



ILLINOIS
NUTRIENT LOSS
REDUCTION STRATEGY

Improving our
water resources
with collaboration
and innovation

NLRS Conference 2017

Tracking BMP Adoption: Agriculture Voluntary BMPs

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Agency Coordinator, NLRS
Illinois EPA, Bureau of Water

Tracking Measures

Resources

- Staff
- Funding & Grants

Outreach

- Partner organization's events & media
- Farmer knowledge

Land & Facilities

- Land use changes
- Facility & permit updates

Water

- Calculated load reduction
- Measured loads at existing monitoring stations



Practice/scenario	Nitrate-N reduction per acre (percent)	Nitrate-N reduced (million lb)	Nitrate-N reduction from baseline (percent)	Cost (\$/lb removed)
Reducing N rate from background to MRTN on 10 percent of acres	10	2.3	0.6	-4.25
Nitrification inhibitor with all fall-applied fertilizer on tile-drained corn acres	10	4.3	1	2.33
Split application of 50 percent fall and 50 percent spring on tile-drained corn acres	7.5-10	13	3.1	6.22
Spring-only application on tile-drained corn acres	15-20	26	6.4	3.17
Split application of 40 percent fall, 10 percent pre-plant, and 50 percent side dress	15-20	26	6.4	
Cover crops on all corn/soybean tile-drained acres	30	84	20.5	3.21
Cover crops on all corn/soybean non-tiled acres	30	33	7.9	11.02
Bioreactors on 50 percent of tile-drained land	25	35	8.5	2.21
Wetlands on 35 percent of tile-drained land	50	49	11.9	4.05
Buffers on all applicable crop land (reduction only for water that interacts with active area)	90	36	8.7	1.63
Perennial/energy crops equal to pasture/hay acreage from 1987	90	10	2.6	9.34
Perennial/energy crops on 10 percent of tile-drained land	90	25	6.1	3.18
Point source reduction to 10 mg/L		14	3.4	3.3

Science Assessment
Recommended
BMPS to Reduce
Nitrate Loss

Practice/scenario	Total P reduction per acre (percent)	Total P reduced (million lb)	Total P reduction from baseline (percent)	Cost (\$/lb removed)
1.8 million acres of conventional till eroding >T converted to reduced, mulch, or no-till	50	1.8	5	-16.6
P rate reduction on fields with soil test P above the recommended maintenance level	7	1.9	5	-48.75
Cover crops on all corn/soybean tile-drained acres	30	4.8	12.8	130.4
Cover crops on 1.6 million acres eroding >T currently in reduced, mulch, or no-till	50	1.9	5	24.5
Wetlands on 25 percent of tile-drained land	0	0	0	
Buffers on all applicable crop land	25-50	4.8	12.9	11.97
Perennial/energy crops equal to pasture/hay acreage in 1987	90	0.9	2.5	102.3
Perennial/energy crops on 1.6 million acres >T currently in reduced, mulch, or no-till	90	3.5	9	40.4
Perennial/energy crops on 10 percent of tile-drained land	50	0.3	0.8	250.07
Point source reduction to 1 mg/L (majors only)		8.3	22.1	13.71

Science Assessment Recommended BMPS to Reduce Phosphorus Loss

Name	Combined practices and scenarios	Nitrate-N reduction (percent)	Total P reduction (percent)	Cost of reduction (\$/lb)	Annualized costs (million \$/yr)
NP1	MRTN, spring-only N application, bioreactors on 50 percent of acres, wetlands on 35 percent of acres, no P fertilizer on 12.5 million acres above STP maintenance, reduced till on 1.8 million conventionally tilled acres eroding >T, buffers on all applicable lands, point source to 1 mg total P/L and 10 mg nitrate-N/L	35	45	**	438
NP2	MRTN, spring-only N application, bioreactors on 50 percent of acres, wetlands on 10 percent of acres, no P fertilizer on 12.5 million acres above STP maintenance, reduced till on 1.8 million conventionally tilled acres eroding >T, cover crops on all corn/soybean acres, point source to 1 mg total P/L and 10 mg nitrate-N/L	45	45	**	878
NP3	MRTN, spring-only N application, bioreactors on 30 percent of acres, no P fertilizer on 12.5 million acres above STP maintenance, reduced till on 1.8 million conventionally tilled acres eroding >T, cover crops on 87.5 percent of corn/soybean acres, buffers on all applicable lands, perennial crops on 1.6 million acres >T and 0.9 million additional acres	45	45	**	827

Types of Ag BMPs recommended in NLRS

Nitrate

- ▶ In Field Practices
 - ▶ Nitrogen Management
 - ▶ MRTN, Inhibitors, Split appl.
 - ▶ Cover Crops
- ▶ Edge of Field Practices
 - ▶ Bioreactors
 - ▶ Buffers (non-tile drained)
 - ▶ Wetlands
- ▶ Land Use Change
 - ▶ Perennial/Energy Crops

Phosphorus

- ▶ In Field Practices
 - ▶ Reduced Tillage Systems
 - ▶ Soil Tests/Nutrient Management
 - ▶ Cover Crops
- ▶ Edge of Field Practices
 - ▶ Buffers
 - ▶ Wetlands
- ▶ Land Use Change
 - ▶ Perennial/Energy Crops



Biennial Report 2015-2017



Chapter 4

Agriculture Water Quality Partnership Forum: Agricultural Sector

AWQPF Objectives

- ▶ Steer and Coordinate Outreach and Education
- ▶ Training for farmers and advisors
- ▶ Strength Connections between industry, CCAs, State initiatives
- ▶ Track BMPs
- ▶ Coordinate Cost-share targeting
- ▶ Develop other tools as need.

Tracking Land and Facilities Measures

- ▶ Used 2011 as baseline year
 - ▶ 2011 last year of data used in the Science Assessment to calculate nutrient loads
 - ▶ BMP implementation data reported for years 2015/2016
 - ▶ Determine BMP implementation during this time period.

Tracking Land and Facilities Measures

Table 4.3. Agriculture Land and Facilities Measures BMP tracking template					
BMPs	Data Source				
	FSA	Illinois DNR	USDA-NRCS	Illinois EPA	NASS
Reduced N rate from background to MRTN on 10 percent of acres					✓
Nitrification inhibitor with all fall-applied fertilizer on tile-drained corn acres					✓
Split application of 50 percent fall and 50 percent spring on tile-drained corn acres					✓
Spring-only application on tiled-drained corn acres					✓
Split application of 40 percent fall, 10 percent pre-plant, and 50 percent side dress					✓
Cover crops on all corn/soybean tile-drained acres	✓			✓	✓
Cover crops on all corn/soybean non-tiled acres	✓			✓	✓
Bioreactors on 50 percent of the tile-drained land			✓	✓	
Wetlands on 25 percent of tile-drained land	✓	✓		✓	
Buffers on all applicable crop land	✓	✓		✓	✓
Perennial/energy crops equal to pasture/hay acreage from 1987	✓				✓
Perennial/energy crops on 10 percent of tile-drained land	✓				



Conservation Reserve Program

Table 4.4. Acres in nutrient BMPs reported by producers to FSA

	2011 Acres	2015 Acres	% Change
Cover crops ¹	768	11,064	▲ 1,340%
CRP Wetlands	57,463	45,790	▼ 20%
CRP Buffers	145,813	279,534	▲ 92%
Perennial/Energy/Pasture ²	985,531	1,524,379	▲ 55%

- Data provided Statewide and at HUC 8 scale



Conservation Reserve Enhancement Program

Table 4.5. Acres with Illinois DNR Conservation Reserve Enhancement Program Easements

	2011 Acres	2015 Acres	% Change
Wetlands	483	22,609	▲ 4,581%
Buffers	202	17,893	▲ 8,758%
Perennial/Energy	81	6,043	▲ 7,360%

- Data provided Statewide and at HUC 8 scale

Environmental Quality Incentives Program

Table 4.6. Acres enrolled in nutrient BMPs through the NRCS Environmental Quality Incentives Program 2009-2015

Conservation Practice	Acres
Nutrient management	49,932
Cover crops	80,659
Buffers	18.8
Residue and tillage management	22,388
Wetland restoration	0.7

- Data provided by Illinois NRCS from a spreadsheet generated by NRCS Headquarters in D.C. for the Hypoxia Task Force.
- Data available on a HUC 12 scale, aggregated by Illinois EPA on HUC 8 scale

Conservation Stewardship Program



Figure 4.4. New acres enrolled in Conservation Stewardship Program

Agricultural Conservation Easement Program

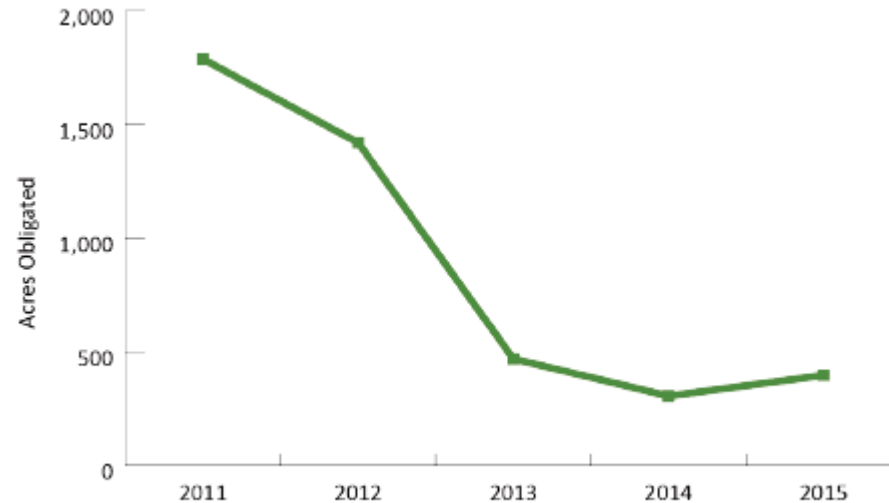


Figure 4.5. New wetland acres enrolled in Wetland Reserve Easement Program

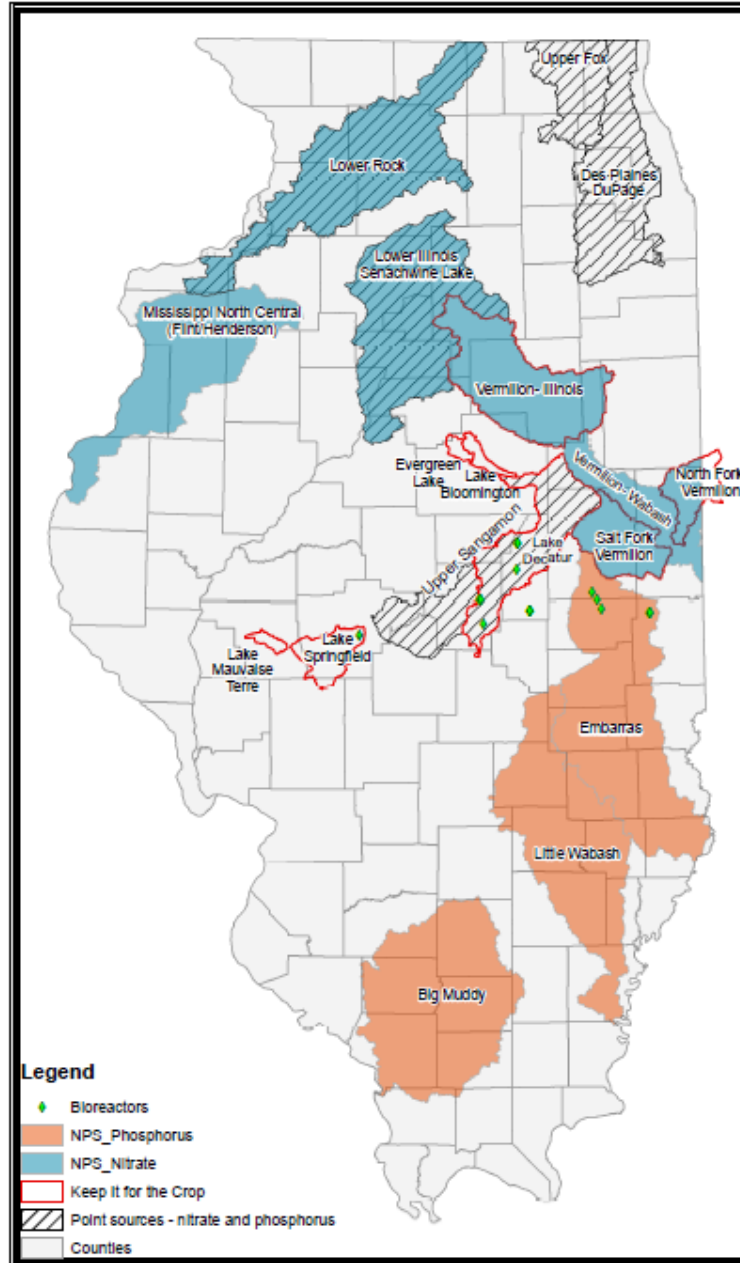
- Statewide data only

Bioreactors

Data provided by

- U of I/NRCS
- Voluntary Reporting

Location of Bioreactors in Illinois



Bioreactor	HUC 8	AcresTreated
1	05120112	50
2	05120112	50
3	05120112	11
4	07140201	74
5	07140201	74
6	07140201	55
7	07140201	20
8	07140201	27
9	07140201	19
10	07130006	39
11	07130006	28
12	07130006	34
13	07130006	15
14	07130006	5
15	07130006	16
16	07130006	unknown
17	07130006	70
18	05120112	unknown
19	05120112	18
20	07130007	6



Illinois EPA Section 319 Grant Program

Table 4.7. Illinois EPA Section 319 Grant program

	2001-2011 Acres	2012-2015 Acres	Change
Conservation tillage	9998	734	▼
Cover and green manure crop	3924	0	▼
Filter strip	8	13,882	▲
Nutrient management	0	107,061	▲
Wetland restoration	936	464	▼



Illinois EPA Section 319 Grant Program

Load Reductions

Illinois EPA Section 319 Grant		2002-2011			
AGRICULTURE	Acres	Nitrogen Load Reduction (lbs/year)	Phosphorus Load Reduction (lbs/year)	Total Suspended Solids Load Reduction (lbs/year)	Sediment Load Reduction (tons/year)
Conservation Tillage (329)	9998	47169	23691		21461
Cover and Green Manure Crop (340)	3924	14827	1190		955
Filter Strip (393)	8	1360	725		567
Nutrient Management (590)					
Wetland Restoration (657)	936	5028	2103	248227	1542
TOTAL	-	68,384	27,709	248,227	24,525
Illinois EPA Section 319 Grant		2011-2015			
AGRICULTURE	Acres	Nitrogen Load Reduction (lbs/year)	Phosphorus Load Reduction (lbs/year)	Total Suspended Solids Load Reduction (lbs/year)	Sediment Load Reduction (tons/year)
Conservation Tillage (329)	734	3913	2005		1798
Cover and Green Manure Crop (340)					
Filter Strip (393)	13882	329813	167170		106748
Nutrient Management (590)	107061	109915	54325		36522
Wetland Restoration (657)	464	2,760	1668	619968	6868
TOTAL	-	446,400	225,168	619,968	151,936



National Agricultural Statistic Service

NLRS Producer Survey

- ▶ Survey developed to capture implementation done outside of cost-share programs
- ▶ Mailed to producers in July 2016
- ▶ Results published December 2016
- ▶ Compared 2011 baseline year data to 2015

National Agricultural Statistic Service NLRs Producer Survey

Nutrient
Mgt.

Table 4.8. Fertilizer application strategies for corn on tilled acres (NASS survey result)

	2011 Acres	2015 Acres	% Change
Less than 50% fall/winter applications, with remaining nitrogen applications split between pre-plant and side-dress applications	1,730,000	2,220,000	▲ 28%
Fall/winter nitrogen was 0% of total nitrogen (all spring applications)	2,480,000	2,660,000	▲ 7%
Fall/winter nitrogen was 50% or less of total nitrogen	940,000	950,000	▲ 1%
Fall/winter nitrogen was applied with a nitrification inhibitor ¹	3,240,000	2,970,000	▼ 8%
Total acres of corn planted	12,600,000	11,700,000	▼ 7%
Percent of total corn acres	25.7%	25.4%	▼ 1%

Cover
Crops

Table 4.9. Acres with cover crops (NASS survey result)

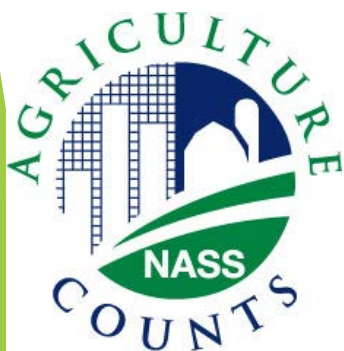
	2011 Acres	2015 Acres	% Change
Corn/soybean acres planted to cover crops on tilled ground	220,000	490,000	▲ 123%
Corn/soybean acres planted to cover crops on non-tilled ground	380,000	630,000	▲ 66%

Edge of
Field/
Perennial

Table 4.10. Acres with edge of field practices and perennial crops (NASS survey result)

	2015 Acres
Tiled acres draining into bioreactors	(D)
Tiled acres draining into constructed wetlands	160,000
Tiled acres planted to perennial crops, including CRP plantings, hay, and miscanthus	230,000

(D) – Number withheld to avoid disclosing data for individual farms.

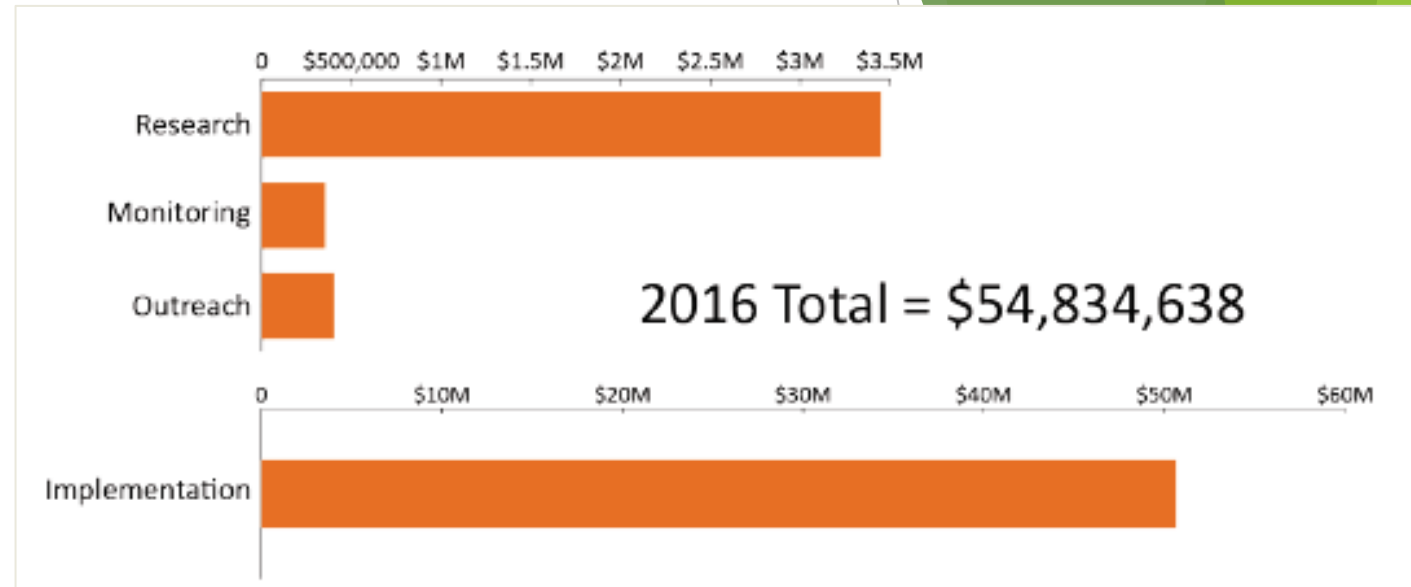


New Initiatives Supporting NLRs Goals

- ▶ IFB Nutrient Stewardship Mini-Grants
- ▶ 4R4U
- ▶ 4R Metrics
- ▶ Advanced Soil Health Training
- ▶ Leadership for Midwestern Watersheds
- ▶ Absentee Farmland Owners
- ▶ PCM
- ▶ Sustainable Ag Partnership
- ▶ IL Corn waters testing
- ▶ Illinois Cover Crops Program
- ▶ Field Laboratories
- ▶ MRBI and RCPP Projects

Other Measures Tracked

► Resources



► Outreach

Table 4.1. Summary of outreach and education events held by partner organizations in the agricultural sector in 2016

	Number of events	Total Reported Attendance
Outreach (fairs, tours, community education, presentations)	457	16,000
Field days	130	3,692
Workshops	607	12,695
Conferences	27	6,935
Total	1,221	39,325

What Data Do We Need In The Future?

- ▶ Tillage Data

- ▶ Was not included in Biennial Report

What Are The Action Steps for Getting It?

- ▶ **IL Dept. of Ag Soil Transect Survey**
 - ▶ Tracks Tillage practices and acres meeting “T”
 - ▶ By county and statewide. Conducted every two years
 - ▶ Ability to track by HUC 8 watershed
 - ▶ Role of Bureau of Land and Water Resources, Soil and Water Conservation Districts.
 - ▶ Include summaries from previous Soil Transect Reports.
 - ▶ Reports are available online
 - ▶ Use 2011 Report as Baseline
 - ▶ Include data from 2013-2017 Reports
 - ▶ Continue performing Transect Surveys every two years.

What Data Do We Need In The Future?

- ▶ More accurate reporting of Cover Crop acres
- ▶ 2015 FSA showed 11,064 acres of farmer-reported data
- ▶ 2009-2015 EQIP data showed 80,659 acres cost-shared
- ▶ NASS Survey: 1.2M acres in 2015
- ▶ Other states using remote sensing to estimate cover crops

What Are The Action Steps for Getting It?

- ▶ Farmers report cover crop acres when reporting crop acres to FSA would be most accurate
 - ▶ Potential barriers for not reporting
 - ▶ Suggest discussing overcoming barriers with FSA, farm organizations
- ▶ Remote Sensing
- ▶ NASS Survey

What Data Do We Need In The Future?

- ▶ Track 4R metrics (Right Rate, Source, Time, Place)

What Are The Action Steps for Getting It?

- ▶ Work with IL Fertilizer and Chemical Assoc., ag retailers to define, track, and report 4R metrics

What Data Do We Need In The Future?

- ▶ Establish baseline for structural BMPS
 - ▶ Filter strips, grass waterways, etc.

What Are The Action Steps for Getting It?

- ▶ Remote sensing, mapping software, other?

What Data Do We Need In The Future

- ▶ Track voluntary implementation of other organizations programs, and individual reporting

What Are The Action Steps for Getting It?

- ▶ Develop database for organizations or individual reporting of voluntary BMP implementation.
- ▶ Work being done at national level for this through Hypoxia Task Force

Where do we go from here?

- ▶ Continue education and outreach efforts
 - ▶ Stay on message
- ▶ Target Cost-share funding, priority watersheds
- ▶ Continue and expand non-governmental cost share programs
- ▶ Scale up implementation
- ▶ CONTINUE COLLABORATIONS!

University of Illinois Extension Watershed Coordinators

- ▶ Illinois EPA is partnering with University of Illinois Extension to hire two watershed coordinators to work in priority watersheds
- ▶ Provide outreach and technical assistance
- ▶ Assist local stakeholders in:
 - ▶ Watershed Planning
 - ▶ Implementation of Watershed Plans
- ▶ Coordinate local initiatives, collaborate with other organizations.



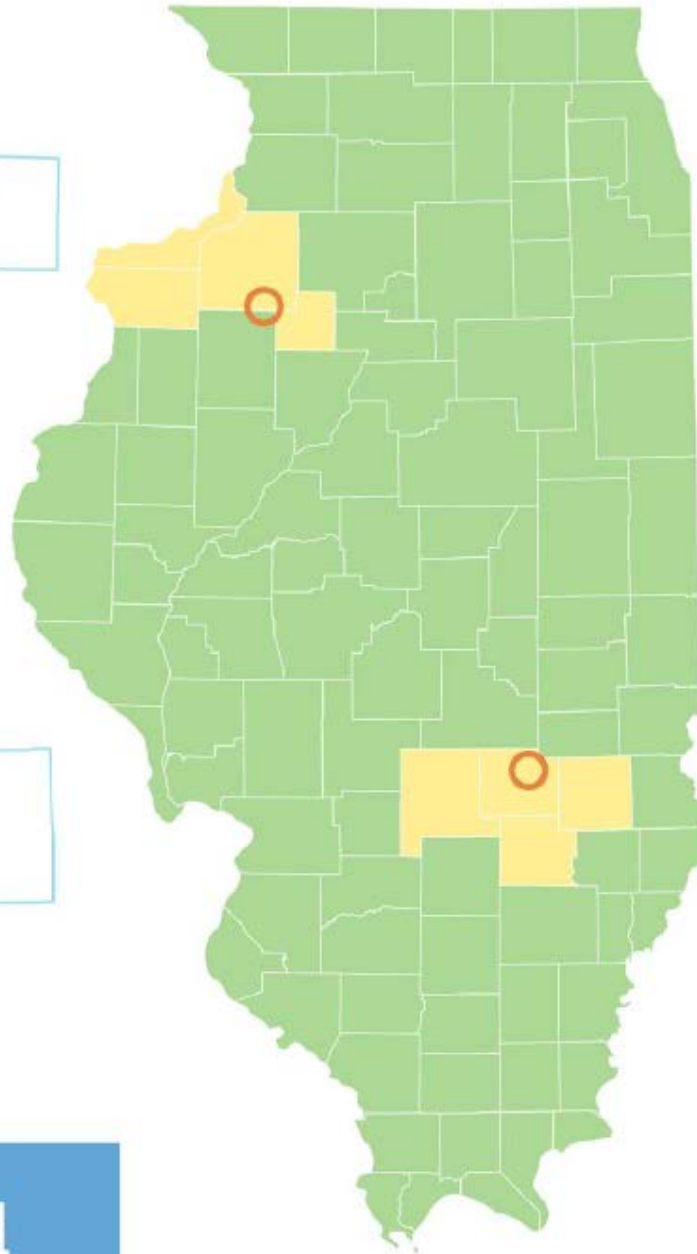
Galva, IL

Henry, Mercer, Rock Island,
and Stark Counties

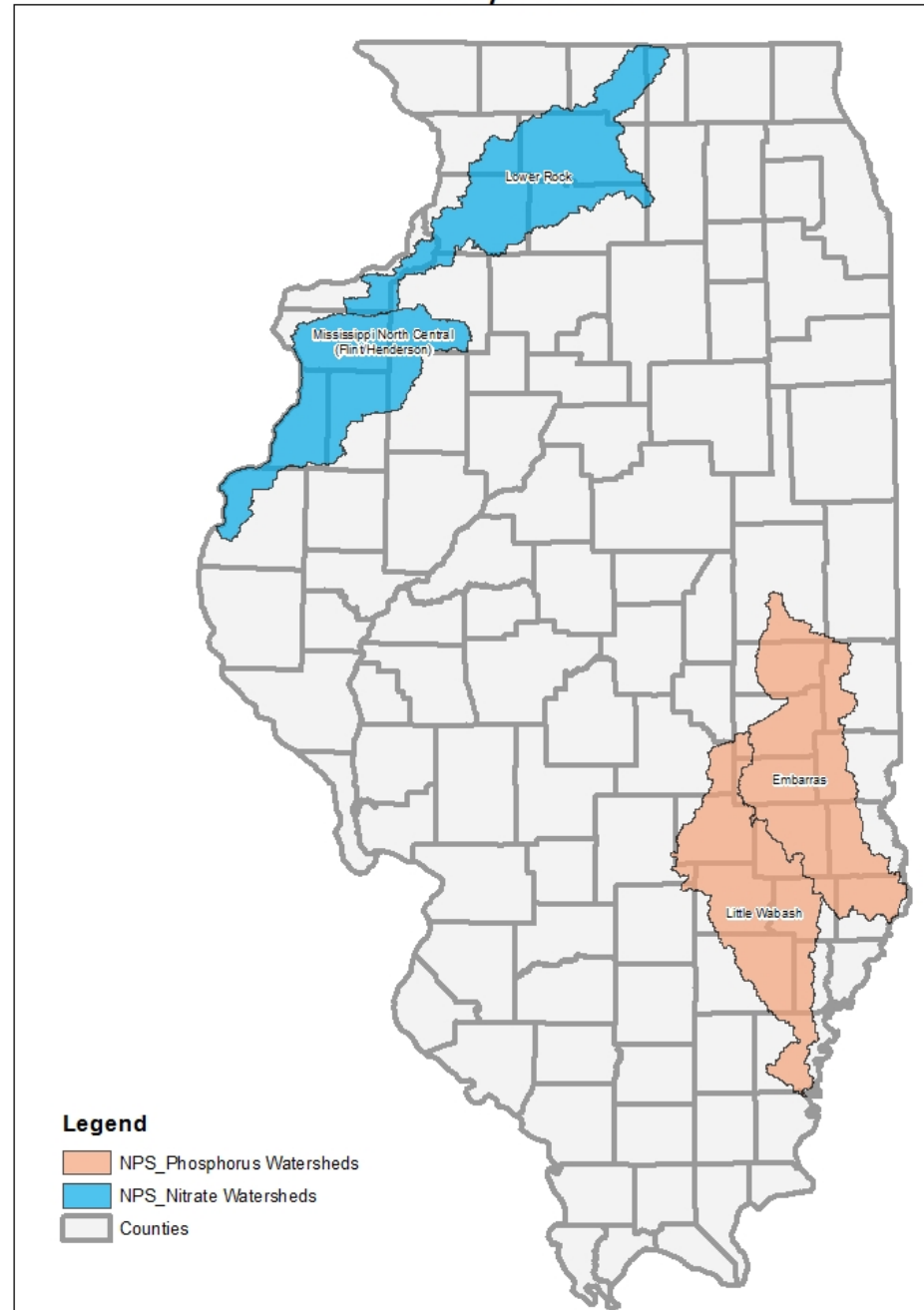
Effingham, IL

Clay, Effingham, Fayette,
and Jasper Counties

Location of
**Watershed
Coordinators**



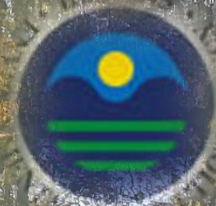
Illinois Nutrient Loss Reduction Strategy
Watershed Coordinators
Priority Watersheds





ILLINOIS
NUTRIENT LOSS
REDUCTION STRATEGY

Improving our water resources with
collaboration and innovation



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Illinois Point Source Nutrient Control

AMY DRAGOVICH, P.E.

MANAGER, NORTHERN MUNICIPAL UNIT, PERMIT SECTION, IEPA

Nutrient Discharges

- ▶ November 2, 2011 letter to USEPA Region 5
- ▶ Response to EPA letter concerning DO and algae impaired waters
- ▶ Steps to address the discharge of nutrients
 - ▶ Current activities
 - ▶ Enhancement to current activities
 - ▶ Future tools

Nutrient Discharges

- ▶ November 2, 2011 letter to USEPA Region 5
 - ▶ Current Activities
 - ▶ WQ standard for lakes and reservoirs
 - ▶ Effluent standard for new/expanded facilities
 - ▶ Waste load allocations in TMDL reports
 - ▶ Antidegradation assessments
 - ▶ DO effluent limits included in permits

Nutrient Discharges

- ▶ November 2, 2011 letter to USEPA Region 5
 - ▶ Enhancement to Current Activities
 - ▶ Developing nutrient TMDLs
 - ▶ Additional monitoring to develop TMDLs
 - ▶ Reopener clause to incorporate permit limits
 - ▶ Watershed study groups
 - ▶ Interim phosphorus permit limits for algae or DO impaired waters
 - ▶ Identification of operational modifications

Nutrient Discharges

- ▶ November 2, 2011 letter to USEPA Region 5
 - ▶ Future Tools
 - ▶ Future regulations to address nutrients
 - ▶ Nutrient Science Advisory Committee
 - ▶ Future rules filed with Illinois Pollution Control Board

MWRDGC Permit Appeal

- ▶ Calumet, Stickney and O'Brien Permits issued December 23, 2013 with 1 mg/L P limit
- ▶ Permits appealed by environmental groups
- ▶ Decision by Illinois Pollution Control Board (IPCB) that permits did not violate the Act or Board regulations
- ▶ IPCB decision appealed to Illinois Appellate Court
- ▶ Appellate Court remanded permits back to the Agency
- ▶ Illinois Appellate Court decision:
 - ▶ "Must ensure that the permit prevents discharges of pollutants having the 'reasonable potential' of violating Illinois water quality standards contained in the narrative statements."

MWRDGC Settlement Agreement

- ▶ Additional special conditions
 - ▶ Chicago Area Waterways Nutrient Oversight Committee
 - ▶ Develop Implementation Plan
 - ▶ Phosphorus input reductions (point and non-point)
 - ▶ Technology based Total Phosphorus effluent limit of 0.5 mg/L by 2030
 - ▶ Feasibility study – 0.5, 0.3 and 0.1 mg/L
 - ▶ Continuous monitoring gauge at Joliet, IL

MWRDGC Permits

- ▶ Calumet, Stickney and O'Brien Permits re-issued July 6, 2017
- ▶ Included interim 1 mg/L P limit with compliance schedules
- ▶ P improvements include:
 - ▶ Converting aeration zones to anaerobic zones
 - ▶ Optimizing P removal
 - ▶ Sidestream P recovery process
 - ▶ Supplemental carbon process
 - ▶ Centrate treatment
 - ▶ Investigating use of algae to recover P
- ▶ Included settlement special conditions – 0.5 mg/L P by 2030

Nutrient Loss Reduction Strategy

- ▶ Priority Watersheds for Point Sources
 - ▶ Upper Fox River Watershed
 - ▶ Des Plaines River/DuPage River Watershed
 - ▶ Upper Sangamon River Watershed
 - ▶ Lower Rock River Watershed
 - ▶ Illinois River – Senachwine Lake Watershed

All ranked high in both Total P and nitrate-nitrogen loading.

Fox River Study Group

- ▶ Located between Stratton Dam and Illinois River
- ▶ Impairments for DO, TP and nuisance algae
- ▶ 24 Major Municipal Facilities in Watershed
- ▶ NPDES conditions
 - ▶ Interim annual effluent limit of 1 mg/L P
 - ▶ Submit P removal feasibility report
 - ▶ Implementation Plan
 - ▶ Optimize the existing facilities
 - ▶ Compliance schedule for P limit (~4 ½ years)
 - ▶ Permits issued in 2014/2015 for 3 years

Fox River Study Group

- ▶ Feasibility Report results:
 - ▶ Most facilities would be adding chemicals to meet 1 mg/L P effluent limit
 - ▶ Biological phosphorus removal/chemical backup for lower limits
- ▶ Permits are in the process of being renewed
- ▶ Additional requirements:
 - ▶ Update Implementation Plan with improved modelling
 - ▶ Additional projects for next permit cycle
 - ▶ Optimization of existing facilities
 - ▶ Lower technology based effluent limit for Total P with exceptions

DuPage River/Salt Creek Workgroup

- ▶ 24 Major Municipal Facilities in Watershed
- ▶ Address DO and offensive condition impairments
- ▶ NPDES conditions
 - ▶ Dam Removals
 - ▶ Collect additional data and update model
 - ▶ Submit P feasibility study
 - ▶ Submit P optimization evaluation plan
 - ▶ Participate in Chloride Reduction Program
 - ▶ Compliance schedule for P Limit (11 years for Bio-P removal)
 - ▶ Submit Nutrient Implementation Plan – December 31, 2023

DuPage River/Salt Creek Workgroup

- ▶ Feasibility Report results:
 - ▶ Most facilities would be adding chemicals to meet 1 mg/L P effluent limit
 - ▶ Biological phosphorus removal/chemical backup for lower effluent limits

Other Watershed Workgroups

- ▶ Des Plaines River Watershed Workgroup
- ▶ Lower DuPage River Watershed Coalition
- ▶ Hickory Creek Watershed Planning Group
- ▶ Lower Des Plaines Watershed Group

Negotiations between IAWA and Environmental Groups

- ▶ To address “reasonable potential” of violating narrative WQ standards
- ▶ Promoting biological nutrient removal
- ▶ Future conditions in NPDES permits for all major facilities may include:
 - ▶ Technology based effluent limit of 0.5 mg/L by 2030
 - ▶ Exceptions include not economically feasible
 - ▶ Implementation Plan if impaired waterbody or if waterbody has characteristics of an impaired waterbody

Questions?

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Tracking Urban Stormwater BMPs

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University of Illinois

Inaugural Illinois NLRS Workshop
November 29, 2017

MS4 Program Elements

- ❶ **Public Education and Outreach**
Distributing educational materials and performing outreach to inform citizens about the impacts polluted stormwater runoff discharges can have on water quality.
- ❷ **Public Participation/Involvement**
Providing opportunities for citizens to participate in program development and implementation, including effectively publicizing public hearings and/or encouraging citizen representatives on a stormwater management panel.
- ❸ **Illicit Discharge Detection and Elimination**
Developing and implementing a plan to detect and eliminate illicit discharges to the storm sewer system (includes developing a system map and informing the community about hazards associated with illegal discharges and improper disposal of waste).
- ❹ **Construction Site Runoff Control**
Developing, implementing, and enforcing an erosion and sediment control program for construction activities that disturb 1 or more acres of land (controls could include silt fences and temporary stormwater detention ponds).
- ❺ **Post-Construction Runoff Control**
Developing, implementing, and enforcing a program to address discharges of post-construction stormwater runoff from new development and redevelopment areas. Applicable controls could include preventative actions such as protecting sensitive areas (e.g., wetlands) or the use of structural BMPs such as grassed swales or porous pavement.
- ❻ **Pollution Prevention/Good Housekeeping**
Developing and implementing a program with the goal of preventing or reducing pollutant runoff from municipal operations. The program must include municipal staff training on pollution prevention measures and techniques (e.g., regular street sweeping, reduction in the use of pesticides or street salt, or frequent catch-basin cleaning).

New Development vs. Retrofits

- New Development
 - Post-Construction Runoff Control
 - Minimum Control Measure
 - For simplicity, say this is net neutral
- Existing Development
 - Only option is to “retrofit”, or put stormwater control where there was none before



<http://luminocity3d.org/WorldCity/>

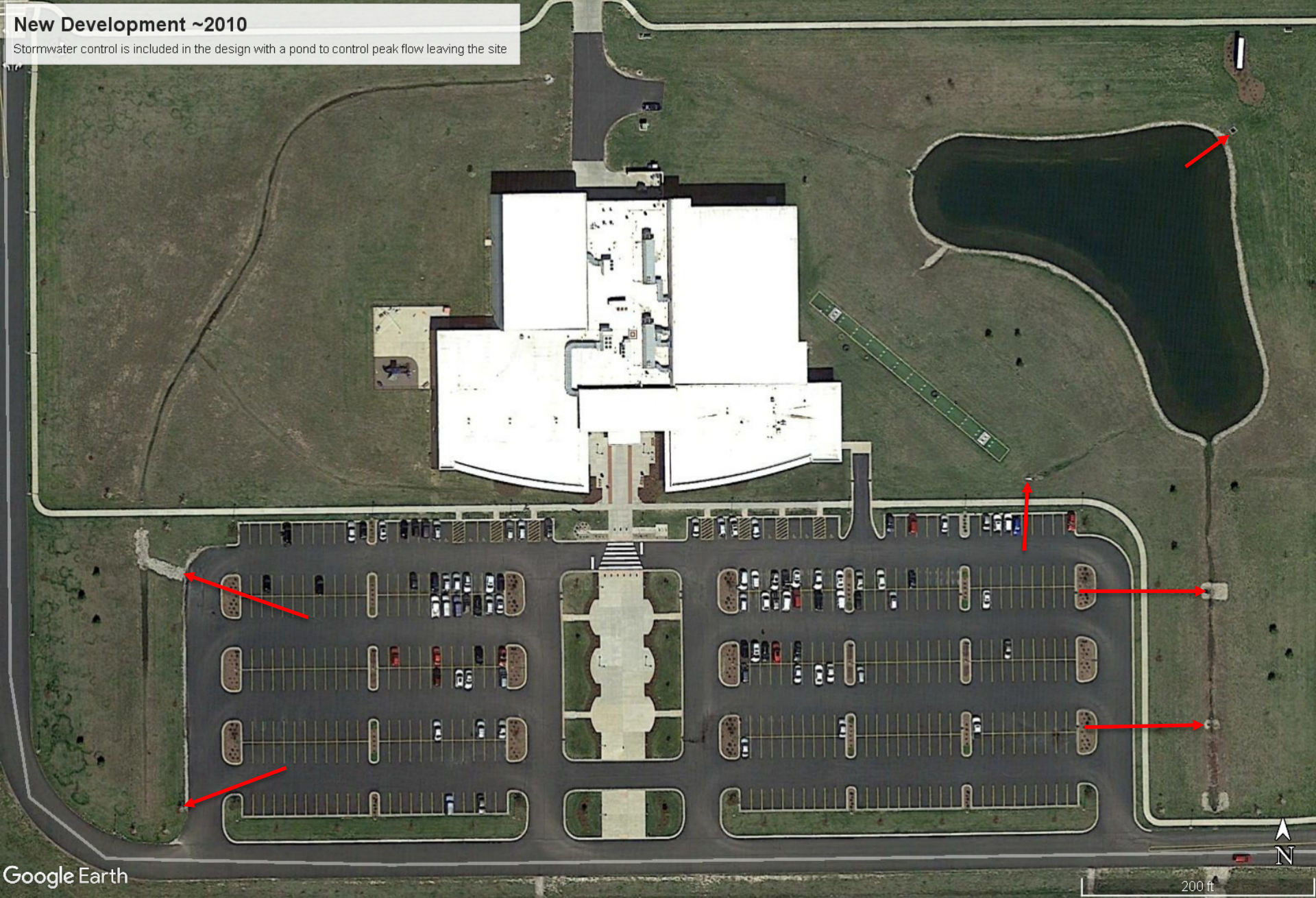
New Development ~2010
Stormwater control is included in the design with a pond to control peak flow leaving the site



Google Earth

ACES

New Development ~2010
Stormwater control is included in the design with a pond to control peak flow leaving the site



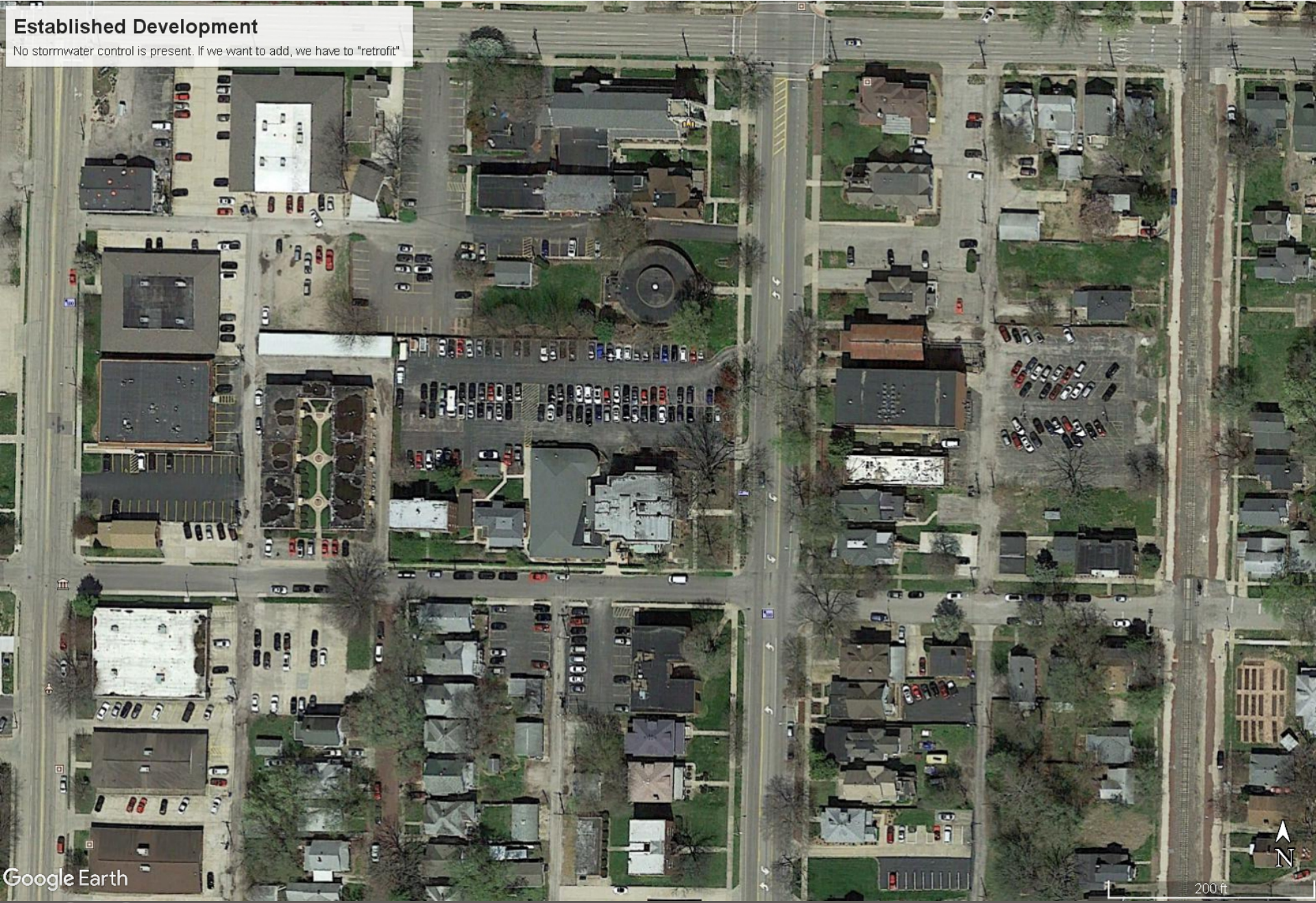
Google Earth

ACES

200 ft



Established Development
No stormwater control is present. If we want to add, we have to "retrofit"



Google Earth

ACES



Rain Gardens



<https://prairierivers.org/raingardens/>

Stormwater Wetlands



<http://chesapeakestormwater.net/download/3280/>

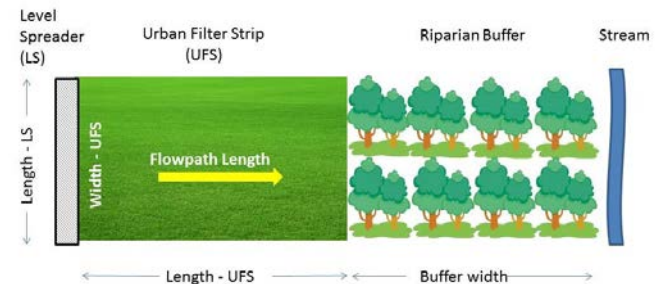
Grade Control



Drop Structure and Wall

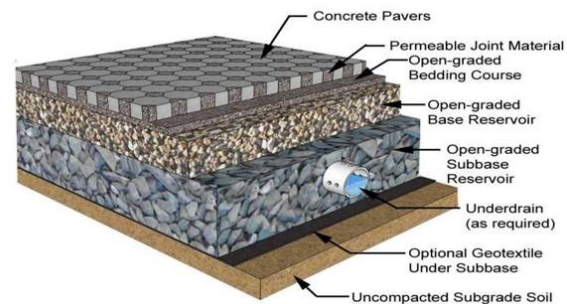
<http://www.intuitionandlogic.com/Project%20Writeups/609%20-%20Brentwood%20Reach%20Lenexa/Write%20Up/609%20-%20Brentwood%20Reach%20Lenexa.html>

Urban Filter Strip



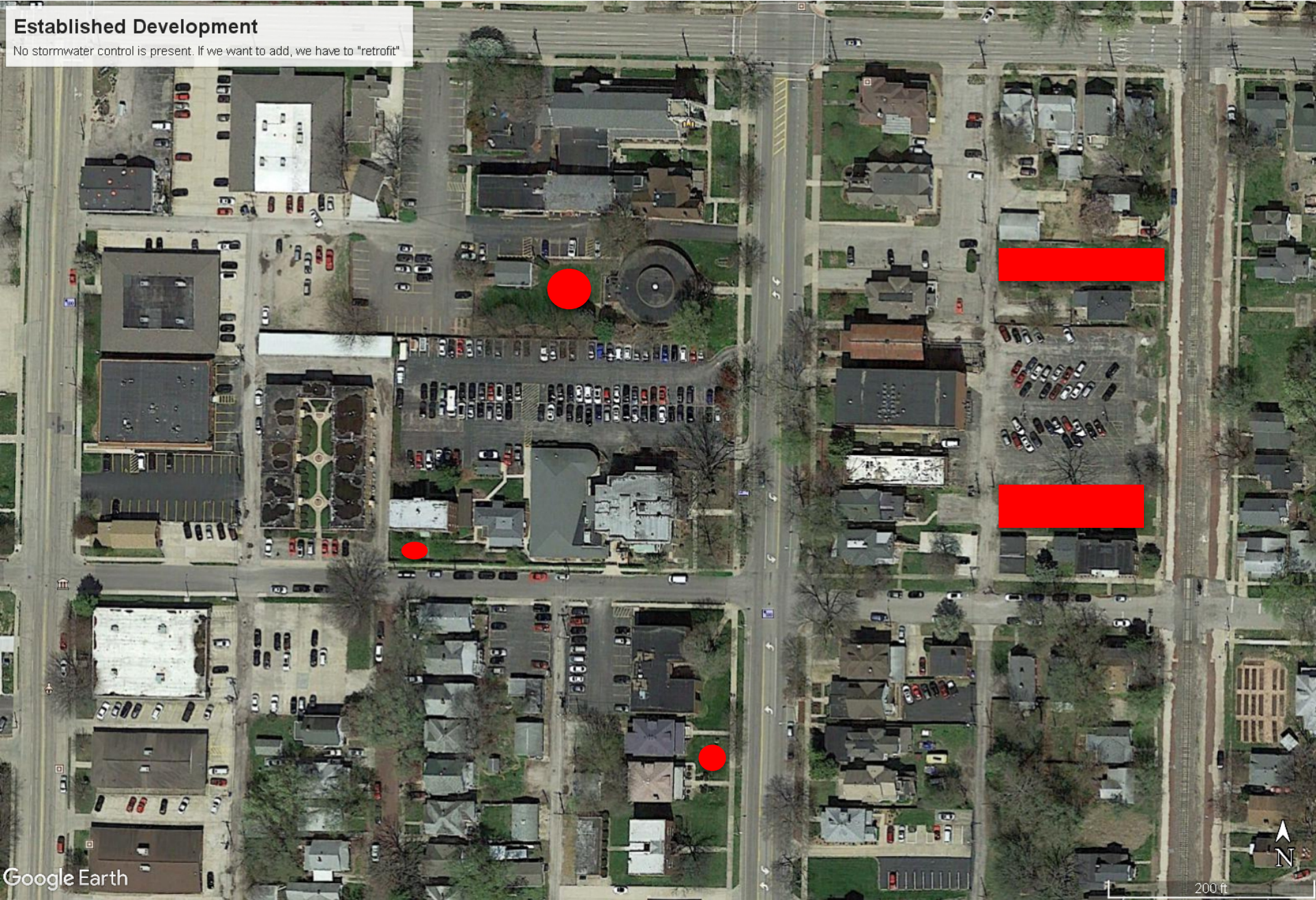
<http://chesapeakestormwater.net/download/4323/>

Permeable Pavement



<http://vwrrc.vt.edu/swc/NonPBMPSpecsMarch11/VASWMBMPSpec7PERMEABLEPAVEMENT.html>

Established Development
No stormwater control is present. If we want to add, we have to "retrofit"



Google Earth

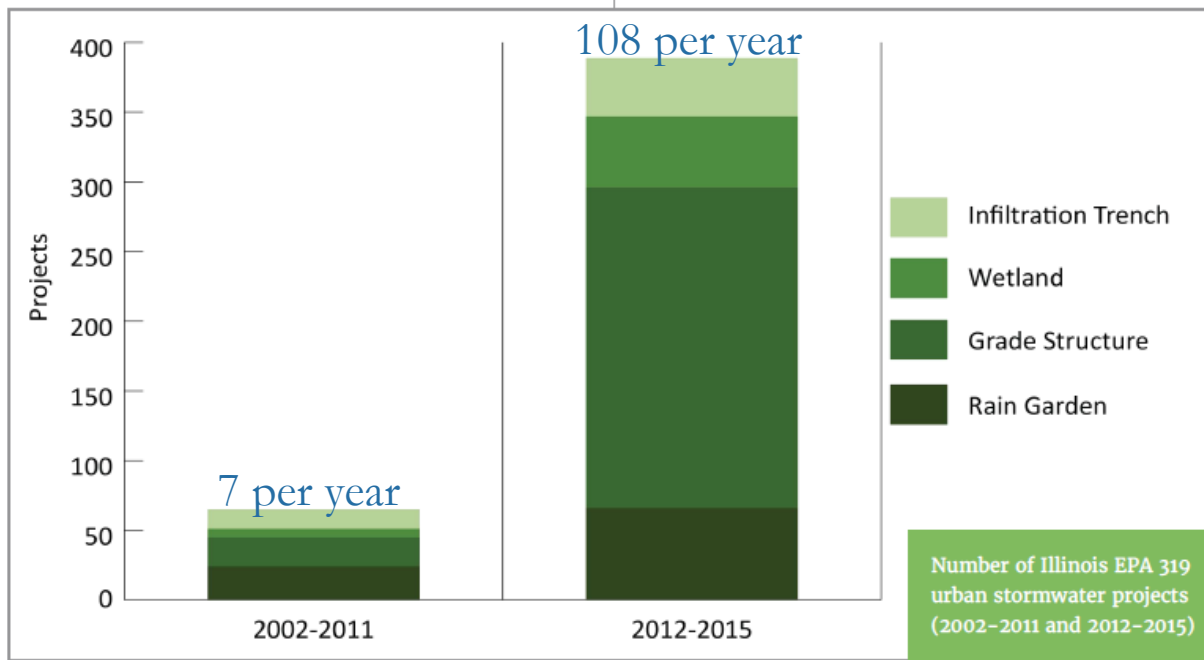
ACES



Life of an Urban BMP

Practice	Life (years)
Rain Garden	5 to 10
Sediment Basin	10 to 20
Grade Stabilization Structure	5 to 10
Urban Stormwater Wetlands	20 to 50
Urban Filter Strip	>10
Grass-Lined Channels	10 to 20
Porous Pavement	15 to 20

Where are we now?



Where are we now?

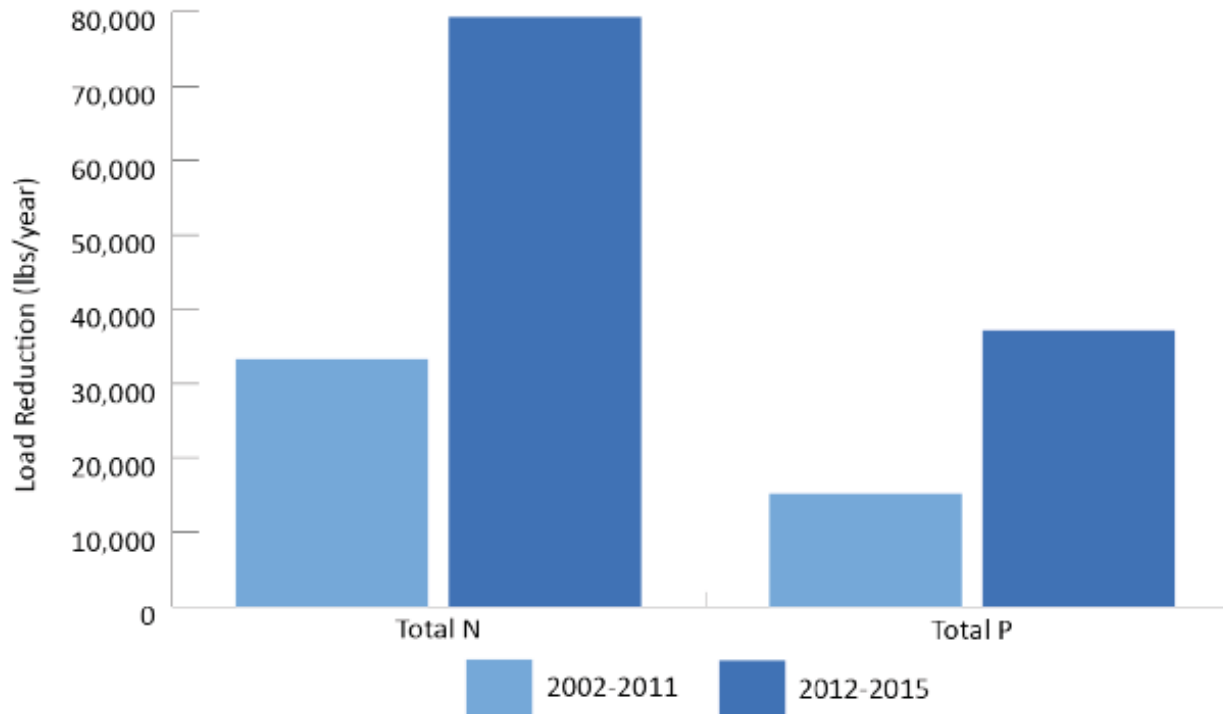
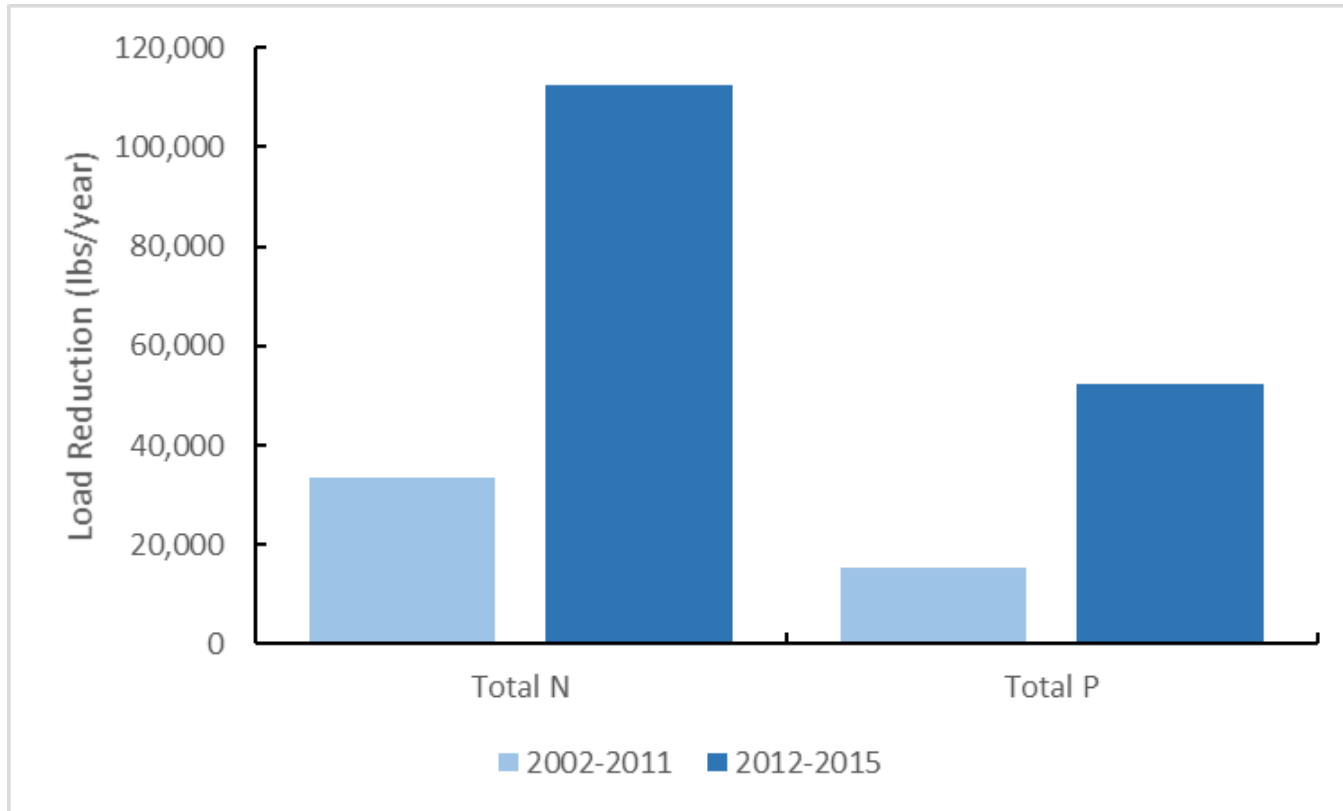


Figure 6.2. Calculated total nitrogen and total phosphorus load reduction (lbs/year) from Illinois EPA 319 urban non-point source projects

Where are we now?

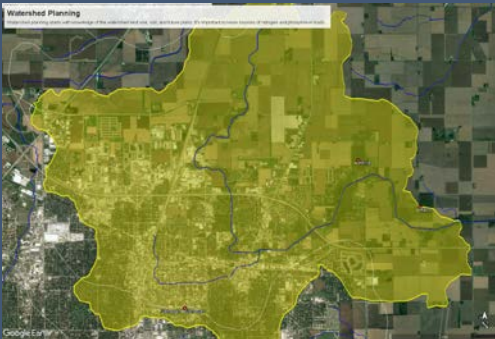


Where can we go?

Table 6.5. Urban non-point source programs and projects working toward Illinois NLRS goals

Section 319	69	✓
Municipal Separate Storm Sewer System Permit	Illinois NLRS p. 7-2	
Clean Water Initiative and State Revolving Fund	74	
Illinois Green Infrastructure Grants	71	✓
Rain Barrel Programs	71	
Streambank Stabilization and Restoration Program	Illinois NLRS p. 7-4	
Total Maximum Daily Load	Illinois NLRS p. 7-4	
Calumet Stormwater Collaborative	75	

Bold type and page number signify an update in this report. Details about programs listed in non-bold type and page number can be found in the strategy.



Strategic Actions

- Urban Stormwater Workgroup
 - Nutrient info for MS4s
 - Let us tell the *whole* story
- Stormwater Management Planning
- Storm Sewer System Mapping
- Encourage Stormwater Management Training

Future Data Sources?

- County/town/city/village inventory?
- Watershed plans?
- Private Groups
 - Non Profits
 - Foundations
 - Citizens

Suggested Minimum Measures

- Location
- Practice type
- Land area treated by BMP
 - Acres treated
- When the practice was installed
 - And program used for funding
 - 319
 - IGIG
 - Private
- Expected life of the practice
- Funding, if applicable





QUESTIONS?