



# Responsibilities and Actions in Support of Clean Water



Presented by Steven Arndt  
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# Did You Know?

A common misconception is that water running off streets goes into a sewage treatment plant. **It does not.** In fact, stormwater usually receives no treatment. Water that runs off lawns, streets, and parking lots flows directly into lakes and streams



# Did You Know?

- A one acre parking lot can produce 500-pounds of sediment per year
- Urban runoff is the leading source of impairment to lakes, streams and wetlands



# Did You Know?

- Sediment and chemicals (such as phosphorus and pesticides) in waterways kill fish and prevent spawning.



# Did you Know?

- One quart of oil can contaminate up to 2 million gallons of water





# Did You Know?



A 2005 report, **Environmental Literacy in America**, by the National Environmental Education & Training Foundation (NEETF) found that:

- **78% of the American Public** does not understand that runoff from Agricultural land, roads, and lawns is now the most common source of water pollution.
- **Nearly half of all Americans (47 %)** believes industry still accounts for most water pollution.

A photograph of a paved plaza with a storm drain grate in the foreground and a building entrance in the background. The scene is outdoors, and the ground is wet, suggesting recent rain. The building in the background has a modern design with large glass windows and doors. The text is overlaid on the image in a large, black, sans-serif font.

# Responsibilities and Actions in Support of Clean Water

- Regulatory background
- What we have done
- What we plan to do
- What you can do

# Regulatory Background

An evolving system of regulations

- In 1972, Congress passed the Federal Water Pollution Control Act, also known as the **Clean Water Act (CWA)**, to restore and maintain the quality of the nation's waterways.
- The goal - make sure that rivers and streams were fishable, swimmable and **drinkable**.



# More Background



In 1987, the **Water Quality Act** added provisions to the CWA that allowed the **EPA to govern storm water** problems by requiring that:

- **Industrial** stormwater dischargers and
- **Municipal** separate storm sewer systems (MS4's)

to obtain National Pollution Discharge Elimination System (NPDES) **permits**, by specific deadlines.

# More Background (part II)

## Large Cities

1990 - EPA issued rules establishing Phase I of the NPDES Storm Water Program for large MS4's (greater than 100,000 population) requiring:

municipalities to implement a storm water **management plans to control polluted discharges**



# Even More Background !



## Small Cities

- EPA's Phase II Final Rule (Dec '99) - permit requirements for designated small municipalities and certain facilities (such as universities) that maintain control of a separate storm sewer system.
- This is the **small MS4** (Municipal Separate Storm Sewer System) permit req. and it covers storm water discharges from these systems.
- The objectives of the Phase II regulations are to:
  - (1) Reduce the discharge of pollutants to the "maximum extent practicable" (MEP); and
  - (2) Protect water quality.

# More Background – Almost Done!

- In order to meet these objectives, an MS4 must implement a program by identifying approved best management practices (BMPs) for the 6 control measures referenced in the permit.



# Permit Requirements



- **MS4 Storm Water Permit Requirements are Based on EPA's Six Minimum Control Measures (categories)**
  - Illicit Discharge Detection and Elimination
  - Construction Site Pollutant Control
  - Post-Construction Stormwater Management
  - Pollution Prevention (40%)
  - Public Education and Outreach
  - Public Involvement and Participation

# What We Have Done

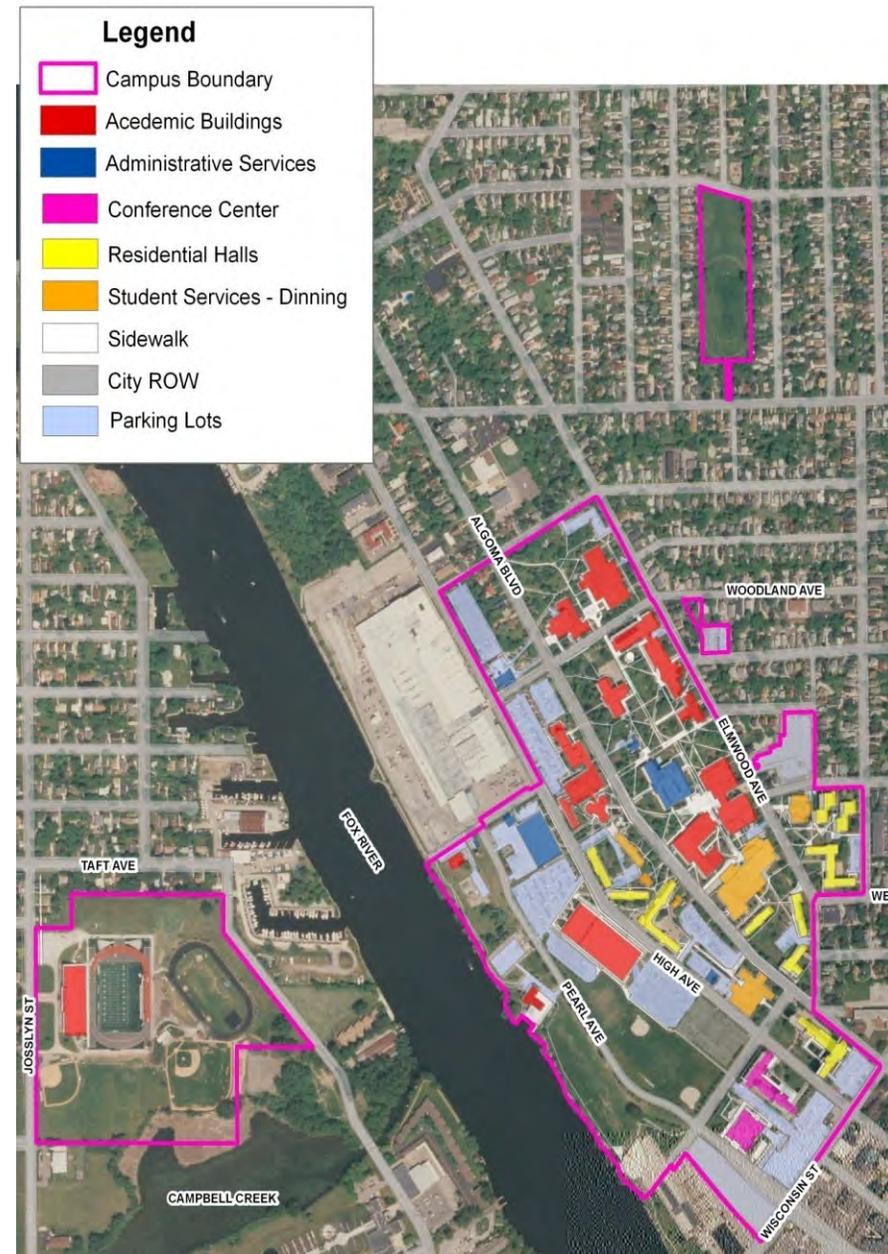
- We received our MS4 storm water permit in September of 2007.
- Working with Omni Associates, we created a Storm Water Management Plan (still in draft form).



# Excerpts from Storm Water Plan

## Campus Land Use

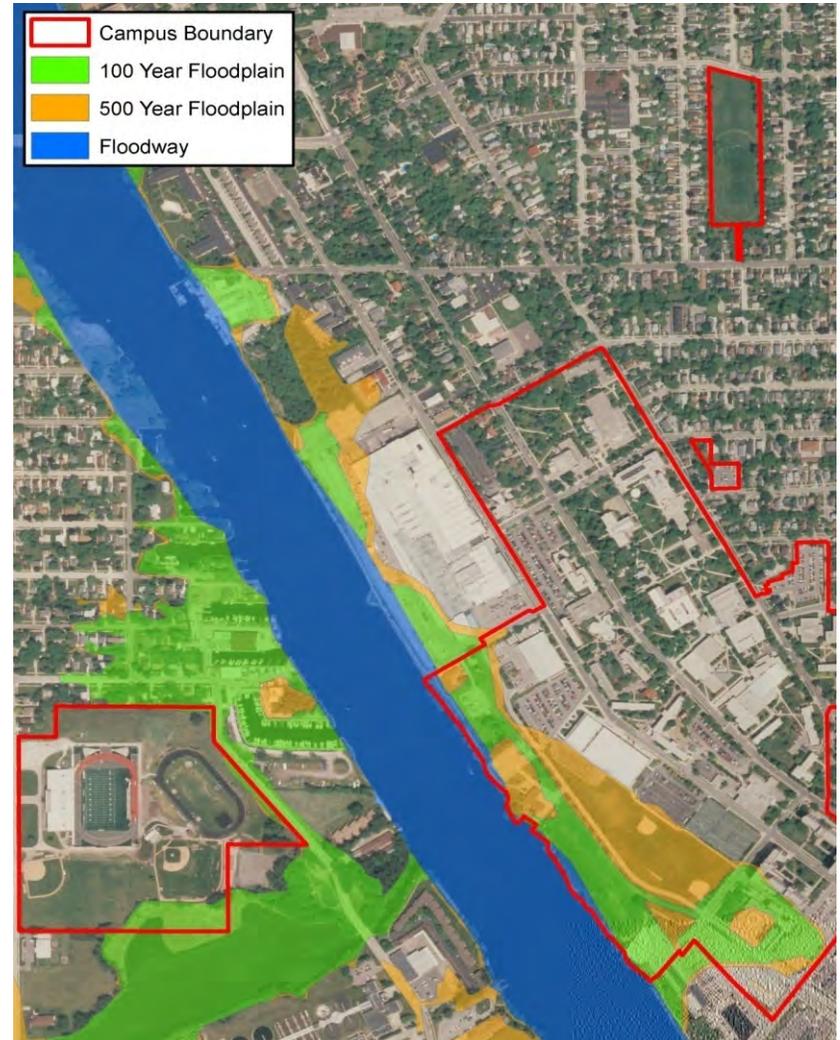
- **Parking – 25 Acres**
- **Buildings – 18 Acres**
- **Sidewalks – 15 Acres**
- **Open Space – 92 Acres**
- **Roads – 16 Acres**
  - All Roads are City-Owned and Maintained



# Excerpts From Storm Water Plan

## Drainage

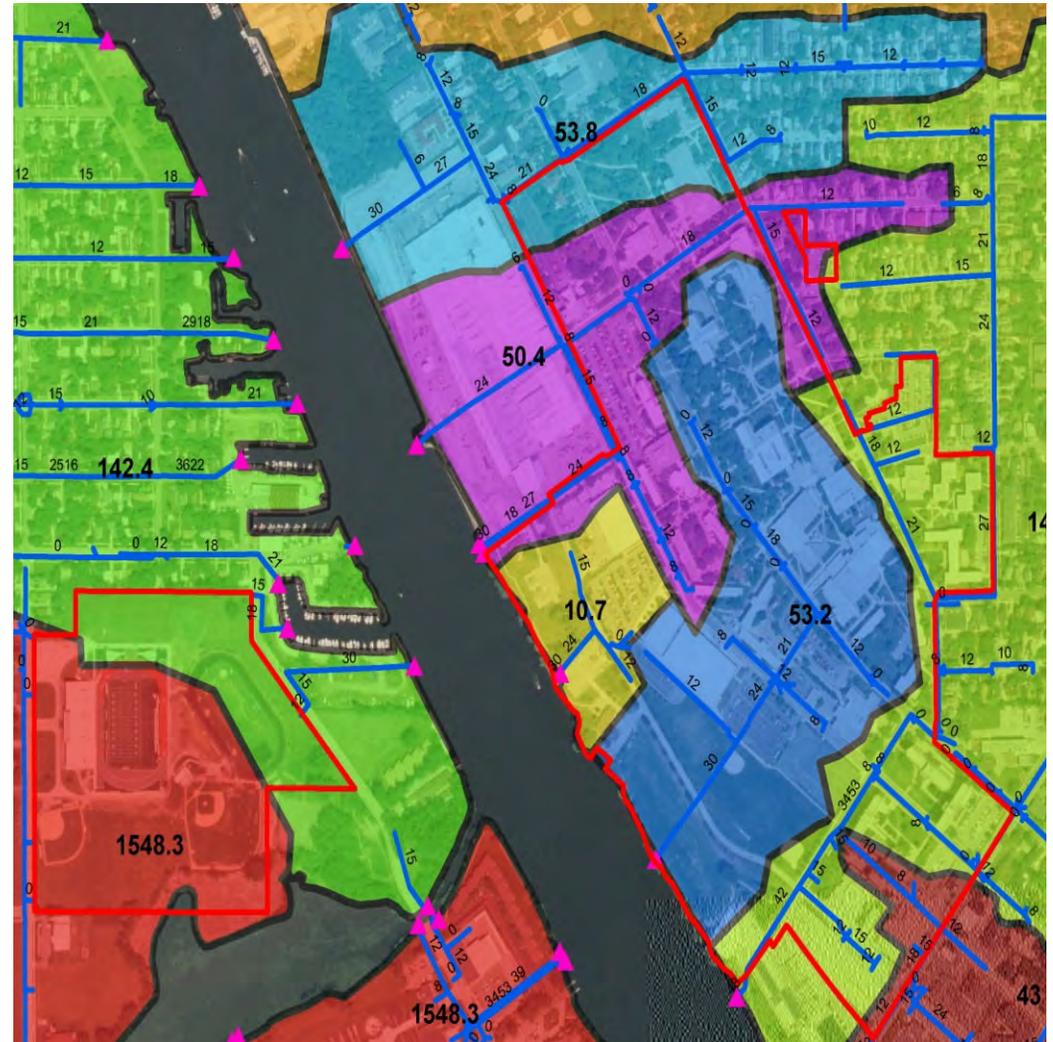
- **Located Adjacent to Fox River**
  - Approx. 2,000' of Frontage
  - Significant Amount of Campus Within Floodplain
- **Generally Flat and Slopes Towards Fox River**
- **Soils**
  - Predominant Clay or Fill Material
  - Low Infiltration Ability



# Excerpts from Storm Water Plan

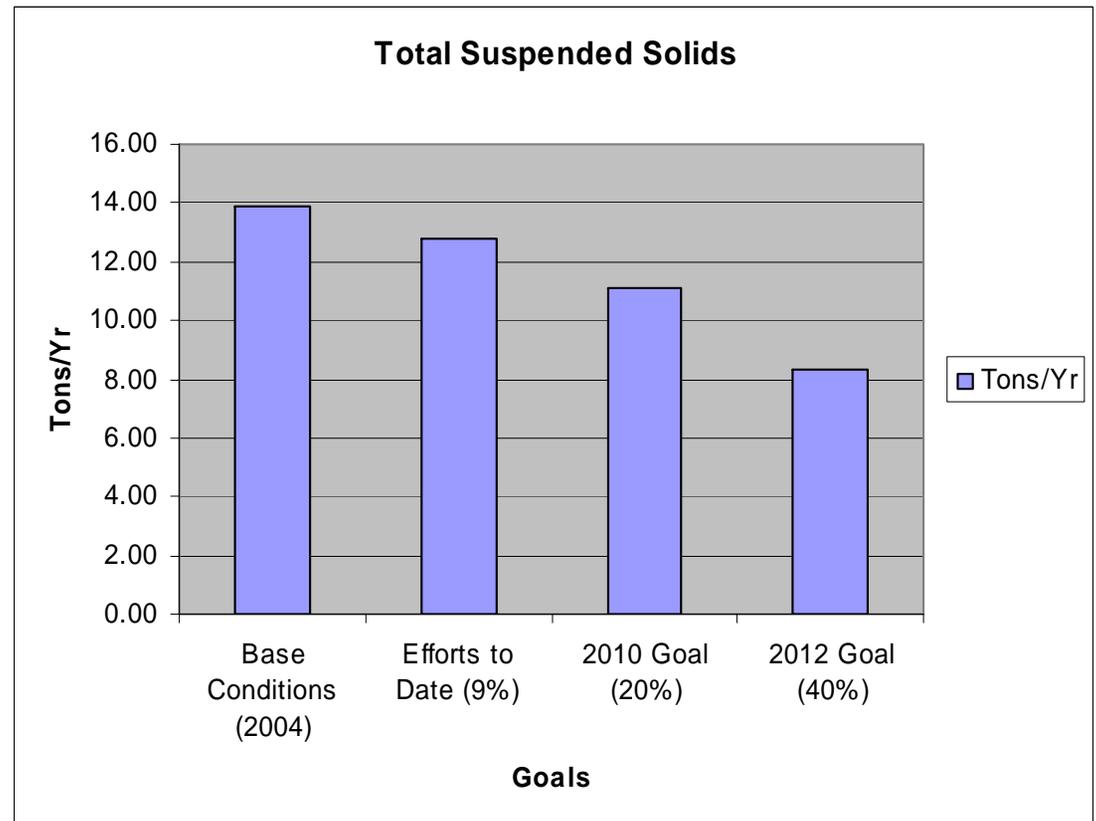
## Storm Sewer System

- Storm water from campus enters City storm sewer
- Many buildings/parking lots directly connect via roof drains, inlets, and/or storm sewer
- Some areas drain directly to Fox River
- City Storm Sewer
  - Campus Drains to 9 Sewer Outfalls
  - Most Outfalls are Partially or Fully Submerged Below Normal Water Level
  - Most Sewer Outfall also Drain Water From Off-Campus



# What We Have Done

- We hired another engineering firm to perform an analysis of storm water flow rates through campus (SLAMM Modeling)
- Completed December 2008



# What We Have Done

- Partnership with the City of Oshkosh and the Northeast Wisconsin Stormwater Consortium (NEWSC)
- Recently finished conducting Phosphate Reduction Campaign



# What We Have Done

## Construction Site Pollutant Control

- All construction activities comply with WDSF, WDNR & EPA storm water requirements for erosion and sediment control.

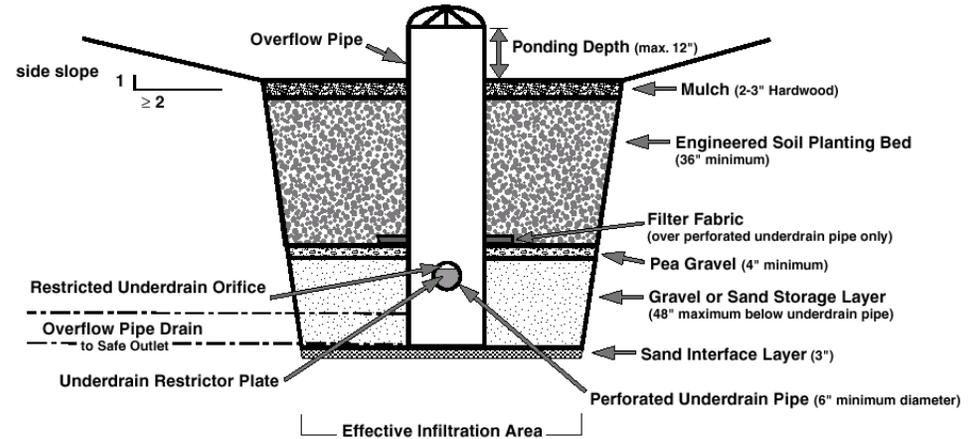


# What We Have Done

## Water Pollution Prevention

Installed source area control BMP's , such as biofilters, and storm water retention basins for new construction.

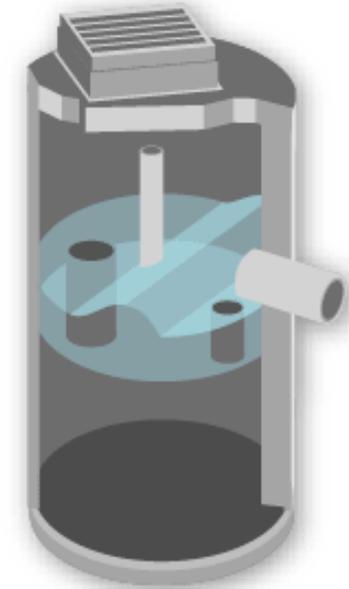
Figure 2. Example of **Bioretention Device** – cross-section across width of device



# What We Have Done

## Water Pollution Prevention

- **Proprietary Device**
  - Stormceptor Device
  - Installed With Installation of New Synthetic Grass Field at Titan Stadium Complex



# What We Have Done

## Water Pollution Prevention

- Spill Prevention Control Plan
- Purchased new street sweeper
- Routine Parking Lot Sweeping
- Routine inspection and maintenance



# What We Have Done

- Developed a campus storm water logo
- Create storm water brochure



# What We Have Done

- Stencil all Storm Drains
- Update pesticide and fertilizer management program
- Create storm water website

<http://www.uwosh.edu/facilities/storm-water-management>



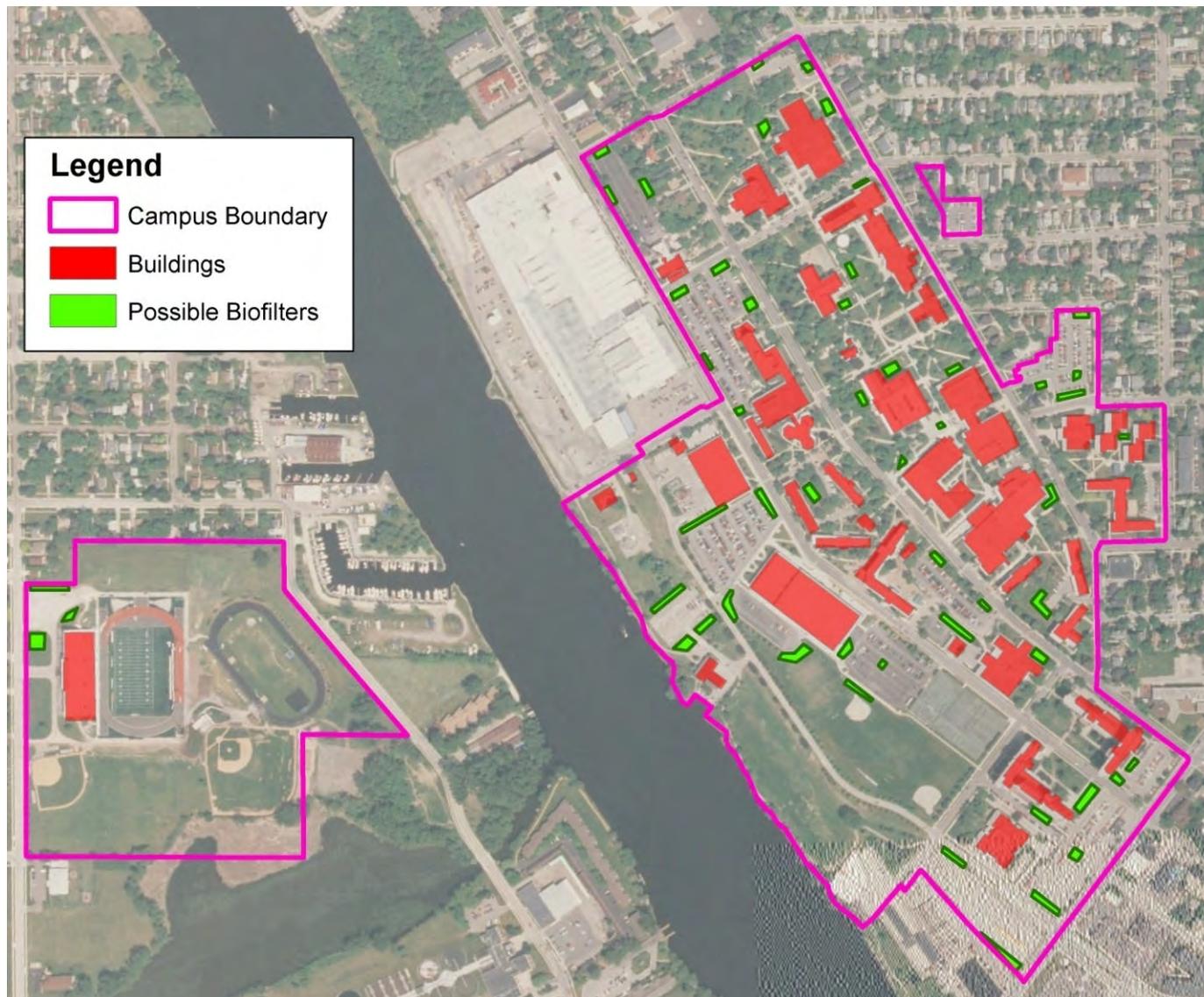
# What We Plan To Do: Install additional BMP's to meet TSS

## Rain Gardens/Biofiltration

- **Filter Water Through Soil Planting Bed**
- **Promote Infiltration**
- **Attractive**
- **Require Native Landscaping**
- **Annual Maintenance Needed**



# Potential Biofiltration/Raingarden Locations



# Ideal Locations for Rain Gardens on Campus



Northwest of Albee Hall & Pool

# Ideal Locations for Rain Gardens on Campus (con't)



Above: Nursing Center Parking Lot

Right: Clow Center Parking



# Ideal Locations for Rain Gardens on Campus (con't)



Above: Front of Polk Library

Right: Roof Drains Near Student Health Center



# Public Education and Outreach

## Public Involvement and Participation

- Stormwater ponds and other “structural” solutions will not work by themselves.
- Public education is an essential part of any plan to reduce stormwater pollution, because the daily activities of millions of people contribute significantly to non-point source pollution.
- Public involvement is a key component of any successful plan



# What Can You Do?

## Take Care of Your Car

- Use a commercial car wash that treats or recycles its wastewater or wash your car on your yard so the water infiltrates into the ground.
- Dispose of used auto fluids and batteries at designated recycling and drop-off locations.

**Remember – Motor Oil/Gasoline – bad!**

- Prevent gas and oil leaks and spills.
- Have your motor vehicle routinely serviced.

WHEN YOUR CAR'S LEAKING OIL ON THE STREET, REMEMBER IT'S NOT JUST LEAKING OIL ON THE STREET.

Greater Lansing Regional Council of Governments

What's the problem with motor oil?  
Oil does not dissolve in water. It lasts a long time and sticks to everything from soil and rocks to bird feathers. Oil and other petroleum products are toxic to people, wildlife and plants. One pint of oil can make a slick larger than a football field. Used motor oil is the largest single source of oil pollution in our lakes, streams and rivers. Americans spill 100 million gallons of used oil each year into our waters. This is 18 times the amount spilled by the Exxon Valdez in Alaska.

Clean water is important to all of us. Together we can make it happen.

Poorly maintained vehicles are one of the biggest sources for oil in our waterways. Leaking oil goes from car to street. It then washes from the street into the storm drain and into our lakes, rivers and streams.

So how can we reduce the amount of oil in our waterways? **Simple!**  
Stop drips. Check for oil leaks regularly and fix them promptly.

Your actions can help keep our water clean. Find out how.  
[www.mywatersheds.org](http://www.mywatersheds.org)

# What Can You Do?



- **Proper Trash Disposal**
  - Dumpsters are a common source of pollutants, especially if they contain any liquid or semi-liquid wastes.
  - Never place liquids into the regular trash or directly into a dumpster
  - Liquids that will not have an adverse effect on the water treatment plan (such as liquid food waste) should be discharged inside buildings (through sewer)
  - Chemicals and other liquid products that can be toxic should be collected and containerized for proper disposal



# What Can You Do?



## Report illegal dumping of wastes

- On University property, notify Campus Police at x1212
- Off campus, contact City of Oshkosh Department of Public Works (236-5065)



# What You Can Do

- Quit smoking
- If you can't, dispose of cigs appropriately.



# Final Thought: Excerpt from EPA's Storm Water Phase II Final Rule published in October, 1999.....

- "Common pollutants include oil and grease from roadways, pesticides from lawns, sediment from construction sites, and ***carelessly discarded trash, such as cigarette butts, paper wrappers, and plastic bottles.*** When deposited into nearby waterways through MS4 discharges, these pollutants can impair the waterways, thereby discouraging recreational use of the resource, contaminating drinking water supplies, and interfering with the habitat for fish, other aquatic organisms, and wildlife."



# Why this is important

Fox River, Green Bay, April 12<sup>th</sup>, 2011

