

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:

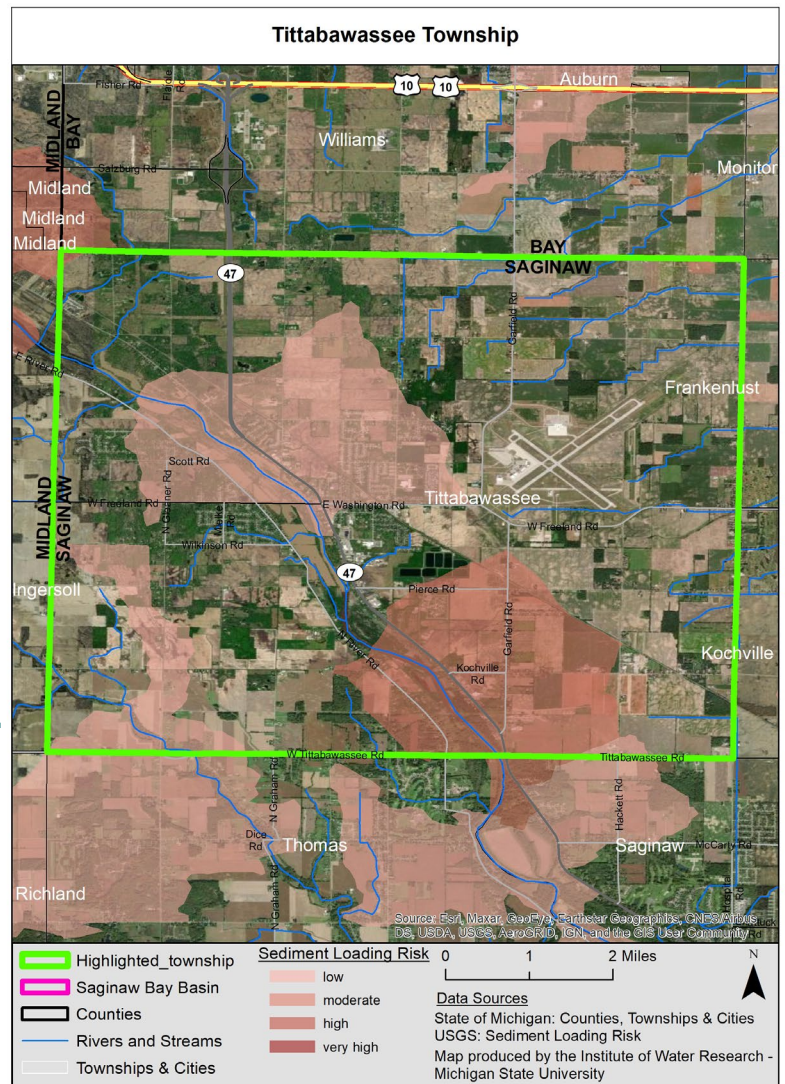
Sarah Fronczak

Environmental Management Educator
Michigan State University Extension
froncz3@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

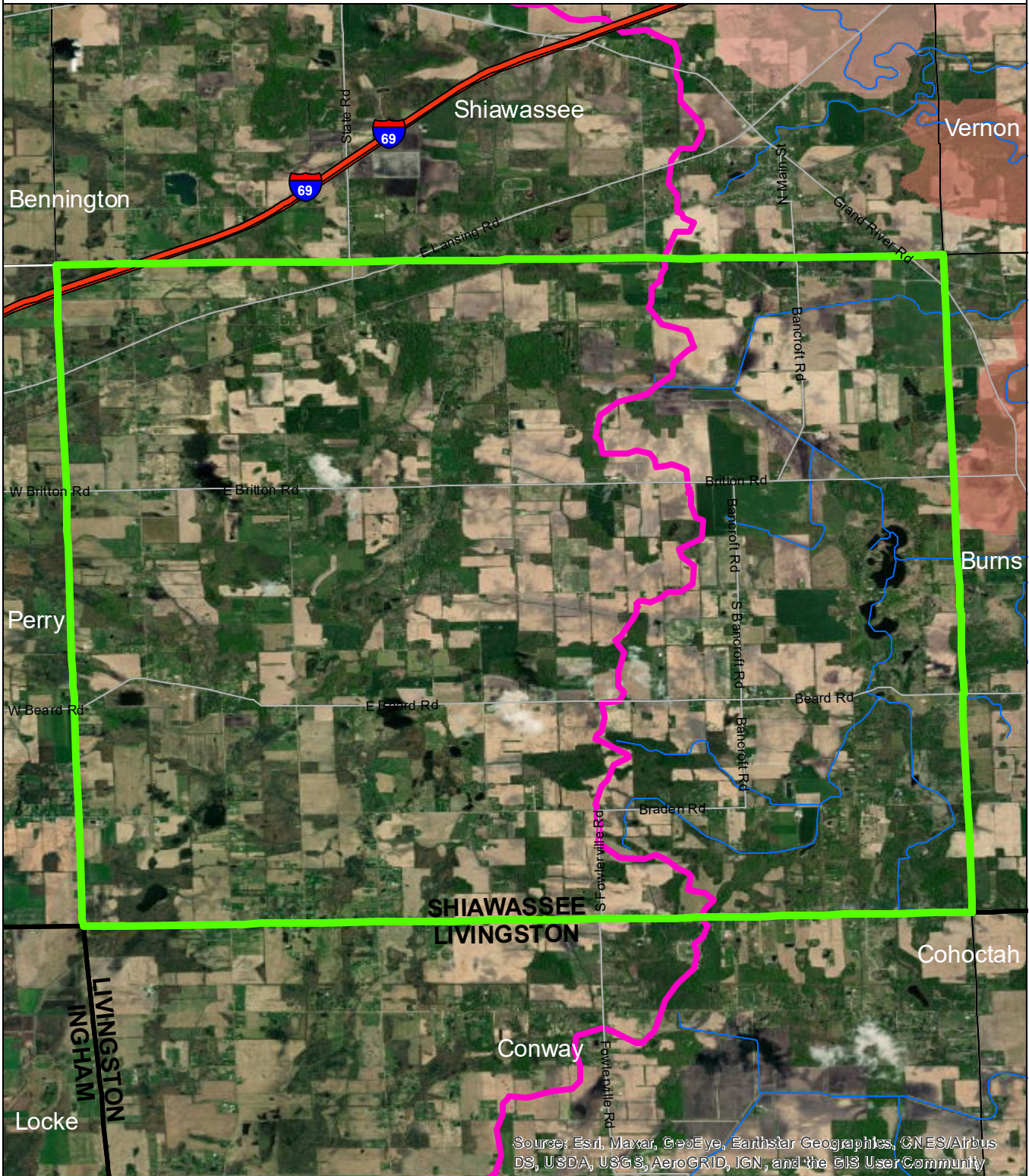


* <https://www.sciencebase.gov/catalog/item/5cbf5150e4b09b8c0b700df3>

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Antrim Township

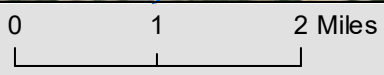


Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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

Sediment Loading Risk

- low
- moderate
- high
- very high

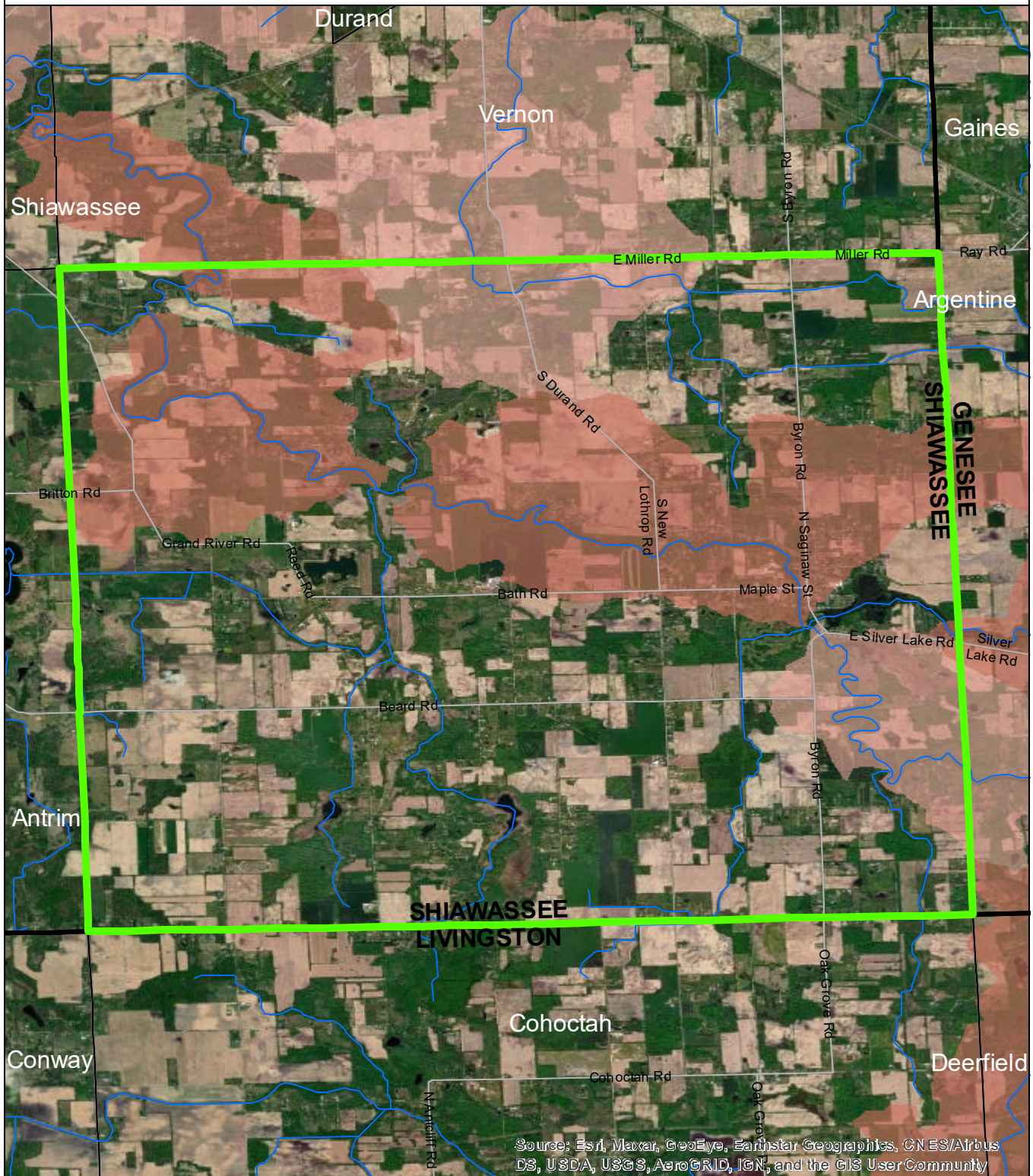


Data Sources

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



Burns Township



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

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

Sediment Loading Risk

- low
- moderate
- high
- very high



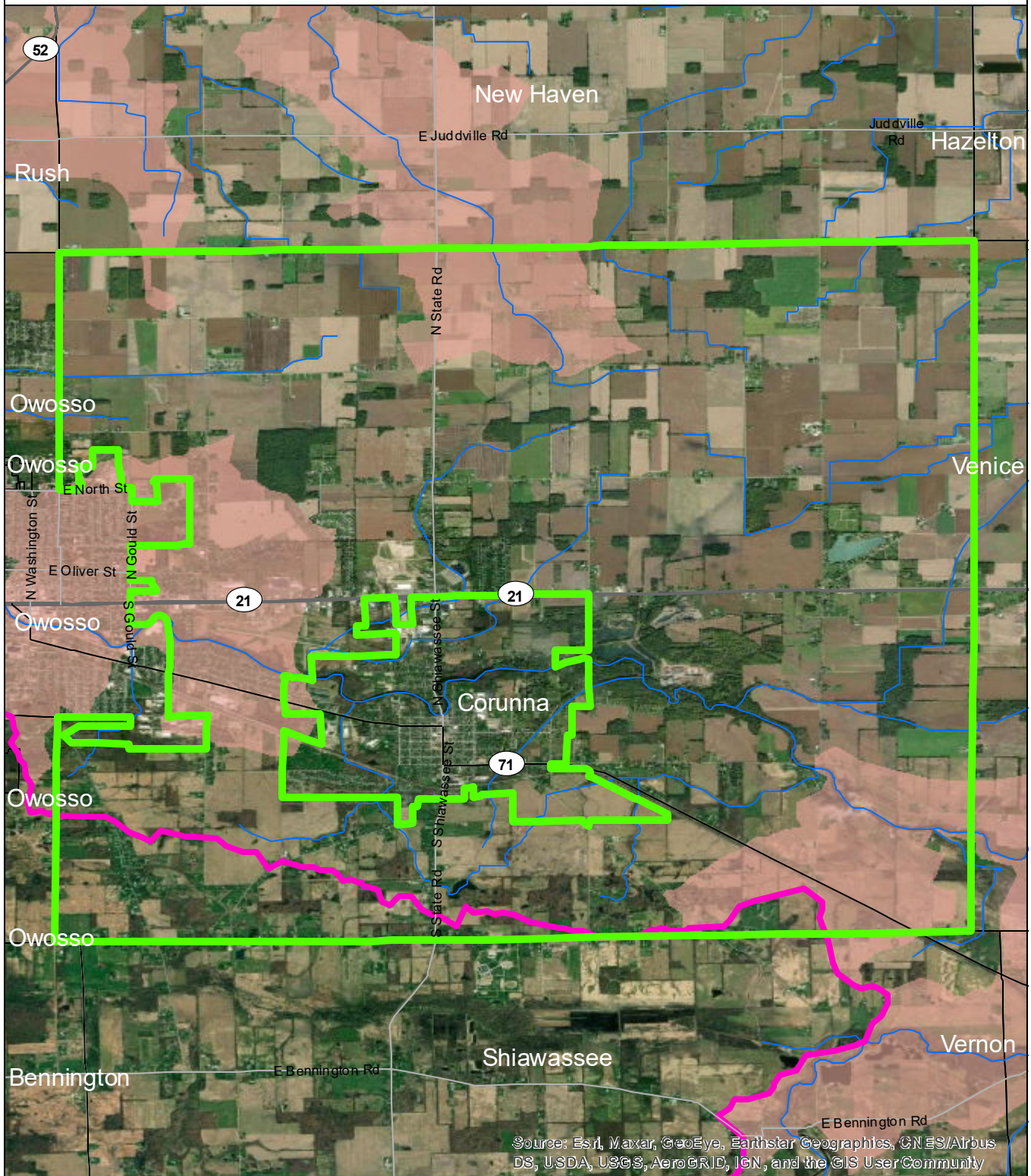
Data Sources

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

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



Caledonia Township

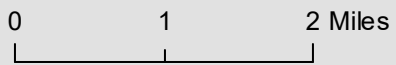


Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Caledonia Township
- Saginaw Bay Basin
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- Rivers and Streams
- Townships & Cities

Sediment Loading Risk

- low
- moderate
- high
- very high



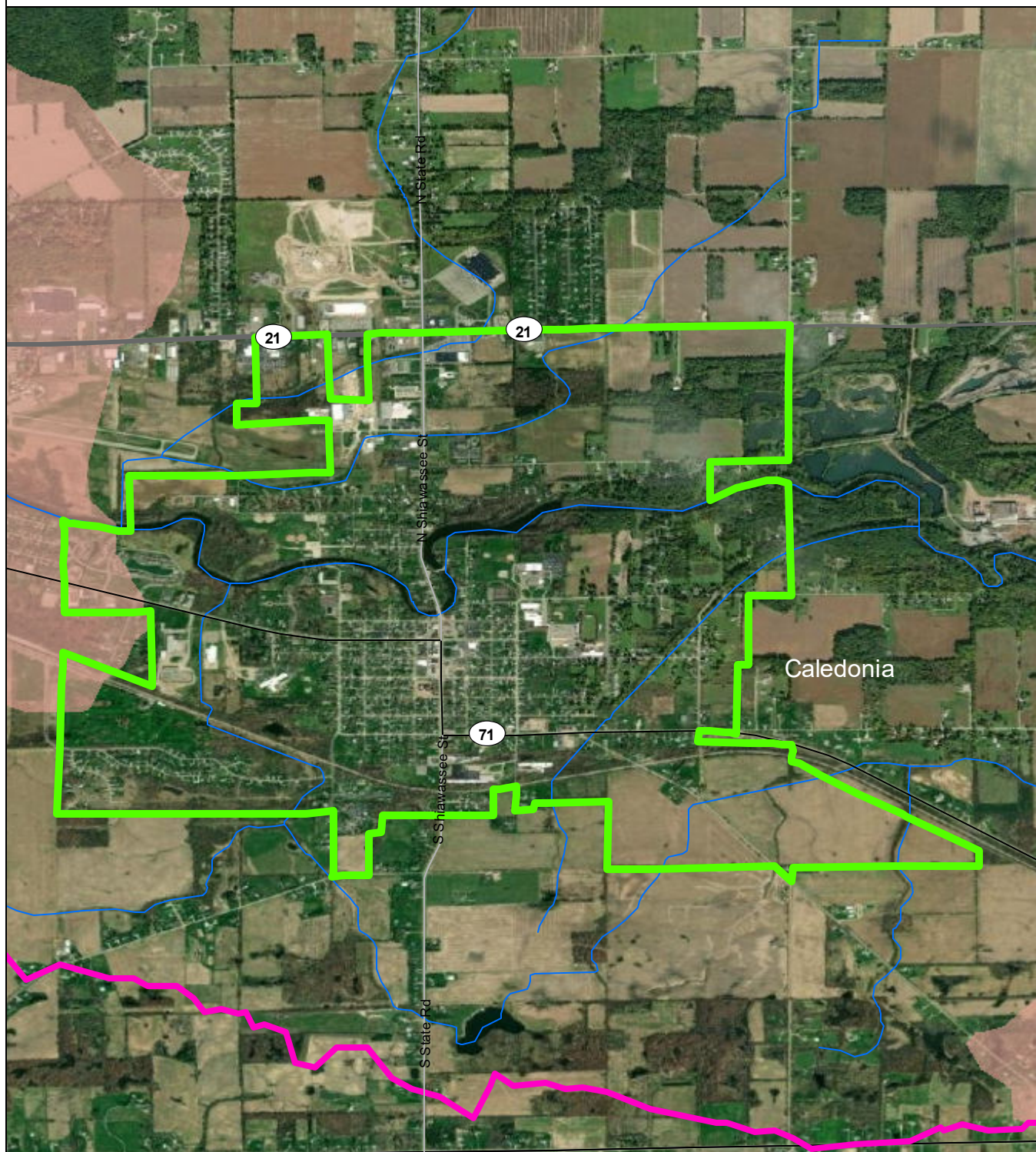
Data Sources

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






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

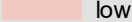





City of Corunna



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

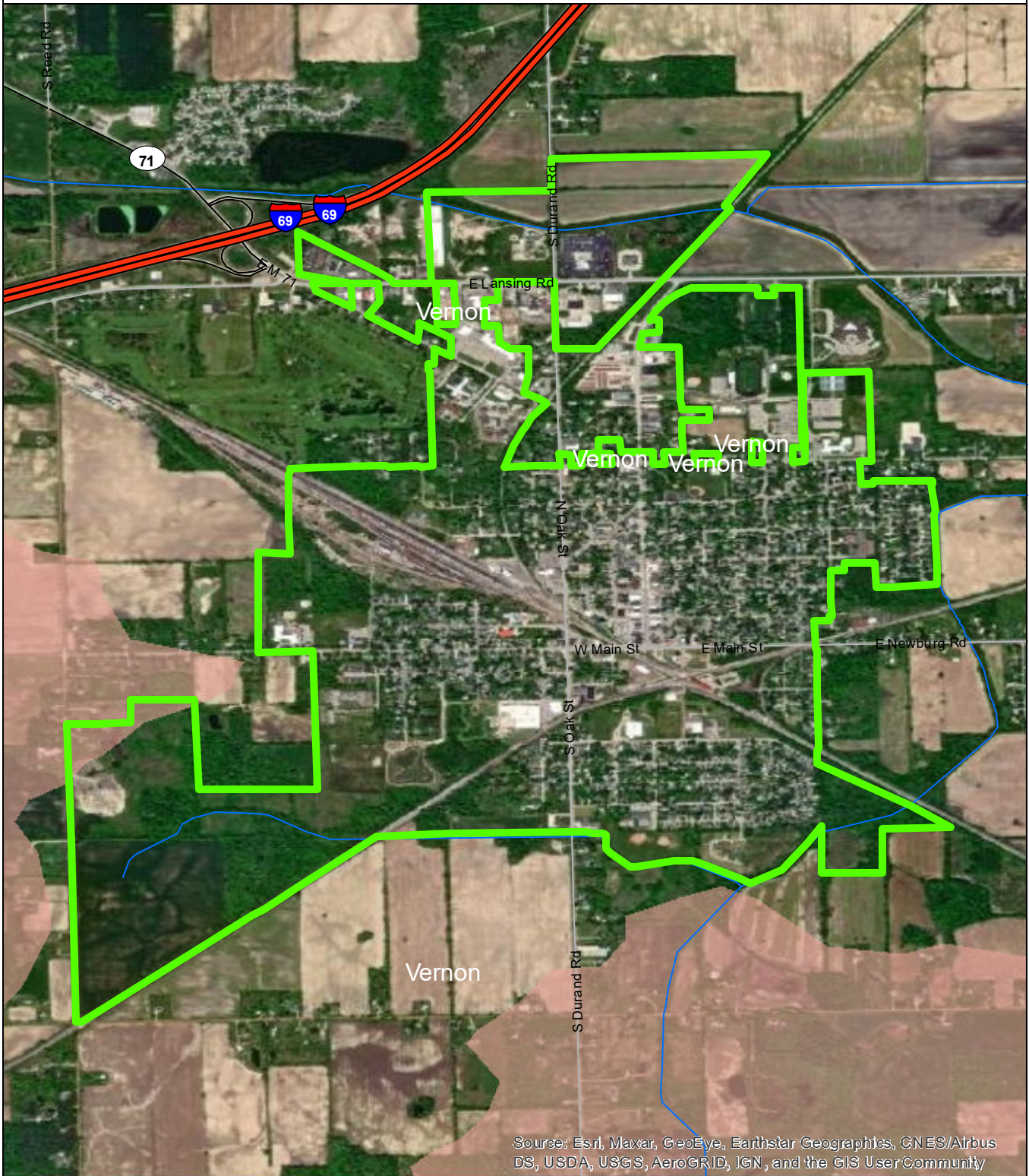
-  City of Corunna
-  Saginaw Bay Basin
-  Counties
-  Rivers and Streams
-  Townships & Cities

- Sediment Loading Risk**
-  low
 -  moderate
 -  high
 -  very high



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 Durand

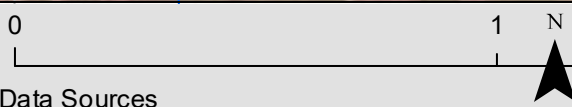


Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- City of Durand
- Saginaw Bay Basin
- Counties
- Rivers and Streams
- Townships & Cities

Sediment Loading Risk

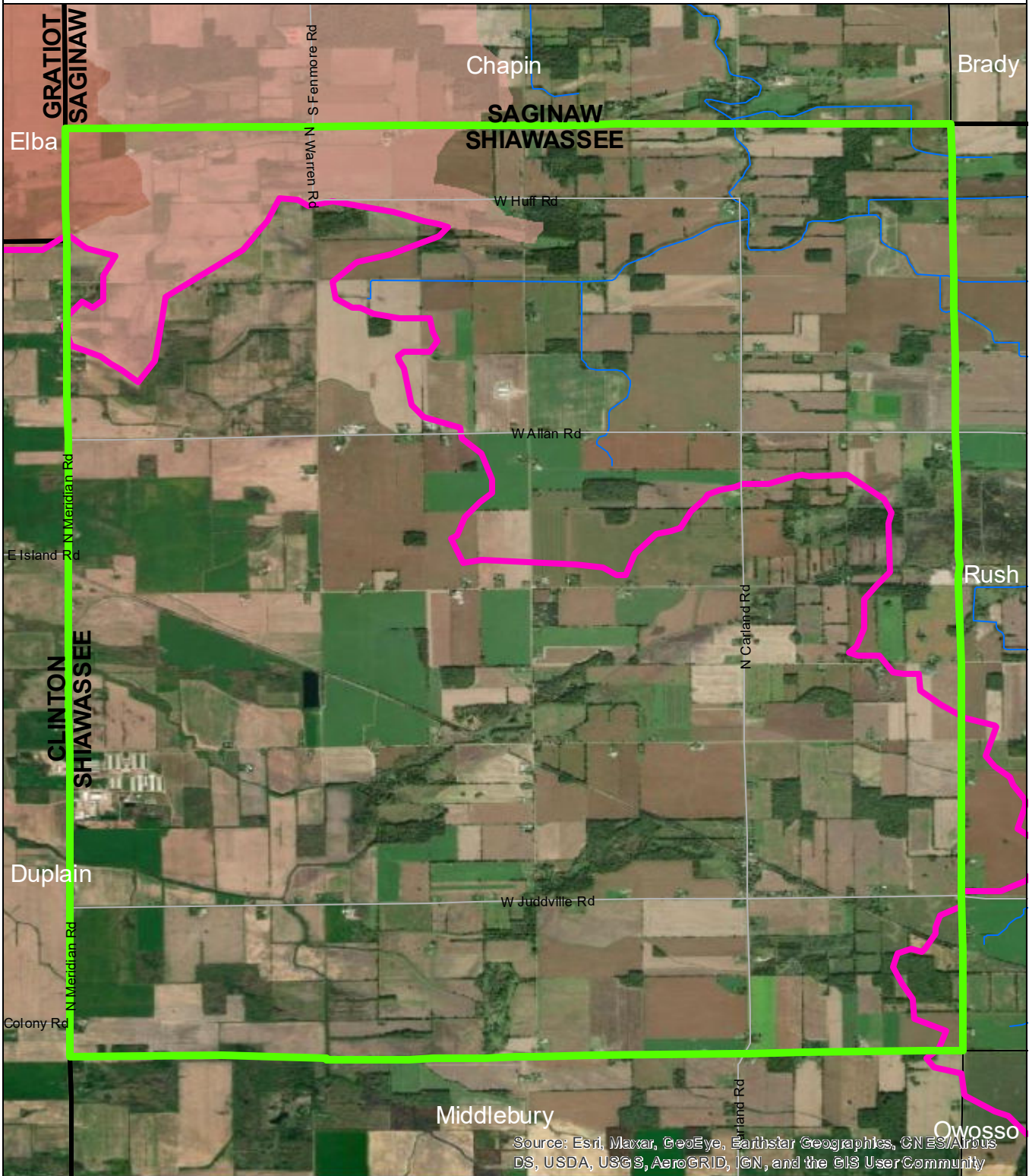
- low
- moderate
- high
- very high








Data Sources

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





Fairfield Township

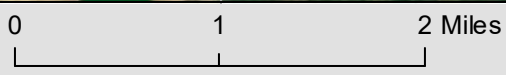


Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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

Sediment Loading Risk

-  low
-  moderate
-  high
-  very high

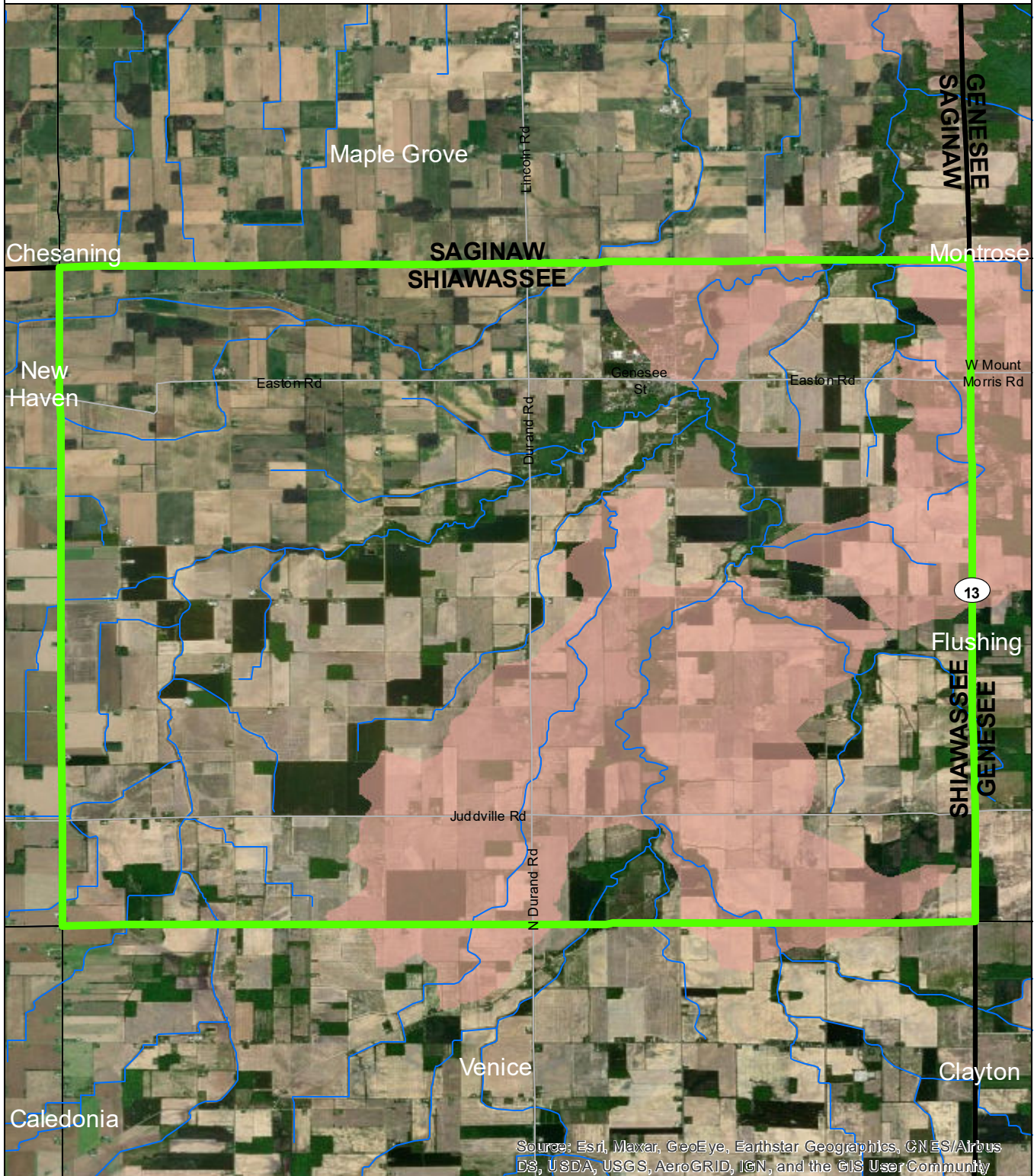


Data Sources

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



Hazelton Township



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

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

Sediment Loading Risk

- low
- moderate
- high
- very high

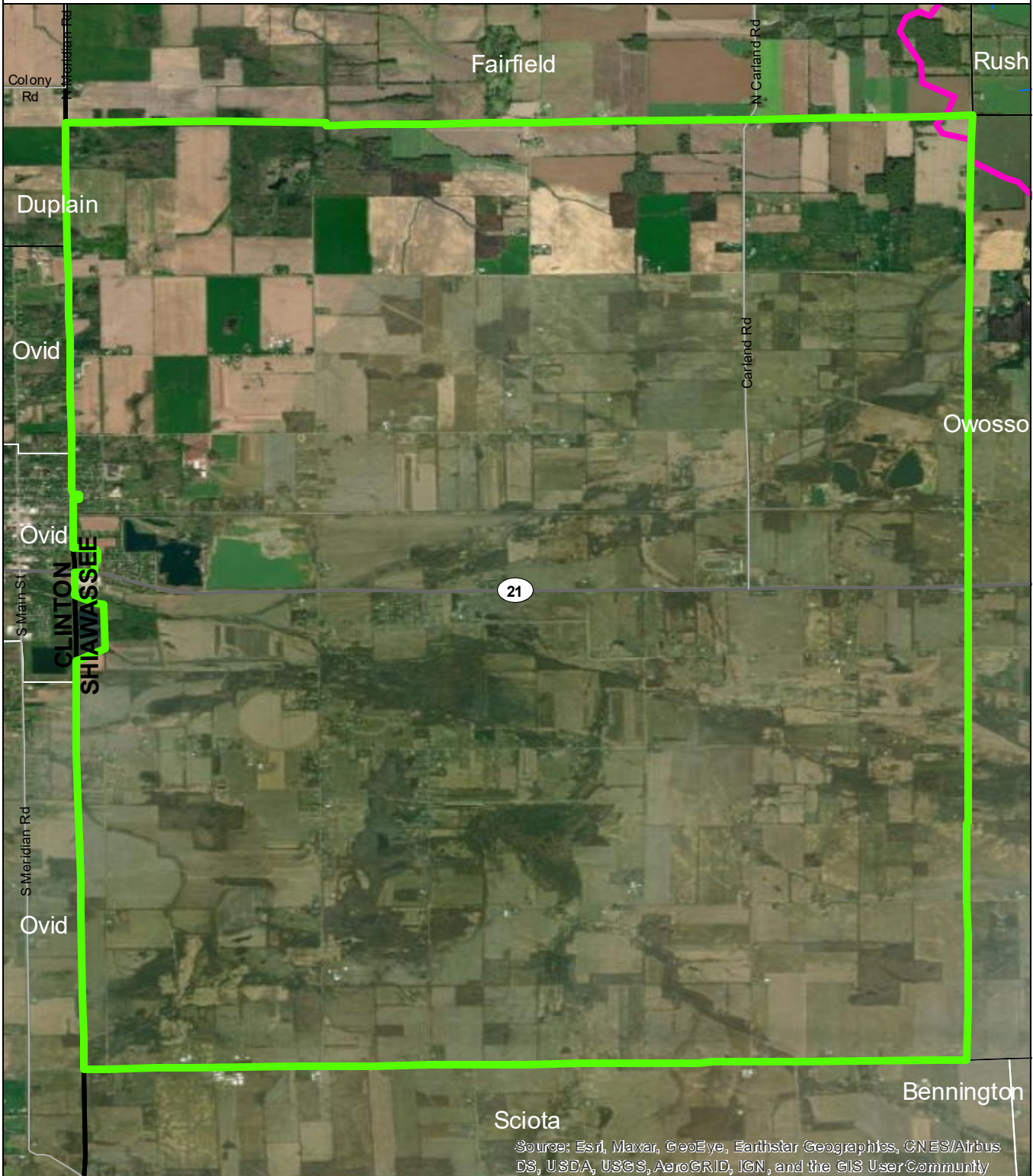


Data Sources






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

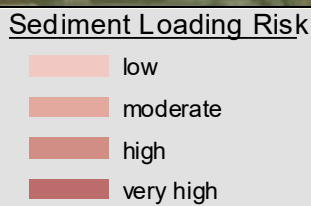
Map produced by the Institute of Water Research - Michigan State University

Middlebury Township



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

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



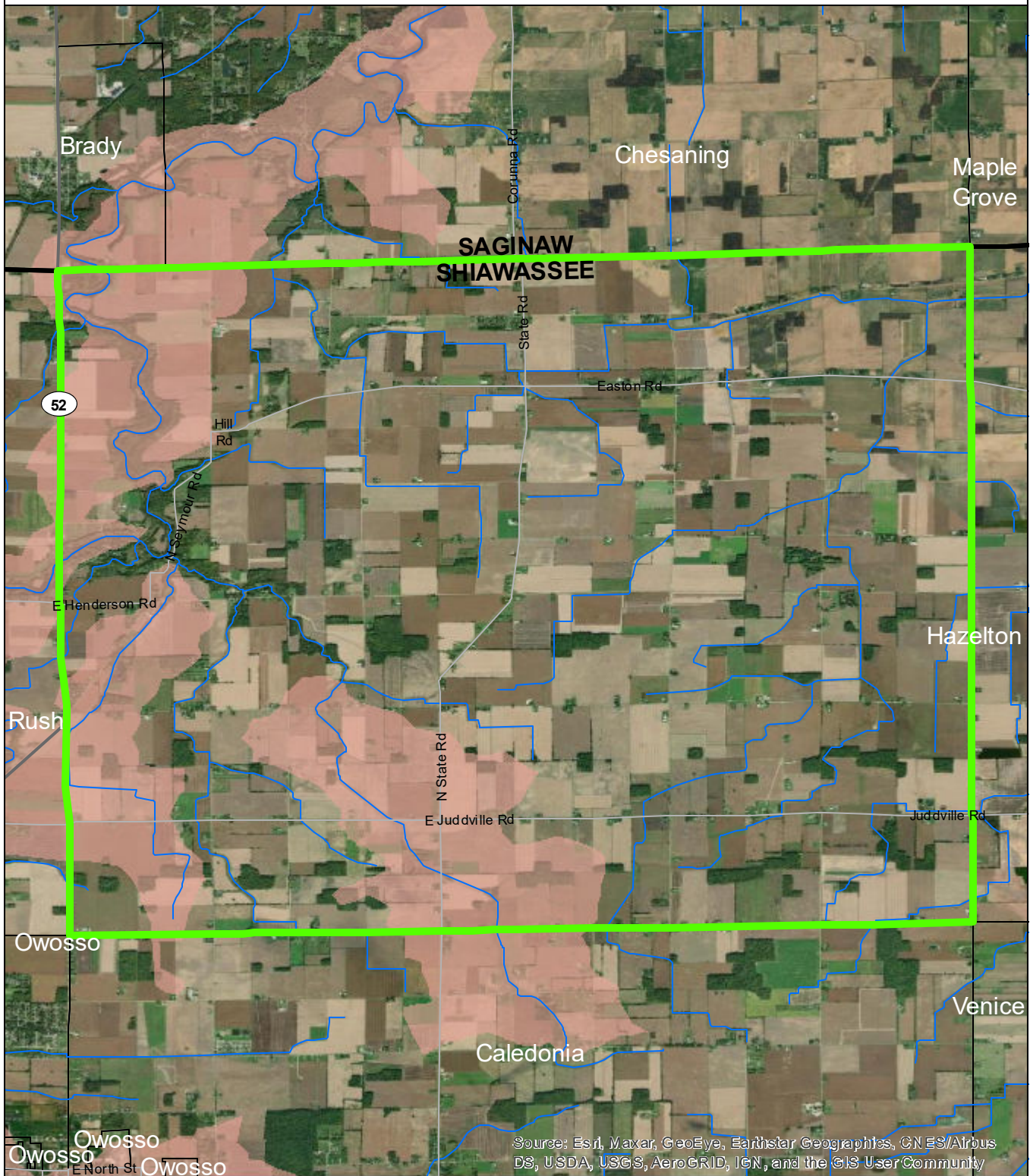
Data Sources

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






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




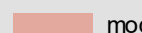
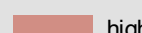

New Haven Township

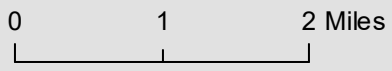


Source: Esri, Maxar, GeoEye, Earthstar Geographics, CN ES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

-  New Haven Township
-  Saginaw Bay Basin
-  Counties
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Sediment Loading Risk

-  low
-  moderate
-  high
-  very high



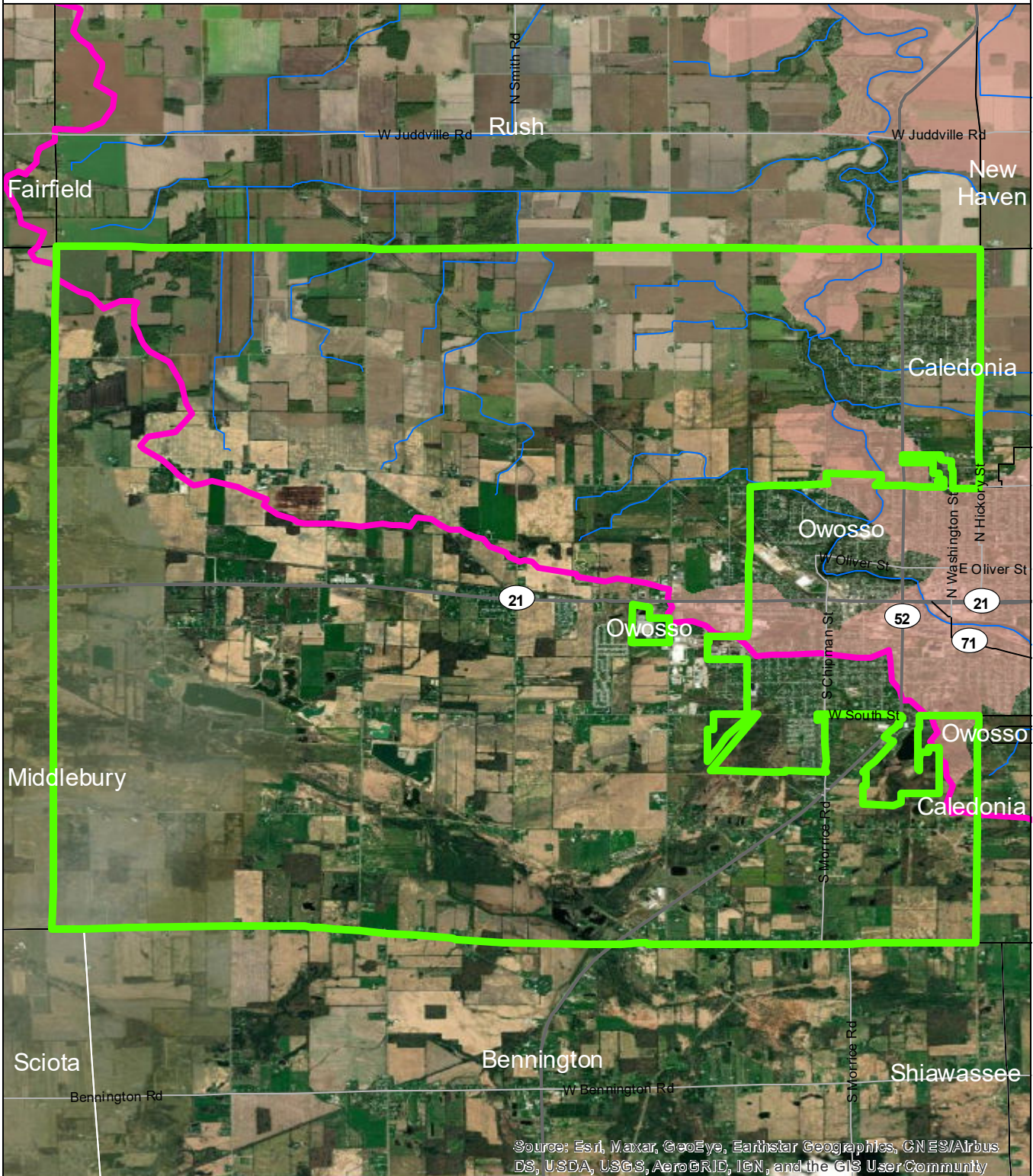
Data Sources

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

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



Owosso Township



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

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

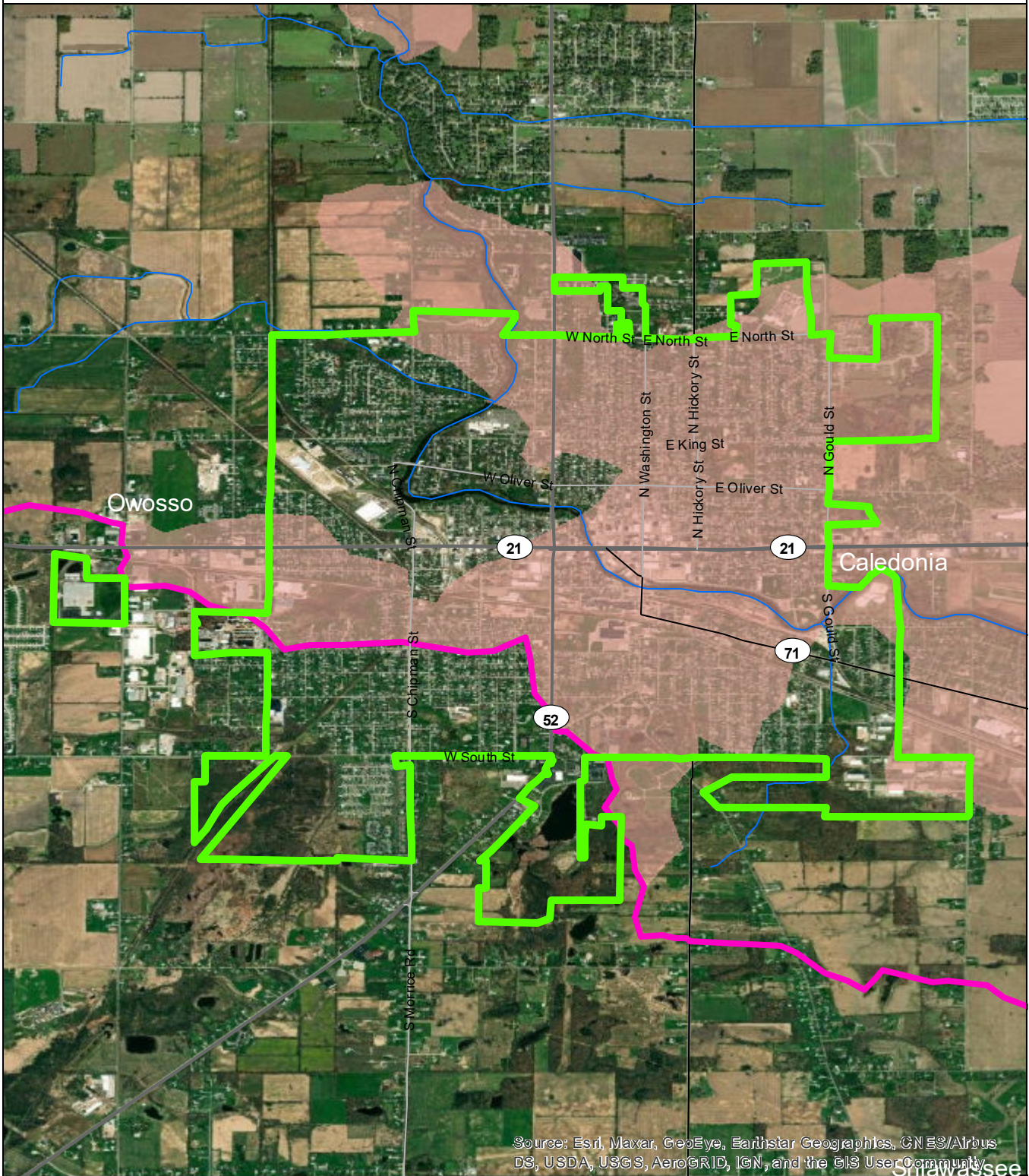
- Sediment Loading Risk**
- low
 - moderate
 - high
 - very high

0 1 2 Miles

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

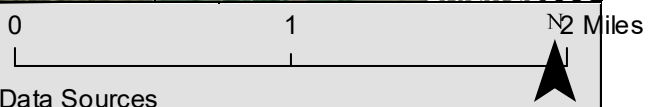
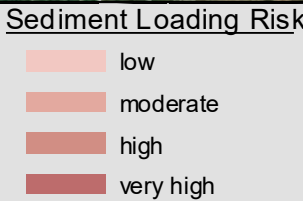
Map produced by the Institute of Water Research - Michigan State University

City of Owosso



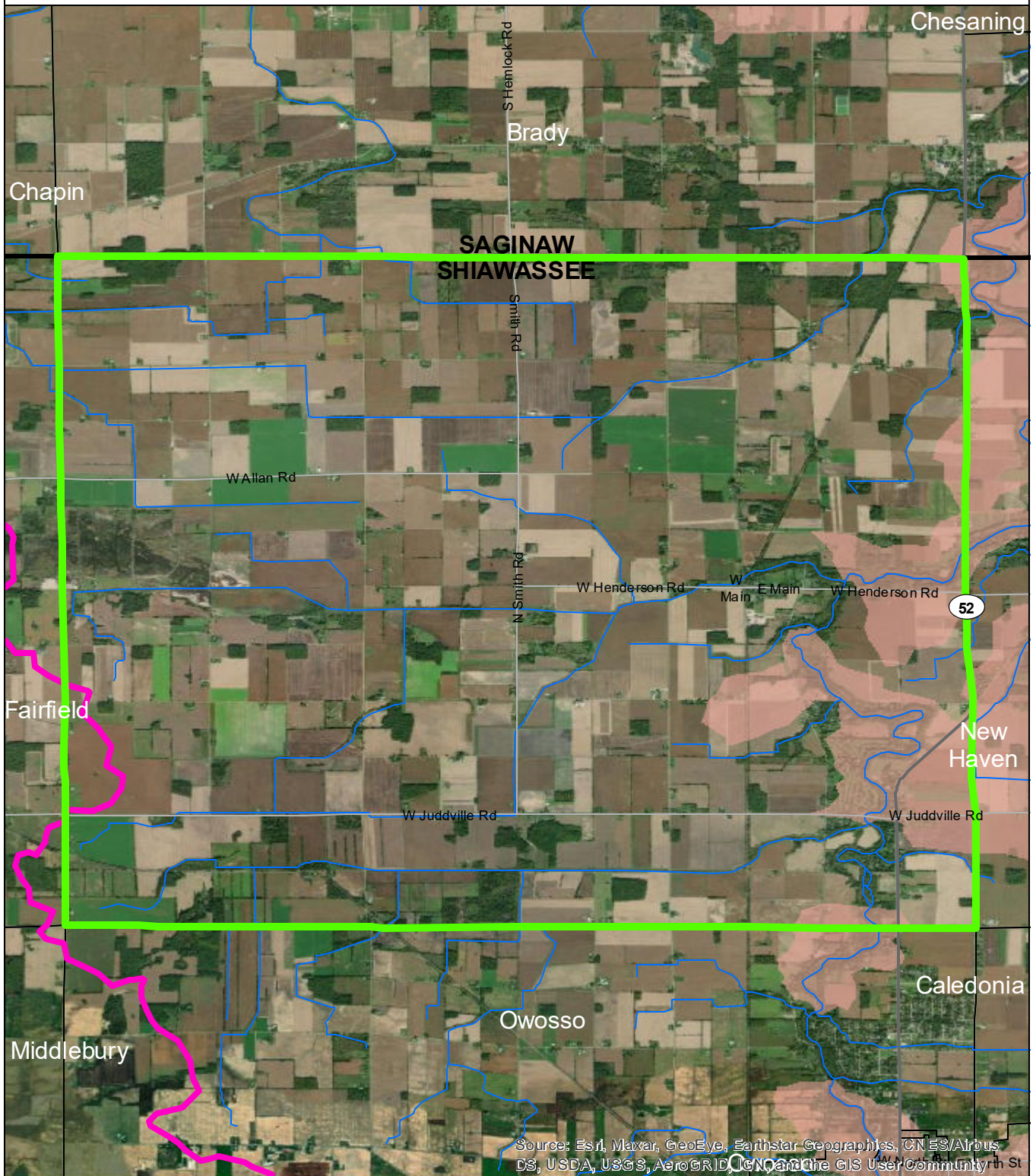
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community







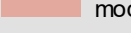

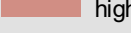


- City of Owosso
- Saginaw Bay Basin
- Counties
- Rivers and Streams
- Townships & Cities



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

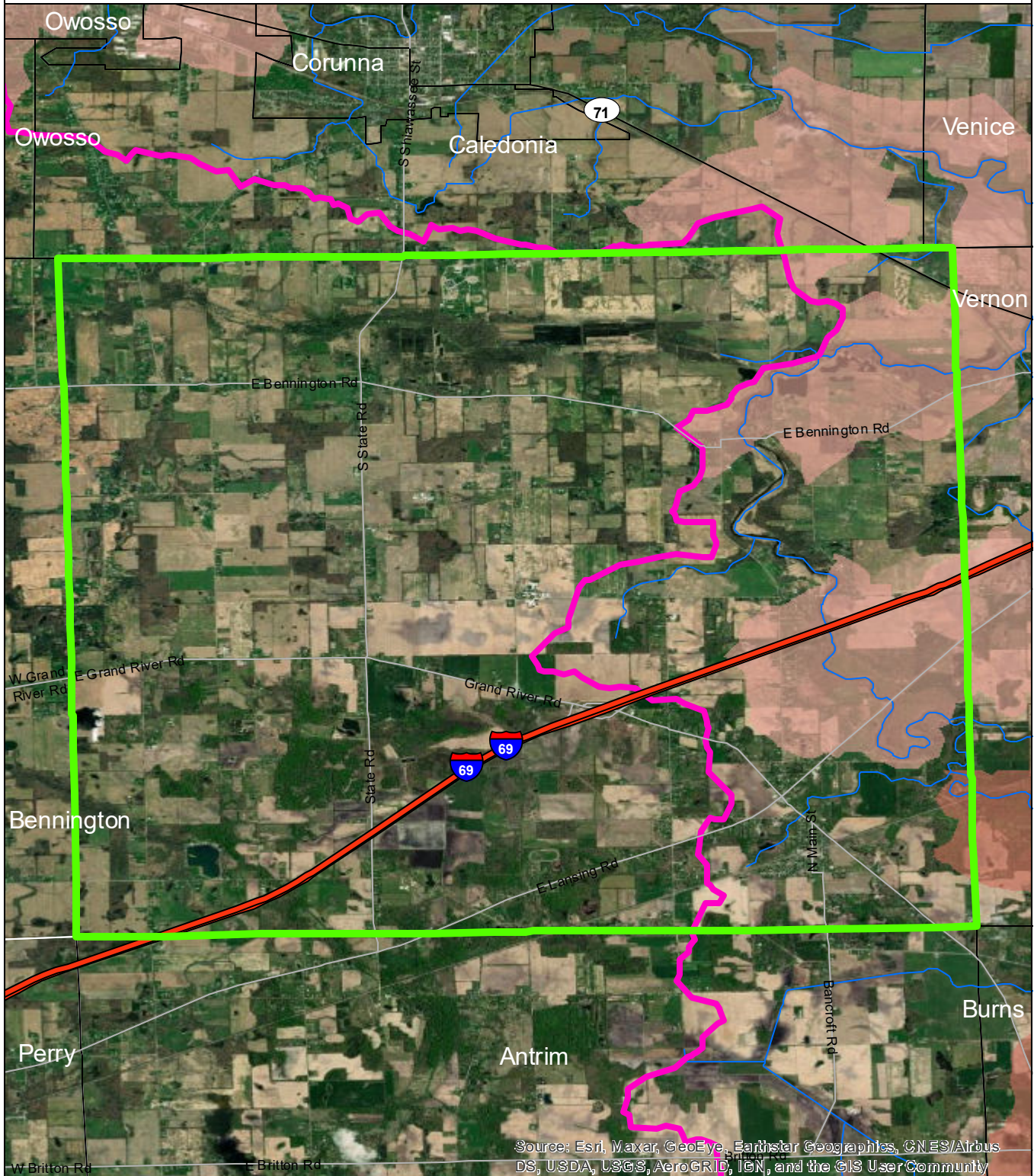
Rush Township



	Rush Township	Sediment Loading Risk	0	1	2 Miles	N
	Saginaw Bay Basin		low	 		
	Counties		moderate			
	Rivers and Streams		high			
	Townships & Cities		very high			

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

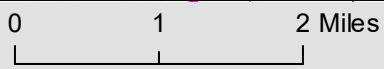
Shiawassee Township



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

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

- Sediment Loading Risk**
- low
 - moderate
 - high
 - very high



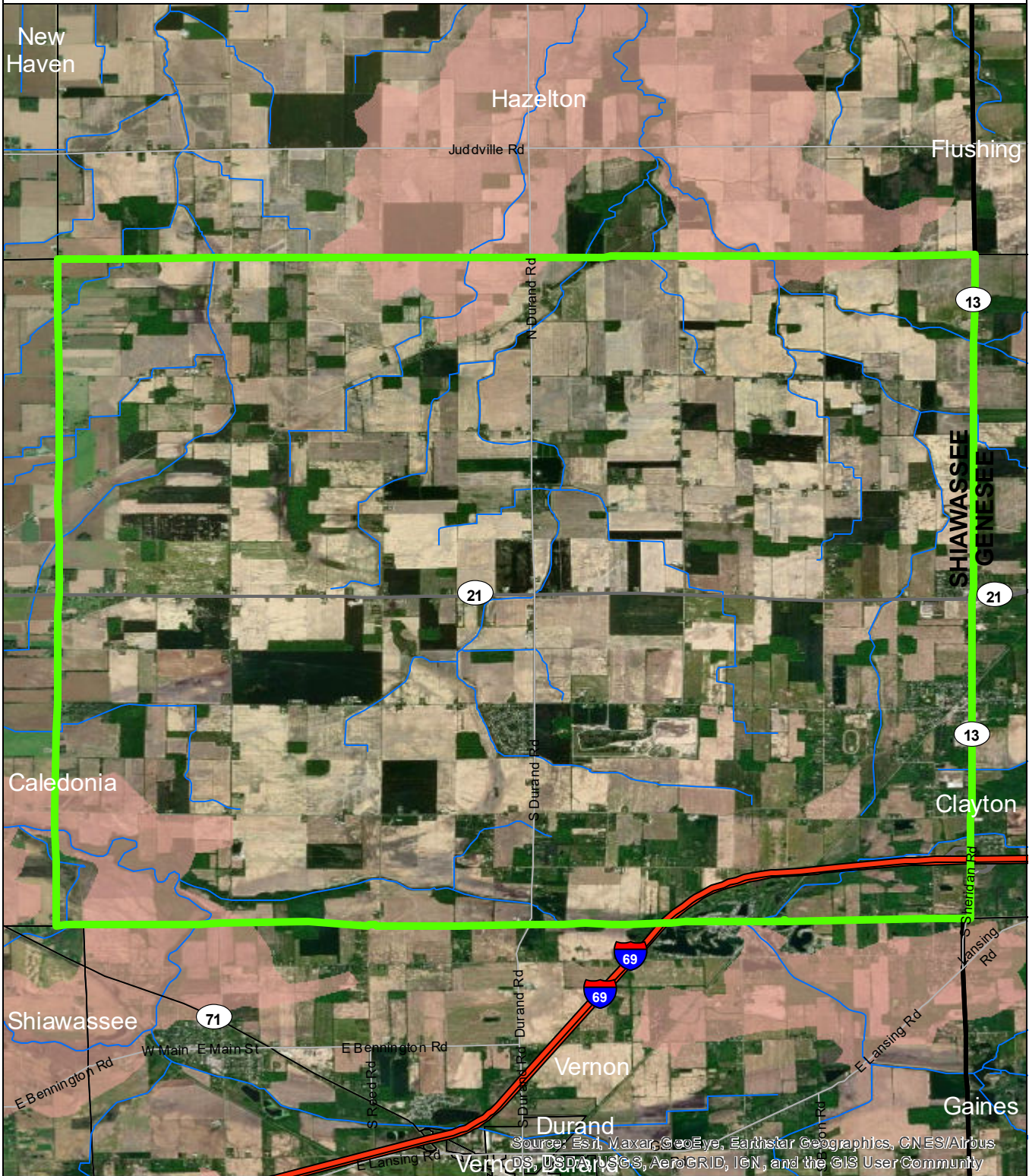
Data Sources

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

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



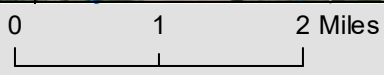
Venice Township



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

Sediment Loading Risk

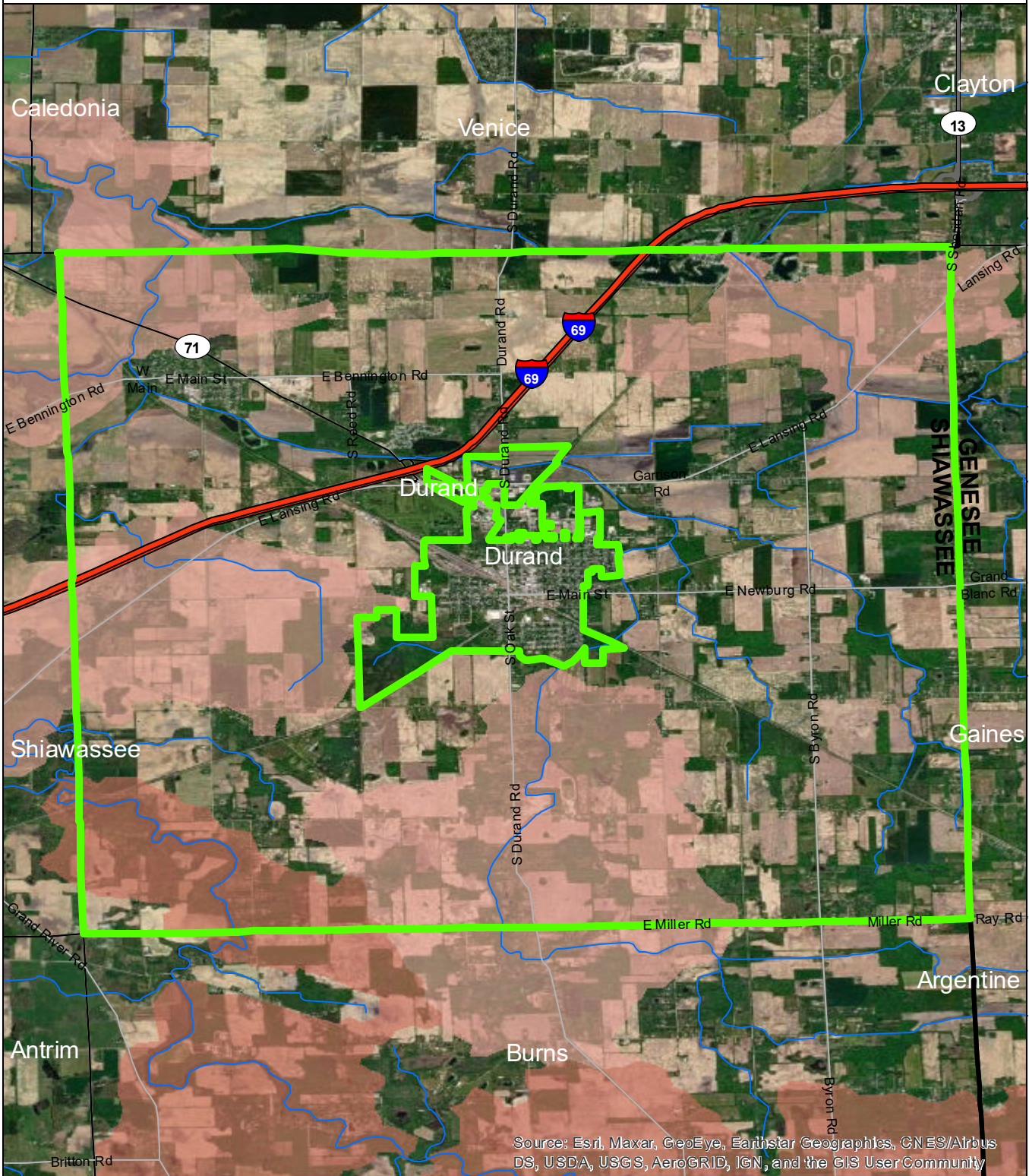
- low
- moderate
- high
- very high



Data Sources

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

Vernon Township

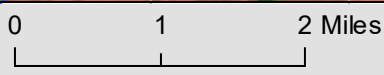


Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Vernon Township
- Saginaw Bay Basin
- Counties
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Sediment Loading Risk

- low
- moderate
- high
- very high



Data Sources

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

