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 -

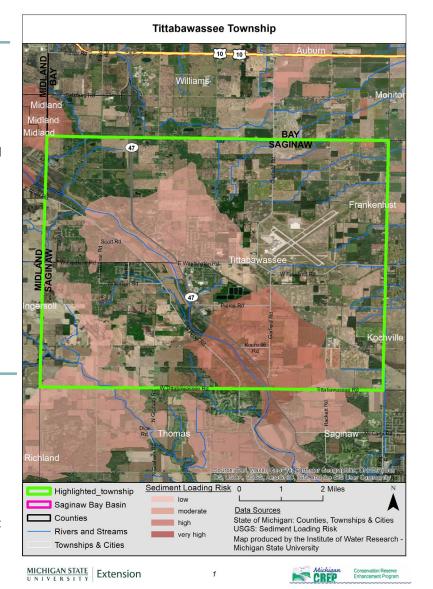
The maps are based upon data from the United States Geological Survey's (USGS) SPAtially Referenced Regression On Watershed attributes (SPARROW) model*. The model uses observations, land use characteristics, and statistical relationships, among other variables, to estimate pollutant loads to streams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



Table of Contents

Albee Township	3
Birch Run Township	4
Blumfield Township	
Brady Township.................................	6
Brant Township	7
Bridgeport Township	8
Buena Vista Township	9
Carrollton Township	10
Chapin Township´	11
Chesaning Township	12
Frankenmuth Township	13
City of Frankenmuth	14
Fremont Township............................´´	15
James Township	16
Jonesfield Township	17
Kochville Township	18
Lakefield Township	19
Maple Grove Township	20
Marion Township	21
Richland Township	22
Saginaw Township	23
City of Saginaw	24
Spaulding Township.......................2	25
St Charles Township	26
Swan Creek Township	27
Taymouth Township.......................2	28
Thomas Township	29
Tittabawassee Township	30
Zilwaukee Township	31
City of Zilwaukee	32

Albee Township Spaulding His Rd Bridgeport James (13) laymouth W Birch Run Rd harles Maple Grove Montrose Chesaning Source: Es rl, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRIC, IGN, and the GIS User Community Sediment Loading Risk 0 2 Miles Albee 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



Birch Run Township W Genesee St Frankenmuth Junction Rd Frankenmuth Ormes Rd Bridgeport Taymouth Run Ro A<mark>r</mark>bela **SAGINAW GENESEE** Montrose Thetford √ienna Source: Esrl, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Sediment Loading Risk 0 2 Miles Birch Run 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



Blumfield Township Merritt Buena Vista BAY Gilford SAGINAW 81 15 15 enmark rankenmuth Bridgeport Source: Esri, Maxar, Ceosye, Sarihstar Geographies, GN 55/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community DS, USDA, USGS, A Sediment Loading Risk 0 2 Miles Blumfield 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



Brady Township Brant Marion Chesaning Chapin SAGINAW **SHIAWASSEE** New Haven Rush Fairfield Source: Esrl, Maxar, GeoEye, Earthstar Geographics, CN ES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Sediment Loading Risk 0 2 Miles **Brady 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



Brant Township Fremont Swan eek Lakefield W Brant Ro Marion Chapin Chesaning Brady Source: Esrl, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus 508, USDA, USGS, AeroGRID, IGN, and the GIS-User Community— Sediment Loading Risk 0 2 Miles **Brant 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

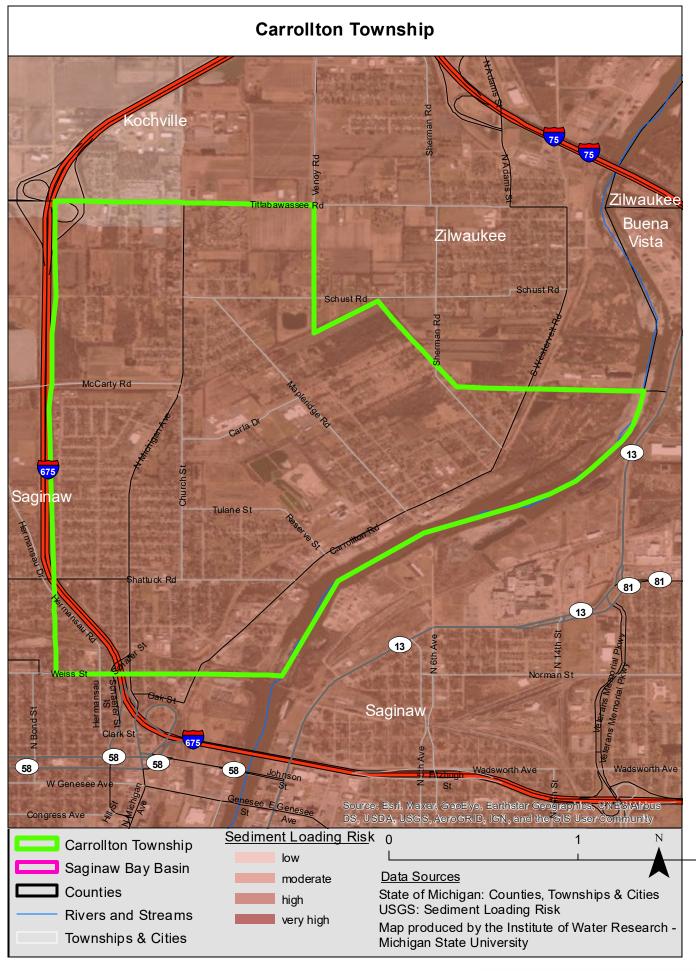


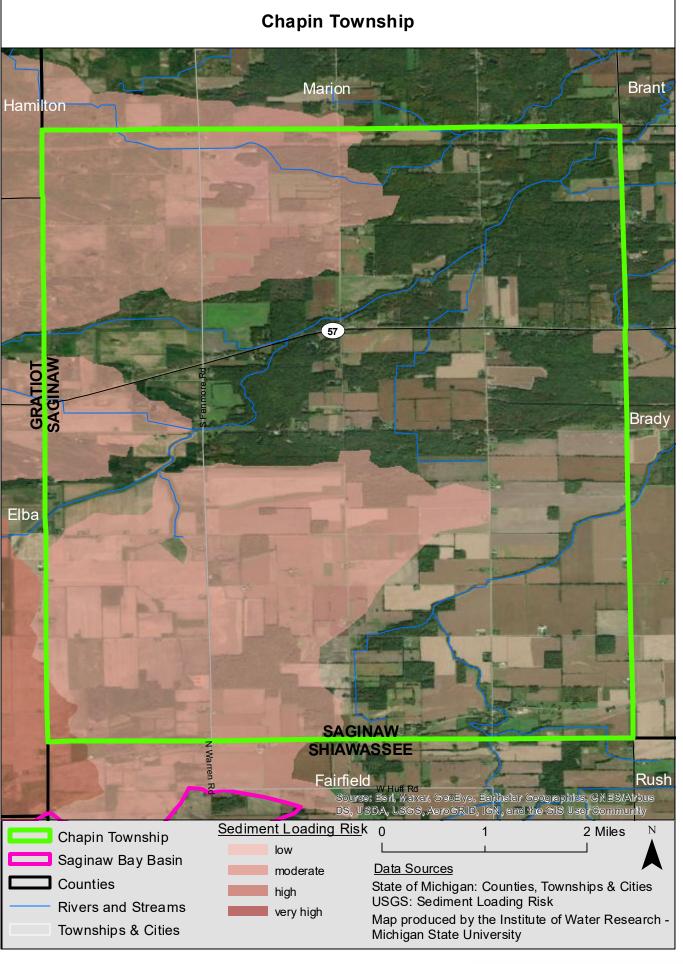
Bridgeport Township Hoyt Ave Perkins (46) 46 Buena Vista Saginaw Webbei Gallagher St Franke<mark>n</mark>muth Spau<mark>lding</mark> Junction Rd River View Dr Curtis Rd Albee Taymouth Source: Esrl, N.axar, Geoeye, Earlinstar Geographics, CN ES/Airbus DS, USDA, USGS, AeroGRIC, IGN, and the GIS User Community Sediment Loading Risk 0 2 Miles Bridgeport 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



Buena Vista Township Frankenlust **Portsmouth** BAY **SAGINAW** Kochville Zilwaukee Merritt 13 Zilwaukee Schust Schust Carrollton Saginaw 81 Bl<mark>u</mark>mfield 81 81 81 13 13 Atwater 46 Bridespurce: Esrl, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus 11 DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Sediment Loading Risk 0 2 Miles Buena Vista 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









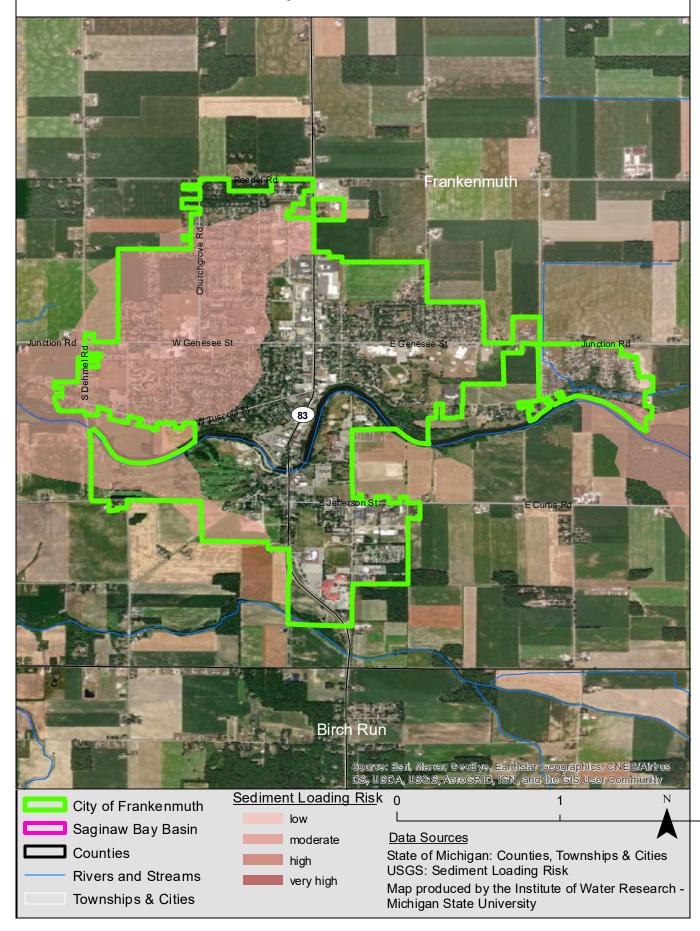
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Frankenmuth Township 15 Denmark Blumfield 46 Tuscola 83 **FUSCOLA** ਵੇਂ Frankenmuth E Genesee St F<mark>rankenmuth</mark> Junction Rd W Genesee St Bridgeport Ormes Rd Arbela Birch Run Source: Esrl, Maxar, Geoeye, Earthstar Geographics, GNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Commun<mark>t</mark>y Sediment Loading Risk 0 2 Miles Frankenmuth 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 Frankenmuth



Michigan Conservation Reserve Enhancement Program

2 Miles

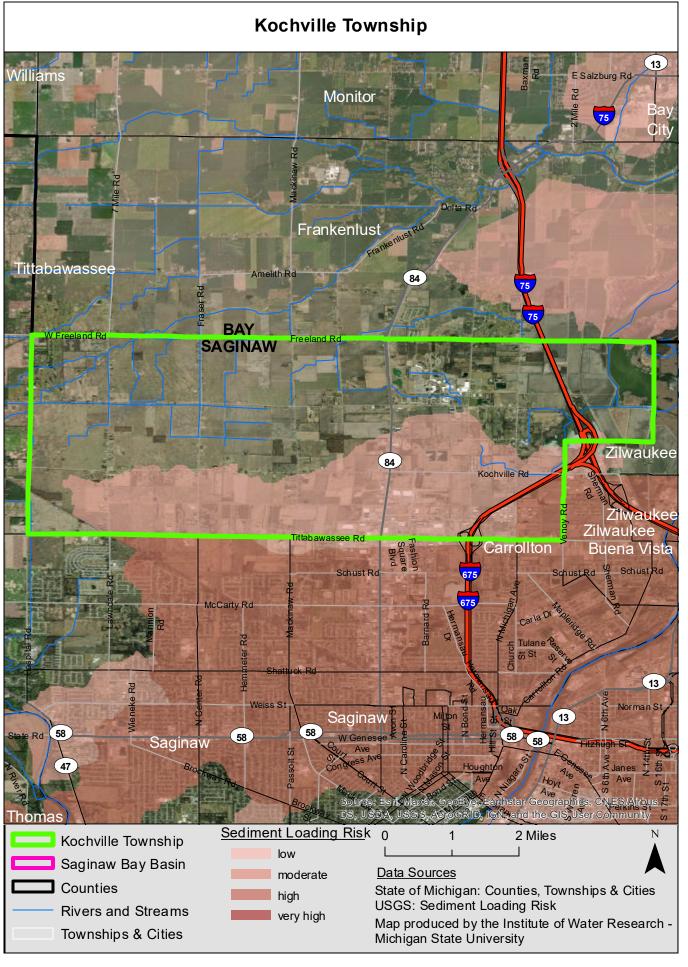
Fremont Township Richland Jonesfield Swan Creek Rd Swan Creek Lakefield St Charles Brant Marion Source: Esri, Maxar, Geoeye, Earlinstar Geographics, CN ES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Sediment Loading Risk 0 2 Miles Fremont Township low Saginaw Bay Basin **Data Sources** 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



James Township Congress **Thomas** (46) Saginaw W Michigan Ave Saginaw Swan Creek Swan Creek Rd Spaulding Albee St Charles Source: Esri, Maxar, GeoEye, Earthstar Geographiss, GNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Sediment Loading Risk 0 2 Miles James 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

Jonesfield Township Mt Haley Ingersoll **MIDLAND** Redstone SAGINAW Rd Porter Richland Wheeler Laksbirder Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Arribus nt DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Sediment Loading Risk 0 2 Miles N Jonesfield 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



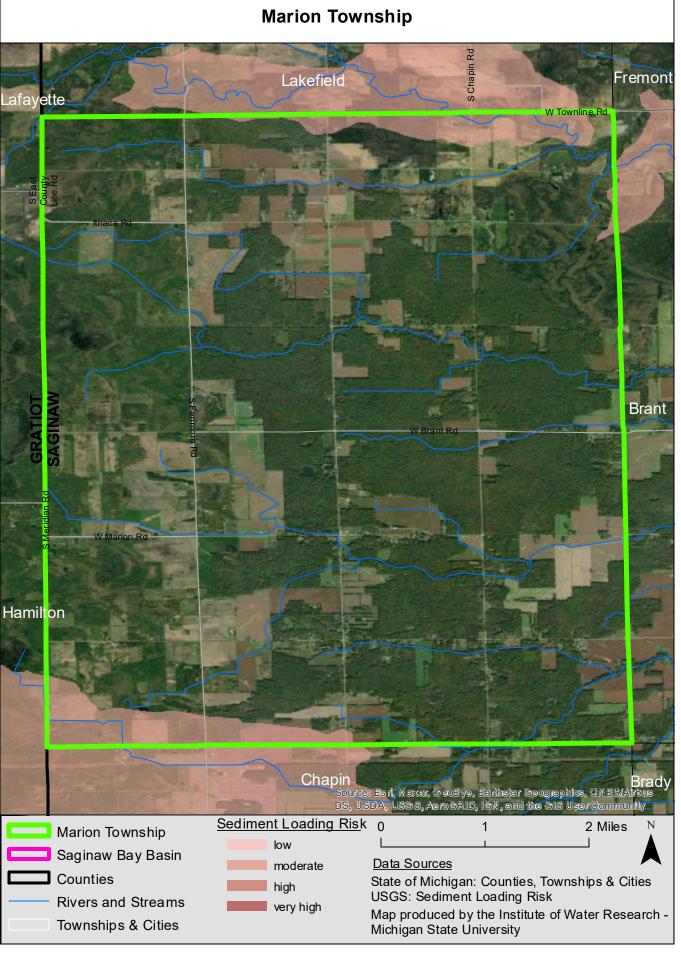


Lakefield Township Jonesfield Richland Fremont afayette Marion Source: Es.A, M.axar, Geoffye, Earthstar Geographies, GN ES/Africus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Sediment Loading Risk 0 2 Miles Lakefield Township low Saginaw Bay Basin **Data Sources** moderate Counties State 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



Maple Grove Township W Birch Run Rd Taymouth <u>Che</u>saning **Montrose** (13) SAGINAW SHIAWASSEE New Haven -lazeltor urce: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Air , USDA, USGS, AeroGRID, IGN, and the GIS User Communi Sediment Loading Risk 0 2 Miles Maple Grove 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

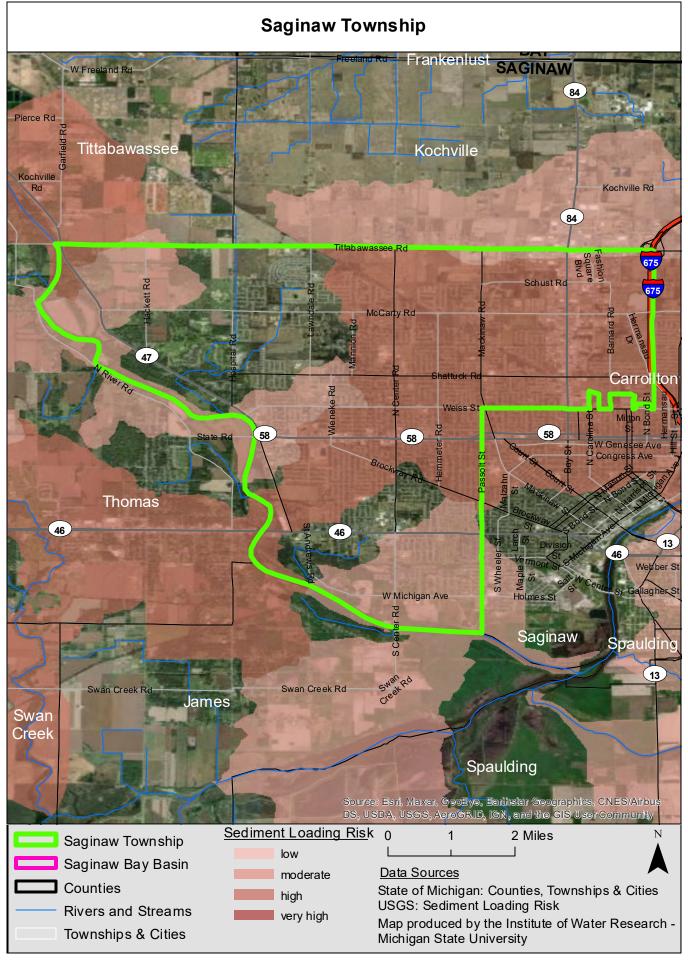


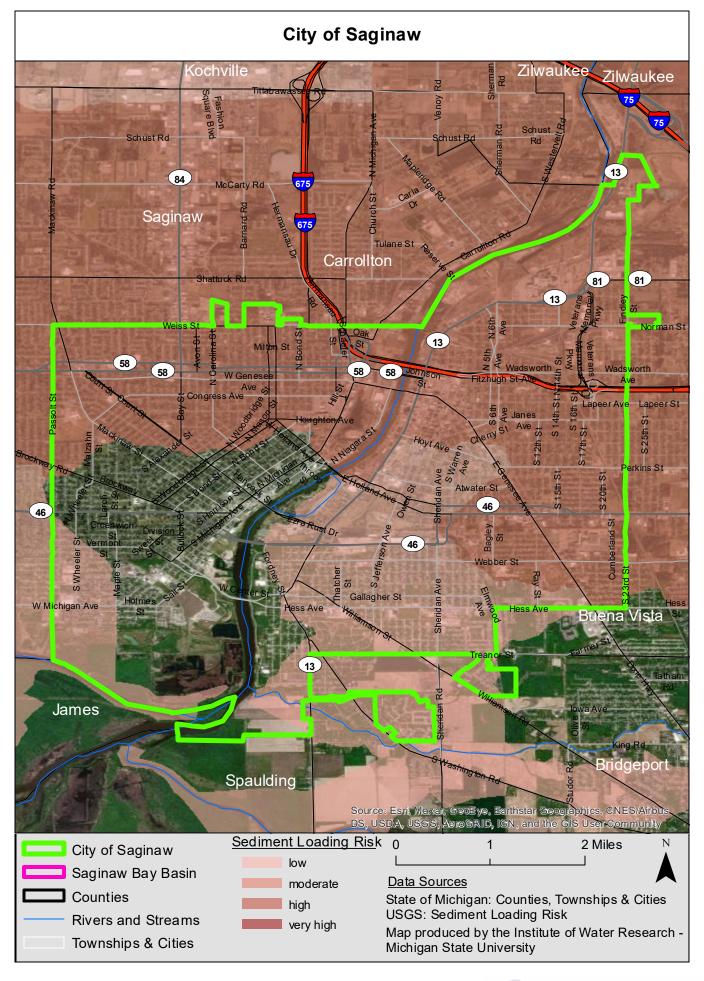




Richland Township Ingersoll Γittabawa**s**se∈ Haley Thomas **Jonesfield** Fremont Swan Creek Rd reek Source: Esri, Maxar, GeoEye, Earthstar Geographies, CN ES/Airpus DS, USDA, USGS, Aero GRID, IGN, and the GIS User Community Sediment Loading Risk 0 2 Miles Richland Township low Saginaw Bay Basin **Data 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







24

Spaulding Township Hoyt Ave 13 Atwater St Thomas (46) 46 Saginaw 46 Webber St Gallagher W Michigan Ave Hess Ave aginaw Buena Vista Bridgepor Swan Creek Rd James **Bridgeport** Taymouth Source: Esrl, Maxar, Geoeye, Earthstar Geographics, CN ES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community St Charles Sediment Loading Risk 0 2 Miles Spaulding 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

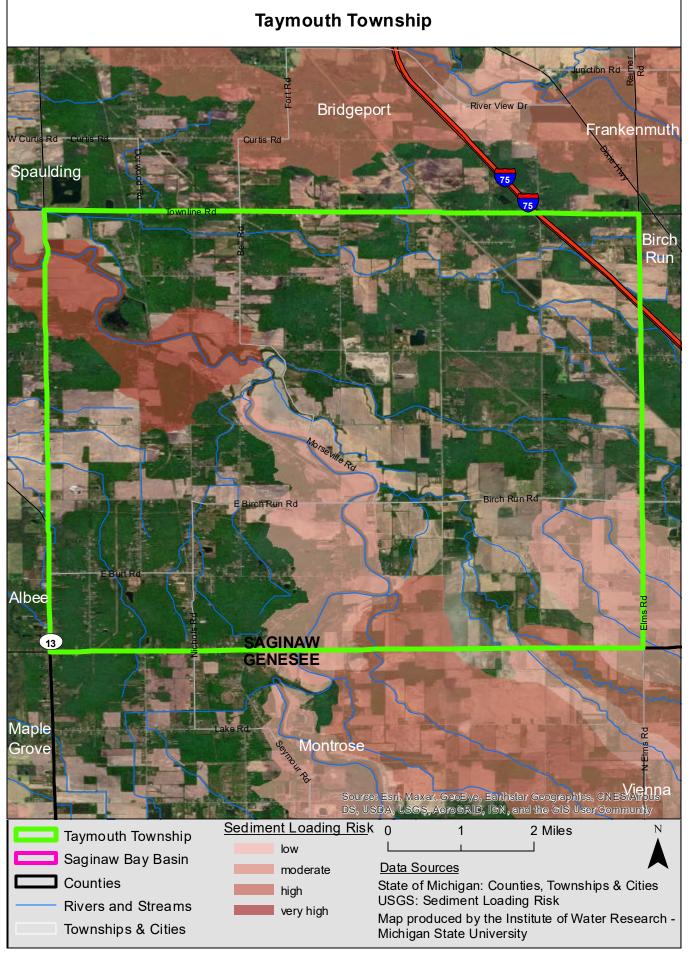


St Charles Township Swan Creek James Spaulding 52 Fremont Townline Rd W North St RingRd Brant 52 Shesaning Maple Brad' Grove Sourse: Esri, Maxar, GeoEye, Earthstar Geographics, GN ES/Alrhus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Sediment Loading Risk 0 2 Miles St Charles Township low 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



Swan Creek Township Thomas Richland James 52 Fremont W Townline Rd Brant Charles Sourse: Esil, Maxar, GeoEye, Esilhstar Geographtes, GN ES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community W North St Sediment Loading Risk 0 2 Miles N Swan Creek 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







Thomas Township Fittabawassee Kochville Kochville McCarty Rd 47 Saginaw Weiss St 58 58 52 wan Creek Rd Swan Creek James Fremont Source: Esri, Maxar, Geoseye, Earthstar Geographics, GNES/Althusing DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Sediment Loading Risk 0 2 Miles Thomas 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



