Minnesota Geological Survey and the Great Lakes Geologic Mapping Coalition

- **Previous** *(2011-2012)*
  - Subsurface Quaternary geology of Anoka County – cost-share with LCCMR
- **Current** *(2012-2013)*
  - Subsurface Quaternary geology of Morrison and Sherburne Counties – cost-share with LCCMR
- **Proposed**
  - Enhancement of databases to support subsurface Quaternary geological mapping

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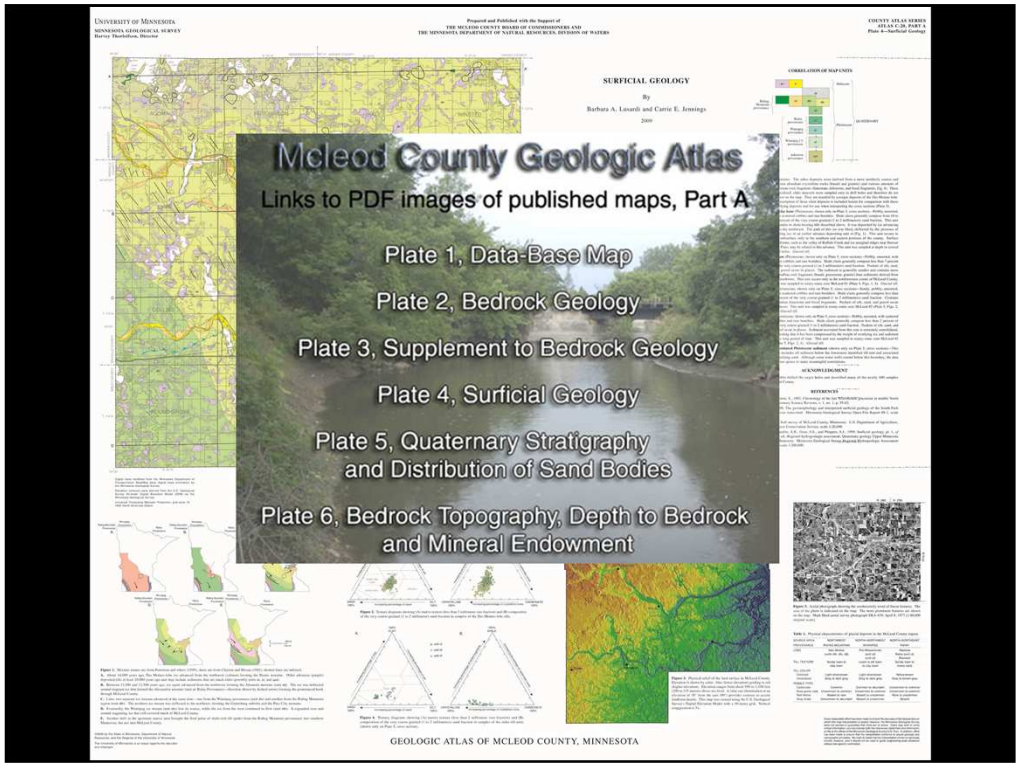
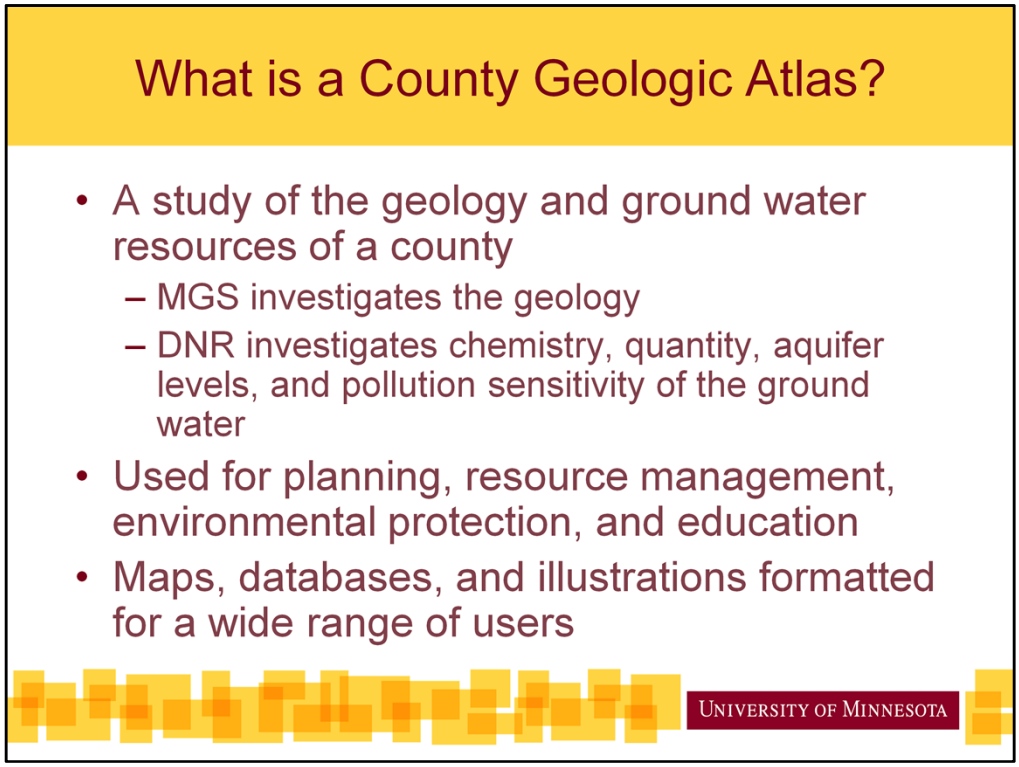
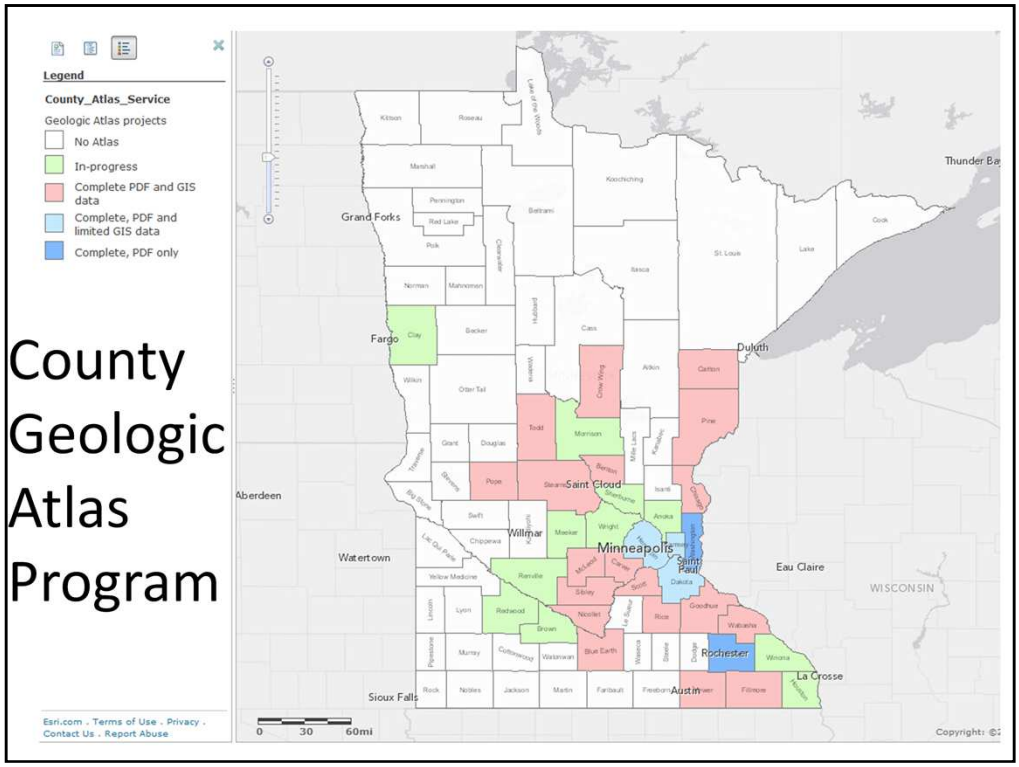


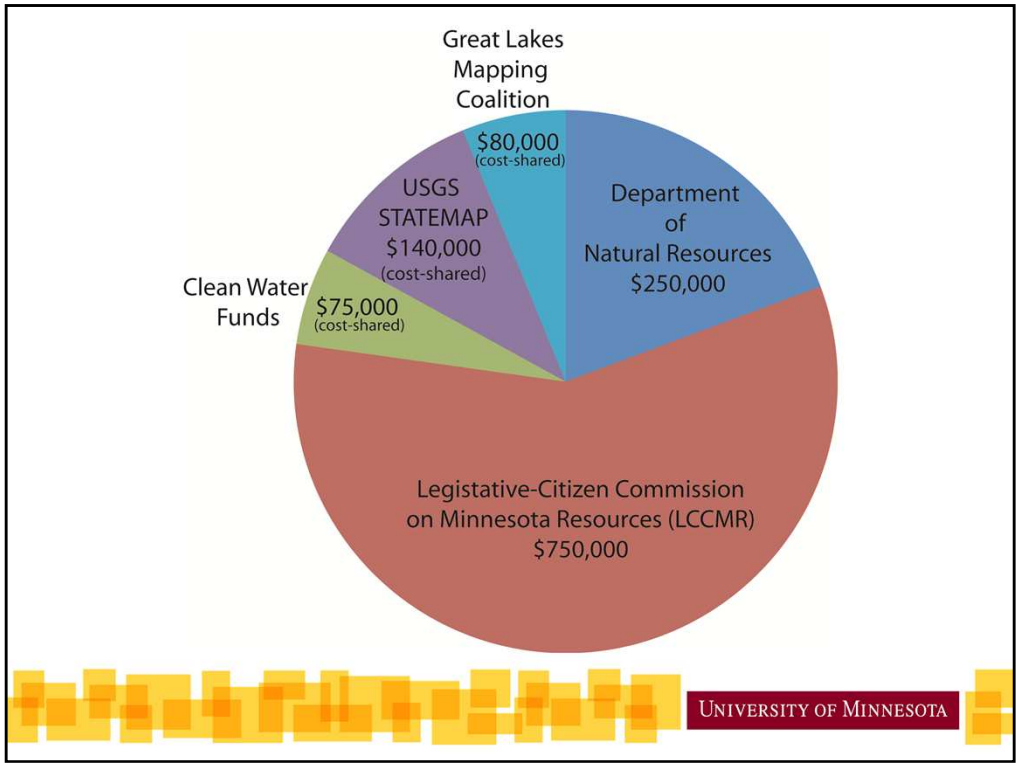
Cornerstone of Minnesota Geological Survey mapping program—County Geologic Atlas.



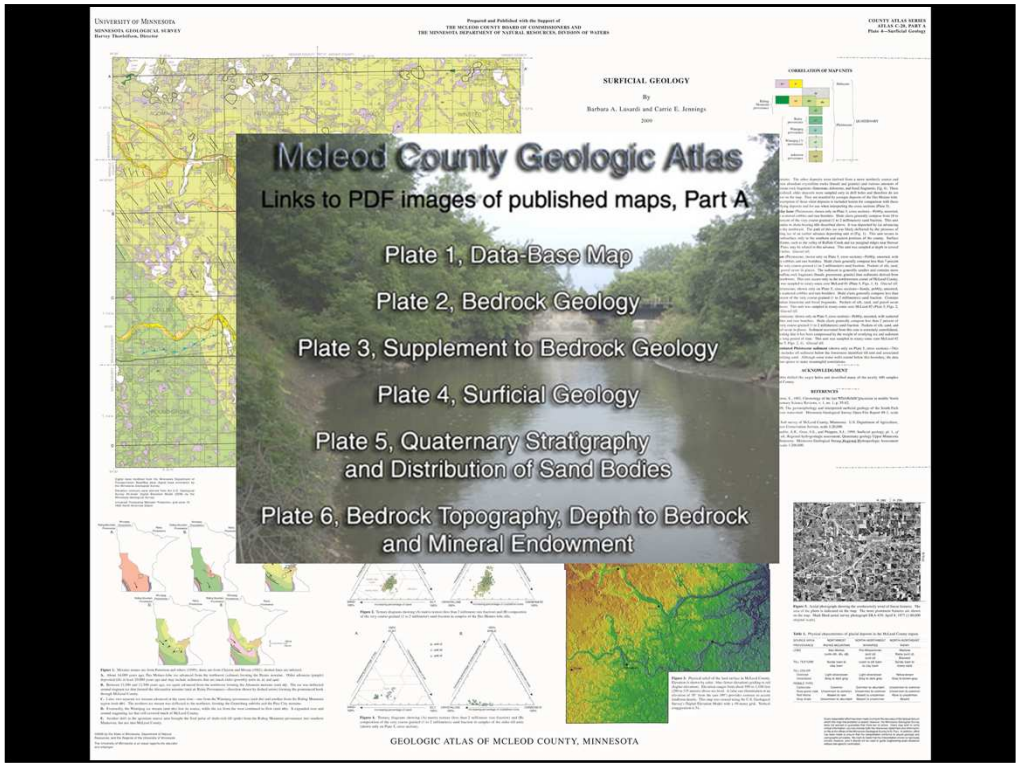
The CGA program provides comprehensive geologic framework for each county.



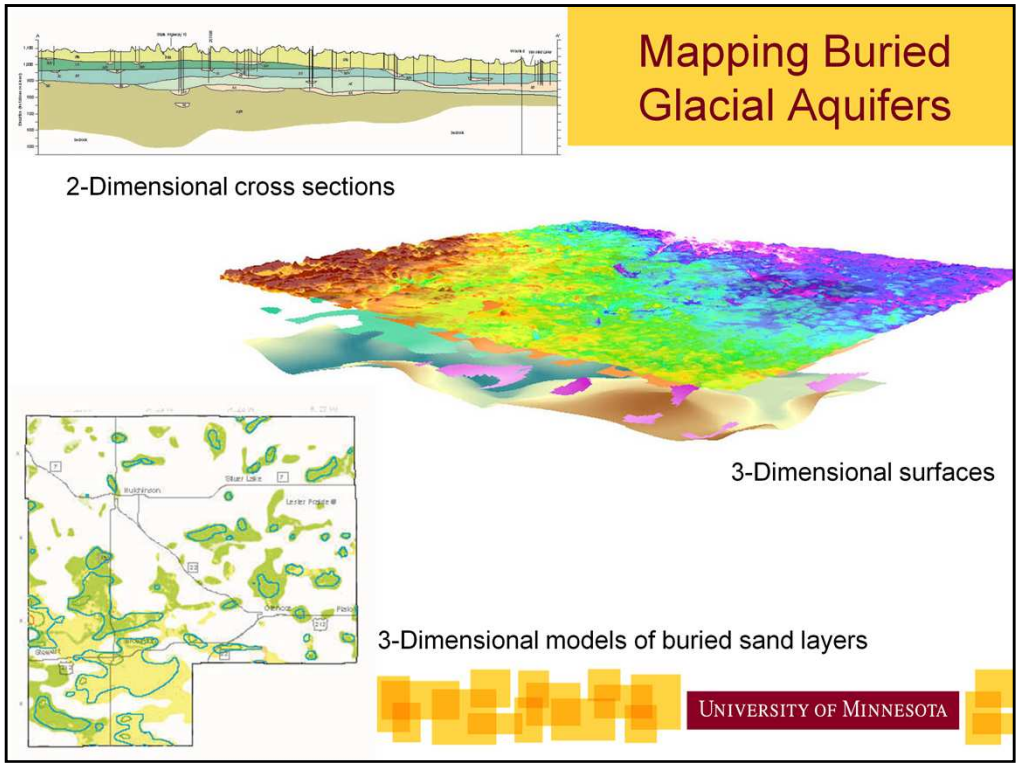
The first atlas was completed in 1982. Since then, MGS has completed atlases for 23 more counties and projects are under way in 11 more counties.



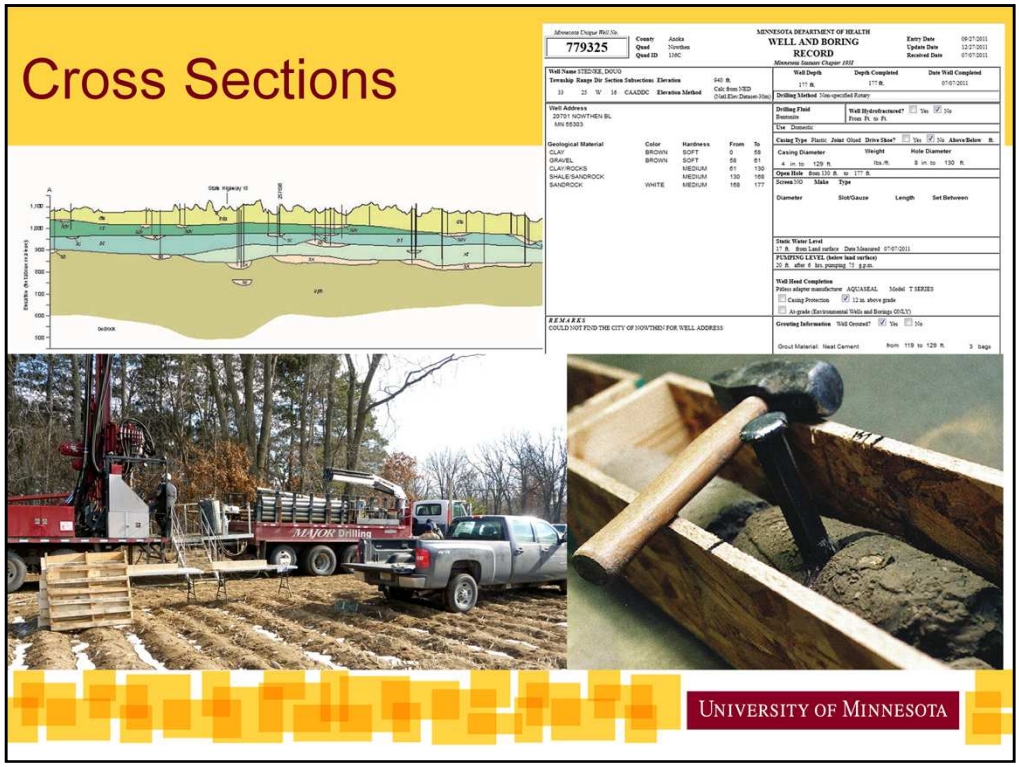
The average cost for Part A (geology) is about $350,000. The Dept. of Natural Resources will follow up on our work with Part B (groundwater).



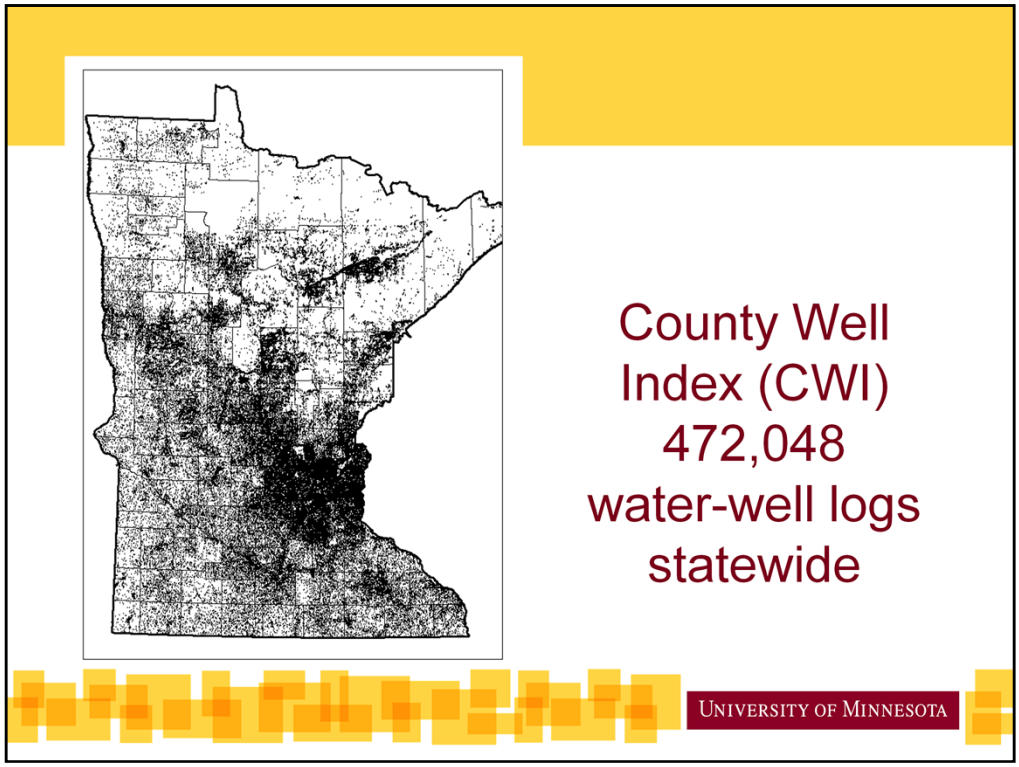
Emphasis is now on groundwater resources and mapping buried glacial aquifers (plate 5).



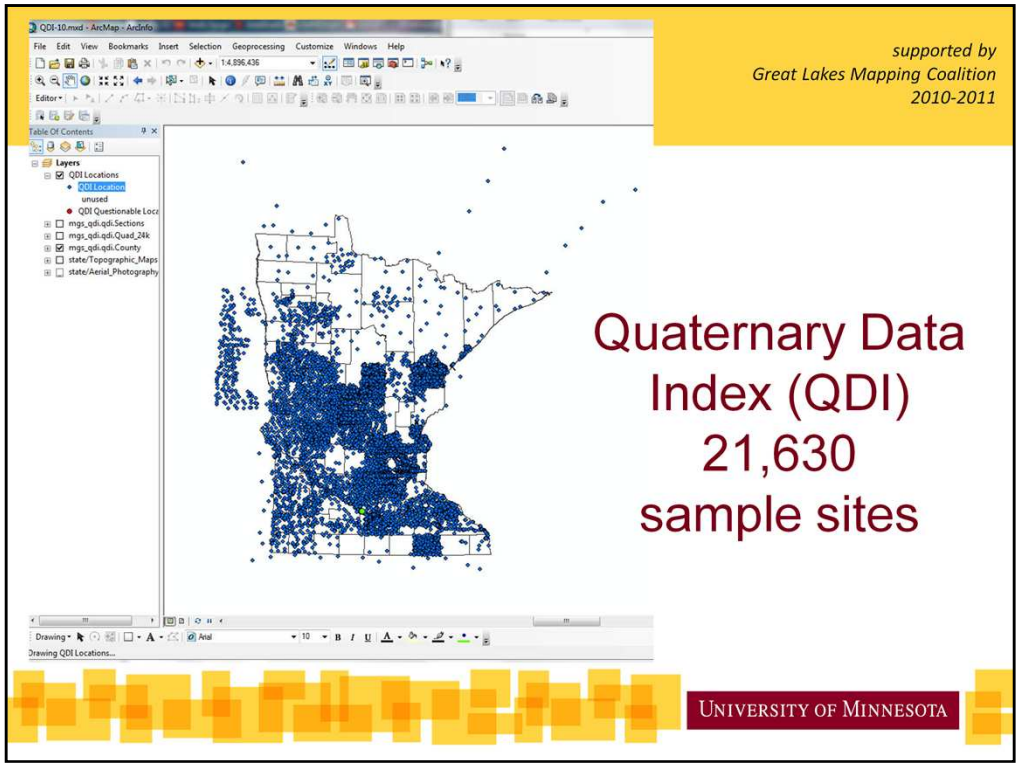
Mapping includes 2-dimensional cross-sections, which are converted to 3-dimensional modeled surfaces and depicted as depth-to-surface and thickness-of-unit maps.



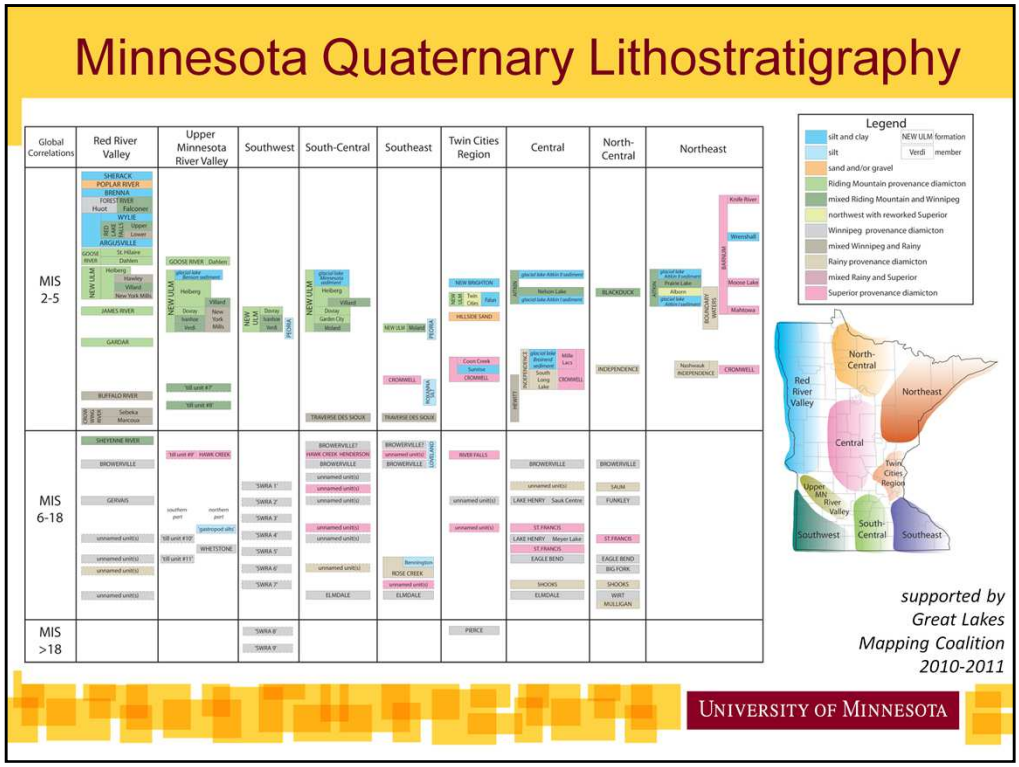
Cross sections are drawn using water well and drilling records.



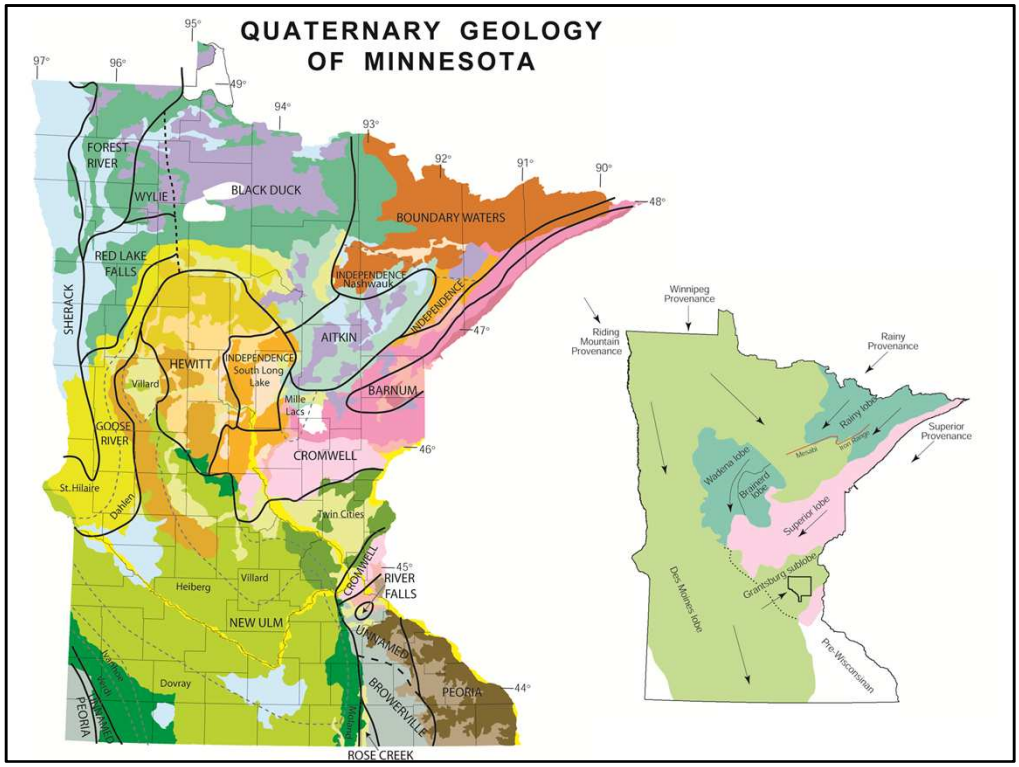
Minnesota's County Well Index is the digital database for all water wells drilled since 1975. Nearly 500,000 wells are located. Wells are located for each CGA project.



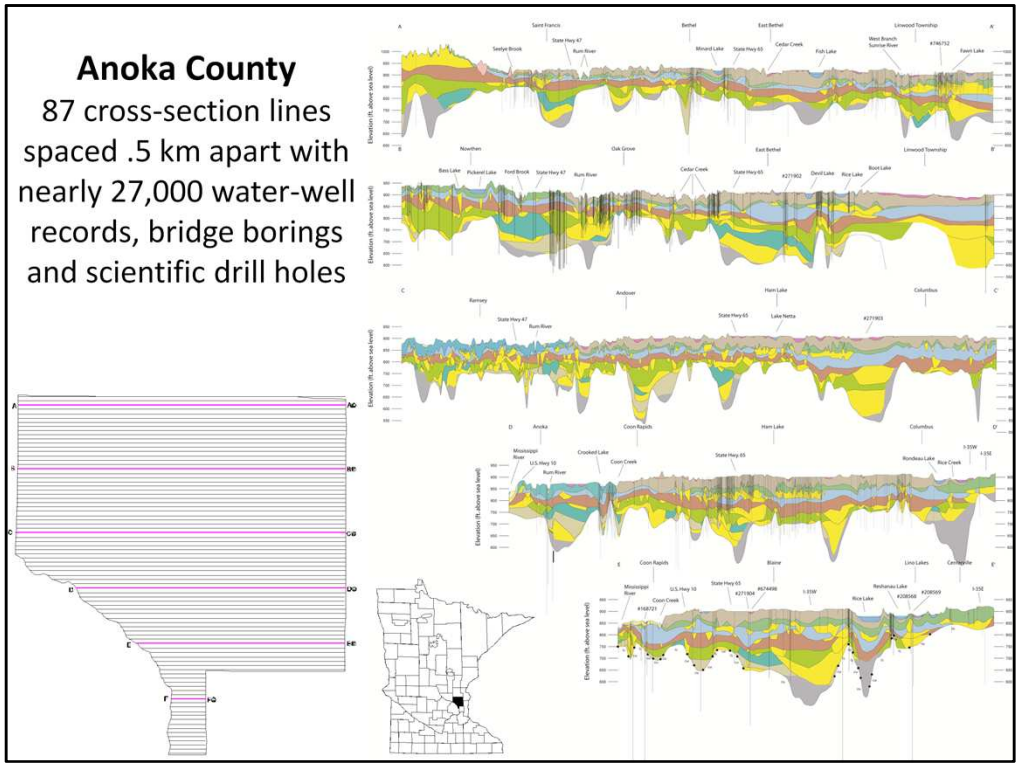
The Quaternary Data Index includes near-surface samples from outcrops, gravel pits, Giddings and rotary sonic drilling.



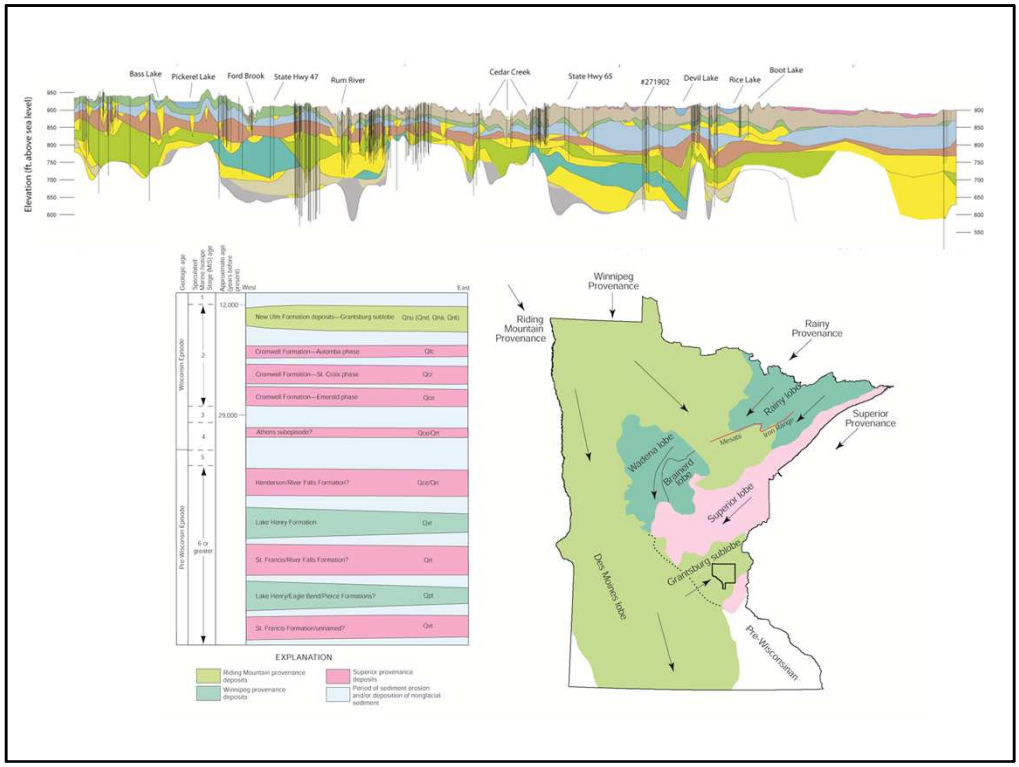
The lithostratigraphic model allows us to define, interpret, and predict the glacial units that we might encounter across the state.



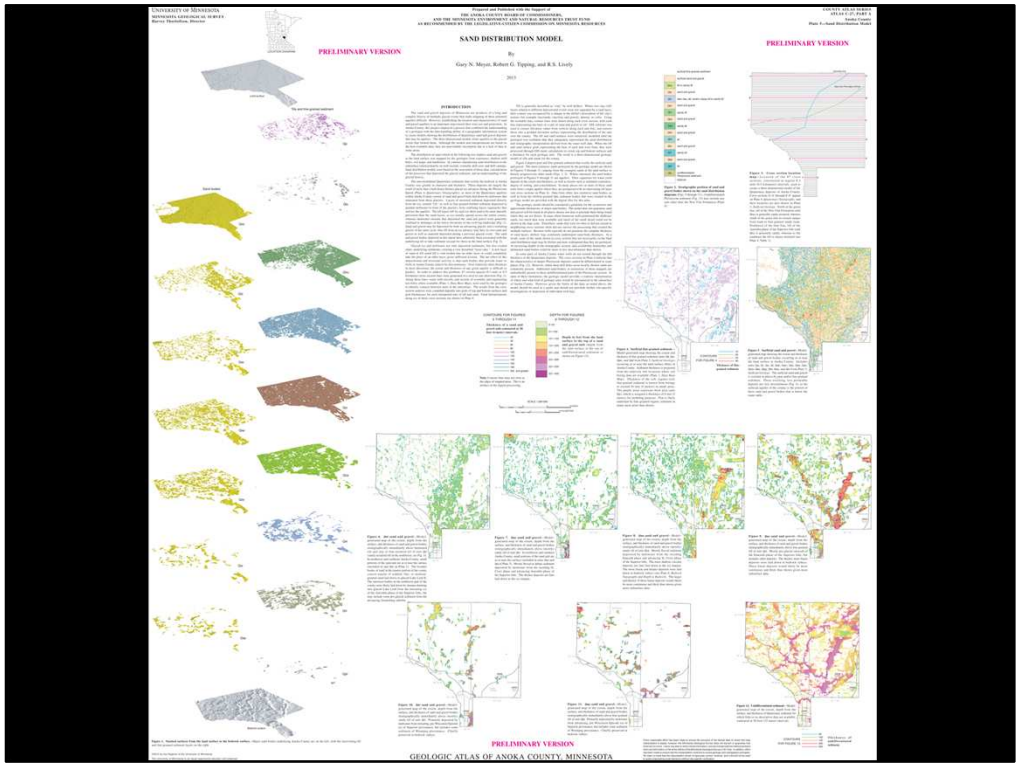
Anoka County is located in east-central Minnesota. It is part of the Anoka sandplain, a large outwash/lacustrine plain associated with the Grantsburg sublobe of the Des Moines lobe.



Examples of cross-sections drawn for Anoka County. With so many data points, section lines, normally drawn at 1 km apart, were drawn at ½ km intervals.



Complex stratigraphy includes at least 10 glacial till units from at least 3 different source areas.



Data will be presented as a series of 3-dimensional surfaces and maps depicting the distribution of buried sands. Stratigraphy and cross sections appear on a separate plate.