



# Board of County Commissioners Agenda Request

## 4A

Agenda Item #

**Requested Meeting Date:** July 28, 2015

**Title of Item:** MN Geological Atlas for Aitkin County

<input checked="" type="checkbox"/> REGULAR AGENDA <input type="checkbox"/> CONSENT AGENDA <input type="checkbox"/> INFORMATION ONLY	<b>Action Requested:</b> <input checked="" type="checkbox"/> Approve/Deny Motion <input type="checkbox"/> Adopt Resolution (attach draft)	<input type="checkbox"/> Direction Requested <input type="checkbox"/> Discussion Item <input type="checkbox"/> Hold Public Hearing* <small>*provide copy of hearing notice that was published</small>
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<b>Submitted by:</b> Terry Neff, Environmental Services Director	<b>Department:</b> Environmental Services
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<b>Presenter (Name and Title):</b> Terry Neff, Environmental Services Director; Dale Setterholm, MGS	<b>Estimated Time Needed:</b> 15 min
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**Summary of Issue:**

The Minnesota Geological Survey (MGS) staff contacted me asking if we would be interested in participating in the creation of a Geological Atlas for Aitkin County. The MGS staff met with GIS Coordinator, Dan Haasken, Assistant Zoning Administrator, Pete Gansen, and myself to discuss the process and what commitment would be required by Aitkin County. Aitkin County would be responsible for determining the approximate location and elevation of an estimated 6500 well locations in Aitkin County. Most of the work should be able to be done in-house using existing aerial photography and maps on the well logs. There will be some onsite visits required to verify locations of wells.

The state on average expends about \$350,000.00 to create a county Geological Atlas (see map of county atlas status). These atlases can be used to interpret approximate aquifer depth, groundwater flow patterns, sensitive soils, bedrock location, etc. when siting industrial activities and for determining approximate well depths.

To accomplish our commitment we would need to hire intern/part-time help to inventory the wells. I expect this person to be able to finish the inventory within the allotted 67 days for a part time person. Approximate cost of \$7,000.00.

I have included a letter from the MGS to Aitkin County Board Chair Mark Wedel.

**Alternatives, Options, Effects on Others/Comments:**

Alternative would be to postpone the completion of the atlas.

**Recommended Action/Motion:**

Recommend approving the agreement between Aitkin County Environmental Services and the Minnesota Geological Survey for completion of the Geological Atlas.

**Financial Impact:**

Is there a cost associated with this request?  Yes  No

What is the total cost, with tax and shipping? \$ Approximately \$7,000.00

Is this budgeted?  Yes  No Please Explain:

## Aitkin County and the County Geologic Atlas Program

### What is a county geologic atlas?

- geologic and hydrologic maps and associated databases essential to managing water
- Part A (Minnesota Geological Survey, University of Minnesota) includes surficial geology, bedrock geology, sand bodies (aquifers) within the glacial deposits, County Well Index (well construction records), **User's Guide**, paper and digital products
- Part B (DNR) includes water levels in aquifers, sensitivity of aquifers to contamination, water composition, water age, paper and digital products

### Who benefits from an atlas and how is it used?

- *Citizens*- what aquifers exist beneath a property, how sensitive are they to contamination, who else uses this aquifer, what is the direction of flow in this aquifer, is the water level in this aquifer rising or falling, what is the water composition?
- *Businesses*- where can I locate my business to obtain the water I need, is my business likely to affect the quality of water in the aquifer below?
  - Consultants- use atlas information in contamination clean-up efforts, and in helping cities with wellhead protection, well field design, and source water protection plans
  - Well Contractors- improved service to customers when there is less uncertainty about aquifers and water quality available
- *Townships*- permitting decisions that can impact water should take into account the sensitivity of water resources. **User's Guide** helps non-scientists understand and utilize the information
- *Cities*- cities commonly make use of the atlases to manage their water supply systems. This includes determining where to drill wells, choosing aquifers with the capacity and water characteristics they need, and then protecting the wells from contamination
- *Counties*: atlas information is often incorporated into County Water Plans. Understanding the ground water system across the county enables counties to focus their resources on those areas where the impact will be greatest (ex: septic rehab, well sealing, permitting). Counties can also use the atlas and its portrayal of the water resources to guide land use planning and zoning that will protect and make wise use of those resources.

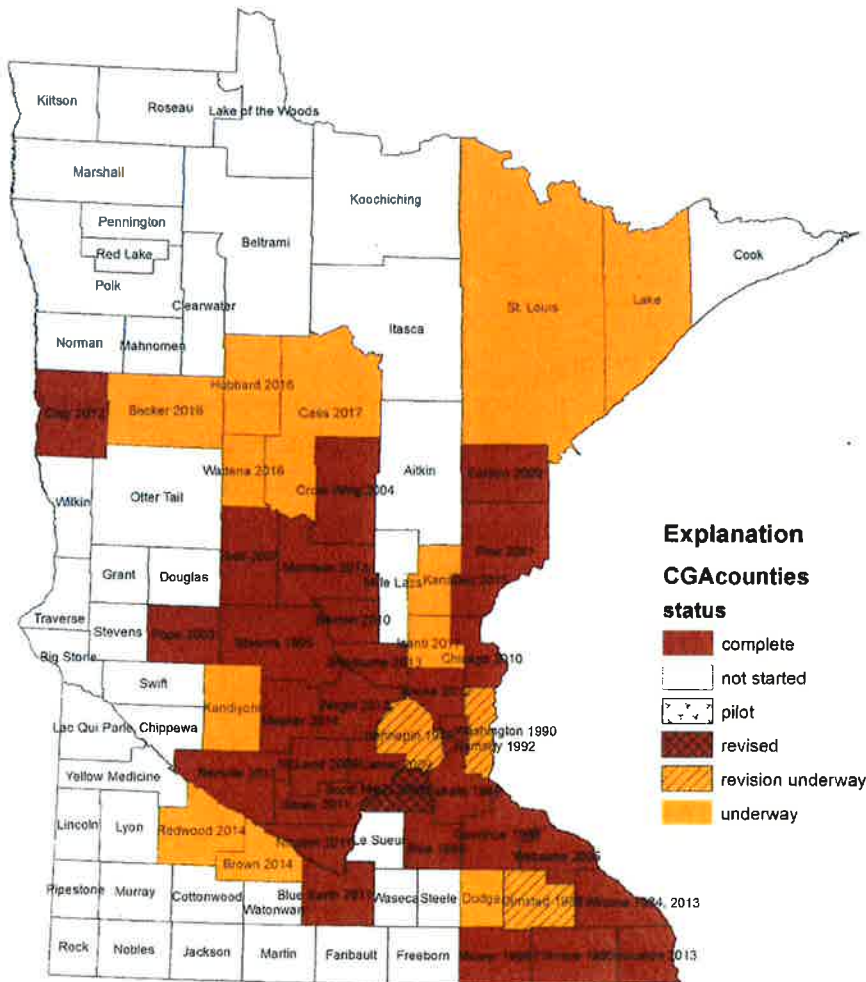
### Specific programs and activities that utilize geologic atlas information:

- County water plans
- Planning and zoning
- Wellhead protection, well construction, and well field design
- Source water protection
- Lake level management
- Clean-up of spills and contaminants
- Water appropriation permit decisions
- Aquifer management including monitoring and modeling

**How is a geologic atlas initiated and what is required?**

- The county must express interest, and agree to establish accurate locations for water wells with construction records. There are about 6,900 such wells in Aitkin County that need accurate locations. Locations have already been established for an additional 964 wells. This work needs to be completed early in the project so that the mapping can utilize this data. No cash is required of the county.
- MGS obtains funding (Clean Water Funds, LCCMR funds, other) and expends about \$350,000 on the project over 3 to 4 years. DNR follows and spends an equal amount over 3 to 4 years.

**CGA Part A Status June 2015**



# UNIVERSITY OF MINNESOTA

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July 17, 2015

Mr. J. Mark Wedel  
Chairman  
Aitkin County Board of Commissioners  
217 2nd St NW  
Aitkin, MN 56431

Dear Chairman Wedel,

This letter describes our expectations for creating a geologic atlas of Aitkin County. Although this arrangement does not involve any transfer of funds between Aitkin County and the Minnesota Geological Survey (MGS), it will require both parties to expend resources and effort, and both must successfully complete certain tasks to attain the goals of the project.

I wish to be clear that all MGS participation is dependent on funding from the Legislative and Citizen's Commission on Minnesota Resources (LCCMR), or other State sources. If that funding is not provided, or is not sufficient, the project will not be completed. That funding is now in place and I don't anticipate any funding problems.

Your office, other offices of Aitkin County, or other local parties, will establish accurate locations for approximately 6,500 water wells for which construction records are available. Staff of the Minnesota Geological Survey will provide copies of those records, field maps, and training on procedures that will help you complete this task. The locations and the manner in which they are transferred to MGS must meet established standards, and MGS will conduct quality checks to assure the accuracy of the locations. Because many of the project tasks rely on the well information, this work must be completed early in the project.

The MGS will provide comprehensive geologic mapping and associated databases for Aitkin County. This will include maps of the bedrock geology, bedrock topography, surficial geology, thickness of the glacial materials, and also illustrations or other means to describe the glacial materials between the land surface and the bedrock surface. The completeness and resolution of these maps and databases are dependent on the distribution of data, mostly from the water well records. MGS will deliver these products as printed plates, as portable document files (pdfs), and as geographic information system files.

The County Geologic Atlas Program has been continuously funded for over 30 years, and we have no reason to expect a disruption. However, the date of delivery of products is funding dependent. We are generally able to deliver our products in 3 or 4 years. It is also expected that the Department of Natural Resources, Division of Waters, will follow completion of the MGS mapping and create maps and associated databases that describe the distribution, composition, and level of waters contained within the geologic systems of Aitkin County. This is another long-standing aspect of the program, but MGS obviously cannot guarantee participation of another party.

I believe that this project will provide information essential to managing the water and mineral resources of Aitkin County, to the benefit of its citizens. I appreciate your willingness to share this work with us. Please indicate your agreement with the expectations above by signature, and return one copy to me. Upon receipt I will appoint a project manager and they will contact Terry Neff regarding training and other preparations for the well location work. Thank you for your support of this project.

Sincerely,

Dale R. Setterholm  
Geologist, Assistant to the Director

Chairman J. Mark Wedel  
Aitkin County Board