Watershed Facts

- A small watershed (23 square miles)
- Tributary to the Fox River
- Drains portions of Woodstock, Bull Valley, McHenry, and unincorporated McHenry County
- Largely undeveloped
How it All Started

- A small group of landowners recognized the significance of the land
- A proactive approach was the initial motivation
  - We’d rather prevent problems than fix them.
- Agreed to form the Boone Creek Watershed Alliance

BCWA Mission

- To protect the integrity and biodiversity of the Boone Creek Watershed ecosystem through partnerships that promote:
  - conservation
  - restoration
  - education
  - wise land-use planning
What’s Special about the Watershed?

- Unusually hilly topography and views
- Highly permeable soils, sands, and gravels
- Unique, high quality habitats: wetlands, woodlands, and savannas
- High quality stream and unique fish species

The Creek
Unique Wetlands, Fens, and Seeps

Savannas
Overlook the Valley
Rich Woodlands

Watershed Planning Process – 2002-2004

The Stakeholders

- Boone Creek Watershed Alliance
- McHenry County, Bull Valley, McHenry, and Woodstock
- Soil and Water Conservation District
- Fedl. Agencies: NRCS, EPA, Corps, USFWS
- State/Regional Agencies: INPC, IDNR, IEPA, NIPC
- Local landowners
- Non-governmental Organizations
  - Openlands, The Land Conservancy
The Plan Started with a Watershed Inventory

- NIPC Utilized GIS Technology to Highlight Unique Resources and Sensitive Areas
Water Quality Assessment

- IEPA: Full Support, no identified use impairments.
- Index of Biotic Integrity: B to C ratings
- The WRAS identified its own impairments and causes, such as:
  - Siltation
  - Channelization (relatively minor)
  - Wetland loss
Watershed Threats

- Development: increased runoff, soil compaction, erosion.
- Destruction and fragmentation of natural areas.
- Groundwater degradation.
  - Increased salinity from water softeners and road salt.
- Invasive species.

Boone Creek Watershed Goals

- Coordinate Watershed Planning, Land Use Planning, and Education
- Protect Groundwater Supplies
- Protect Stream Uses and Water Quality
  - Improve IBI scores to at least 45
- Protect and Improve Fish and Wildlife Habitat
- Protect Open Space and Greenways
- Prevent Increased Flooding
Key Watershed Plan Recommendations

- Enhance Intergovernmental Coordination and Continue Watershed Planning
- Minimize Impacts of New Development through Ordinances and Guidelines
- Expand Habitat Restoration and Land Stewardship
- Expand Open Space Protection and Outdoor Recreation
- Educate the Public and Public Officials

Land Use Recommendations: Protect Critical and Sensitive Areas

FIGURE 7: Boone Creek Watershed
Critical Protection Areas and Highly Sensitive Areas

Legend:
- Critical Protection Area
- Highly Sensitive Area: Wooded
- Highly Sensitive Area: Open

Data Sources:
- Map data from SPC-1 Digital Map of the Region, version 1 distributed by SPC
- Sources from Illinois County CD-ROMs
- Agriculture and Natural Resources Data from CD-ROMS
- Clean Lakes Illinois: Resource Management and Conservation Map of Boone County
- Data & information courtesy of the Illinois DNR
Groundwater Concerns/Threats

- Reduction in natural baseflows to creek and wetlands
- Impairment in groundwater quality, notably chlorides

Water Flow Test Results

- 4.2 CFS
- 11.7 CFS
- 17.5 CFS
- 2.8 CFS
- 18.3 CFS
Northeastern Illinois Planning Commission

Chloride Sources

- Road salt
- Water softeners

Chloride Levels

- Historically low
- Now, McHenry County among highest in NE Illinois
- Upward trend continues at more than 5mg/L/year increase.

Chloride Levels

<table>
<thead>
<tr>
<th>Mg/L</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>Measurable alteration in fen plant populations</td>
</tr>
<tr>
<td>100</td>
<td>Aquatic plants begin to show chronic toxic symptoms</td>
</tr>
<tr>
<td>215</td>
<td>Affect on terrestrial plants</td>
</tr>
<tr>
<td>230</td>
<td>Affect on some freshwater aquatic organisms</td>
</tr>
<tr>
<td>250</td>
<td>USEPA recommended limit for drinking water</td>
</tr>
</tbody>
</table>
Critical Groundwater Protection Step

- Map the groundwater recharge area for the sensitive fens, seeps, and wetlands.

The Boone Creek Fen Natural Area
The Class III was approved in 2005.

- Priorities for Groundwater Protection:
  - Protect Recharge Areas
  - Protect Wetlands
  - Reduce/Limit Road Salt Application
  - Reduce/Limit Salts used in Water Softeners
  - Promote “Conservation Development” practices

Ongoing Plan Implementation Priorities

- Work with local governments.
- Respond to new development proposals.
- Expand Open Space Preservation.
- Enhance Natural Area Restoration and Stewardship.
Priority 1: Work with Local Governments

❖ Engaged with Bull Valley to amend its Comprehensive Plan
❖ The revised Plan (2005):
  – Officially recognized the Class III
  – Incorporated goals and objectives for groundwater protection
  – Identified appropriate land uses (principally low-density residential)
❖ Plan was subsequently updated in 2011.

Bull Valley (contd.)

❖ Amended its Subdivision Regulations for the Class III areas to:
  – Protect wetlands, kettle holes, hydric soils, and buffers
  – Encourage cluster development
  – Require natural drainage and detention
  – Require natural landscaping for common areas
  – Require long-term management of natural areas
  – Minimize water and wastewater-related impacts
  – Minimize mass grading and impervious areas
Subsequent Conservation Policy Actions

- Woodstock adopted Conservation Design requirements in 2006.
- McHenry County followed with a conservation design ordinance in 2009.
- McHenry County adopted a Green Infrastructure Plan in 2012.
Priority 2: Responding to New Developments

- BCWA’s preferred approach is to engage constructively
- Offer alternatives to conventional designs that protect the resource while respecting the developer’s investment
Exhibit 1. Boone Creek Fen Illinois Natural Area and Class III Ground Watershed.
Our Response to the Initial Sanctuary Proposal:

- Recommend conservation development alternatives:
  - Minimize mass grading
  - Protect kettle holes and recharge zones
  - Utilize natural landscaping in common areas
  - Filter and infiltrate runoff with “naturalized” drainage and detention designs
  - Reduce road salt usage
Sanctuary: Phases 2 & 3
Minimized Mass Grading

Created and Enhanced Natural Landscapes
Priority 3

◆ Expand Open Space Preservation

Collaborative Natural Area Protection
Priority 4

- Enhance Natural Area Restoration and Stewardship

Private Landowners Engaging in Restoration
Education and Field Trips

Conclusions

◆ What worked for the BCWA:
  - Being proactive (vs. reactive)
  - Directly engaging local governments, developers, and residents
  - Taking advantage of local experts and grant funding
  - Strong leadership
Conclusions

- Challenges:
  - Getting local governments on board to adopt/implement the plan
  - Maintaining momentum with primarily volunteer support
  - Getting adequate attention to “unseen” problems, like chlorides
  - Diminishing resources at all levels of government

QUESTIONS?