

Mid-Michigan Flood Mitigation Fact Sheet

July 2021

Who We Are

The Midland Business Alliance (MBA) is the economic development organization and chamber of commerce for Midland County, Michigan. In 2021, the MBA Board of Directors formed a task force to examine infrastructure issues that affect the quality of life and economic vitality of Midland and the mid-Michigan region.

As its first task, this **MBA Advisory Committee on Infrastructure** was charged with finding the best ways to work with local, state and federal partners to address longstanding flooding issues that affect the citizens, business community and economic development in the region. Two areas of concern are the legacy challenges of severe flooding throughout Midland County and surrounding areas, as well as sanitary sewer issues in Midland.

Why We Are Engaged

Our committee members come from across the community and are dedicated to providing solutions to reducing the frequency and severity of flooding in Midland and the mid-Michigan region, as well as building greater resilience.

Significant rains and floods have occurred in the Midland area in 1986, 1996, 2013, 2017 and 2020. In May 2020, the Edenville Dam and Sanford Dam were breached after days of heavy rains – causing catastrophic flooding in Sanford, Midland, and properties up and down the river system. Flash flood emergencies were issued, and approximately 10,000 Edenville, Sanford and Midland residents were evacuated. More than 2,500 homes were damaged or destroyed – with some buildings swept off foundations and down the river. Damage to the 2,500 buildings was estimated at \$200 million. In July 2020, the president approved a federal major disaster declaration for Midland County and the surrounding area. More than a year later, the rebuilding process continues.

Reducing the frequency and severity of flooding is essential for continued economic growth across the region. Time and again, these floods have negatively impacted individuals, jobs, economic growth, property values and tax revenues in Midland and across the Tittabawassee River Watershed, which covers all or portions of 13 counties in mid-Michigan. Homeowners, businesses, industry and healthcare providers must have the assurance that their investment will not be flooded out each time it rains.

What We Are Doing

- **Private Sector Fundraising** – The committee has raised nearly \$1 million in private funds from 10 local companies and foundations for a flood mitigation engineering study, community engagement, and advocacy efforts.
- **Engineering Services** – We are working in collaboration with Midland County and the U.S. Army Corps of Engineers. We are prepared to hire engineering consultants to partner with the Corps of Engineers on a comprehensive flood mitigation study and to provide recommendations to mitigate flooding in Midland and the region. Wherever possible, we are focused on developing environment-based flood mitigation solutions, which could include the creation of wetlands, natural floodplains, and eco-sensitive approaches to slow the flow rate of rivers, creeks and streams during significant rain events.



ADVISORY COMMITTEE ON INFRASTRUCTURE

- **Advocacy and Partnerships** – The committee is engaging with federal, state and local leaders, agencies and offices. This includes working closely with the City of Midland and Midland County officials, with surrounding counties, and with agencies and organizations such as the U.S. Army Corps of Engineers (USACE), the Federal Emergency Management Agency (FEMA), the U.S. Department of Agriculture (USDA), the National Oceanic and Atmospheric Administration (NOAA), the Michigan Department of Environment, Great Lakes, and Energy (EGLE), and the Four Lakes Task Force. We have obtained the services of Squire Patton Boggs, a law firm with public policy expertise, to assist with maximizing federal and state resources for flood mitigation and resiliency.
- **Community Involvement and Communication** – An important goal is to create broad and wide community engagement and participation from individuals, community groups and leaders, neighborhoods, businesses and various organizations. This will include townhall meetings, community workshops and regular communication. We have obtained the services of AMPM, Inc., a Midland-based communication firm, to assist our efforts to have significant community involvement as we go forward.
- **Support of Parallel Efforts** – The committee is supportive of organizations like the Four Lakes Task Force and its work to repair and restore the network of dams on Sanford, Wixom, Smallwood and Secord Lakes. While we are not directly involved in their efforts, we have benefited from information and data sharing with the organization.

Our Mission

- **Mandate** – Assess the sanitary sewage/stormwater resiliency for the City of Midland and flood mitigation for Midland County and the region.
- **Flood Study** – Use the recommendations of the flood study, conducted through the collaborative efforts of the Corps of Engineers and our engineering firm, to present to the community a series of recommendations for flood mitigation in Midland and the mid-Michigan region.
- **Goal** – Reduce the frequency and severity of flooding in Midland, Midland County and the surrounding region.

Governing Principles

- **Collaboration** – Wherever feasible, we will partner with environmental and agricultural groups to reduce soil sediment movement into the Saginaw Bay and the Tittabawassee River Basin.
- **Nature-based Flood Mitigation Solutions** – With changing climate conditions and rainfall events, we anticipate the creation of sustainable marshlands and floodlands – favoring natural solutions over traditional “iron and steel” methods of flood mitigation when feasible.
- **Conservation** – We plan to preserve and restore natural areas, which can benefit wildlife and provide recreation opportunities, and improve sediment and erosion control.
- **Clean Water** – We support efforts to reduce sediment and fertilizer loads entering the Saginaw Bay.

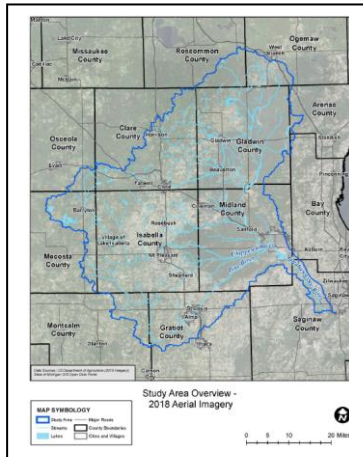
Geographic Scope

About the Tittabawassee River Watershed

According to the Michigan Department of Natural Resources “Tittabawassee River Assessment,” the watershed covers 2,471 square miles, including all or part of the following counties: Arenac, Bay, Clare, Gladwin, Gratiot, Isabella, Mecosta, Midland, Montcalm, Ogemaw, Osceola, Roscommon and Saginaw. The main stem of the Tittabawassee River is more than 90 miles long, with more than 600 miles of contributing tributaries, including the Tobacco River, Pine River and Chippewa River. Located in the center of Michigan’s Lower Peninsula, this watershed is the fifth largest in the state. In turn, the Tittabawassee River flows into the Saginaw River and then into the Saginaw Bay and Lake Huron.



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In consultation with engineers, we anticipate a multi-county effort of flood mitigation – potentially including the counties of Midland, Gladwin, Clare, Isabella, Gratiot, and Saginaw – for marshlands and floodlands construction.



Types of Engineering Solutions

AECOM, a global infrastructure consulting firm, provided the committee with initial concepts and best practices to help predict the scope of potential mitigation and resilience projects. Given the best practices globally, these are some tactics that have worked in other locations and could meet our needs. Different areas of the watershed would demand different solutions.

- **Large-scale detention** – Expand and rehabilitate wetlands/swamplands. Waters at flood stage could be routed to these areas to reduce the volume of downstream flow. Community benefits may include recreational aspects and additional wildlife habitat.
- **Local drainage improvements** – Storm drains, local channels, and ponds can reduce urban stormwater runoff across impermeable surfaces.
- **River engineering** – Assess the original, natural function of rivers and streams to identify “soft” engineering solutions (versus “hard” features like concrete-lined channels). This can also enhance the look of water features and the recreational use.
- **Levees** – Where space is limited, levees can block flow from entering low-lying areas.

Benchmark Mitigation Projects

Here are several examples of successful floodplain mitigation programs we have studied. They incorporate solutions that are nature-based, which is also important to the mid-Michigan region.

Resilient St. Vrain (Longmont, CO)

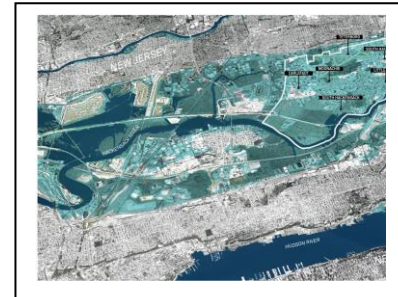
In 2013, eight straight days of rain damaged hundreds of homes and businesses, blocked streets, and impacted the functioning of critical infrastructure in Longmont. In 2016, the city decided to shift its focus...from recovery and response efforts...to flood mitigation and resilience planning. The Resilient St. Vrain project aimed to restore the St. Vrain Creek Greenway Trail System and implement channel improvements to help mitigate the impacts of future flooding. The project included physically widening the creek, rebuilding two existing bridges, and replacing a water diversion structure that washed out in 2013 with nine smaller structures. The project allowed the creation of the Dickens Farm Nature Area, a nature preserve with



kayak launches, shelters, restrooms, and a “nature discovery area” for children. This project not only helped protect life and property but also created multiple benefits for the community.

Meadowlands Rebuild by Design (Meadowlands, NJ)

This ongoing project in the low-lying Meadowlands was initiated after Hurricane Sandy inundated critical infrastructure. The project is aimed to deliver social, environmental, and community benefits while realizing flood risk mitigation and increased resilience for communities located within the area’s 100-year floodplains. The build plan consists of pump stations, channel improvements, major culvert replacements, a river front park, public amenities, and green infrastructure components.



Exploration Green Stormwater Park (Houston, TX)

Houston has experienced significant flooding over the last several decades – most notably from 2017’s Hurricane Harvey. Because the first phase of the new Exploration Green Stormwater Park was completed just prior to Harvey, 150 area homes that might have otherwise flooded were instead protected. The five-phase plan for the park includes recreational facilities, multi-use paths, nature areas, a visitor’s center, and practice fields. The project is expected to contribute to managing stormwater for an area of approximately 8,000 acres. It will reduce the flood risk for the 30,000 people who live within one-half mile of the park, as well as multiple business and community facilities. Upon completion in 2022, the park will cover 200 acres of what was once a golf course. It will include five large detention basins/ ponds and a large drainage ditch spanning the length of the property to provide extra storage capacity. In total, the park’s detention basins will be able to manage up to 1,680 acre-feet of water. This project will also restore several former wetland areas, which will help manage stormwater quality.



Estimated Costs

All estimated costs will need to be refined during engineering analysis and design.

Mitigation Option	Considerations
Watershed	
Hydrologic/hydraulic study	The County of Midland and the MBA Advisory Committee on Infrastructure are engaging with the U.S. Army Corps of Engineers on the hydrologic/hydraulic study of the Tittabawassee River Watershed
Large-scale detention	Expansion and rehabilitation of wetlands and swamplands
Local drainage improvements	Community-driven masterplans will need to be developed throughout the mid-Michigan region to define flooding mechanisms and determine possible local solutions to alleviate flooding
River engineering	Geomorphic solutions to optimize the sediment transport of streams, stabilize channel banks, reconnect overbank floodplains, and improve natural function of rivers/creeks
Levees	Levees help limit backwater flooding of creeks when rivers flood
Potential land purchases	To be determined



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ON INFRASTRUCTURE**

City of Midland	
Local drainage improvements	Community-driven masterplans will need to be developed to define flooding mechanisms and determine possible local solutions for remediation
River engineering	Geomorphic solutions to optimize the sediment transport of streams, stabilize channel banks, reconnect overbank floodplains, and improve natural function of rivers/creeks
Levees	Levees help limit backwater flooding of creeks when rivers flood

A nature-based, comprehensive, multi-county flood mitigation plan – which may include large-scale detention, river engineering, levees, and drainage improvements – could mean an investment in the range of \$350 to \$500 million and span many years. But significant investment in the mid-Michigan area is necessary to reduce the frequency and severity of flooding and to support quality of life, safety, clean water, jobs, and economic growth in the years ahead.

About the MBA Advisory Committee on Infrastructure

Formed in 2021 by the Midland Business Alliance Board of Directors, the advisory committee’s structure is made up of MBA board members, members of the community at large, an MBA staff representative, and ex officio representatives from the Four Lakes Task Force, Midland County and City of Midland. In addition to communicating with stakeholders and collaborators, the committee also reports back regularly to the MBA President and CEO, who will keep the full MBA Board of Directors updated at regular intervals.

Committee members:

- Co-chair: J.W. Fisher, President, Fisher Contracting
- Co-chair: Lee Ann Keller, President and CEO, Omni Tech International
- Noel Bush, Former Utilities Director, City of Midland
- Mike Erickson, VP Facilities and Construction at MidMichigan Medical Center, MidMichigan Health
- Bridgette Gransden (ex officio), Administrator/Controller, County of Midland
- Lee Johnston, President, Johnston Contracting
- Brad Kaye (ex officio), City Manager, City of Midland
- Dave Kepler (ex officio), President, Four Lakes Task Force
- Sharon Mortensen, President and CEO, Midland Area Community Foundation
- Bill Schuette, Community Volunteer
- Tony Stamas, President and CEO, Midland Business Alliance

Visit www.MBAmi.org/floodstudy for more information.

About the Midland Business Alliance

The Midland Business Alliance (MBA) represents more than 3,000 businesses as Midland's business hub. The goal of the MBA is to support the attraction, development and growth of businesses throughout Midland by providing an integrated portfolio of tools and resources. Additionally, the MBA manages the Midland Area Farmers Market and Midland Blooms. Visit www.MBAmi.org for more information.