



Chicago Metropolitan  
Agency for Planning

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# Groundwater Protection: *Should you Care?*

Tim Loftus, PhD and  
Environment and Natural Resources Staff

January 11, 2011

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# Groundwater

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Two important considerations:

\* Quality:

*Is it safe to drink?*

\* Quantity:

*Is the supply being used sustainably?*

# Groundwater Quality

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## Source Water Protection –

35 Illinois Admin. Code 611.231

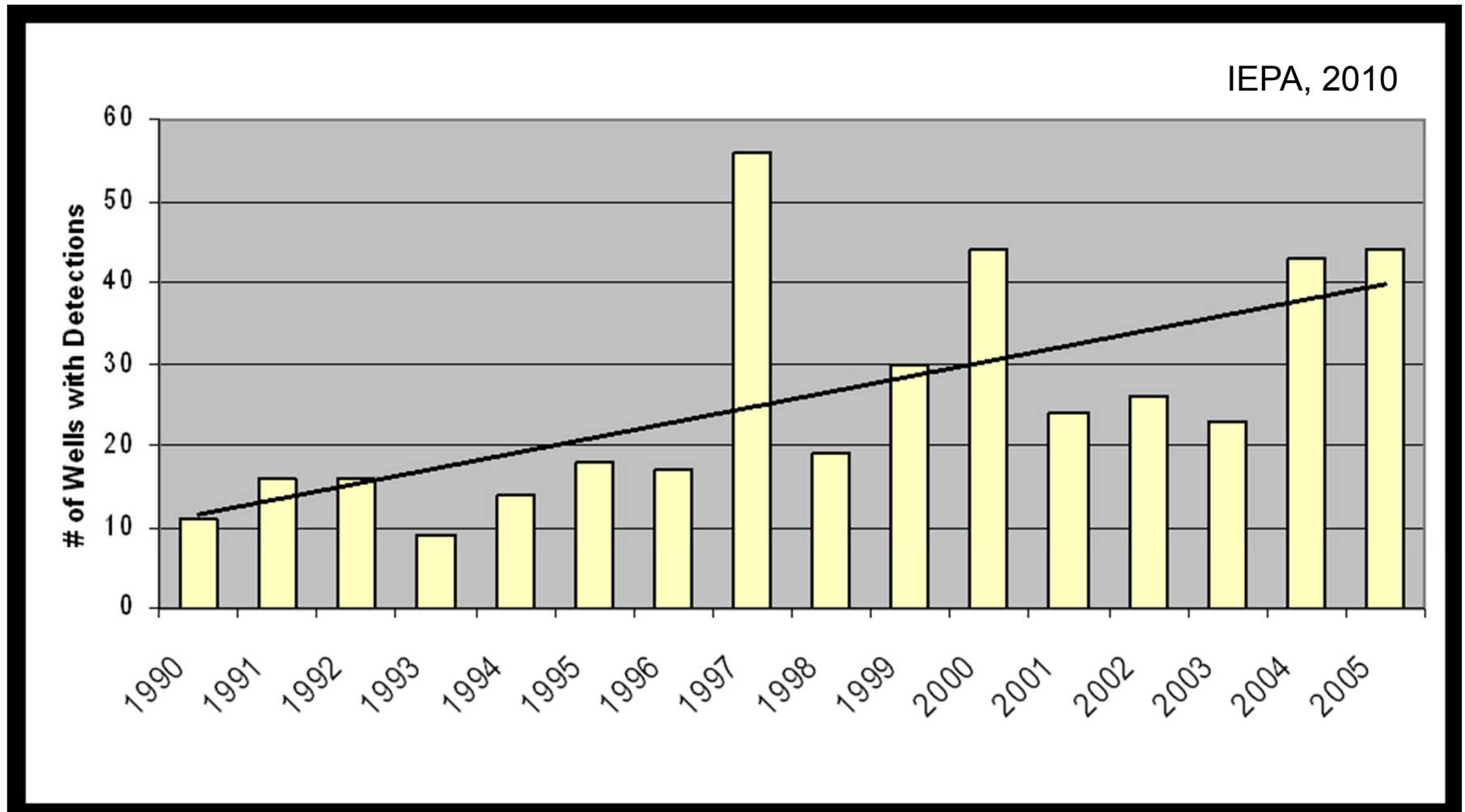
### Source Water Quality Conditions

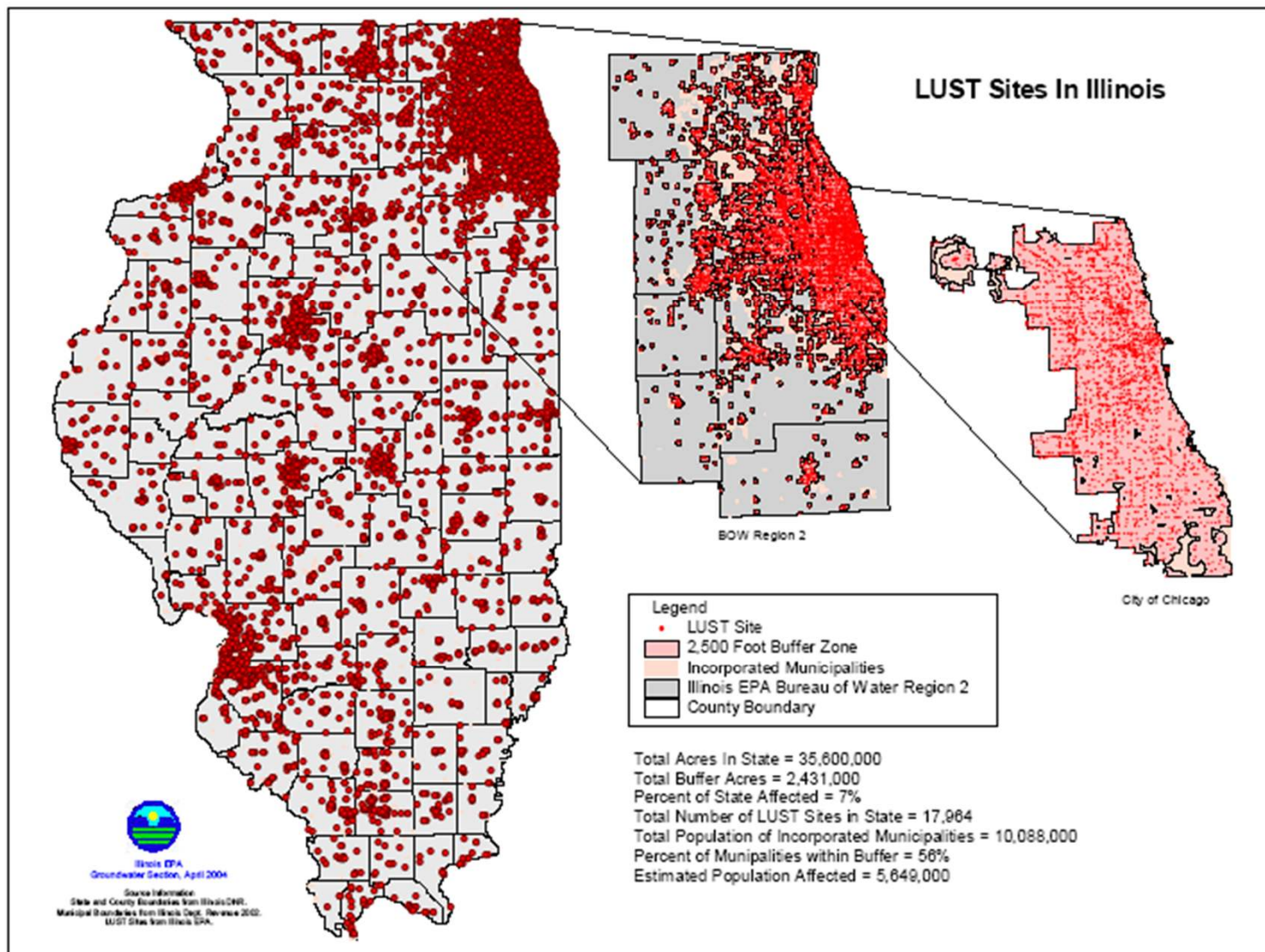
- *Each CWS must take its raw water from the best available source that is economically reasonable and technically possible.*

*BOARD NOTE: This is an additional State requirement.*

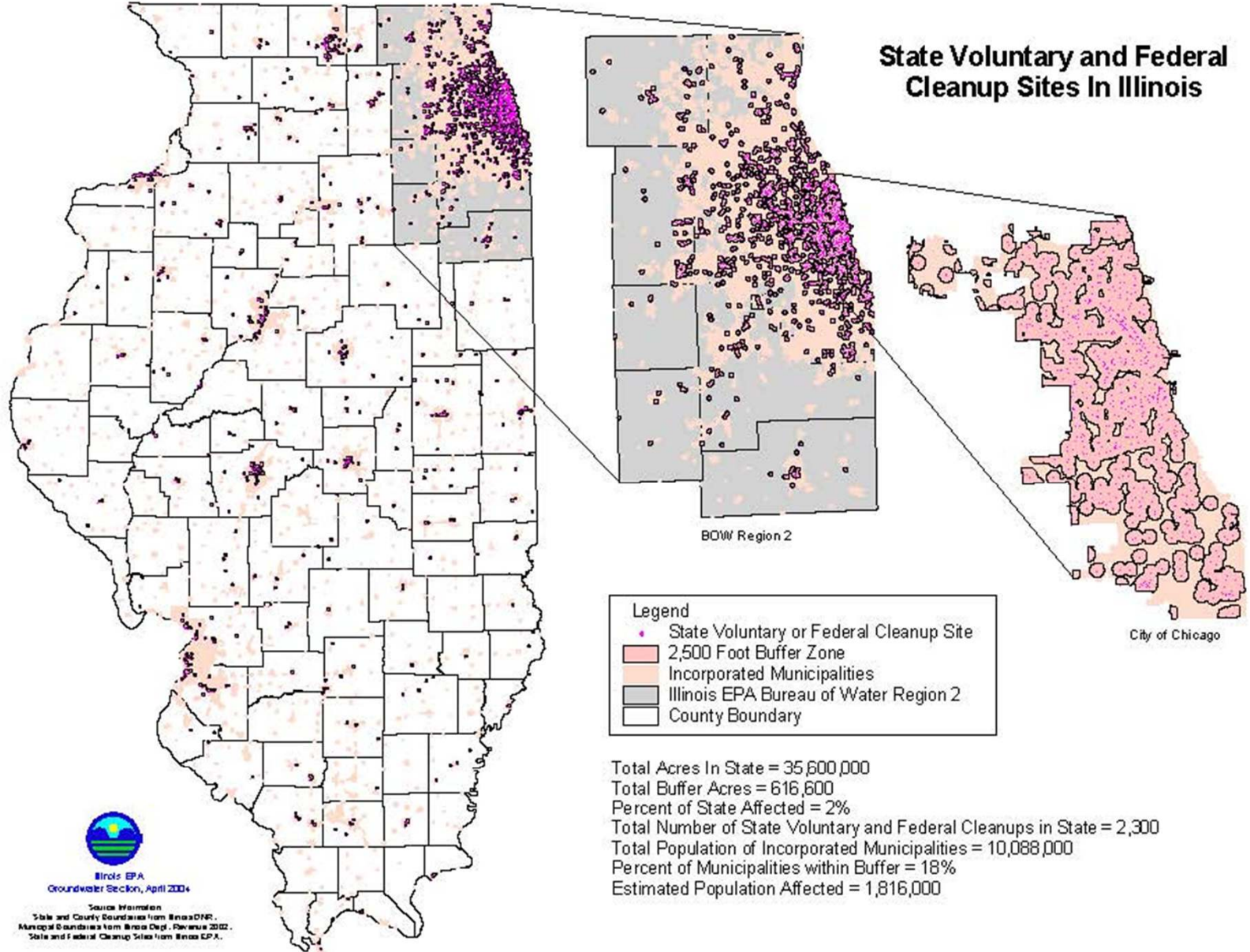
# CWS VOC Contamination

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## State Voluntary and Federal Cleanup Sites In Illinois

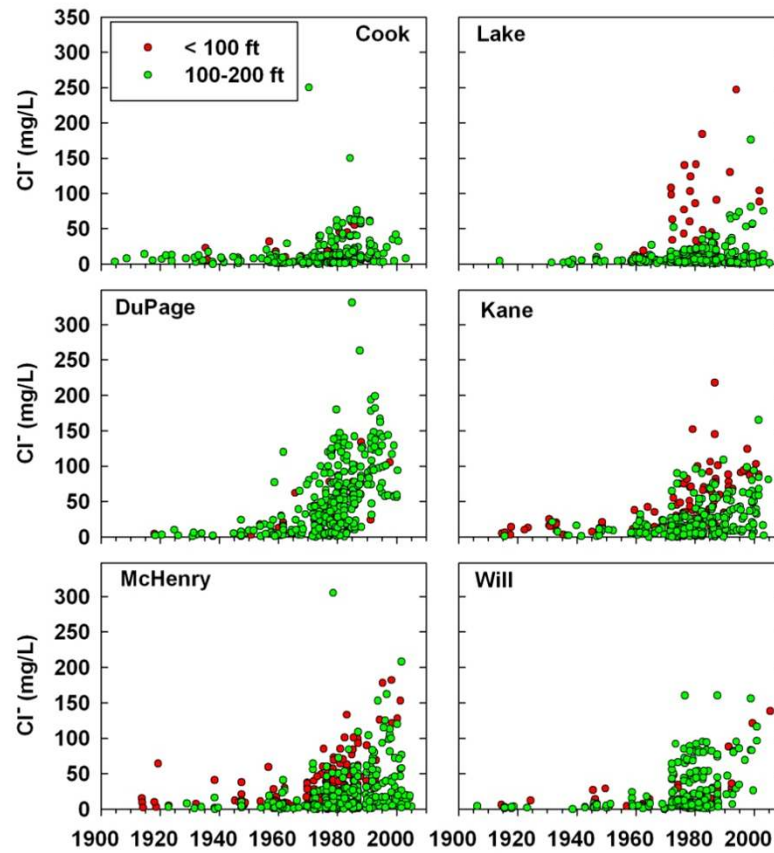


- Legend**
- State Voluntary or Federal Cleanup Site
  - 2,500 Foot Buffer Zone
  - Incorporated Municipalities
  - Illinois EPA Bureau of Water Region 2
  - County Boundary

Total Acres In State = 35,600,000  
 Total Buffer Acres = 616,600  
 Percent of State Affected = 2%  
 Total Number of State Voluntary and Federal Cleanups in State = 2,300  
 Total Population of Incorporated Municipalities = 10,088,000  
 Percent of Municipalities within Buffer = 18%  
 Estimated Population Affected = 1,816,000

  
 Illinois EPA  
 Groundwater Section, April 2004  
 Source Information  
 State and County Boundaries from Illinois DNR.  
 Municipal Boundaries from Illinois Dept. of Revenue 2002.  
 State and Federal Cleanup Sites from Illinois EPA.





ISWS, 2010

# Protecting Your Investment: What to do?

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## Establish Voluntary Local Protection Programs

Develop Wellhead Protection Plans – A Five Step Process

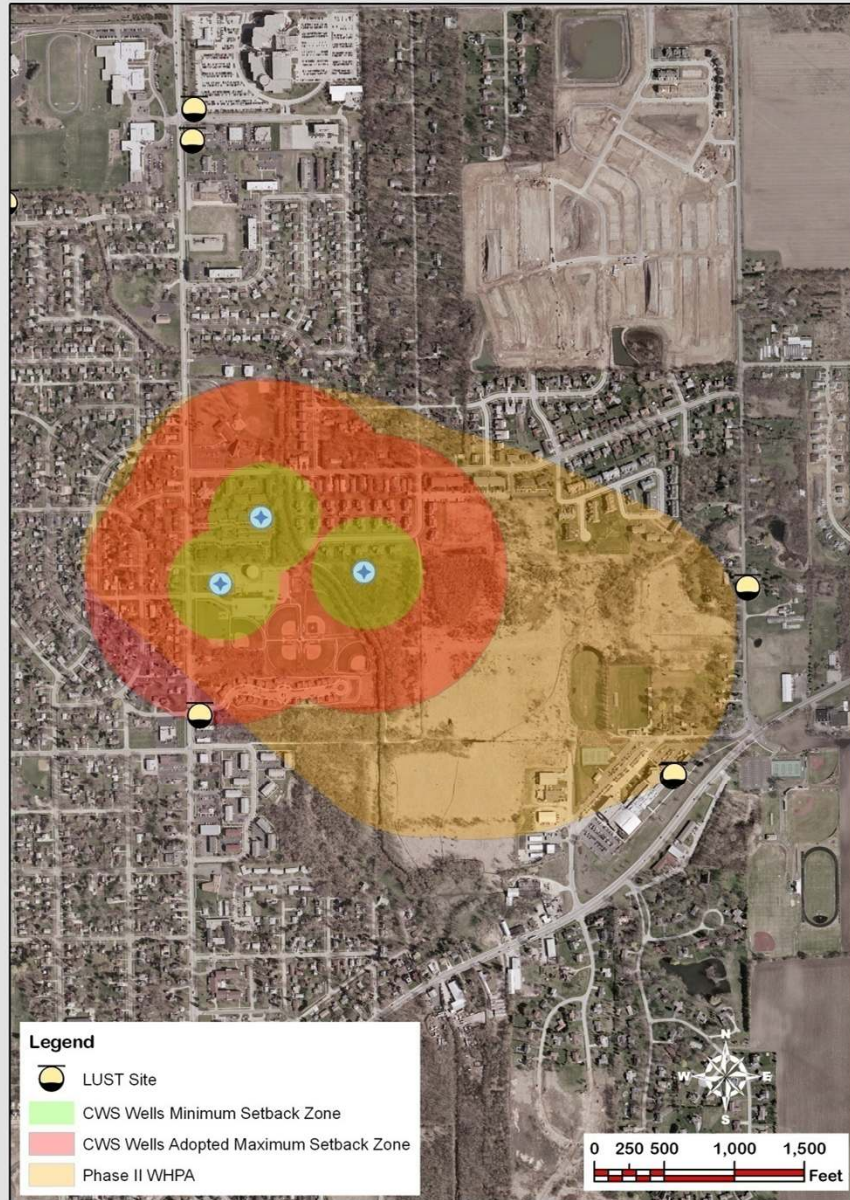
- 1) Organize a Local Committee
- 2) Map the Protection (sensitive) Areas  
Confined or Unconfined Aquifer
- 3) Conduct Contaminant Source Inventory
- 4) Develop Management and Protection Strategies
- 5) Plan for the Future – Contingency Plans, New Wells

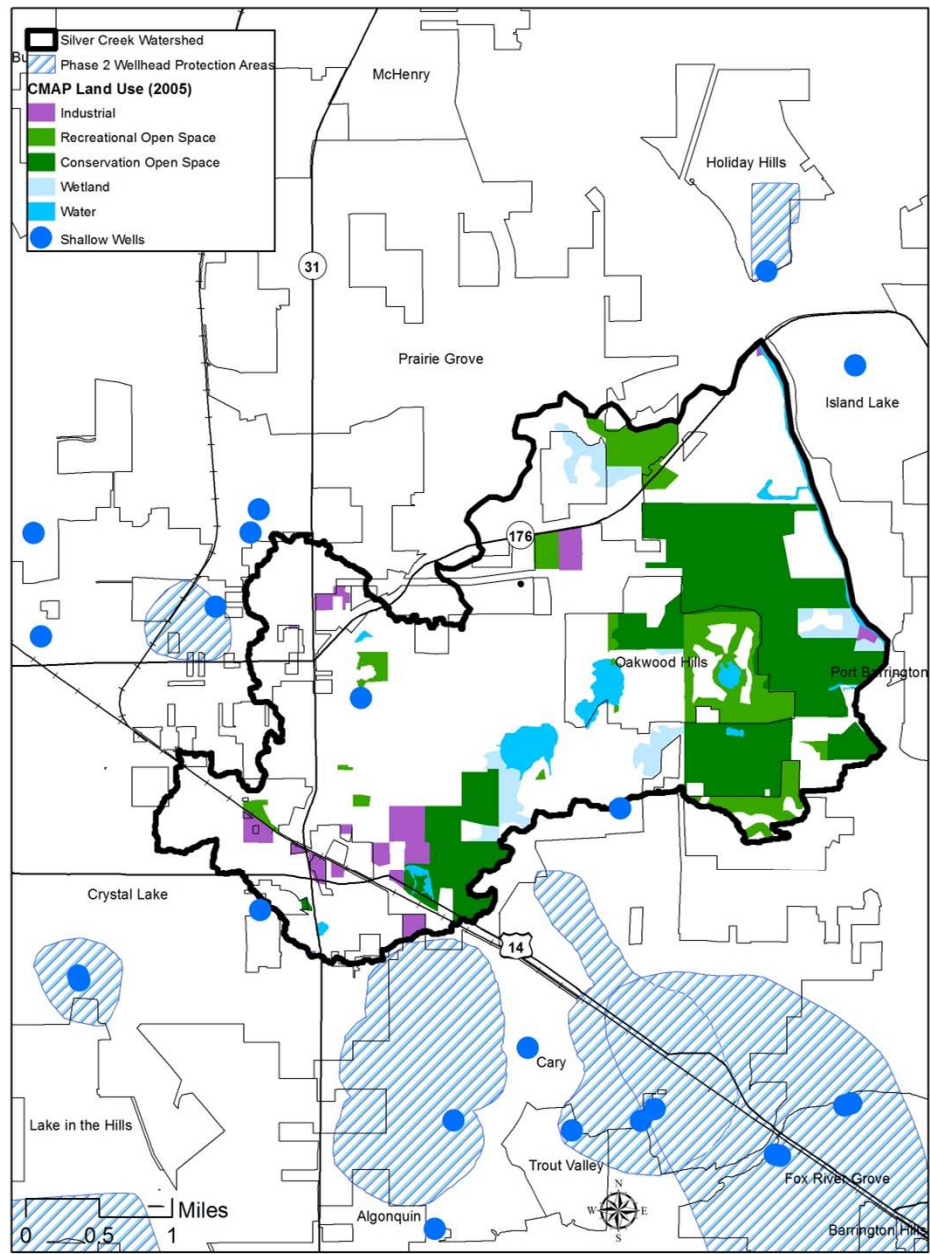
Adopt Maximum Setback Zones (IGPA)

- a) Additional Protection - 1,000 Ft. Radial Area
- b) Additional Siting Prohibitions - Certain Activities
- c) Extended “Compliance Point” for Remediation Sites to Meet Groundwater Quality Standards

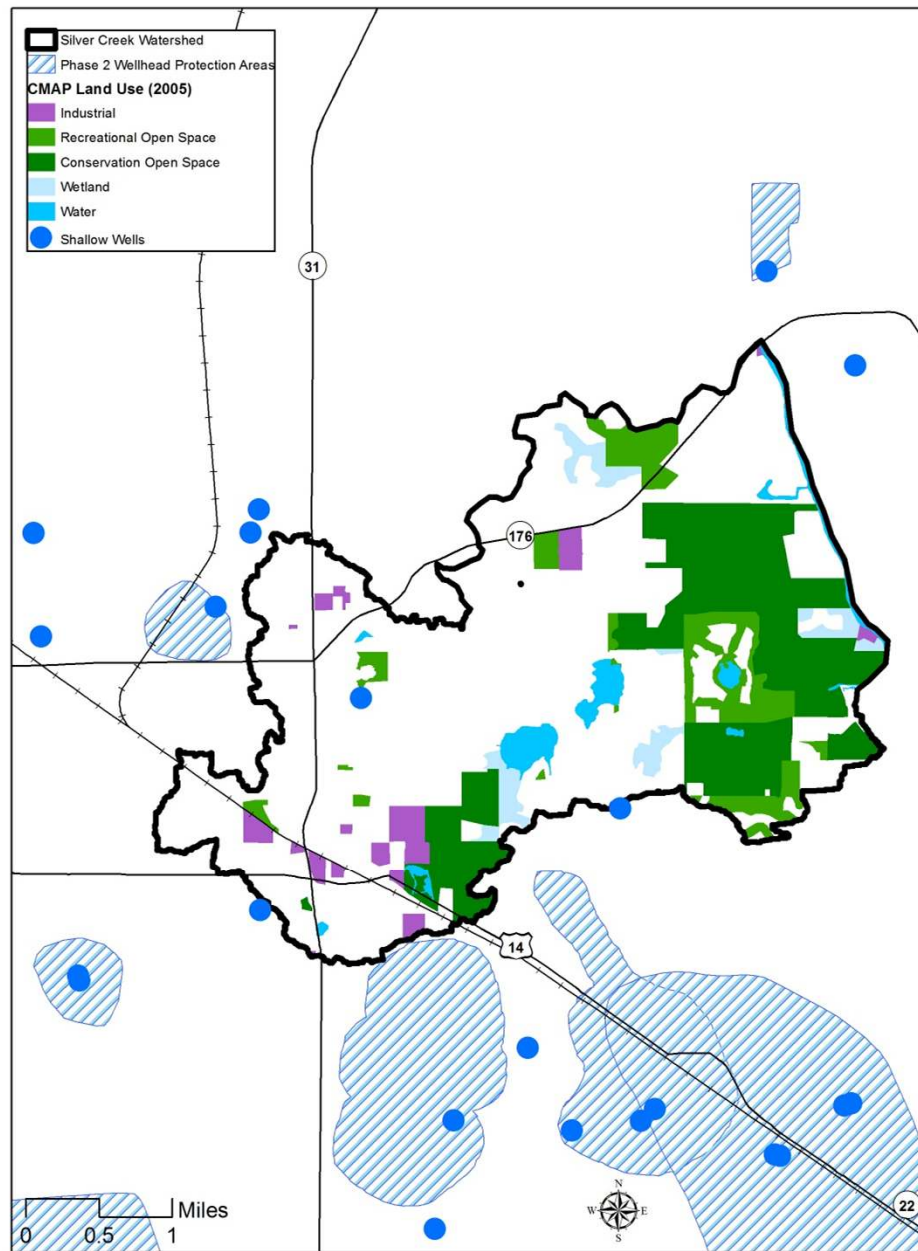


# CWS WELLS WITH PHASE I AND II WHPA'S AND ADJACENT LUST SITES



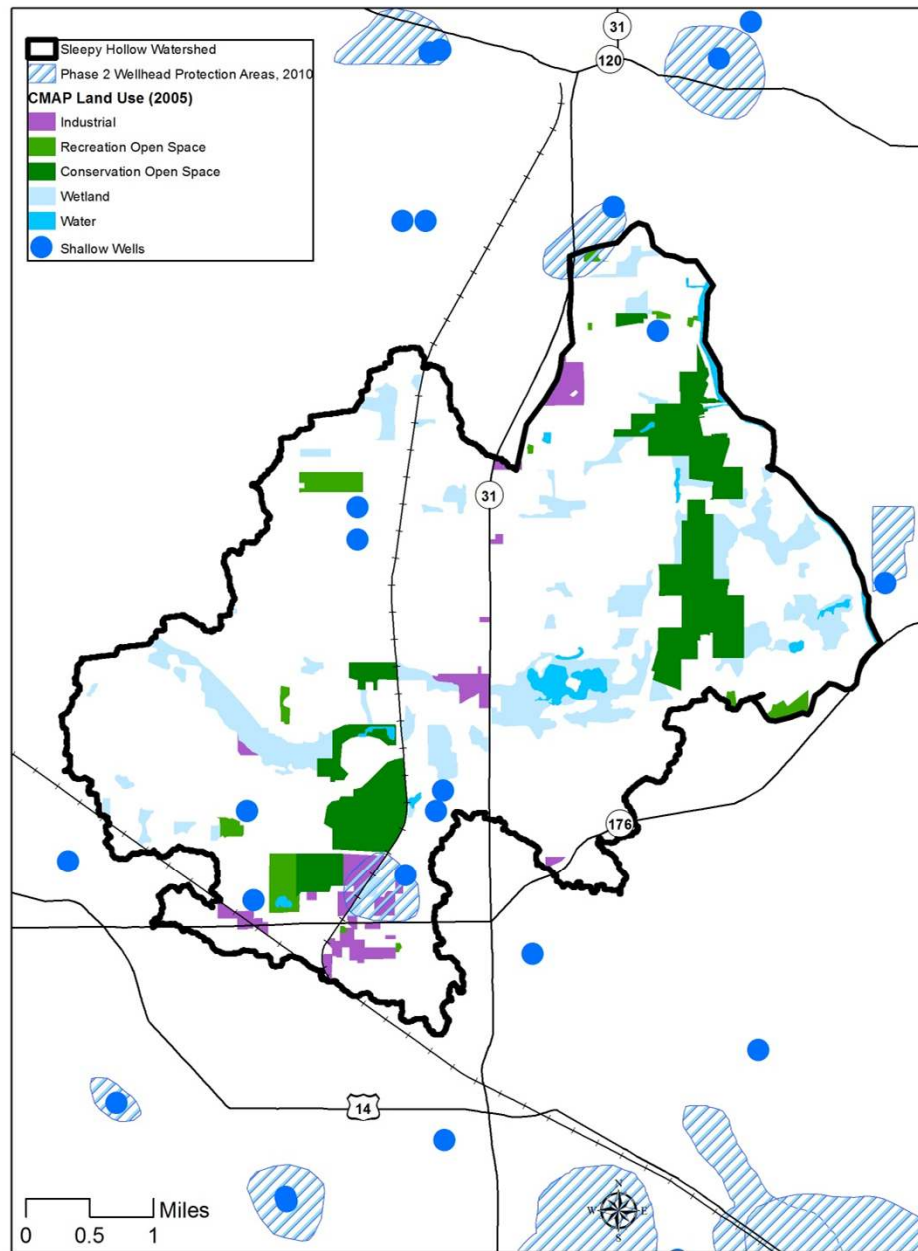


January 10, 20

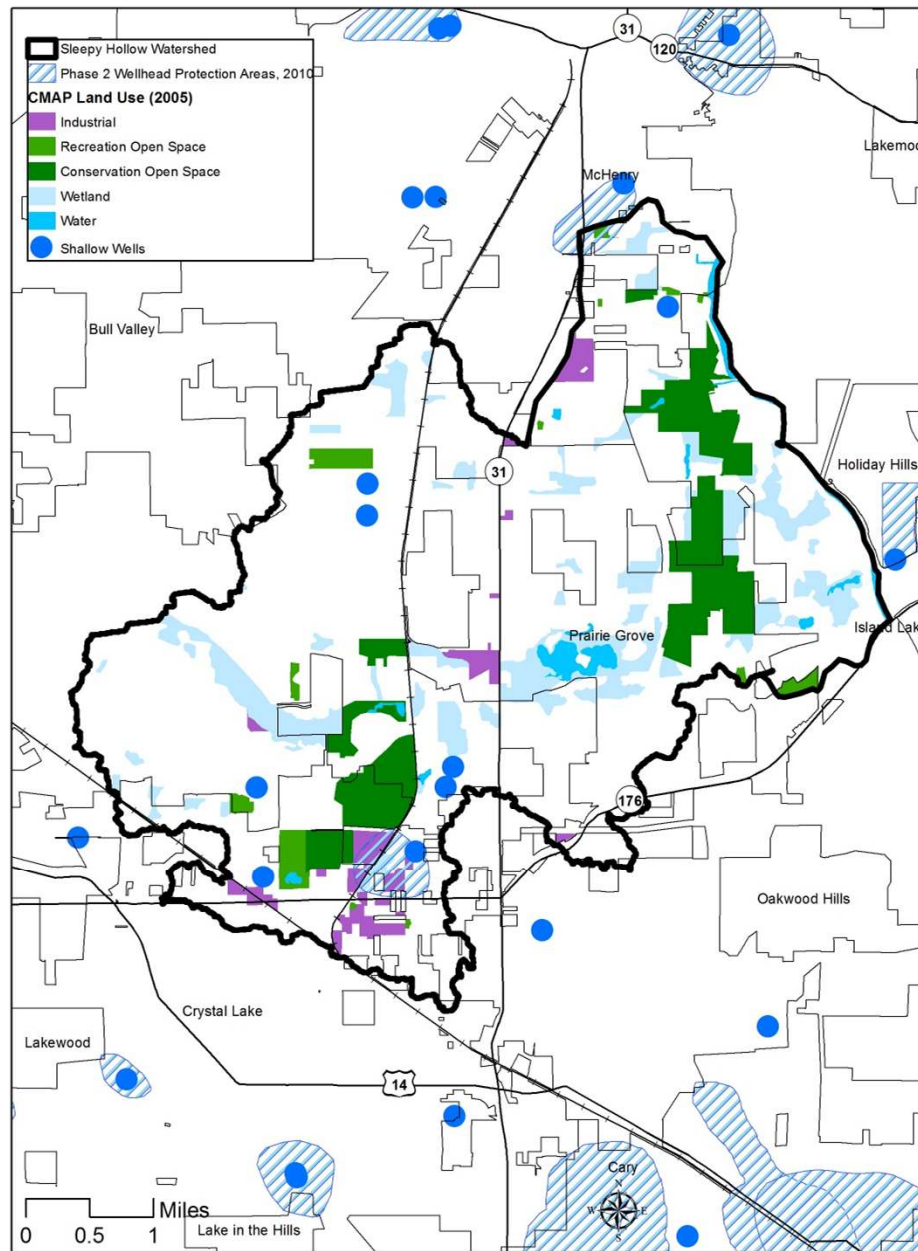


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January 10, 20



January 10, 20

# Wellhead Protection Program

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A reasonable watershed-plan recommendation?

Must work with the municipal/public water supplier.

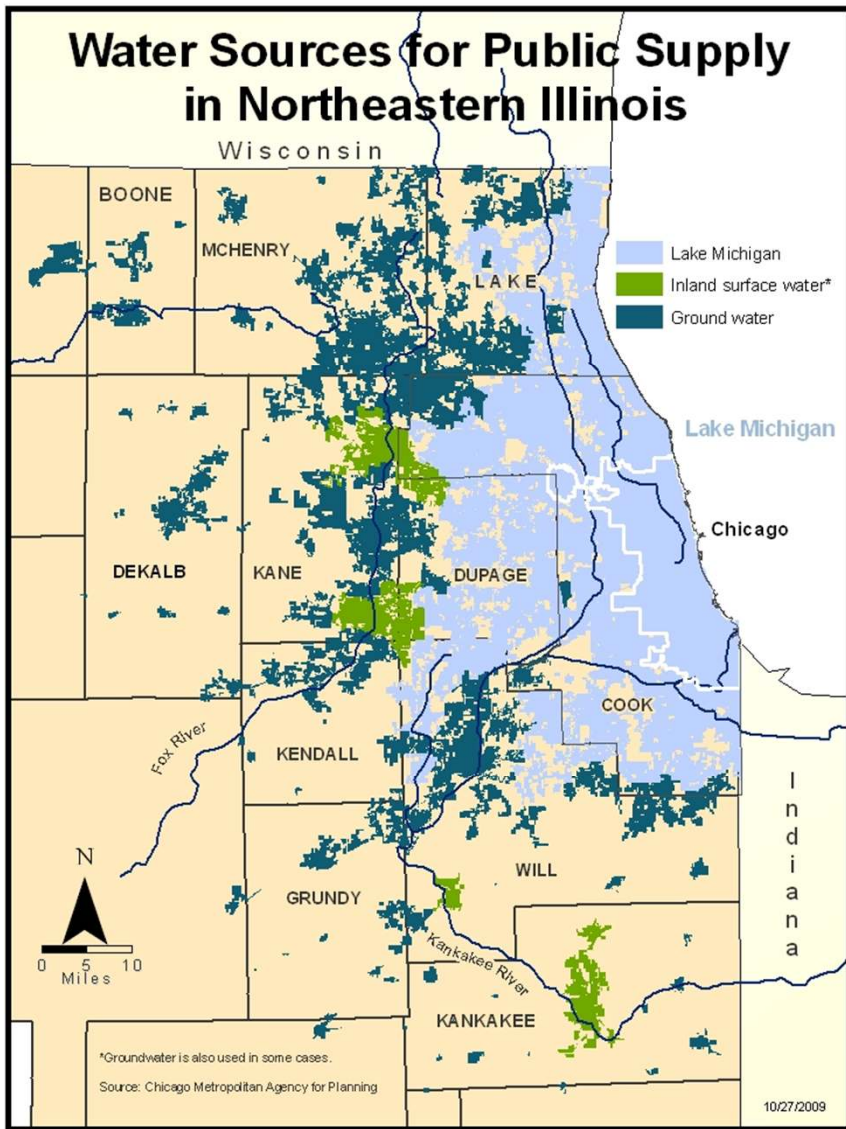
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- \* Sensible Salting recommendations
  - \* Private water softeners
  - \* Principles of conservation design
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# *Water 2050*

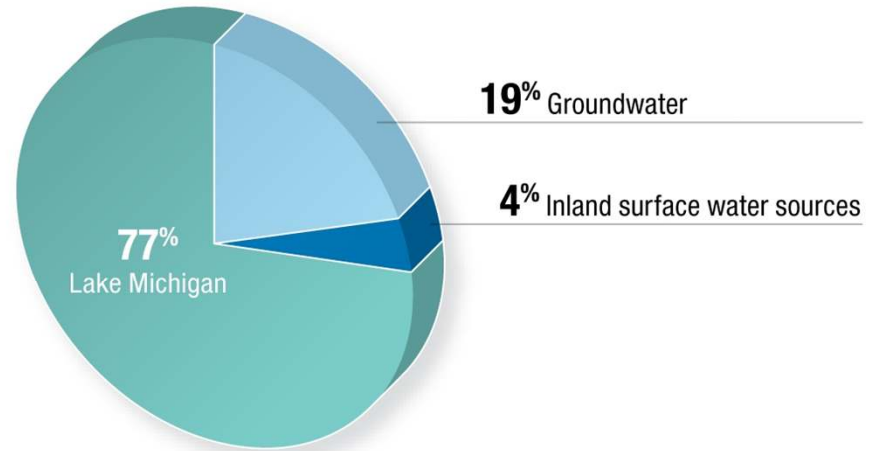
## ***Northeastern Illinois Regional Water Supply/Demand Plan***

*March 2010*

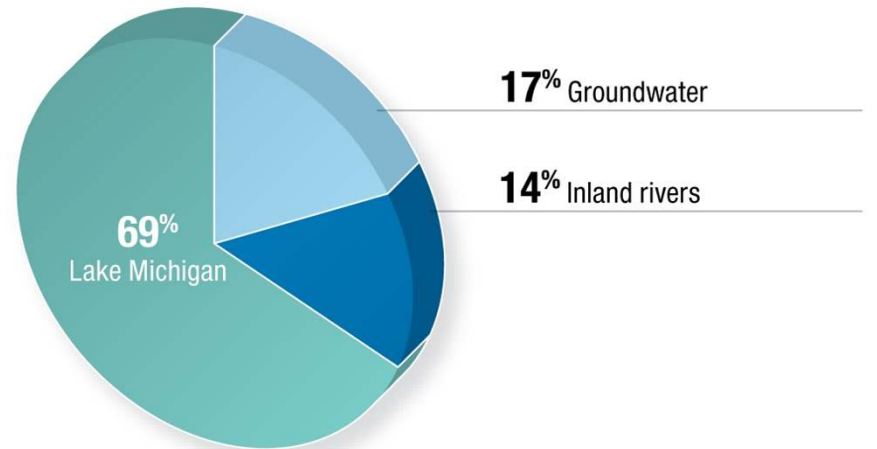




Sources of water for northeastern Illinois, by population served, 2000

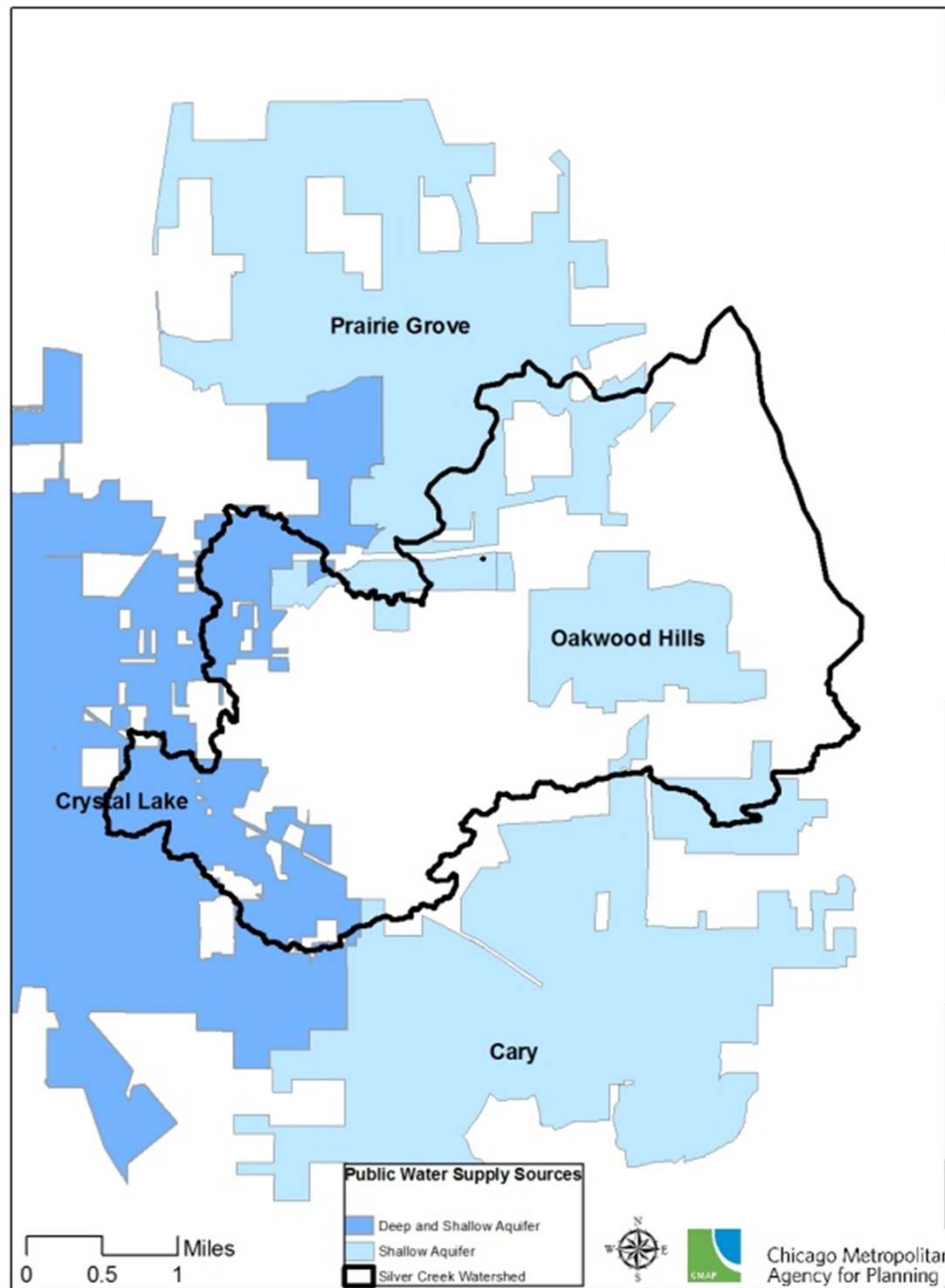


by relative withdrawals, 2005

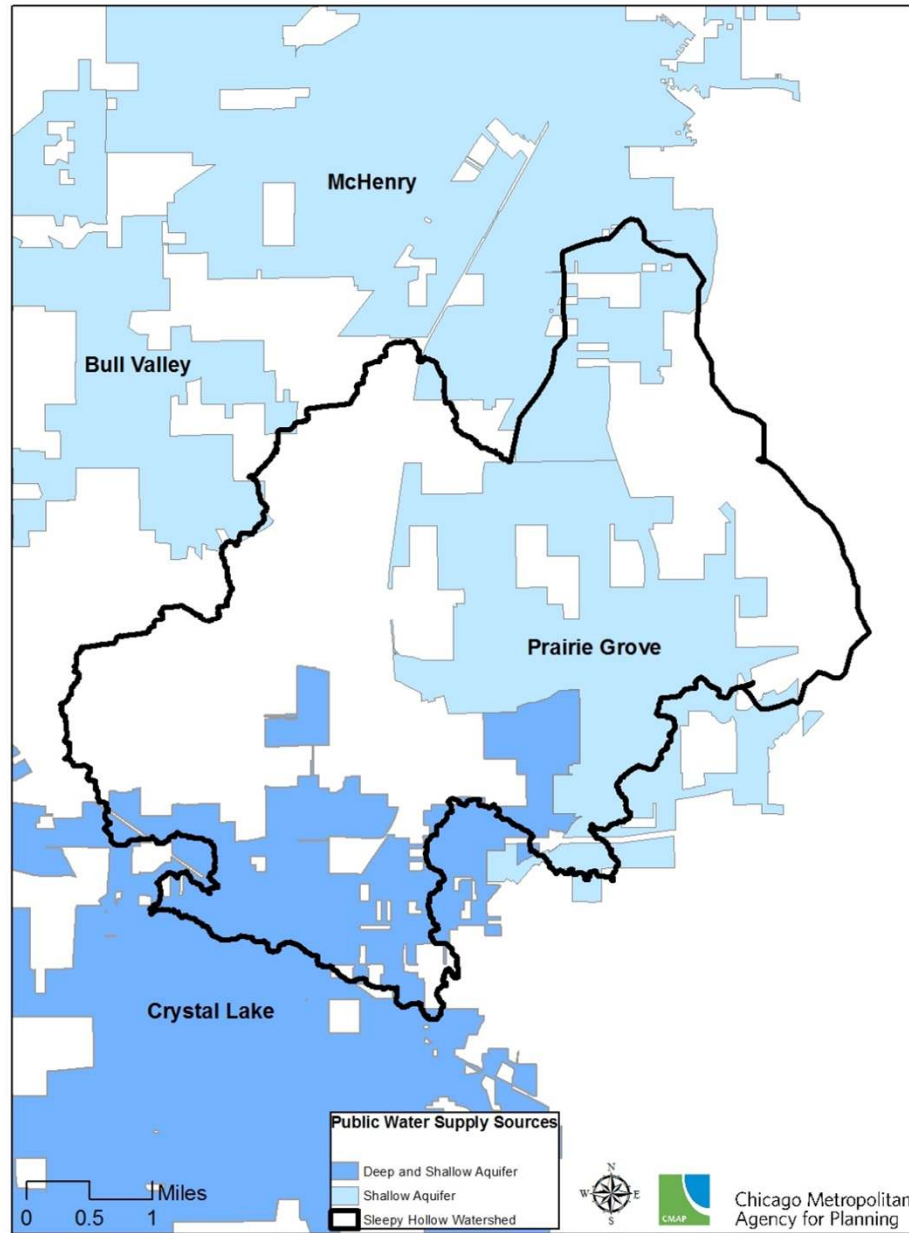


Source: Chicago Metropolitan Agency for Planning ; Dziegielewski and Chowdhury, 2008

January 10,



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# 11-County Population

2005 – 8.74 million

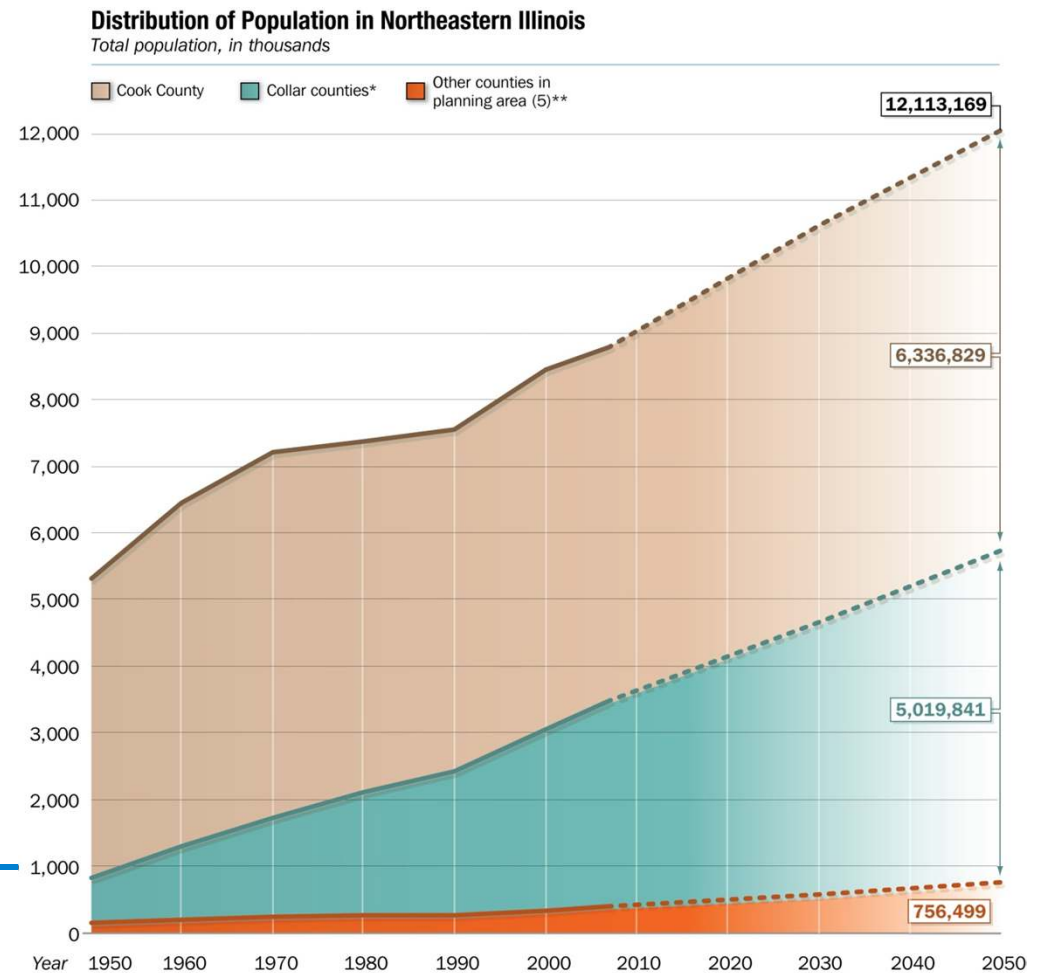
2050 – 12.11 million

~ 38% growth

McHenry County –

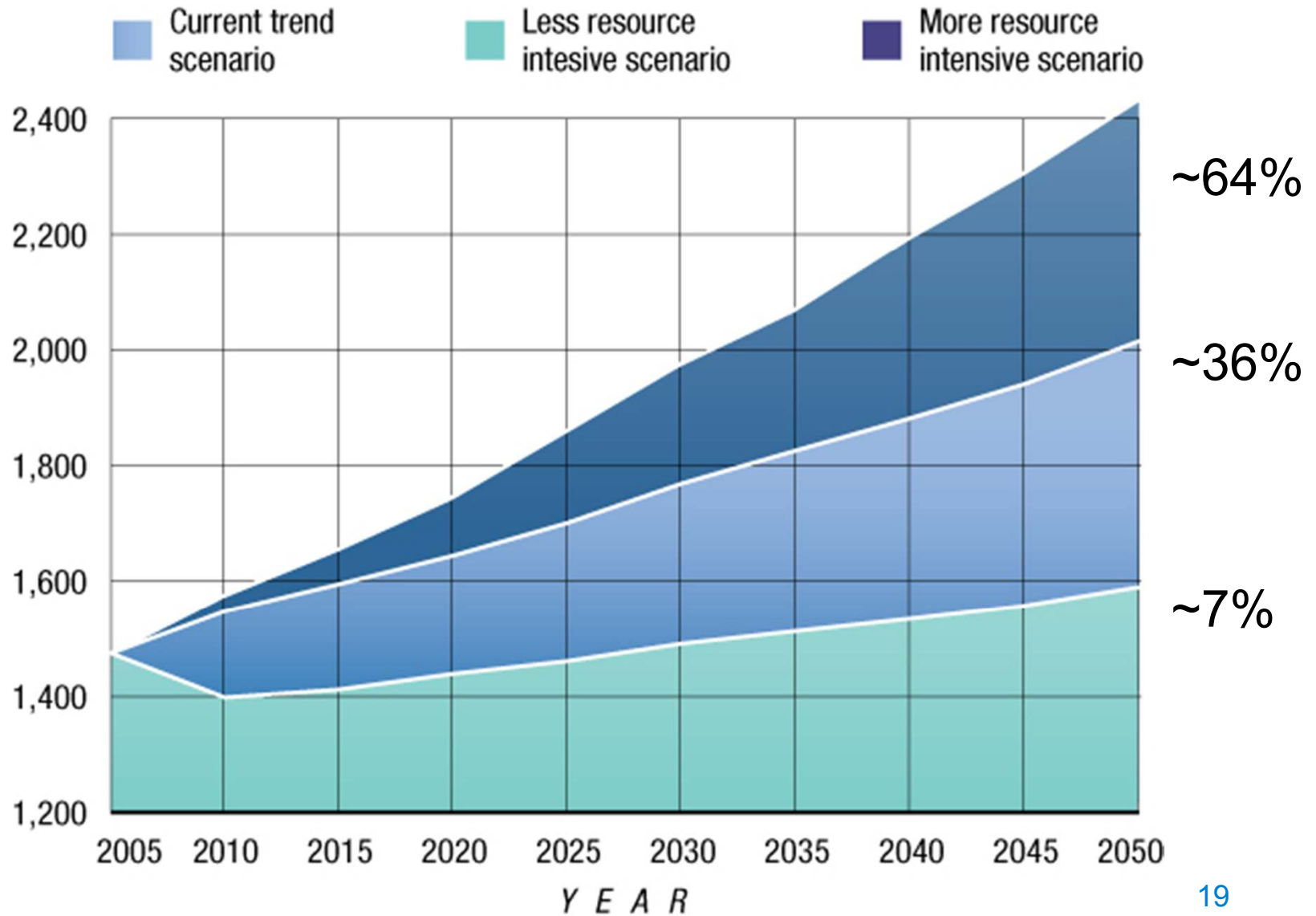
~94% growth

(304k – 589k)



Sources: U.S. Census Bureau; Northeastern Illinois Planning Commission; al Chalabi Group, Ltd., Chicago Metropolitan Agency for Planning  
\* DuPage, Kane, Lake, McHenry, Will \*\* Boone, DeKalb, Grundy, Kankakee, Kendall

## Scenario water withdrawals: 2005 - 2050, in million gallons per day



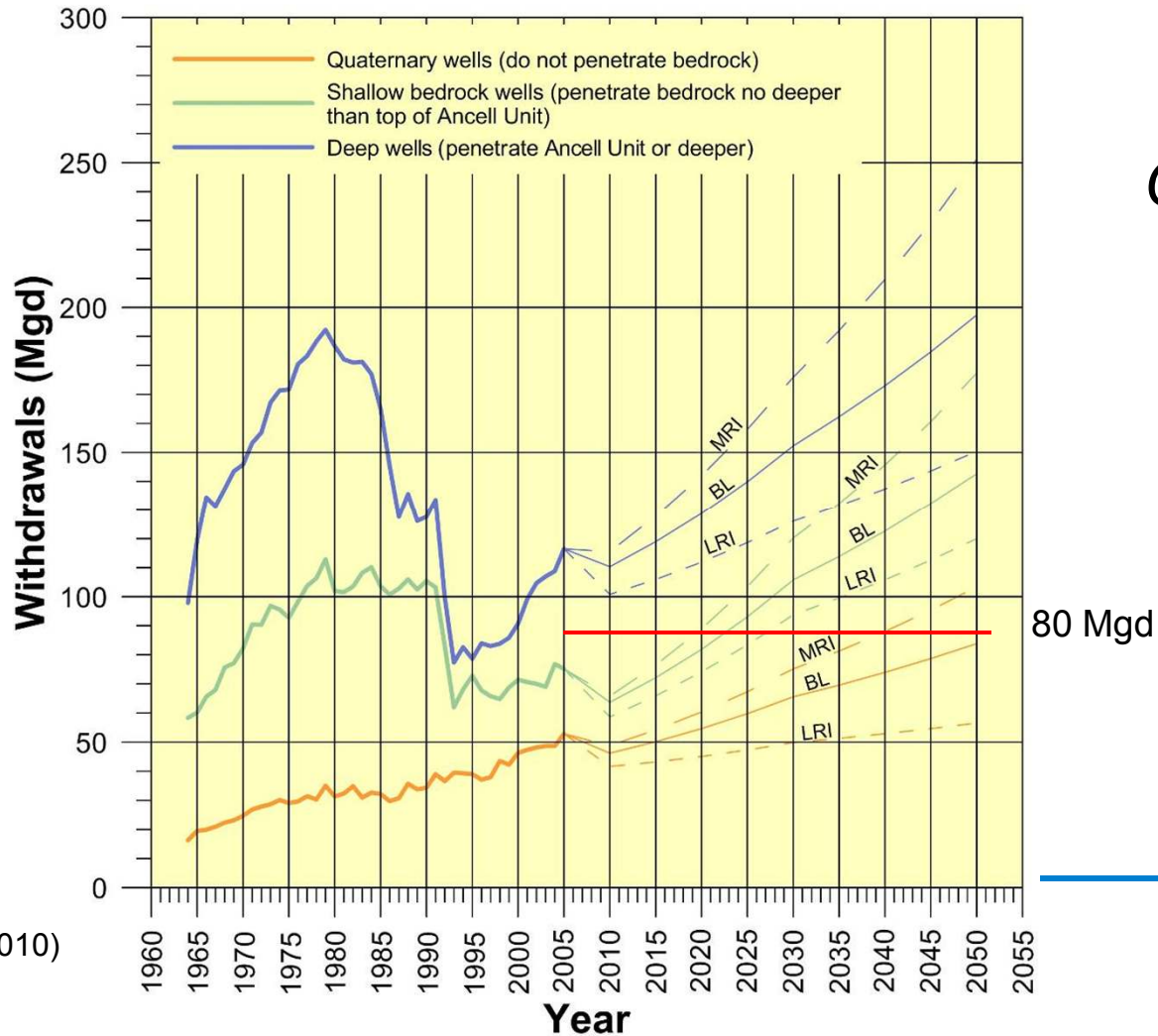
Source: B. Dziegielewski and F.J. Chowdhury, 2008, Southern Illinois University Carbondale

# Groundwater Supply

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*How does the region (Kane, Kendall, and McHenry counties) accommodate more people and avoid supply / demand imbalances?*

# NE IL Simulated Groundwater Withdrawals: 1964-2050



(ISWS, 2010)

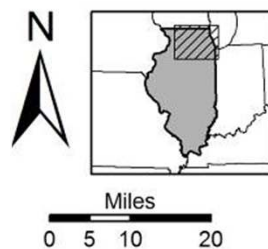
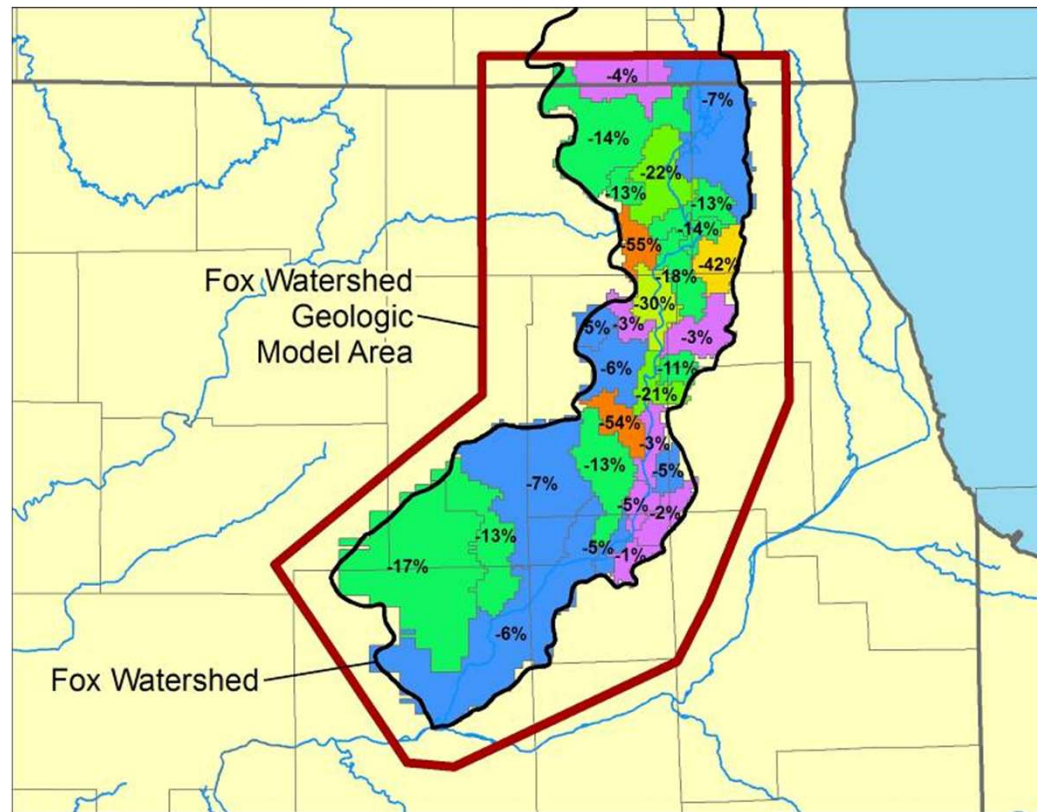
*Estimated  
Growth in Scenario  
Demand*

(Dziegielewski and Chowdhury, 2008)

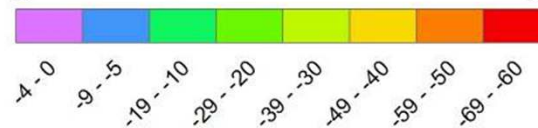
LRI = 44%  
BL = 84%  
MRI = 135%



# 2050: Streamflow Capture



Change in Natural Groundwater Discharge (%)



(ISWS, 2010)

# Model Ordinance

- 2010 release!
- Review of 60+ ordinances, literature
- Expert review
- Legal review
- Next step: outreach to communities

1/10/2011



## ***Model Water Use Conservation Ordinance***

March 2010

# Regional Water Conservation Coordinator



# Protect your groundwater!

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Thank you!

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