Appendix A – Physical Environment and Natural Resources Maps

Lakes Streams and Wetlands

National Wetlands Inventory

FEMA Preliminary Flood Insurance Floodplains

Greenprint Corridors, Wetland Complexes and Shallow Bedrock

Depth to Water Table

Hydrologic Soil Group

Hydric Soils Rating

Drainage Class of Soils

General Soil Texture

Wind Erodibility Index

Sensitive Soils for Nutrient Management due to Coarse Textured Soils or Shallow Bedrock

Aggregate Potential

Depth to Bedrock

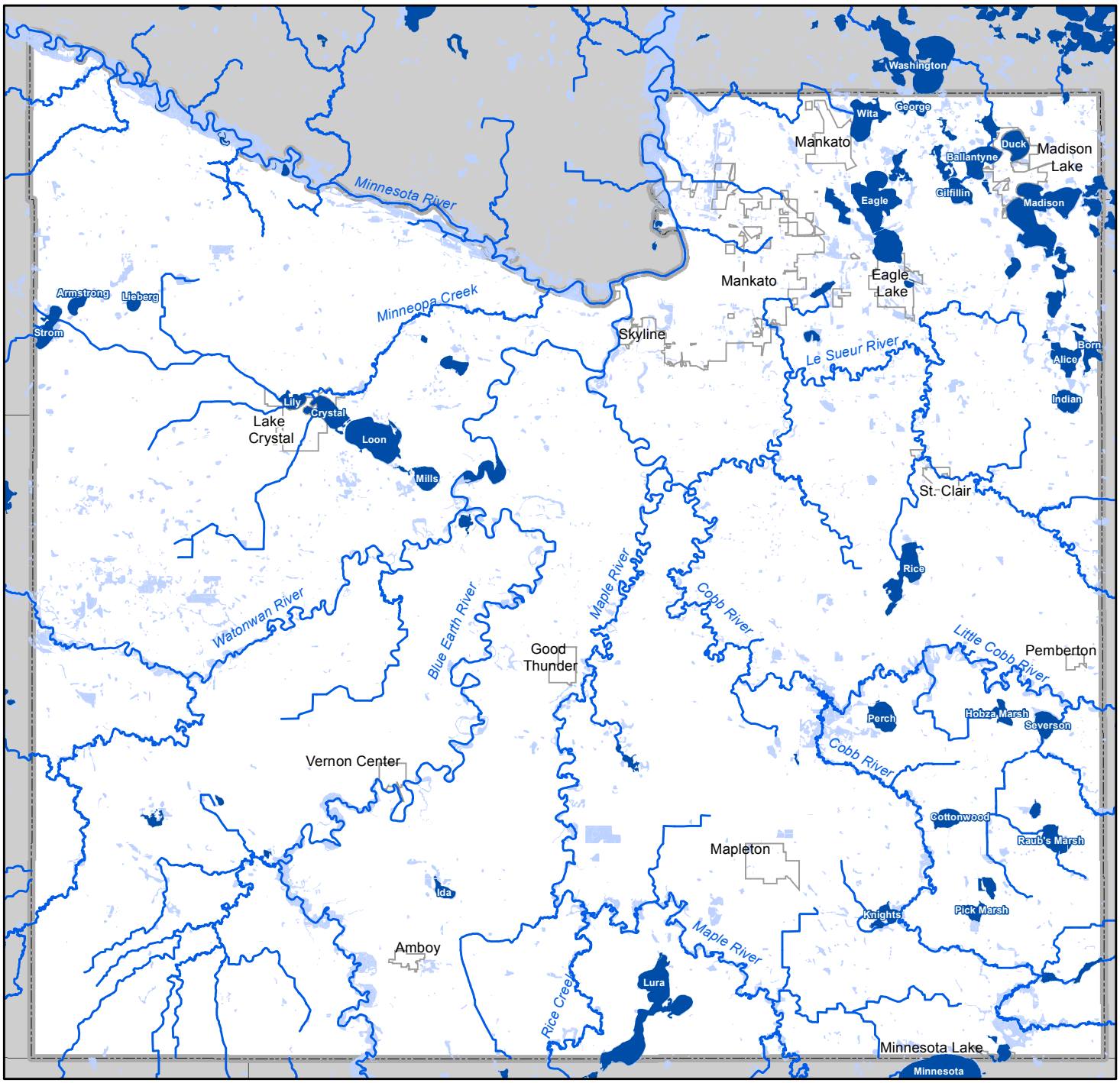
Pollution Sensitivity of Buried Sands Aquifers

Pollution Sensitivity of Near-Surface Materials

Pollution Sensitivity of the Bedrock Surface

Drinking Water Supply Management Areas

Lakes, Streams and Wetlands



0 5 10 Miles

Public Water Basin

Wetland - National Wetland Inventory

Stream or Ditch

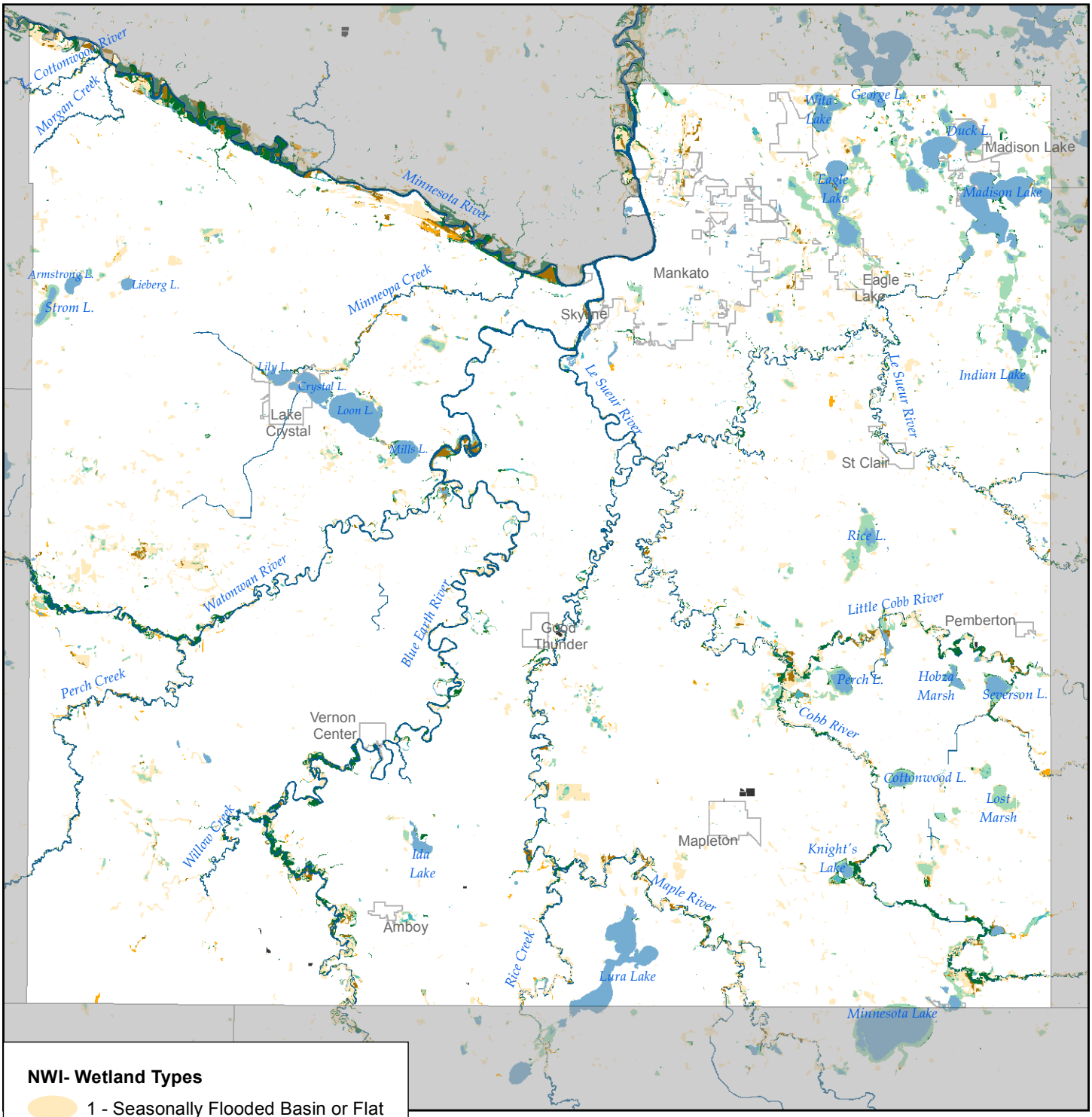
City

N W E S

Prepared By: Blue Earth County Environmental Services July 2018

Source: NWI MN DNR 2015 Basins and Streams; MN DNR

National Wetlands Inventory by Wetland Type



NWI- Wetland Types

- 1 - Seasonally Flooded Basin or Flat
- 2 - Wet Meadow
- 3 - Shallow Marsh
- 4 - Deep Marsh
- 5 - Shallow Open Water
- 6 - Shrub Swamp
- 7 - Wooded Swamp
- Municipal and Industrial Activities
- Riverine Systems

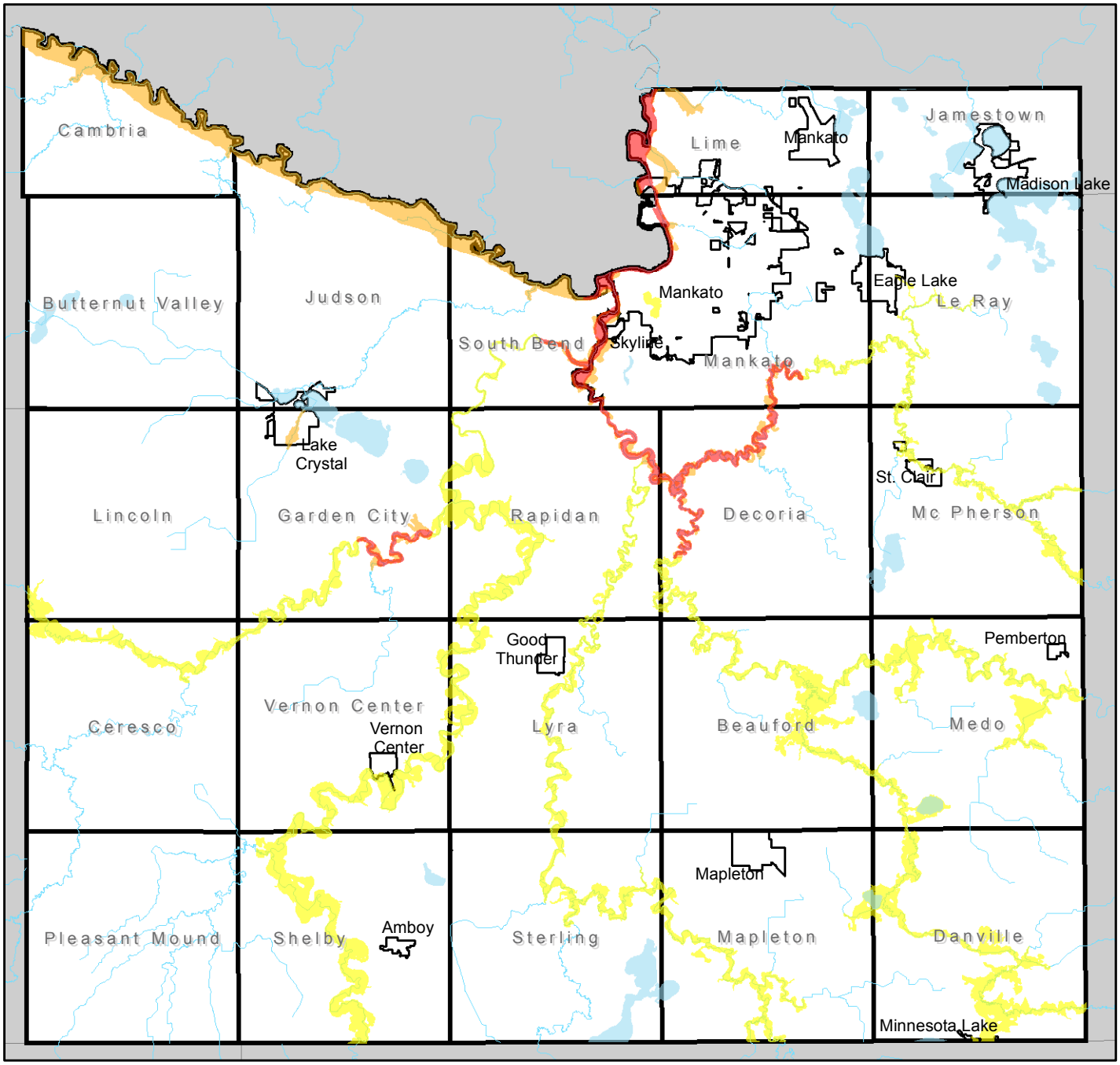
0 5 10 Miles

N W E S

Prepared By: Blue Earth County Environmental Services 2018

Source: NWI MN DNR 2015

FEMA Preliminary Flood Insurance Floodplains



0 5 10 Miles

N

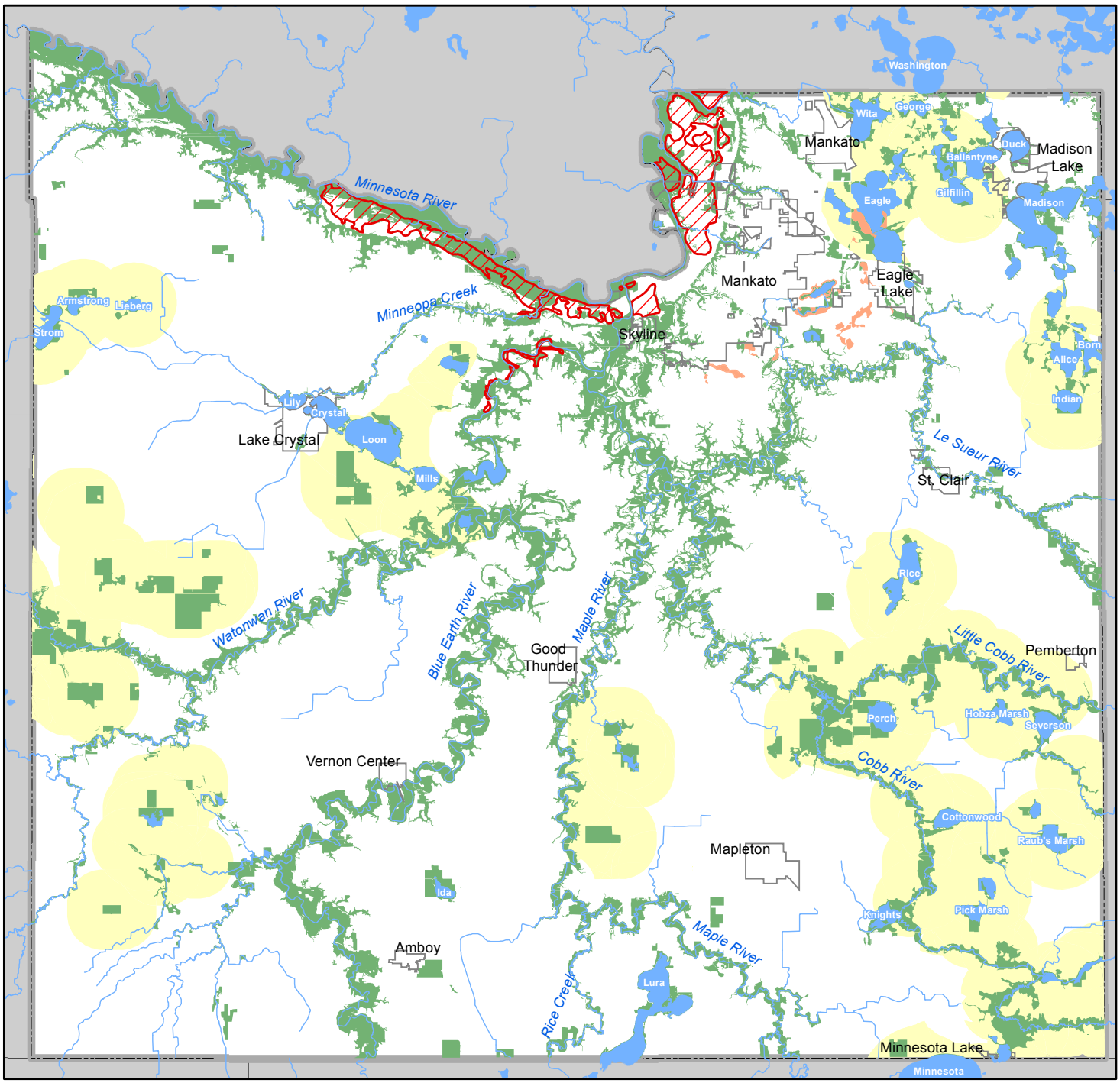
Special Flood Hazard Area (1% Chance Flood)

- Zone AE - Floodway
- Zone AE - Floodfringe
- Zone A - No Base Flood Elevations

Prepared By: Blue Earth County 2016

Source: FEMA 2011 Data

Greenprint Corridors, Wetland Complexes, and Shallow Bedrock



Public Water Basin

Bedrock within 10 Ft. of Ground Surface

Planned Greenprint Corridor Connection

Greenprint Corridor

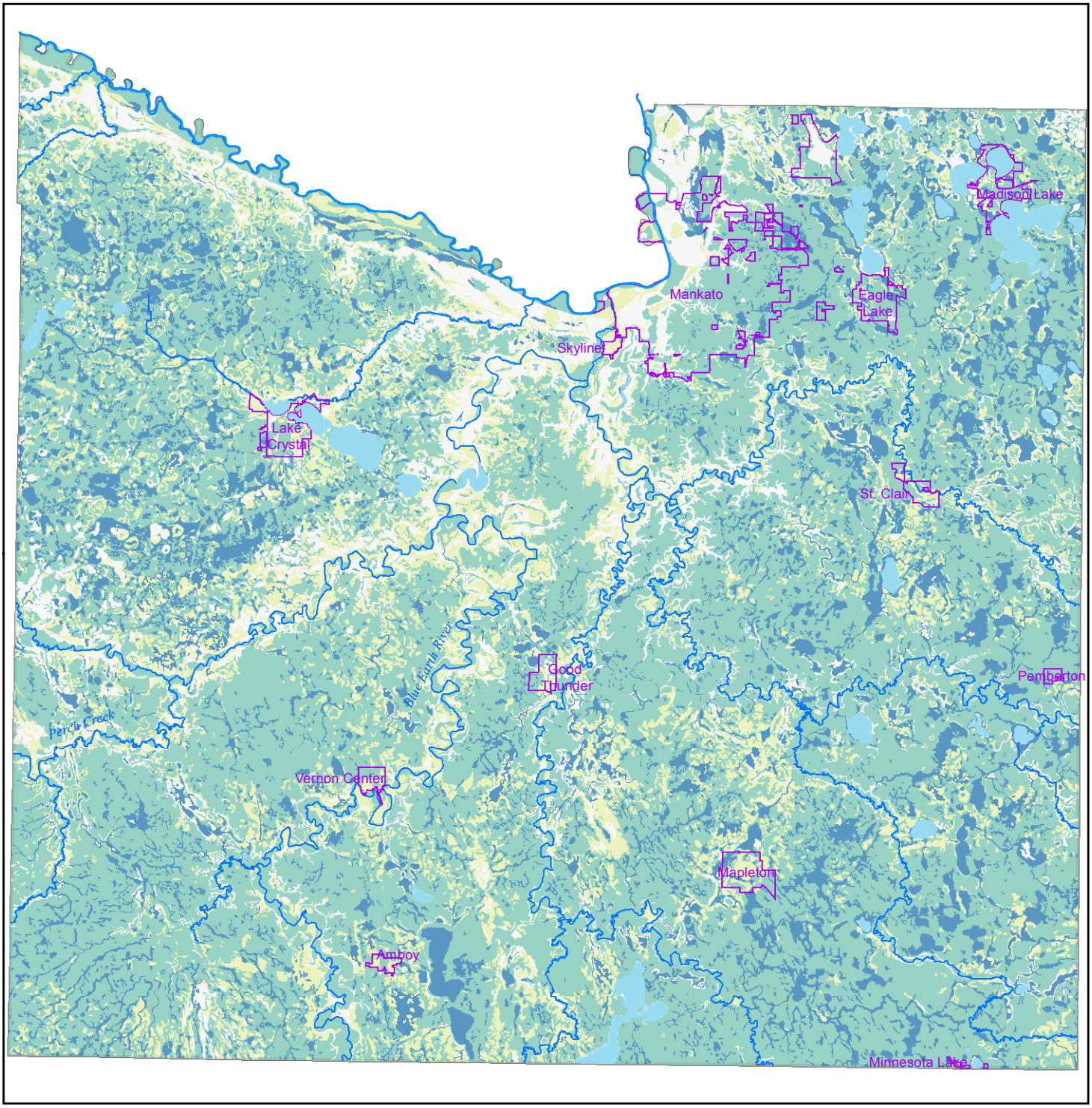
Wetland Complexes

0 5 10 Miles

N W E S

Prepared By: Blue Earth County
2018

Depth to Water Table



Lake

City

Depth to Water Table

No Value

0 Centimeters

0 cm to 90 cm (0 to 35 inches)

90 cm or More (36 inches or More)

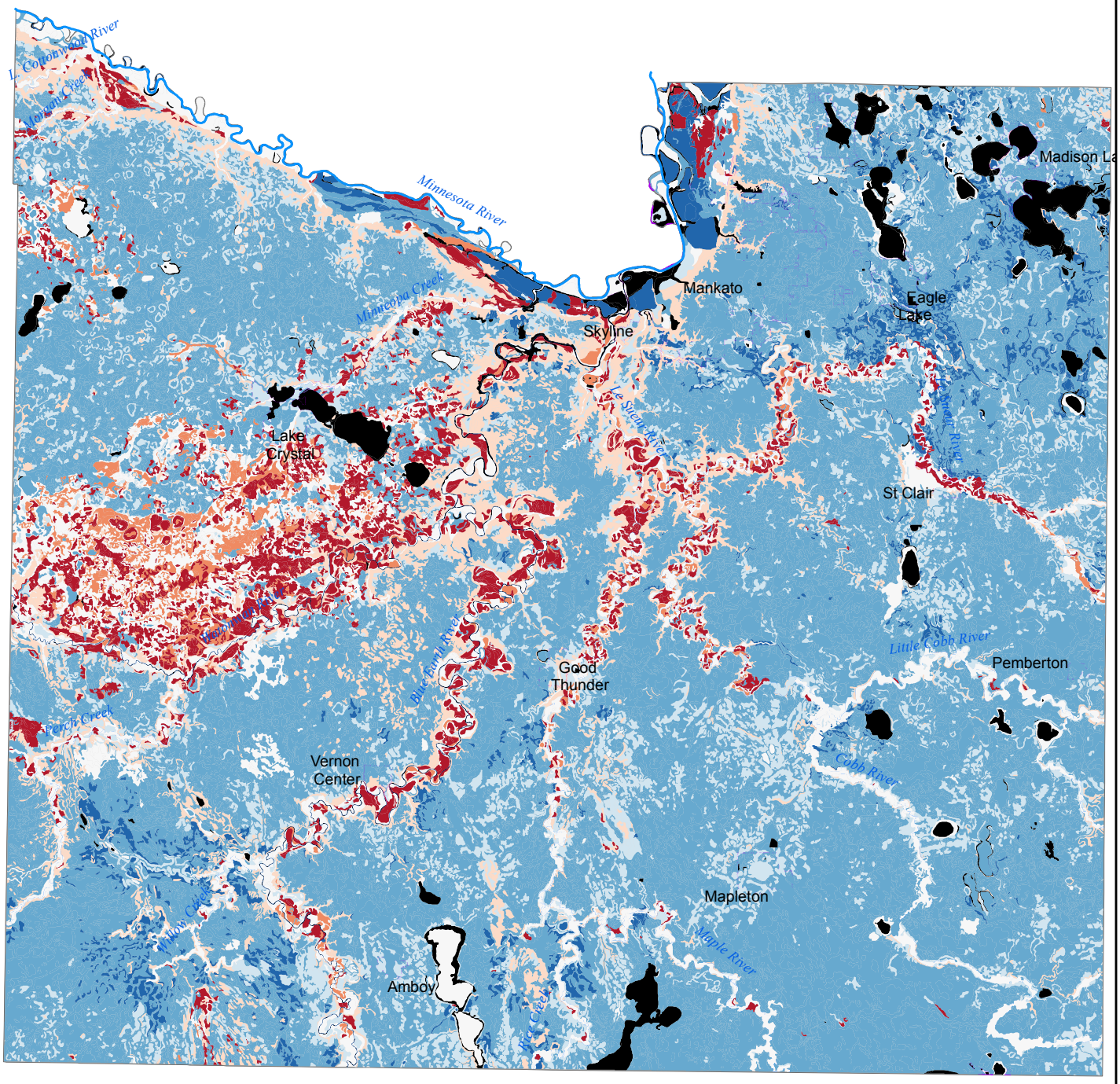
0 5 10 Miles

N W E S

Prepared By: Blue Earth County Environmental Services 2018

Source: NRCS SSURGO Soils

Hydrologic Soil Group



Hydrologic Soil Group

- No Value
- A
- A/D
- B
- B/D
- C
- C/D
- D

0 — 5 Miles

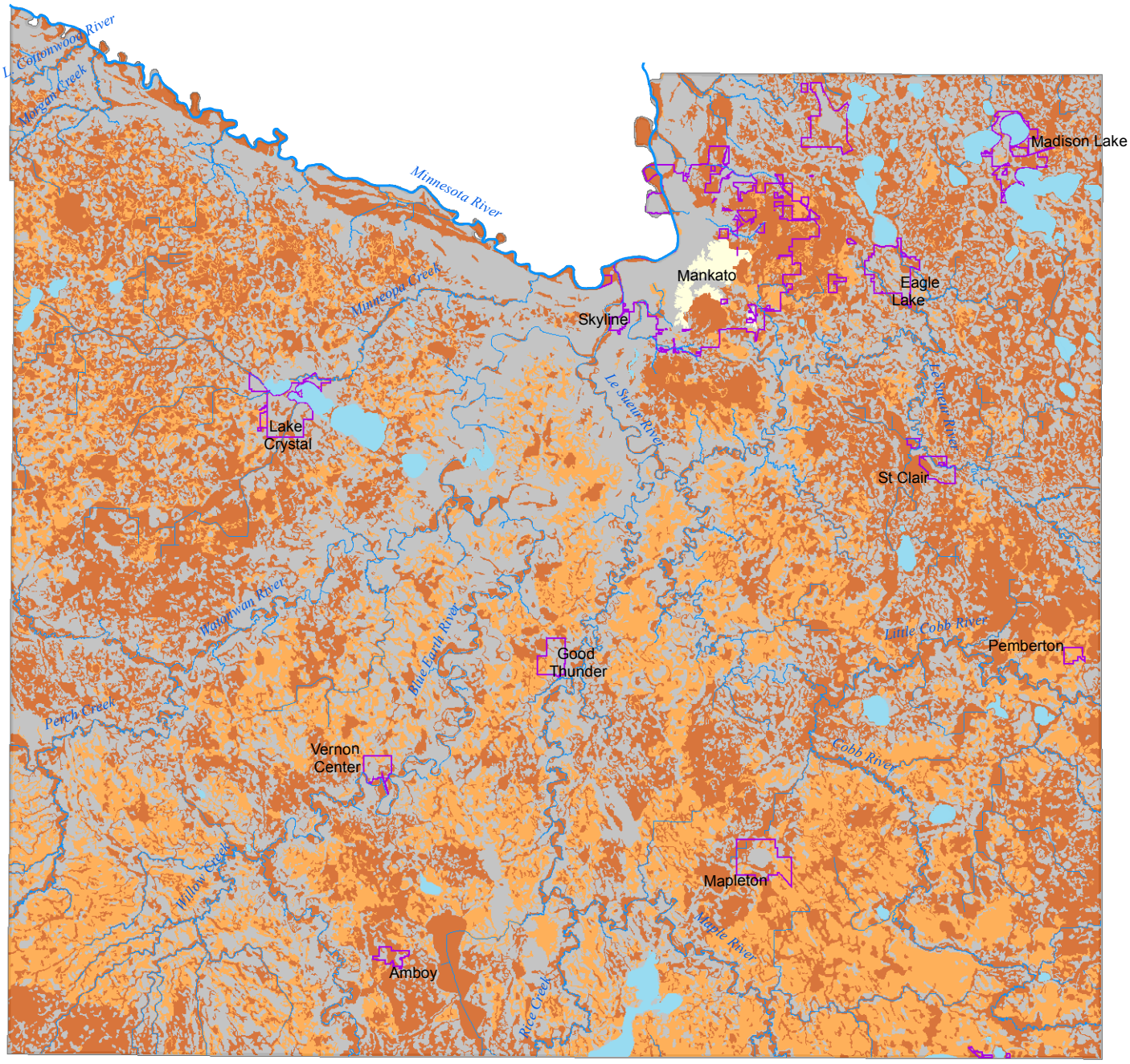
N W E S

BLUE EARTH COUNTY

Prepared By: Blue Earth County Environmental Services 2018

Source: NRCS SSURGO Soils 2017

Hydric Soils Rating



0 5 Miles

N W E S

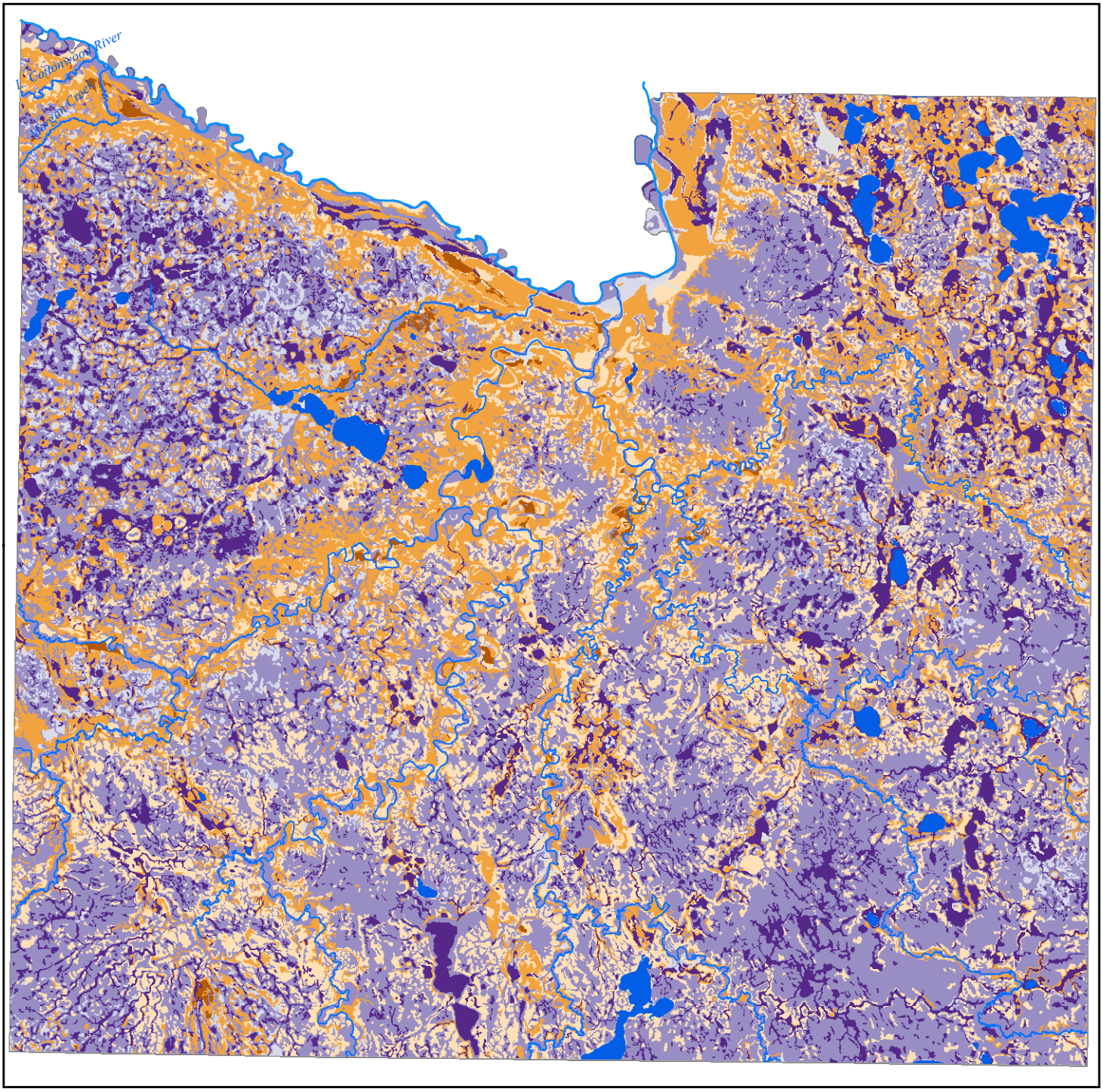
Hydric Rating

- Hydric (100%)
- Predominantly Hydric (66 to 99%)
- Partially hyrdic (33 to 65%)
- Predominatly nonhydric or nonhydric (0 to 32%)
- Lake
- Stream, River or Ditch
- City

Prepared By: Blue Earth County Environmental Services 2016

Source: NRCS SSURGO Soils

Drainage Class of Soils



Drainage Class

- Somewhat excessively drained
- Well drained
- Moderately well drained
- Somewhat poorly drained
- Poorly drained
- Very poorly drained

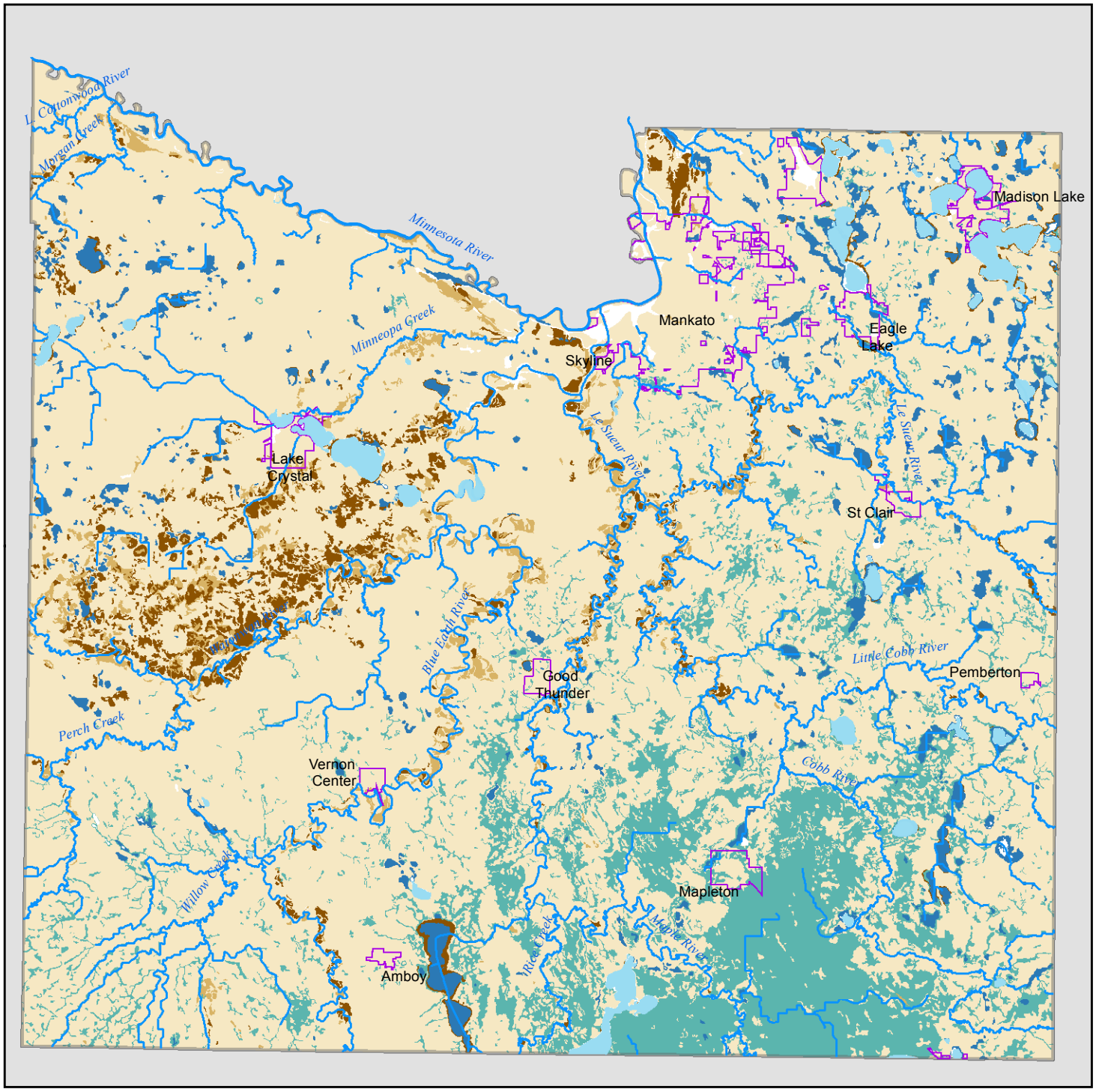
0 — 5 Miles

N
W E
S

Prepared By: Blue Earth County Environmental Services 2016

Source: NRCS SSURGO Soils

General Soil Texture



General Soil Texture

- Coarse
- Moderately Coarse
- Medium or Moderately Fine
- Fine
- Muck- mucky peat or mucky silt loam
- No Value

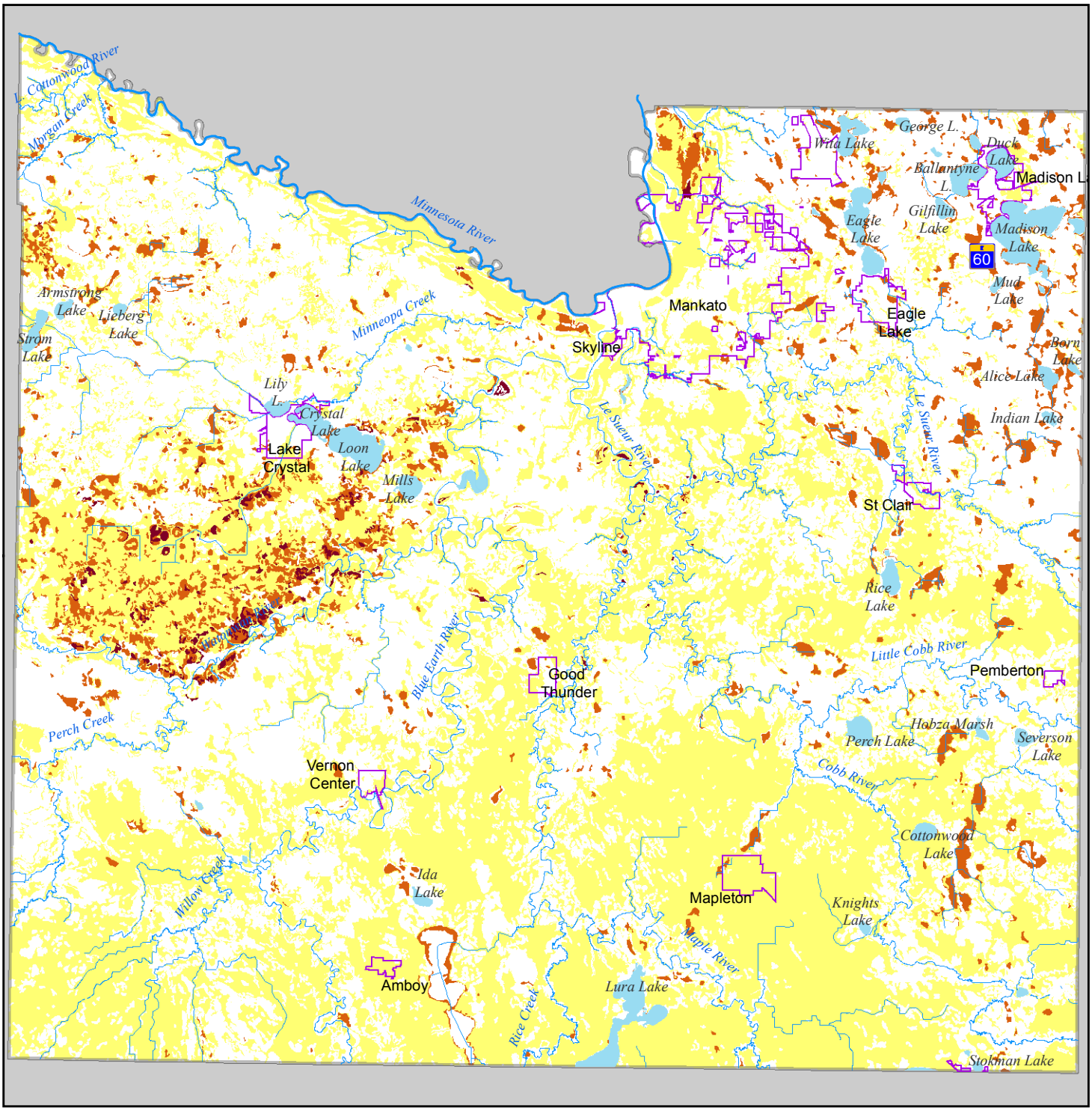
0 — 5 Miles

N W E S

Prepared By: Blue Earth County Environmental Services 2016

Source: NRCS SSURGO Soils

Wind Erodibility Index



Wind Erodibility Index

Tons lost per acre per year

- 0 -50
- 51-100
- 101-200
- Over 200

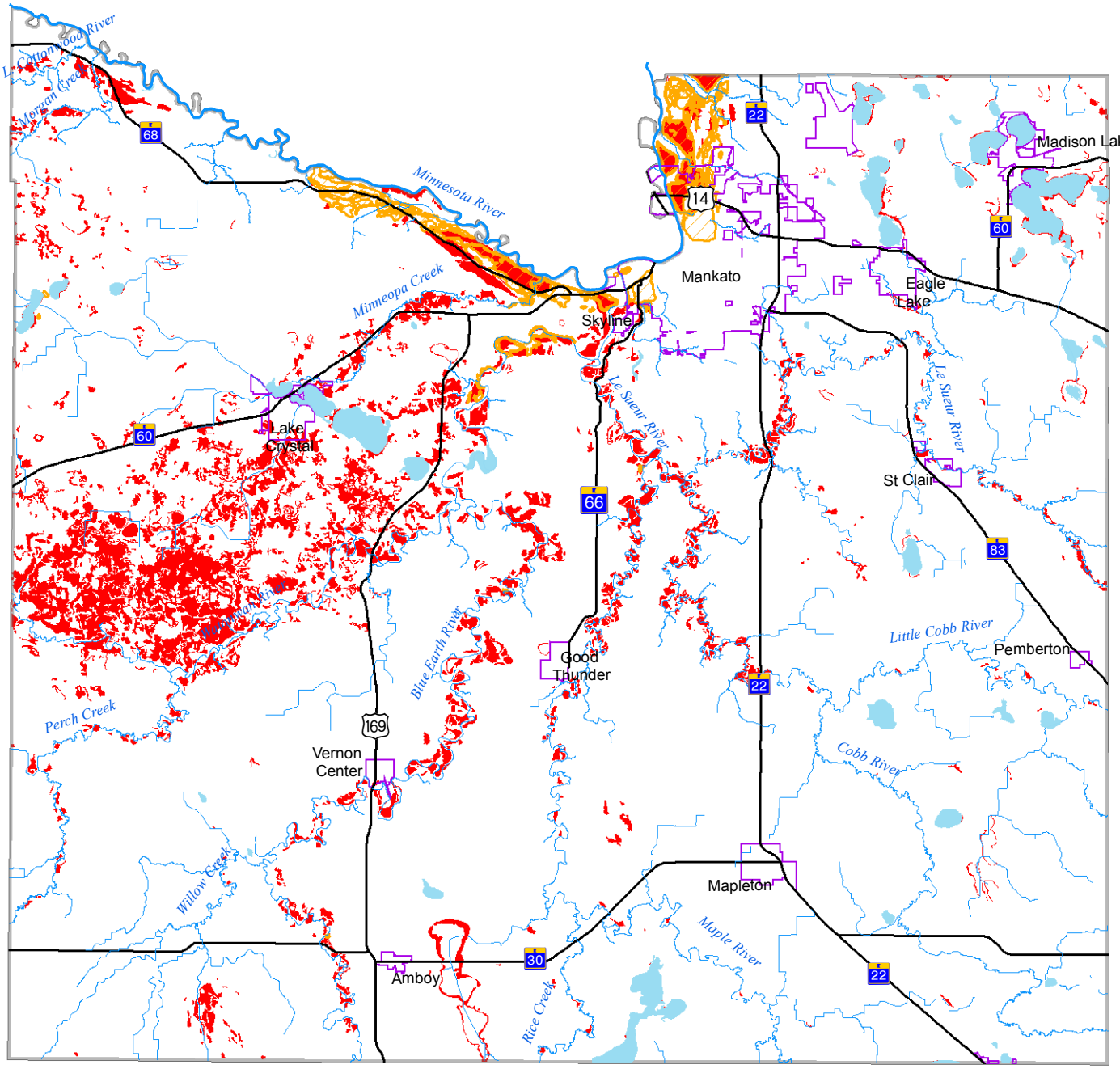
0 — 5 Miles

N W E S

Prepared By: Blue Earth County Environmental Services March 2016

Source: NRCS SSURGO Soils

Sensitive Soils for Nutrient Management Due to Coarse Textured Soils or Shallow Bedrock



Sensitive Soils for Nutrient Management Due to Coarse Textured Soils or Shallow Bedrock

- Soil with Shallow Bedrock
- Coarse Textured Soil

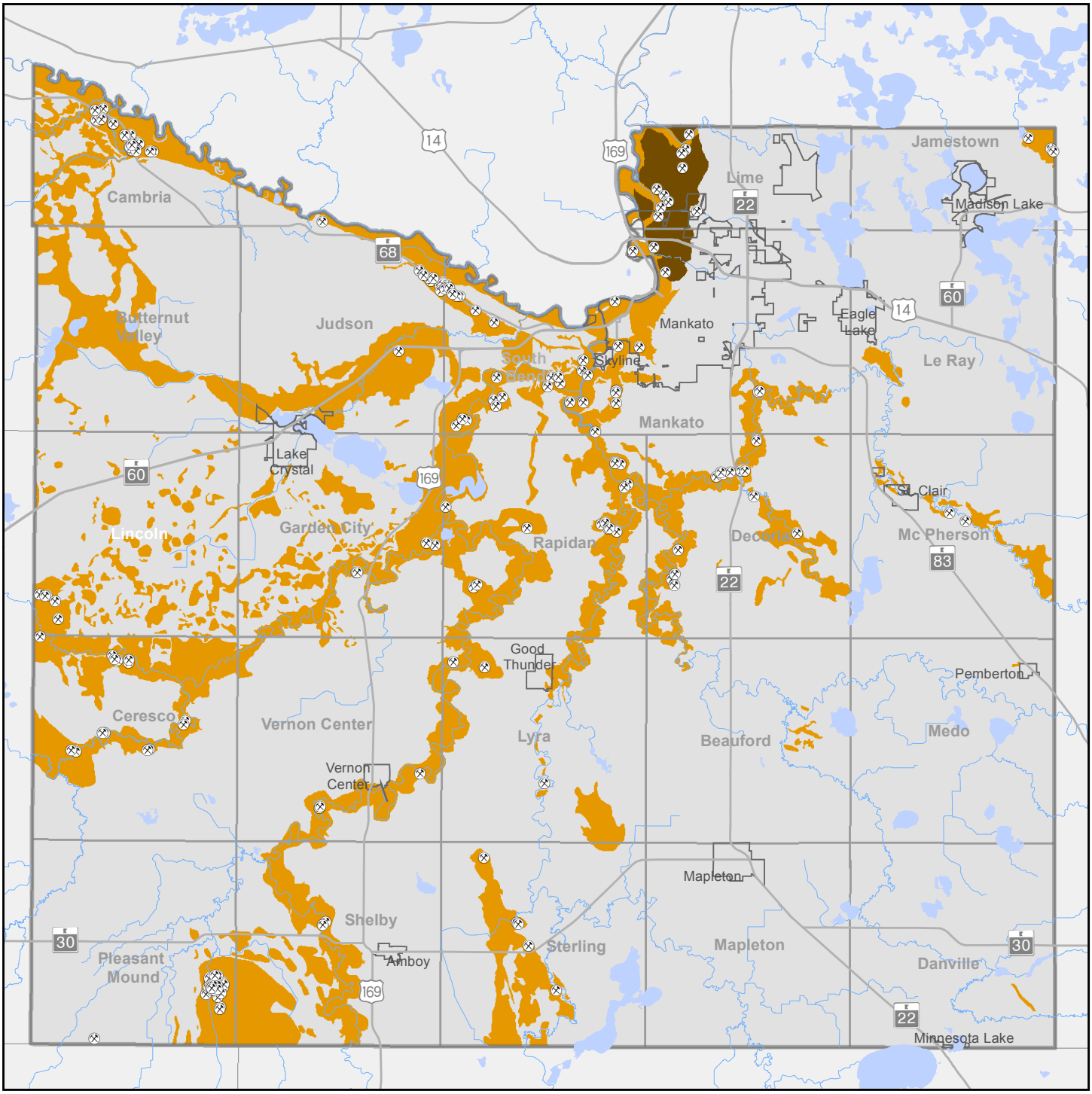
0 5 10 Miles

N W E S

Prepared By: Blue Earth County Environmental Services 2016

Source: NRCS SSURGO Soils

Aggregate Potential



Gravel Pits, Quarries, and Prospects

Potential Crushed Stone Resources

Potential Sand and Gravel Resources

Limited Potential for Aggregate Resources

0 5 10 Miles

Prepared By: Blue Earth County Environmental Services 2018

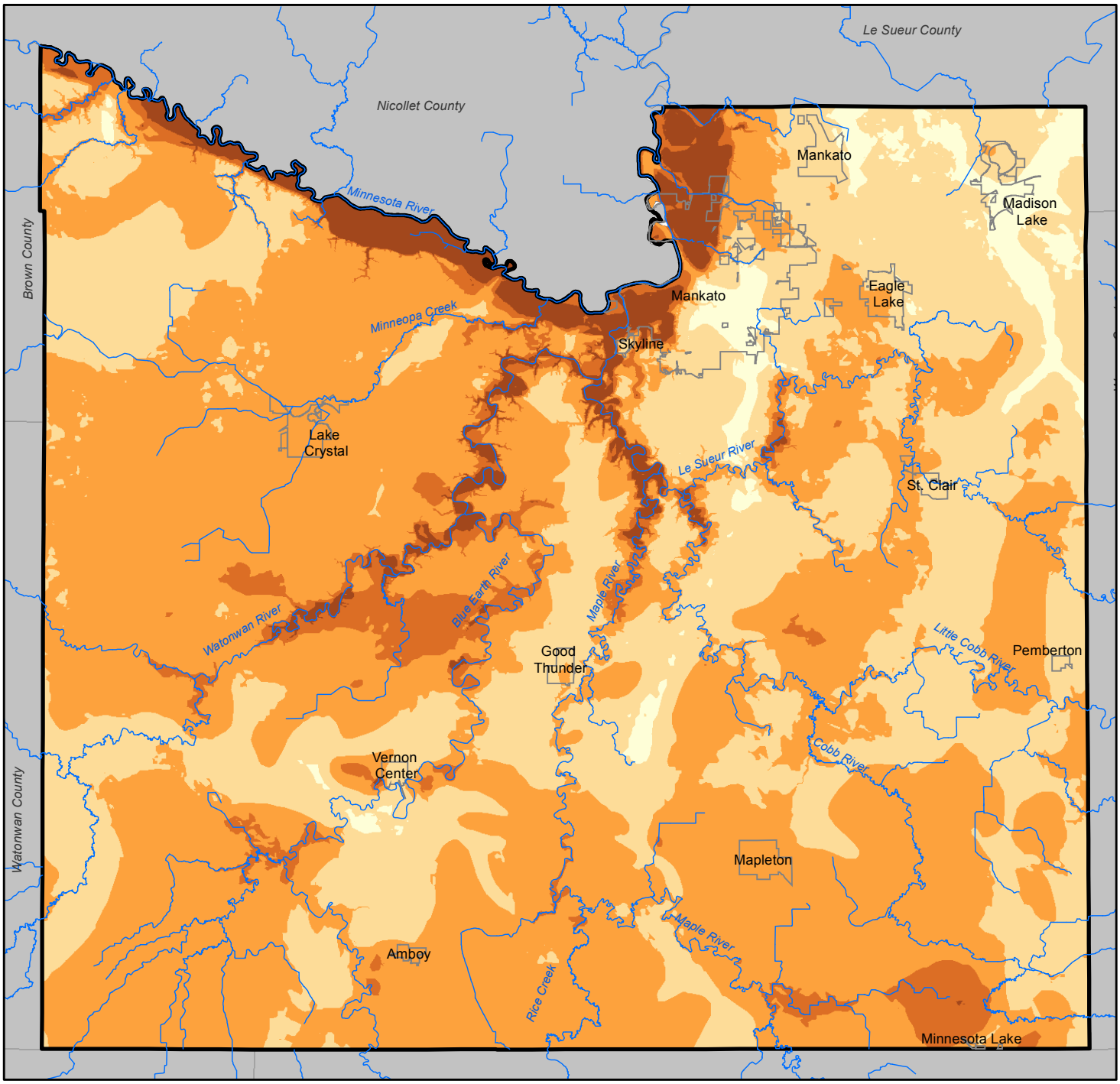
Source: Minnesota Department of Natural Resources, 1999

Potential Sand and Gravel Resources are units that are inferred to contain moderately and highly desirable sand and gravel deposits.

Potential Crushed Stone Resources are bedrock formations that consist of desirable limestone (dolomitic limestone) that is suitable for crushing. These units are inferred to be relatively thick (>50 Ft) with overburden thickness of less than 10 feet.

Limited Potential for Aggregate Resources are units that generally have less desirable, little or no potential for aggregate resources. These units exhibit characteristics that are typically not consistent with significant aggregate deposits. (MN DNR 1999)

Depth to Bedrock



Depth to bedrock

- 1-50 ft.
- 51-100 ft.
- 101-200 ft.
- 201-300 ft.
- 301 ft. and greater

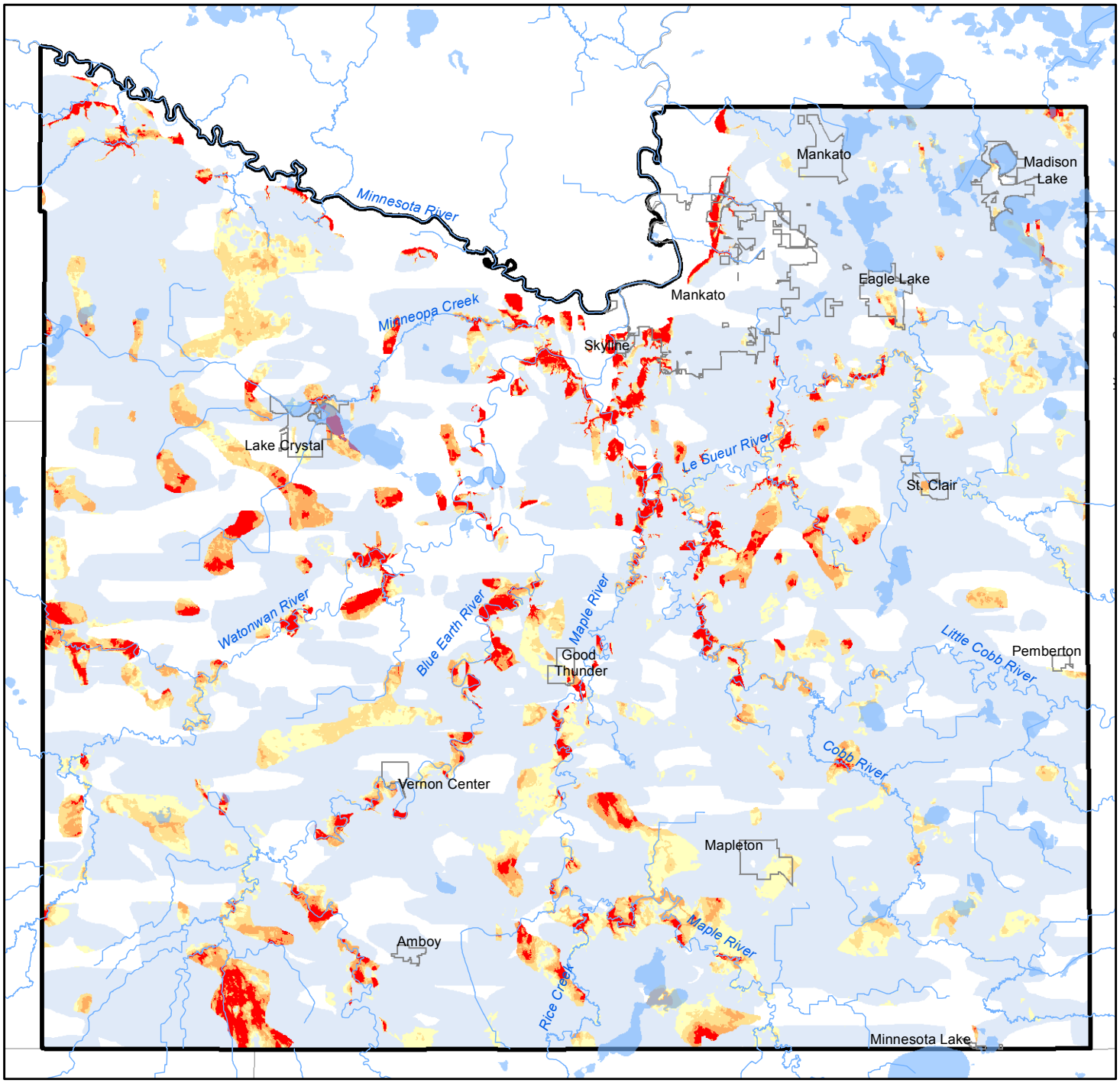
0 5 Miles

N W E S

Prepared By: Blue Earth County
2016

Source: Geologic Atlas of Blue Earth County - Part A
Minnesota Department of Natural Resources

Pollution Sensitivity of Buried Sand Aquifers



Pollution Sensitivity: Estimated vertical travel time for water-borne contaminants to enter a buried sand aquifer

- Very High: Hours to Months
- High: Months to Years
- Moderate: Years to Decades
- Low: Decades to a Century
- Very Low: A Century or More

0 — 5 Miles

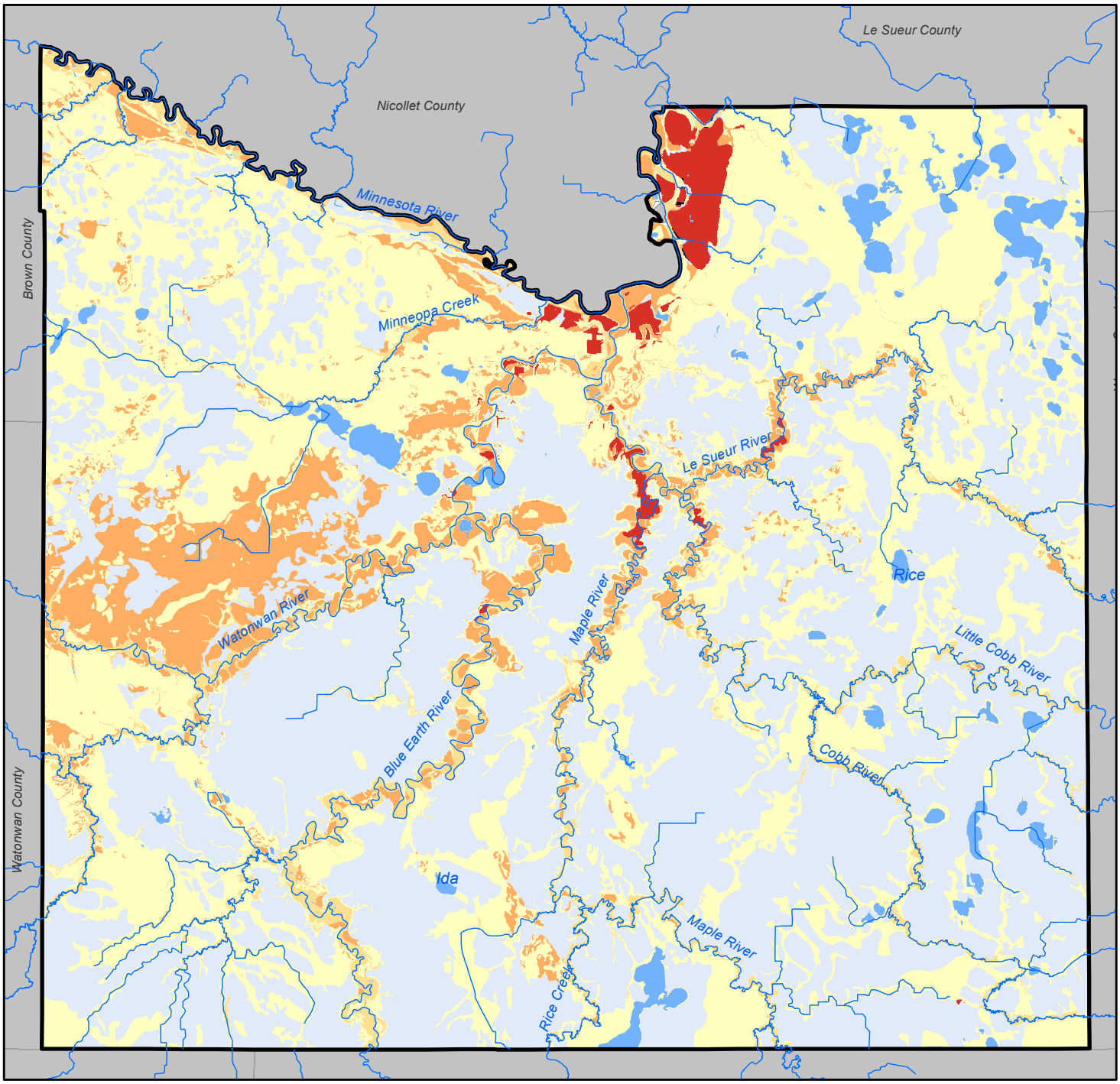
N W E S

Prepared By: Blue Earth County
2016

Source: Geologic Atlas of Blue Earth County - Part B
Minnesota Department of Natural Resources
2016

This map shows a compilation of the pollution sensitivity maps on pages 42-47 of the Geologic Atlas of Blue Earth County, Part B. Pollution sensitivity is defined by the physical properties that affect downward migration of pollutants to the groundwater. The main variable is the rate that water travels from the surface to the aquifers.

Pollution Sensitivity of Near-Surface Materials



Pollution Sensitivity: Estimated vertical travel time through near-surface materials

- High: hours to a week
- Moderate: a week to weeks
- Low: weeks to months
- Very Low: months to a year
- Karst[1]
- Bedrock
- Water

N

0 5 Miles

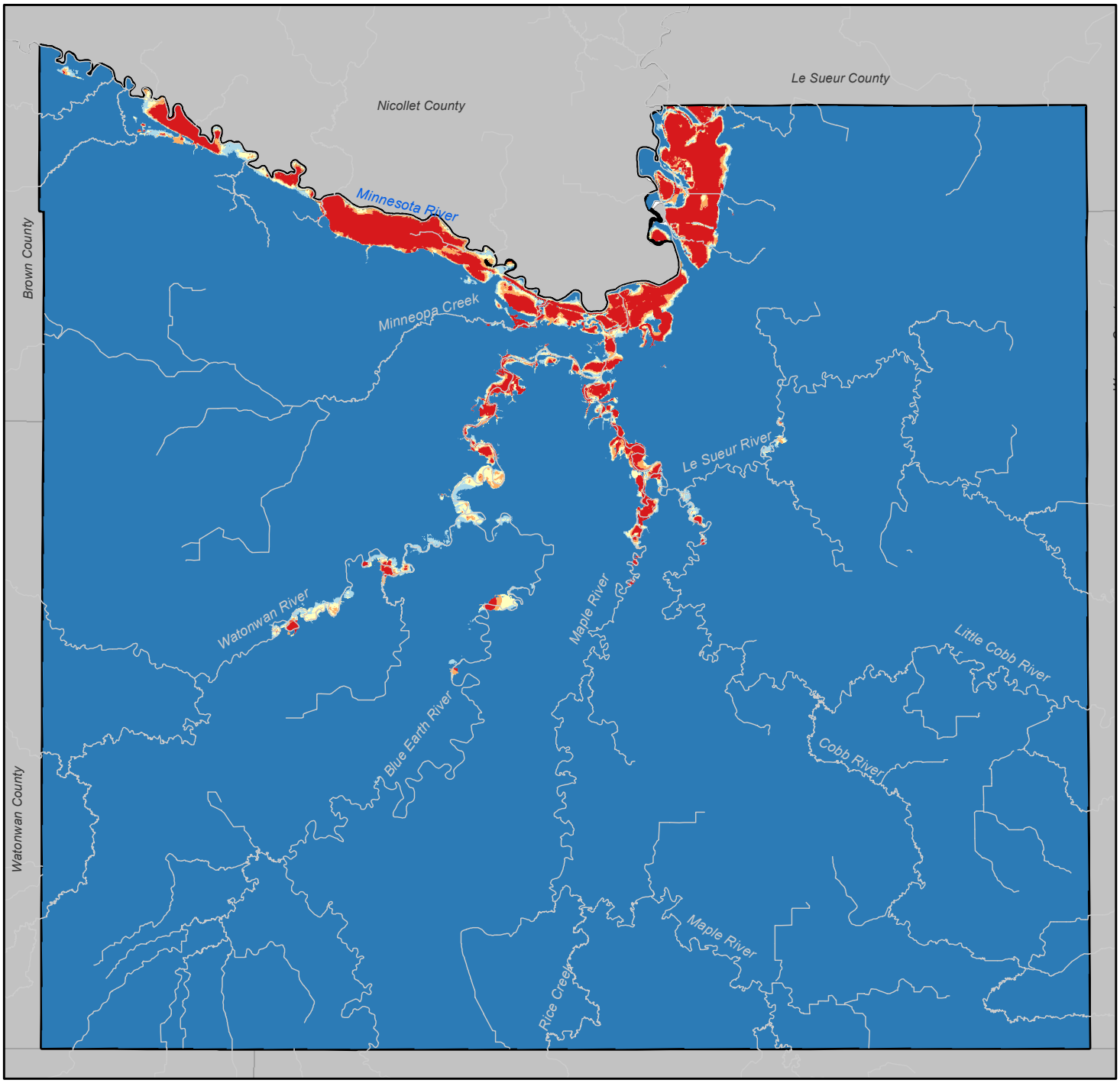
Prepared By: Blue Earth County
2016

Source: Geologic Atlas of Blue Earth County - Part B
Minnesota Department of Natural Resources
2016

1 Karst allows a direct, very rapid exchange between surface water and groundwater and significantly increases groundwater contamination risk from surface pollutants.

This pollution sensitivity model assumes a 10-foot-deep water table and vertical travel of possible pollutants through unsaturated, near-surface materials.

Pollution Sensitivity of the Bedrock Surface



Pollution Sensitivity Rating:Estimated vertical travel time for water-borne contaminants to enter a bedrock aquifer

- Very High: hours to months
- High: weeks to years
- Moderate: years to decades
- Low: decades to a century
- Very Low: a century or more

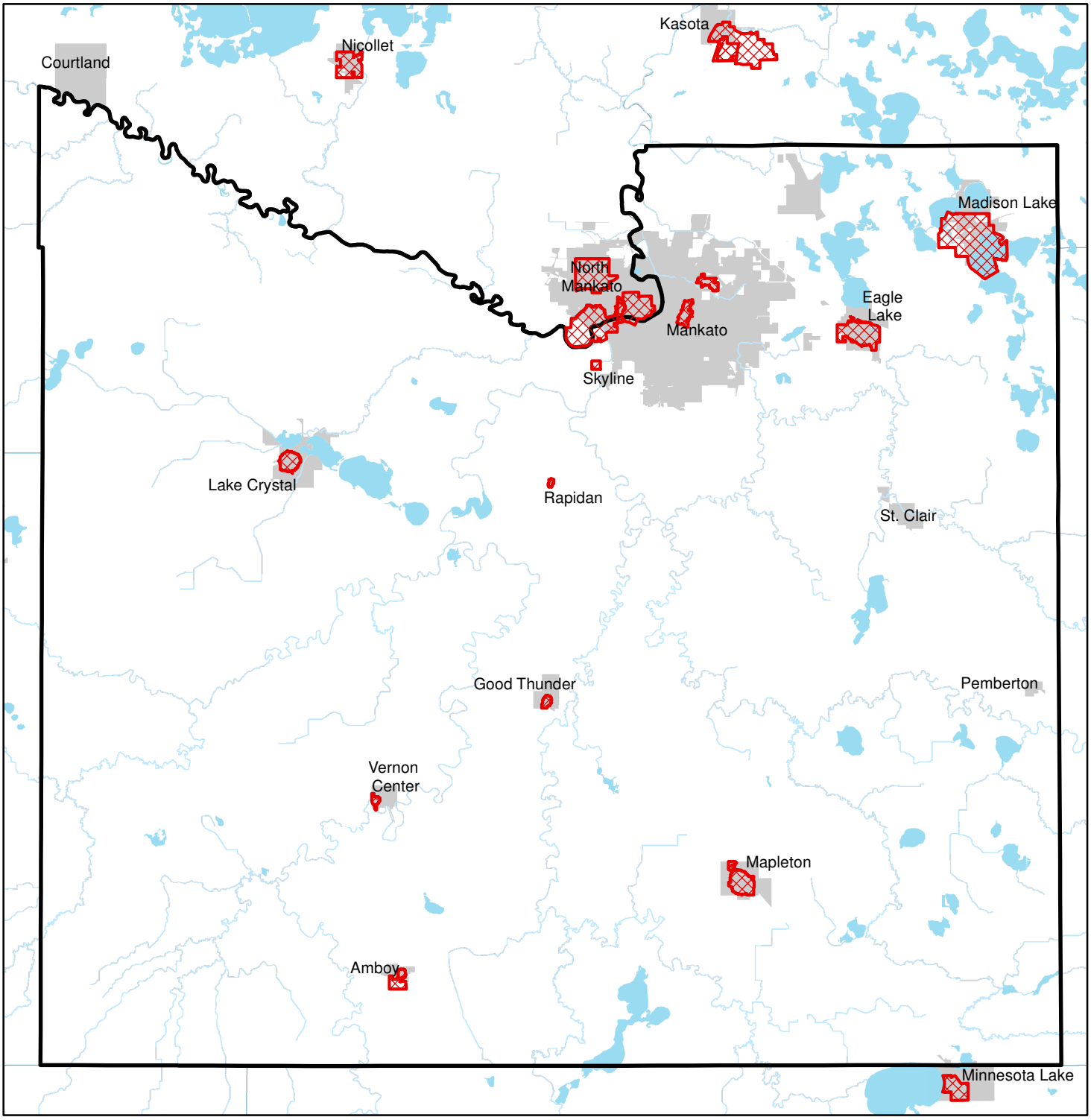
N

0 5 Miles

Prepared By: Blue Earth County
2016

Source: Geologic Atlas of Blue Earth County - Part B
Minnesota Department of Natural Resources
2016

Drinking Water Supply Management Areas (DWSMA)



Drinking Water Supply Management Area

City

Blue Earth County

N
W E
S

0 5 Miles

Prepared By: Blue Earth County
2017

Source: DWSMA - Minnesota Department of Health
May 2017 Data