

Chikaming Township Coastal Sustainability Assessment

September 2021

Acknowledgements

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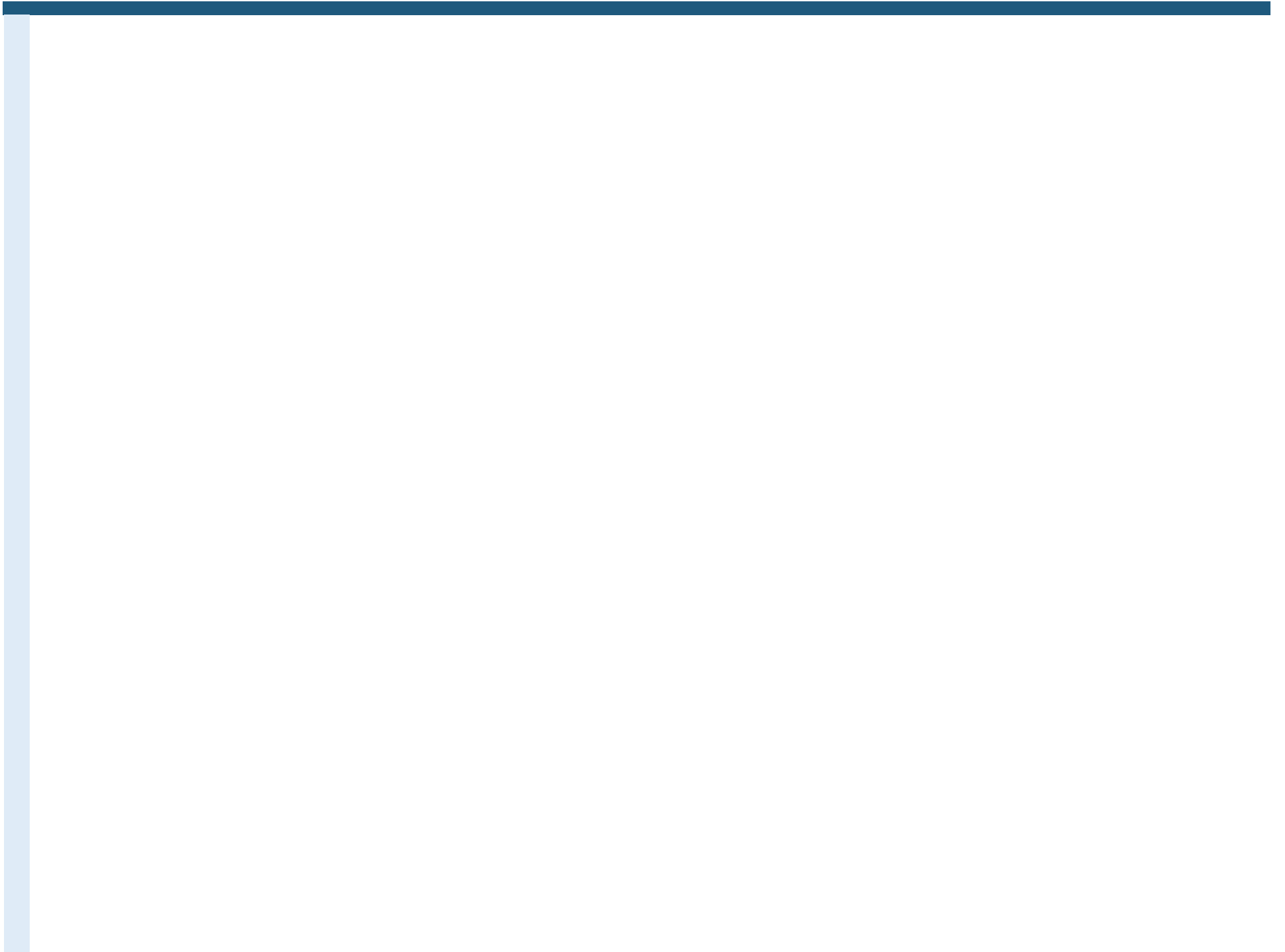
This Self-Assessment Tool references recommendations and best practices developed by LIAA, as well as from the following entities:

- Michigan State University School of Planning, Design and Construction—A Self-Assessment of Sustainability in Your Community
- Environmental Protection Agency (EPA)—Flood Resilience Checklist
- Sustainability Tools for Assessing and Rating Communities (STAR)
- Seagrant Wisconsin—Green Infrastructure Audit Tool
- Maryland's CoastSmart Communities Tool



The statements, findings, conclusions, and recommendations in this document are those of the authors and do not necessarily reflect the views of the Department of Environment, Great Lakes, and Energy and the National Oceanic and Atmospheric Administration.





How to use this assessment tool

Each sustainability principle features various benchmarks that are often used as an indicator of local resilience. To complete the community self-assessment, read the benchmark question and its description and choose from the following response options:

Example of how a community may score themselves

Yes (Y) - The community has included this sustainability principle in its planning efforts and/or local policies and initiatives.

Yes, but should improve (I) - The community either practices this sustainability principle but does not explicitly include it in its planning documents, or the principle can be found in planning documents but could be implemented to a greater degree.

No (N) - The community has not considered this sustainability principle in its plans or local initiatives.

Don't know (?) - It is unclear if the community is practicing this sustainability principle or if this sustainability principle is applicable given local conditions.

Not applicable (NA) - This sustainability principle is not applicable given local conditions (for example, dune protection in a community without dunes).

	Benchmark	Self-Assessment	Description
2.4	Does the master plan, zoning ordinance or other municipal plan, regulation or program call for incentivizes or regulations for developments to include affordable housing options?		For a community to effectively address housing issues, it should have adopted plans that describe the local goals, objectives and action steps to achieve greater sustainability as it pertains to housing. Support for these plans acts as support for the “sticks and carrots” that the municipality can use to implement

The purpose of this self-assessment tool is to evaluate each of the benchmarks and look for gaps in your community’s overall sustainability by identifying what is working well (Y), what is present but needs improvement (I), what is missing (N) and what is unclear (?). Once each benchmark has been categorized, the community can begin to plan for a more resilient future by addressing the best practices that would benefit the local economy, social opportunities, environment and coastlines.

Note: This assessment was completed by LIAA with the help of Networks Northwest, which provides zoning administration for the City of South Haven.

Category 1. Data gathering and mapping

Coastal communities can work towards implementing sustainable policies and best practices once they understand the risks that certain areas and structures are under. Data and mapping that is well-organized and easily presented can help to educate community residents on the importance of planning ahead for potential risks. This is a first step in planning for flood damages to residences, businesses, natural ecosystems and critical public facilities. Planning ahead can help to prevent damages or reduce the negative effects that these damages can cause.

	Benchmark	Self-Assessment	Description
24.1	Does the community use historical mapping of lake levels and lake level projections to inform land use decisions?	I—Township does require waterfront setbacks in their zoning ordinance in Article 5, Section 5.01 (C). Setback measurements are based off drone photography.	The Great Lakes fluctuate in a decadal pattern with an average reduction in shoreline at around 1 foot per year. This fluctuation wherein buildable beach is present for some time and then gone later contributes to development in high-risk areas. Historical data, projections and responsive zoning can help reduce risky development.
24.2	If adjacent to a Great Lake, has the community mapped shoreline erosion using data provide through the Great Lakes Research Center, NOAA and the State of Michigan?	I—Not mapped; critical dune areas are identified in the zoning ordinance; HRE areas defined by EGLE.	Use the following link to view shoreline data for Michigan's coasts: https://portal1-geo.sabu.mtu.edu/mtuarcgis/apps/webappviewer/index.html?id=d758800bb18e460ab39aa66631051156
24.3	Are flood risk maps and related data updated every five years?	N—not updated locally; links to EGLE resources provided on township website.	It is important that data on flood risks remain updated so that community planning mitigation efforts are based on accurate information.
24.4	Has the community benchmarked its climate risks and vulnerability to natural disasters so that it can measure improvements over time?	I—Not at the local level; Berrien County hosted a flood map information open house hosted by FEMA in January of 2020 (link).	Measurable benchmarks may include: property damages, the number of people and/or structures at risk and public spending on disaster recovery.
24.5	Are maps (or other spatial tools like GIS) used to spatially define the vulnerability of roads, public buildings (schools, hospitals, fire stations, etc.) and public services (wastewater treatment, water distribution, power transmissions, etc.) to coastal hazards?	N— Berrien County provides GIS services, however, there is little to no vulnerable roads, buildings, or public services in coastal hazard zones.	Using Digital Elevation Models, shoreline erosion data, lake level data and other key sources, communities can assess the risk to their most important assets. Decision makers can use these analyses to reduce hazard risks and improve sustainability.
24.6	Has the extent of past coastal hazards been identified and mapped based on historical records, existing plans and reports or scientific and local knowledge?	N—local knowledge leads the action/response.	Understanding past events can help inform future plans. The community should try to gather information from as many sources as possible in order to create a clearer picture of what risks the community may be facing.

Category 1. Data gathering and mapping (cont.)

	Benchmark	Self-Assessment	Description
24.7	Do any plans, and especially the Hazard Mitigation Plan, describe the damage and cost of previous storms, floods or erosion?	Y—County Hazard Mitigation Plan update is being adopted later in 2021 that will address this benchmark.	Dollar amounts for past damages can help community members decide how risk averse they want to be going forward.
24.8	Does the community track repetitive loss properties within the National Flood Insurance Program? (if there have been any)	N—No	A repetitive loss property is any insurable building for which two or more claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978.
24.9	Are maps or spatial data used to predict the probable extent of future coastal hazards?	LIAA to provide in draft master plan chapter.	Similar to benchmark 24.7, measuring the probability of different coastal scenarios (100-year storm versus 500-year storm, for example) can help community members and decision makers decide to what extent they want to avert coastal risks.
24.10	Do community plans estimate the potential financial losses that may result from lake-level rise?	N—No	Along with understanding the sites most at risk of taking on damages, the community also benefits from knowing the potential costs of future damages so they can plan accordingly.
24.11	Does the municipality share the findings from risk and vulnerability assessments with planning staff, public works officials, transportation planners, emergency management, elected officials and the general public?	I—no formalized system but the community does well sharing information with public, amongst professionals.	It is important for each municipal department to be on the same page, especially regarding hazard mitigation efforts. This can help increase consensus and buy-in around decision-making.
24.12	Has the community conducted a buildout analysis using current zoning to better understand the potential for development in at-risk areas?	I—Zoning ordinance currently addresses development in critical dune areas and floodplains; no buildout analysis available.	While a full buildout is rare, communities should be aware of the potential for increased development to occur in risk prone areas. This may help inform zoning changes to improve resilience.

Category 2. Zoning regulations

Municipal governments are responsible for protecting public health, safety and natural resources now and for generations to come. Zoning regulations are a useful tool for preserving natural assets and siting developments in low-risk areas. The local government should engage the community to explain the potential risks that natural hazards pose to community assets when development is not regulated. The master planning process is an ideal time for this engagement to occur.

	Benchmark	Self-Assessment	Description
25.1	Does the municipality use zoning regulations to reduce damages to the built environment?	Y—setbacks, open space preservation; and minimum height above floodplains is required (Section 5.01(c)).	Zoning regulations can work to prevent development in areas at serious risk of flooding, which can help reduce the fiscal damage that a natural disaster may cause.
25.2	Is the zoning ordinance reviewed periodically to ensure that it is effectively reducing the risk of flood damages?	N—Township has updated zoning to protect critical dune areas and Lake Michigan shoreline; needs to develop additional standards.	If the same developed areas are repeatedly experiencing flooding, it may be time to seek regulatory options to reduce the financial burden that rebuilding these structures is having.
25.3	Does the master plan or zoning ordinance mention vegetation requirements for properties and developments near or within coastal areas?	Y—requirements for inland waterways (Section 7.15) and protection of vegetation and restoration (Section 7.15) are addressed in the zoning ordinance.	Vegetation plays an important role in reducing runoff, preventing flooding and maintaining natural landscapes.
25.4	Does the master plan or local ordinances prevent the removal of native vegetation around houses near dunes and beaches?	I—not a specific requirement; ordinance does mention minimizing removal of vegetation during construction and requiring some restoration.	Dunes and beaches are at a greater risk of deterioration when vegetation is removed during development. Planning documents and municipal ordinances can help protect these natural features.
25.5	Does the zoning ordinance work to minimize the amount of impervious surfaces in the entire community?	I—Definition for Impervious Surface included in ordinance, but is limited; Also includes minimum requirements for landscape areas in parking lots with more than 15 spaces (Section 5.01(w)).	Impervious surfaces contribute to runoff, dune and beach loss and can be harmful to the natural and built environments. Pervious surfaces and natural landscaping should be utilized as much as possible.
25.6	Has the municipality established a buffer area around flood zones to restrict or guide development in these areas?	Y—Zoning ordinance requires setbacks around wetlands and inland waterways (Section 7.15).	This is an alternative to benchmark 25.1. When it is unfeasible to restrict development in a flood-prone area (i.e. there is already development there) the municipality may look to guide redevelopments and new developments to improve that area's ability to withstand natural hazards.

Category 2. Zoning regulations (cont'd)

	Benchmark	Self-Assessment	Description
25.7	Does the community have local ordinances to protect dunes, bluffs, eroding cliffs, wetlands and/or beaches from development disturbance?	Y—Ordinances are in place that provide protect for critical dune areas, limitations on shoreline armoring, and wetland and inland waterway setbacks.	These natural features are lost forever if not protected. They play an important role in economic, social and environmental sustainability.
25.8	Are frequently flooded areas zoned or planned for open space protection and/or recreation use to prevent risky developments?	Y—Ordinances include setbacks in areas identified as critical dune areas and floodplains/inland waterways.	Areas that are repeatedly flooded are best kept in their natural state. Maintained as open space or recreation areas, they still contribute to the overall quality of the community.
25.9	Does the community regulate the elevation of residential, non-residential and public buildings or infrastructure to be above the base flood elevation within the 100-year floodplain?	Y— Township does require that structures are built a minimum of 3-feet about the 100-year floodplain (Section 5.01(K)(2)(c)(1))	While elevating structures above the base flood elevation does not remove all risk to the property, it does reduce the chance that the structure will be damaged by a coastal hazard.
25.10	Does the community require the flood-proofing of structures within the 100-year floodplain?	N—No	Flood proofing refers to structural and non-structural changes, or adjustments made in the building that reduces or prevents flood damage to the structure and/or its contents. The two widely recognized types of flood-proofing are wet flood-proofing and dry flood-proofing.
25.11	Does the community prevent the rebuilding of structures destroyed by coastal hazards? (Where rebuilding is allowed, are additional design elements required to reduce the risk of future damages?)	I—Structures must be rebuilt to current codes if destroyed. Nonconforming-use ordinance.	By preventing or regulating the rebuilding of damaged structures from coastal hazards, the municipality is reducing the health and financial risks posed to the property owner, as well as the potential costs incurred by the public.

Category 3. House siting

While structural design benchmarks are important factors in sustaining natural ecosystems, house siting can also contribute to the well-being of the natural environment, especially for dunes. Municipalities can work prudently to protect their dunes, which are important aspects of the environmental and economic sustainability of a place, by using regulatory controls to prevent unduly harmful development patterns.

	Benchmark	Self-Assessment	Description
27.1	Are homes on beaches regulated or incentivized to be placed at the point of arrival in order to reduce the damage created by driveways and parking?	Y—Shoreline properties, front yard considered lakeside of structure	Previously mentioned, driveways and other impervious surfaces should be avoided to the extent possible, especially near dunes and beaches. Zoning regulations and incentives can promote house siting that reduces the need for more impervious driveway material.
27.2	Are coastal homes designed to work with natural features and conditions of the site?	N—No	Developments in critical ecosystems should not place an undue burden on said ecosystem's sustainability. Developments should alter the site as little as possible.
27.3	Are homes on dunes prevented from building close to the crest of the dune?	N—all appropriate permits are required through local and state authorities.	Development on the crest of the dune can cause damage to the dune itself while also placing the structure at risk of damage or loss.
27.4	Are homes on dunes encouraged to be oriented on the long axis of the house across the slope to minimize the variation in elevation within the footprint of the structure?	N—all appropriate permits are required through local and state authorities.	Zoning regulations, incentives or education can be used by the municipality to encourage more sustainable site plans.

Category 4. Critical facilities and infrastructure

Sustainable communities can experience a natural disaster and continue to provide public services to residents before, during and immediately after the emergency. They are able to accomplish this by siting critical facilities such as police stations, fire stations, hospitals and important records in locations protected from damages in the event of a natural disaster.

	Benchmark	Self-Assessment	Description
28.1	When new critical facilities are developed, are they sited in locations that are protected from possible flooding?	I—New facilities would be reviewed by zoning, building, and engineering.	Critical facilities should be located outside of flood zones whenever possible. This is where data gathering and mapping play an important role.
28.2	If critical facilities are located in areas at risk of flooding, are they outfitted with additional structural protective features?	N—critical facilities are not located in areas at risk for flooding.	Critical facilities must be able to function in the event of a natural disaster. This means ensuring that power, water, waste disposal, communications, and occasionally natural gas and steam are
28.3	Does the community have an emergency plan in place to continue providing services during an emergency?	I—Did not locate a township emergency plan. Berrien County does have an emergency plan in place.	In the event that a critical facility(ies) cannot function during or after a natural disaster, the community should have a plan in place to continue providing public services by other means.
28.4	Does the community have a plan for upgrading/repairing critical transportation infrastructure?	N—No specific plans/documentation.	Transportation infrastructure is vitally important to the community's economic and social sustainability. Proper maintenance and hazard planning can help ensure that this infrastructure remains
28.5	When critical transportation infrastructure is repaired are best practices considered to reduce the risk of future flood damages?	N—No specific plans/documentation.	This may include elevating roads above predicted flood levels, moving roads landward as erosion occurs and/or incorporating future flooding and lake-level rise into culvert size and placement.

Category 4. Critical facilities and infrastructure (cont'd)

	Benchmark	Self-Assessment	Description
28.6	When upgrading existing community infrastructure, does the community consider the impact of coastal hazards?	N—No specific plans/No critical facilities are in costal hazard areas.	When the community updates its infrastructure it is important to consider environmental factors such as coastal erosion and/or shoreline change, lake-level rise, coastal flooding and storm surge.
28.7	When planning new community infrastructure, does the community consider the impact of coastal hazards?	N—No specific plans/No critical facilities are in costal hazard areas.	See Benchmark 28.6

Category 5. Disaster preparedness

Historical coastline data and projections can help municipalities implement scenario-based plans. For instance, flood risks can be predicted based on lucky, expected or worst-case scenarios. Each of these scenarios can be used to see how many structures or community assets may be damaged in the event of a natural disaster. This can help the community prioritize its hazard mitigation efforts.

	Benchmark	Self-Assessment	Description
29.1	Are there public facilities available for residents to receive supplies or shelter in the event of a disaster?	Y—County Department of Emergency Management is currently updating the Hazard Mitigation Plan. The Township does allow for use of public facilities during times of natural disasters.	In the event that a natural disaster affects the ability of residents to remain in their homes, access supplies or seek health assistance, the community should have designated facilities to support the affected public.
29.2	Do residents know where emergency relief facilities are located within the community?	N—Would probably assume locations but likely would not know beforehand.	Relief facilities are only as helpful as people’s ability to access them. Educating the public before the occurrence of a natural disaster can help mitigate health risks.
29.3	Are there emergency relief facilities sited close to the community’s vulnerable populations?	I—Check County Hazard Mitigation Plan update.	People who are low-income, elderly, disabled, living alone or spatially isolated are the most susceptible to the negative effects of a disaster. Their vulnerability to natural hazards can be reduced by siting resources close to these residences.
29.4	Has the community used scenario planning strategies to identify areas most at risk during a natural disaster?	LIAA to provide in draft master plan chapter.	Scenario planning helps the community to decide the extent to which it will make plans and changes to mitigate its risk of flood damages. Scenario planning is when the lucky, expected or worst-case scenario guides mitigation efforts.
29.5	Has the community adopted a Hazard Mitigation Plan, an Emergency Preparedness Plan or a plan similar in nature?	I—Check County Hazard Mitigation Plan update.	Plans can help to outline goals, objectives, action steps and responsibility for implementation. They can also give an idea of when and where budget expenditures should be allocated before, during and after flood damages have occurred.

Category 5. Disaster preparedness (cont.)

	Benchmark	Self-Assessment	Description
29.6	Are first responders prepared to address a natural disaster within the community?	Y—Through County Sherriff and Department of Emergency Management.	The municipality should work closely with the police, fire department and ambulatory services to identify gaps and opportunities to response efforts in the event of a community emergency.
29.7	Are professional planners, engineers and/or certified floodplain managers involved in the formation of the capital improvements plan?	N—The community is aware and is making changes to address.	Experts in their given field can provide plan insights that may otherwise be overlooked.
29.8	Does your community have a communication system to reach the public before, during and after a disaster event?	Y—Township uses mass-notification system (see here) County Health Department and Sheriff Office have emergency plans.	Being able to communicate safety procedures and updates to community members is an important factor when recovering from a major storm event.
29.9	Are community members engaged through education programs about mitigation options?	I—Occasionally staff attends professional training opportunities and share with Board and citizens.	Community members should understand why certain zoning regulations, local programs and public works projects exist. This can help promote public support and may encourage community members to implement mitigation features on their property.

Category 6. Professional training

Communities hoping to implement the best practices described in this assessment tool are better positioned to do so when they have a staff that is highly trained in their respective profession. While this may include a formal education in planning, civil engineering or GIS, it is also important that current staff engage in ongoing education as new problems and best practices emerge. Municipal employees may take part in professional organizations, trainings offered by universities and should have certifications that demonstrate a thorough knowledge of topic matter.

	Benchmark	Self-Assessment	Description
31.1	Does the community have staff trained in mapping or monitoring potential hazards such as coastal erosion and/or shoreline change, lake-level rise, coastal flooding and/or storm surge?	I—utilizes County GIS and Engineering consultant.	See the Benchmarks for sustainability topic 24 on the importance of accumulating data related to coastal hazards and monitoring these trends over time.
31.2	Does the community have a certified floodplain manager (CFM) on staff?	N—No	The Association of State Floodplain Managers has established a national program for professional certification of floodplain managers. By taking part in the program, local, state, federal and private-sector floodplain managers are encouraged to take part in continuing education and professional development.
31.3	Does the community have a floodplain manager or planner who participate in professional organizations or ongoing education?	N—No	In addition to the Association of State Floodplain Managers (ASFPM), other relevant professional organizations include the American Planning Association (APA), American Society of Civil Engineers (ASCE) and the American Public Works Association.
31.4	Does the community have technical or computer mapping capabilities?	Y—Utilizes County GIS services.	There are various GIS software programs. Communities should invest in mapping capabilities to measure coastal data, in addition to other important information such as demographics and land use.
31.5	Are municipal staff encouraged to attend professional conferences and/or trainings from universities and associations?	Y—All staff are encouraged to attend professional conferences and trainings and funding is allocated to continuing education.	Conferences and trainings can help introduce staff to emerging concepts related to coastal sustainability. These events also foster information exchanges between professionals.

Category 6. Professional training (cont'd)

	Benchmark	Self-Assessment	Description
31.6	Does the municipality hire certified building inspectors?	Y—contracted.	For developments that require flood-proofing measures or are subject to other zoning regulations related to coastal resilience, the municipality must have staff to enforce the code if it is to be successfully implemented.
31.7	Does the municipality staff an adequate number of people to enforce building codes?	Y—Building and Zoning Administration positions are staffed.	See Benchmark 31.6
31.8	Does the community have planning commissioners with formal training in planning?	Y—Some professional Planners (retired) are on the Planning Commission.	Many planning commissioners across the U.S. are civically engaged members of the community, but often lack formal training in planning. New planning commissioners without a planning background should be encouraged to take part in trainings or certification courses. The American Citizen Planner program is one example of these.

Category 7. Hazard planning

One of the most important factors in implementing sustainable practices is to ensure that the community identifies goals, objectives and action steps in its plans. This is important for multiple reasons. First, planning processes are intended to engage the public to gather input and build consensus. Both of these planning ingredients help make implementation more likely to occur. Second, the community needs to have a clear direction for how risk averse it wants to be. Plans help to clearly delineate what the community is willing to implement and less willing to implement as it becomes more sustainable. Plans should consider short and long-term risks and, in doing so, should identify short and long-term projects towards increased sustainability.

	Benchmark	Self-Assessment	Description
32.1	Does the community participate in the FEMA Community Rating System?	?—unsure/unable to locate answer.	According to FEMA, “The National Flood Insurance Program (NFIP) Community Rating System (CRS) was implemented in 1990 as a voluntary program for recognizing and encouraging community floodplain management activities exceeding the minimum NFIP standards. Any community in full compliance with the minimum NFIP floodplain management requirements may apply to join the CRS. “
32.2	Does the community have a current FEMA-approved All-Hazard Mitigation Plan?	N—Township does not; Berrien County has a Hazard Mitigation Plan (not sure if approved by FEMA?).	According to FEMA, “FEMA requires state, tribal, territorial and local governments to develop and adopt hazard mitigation plans as a condition for receiving certain types of non-emergency disaster assistance, including funding for mitigation projects. Jurisdictions must update their hazard mitigation plans and re-submit them for FEMA approval every five years to maintain eligibility.”
32.3	Does the community’s master plan have a coastal planning element or does the land use plan make recommendations to reduce coastal hazard vulnerability through planning?	LIAA to provide.	A comprehensive snapshot of the community’s past, present and future, the master plan guides the overall direction of areas such as transportation, infrastructure, housing and the environment. It is critical that coastal resilience appear in the plan.
32.4	Does the community have an adopted floodplain management plan?	N—	Building off of the master plan, the floodplain management plan allows for greater detail and action step planning for managing hazardous areas.

Category 7. Hazard planning (cont.)

	Benchmark	Self-Assessment	Description
32.5	Do planning horizons consider potential long-term coastal hazards such as lake-level rise, coastal erosion and increased storm activity and severity?	I—Township is considering these hazards and taking steps to address.	While the master plan and other local plans often consider a 20-30 year perspective for the future, many coastal-related trends require a wider timeframe. It is important to remember that Great Lakes coastal dynamics and changes in the climate are long-term trends and should be planned for with this understanding.
32.6	Does the water and sewer plan include recommendations for relocation, abandonment or protection of infrastructure at risk to coastal flooding or other coastal hazards?	N—no infrastructure is located in flood areas.	Soil erosion, coastal flooding and lake level fluctuations can expose or cause damage to infrastructure. This poses a risk to public health and can subject the municipality to expenses to repair damaged systems.
32.7	Does the community have a timeline or strategic plan for the relocation, abandonment or protection of buildings in areas at risk of flooding?	N—no infrastructure is located in flood areas.	The community can get ahead of costly damages when it plans for or anticipates the risks associated with flood-prone sites.
32.8	Have Memorandums of Understanding (MOUs) or Memorandums of Agreement (MOAs) been signed with neighboring communities to help one another before, during and/or after a disaster event?	Y—Township has agreement with County Department of Emergency Management which coordinates across several jurisdictions.	It is important to remember that disaster events do not stop at municipal boundaries. Local units of government must recognize the importance of working with neighboring jurisdictions to support regional sustainability.



Inventory of Existing Master Plan and Zoning Ordinance

Relevant Language

Found in the 1992 Chikaming Township Master Plan (as amended)

The Relevant Language section of this report cites the wording in the 1992 Chikaming Township Master Plan (as amended—most recently in June 2015) that describes the community’s support for coastal sustainability and environmental stewardship. This includes text from the community description section of the plan, the Future Land Use plan, as well as the community’s goals and objectives. This section also includes all zoning ordinance regulations that, in some way, would appear to play a role in the community’s coastal sustainability.

Page 40

Recreational Facilities

Chikaming Township and adjoining Townships offer a variety of recreational opportunities and facilities. These include Lake Michigan beaches, boating , camping, Warren Woods State Park, nonmotorized trail uses, preserves, cultural facilities, ball fields, playgrounds, and golf.

Lake Michigan Public Access Points - The Township has four Lake Michigan public access points. These access points are Town Line Beach, Berrien Public Beach, Pier Road Public Beach, and Cherry Beach. Pier Beach and Cherry Beach access points are identified as critical dune areas under Shorelands Protection and Management, Part 353 of the Natural Resources and Environmental Protection Act, PA 451 (NREPA) of 1994 as amended.

Page 46

Critical Dunes Area

The Zoning Ordinance identifies and includes a Critical Dunes Area which are consistent with Shorelands Protection and Management, Part 353 of Act 451 and restricts construction and substantial reconstruction proposed for these areas is subject to review for conformance with HREA regulations which are based on Part 323, of NREPA. Additionally, all construction projects are required to follow recommendations in the most recently published FEMA Coastal Construction Manual.

The High-Risk Erosion Area regulations require that no structures be located within 150 feet of the Regulatory Ordinary High Water Mark (ROHWM). perennial vegetation nearest the water.

Critical dune areas are located in the north end of the township south of the Warren Dunes State Park. These dunes play a major role in defining the physical character of the area and are an important feature. This creates the attractive environment sought after by both residents and tourists.

The 100 year flood plain along the Galien River and other streams within the Township has been established by the Federal Emergency Management Agency (FEMA) per the 2006 Flood Insurance Rate Maps (FIRM). These maps which list the actual flood plain contour elevation should be consulted prior to development of any parcels which are, or appear to be, in the 100-year flood plain. The Township Zoning Ordinance contains regulations for building within flood plain areas.

Page 47-48

The Galien River Valley and Watershed

The Galien River Watershed is 112, 222 acres in size, with 82,665 acres in Michigan. Approximately 16,635 people live in Michigan's portion of the Galien River Watershed. A watershed does not respect state, county, township, village or city boundaries. Through the efforts of the Galien River Watershed Project, there is a

Relevant Language

Found in the 1992 Chikaming Township Master Plan (as amended)

recognition that watershed communities must work together to improve and protect water resources. The inland half of Chikaming Township and a small section of the Lake Michigan coast are in the watershed. Three Oaks and Weesaw Townships (including the Villages of Three Oaks and Galien) are entirely within the Galien River Watershed. The Townships of Galien, New Buffalo, and the City of New Buffalo have between 60% and 90% of their areas in the watershed. Bertrand, Baroda, Buchanan, Lake, and Oronoko Townships each have less than half of their area in the watershed.

Natural Resources and Sensitive Environments

The identification of sensitive and valuable natural areas is important when evaluating development proposals, and in determining preservation policies.

The primary natural features in and surrounding Chikaming Township are Lake Michigan, the Galien River, Warren Woods State Park, and Warren Dunes State Park as well as the bluffs along the Lake Michigan shoreline. A few additional scattered wetland areas and minor tributaries exist within the township.

A mature tree canopy and forested land exists in most areas of the township. Shrubs, grasses, and trees typical of the dune complex exist in that area adjacent to the beaches.

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) has designated certain sections of the Lake Michigan shoreline within the township as High Risk Erosion Areas (HREA). These are shore lands along Lake Michigan and the other Great Lakes and connecting waters where erosion has been occurring at an average rate of one foot or more per year for a minimum period of fifteen years.

Adjacent Communities

The 2011 Lake Township Zoning Ordinance (amended through 2020) shows for mostly Recreational (Warren Sand Dunes State Park) and Single-Family/Low Density land uses immediately north of Chikaming Township along the west side between Red Arrow Highway and Lake Michigan. There is some commercial and single family residential to the east of Red Arrow Highway and mostly agricultural land zoning the rest of the boarder. The Weesaw Township 2015 Master Plan shows mostly agricultural land to the west of Chikaming Township with some low-intensity residential and commercial land uses near New Troy.

Goals & Objectives

Found in the 1992 Chikaming Township Master Plan (as amended)

Natural Features, Recreation and the Environment	
Goal	Objective
7. Ensure that the future growth and development of Chikaming Township is compatible with the long-term health of the natural systems that sustain man and other life and that contribute greatly to the character and attractiveness of the Township.	Protect selected high-priority open lands (including woodlands, wetlands, river corridor lands, floodplains, streambeds and ravines, dunes, beaches, and other valuable natural resources) for future generations through a variety of public and private initiatives.
	Strengthen the environmental protection measures contained in the Township's development regulations.
9. Provide a variety of opportunities for relaxation, competitive sports and other active endeavors, as well as nature appreciation and education through a well-balanced system of private and public parks and recreational facilities for all age groups.	Concentrate the Township's efforts on improvements to existing parks, and in particular the new Chikaming Park and Nature Preserve, with the addition of native plantings, walking and ski touring trails, trail markers, interpretive signing and brochures, viewing platforms and picnic areas.
	Acquire land for small neighborhood parks in or near neighborhoods which lack nearby park and recreation facilities.
	Encourage developers to reserve areas for parks and open space in new residential developments.
	Encourage provision of open space for active and passive recreational use by residents in new residential development, through use of Open Space Preservation Development principles in residential development layout.
	Continue cooperation with the school system in providing recreational facilities and programs for public use.
	Promote close cooperation between the Township Board, the Planning Commission, the Public Safety Commission and the Park Board in managing the Township's road-end beaches.

Goals & Objectives

Found in the 1992 Chikaming Township Master Plan (as amended)

Government Offices and Community Facilities	
Goal	Objective
12. Locate and design community facilities in the Township which are visible and accessible to the public, support the land use plan, and model the desired environmental character of the Township.	Develop the Township Hall and Public Safety Building site so that it provides a sense of place and community pride: Utilize native plants in landscaping.
	Utilize low impact development techniques such as porous pavement and rain gardens. It is therefore recommended that as site improvements become due, the Township implement low impact development practices on the site as well as on other properties it owns.

Municipal Ordinances Related to Coastal Sustainability

Found in the Township Code of Ordinances

Title	Location in Code	Ordinance No.	Ordinance Language
Code of Ordinances			
Shoreline Armoring		Code 2021; Ord. No. 147, Sec. 1-8	(1) It shall be unlawful to in any way commence installation of, actually install, or place shoreline armoring upon or within the ground anywhere within Chikaming Township.
Zoning Ordinance			
Article 5: R-1W Waterfront Single Family Residential District			
Schedule of Regulations for Principal Structures	Article 4, Sec. 4.02(e)		(e) Waterfront Setbacks. Setbacks from Lake Michigan shall meet the standards of Section 5.01.C. Setbacks from other bodies of water, including wetlands, shall meet the standards of Section 7.17.
Zoning Districts	Article 5, Sec. 5.01(C)		<p>(1) Waterfront Single Family Residential District is intended to protect the Lake Michigan shoreline of Chikaming Township, while allowing the development of attractive and high-quality residential uses on private property abutting the water and beach.</p> <p>(2)(a) Waterfront Setbacks—All setbacks from Lake Michigan shall be measured from the Regulatory Ordinary High Water Mark (ROHWM) set by the Michigan Department of Energy Great Lakes, and Environment (or its successor agency), which at the time of the adoption of this Ordinance was 580.5 feet above sea level, rounded up to 581 feet for ease of measurement. Enforcement of the setbacks shall be based on the aerial drone photography survey completed by the Township on December 1, 2017, with an overlay of Property Identification Parcels added and on file with the Township’s Zoning Administrator as of April 24, 2019, or a similar survey done on a later date. For the purposes of this Ordinance, the ROHWM shall be considered the waterfront lot line of all properties abutting Lake Michigan.</p> <p>(2)(c)(i) Dune Protection—Tree and Vegetation Maintenance in Critical Dune and High Risk Erosion Areas. Generally speaking, a Michigan Department of Environment, Great Lakes, and Energy (MDEGLE) permit is required for any use within a Critical Dune Area and many uses within a High Risk Erosion Area.</p>

Municipal Ordinances Related to Coastal Sustainability

Found in the Township Code of Ordinances

Title	Location in Code	Ordinance No.	Ordinance Language
Article 7: General Provisions			
Zoning Districts	Article 5, Sec. 5.01(C) continued		<p>Keeping with the desire of owners to have a clear view of Lake Michigan, and recognizing the dramatic importance of native vegetation in stabilization of the Critical Dune and High Risk Erosion Areas, the following regulations shall apply when an owner chooses to do any activity that involves removal, trimming, pruning, planting, or replacement of any native vegetation in CDA and HREA locations.</p> <p>(2)(c)(ii) Dune Protection—Critical dunes. All critical dune areas, as designated by the Michigan Department of Environment, Great Lakes, and Energy (MDEGLE), shall be subject to the requirements of the State of Michigan. No building Permit or approval under this Ordinance shall be issued until evidence of MDEGLE approval has been provided to the Township.</p> <p>(2)(c)(iii) Dune Protection—High Risk Erosion Areas. All High Risk Erosion areas, as designated by the Michigan Department of Environment, Great Lakes, and Energy (MDEGLE), shall be subject to the requirements of the State of Michigan. No building Permit or approval under this Ordinance shall be issued until evidence of MDEGLE approval has been provided to the Township.</p> <p>(2)(d) Construction. Best management practices shall be employed so as to minimize disturbance of the natural terrain and vegetation during construction on lots abutting Lake Michigan. After construction, the lot shall be restored to its prior conditions to the extent possible. All construction projects shall abide by the recommendations in the most recently published FEMA Coastal Construction Manual.</p> <p>(e) Exemption. An undeveloped lot for which an active permit from MDEGLE (or under its previous name, Michigan Department of Environmental Quality) has been issued under the provisions of Parts 323 and/or 353 of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, for development of the lot on the effective date of this Ordinance is exempt from the area, bulk, setback, height, and other dimensional requirements of this district provided that:</p> <ul style="list-style-type: none"> (i) The lot is developed in compliance with the permit or any amendment thereto; and, (ii) Development of the lot commences before such permit and any amendments thereto expire and are not timely renewed.

Municipal Ordinances Related to Coastal Sustainability

Found in the Township Code of Ordinances

Title	Location in Code	Ordinance No.	Ordinance Language
Article 7: General Provisions			
Detached Accessory Buildings	Article 7, Sec. 7.07		(C)(1) (1) Location. Detached accessory buildings and structures shall not be located in a front yard, except in the R-1-W district as permitted in Section 5.01.C.
Article 11: Walls and Fences			
Fences and Walls in Residential Districts	Article 11, Sec. 11.02		(A) Fences in Residential Districts. Fences in the R-1, R-1-W, R-2, R-3, R-4, and AG districts may be located in the required front, side or rear yard subject to the following requirements. fences in waterfront yards shall be subject to Section 5.01.C.