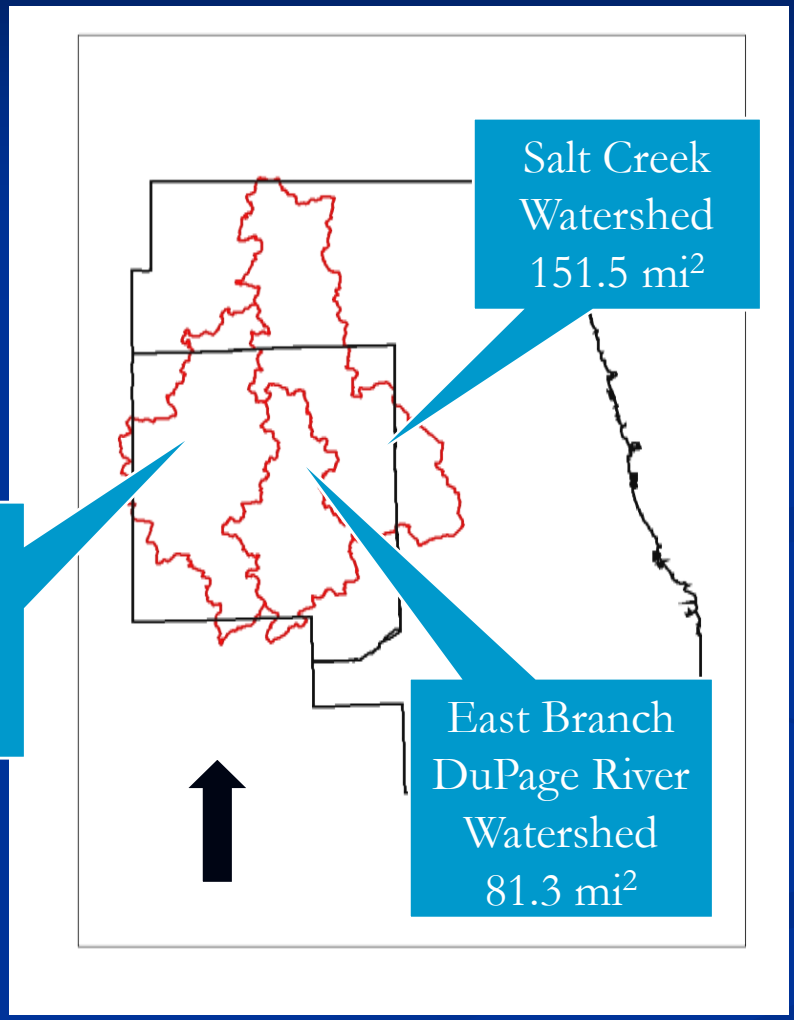
Bringing Regional Watershed Planning into the TMDL Process

DuPage County Stormwater Management

DuPage County, IL

- Located in the western suburbs of Chicago.
- Approximately 334 square miles (mi^2) in land area.
- Total population over 930,000 residents.
- Consists of all or part of 39 municipalities and 9 townships, as well as unincorporated areas.

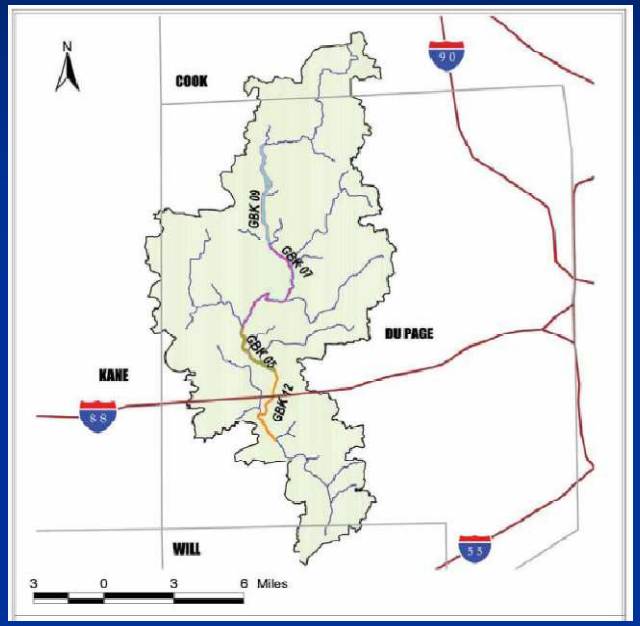
Three Main Watersheds



Urbanized County

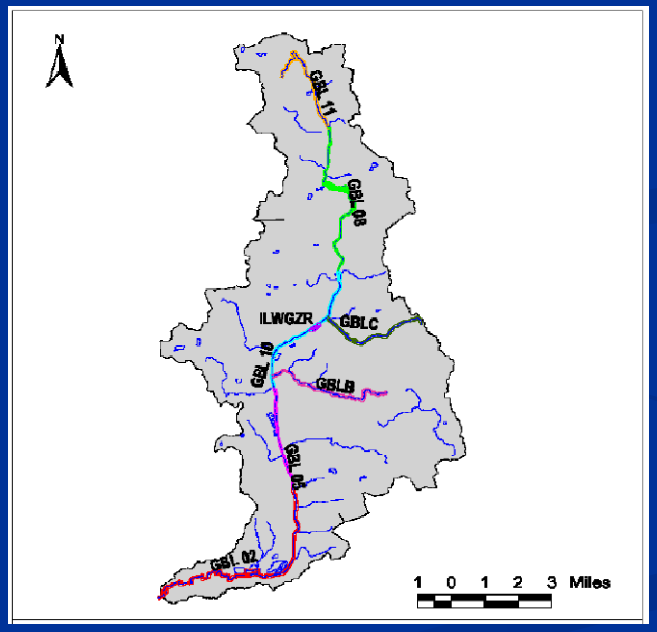
- Nearly the entirety of DuPage County is categorized as an urbanized area.
  - Land area with a residential population of at least 50,000 and an overall population density of at least 1,000 people per mi^2.
  - Based on the latest decennial census data.
- Forest Preserve District of DuPage County owns or manages over 25,000 acres of land at over 60 forest preserves.
  - Comprises 12% of the total land in DuPage County.

2004 TMDL Process



West Branch DuPage River
2002 §303(d) Impaired Waters

East Branch DuPage River
2002 §303(d) Impaired Waters



Salt Creek
2002 §303(d) Impaired Waters

DuPage County Stormwater Management

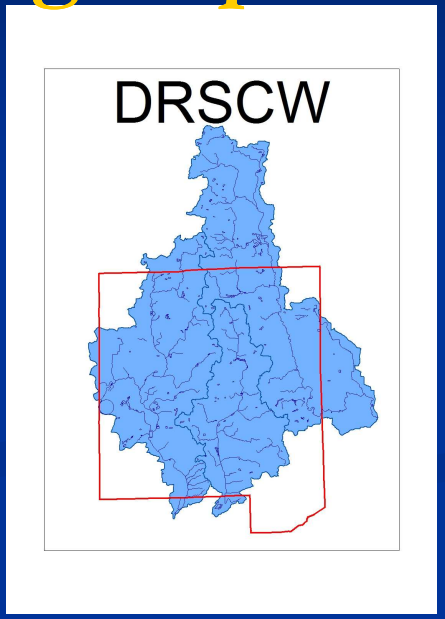
2004 TMDL Reports

- Principally addresses dissolved oxygen and chloride impairments in the three main watersheds.
- Established waste load allocations (WLA) on POTWs for $CBOD_5$ and Ammonia-N parameters.
  - Notes that current reported discharge loads were much less than WLA included in reports.
- Includes chloride WLA for POTWs and MS4 permittees.
  - USEPA recommends that for NPDES-regulated municipal stormwater discharges effluent limits should be expressed as best management practices (BMPs), rather than as numeric effluent limits.

Formation of DRSCW:

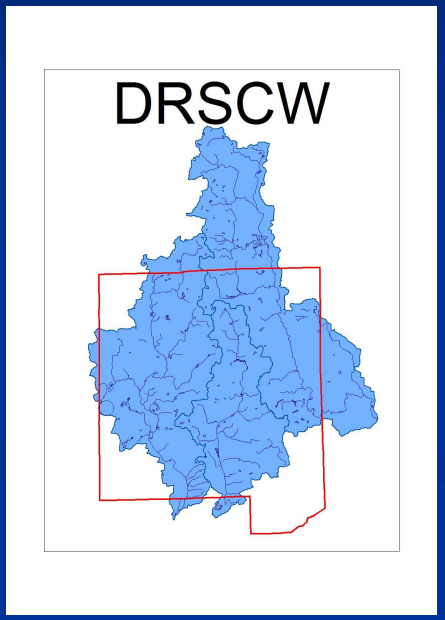
DuPage River Salt Creek Workgroup

- Meetings commenced April 2005 in response to shortcomings of the 2004 TMDLs.
- Brought together diverse coalition of stakeholders to work together to preserve and enhance water quality in the East Branch DuPage River, West Branch DuPage River, Salt Creek, and their tributaries.

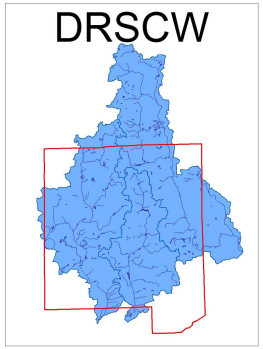


DRSCW Membership

- DuPage County is one of the largest financial contributors to the Workgroup.
  - Annual "agency" membership dues are based on a fixed component ($200), acreage component ($0.45 per acre), and POTW discharge component ($1,275 per MGD).
  - 37 local government entities and POTW comprise the agency membership roster.
- Other organizations, including environmental groups, private companies, and public entities may join the Workgroup as "associate" members.
  - 19 organizations have contributed an annual $100 fixed associate member fee.
- Fee structures provides approximately $300,000 a year for Workgroup activities.



DRSCW & DuPage County Collaboration

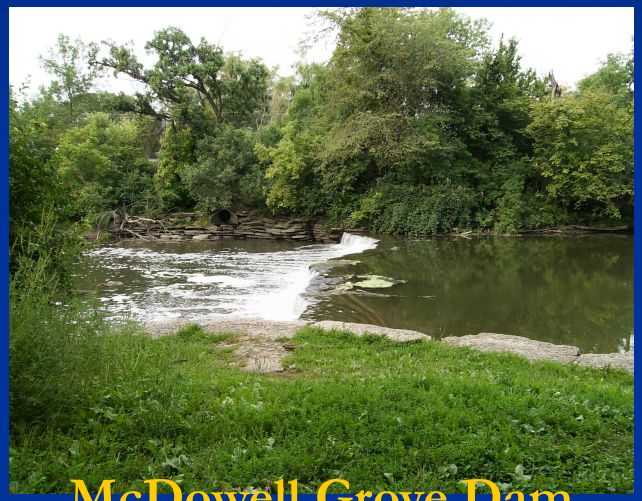


- Identify non-point source pollution issues and develop strategies to address these issues.
- Use broad-based consensus approach to explore scientifically defensible and cost-beneficial alternatives to water quality issues in the watersheds.
- A collaborative process removes some political constraints individual entities may otherwise feel.

- Implement regional projects that have been identified through Workgroup studies and approved by members.
- Dedicate County funds and staff toward projects.
- Generally requires public outreach and/or legal agreements between DuPage County and other project stakeholders before projects are initiated.

DuPage County Stormwater Management

DuPage County's Dissolved Oxygen Improvement Projects



McDowell Grove Dam
West Branch DuPage River

Warrenville Grove Dam
West Branch DuPage River

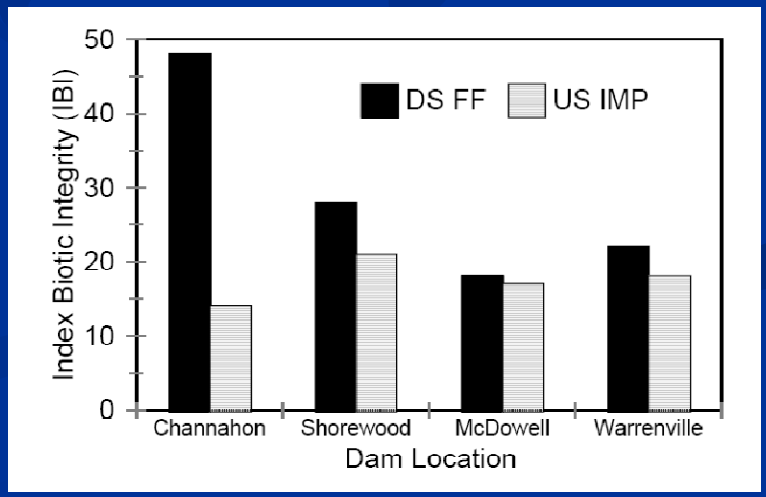
Churchill Woods Dam
East Branch DuPage River

DuPage County Stormwater Management

McDowell Grove and Warrenville Grove Dams

The Conservation Foundation's *Assessments of the Impacts of Dams on the DuPage River* (2003):

- Recorded dissolved oxygen concentrations below the water quality standards criteria at both sites.
- Low IBI scores both upstream and downstream of dams.
  - Scores of 0-20 represents a restricted aquatic resource.
- Reduced fish populations upstream of dams.
  - Total abundance collected downstream double at McDowell Grove Dam and quadruple at Warrenville Grove Dam.
  - Species diversity also low at both sites.



DuPage County Stormwater Management

McDowell Grove Dam:

DuPage County Project Management

- Received 1.6 million dollars in federal appropriations earmarked for the dam removal project.
- DuPage County Stormwater Management supplemented those dollars with approximately $400,000 budgeted funds.
- Construction was initiated August 2008 and completed within three months.

DuPage County Stormwater Management

Warrenville Grove Dam:

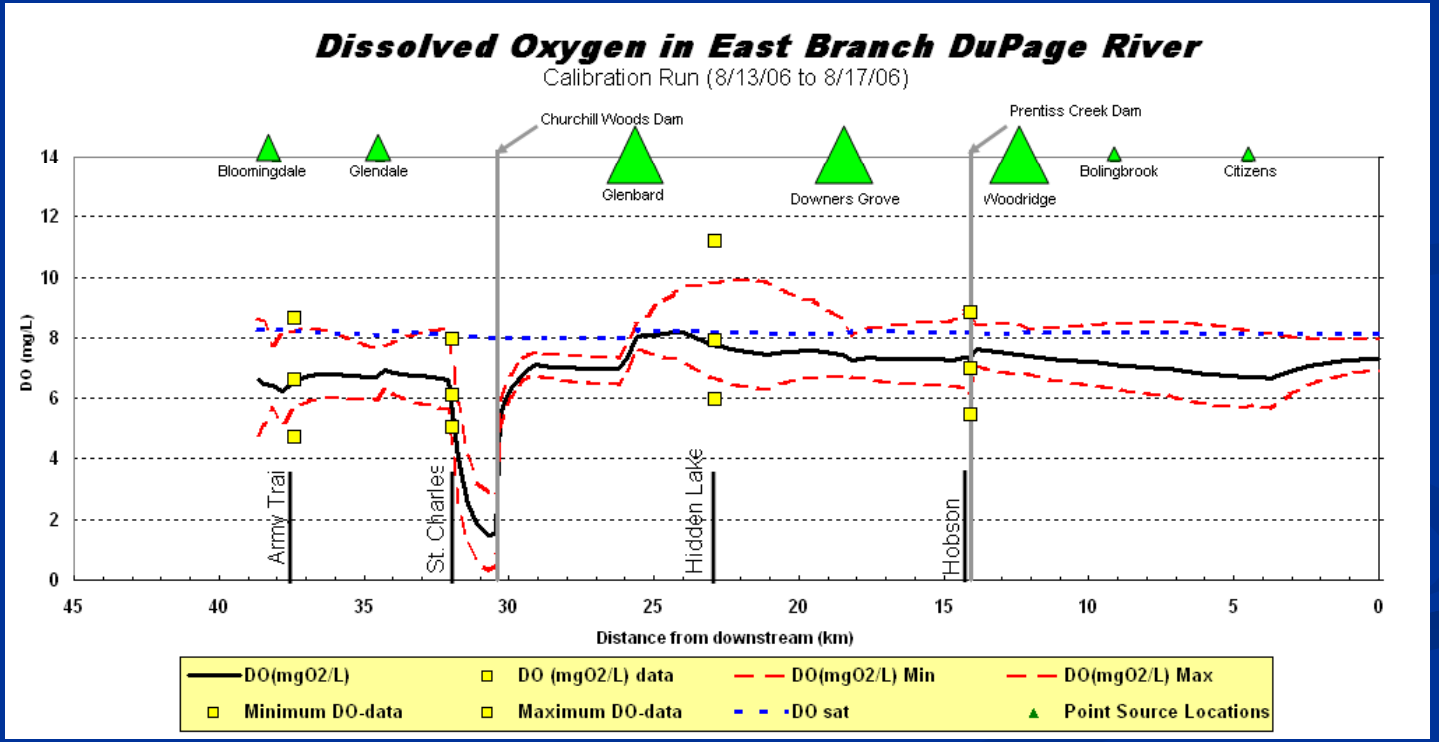
DuPage County Project Management

- Allocated $1 million of grant funds from National Oceanic and Atmospheric Administration (NOAA).
- Project seeks to remove the dam and restore natural stream conditions.
- DuPage County has been delayed in project implementation due to thorium cleanup activities taking place upstream.

DuPage County Stormwater Management

Churchill Woods Dam

Based on modeling included in DRSCW's *Stream Dissolved Oxygen Improvement Feasibility Study for the East Branch of the DuPage River* (2008):



DuPage County Stormwater Management

Churchill Woods Dam:

DuPage County Project Management

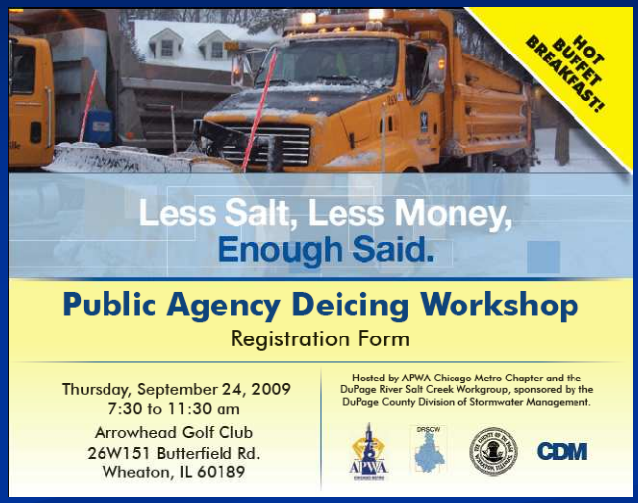
- Received $687,600 in federal appropriations earmarked for construction aspects of the dam removal project.
- DuPage County Stormwater Management provided $127,000 budgeted funds for design and permitting aspects of the project.
- County's funds served as the 40/60 cash match to the $205,000 that the DRSCW received through IEPA's §319 grant program.
- Construction possibly begins as early as Spring 2010.

Public Involvement in Dam Removal Projects

- Incorporation of Warrenville Grove Dam and McDowell Grove Dam projects into the West Branch DuPage River Watershed Plan.
  - Required 30-day public comment period.
- Partnered with multiple entities in performing outreach efforts to address the following groups:
  - DuPage County residents through a series of open house events;
  - Forest Preserve District of DuPage County officials, who oversee the property on which the dams are located; and
  - Representatives from municipalities that are impacted by the dam removal projects.

Chloride Reduction Efforts

- DRSCW has contracted with CDM to develop an education and outreach campaign designed to reduce chloride application.
  - Organize workshops to advocate best management practices in both public and private deicing efforts.
- DuPage County supplies financial and technical support to these training events.
  - Identifies opportunities to publicize the use of best management practices in municipal government and residential activities.

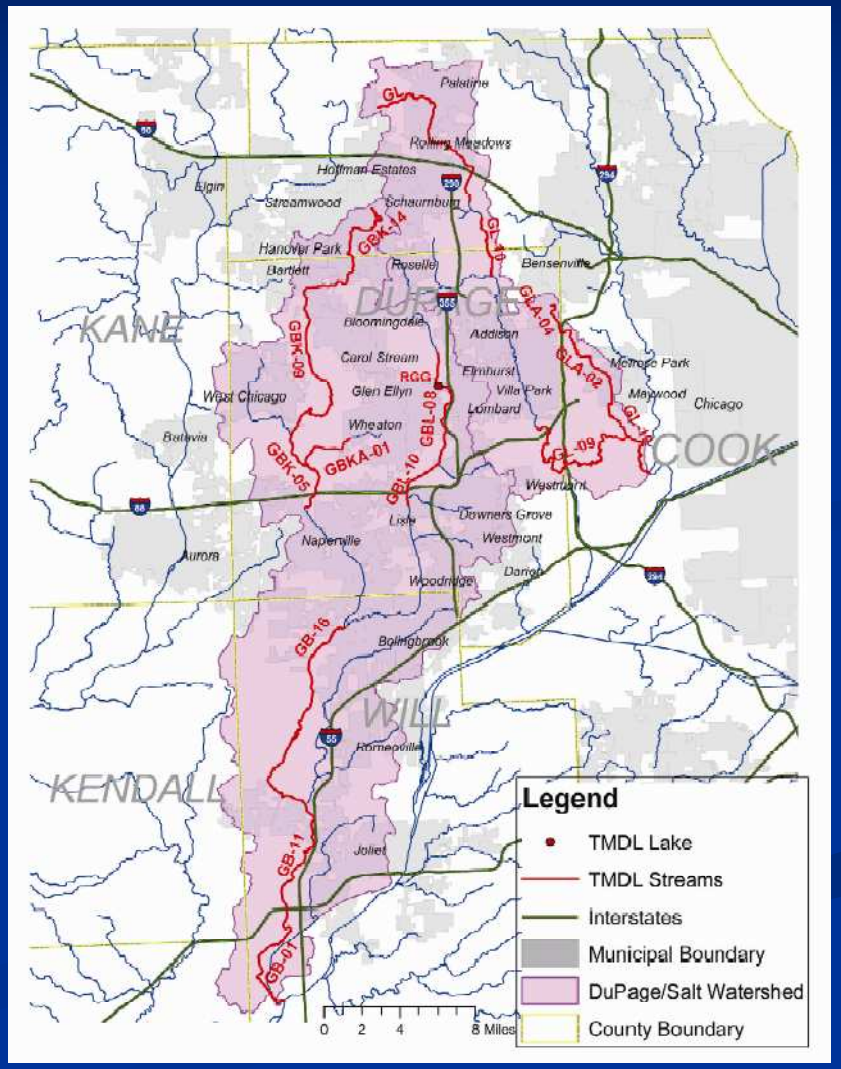


Adaptive Management through Monitoring

- Network of 15 sondes throughout DuPage County used to monitor ambient stream quality.
  - Deployed April through October.
  - Obtain data for temperature, pH, dissolved oxygen, and conductivity parameters.
- Eight organizations partnered with DuPage County in these efforts.
- Data used to verify if dissolved oxygen and chloride efforts are improving water quality.

2008 TMDL Process

- Based on the 2008 §303(d) Impaired Waters List, the proposed TMDL included segments impaired for:
  - Dissolved oxygen (5);
  - Fecal coliform (13);
  - pH (6);
  - Silver (2);
  - Manganese (1); and
  - Total phosphorus (1).



Public Comment on the TMDL Draft

- Response to the 2004 TMDL development encouraged IEPA to revise TMDL process to 3-phase process:
  - Impairment issues, existing data, and planned modeling approaches are outlined during Phase 1;
  - Opportunities for additional data are identified and the monitoring is performed during Phase 2; and
  - During Phase 3 the TMDL report is finalized.

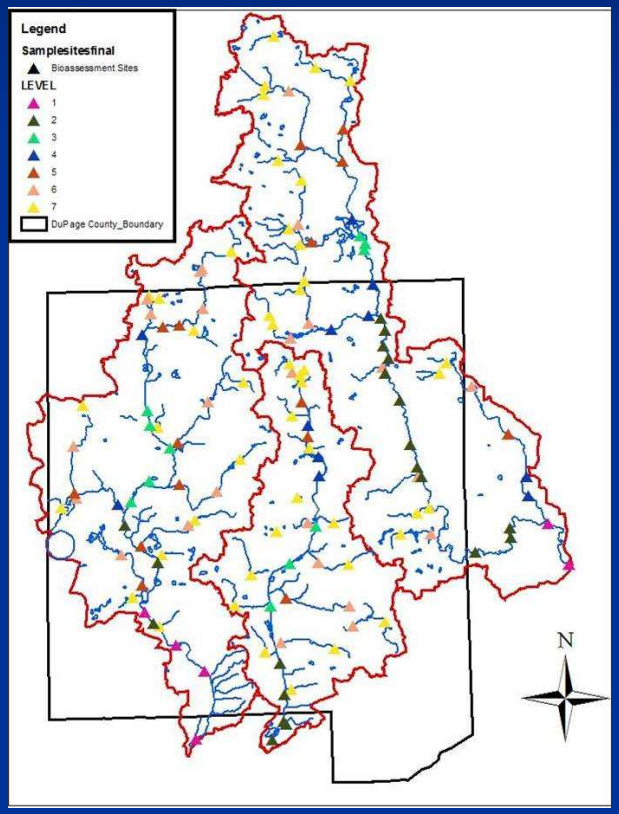
Public Comment on the TMDL Draft

- DRSCW invited IEPA and associated consultant staff members to make presentations regarding TMDL status on several occasions.
- The Workgroup, in addition to DuPage County and other municipalities, commented on the Phase 1 report.
  - IEPA responded to how 32 substantive comments regarding how the TMDL could be improved.
  - Also identified additional opportunities for data collection during Phase 2 of TMDL development.

Bacteria Monitoring

- Fecal coliform bacteria data to be used in the TMDL is spatially and temporally limited.
- DRSCW agency members plan to assist in monitoring plan development and sampling efforts to obtain additional data.
  - Data to be used in the load duration curve analysis for TMDL development.
  - DuPage County staff and laboratory facilities are expected to be used.
- Identify sanitary discharges into waterways through DuPage County's Illicit Discharge Detection and Elimination (IDDE) monitoring program.

Moving Beyond Parameter Specific TMDLs



- DRSCW contracted Midwest Biodiversity Institute (MBI) to perform bioassessment of watersheds.
  - Identify site specific projects.
  - Focus holistically on habitat and biology, rather than through individual pollutants.
  - Proactive approach to water quality improvement.
- DuPage County will look to implement regional projects that benefit multiple communities within a watershed.

Summary of Suggested Measures

- Build consensus across a broad range of stakeholders to achieve initial support from all involved parties;
- Seek funding opportunities for regional projects, particularly those which offer both stormwater quantity and quality improvements; and
- Perform outreach to residents and elected officials prior to project initiation.