MadisonWaterWays

News from your Stormwater Utility & Sewer Utility

www.cityofmadison.com/engineering/stormwater FALL, 2016

Debris Contributes to Greenway Flooding, Property Damage

by Daniel Olivares and Eric Dundee

On July 21, 2016, Madison received a heavy rainfall of 3.5 to 4.5 inches within two hours. The rain caused areas of flooding within streets and adjacent to drainage ways throughout the city. The west side of Madison was hit especially hard.

The city's drainage system is a collection of drains, pipes, and open drainage channels called greenways. Rainfall is collected in storm drains and piped underground until discharged into a greenway. Greenways connect throughout the city and pass under roads through large culvert openings often protected by grates to limit access by children.

Problems can result when the amount of rain exceeds the capacity of the system or when portions of the system are not functioning as designed.

One problem that occurred during the July 21, 2016 storm was the plugging of pipe culverts under the road connecting adjacent greenways. During the storm, material stored in or along the greenway began to float as the water level rose. The materials were carried downstream with surging water, and the accumulating debris plugged the grates protecting the pipes under the roadway. Objects found on the grates after the storm included cut fire wood, cut tree branches, grasses, and storm damage debris. As more material arrived at the pipe, the accumulation built up until only a fraction of the water was conveyed through the pipe. The result: Extensive flooding and property damage.

City crews routinely remove debris from greenway pipe inlets, especially after a large rain event. Owners with property abutting greenways can do their part as well. Never place firewood, yard waste or other materials in the greenway behind your property. These materials present a significant safety and liability concern during storm events.

Culverts at McKenna Blvd. and Gammon Pl. prior to, and after storm on July 21, 2016.

Placing materials in the greenway also makes it difficult for City crews to safely and efficiently mow the greenway. Illegal use of greenways can result in orders to remove encroachments and fines. Sheds, gardens and plantings, property storage, disposal of any types of waste and chemical applications are not permitted. Private mowing of the greenway is allowed unless it is posted as a no mow area by the City.

The City offers curbside pick-up for brush collection and two drop-off sites, 4602 Sycamore Avenue or 1501 West Badger Road.

The result of the July 21, 2016 storm provides a reminder of the importance of a properly functioning greenway drainage system. City crews and residents alike must take proper precautions to ensure the drainage system remains functional throughout a storm.

A Message from Our City Engineer

The City's commitment to stormwater quality and our belief in water quality's importance to the health of our residents and natural environment has held steady for over four decades.

Over time, the projects that are considered Best Practices for water quality have varied, from the catch basins and first retention ponds in the earlier years to rain gardens and porous pavement in later years. Current projects continue that evolution with exciting promise for significant improvements in urban water quality discharging to lakes and streams. Such examples include construction of a sediment capture system on Willow Creek and construction of a chemical stormwater treatment system for the East Branch of Starkweather Creek.

As treatment systems evolve, so have our partners. Neither the Willow Creek nor Starkweather Creek projects would be possible without cooperative relationships with both the Wisconsin Department of Natural Resources and Dane County. The City of Madison is also proud to be part of Yahara WINS (Watershed Improvement Network), which is a collaborative effort with Madison Metropolitan Sewerage District and 30 other partners to reduce phosphorus levels in lakes and rivers.

But, it's not just about big projects or affiliations with governmental organizations.

Our partners are also grassroots volunteers working on city-owned land such as greenways and along bike paths to eradicate invasive plant species and our volunteers caring for plantings in our medians. Homeowners who install rain barrels or build rain gardens, and gardeners who consciously select plants to promote pollinators and avoid using harmful insecticides are also our partners.

Thank you for all of your efforts. We are all partners in stormwater quality improving the health of our natural environment.

Rob Phillips

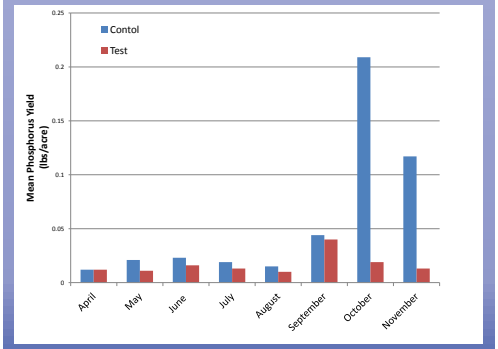
Leaf Litter: A Major Source of Phosphorus to the Lakes

by Phil Gaebler

The City of Madison and the United States Geological Survey (USGS) are in year four of a five-year leaf collection study that has quantified the amount of phosphorus released by leaves on the street. The study measured the two extreme examples of leaf collection options. Option One (Control), left leaves in the street the entire fall; a "do nothing" alternative. Option Two (Test), removed leaves from the street on a weekly basis and leaf blowers were used to clean the street before every rain storm. The results revealed that in the neighborhoods where leaves were not collected, nearly 60% of the years-worth of phosphorus was released in the fall (winter excluded). A comparison between the two options showed that removing leaves before rain storms reduced phosphorus release by 80% in the fall.

This study has documented the importance of keeping leaves out of the street. Citizens can help by raking leaves from their yard to the edge of the grass and removing leaves from the street and placing them on the grass for collection.

The 2016 sampling season is focused on quantifying the phosphorus reduction of the City's current collection practice. Updates can be found on the City website by searching "leaf collection study."



Phosphorus leaving the control and test areas through the storm sewer.

Yahara WINS: A New Regulatory Approach to Phosphorus Reduction

by Greg Fries

The boundary of the Rock River Basin overlaid with Madison city limits.

A significant part of the City of Madison drains to the Rock River, which has been listed on the Environmental Protection Agency's list of impaired water bodies for phosphorus (P) and sediment. To bring the Rock River into water quality compliance, the EPA and Wisconsin Department of Natural Resources (WDNR) have adopted a Total Maximum Daily Load (TMDL) for all municipal and point source dischargers to the river.

The TMDL sets specific discharge limits for P and sediment that municipalities and sewer treatment plants may discharge to the river. These limits require that the City of Madison reduce its storm sewer discharge of P to the lakes and rivers around Madison by approximately 14,000 pounds annually.

The Madison Metropolitan Sewerage District (MMSD) cleans waste water (sewage) received from homes and businesses in Madison and surrounding communities. MMSD is required to reduce its P discharge by a similar amount as the City of Madison.

It is extremely expensive to reduce P from urban storm water runoff. Where land exists to build a treatment pond, the cost is approximately $400 per pound of P reduced. The cost increases significantly when land needs to be purchased to build a pond. Just as it is expensive to remove P from urban stormwater, it's also expensive to further reduce it at the sewer treatment plant. MMSD could have chosen to meet their mandated reductions with an expensive treatment plant expansion (over $100 million). However, as about 65% of the sediment and P entering Lake Mendota comes from agricultural lands to the north of the lake and the cost to reduce P from agricultural land is approximately $40-$90 per pound, MMSD choose to partner with agricultural producers to address the problem on farm lands where reductions are easier, cheaper and more effective. Yahara WINS was formed to facilitate this partnership.

In addition to cost savings, the creation of Yahara WINS makes the Madison Chain of Lakes the big winner. Since water discharged from the treatment plant bypasses the Madison lakes, no benefit to our lakes would have been derived from additional reductions at MMSD's treatment facility. However, reductions completed on farmland directly benefit the lakes.

Yahara WINS is comprised of MMSD, City of Madison, other municipalities, and non-profit groups. Yahara WINS works with Dane County Land Conservation, Yahara Pride (a farmers group) and others to design and implement practices on farm lands that reduce the discharge of P and sediment to the lakes and rivers surrounding Madison. By joining Yahara WINS, the City has chosen not only the lowest cost method of meeting its required reductions, but also the only one that has any real opportunity to improve the condition of the chain of lakes in terms of water quality in the long term.

While Yahara WINS is just one effort, it is important to note that Madison continues to work on cost effective methods to reduce P and sediment from lands within our municipal limits as well. Through our partnership with Yahara WINS, the water quality projects taking place in the City of Madison, and the efforts of our residents, positive change is taking place.

Managing Our Public Lands

2016 – A Year of Inventory and Transition

by Carissa Wegner

Selective Prairie Management (SPM) is a new holistic maintenance process that better encourages the growth of certain desirable prairie plants. The City of Madison has been piloting SPM in ponds and greenways over the last two years. Based on the environmental benefits and the success noted to date, SPM is expanding to additional city greenways and ponds with existing prairie plantings.

In 2016, some residents received letters stating the greenway or pond abutting their property will change from being mowed twice a year to being mowed entirely once in fall. This delay of mowing enables the City to inventory what kinds of plants are present by allowing them to grow for a season. By delaying the mowing, the City can verify the greenway is on a proper mowing schedule. If the vegetation is primarily grass, it may be returned to the standard two times a year mowing in 2017. If the vegetation is native prairie, we will actively monitor for weeds and undesirable plants, which will be spot mowed and/or treated with approved herbicide to give the prairie a chance to establish and flourish.

Only a fraction of historic native prairie land remains in Wisconsin. Prairies provide a diversity of habitat to increasingly rare species including songbirds, butterflies, and other wildlife. The environment benefits because these native grasses and wildflowers have a very deep root system, unlike turf, that helps improve water and soil.

A crew from Operation Fresh Start cleared invasive plant species on City-owned land this summer.

Optional Sewer Line Warranty Program Available to Madison Homeowners

by Mike Dailey

Madison Sewer Utility customers may benefit from enrollment in a Sewer Line Warranty Program to protect against the repair cost of their privately owned sanitary service lines. The sanitary sewer service line, or sewer lateral, as it is often called, is the line that runs between the main in the street and your home. This line is owned by the homeowner, not the Madison Sewer Utility. In 2013, the City selected a preferred vendor, **Service Line Warranties of America (SLWA),** to provide this private warranty coverage, as the City was prohibited from performing any work on private lines. SLWA was chosen after a competitive selection process. They are highly regarded in this industry.

This is an **optional** warranty program available to homeowners that are customers of the Madison Sewer Utility. If an enrolled customer's sewer line leaks, breaks or clogs, Service Line Warranties of America has a 24-hour hotline and will dispatch a local, licensed plumber to perform the necessary work. The likelihood of a problem with your service line is dependent upon the age of your line, material, number of trees in vicinity of the line and amount of routine maintenance that takes place. Homeowners are advised to assess their risks and their risk tolerance.

For more information about the Sewer Line Warranty Program:

- **www.cityofmadison.com/engineering/SanitarySewerServiceWarrantyProgram.cfm**
- **www.slwofa.com**
- **866-922-9006**

To find out more about the City's role in the vendor selection or the City's relationship with the vendor, contact Mike Dailey, 608-266-4058, mdailey@cityofmadison.com.

Project Spotlight: Wheeler Road Detention Pond

by Sally Swenson

Pond adjacent to proposed Wheeler Rd. detention pond; constructed in 2013.

City Engineering will be constructing a third stormwater detention pond on Wheeler Road. Two ponds, both east of School Road, were constructed in 2013 and treat stormwater from two large outfalls that drain to Cherokee Marsh. The third pond, to be constructed north of the Wheeler Road and Bonner Lane intersection (west of School Road), will treat stormwater from the third, and final, major outfall into the marsh.

The new pond will treat water from a 170-acre watershed by removing approximately 70% of the sediment and 50% of the particulate phosphorus from the stormwater that passes through it. The ponds constructed in 2013 treat approximately 308 acres; combined, the three ponds will treat stormwater runoff from 478 acres.

The project is scheduled to begin in late 2016, provided necessary permits for the project are approved.

Flushable?

What we put down our drains and toilets can negatively impact our environment and put our health at risk. Even items labeled "flushable" can clog pipes, tangle pumps and result in messy and costly sewer backups.

NEVER FLUSH:

- Baby Wipes, moist wipes, paper towel
- Bandaids, dressings
- Medicines, vitamins, pharmaceuticals
- Dental floss, string or thread
- Tampons, condoms, sanitary napkins
- Fats, oils, grease
- Wrappers, plastic bags
- Toilet bowl scrub pads, sponges
- Fish gravel
- Rags

Medicines and pharmaceuticals can be placed in a Med Drop box.

Med Drop

For information on the Med Drop Program, including items accepted and drop-off sites, visit the Safe Communities website: www.safercommunity.net/meddrop.php.

CITY OF MADISON ENGINEERING DIVISION
210 MARTIN LUTHER KING JR BLVD RM 115
MADISON WI 53703

What does City Engineering do?

Design new streets ■ Facilities & Sustainability Management ■ Clean out sanitary sewers ■ Maintain greenways and ponds ■ Design storm sewers and sanitary sewers ■ Protect the lakes with erosion control ■ Provide plan oversight to developers ■ Comply with state stormwater and water quality regulations ■ Construction site inspection ■ Install innovative stormwater treatment practices ■ Closed landfill monitoring ■ Televise storm and sanitary sewers ■ Promote rain gardens ■ Perform energy efficiency studies ■ Bike path design ■ Median landscaping ■ Road kill pickup ■ GIS and mapping records ■ Transportation planning ■ Permitting for construction sites, private utilities, work in the right of way ■ Assess infrastructure capacity and future needs ■ Public outreach ■ Promote rain gardens ■ Land surveys ■ Plat review ■ Provide general construction standards ■ Create maps ■ Oversee stormwater utility ■ Inspect and repair sidewalks ■ Staff Board of Public Works and the Committee on the Environment ■ Provide winter maintenance of bike paths ■ Brownfields assessment ■ Water quality studies ■ Flood control

CITY ENGINEERING CONTACTS

Main Office:	(608) 266-4751
Erosion Control:	(608) 267-1199
Stormwater Utility Billing:	(608) 267-1199
Sidewalk Concerns:	(608) 266-4537
Sewer Maintenance:	(608) 266-4430