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.
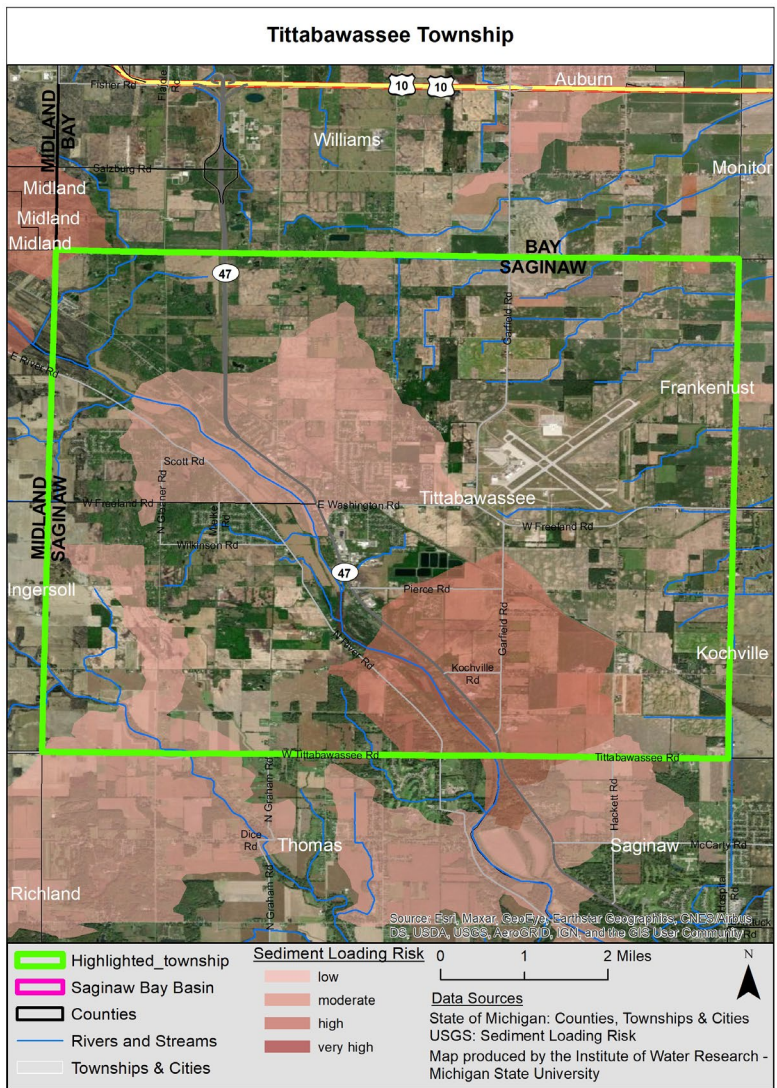
Data

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
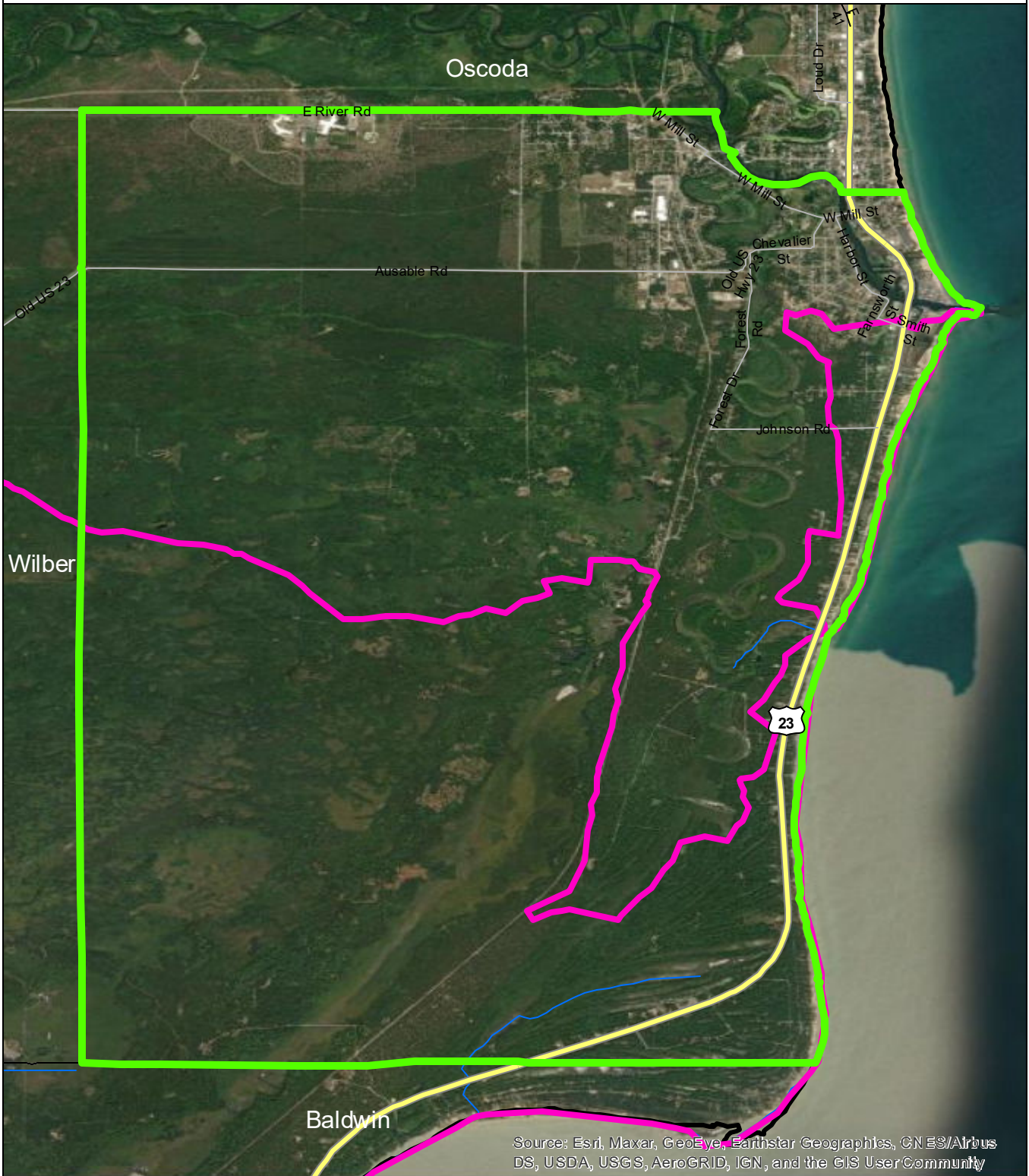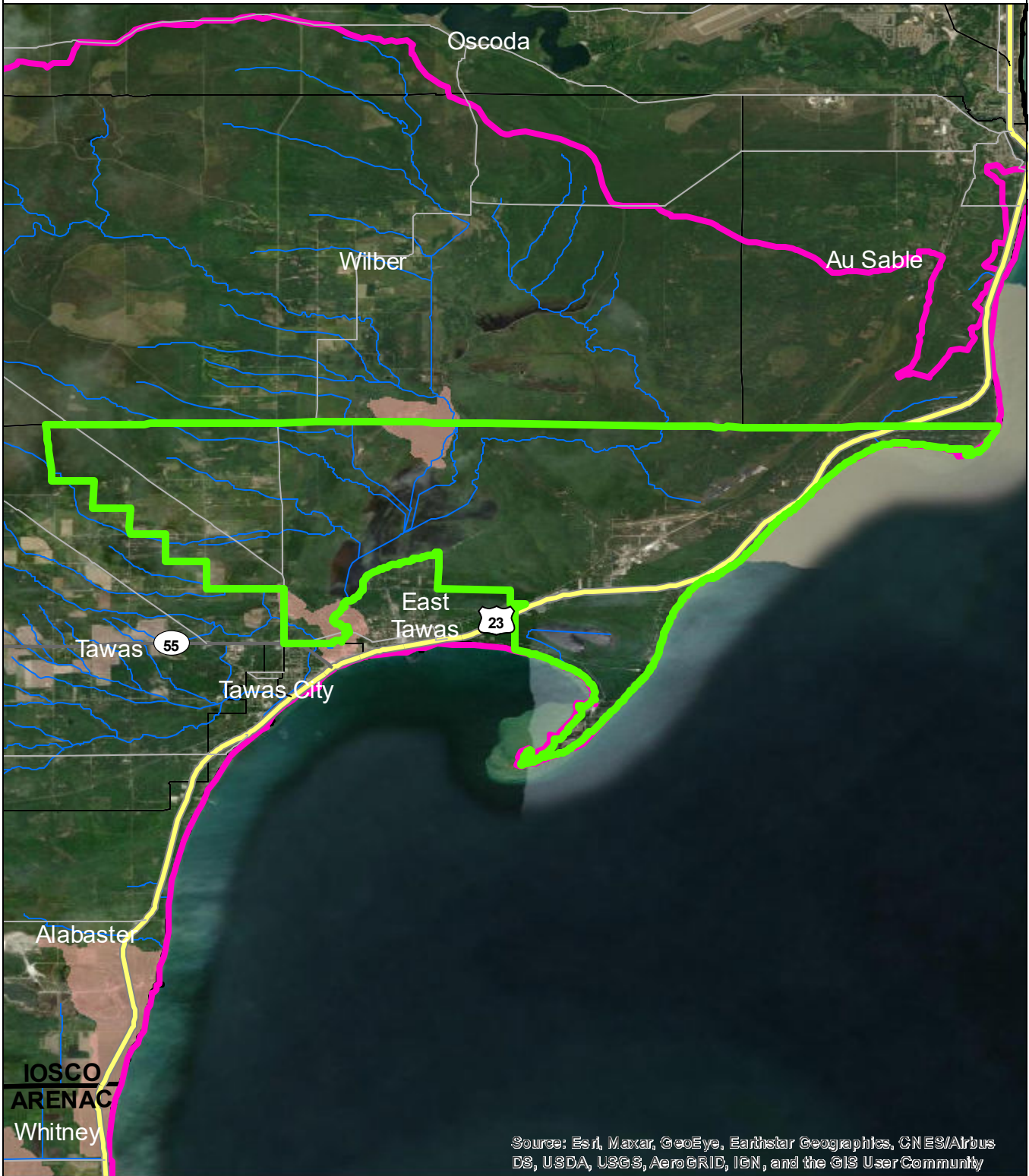- very high

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

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UNIVERSITY

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Michigan CREP
Conservation Reserve Enhancement Program

Table of Contents

Alabaster Township

Grant

Tawas

Tawas City

Townline Rd

Lorenz Rd

S Lorenz Rd

Lorenz Rd

Alabaster Rd

Sherman

S Bay Dr

23

IOSCO
ARENAC

Whitney

Turner Rd

	Sediment Loading Risk	0	1	2 Miles	N

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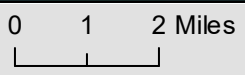Map produced by the Institute of Water Research - Michigan State University

Au Sable Township

Oscoda

E River Rd

W Mill St

W Mill St

W Mill St

Loud Dr

41

Chevalier St

Harbor St

Old US 23

Ausable Rd

Old US Hwy 23

Farnsworth St

Smith St

Forest Dr

Forest Rd

Johnson Rd

Wilber

23

Baldwin

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

Legend

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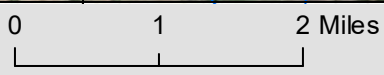Map produced by the Institute of Water Research - Michigan State University

Baldwin Township


Oscoda

Wilber

Au Sable

East Tawas

US 23

Tawas

55

Tawas City

Alabaster

IOSCO
ARENAC

Whitney

Legend

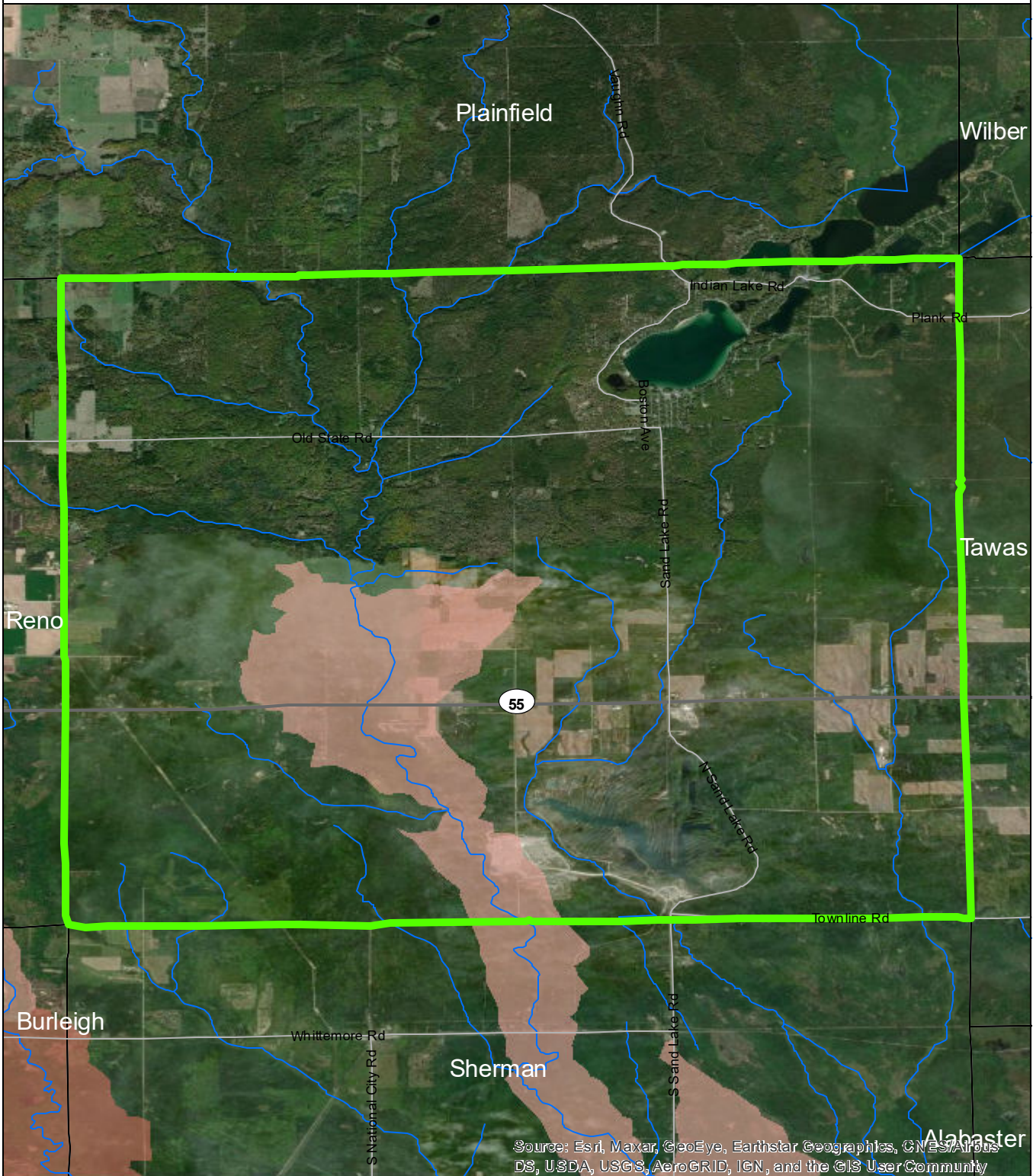| | Baldwin Township |
	Saginaw Bay Basin
	Counties
	Rivers and Streams
	Townships & Cities

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 Conservation Reserve Enhancement Program

Burleigh Township

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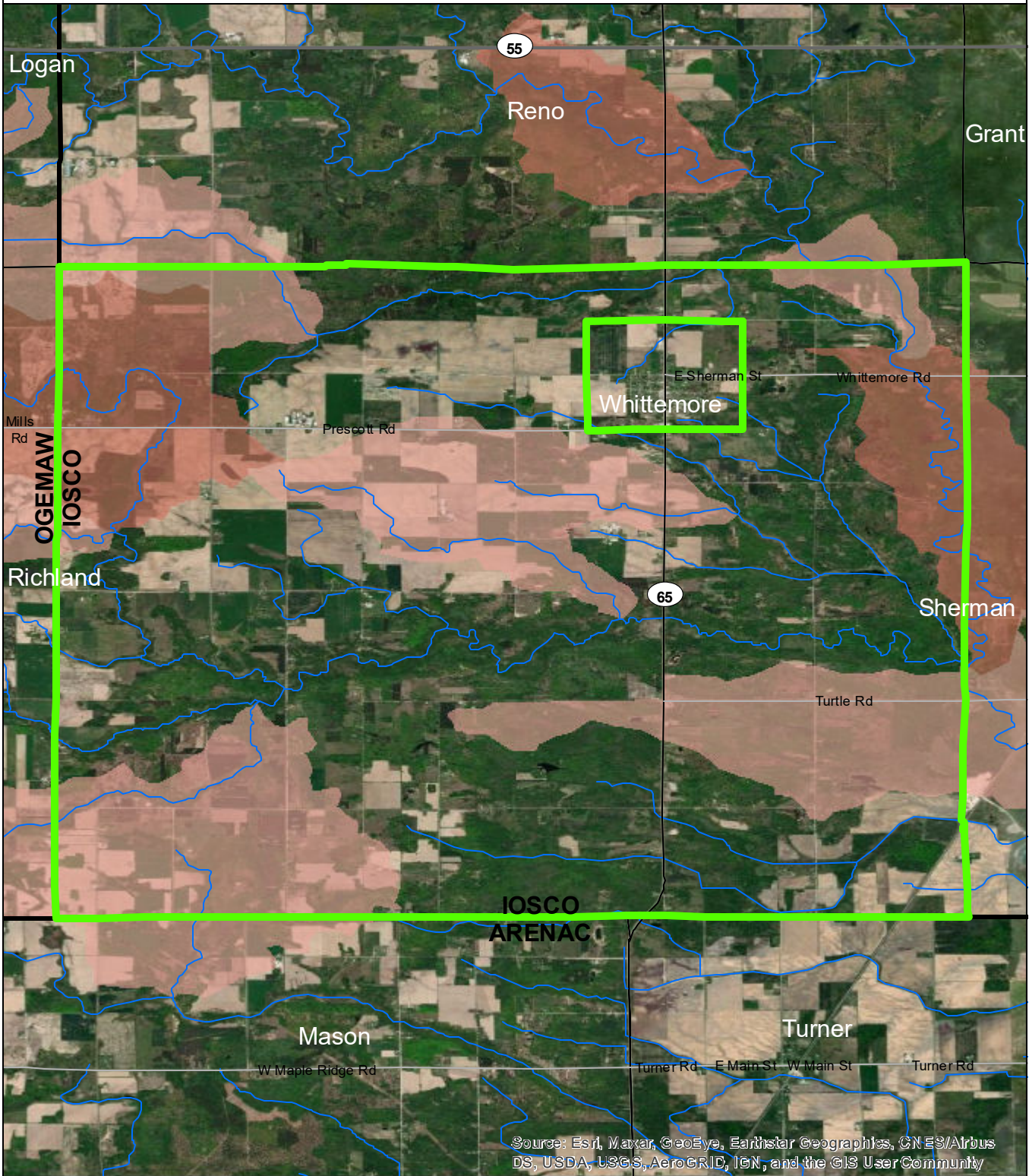
- Burleigh Township
- Saginaw Bay Basin
- Counties
- Rivers and Streams
- Townships & Cities

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

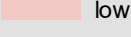Map produced by the Institute of Water Research - Michigan State University
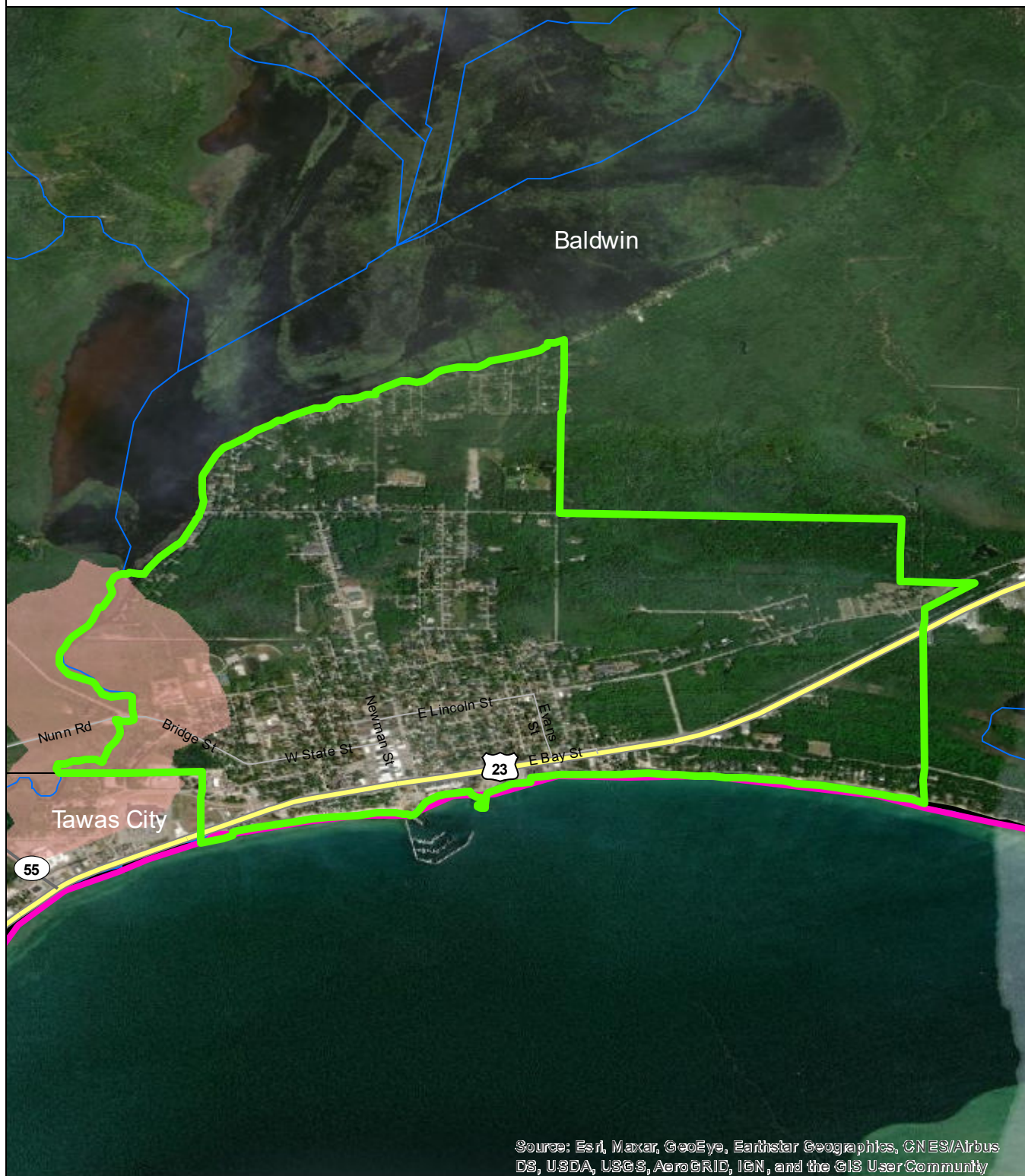
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

City of East Tawas

Baldwin

Nunn Rd

Bridge St

Tawas City

Newman St

W State St

E Lincoln St

Evans St

23 E Bay St

55

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

Sediment Loading Risk

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

- low
- moderate
- high
- very high

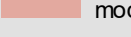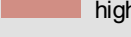0   1   N   2 Mi
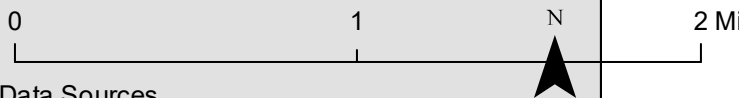
Data Sources

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

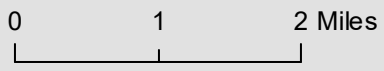Map produced by the Institute of Water Research - Michigan State University

Grant Township

Legend

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

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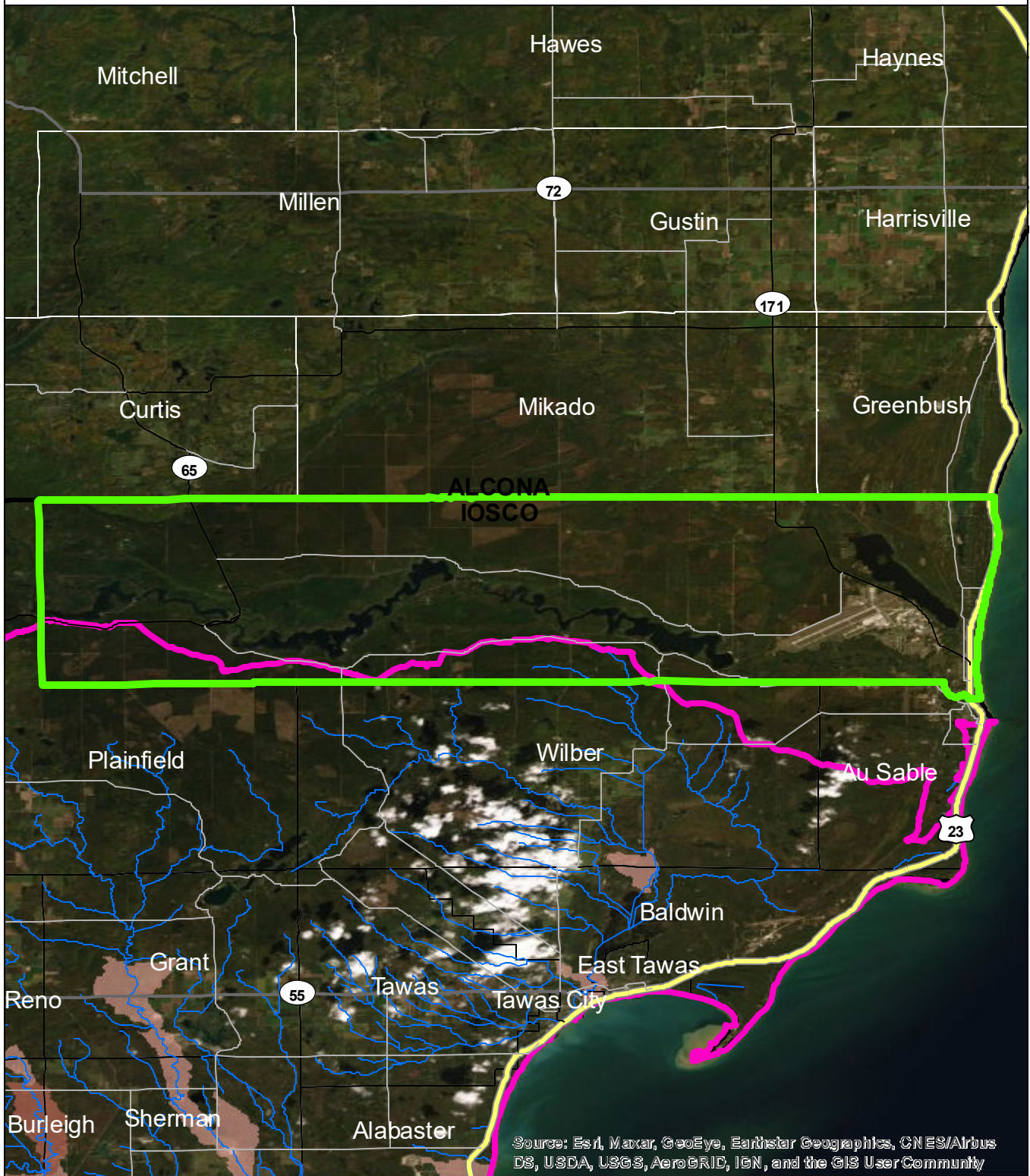- moderate
- high
- very high

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

Conservation Reserve Enhancement Program

Oscoda Township

Mitchell

Hawes

Haynes

Millen

72

Gustin

Harrisville

171

Curtis

Mikado

Greenbush

65

ALCONA
IOSCO

Plainfield

Wilber

Au Sable

23

Grant

Baldwin

Reno

55

Tawas

East Tawas

Tawas City

Burleigh

Sherman

Alabaster

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

Legend

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

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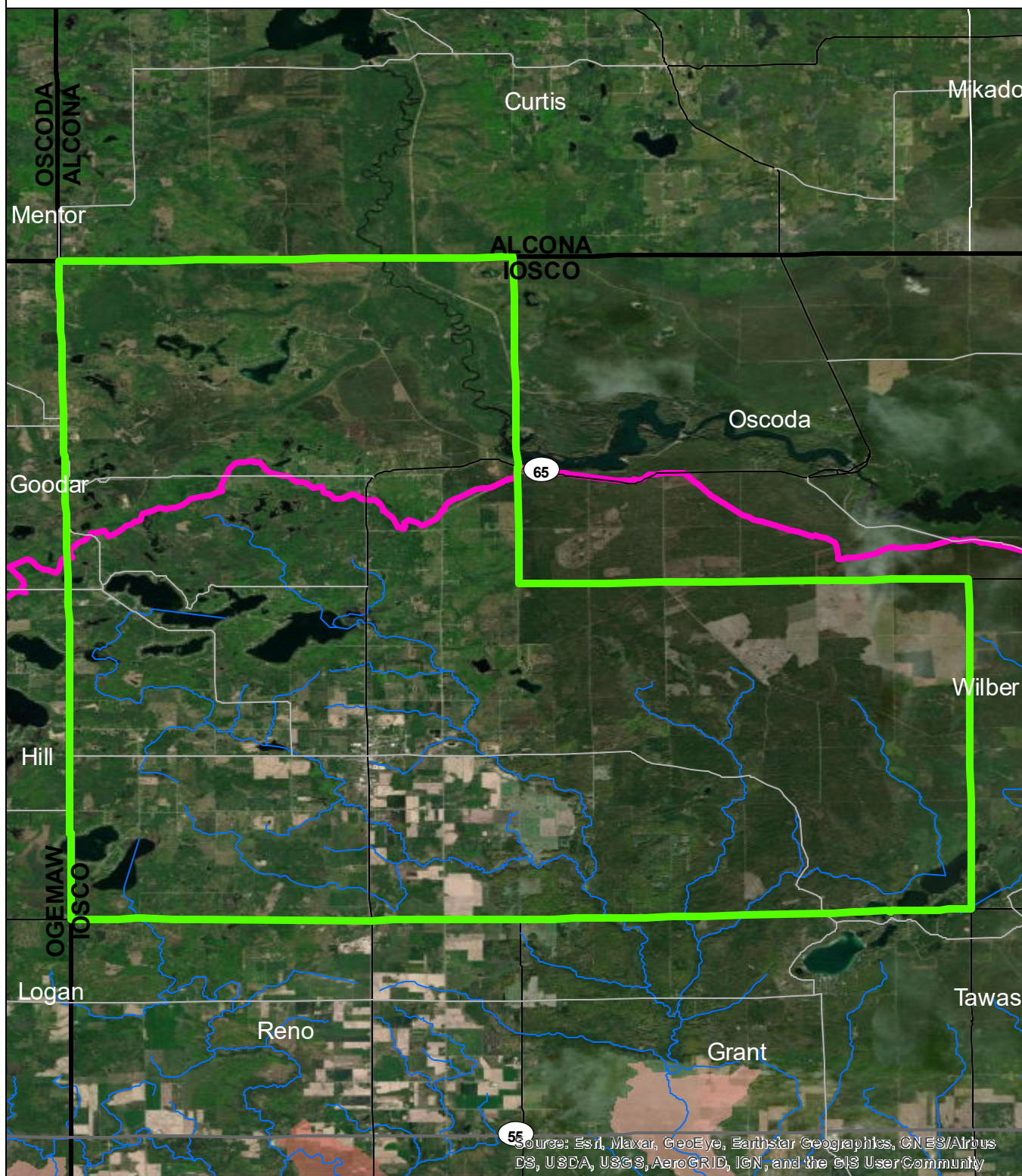- low
- moderate
- high
- very high

0 1 2 Miles

N

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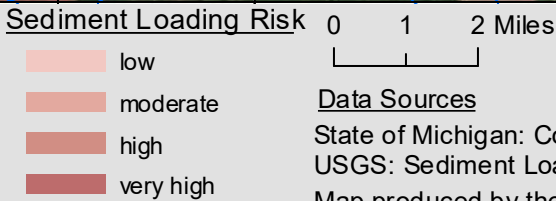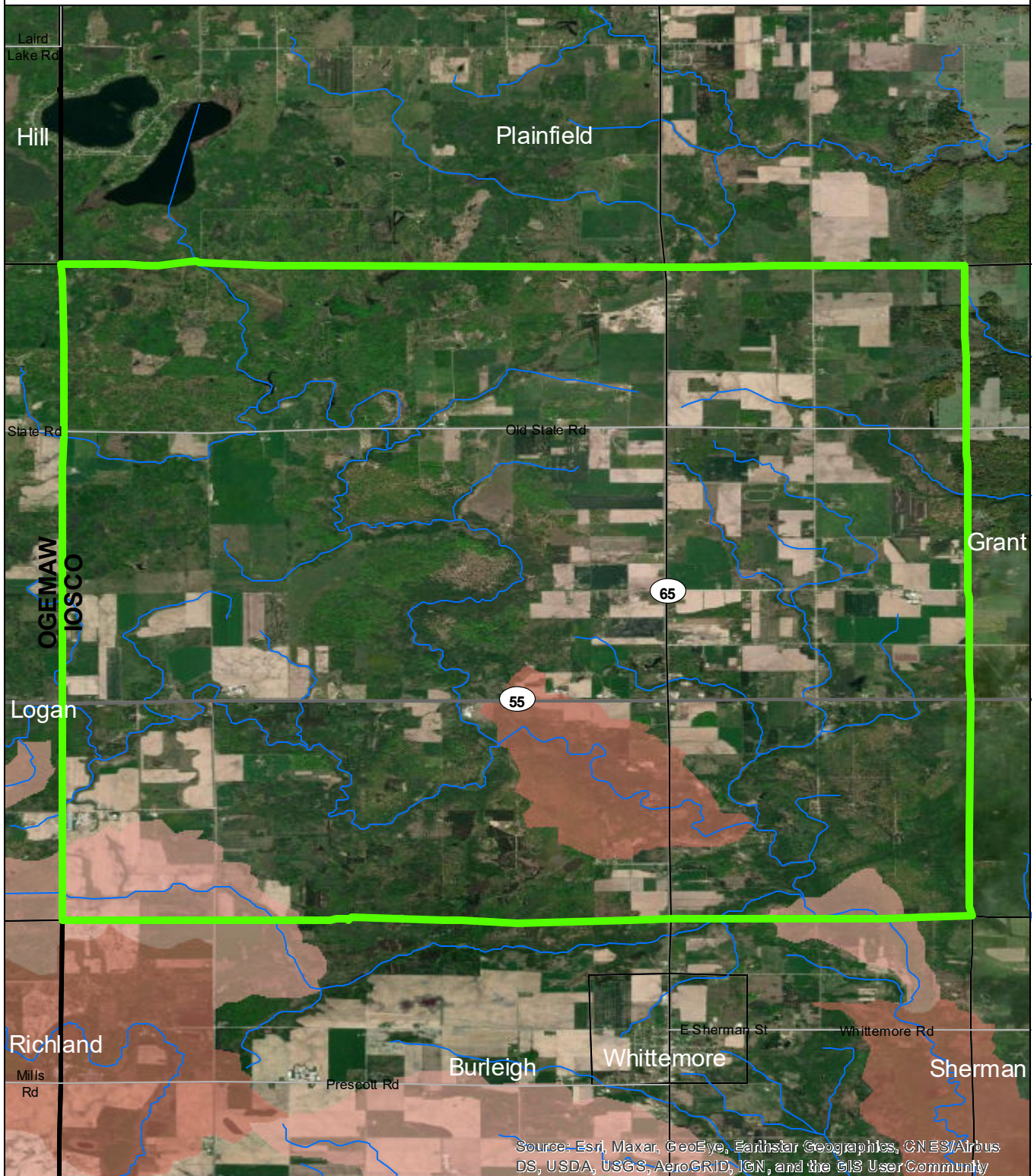State of Michigan: Counties, Townships & Cities
USGS: Sediment Loading Risk

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

Plainfield Township

OSCODA
ALCONA

Mentor

Curtis

Mikado

ALCONA
IOSCO

Oscoda

Goodar

65

Wilber

Hill

OGEMAW
IOSCO

Logan

Reno

Grant

Tawas

55

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

Legend

Plainfield 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
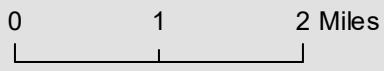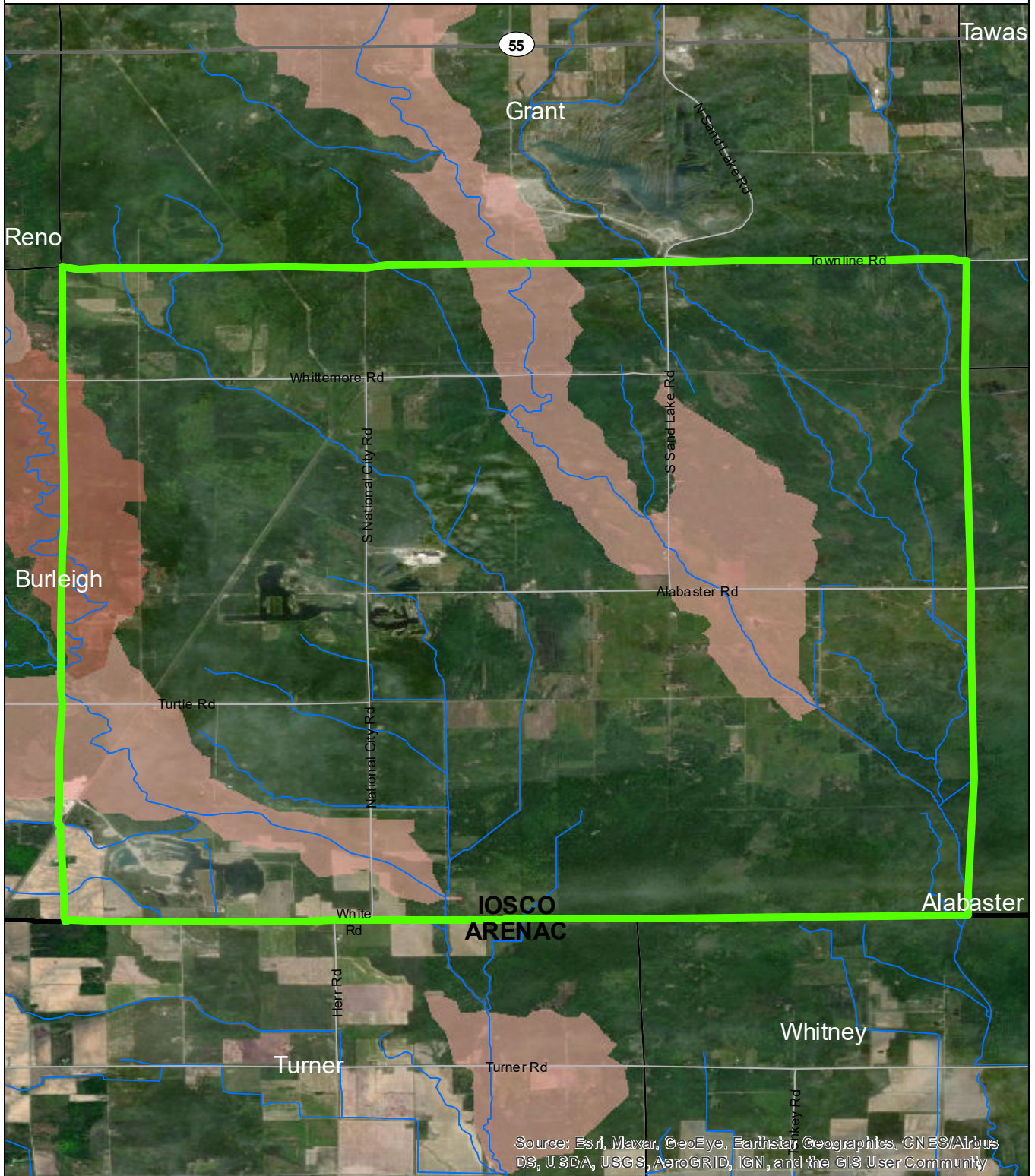
Reno Township

Legend:

- Reno 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

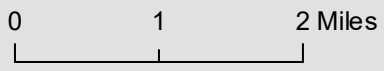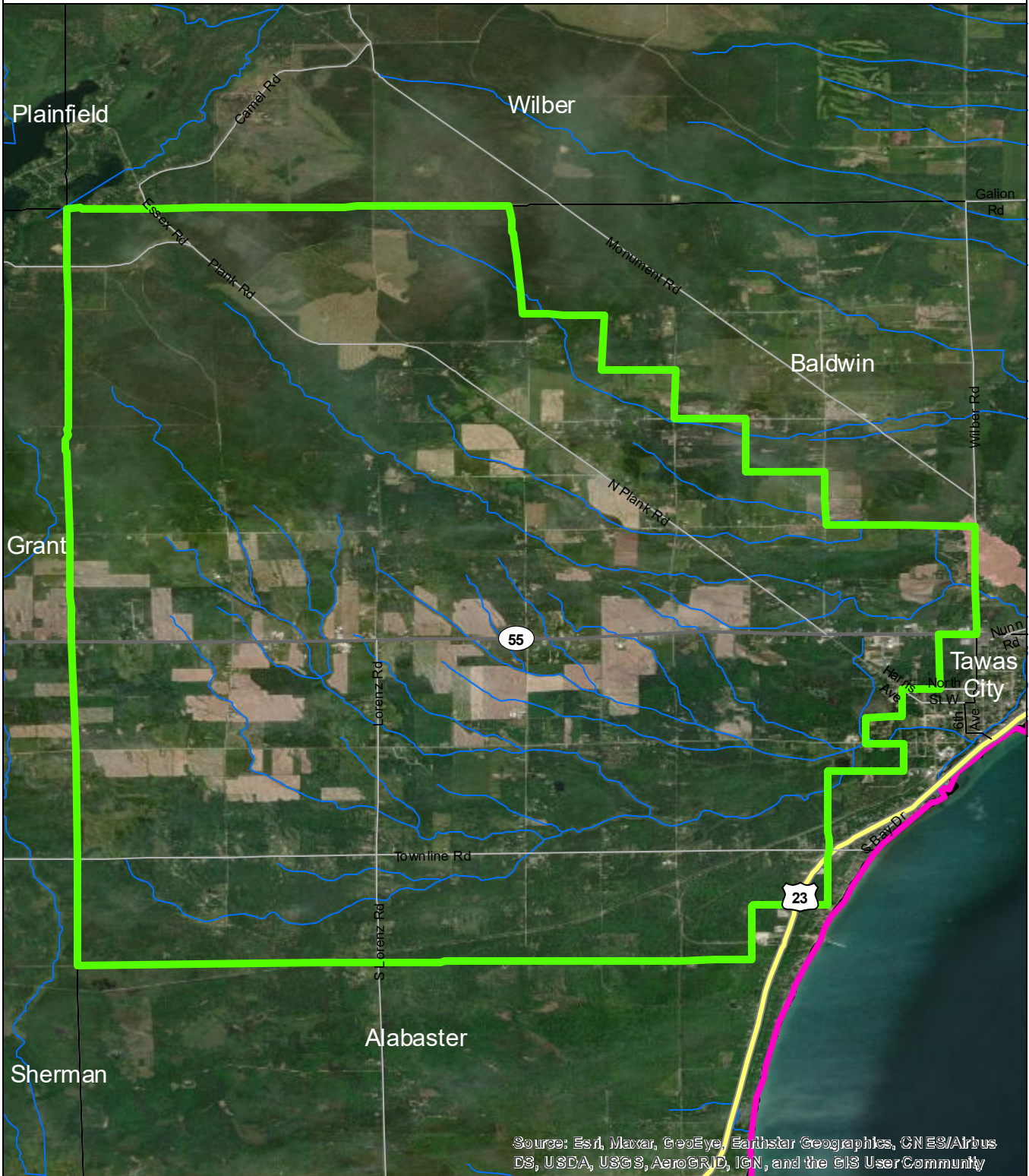Map produced by the Institute of Water Research -
Michigan State University

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

Sherman Township

Legend:

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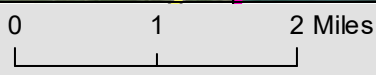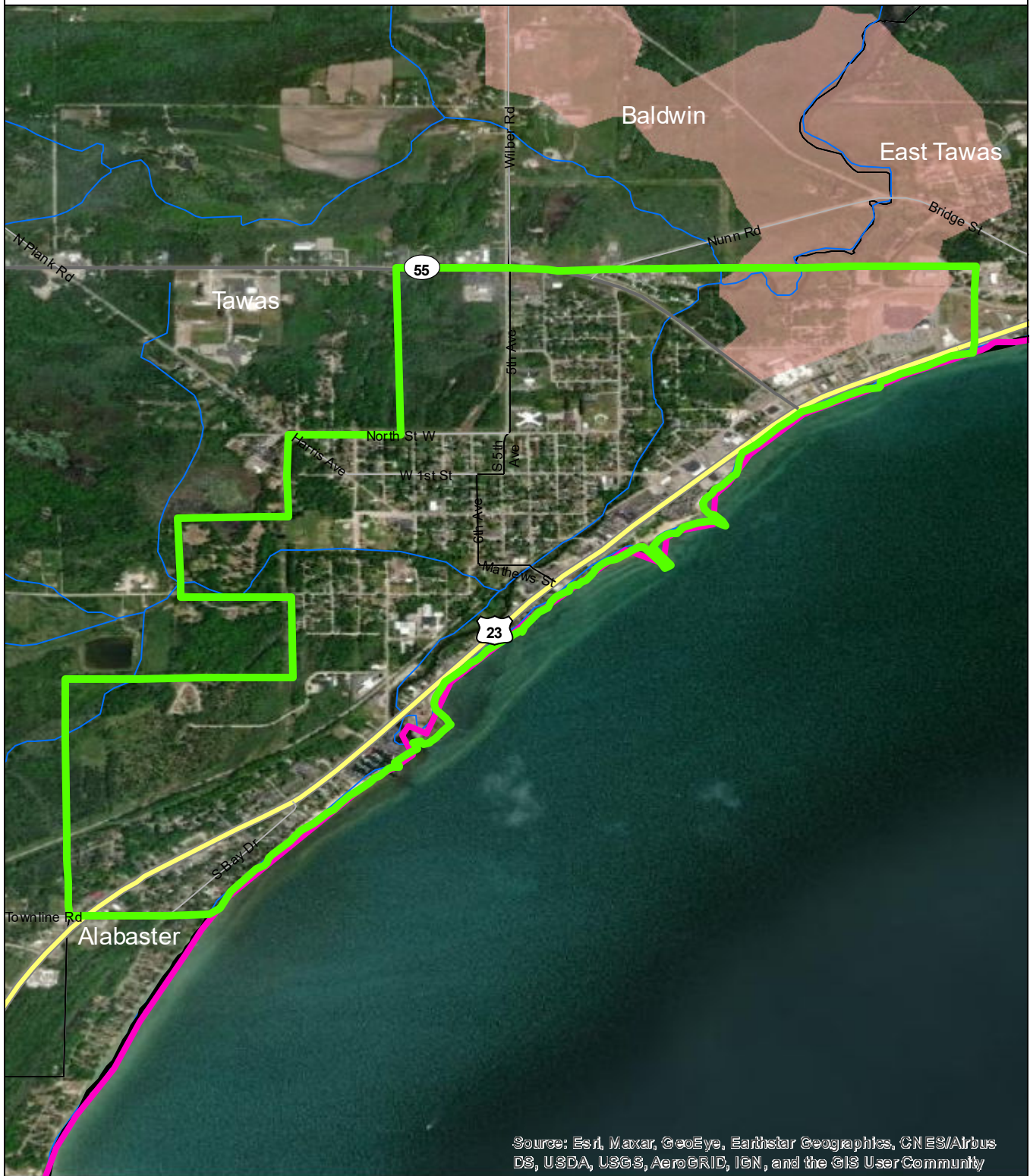
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Tawas Township

Legend

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

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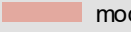
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

City of Tawas City

Legend

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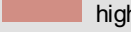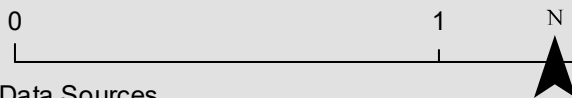Map produced by the Institute of Water Research - Michigan State University

Michigan CREP — Conservation Reserve Enhancement Program

City of Whittemore

Reno

Burleigh

E Sherman St   Whittemore Rd

65

Prescott Rd

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

Legend

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

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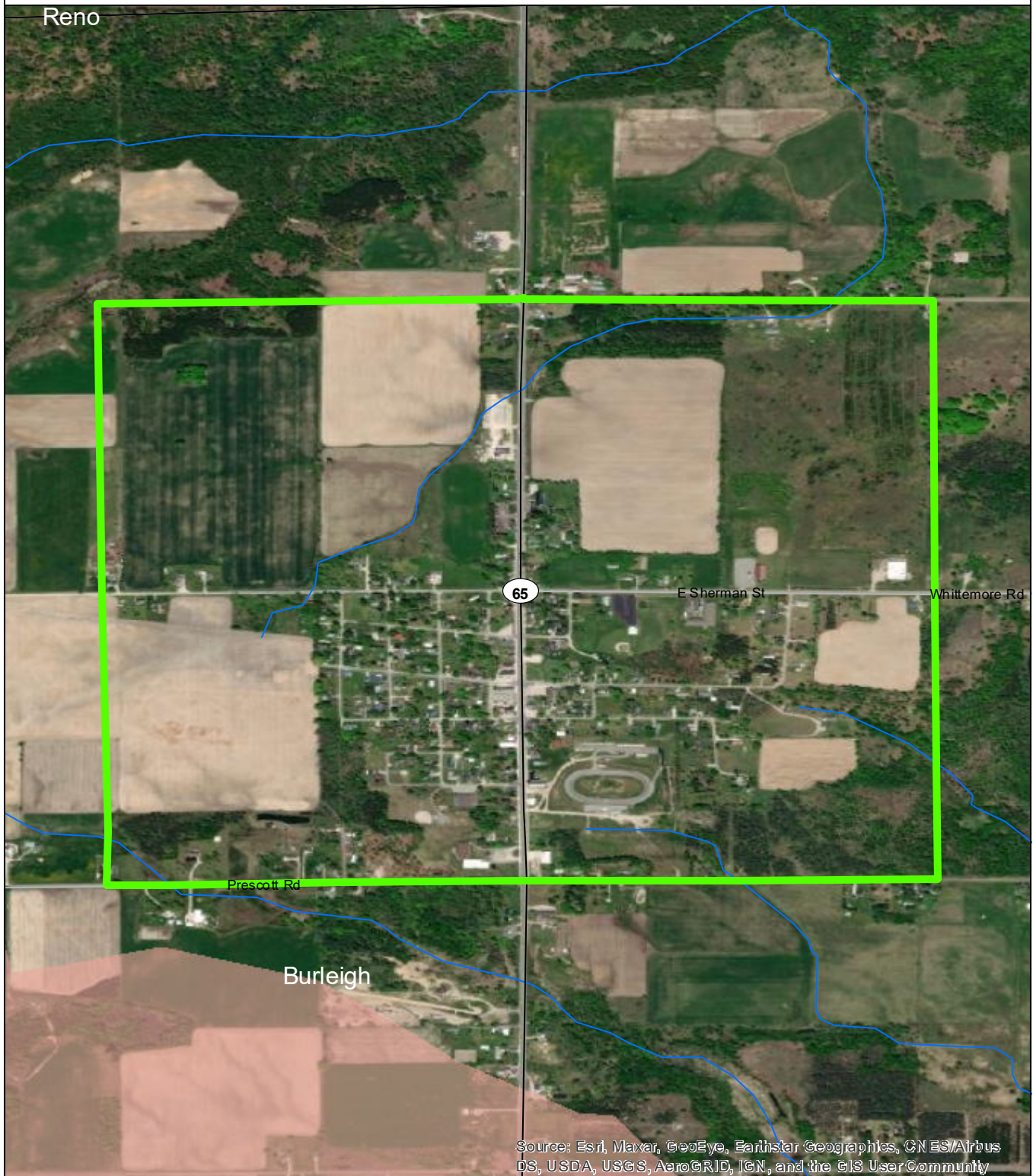- moderate
- high
- very high

0   N

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

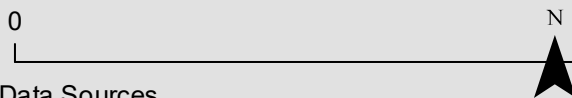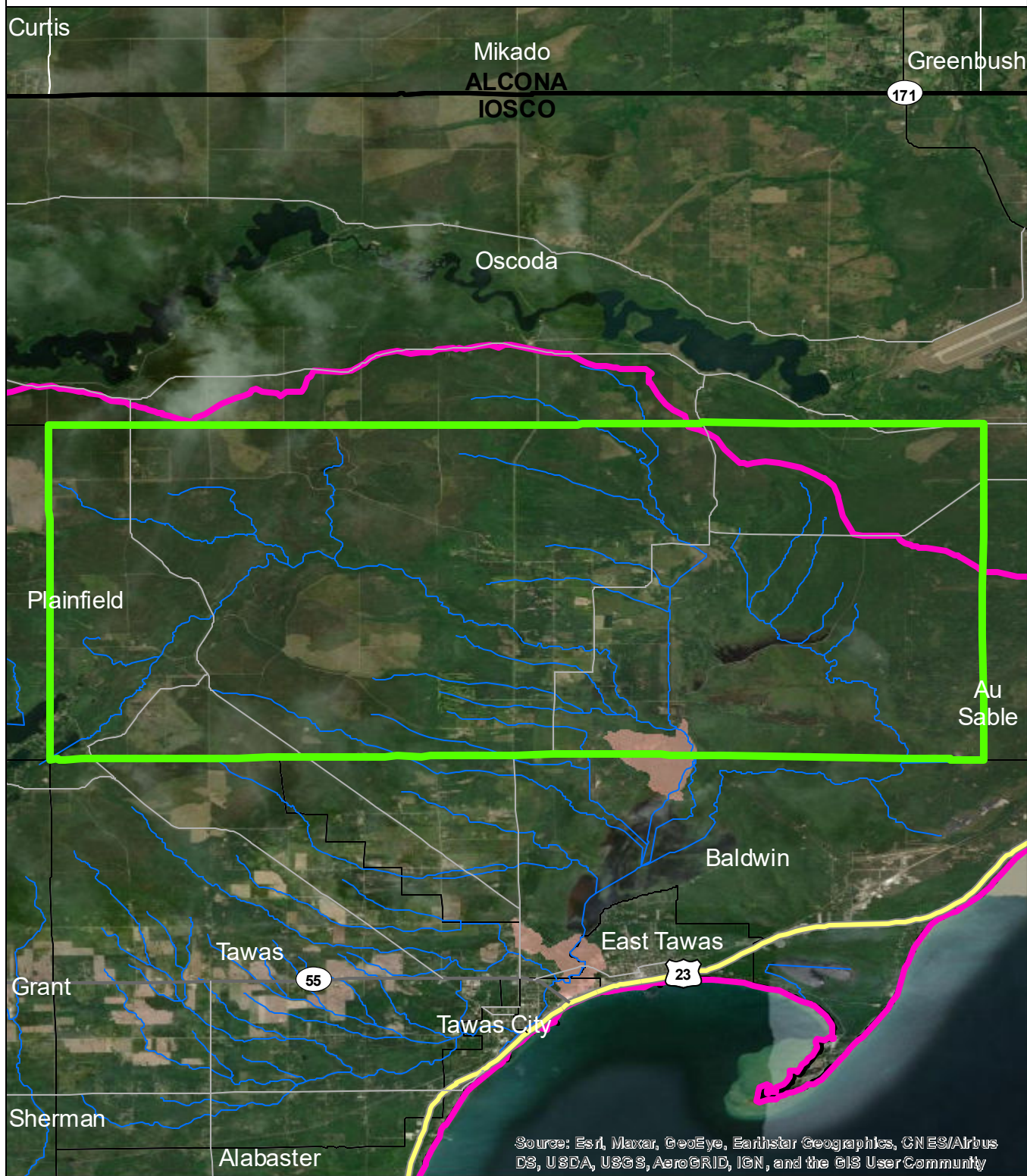Map produced by the Institute of Water Research - Michigan State University

Wilber Township

Curtis

Mikado

ALCONA

IOSCO

Greenbush

171

Oscoda

Plainfield

Au Sable

Baldwin

East Tawas

Tawas

55

23

Grant

Tawas City

Sherman

Alabaster

	Wilber 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
Conservation Reserve Enhancement Program