

Protecting Minnesota's Sources of Drinking Water

A Public Health Approach

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For the Legislative Water Commission
December 4, 2015

Outline

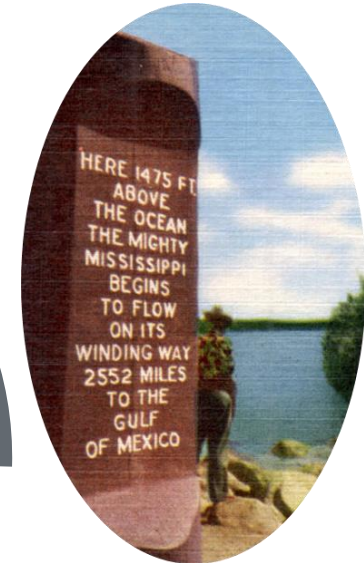
- **Source Water Protection Strategies**
- **Land Uses Drive Water Quality**
- **People Decide How Land is Used**
- **Connecting with People to Protect Source Water**
- **Challenges and Opportunities**

Drinking Water Sources in Minnesota



**Private
Groundwater
1.1 Million**

**Public
Surface
Water
1.4 Million**



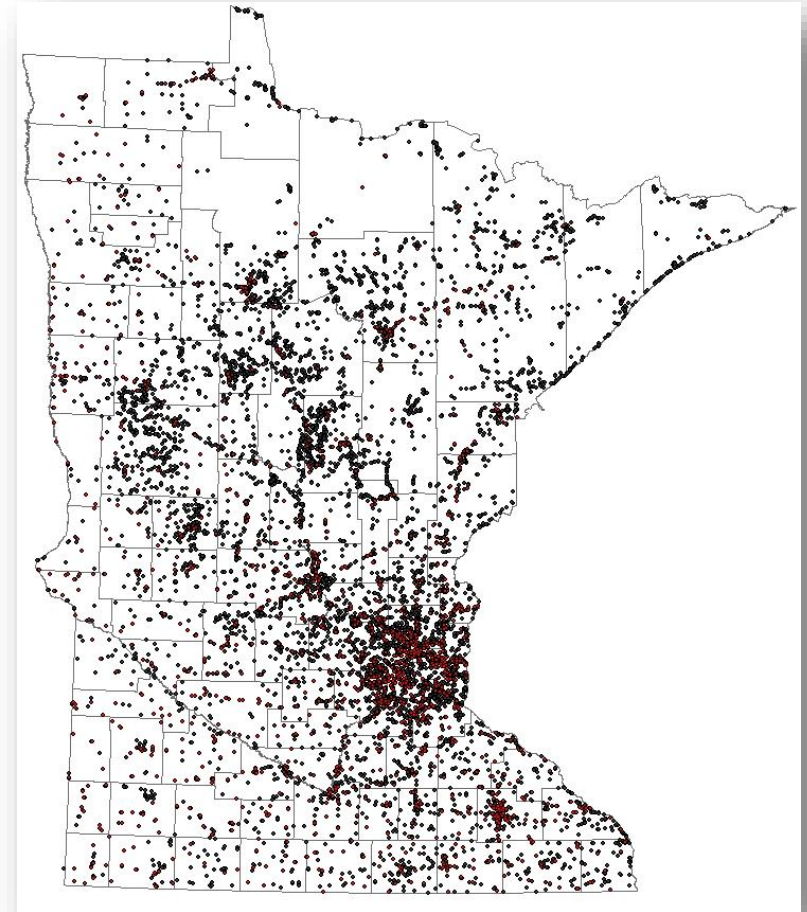
**Public
Groundwater
3 Million**

**75% from groundwater
25% from surface water**

FY 2015

Public Water Supply Systems

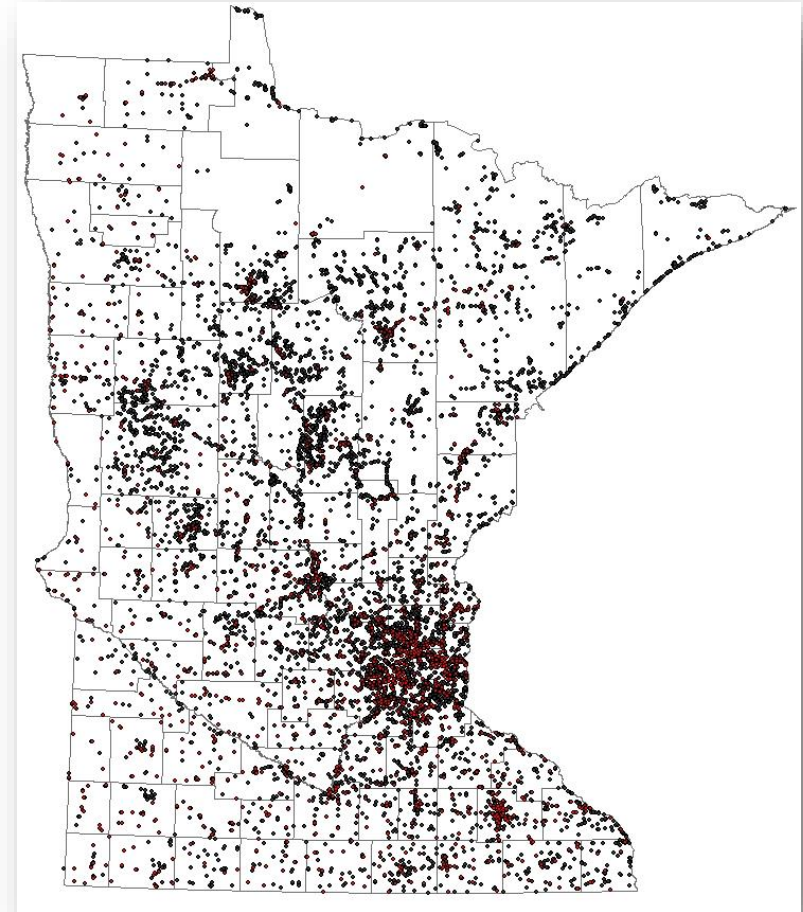
- **Serve 4.4 million people**
- **24 surface water sources**
- **~11,000 Public Wells**
- **~960 systems that provide water to people where they live**
- **~6,000 systems that provide water to people where they work or play**



Public Water Supplies in MN

Source Water Protection

- Preventing contamination in a well's recharge area
- Required in statute for groundwater systems
(MS s 103I.101)
- Surface intake protection are voluntary – 3 plans
- More effective and cost-efficient than clean-up, treatment, or drilling a new well



Public Water Supplies in MN

Public Health Targets and Prevents

Source Water Protection Strategies



- **Scientists define a protection area to target**
- **Planners determine actions to prevent contamination in the area**
- **Schedule: every 10 years, or with new well**

Local Ownership of Protection Plans

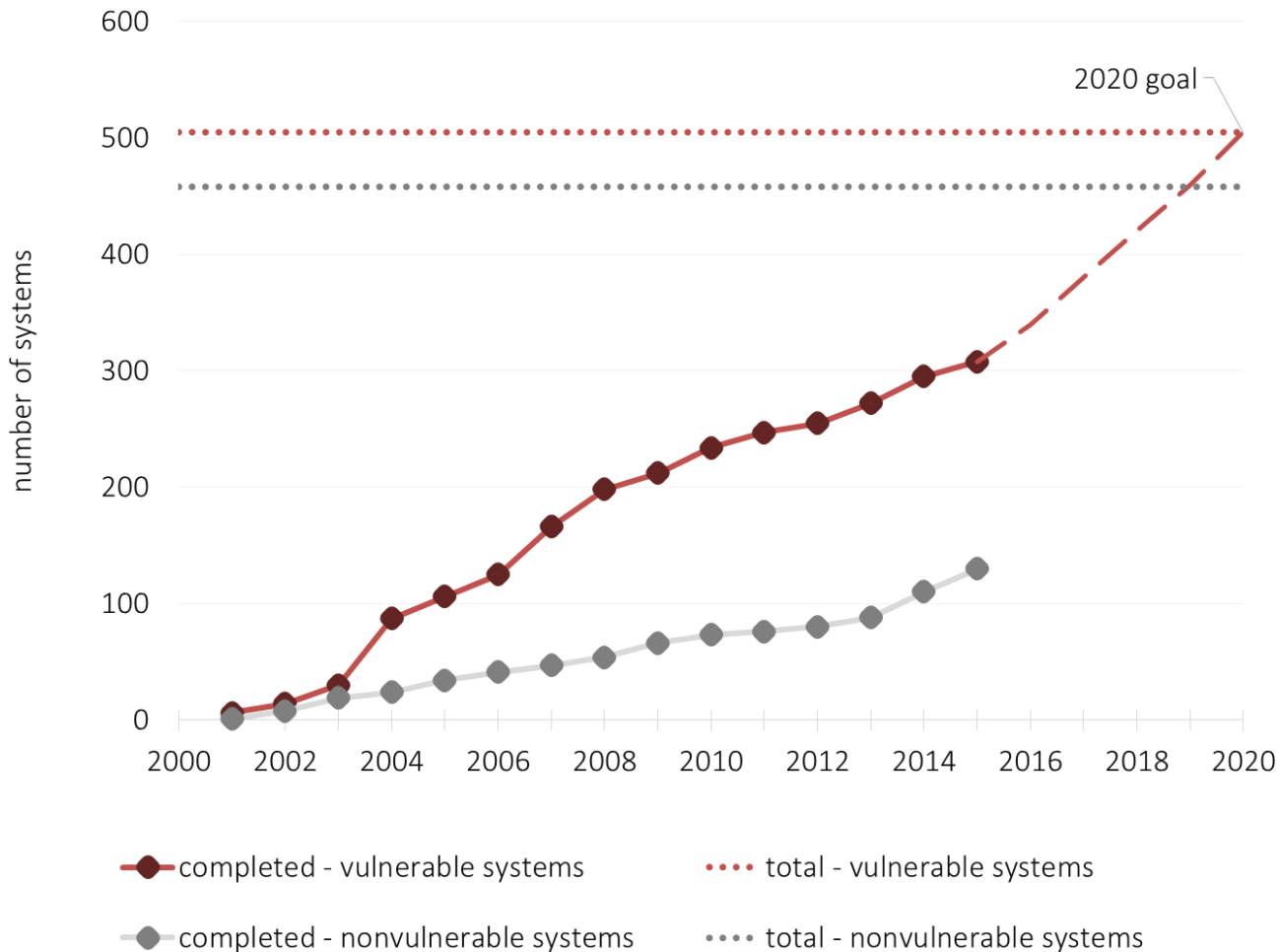
Source Water Protection Strategies

- **Public water supplier works with local government, businesses, and land owners to manage threats**
- **Tools: relationships, ordinances, easements, grants, etc.**



4.4 Million People to Protect

Source Water Protection Strategies



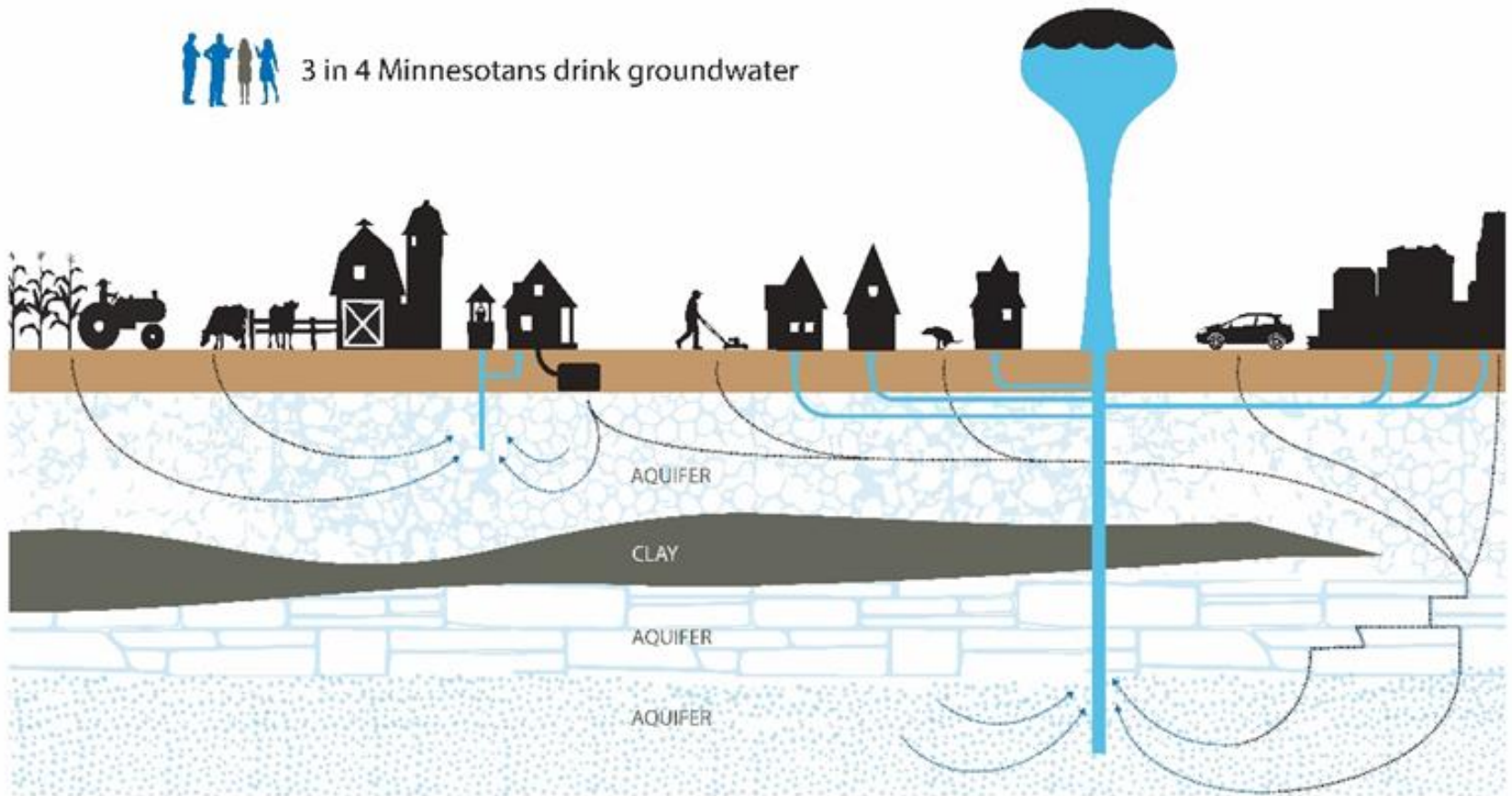
- **963 total community water systems**
- **Prioritize large populations, high risk systems first**
- **Plans so far protect 87% of people on public water supplies**

Land Use Drives Water Quality

Together we can prevent water pollution.



3 in 4 Minnesotans drink groundwater



Urban Land Use

Land Use Drives Water Quality

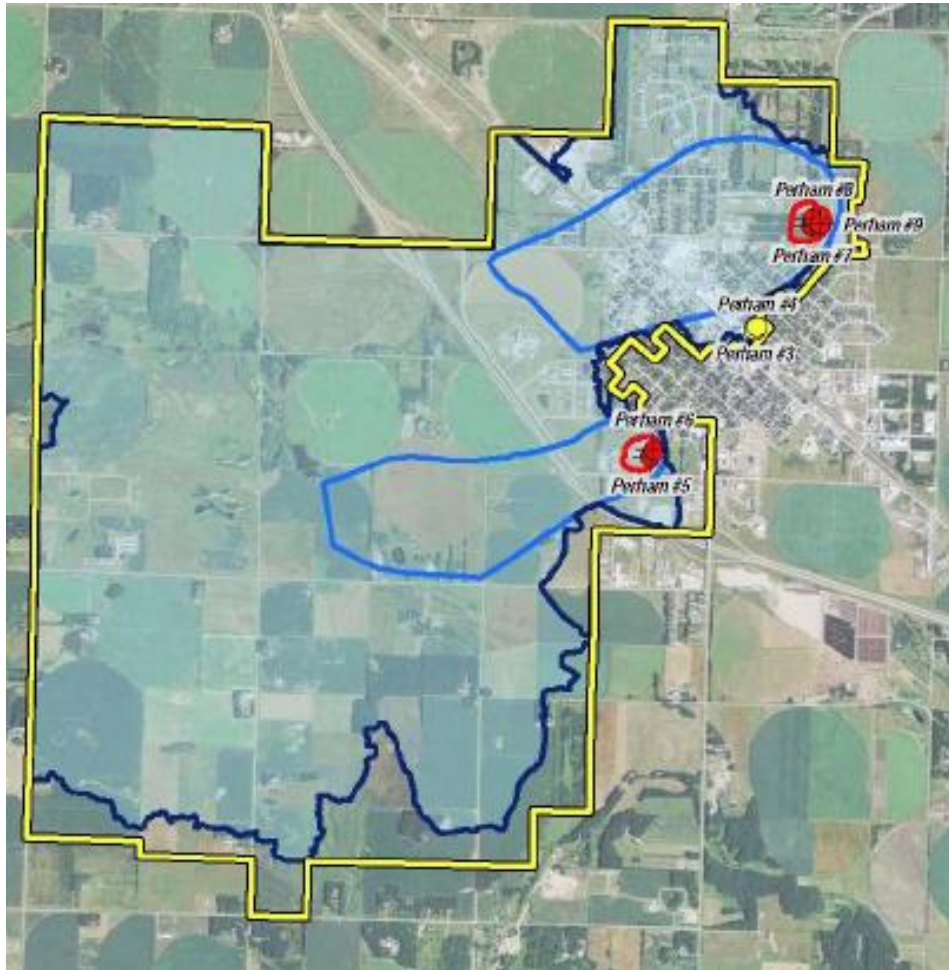


Residential

http://realestatetwincities.net.idxco.com/i/2517/scott_county_mn_lake_homes

Goal is Prevention, but...

Land Use Drives Water Quality



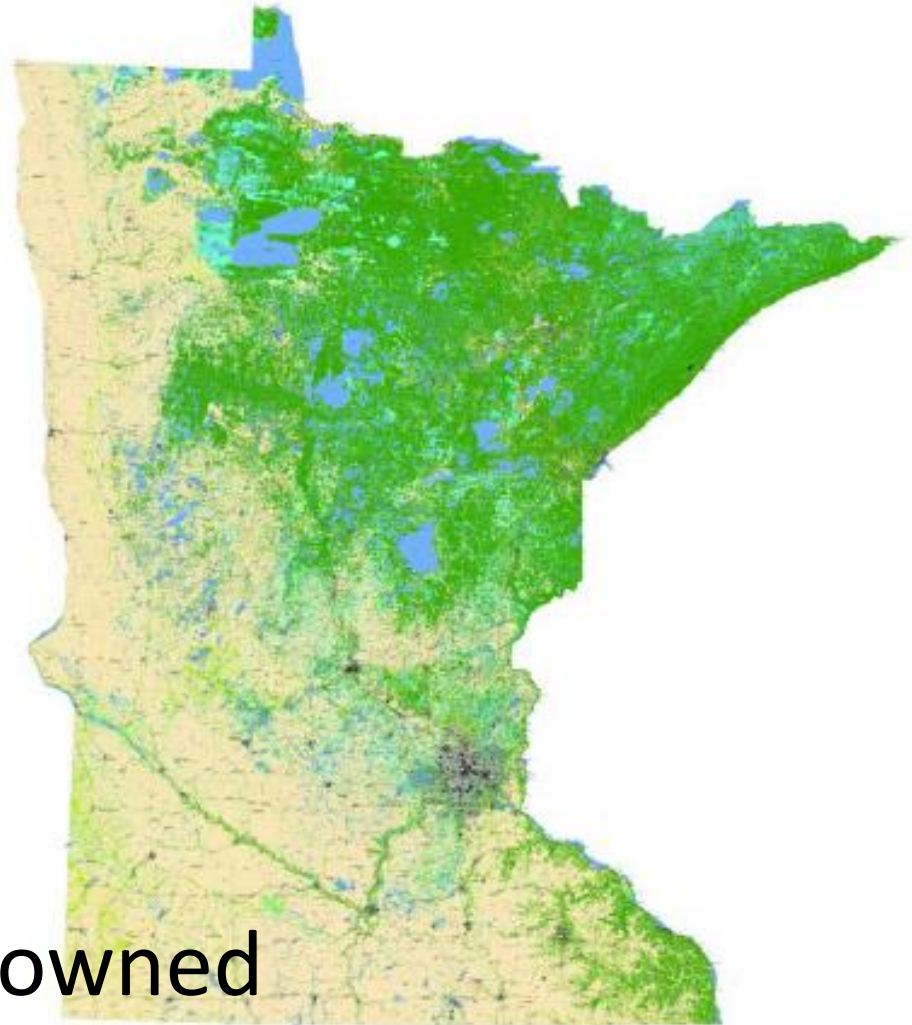
Perham:

- Shallow sand and gravel aquifers
- Nitrate approaches drinking water standard
- City builds momentum through outreach and education
- Converted 285 acres in wellhead area from row crop to other, low-impact uses
- Nitrate reduced to meet drinking water standards

Land Use in Minnesota

People Decide How Land is Used

- **56 M acres total**
- **26 M acres in agricultural production**
- **16 M acres of forest**
- **13 M acres of lakes, rivers, and wetlands**

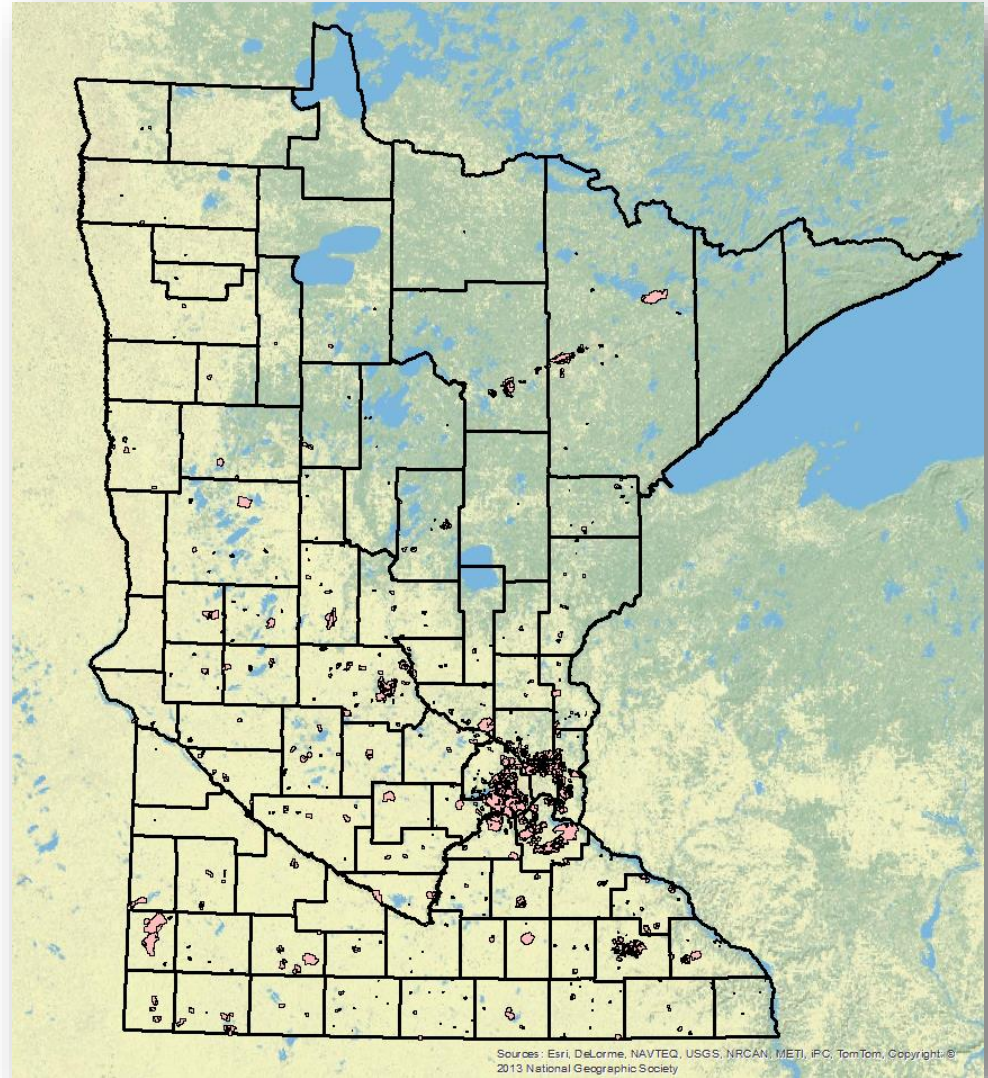


70% of land is privately owned

High Risk Drinking Water Acreage

People Decide How Land is Used

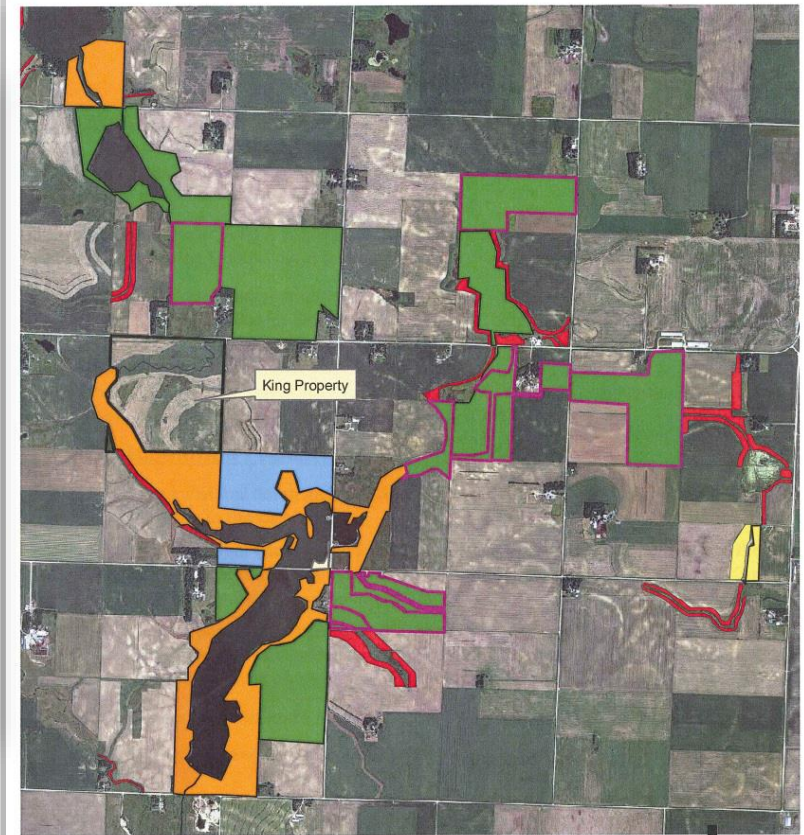
- **Acres in MN = 56 M**
- **Well areas = 1.22 M**
- **Vulnerable acres
= 360 K**
- **Growing as more
protection plans are
completed**
- **Do-able**



Multiple Benefits

People Decide How Land is Used

Worthington Wells Wildlife Management Area



- CREP Easements
- Grass Filter Strips
- DNR WMA's
- USFWS WPA
- Watershed District
- DNR WMA - land purchased by PF, WPU, OOWD & DNR partnership

Individual Level

Connecting with People to Protect Source Water



<http://alleynews.org/2013/02/hobt-mayday-parade-pageant-february-ideas-support-request/>

Community Level

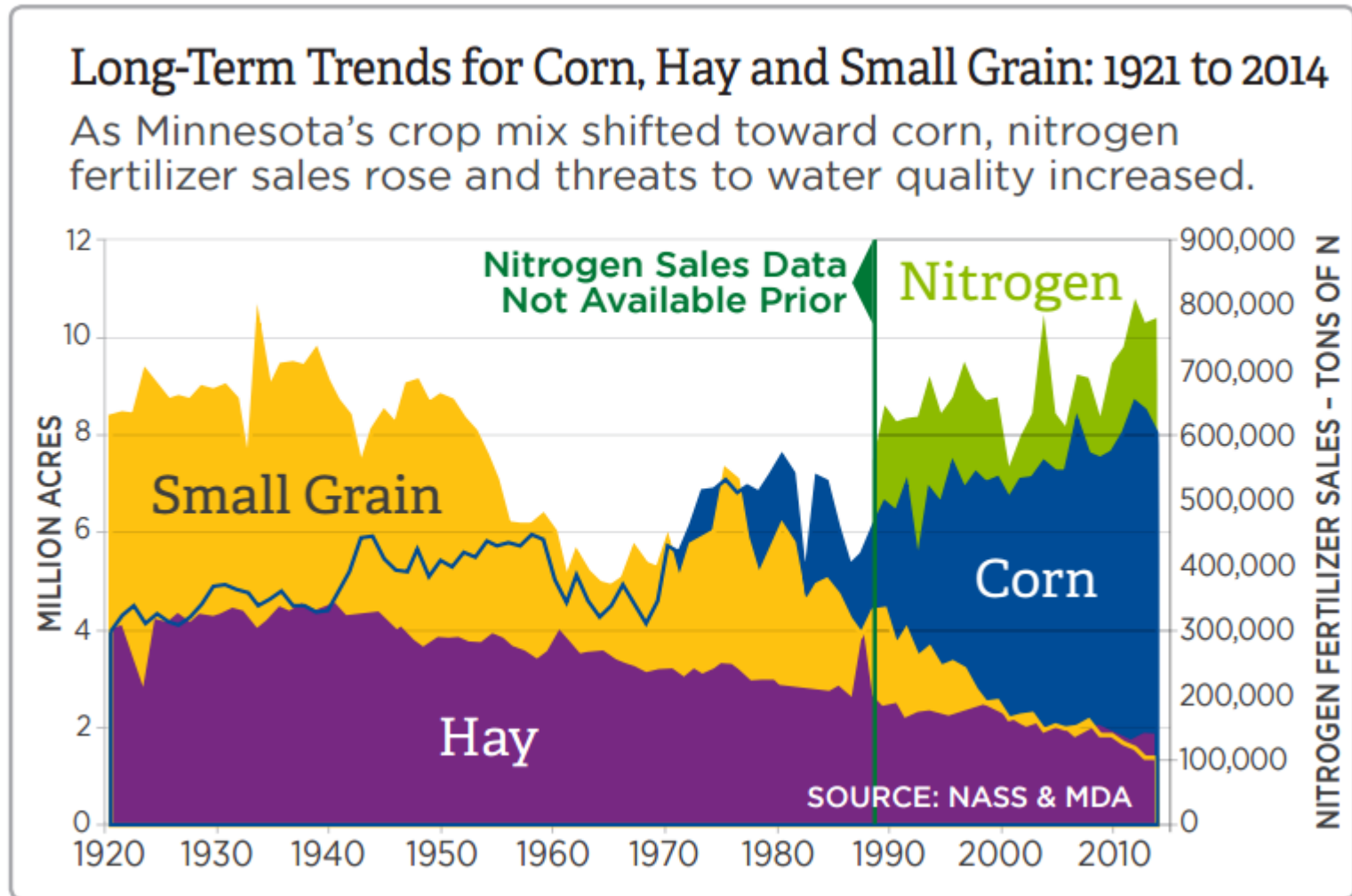
Connecting with People to Protect Source Water



**Annual residential
turf management
clinics protect
vulnerable water
supplies**

Social and Economic System Level

Connecting with People to Protect Source Water



Challenges

- **Our actions on the land threaten the safety of our drinking water**
- **Source water protection largely relies on voluntary actions by citizens, businesses, and communities**
- **Markets and economic systems can make easement opportunities less attractive**

Opportunities

- **Build capacity in local governments to engage citizens and decision-makers**
- **Facilitate land use changes that have multiple benefits**
- **Develop competitive financial support for land uses that protect drinking water**

Questions?



