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
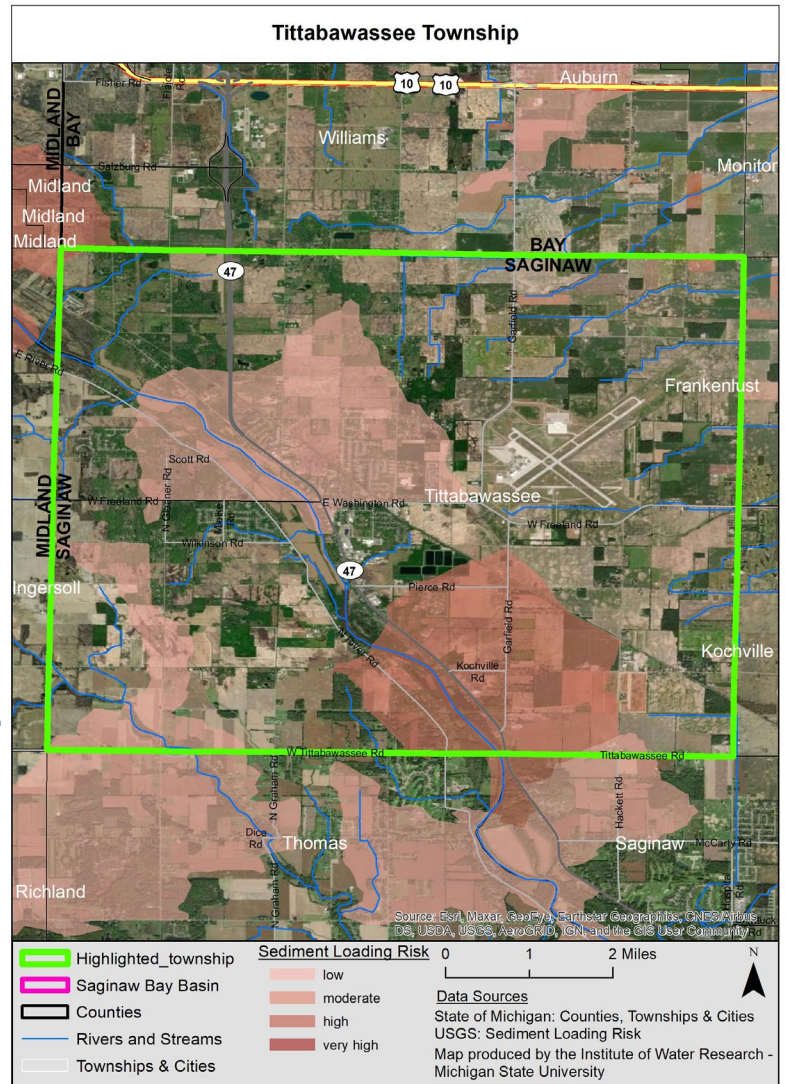
Please direct questions about MSUE's project to:
Sarah Fronczak
Environmental Management Educator
Michigan State University Extension
froncza3@msu.edu

Please use the URL below to learn more about the SPARROW model, and direct questions about the maps to:
Glenn O'Neil
Environmental Scientist
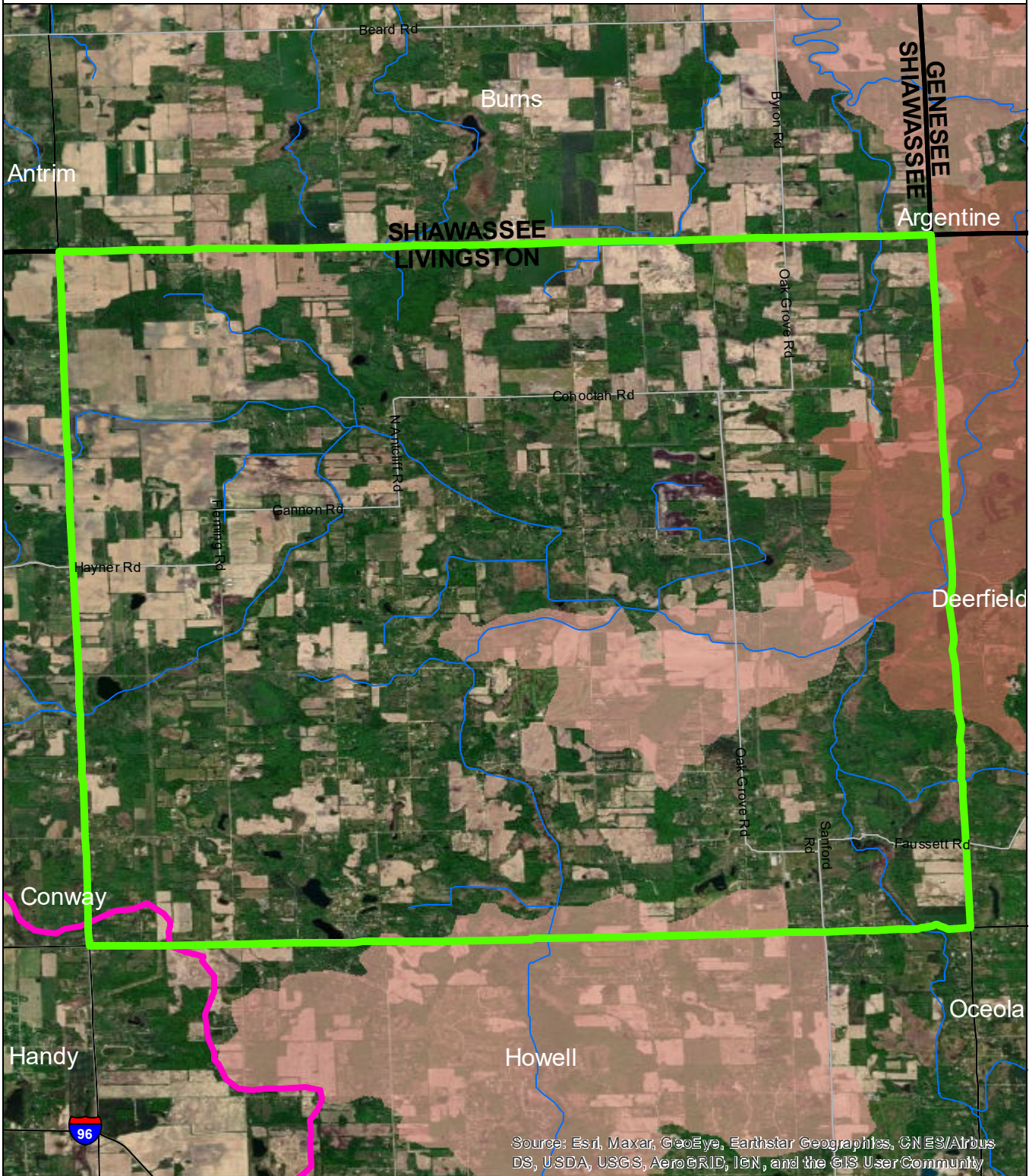Institute of Water Research - Michigan State University
oneilg@msu.edu

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

Tittabawassee Township

Legend:
- Highlighted_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

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

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Table of Contents

Cohoctah Township

Map labels visible: Beard Rd, Burns, Antrim, Byron Rd, GENESEE, SHIAWASSEE, Argentine, SHIAWASSEE LIVINGSTON, Oak Grove Rd, Cohoctah Rd, Nicholff Rd, Cannon Rd, Fleming Rd, Hayner Rd, Deerfield, Oak Grove Rd, Sanford Rd, Faussett Rd, Conway, Oceola, Handy, Howell, I-96

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

Legend

- **Cohoctah Township**
- **Saginaw Bay Basin**
- **Counties**
- Rivers and Streams
- Townships & Cities
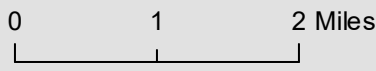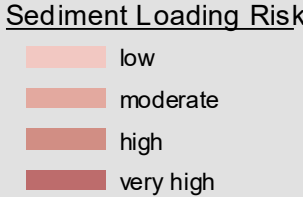
Sediment Loading Risk

- low
- moderate
- high
- very high
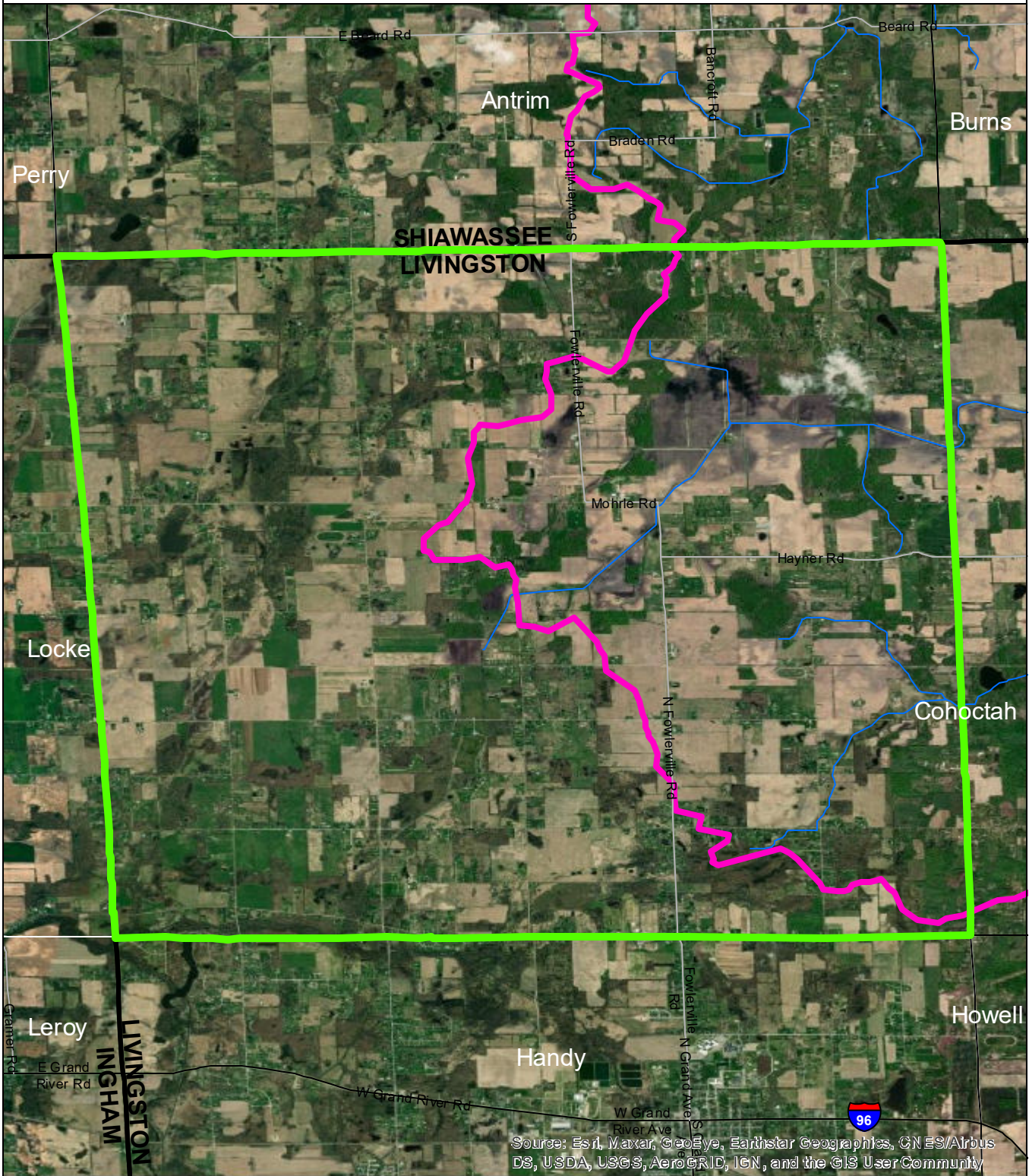
Scale: 0 — 1 — 2 Miles

N

Data Sources

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

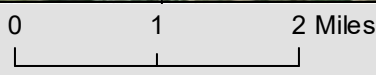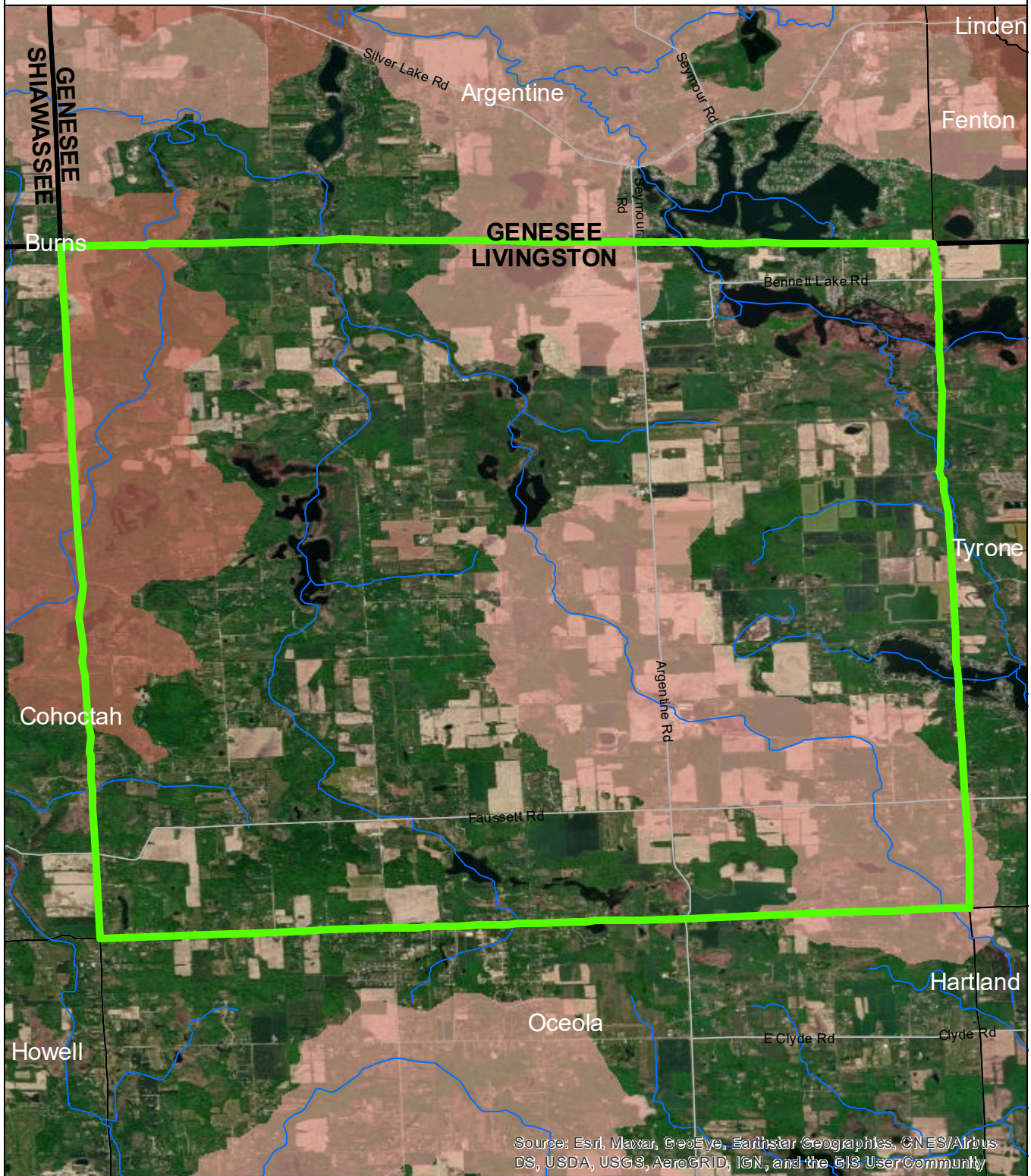Map produced by the Institute of Water Research - Michigan State University

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Conway Township

Antrim

Burns

Perry

SHIAWASSEE
LIVINGSTON

Locke

Cohoctah

Leroy

LIVINGSTON
INGHAM

Howell

Handy

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

Sediment Loading Risk

Legend:
- Conway Township
- Saginaw Bay Basin
- Counties
- Rivers and Streams
- Townships & Cities

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

0   1   2 Miles

N

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

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

Deerfield Township

SHIAWASSEE
GENESEE

Burns

Silver Lake Rd

Argentine

Seymour Rd

Linden

Fenton

GENESEE
LIVINGSTON

Bennett Lake Rd

Cohoctah

Argentine Rd

Tyrone

Faussett Rd

Hartland

Howell

Oceola

E Clyde Rd

Clyde Rd

Legend

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

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

0   1   2 Miles

N
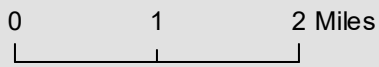
Data Sources

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

Map produced by the Institute of Water Research - Michigan State University
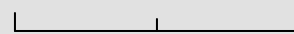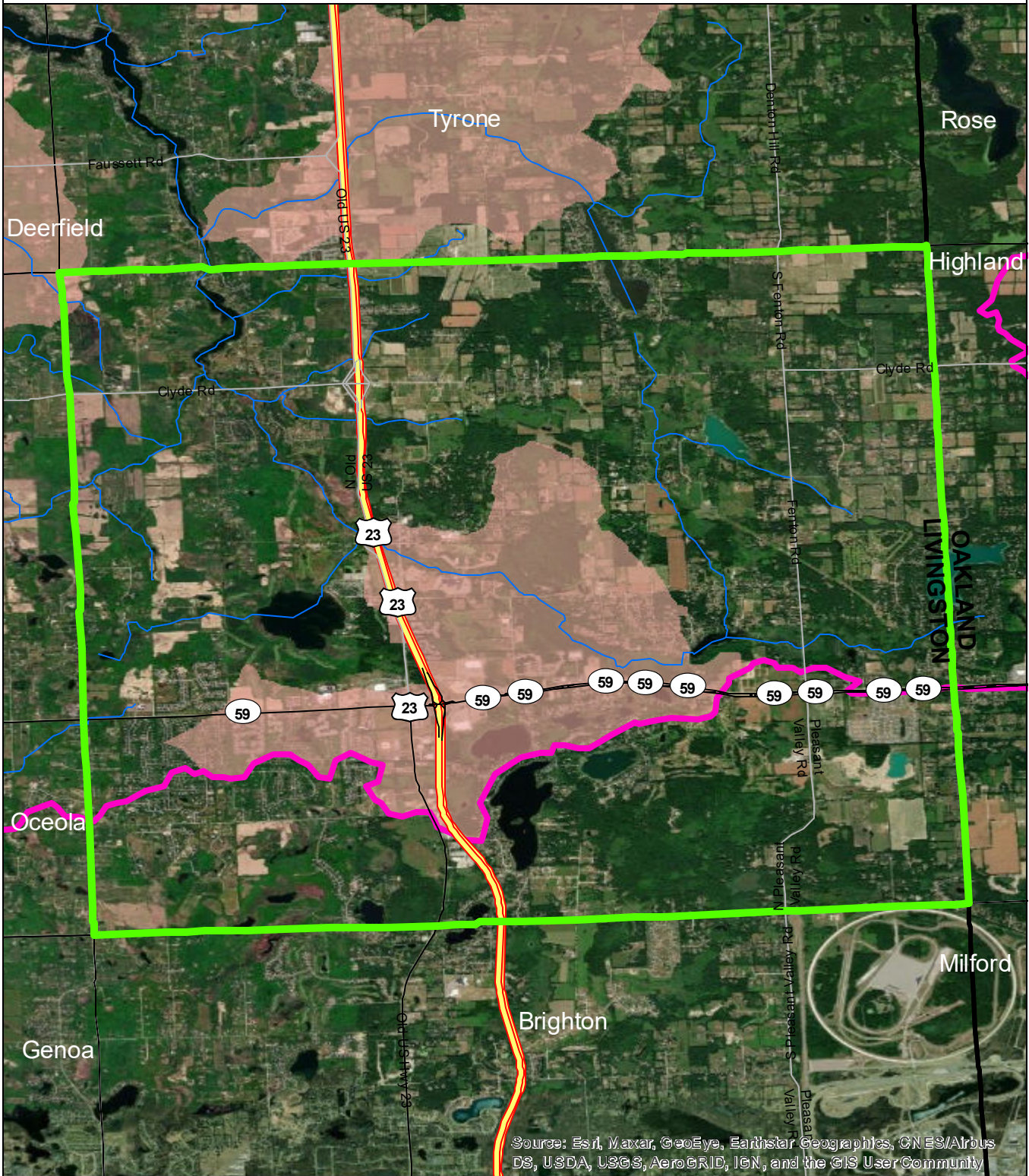
Genoa Township
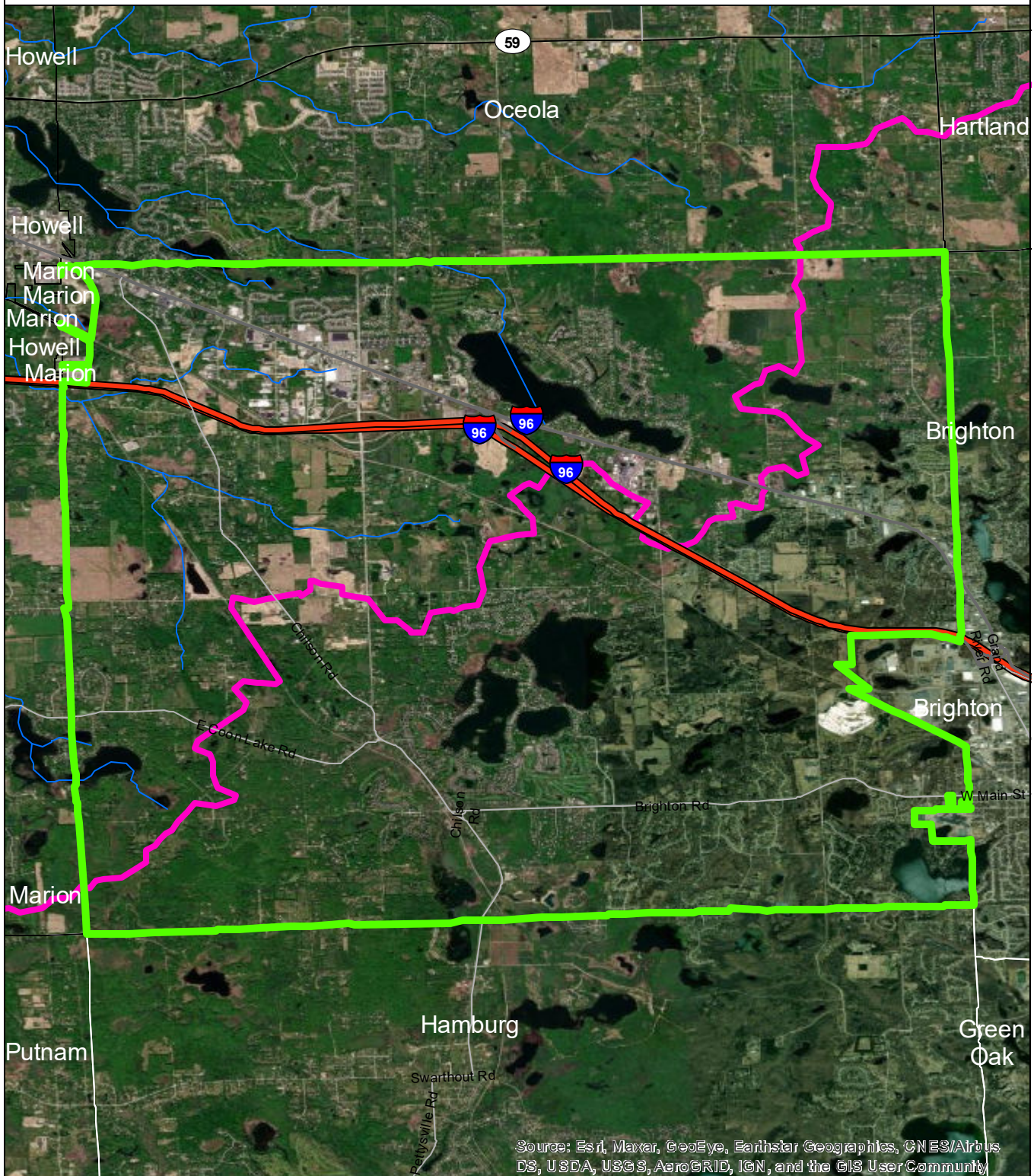
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

🟩	Genoa 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

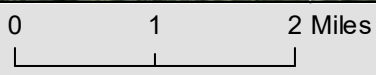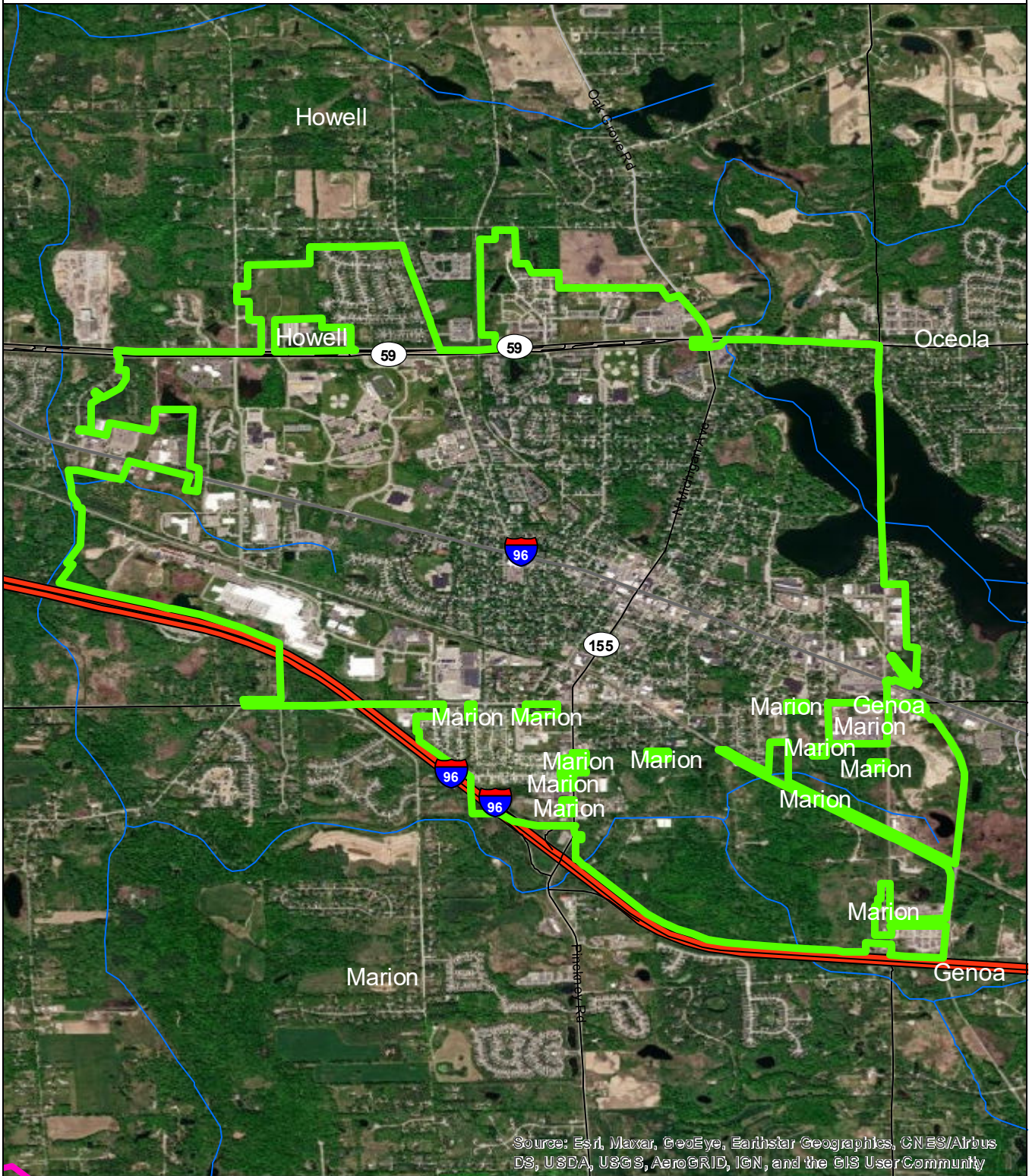MICHIGAN STATE UNIVERSITY Extension

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Hartland Township

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

Legend:

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

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

0   1   2 Miles

N

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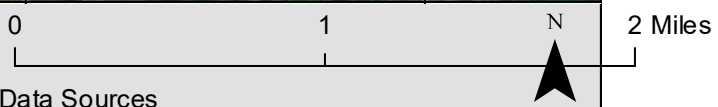
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Michigan CREP
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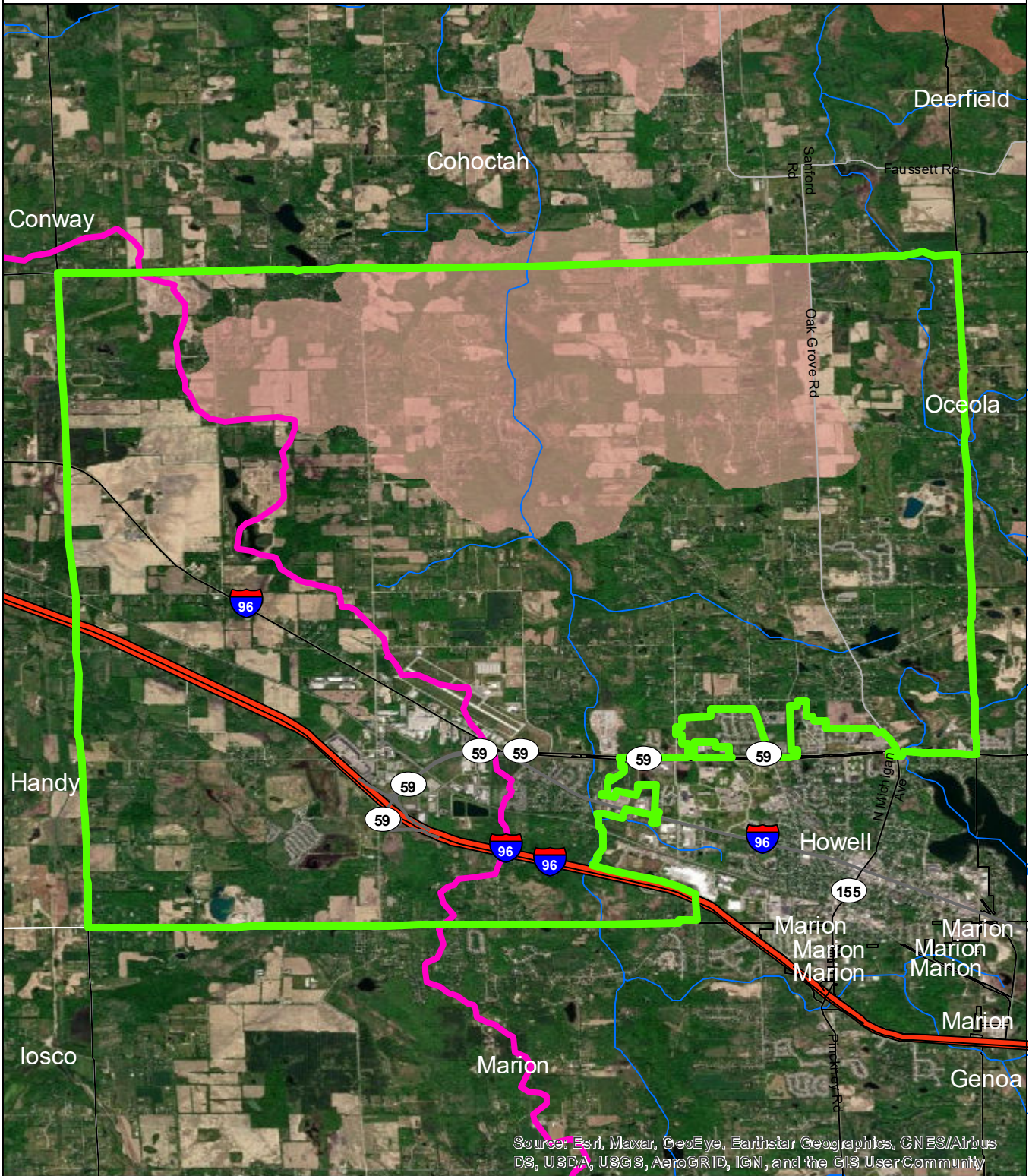
City of Howell

Legend

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

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

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

0   1   2 Miles

N

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

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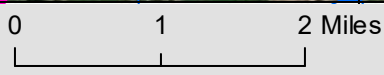
Howell Township

Legend:
- Howell Township
- Saginaw Bay Basin
- Counties
- Rivers and Streams
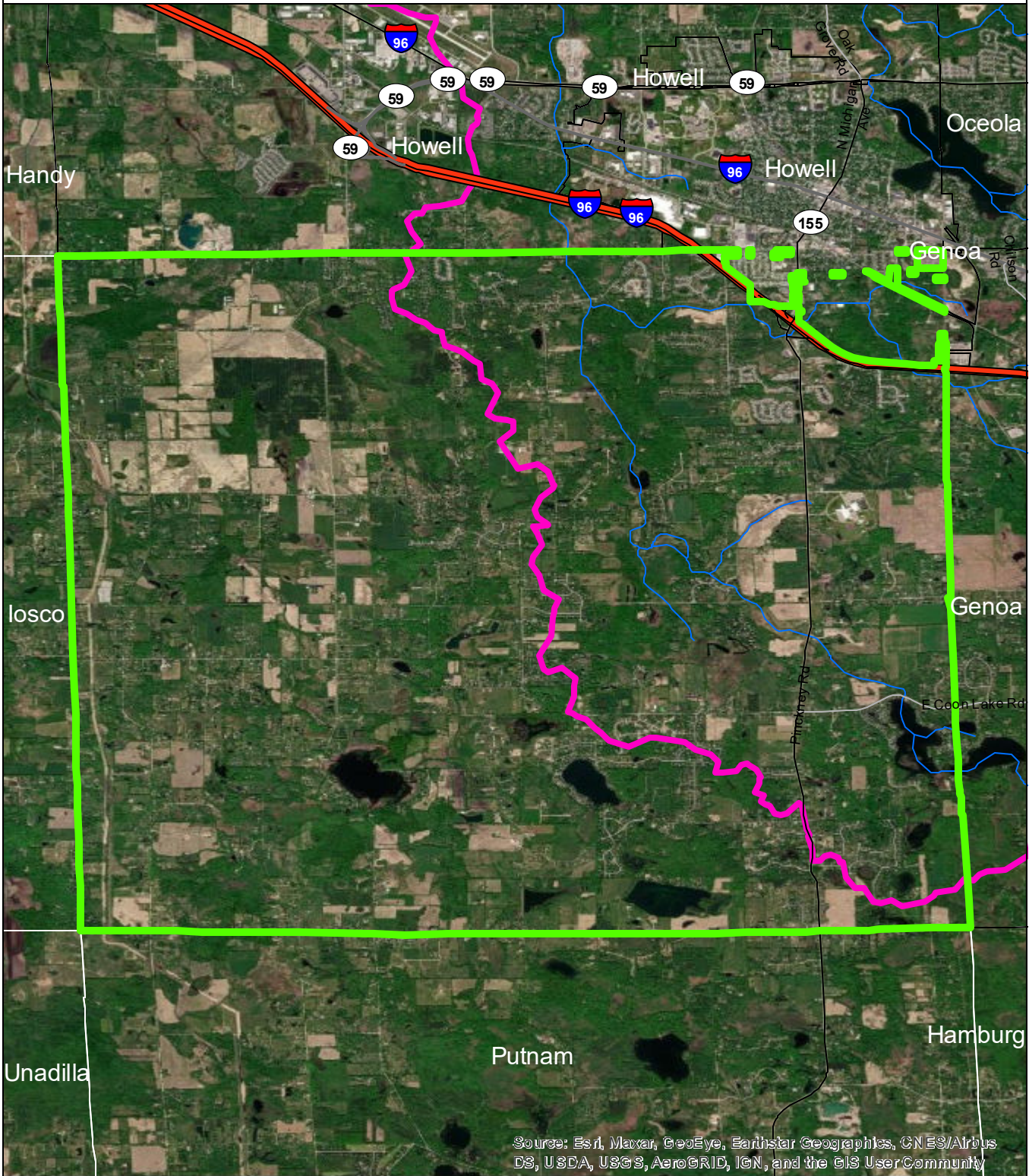- Townships & Cities

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

0   1   2 Miles

N

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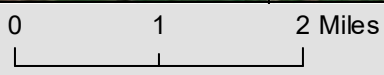Map produced by the Institute of Water Research - Michigan State University

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

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Marion Township

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

Legend

Marion Township
Saginaw Bay Basin
Counties
Rivers and Streams
Townships & Cities

Sediment Loading Risk
low
moderate
high
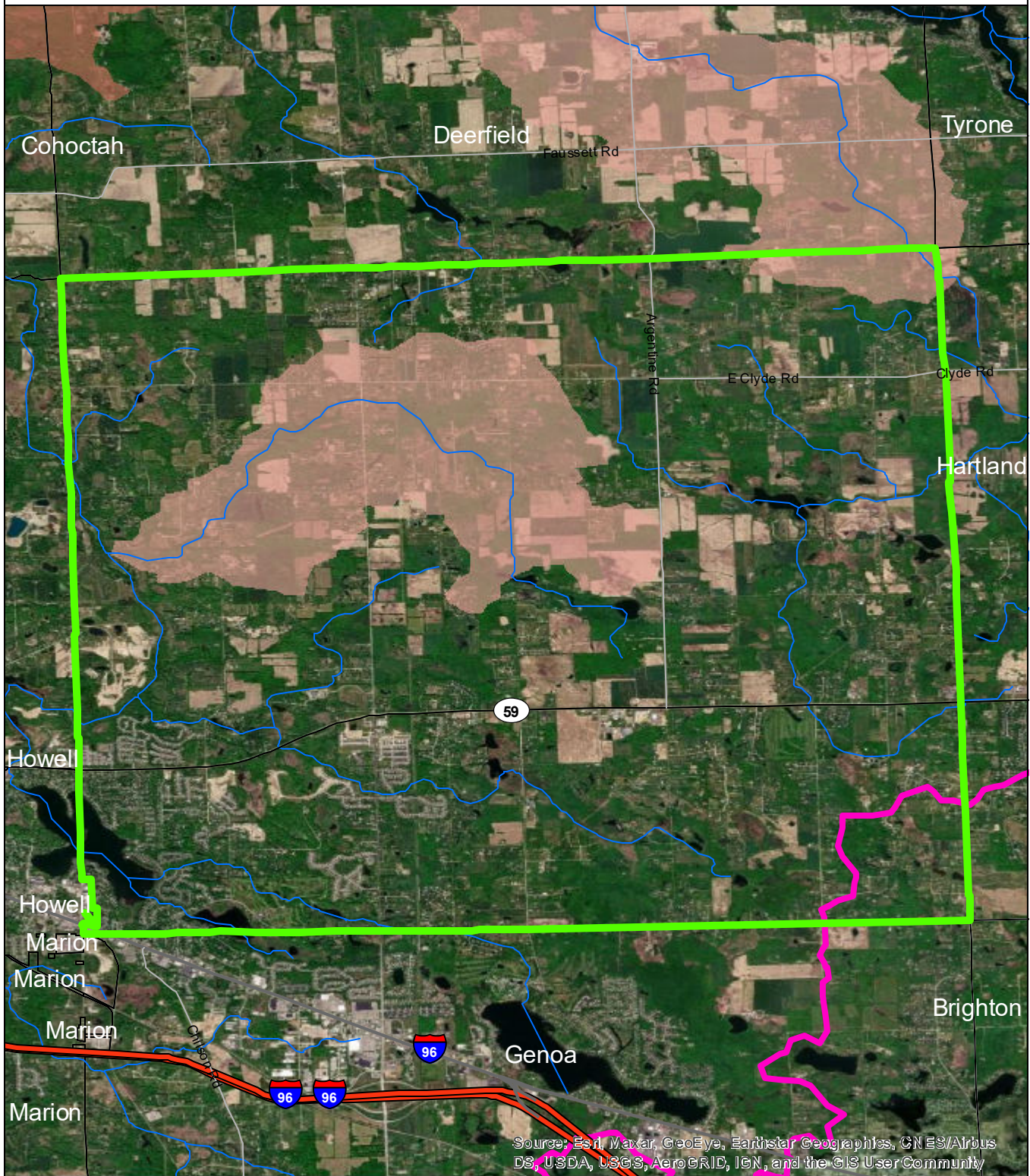very high

0   1   2 Miles

N

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

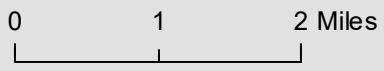Map produced by the Institute of Water Research - Michigan State University

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Oceola Township

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

Legend:

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

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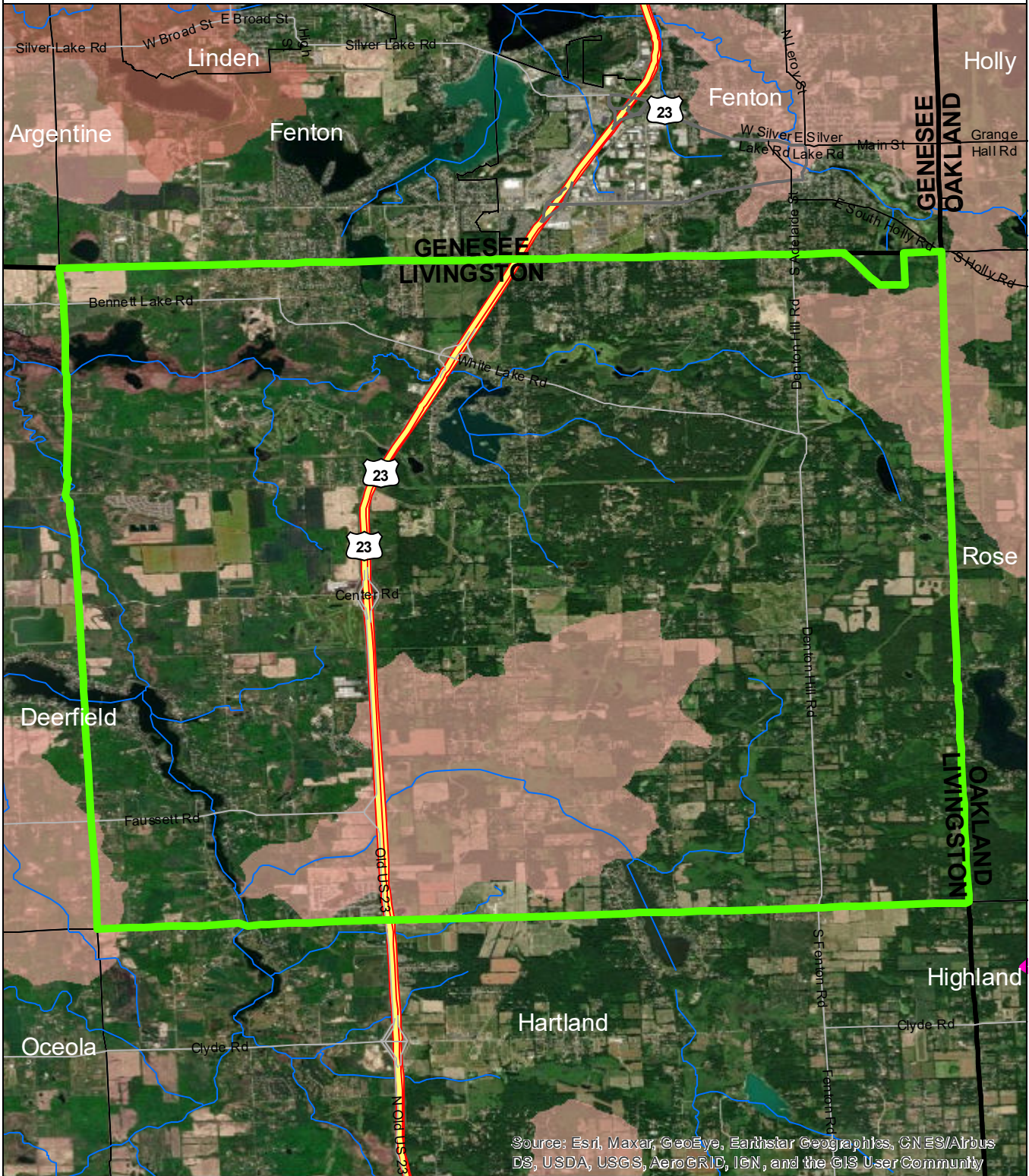- high
- very high

0   1   2 Miles

N

Data Sources

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

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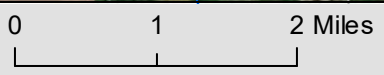
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Tyrone Township

Legend

- **Tyrone Township** (green outline)
- **Saginaw Bay Basin** (magenta outline)
- **Counties** (black line)
- **Rivers and Streams** (blue line)
- **Townships & Cities** (white line)

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

0   1   2 Miles

N

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

Map produced by the Institute of Water Research - Michigan State University
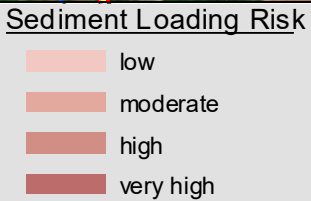
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community