

StormCon '17

Waukesha County Stormwater Database

Leif Hauge

11/14/17
Pond Maintenance Workshop











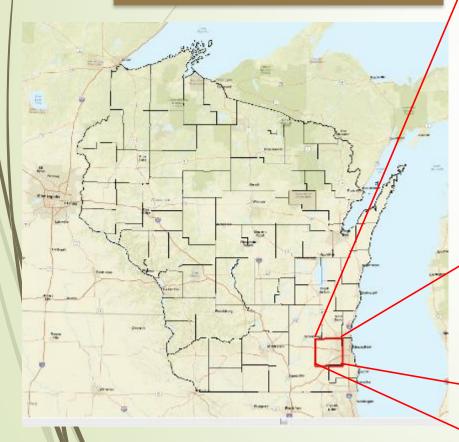


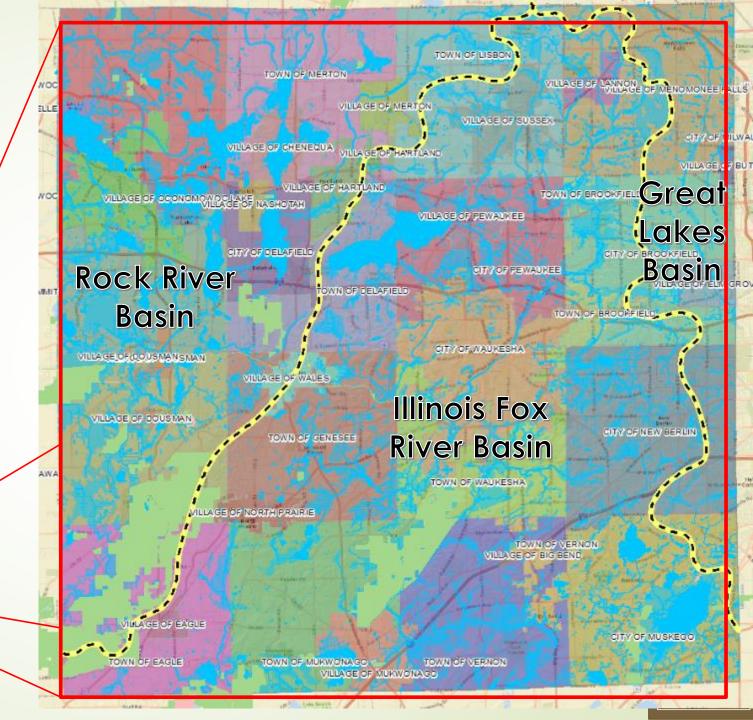




Waukesha Co.

- 37 Municipalities
- Population 394,000 (approx.)
- Three Major Basins (including the subcontinental divide)







31 Communities, including Waukesha County are under MS4 permit requirements.

MAP IV-2 MUNICIPAL SEPERATE STORM SEWER SYSTEM (MS4) DISCHARGE PERMITS UNDER NR216 WAUKESHA COUNTY: 2012 Legend Phase I Community (13) Phase II Community (18 including Waukesha County) Exempted Communities (3) MS4 Permit Not Required (4) *Townships - Only portions meeting the Urbanized Area designation by the EPA Source: Waukesha County & WDNR













Waukesha County MS4 Map











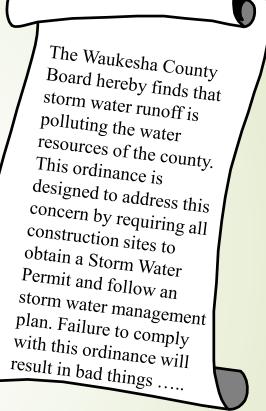




Waukesha Co. Stormwater & Erosion Control Ordinances



- 1998 Construction Site Erosion Control & Storm Water Management
 - Water Quality
 - Peak Flows
- 2005 Construction Site Erosion Control & Storm Water Management
 - Water Quality
 - Peak Flows
 - Volumes (infiltration/reuse)
 - Thermal Impacts
- 2011 Authorized to Issue WPDES Permit Coverage
- 2016 Stormwater Management and Erosion Control Updates Erosion Control
 - DNR's USLE Spreadsheet
 Stormwater Management
 - Atlas 14 Rainfall Depths and Distribution

















Over-simplified stormwater database network diagram

<u>Stormwater</u>

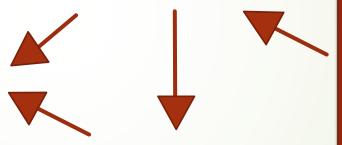
<u>Database</u>

- SQL Server
- Java Interface (browser)

Permit and BMP Data & Links to Images

Self-Service Application

SharePointPrivileges & ImageTypes



Contact Manager

MS Access (network)People & Groups



Image Server

SharePoint Image Repository



- ArcGIS Server
- Geocortex
 Permit Boundaries,

BMP Points, Attributes & Links to

Images













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Stormwater Permits on GIS

Stormwater Permit Boundaries are on the County's GIS website

- ✓ Permit Status (Pending/Issued)
- ✓ Permit Holder
- ✓ Expiration Date
- ✓ Project Type
- ✓ WPDES Coverage
- ✓ Project Milestones
 - ✓ Application Date
 - ✓ Approval Date
 - ✓ Permit Issued Date
 - ✓ Compliance Issues









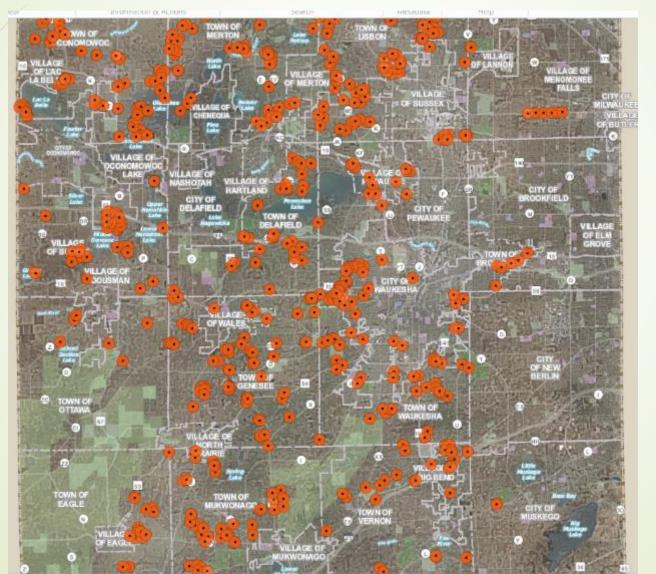






Stormwater BMPs on GIS

More than 700 Storm Water BMPs are on the County's database/GIS

















What Kind of BMPs are we tracking?

Bioretention Area

Catch Basin with Sump

Compensatory Flood Storage

Constructed Wetland

Dam

Dry Detention Basin

Filter Strip

Grassed Swale

Green Roof

In-ground Water Quality Device

Infiltration Basin

Infiltration Basin with Wet Forebay

Infiltration Trench/Structure

Kettle

Mitigation for Zoning

Native Prairie

Permanent Sediment Trap

Porous Asphalt

Rain Garden

Sand Filter

Underground Storage/Detention

Wet Detention Basin

Wetland















BMP Project List

BMP Listing Project Listing



BMP Tracking

Project List

- · All Storm Water BMP's need to be associated with a Project.
- · Each Project may have multiple BMP's associated with it.
- · Listed below are all Projects currently entered for the community below.

Filter List

Remove Filter

Project Identifier	Municipality	Number Of BMPs
Alan's sample test project	City of Brookfield	2
CTH M reconstruction phase 1	City of Brookfield	
CTH M reconstruction phase 2	City of Brookfield	
CTH YY and Burleigh Rd Intersection Improvement	City of Brookfield	
Arrowood Subdivision	City of Oconomowoc	
Jason Becker TIS	City of Oconomowoc	
Pabst Farms Rezone - Fire Station	City of Oconomowoc	
Wood Creek Phase IV	City of Oconomowoc	1
Wood Creek Phase V	City of Oconomowoc	2
Presbyterian Partners	City of Pewaukee	3
Airport Terminal Ramp Improvements	City of Waukesha	
Berkshire - Shops on Sunset	City of Waukesha	1















Project Page

Waukesha County
Storm Water (BMP) Tracking System
Provided by the Department of Parks and Land Use

B.M.P. Tracking

BMP Projects
Tracks Stormwater BMPs
Links to "Project Images"
Links to "BMP Images"
Tracks Maintenance & Complaint Notes
Displays Information on GIS

Project Data Summary

Project Identifier Rolling Ridge Save Edits Images Municipality. City of Waukesha Delete Project Documents Description Stored Copy Return To Project Lis Archive - Non-Recorded SW Maintenance Document Type: Affidavit of Correction New Number/Barcode: Description:

Project BMP Summary

Add BMP To Project

BMP Description	Muncipality	Survey Township	Section	Facility Type	Most Recent Inspection		
Rolling Ridge Addition 6 Wet Pond 1	City of Waukesha	Pewaukee	29	Wet Detention Basin	(Notes	Images
Rolling Ridge Addition 6 Forebay 1	City of Waukesha	Pewaukee	29	Permanent Sediment Trap		Notes	Images
Rolling Ridge Addition 6 Wet Pond 2	City of Waukesha	Pewaukee	29	Wet Detention Basin		Notes	Images
Homestead Condominiums Bio-Swale	City of Waukesha	Pewaukee	29	Grassed Swale		Notes	Images
Rolling Ridge Addition 7 Basin 1	City of Waukesha	Pewaukee	29	Bioretention Area		Notes	Images
Rolling Ridge Addition 7 Basin 2	City of Waukesha	Pewaukee	29	Bioretention Area		Notes	Images
Rolling Ridge Addition 7 Basin 3	City of Waukesha	Pewaukee	29	Bioretention Area		Notes	Images
Rolling Ridge Addition 7 Basin 4	Town of Waukesha	Pewaukee	32	Bioretention Area		Notes	Images
Rolling Ridge Addition 7 Basin 5	City of Waukesha	Pewaukee	32	Bioretention Area		Notes	Images
Rolling Ridge Addition 7 Basin 6	City of Waukesha	Pewaukee	32	Bioretention Area		Notes	Images

Date Created: 5/15/2006 10:48:05 AM Date Updated: 11/1/2013 3:12:03 PM Update Count: 2













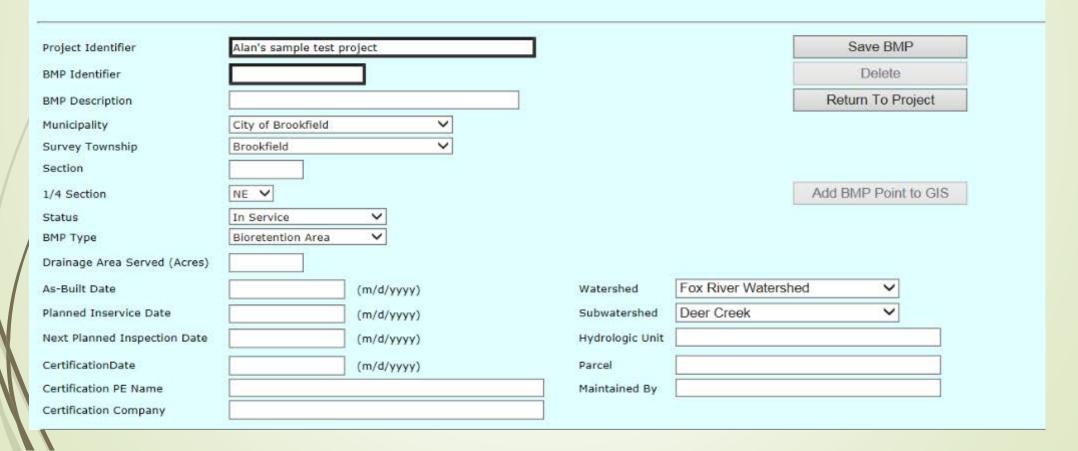


BMP Data Entry Page



BMP

Data Entry

















Data Element	Description
ID number	A unique number for each BMP that is automatically assigned by the database when the record is created
Description	A name given to the BMP which tells about its location and function in the project
Municipality	The city, village or town where the BMP is located, which can be different from the project's municipality
Survey Township/Section/Quarter Section	A description of where the BMP is located using the Public Land Survey System ("PLSS")
Status	A BMP can be tagged as being planned, under construction or in service
BMP Type	The list of best management practices associated with technical design standards
Drainage Area	The watershed that the BMP is designed to serve in acres
As-Built Date	The date listed on the accepted BMP as-built survey
Planned Inservice Date	The date that BMPs listed as planned or under construction will be on-line
Next Planned Inspection Date	The scheduled date of the next inspection to be completed by a qualified inspector
Certification Date	The date on the accepted construction certification letter
Certifying Engineer Name	The name of the Wisconsin licensed professional engineer who certified that the BMP was constructed in accordance with the approved plans and applicable technical standards
Certifying Engineer Company	The company whom the project engineer works for
Watershed/Subwatershed	The names of the nearest named receiving water body and the river basin that it flows into
Hydrologic Unit	NRCS and USGS HUC code
Parcel	The tax key number of the parcel where the BMP is located
Maintained By	A description of the person or group responsible for long term maintenance
Mapping Coordinates	Northings and Eastings in the State Plane Coordinate System, NAD 27, NGVD 29







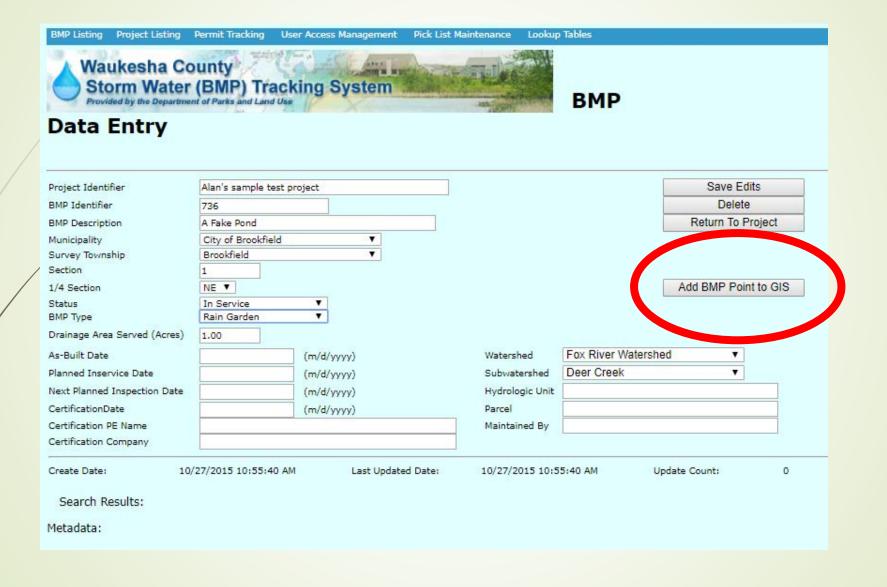








GIS digitizing tool









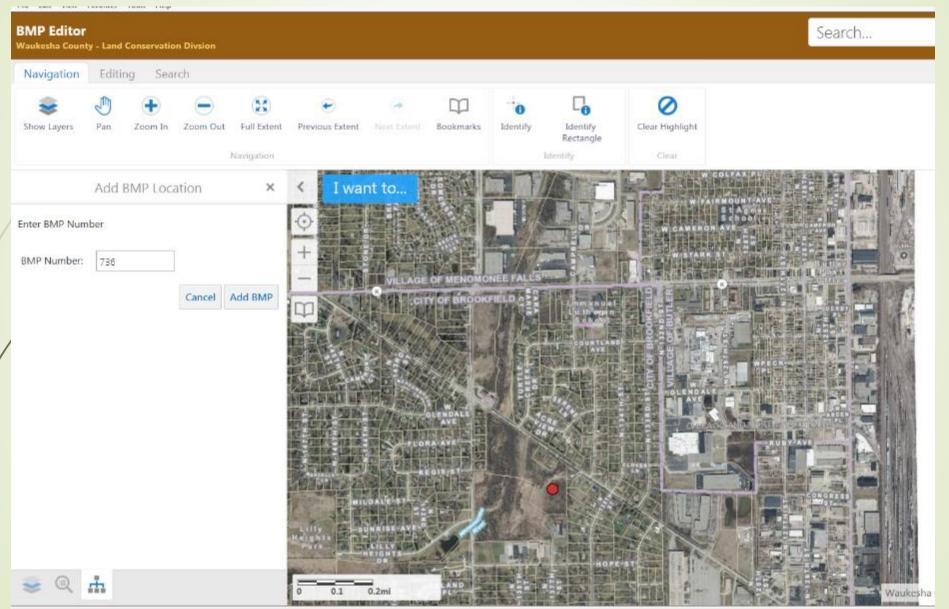








GIS digitizing tool









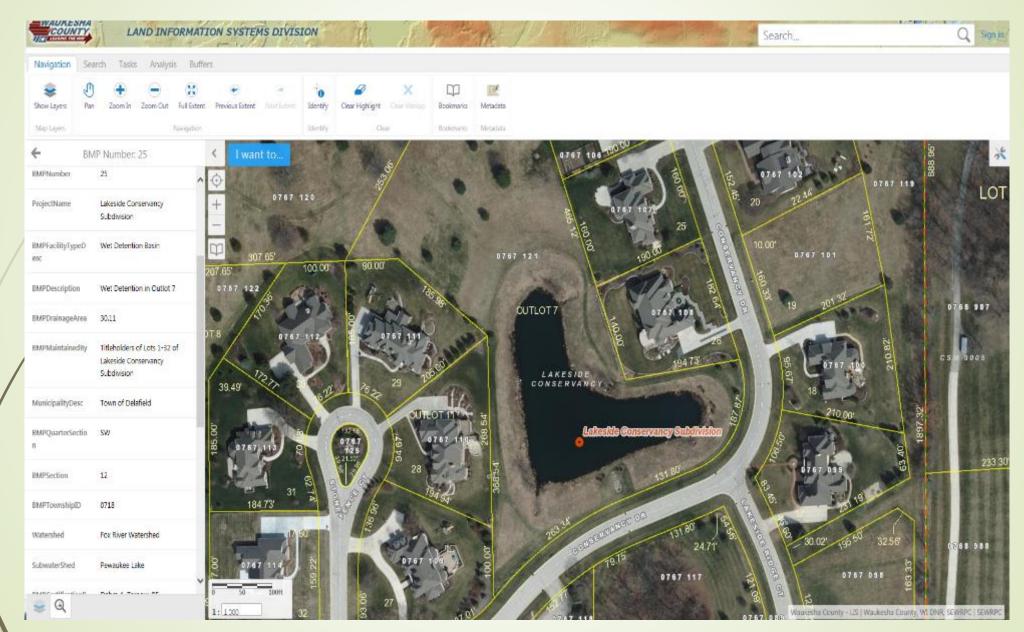








BMPs on GIS







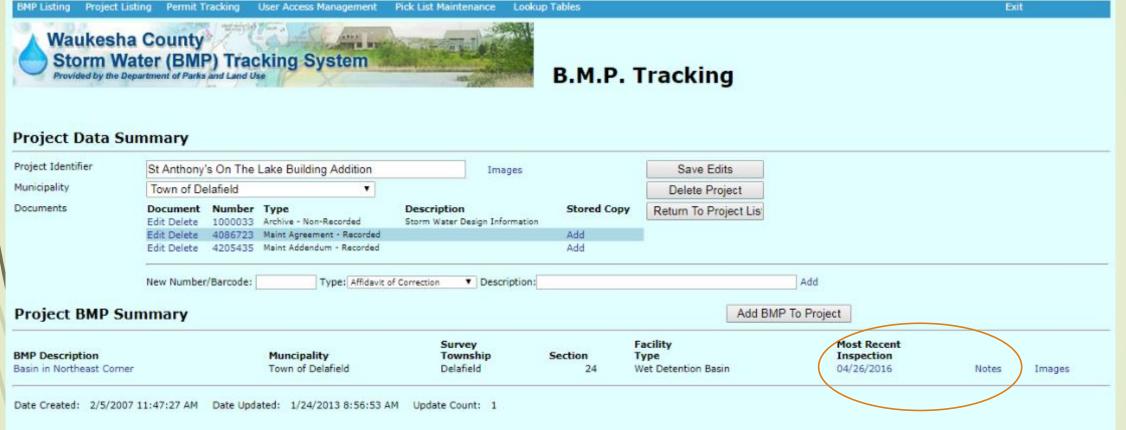


























BMP Notes

	Complaint Note Attributes	Inspection Note Attributes	Maintenance Note Attributes
	Date of the complaint	Date of the inspection	Date of the maintenance
	Name of complainant	Name of inspector	Name of person the person entering the maintenance note
/	Organization of the complainant	Organization of the inspector	Organization of the person entering the maintenance note
	Communication type	Maintenance Order Issued (yes/no)	Maintenance type (emergency/regular)
	Description/comments	Communication type	Communication type















BMP Listing Project Listing Permit Tracking User Access Management

Pick List Maintenance

Lookup Tables



BMP Notes List

Project Identifier

St Anthony's On The Lake Building Addition

BMP Description

Basin in Northeast Corner

BMP Number

264

Print Notes...

Return to Project

Exit

Create New Complaint Note

Create New Inspection Note

Create New Maintenance Note

View BMP Data Note Summary

Maintenance Notes Complaint Notes Inspection Notes

Date

4/26/2016

NoteType Inspection

Recorded By Leif Hauge

Agency LRD

Description

Basin safety shelf is fully covered with water after small rain event. Water does not seem to be quite up to the low flow

orifice of the outlet, and the basin is not discharging.

View Report





Attachment C: Bioretention Basin BMP Inspection Report Waukesha County, Wisconsin

Project Name: YY / Burleigh Intersection

Inspection Date: 11/1/17

BMP Description: Bioretention basin

BMP ID Number: 824

Code Key:

M = Monitor (potential for future problem)

Inspected By: Leif Hauge

NP = Not a Problem

WN = Work Needed

INFLOW POINTS

N/A = Not Applicable

Assessment	Code	Comments
Obstruction: vegetation/debris/sediment	NP	
Erosion/undercutting	NP	
Structural condition	NP	
Other (describe)		

PRETREATMENT AREA

Assessment	Code	Comments	
Sediment accumulation & debris	N/A		
Bare soil/erosion	N/A		
Invasive vegetation	N/A		
Other (describe)	N/A		













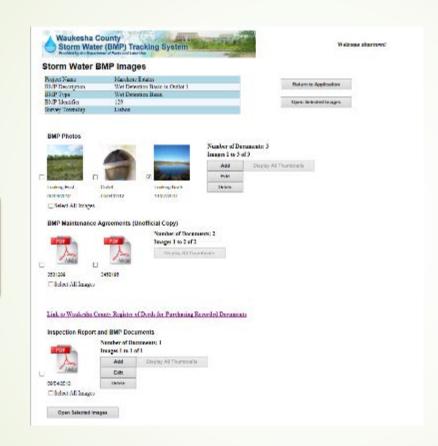


Stormwater Images (BMP Level)









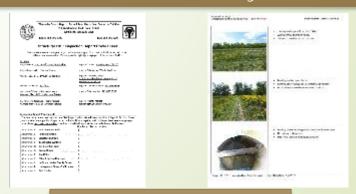
Launch the "Thumbnail Page"



Photos



Maintenance Agreements & As-Built Surveys



Inspection Reports















Storm water BIVIP images

Project Name	Lakeside Conservancy Subdivision	
BMP Description	Wet Detention in Outlot 7	
BMP Type	Wet Detention Basin	
BMP Identifier	25	
Survey Township	Delafield	

Return to Application

Open Selected Images

BMP Photos

■ ☑ Q Q Q ♦

10 Documents Showing Images 1 to 5 ①







Looking West 11/08/2015



11/08/2015



Pond Liner 11/08/2015



Outlet 11/08/2015

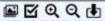








BMP Maintenance Agreements (Unofficial Copy)





Link to Waukesha County Register of Deeds for Purchasing Recorded Documents

Inspection Report and BMP Documents

☑ ☑ Q Q ♣



1 Documents

Showing Images 1 to 1



Stormwater Images (Project Level) Maintenance Agreement and Addendum

- Recorded as a deed restriction
- ✓ Before construction begins:
 - ✓ Basin locations
 - ✓ Maintenance plan
- ✓ After construction is done:
 - ✓ As-built plan views and crosssections
 - ✓ Design summaries
 - ✓ Verification letter
 - ✓ Termination letter
 - ✓ Transfers maintenance responsibility from developer to owner



Once they go in, its only a matter of time!!















BMP List

Waukesha County
Storm Water (BMP) Tracking System
Provided by the Department of Parks and Land Use

BMP List

- All Storm Water BMP's need to be associated with a Project.
- Each Project may have multiple BMP's associated with it.
- Listed below are all **Projects** currently entered for the community below.

Filter List

Remove Filter

Municipality	Township	Sec.	Project Identifier	BMP Description	BMP Type	Status	AS-Built Date	Date Of Last Inspection	Date Of Next Inspection
Town of Waukesha	Waukesha	14	5 Diamonds Baseball Complex	Wet Detention Basin	Wet Detention Basin	In Service	7/27/2012		9/15/2016
Town of Waukesha	Waukesha	14	5 Diamonds Baseball Complex	Thermal Mitigation Trench	Infiltration Trench/Structure	In Service	7/27/2012		9/15/2016
Town of Waukesha	Waukesha	14	5 Diamonds Baseball Complex	West Infiltration Basin (P3)	Infiltration Basin	In Service	7/27/2012		9/15/2016
Town of Waukesha	Waukesha	14	5 Diamonds Baseball Complex	Southwest Infiltration Basin (P2)	Infiltration Basin	In Service	7/27/2012		9/15/2016
Town of Waukesha	Waukesha	14	5 Diamonds Baseball Complex	South Infiltration Basin (P4)	Infiltration Basin	In Service	7/27/2012		9/15/2016
Town of Summit	Summit	35	Abundant Life Church Building Expansion	NW Infiltration Basin	Infiltration Basin	In Service	1/30/2006		8/15/2009
Town of Mukwonago	Mukwonago	19	Agape Agrihood Subdivision	Wet detention basin	Wet Detention Basin	Planned			
own of Mukwonago	Mukwonago	19	Agape Agrihood Subdivision	Infiltration basin	Infiltration Basin	Planned	1		
City of Brookfield	Brookfield	1	Alan's sample test project	A Fake Pond	Bioretention Area	In Service			
City of Brookfield	Brookfield	3	Alan's sample test project	Test	Bioretention Area	In Service			
own of Oconomowoc	Oconomowoc	20	Alliance Bible (now Crosspoint Community) Church	Basin 1	Wet Detention Basin	In Service	6/15/2007		9/15/2009
own of Oconomowoc	Oconomowoc	20	Alliance Bible (now Crosspoint Community) Church	Basin 2	Wet Detention Basin	In Service	6/15/2007		9/15/2009
own of Oconomowoc	Oconomowoc	20	Alliance Bible (now Crosspoint Community) Church	Basin 3	Infiltration Basin	In Service	6/15/2007		9/15/2009
own of Oconomowoc	Oconomowoc	20	Alliance Bible (now Crosspoint Community) Church	Vortechs Model 5000	In-ground Water Quality Device	In Service	6/15/2007		9/15/2009
Town of Eagle	Eagle	23	Amber Fields	Infiltration Basin In Outlot 2	Infiltration Basin	In Service		7/15/2016	7/1/2009
Town of Eagle	Eagle	23	Amber Fields	Infiltration Basin In Outlot 1	Infiltration Basin	Under Construction			7/1/2008
Town of Eagle	Eagle	23	Anathoth Field	Pond 1	Dry Detention Basin	In Service			9/15/2009
own of Eagle	Eagle	23	Anathoth Field	Pond 2	Dry Detention Basin	In Service			9/15/2009
Town of Eagle	Eagle	23	Anathoth Field	Pond 3	Dry Detention Basin	In Service			9/15/2009
own of Eagle	Eagle	23	Anathoth Field	Pond 4	Dry Detention Basin	In Service			9/15/2009





Log In



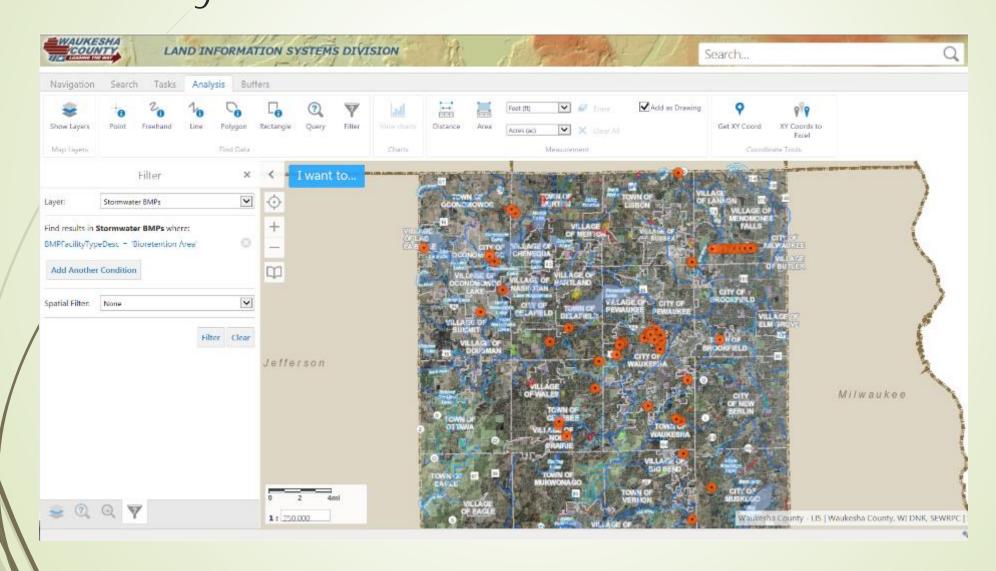








Example: Bioretention basins in Waukesha County









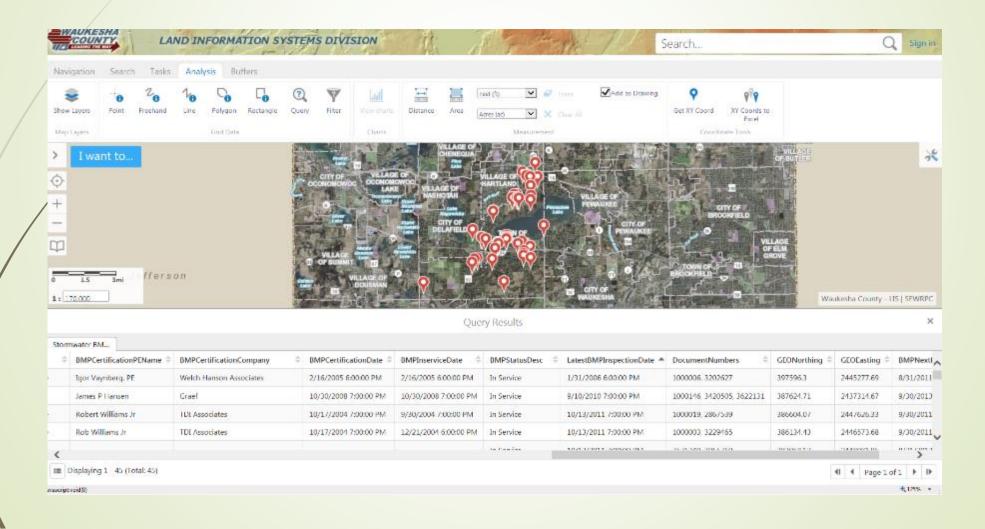








Example: Stormwater BMPs in the Town of Delafield sorted by latest inspection date (earliest to latest)

















Questions?











