# 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 -

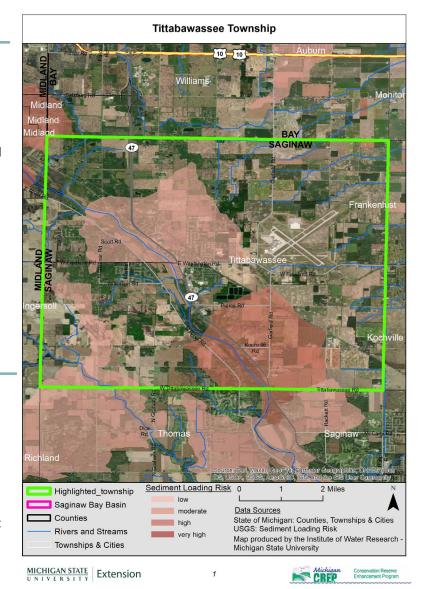
The maps are based upon data from the United States Geological Survey's (USGS) SPAtially Referenced Regression On Watershed attributes (SPARROW) model\*. The model uses observations, land use characteristics, and statistical relationships, among other variables, to estimate pollutant loads to streams 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



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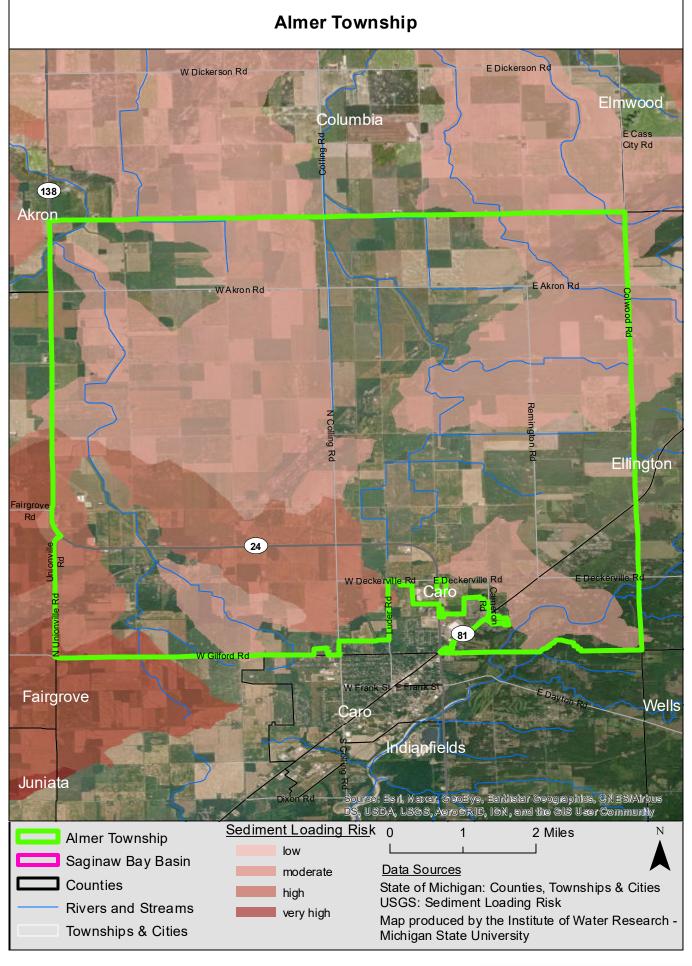
# **Akron Township** Sebewaing Columbia 25 W Dickerson Rd Dickerson Rd Wisner 138 Almei Source: EstleNaxar, Geoegye, Earthstar Geographtss, CNES/Alrous DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Gilford Sediment Loading Risk 0 2 Miles Akron Township low Saginaw Bay Basin **Data Sources** moderate Counties State of Michigan: Counties, Townships & Cities high USGS: Sediment Loading Risk Rivers and Streams very high



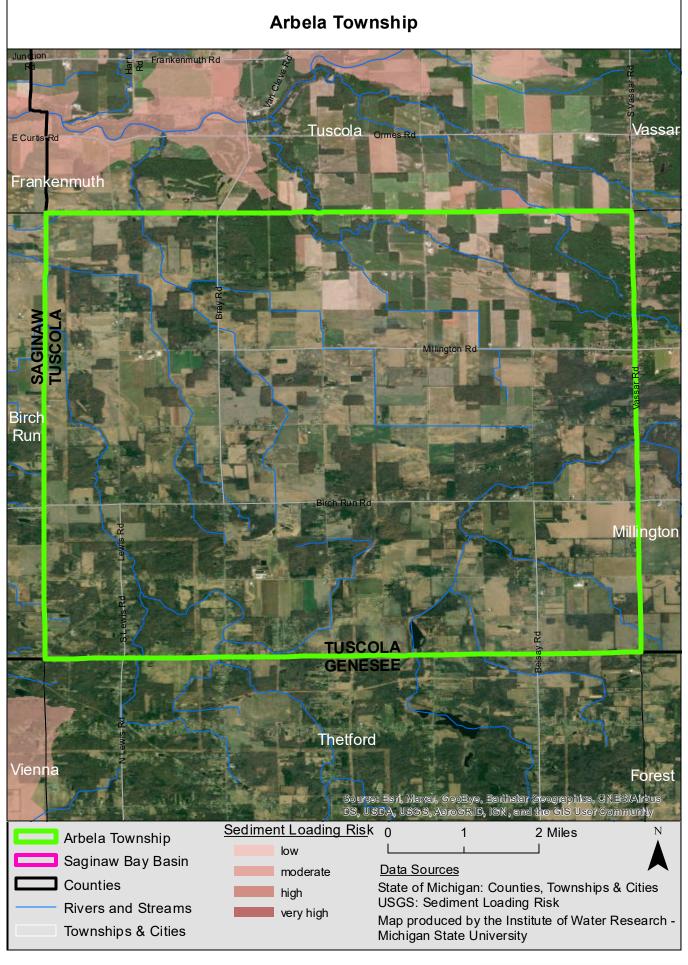
Map produced by the Institute of Water Research -

Michigan State University

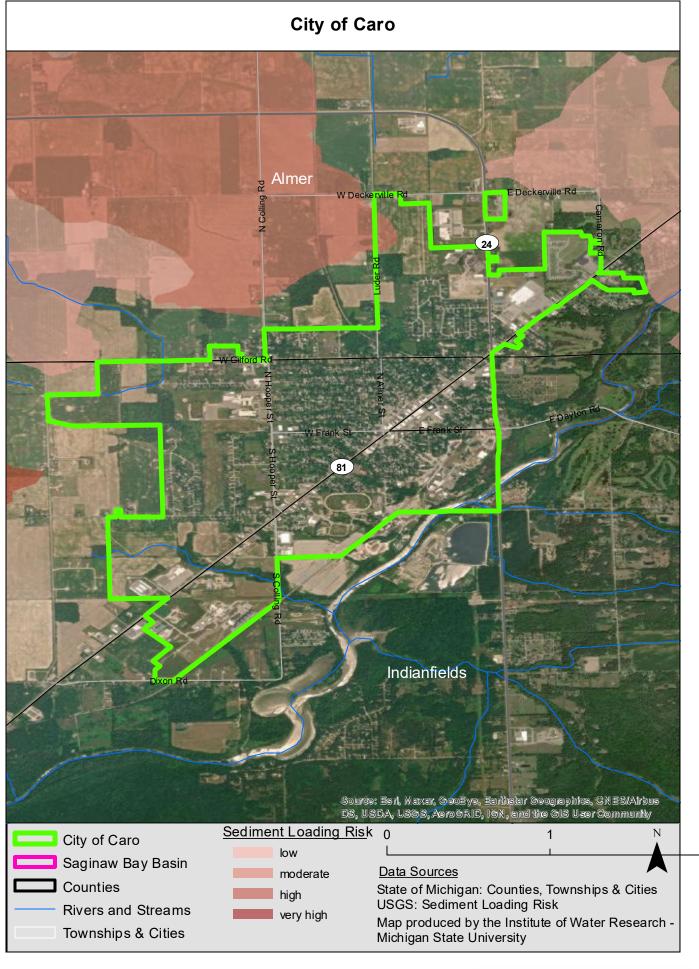
Townships & Cities







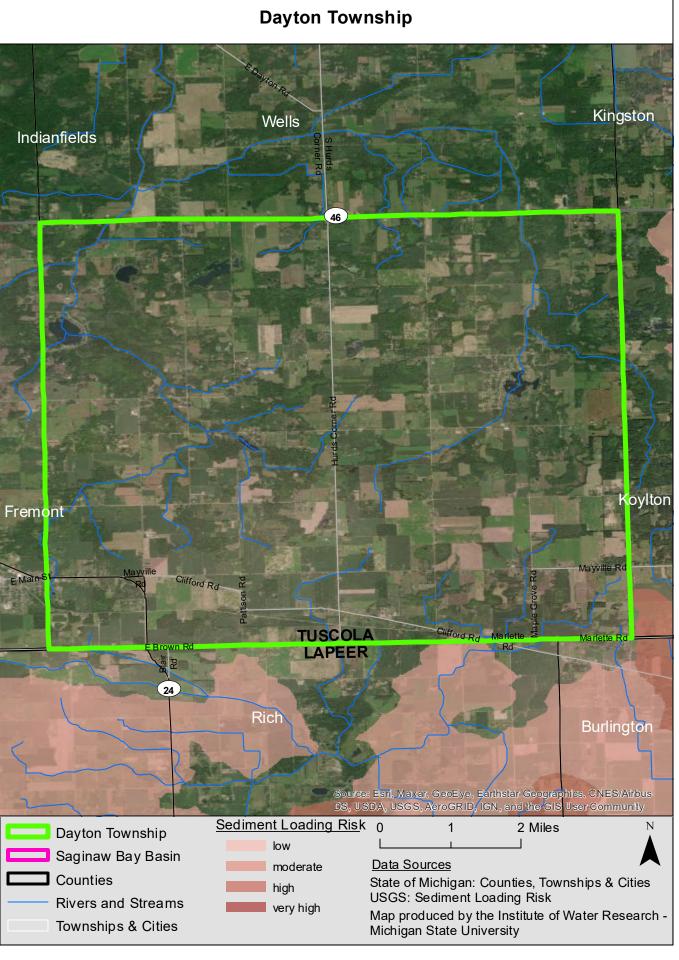




2 Miles

## **Columbia Township** Sebewaing 25 Brookfield HURON TUSCOLA Bay City restville Rd E Bay City Forestville Rd W Bay City Forestville Rd 25 Akron E Dickerson Rd W Dickerson Rd 138 Elm<mark>wood</mark> E Akron Rd W Akron Rd Almer Ellington Fairgrove (24) Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, Aero GRID, IGN, and the GIS User Community Sediment Loading Risk 0 2 Miles Columbia Township low Saginaw Bay Basin **Data Sources** moderate Counties State of Michigan: Counties, Townships & Cities high USGS: Sediment Loading Risk Rivers and Streams very high Map produced by the Institute of Water Research -Townships & Cities Michigan State University





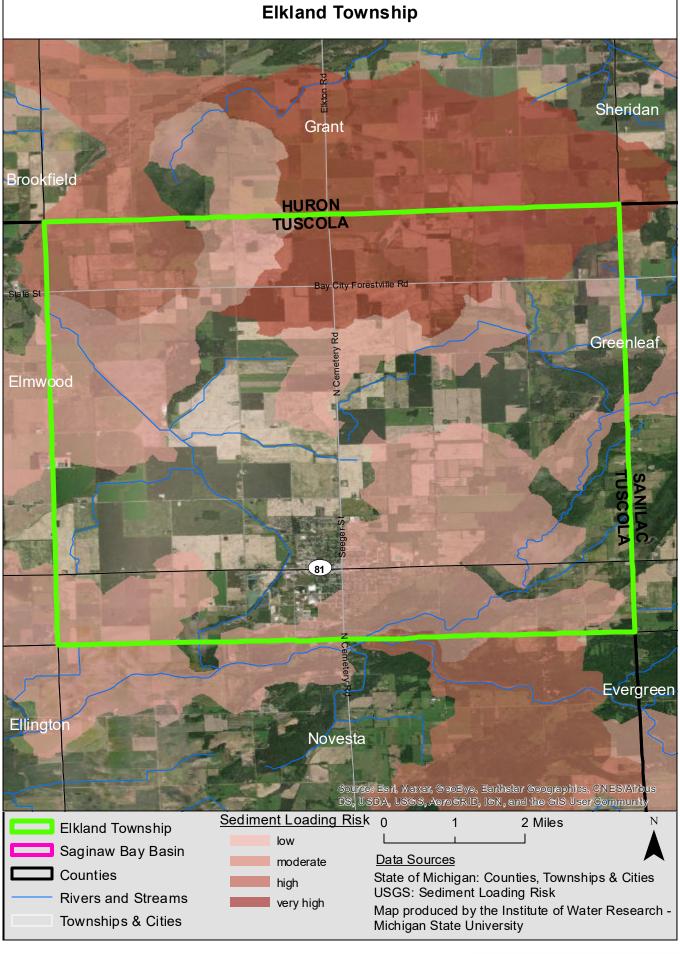


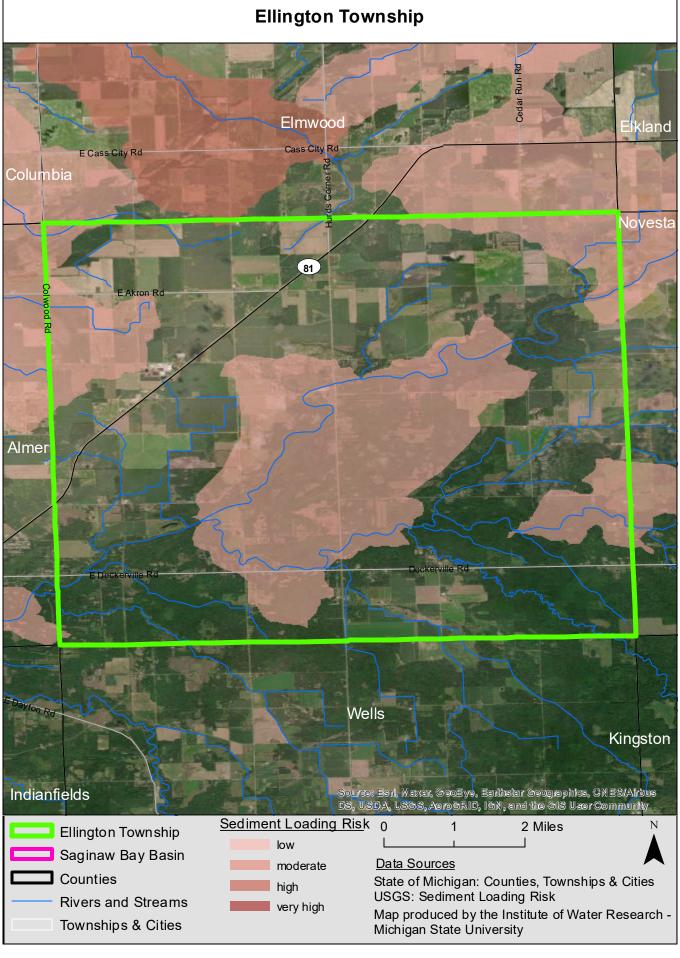
# **Denmark Township** Merritt Fairgrove Gilford W Gilford Rd Juniata 81 Blumfield 46 15 Tuscola Frankenmuth Source: Esrl, Maxar, George, Earthstar Georgraphics, CNESAlrous DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Soa Sediment Loading Risk 0 2 Miles Denmark Township low Saginaw Bay Basin **Data Sources** moderate Counties State of Michigan: Counties, Townships & Cities high USGS: Sediment Loading Risk Rivers and Streams very high Map produced by the Institute of Water Research -Townships & Cities Michigan State University



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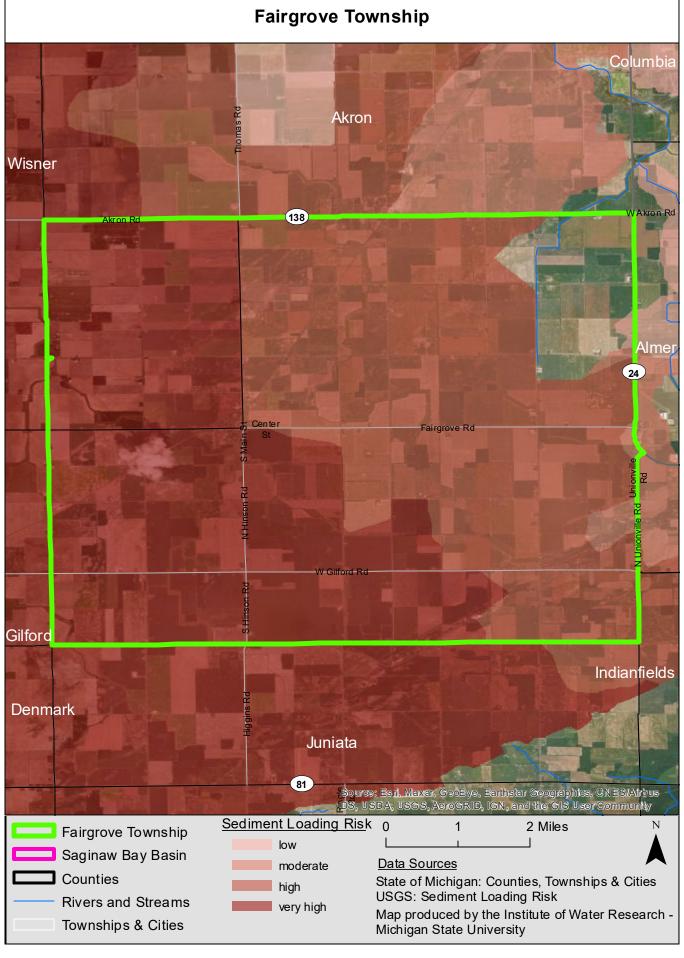




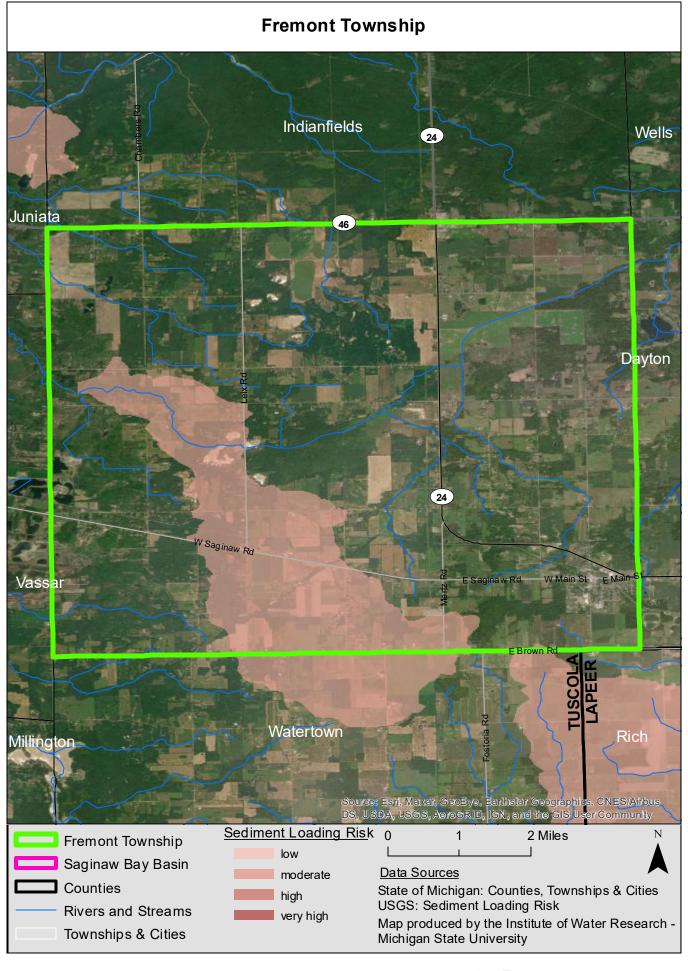


## **Elmwood Township** Brookfield Grant Sebewaing HURON Elkland TUSCOLA Bay City For estville Rd E Bay City Bay City Forestville Rd Forestville Rd E Cass City Rd 81 Columbia Novesta Ellington E Akron Rd Almer Source: Esrl, Maxar, GeoEye, Earthstar Geographics, GN ES/Atrous DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Sediment Loading Risk 0 2 Miles Elmwood Township low Saginaw Bay Basin **Data Sources** moderate Counties State of Michigan: Counties, Townships & Cities high USGS: Sediment Loading Risk Rivers and Streams very high Map produced by the Institute of Water Research -Townships & Cities Michigan State University





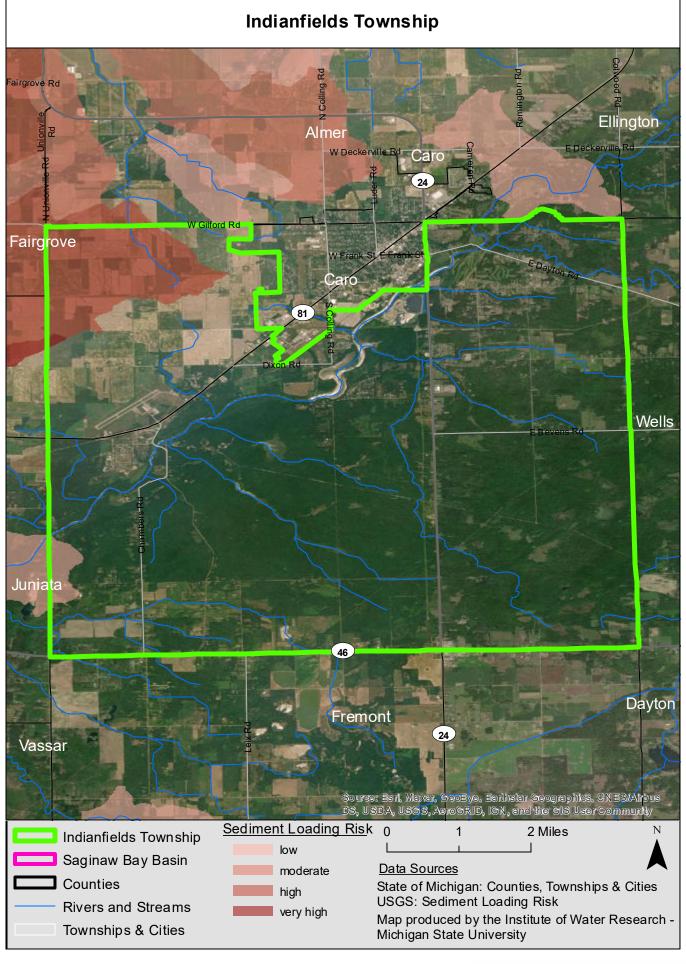




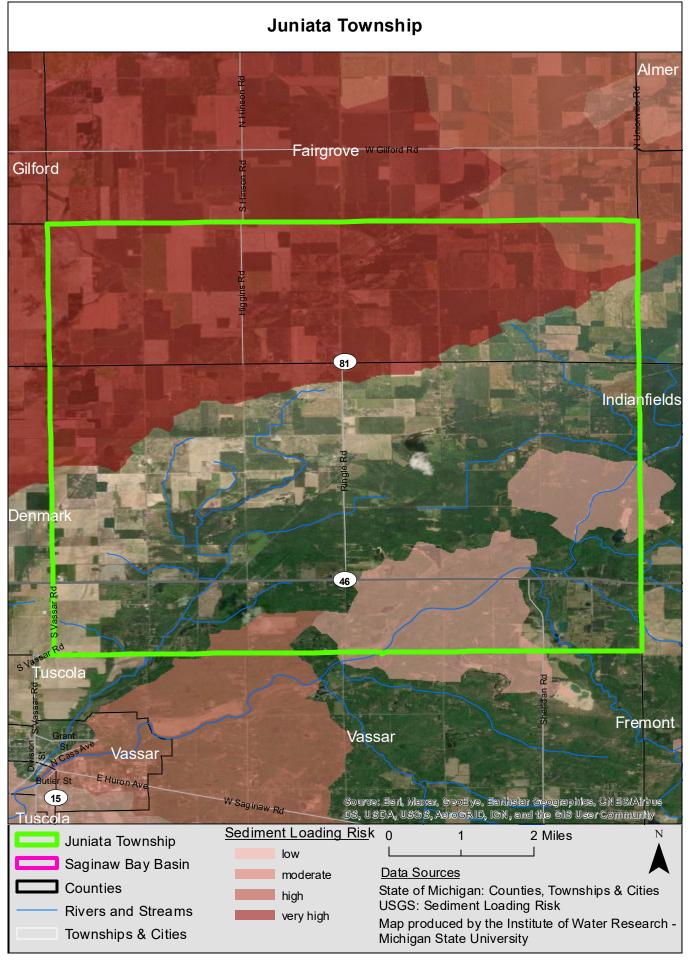


# **Gilford Township** Wisner Wisner Hampton Akron Nisner Dutcher Rd Fairgrove 138 Merritt W Gilford Rd S Bradford Rd Denmark Juniata Blumfield Source: Esrl, Naxar, Geollye, Earthstar Geographics, GN ES/Airbus DS, USDA, USGS, AeroGRIC, IGN, and the GIS User Community Sediment Loading Risk 0 2 Miles Gilford Township low Saginaw Bay Basin **Data Sources** moderate Counties State of Michigan: Counties, Townships & Cities high USGS: Sediment Loading Risk Rivers and Streams very high Map produced by the Institute of Water Research -Townships & Cities Michigan State University

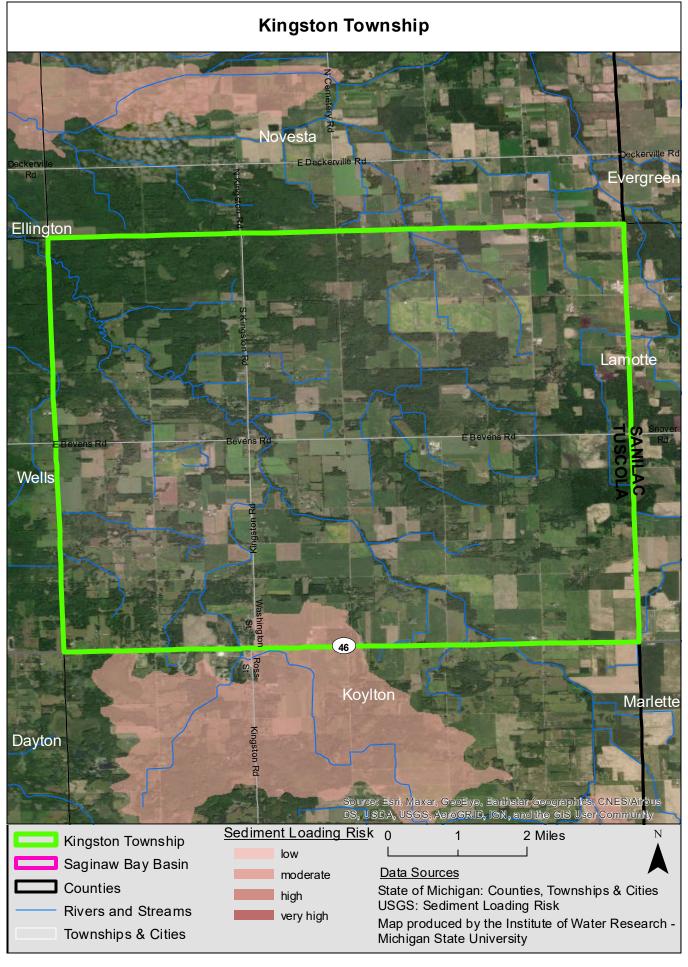






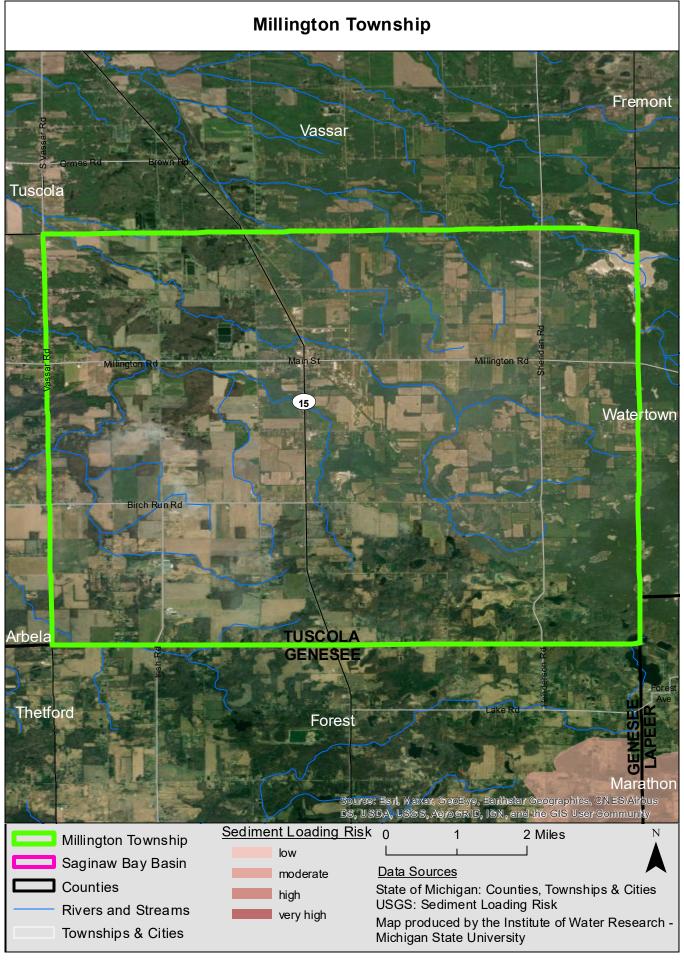


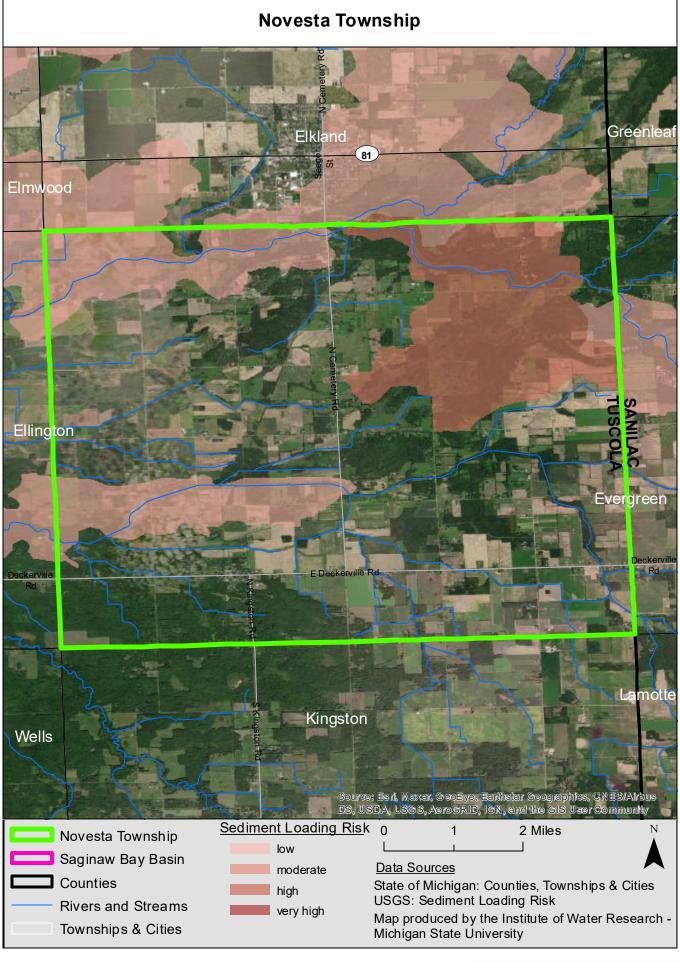




# **Koylton Township** Lamotte Kingston Wells 46 enter Line R Dayton TUSCOLA LAPEER Marlette Burlington Source: Esrl, Maxar, GeoEye, Earlinstar Geographics, CN ES/Alfous DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Sediment Loading Risk 0 2 Miles Koylton Township low Saginaw Bay Basin **Data Sources** moderate Counties State of Michigan: Counties, Townships & Cities high USGS: Sediment Loading Risk Rivers and Streams very high Map produced by the Institute of Water Research -Townships & Cities Michigan State University









## **Tuscola Township** Juniata Denmark Blumfield 15 Vassa Frankenmuth Rd Sohn Rd rankenmuth Rd E Curtis Rd Franke<mark>n</mark>muth Arbela Birch Millington Run Source: Es.1, Maxal, Geogle Earthstar Geoglaphiss, CN ES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS **User Communi**ty Sediment Loading Risk 0 2 Miles Tuscola Township low Saginaw Bay Basin **Data Sources** moderate Counties State of Michigan: Counties, Townships & Cities high USGS: Sediment Loading Risk Rivers and Streams very high Map produced by the Institute of Water Research -Townships & Cities Michigan State University



# **Vassar Township** Indianfields Denmark Juniata Tus<mark>c</mark>ola Fremont Vassar E Huron Ave 15 Tuscola Watertown Millington Millington Rd Arbela Source: Est, Maxar, Geollye, Eathistar Geographics, GN ES/Airbus DS, USDA, USGS, Aerogrid, 16N, and the GIS User Community Sediment Loading Risk 0 2 Miles Vassar Township low Saginaw Bay Basin **Data Sources** moderate Counties State of Michigan: Counties, Townships & Cities high USGS: Sediment Loading Risk Rivers and Streams very high Map produced by the Institute of Water Research -Townships & Cities Michigan State University

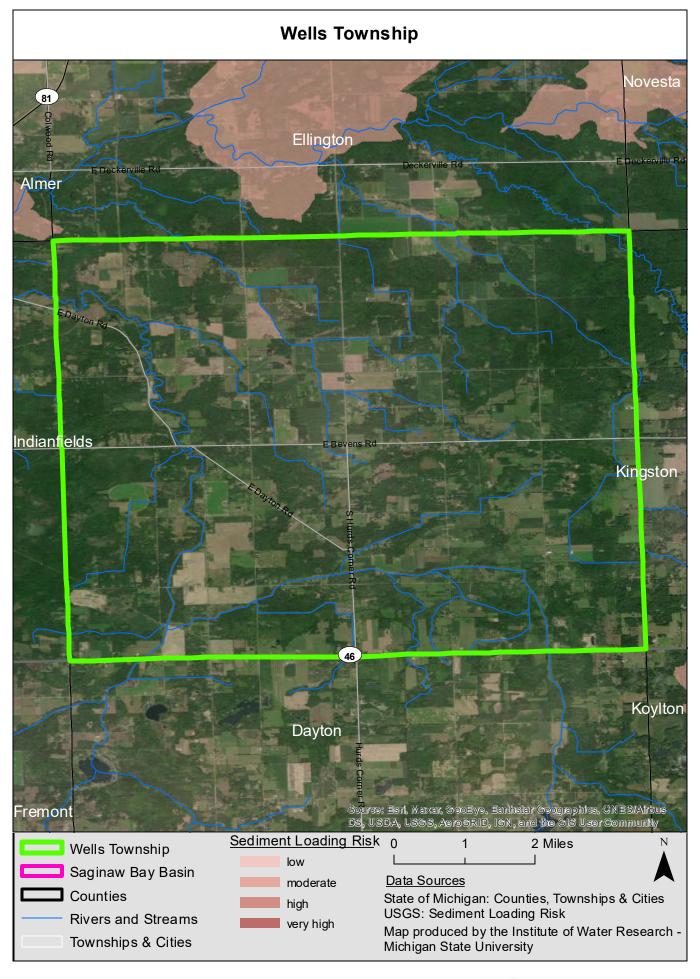


# City of Vassar Juniata Denmark Waterman Rd E Huron Ave W Saginaw Rd (15) Jay Rd **Tuscola** Vassar Source: Est, Maxar, Geollye, Earthstar Geolgaphts, GN ES/Airbus CS, USCA, USGS, AeroGRID, IGN, and the GIS User Community Sediment Loading Risk 0 City of Vassar low Saginaw Bay Basin **Data Sources** moderate Counties State of Michigan: Counties, Townships & Cities high USGS: Sediment Loading Risk Rivers and Streams very high Map produced by the Institute of Water Research -Townships & Cities Michigan State University

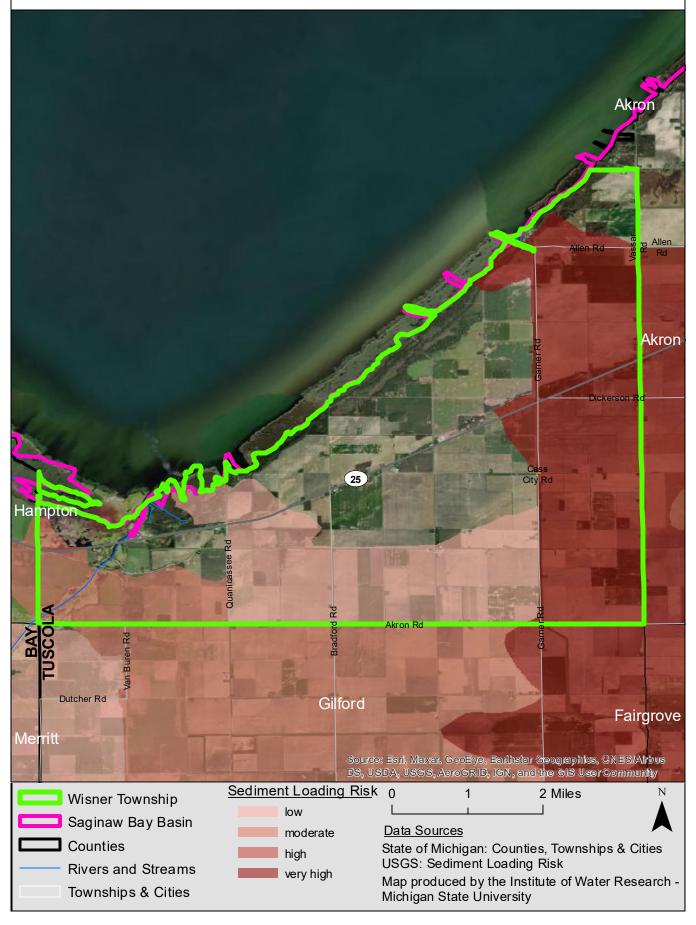


# **Watertown Township** ₽ R R W Saginaw Rd W Main St Main St Fremont Vassar Rich E M<mark>il</mark>lington Rd W Millington Rd illington Rd Millington Marathon Deerfield Otter Lake Rd Source: Esrl, Maxer, Geoegye, Earthstar Geographics, CN ES/Alrous DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Sediment Loading Risk 0 2 Miles Watertown Township low Saginaw Bay Basin **Data Sources** moderate Counties State of Michigan: Counties, Townships & Cities high USGS: Sediment Loading Risk Rivers and Streams very high Map produced by the Institute of Water Research -Townships & Cities Michigan State University





## **Wisner Township**





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