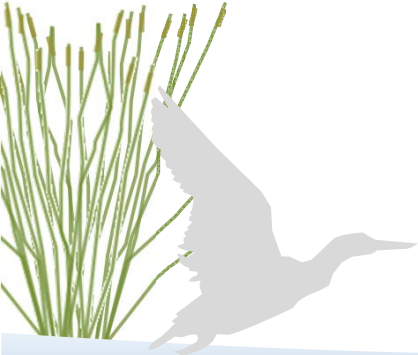


Lake Wingra Watershed Plan

Updated 2015



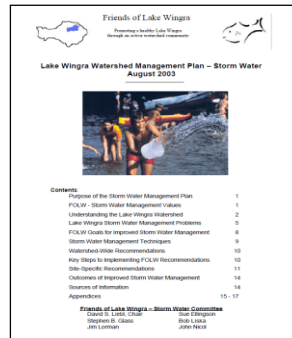
Background



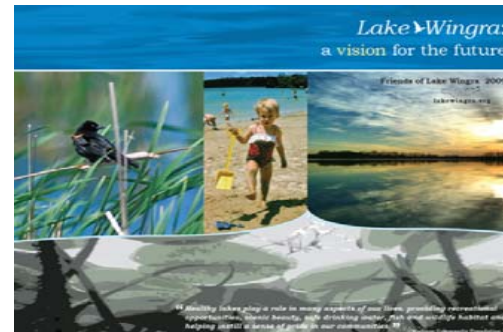
Friends of Lake Wingra



**Friends of
Lake
Wingra
Founded
in 1998**



2003



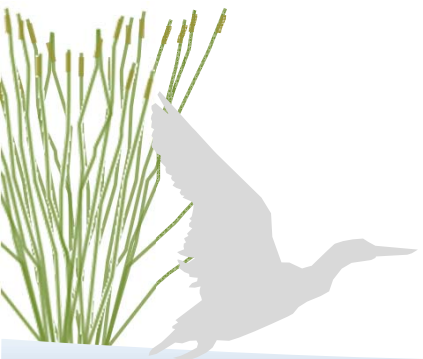
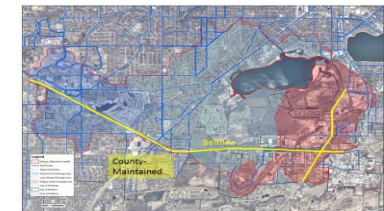
2009



Take a Stake In The Lakes



**Lake Wingra Watershed
Management Plan:
2011 to Present**



What is the Watershed Plan?

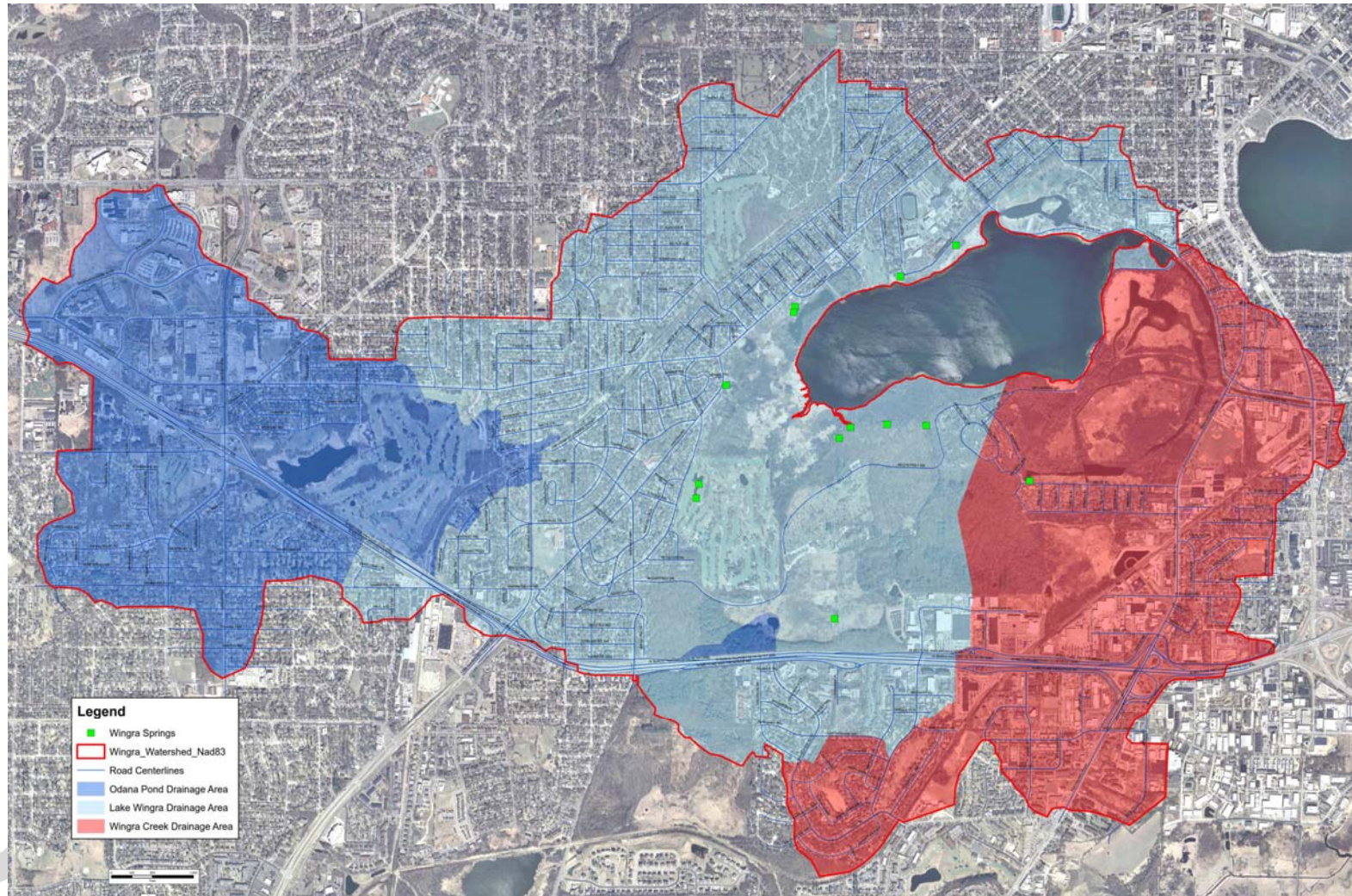
The Lake Wingra Watershed Plan is a joint initiative between the City of Madison and the Friends of Lake Wingra to achieve the goals listed in “*Lake Wingra, a vision for the future.*” These goals include:

1. Clean, clear, water
2. Restored spring flow
3. Abundant native plants and animals
4. Stewardship and enjoyment



<http://www.motherofalltrips.com/2011/08/allstate-amazon-gift-card-giveaway.html>

Where is the Lake Wingra Watershed?



3636 acres

Specific Watershed Plan Goals

1. Phosphorus: Of the 1,900 pounds of phosphorus generated in the watershed each year

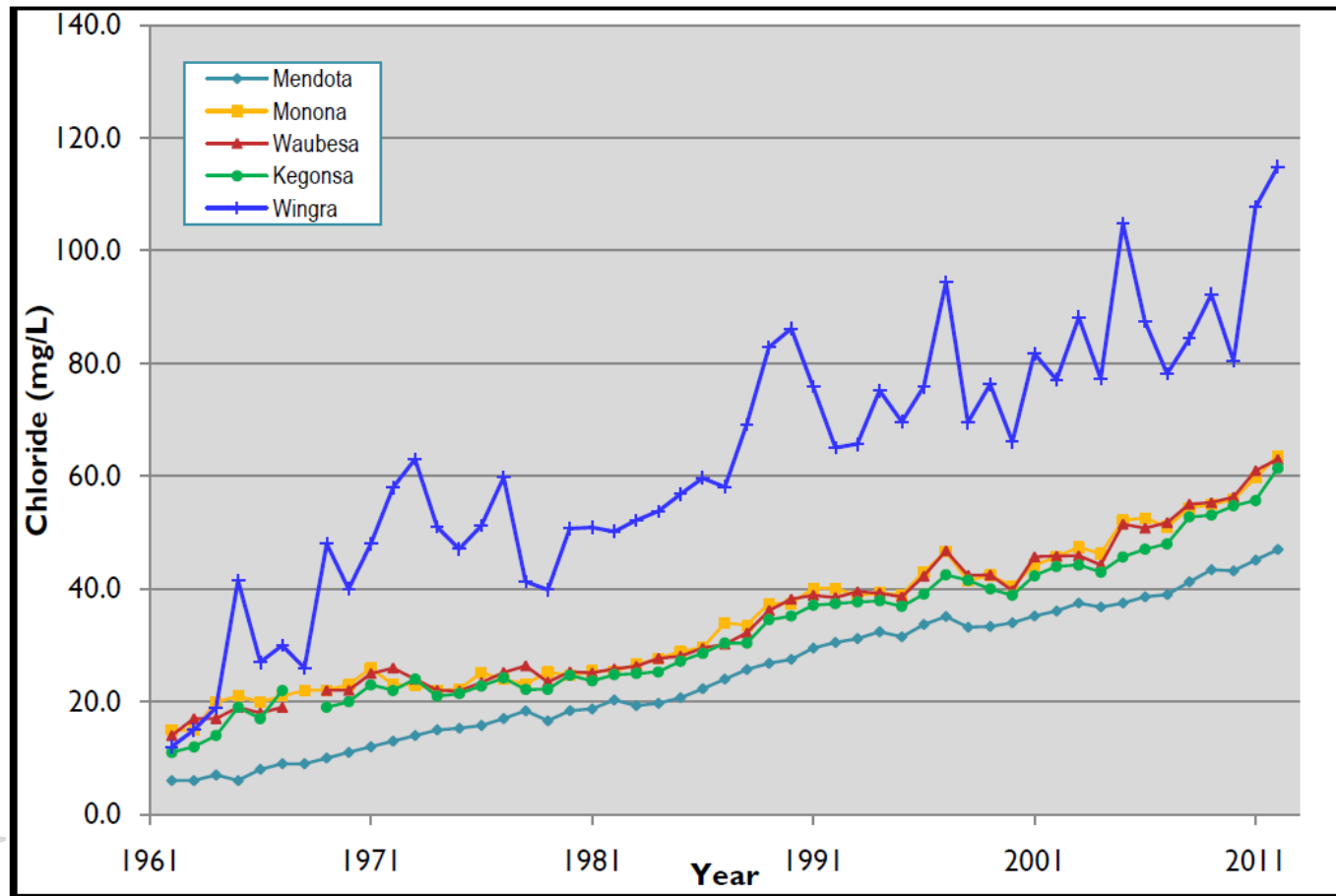
	Percent Reduction	Additional TP Removal Needed
<i>Existing Conditions</i>	<i>38.5%</i>	<i>731 lbs (current removal)</i>
Short-Term Goal	50%	218 lbs
Long-Term Goal	80%	570 lbs

Long Term Goal is 18% of Estimated City TMDL phosphorus reduction target (Wingra Watershed is ~12% of Madison TMDL area)



Specific Watershed Plan Goals

2. Chlorides: Change the lake chloride concentration from 120 mg/l to 40 mg/l that existed in the early 1970s.



2011 Salt Report

Specific Watershed Plan Goals

3. Infiltration/Groundwater Recharge: Of the 742 million gallons of lost infiltration due to development,

	Recover % of Lost Infiltration	Additional Infiltration Needed
<i>Lost Infiltration</i>	NA	<i>742 million gallons</i>
<i>Existing Infiltration Facilities</i>		<i>28 million gallons</i>
Short-Term Goal	10%	46 million gallons
Long-Term Goal	25%	112 million gallons



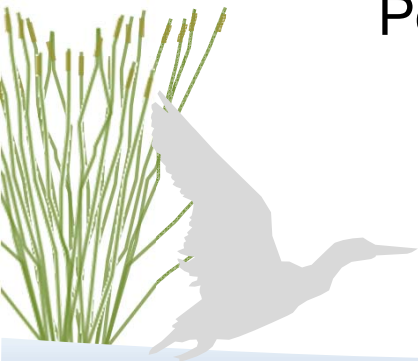
What can we do to reduce Phosphorus?

Structural Improvements

- Wet Detention Basins
- Bioretention Basins
- Rain Gardens
- Streambank Restoration
- Alum Addition to Wet Ponds

Non-Structural Improvements

- Construction Site Erosion Control Enforcement
- Modified Leaf Collection Methods
- Wetland Harvesting
- Modified Street Sweeping Methods/Schedule
- Pet Waste Enforcement
- Infiltration



What can/is the City doing to reduce Phosphorus?



Street Sweeping & Leaf Collection



Leaf Collection



Construction Site Erosion Control



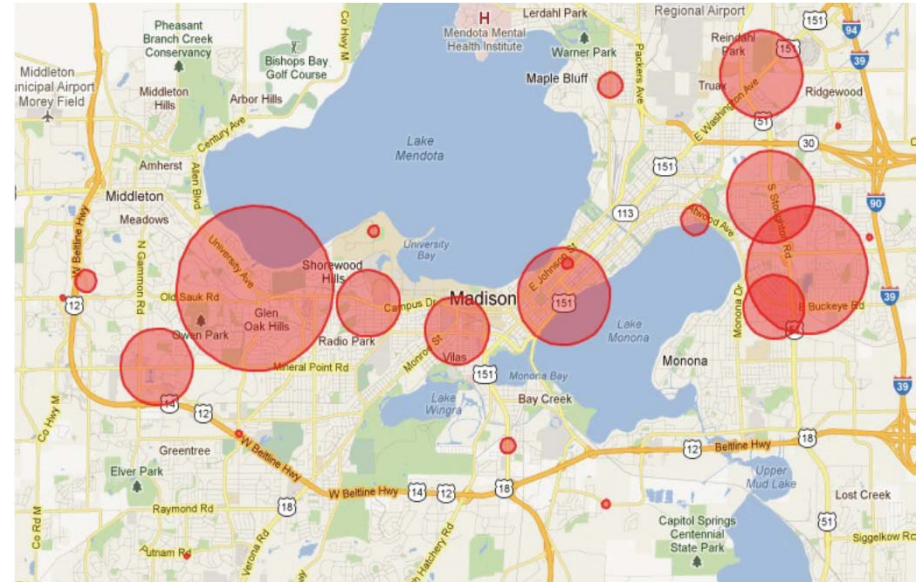
Constructing Basins

Why is salt a problem?



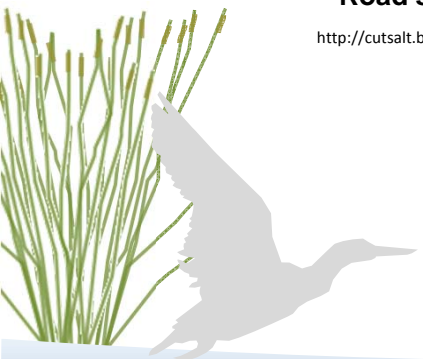
Road salt harms aquatic life

http://cutsalt.blogspot.com/2011_10_01_archive.html



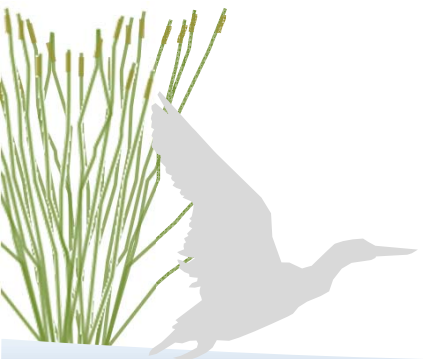
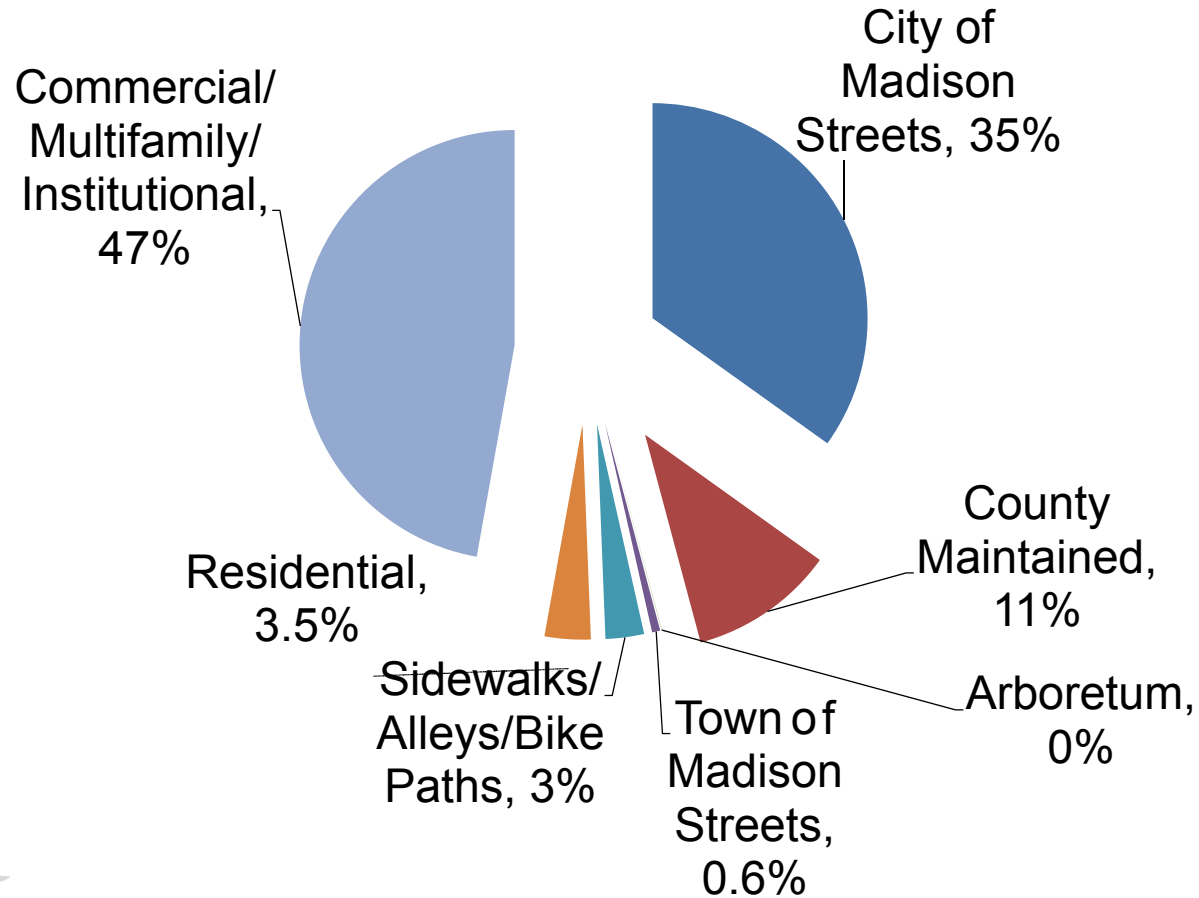
**Madison Wells with Chlorides
From City of Madison 2011 Salt Report**

Circle diameter proportional to chloride concentration



Estimated chloride contribution to Lake Wingra

2006-2012



How much salt do you use?

Spreading between **3 to 5 lbs** per 1000 square feet is sufficient to melt snow.

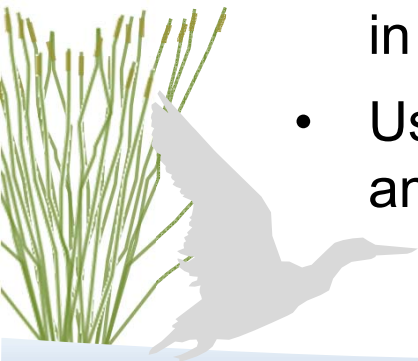
Studies show that both commercial and private applicators spread as much as **25 to 30 lbs** per 1,000 square foot!



Too much salt gets into our lakes

<http://www.callcontour.com/landscaping/2012/12/just-enough-applying-salt-for-winter-de-icing>

- Shovel your driveway promptly to avoid packing and the need for salt
- Use sand for traction. The City places sand for residents to use in several locations.
- Use less salt. You need much less than you think to melt snow and ice.

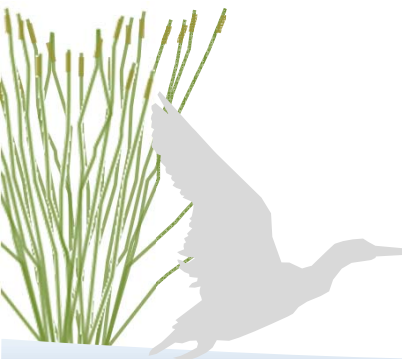


What can the City do to use less salt?

The City of Madison already takes substantial measures which include:

- Applying anti-icing solutions to pavements in advance of storms.
- Waiting until streets are plowed before applying salt.
- Using sand instead of salt on non-arterials.

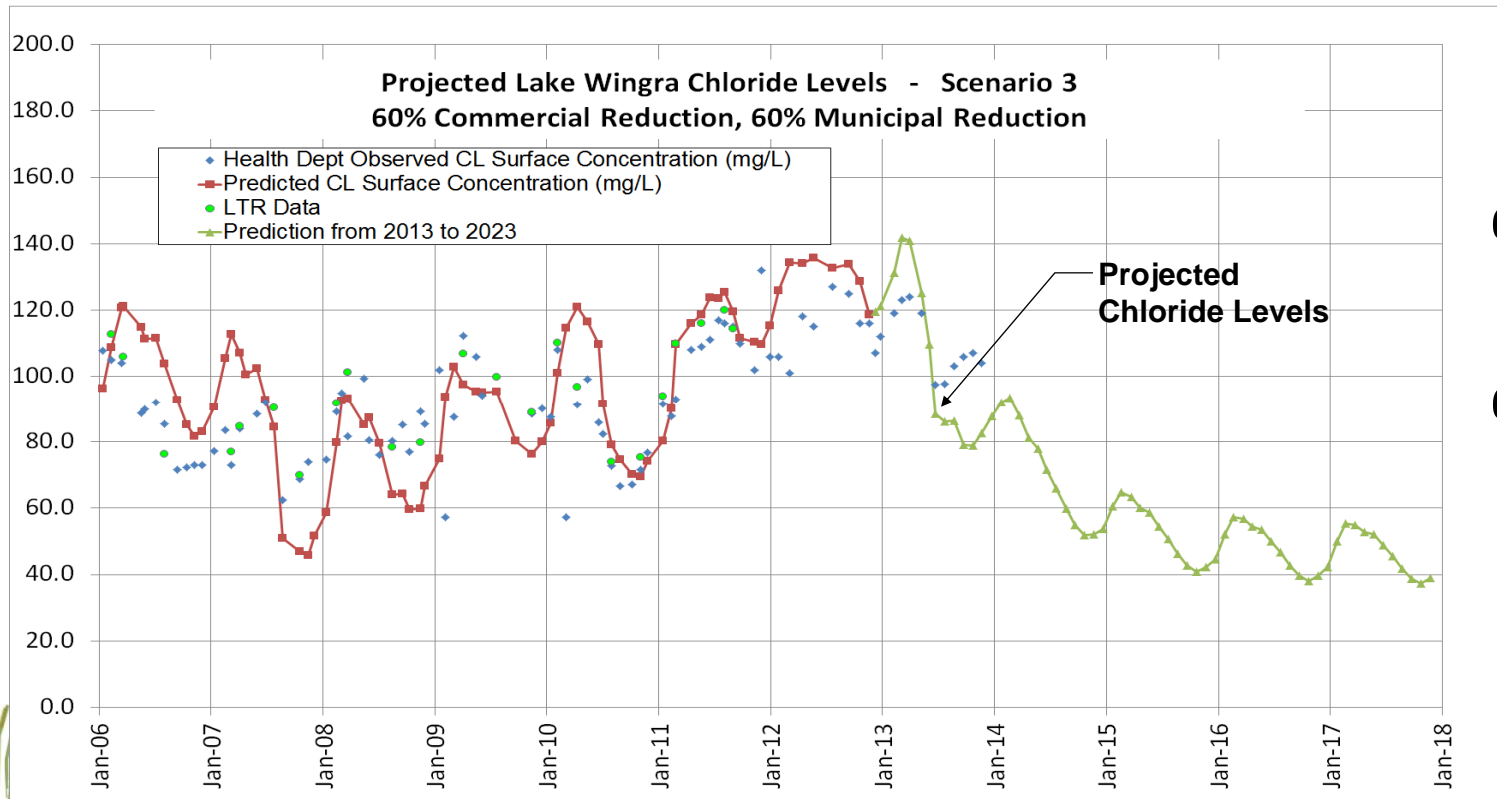
After every storm the Streets Department receives numerous calls to apply more salt. Rarely are they asked to apply less salt.



The City's salt use is directly related to our expectations – changing our expectations will help the City use less salt.



What's needed to achieve goal?

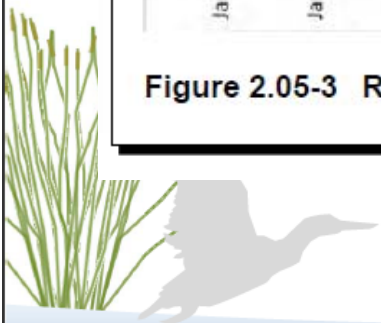
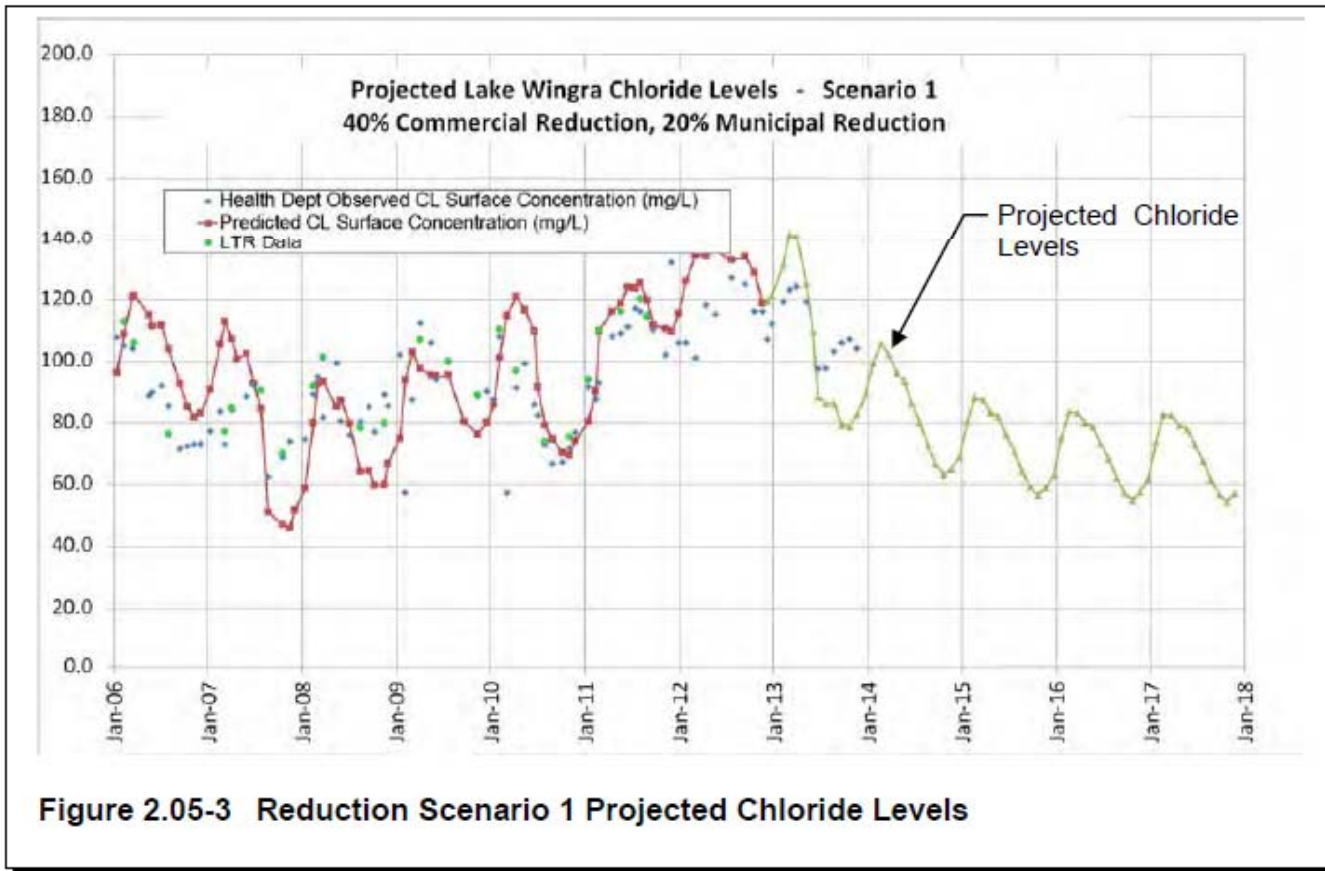


60% Commercial Reduction

60% Municipal Reduction

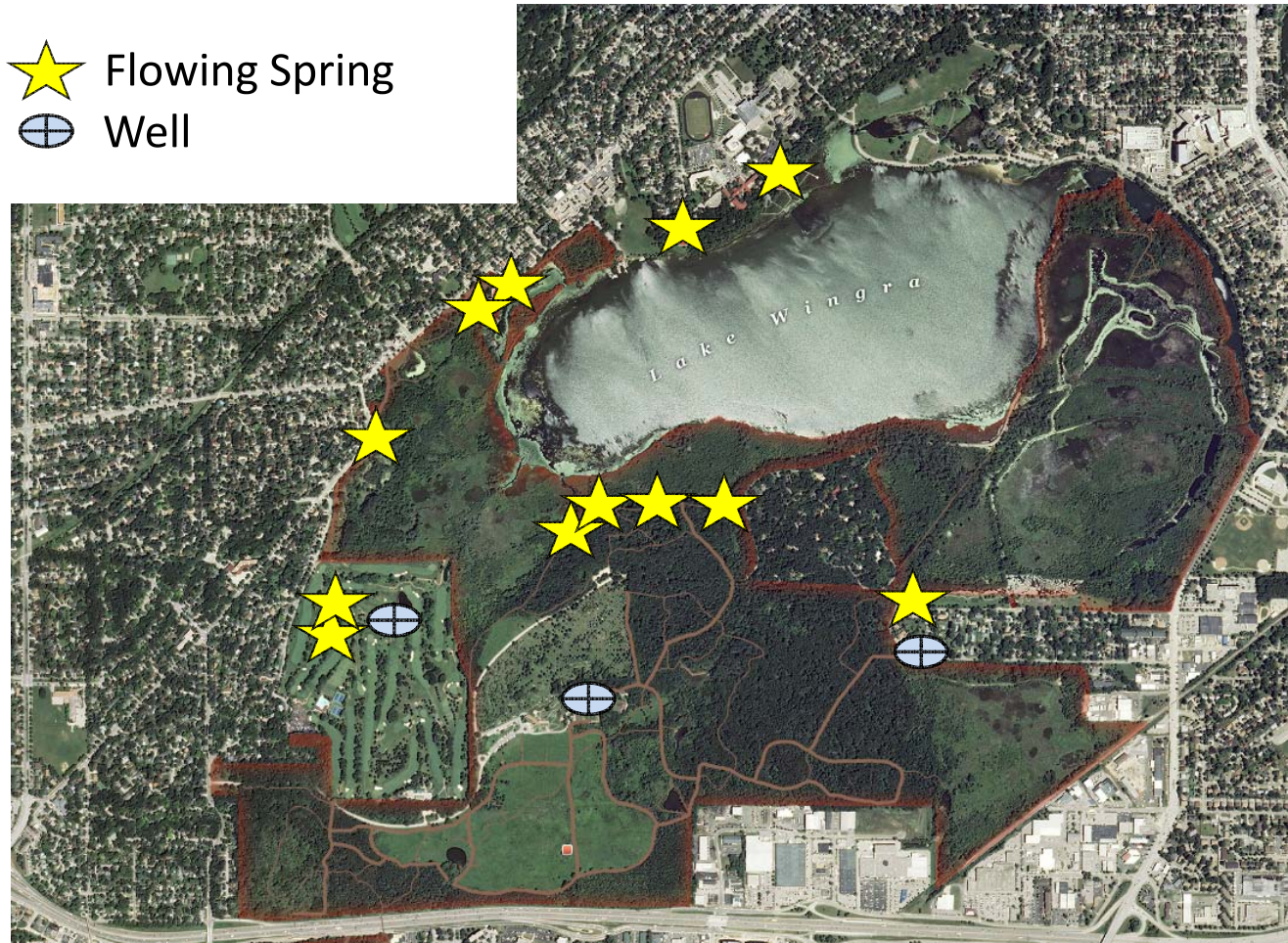
Model Results

What if we don't reach 60% reductions?

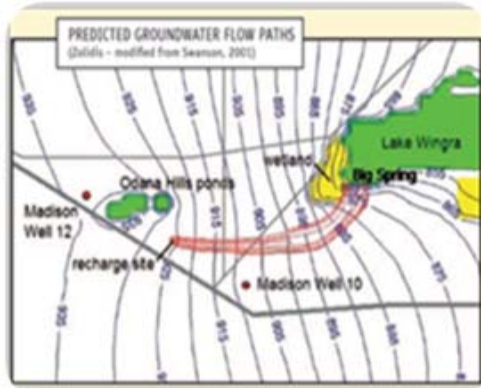


Why is spring flow important?

- At one time there were 33 springs flowing into Lake Wingra.
- Today, this number has been reduced to 13 springs (shown on the adjacent map)



What is currently being done to Increase Infiltration?



MG&E Infiltration Facility



Erosion Control and Stormwater Ordinances



City of Madison Initiatives

What you can do to increase spring flow



Driveway Tracks



Pavement Grids



Porous Pavement



Terrace Rain Garden



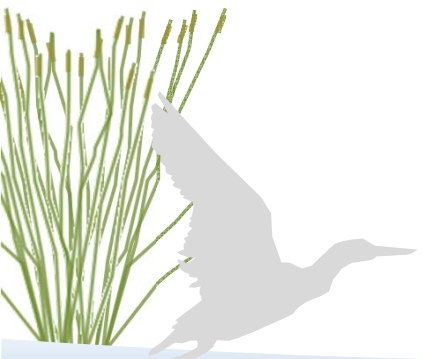
Downspout Disconnection



Rain Garden

What's needed to meet Short-Term Infiltration and Phosphorus Goals?

Goal	# Projects	Approx. Cost
Short-Term Infiltration Goal	12	\$10.2 million
Short-Term TP Reduction Goal	1-5	\$55,000 to \$2.7 million
	TOTAL	\$10.3 to \$12.9 million



Where can I read the draft watershed plan?

City of Madison Accounts Services Jobs Agencies Data Contact Search

Home Services Streets & Sidewalks Environmental Erosion Control Projects Maps Storm & Sanitary Sewer

Lake Wingra Watershed Plan

Home
About Us
Contact Us
Dead Animal Collection
Permits
Quiet Zone
Report A Problem
Road Projects
Public Works
Traffic Engineering

Robert F. Phillips, P.E.
City Engineer
Engineering
210 MLK, Jr. Blvd.,
Room 113,
City-County Bldg.
Madison, WI
53703
TEL: (608) 266-4751
WI Relay Service
FAX: (608) 264-9275
Email:
Engineering
Larry D. Nelson
Engineering
Operations Facility
1600 Emil Street
Madison, WI
53713
TEL: (608) 267-1197
FAX: (608) 257-1123

The 3,500-acre Lake Wingra Watershed falls within the boundaries of the City of Madison, City of Fitchburg, and the Town of Madison. The University of Wisconsin Arboretum occupies approximately 1,000 acres of the watershed.

The Friends of Lake Wingra authored the 2009 document *Lake Wingra: A Vision for the Future*, in which four goals are outlined:

1. Clean, clear water
2. Restored spring flow
3. Abundant native plants and animals
4. Stewardship and enjoyment

City Engineering has hired a consultant to help create a detailed watershed plan to address most of these goals. The scope of this contract includes addressing pollutant loading (phosphorus and sediment), chloride reduction (impacts from road salt), and infiltration. A pilot project addressing one of these critical issues will also be a part of the plan.

An independent expert in the area of environmental social marketing as well as members of the Friends of Lake Wingra, City staff, UW Arboretum staff, and other stakeholders will contribute to the creation of the plan through a steering team that will meet once every 1.5 months. In addition, specialized teams will convene around the issues of chloride, pollutant loading, infiltration, and pilot project recommendations.

The UW is conducting a concurrent study of the impacts of in-lake processes (wind/waves and carp) and how they compare to pollutant loading. An issue team will meet to discuss the findings of this study as well, and whether the results would impact recommendations in the final plan.

Once minutes from meetings have been approved by the steering team, they will be posted here.

A draft copy of the Lake Wingra Watershed Management Plan follows below:

Front Cover, Forward and Table of Contents
Section 1 - Introduction
Section 2 - Chlorides
Section 3 - Infiltration
Section 4 - Phosphorus
Section 5 - Engagement and Implementation
Section 6 - Conclusions and Recommendations
Section 7 - Appendices and Back-Cover

Questions? Contact [Grea Fries](#), (608) 267-1199.

MAPS

- Municipalities
- Aerial View
- Impervious & Open Space Watershed Map

MEETINGS

- Steering Team 2/21/13
- Chloride Issue Team 3/21/13
- Steering Team 4/4/13
- Steering Team 5/23/13
- Infiltration Team 6/28/13
- Steering Team 7/11/13
- Steering Team 10/17/13
- Steering Team 12/11/13
- Steering Team 1/23/14
- Steering Team 2/27/14
- Steering Team 3/25/14

MORE

- [Lake Wingra: A Vision for the Future \(50B\)](#)
- [Best Management Plan for Sediments in Lake Wingra \(UW\)](#)
- [2012 Road Salt Report](#)
- [Sources of Chloride to Lake Wingra, R. Bannerman 11/19/12](#)

STUDENT PROJECTS

- [Vilas Park/Wingra Creek Shoreline Design & Restoration \(214MB\)](#)
- [Monroe St & Wingra Park: Design for Healthy Neighborhoods & Lakes, May 2013 \(8 MB\)](#)
- [Vilas Park & L. Wingra Shoreline Vision, 7/25/12 \(2.5 MB\)](#)
- [Monroe Street Commercial District Plan, 11/29/06 \(5 MA\)](#)

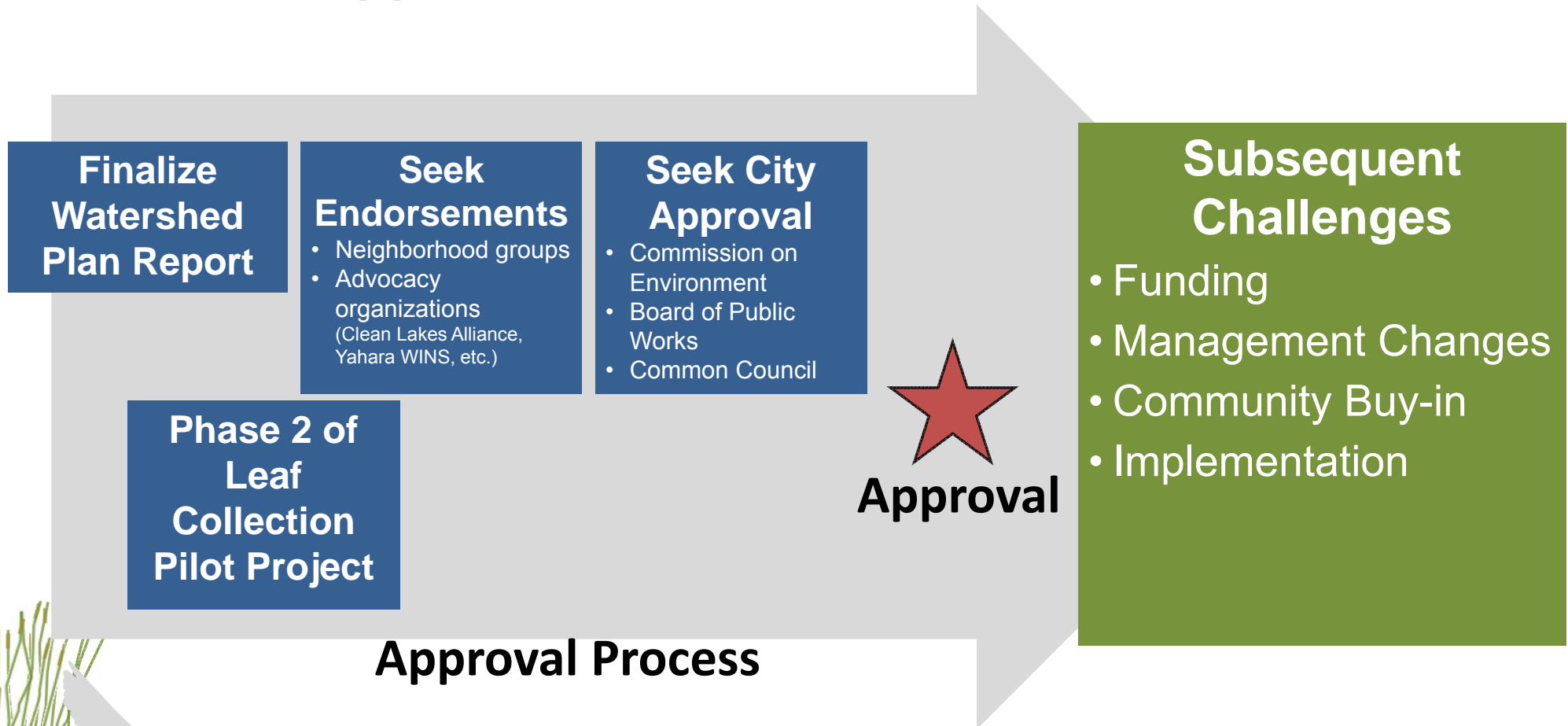
Google “Lake Wingra Watershed Plan

Or

Go to:

www.cityofmadison.com/engineering/stormwater/wingraplan.cfm

What will happen with the Watershed Plan?

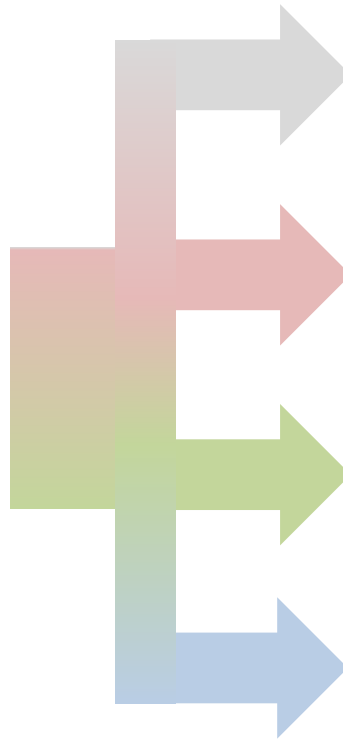


Approval Process

Proposed Catalyst Teams

Catalyst Teams

- Phosphorus
- Chlorides
- Infiltration



Residents

(management)
(advocacy)

Commercial

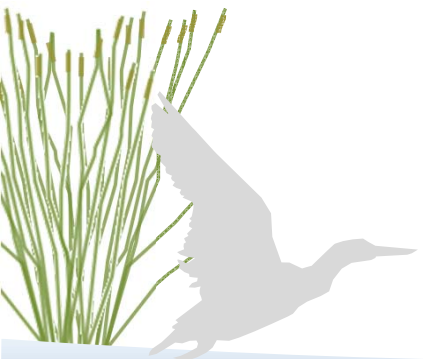
(management)

Government Departments

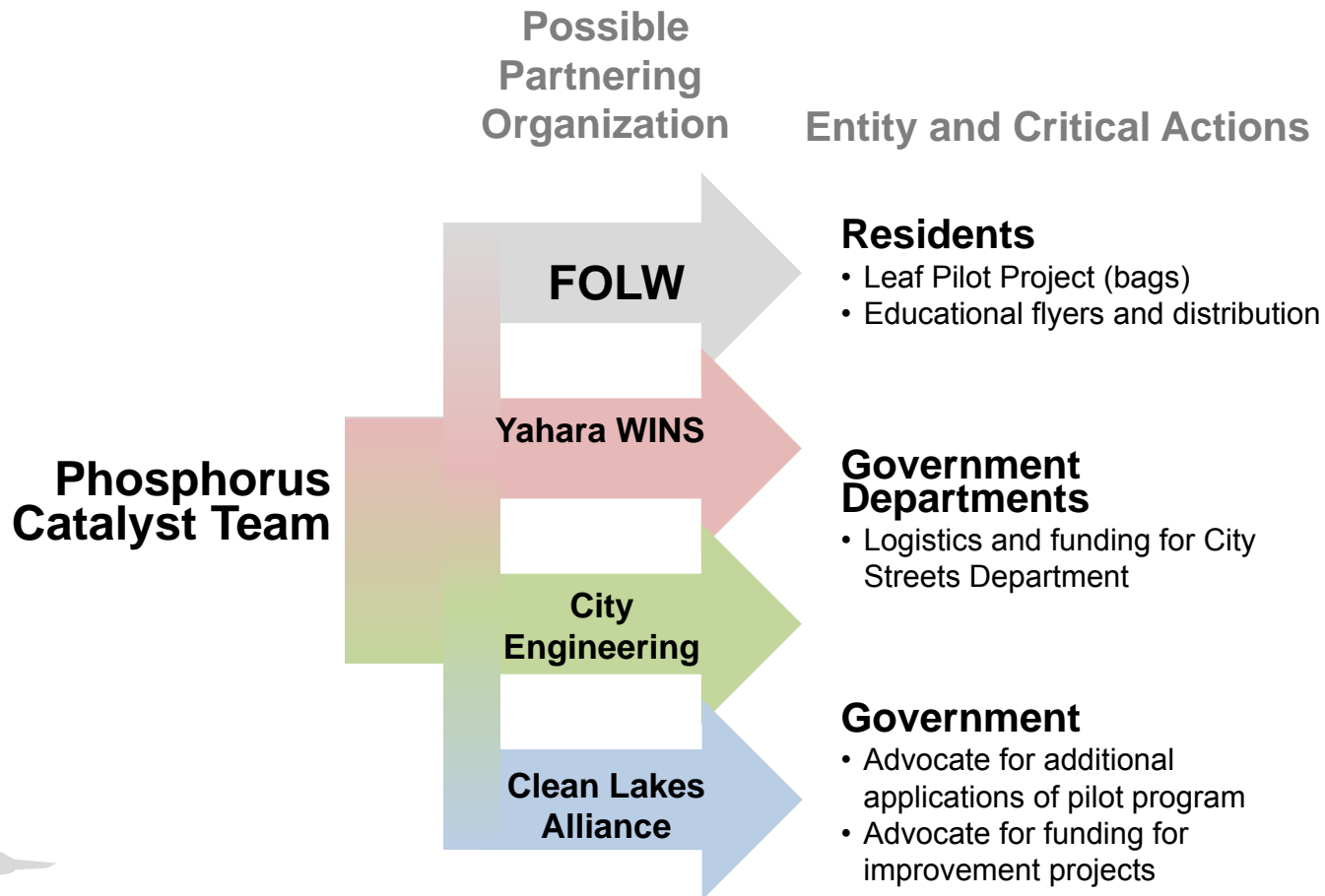
(management)

Government

(legislation and project
funding)



Catalyst Team Example

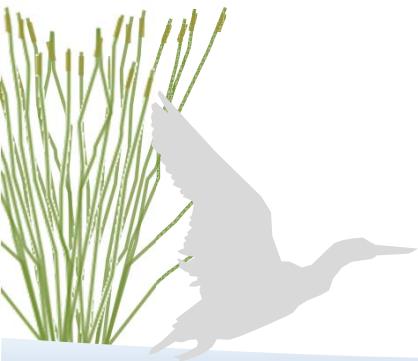


Pilot Projects

Management changes require a track record of success, both in implementation and effectiveness

Pilot projects provide this track record. The Wingra Watershed is an excellent place to host pilot projects because:

- Well organized neighborhoods
- Many residents have an environmental stewardship ethos
- Watershed has a dedicated advocacy group
- Watershed provides a smaller waterbody for evaluation



Lake Wingra Watershed Plan

September 2015

