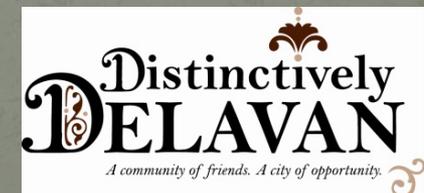
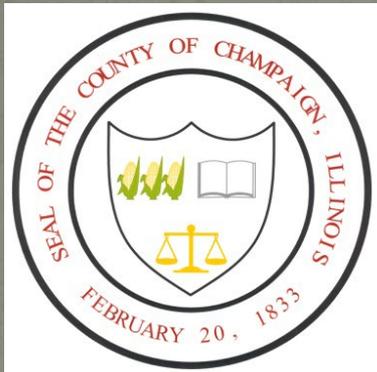


# **A Step in Protecting the Mahomet Aquifer - Sole Source Designation**

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Allen Wehrmann, P.E.

# Sole Source Petition Coalition Members



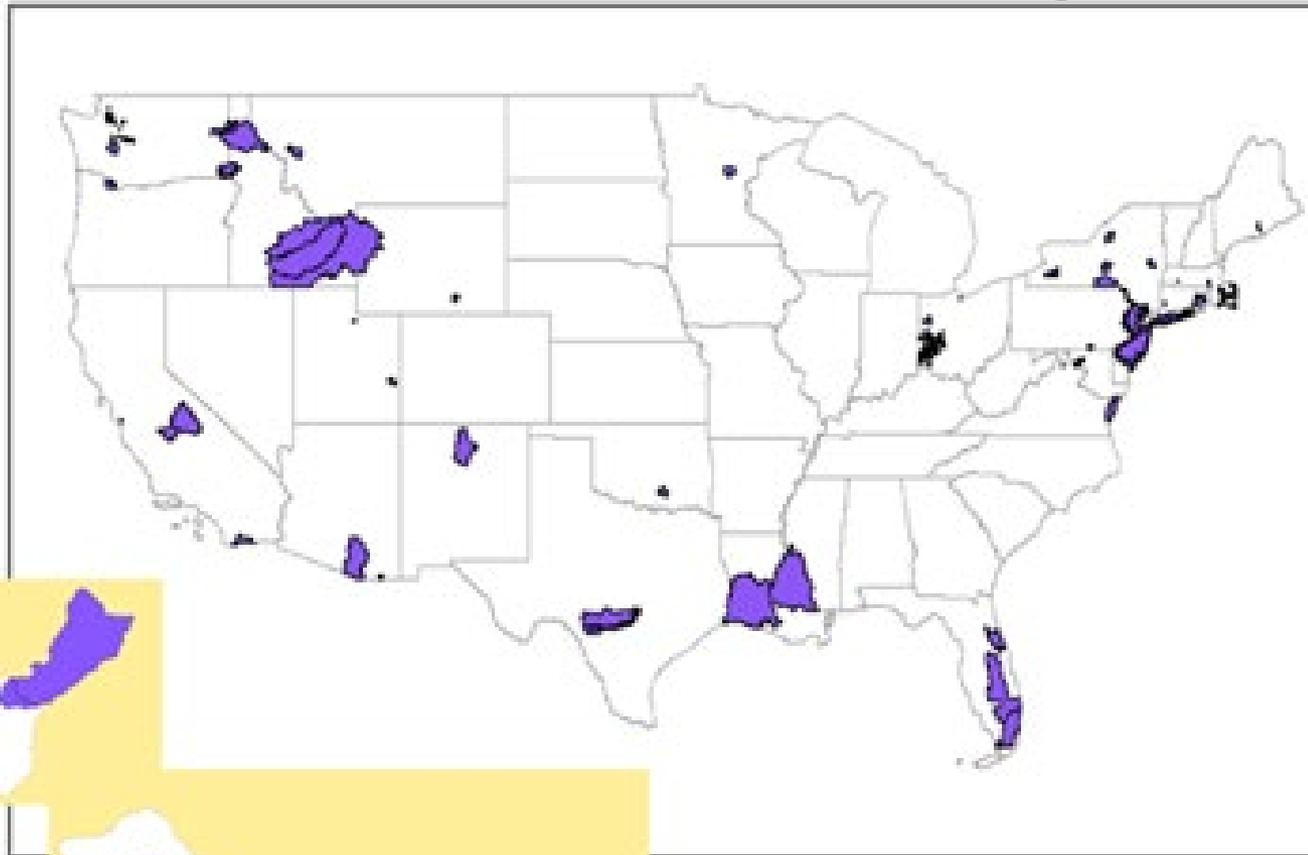
*Armington Clinton Fisher Mansfield Waynesville*



# Sole Source Aquifer Definition

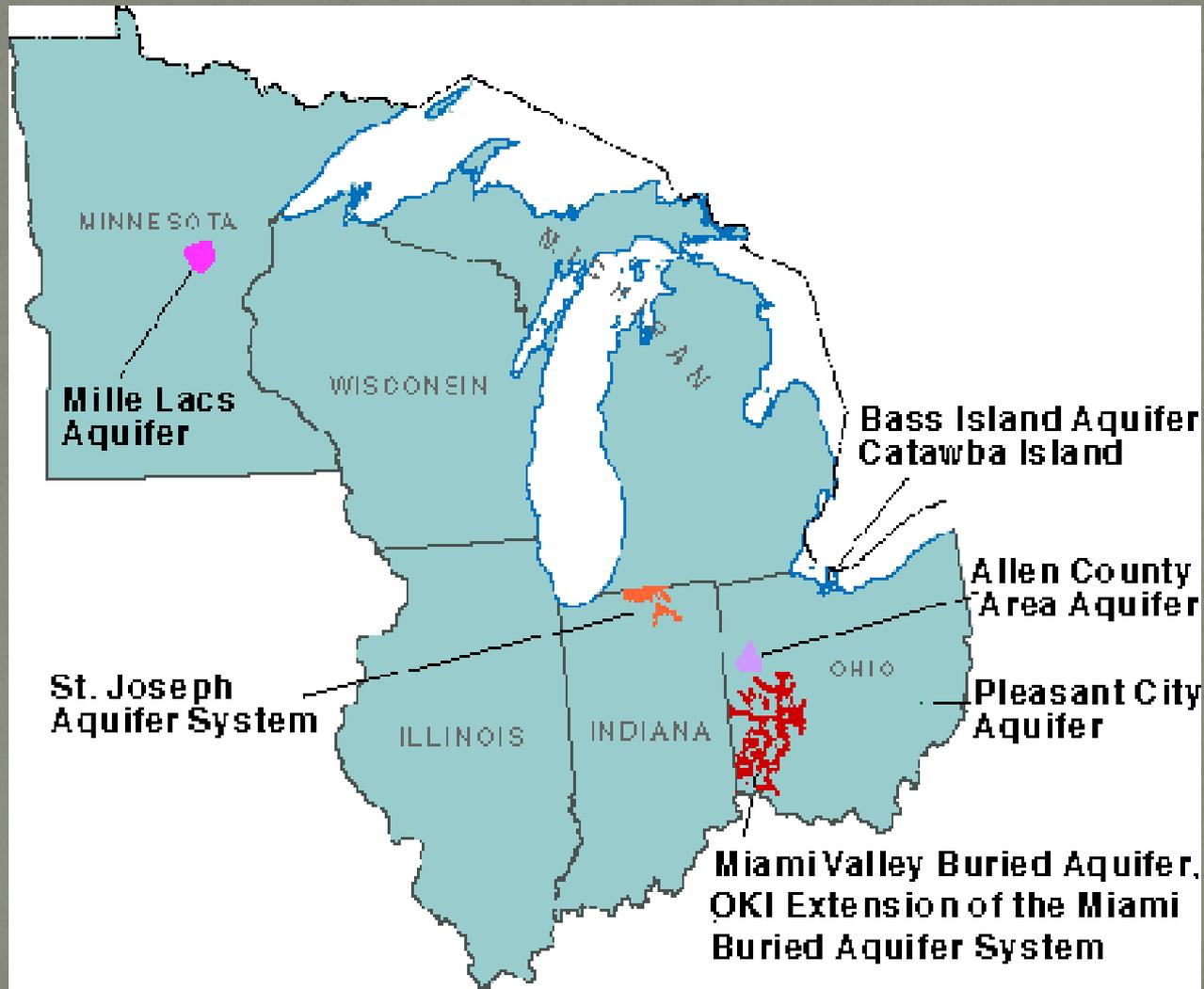
- SSA Program - established under the Safe Drinking Water Act of 1974
- To be designated as a Sole Source Aquifer
  - The aquifer must supply at least 50% of the drinking water within the aquifer's service area AND
  - The volume of water from alternative sources is insufficient to replace the petitioned aquifer should it become contaminated (as defined by adequacy, economic, or legal constraints)

# National Sole Source Aquifers



**73 Sole Source Aquifers  
Designated Nationally**

# Midwest's Sole Source Aquifers



# What does having SSA designation mean?

- Federally-funded project gets USEPA review if over the Aquifer Review Area
- Review to determine if project may contaminate the Aquifer
- Federal funds may be used to modify projects
- Common Federally-funded projects include highways, sewers, waterworks, and housing
- Stricter landfill requirements by Illinois EPA

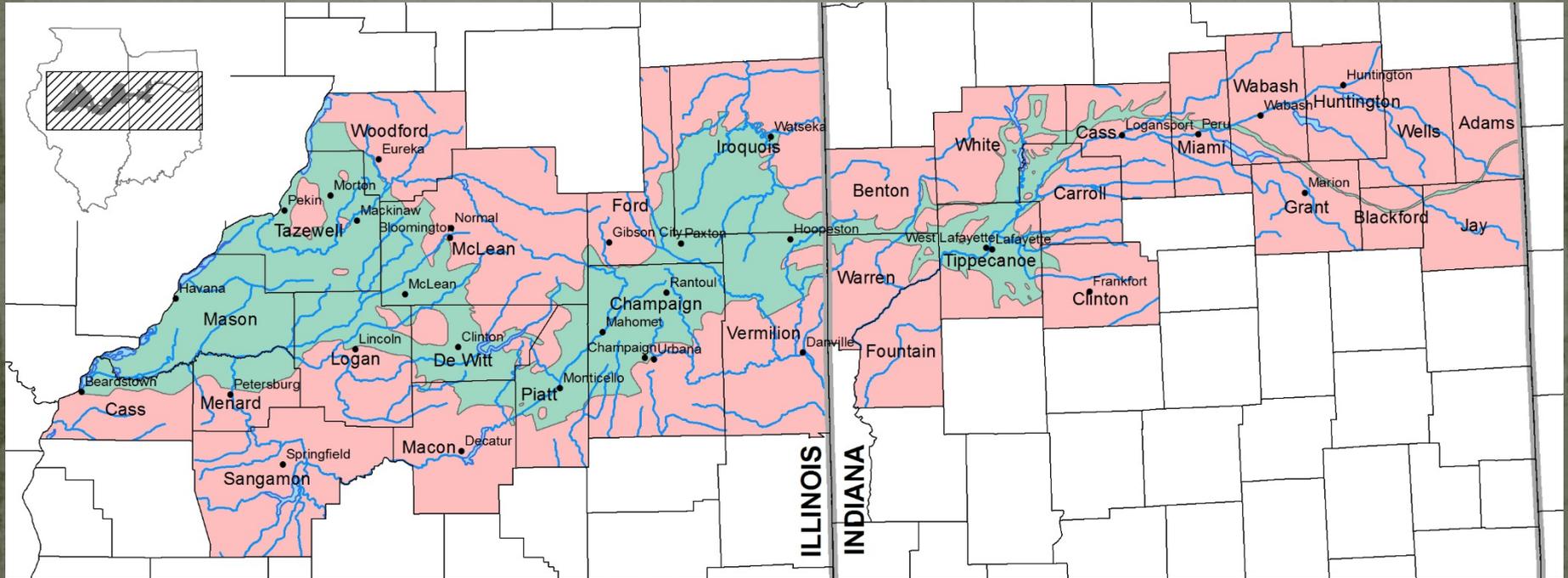
# What does having SSA designation mean?

- No SSA review if
  - Federal funds NOT involved
  - Project is NOT over the designated Aquifer Review Area
  - Federal funds are for crop subsidies, crop insurance, conservation reserve
- If a project is NOT found to pose a health hazard, review is fairly rapid (~2 weeks according to Region V)
- Projects that may pose a health hazard will be returned for modification, and possible denial

# Basic SSA Eligibility Requirements

- Define aquifer boundaries
- Describe the area served by the aquifer
- Determine whether the aquifer is sole or primary source of drinking water (based on adequacy, economic, or legal constraints)
- Examine (in)adequacy of alternative drinking water sources

# The Mahomet-Teays Valley



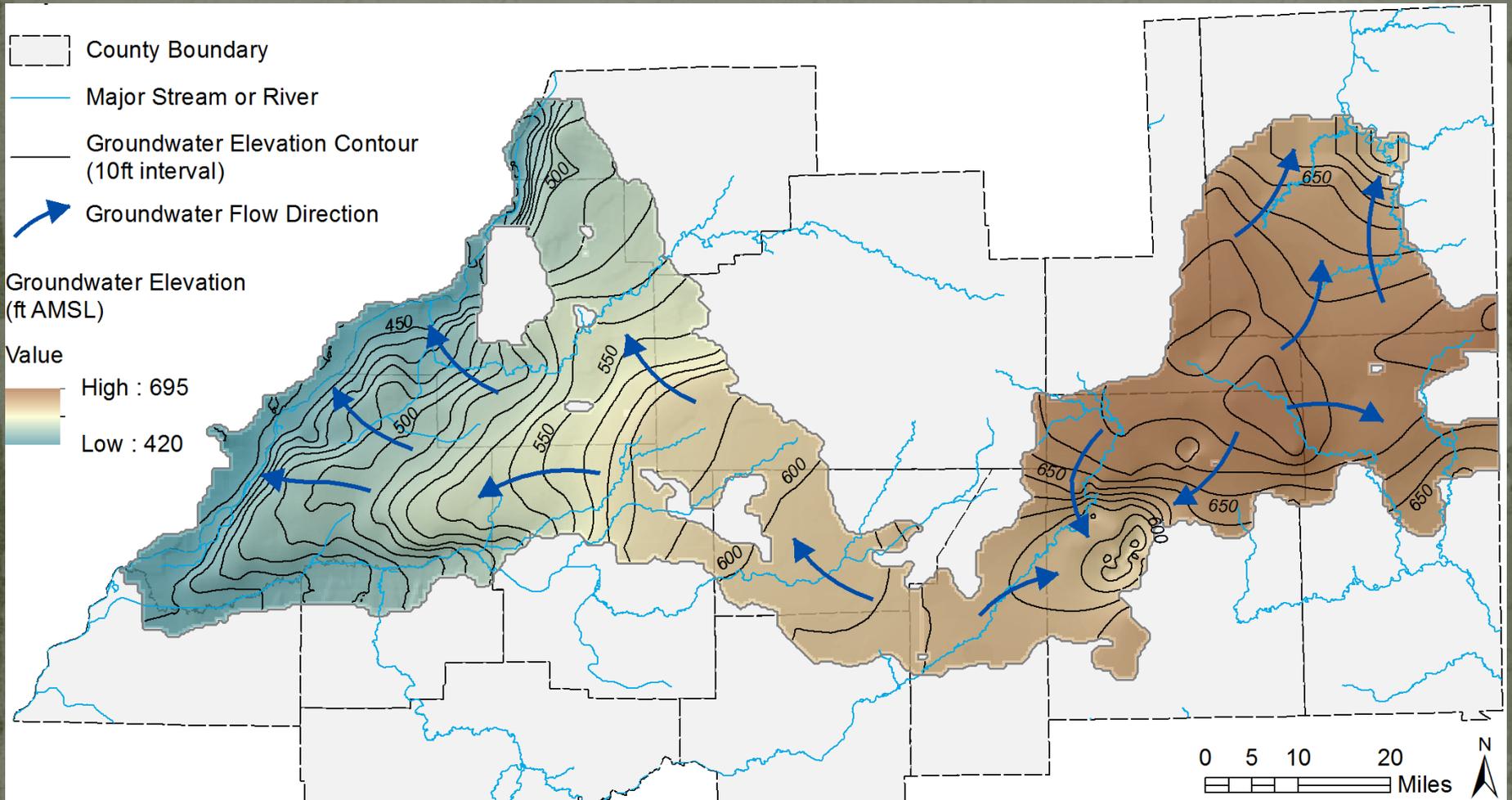
### THE MYSTERIOUS TEAYS RIVER

Hundreds of feet below this general location flows one of the world's mightiest rivers, the Teays. Covered and filled up some 60,000 years ago by billions of tons of soil and gravel carried here by the glaciers, the Teays still filters through its bed with the gravel acting as a natural filter system. The cities of Lafayette and West Lafayette, as well as Purdue University, use its waters. Have a drink from the Teays.

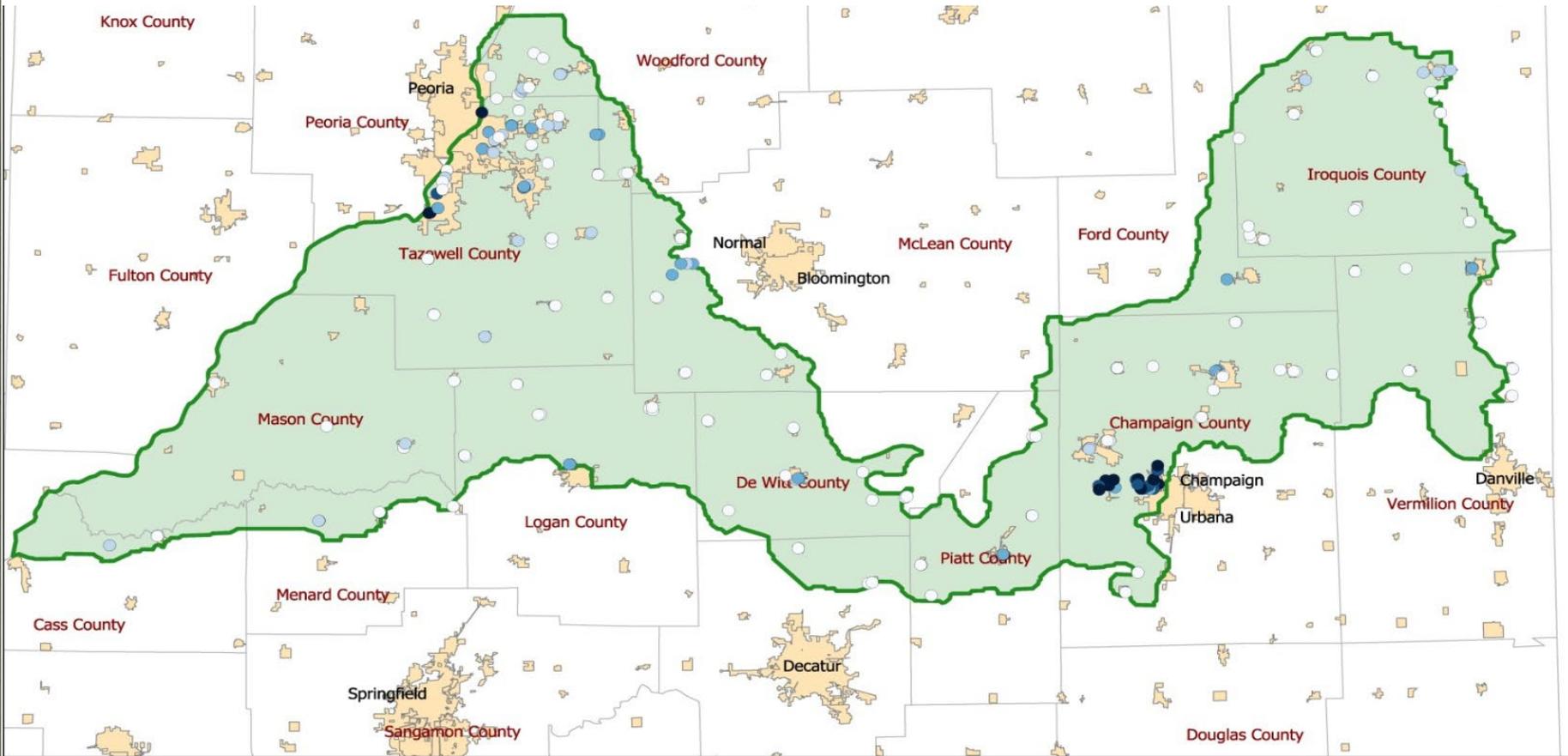
Shelter house provided by High Twelve Club and American Legion.



# Mahomet Aquifer Potentiometric Surface



# Petitioned Mahomet Aquifer Boundary



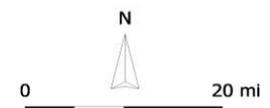
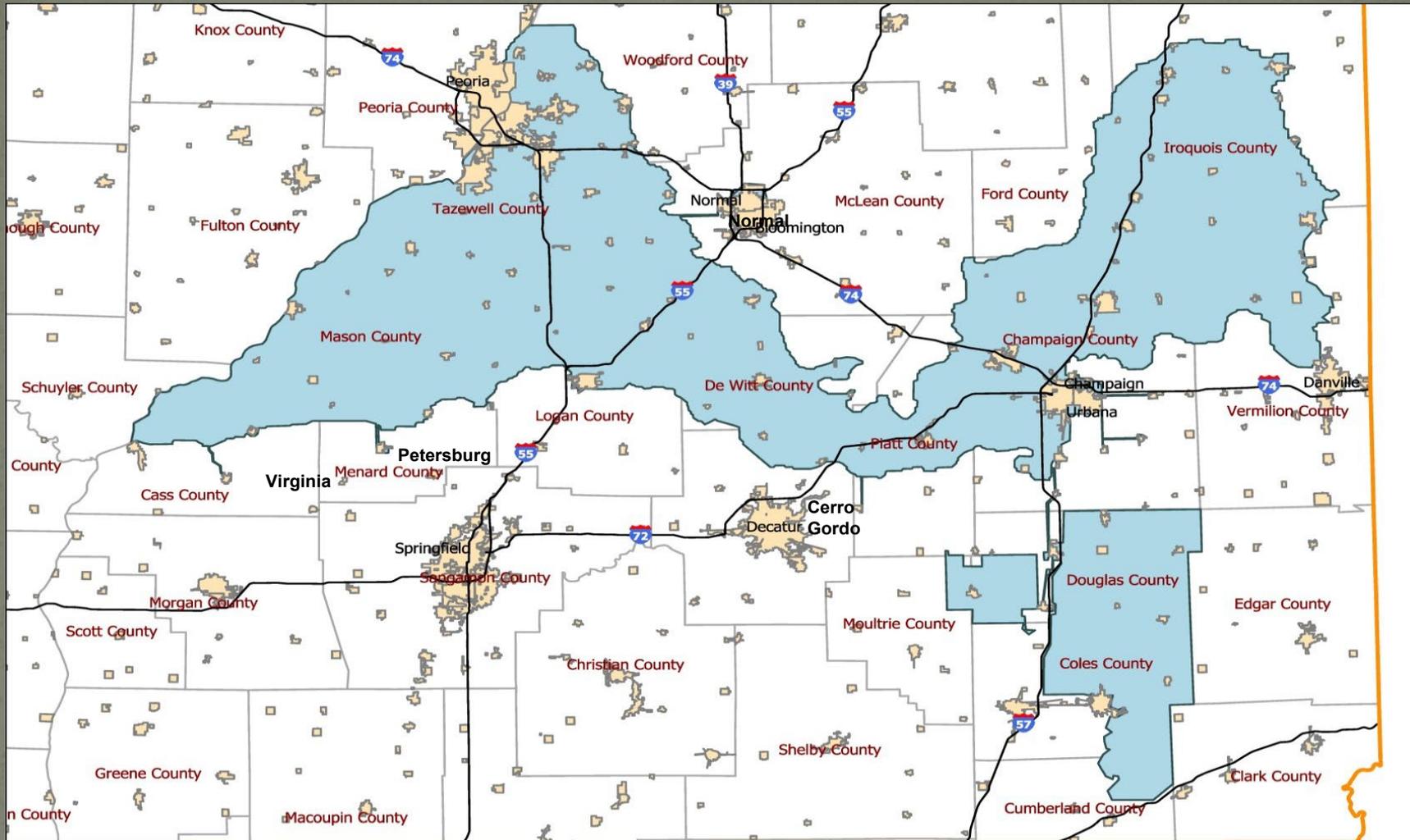
Key		
2010 Mahomet Aquifer Well (MGD)		
○ < 0.1	● 0.5 to 1	▬ Mahomet Aquifer Boundary
● 0.1 to 0.25	● > 1	▬ County Boundary
● 0.25 to 0.5		▬ Municipality

N

0 ————— 20 mi

Data Source: Illinois State Water Survey  
Date: December 2012  
Projection: Lambert Conformal Conic (Clark 1866)

# Mahomet Aquifer Service Area



Data Source: Illinois State Water Survey  
 Date: December 2012  
 Projection: Lambert Conformal Conic (Clark 1866)

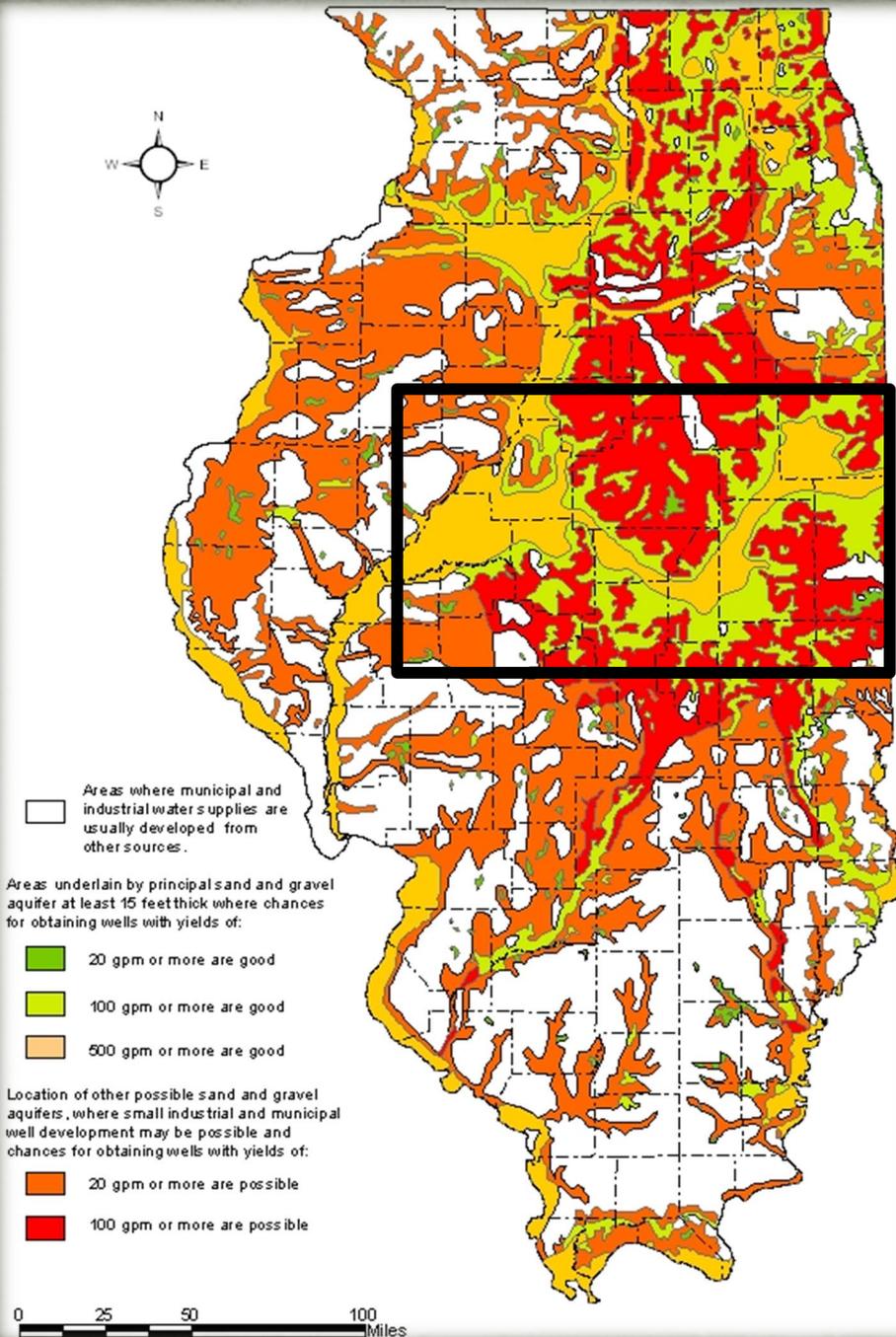
## Drinking Water Sources in 2010 for the Mahomet Aquifer Service Area (in gpd)

Source/Use	Public Water Supply (community and non-community)	Private and Other	Total
Petitioned Aquifer	53,150,000	4,310,000*	57,460,000
Other Aquifers	3,440,000	0	3,440,000
Surface Water	0	0	0
Imported	0	0	0
<b>Total</b>	<b>56,590,000</b>	<b>4,310,000*</b>	<b>60,900,000</b>

*All data from ISWS Illinois Water Inventory Program for 2010,*

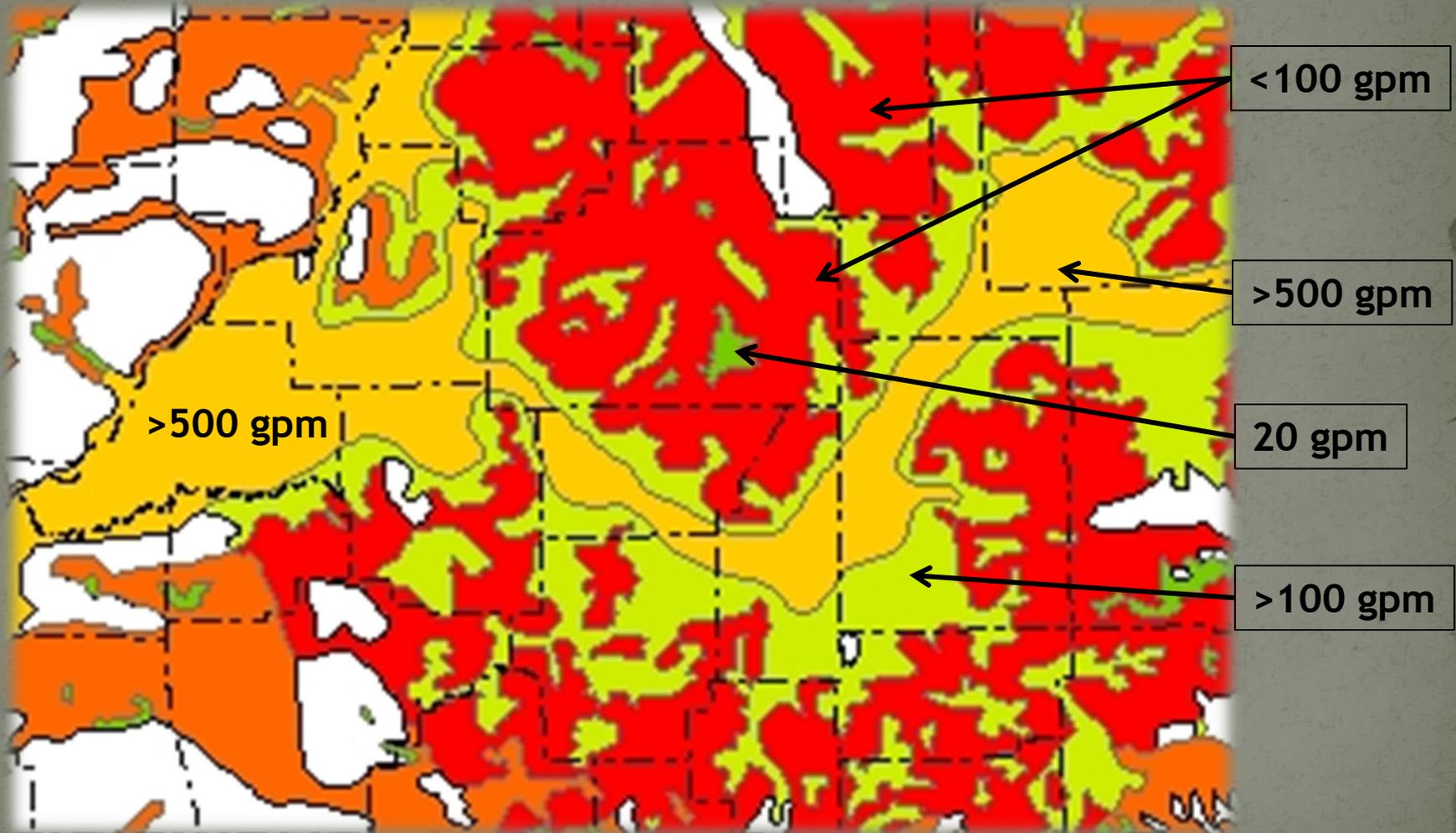
*\*except private use data from Kenny et al., 2009 (USGS) with data for 2005*

# Yields of sand and gravel wells in Illinois



# Expected Well Yields in the Mahomet Region

(in gallons per minute)



## ● Economic Constraints?

- Construction of pipeline/treatment plant examined for each community and deemed economically infeasible

## ● Legal Constraints?

- Low Flow Protection (constraint for certain surface waters)
- Rule of Reasonable Use (not a constraint)
- Water Authorities (possible constraint)

# Mahomet Sole Source Aquifer Project Review Area

