Minnehaha Creek Watershed District Projects, Operations and Maintenance Department (Renae Clark and Tiffany Forner) is responsible for:

- Overseeing contracted vegetation maintenance of ten Capital project sites
- Inspecting and maintaining District facilities to ensure they are operating as designed
- Operating the Grays Bay Dam
- Overseeing contracted maintenance of stormwater ponds
- Assisting the Land Conservation department in managing restoration work on District properties
- Assisting the Land Conservation department in contracting and managing demolition projects on District properties
- Operating the Lake Nokomis weir
- Assisting in the development and implementation of natural resource restoration and management plans
  - Tree surveys
  - Planting suggestions
- Monitoring water levels, water quality, and vegetation as needed for District projects
  - Monitoring the hydrology wells and vegetation at the Highway 26 remeander
  - Monitoring the water quality and vegetation at the Turner Wetland (northwest of Dutch Lake)

This annual report will provide an overview of the major 2011 activities including, Capital Projects, District Facilities Inspections, Vegetation Maintenance, as well as a preview of upcoming activities in 2012.

- Lake Minnetonka shoreline stabilization demonstration sites
- Big Island Project– shoreline restoration, Orono and Three Rivers Park District land
- Minnehaha Falls Restoration Project
- Dutch Lake Water Quality Project
- Steiger Lake Wetland Restoration
- Chelsea Woods Stream Restoration Project
- Mound Downtown Redevelopment – raingarden testing
- 2011 Spring Flooding – flood preparedness, inter-agency coordination

If there are questions regarding any elements of this report, please contact Renae Clark at rclark@minnehahacreek.org or 952-641-4510.
**2011 Capital Projects Updates**

**Lake Minnetonka Shoreline Stabilization Demonstration Sites: Excelsior, Mound, Orono, Tonka Bay**

All four sites have a three year maintenance plan as part of the base bid for the contract which expires in the fall of 2012. Vegetation maintenance occurred in June, July, and August. In August, 200 plugs were divided up and installed in bare spots at the Excelsior, Mound and Tonka Bay sites as part of the vegetation warranty work. In November, 400 live stakes were divided up and installed at the Excelsior, Mound and Orono sites as part of the vegetation warranty work.

**Excelsior**

Native vegetation is thriving around the site. Canada thistle, bittersweet nightshade, yellow sweet clover, pig weed, and reed canary grass were hand pulled and spot treated during the three maintenance visits. Approximately 50 plugs were installed around the oak tree on the point, as foot traffic had smothered the original plantings. The City of Excelsior has also installed some nautical rope around this point to keep foot traffic off the plantings. 120 live stakes were replaced within the riprap in November. A spring prescribed burn is scheduled for 2012.

**Mound**

Native grasses and forbs are looking great. Canada thistle, reed canary grass, creeping Charlie, and yellow sweet clover were hand pulled and spot treated during the three maintenance visits. Approximately 50 plugs were installed in bare spots around the site. 130 live stakes were replaced within the riprap. A spring prescribed burn is scheduled for 2012.
Orono
The hackberry tree and seven dogwood shrubs were replaced in August. 150 lives stakes were replaced and installed in November.

Tonka Bay
Emergent vegetation (pickerelweed, broad-leaf arrowhead, softstem bulrush) and upland vegetation are flourishing at this site. Canada thistle, reed canary grass, buckthorn, and bittersweet nightshade were hand pulled and spot treated during the three maintenance visits. Approximately 100 plugs were installed in bare spots around the site in August. A spring prescribed burn is scheduled for 2012.

Big Island Project
Additional two year vegetation establishment started in 2011. In July of this year the Board of Managers directed staff to identify further restoration opportunities on Big Island. Approximately 1,200 feet of eroding shoreline and bluff is identified on Three Rivers Park District property. A joint site visit was held with Park District and Watershed District staff and Board members. There was strong support for a joint project. Based on a preliminary restoration cost estimate of approximately $260,000, the Three Rivers Park District has agreed to a 50/50 cost share with MCWD to implement similar restoration techniques as our recently completed work. A project schedule will be set in the next couple of weeks.
Minnehaha Falls Restoration Project
Veit Contract: MVH work including work in the gorge on the MVH property – final payment made, project complete.
Stocker Excavating Contract: USACE repair work between the first two bridges – final payment made, project complete.
Sunram Construction Contract: Creek restoration work, trail repair – substantially complete with some planting and revegetation work under warranty.

MPRB: Vegetation management, complete. On-going maintenance required.

Dutch Lake Water Quality Project
In 2011 staff managed design, obtained land rights and project permits. With a recently awarded construction contract the project is scheduled to be complete by June of 2012.

Steiger Lake Wetland Restoration
The Board authorized design in 2011. A preliminary design will be presented in March of 2012. Construction is scheduled to begin in September 2012.
Chelsea Woods, Stream Restoration
The Watershed District and City of Plymouth entered into a Memorandum of Agreement to jointly address an eroded drainage channel in the area of 18th and Dunkirk. The District and City have been coordinating the design and a channel restoration to be undertaken by the District and an upstream pond outlet reconstruction to be undertaken by the City. The Board approved the design and permit in December. The bid award is expected in March 2012.

Mound Downtown Redevelopment
In September the Board authorized a contract with the University of Minnesota St. Anthony Falls Laboratory (SAFL) to undertake research to learn how the raingardens installed as part of the Mound Downtown Redevelopment, Phase 1 are working. Site investigation including inspections of the raingardens and survey work took place this fall. A draft report has been provided to MCWD which identifies the depth to groundwater as a potential reason some of the raingardens to not effectively drain. Staff is working with the District Engineer to review and finalize the draft report.

2011 Spring Flooding
Due to significant 2010 fall precipitation and record snowfall in early 2011, the District Administrator directed staff and the District engineer to evaluate spring flooding potential. The District engineer used the District’s H & H Model to predict flooding. This information was used to create interactive maps for flood preparedness for local agencies and individuals. This information provided a leadership role for the District to help communities on Lake Minnetonka and Minnehaha Creek prepare for spring flooding.

Spring Flood Preparation and Communication:
• MCWD O & M Department and Communications Department closely coordinated the dissemination of information to local cities, agencies and the public
• Organized two community meetings to share the flooding predictions from the H & H Model
• Participated in weekly meetings with City of Minneapolis Emergency Operations Team, National Weather Service, and the Minneapolis Park and Recreation Board (MPRB)
• Closely coordinated the Lake Nokomis weir operations with MPRB
• Made Grays Bay Dam operable approximately four weeks earlier then otherwise possible with the help of Gabriel Jabbour, using bubblers to melt the ice. This allowed an early, moderated release of water to control spring flooding. Grays Bay Dam operations and lake level monitoring occurred six-seven days/week through June
• As a result of the lessons learned in 2011 the MPRB prepared an Emergency Flood Analysis Study
• The O & M Department is now regularly monitoring hydrologic conditions and providing updates to the District Administrator and Communications Director

District Facility Inspections
Regional ponds, shoreline stabilizations, wetland restorations and other project sites were inspected in spring (April-June) and fall/winter (November-December) of 2011. Inspection observations were made and recorded regarding the pond inlet/outlet structures, shoreline condition and surrounding areas at each site. A summary description of the inspections is provided below.
Minor maintenance (debris cleared from inlets/outlets, trash removal) was completed as needed. Pond buffer and shoreline vegetation maintenance was performed on several of the regional facilities and project sites, a summary description of the inspections is provided below in the Vegetation Maintenance section.

301 Rolling Hills Drive (Johnson) Wetland Restoration
This project is complete but still in its maintenance period and managed by Applied Ecological Services (AES). 2011 activities included spot spraying and mowing of invasive species (quack grass, smooth brome), cattail management, and the replacement of native trees and shrubs (covered under warranty). Planned 2012 activities include a spring prescribed burn, spot treatments of the former pasture/barn area, followed by a mid-summer or fall native seeding, and continued monitoring.

Painter Creek/ Highway 26 Remeander
AES was contracted to continue maintenance of the vegetation on the site after the original maintenance period expired. 2011 activities included spot herbicide treatments, mowing, foliar buckthorn treatments, and monitoring. Planned 2012 activities include spot treatments of invasive species, mowing, and continued monitoring.

Painter Road Fish Barrier
Routine inspections and minor maintenance at the Painter Road Fish Barrier were completed by MCWD staff. Debris was cleaned from the riser gate and culverts.
Methodist Hospital—Minnehaha Creek Remeander
Per the agreement between MCWD and Methodist Hospital, Methodist Hospital is responsible for vegetation maintenance until the fall of 2012. Methodist Hospital has hired Prairie Restorations, Inc (PRI) to perform vegetation maintenance at the site. PRI performed spot sprays and spot mows for Canada thistle, purple loosestrife, reed canary grass, and narrow-leaf cattails. Bare areas were seeded in the fall. PRI plans to aggressively manage the reed canary grass and narrow-leaf cattails in 2012 and seed additional bare areas as needed.

Gray’s Bay/Headwaters Dam
Routine operation of the dam was done by MCWD staff. The dam was opened on March 24, 2011 and closed for the season November 16, 2011.

Deer Hill Pond
Routine inspections and minor maintenance at the Deer Hill pond were completed by MCWD staff. The weir is in good shape and was clear of debris. North inlet was clear and south inlet had some sediment build-up.

County Road 6 Pond
Routine inspections and minor maintenance at the County Road 6 Pond were completed by MCWD staff. Debris was cleared from the outlet weir and the inlets were clear. Vegetation around the project site is doing well; no bare soil or eroded areas were noted.

Gleason Lake North Pond
Routine inspections and minor maintenance at the Gleason Lake North Pond were completed by MCWD staff. A sediment survey was completed in August which showed a significant amount of sediment has accumulated in the north cell of the pond. The north cell is scheduled to be dredged in February 2012.

Lakeside Pond
Routine inspections at the Lakeside pond in Wayzata were completed by MCWD staff. Staff is working with the City of Wayzata & MCWD Planning Department to get dredging maintenance performed.

Pamela Park Ponds
Routine inspections at the Pamela Park ponds were completed by MCWD staff. Vegetation around the project site is doing well; a good diversity of native herbaceous plants and shrubs were observed. Several dozen trees around ponds 1 and 2 have been taken down by beavers. Beavers also built a den over the inlet to pond 2. A small crack was apparent in the inlet weir at Pond 1. City of Edina staff was notified of the damage to the weir and the beaver activity.

60th and 1st Pond
Routine inspections and minor maintenance at the 60th and 1st Pond were completed by MCWD staff. Structures appeared to be in good shape. Established vegetation around the project site is doing well, especially big blue stem, Indian grass, wild bergamot, and many aster species.
**South Katrina Weir**
Routine inspections were completed by MCWD staff. Structures appeared to be in good shape; no erosion or other problems were noted.

**Nokomis Weir**
The Nokomis Weir was inflated on March 17th to prevent flood waters of Minnehaha Creek from entering Lake Nokomis. The weir was deflated and winterized for the year on November 10th. Components of the weir are in need of repair and replacement. MCWD staff is working with MPRB staff to design an adjustable fixed weir that provides the same level of protection, require less maintenance, and better matches the surrounding area. Construction will likely occur in early summer of 2012.

**Vegetation Maintenance**
In 2009, the District signed a five-year contract with Minnesota Native Landscapes (MNL) to perform vegetation maintenance at 10 sites within the District. A summary of the work completed and the status of each site is provided below.

**Nokomis Ponds—Amelia, Gateway, and Knoll**
Routine inspections and minor maintenance at the three Nokomis ponds were completed by MCWD staff. The south cell of the Amelia pond was dredged in February, resulting in disturbance of the buffer vegetation.

2900 emergent plugs were installed in August to restore the disturbed buffer. This disturbed area will also be seeded in the spring of 2012, following a prescribed burn of the buffer vegetation.

Additional 2011 vegetation maintenance activities included a complete site mow of the buffers, multiple spots sprays for invasive species (main targets: Canada thistle, creeping Charlie, curly dock, purple loosestrife), spot mows, and removal of volunteer tree seedlings.

2012 planned maintenance include a spring prescribed burn, spot treatments of invasive species, spot mowing, and continued monitoring.

<table>
<thead>
<tr>
<th>Ponds</th>
<th>Cover native species</th>
<th>2013 Performance Standard</th>
<th>Site challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amelia</td>
<td>70 %</td>
<td>95 % native cover</td>
<td>Inconsistent mow line at Amelia pond by MPRB staff</td>
</tr>
<tr>
<td>Gateway</td>
<td>40 %</td>
<td>95 % native cover</td>
<td></td>
</tr>
<tr>
<td>Knoll</td>
<td>60 %</td>
<td>95 % native cover</td>
<td></td>
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**Southwest Calhoun Ponds**
Routine inspections and minor maintenance at the Calhoun ponds were completed by MCWD staff. High water throughout the spring and summer causes some erosion along the bank of the pond. Field surveys of sediment accumulation were conducted in August 2011; the field survey showed a moderate amount of sediment had accumulated within the pond. Sediment dredging is planned for January-February 2012.
2011 vegetation maintenance activities included a complete site mow of the buffer, multiple spot sprays for invasive species (main targets: Canada thistle, bittersweet nightshade, and common buckthorn), spot mows, and removal of volunteer tree seedlings.

2012 planned maintenance include a spring prescribed burn, spot treatments of invasive species, spot mowing of annual weeds, and continued monitoring.

<table>
<thead>
<tr>
<th>Table 2. Calhoun ponds, 2011 summary and 2013 goals</th>
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<tbody>
<tr>
<td><strong>Pond</strong></td>
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<tr>
<td>SW Calhoun</td>
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Cedar Meadows

Routine inspections and minor maintenance at the Cedar Meadows stormwater wetlands were completed by MCWD staff. Erosion from a stormwater pipe along France Avenue was repaired by the City of St. Louis Park in October.

2011 vegetation maintenance activities included a complete burn of the site followed by an over seeding of poorly established areas, mowing, targeted cuttings for cattails and reed canary grass, and multiple spot sprays for invasive species (main targets: Canada thistle, garlic mustard and reed canary grass).

2012 planned maintenance include a winter mow of narrow-leaf cattails and a complete spring mow of the site. Monitoring will be continual in the growing season with spot sprays and spot mowing for invasive species as they are found. Fall herbicide application is planned for invasive cool-season grasses. An onsite meeting with MNL is tentatively scheduled for the end of June 2012 to reassess the site conditions.

<table>
<thead>
<tr>
<th>Table 3. Cedar Meadows, 2011 summary and 2013 goals</th>
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<tbody>
<tr>
<td><strong>Ponds</strong></td>
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<tr>
<td>Cedar Meadows</td>
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**Long Lake Shoreline and Ponds**

Routine inspections and minor maintenance at the Long Lake shoreline and ponds were completed by MCWD staff. 2011 vegetation maintenance activities included a spring prescribed burn, spot treatments for Canada thistle, reed canary grass and annual weeds.

2012 planned maintenance include a complete site mow in the spring, spot treatments of invasive species, fall herbicide application for invasive cool season grasses, and continued monitoring.

<table>
<thead>
<tr>
<th>Managed areas</th>
<th>Cover native species</th>
<th>2013 Performance Standard</th>
<th>Site challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>North pond</td>
<td>80 %</td>
<td>95 % native cover</td>
<td>Park users’ desire for shorter vegetation</td>
</tr>
<tr>
<td>South pond</td>
<td>80 %</td>
<td>95 %</td>
<td></td>
</tr>
<tr>
<td>Shoreline</td>
<td>80 %</td>
<td>95 %</td>
<td></td>
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**Twin Lakes Park pond**

Routine inspections and minor maintenance at the Twin Lakes Park stormwater pond were completed by MCWD staff. Field surveys of sediment accumulation were conducted in August 2011; surveys showed that a moderate amount of sediment had accumulated within the pond. Sediment dredging is planned for January-February 2012.

2011 vegetation maintenance activities included a spring prescribed burn, spot herbicide treatment for reed canary grass, Canada thistle, and garlic mustard. Native vegetation continues to thrive at the site.

2012 planned maintenance include a complete site mow in the spring, spot treatments of invasive species, and continued monitoring.

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<tr>
<th>Ponds</th>
<th>Cover native species</th>
<th>2013 Performance Standard</th>
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<tbody>
<tr>
<td>Twin Lakes</td>
<td>85 %</td>
<td>95 % native cover</td>
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</table>
Gideon Glen

Routine inspections and minor maintenance at the Gideon Glen pond and wetland project were completed by MCWD staff.

2011 vegetation maintenance activities included a spring mow, spot treatments for sweet clover, garlic mustard, narrow-leaf cattails and reed canary grass. The woodland area was over seeded with a deep shade forbs mix in September. The city of Shorewood has repaired the erosion on the trail.

2012 planned maintenance include a spring prescribed burn, spot treatments of invasive species, fall herbicide application for invasive cool season grasses, and continued monitoring.

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<thead>
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<th>Table 6. Gideon Glen, 2011 summary and 2013 goals</th>
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<tr>
<td><strong>Ponds</strong></td>
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<tr>
<td>Gideon Glen</td>
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</table>

Independence Wetland

Routine inspections and minor maintenance at the Independence Wetland restoration were completed by MCWD staff. 2011 vegetation maintenance activities included site mowing, repeated spot herbicide treatments for Canada thistle and reed canary grass, an aerial overspray for reed canary grass, a fall prescribed burn and the removal of tree cages.

2012 planned maintenance include a winter and early summer mow of cattails. Spot treatments of invasive species, fall herbicide application for invasive cool season grasses, and continued monitoring.

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<thead>
<tr>
<th>Table 7. Independence Wetland, 2011 summary and 2013 goals</th>
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<tbody>
<tr>
<td><strong>Managed site</strong></td>
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<tr>
<td>Independence Wetland</td>
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</table>
**Minnehaha Creek Headwaters**

Routine inspections and minor maintenance at the Minnehaha Creek Headwaters shoreline restoration were completed by MCWD staff. 2011 vegetation maintenance activities included a spring mow, repeated spot treatments for annual weeds, Canada thistle, and yellow sweet clover. Shrubs were pruned along the angler’s accesses. Invasive cool season grasses were sprayed at the end of September.

2012 planned maintenance include a spring prescribed burn, spot treatments of invasive species, fall herbicide application for invasive cool season grasses, and continued monitoring.

<table>
<thead>
<tr>
<th>Managed site</th>
<th>Cover native species</th>
<th>2013 Performance Standard</th>
<th>Site challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headwaters</td>
<td>80 %</td>
<td>95 % native cover</td>
<td>Foot traffic in buffer</td>
</tr>
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**Miscellaneous Activities**

2011 Trainings & Certifications attended by Renae Clark and/or Tiffany Forner:

- BWSR Academy
- Minnesota Wetlands Conference
- Annual Fireline Safety Refresher Training
- BWSR Plant Identification Training
- Certified Professional in Erosion and Sediment Control (CPESC)
- Clean Water Summit