

# Business Item 2010-95: Metropolitan Area Master Water Supply Plan

**Presented to the Metropolitan Council**

**March 24, 2010**

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# Minn. Statute Sec. 473.1565

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- **Directs the Metropolitan Council to “carry out planning activities addressing the water supply needs of the metropolitan area” including the development of a master water supply plan for the metro area**
- **Establishes a Metropolitan Area Water Supply Advisory Committee to assist the Council (set to expire end of 2010)**



# Advisory Committee

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<b>Peggy Leppik (Chair)</b>	<b>Metropolitan Council District 6</b>
<b>Dennis Berg</b>	<b>Anoka County, Commissioner</b>
<b>Randy Ellingboe</b>	<b>Department of Health</b>
<b>Tom Furlong</b>	<b>City of Chanhassen, Mayor</b>
<b>Chuck Haas</b>	<b>City of Hugo, Council Member</b>
<b>Joe Harris</b>	<b>Dakota County, Commissioner</b>
<b>Jim Japs</b>	<b>Department of Natural Resources</b>
<b>Linda Loomis</b>	<b>City of Golden Valley, Mayor</b>
<b>Gaylen Reetz</b>	<b>Pollution Control Agency</b>
<b>Barry Stock</b>	<b>City of Savage, Administrator</b>
<b>Dan Stoddard</b>	<b>Department of Agriculture</b>
<b>Steve Schneider</b>	<b>St. Paul Regional Water Services, General Manager</b>



# Master Water Supply Plan

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- **Technical analysis**
- **Guidance and tools**
- **Dynamic process**

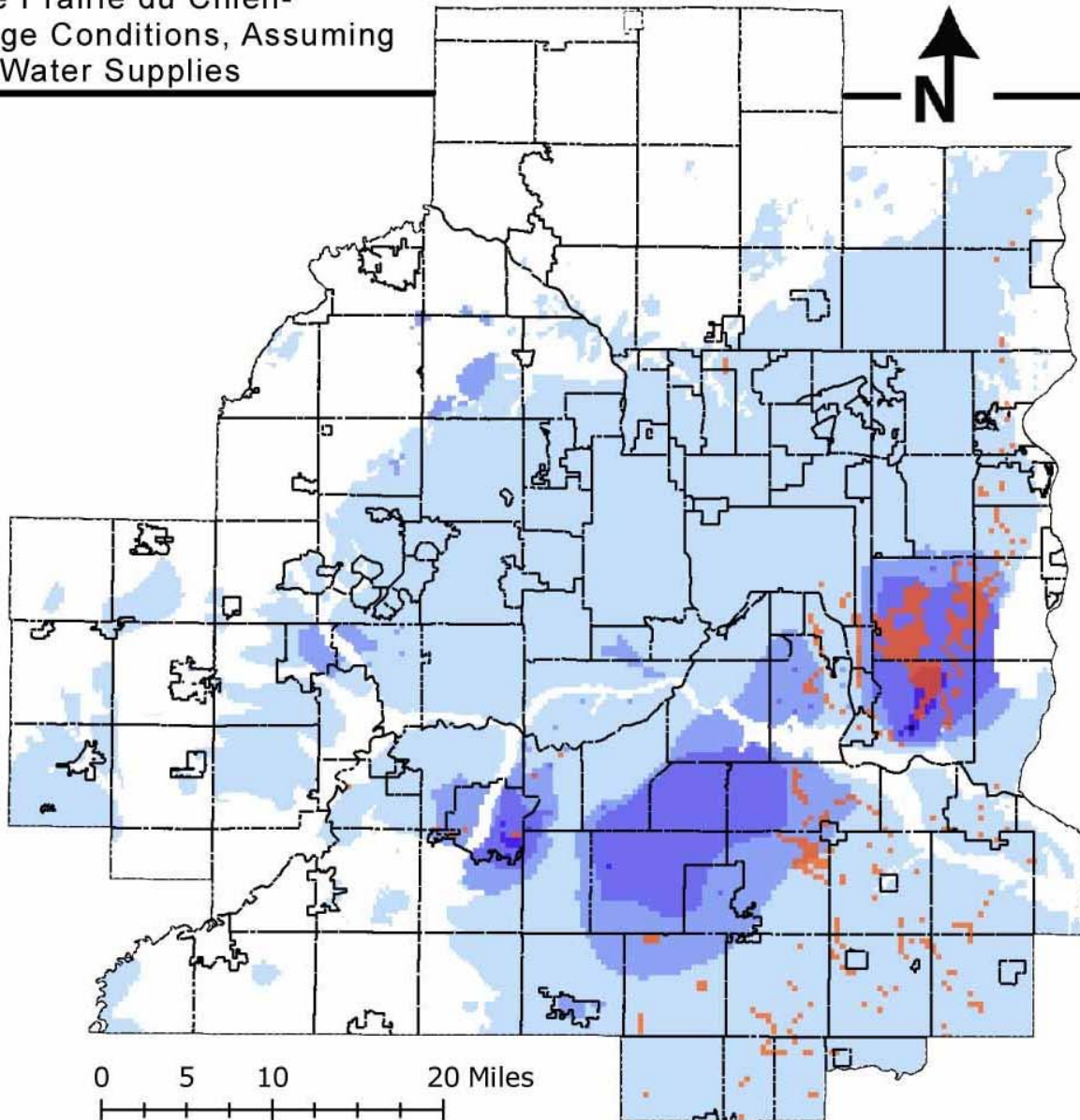
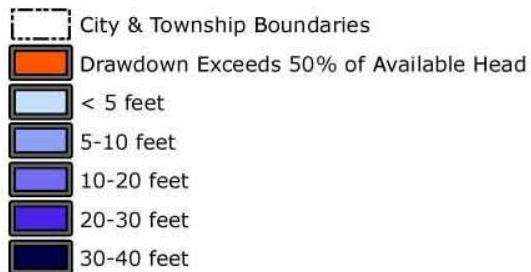


# Water Supply Development Issues

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- **Decline in aquifers**
- **Well interference**
- **Impacts on surface waters**
- **Uncertainty regarding aquifer extent and productivity**
- **Groundwater contamination and vulnerability to contamination**

# 2030 Model-projected Drawdown in the Prairie du Chien-Jordan Aquifer Under Long-term Average Conditions, Assuming Continued Development of Traditional Water Supplies



DRAFT



# Reporting Results: Community Water Supply Profiles

Current and projected  
water use

Current Sources

Available Sources

Issues that need to be  
addressed



Master Water Supply Plan

## Community Water Supply Profile for Andover

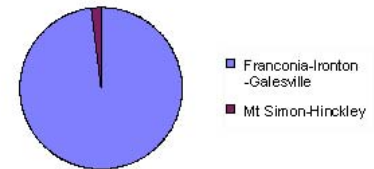
Water Demand Projections <i>(Note 1, Ref. A)</i>	2004	2010	2020	2030	2040	2050
Population Served	17450	21188	27188	28688	34551	39401
Annual Total (Million Gal./Yr)	826.73	1003.64	1223.46	1223.01	1472.96	1679.72
Average Day (Million Gal./Day)	2.27	2.75	3.35	3.35	4.04	4.60
Maximum Day (Million Gal./Day)	8.96	10.88	12.23	11.48	13.82	15.76
Maximum Day, Conserving 10%		9.792	11.01	10.33	12.44	14.18

### Current Water Supply *(Ref. B, C)*

The community owns and operates their own water supply system.

Water Source	# Wells
Franconia-Ironton-Galesville	5
Mt Simon-Hinckley	2
Quaternary	1

2004 Municipal Water Use



### Available Future Water Supply Source(s) *(Note 2)*

- Surficial aquifer(s)
- Franconia-Ironton-Galesville aquifer
- Interjurisdictional cooperation: Ramsey, Anoka, Coon Rapids

### The following must be addressed in water supply planning and development *(Note 3)*

- Potential impacts to surface water features from groundwater withdrawal by 2030 in the southeaster portion of the community and in Bunker Hills Regional Park
- Conditions identified on existing and future water appropriation permits issued by the Minnesota Department of Natural Resources
- Issues identified though Source Water Assessments, which can be found on the Minnesota Department of Health website at [www.health.state.mn.us/divs/eh/water/swp/swa/](http://www.health.state.mn.us/divs/eh/water/swp/swa/)



# Appropriation Guidance

- **Basic screening level evaluation**
- **Range of actions**
- **Based on recent appropriation permit requirements**

**Water Supply Issue:** Potential for significant decline in aquifer water levels

A basic evaluation of the likelihood for unacceptable drawdowns should be conducted for all communities where the potential for significant decline in water levels was identified in Appendix 2. This evaluation should include:

- Analysis of existing and projected water level/water withdrawal data to assess the likelihood of a significant decline in water levels (i.e. exceeding >50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis can vary from a graphical comparison of water levels, to basic distance drawdown calculations, to a groundwater flow modeling and should be determined in consultation with the DNR

For those areas where the above analysis suggests future drawdowns are likely to be unacceptable, the following should be included in a management plan<sup>5</sup>:

- Schedule measurement<sup>3</sup> of water levels and/or pumping rates in existing production wells<sup>1</sup>.
- Schedule for measurement<sup>3</sup> of water levels in at least one observation well<sup>2</sup> (sentinel well) in the pumped aquifer near the well field.
- Schedule for periodic and timely analyses of water level data and other information to identify the need for action to mitigate impacts on aquifer water levels
- Schedule for periodic and timely submittal of water level data and other information to the DNR. In most cases quarterly submittal of water level data and annual submittal of an analysis of the available information is appropriate.

The management plan should also identify triggers and associated actions to protect aquifer water levels

Sample triggers

- Measured > 50% decline in confined aquifer available head at sentinel well(s)
- Measured or projected significant seasonal declines
- Measured continuing decline in unconfined or confined aquifer head at appropriate sentinel well(s)
- Other triggers developed in cooperation with the DNR





# Ongoing Efforts

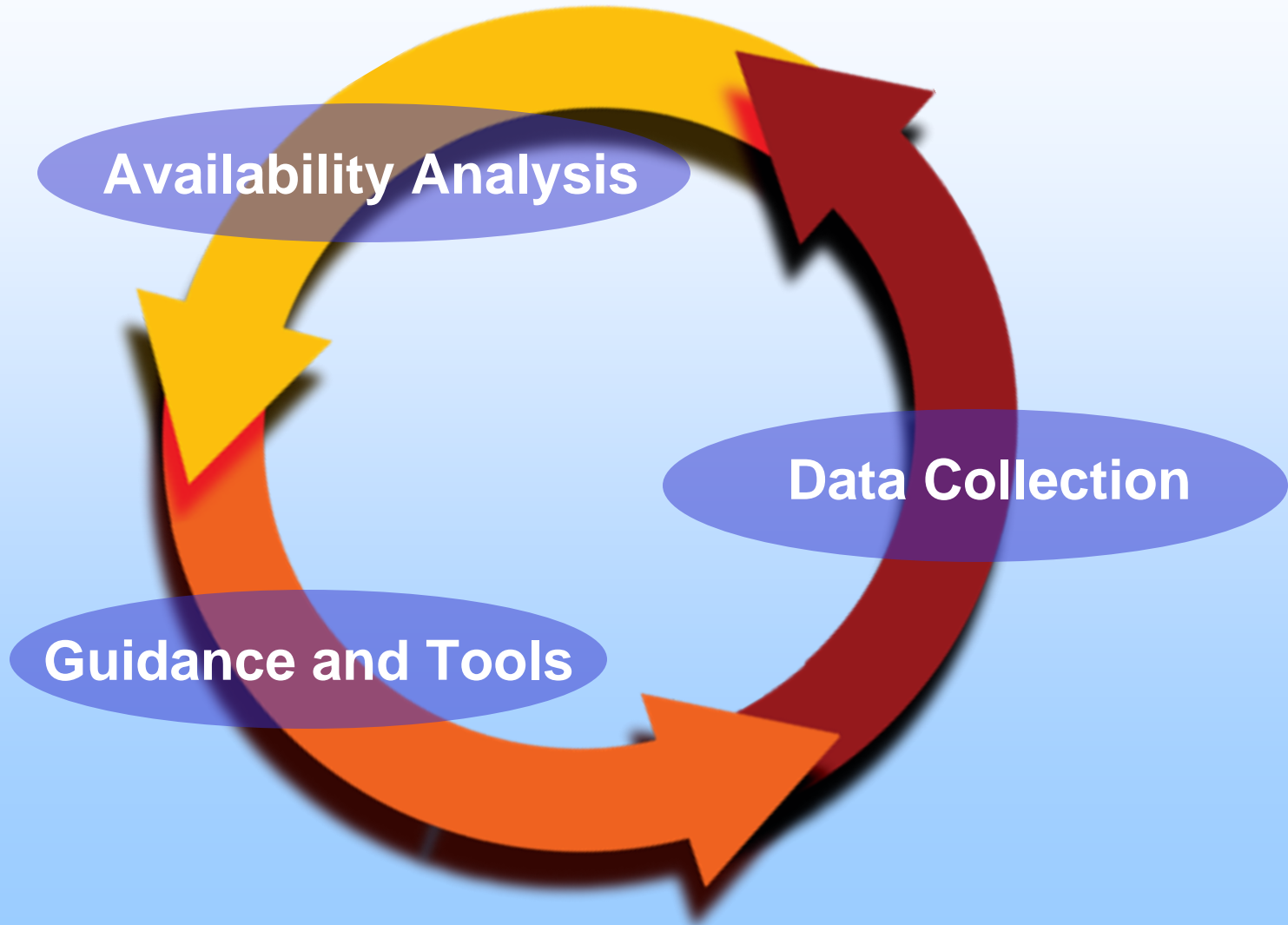
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- **Geologic mapping and assessment**
- **Evaluate connection between of surface water and groundwater**
- **Groundwater plume mapping**
- **Perform local assessments**
- **Analysis of water conservation**
- **Work groups**
- **Update Metro Model 2**
- **Evaluate potential for stormwater reuse**



# Metro Area Water Supply Planning

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# Master Plan Status

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- **Endorsed by the Metropolitan Area Water Supply Advisory Committee – February 25, 2010**
- **Approved by the Metropolitan Council Environment Committee – March 9, 2010**
- **Metropolitan Council – March 24, 2010**
- **Minnesota Department of Natural Resources Commissioner – Following Metropolitan Council Approval**