

McHenry County
Water Resources Action Plan (WRAP) Update
Preliminary Outline (1-25-19)

INTRODUCTION

History of Water Resource Planning in McHenry County

Goal: To Protect and Restore McHenry County's Water Resources

McHenry County

- Demographics
- Geology
- Land Cover
- Climate
- Environment
- Watersheds

Land Uses

- Residential
- Commercial
- Transportation
- Agricultural
- Natural Areas/Open Space

WATER RESOURCES

General Hydrology

- Hydrologic Cycle
- Surface Water
 - Stormwater
 - Flooding
- Groundwater
 - Recharge/Discharge
 - Aquifers
- Natural Hydrology
 - Infiltration, Ground/Surface Water Recharge, Minimal Runoff
- Urbanized Hydrology
 - Runoff, Flooding, Pollution, Thermal Changes

General Water

- Biology
- Health
- Ecology/Environment
- Economy
- Threats (Contamination, Over-Use, Drought)
- Regulation (Federal, State, Local)
- Total Maximum Daily Load (TMDL)
- One Water Concept

McHenry County Surface Water

- Lakes, rivers, streams, wetlands
- Watersheds
- Stormwater
- Floodplain
- Wetlands

Water Quality

Water Quantity

McHenry County Ground Water

3 main types of drinking water aquifers

- Shallow Aquifer – Sand and Gravel
- Shallow Bedrock – Limestone
- Deep Bedrock – Sandstone (2 main aquifers)
 - St. Peters Sandstone (upper)
 - Ironton Galesville Sandstone (lower)
 - (Potential 3rd deep bedrock aquifer, Mount Simon)

Water Quality

Water Quantity

Supply and Demand

Scientific Studies and Technical Resources

MAJOR ISSUES AND BEST MANAGEMENT PRACTICES

CLIMATE CHANGE

- Mitigation
- Adaptation
- Forecasted Changes in Midwest
 - Reduced Predictability/Increased Climatic Extremes
 - Increased Precipitation/Greater Storm Intensity
 - Increased Surface Runoff/Erosion/Sedimentation
 - Reduced Groundwater Recharge
 - Increased Temperature Extremes
 - Longer Growing Season/Increased Pests and Crop Stress

LAND USES/ISSUES AFFECTING WATER QUALITY AND QUANTITY

Water Infrastructure

- Drinking Water
 - Municipal Wells and Water Lines
 - Wellhead Protection Zones
 - Private Wells
 - Well Monitoring and Testing (Municipal, Private)
 - Arsenic, Radon, Radium
- Waste Water
 - Municipal
 - Land Application
 - Septic Systems
- Stormwater
 - NEPA/MS4
- Water Re-Use/Graywater/Rainwater Harvesting

Water Conservation

- Municipal
- Commercial/Business
- Residential
 - Behavior Changes/ Reducing Peak Demands
 - Lawn Watering Restrictions
 - Leak Reduction
 - Install Water Efficient Fixtures (Replace Inefficient)
 - Net Blue Water neutral Growth (Alliance for Water Efficiency)

Drought Planning

- County
- Municipal
- Commercial/Business
- Residential

Flooding

- County
- Municipal
- Commercial/Business
- Residential

Residential/Small Business Development

- Stormwater Best Management Practices (BMPs)
 - Green Infrastructure
 - Landscaping
 - Native/Naturalized Landscaping
 - Irrigation
 - Raingardens
- Conservation Design
- Transit Oriented Development
- Pollution/Pollution Prevention
 - Pharmaceutical Disposal
 - Contaminants of Emerging Concern
 - Household Hazardous Waste
 - Pet Waste
 - Water Softeners

Industrial/Heavy Commercial Development

- Site Location-Sensitive Aquifer Recharge Areas (SARA)
- Hazardous Materials/Waste
- Water Quality BMPs to Prevent Contamination
- Green Infrastructure
- High Capacity Wells/Well Monitoring
- Native/Naturalized Landscaping

Transportation

- Sensible Salting (public & private)
 - County
 - Municipal
 - Commercial/Business
 - Residential
- Green Infrastructure
- Native Plants/Pollinators in ROW
- Public Transportation/Bicycling

Gravel Pits

Direct Impacts to Aquifer/Recharge/Ecology
Potential for Groundwater Contamination
Backfilling with Fill and Construction/Demolition Debris
Monitoring Wells
Restoration Planning

Agriculture

Nutrient Loss Reduction-Nitrates/Phosphorus
Soil Loss Reduction
Flood/Drought Planning
Storage of Fuel and Chemicals
Use of Pesticides (Herbicides and Insecticides)
Confined Feed Operations
Manure Management
Irrigation
Drain Tiles and Ditches
 recharge loss
 draining aquatic resources/flooding
 potential use for storage and recharge
Reduced Infiltration/Increased Run-Off from Soil Compaction/Hardpan

Golf Courses

Nutrient Loss Reduction-Nitrates/Phosphorus
Naturalized Landscaping
Habitat Improvement/Management
Invasive Species Control
Irrigation

Natural Areas/Open Space

Acquisition/Preservation of "Last best Unprotected Areas"
Natural Areas Management
Invasive Species Control
Naturalized Landscaping
Education

Recreation and Health**Miscellaneous**

Coal Tar Sealants
Lawn-Chemicals
Auto Salvage Yards
Improperly Abandoned Wells
Aboveground and underground Storage Tanks
Abandoned Landfills
Fly Dumping

RESOURCES

*** TO BE EXPANDED DURING WRAP DEVELOPMENT ***

McHenry County Online GIS
McHenry County Sensitive Aquifer Recharge Areas (SARA) Map
USGS Monitoring Well Network
ISGS Interactive McHenry County 3-Dimensional Geologic Mapping
ISGS Illinois and Water Related Wells
IEPA Sourcewater Assessment Program Map and Online Tools
Municipal Consumer Confidence Reports

REFERENCES

*** TO BE EXPANDED DURING WRAP DEVELOPMENT ***

Introduction

USDA Soil Survey
McHenry County GIS
McHenry County 2030 Plan
CMAP On To 2050 Socioeconomic Forecast

Water Resources

Watershed Plans
McHenry County Stormwater Management Ordinance
ADID Maps
GIS

McHenry County Surface and Groundwater

ISWS CR 2013-06 McHenry Co G-water Simulation Modeling and Potentiometric Surface Mapping
ISGS 3-Dimensional Mapping
<http://maps.isgs.illinois.edu/vxs/McHenry/>
ISGS Water & Related Wells
<http://maps.isgs.illinois.edu/ILWATER/>
IEPA Source Water Assessment Program Factsheets
<http://dataservices.epa.illinois.gov/swap/factsheet.aspx>
USGS Monitoring Well Network
ISWS Modeling/Mapping
ISGS Cambrian-Ordovician Aquifer Systems of Illinois
List of High Capacity Wells of McHenry County

Major Issues (Climate Change)

U.S. Global Change Research Program: Climate Change Impacts - Chapter 18: Midwest
NOAA Technical Report NESDIS 142-3 Regional Climate Trends and Scenarios for the U.S. USDA:
Climate Risks in the Midwest
CMAP: Fox River Corridor Plan, Burtons Bridge to Fox Bluff- Appendix B Vulnerability Study

Major Issues (Land Uses)

Sensitive Aquifer Recharge Areas (SARA) Map
McHenry Co. 2030 Plan
Green Infrastructure Plan
EPA Homeowners Guide to Septic Systems https://www3.epa.gov/npdes/pubs/homeowner_guide_long.pdf