



STATE OF MICHIGAN  
OFFICE OF THE GOVERNOR  
LANSING

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GOVERNOR

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LT. GOVERNOR

June 15, 2020

***VIA EMAIL***

The Honorable Donald Trump  
President of the United States  
The White House  
Washington, D. C. 20500

Through: Mr. James K. Joseph, Regional Administrator  
FEMA Region V  
536 South Clark Street, 6<sup>th</sup> Floor  
Chicago, Illinois 60605

Dear Mr. President:

Under the provisions of Section 401 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. §§ 5121-5207 (Stafford Act), and implemented by 44 CFR § 206.36, I request that you declare a major disaster for the State of Michigan as a result of widespread and severe flooding and dam failures that struck the counties of Arenac, Gladwin, Iosco, Midland, and Saginaw, starting on May 17, 2020.

The flooding was caused by an area of low pressure stalled across the Great Lakes region, bringing a prolonged period of rainfall for the State of Michigan from May 17 to May 19, 2020. Persistent steady rain resulted in excessive two-day rainfall totals, reaching record levels at some locations. Tropical Storm Arthur off the coast of the Carolinas aided in stalling the progression of the weather pattern across the Great Lakes, contributing to the uniqueness of this rainfall event. The 2-day rainfall totals ending May 19 averaged four to five inches over areas of the state, with isolated reports of six to seven inches received. These rainfall totals are estimated to be between a one in 200-year and a one in 500-year rain event according to NOAA Atlas-14 Precipitation Frequency Estimates. Widespread areal and river flooding occurred over the impacted area, with record river stages being recorded on the Tobacco River in the city of Beaverton (Gladwin County), the Rifle River near the village of Sterling (Arenac County), and the Tittabawassee River in the city of Midland (Midland County).

The record flood levels along the Tittabawassee River were greatly exacerbated due to extra water from two catastrophic dam failures of the Edenville Dam (Gladwin and Midland counties) and Sanford Dam (Midland County). High water levels of the Edenville Dam

Impoundment (Wixom Lake) likely contributed to the failure of the earthen embankment at the east side of the dam, and the dam was breached at about 5:45 p.m. on May 19. The sudden release of water through the breach in the dam then flowed downstream into Sanford Lake. The resulting rapid rise in the Sanford Lake caused the earthen embankments of the Sanford Dam to be overtopped around 7:45 p.m., causing the formation of a breach. The extent of the damage to the Sanford Dam was obscured by flood waters until the next day, when it was determined that the Sanford Dam had suffered a full failure. These dam failures created a 500-year flood event requiring the evacuation of over 10,000 residents.

Although rainfall subsided, impacts from the storm system persisted for several more days as the Tittabawassee River in Midland County did not crest until May 20. The Saginaw River in Saginaw County did not crest until May 22. Between May 17 and May 19, recorded rain totals were as follows: up to 7.2 inches in Arenac County, up to 4.13 inches in Gladwin County, up to 5.76 inches in Iosco County, up to 4.7 inches in Midland County, and up to 4.3 inches in Saginaw County (Attachment 4).

Due to the swift actions and organized efforts of the local jurisdictions in responding to this disaster, no fatalities and only minimal injuries were sustained by residents of the affected counties. The most serious injuries were of two contractors working at the failed Edenville Dam on May 27. The two contractors received electric shocks and one was resuscitated; both were taken to the hospital and will make full recoveries. There were no widespread injuries and fatalities because of the stalwart efforts by local jurisdictions to maintain emergency services to the highest extent possible while disseminating emergency public information that alerted residents to the impending flood hazards and gave direction on how to protect themselves. Prior to this event, weather forecasts did not anticipate the amount of rainfall and flooding that occurred. Flood warnings and emergency public information developed and disseminated by the National Weather Service offices in Detroit and Gaylord positively contributed to the safety of the public (Attachment 4).

In response to this flood disaster, I took appropriate action under state law and directed the execution of the Michigan Emergency Management Plan on May 19, 2020, in accordance with Section 401 of the Stafford Act. On the same date, the State Emergency Operations Center (SEOC) was activated and remained operational until June 12, 2020. On May 19, 2020, under my authority as the Governor, I also declared a State of Emergency for Midland County, including the local political subdivisions located therein, and directed state departments and agencies to utilize all available resources necessary to assist the aforementioned counties and local political subdivisions in responding to and recovering from this disaster. I amended the State of Emergency declaration to include the counties of Arenac, Gladwin and Saginaw on May 22, and Iosco County on May 26. On May 20, I submitted a request and asked you declare an Emergency for Midland County through the Federal Emergency Management Agency (FEMA), which you granted on May 21 (FEMA-3525-EM). Following our request made on May 27, the Emergency declaration was amended to include Gladwin County on May 29.

Prior to declaring a state of emergency, numerous state departments and agencies swiftly initiated response actions in accordance with their assigned missions in the Michigan Emergency Management Plan. These actions included but were not limited to: providing direct assistance to the affected communities and to individuals; ensuring the safety of

residents and rescuing individuals trapped by water in otherwise inaccessible locations; assessing the damage and impacts to affected state facilities, infrastructure, and services under their stewardship; and taking appropriate actions to keep those affected facilities, infrastructure, and services operational.

The affected local governments also took appropriate action under state law in response to this disaster. Pursuant to the Emergency Management Act, No. 390 of the Michigan Public Acts of 1976, as amended, Michigan Compiled Laws (MCL) 30.410 (b), a total of eight counties declared a local “state of emergency” in response to severe flooding affecting their jurisdictions. The counties that declared a local state of emergency include:

- Ottawa County on May 17, 2020 (not included in this request);
- Gladwin County on May 18, 2020;
- Muskegon County on May 18, 2020 (not included in this request);
- Arenac County on May 19, 2020;
- Midland County on May 19, 2020;
- Saginaw County on May 19, 2020;
- Iosco County on May 20, 2020; and
- Osceola County on May 21, 2020 (not included in this request).

These jurisdictions implemented the response and recovery elements of their Emergency Operations Plans in a timely manner, in accordance with state law and associated administrative procedure. They also took other appropriate actions to cope with the situation, including but not limited to: marshaling required resources; issuing emergency warnings and public information; evacuating residents and implementing emergency protective measures to preserve life and property; clearing roadways and other public spaces of debris; and limiting access to flooded areas. The affected local governments performed all actions required of them by state law and procedure and responded accordingly to address the urgency of the flooding. The local and state response was outstanding given the severe nature of the flooding and the significant threats to public health and safety it posed. Please refer to Attachment 2 for more detailed information pertaining to specific response and recovery actions taken by the state and the local jurisdictions included in this request.

This historic flooding occurred in the midst of the world-wide public health crisis of COVID-19. While I suspended any COVID-19-related emergency orders for the counties included in this request to the extent such restrictions may impede emergency response efforts, it cannot be denied that COVID-19 greatly burdens the recovery from this disaster. Local, county, and state governments across the country have focused their efforts on responding to and preventing the spread of COVID-19 for the last several months. Consequently, the personnel tasked with responding to disasters are fatigued and resources are spread thin. Governments are facing significant financial pressure as COVID-19-related costs are soaring, and tax revenues will sharply decline due to, among other factors, increased unemployment and reduced economic activity.

Individuals and households are facing even more intense pressure. The communities impacted by this disaster were already under stress due to measures taken to sustain and protect life such as Stay Home Stay Safe orders and other restrictions on many activities of

everyday life, which were and remain critically necessary to curtail the spread of the virus. Residents suffered emotional trauma from observing rising case numbers and death tolls, and, most tragically, the loss of friends and family members. Many residents are also facing financial impacts, as they lost jobs or businesses. Stores and businesses are operating under limited hours and capacity, and cleaning supplies essential for flood cleanups and muck outs are in short supply, complicating the cleanup of affected residences. There were even reports that evacuated disaster survivors slept in their vehicles instead of in congregate care shelters to avoid potential exposure to the COVID-19. These factors and more impede the ability of disaster survivors to recover from this disaster effectively and quickly.

Additionally, as volunteer organizations have been responding to the COVID-19 for several months now their capacity to assist with this disaster was reduced. Many individual volunteers are members of groups with higher risk for severe illness due to COVID-19, which further reduces the availability of volunteers. Personal protective equipment (PPE) needs to be provided to responders, placing additional burdens on others involved in assisting.

The estimated damage in the impacted counties has have resulted in over \$55 million in immediate response costs and damages to public buildings and infrastructure. These counties assessed over 3,700 impacted properties and estimated private losses of over \$190 million. While not all these costs are eligible for reimbursement under the assistance programs outlined in the Stafford Act, they still represent real impacts of the disaster that these communities are facing.

Across the disaster area, the flooding caused by rainfall and the dam failures resulted in extensive damages to homes and destroyed mechanical and electrical systems and personal belongings within many dwellings. Without significant assistance from the federal government, residents will suffer financial hardships for years as they attempt to repair and restore their damaged homes to pre-flood condition, repair or replace mechanical and electrical systems, take measures to ensure their homes are free of mold and other health hazards, and replace personal belongings. The inability to afford repairs could ultimately lower the property value of residences and, subsequently, regional tax revenue. Residents may need to devote their discretionary income and savings to unplanned expenses for removing debris, restoring their homes, and replacing personal belongings instead of supporting area businesses.

However, residents were not only impacted through damage to their homes and property. The flooding also significantly disrupted community life at a time when society was just starting to reengage in additional social and economic activity as measures to prevent the spread of the COVID-19 are gradually lifted. One of the most significant impacts to the community were the effects of the flooding on road travel throughout the disaster area. Many segments of road were inaccessible due to damages and standing water, and the biggest challenge for travel across the area arises from the impacts that river flooding had on many bridges, which had to be temporarily closed, have been permanently damaged or were destroyed. These damages have created the challenge that long stretches of rivers could not be crossed. For example, in Gladwin County, there was no crossing over the Tittabawassee River for a stretch of 30 miles. In Saginaw County, the impacts to all four bridges crossing the river caused detours of up to one-and-a-half hours for trips that might

normally only take minutes. The bridge outages separated entire county areas from each other, impacting travel for commutes, business and commerce, and day-to-day activities of residents, and increased emergency vehicle response times.

In addition to impacts on transportation infrastructure, other utility services were affected. In Gladwin County, approximately 300 residences have lost access to water through their wells. The Michigan Department of Environment, Great Lakes, and Energy (EGLE) is currently investigating the cause of these wells coming up dry. Until the cause has been investigated and solutions can be applied, local jurisdictions and voluntary organizations are providing water to the residents to ensure they can remain in their homes where possible. In Midland County, reports of low water pressure are under investigation. Fire stations in affected areas are offering potable water to residents. And in Gladwin County, access to water has become an issue for first responders. Water for fire suppression was formerly drafted from waterways which are now depleted. Without access to water, water tanks had to be procured for local fire departments to ensure their readiness to respond to fires. In Midland and Saginaw counties, many residents lost natural gas service, and several thousand residents in those counties and in the southern half of Gladwin County lost power. In Gladwin and Midland counties, disruptions to phone and internet service occurred. In the Sanford area, communications provider TDS suffered damages to their central network hub, which was determined to be a total loss. As of June 5, approximately 800 customers were still without phone service, and 500 were without access to broadband internet. Overall, the restoration of many utility and communications services is still delayed due to issues with debris, transportation (due to road and bridge impacts), or buildings not having been deemed safe for reentry yet.

These communications outages are particularly worrisome for K-12 students. While school buildings are physically closed due to the COVID-19, the school year remains ongoing, and instruction is facilitated virtually. With many students losing access to the internet, online learning was disrupted. Even if internet access exists, other damages to residences might have created home environments no longer conducive to learning. This is not only a disruption to the progress of students toward their academic goals, but also a disruption to the structure of their everyday life, which has already been challenged by the complexities of this disaster and the COVID-19 pandemic. In Midland County, mobile wi-fi stations were set up in areas with widespread outages. However, these stations could not cover all affected areas in the county. In addition to disruptions to online learning, school buildings have also been physically impacted by flooding with damages to buildings, carpeting, mechanical systems, etc. being reported. These issues must be resolved before in-person instruction at these facilities can potentially resume later in the year.

The flooding also adversely impacted the recreational assets across the disaster area. The recreational value of the lakes that are now gone following the dam failures is lost. In Midland County, Sanford Lake Park included one of the county's only two beaches, which can no longer be used. This park alone has had approximately 120,000 annual visitors in the past. A rail-trail along the Pere Marquette railway is another example of an impacted attraction that spans multiple counties. In the Sanford area alone, approximately 550 square yards of trail surface were damaged or destroyed. There were also impacts on cultural institutions, such as the Midland Center for the Arts in the City of Midland, which incurred over \$8.5 million in damages after insurance. The adjacent Whiting Forest and Dow Gardens, Midland's primary destination asset according to the Great Lakes Bay Region Convention and Visitor's Bureau, were also damaged. These and other damages not

only limit recreational and outdoor health opportunities available to residents but decrease the ability of the affected communities to attract tourism. Secondary homes that formerly sat on lakefronts are now bordering large bowls of mud and sand, beaches are closed, and recreational and cultural attractions were damaged. This will likely lead to a reduction in visits and stays in the area, which further decreases revenues for local businesses and governments.

Agriculture is another important economic driver for many of the impacted communities. Damages to crops, farm buildings, and equipment will likely cause further economic hardship during disaster recovery. This is particularly an issue given that many fields in the impacted area have not yet recovered from weather-related emergencies during the 2019 growing seasons. Across the disaster area, the presence of farms also caused hazardous materials related concerns because of chemicals commonly stored on these sites, many of which were impacted by flooding and standing water (such as fertilizer, pesticides, fuel, etc.).

Other hazardous materials concerns identified by local jurisdictions included floating propane and gas tanks that were observed across the disaster area. In Gladwin County, a brownfield site that is currently being remediated and where contaminated soil had been unearthed was also impacted by flooding.

This disaster is also causing significant emotional trauma for many in the affected communities. It hit a time when residents are already dealing with increased stress due to the Coronavirus pandemic and its impacts. It must also be noted that the memory of the lengthy recovery from the 2017 flooding Major Disaster (FEMA-4326-DR), which also impacted Gladwin and Midland counties, was still fresh when this disaster hit some of the same areas and possibly many of the same disaster survivors again. In addition to the psychological impacts from suffering damages to and losses of homes, personal property, and community infrastructure, the flooding impacted facilities and structures with great emotional value for their communities. Particularly hard hit was the Village of Sanford, which incurred significant damages to its Sanford Centennial Museum, where a group of volunteers are proudly curating over 150 years of local history, and its Veterans Memorial. The memorial, built to honor a local veteran who lost his life in 2006 during an improvised explosive device attack in Iraq at just 21 years of age, was destroyed.

The flooding has also been traumatic for many temporarily displaced residents of nursing homes in the disaster area. Across the disaster area, five facilities and several hundred residents had to be evacuated. In Arenac County, 75 nursing home residents had to be rescued from their facility by boat. In Saginaw County, two nursing homes and one assisted living center were evacuated. The city owned senior center in the City of Midland was impacted by over 18 inches of floodwater and suffered severe roof damage. As of June 6, residents were still displaced. While an evacuation from a nursing facility would be stressful for the elderly and often medically vulnerable residents under any circumstances, anxiety was exacerbated due to the Coronavirus pandemic, as residents encountered many external responders during transportation and congregate sheltering. Most nursing home residents could return to their facilities. However, some are still staying with and being cared for by family and friends, who themselves might be struggling with the recovery from this disaster.

Extraordinary strain has been put on operations and finances of county and municipal governments in the disaster area. Local government employees have been working tirelessly since the disaster occurred, putting in extensive overtime and forgoing normal operational needs to address emergency response requirements. Immediate costs for response and repairs and replacement of public facilities and infrastructure exceed, as mentioned earlier, an estimated \$55 million. These costs will be hard to bear for local government. In addition to costs incurred due to the disaster, they will also face declining tax revenues. Damages to homes are concentrated along rivers and lakes. These lakefront and riverfront properties are the primary driver for local property tax collection in many of the affected areas. In addition to direct flood damages to homes, many properties have also lost their waterfront access. These impacts will result in the reduction of taxable property value and leave many homeowners unable to pay their taxes. The effects on lakes, rivers, and other recreational assets will also decrease economic activity and tax revenue generated by tourism in the area. Impacts to the agriculture sector will have similar outcomes. The financial impacts of this disaster alone would be severe for the affected governments. However, they already incurred significant unplanned expenditures due to the Coronavirus, which will also contribute to a significant reduction in tax revenue going forward.

Damages to roadways and bridges constituted the most severe impact on public infrastructure. Many roadways in the affected counties were damaged or impassable, and many roads had to be closed across the disaster area. In Arenac County, up to 80 homes were completely cut off from road access for several days. Road failures and closures slowed down emergency response times, in some instances to up to one hour (for parts of Arenac County).

The local Road Commissions and the Michigan Department of Transportation (MDOT) engaged in emergency restorations of roadways and arranged barricades to restrict public access to closed roads immediately. MDOT is coordinating with the Federal Highway Administration (FHWA) regarding restoration of federal aid roads. Current estimates are over \$121 million in costs that should be eligible for reimbursement under the FHWA Emergency Relief funding program (see Enclosure C). This is in addition to costs incurred by public road agencies for local roadways. Overall, initial damage assessments estimated approximately \$10 million in costs for the involved county road commissions alone.

The response to these conditions by our partner voluntary relief organizations has been both timely and extensive. From the outset, the American Red Cross (at a Level IV operation), Michigan Voluntary Organizations Active in Disasters (MIVOAD), Salvation Army, Michigan 2-1-1, United Way of Midland County, Samaritan's Purse International Disaster Relief, Lutheran Disaster Response, Latter Day Saints Charities Emergency Response, Southern Baptist Disaster Relief, other disaster relief volunteer organizations, and volunteers organized through the Michigan Community Service Commission and United Way of Midland have actively provided relief assistance to those in need in the affected areas. Activities undertaken by these organizations and volunteers during the flood response and early phases of recovery included, but were not limited to:

- Providing food and water to emergency responders and flood survivors;
- Establishing and operating 28 emergency shelters for flood survivors left homeless or stranded due to flood conditions;
- Staffing damage assessment hotlines allowing residents to report damages over the phone;
- Distributing personal care items and clean-up kits to flood survivors;
- Staffing and running donations distributions centers and recovery centers for supplies for volunteer organizations;
- Providing direct recovery assistance in the form of in-kind materials and/or purchase vouchers for immediate needs items and certain rebuilding materials;
- Providing muck-out services to homes identified through the Michigan 2-1-1 call centers;
- Providing flood survivors with counseling services and/or referrals to other community-based behavioral health service providers, and
- Assisting elderly and other functional needs individuals in cleaning up their flood-damaged homes, including the removal of flood-soaked building materials, furniture, appliances, and other damaged items.

Additional information regarding volunteer assistance can be found in Attachment 2. Despite the efforts of these voluntary organizations and volunteers, not all recovery needs of affected individuals and families can be met in a timely manner due to limited resources. As a result, significant unmet needs still exist in the areas of debris removal on private property; housing repair and restoration, including furnaces and water heaters; replacement of essential household items; and mold and other contaminant abatement. These needs could most appropriately be met through several federal Individual Assistance programs, including debris removal from private property, and implementation of the U.S. Small Business Administration disaster loan program.

In addition to voluntary agencies, private sector partners provided significant assistance for flood recovery. The SEOC's Public/Private Partnership Program (P3) worked closely with the United Way and the impacted local emergency management programs to match local needs with private partner donations. Private partners such as Dow Chemical, Home Depot, Kroger, Perrigo, and Nestlé donated water, meals, cleaning solution, water storage tanks, and personal care items to assist the residents in impacted areas. The P3 program also surveyed its partners in the food and agriculture sector such as Walgreens, Kroger, Meijer, Rite Aid, and Walmart to gauge the severity of damage inflicted from the flooding, and there was no damage reported to any locations. Although groceries and pharmaceuticals remained accessible, each organization had employees that were unable to attend their scheduled shifts due to road closures or being personally impacted by the incident (flooded homes or damaged vehicles).

Unfortunately, this flood disaster is just the latest in a string of major incidents that have occurred in Michigan. Over the past 24 months before this disaster, Michigan has experienced twelve incidents (including this disaster) which resulted in the declaration of a state of emergency or disaster under the Emergency Management Act, No. 390 of the Michigan Public Acts of 1976, as amended. They included:



- A March 2020 emergency declaration for the entire state due to the Coronavirus Pandemic;
- A July 2019 emergency declaration for flooding in Lake County;
- A May 2019 emergency declaration for flooding in Tuscola County;
- An April 2019 emergency declaration for flooding in Wayne County;
- A March 2019 emergency declaration for flooding in Newaygo County;
- A February 2019 emergency declaration for severe winter weather for Ionia County and the City of Grand Rapids (Kent County);
- A July 2018 disaster declaration for drinking water contamination in Kalamazoo County;
- A July 2018 disaster declaration for flooding in Houghton County, and;
- A June 2018 disaster declaration for flooding in the counties of Gogebic, Houghton, and Menominee.

The June 2018 flooding incident affecting the counties of Gogebic, Houghton, and Menominee resulted in a federal Major Disaster declaration, FEMA-4381-DR, which made applicable Public Assistance programs available. In 2017, Gladwin and Midland counties were included in another federal Major Disaster declaration, FEMA-4326-DR, for flooding (with Bay and Isabella counties and the Saginaw Chippewa Tribe within Isabella County). The Coronavirus pandemic also resulted in your declaration of a national emergency and a federal Major Disaster, FEMA-4494-DR, for all areas of the State of Michigan, making available Individual and Public Assistance programs.

In addition to these governor- and presidentially declared emergencies and disasters, the affected local jurisdictions have experienced numerous smaller-scale incidents for which they did not seek a gubernatorial declaration or state assistance, but had significant local impacts to residents, businesses, public facilities and infrastructure, and essential services. Individually and collectively, these incidents created significant burdens for the affected local governments, requiring the expenditure of resources (physical and financial) which in many cases had to be diverted from other community programs and services.

Although Michigan has a Disaster and Emergency Contingency Fund under 1976 Act No. 390 for counties and local political subdivisions for partial reimbursement of eligible public damage and response costs, it has limited funding which must be replenished every budget cycle by the Michigan Legislature. By state law, these funds can only be provided to eligible public entities and certain volunteer organizations supporting incident response operations. Over the last 12 months, local jurisdictions have submitted over \$8.4 million in eligible costs for reimbursement under this program. However, it is anticipated that only an estimated \$ 2,057,187 will ultimately be compensated, as the law limits grant awards based on the population size and operating budgets of eligible jurisdictions. Funds also cannot be used to reimburse individual residents for damages to their home, business, or property, and the state currently does not have another funding mechanism in place dedicated to the provision of post-incident assistance for all individuals and families with unmet needs. While there are relief programs available through the Michigan Department of Human Services for specific needs, eligibility is generally limited to low and moderate-income individuals or households that incur extraordinary incident-related expenses.

The latest available estimate of Total Taxable Resources (TTR) from the U.S. Department of Treasury for the State of Michigan was 568.3 billion dollars (for the year 2017). The per capita TTR was \$56,969, significantly lower than the per capita TTR of \$67,119 for the United States as a whole. For the state fiscal year ending on September 30, the State Budget Office projects a shortfall in the state budget of approximately \$3 billion. The state response to and economic impacts of the Coronavirus pandemic have reduced the tax revenues collected that the state relies on for operating the government. To save money, all state government has had discretionary spending suspended and much of the state government work force has been placed on furlough for much of the remainder of this fiscal year. Permanent staffing reductions and restructuring of government operations are a real possibility beginning on October 1 to rebound financially from the multiple and significant impacts from the Coronavirus.

To meet the needs of most of our disaster survivors who are not insured or are under-insured against natural hazards such as flooding, we must rely upon supplemental relief assistance provided by the federal government and voluntary organizations. As I previously indicated, our volunteer relief partners have done an exemplary job in addressing many of the needs stemming from this flood disaster. However, the scope and magnitude of this incident is beyond even their collective capability to provide necessary recovery services. Federal relief assistance is needed to address the unmet needs of those most severely affected by the flooding.

To facilitate the needed assistance, I requested a joint federal, state, and local Preliminary Damage Assessment (PDA) for both Individual Assistance (IA) and Public Assistance (PA) on May 20 to survey the affected areas. These assessments were conducted beginning with a PA PDA webinar on May 27 and concluded on June 12. Due to the COVID-19 pandemic, the Preliminary Damage Assessments were conducted remotely by representatives from the Federal Emergency Management Agency (FEMA); the Michigan State Police, Emergency Management and Homeland Security Division (MSP/EMHSD); and the affected local jurisdictions. The U. S. Small Business Administration participated in the Individuals and Households Program segment of the Preliminary Damage Assessment.

The IHP Damage Assessment identified 52 destroyed homes; 907 homes with major damage; 740 homes with minor damage; and 642 affected homes in the disaster area. In addition, 1,278 households are potentially eligible for temporary housing funding, 1,519 households for housing repair assistance, 35 households for housing replacement assistance, and 1,975 households for “Other Needs Assistance” (ONA) funding for essential household items and services. Households would be eligible for an estimated \$28,054,055 in Housing Assistance and ONA based on PDA-verified damages. Midland County was the most heavily affected county, with 49 destroyed homes, 509 homes with major damage, and 614 homes that incurred minor damages or were affected. Within Midland County, damages were particularly concentrated in the City of Midland (496 that were at least affected were identified during the PDA) and Jerome Township (326 homes), which includes the Village of Sanford that is located directly below the impacted Sanford Dam. In Saginaw County, Thomas Township, which borders the Tittabawassee River, saw increased damages (188 homes). Compared to the IHP declaration under Major Disaster FEMA-4326-DR, which at the time also included Gladwin and Midland counties, the PDA for this disaster identified more than five times as many destroyed homes, about two-and-a-half as many homes that incurred major damages, and more than twice as many homes that were at

least affected across the disaster area.

The PDA also established that the overwhelming majority of the affected households do not have flood insurance that covers the damages most commonly incurred during flooding (i.e., structural damage to walls and foundations, damage to electrical and mechanical systems, damage to home furnishings, wall treatments, and flooring, loss of appliances such as washers and dryers, and loss of televisions, computers, clothing, and other personal property). Across all five counties, only 14 percent of affected households had insurance policies covering flood damages. Lack of insurance might force residents to occupy homes regardless of potentially unhealthy or unsafe conditions. The PDA confirmed the following levels of insurance coverage for affected households in each county:

- 12 % for Arenac County;
- 2 % for Gladwin County;
- 1 % for Iosco County;
- 15 % for Midland County; and
- 26 % for Saginaw County.

Limited housing assistance to residents that have been displaced or suffered significant damages to their homes is available at the state level. The Michigan State Housing Development Authority (MSHDA) funds the Midland County Continuum of Care program with \$60,307 in 2019-2020 and \$108,389 in Emergency Solutions Grants funds (under the Coronavirus Aid, Relief, and Economic Security Act of 2020 (CARES Act)) that can be used to assist households experiencing homelessness as a result of general housing instability or due to this disaster. MSHDA financed housing developments in the affected area currently have seven vacant units available to potentially assist displaced households. However, as of June 6, more than 200 families were displaced and living in hotel rooms in Midland County alone (this does not include additional displaced households that are staying with family or friends).

The Michigan Department of Health and Human Services (MDHHS) offers additional programs for housing assistance to eligible residents that might have been impacted by this disaster. Their services include the State Emergency Relief Program (SER). SER is a crisis intervention program for needs such as payment for heating fuel, electricity, and home repairs, including furnace repair or replacement. SER also assists with non-energy services such as burial assistance, relocation assistance, home ownership services and other utility services. Eligibility is based on income and demonstration of immediate need. While the crisis season for energy-related services under the program is November 1 through May 31, MDHHS is granting exceptions to flood survivors to ensure their critical needs are met. MDHHS further administers other housing related programs that are available to residents statewide, such as the Home Heating Credit Program and Weatherization Assistance Program for low-income residents.

MDHHS also utilizes other resources to ensure that needs of disaster survivors are met by providing limited emergency relief assistance, emergency food replacement, and identifying unmet needs for repair, cleanup, debris removal and other disaster-related issues. However, while MDHHS and MSHDA programs are available to disaster survivors, their scope is limited and cannot address many of the housing and recovery needs of the impacted

residents. Federal assistance to individuals and households will be critical to ensure that the affected population can effectively recover from this disaster.

In addition to damages to homes and personal property, disaster survivors also experienced the loss of jobs following the flooding. In the three weeks after the onset of the rain on May 16, a total of 4,675 unemployment claims were filed from residents in Arenac, Gladwin, Iosco, Midland, and Saginaw counties (1,703 in the week starting on May 16, 1,793 in the week starting on May 23, and 1,179 in the week starting on May 30, when flooding impacts were least immediate). For the same timeframe in 2019, the five counties had only registered 815 claims – a 473.62 percent over-the-year change.

Table 1: Over-the-year (OTY) unemployment claims in affected counties

County	Week of 5/18/19	Week of 5/25/19	Week of 6/1/19	Week of 5/16/20	Week of 5/23/20	Week of 5/30/20	Three Week OTY % Change
Arenac	8	9	4	47	29	36	433.33%
Gladwin	8	8	12	72	84	58	664.29%
Iosco	11	9	5	106	69	75	900.00%
Midland	49	42	24	273	362	251	670.43%
Saginaw	163	332	131	1,205	1,249	759	413.26%
Total	239	400	176	1,703	1,793	1,179	473.62%

Source: Michigan Department of Labor and Economic Opportunity – Unemployment Insurance Agency

This disaster exacerbates the already dire situation of the labor market in the impacted areas and across the entire state due to the Coronavirus pandemic. In recent months, more than 1.7 million Michigan residents have been forced to file for unemployment assistance. In April 2020, the unemployment rate in Michigan reached 22.7 percent, a more than five-fold increase compared to April 2019 (4.1 percent). At the beginning of the year in January 2020, the unemployment rate had been 3.8 percent. The most recent available unemployment rates (April 2020) for the counties included in this request are as follows:

- 32.3 % for Arenac County;
- 27.9 % for Gladwin County;
- 26.4 % for Iosco County;
- 20 % for Midland County; and
- 25.6 % for Saginaw County.

Dow Chemical, the largest employer in the disaster area, had to partially shut down its manufacturing site in the City of Midland, and was only able to gradually start reengaging closed work areas starting on June 3, more than two weeks after the beginning of this disaster.

Unemployment is only one of several socio-economic indicators that suggest a larger than usual share of disaster survivors will struggle to efficiently recover from the flooding. Even before employment in the area was impacted by the Coronavirus and this disaster,

participation in the labor force was lower, and the percentage of residents in poverty was higher for the disaster area than for Michigan and the United States. Median and mean household incomes in four (Arenac, Gladwin, Iosco, and Saginaw counties) of the five counties are below the statewide, and in all five counties below the nationwide average. More residents in the disaster area have to rely on government assistance programs, as percentages of residents receiving assistance through social security income, supplemental security income, and the Supplemental Nutrition Assistance Program (SNAP) are higher than across the state or country. The five county-area also has a higher percentage of residents with disabilities, and all five counties have higher percentages of residents above the age of 65 years than Michigan and the United States.

Table 2: Demographics of the Disaster Impacted Population

Percentage of the Population:	In Poverty	Receiving SNAP	Pre-Disaster Unemployment Rate	65 years of age and older	Under 18 years of age	With a Disability	Speaking English less than very well
U.S.	14.1	12.2	3.7	3.7	22.8	12.6	8.5%
Michigan	15.0	14.1	4.0	4.0	22.1	14.3	3.4%
Arenac County	18.2	19.2	4.8	4.8	18.2	21.0	0.5%
Gladwin County	18.2	19.1	3.1	3.1	19.3	21.2	0.9%
Iosco County	16.4	17.6	3.8	3.8	16.6	22.6	1.4%
Midland County	10.8	11.8	3.6	3.6	21.6	13.6	0.9%
Saginaw County	17.7	19.3	4.3	4.3	21.6	16.6	1.8%
5 counties	16.0	17.3	4.0	4.0	20.9	16.8	1.4%

Source: ACS 5-year estimates 2014-2018, Obtained from data.census.gov on May 27-28 and June 3-5, 2020  
 This table has been aligned with the criteria suggested in the FEMA Major Emergency/Disaster request template to the maximum extent possible. Additional tables with socio-economic information can be found in Attachment 1.

This illustrates that populations of increased social vulnerability are particularly concentrated in the disaster area. These groups represent disaster survivors that urgently require support, and in many cases will benefit the most from federal assistance. Additional information regarding vulnerabilities and other socio-economic considerations are discussed in greater detail in Attachment 1.

The PA PDA verified and confirmed the extensive damages to public structures and facilities discussed earlier in this letter. Severe damage was sustained to numerous roads and bridges, public facilities, and other infrastructure. In Midland County alone, 138 segments of road needed to be closed due to flooding. The Gladwin County road commission was engaged in 57 repairs and closures of roads and bridges. In Iosco County, 14 roads were closed (five of which remained closed as of June 11). There were also many closures in Arenac and Saginaw counties. Validated estimates for repairs of roads and bridges for all five counties amount to approximately \$3.8 million (Category C). Additionally, 57 damaged segments of federal-aid highways have been identified as eligible for the U.S. Federal

Highway Administration Emergency Relief program. Considering both Category C-eligible and federal-aid highway-related expenses, damages to roads and bridges have been the most severe impact to public infrastructure.

The PA category with the highest verified cost, however, was Category E. Damages to public buildings and equipment created eligible cost of at about \$6.3 million. The MidMichigan Health System, which underwent severe flooding at the MidMichigan Medical Center in the City of Midland, incurred approximately \$3.25 million in eligible costs – more than half of all verified expenses in this category.

The clearing and management of debris is still ongoing in many of the affected communities. Approximately \$4.6 million in costs were verified for debris removal (Category A). The Village of Sanford and City of Midland in Midland County incurred particularly high debris-related costs (approximately \$2 million for Sanford and \$1 million for Midland). Overall, the \$4.4 million in Category A-eligible expenditures incurred in Midland County make up more than 95 percent of all verified expenses under this category.

To protect the lives and safety of their residents, local agencies engaged in a variety of emergency protective measures, such as evacuating areas endangered by flooding, performing search and rescue operations, sandbagging, emergency repairs of roads and facilities, etc. Midland County accounts for the largest share of eligible costs verified for emergency protective measures (approximately \$1.2 million for the county jurisdictions therein). Total verified eligible costs for immediate response actions were approximately \$1.32 million (Category B).

Local stakeholders also sustained verified damages of \$615,539 to public utilities (Category F). Midland County, again, was hit particularly hard, as their \$550,000 account for almost 90 percent of all costs for the category.

Validated costs for repairs at recreational and other facilities are approximately \$3.5 million (Category G). These costs were highest in the Village of Sanford (\$2.1 million) below the Sanford Dam and Sanford Lake. This is also the location of the popular Sanford Lake County Park, as mentioned earlier a popular attraction in the disaster area, whose half-a-mile of lake frontage and 1,000 square foot sand beach can no longer be used.

Overall, the PA PDA confirmed over \$20 million in eligible damages, exceeding the applicable PA per capita impact indicators for the State of Michigan and the counties included in this request. The state per capita threshold of \$1.53 (\$15,121,969.20 statewide) was exceeded by more than 33 percent at \$2.04 (\$20,138,055). With per capita estimated losses ranging from \$3.86 to \$210.57, all five counties are also above the \$3.84 county-level threshold. Verified costs were highest in Midland County, where a total of over \$17 million in damages were confirmed.

Recognizing their responsibility to make their communities as disaster resilient as possible, be advised that the counties included in this request have collectively invested over \$280,000 in hazard mitigation planning activities through six separate Hazard Mitigation Assistance (HMA) program grants. Gladwin, Iosco, Midland, and Saginaw counties have current Disaster Mitigation Act of 2000-compliant hazard mitigation plans in place. Arenac County has completed a draft for a hazard mitigation plan that is currently going through updates based on FEMA review before it will be adopted.

The jurisdictions have used their hazard mitigation plans to collectively invest more than \$5.3 million in hazard mitigation measures through 21 HMA grants. The HMA efforts in the region have primarily focused on flood risk reduction through floodplain acquisition and demolition grants as well as localized flood control and erosion protection projects. One project implemented by the City of Midland was successful in mitigating damage during this disaster as well as during the 2017 flooding Major Disaster (FEMA-4326-DR). The project involved the acquisition and demolition of a cement products manufacturer from the floodplain of the Tittabawassee River in Midland. The property was purchased and demolished with the use of a 2013 Flood Mitigation Assistance program grant for \$687,300. Flooding at this property had previously resulted in the payment of more than \$1 million in flood insurance claims through the National Flood Insurance Program. Since completion in 2016, the project has now twice mitigated flood damages from occurring. Another HMA project that was successful was the acquisition of the senior center in the Village of Sanford in Midland County. The village received a Hazard Mitigation Grant Program grant from Major Disaster FEMA-4195-MI to acquire the property, so the county could construct a new senior center outside of the floodplain. Prior to the center's acquisition, it was heavily damaged during the 2017 floods. Flood insurance proceeds were used to construct a new center outside of the floodplain and the HMGP grant was used for demolition and deed restriction of the property. The center was located immediately downstream of the Sanford Dam and surely would have been destroyed in this flood event. In addition to these floodplain acquisition grants, several localized flood control and streambank stabilization projects have been completed along county drains in Arenac, Iosco, Midland and Saginaw counties.

As you can see, the jurisdictions in the disaster area do not have the financial resources available to fully recover from this 500-year-flood disaster in a timely manner, or potentially at all in some cases, without receiving supplemental assistance from the federal government. The State of Michigan can provide limited financial assistance to help offset the cost-share for Individual Assistance, but it does not have funding to address all the losses without federal assistance. State law mandates that the Michigan Disaster and Emergency Contingency Fund be capped at \$10 million and that grants awarded to individual jurisdictions do not exceed between \$250,000 and \$1 million, depending on population size. This cannot adequately cover the damages incurred during this disaster. Enclosures A and B contain detailed impact and cost information related to the Preliminary Damage Assessment-verified damages.

I have determined that this incident is of such severity and magnitude that effective recovery is beyond the capabilities of the State of Michigan and the affected local governments, and that supplemental federal relief assistance is necessary. I am specifically requesting activation of all Individual Assistance (IA) and Public Assistance (PA, Categories A to G) programs for the affected counties listed in this request, and activation of the Hazard Mitigation Grant Program (HMGP) for all counties within the state. Preliminary estimates of the types and amount of Individual Assistance and Public Assistance needed under the Stafford Act are tabulated at Enclosures A and B.

Attachment 1, "Socio-economic Profile of the Affected Counties" provides an overview of the demographics and economic status for the disaster area. Information regarding the nature and amount of local, nongovernmental, and state resources that have been or will be used to alleviate the conditions of this disaster can be found in Attachment 2, "Significant Local

and State Response and Recovery Actions.” Maps, flood charts, and damage photographs can be found in Attachment 3, “Supporting Maps and Photographs.” Additional information from the National Weather Service regarding the weather conditions that caused this disaster is available under Attachment 4, “Weather-related information.”

I certify that for this major disaster, the state and local governments will assume all applicable non-federal share of costs required by the Stafford Act. Total non-federal share expenditures are expected to equal or exceed \$5,690,860.75, in accordance with the tables in Enclosures A and B.

I have designated Capt. Kevin Sweeney of the Michigan State Police, Emergency Management and Homeland Security Division, as the State Coordinating Officer for this request. He will work with the Federal Emergency Management Agency on recovery program implementation and may provide further information or justification on my behalf.

Sincerely,



Gretchen Whitmer  
Governor

Attachments and Enclosures:

- Attachment 1 – Socio-economic Profile of the Affected Counties
- Attachment 2 – Significant Local and State Response and Recovery Actions
- Attachment 3 – Supporting Maps and Photographs
- Attachment 4 – Weather-related information

OMB No. 1660-0009/FEMA Form 010-0-13

Enclosure A – Individual Assistance

Enclosure B – Public Assistance

Enclosure C – Requirements for Other Federal Agency Programs

Enclosure D –Historic and Current Snowfall (Not applicable to this request)



## ATTACHMENT 1 TO MAJOR DISASTER REQUEST

### Socio-economic Profile of the Affected Counties

The five-county disaster area can be compared with state and national data on various characteristics, illustrating areas of socioeconomic vulnerability within these counties, or portions of them that are more heavily impacted. The following information was all obtained from data.census.gov from May 27 to June 5, 2020, using the newest American Community Survey 5-year estimates (2014-2018) and the four Comparison Profiles data sets: Social CP02, Economic CP03, Housing CP04, and Demographic CP05. In the tables that follow, county names are capitalized. Some of the calculated 5-county data are estimates derived by applying percentages to convenient Comparison Profiles data rather than aggregating precise data from other files. Statistics that are considered notable for local communities, when compared with either state or national values, have been highlighted in yellow.

Some basic information about population and housing is presented in Table 1. The percentage of the population in households is similar to the state (97.7%) and national (97.5%) levels, except in Saginaw County, where just 96.7% of the population lived in households. Of the housing units within the disaster area, the percentage of occupied housing units was lower than the state and national levels. It is known that there is a higher number of seasonal and recreational housing units in the rural areas (Arenac, Gladwin, and Iosco Counties), but in the area's largest city, Saginaw, there is a relatively high number of ordinary vacant units. These higher rates of unoccupied housing units are likely to mean that damages will be less quickly detected and addressed, and therefore that greater property damage may have occurred from the incident. Similarly, the disaster area has a higher-than-usual percentage of mobile homes. Arenac and Gladwin Counties have nearly three times the percentage of mobile homes that Michigan as a whole has.

Table 1: Population, households, and housing unit information

	Population	Households	Population in households	Housing Units	Percent Occupied	Percent Mobile Homes	Percent Built before 1939	Percent Renter Occupied
U.S.	322,903,030	119,730,128	314,810,420	136,384,292	87.8	6.2	12.8	36.2
Michigan	9,957,488	3,909,509	9,728,101	4,580,939	85.3	5.3	7.8	29.0
ARENAC	15,165	6,684	14,955	9,831	68.0	14.0	9.5	17.5
GLADWIN	25,289	10,999	25,045	17,867	61.6	14.7	6.7	15.5
IOSCO	25,247	11,631	24,875	20,503	56.7	5.8	8.4	20.4
MIDLAND	83,389	34,017	82,036	36,806	92.4	8.9	7.3	24.4
SAGINAW	192,778	78,648	186,361	87,377	90.0	3.7	17.9	28.4
5 counties	341,868	141,979	333,272	172,384	82.4	6.8	12.9	24.6
Midland	41,963	17,552	40,796	18,688	93.9	3.1	7.2	35.7
Saginaw	48,997	19,682	47,625	23,961	82.1	0.3	39.7	42.2

Source: ACS 5-year estimates 2014-2018, Obtained from data.census.gov on May 27-28 and June 3-5, 2020.

Saginaw County, especially the City of Saginaw, has an additional form of structural

vulnerability, in having a large proportion of its housing units built before 1939. Many of these homes that are at least 80 years old are likely to have increased vulnerabilities, especially in combination with the higher rates of renter occupancy within the main cities, and also in Saginaw locations that have unusually high poverty levels (described in Table 3).

Table 2 presents information on selected characteristics of the population. The disaster area has a significantly higher proportion of its population classified as having one or more disabilities. Iosco County and the City of Saginaw have disability rates that are nearly double that of the United States as a whole. The proportions of the population who are foreign born, speaking languages other than English at home, or speak English less than “very well” are not higher than the overall state and national levels, but these statistics do indicate that dozens of residents might require special assistance on top of their normal post-disaster and recovery needs, to help accommodate linguistic challenges, including linguistic isolation.

Table 2: Selected Population Information

	Population	Percent with a disability	Number foreign-born	Percent foreign-born	Percent speaking a language other than English at home	Speaking English less than very well
U.S.	322,903,030	12.6	43,539,499	13.5	21.5	8.5%
Michigan	9,957,488	14.3	671,105	6.7	9.6	3.4%
ARENAC	15,165	21.0	193	1.3	1.7	0.5%
GLADWIN	25,289	21.2	228	0.9	2.5	0.9%
IOSCO	25,247	22.6	573	2.3	3.5	1.4%
MIDLAND	83,389	13.6	3,215	3.9	4.2	0.9%
SAGINAW	192,778	16.6	4,770	2.5	4.8	1.8%
5 counties	341,868	16.8	8,979	2.6	4.2	1.4%
Midland	41,963	13.2	2,767	6.6	6.9	1.6%
Saginaw	48,997	22.6	819	1.7	5.5	1.9%

Source: ACS 5-year estimates 2014-2018, Obtained from data.census.gov on May 27-28 and June 3-5, 2020.

Table 3 provides information about selected economic characteristics of the disaster area. The disaster area does have a smaller proportion of its population within the labor force than Michigan or the United States as a whole. The area’s largest city, Saginaw, had an unemployment rate more than twice that of either Michigan or the United States as a whole. Since Michigan has been one of the states that was hardest-hit by the Coronavirus pandemic, the economic and employment impacts of that incident are estimated to be more severe than those in the United States as a whole, and therefore it is feared that the employment impacts upon the City of Saginaw may have caused its unemployment rate to grow to more than triple the national rate. Household income statistics also indicate an unusual level of need within the disaster area. Four of the five impacted counties have incomes significantly below that of the state or nation, even when tabulated in multiple ways (median household, mean household, and per capita). The income levels for the

largest city, Saginaw, are approximately one-half of the United States (for per capita income), or actually below one-half of the national household income levels. This translates to a poverty rate of 34.5 percent within that city—more than twice that of either the national or the state poverty rate. Three of the five counties in the disaster area have poverty levels significantly higher than either Michigan or the United States as a whole. These multiple indicators all confirm a high level of economic challenge for many households and individuals throughout the disaster area. It is worth noting that the higher proportion of Saginaw residents living outside of households likely correlates with these higher levels of poverty and unemployment, and the lower levels of available income available to those residents. A correspondingly higher proportion of the population is also noted to be receiving government assistance in the form of pre-disaster, need-based programs, which will be presented in Table 6.

Table 3: Selected Economic Information

	Of age 16+, percent in Labor Force	Percent Unemployed in Civilian Labor Force	Median household income	Mean household income	Per capita income	No health insurance	Percent of population in poverty
U.S.	63.3	3.7	\$60,293	\$84,938	\$32,621	9.40%	14.1
Michigan	61.3	4.0	\$54,938	\$75,352	\$30,336	6.10%	15.0
ARENAC	49.8	4.8	\$40,769	\$52,232	\$23,374	6.90%	18.2
GLADWIN	44.7	3.1	\$43,290	\$55,684	\$24,594	8.50%	18.2
IOSCO	46.8	3.8	\$42,102	\$53,596	\$25,075	7.20%	16.4
MIDLAND	60.2	3.6	\$59,271	\$83,483	\$34,497	4.80%	10.8
SAGINAW	57.1	4.3	\$46,919	\$63,998	\$26,625	5.30%	17.7
5 counties	55.9	4.0	*	\$66,616	\$28,136	5.63%	16.0
Midland	61.0	3.6	\$61,076	\$84,955	\$36,060	4.60%	11.4
Saginaw	54.9	8.2	\$29,885	\$39,974	\$16,713	7.60%	34.5

Source: ACS 5-year estimates 2014-2018, Obtained from data.census.gov on May 27-28 and June 3-5, 2020

\* The median household income for the entire area was not able to be calculated from available data.

Table 4 presents information about key age groups in the population. Compared with Michigan and the United States as a whole, the disaster area has a significantly higher proportion of elderly residents. The proportion of elderly residents in Iosco County is nearly double the proportion found in the United States as a whole.

Table 4: Age Information

	Percent of population under 5 years old	Percent of population under age 18	Percent of population age 65 or older
U.S.	6.1	22.8	15.2
Michigan	5.7	22.1	16.3
ARENAC	4.5	18.2	23.6

GLADWIN	5.0	19.3	25.9
IOSCO	4.3	16.6	28.7
MIDLAND	5.4	21.6	17.6
SAGINAW	5.7	21.6	18.2
5 counties	5.4	20.9	19.6
Midland	5.5	21.8	16.9
Saginaw	7.0	25.9	12.6

Source: ACS 5-year estimates 2014-2018, Obtained from data.census.gov on May 27-28 and June 3-5, 2020

Simultaneously, the City of Saginaw also has a higher proportion of minors under age 18, and very young children under age 5. This means that the age-dependency ratio in the disaster area’s largest city is substantially higher than average in the state and nation as a whole. As will be shown in Table 6, this corresponds with higher levels of reliance upon fixed Retirement Incomes within the disaster area. Table 5 presents census information on racial/ethnic identification selected by census respondents. There is a substantial African-American community centered in the City of Saginaw, numbering about 22,000 in the city itself and about 15,000 in nearby areas of Saginaw County. On the rural side of the disaster area, Arenac County has a higher proportion of Native American residents—more than twice the proportion throughout the state as a whole. To the south and southeast of Standish, there are Arenac County Saginaw Reservation lands that are affiliated with the Isabella Indian Reservation of the federally recognized Saginaw Chippewa Tribal Nation. Although Saginaw’s percentage of Hispanic persons is similar to national levels, it is nearly three times as high as Michigan’s percentage.

Table 5: Racial/Ethnic Information

	Percent White	Percent Black	Percent multiracial	Percent Native American	Percent Asian	Other	Percent Hispanic of any race
U.S.	72.7	12.7	3.2	0.8	5.4	4.9	17.8
Michigan	78.5	13.8	2.8	0.5	3.1	1.2	5.0
ARENAC	96.3	0.6	0.0	1.3	0.4	0.1	2.0
GLADWIN	97.1	0.4	1.2	0.7	0.5	0.2	1.6
IOSCO	95.8	0.7	1.8	0.8	0.7	0.2	2.1
MIDLAND	93.4	1.4	1.9	0.5	2.3	0.5	2.7
SAGINAW	74.9	18.7	3.2	0.3	1.3	1.7	8.4
5 counties	83.5	11.0	2.5	0.5	1.4	1.1	5.8
Midland	90.3	2.1	2.2	0.7	4.0	0.6	3.5
Saginaw	44.9	45.0	6.0	0.4	0.5	3.2	14.4

Source: ACS 5-year estimates 2014-2018, Obtained from data.census.gov on May 27-28 and June 3-5, 2020

Table 6 shows information about levels of government assistance received prior to the disaster. Five types of income sources are listed, and each type has several substantial portions of the disaster area noted as being more heavily reliant upon these revenues than either Michigan or the United States as a whole. Social Security Income is significantly more heavily relied upon in 4 of the 5 disaster-area counties than it is in Michigan or the United States overall. About half of the residents in Arenac, Gladwin, and Iosco Counties

are recipients of Social Security Income, compared to only about 30% of the United States population as a whole. As mentioned in related to age, every county in the disaster area has more reliance upon Retirement Income than the state or country as a whole—with Gladwin and Iosco Counties having rates of recipients that is nearly double the national rate. Supplemental Security Income recipient rates are higher than normal in 3 of the 5 counties in the disaster area, with rates in the City of Saginaw more than twice the rate for Michigan and nearly three times the national rate. A similar pattern is seen in Cash Public Assistance rates, with 2 of the disaster counties higher than average, and the City of Saginaw rates more than twice the state and national rates. Finally, 4 out of the 5 disaster-area counties have significantly higher rates of utilizing SNAP assistance, and the 40.7% rate in the City of Saginaw is more than 3 times the 12.2% national rate. Thus, using every readily available indicator of pre-disaster government assistance needs, the disaster area is significantly more reliant upon these forms of assistance than either the State of Michigan or the United States as a whole, and can be inferred as having a correspondingly increased level of vulnerability when it comes to the disruptive impact that the disaster has caused on top of existing coronavirus disruptions and inconveniences.

Table 6: Population information

	Percent with Social Security Income	Percent with Retirement Income	Percent with Supplemental Security Income	Percent with Cash Public Assistance	Percent utilizing SNAP
U.S.	30.9	18.6	5.4	2.5	12.2
Michigan	34.5	22.5	6.2	2.5	14.1
ARENAC	47.4	29.3	8.8	3.3	19.2
GLADWIN	49.7	33.3	9.2	3.7	19.1
IOSCO	52.5	33.7	6.5	2.9	17.6
MIDLAND	34.7	25.7	5.4	2.1	11.8
SAGINAW	39.5	27.6	8.2	2.8	19.3
5 counties	40.4	28.1	7.5	2.7	17.3
Midland	32	23.5	5.1	2	12.7
Saginaw	36.1	20.3	15.6	5.3	40.7

Source: ACS 5-year estimates 2014-2018, Obtained from data.census.gov on May 27-28 and June 3-5, 2020

NOTE: Some of these variables differ slightly from the ones specified in the recommended FEMA template, so that the categories could be more conveniently defined and interpreted in ways that are more readily available in census information. For example, age “18 years and younger” has instead been presented as ages under 18 (and thus representing those below legal age, consistent with the standard census category that also uses that cutoff age). “Governmental assistance” has been interpreted in terms that were readily available within census data that matches all the other variables (i.e. same source, same data sets). Unemployment, poverty rates, governmental assistance, and similar data necessarily reflects levels before the disaster’s recent occurrence, since these were based upon American Community Survey information from recent years, and the disaster just occurred in May 2020.

## ATTACHMENT 2 TO MAJOR DISASTER REQUEST

### **Significant Local and State Response and Recovery Actions**

**Volunteer Response.** The local volunteer response to this disaster was extensive, timely, and coordinated. To date, thousands of emergency volunteers have been mobilized through the collective efforts of the American Red Cross, Salvation Army, Michigan 2-1-1, United Way of Midland County, Samaritan's Purse International Disaster Relief, the Lutheran Disaster Response, Latter Day Saints Charities Emergency Response, Southern Baptist Disaster Relief, Mid-Michigan Community Action Agency, Presbyterian Disaster Assistance, Seventh Day Adventists Disaster Response, United Methodist Committee on Relief, Michigan Voluntary Organizations Active in Disasters, MSP-EMHSD, Michigan Community Service Commission, local emergency management offices, and community-based organizations, to assist in the recovery from this flood disaster.

Volunteers have been and continue to be the lifeblood of the flood recovery effort. Michigan 2-1-1 provided a critical piece of support in handling situational awareness with the public and identifying unmet needs for disaster recovery. Through the vetting of unmet disaster needs, 2-1-1 was able to make 2,117 connections through their Northeast Michigan office May 20 through June 9 and handled 2,688 calls in total since May 18. All 7 Michigan 2-1-1 Centers responded to this incident, and Heart of Florida's 2-1-1 also supported some operations for capacity relief. In addition to connecting callers to services often provided by volunteers, Michigan 2-1-1 also input case information into Crisis Cleanup, a disaster needs system utilized by volunteer organizations. As of June 10, Crisis Cleanup has 2,028 cases associated with this incident. The Michigan Community Service Commission (MCSC) and Michigan 2-1-1 have verified that some of the cases reported in Crisis Cleanup are not requests for assistance but are reports of damage. The support of the Michigan 2-1-1 and their inputs into Crisis Cleanup supported and coordinated the volunteer organizations responding to this disaster.

Multiple spontaneous volunteers coordinated to respond to this incident. A Facebook Group "Sanford Strong" was organized by local spontaneous volunteers who performed 545 hours of volunteer work, including debris removal, muck outs, large tree cleanup, demolition, and various other clean-up efforts. The United Way of Midland County and Dow Chemical also coordinated the management of spontaneous volunteers. As of June 10, Dow Chemical reports about 4,900 volunteer hours donated through the spontaneous volunteers Dow has coordinated, mostly assisting distribution and logistics needs. United Way of Midland County has registered 1,500 spontaneous volunteers on site, who have completed 275 requests for assistance for a total of over 5,132 hours of volunteered work as of June 10. These activities include door to door damage assessments, distribution efforts, calling homeowners to record damages and outstanding needs, and other tasks. The United Way of Midland County also coordinated with local volunteer organizations and churches unaffiliated with the Michigan Voluntary Organizations Active in Disaster (MI VOAD). Some of these local volunteer organizations and churches include the 2/42 Community Church which distributed 50 clean-up kits and served 124 mobile meals, the Calvary Baptist Church which distributed 425 clean-up kits and served 1,800 mobile meals, the Wheeler Road Church of Christ which distributed 680 meals, and the Home Cooked with Love organization which utilized 165 volunteers who worked 800 hours to provide 2,750 mobile meals. The Midland Evangelical Free Church, which worked with Reach

Global, reports 1,971 staff hours and 3,526 volunteer hours (5,497 total hours) assisting with organization of volunteer activities with partner agencies, mucking out homes, removal of drywall and debris, and ensuring that homes are habitable (as of June 9).

To highlight some of the volunteer organizations, as of June 4, Samaritan's Purse opened 307 work orders utilizing 728 volunteers and 7,324 volunteer hours to fill needs since beginning operations on May 21. These work orders include the removal of mud, sand, silt, waterlogged construction materials and furniture, and other debris from homes (muck out), retrieval of personal content, and mold suppression treatments. In addition to responding to this disaster with box trucks, power tools, chemicals (utilizing eight to ten gallons of mold suppressant chemicals for each home), and personnel, Samaritan's Purse has implemented countermeasures to ensure the safety and health of their volunteers and the disaster survivors they serve in relation to the coronavirus pandemic. Safety countermeasures include limiting the size of teams operating at each location, providing hand sanitizer and hand washing stations, and disinfecting shared equipment. Currently, Samaritan's Purse anticipates their operations will continue through June 20.

As of June 4, the Lutheran Disaster Response has provided 30 volunteer hours in Midland and Saginaw Counties assisting with mucking out a home and providing supplies and resources to disaster survivors including \$200 in food and personal care items, \$500 in garbage bags, shovels, and rakes, and \$200 in baby supplies.

The Latter-Day Saints Charities mobilized 2,500 volunteers for over 13,000 volunteer hours to muck out, clean out first floors of, and disinfect a total of 391 homes, as of June 4. Some of those hours were also spent canvassing impacted areas and inputting homes into Crisis Cleanup. Over 350 clean up buckets with associated masks, gloves, cleaning, and disinfection supplies, and 300 pairs of working gloves were utilized so far in this response.

Southern Baptists Disaster Relief reports that for this incident a total of 246 volunteers accrued 1,968 volunteer hours working on 10 homes between May 26 and June 4 and spent \$4,014.42 between May 22 and June 2 for this response.

Find the Helpers, a Michigan relief organization, reported at least 233 volunteers active in this incident as of June 4. Their activities include home clean ups, donations management, and pickup and transportation of debris. Through their donations gathering activities, the Find the Helpers team has collected around \$20,000 of donated items including food, water, clothing, toiletries, and other essential items.

The American Red Cross opened a total of 28 disaster shelters for this incident, including 24 non-congregate care shelters (due to the coronavirus), with a peak population of 240 people in the shelters. As of June 4, the American Red Cross had a total of 162 cases in their case management system, including 134 opened, 26 in review, and 2 closed cases. All 101 mental health services cases were open as of June 4.

Even with these outstanding volunteer efforts in place the collective capabilities of volunteers can only go so far in meeting the challenging long-term recovery needs aimed at ensuring safe and sanitary conditions in flood-damaged homes. Lacking adequate insurance (approximately 14 percent of households have flood insurance) to pay for expensive repair and restoration activities required to make home structural elements and mechanical systems safe and functional, and to fully-remove the presence of black mold and other contaminants in flood-damaged buildings, it is essential that federal disaster relief

assistance and case management services be provided. Absent this assistance, affected flood survivors will, in many cases, be forced to live in dangerous and unsanitary conditions because they do not have the financial resources to restore their dwellings to pre-flood condition.

**Debris Removal to Protect Public Health and Safety.** Debris management was a critically important recovery issue in the days and weeks following this disaster. Throughout the impacted counties and communities, extensive and rapid debris operations were required to clear flood-damaged building materials and personal property from curbs and rights-of-way in residential and commercial areas to protect public health and safety and enable the use of roadways, sidewalks, and fire hydrants. The wet, heavy, contaminated flood debris from hundreds of flood-damaged homes and businesses, coupled with the hot and humid weather conditions that occurred in the days that immediately followed the flood disaster, set the stage for potentially-dangerous and unsanitary conditions. Because of the very real potential for a public health emergency, it was necessary for the affected local communities to muster all of the private and public debris clearance and removal resources they could to ensure rapid and environmentally-compliant removal and disposal of this debris. To further reduce potential health impacts for residents handling debris and flood-contaminated items, the Midland County Department of Public Health offered vaccine clinics (TDAP and Hepatitis A).

In that regard, the affected local jurisdictions did an exemplary job in rapidly managing this difficult and potentially life-threatening recovery issue. With the assistance of various state agencies working out of the State Emergency Operations Center, the local jurisdictions were able to identify sufficient resources to address their debris removal and disposal needs in a rapid and environmentally compliant manner. The local municipal trash haulers as well as private haulers worked towards the collection and transportation of flood debris to approved landfill facilities. These debris removal efforts, however, came at a cost to the affected local jurisdictions in the five counties.

**Emergency Public Information.** During the first hours and days after the flooding occurred, the affected local jurisdictions and several Michigan state agencies undertook a comprehensive emergency public information campaign. Many state level news releases were issued through a virtual Joint Information Center (JIC) to include information from the various engaged agencies.

Of particular concern were the health and safety risks associated with severe infrastructure and structural damage, and guidelines to support residents in their safe cleanup and recovery activities. The JIC also provided information regarding impacts on financial services, damage to septic systems and private wells, state, and local response activities, and on the various emergency declarations issued at the local, state, and federal level. The Michigan Department of Environment, Great Lakes, and Energy (EGLE) also created a web page to provide information regarding the dam failures.

This public information campaign continues today and will continue for the foreseeable future until all recovery-related issues and concerns have been effectively dealt with. All appropriate media sources have been utilized in this campaign, including television, radio, print media, and web and social media sites. The campaign has been successful in minimizing flood-related injuries and health and safety problems. Social media has been a



very significant means of communication with the public. Many communities have used their social media channels and web sites to communicate activities and impacts. Northeast Michigan 2-1-1 is further hosting a web site that consolidates information regarding flood resources available from various nonprofits, philanthropical organizations, government agencies, and private sector stakeholders for both this disaster and the Coronavirus pandemic.

**Critical Facilities and Infrastructure Restoration.** Several critical facility and infrastructure emergency restoration measures were implemented in the affected counties and local communities during the response to the severe flooding. Particularly hard hit were interstate highways, major state roadways and local roads in the affected counties. Many roadway sections in and around the disaster area were inundated with flood water. Rising river levels damaged many bridges, further causing extended travel and emergency vehicle response times, and effectively cutting entire areas of counties off from other areas. This forced the closures of many affected roadway sections, some of which remain in effect, to assess the physical damage to and conduct safety checks of road, bridge, and related infrastructure. These assessments were conducted by crews from the Michigan Department of Transportation, Michigan State Police, and county and local road and law enforcement agencies. They initiated appropriate facility repair and restoration measures so that the closed bridges and sections of roadway can be safely reopened to the motoring public. However, some of the damaged sections of roadway and bridge infrastructure will require more extensive permanent repairs which will take several weeks to several months to complete once funding is available to finance the repairs.

Mid-Michigan Hospital in the City of Midland, a primary hospital for most residents across Midland County and the impacted area, had to evacuate its first floor because of flooding. The hospital was forced to limit patient access, close its urgent care, behavioral health unit, EMS station, and move patients, medications, and equipment. The floor was later pumped out and cleaned.

There are additional infrastructure restoration issues that still need to be addressed. For example, a phone and internet service provider in the Sanford area suffered damages to their central network hub, causing loss of service to customers. The influx of floodwaters into sewer system caused the overflow of sewer retention basins the failure of sewer pump stations. Sixteen temporary pumps had to be installed in the City of Midland alone. The wastewater treatment plant shared by the cities of Tawas and East Tawas in Iosco County required emergency staffing for a period of 48 hours to ensure continuous process adjustments were made to deal with excessive amounts of grit received due to additional surface water inflow into the sewer system. A total of 187 cubic feet of grit had to be removed from the waste stream over 72 hours. Normal grit accumulation is less than one cubic foot per day. Erosion is also causing damage to infrastructure such as gas, electrical, and internet lines which will need be repaired or replaced. However, the restoration of a lot of utility infrastructure has been delayed due to inaccessibility of areas due to debris or road and bridge closures.

**Search and Rescue.** In Arenac County, local responders rescued 75 residents of an impacted nursing home by boat. In Saginaw County, one canoer had to be rescued.

**Evacuations and Sheltering.** Local jurisdictions recommended that residents in flood-

prone areas evacuate at the beginning of the incident. In response to the dam break, Midland County had to rapidly evacuate approximately 10,000 residents. Overall, approximately 12,000 residents in the counties included in this request needed to be evacuated. They included several hundred residents from nursing homes. At the height of sheltering operations, local jurisdictions and the American Red Cross operated a total of eight congregate care shelters across the impacted area. Additional evacuated residents were housed in hotel rooms and other accommodations across 16 non-congregate sheltering facilities. Many residents still remain displaced. As of June 12, at least 130 disaster survivors continue to shelter in non-congregate care facilities and with family and friends in Midland County alone.

**State Response and Recovery Assistance Efforts.** Michigan's state departments and agencies and nongovernmental partner organizations have provided whatever appropriate resources they had at their avail to assist the affected counties and local jurisdictions in responding to and recovering from this flood disaster. Although the following is by no means an all-inclusive accounting of all response and recovery efforts, it does provide brief synopses of some of the more noteworthy efforts:

The **Michigan Department of Agriculture and Rural Development (MDARD)** made available flood clean-up (to include sewage) guidance to affected food establishments in impacted area. This guidance was provided in English, Spanish, Arabic, and Mandarin languages. MDARD also shared flooding information response guidance from the Multi-State Partnership for Security in Agriculture. MDARD coordinated field staff to assess the impact of the flooding on the food and agriculture sector and to determine appropriate follow-up measures necessary to protect public health (providing clean-up guidance to food establishments was one of the measures). During this outreach process, MDARD focused on retail establishments in the impacted areas, especially the hardest hit areas in Midland County. In addition, MDARD also reached out to the affected health departments who license and inspect restaurants. MDARD personnel also inspected several gasoline and other fuel stations in the affected area to determine if any had issues with flood water in their gasoline storage tanks. A few, particularly marinas, reported damage. MDARD staff also reached out to bulk agri-chemical storage facilities (pesticides and fertilizers) in the area, and to the county animal control shelter. MDARD contacted agricultural industry groups to ascertain damage to crops in affected areas. Farmers with crops damaged by the floods were directed to contact their USDA-FSA County Office for potential relief. USDA-FSA and USDA-NRCS are still assessing damage and eligibility for their programs.

The **Michigan Community Service Commission (MCSC)** continues to support various partners in disaster recovery. Foremost, in working with 2-1-1, 2-1-1 has once again provided a critical piece of support to handle situational awareness with the public and has acted as a central hub for identifying unmet needs for disaster recovery. Since May 20, 2,117 connections have been handled by Northeast Michigan 2-1-1 and supporting centers regarding disaster related services and unmet needs identification in the impacted area. The highest unmet needs have been for disaster clean-up services, volunteer groups, and federal assistance inquiries. Additionally, 1,804 cases have been logged in the Crisis Cleanup system – noting that a portion of these have been verified to be damage reports only (no additional help was needed). MCSC has engaged and coordinated for volunteer and donations management support, MCSC has engaged and coordinated with the area Community Action Agency, nonprofits (especially the regional United Ways and members

of both National and Michigan VOAD), local community groups and leaders, and the local Emergency Management programs in Arenac, Gladwin, Midland, and Saginaw counties.

The **Michigan Department of Civil Rights (MDCR)** monitored the impacts of the flooding and of response and recovery efforts by state and local agencies and private sector partners on at-risk and underrepresented populations to ensure the activities in the affected areas and needs of often-marginalized groups were addressed. The MDCR Division on Deaf, Blind, and Hard of Hearing (DODDBHH) continued to provide technical assistance and engagement with state agency communications efforts to ensure proper accommodations (American Sign Language (ASL) and Closed Captioning) were incorporated into governmental messaging. MDCR DODDBHH also produced videos in ASL with captions to provide important emergency information to the deaf and hard of hearing communities in the impacted areas.

The **Michigan Department of Environment, Great Lakes, and Energy (EGLE)** Dam Safety Unit remains on-site in Gladwin and Midland counties to inspect the dam structures that have failed and those that survived the rain event. This unit will lead the State of Michigan's forensic investigation into the failure of the Edenville Dam and work with the Federal Energy Regulatory Commission regarding the Sanford Dam failures. EGLE reached out to regulated facilities in the impacted area to ensure that they sustained no damage and can operate safely. EGLE proactively issued emergency disposal permits for the Gladwin temporary disposal area, and waste hauling waivers for Arenac, Gladwin, Iosco, Midland, and Saginaw counties. The EGLE Transportation Unit continues to work with the affected county road commissions and the Michigan Department of Transportation on failed road and waterway crossings. Drinking water and wastewater engineers worked with the area treatment facilities to minimize the impact of the flood on human health and water quality. EGLE has standing daily conversations with Dow Chemical and is working with them on future river sampling protocols.

The **Michigan Department of Health and Human Services (MDHHS)** assisted with sheltering of evacuees at the beginning of the disaster and has since stayed in communication with local emergency management and nonprofits working on sheltering and mass care operations. MDHHS also continues to provide limited emergency relief assistance, has assisted with emergency food replacement, and addresses identified unmet needs for repair, cleanup, debris removal and other recovery related issues.

The Michigan Department of Health and Human Services also coordinated with Mid-Michigan Medical Center in the City of Midland, which was impacted by flooding of its first floor and ultimately needed to evacuate that floor. The department's Community Health Emergency Coordination Center (CHECC) was engaged with the facility and the regional Health Care Coalition regarding assistance and the deployment of resources. MDHHS further stayed in contact with the Centers for Disease Control and Prevention (CDC) regarding supplies stored at the hospital that are part of the CDC's Strategic National Stockpile CHEMPACK program and needed to be moved from the basement to higher floors. The department also supported the evacuation of a flood-prone nursing home in Saginaw County and coordinated with the Health Care Coalition, EMS providers, and local first responders to transfer patients and augment needed supplies. MDHHS also provided guidance for sheltering operations relative to the Coronavirus, and its Bureau of Laboratory (BOL) offered the deployment of test kits for COVID-19 testing at community

shelters.

The **Michigan Department of Labor and Economic Opportunity (MDLEO)** assessed significant potential negative economic effects resulting from issues such as lost business activity that occurred as a result of the floods, damage to homes and businesses, and potential loss of employment for those that work outside the impacted areas due to disruptions to transportation and other infrastructure support. While some may have been covered by flood insurance, residents without insurance will have unplanned expenses to restore their homes and belongings, and potentially reducing their discretionary spending that supported area businesses.

The **Michigan Department of Licensing and Regulatory Affairs (MDLARA)** monitored the operations of regulated health care, adult foster care and childcare facilities affected by flooding. MDLARA performed wellness calls to each of the facilities in the affected areas, especially those providers required to evacuate patients and residents, and conducted onsite inspections for readmittance and infection control.

The **Michigan National Guard (MING)** was an important factor in short-term response and recovery for the affected area. On May 20, MING activated 234 personnel in state active duty (active guard reserve) under Immediate Response Authority for three days. MING executed missions such as high-water vehicle rescue, door to door wellness checks, Civil Support Team hazardous materials monitoring of Dow Chemical retaining ponds, emergency distribution of beds for shelter operations, and manpower support to the Grace A. Dow Memorial Library for moving \$2 million of art work and rare books out of harm's way.

The **Michigan Department of Natural Resources (MDNR)** deployed Conservation Officers in patrol trucks in support of evacuation efforts with local authorities. As the situation evolved, Conservation Officers were deployed to support search and rescue operations using officers, patrol trucks, off-road vehicles, and marine assets, such as patrol boats, jet boats, and surface boats equipment with short tail mud motors. The MDNR Law Enforcement Division personnel assisted local EOCs and the SEOC for operational support. The MDNR Wildlife and Fisheries Divisions also conducted flooding and damage assessments on state-administered properties along with support provided to the EGLE Water Resource Division for natural resource damage assessments in the primary flooded area. The MDNR Fisheries Division also provided support personnel to EGLE and the Federal Energy Regulatory Commission (FERC) for directed drawdowns at the Smallwood and Secord Dams, along with rescue operations for stranded aquatic organisms (fish and mussels) associated with the drawdowns. MDNR Fisheries Divisions further obtained administrative search warrants for bottomland access in the afflicted area for field assessment activities including mussel mortality and stream stability. The MDNR Law Enforcement provided support during the execution of the administrative warrants. The MDNR Forest Resource Division assisted local authorities related to log jams and continues to monitor the situation for public safety risks and possibly future mitigation needs.

The **Michigan Department of Transportation (MDOT)** performed maintenance, emergency repairs, traffic management, damage assessment, and addressed closures of segments of state highways that were inundated by floodwaters in the impacted counties. MDOT is gathering information on the scope and magnitude of road and bridge

damage from local public road agencies in the affected counties. MDOT is coordinating with the Federal Highway Administration (FHWA) regarding implementation of its Emergency Relief funding program.

The **Michigan State Police (MSP)** deployed considerable resources during the flood response to assist local officials in controlling access to flooded areas, conducting search and rescue in flooded areas, assisting with security and traffic control as required, real time video feeds from the helicopter during the flood, UAS operational information both during and after flooding, and supporting damage assessments. MSP also provided security to CMS Energy to keep the public safe during the repair of a damaged gas line. Early in the response, the MSP Aviation Unit also flew aerial reconnaissance and assessment missions over the affected areas to search for additional stranded motorists on flooded highways, to aid local and state officials in determining the scope and magnitude of the flooding, and to take aerial photographs and video footage of flooded areas for damage and impact assessment purposes. The MSP Intelligence Operations Division, Operations Section also assisted at the SEOC, and the Michigan Intelligence Operations Center (MIOC) monitored the flooding conditions and sent out situational awareness bulletins on the weather and flooding to stakeholder partners through the duration of the response and recovery.

The **Michigan Department of Technology, Management and Budget (MDTMB)** monitored the impacts of the flooding on state owned and operated facilities and state government operations in the affected areas; assisted in obtaining needed resources for emergency operations and flood recovery through standing vendor contracts and the state's emergency procurement process; coordinated deployment of beds to emergency shelters; established seven event radio channels to support the communication needs of responders; and served as the incident communication lead.

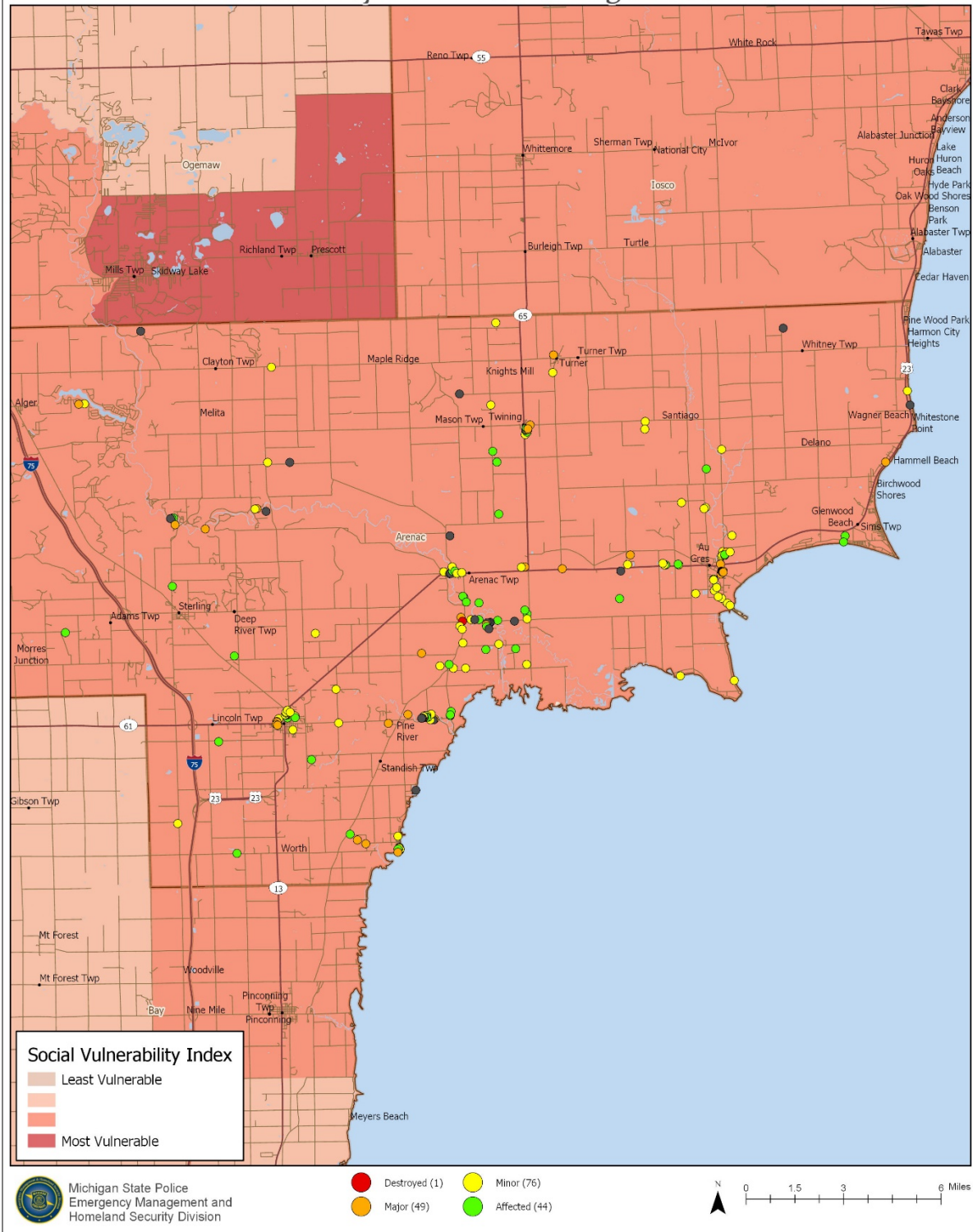
**ATTACHMENT 3 TO MAJOR DISASTER REQUEST**

**Supporting Maps and Photographs**  
**Disaster Area Maps**



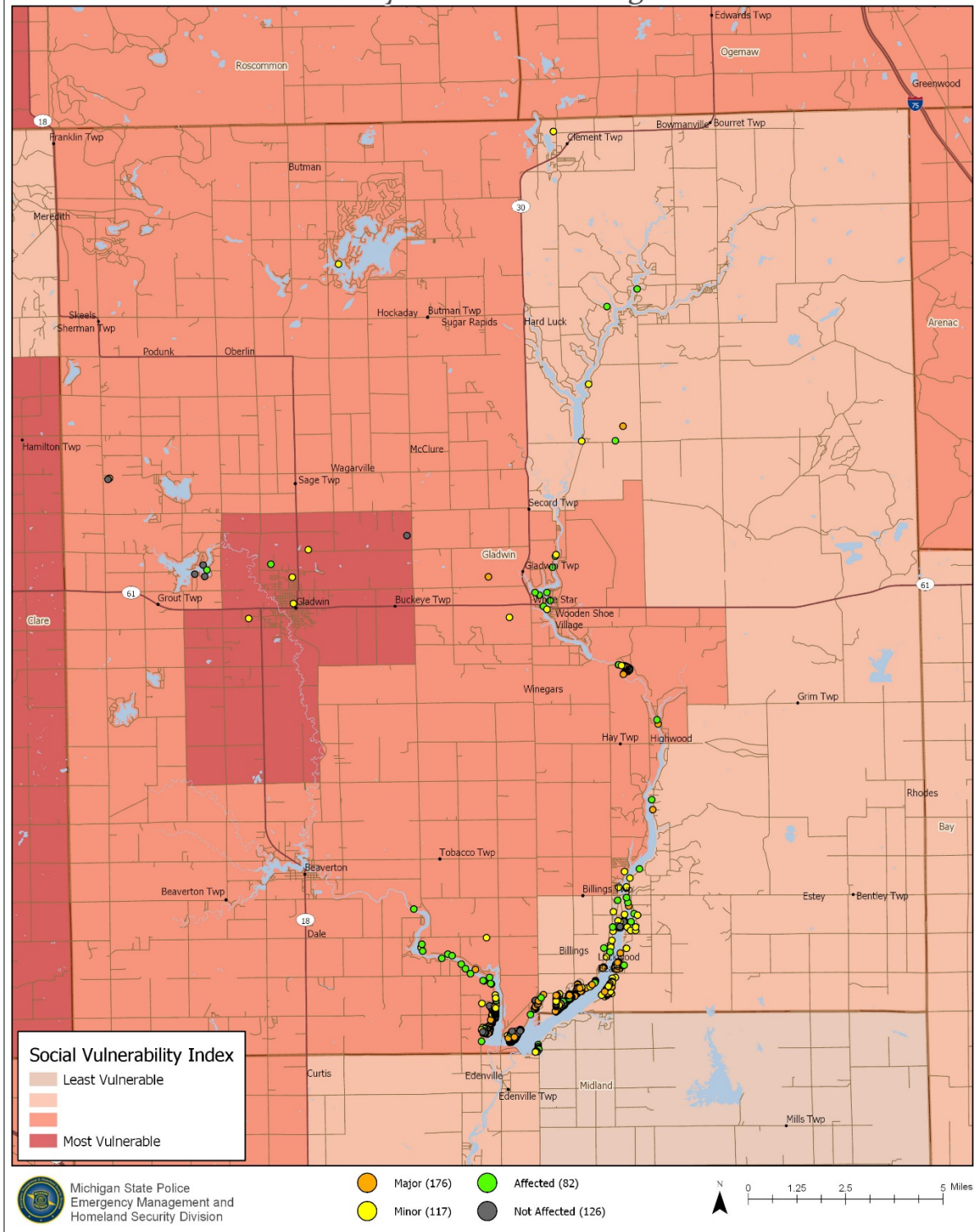
Source: State Emergency Operations Center, Geographic Information System Unit

# Arenac County Verified Damage Assessment



Source: State Emergency Operations Center, Geographic Information System Unit

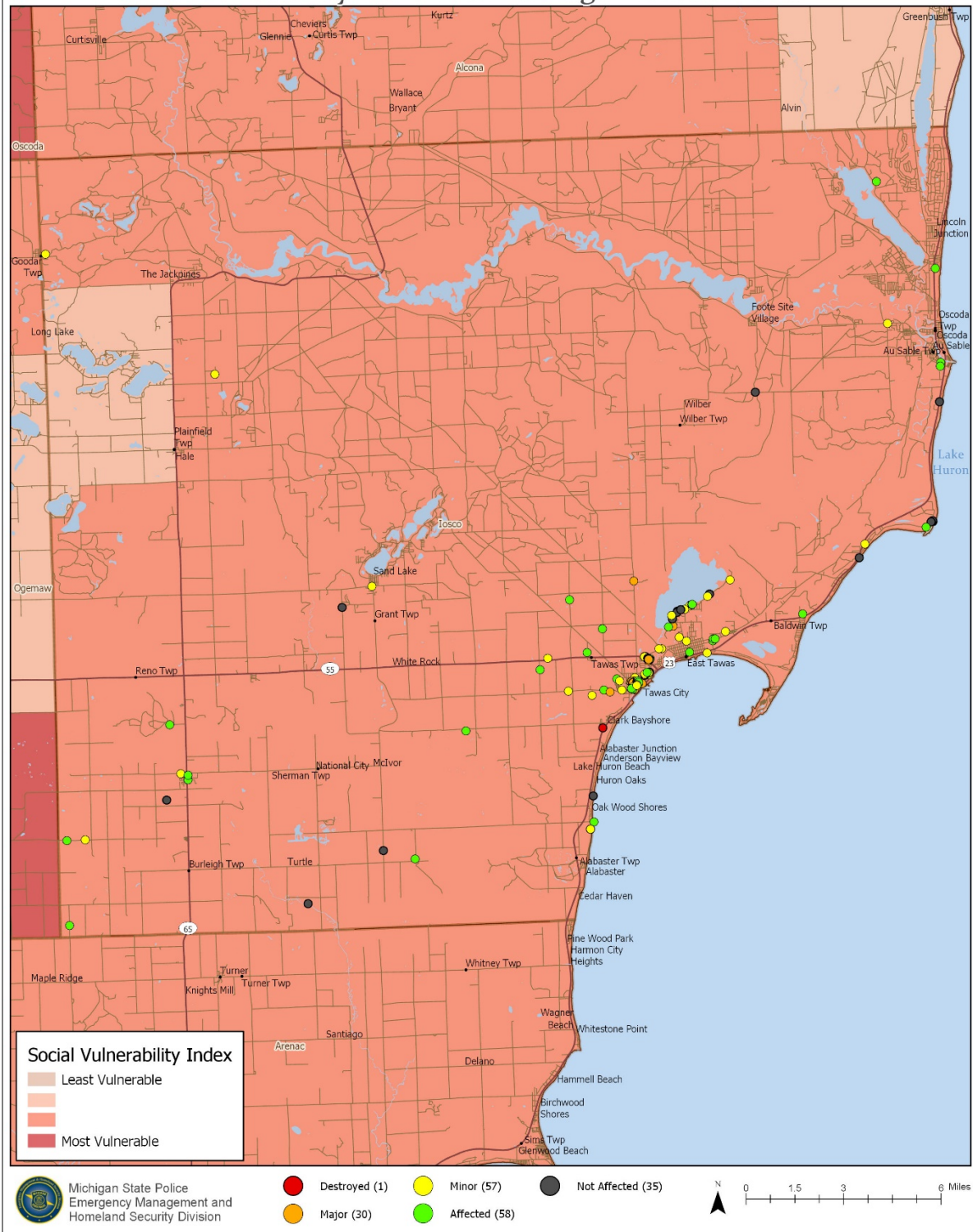
# Gladwin County Verified Damage Assessment



Source: State Emergency Operations Center, Geographic Information System Unit

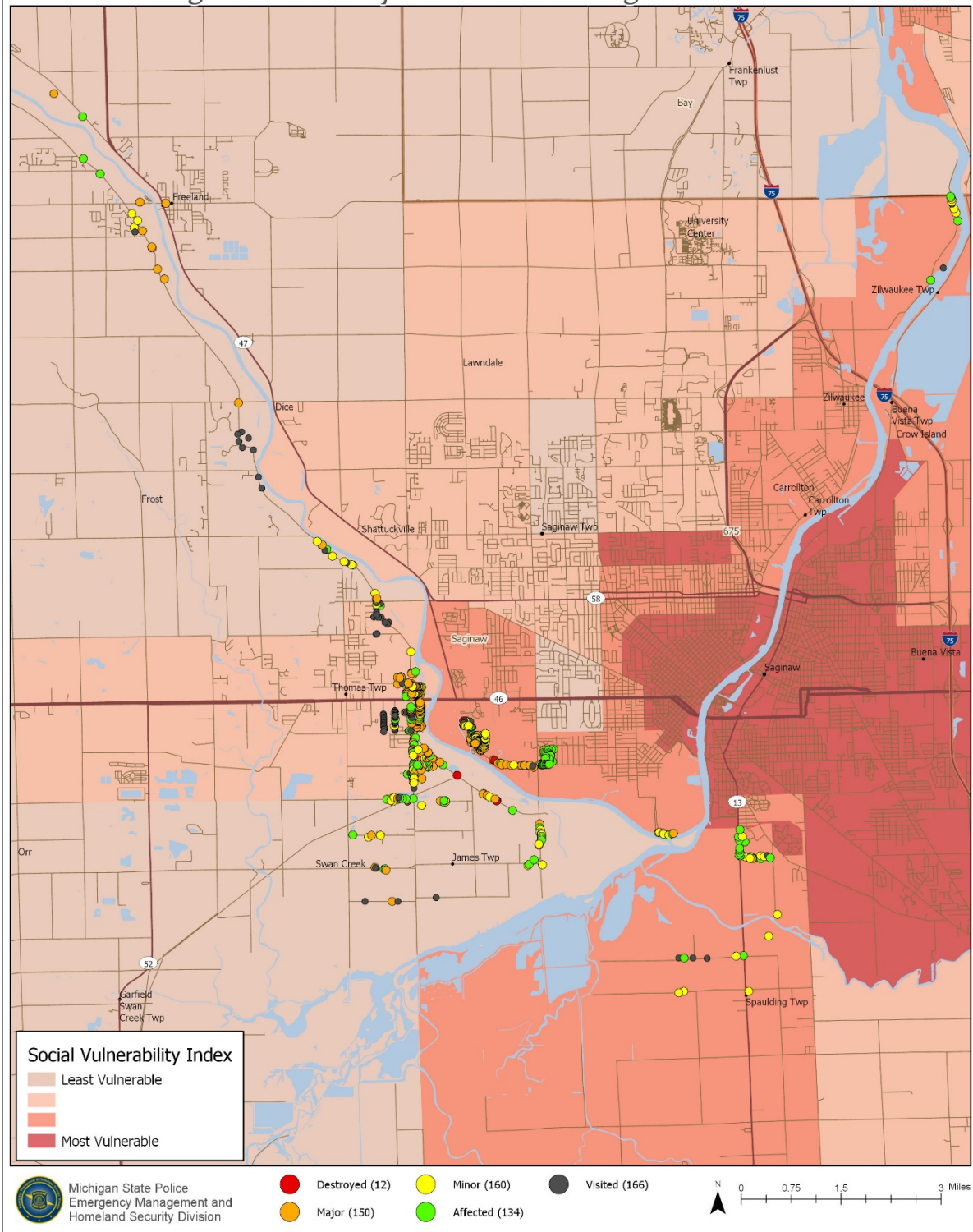


# Iosco County Verified Damage Assessment



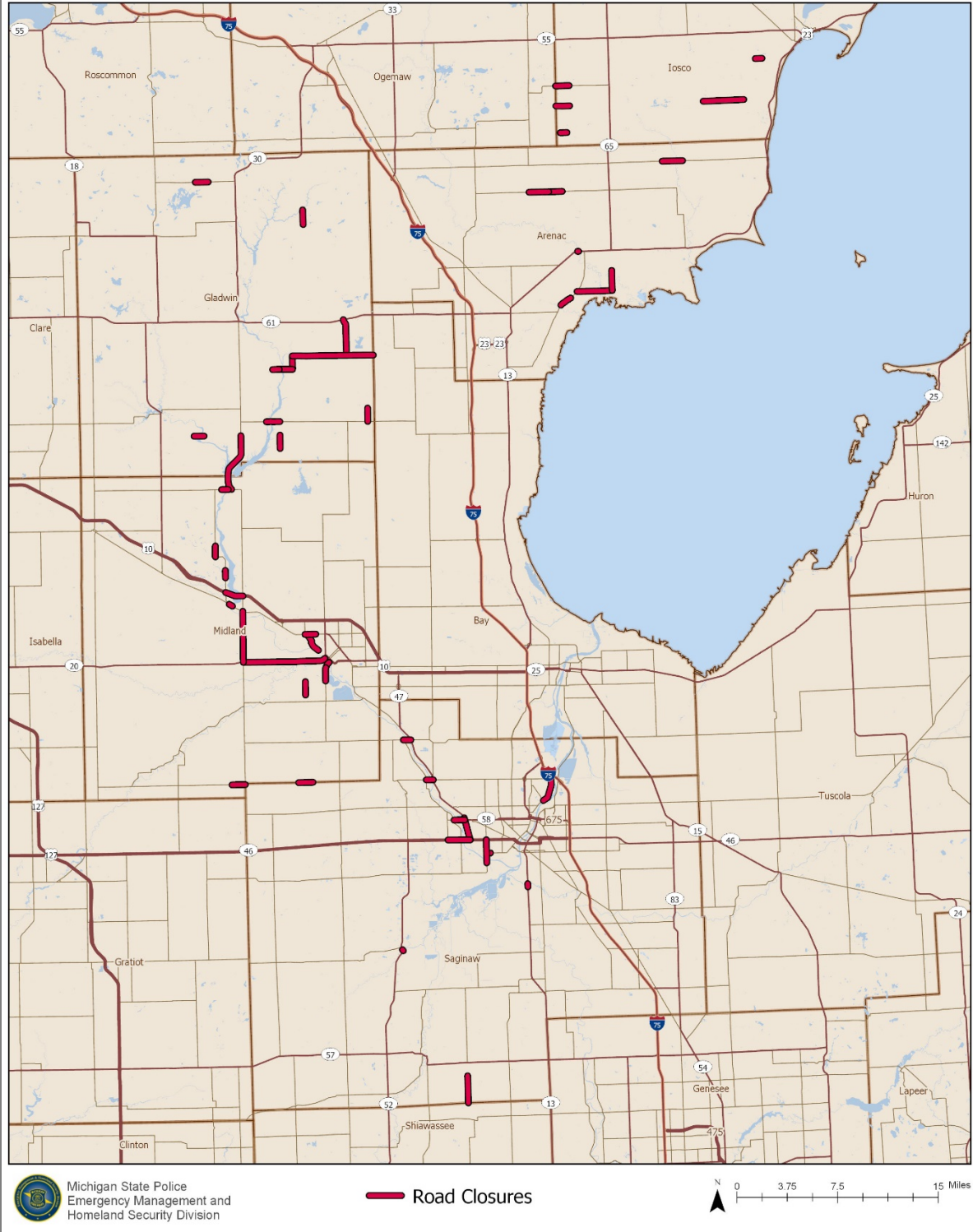
Source: State Emergency Operations Center, Geographic Information System Unit

# Saginaw County Verified Damage Assessment



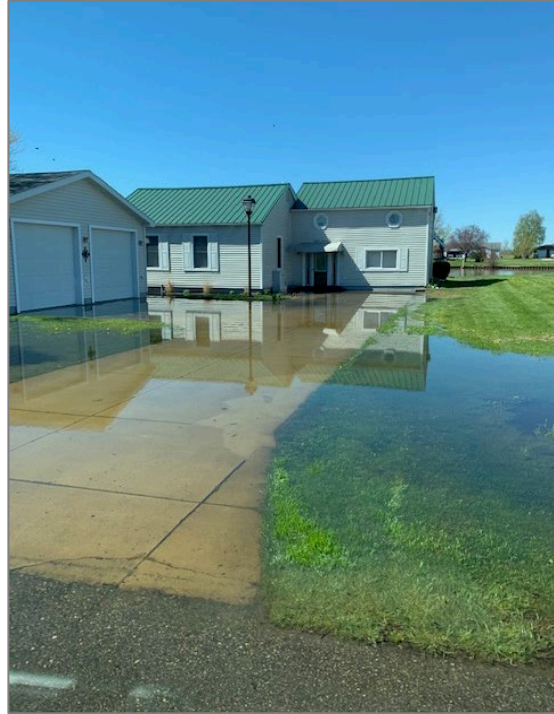
Source: State Emergency Operations Center, Geographic Information System Unit

# Road Closures



Source: State Emergency Operations Center, Geographic Information System Unit

Selected Photographs of Flood Damage and Impacts



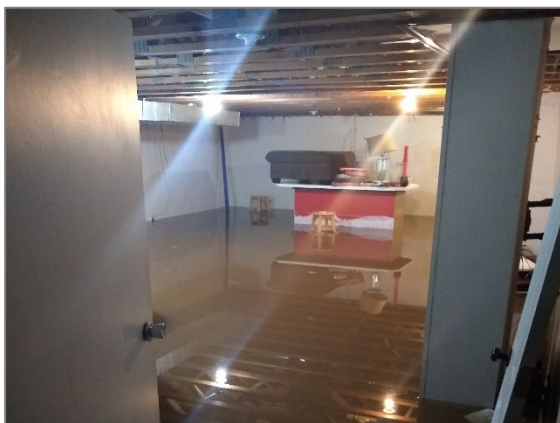
**Row 1, L-R:** Road/culvert damage, Arenac County; Road/bridge damage, Arenac County.  
**Row 2, L-R:** Impacted farm, Arenac County; Impacted home, Arenac County.

Selected Photographs of Flood Damage and Impacts (cont.)



**Row 1, L-R:** Edenville Dam, Gladwin County; Edenville Dam, Gladwin County/Midland County.  
**Row 2, L-R:** Impacted homes and road, Gladwin County; Impacted homes and lake flooding, Gladwin County.  
**Row 3, L-R:** Impacted homes, Gladwin County; Damaged home, Gladwin County.

Selected Photographs of Flood Damage and Impacts



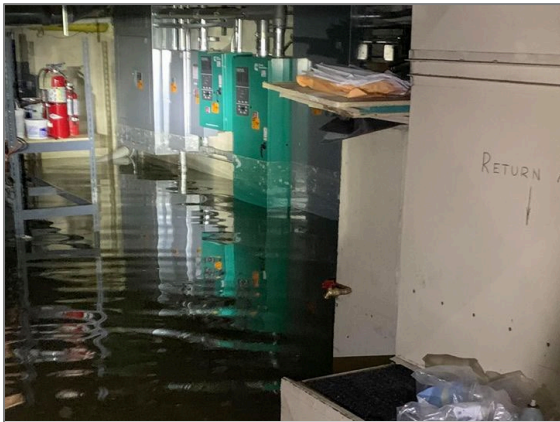
**Row 1, L-R:** Impacted commercial and residential area, losco County; Impacted residential street, losco County.  
**Row 2, L-R:** Impacted homes, losco County; Impacted home, losco County.  
**Row 3, L-R:** Flooded basement, losco County; Flooded basement, losco County.

Selected Photographs of Flood Damage and Impacts (cont.)



**Row 1, L-R:** Edenville Dam, Gladwin County/Midland County; Wixom Lake, Gladwin County/Midland County.  
**Row 2, L-R:** Tittabawassee River, Midland County; Road/bridge damage, Midland County.  
**Row 3, L-R:** Impacted commercial area, Midland County; Impacted commercial area, Midland County.

Selected Photographs of Flood Damage and Impacts (cont.)



**Row 1, L-R:** Tittabawassee River; Midland County, Public damage, Midland County.  
**Row 2, L-R:** Public damage, Midland County; Damaged recreational trail, Midland County.  
**Row 3, L-R:** Commercial damage, Midland County; Destroyed home, Midland County.



Selected Photographs of Flood Damage and Impacts (cont.)



**Row 1, L-R:** Tittabawassee River/Saginaw River; Saginaw County, Impacted commercial and residential area, Saginaw County.  
**Row 2, L-R:** Stranded vehicles, Saginaw County; Impacted home, Saginaw County.  
**Row 3, L-R:** Impacted home, Saginaw County; Impacted farm, Saginaw County (mlive.com).

**ATTACHMENT 4 TO MAJOR DISASTER REQUEST**

**Weather-related information**

48-hour rainfall totals

Rain totals for the 48-hour period ending at 8 a.m. on May 19, 2020:

**Iosco County**

National City 5 NNE	5.76"
Sid Town 4 S	5.75"
East Tawas	5.55" ( <i>new record, old record was 4.13"</i> )

**Arenac County**

Sterling	7.20"
Standish 4 NE	6.79" ( <i>new record, old record was 6.19"</i> )
Alger 2 ENE	5.81"

**Gladwin County**

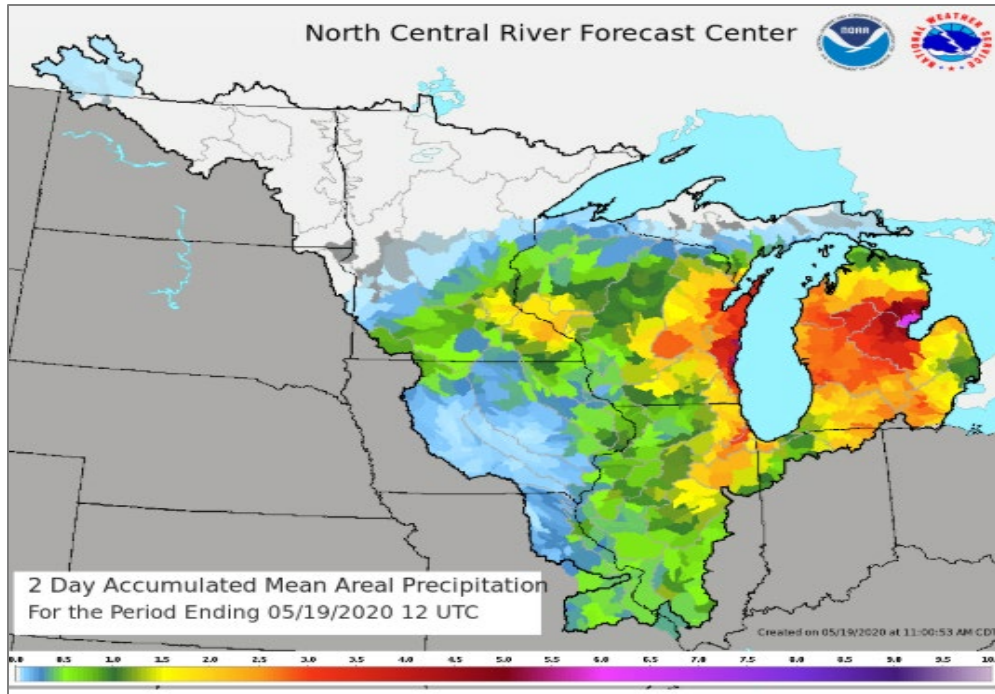
Gladwin	4.13"
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**Midland County**

Midland 1.5 NNE	4.70"
Bay City	4.22"
Midland 4.4 W	4.18"
Midland 2.9 SW	4.10"
Freeland 7.6 W	4.03"
Oil City 3.0 E	3.69"
Midland Barstow	1.85"

**Saginaw County**

Chesaning 4 WSW	4.30"
St Charles 7W	4.20"
Saginaw - Tri-Cities ASOS	3.99"



Source: NOAA NWS

## National Weather Service Warnings

### **Midland, Saginaw and Bay Counties - Flood Warning - Non-River Flooding with the rain event**

- Flood Warning issued at 1038. on Monday, May 18.
- Estimate that significant flooding began around noon EDT on May 18 and ended mid-morning May 19.

### **Flash Flood Warnings for dam break and resultant immediate flooding**

- For Edenville Dam - flooding start 5/19 543 p.m. EDT to 730 a.m. 5/20 (based on video and Midland 911 log)
  - Flash Flood Warning that activated WEA for Edenville Dam issued at 546 p.m. on Tuesday, May 19
  - Flash Flood Emergency that activated WEA for Edenville Dam issued at 738 p.m. on Tuesday, May 19
- For Sanford Dam - flooding start 5/19 830 p.m. EDT to 1207 p.m. 5/20 (this failure was a slower erosion of nearly the entire structure, so this is just an estimate based on reports coming into the NWS)
  - Flash Flood Warning that activated WEA for Sanford Dam issued at 717 p.m. on Tuesday, May 19
  - Flash Flood Emergency for Sanford Dam issued at 837 p.m. on Tuesday, May 19

### **Flood Warning - Follow-up to dam break - when the water surge, flash flood threat was gone, but flooding was still a problem**

- Flood Warning issued at 724 a.m. on Wednesday, May 20
  - This type of flooding was estimated near the Edenville Dam from 730 a.m. 5/20 to 600 a.m. 5/21
  - This type of flooding was estimated near the Sanford Dam from 1207 p.m. 5/20 to 600 a.m. 5/21

### **Flash Flood Warnings for Gladwin Counties – it is unknown how far in advance these warnings were issued. There may not have been any advance notice to some flooding in Gladwin County for these.**

- Flash Flood Warning for Southeast Gladwin County issued at 1216pm on May 18
- Flash Flood Warning for South Central Gladwin County issued at 311pm on May 18
- Flash Flood Emergency that activated WEA Southwest Gladwin County below Chappel Dam on Cedar River issued at 1152pm on May 18
- Additional Flash Flood Warnings were issued for ongoing flooding for Gladwin County to follow up on warnings listed above:
  - 736am on May 19 – Southwest Gladwin County
  - 249pm on May 19 – South Central Gladwin County
  - 900pm on May 20 – Southeast Gladwin County

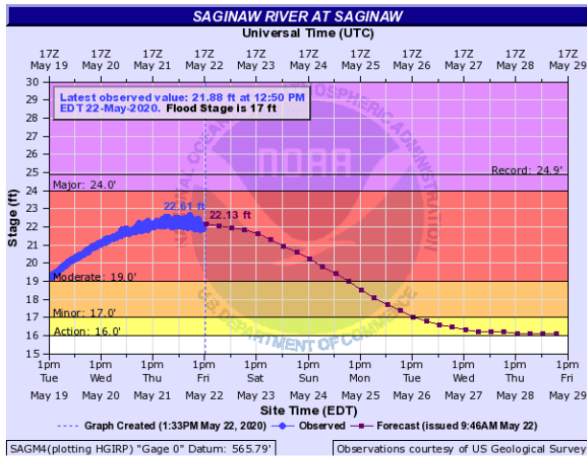
### **Other Non-River Flood Warnings Issued**

- Flood Warning issued at 125pm May 18 for Wexford/ Manistee/ Arenac/ Gladwin/ Roscommon/ Missaukee Counties.
- Flood Warning issued at 339pm May 18 for Ogemaw/Iosco Counties.

Source: NOAA NWS

## Hydrographs

### Hydrograph: Saginaw River at Saginaw (SAGM4)



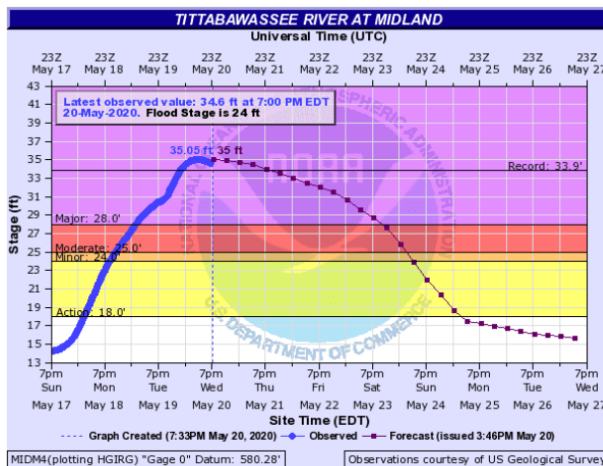
**Flood Stage:** 17.0 feet

**May 21, 2020 Crest:** 22.61 feet (12th highest)  
Highest Crest since 1998

Top 5 record crests:

24.90 feet	30 Mar 1904
24.30 feet	31 Mar 1916
24.16 feet	15 Sep 1986
24.10 feet	24 May 1912
24.05 feet	29 Mar 1984

### Hydrograph: Tittabawassee River at Midland (MIDM4)



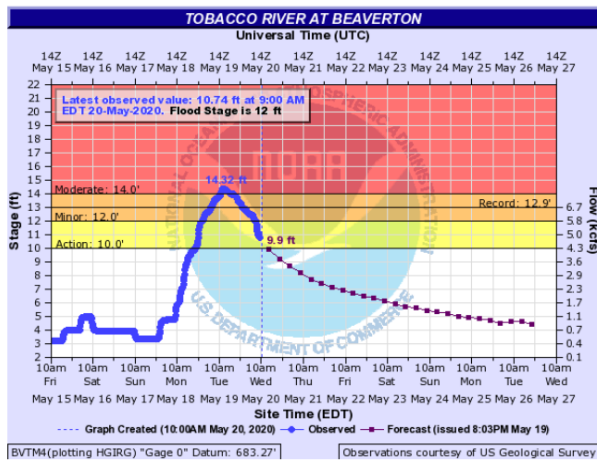
**Flood Stage:** 24.0 feet

**New Record Crest:** 35.05 feet (20 May 2020)

Top 5 record crests prior to 2020:

33.89 feet	13 Sep 1986
32.15 feet	24 Jun 2017
29.70 feet	28 Mar 1916
29.50 feet	21 Mar 1948
28.80 feet	08 Mar 1946

### Hydrograph: Tobacco River at Beaverton (BVTM4)



**Flood Stage:** 12.0 feet

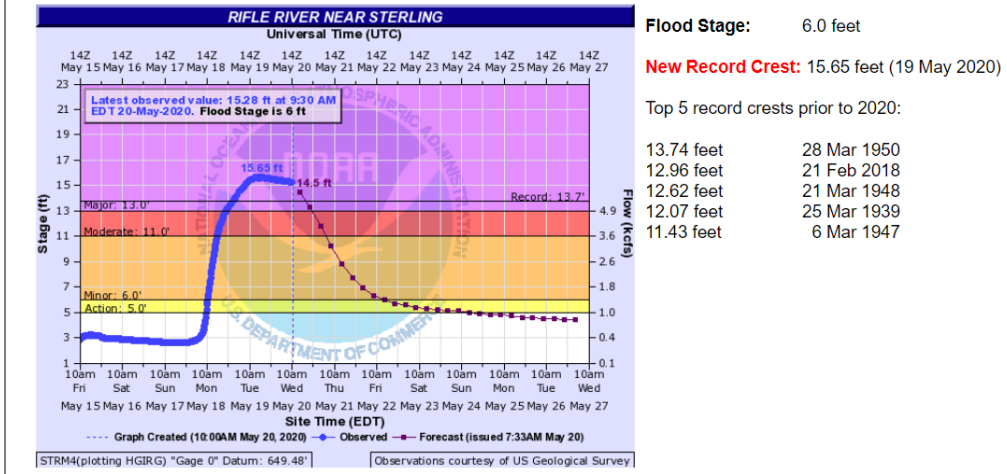
**New Record Crest:** 14.32 feet (19 May 2020)

Top 5 record crests prior to 2020:

12.95 feet	9 Jul 1957
12.73 feet	21 Feb 2018
12.40 feet	20 Mar 1948
11.62 feet	24 Jun 2017
11.58 feet	28 Mar 1950

Hydrographs (cont.)

## Hydrograph: Rifle River near Sterling (STRM4)



Source: NOAA NWS

**ENCLOSURE A TO MAJOR DISASTER REQUEST**  
**Estimated Requirements for Individual Assistance**  
**Under the Stafford Act**

Verified Home Damage

<b>STATE:</b>	<b>Michigan</b>
<b>INCIDENT DATE:</b>	<b>5/17-22/2020</b>
<b>INCIDENT TYPE:</b>	<b>FLOOD ONLY</b>
<b>What percent of the affected dwellings will be eligible for IHP?</b>	<b>100%</b>

County Name	Affected Getting				%		% Low Income	HUD FMR for 2 bedroom		
	Destroyed	Major	Minor	Affected	Assistance	Total			Owner	% Insured
Arenac	1	49	76	43	43	169	83%	12%	19%	\$ 713.00
Gladwin	0	176	117	82	82	375	84%	2%	20%	\$ 713.00
Iosco	1	30	57	58	58	146	80%	1%	17%	\$ 713.00
Midland	49	509	321	293	293	1172	76%	15%	11%	\$ 805.00
Saginaw	1	143	169	166	166	479	72%	26%	18%	\$ 773.00
<b>TOTAL/AVERAGE</b>	<b>52</b>	<b>907</b>	<b>740</b>	<b>642</b>	<b>642</b>	<b>2341</b>				<b>\$ 743.40</b>

Individuals and Households Program (IHP) Cost Estimates

STATE: Michigan				
INCIDENT DATE: 5/17-22/2020				
ESTIMATED HOUSING ASSISTANCE (HA)	NUMBER OF HOUSEHOLDS (Uninsured)	COST	TOTAL COST	CATEGORY TOTAL COST
<b>TEMPORARY HOUSING</b>				<b>\$ 924,793</b>
Rent (Pre-Disater Renters)- 1 month	538		\$ 351,952	
Rent (Owners w/Major or Destroyed)- 1 month	740		\$ 572,841	
<b>REPAIR ASSISTANCE</b>				<b>\$ 23,943,727</b>
Repair Costs (Owners w/Affected)	420	\$ 1,500	\$ 630,000	
Repair Costs (Owners w/Minor)	492	\$ 3,588	\$ 1,765,227	
Repair Costs (Owners w/Major)	607	\$ 35,500	\$ 21,548,500	
<b>REPLACEMENT ASSISTANCE</b>				<b>\$ 1,216,495</b>
Replacement Cost (Owners w/Destroyed)	35	\$ 34,757	\$ 1,216,495	
<b>Total Estimated Housing Assistance (HA)</b>	<b>2,092</b>		<b>\$ 26,085,015</b>	
Estimated Average HA Award per Household		\$ 12,469		
ESTIMATED OTHER NEEDS ASSISTANCE	NUMBER (Uninsured)	COST	TOTAL COST	CATEGORY TOTAL COST
ONA (All Renters and Owners w/Affected, Minor, Major)	1,975	\$ 1,329	\$ 2,625,387	
ONA (Owners- Destroyed)	0	\$ 1,329	\$ -	
<b>Total Estimated Other Needs Assistance (ONA)</b>	<b>1,975</b>		<b>\$ 2,625,387</b>	<b>\$ 2,625,387</b>
Total Estimated Federal Share (75%)		\$ 1,969,040		
Total Estimated State Share (25%)		\$ 656,347		
Estimated Average ONA Award per Household		\$ 1,329		
<b>Total Estimated HA and ONA (Federal Share)</b>			<b>\$ 28,054,055</b>	

**ENCLOSURE B TO MAJOR DISASTER REQUEST**

**Estimated Stafford Act Public Assistance Requirements**

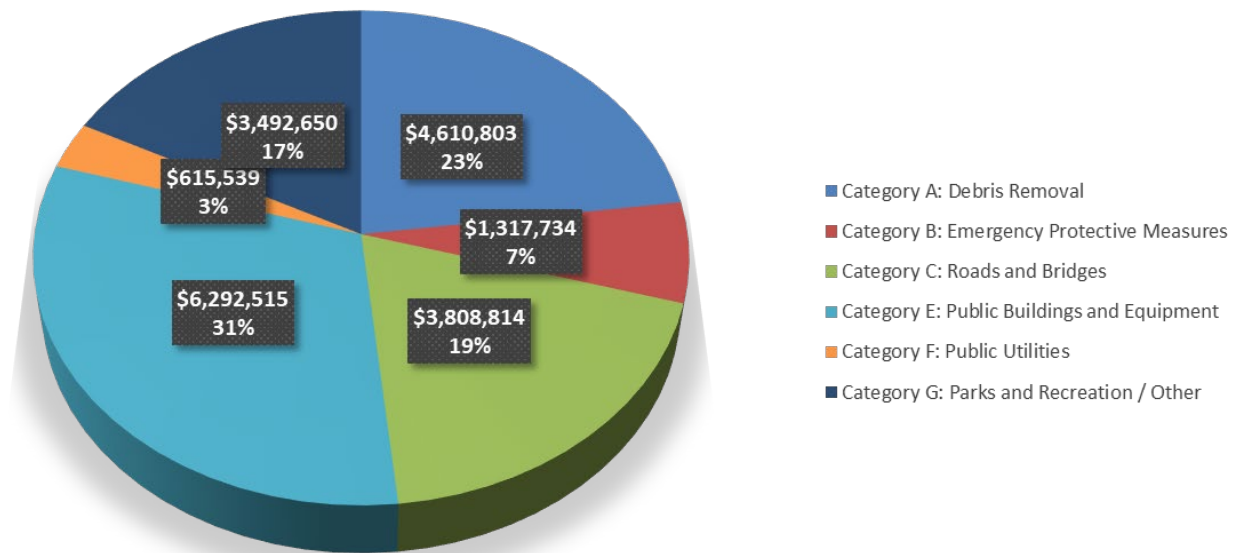
**Stafford Act Requirements for Public Assistance - Estimated Cost Summary**

Applicant	A	B	C	D	E	F	G	TOTAL	Population	Per/Cap Loss
County of Arenac	\$0	\$17,552	\$279,641	\$0	\$0	\$0	\$0	\$297,193	15,899	\$18.69
County of Gladwin	\$84,672	\$5,502	\$1,231,015	\$0	\$0	\$0	\$0	\$1,321,189	98,657	\$13.39
County of Iosco	\$0	\$0	\$75,165	\$0	\$0	\$30,995	\$0	\$106,160	25,887	\$4.10
County of Midland	\$4,387,200	\$1,191,500	\$2,011,845	\$0	\$6,034,500	\$550,000	\$3,435,000	\$17,610,045	83,629	\$210.57
County of Saginaw	\$138,931	\$103,180	\$211,148	\$0	\$258,015	\$34,544	\$27,050	\$772,868	200,169	\$3.86
State Agencies	\$0	\$0	\$0	\$0	\$0	\$0	\$30,600	\$30,600		
<b>TOTAL</b>	<b>\$4,610,803</b>	<b>\$1,317,734</b>	<b>\$3,808,814</b>	<b>\$0</b>	<b>\$6,292,515</b>	<b>\$615,539</b>	<b>\$3,492,650</b>	<b>\$20,138,055</b>	<b>9,883,640</b>	<b>2.037514013</b>

Federal share (75%)	<b>\$15,103,541.25</b>
Non-Federal share (25%)	<b>\$5,034,513.75</b>

**Public Assistance Categories by Cost and Percentage**

	Category A: Debris Removal	Category B: Emergency Protective Measures	Category C: Roads and Bridges	Category D: Water Control Facilities	Category E: Public Buildings and Equipment	Category F: Public Utilities	Category G: Parks and Recreation / Other	TOTAL
Cost	\$4,610,803	\$1,317,734	\$3,808,814	\$0	\$6,292,515	\$615,539	\$3,492,650	\$20,138,055
Percentage	23%	7%	19%	0%	31%	3%	17%	100%





**ENCLOSURE C TO MAJOR DISASTER REQUEST**

**Estimated Requirements from other Federal Agency Programs**

Jurisdiction/ Agency	SBA Home Loans <sup>1</sup>	SBA Business Loans <sup>1</sup>	FSA Loans <sup>2</sup>	NRCS <sup>2</sup>	FHWA	USACE	BIA	OTHER
Arenac County	TBD	TBD	TBD	TBD	\$155,236	\$25,000	N/A	TBD
Gladwin County	TBD	TBD	TBD	TBD	\$1,045,000	\$115,000	N/A	TBD
Iosco County	TBD	TBD	TBD	TBD	\$1,275,000	\$0	N/A	TBD
Midland County	TBD	TBD	TBD	TBD	\$39,937,500	\$100,000	N/A	TBD
Saginaw County	TBD	TBD	TBD	TBD	\$889,401	\$2,000	N/A	TBD
MDOT	N/A	N/A	N/A	N/A	\$77,751,500	N/A	N/A	TBD
Totals	TBD	TBD	TBD	TBD	\$121,053,637	\$242,000	N/A	TBD

<sup>1</sup>The Small Business Administration will review applicable damages if a Major Disaster is not declared.

<sup>2</sup>As of June 10, USDA-FSA and USDA-NRCS report that estimates for assistance are not available yet.

**ENCLOSURE D TO MAJOR DISASTER REQUEST**

**Historic and Current Snowfall Data**

Not Applicable to this Request.