

Minnesota Wellhead Protection Program & Land Use Planning

*MN Association of County
Planning & Zoning Administrators*
Willmar, Minnesota
October 8, 2010

Art Persons & Mark Wettlaufer
Source Water Protection Unit,
Minnesota Dept. of Health



Why **bug you** with Wellhead Protection Stuff??



How do we achieve drinking water “protection”?

- Understand “source” of drinking water.
- *How vulnerable* is the source & what are the contaminant threats?
- *“Balance” Implementation:*
 - *Education*
 - *State & Federal Regulations*
 - *BMP’s & Resource Protection Programs*
 - *Local Controls*



What is Wellhead Protection (WHP)?

“Methods of managing potential contaminants in a well’s recharge area.”

Properly Manage
Contaminant Sources...



Locate & Seal Wells....



Agronomic Rate & Timing...

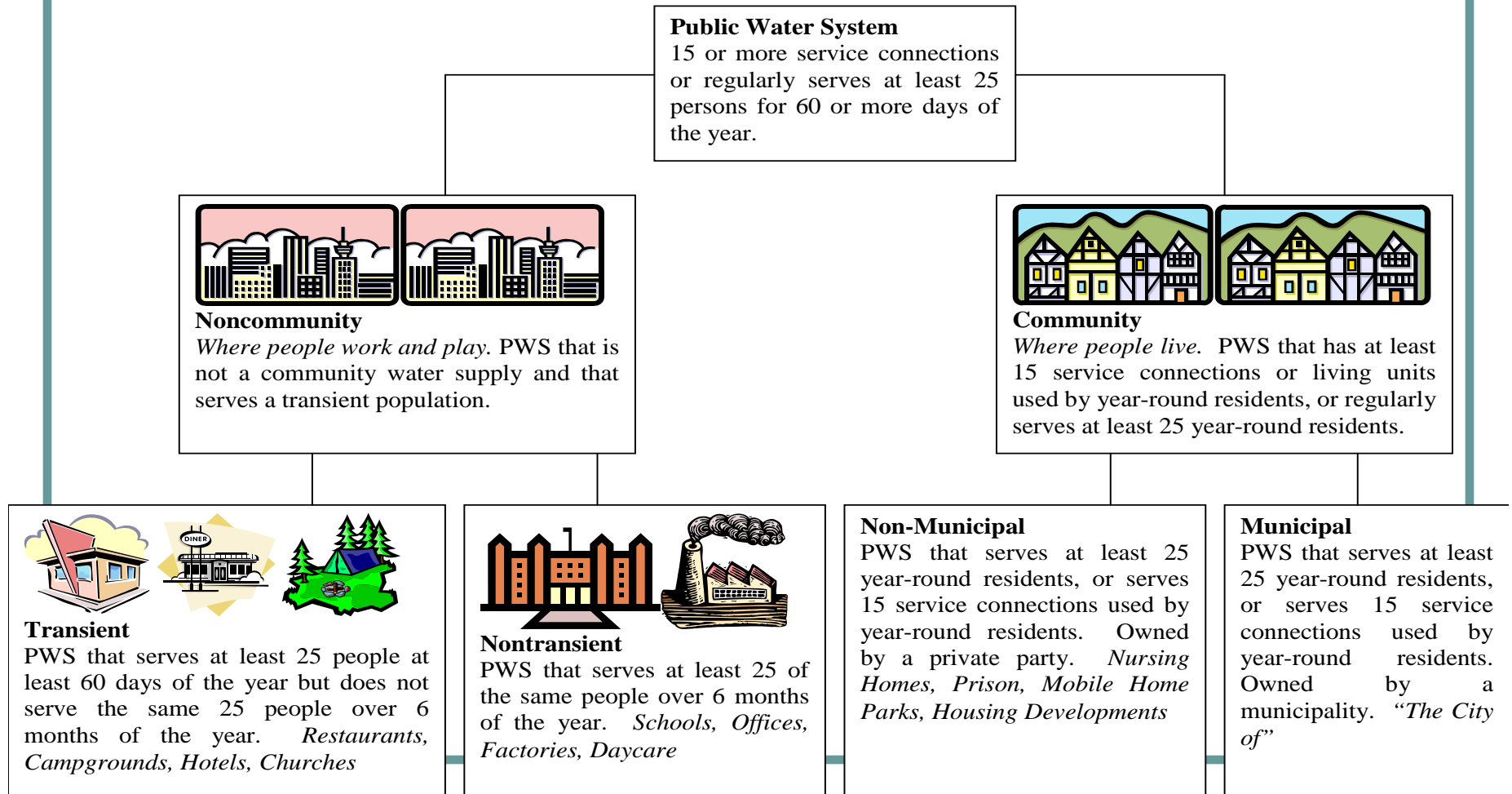


Wellhead Protection Background...

- Wellhead Protection defined and required by the 1986 Federal Safe Drinking Water Act.
- 1989 Minnesota Groundwater Protection Act identifies MDH as lead agency for WHP in MN.
- 1997 MN WHP Rule 4720 approved requiring public water suppliers to develop plans & implement them.
- Only certain public water suppliers are required to develop WHP plans in Minnesota.

Types of Public Water Systems

Figure 2.1 Water System Categories And Definitions



Source Water Protection...

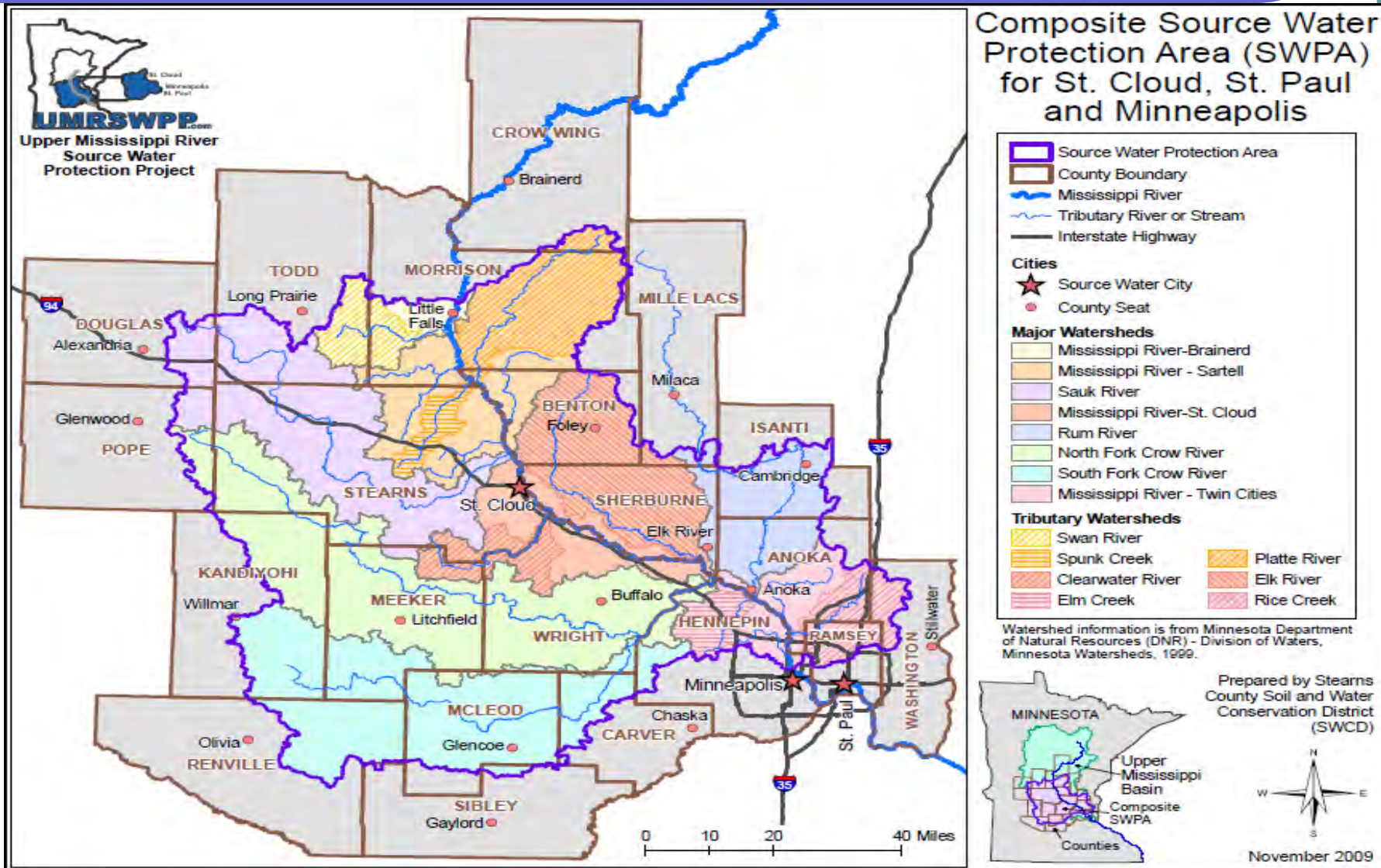
The term “Source Water Protection” was added to the 1996 amendment to the Federal Safe Drinking Water Act include to reflect the protection of BOTH surface and groundwater drinking water supplies.

Surface Water (Source Water Protection)

There are 23 surface water systems in Minnesota.

Almost 50 percent of Minnesota's population rely on surface water. Plans are not required for surface water systems, but MDH supports & encourages planning efforts.

Minneapolis, St. Paul & St. Cloud Source Water Protection Area



Groundwater (Wellhead Protection Program)

There are 933 community groundwater systems in MN.

Right now, there are:

- 270 WHP Plans completed, and
- 122 PWS developing or amending an existing WHP plan.

WHP Program

- No “one shoe fits all” approach to plan development or implementation.
- Urban & Rural Issues
- Discuss & address contaminant issues through local WHP Teams & processes.
- MDH / MRWA assisting PWS develop plans following WHP Rule since 1997.

MN WHP Program (MN Rules 4720)

- WHP is “science based,” focusing on the “recharge area” of the well & local geology characteristic’s.
- All community & non-community water systems are required to develop and implement WHP Plans.
- WHP Plans are approved by MDH based on:
 - ✓ delineation of the recharge area,
 - ✓ vulnerability of the aquifer & well,
 - ✓ potential contaminant sources identified, and
 - ✓ management activities identified (based on vulnerability) to protect the well and aquifer.

WHP Delineation Terms:

Dark "blue" line inside the green line is the WHP Area.

"Green" line is Drinking Water Supply Management Area (DWSMA)

Light "blue" line is the groundwater capture Zone.

Edgerton

*Drinking Water Supply Management Area (DWSMA) MN-00014
10 year Time of Travel*

- Public Water Supply Well
- Wellhead Protection Area (WHPA)
- Groundwater Capture Zone
- DWSMA

H = High Vulnerability

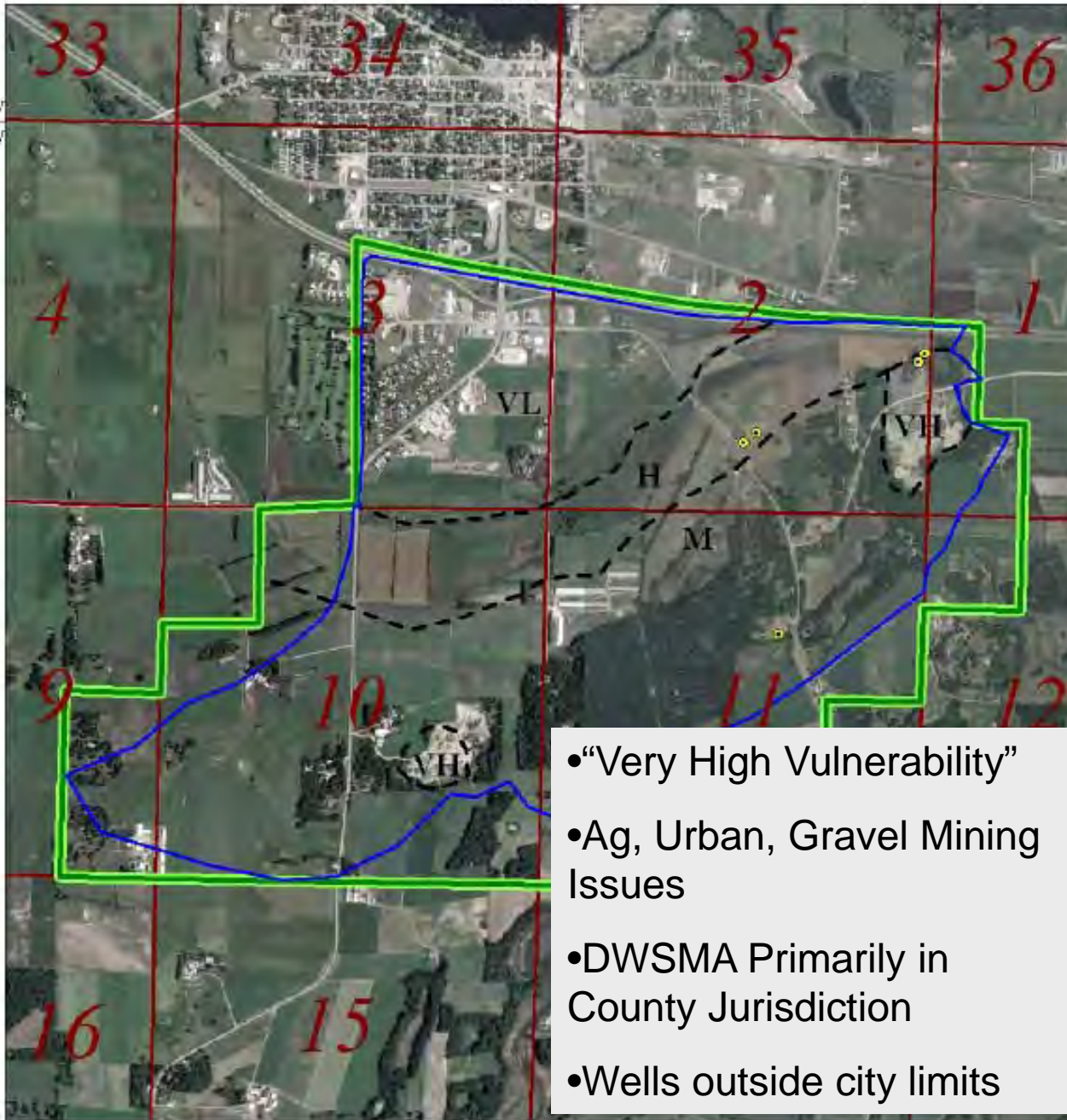
0.2 0 0.2 Miles



Approved October 4, 1996

Melrose

Drinking Water Supply Management Area (DWSMA) MN-00087 10 year Time of Travel



Public Water Supply Well

- Primary
- Wellhead Protection Area (WHPA)
- DWSMA
- DWSMA Vulnerability Boundary

VH = Very High Vulnerability
 H = High Vulnerability
 M = Moderate Vulnerability
 VL = Very Low Vulnerability



- “Very High Vulnerability”
- Ag, Urban, Gravel Mining Issues
- DWSMA Primarily in County Jurisdiction
- Wells outside city limits



R 32 W

- “Very Low Vulnerability”
- Focus on Well Mgmt. / Ed.
- DWSMA Primarily in County Jurisdiction
- Wells outside city limits

Hector

*Drinking Water Supply
Management Area
(DWSMA) MN-00454
10 year Time of Travel*

Public Water Supply Well

- Primary
- Emergency
- Emergency Response Area
- Wellhead Protection Area (WHPA)
- DWSMA

Very Low Vulnerability

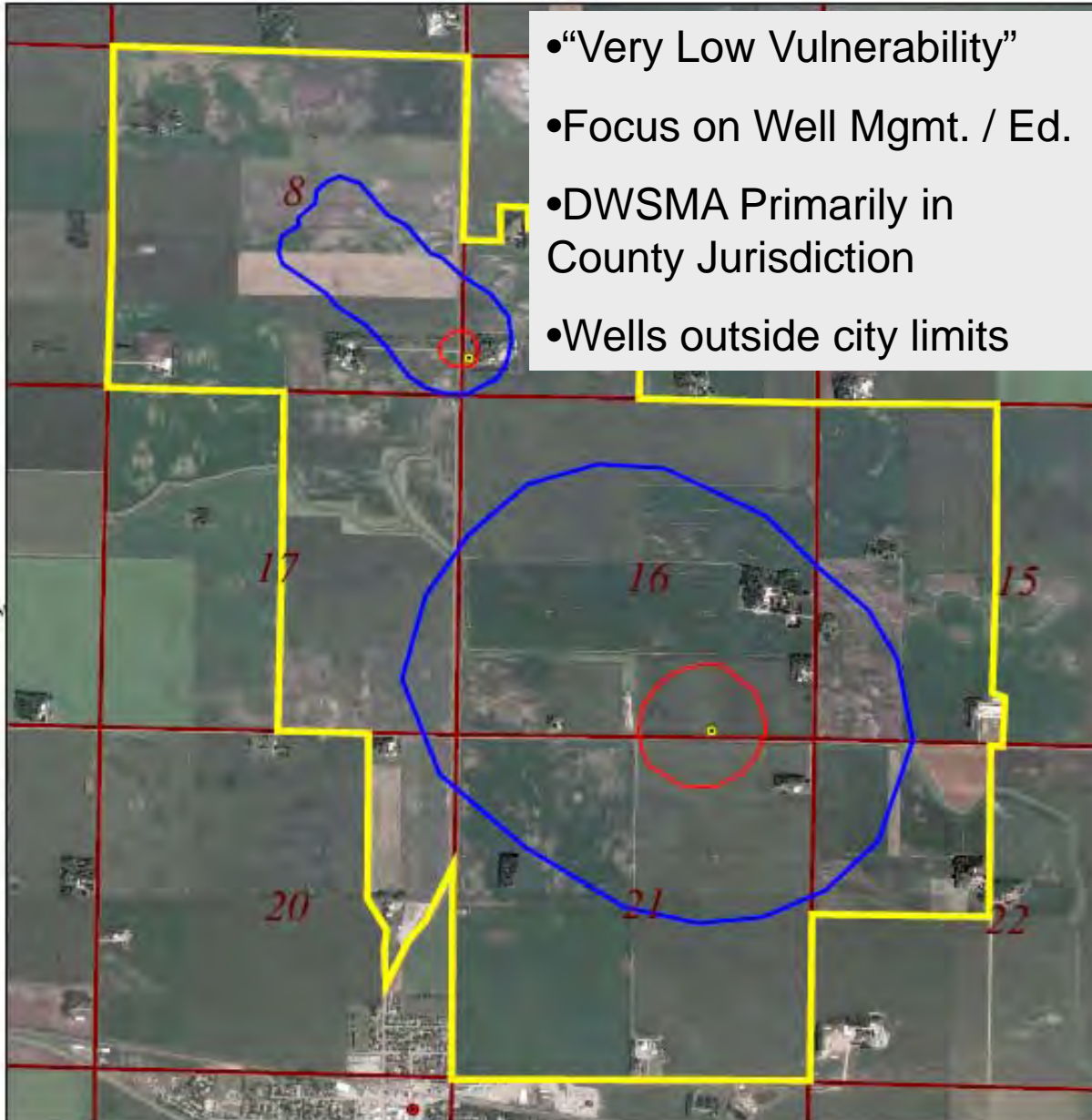


Approved April 10, 2008

T 115 N

T 115 N

R 32 W



WHP & Land Use Planning - Considerations....

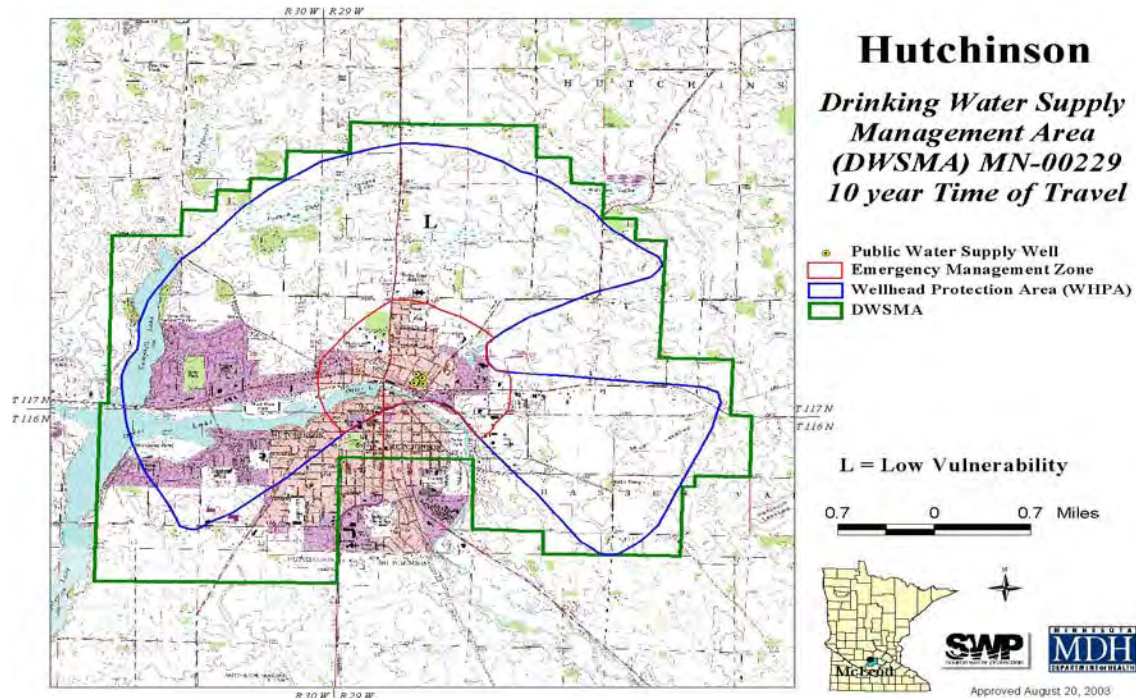
- How has WHP been integrated into local planning and official controls?
- What are the local water utility and public expectations to protect the local water supply?
- Where can improvements be made?
- What has been your departments role in local WHP Plans and implementation?

WHP & Land Use Planning



**Public Water Supply Managers & Land Use Planners
need to communicate and understand drinking
water protection issues and goals!**

WHP & Comprehensive Plans



Are Drinking Water Supply Management Area (Maps) identified in Your County Comprehensive Plan???

WHP & Comprehensive Plans

- Include State approved WHP Map's in Comprehensive Plan!
- Describe geology and vulnerability issues of WHP Areas in your County
- Identify existing land use issues or concerns found in WHP Plans.

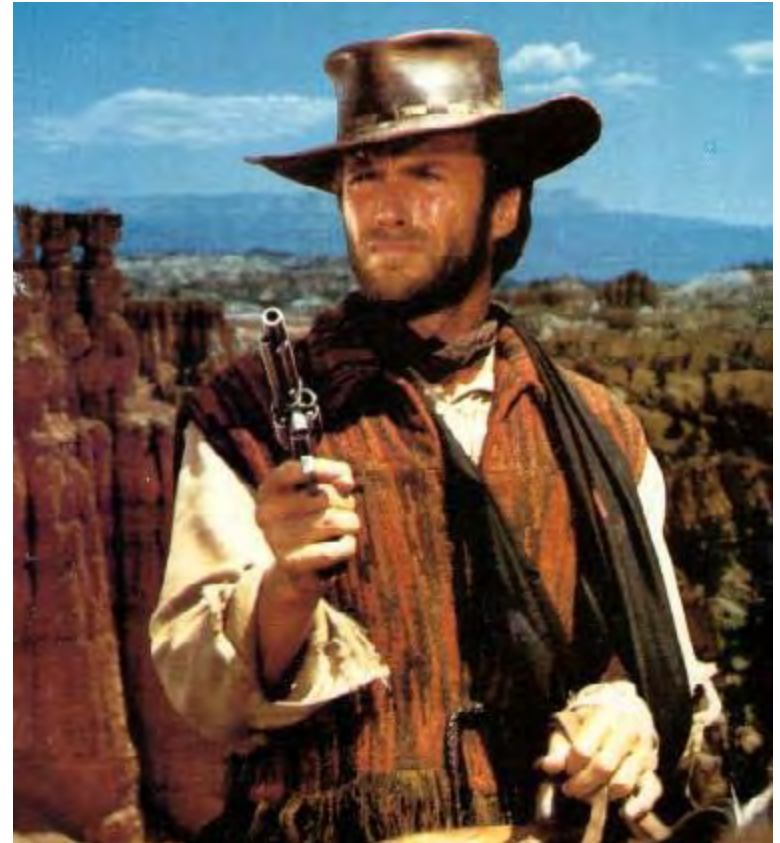
Why?

Establish basis for use of local controls as needed.

WHP & Comprehensive Plans

Use Part I & Part II WHP Plan to identify drinking water protection concerns when revising your Comprehensive Plan!

MAKE OUR DAY!



Comprehensive Plan: Example

- Nobles County 2002 Comprehensive Plan:
 - Water quantity and quality issues identified as a major concern in plan
 - Elevates protection efforts and land use planning to protect groundwater supplies in the County.

Comprehensive Plan: Example

- Nobles County, cont'd

“Nobles County has a limited groundwater supply. Residential, Ag, & Industrial demand placed on the water supply is great, relative to capacity of available aquifers. These shallow aquifers that provide the greatest amt. of water to the county are also the most vulnerable to pollution. Steps implementing WHP Plans should continue to restrict polluting land uses adjacent to these aquifers.”

(Nobles Co. Comprehensive Plan, March 13, 2002)

Land Use Controls - Considerations

How “vulnerable”
is the public
water supply?



and from what?

Educate officials on WHP issues & local control options...

Land Use Controls - Considerations

What existing or potential new land uses could occur in WHP Areas?



What is “allowed” or “permitted” in existing zoning districts?

Land Use Controls - Considerations

- What is an acceptable level of risk relative to a new or potential land use in the WHP Area? (no magical answers here!)
- What is the land zoned in the WHP area?
 - *Near the well or 1 year time of travel area???*
- How can local controls be improved to help proactively mitigate potential impacts on WHP areas in your County?

Potential Contaminant Examples

- Commercial / Industrial: Large Capacity Tanks, Hazardous Chemicals, Extractive Uses
- Agricultural Land Uses; Large Feedlots, Ag related Businesses
- Transportation Corridors & Spills; roads & rails, storm water issues
- Residential Uses; fuel tanks, haz. waste disposal,
- Private Wells
- Septic Systems
- Others.....

Zoning Tools

- Performance Standards
- Conditional Uses
- Overlay Districts
- Special Designations or Categories for WHP areas
- Permit Conditions
- Other (?)

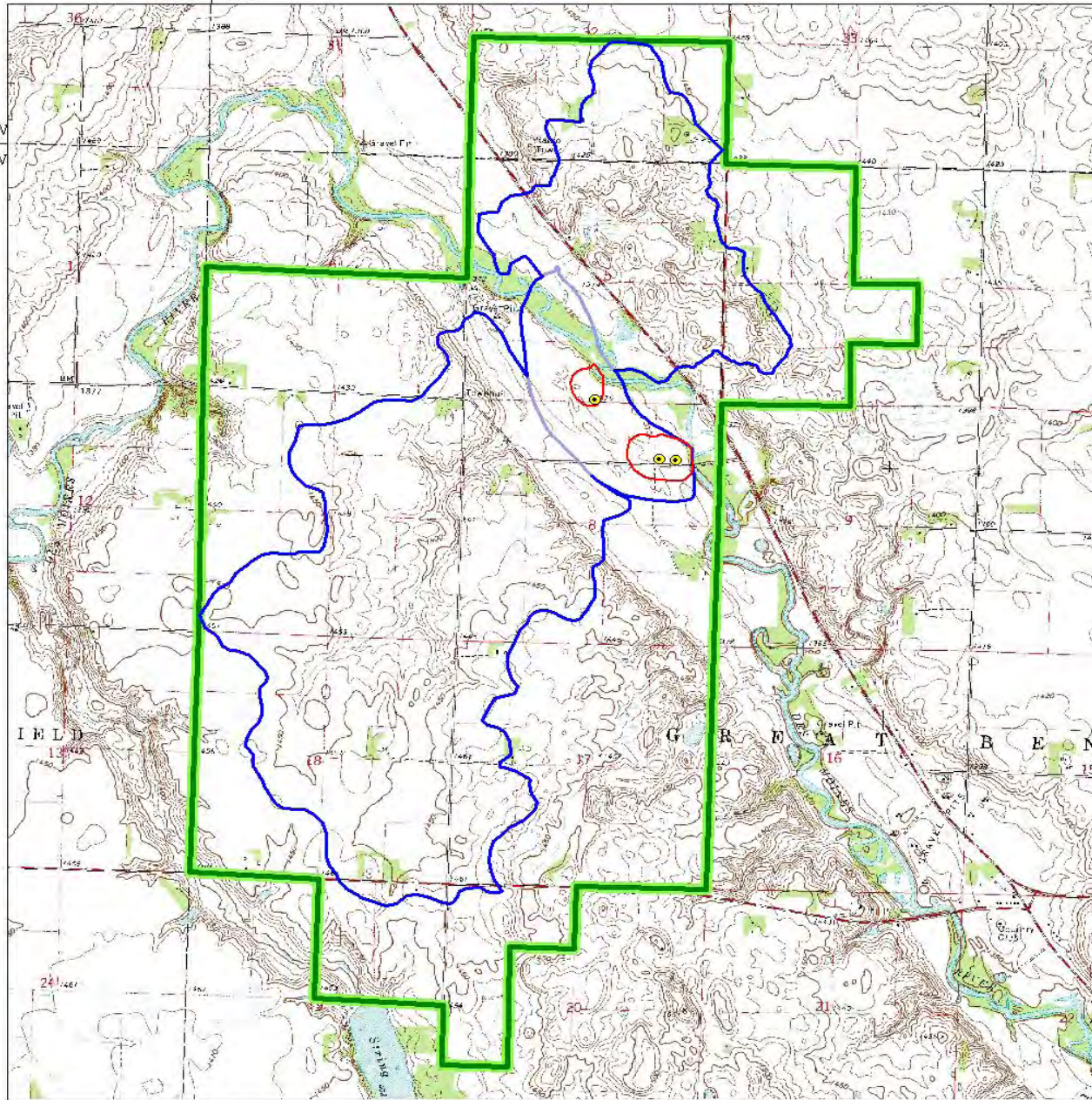
Land Use Controls - Considerations

- How or when are new permit proposal's in the WHP area communicated to water utility staff?
- Talk to local utility staff, County Board etc. about what safeguards should be in place to protect drinking water resources.
- Proactively plan and consider both existing and potential new well sites when talking to water utility staff.

Cottonwood County Gravel Mining Ordinance & “Sensitive Areas”

- County Planner and Red Rock Rural Water Manager discuss gravel mining issues in WHP Areas.
- A committee of Gravel Operators, Land Owners, Public Water Supplier meet & discuss concerns.
- MN Dept. of Health creates White Paper identifying potential impacts of mining in vulnerable WHP Area.
- Committee hashes out ordinance & permit requirements on where & how certain activities associated with the use would be permitted.
- WHP Areas identified as a “Sensitive Area” in Ordinances for further review and protection of groundwater.

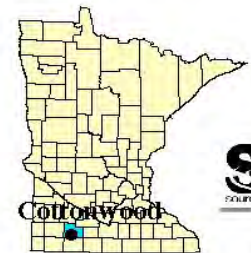
R 37 W | R 36 W



Red Rock Rural Water System - Great Bend Drinking Water Supply Management Area (DWSMA) MN-00339 10 year Time of Travel

- Public Water Supply Well**
- Primary
 - Emergency Management Zone
 - Wellhead Protection Area (WHPA)
 - Groundwater Capture Zone
 - DWSMA

Variable Vulnerability



R 37 W | R 36 W

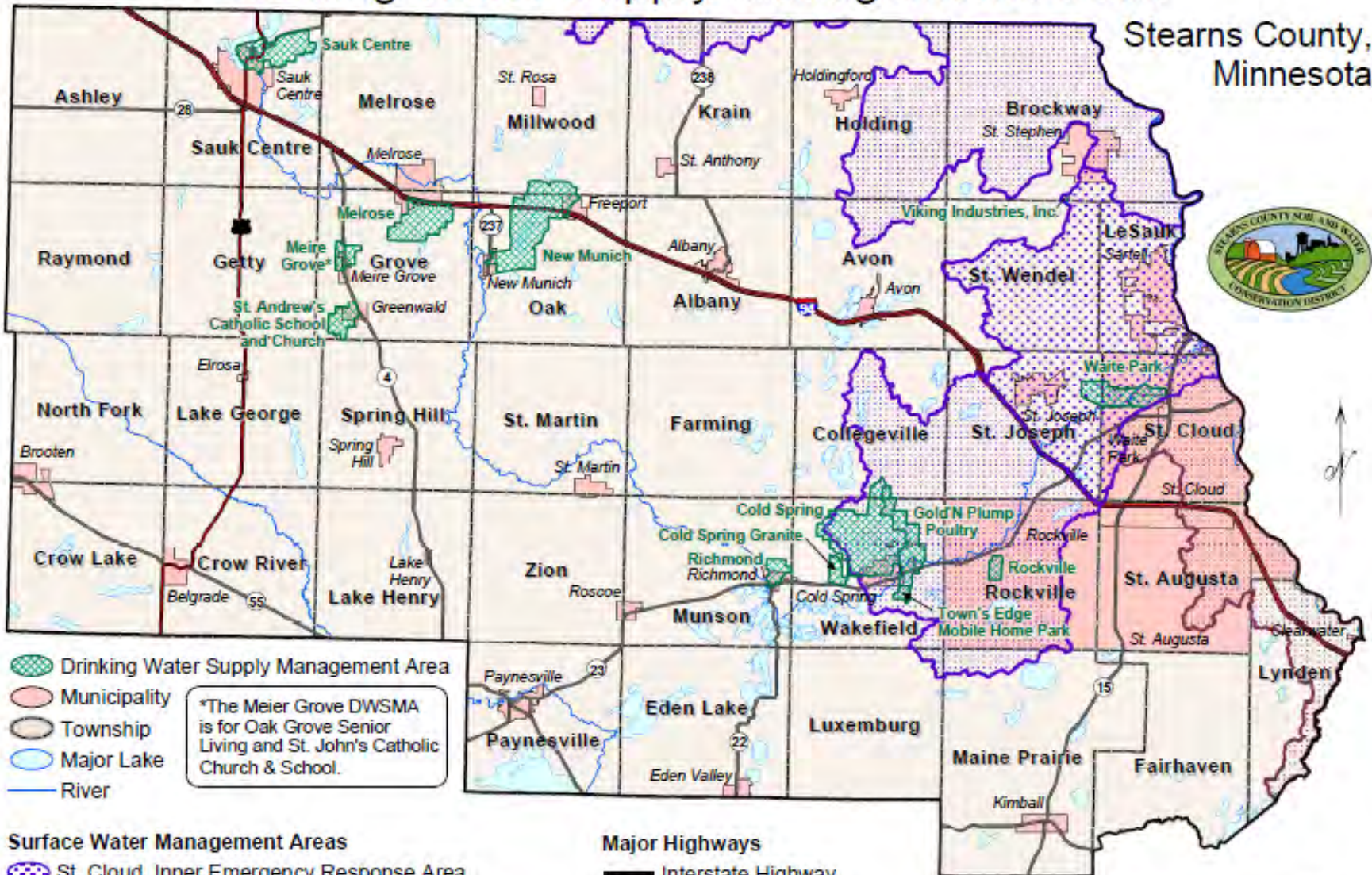
Approved April 21, 2005

Stearns County

- Added “DWSMA” language in 2010 Ordinance Update (Section 7.8)
- Purpose – “limit or control land uses within DWSMA’s for the protection of public drinking water supplies”
- Ordinance specifies that proposed use or structure take into account issues identified in WHP Plan.
- Accept for incidental residential or accessory structure related permits, permits sent to review by SWCD and PWS for a 14 day review & comment period.
- No specific WHP performance standards, zoning district or WHP CUP standards for WHP.
- Permit review based on specific WHP issues in a given plan or community WHP area.

Drinking Water Supply Management Areas

Stearns County, Minnesota

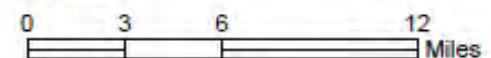


- Drinking Water Supply Management Area
- Municipality
- Township
- Major Lake
- River

*The Meier Grove DWSMA is for Oak Grove Senior Living and St. John's Catholic Church & School.

- Surface Water Management Areas**
- St. Cloud, Inner Emergency Response Area
 - St. Cloud, Outer Source Water Management Area
 - Minneapolis & St. Paul - Mississippi River, Outer Source Water Management Area

- Major Highways**
- Interstate Highway
 - US Highway
 - State Highway



June 2004

WHP Implementation

- PWS must implement WHP Plan
(MN WHP Rule 4720.5560)
- Increased expectations for plan implementation!
- Additional MDH follow-up and audit's for plan implementation.
- More PWS Technical Assistance
- MDH SWP Grants for implementation activities.

MDH SWP Program - Technical Assistance

- 4 new MDH Planner Areas created in 2010 (For MDH Planner covering your County See Handout)
- MDH SWP Home Page (Handout):

<http://www.health.state.mn.us/divs/eh/water/swp/index.htm>

- Downloadable GIS Coverages of WHP Areas
(Go to SWP home page, on left side of page click on “Maps & Geo Spatial Coverages.”)

MDH SWP Program - Technical Assistance

- MDH SWP Grants Program (handout)
 - Implementation Grants
 - Competitive Grants

<http://www.health.state.mn.us/divs/eh/water/swp/grants/index.html>

MDH SWP “White Papers”

Coming Soon to the MDH SWP Website!

(Issue papers for specific contaminants to help evaluate impacts and management options.)

Summary

Work with PWS and consider how local controls can be used to protect community water supplies & WHP areas!

Questions?

Thanks!

