



# Maintain your property the watershed-friendly way

*A guide for commercial and common ownership communities*

Information for property managers and homeowners associations on steps you can take on your property to protect lakes and streams and improve water quality.

**Get information on:**

- ✓ Inspecting and maintaining ponds and storm drainage systems to ensure they function as designed.
- ✓ Setting up turf maintenance and snow/ice control contracts.
- ✓ Taking steps to minimize pollutants in ponds, lakes and streams.

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# What are BMPs?

## Best management practices

The ponds, ditches, depressions and unmowed areas on or adjacent to your property are essential parts of your property's storm drainage system. They are designed to reduce flooding and improve water quality. Ponds capture rainwater running off streets, parking lots and other hard surfaces and allow pollutants to settle out before the water is discharged to lakes, streams and wetlands. Ditches and depressions slow the flow of rainwater and allow it to infiltrate into the ground, reducing runoff and flooding and helping to recharge groundwater.

Best management practices, or **BMPs**, are techniques, structures or facilities that reduce the impact of development on water quality and aquatic habitats. Laws enacted in the past few decades require control and reduction of urban pollutants, which include grass clippings, leaves, sediment, motor oil, lawn care products, road salt, trash and anything else that washes off from rooftops, driveways, parking lots, lawns and streets. Installing and maintaining BMPs decreases pollution in our lakes, streams and wetlands.

## Are you responsible for BMP maintenance?

When it was developed, your property was likely subject to a maintenance agreement with the city that specifies who is responsible for maintenance. In general, unless the agreement states otherwise, you are responsible for maintaining not only the aesthetics but also the proper function of your BMPs. Check your maintenance agreement to identify your specific legal obligations. In most cases, these agreements stipulate that if you do not properly maintain the BMPs, the city has the authority to come onto your property, perform the service, and assess the cost of this work against the property.



*Typical vegetated swale*



*Typical wet pond*

## Turf maintenance: lower cost, higher water quality

Maintenance of lawns and grounds has a big impact on water quality in lakes and streams. Healthy turf does a better job of letting water infiltrate, or soak into the ground. Healthy turf also requires less fertilizer, herbicides and watering, which will save you money and reduce pollutant runoff.

You probably know how to compare prices for service, but how can you compare the value of a service in making or keeping your lawn a healthy environmental amenity? Ask the following questions of prospective turf care providers:

1. Will they perform an initial site analysis before recommending a specific lawn care program? What does that analysis include? Does it include an inexpensive soil test?
2. What fertilizers will they be applying on your property? The use of fertilizer containing phosphorus is prohibited in Minnesota unless a soil test demonstrates a need for additional phosphorus. Do they propose to apply phosphorus to your lawn without such a test? How much nitrogen will they apply to your lawn over the season? Compare this with the University of Minnesota Extension Service recommendations in Table 1.
3. What weed, insect or disease problems were identified in the site analysis, and what areas of the property are affected? Ask them to point out the pests and the symptoms that led them to that diagnosis. This will help you be more observant and informed about what appears on your property.
4. How do they manage insect, disease and weed problems? Find out if they will do spot treatment for specific problem areas or weeds rather than a blanket treatment. The response, "We treat the whole property to make sure the problem doesn't spread," is not a reason for blanket treatments.
5. How do they evaluate the progress being made? What is their measure of success, and is that consistent with your expectations?
6. Do they provide soil improvement services? For example, will they do lawn aeration on areas with compacted soils? If that service is not something they can or will do, they may not even evaluate your lawn for compacted soil conditions.
7. Is there a designated person you can call if you encounter a problem or concern, and does that person have the authority to make adjustments?
8. Are they aware of ordinances that prohibit mowing or blowing grass clippings or other yard waste onto streets, trails or sidewalks or into ponds? What about ordinances that prohibit applying fertilizer to impervious surfaces?
9. Are they familiar with maintenance practices for wet or dry ponds, swales, buffers and rain gardens?

**Table 1. Minnesota Extension Service fertilizer recommendations**

Turf maintenance practices	Number of nitrogen (N) applications to apply at 1 lb N/1,000 sq ft	Application timing
Irrigated; clippings not removed	3*	1. May-June 2. Late August 3. Mid-October
No irrigation; clippings not removed	1*	1. Late August to mid-September

*\*Add one more fall application if clippings are removed.*

# Ice and snow removal

Minnesotans are used to high-quality snow and ice control. We expect roads and parking lots to be cleared quickly after a snow or ice event, and maintaining ice-free walkways is a safety concern. Road salt and deicers are commonly used on walkways, roads and parking lots to improve traction and safety. However, using too much salt pollutes our lakes and streams.

Follow these simple steps to help protect our waters:

1. Shovel that snow. The more you shovel or snow blow, the less salt you will need. Get out early and keep up with the storm.
2. Don't over apply. More salt does not mean more melting. Use less than four pounds of salt per 1,000 square feet. One pound is about a heaping 12 ounce coffee cup. When spread, this amount is barely visible.
3. Temperature matters. Most salts stop working below 15° F. In colder temperatures, use sand for traction.
4. Sweep up the excess. Salt and sand on dry pavement are not doing any work and will be washed away. Sweep up the extra and reuse it.

## Hiring a snow removal service?

Hire a contractor who is trained to protect our waters by minimizing salt use. The Minnesota Pollution Control Agency maintains a list of certified contractors. Search online for "Minnesota road salt certificate holders."

Ask potential contractors the following questions:

1. Have you attended a winter parking lot and sidewalk maintenance training session?
2. Are you certified by the Minnesota Pollution Control Agency (MPCA) in snow and ice control best practices?
3. If you aren't certified, would you be willing to attend a training session?
4. What best practices do you use to reduce the amount of salt applied?



## Eight things you can do to be more watershed-friendly

1. Check your dumpster areas and property for litter at least weekly.
2. Help residents clean up after pets by providing trash cans and bag dispensers.
3. Get your soil tested and only fertilize to your soil's needs.
4. Cover and elevate storage of chemicals used on your property. Clean up spills promptly.
5. Consider converting some of the mowed turf on your property to native vegetation.
6. Add a rain garden to the low spots on your property.
7. Have your parking lot swept at least twice a year.
8. Keep your stormwater ponds and other facilities in good working order to maximize their effectiveness.

## Managing vegetation

Most BMPs use vegetation to filter sediment and other pollutants from stormwater. Turf grass is the most common ground cover, although rain gardens and wetland plants also play an important role.

Learn more about using plants to manage stormwater by downloading the Minnesota Pollution Control Agency's *Plants for Stormwater Design* at <http://www.pca.state.mn.us/publications/manuals/stormwaterplants.html>.

**Mowing:** Grass should never be cut shorter than 3 inches. Longer turf in swales and dry ponds is desirable, but it should be no more than 6 to 8 inches high.

**No mow zones:** Leave a minimum 5-foot unmowed area around wet ponds to help filter runoff. Buffer areas next to wetlands and streams are intended to be unmowed. Plant your no-mow zone with native species to improve its appearance and effectiveness. This will also discourage geese.

**Unwanted vegetation:** Some vegetation is destructive to BMPs. Keep inlet, outlet and bottom areas free of deep-rooted vegetation such as trees and bushes as these can destabilize the structures and impede flow.

**Fertilization, pest and weed control:** Avoid excessive use of fertilizers and pesticides. Do not use any chemicals within 10 feet of a wet pond. Test your soil, and fertilize according to recommendations.

## Managing ponds

Ponds require regular inspection and periodic maintenance to keep them functioning well. Inspections can be as simple as periodically walking around the pond to look at the banks, structures and water.

**Erosion management:** Lack of vegetation is the primary cause of erosion. Stabilize eroded areas with new plantings or, for larger ravines or gullies, consult your city engineer or erosion control specialist.

**Water quality:** Algae can cause green water, or slimy or spongy growth in the pond. Small plants with round leaves that float on the surface are beneficial duckweed. Some algae growth in ponds is normal, but green water from excessive algae growth or water with a bad odor are usually caused by excess nutrients or sediment. Check your maintenance practices to be sure you or anyone whose property drains to the pond are not excessively fertilizing turf. Also check for erosion or other sources of excess sediment.



Maintain your pond to avoid excess algae growth.  
Photo credit: Minnesota Pollution Control Agency

**Sediment removal:** Because the main purpose of a pond is to remove sediment and pollutants from runoff, sediment will eventually have to be removed. Once a pond has filled up half its volume, which can take from a few years to 10 to 15 years, it loses treatment capacity and must be dredged. Monitor the amount of sediment accumulating in your pond so you know when you are approaching the time to have it dredged. If sediment can be seen above the water surface, maintenance is way overdue. Dredging a quarter-acre pond can cost \$15,000 to \$30,000 or more depending on the factors outlined below. A one-acre pond might cost \$75,000 to \$100,000 to dredge.

The two most important factors that impact the cost for pond dredging are:

1. If there is good access to the pond or if access is obstructed by buildings and fences.
2. If there is a place onsite to dispose of the dredged material or if it has to be hauled offsite.

# Developing a maintenance plan

1. Get copies of all documents related to your site. Visit city hall and meet with the city engineer or zoning official for help in getting documents and understanding your obligations. Get copies of:
  - Any maintenance agreements.
  - Any site plan or project review documents or permits, such as planning commission or watershed permit reviews.
  - Documents showing protected wetland edges.
  - Construction plans (especially the grading and drainage, planting, and utility plan sheets).
  - “As-builts,” which show how construction might have changed from the plan to what actually went in the ground.
2. Create a written plan. Your plan should include:
  - Names, addresses, phone numbers and emails of current owners and managers as well as previous owners and managers.
  - Names, addresses, phone numbers and emails of city, watershed organization and other pertinent staff members.
  - Names, addresses, phone numbers and emails of contact persons for any company providing service or maintenance.
  - Copies of any current service or maintenance contracts.
  - An inventory of your features and facilities. Besides your BMPs, don't forget to list turf, gardens, wetlands, parking lots, driveways, storm sewers and catch basins. Take pictures of each feature.
  - A list of all your legal maintenance requirements identified in documents or your discussions.
3. Develop a maintenance and inspection checklist. Having a checklist is helpful when training new or replacement staff and for tracking your activities.
4. Share the work of implementing the plan. Write a short job description for each task so that anyone can take over the task with minimal training. Create a simple checklist form that the inspector can use to ensure they don't forget anything and you get consistent information.
5. Educate your neighbors or employees. Use newsletters, meetings or bulletin board postings to provide updated information about your efforts.
6. Be realistic about your maintenance costs. Active maintenance may seem like more effort at a higher cost, but the payoff is avoiding future repairs or replacement of your BMPs that could cost a lot more. Create a pond maintenance fund to spread the cost over multiple years.



*A curb cut rain garden.*

# Quick guide to BMP maintenance

Wet and dry detention ponds	<p><b>Routine maintenance</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Remove accumulated debris and litter, especially around the inlet and outlet areas.</li> <li><input type="checkbox"/> Leave at least a 5-foot unmowed buffer around a wet pond.</li> <li><input type="checkbox"/> Mow dry ponds routinely unless there is native vegetation. Burn native vegetation if possible; if not, cut to no shorter than 12 inches high.</li> <li><input type="checkbox"/> Remove woody vegetation from all embankment and bottom areas.</li> <li><input type="checkbox"/> Stabilize and replant any patchy or bare areas to reduce erosion.</li> </ul> <p><b>When is other maintenance required?</b></p> <p><i>Dry ponds</i></p> <ul style="list-style-type: none"> <li>• Standing water is visible after 48 hours.</li> <li>• Insects and/or odor become problems.</li> <li>• Wetland vegetation emerges (unless the facility is specifically designed with marsh or wetland area).</li> <li>• Visible damage to embankment (such as sink-holes) or mechanical components.</li> </ul>	<p><i>Wet ponds</i></p> <ul style="list-style-type: none"> <li>• Visible signs of sediment accumulation.</li> <li>• Insects and/or odor become problematic.</li> <li>• Algae blooms occur in the summer or ponded areas become dominated by a single aquatic plant species.</li> <li>• Visible damage to the embankment or mechanical components.</li> </ul> <p><b>Non-routine maintenance</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> De-thatch dry pond grass to remove accumulated sediment or debris.</li> <li><input type="checkbox"/> Aerate dry pond compacted areas to promote infiltration.</li> <li><input type="checkbox"/> Monitor sediment accumulations. Remove sediment before the pool volume has become reduced by half or when the pond becomes stagnant.</li> <li><input type="checkbox"/> Replace BMP components. Reconstruct embankments and spillways (greater than 20 years if properly maintained).</li> </ul>
Swales and buffers	<p><b>Routine maintenance</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Remove accumulated debris, litter and sediment.</li> <li><input type="checkbox"/> Do not mow buffer strips. Remove invasive species by hand.</li> <li><input type="checkbox"/> Mow swales routinely unless there is native vegetation. Burn native vegetation if possible; if not, cut to no shorter than 12 inches high.</li> <li><input type="checkbox"/> Inspect and spot treat or remove invasive and non-native vegetation, such as buckthorn or purple loosestrife.</li> <li><input type="checkbox"/> Remove woody vegetation and stabilize and replant swale side and bottom areas with native vegetation.</li> <li><input type="checkbox"/> Replant any areas that are not sufficiently established with native vegetation.</li> <li><input type="checkbox"/> Hire a professional for prescribed burns to remove non-natives and encourage native plant growth.</li> </ul>	<p><b>When is other maintenance required?</b></p> <ul style="list-style-type: none"> <li>• Standing water is visible after 48 hours.</li> <li>• Insects and/or odor become problematic.</li> <li>• Wetland vegetation emerges where not intended.</li> <li>• Erosion or undercutting of swale banks is apparent.</li> </ul> <p><b>Non-routine maintenance</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Remove accumulated sediment and pollutants.</li> <li><input type="checkbox"/> Replace buffer-edge marker signs as necessary.</li> </ul>
Rain gardens	<p><b>Routine maintenance</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Remove accumulated debris, litter and sediment.</li> <li><input type="checkbox"/> Supplement plants if a significant portion have not become established (cover at least 50 percent of the surface area).</li> <li><input type="checkbox"/> Inspect for and spot treat or remove invasive species and replant with natives.</li> </ul>	<p><b>Non-routine maintenance</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Remove accumulated sediment and pollutants.</li> </ul>
Pavers	<p><b>Routine maintenance</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Remove vegetation growing between pavers.</li> <li><input type="checkbox"/> Keep the joints between pavers filled with sand and apply joint sealant if necessary.</li> </ul>	<p><b>Non-routine maintenance</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Remove and reset pavers that are no longer flush.</li> <li><input type="checkbox"/> Reapply sealant</li> </ul>
Devices	<p><b>Routine maintenance</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Hire a professional to inspect sediment and debris accumulation and remove as necessary.</li> </ul>	<p><b>Non-routine maintenance</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Hire a professional to inspect the structural integrity of the device and maintain and repair as necessary.</li> </ul>

# BMP inspection schedule checklist

Wet and dry ponds	
Routine maintenance	Frequency
<input type="checkbox"/> Remove accumulated debris and litter.	Monthly
<input type="checkbox"/> Mow routinely, leaving a buffer around wet ponds.	As needed
<input type="checkbox"/> Do not mow native vegetation. Burn or cut to no shorter than 12 inches high.	Burn: every 3 years. Cut: twice/year
<input type="checkbox"/> Remove woody vegetation from all embankment areas.	As needed
<input type="checkbox"/> Stabilize and replant patchy or bare areas.	As needed
Non-routine maintenance	
<input type="checkbox"/> De-thatch grass to remove accumulated sediment and debris.	Every 2 years
<input type="checkbox"/> Aerate compacted areas to promote infiltration.	Every 2 to 3 years
<input type="checkbox"/> Monitor sediment accumulations. Remove sediment when it has filled 50 percent of the pond volume.	Inspection: semi-annually Remove sediment: 2 to 10 years for dry ponds, 5 to 15 years for wet ponds
<input type="checkbox"/> Replace BMP components and reconstruct embankments and spillways.	>20 years if maintained
Swales and buffers	
Routine maintenance	Frequency
<input type="checkbox"/> Remove accumulated debris, litter and sediment.	Monthly
<input type="checkbox"/> Mow routinely unless there is native vegetation.	As needed
<input type="checkbox"/> Do not mow native vegetation. Burn or cut to no shorter than 12 inches high.	Burn: every 3 years. Cut: twice/year
<input type="checkbox"/> Remove woody vegetation and stabilize and replant side and bottom areas.	Annually
<input type="checkbox"/> Inspect for invasive species and spot treat or remove.	Monthly
<input type="checkbox"/> Replant any areas not sufficiently established with vegetation.	Annually
Non-routine maintenance	
<input type="checkbox"/> Remove accumulated sediment and pollutants.	As needed
<input type="checkbox"/> Replace buffer-edge marker signs.	As needed

Rain gardens	
Routine maintenance	Frequency
<input type="checkbox"/> Remove accumulated debris and litter.	Monthly
<input type="checkbox"/> Supplement plants if less than 50 percent of the surface area has established.	Annually
<input type="checkbox"/> Inspect for invasive species and spot treat or remove.	Monthly
Non-routine maintenance	
<input type="checkbox"/> Remove accumulated sediment and pollutants.	As needed
Pavers	
Routine maintenance	Frequency
<input type="checkbox"/> Remove vegetation growing between pavers.	Monthly
<input type="checkbox"/> Keep the joints between pavers filled with sand and apply joint sealant if necessary.	As needed
Non-routine maintenance	
<input type="checkbox"/> Remove and reset pavers that are no longer flush.	As needed
<input type="checkbox"/> Reapply sealant.	Every 2 to 3 years
Underground devices	
Routine maintenance	Frequency
<input type="checkbox"/> Hire a professional to inspect sediment and debris accumulation and remove as necessary.	As recommended by manufacturer
Non-routine maintenance	
<input type="checkbox"/> Hire a professional to inspect the structural integrity of the device and maintain and repair as necessary.	As recommended by manufacturer