

STAKEHOLDER STEERING COMMITTEE INTEGRATED ASSESSMENT

Alternative Stormwater Management Practices
that Address the Environmental, Social, and
Economic Aspects of Water Resources in
Spring Lake Township and Village



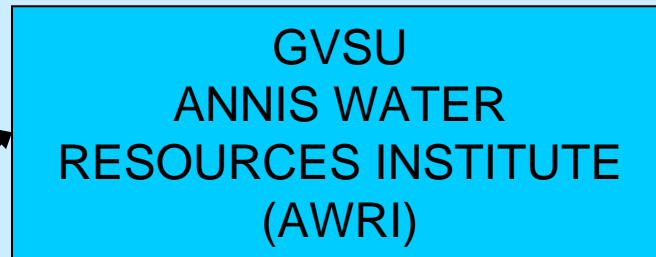
Elaine Sterrett Isely
Alan D. Steinman
Annis Water Resources Institute
Grand Valley State University
March 19, 2008

Agenda

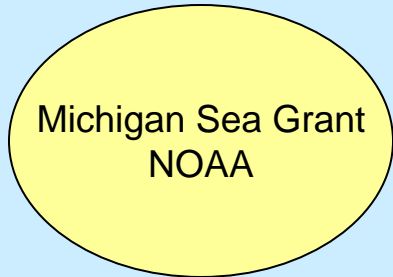
- ❖ Project Team Introductions (5 min.)
- ❖ Project Overview (20 min.)
- ❖ Stakeholder Steering Committee Roles and Responsibilities (30 min.)
- ❖ Meeting Schedule (5 min.)
- ❖ Next Steps (5 min.)

Project Team

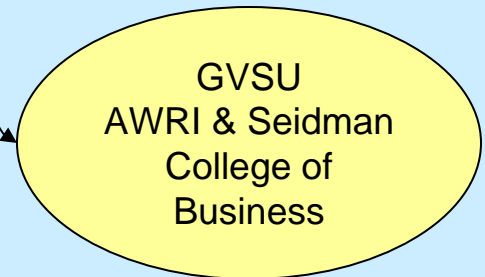
Principal Investigators



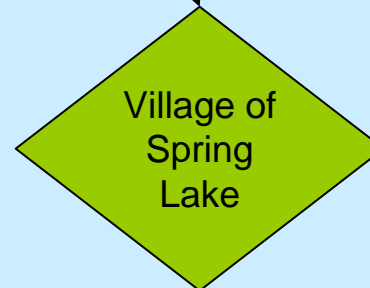
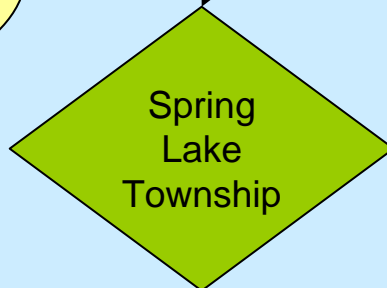
Project Team:
Stakeholder Process



Project Team:
Technical Process



Project Partners



Project Overview

- ❖ What is Integrated Assessment?
- ❖ Policy Question
- ❖ Spring Lake Watershed Land Use/Cover Change
- ❖ Stormwater Overview
- ❖ Project Tasks and Objectives
- ❖ Stakeholder Process



Photo credit: Progressive AE

Integrated Assessment



Photo credit: AWRI

- ❖ Existing scientific information
- ❖ Educating stakeholders and decision-makers
- ❖ Applying solutions to policy or management question

Policy Question

What stormwater management alternatives are available to the Village of Spring Lake and Spring Lake Township that allow for future development and also mitigate the impacts of stormwater and improve the quality of Spring Lake, the Grand River and Lake Michigan?



Photo credit: E. Isely

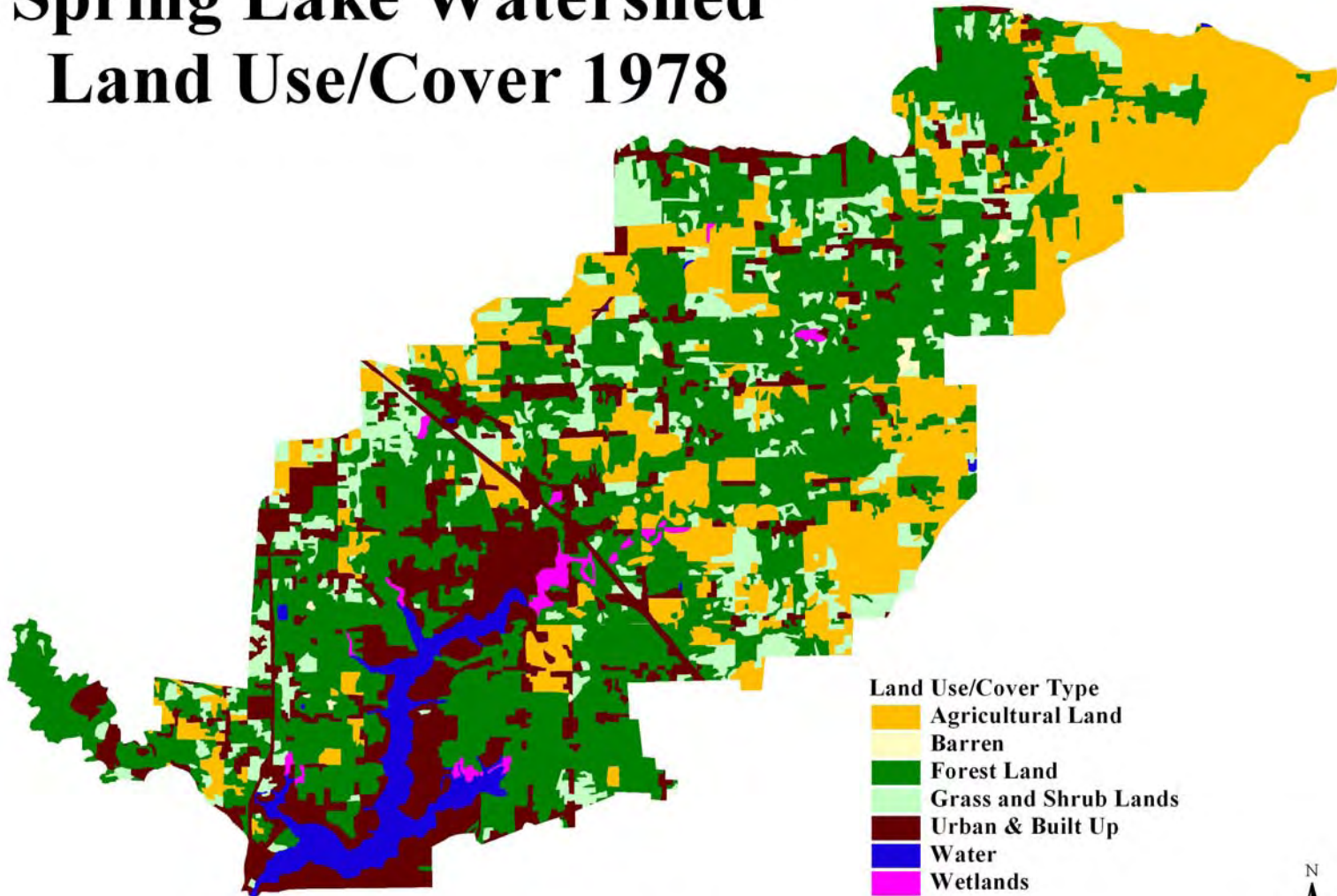


Photo credit: Progressive AE



Photo credit: E. Isely

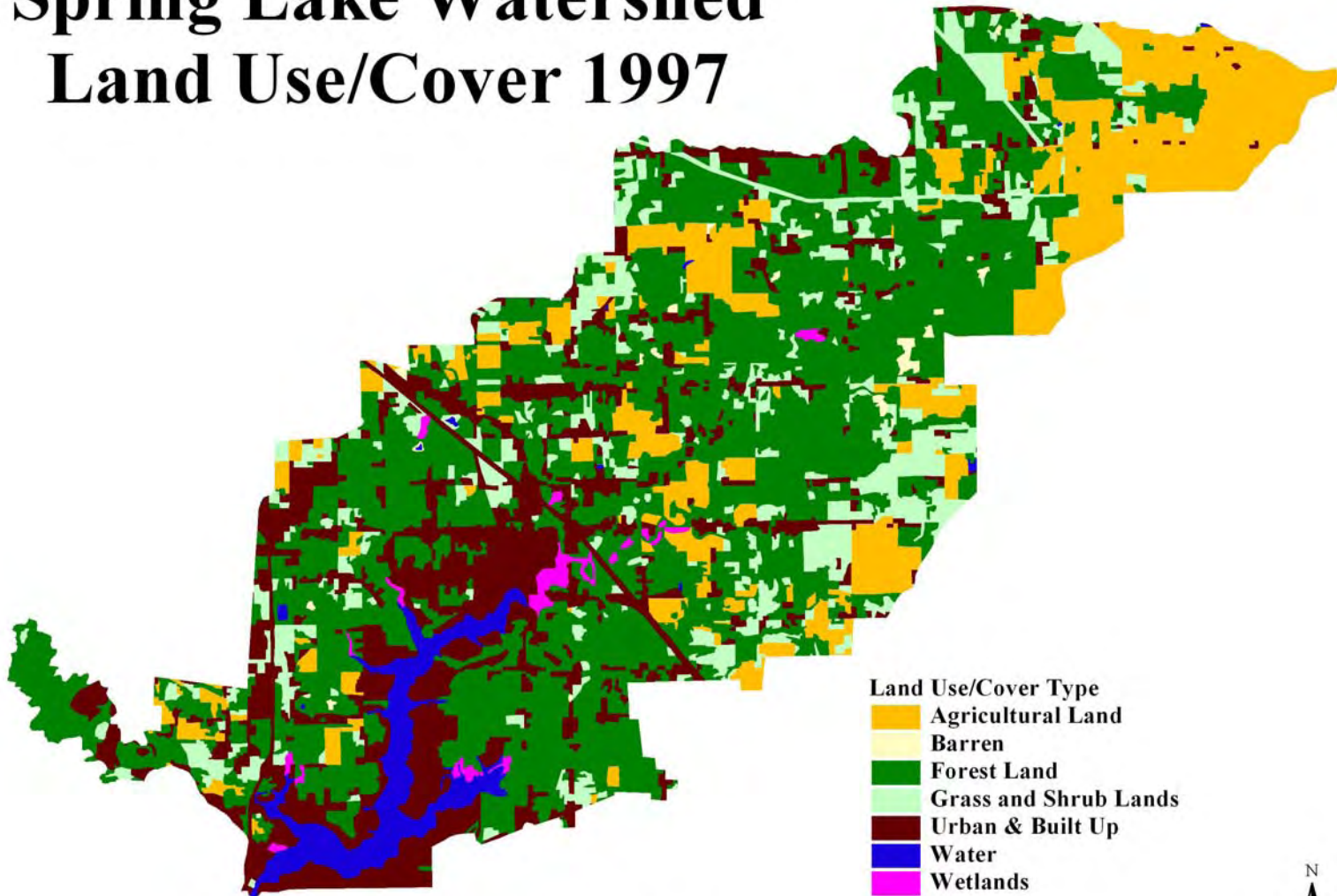
Spring Lake Watershed Land Use/Cover 1978



0 1 2 3 4 5 Miles



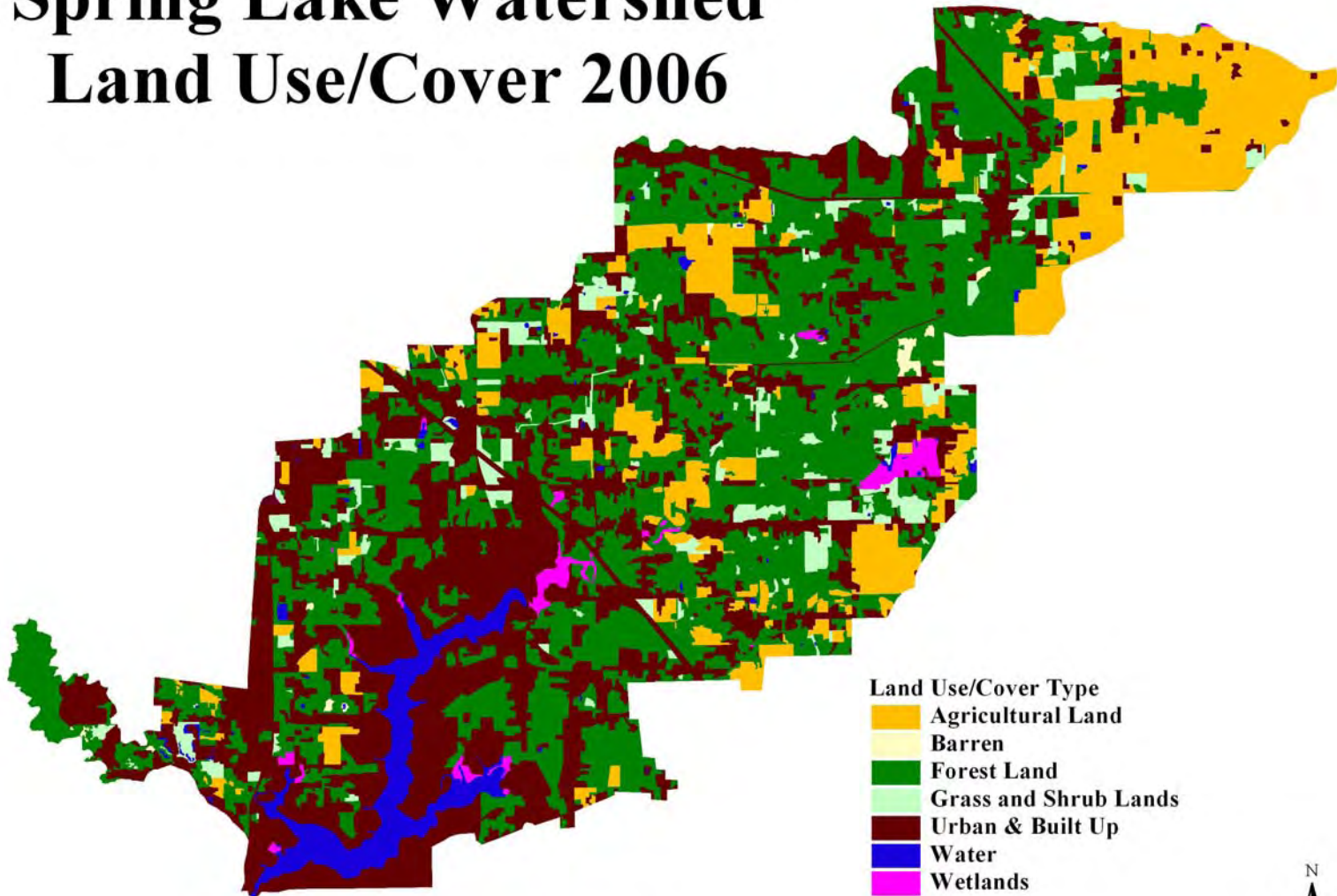
Spring Lake Watershed Land Use/Cover 1997



0 1 2 3 4 5 Miles



Spring Lake Watershed Land Use/Cover 2006

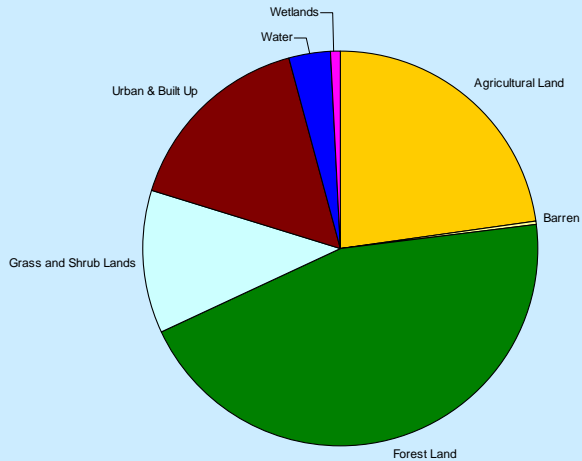


0 1 2 3 4 5 Miles

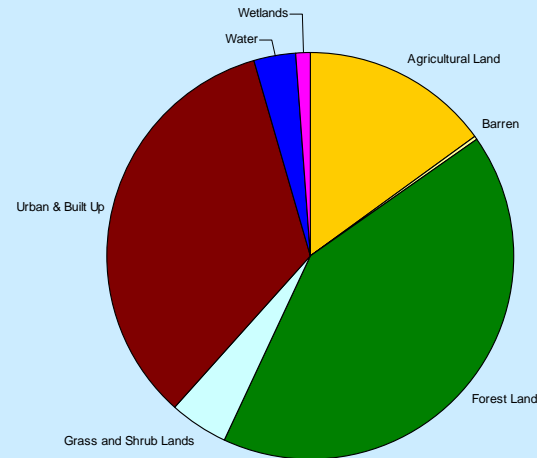


Spring Lake Watershed Land Use/Cover

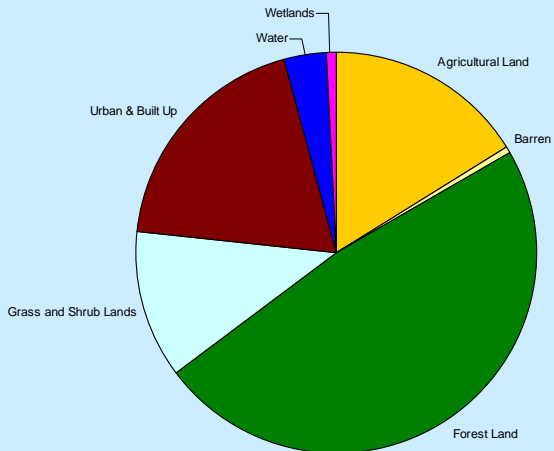
1978



2006



1997



Stormwater Impacts

- ❖ Impervious surfaces increase runoff volume, velocity and pollutants
- ❖ Reduced recharge to aquifers
- ❖ Increased erosion and sedimentation
- ❖ Potentially toxic to stream biota



Photo credit: AWRI

Total Phosphorus: Spring Lake

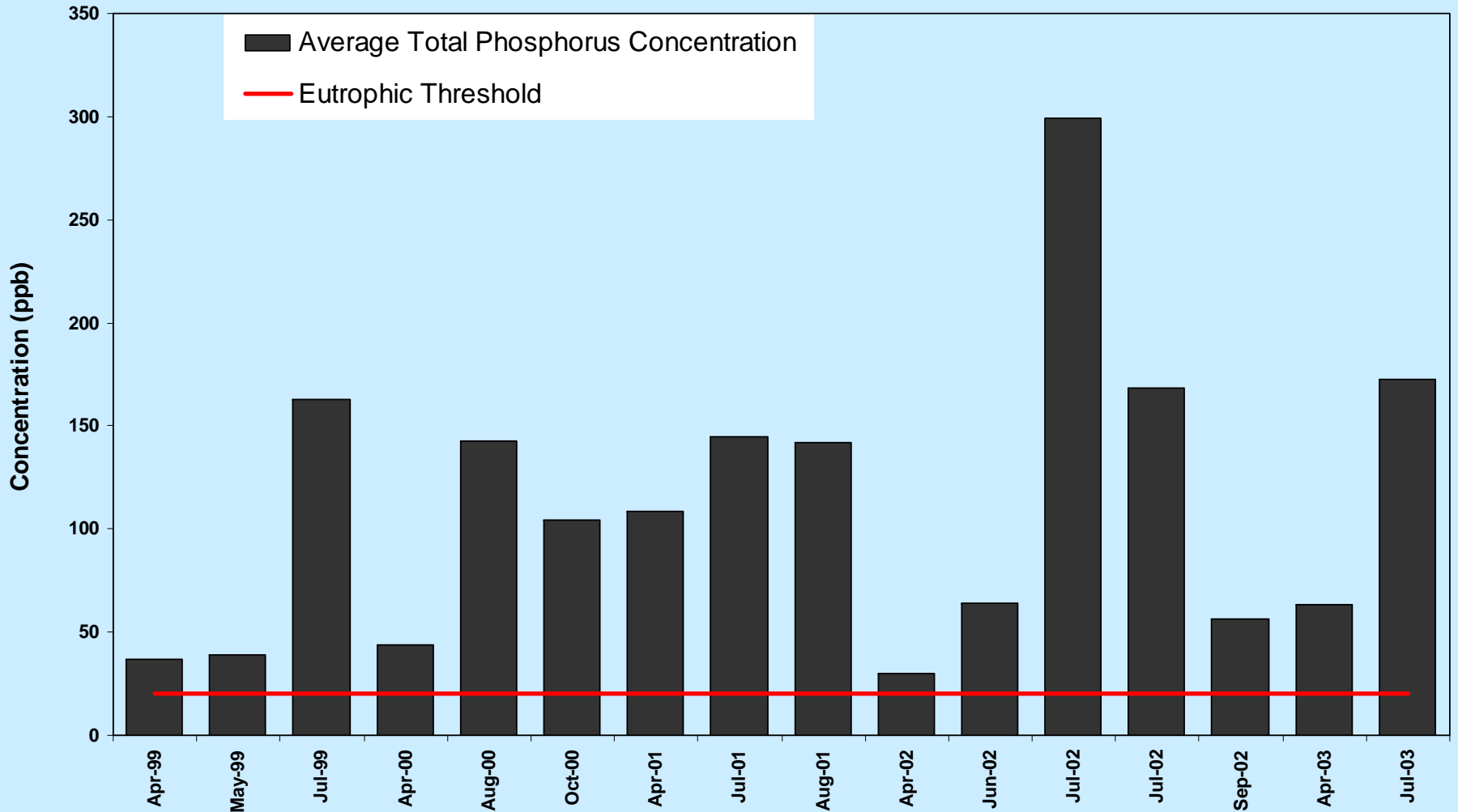




Photo Credit: Spring Lake Lake Board

Alum Treatment

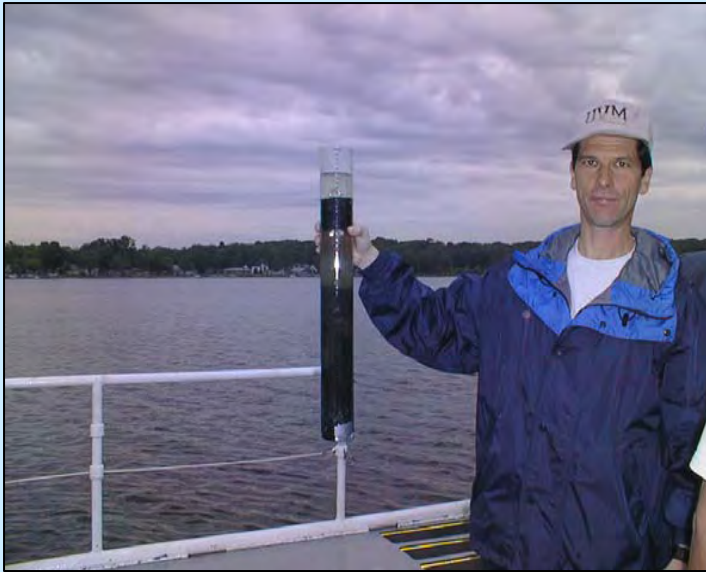


Photo credit: Annis Water Resources Institute

- ❖ Reduced release of phosphorus from sediments
- ❖ Reduced total phosphorus levels in water column
- ❖ Did not address new nutrient and other stormwater inputs



Photo credit: Progressive AE

Steinman, A.D. and M. Ogdahl 2008. Ecological effects following an alum treatment in Spring Lake, Michigan. *Journal of Environmental Quality* 37(1): 22-29.

Project Objectives

- ❖ Increase understanding of the causes and consequences of stormwater runoff
- ❖ Increase stakeholder participation in stormwater control and management
- ❖ Identify regulatory mechanisms to improve local stormwater management and control
- ❖ Provide alternative BMPs for stormwater mgm't

Low Impact Development (LID)

❖ Example LID BMPs

- Open space preservation
- Cluster development
- Green roofs
- Native plant landscaping

❖ 17 case studies throughout US

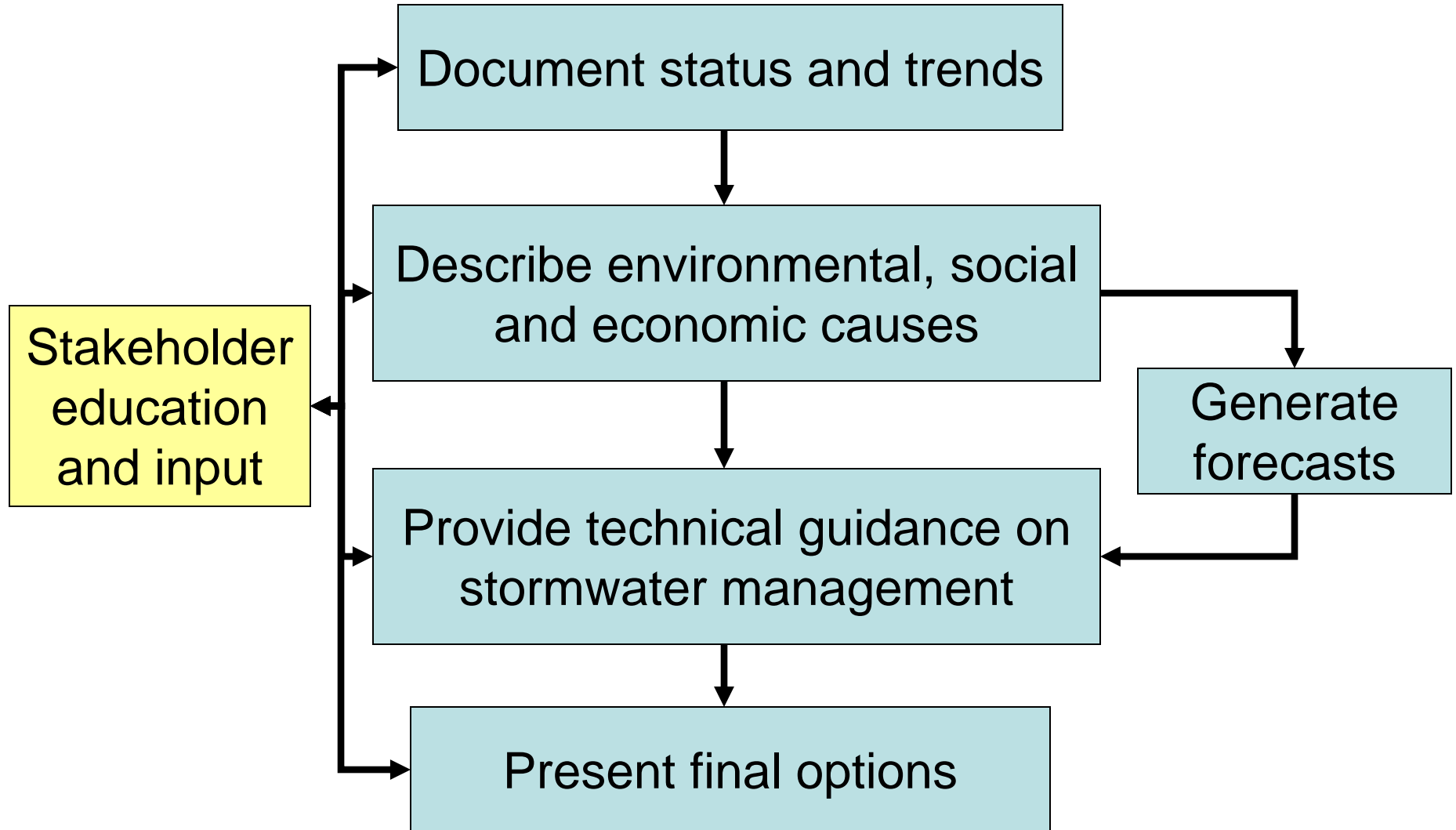
❖ In most cases, total capital cost savings ranged from 15-80%



Reducing Stormwater Costs through Low Impact Development (LID) Strategies and Practices



Project Tasks



Project Work Plan

1. Step 1
 - ❖ Examine existing datasets and information
 - ❖ Identify the scope of the stormwater problem in both municipalities
 - ❖ Develop conceptual ecological model
2. Step 2
 - ❖ Presentations to stakeholders
 - ❖ Stakeholder Steering Committee
 - ❖ Public meetings
 - ❖ Feedback and input
3. Step 3
 - ❖ Model simulations (PAM, L-THIA, Pload)
 - ❖ Stakeholders review future development scenarios
 - ❖ Develop menu of site-specific BMPs
4. Step 4
 - ❖ Provide technical guidance for implementing each BMP option
5. Step 5
 - ❖ Review and revise findings
 - ❖ Final report and presentations

Stakeholder Process

- ❖ Stakeholder involvement in all aspects of Integrated Assessment:
 - Presentations to community groups
 - Stakeholder Steering Committee
 - Public education events
 - Opportunities to provide feedback, survey cards and on-line survey
 - Review of completed integrated assessment

Stakeholder Steering Committee

- ❖ Quarterly project update meetings
- ❖ Assistance in promoting project goals
- ❖ Assistance in identifying stormwater opportunities and challenges
- ❖ Input and review of project goals, progress and products



Photo credit: E. Isely

Tonight's Activities

- ❖ Stormwater topics of concern
- ❖ Project name/identity
- ❖ Public meeting/open house
 - Format
 - Dates
- ❖ Project communications
 - What's the best way for you to get project updates and other information?

Contact Information

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