

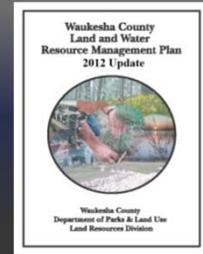
# Waukesha County Land & Water Resource Management Plan

## 2016 Progress Report

Perry Lindquist, Land Resources Manager  
 Waukesha County Department of Parks and Land Use  
 Land Resources Division

# Presentation Outline

- Background
  - Waukesha County
  - LWRM Plan
- Program highlights 2012-2016



### Department Of Parks & Land Use Dale Shaver, Director



### Land Resources Division



## Location of Waukesha County

Size: 576 sq. mi.

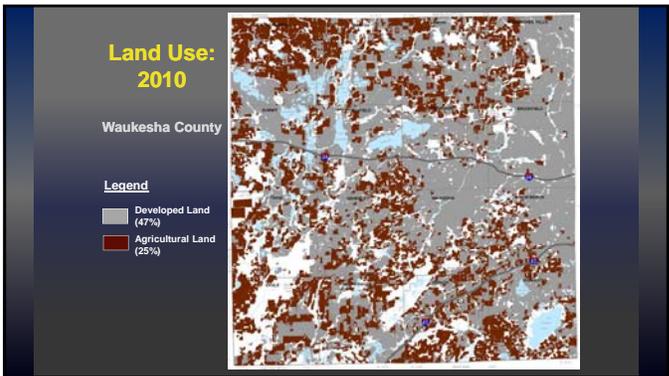
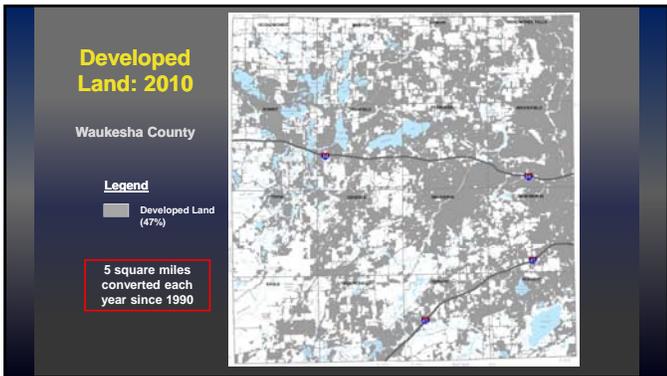
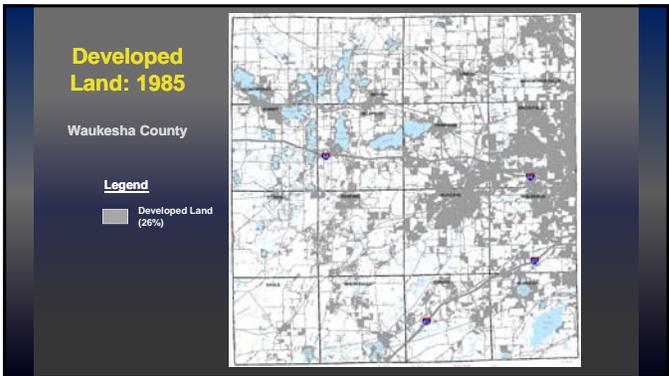
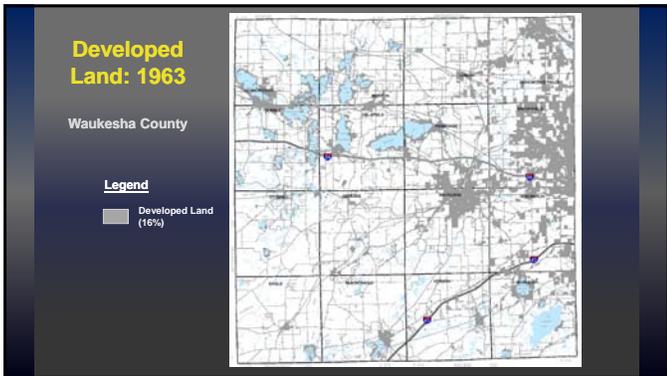
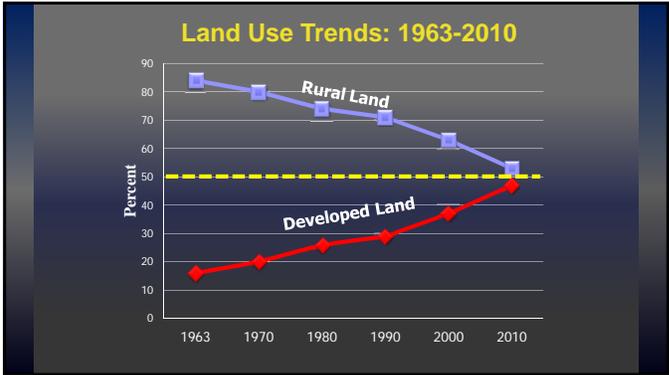
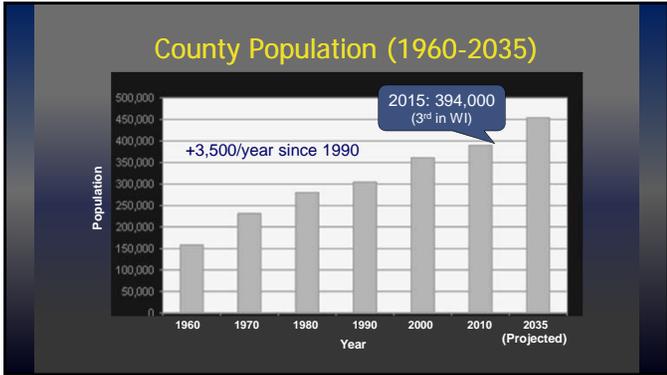


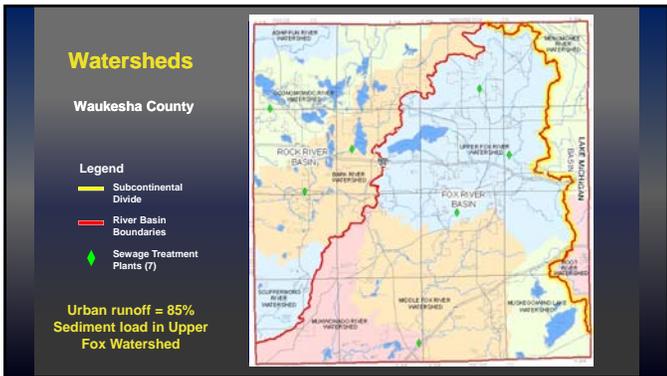
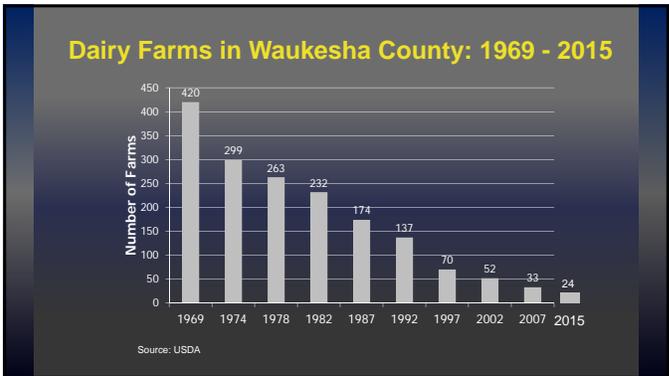
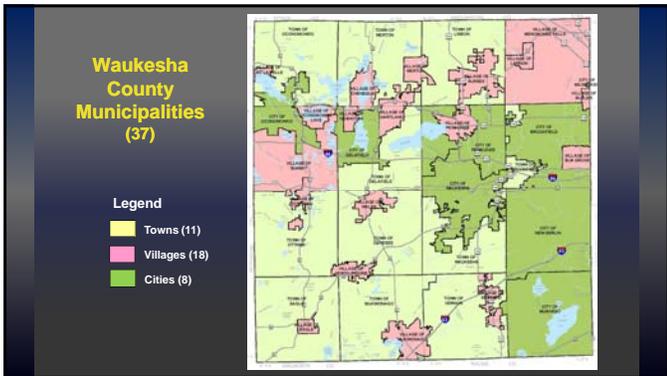
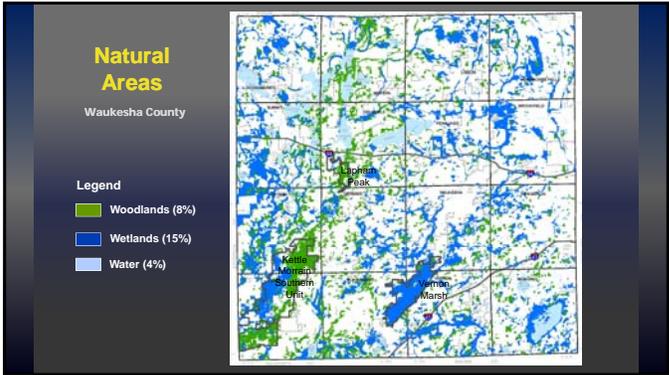
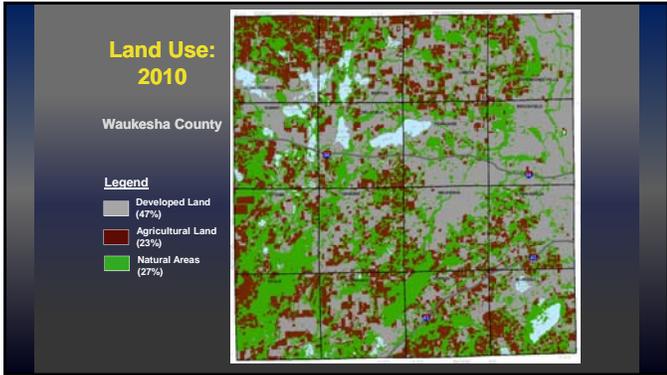
## Topography & Physiography

Waukesha County

- Legend**
- Elevation (in feet)
- < 700
  - 700-799
  - 800-899
  - 900-999
  - 1000-1099
  - 1100-1199
  - 1200-1299
  - ▲ Lapham Peak







### LWRM Plan Background

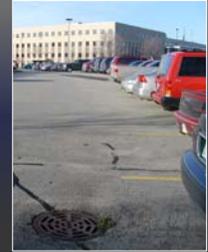
- 3rd generation for Waukesha Co.:
  - 1998 Prototype/program redesign
  - 2005 Update
  - 2012 Update
    - Reconvened 2005 advisory committees
      - Urban & rural
    - LWRM plan approved by LWCB June 2012
      - Through 2021 with progress report in 2016

Waukesha County  
Department of Parks & Land Use  
Land Resource Division

## Land & Water Conservation Program Highlights 2012 - 2015

### Urban Nonpoint Performance Standards (NR 151):

- Construction site erosion control
  - Sediment (80% of no controls)
- Post-construction runoff controls
  - Total suspended solids (40-80%)
  - Runoff volumes (infiltration)
  - Peak flows (1-2 yr./streambanks)
  - Buffers (50-75 feet)
  - Petroleum runoff (vehicle fueling)
- Mandatory ordinances:
  - Priority watershed grants (1992)
  - MS4/NR 216 (2004)
  - Pollution prevention vs. "reduction"



### Community MS4 Permits

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

- Enforce state nonpoint stds./local ordinance
- 40% TSS reduction/existing "urban" development
  - Courthouse campus, substations, parks, etc.
  - 269 miles of county highways
- Illicit discharge detection (14 SS outfalls)
- Inspect County-owned BMPs (21 BMPs)
- Pollution prevention plans (13 county facilities)
- Implement SW Education program

### Waukesha County Stormwater Ordinance



#### Jurisdiction:

- 9 Towns
- 2 Villages/IGA

### Goal #1 - (36% - 2.2 FTE)

### Control Urban Runoff Pollution & Flooding

- Stormwater ordin. 2012-2016:
  - 431 stormwater & erosion control plan reviewed
  - 350 permits issued (78/yr.)
  - 3,406 field inspections completed (10/permit)
  - 74 enforcement actions taken
    - Stepped system



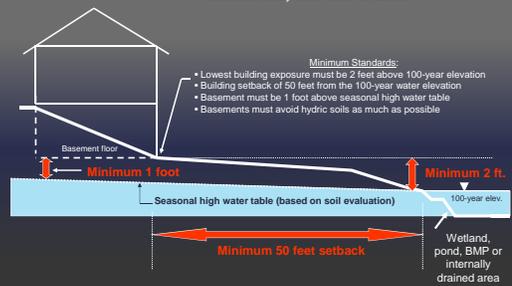
## Prevent Basement Flooding

- Enforce minimum separation distances from surface and groundwater
  - Soils investigations (g.w.)
  - Modeling (surface water)
- All Stormwater Permits
- +72 zoning referrals



## Minimum Site Drainage Standards

Waukesha County Storm Water Ordinance



## Stormwater Ordinance Update: 2016

- Revised 2005 County Ordinance
  - NR 151 revisions & local implementation issues
    - Updated stormwater performance standards, permit requir., modeling, etc.
    - Role of the "Project Engineer" (subcommittee)
  - Storm Water Advisory Committee (3 mtgs./fall 2015)
- Posted model redline copy on web November 2015
  - Served as guide for many other communities (May 2016 deadline)

## Maintain Authorized Local Program Status (NR 216)

- 1-stop shop (DNR/County permit)
- Wauk. Co. ALP status began in 2011
  - First and only community in WI
  - Applies to >1 acre sites
  - Requires county screening for wetlands, endangered resources and historical sites
    - 63 Endangered resources/wetland reviews
    - 78 Historical/Archeological/Architectural reviews



## Facilitate BMP Maintenance

- SW Permit closure process/ROD (71 BMPs since 2012)
- Model BMP maintenance ordinance (2015/web)
- Education program/fact sheets
- BMP Database (>600 BMPs)/web-GIS
- 60 BMP inspections per year





### Demonstrating BMPs on County Facilities

- Cost-shared by U.S. Fish & Wildlife Service
- 50% of \$3,500

Wetland scrapes – Fox River Park



### Stabilizing an Eroding Hillside

*Naga-Waukeee County Park*

Naga-Waukeee Park Slope Restoration Details

### The Plan

### Lots of Volunteers & Hard Work

- site clearing/removing invasives
- backfill walls with soil bags
- prairie sod
- bag delivery by boat
- installed

**Finished Product**



- SWRM cost-sharing (3 phases/years)
- 50% of \$36,000



Future boardwalk

**The View**



Nagawicka Lake

**Gully Repair**  
*County Greenway Corridor*




200 acre watershed upstream

**Construction**



Soil bag and riprap installation

Stilling basin excavation

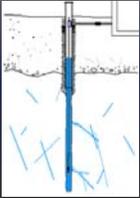
**Finished Product**

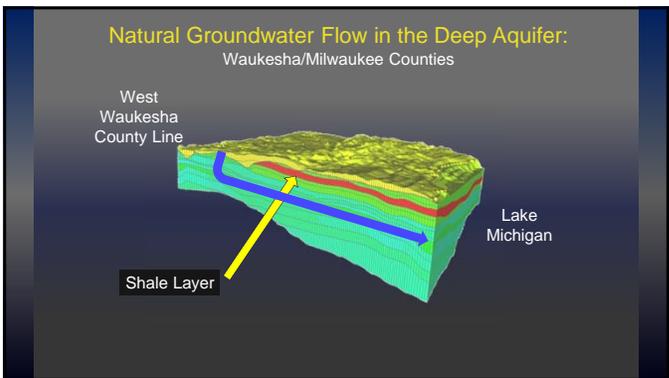
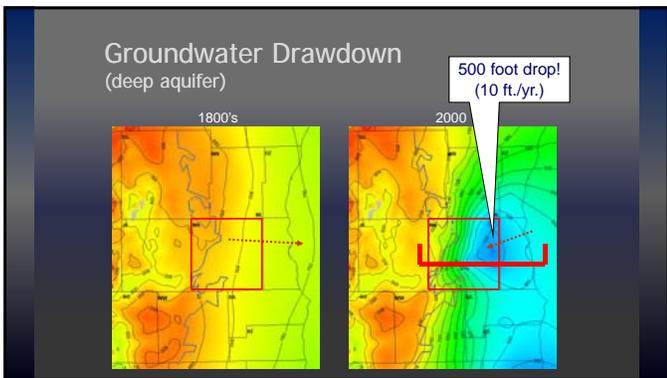
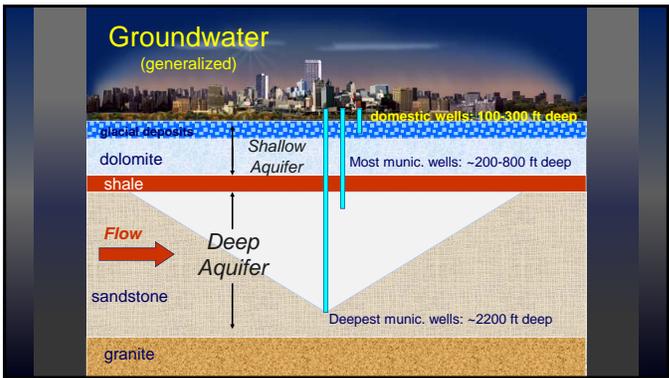
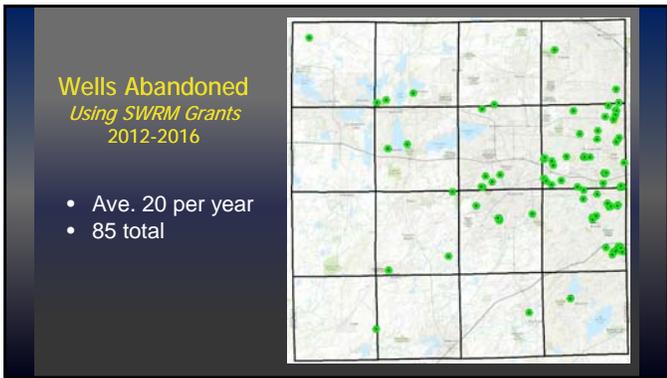


- Cost-shared by S.E. WI Fox River Commission
- 67% of \$30,000

**Goal #2 – (4% - 0.2 FTE)**  
**Protect Groundwater Quality/Quantity**

- WI Water Conserv. Coalition
- Protect groundwater recharge areas (SW permits)
- Target SWRM grants to well abandonment
  - 85 wells since 2012
- Support Waukesha water application



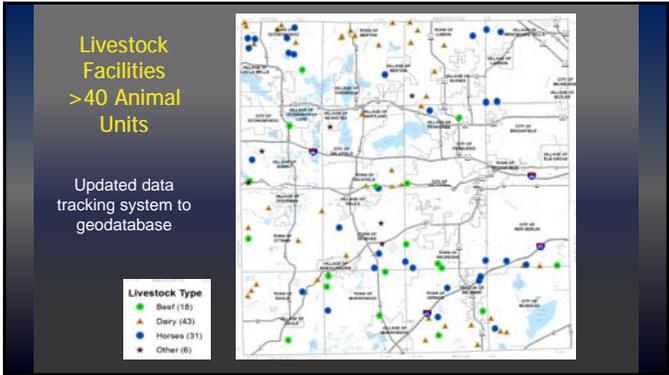
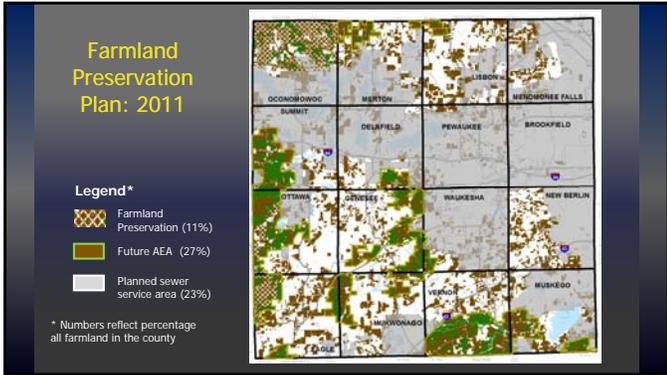


### Agricultural Nonpoint Performance Standards: (NR 151)

- Control soil erosion at or below "T" values
- Implement nutrient management plans
- Control barnyard runoff
- Ensure manure storage facilities meet NRCS standards
- No manure piles in shoreland areas
- Control livestock in streams & prevent bank erosion

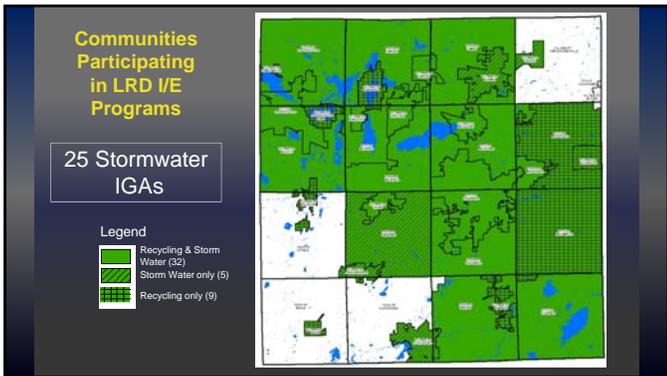
### Goal #3 – (10% - 0.6 FTE) Control Agricultural Nonpoint Pollution

- Compliance targeting since 2012:
  - Farmland Preservation Program
    - 38 farms inspected & 15 Certificates of Compliance
  - County-owned cropland
    - 800 acres/15 contracts – phased in as contracts expire
    - Require 50-75-foot buffers, 40% soil cover, & state perf. stds.



- ### Other Agricultural & Watershed Projects
- SNAP+ classes (5 classes/18 attendees)
  - Agricultural Resources Day/FPP (4 days/82 attendees)
  - Watershed planning/farmer meetings:
    - Oconomowoc River/WWTP (21/5)
    - Mason Creek (6/3)
    - Rock River TMDL (16)
    - S.E. WI Fox River Commission (51)
  - Farmland Preservation Planning (2011)/Zoning (2014)

- ### Goal #4 – (26% - 1.6 FTE) Conservation Education
- 
- Target audiences:
    - Developers, engineers, local officials
    - General public
    - Rural landowners & farmers
    - Teachers, students, youth groups
  - Annual community work planning
  - Educational activities:
    - Web sites, workshops, presentations, tours, field events, newsletters, etc.



- ### Storm Water Education Program
- 
- Developer/Municipal education (2012-2016):
    - 5 annual stormwater workshops (492 attendees)
    - 21 other training events/presentations (398 attendees)
    - 54 E-news (monthly program updates)
    - 6 work planning meetings
-

## Youth Education (2012-2016)

- 76 Presentations (5,920 attend.)
- 39 Field experiences (2,965 attend.)
  - Water quality monitoring
  - Soil quality
- 9 Storm sewer stenciling events (111 attend.)





## General Public Education (2012-2016)

- 17,560 rain garden plants sold
- 68 general public presentations (2,975 attendees)
- 39 public displays (68,000 attendees)
- 40 rain barrel/rain garden presentations (1,044 attendees)
- 277 rain barrels sold
- 30 composting classes (862 attendees)
- 39 press releases





## Teacher Training

- Conservation tour (2/39)
- Workshops (11/133)
- Green Schools
  - 10 new agreements




## Stormwater BMP Maintenance (4-pg. fact sheets)

### INFILTRATION BASINS

A infiltration basin is a storm water management practice (BMP) designed to collect runoff and infiltrate it into the ground. Infiltration basins are typically rectangular, and are often used in residential areas. They are designed to collect runoff from a roof, driveway, or parking area, and infiltrate it into the ground. This helps to reduce the amount of runoff that enters the storm sewer system, and helps to recharge the ground water table.



### BIORETENTION BASINS

Bioretention basins are designed to collect runoff and infiltrate it into the ground. They are typically rectangular, and are often used in residential areas. They are designed to collect runoff from a roof, driveway, or parking area, and infiltrate it into the ground. This helps to reduce the amount of runoff that enters the storm sewer system, and helps to recharge the ground water table.



### STORMWATER PONDS

Stormwater ponds are designed to collect runoff and store it for a period of time. They are typically rectangular, and are often used in residential areas. They are designed to collect runoff from a roof, driveway, or parking area, and store it for a period of time. This helps to reduce the amount of runoff that enters the storm sewer system, and helps to recharge the ground water table.



## Aquatic Invasive Species

- 2016 state grant (75%)
- Partnership with Washington County (50% - AIS Coordinator)
- Education:
  - Clean Boats Clean Waters
  - Schools/civic groups
- AIS data collection & maps
- Strategic plan (SEWRPC)
- Lake partnerships








## Goal #5 - (5% - 0.3 FTE)

### Preserve Targeted Farmland & Natural Areas

- Updated county FP zoning ordinance (2015)
- Minimize negative impacts from development
  - Ordinance enforcement & BMP location
  - Acquisitions/dedications (greenways)/\$1 M/year



**Goal #6 – (15% - 0.9 FTE)**  
**Support Water Monitoring & Improve Public Access to Data**

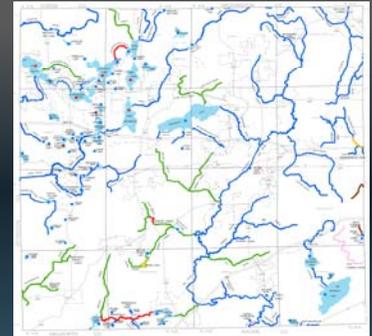
- Water Resource Database
  - Support 28 stream monitoring teams/year
  - Linked web-GIS water maps to DNR data
  - Updated watershed maps to 2' contours
  - 5 Stream monitoring training events (78 attendees)
  - Improve/link floodplain maps/profiles



**Water Resource Classifications**  
 Waukesha County

- Lakes (89)**
- Lake Supports Cold Water Species (7)
  - Lake Supports Warm Water Species (72)
  - Outstanding Resource Water (1-Spring Lake)
- Streams (27)**
- Exceptional Resource Waters (3)
  - Cold Water Streams (10)
  - Warm Water Streams (40)
  - Limited Forage Fish (1)
  - Limited Aquatic Life (2)
  - Special Variance Waters (1)

33% stream miles = "Impaired"



**Goal #7 – (5% - 0.3 FTE)**  
**Reclaim Active Mining Sites**

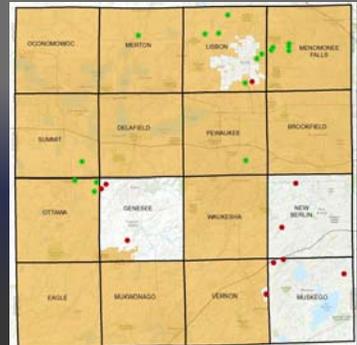
- Ordinance: July 2001
- Post-mining land use
- 17 County permits
  - 1 Added in 2014
- 12 Inspections completed since 2012



**Nonmetallic Mine Reclamation Ordinances & Permits**  
 Waukesha County

- 26 Mines:
- 14 sand & gravel pits
  - 11 limestone quarries
  - 1 peat mine

- Permit Jurisdiction
- County (17 in 6 communities)
  - Local (9 in 4 communities)



**County Mine Reclamation & Yard Waste Composting**

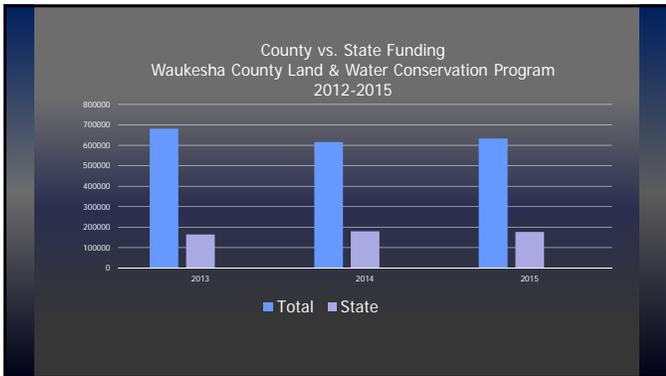
- Contract 2004 - 2014
  - End land use: industrial park
  - Compost as topsoil substitute for mine reclamation
- 64,824 tons yard waste composted
- 1.4 million tons gravel mined
- Composting operation moved to another mine in 2014
- Mining & reclamation work to be completed by 2019





### LWRM Plan Monitoring & Evaluation

- 10-year LWRM plan
- 3-year County strategic plan
- Annual budget/staff goals
  - Annual performance evaluations
- Water quality monitoring
- GIS/Database tracking systems
- Plan activity tracking & reporting



### Summary

- Diverse/challenging/suburban program focus
- Automation + program integration = improved effectiveness
- Funding concerns/leveraging other \$\$
- Development pressures on the rise - again
- FPP certification numbers on tax forms – yay!

