

Waukesha County

Municipal Separate Storm Sewer System (MS4) Permit

2008 Annual Report to the
Land Use Parks & Environment Committee

What is an MS4 permit?

- 1972 Clean Water Act (Water pollution control):
 - Federal (EPA) and state (DNR) rules
 - WI Pollution Discharge Elimination System (WPDES) Permits - 1970's issued to all "point" sources
 - Sewage treatment plants, paper mills, etc.
- 1987 Clean Water Act revisions:
 - Storm water began to be treated as a point source (cities & large livestock farms)

WI Storm Water Discharge Permits

- NR 216 Wisconsin Administrative Code (DNR):
 - Phase I (1994 start): Communities > 50,000 population + construction sites > 5 acres
 - Phase II (2004 start): Communities with population density >1000/square mile + constr. sites > 1 acre
- Phase II permit issued in 2006
 - Included Waukesha County and 31 out of 38 communities in the county
 - Start date of November 1, 2006



**STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES**

**GENERAL PERMIT TO DISCHARGE UNDER THE
WISCONSIN POLLUTANT DISCHARGE ELIMINATION SYSTEM
WPDES PERMIT NO. WI-S050075-1**

In compliance with the provisions of ch. 283, Wis. Stats., and chs. NR 151 and 216, Wis. Adm. Code, owners and operators of municipal separate storm sewer systems are permitted to discharge storm water from all portions of the

MUNICIPAL SEPARATE STORM SEWER SYSTEM

owned or operated by the municipality to waters of the state in accordance with the conditions set forth in this permit.

The **Start Date** of coverage under this permit shall be included in the Department letter sent to the municipality authorizing coverage under this general permit. The Department is required to charge an annual permit fee to owners and operators authorized to discharge under this permit in accordance with s. NR 216.08, Wis. Adm. Code.

State of Wisconsin Department of Natural Resources
For the Secretary

By

Russell A. Rasmussen, Director
Bureau of Watershed Management
Division of Water

January 19, 2006
Date Permit Signed/Issued

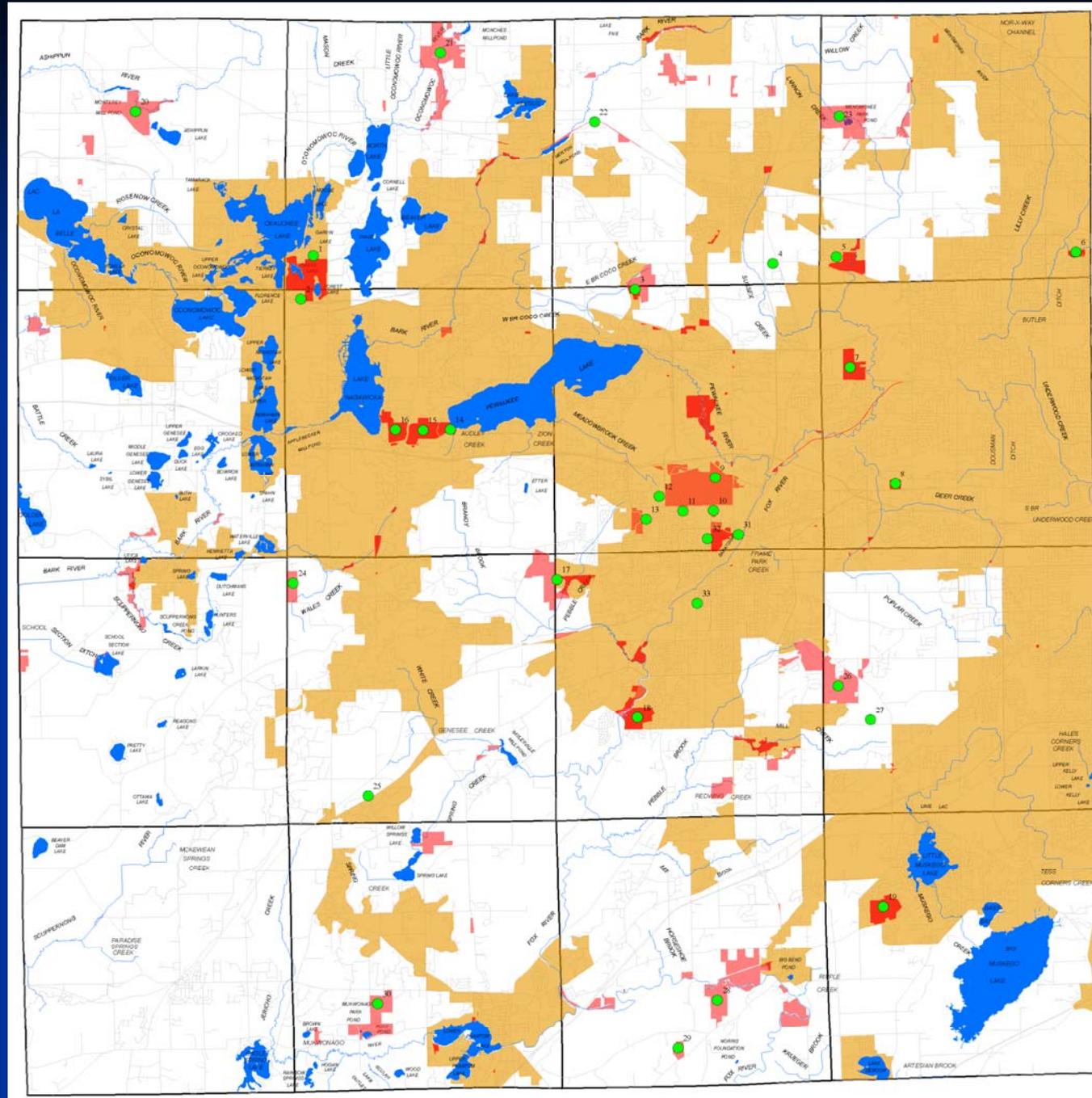
EXPIRATION DATE: Dec. 31, 2010

Affected by MS4 Permit

Waukesha County

Legend

-  "Urbanized land" (>1000 pop./sq.mi.)
-  County land (in)
-  County land (out)
-  County facilities

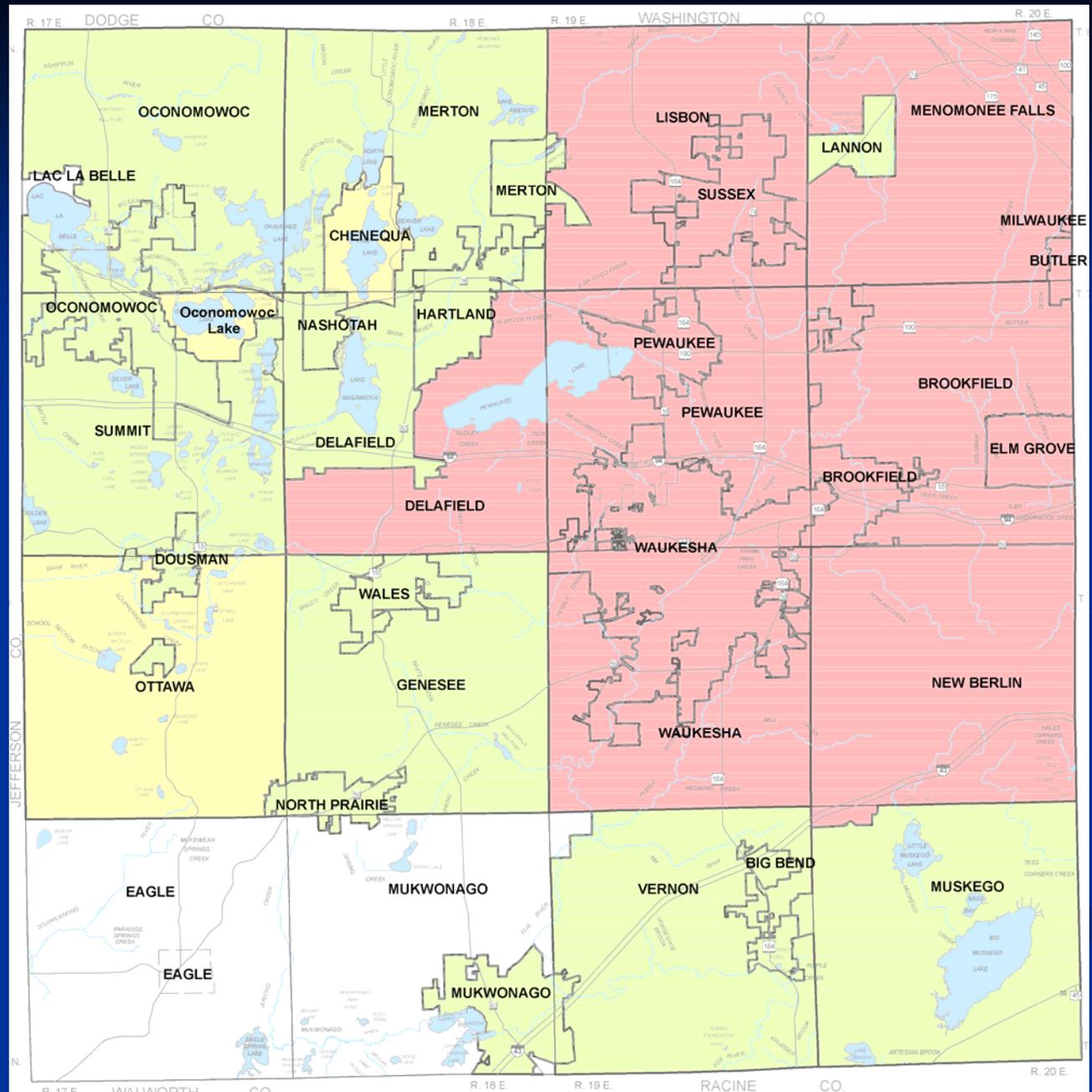


Community MS4 Permits in Waukesha Co.

Legend

- Phase I (13)
- Phase II (18)*
- Exempted (3)
- Not required (4)

* Includes Waukesha Co.



(31 out of 38 communities)

MS4 Permit Requirements

- By November 1, 2008, must implement:
 - ✓ Updates to storm water ordinance
 - ✓ Ordinance enforcement procedures
 - ✓ Dept. of Commerce certification
 - ✓ Public education & outreach program (agreements with 25 communities)

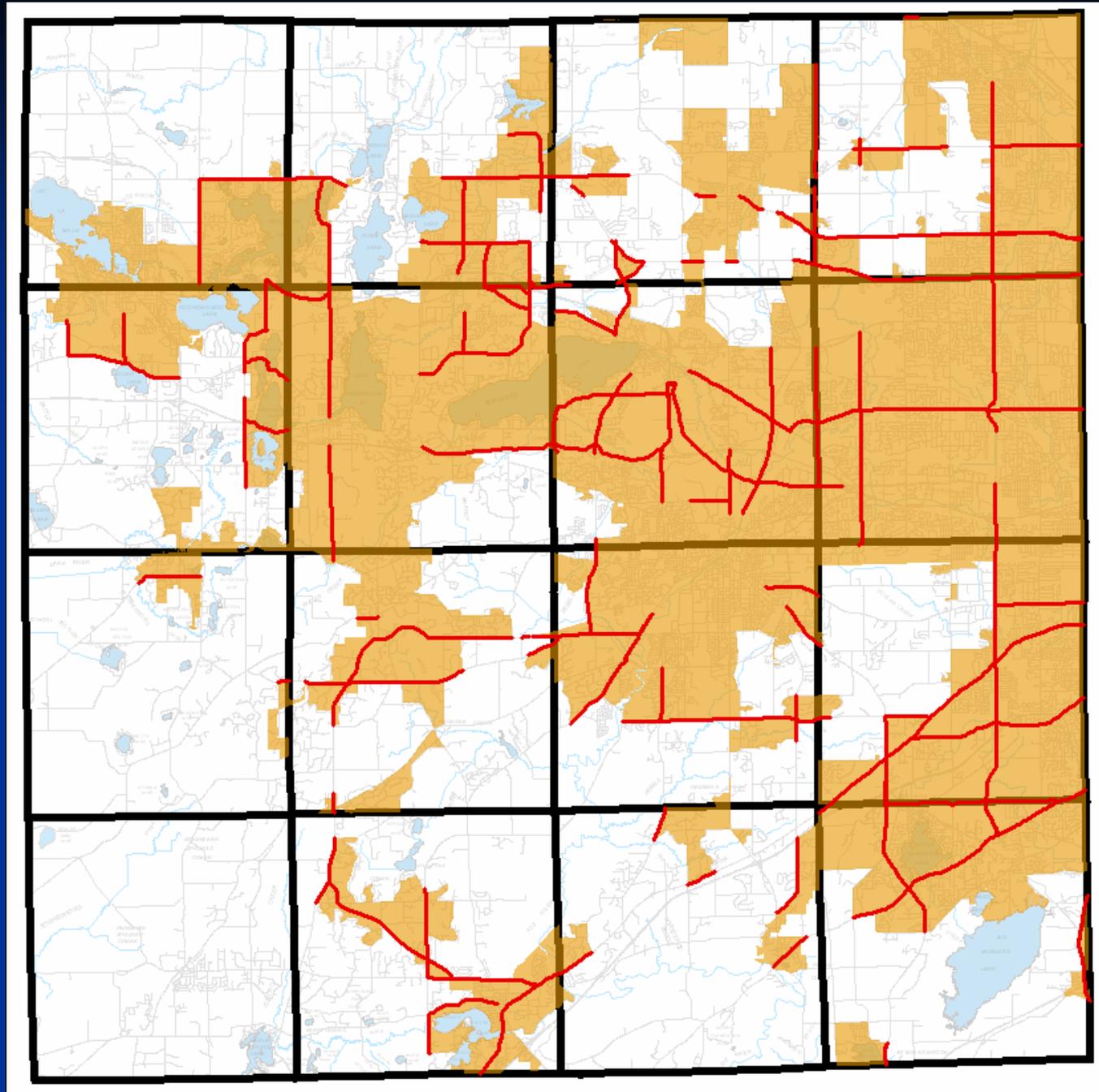
MS4 Permit Requirements (cont.)

- By November 1, 2008, must submit the following for all County property (buildings, roads, parks):
 - ✓ Map of all county storm water conveyance systems and discharge points
 - ✓ Illicit discharge detection & elimination program
 - ✓ Pollution prevention program
 - ✓ Internal educational program
 - ✓ Demonstrate compliance with 20% TSS (total suspended solids) reduction target – SLAMM modeling
 - ✓ Long-term maintenance plans for county BMPs

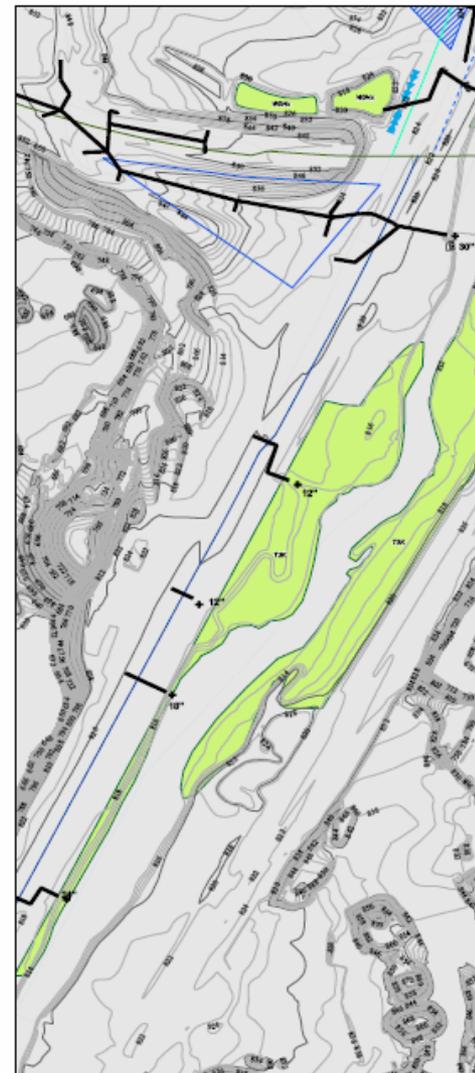
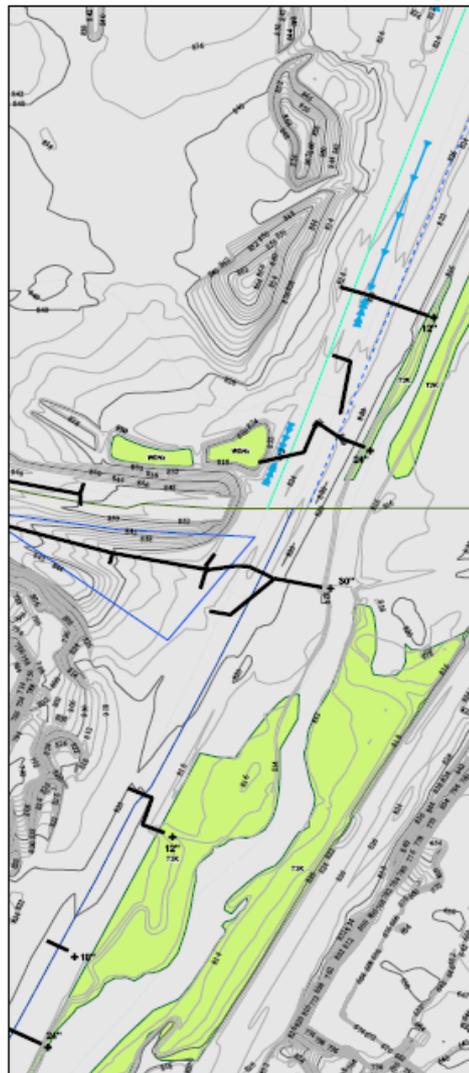
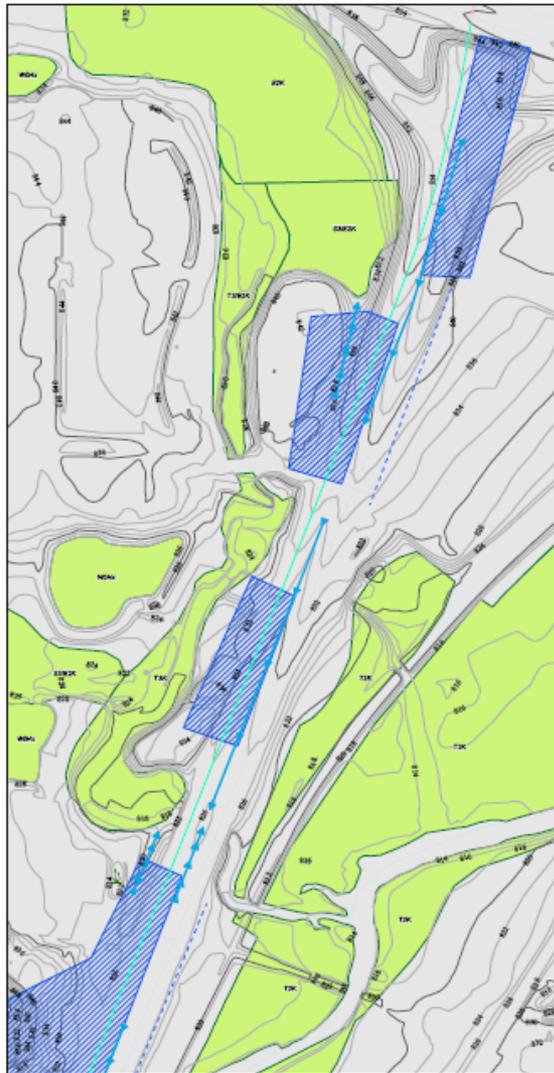
County Roads Affected by MS4 Permit (230 miles)

Legend

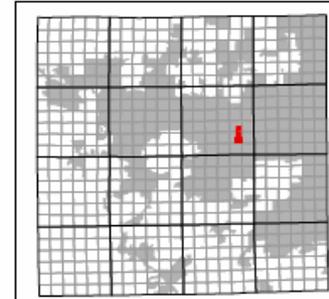
-  "Urbanized land"
(>1000 pop./mi.²)
-  County roads
affected



Sample MS4 Map – County Highway F



1 inch = 150 feet



MS4 Permit Requirements (cont.)

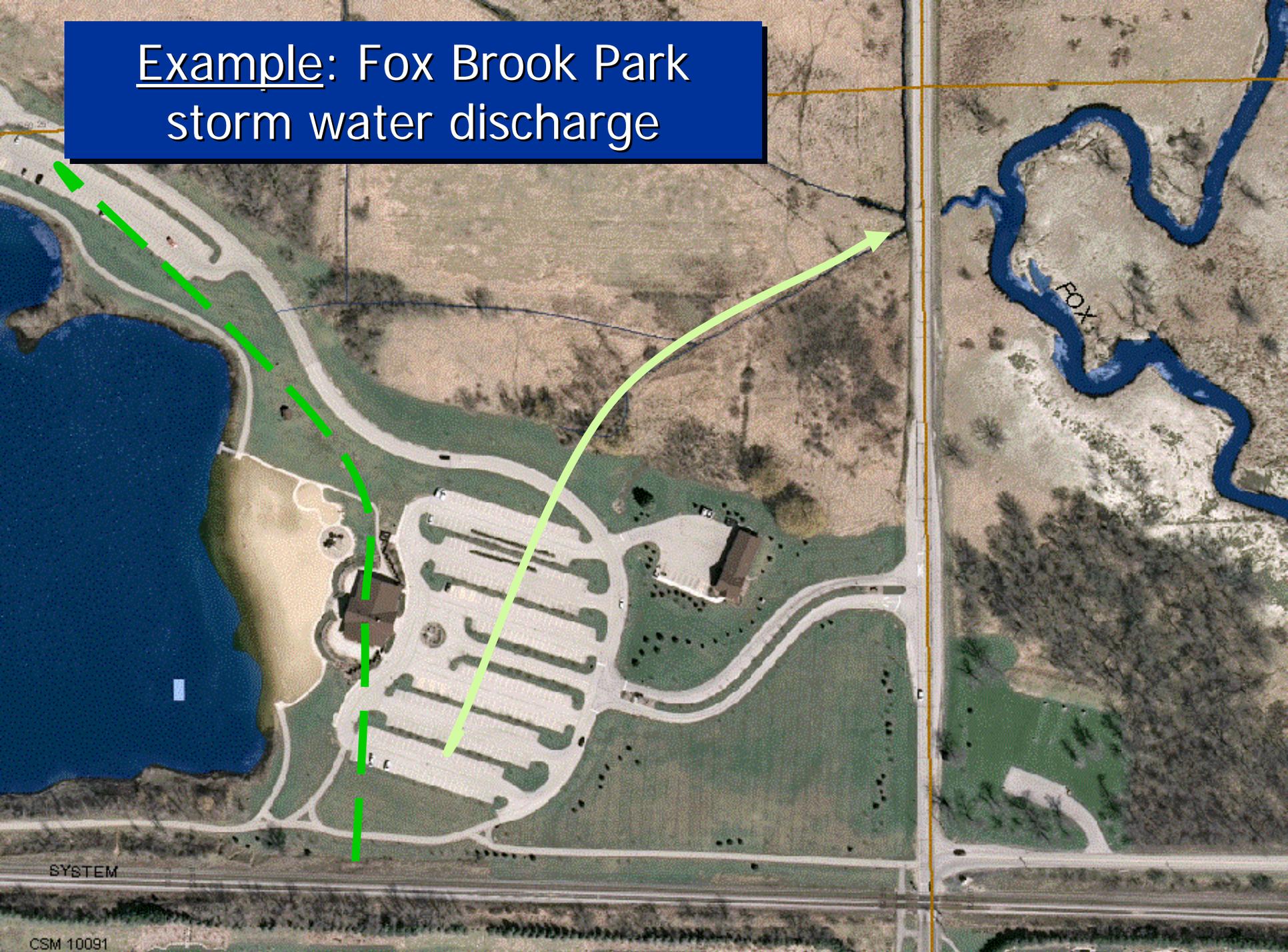
- By May 1, 2009, must implement:
 - Illicit discharge detection/elimination program
 - Pollution prevention plans (12 facilities)
 - Internal educational program
- By November 1, 2009, complete initial screening in IDDE program
 - By November 1, 2010, complete on-going IDDE screening

Pollution Prevention Planning

Example: Salt handling & management practices



Example: Fox Brook Park
storm water discharge



SYSTEM

MS4 Permit Requirements (cont.)

- By March 31 each year, must submit annual progress report
 - Demonstrating compliance with all MS4 permit requirements
- By November 1, 2013, must demonstrate compliance with 40% TSS reduction
 - Draft submittal shows county compliance, but needs to be approved by DNR
 - Many communities concerned about this

Water pollution standards a struggle

Street runoff cleanup too costly, cities say

Milwaukee Journal Sentinel Article – October 25, 2008

Scores of Wisconsin communities are scrambling to find ways to comply with controversial - and, they complain, overreaching - water pollution requirements that could cost in excess of \$150 million over the next five years.

Reality vs. runoff

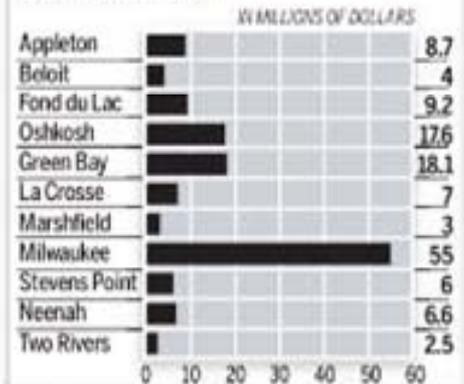
Municipalities should do what they can to meet pollution runoff rules, but the state needs to be flexible

Milwaukee Journal Sentinel Editorial – October 28, 2008

Cost of compliance

Wisconsin communities are trying to find ways to meet state water pollution standards for runoff.

Estimated cost of achieving 40% reduction of total suspended solids in local water bodies



Source: Wisconsin Alliance of Cities; City of Milwaukee

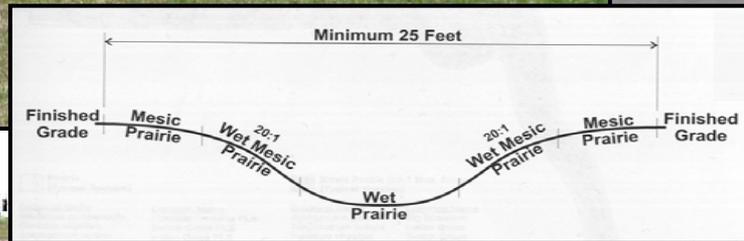
What Does it all Mean to Waukesha County?

- Consider storm water best management practices (BMPs) for all future facility/road planning & maintenance
- Recommend BMP demonstration sites
 - Continue leadership on storm water issues
 - Part of county sustainability program
 - Enhance public education efforts
 - Demonstrate MS4 permit compliance

Example Storm Water BMPs for County Use

- Vegetative swales (county roads)
- Rain garden/Bioretenention
- Green roof
- Pervious pavement

Grass Swales



Key to overall county MS4 permit compliance!

Rain Garden



Rain Garden - Retzer Nature Center



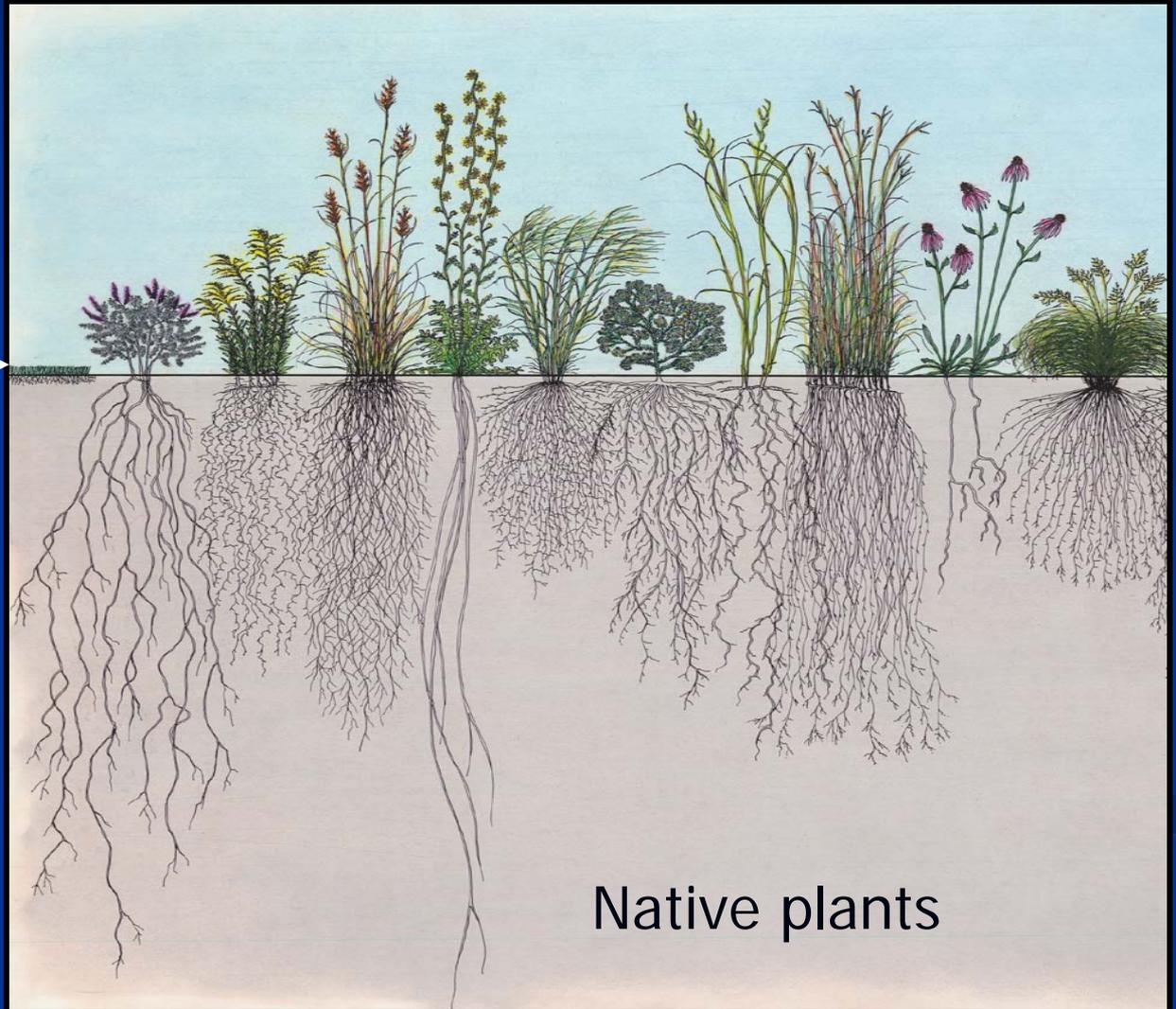
Native Plants

- Low maintenance (after establishment)
- Good infiltration...



It's all about the Roots!

Lawn grass: →
3 inches

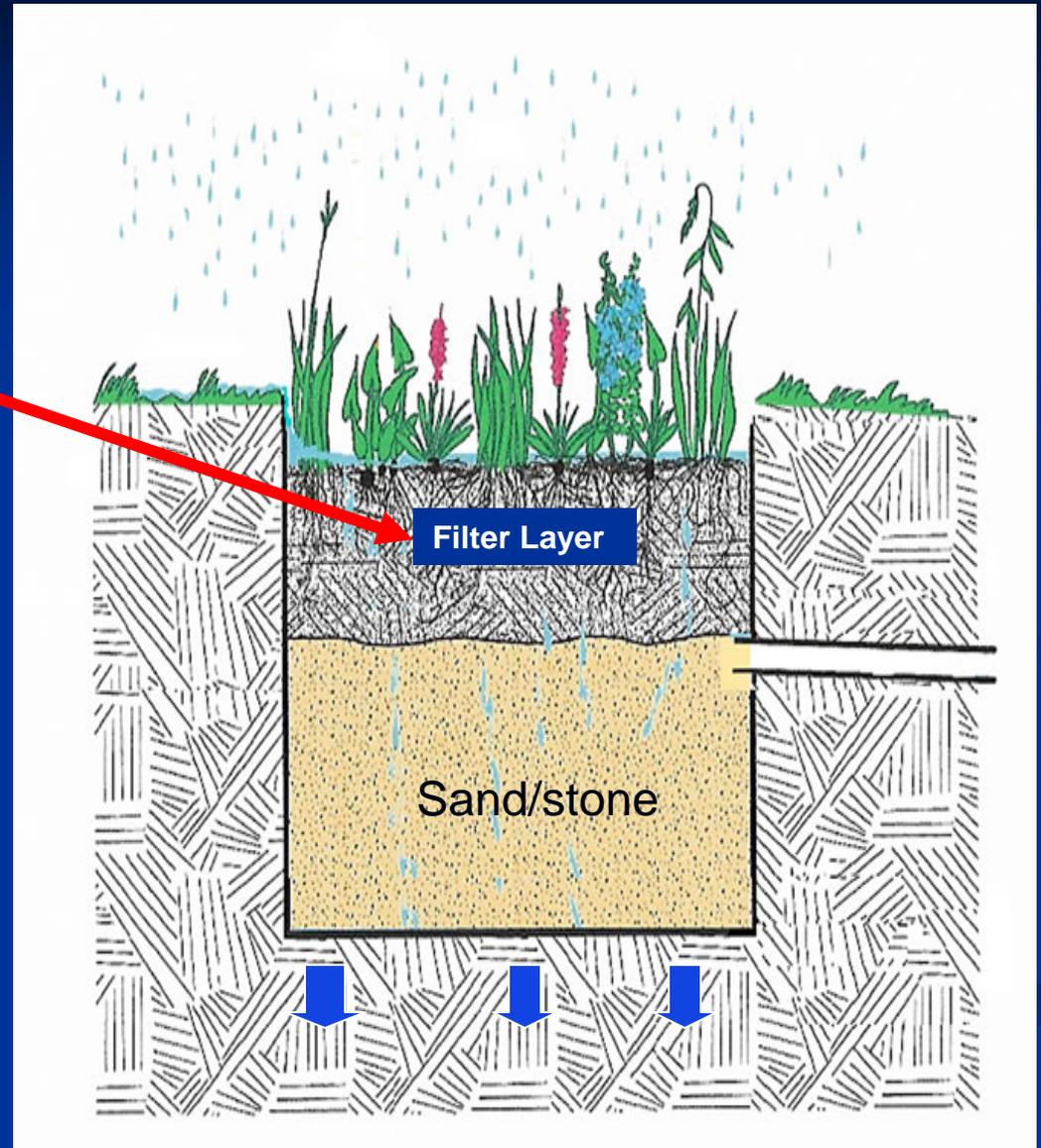


Natives:
5-15 feet

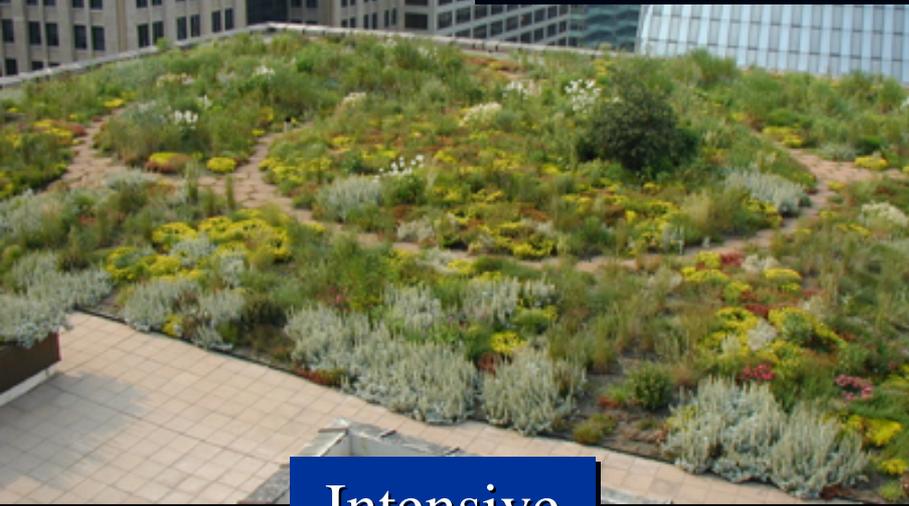
Native plants

Bioretention

- Engineered media
 - Sand/compost mix
- Filters pollutants
- Recharges groundwater



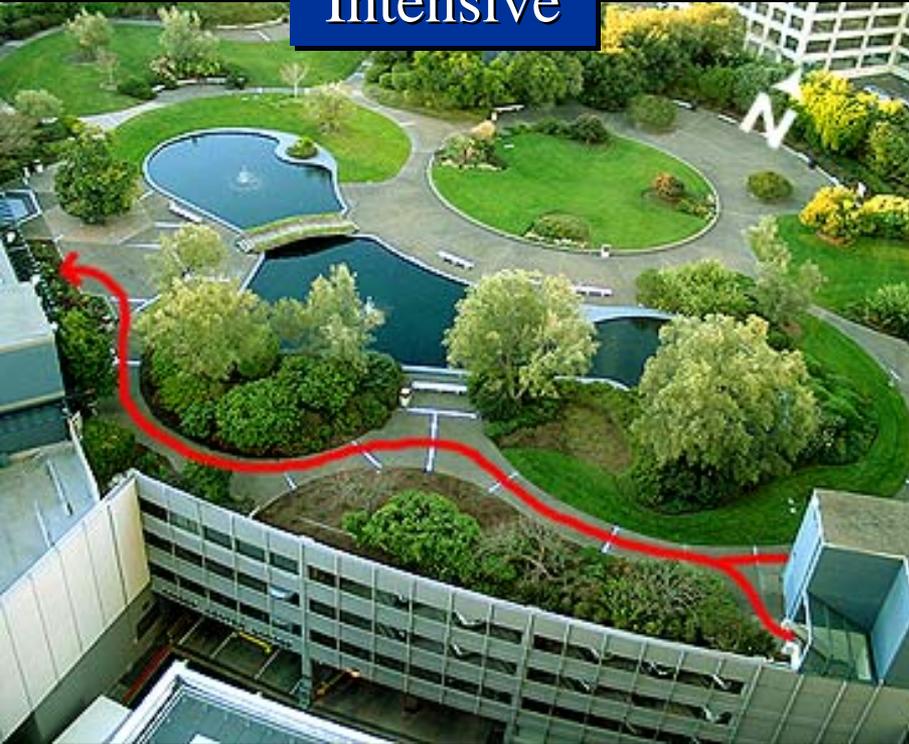
Green Roofs



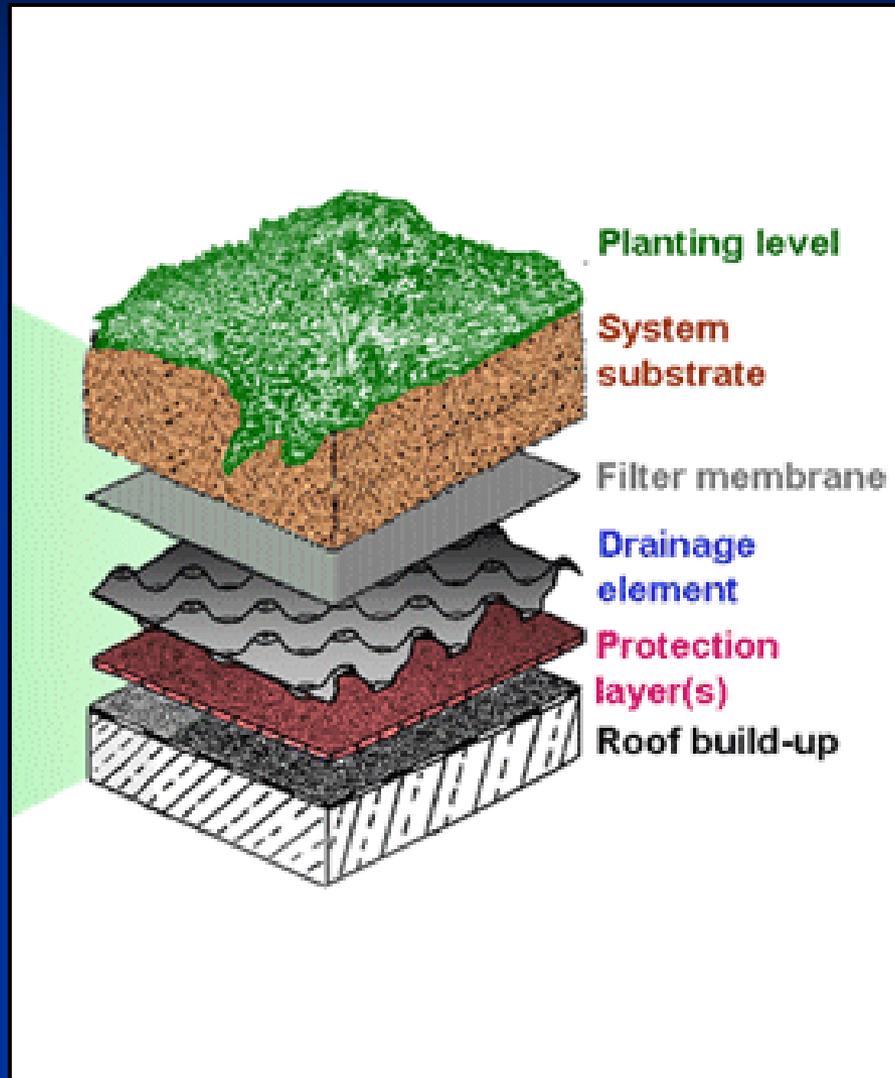
Intensive



Extensive

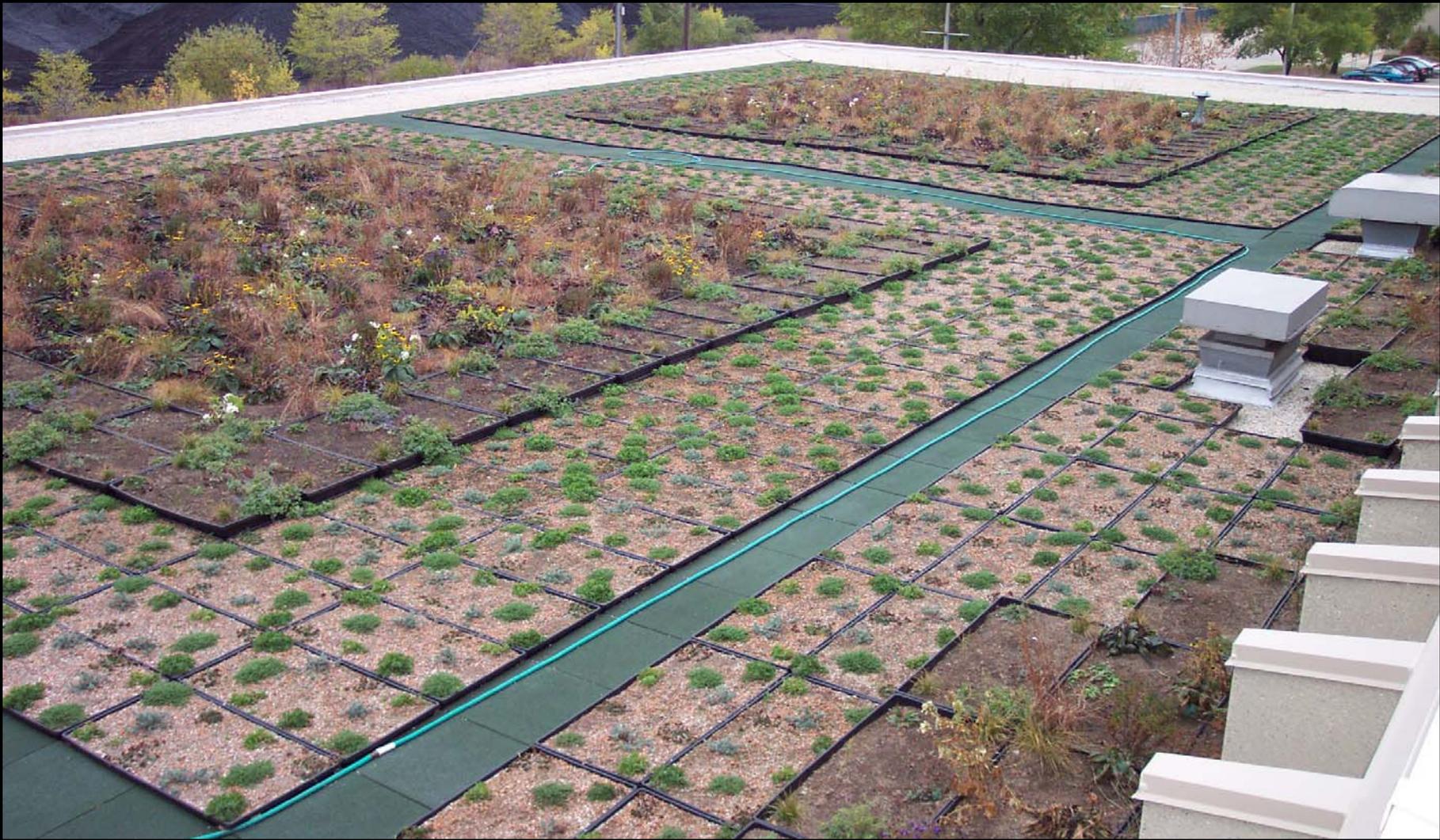


Green Roof Design



- Engineered growing media
- Reduces runoff
- Saves energy
- Improves aesthetics

Great lakes WATER Institute - Milwaukee



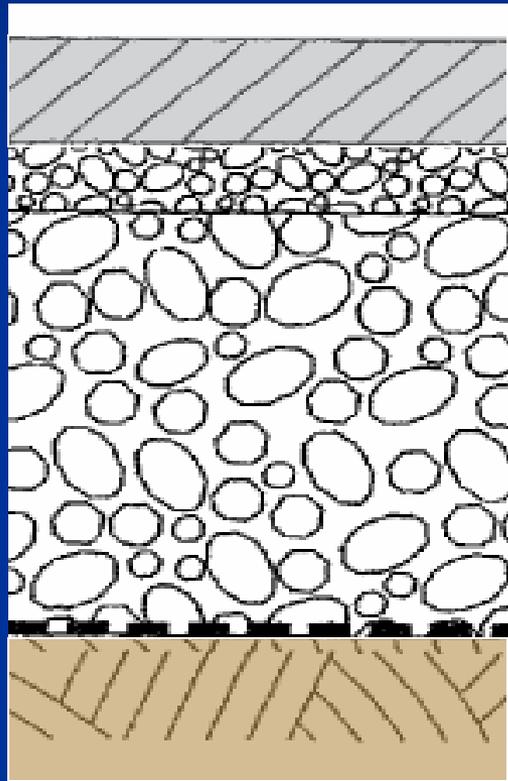
Milwaukee Metropolitan Sewage District





Chicago City Hall

Pervious Pavement (concrete or asphalt)



(Choker Course)

Washed stone
(Reservoir course)

Native Soil



Denver: Next AM Following 12" Snow

Pervious Concrete

Conventional Asphalt



Sites directly across street

Photos taken 5 minutes apart

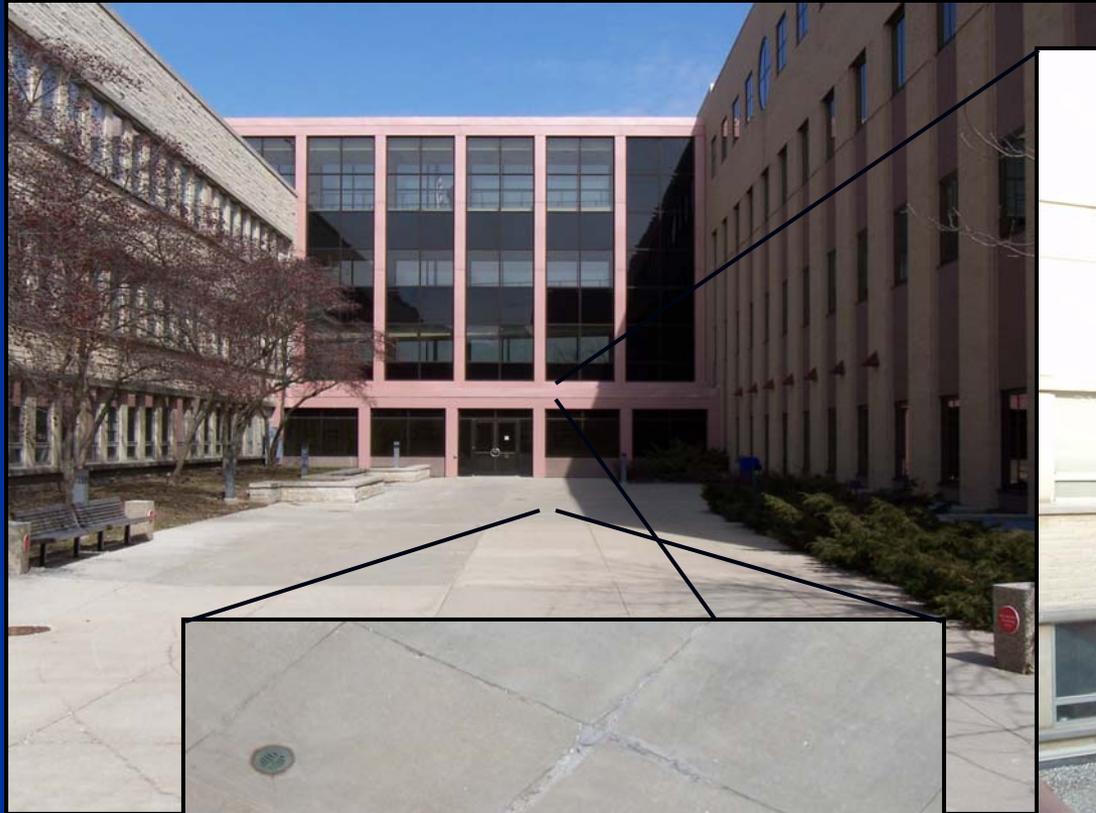
Pervious Pavers



Open-Celled Paving Grids



Possible Demo Site – Co. Courtyard



Pervious pavement?



Green Roof?

Summary

- Very involved permit process
- Consistent with county clean water & sustainability goals, but...
 - Still waiting for DNR approval on our submittal
 - Until complete, budget impacts are uncertain
- State grants could help get a county demonstration site going in 2010?