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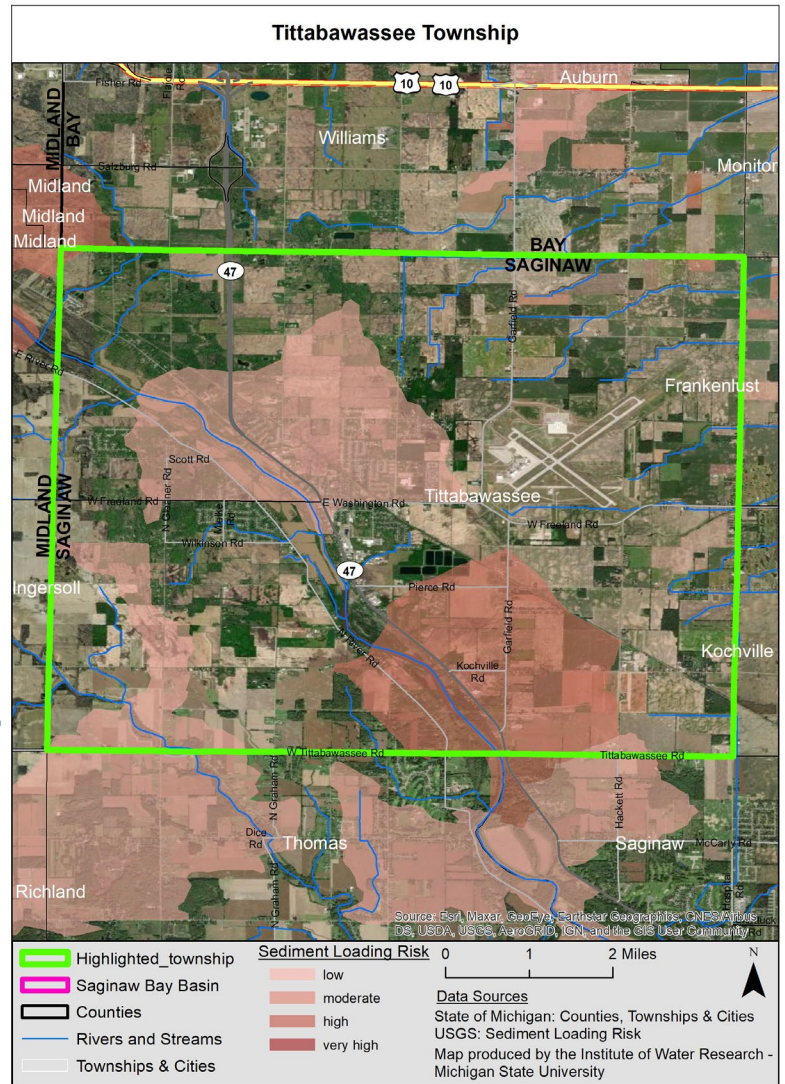
Please direct questions about MSUE's project to:
Sarah Fronczak
Environmental Management Educator
Michigan State University Extension
froncza3@msu.edu

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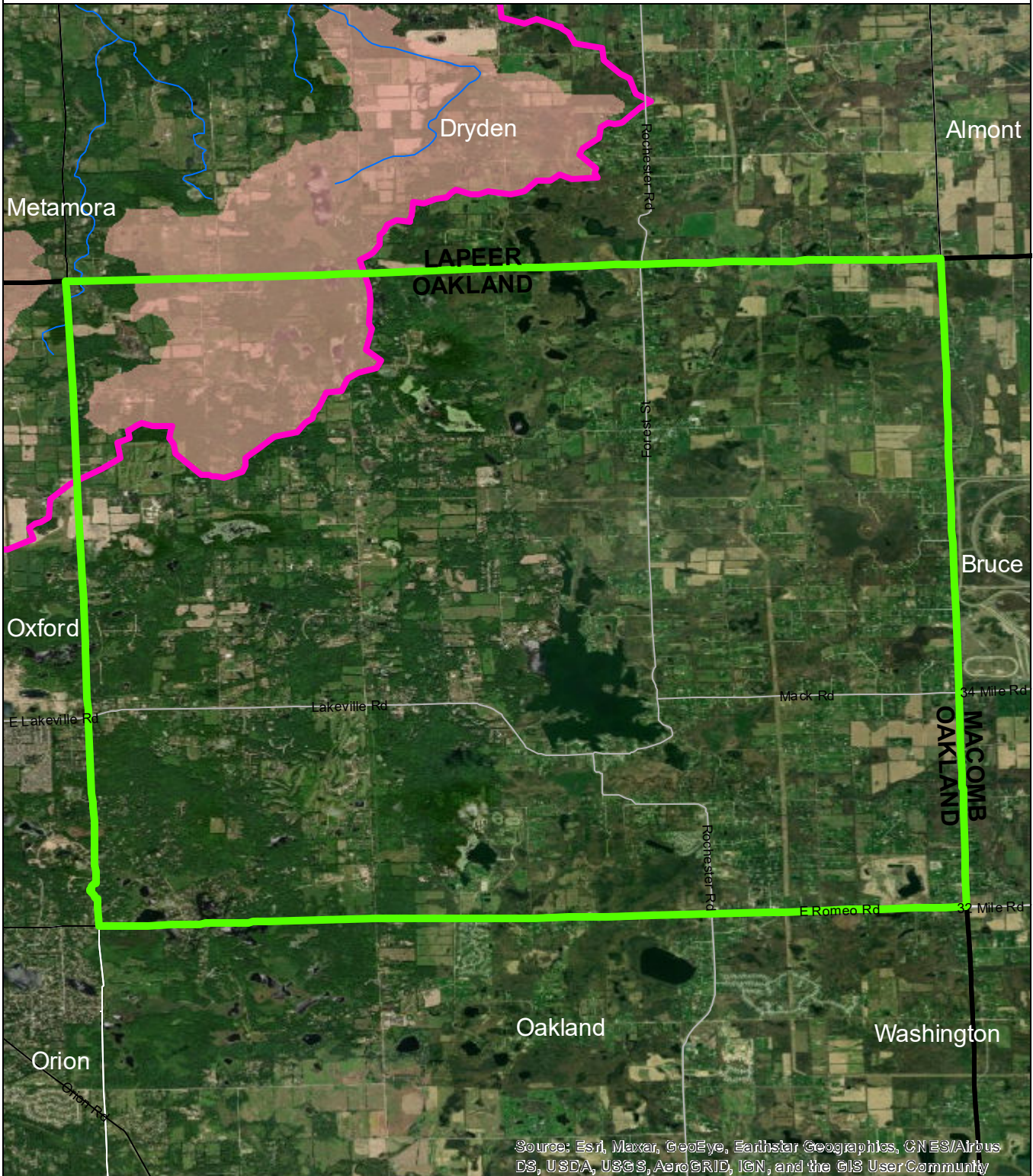Institute of Water Research - Michigan State University
oneilg@msu.edu

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

Tittabawassee Township

Table of Contents

Addison Township

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

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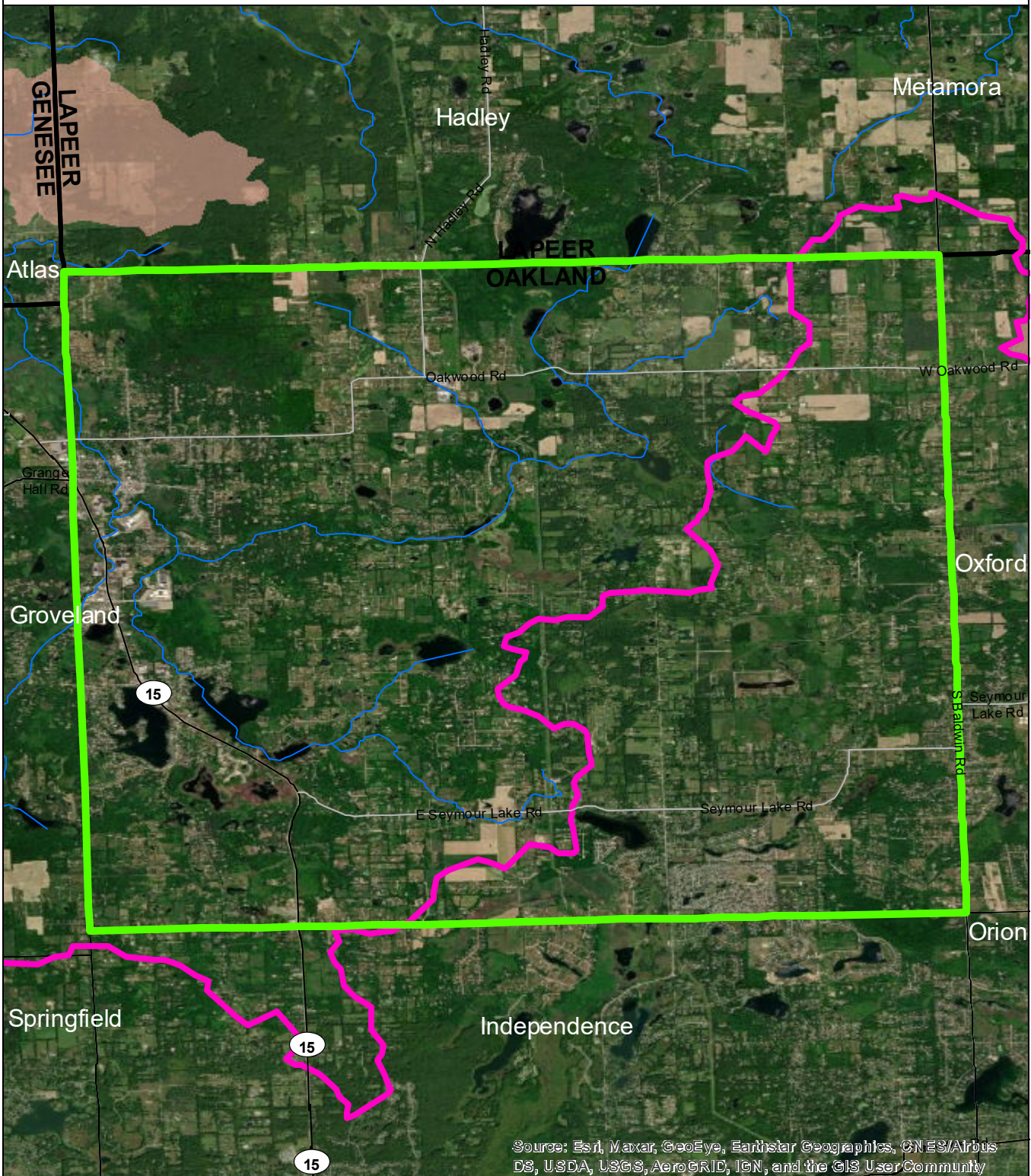- moderate
- high
- very high

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

MICHIGAN STATE UNIVERSITY Extension

Michigan CREP
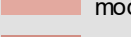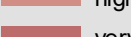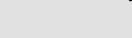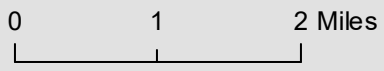Conservation Reserve Enhancement Program

Brandon Township

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

Legend

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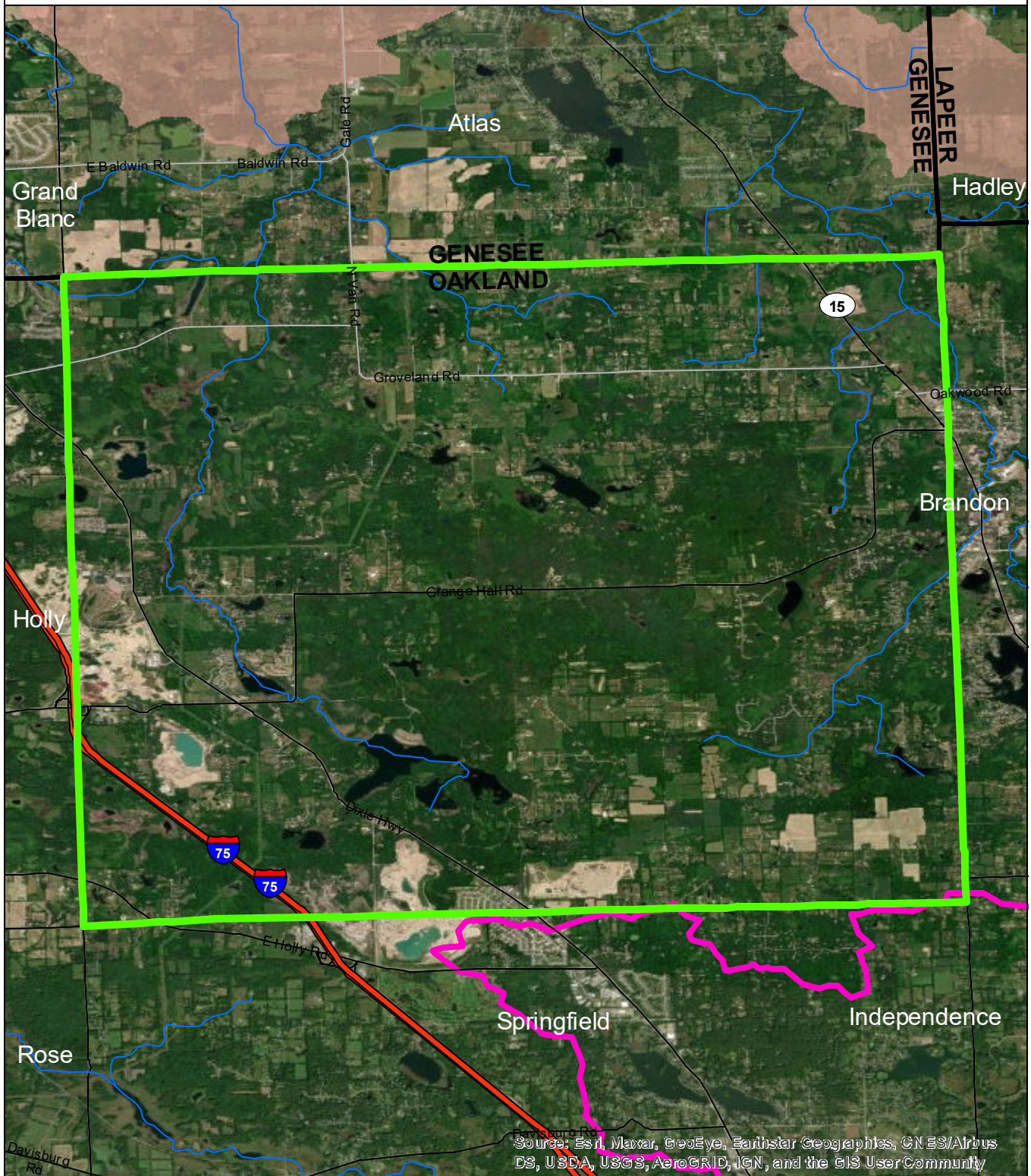- Townships & Cities

Sediment Loading Risk
- low
- moderate
- high
- very high
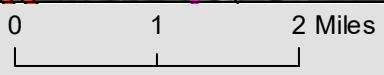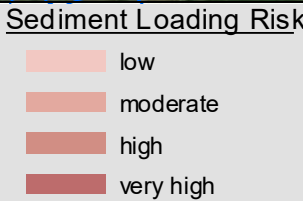
0   1   2 Miles

N

Data Sources

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

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

Groveland Township

Legend:
- Groveland 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
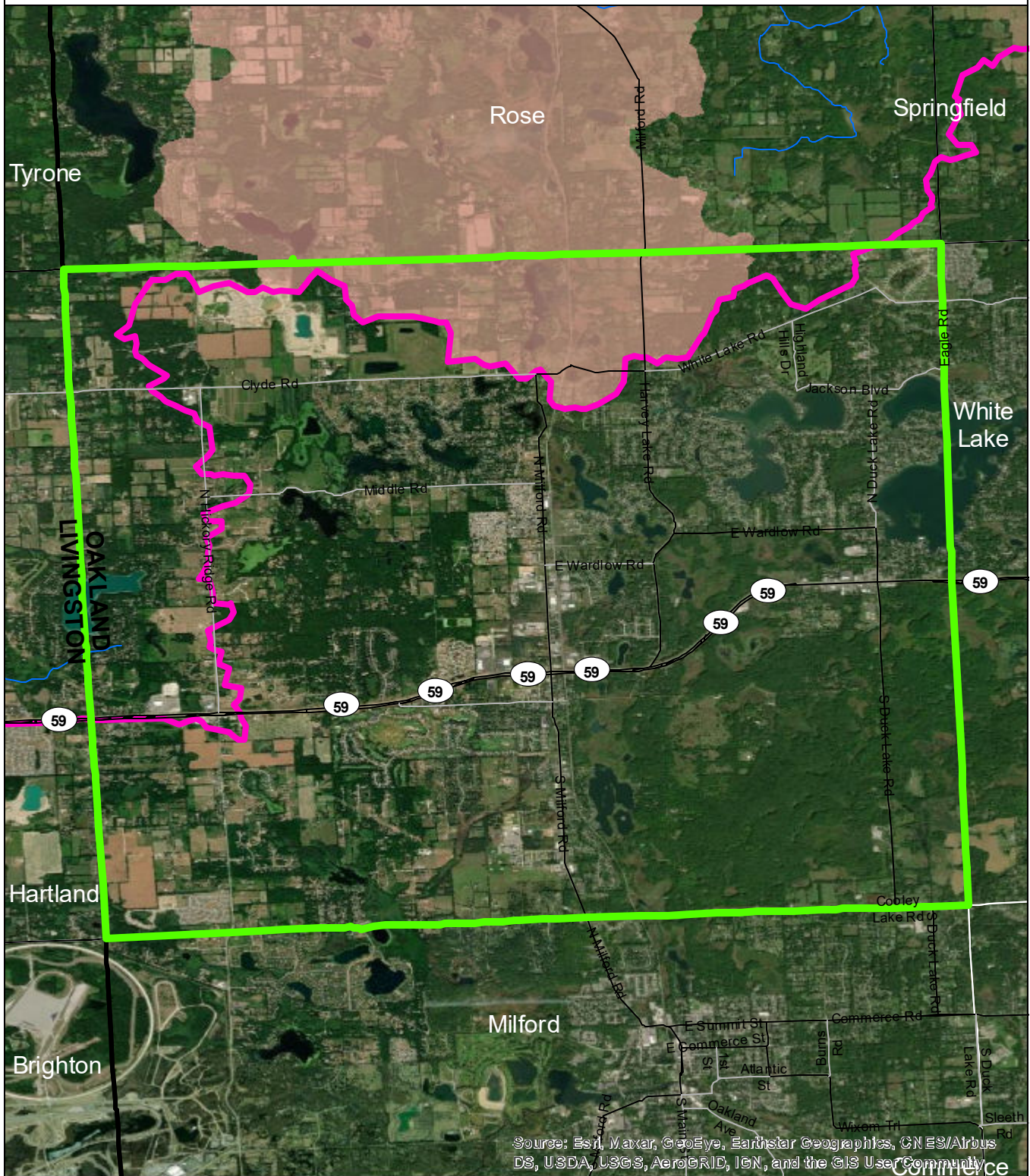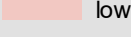
Highland Township

Legend

- **Highland 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

Data Sources

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

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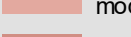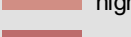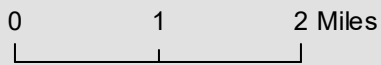
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Holly Township

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

Legend

- **Holly 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
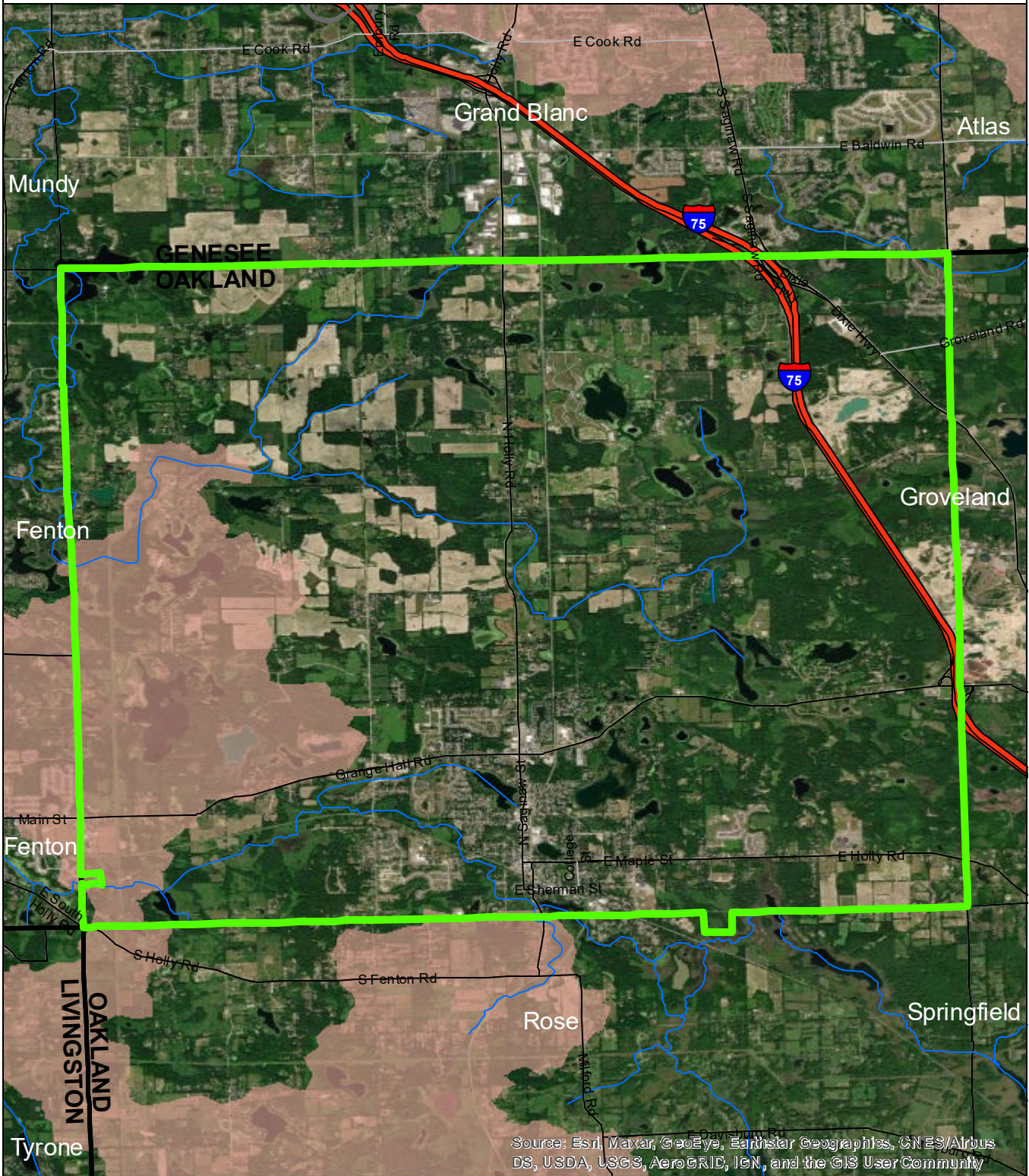- high
- very high

0 1 2 Miles

N

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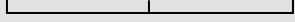USGS: Sediment Loading Risk

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

Independence Township

Legend

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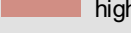State of Michigan: Counties, Townships & Cities
USGS: Sediment Loading Risk

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

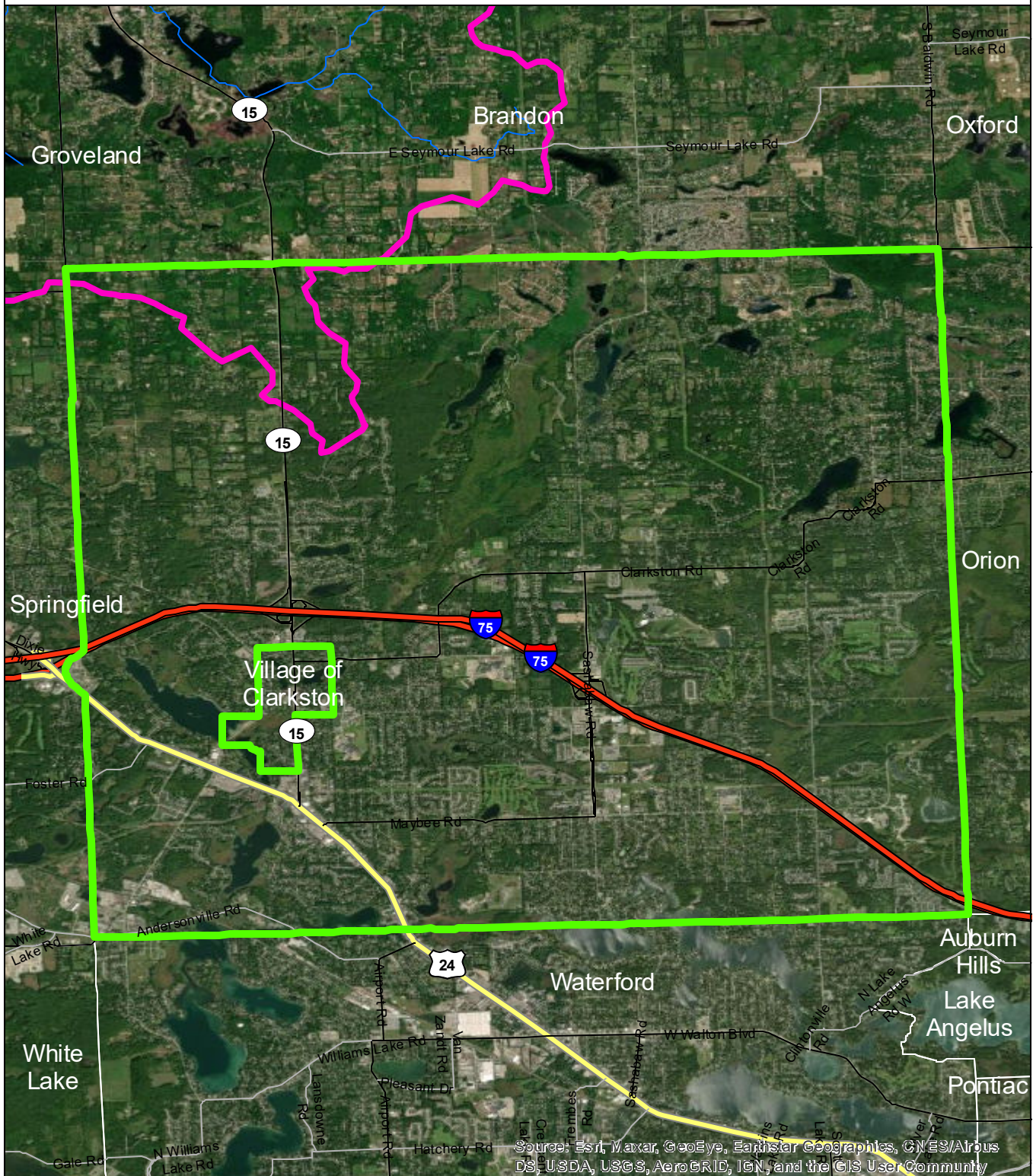Labels on map: Groveland, Brandon, Oxford, Springfield, Orion, Village of Clarkston, Auburn Hills, Lake Angelus, Waterford, Pontiac, White Lake

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

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Michigan CREP Conservation Reserve Enhancement Program

Oxford Township

Metamora

Dryden

Hadley

LAPEER
OAKLAND

Addison

Oakwood Rd

W Oakwood Rd

24

24

Brandon

S Baldwin Rd

Lakeville Rd

Seymour Lake Rd

W Burdick St

E Lakeville Rd

Seymour Lake Rd

24

Orion

W Flint St   E Flint St

Oakland

Independence

Orion Rd

W Clarkston Rd

Clarkston Rd

24

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

Legend

- **Oxford Township** (green outline)
- **Saginaw Bay Basin** (pink 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

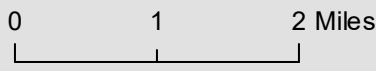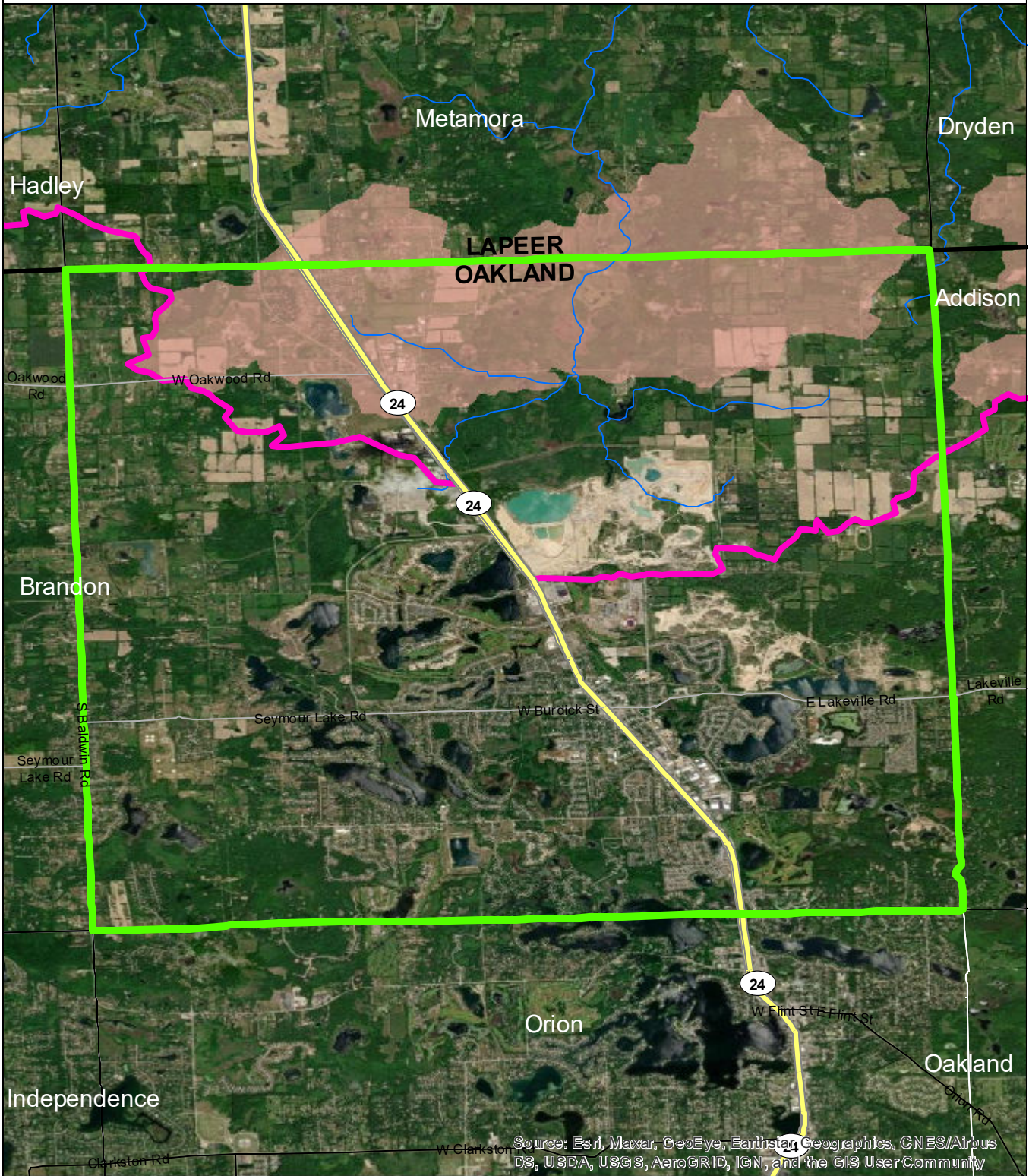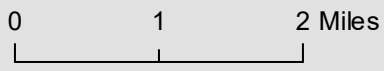Map produced by the Institute of Water Research - Michigan State University

Rose Township

Legend

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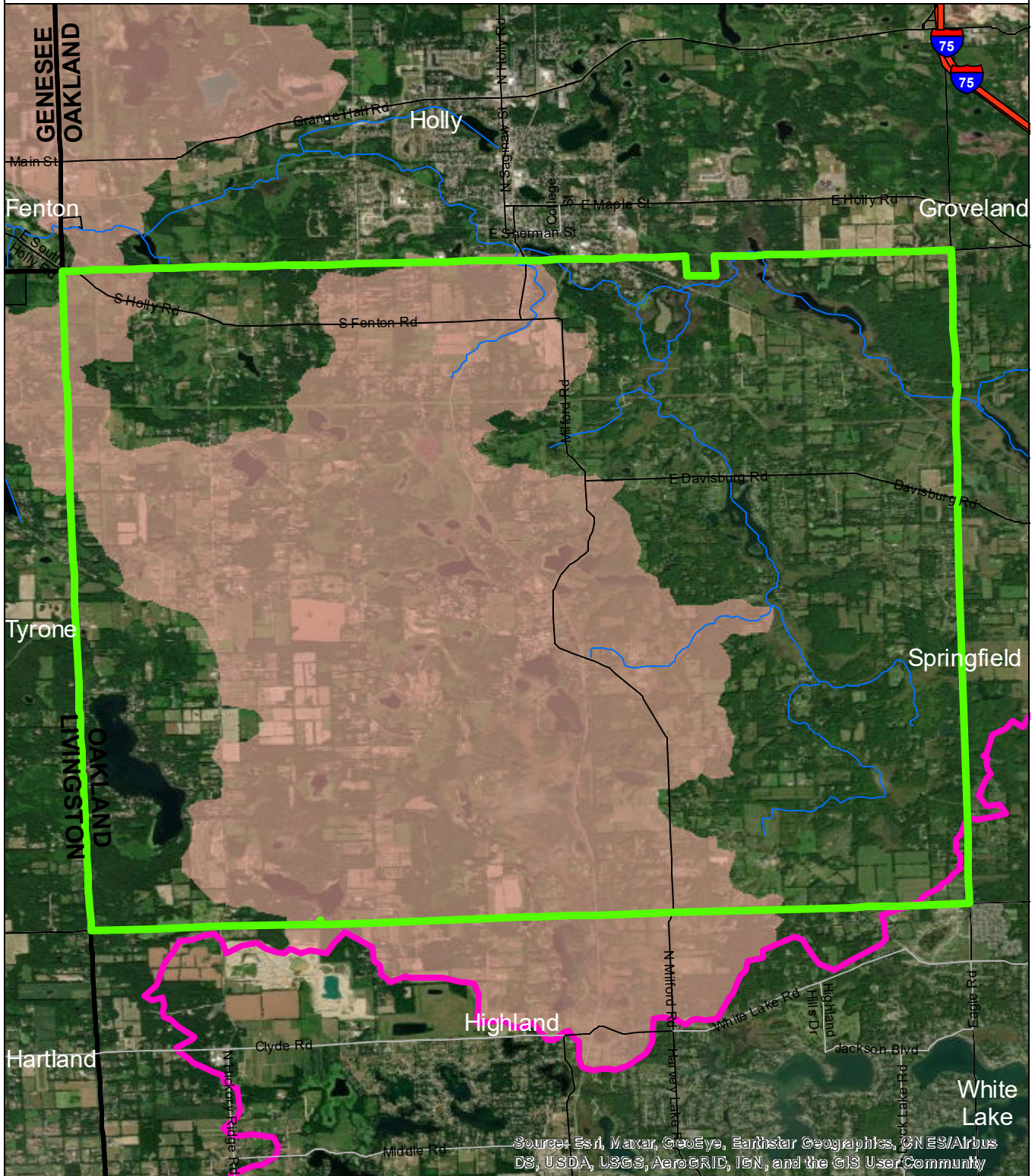- **Townships & Cities**

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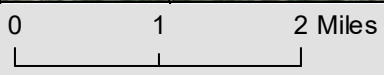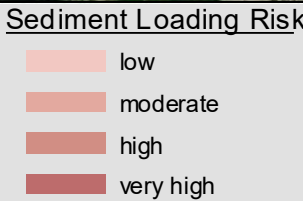- moderate
- high
- very high

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

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

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

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Conservation Reserve Enhancement Program

Springfield Township

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

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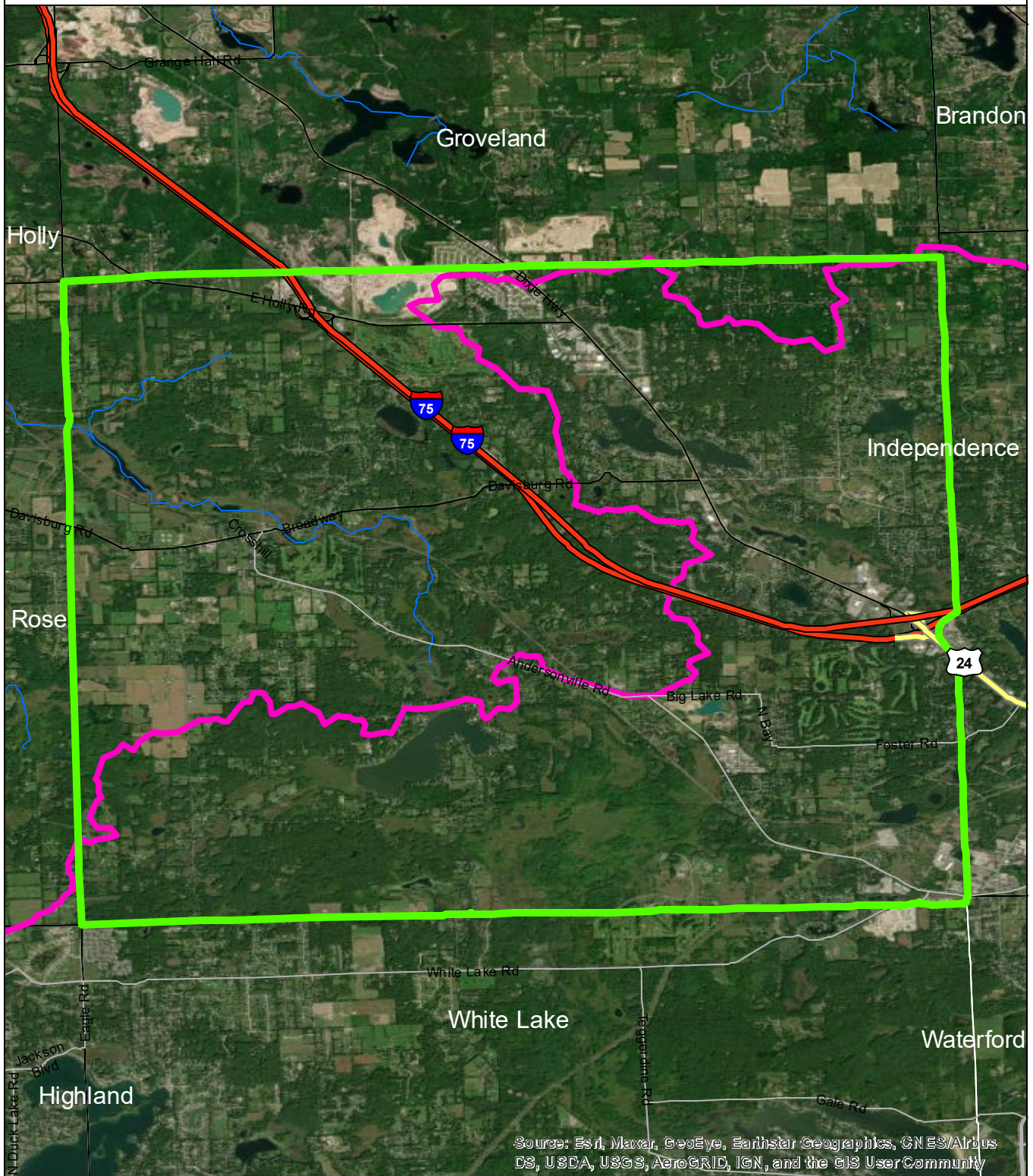- moderate
- high
- very high

0   1   2 Miles

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

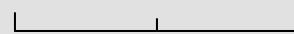Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Michigan CREP — Conservation Reserve Enhancement Program