

CREP Prioritization: Mapping Sediment Loading Risk in the Saginaw Bay Basin

Background

Michigan State University Extension (MSUE) is collaborating with the State of Michigan and local stakeholders to re-establish the Conservation Reserve Enhancement Program (CREP) in Michigan. To aid in prioritizing lands eligible for CREP enrollment, the Institute of Water Research (IWR) at MSU developed township-scale maps of sediment loading risk for the Saginaw Bay basin. This book organizes those maps at the township scale.

Data

The maps are based upon data from the United States Geological Survey's (USGS) SPATIally Referenced Regression On Watershed attributes (SPARROW) model*. The model uses observations, land use characteristics, and statistical relationships, among other variables, to estimate pollutant loads to streams and rivers. The data in this map book represents incremental sediment load contribution for each small catchment in the basin (see image at right), i.e. the amount of sediment load that originated in a particular area (not the total, accumulated amount moving through the stream in that area).

Contacts

Please direct questions about MSUE's project to:

Sarah Fronczak

Environmental Management Educator

Michigan State University Extension

fronczs3@msu.edu

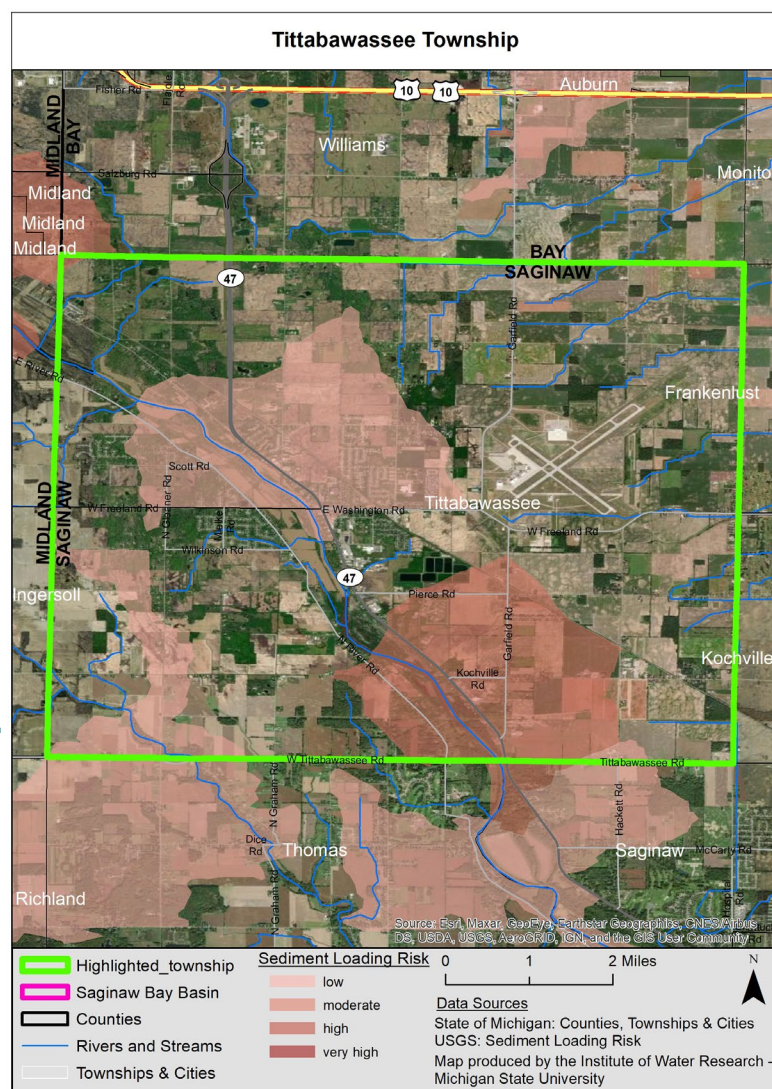
Please use the URL below to learn more about the SPARROW model, and direct questions about the maps to:

Glenn O'Neil

Environmental Scientist

Institute of Water Research - Michigan State University

oneilg@msu.edu



* <https://www.sciencebase.gov/catalog/item/5cbf5150e4b09b8c0b700df3>

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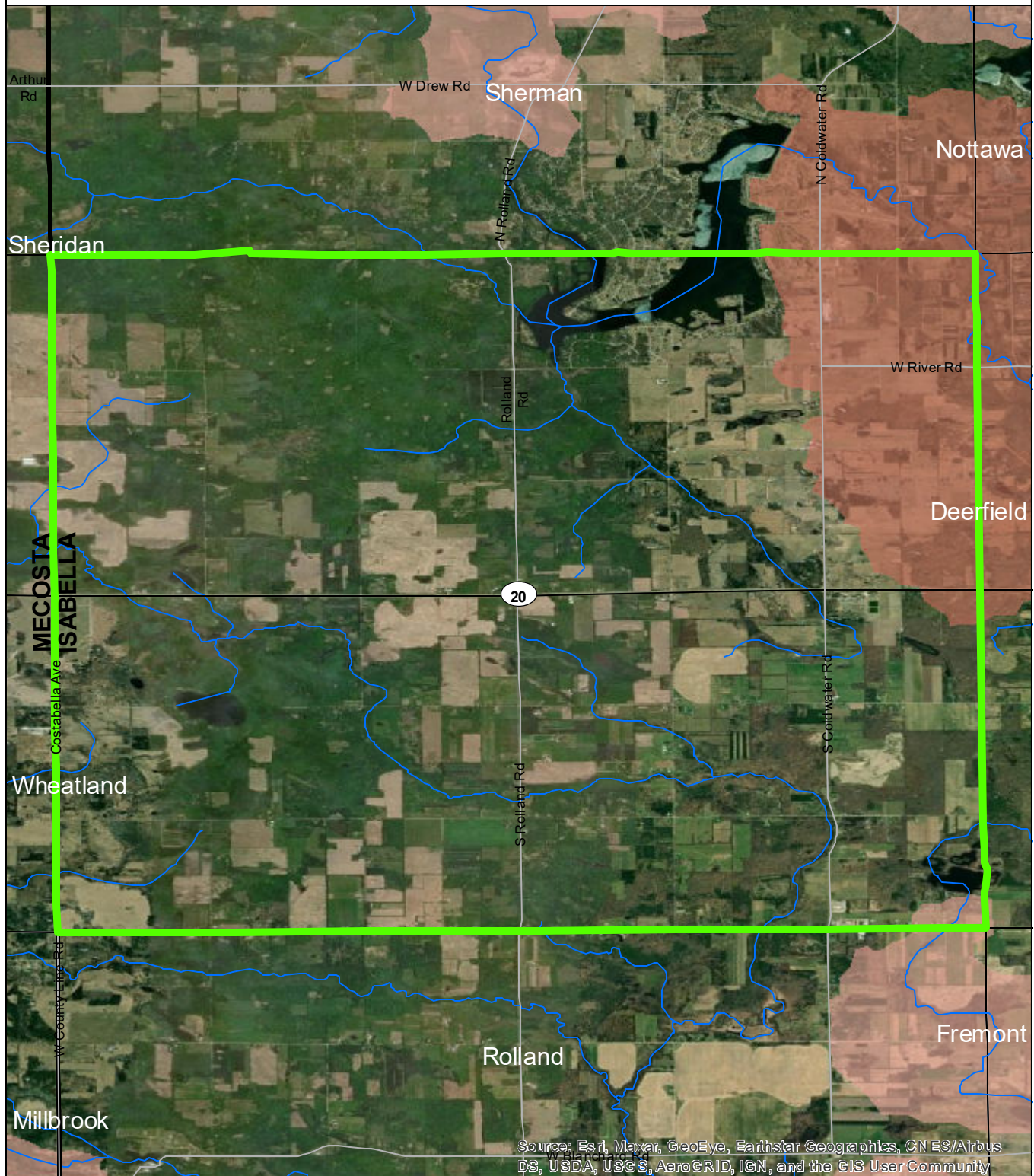
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Broomfield Township



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Broomfield Township
- Saginaw Bay Basin
- Counties
- Rivers and Streams
- Townships & Cities

Sediment Loading Risk

- low
- moderate
- high
- very high

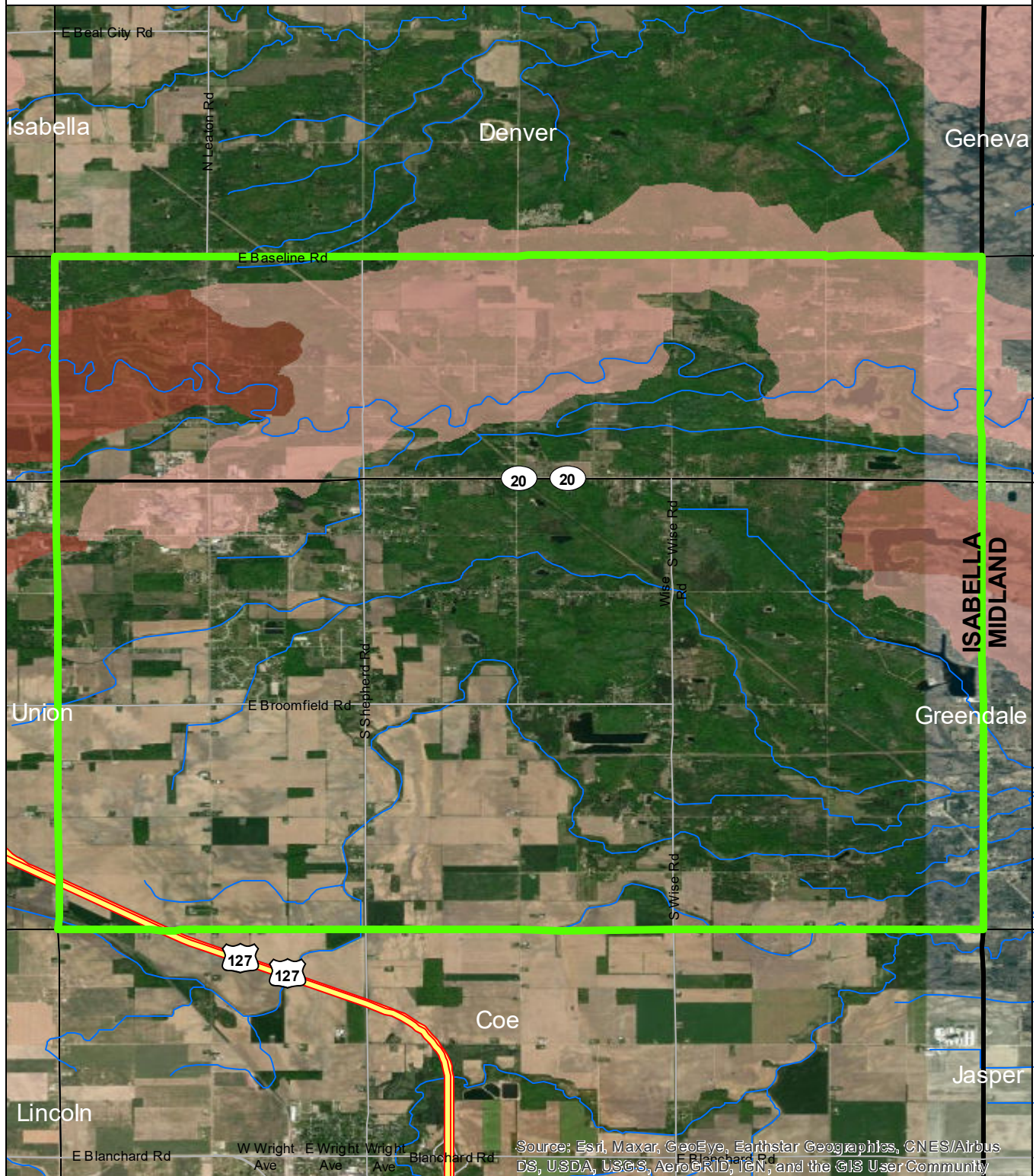
0 1 2 Miles

Data Sources

State of Michigan: Counties, Townships & Cities
USGS: Sediment Loading Risk

Map produced by the Institute of Water Research - Michigan State University

Chippewa Township



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Chippewa Township
- Saginaw Bay Basin
- Counties
- Rivers and Streams
- Townships & Cities

Sediment Loading Risk

- low
- moderate
- high
- very high

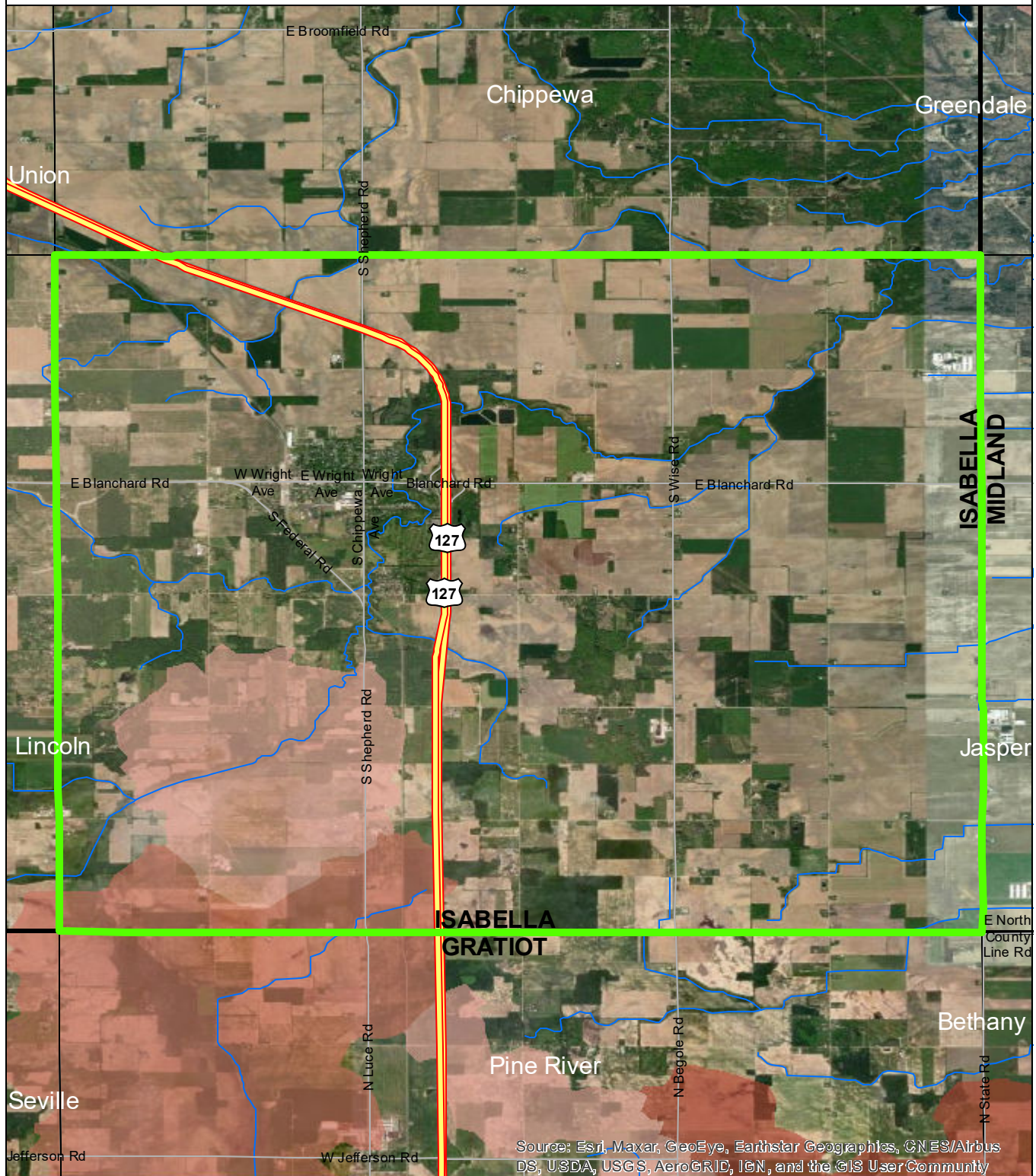
0 1 2 Miles

Data Sources

State of Michigan: Counties, Townships & Cities
USGS: Sediment Loading Risk

Map produced by the Institute of Water Research - Michigan State University

Coe Township



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CN ES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Coe Township
- Saginaw Bay Basin
- Counties
- Rivers and Streams
- Townships & Cities

Sediment Loading Risk

- low
- moderate
- high
- very high

0 1 2 Miles

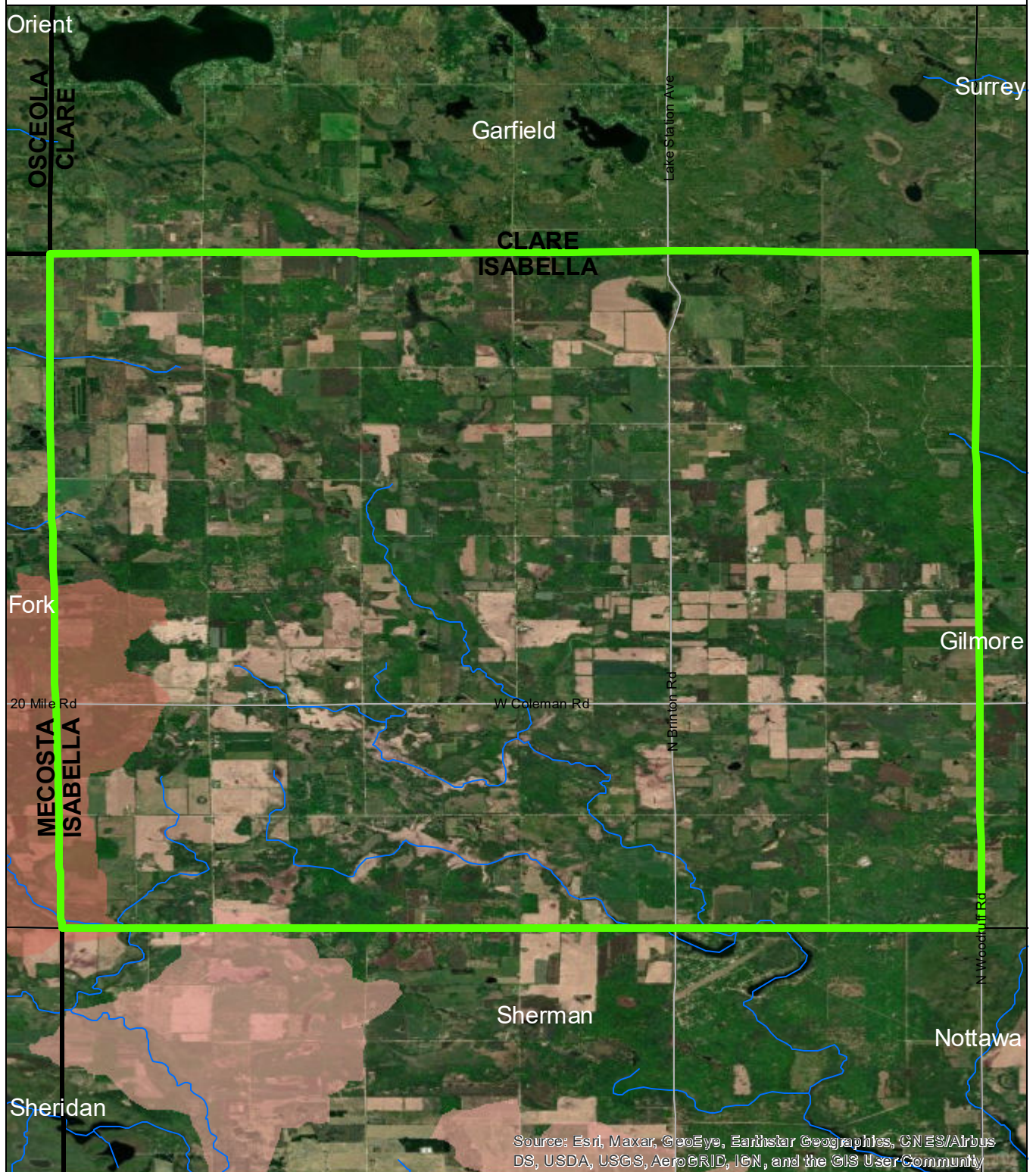
Data Sources

State of Michigan: Counties, Townships & Cities
USGS: Sediment Loading Risk

Map produced by the Institute of Water Research - Michigan State University



Coldwater Township



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CN ES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Coldwater Township
- Saginaw Bay Basin
- Counties
- Rivers and Streams
- Townships & Cities

Sediment Loading Risk

- low
- moderate
- high
- very high

0 1 2 Miles

Data Sources

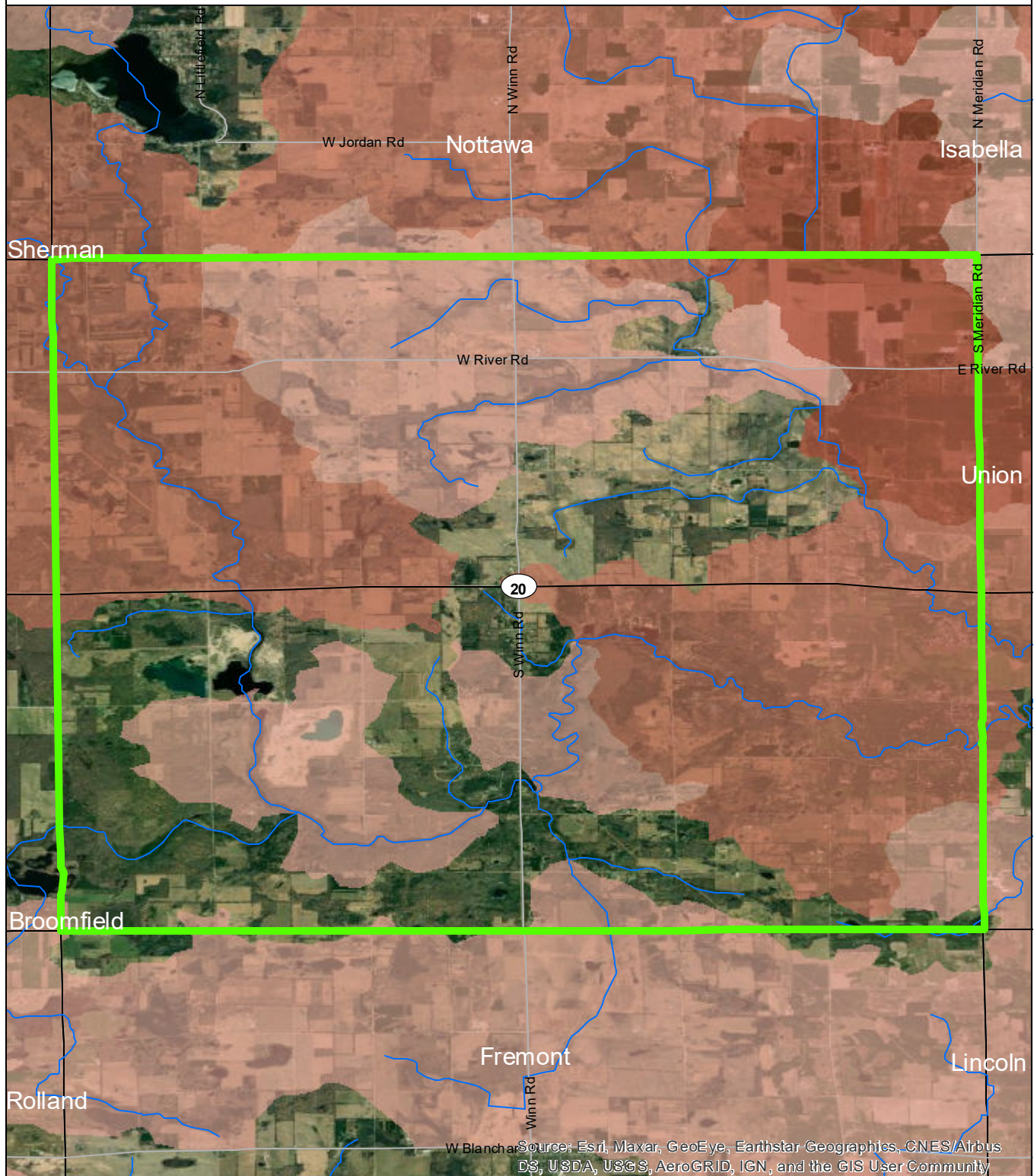
State of Michigan: Counties, Townships & Cities
USGS: Sediment Loading Risk

Map produced by the Institute of Water Research - Michigan State University

N



Deerfield Township



- Deerfield Township
- Saginaw Bay Basin
- Counties
- Rivers and Streams
- Townships & Cities

Sediment Loading Risk

- low
- moderate
- high
- very high

0 1 2 Miles

Data Sources

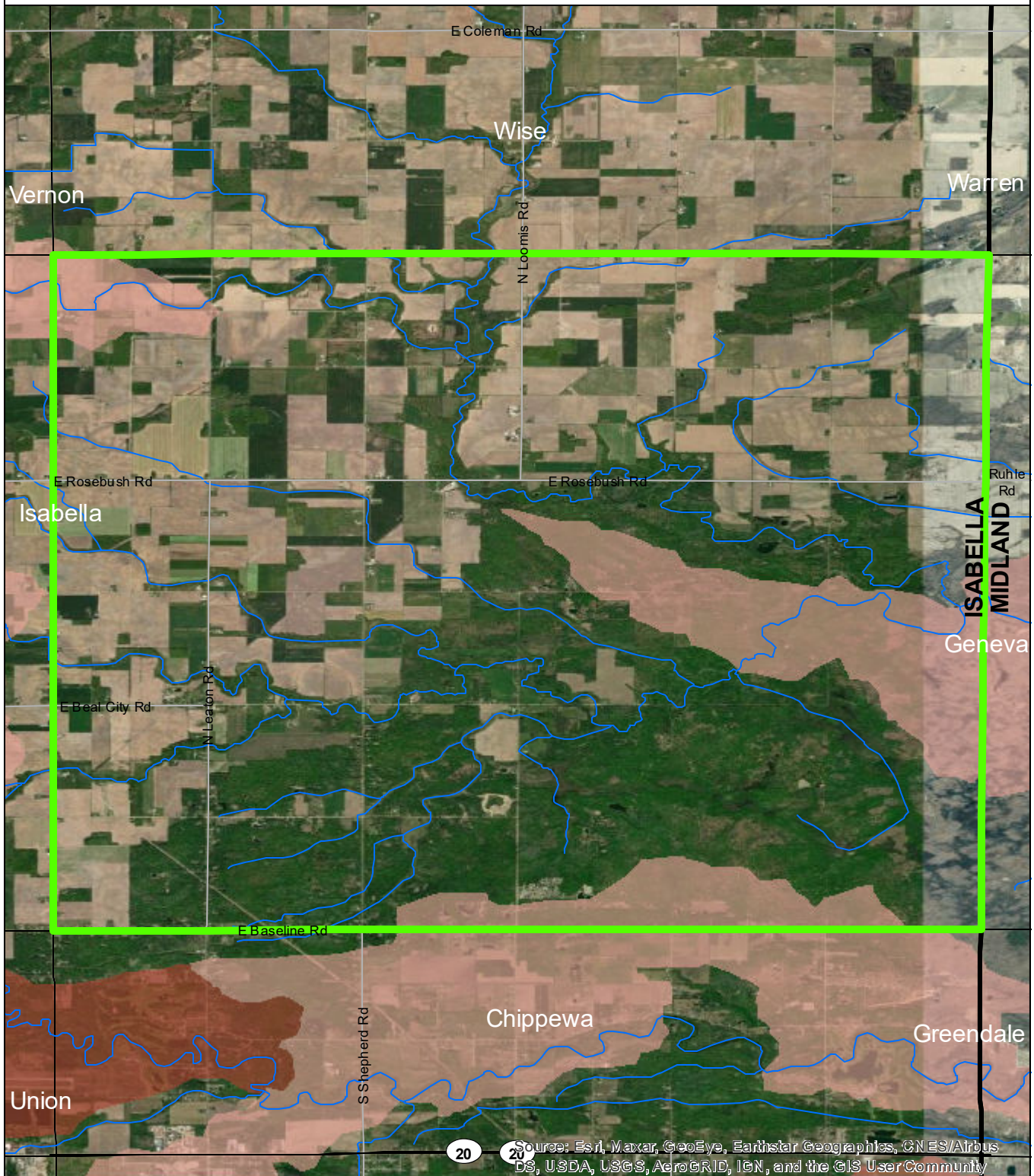
State of Michigan: Counties, Townships & Cities
USGS: Sediment Loading Risk

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N



Denver Township



- Denver Township
- Saginaw Bay Basin
- Counties
- Rivers and Streams
- Townships & Cities

Sediment Loading Risk

- low
- moderate
- high
- very high

0 1 2 Miles

Data Sources

State of Michigan: Counties, Townships & Cities

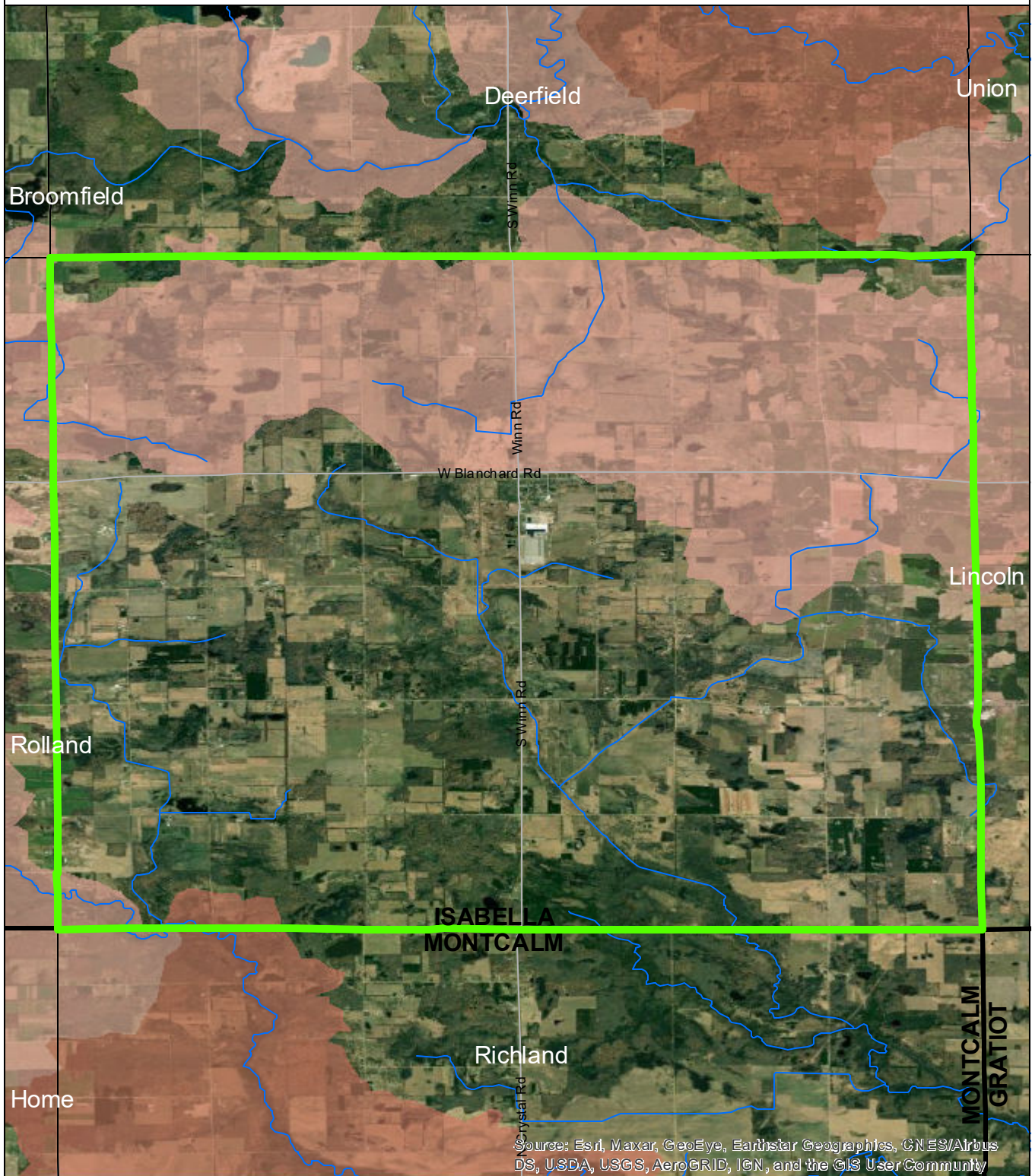
USGS: Sediment Loading Risk

Map produced by the Institute of Water Research - Michigan State University

N



Fremont Township



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CN ES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Fremont Township
- Saginaw Bay Basin
- Counties
- Rivers and Streams
- Townships & Cities

Sediment Loading Risk

- low
- moderate
- high
- very high

0 1 2 Miles

Data Sources

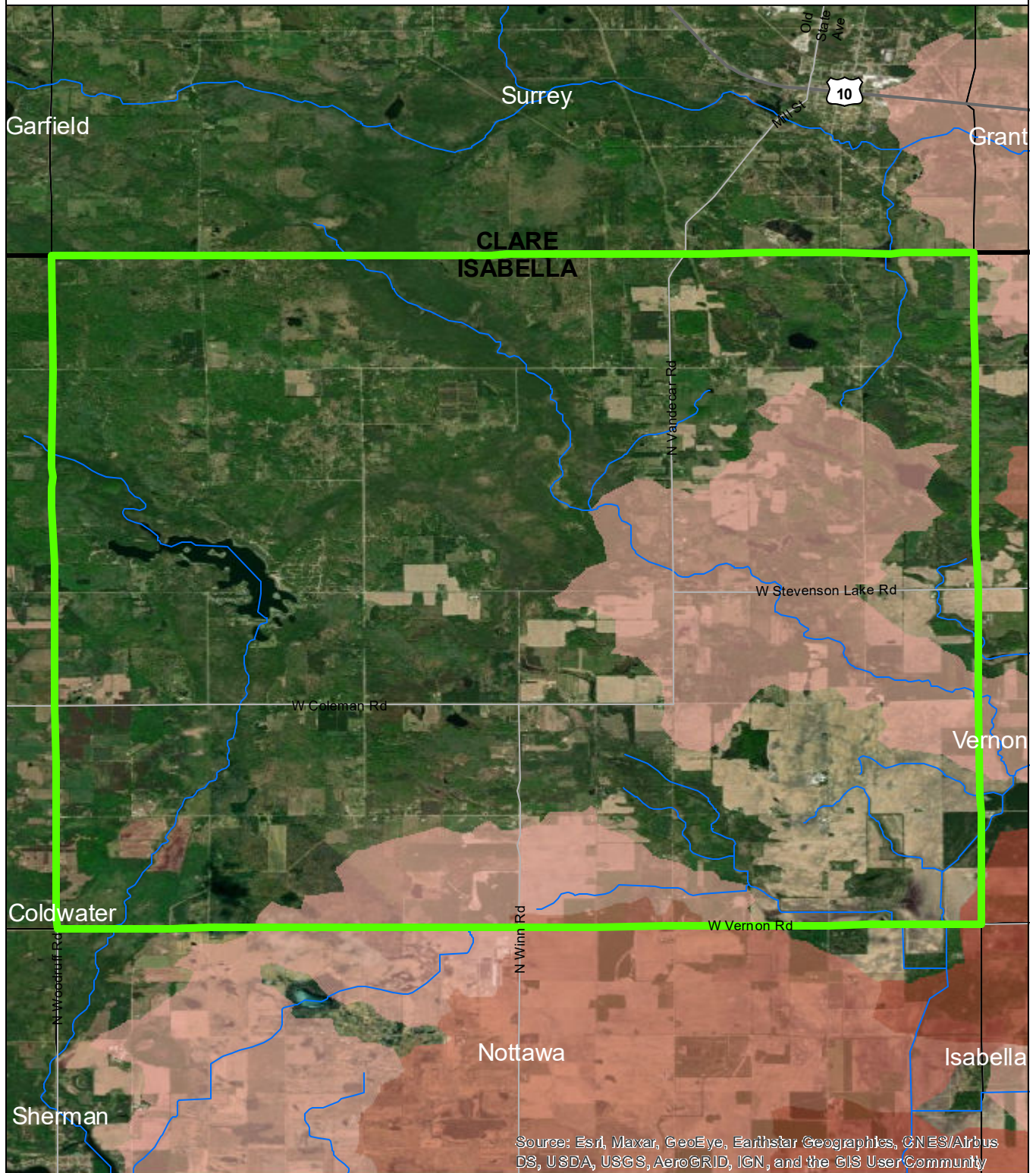
State of Michigan: Counties, Townships & Cities
USGS: Sediment Loading Risk

Map produced by the Institute of Water Research - Michigan State University

N



Gilmore Township



- Gilmore Township
- Saginaw Bay Basin
- Counties
- Rivers and Streams
- Townships & Cities

Sediment Loading Risk

- low
- moderate
- high
- very high

0 1 2 Miles

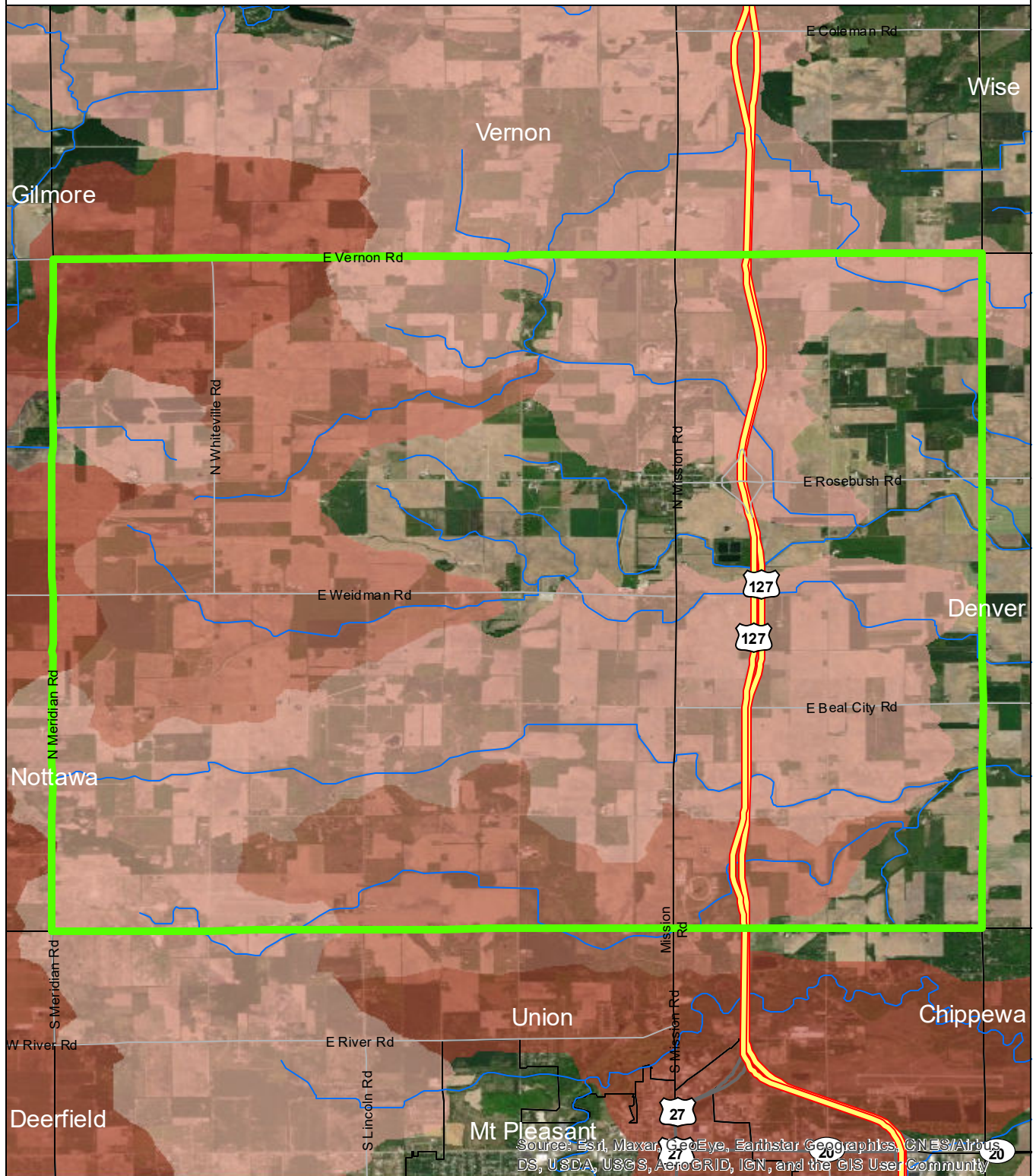
Data Sources

State of Michigan: Counties, Townships & Cities

USGS: Sediment Loading Risk

Map produced by the Institute of Water Research - Michigan State University

Isabella Township



- Isabella Township
- Saginaw Bay Basin
- Counties
- Rivers and Streams
- Townships & Cities

Sediment Loading Risk

- low
- moderate
- high
- very high

0 1 2 Miles

Data Sources

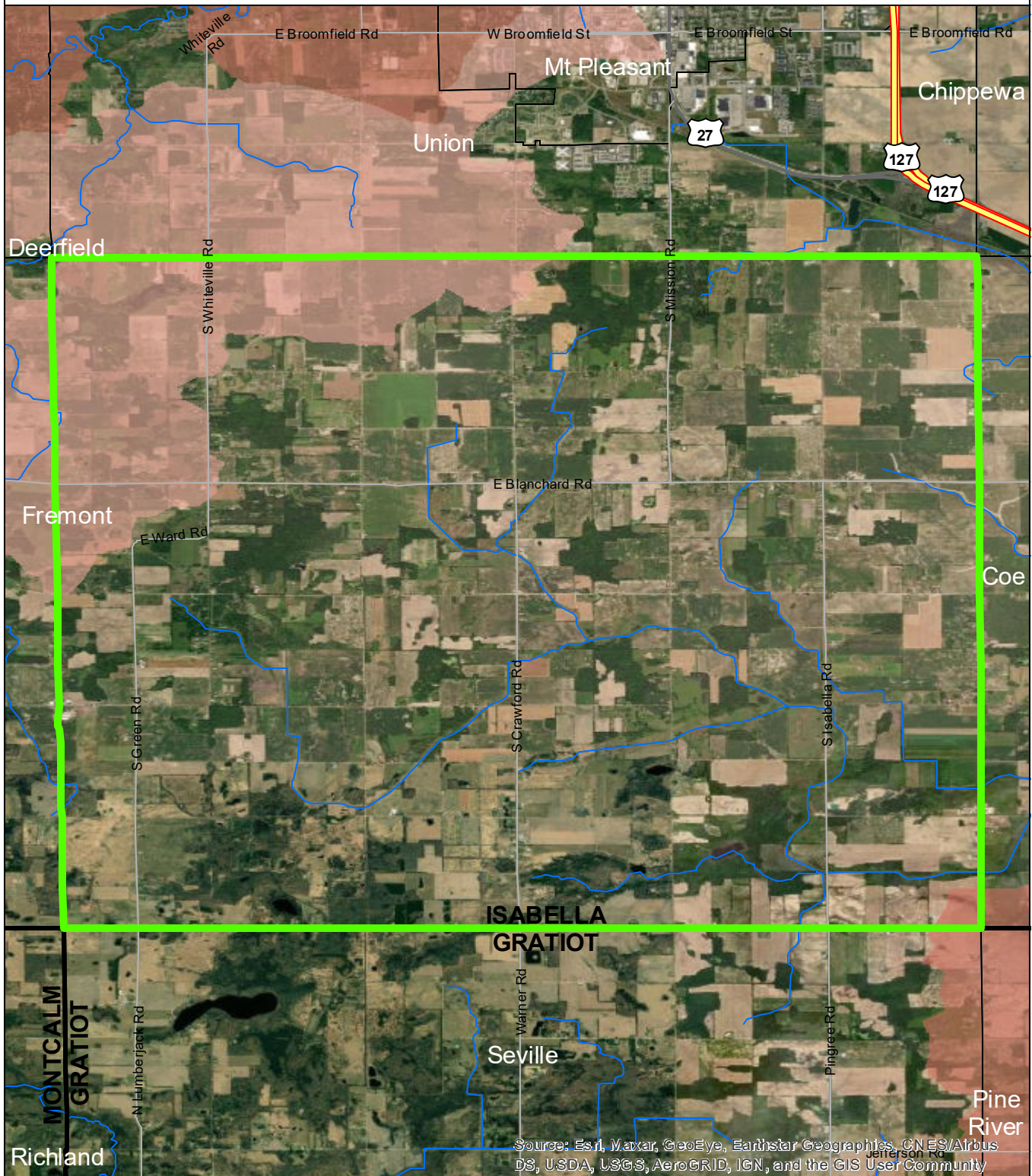
State of Michigan: Counties, Townships & Cities
USGS: Sediment Loading Risk

Map produced by the Institute of Water Research - Michigan State University

N



Lincoln Township



- Lincoln Township
- Saginaw Bay Basin
- Counties
- Rivers and Streams
- Townships & Cities

Sediment Loading Risk

- low
- moderate
- high
- very high

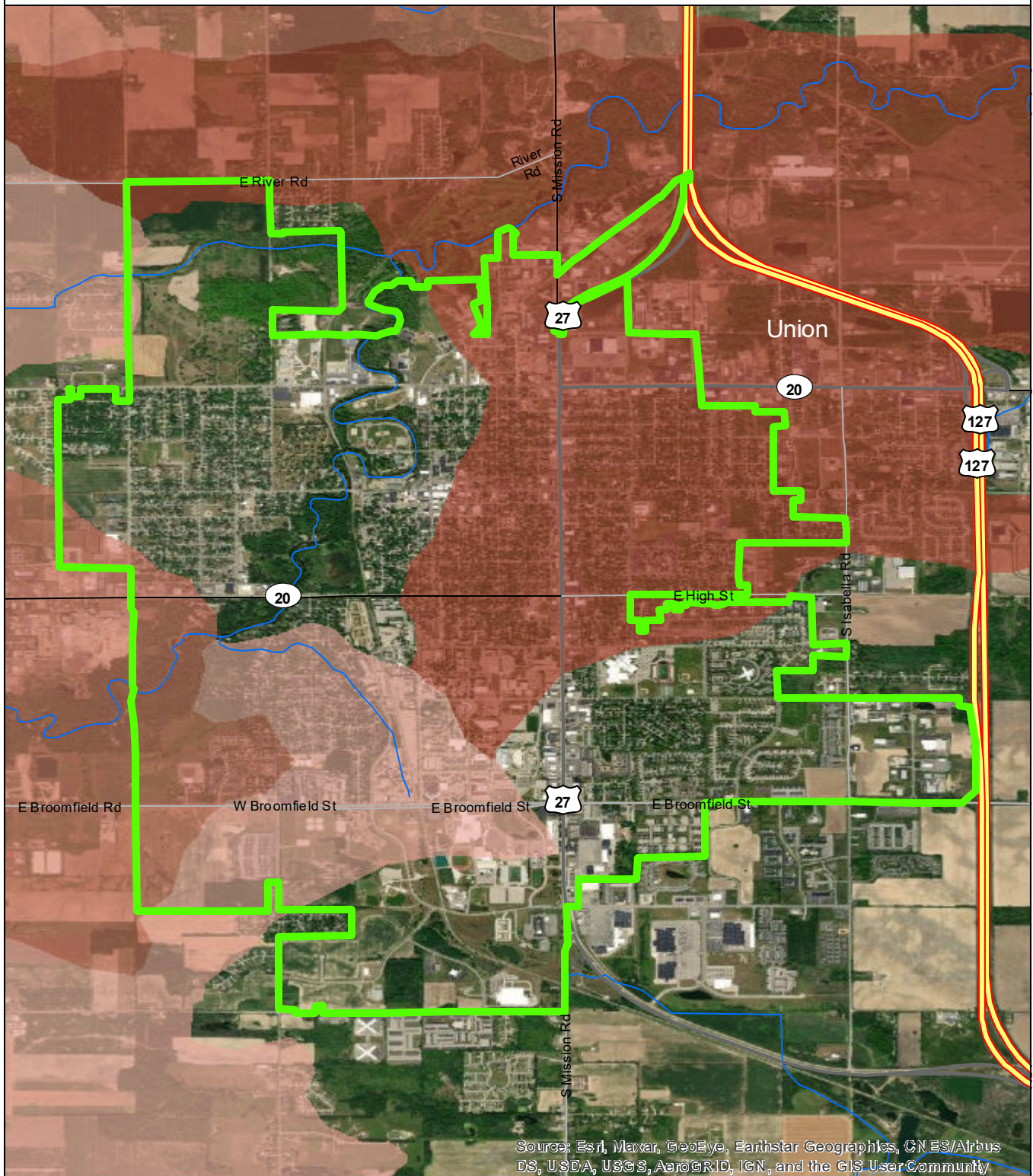
0 1 2 Miles

Data Sources

State of Michigan: Counties, Townships & Cities
USGS: Sediment Loading Risk

Map produced by the Institute of Water Research - Michigan State University

City of Mt Pleasant



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- City of Mt Pleasant
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- Counties
- Rivers and Streams
- Townships & Cities

Sediment Loading Risk

- low
- moderate
- high
- very high

0 1 2 Miles

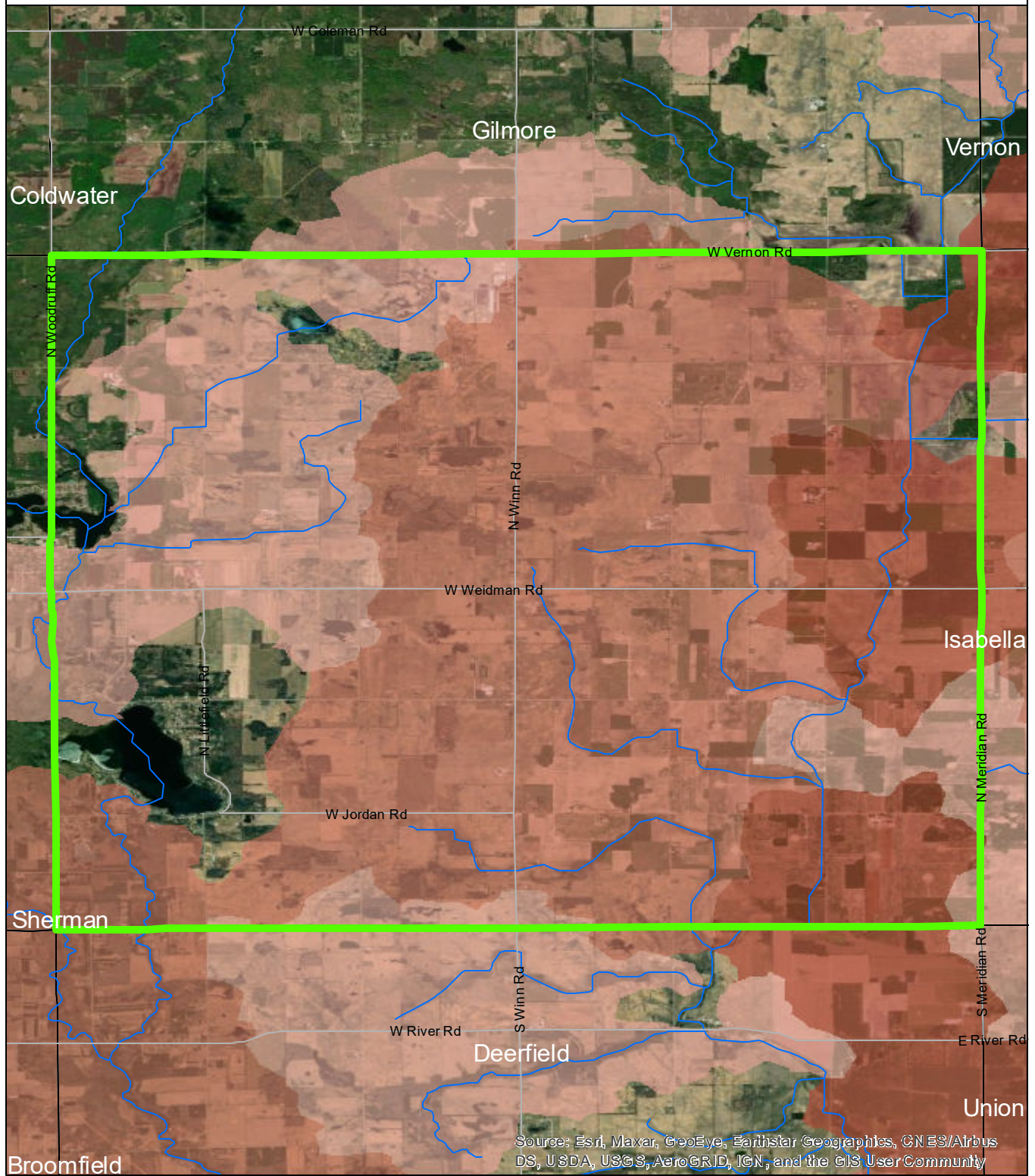
Data Sources

State of Michigan: Counties, Townships & Cities

USGS: Sediment Loading Risk

Map produced by the Institute of Water Research - Michigan State University

Nottawa Township



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Nottawa Township
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- Counties
- Rivers and Streams
- Townships & Cities

Sediment Loading Risk

- low
- moderate
- high
- very high

0 1 2 Miles

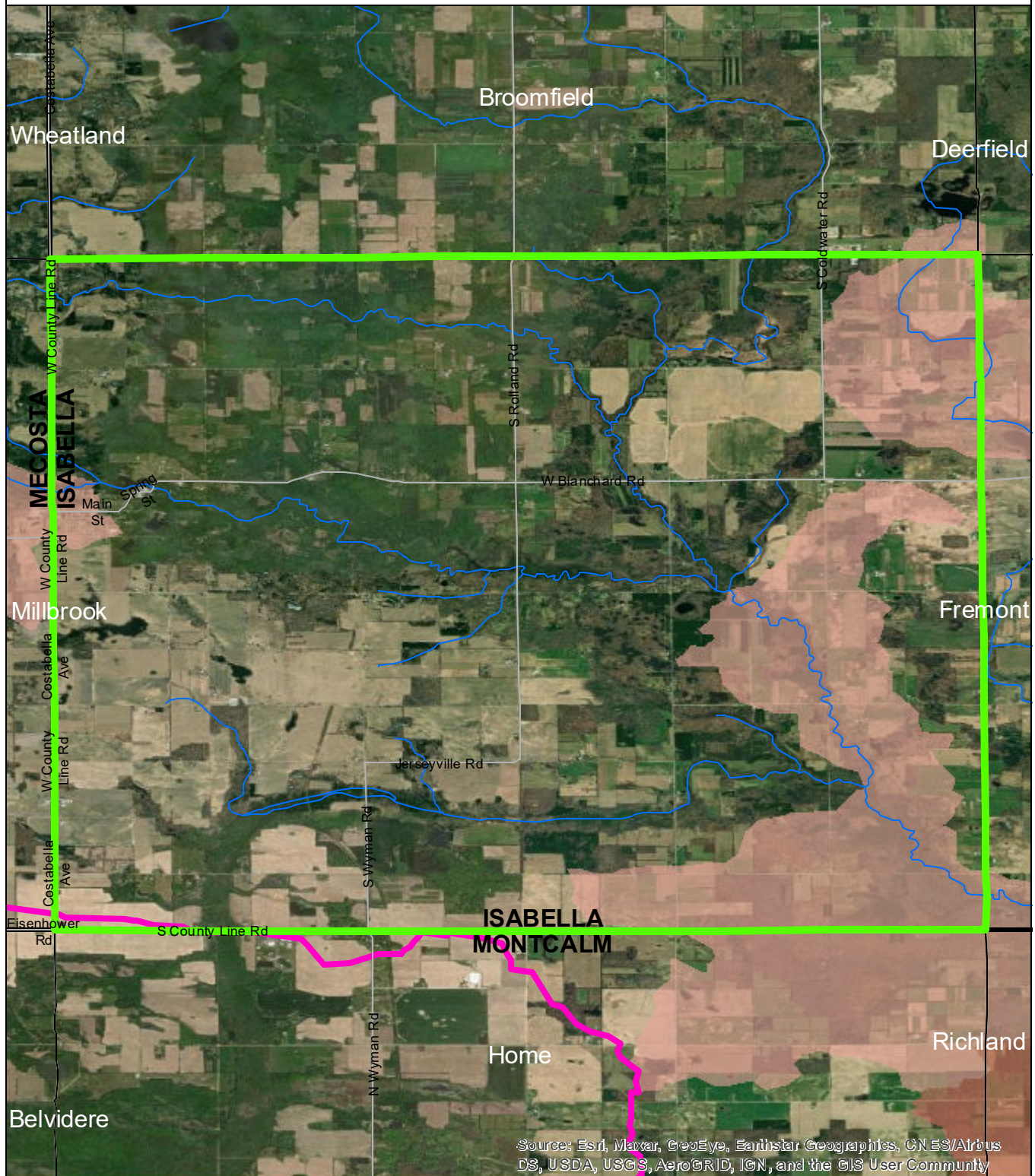
Data Sources

State of Michigan: Counties, Townships & Cities
USGS: Sediment Loading Risk

Map produced by the Institute of Water Research - Michigan State University



Rolland Township



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Rolland Township
- Saginaw Bay Basin
- Counties
- Rivers and Streams
- Townships & Cities

Sediment Loading Risk

- low
- moderate
- high
- very high

0 1 2 Miles

Data Sources

State of Michigan: Counties, Townships & Cities
USGS: Sediment Loading Risk

Map produced by the Institute of Water Research - Michigan State University

Sherman Township

W Coleman Rd

Coldwater

Gilmore

Fork

W Airline Rd

W Drew Rd

N Rolland Rd

N School Rd

W Weidman Rd

Nottawa

Sheridan

Broomfield

Wheatland

Deerfield

W River Rd

N Coldwater Rd

N Woodruff Rd

N Brinton Rd

Arthur Rd

MECOSTA

ISABELLA

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Sherman Township
- Saginaw Bay Basin
- Counties
- Rivers and Streams
- Townships & Cities

Sediment Loading Risk

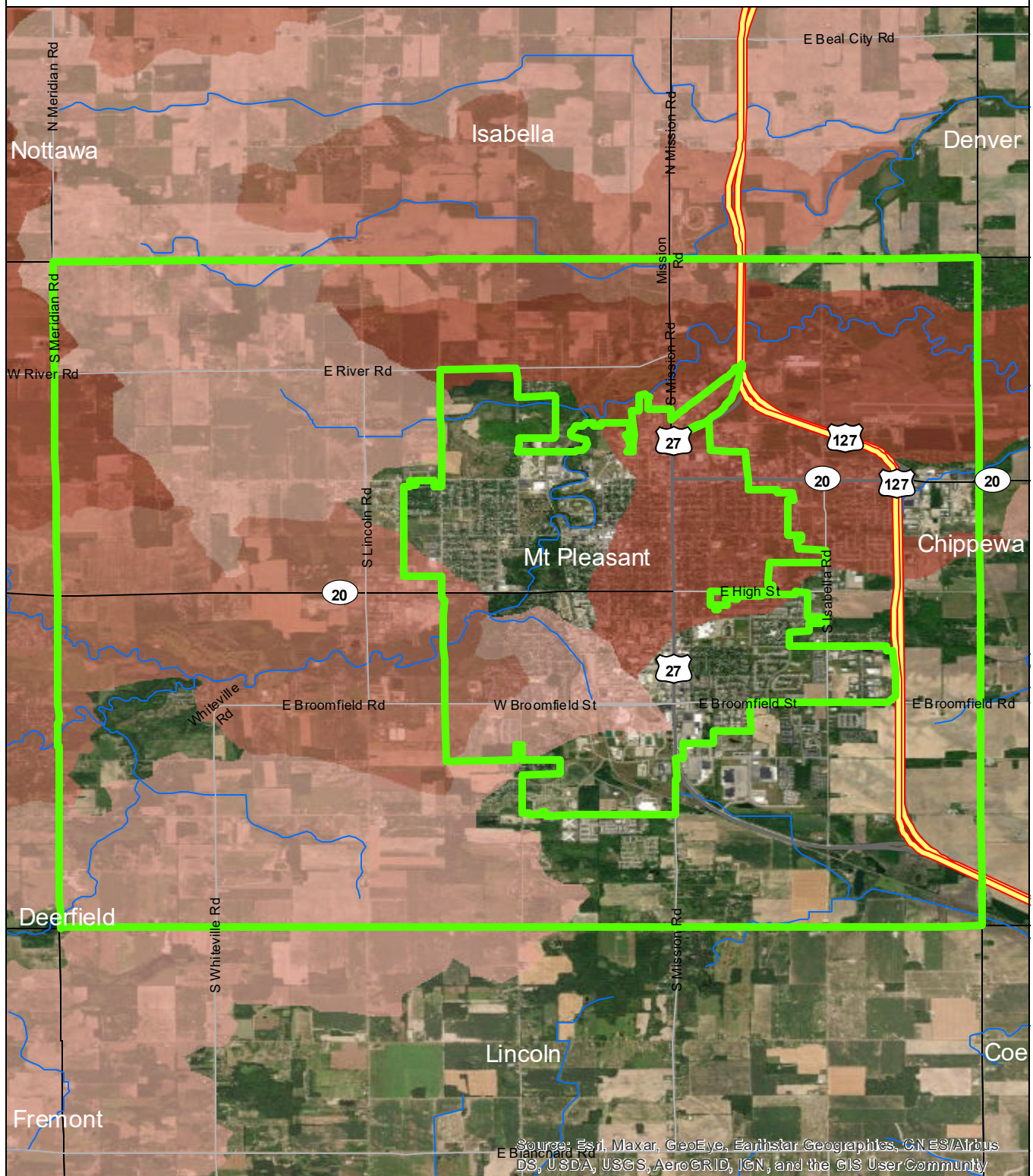
- low
- moderate
- high
- very high

Scale 0 1 2 Miles

Data Sources
 State of Michigan: Counties, Townships & Cities
 USGS: Sediment Loading Risk
 Map produced by the Institute of Water Research - Michigan State University

N

Union Township



- Union Township
- Saginaw Bay Basin
- Counties
- Rivers and Streams
- Townships & Cities

Sediment Loading Risk

- low
- moderate
- high
- very high

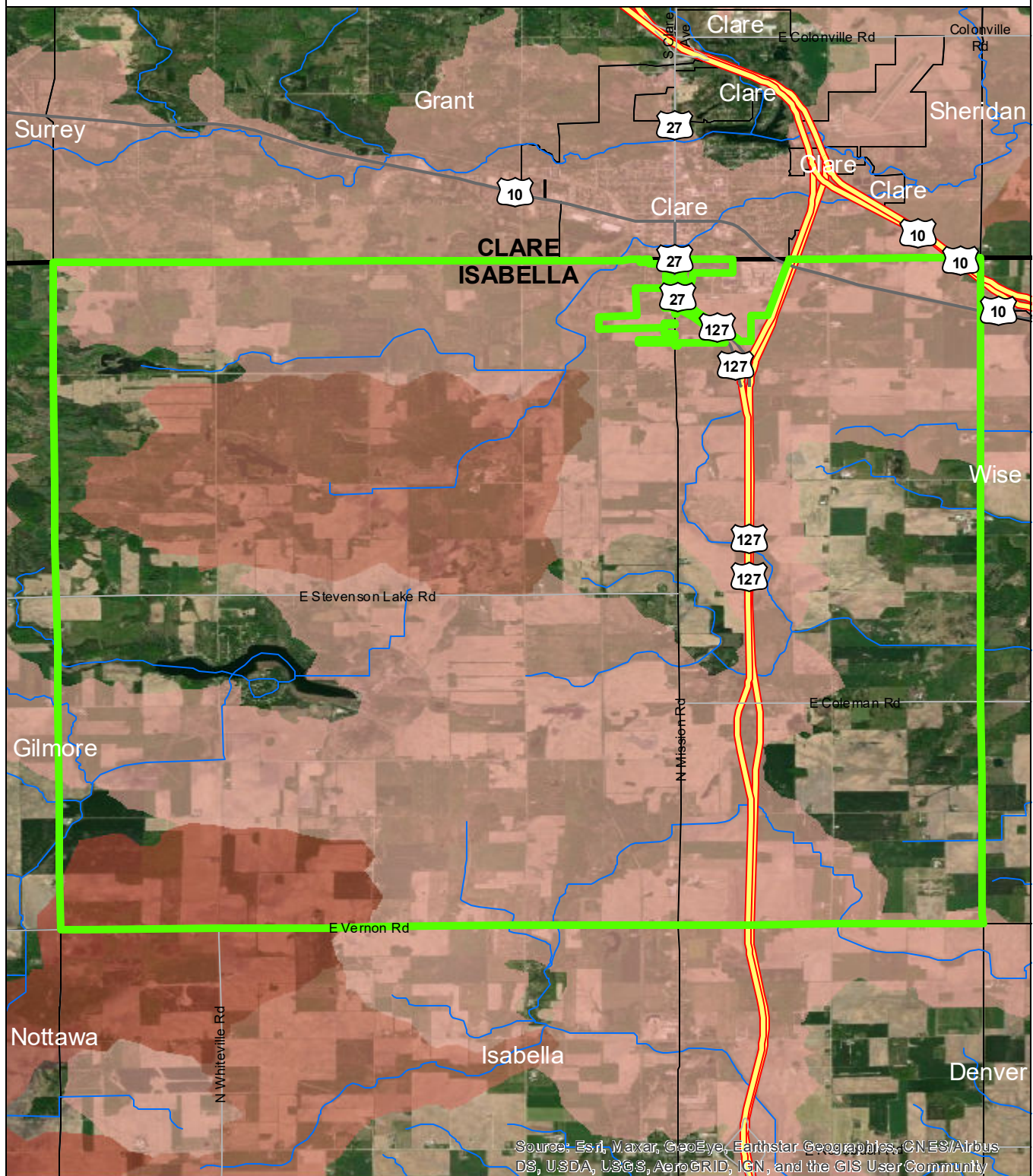
0 1 2 Miles

Data Sources

State of Michigan: Counties, Townships & Cities
USGS: Sediment Loading Risk

Map produced by the Institute of Water Research - Michigan State University

Vernon Township



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Vernon Township
- Saginaw Bay Basin
- Counties
- Rivers and Streams
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Sediment Loading Risk

- low
- moderate
- high
- very high

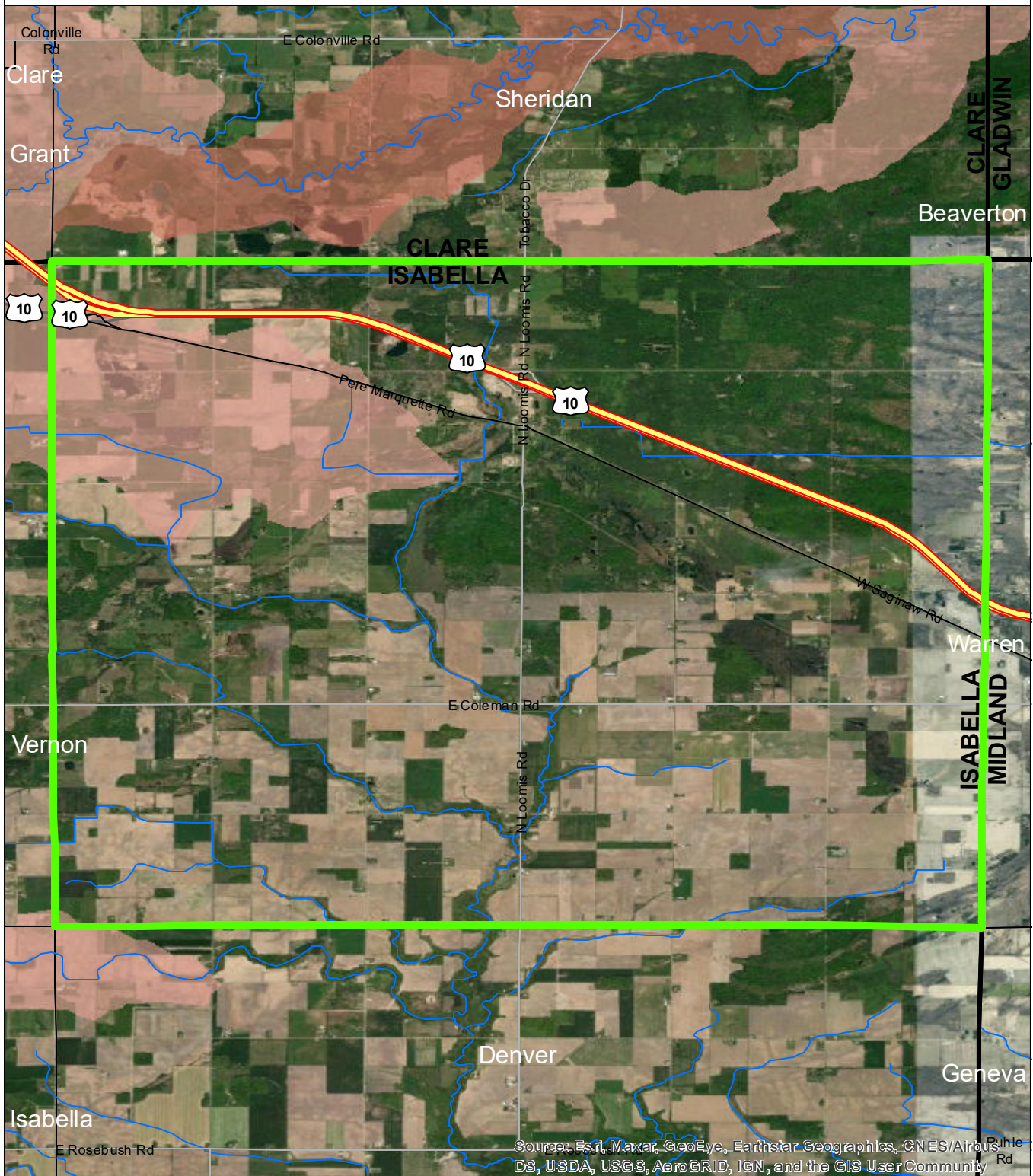
0 1 2 Miles

Data Sources

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Wise Township



- Wise Township
- Saginaw Bay Basin
- Counties
- Rivers and Streams
- Townships & Cities

Sediment Loading Risk

- low
- moderate
- high
- very high

0 1 2 Miles

Data Sources

State of Michigan: Counties, Townships & Cities
USGS: Sediment Loading Risk

Map produced by the Institute of Water Research - Michigan State University