



CHARTER TOWNSHIP OF CHOCOLAY

MASTER PLAN

Superior Living ... Simply

2021 EDITION





CHARTER TOWNSHIP OF CHOCOLAY

COUNTY OF MARQUETTE MICHIGAN

RESOLUTION OF ADOPTION

CHARTER TOWNSHIP OF CHOCOLAY MASTER PLAN 2021 EDITION

- WHEREAS** the Michigan Planning Enabling Act, Act 33 of 2008, as amended, authorizes the Planning Commission to prepare a master plan for the use, development, and preservation of all lands in the Township; and
- WHEREAS** the Charter Township of Chocolay Planning Commission has supervised an update to the *Charter Township of Chocolay Master Plan, 2015 Edition*, adopted on May 18, 2015, to be called the *Charter Township of Chocolay Master Plan 2021 Edition*; and
- WHEREAS** citizens were given the opportunity to provide input for the development of the Plan via public meetings held throughout the Plan development process; and
- WHEREAS** the Charter Township of Chocolay Planning Commission has duly reviewed the draft plan consisting of eleven sections: *Introduction, Community Values, Community History and Demographics, Community Systems, Private Systems, Natural Systems, Future Land Use Plan, Zoning Plan, Strategies, Photo and Image Credits, References*, and related appendices containing maps and reference materials; and accepts this plan as a guide for development of the Township pursuant to the authority of the Michigan *Planning Enabling Act*; and
- WHEREAS** the Charter Township of Chocolay Planning Commission has reviewed the draft master plan over the course of many meetings and provided comments for its refinement which have been incorporated into the Plan; and
- WHEREAS** on October 11, 2021, the Charter Township of Chocolay Board of Trustees approved the distribution of the plan to the notice group entities identified in the Michigan *Planning Enabling Act* for review, and a 63 day public comment period was duly noticed and completed; and
- WHEREAS** all the required notifications and draft documents were distributed per the requirements of the Michigan *Planning Enabling Act*; and
- WHEREAS** the Charter Township of Chocolay Planning Commission conducted a duly advertised public hearing on January 17, 2022, to receive public comment on this plan; and
- WHEREAS** a set of Plan amendments were presented at the hearing as a result of public comment; and
- WHEREAS** Pursuant to MCL125.3843 the Township Board has not asserted by resolution its right to approve or reject the proposed Master Plan and therefore the approval granted herein is the final step for adoption of the plan as provided in MCL 125.3843;
- NOW THEREFORE BE IT RESOLVED** that the Charter Township of Chocolay Planning Commission does hereby adopt on the date listed below the *Charter Township of Chocolay Master Plan 2021 Edition*, along with the amendments attached to the minutes of the January 17, 2022 public hearing, and does direct the Secretary of the Township Planning Commission to deliver a copy of the adopted Plan to the Township Board and to the County Planning Commission and other notice group entities identified in the Michigan *Planning Enabling Act* along with this Resolution as certification of the adoption of the Plan;
- BE IT ALSO RESOLVED** that this Resolution be published inside the back cover of each copy of the *Charter Township of Chocolay Master Plan 2021 Edition* to certify that all maps, charts and descriptive and explanatory matter therein are a part of the Plan as so signified by the signature of the Chairperson of the Charter Township of Chocolay Planning Commission on this Resolution.

The Master Plan shall be effective as of the date of adoption of this resolution.

The foregoing resolution was offered by Planning Commissioner Sloan, seconded offered by Planning Commissioner Rhein.

Roll Call Vote

Ayes 6

Nays 0

Chocolay Township strengthens and promotes collaborations between inspired, responsive leadership and an active, informed citizenship who are working together to achieve greater community sustainability and resilience for natural places, the built environment, the economic climate, and the people of the Township and region.



ACKNOWLEDGEMENTS

TOWNSHIP BOARD

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Ben Zybert, Treasurer
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Don Rhein, Trustee
Kendra Symbal, Trustee
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Rebecca Sloan, member

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Supervisor
Bill DeGroot, Manager
Lee Gould, Fire and Rescue Chief
Scott Jennings, Chief of Police
Dale Throenle, Planning Director / Zoning
Administrator

ZONING BOARD OF APPEALS

Michelle Wietek-Stephens, Chair
Kendell Milton, Secretary
Dave Lynch, Board representative
Geno Angeli, member
Paul Charbeneau, member
Anthony Giorianni, member

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INTRODUCTION

Whether living near Lake Superior's wind-swept dunes, settling down amid pastoral rural landscapes of rolling forests and working farms, relaxing at a remote camp along a river or deep in the woods, or enjoying the benefits of home ownership in traditional subdivisions with close neighbors, Chocolay Township provides residents with diverse places to experience a high quality of life. The Township is home to diverse creatures that inhabit water, land, and sky (such as trout, salmon, migratory waterfowl, deer, bears, fox, domestic buffalo, chickens, and eagles). The Township vistas provide residents and visitors the ability to experience beautiful sunrises, sunsets, and views of the northern lights.

Township residents live near Marquette (the largest city in the Upper Peninsula) that provides similar activities found in small cities: centers of health care, a State university, active commerce and a variety of activities and recreation. However, this proximity provides a challenge to maintaining a healthy Township economy when many residents must travel outside the Township for employment or shopping. The Township faces challenges related to a lack of

diversity in the tax base needed to support community services and amenities.

Planning is necessary to ensure a proper direction as the Township navigates through the benefits and challenges for the present and the future.

Purpose of a Master Plan

A master plan is a long-range policy document that translates values into strategies and is meant to be a framework that rests on the foundation of community vision and technical analysis.

The master plan is not a regulatory document. Instead, the master plan is meant to be a guide for decisions on land use policy, regulations, capital improvements and economic development. A master plan is also a dynamic document; it requires periodic review to accommodate changes.

Communities undertake the master plan process with the intent of creating a proactive document that reflects consensus, produces a basis for informed decisions, and provides clear direction for the future.



Township Master Plan

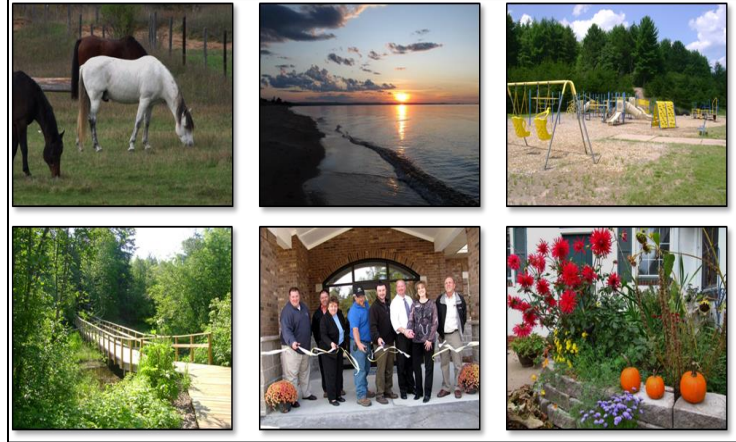
The Township's master plan focuses on balanced strategies for local sustainability while watching for niche opportunities within the region. The plan involves looking at the Township's people, economy, built environment, natural environment, and social conditions to document important changes and to address anticipated opportunities and risks.

The Township master plan is prepared under the authority of the *Michigan Planning Enabling Act 33 of 2008*.⁽¹⁾ The plan provides a basis for land division and land use regulations and capital improvements programs (CIP). The plan is intended to be consistent with other regional plans; by doing so the plan sets the stage for regional collaboration.

Plan Implementation

The zoning ordinance is one regulatory mechanism that is meant to implement the master plan. State law (*Michigan Zoning Enabling Act, Act 110 of 2006, as amended*)⁽²⁾ requires that the zoning ordinance be based on an adopted plan.

The master plan strengthens the legal basis for the Township's land use regulations.



Master plan considerations

2021 Master Plan Process

Plan discussions began with the Planning Commission in 2019. The intent was to determine if the plan needed to be amended or rewritten. Planning Commissioners determined that amending the plan, not a rewrite, was the correct direction for the 2021 master plan. Commissioners also determined that survey data provided with previous plans was sufficient to assist in the plan update.

Summary of Major Changes

Many changes occurred in the Township since the master plan adoption in 2015. These changes have formed the base for review of this plan.

2015

- The Township Board adopted the *Master Plan, 2015 Edition*; the plan went into effect on May 18.
- The Township was rated third in overall safety in the State of Michigan by *ValuePenguin*. The Township was ranked third out of 168 cities and towns with a population of 5,000 or more.⁽³⁾
- Aerial photography of the area was made available through *Google Earth*.
- Marquette County established an ad hoc committee to develop climate change adaptability standards throughout the area.
- A lease was signed for a cell tower to be located at the Silver Creek Recreation Area.
- A United States Supreme Court decision regarding language and content for sign regulation was handed down.
- Dugouts were built, roofed, and fenced with donations for the Little League ball field at Silver Creek Recreation Area.
- Field data collection of Township road conditions was completed.
- Discussions began regarding refurbishing and repurposing the tennis courts at Silver Creek Recreation Area.
- Conversations regarding a permaculture park proposal for the Beaver Grove Agriculture Area began.



- Federal Emergency Management Agency (FEMA) issued new flood maps for the Township. The maps updated the previous maps issued in 1987.

Silver Creek Recreation Area dugouts



2016

- The Township Planning Commission began discussions on mixed use zoning options for the US 41 South / M-28 East business corridor.
- The ball field fence project was completed at Lion’s Field. This project included a new fence backstop, realignment of bases on the field to accommodate standard softball configurations, and 100 feet of 10-foot high fence along the infield to protect players and spectators during games.
- Campgrounds were approved as a conditional use in the Agriculture / Forestry (AF) district.
- The Iron Ore Heritage Recreation Authority provided benches, bike racks, bike repair stations and landscaping at the Welcome Center and the Lion’s Field trailheads.
- Discussions about the Objibwa casino expansion began.
- Inter-government agency discussion began related to options for providing community water supplies throughout Marquette County.
- “Dark stores” became a statewide conversation. This conversation involved Township assessment of empty commercial buildings, and the tax and budget impact for local governments.
- The State of Michigan began a program to phase out personal property taxes on manufacturing facilities, which, over time, would impact Township revenue.
- The Michigan Department of Transportation (MDOT) reduced beach access to one stairway at each of the three turnouts on Lake Superior, as the stairways were repeatedly being damaged or buried by sand after windstorms.
- The Township Fire Department procured monies and equipment to establish life saving equipment stations at each of the MDOT turnouts on Lake Superior.
- The Township began participating in the Superior Trade Zone initiative. This initiative provides insights into development and direction for governmental agencies in the central Upper Peninsula.
- The Marquette Chamber of Commerce was formed to serve to “enhance the quality of life by supporting the business community in the Marquette Area.”
- The Township Fire Department celebrated 50 years of service.
- The Superior Watershed Partnership completed a *Great Lakes Coastal Reporting Tool*⁽⁴⁾ and developed a *Great Lakes Shoreviewer*⁽⁵⁾. These tools provide reference points for lakeshore erosion control and related projects.
- The State of Michigan rolled out the *21st Century Infrastructure Commission Report*.⁽⁶⁾ Governor Rick Snyder commissioned the committee to address infrastructure concerns and future needs for the next 30 to 50 years in Michigan.



Lake Superior life saving station



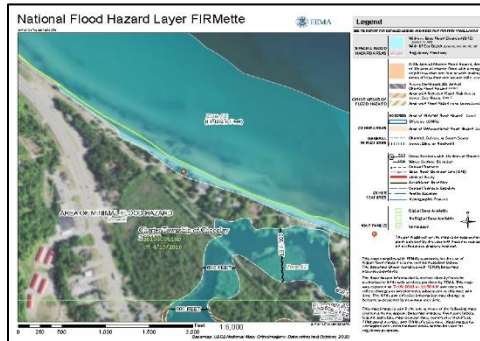
2017

- The Township Planning Commission and Township Board approved language to update the animal control ordinance, paving the way for chickens in the Township in non-agricultural residential districts.
- Consultants estimated the cost of a loop capable of serving 80 customers in the Kawbawgam Road area with water from the planned Keweenaw Bay Indian Community (KBIC) water tower would be about \$2.3 million dollars.
- The Township Planning Commission began reviewing the short-term rental question.
- Stairs were repaired and rescue equipment boards were installed at the three turnouts on M-28 East.
- Conversations began regarding a sewer extension to connect to the Ojibway Casino expansion project.
- Michigan speed limits changed, increasing State speed limits to 65 MPH. This change affected a portion of M-28 East from Kawbawgam Road to the Alger County line.
- KBIC requested the Bureau of Indian Affairs consider an application to put 64 acres of KBIC-owned land into trust status.
- Construction was completed in Sands Township to connect Silver Creek Road to M-553. This connection opened an additional through route within the Township.
- The millage for the Fire Hall was completed.
- The Township accepted a Michigan *Recreation Passport Grant* from the Michigan Department of Natural Resources (DNR) for tennis court upgrades at the Silver Creek Recreation Area.
- Four Requests for Proposals (RFP) for engineering services were completed for four proposed projects in the Township: *Township Road Asset Management Plan*, *Township Sanitary Sewer Collection System Asset Management Plan*, *Design of Multi-Use Path to Access Cherry Creek Elementary School* and *Silver Creek Tennis Court Area Redesign*.
- Township residents passed a new road millage that had previously expired in 2012.
- A trailhead for the Iron Ore Heritage Trail was added at Lion's Field that provides parking, a restroom, pavilion, picnic tables, water fountain and grills for trail users to enjoy. The trailhead provides walking and bike trail access to the Iron Ore Heritage trail.
- The Upper Peninsula Land Conservancy purchased property along West Main Street and established the Bayou Nature Preserve. The nature preserve includes a trail system that connects to the Iron Ore Heritage Trail.
- Alger-Delta Cooperative upgraded and rebuilt the transmission lines from the US 41 South / M-28 East intersection to the Ojibway Casino.
- Marquette Board of Light and Power (BLP) brought a dual fuel (natural gas and light oil) power plant online in Marquette.
- Proposals were submitted for a five-mile sewer expansion on M-28 East to the Ojibway Casino.



- Preliminary design of a FEMA *National Flood Insurance (NFIP) Community Rating System* document was started.

FEMA flood plain FIRMette



2018

- The Township Board approved a mixed use overlay district for the US 41 South / M-28 East corridor. The overlay district was later updated to include the commercial districts at the intersection of M-28 East and Kawbawgam Road and the intersection of County Road 480 and US 41 South.
- The landfill stopped accepting glass for recycling.
- The Chocolay River flooded, requiring the rescue of ten residents on Green Garden Road.
- An ongoing monthly newsletter replaced the Township Board updates and was posted for citizen review on the Township website.
- The *Township Sanitary Sewer Collection System Asset Management Plan* was delivered to the Township.
- Dugouts were built, roofed, and fenced with donations for the ball field at Lion’s Field Recreation Area.
- A *Harvey Daze* celebration was held at the Silver Creek Recreation Area. This family event was an effort to provide for a way for the community to celebrate the Chocolay area. The event included vendors, food, DJ music, classic cars, laser tag and bounce houses for the kids. There were approximately 150 attendees.
- Installation of the sewer extension to the casino began.
- Marquette County Planning Department began surveys for the rewrite of the Marquette County master plan.



Chocolay River flood



Casino project

2019

- The Township Board adopted the *Township Sanitary Sewer Collection System Asset Management Plan*.
- Marquette General Hospital opened at its new location in Marquette.
- The Township Planning Commission discussed proposals related to an ATV / ORV route at the eastern end of the Township.
- The Township Fire Department finalized a mutual aid agreement with the City of Marquette Fire Department.
- The Township began a battery recycling program at the Township office.



- The sewer extension project to the Ojibway Casino was completed.
- Marquette County began discussions related to potential satellite launch facilities in the County.
- Rental language was added to the Township *Zoning Ordinance*.
- The coal-fired Presque Isle power plant was retired in Marquette and replaced with a generating station located in Negaunee Township and Baraga Township.
- The Shiras Steam Plant, a coal-fired power electric generating station owned and operated by BLP, was retired.
- A *Chocolay Area Days* celebration was held at the Silver Creek Recreation Area. This celebration continued the 2018 *Harvey Daze* experience with a softball tournament, live music, and expansion to the Harvey Baptist Church for the classic car display. Approximately 250 people attended.



Proposed satellite launch site



Shiras steam plant

2020

- The tennis court project at Silver Creek Recreation area was completed after changing the specifications of the project from four courts to two. The finished project provides two courts lined for tennis and pickleball.
- The Township Board approved the *2020-2024 Recreation & Natural Resource Conservation Plan*. The five-year plan was submitted to the DNR to allow the Township to apply for funds for future grant requests.
- The bridge on Green Bay Street was replaced and widened with walking paths.
- A capital project was approved for the upgrades to the sewer system. This project will replace five lift stations and associated grinder pumps that are part of the original system installed in the 1970s.
- Ten roads were resurfaced in the Brookfield subdivision: Alderbrook Drive, Birchbrook Lane, Brookfield Lane, Brookside Drive, Brookwood Lane, Meadowbrook Lane, Oakbrook Lane, Pinebrook Drive, South Big Creek Road to Brookfield Lane, and Sunnybrook Lane
- Two new grinder stations were installed as part of the sewer system upgrade project.



Silver Creek tennis / pickleball courts



Road repaving



Accomplishments Related to the 2015 Master Plan

Table 1 indicates the progress toward specific action-oriented goals, policies, and objectives of the adopted *Master Plan, 2015 Edition*. The accomplishments in the table reference items listed in *Appendix A* of the *Master Plan 2015 Edition*.⁽⁷⁾

Table 1 *Master Plan, 2015 Edition* accomplishments

Category	Accomplishments
Balanced Growth	<i>Mixed use</i> Mixed use zoning was implemented to allow for a balanced mix of land uses. (Balanced Growth Policy # 1, Commercial Policy # 4)
Commercial	<i>Commercial development</i> The Township has not deviated from the practice of concentrating commercial development along US 41 South and in small commercial centers. (Commercial Policies # 1 and # 2)
Community Character	<i>Enforcement</i> Ordinances are being improved and enforced to preserve character. (Community Character Policy # 8)
Community Facilities	<i>Administrative facilities</i> Improvements are ongoing, such as energy efficiency (Community Facilities Policy # 1) <i>Garbage and recycling</i> Adequate services exist and improvements are actively pursued. (Community Facilities Policies # 5 and # 11) <i>Recreation</i> Adequate recreation facilities are actively planned for and pursued. (Community Facilities Policies # 6 and # 10, Community Facilities Objective # 2) <i>Police and fire</i> These services are exceptional in the Township (Community Facilities Policy # 7)
Economy	<i>Economy</i> Mixed use zoning was implemented in each of the commercial districts and the village of Harvey; conversion of non-commercial land use is encouraged. (Economy Objective # 3)
Housing / Residential	None
Industrial	None
Natural Features	None
Recreation	<i>Recreation collaboration</i> The Township collaborated with the Iron Ore Heritage Trail Recreation Authority for a trailhead project at Lion's Field. (Recreation Policy # 1) <i>Park maintenance</i> Park facilities are actively maintained and improved per current recreation plan. (Recreation Objectives # 1 and # 2, Recreation Policy # 6) <i>Seasonal festivals</i> There has been limited governmental participation in community events or festivals, such as contributing to the annual Marquette community fireworks display. An area festival was organized at the Silver Creek Recreation Area for the community in 2018 and 2019. (Recreation Policy # 5)
Transportation	<i>Non-motorized and alternative transportation</i> Improvement projects supporting pedestrian and bicycle access and connection have occurred along the route of the Iron Ore Heritage Trail. (Recreation Policy # 4, Recreation Objective #3, Transportation Policies # 1 and # 2)



Next Steps

Implementation of the master plan is an ongoing process requiring continuous monitoring of changing conditions and progress toward results. As required in the *Michigan Planning Enabling Act 33 of 2008*, the master plan must be reviewed every five years after adoption to determine if the plan should be amended or a new plan should be adopted. Staff recommends that the plan be assessed yearly.

After adopting the master plan, the Planning Commission or Township Board should prepare a

prioritized capital improvements program (CIP) of public structures and improvements in accordance with the requirements of the Michigan *Planning Enabling Act* which is required of townships that own or operate a water supply or sewage disposal system. It is also important to initiate immediate efforts to communicate the contents of the master plan to residents and property owners and solicit implementation assistance as needed.





COMMUNITY VALUES

The most enduring elements of communities are those that people care about, and when people care about places, they are more likely to preserve them.

In a 2010 community survey, 63 percent of respondents identified rural character as the top reason they reside in the Township. In that survey 88 percent said that rural character was the most positive aspect of living in the Township.

In the Township what is considered rural character? The Township *Zoning Ordinance* defines rural character as:

“The rural character of Chocoy Township embodies a quality of life based upon traditional rural landscapes, activities, lifestyles, and aesthetic values. ... rural character shall also be defined to mean areas perceived as having a low density pattern of development, being generally void of man-made improvements such as city essential services, and exhibiting open fields, farmlands, or woodlands as common elements of the visual landscape.”⁽⁸⁾

Character Perception

Character is perceived through how things look, feel, or function. In other words, it is perceived through experience. Based on public input in the 2013 community survey, rural character in the Township is experienced as aesthetically pleasant and mostly natural places that offer a feeling of peace and privacy and a quality of life that invites participation.

Community input makes it clear that the Township contains many features that people care about.

Survey participants indicated that rural character means:

- Places to enjoy the sights and sounds of nature
- Large wooded lots with plenty of privacy between neighbors
- Access to outdoor recreation
- Living in a place where you do not have to deal with a lot of government regulations
- Hiking / biking trails
- Quiet country roads fronted by farms and single-family homes
- Dark areas that let you see the stars
- Small hobby farms



An overwhelming majority of respondents neglected to choose “large, busy retail strips”, “cleared lots with homes built close to the road”, “stately homes with well-maintained lawns and park-like open spaces”, “commercial areas with ample, well-lit parking lots”, or “living with the sights, sounds, and smells of farm animals” as representing rural character. In their comments, several indicated that there are appropriate places for these things in the Township even though these elements are not perceived as representing rural character. What seems clear is that many people in the Township value a peaceful, quiet lifestyle that is compatible with enjoyment of nature.

While the survey respondents did not value a lot of government regulation, they were accepting of regulations to manage elements that conflict unnecessarily with important community values. For example, most participants were supportive of land use regulations to protect water quality, wildlife habitat, and sensitive natural features such as wetlands, steep slopes, and dunes. They were also supportive of regulations to require removal of dilapidated structures, to control outdoor accumulations of inoperable cars, equipment, and junk, or to require screening for such accumulations.

Healthy and Livable Community

Research has shown that obesity, asthma, diabetes and heart disease are all aggravated by the auto-centric way we live our lives today. This is one of the ways that land use and community design are related to public health, and why public health departments have become involved, asserting that development that does not provide for physical activity, access to healthy food, and clean air and water can reduce positive health outcomes and lead to increases in preventable illness.

The Township, like many other communities, has a median age that continues to increase. The U.S. Census Bureau estimates that by 2030 as many as one in five Americans in the United State could be age 65 or older.⁽⁹⁾ People in this age group are more likely to be retired from work, engaged in civic life, volunteering in their communities, and even starting new businesses.

Healthy and livable communities recognize that as people age, they have different needs and desires. Growing older is more difficult in communities that lack accessible transportation and safe walkways or do



Fall drive in the Township

not provide diverse leisure facilities and cultural opportunities. As people age, they experience changes in mobility that impact their ability to use stairs, cut the grass, or climb a ladder for home repairs, which impacts their ability to stay in their homes. They may also experience changes in vision and hearing that impact their ability to drive, which limits their opportunities if they do not live in a walkable community. Communities that work well for older adults also work well for everyone else.

The Township values policies and projects that address the needs of the aging population while providing better opportunity for all residents. This means looking at public places in a new way.

Critical Systems

Water Supply

The number one critical system in the Township is the water supply. As there are no public water systems, Township residents depend on clean aquifers and unpolluted waterways as a source of drinking water. Wells are drilled and maintained throughout the Township, and the local waters have been a source of water since the first residents arrived. Protection of these aquifers and waterways is critical to the residents and to those that visit the Township.

Waste Management

Removing waste from Township properties drives an intense system of control and removal. Residents demand waste be removed as soon as possible and continue to request viable ways to recycle materials that should not go to the County landfill.



Environment

What draws many to the Township is the environment consisting of forested areas, rolling agriculture areas, and access to the rivers, lakes, and Lake Superior. Protection of these resources are critical, not only for environmental purposes, but for the safety and well-being of residents and visitors.

Food Systems

Healthy food is integral to the health and well-being of our community. Healthy food is defined as food that is fresh and nutritious and grown without harming its producers or air, water, or soil. The food system is made up of all the ways in which food moves from the farm (or producer) to table (consumer). It includes the farms on which it is grown, the manufacturers who process food, the venues in which the foods are delivered to the public, and the way the consumer receives and consumes food. More and more local governments are concerning themselves with food systems because of the link to public health, environmental health, and the economy. Strengthening the local food supply system also strengthens people and the economy.

Sustainable and Resilient Community

The concepts of sustainability and resilience are linked. A sustainable community is one that is economically, environmentally, and socially healthy and resilient.

Resilience does not mean maintaining the status quo, because change is a reality in our world. Resilience means being able to respond positively to change or adapt to adverse conditions. It often means embracing a different way of doing things instead of returning to previous norms. Achieving resilience requires a long-term perspective focused on both the present and the future, extending well beyond the next budget or election cycle.

Sustainability Principles

Sustainability is commonly defined as the capability to equitably meet the vital needs of the present without compromising the ability of future generations to meet their own needs. This concept describes a condition in which human use of natural resources is in balance with nature's ability to replenish them. From a community perspective, this means managing human,



Fall apples

natural, and financial resources in a way that considers the future while designing solutions for the present.

Sustainable systems mean a better quality of life, healthier ecosystems, economic security, and security of critical needs. These systems are achieved through collaboration supported by more effective governance and meaningful and broad-based citizen participation.

A sustainable community depends on inspiring, effective, and responsive leadership; an active, organized, and informed citizenship; and responsible, caring, and healthy community institutions, services, and businesses. Every part of the community has a stake in, and a responsibility for, community sustainability and resilience.

Resilience Principles

Capacity for resilience relates to the ability of people and organizations to identify and anticipate shocks, avoid them when possible, and work together to devise a positive response when avoidance is impossible.

Resilience is a process rather than an outcome. Resilience is the ability to recover quickly from system shocks and stresses. These shocks or stresses can be economic (such as rising energy prices), climate-related (such as an increase in severe weather events or changes in regional weather patterns), or social (such as population change or migration). For a local government, resilience means that the economic, social, political, and physical infrastructure systems can retain their basic function and structure regardless of change.

Systems that are flexible, diverse, contain some redundancy (backup plan), and are integrated have a greater capacity for resilience. These principles can be



translated into strategies or criteria for decision making. For example, redundancy is particularly important for critical infrastructure (such as drinking water supply, electrical power, and heating and cooling systems) and public safety services. It is also important that transportation systems offer multiple routes and modes in case of emergency. Sometimes redundancy can be achieved through decentralization.

A resilient process that works to improve processes to lessen the impact associated with future availability or costs will provide greater sustainability.

Priority Decision Evaluations

Priority decision evaluations (see **Table 2**) are meant to support community character and a healthy, livable, sustainable, and resilient community. All projects in the Township should be reviewed in accordance with these priority evaluations and measured based on expected outcome.

1. Capacity building

To what extent does the activity improve the ability of participants to understand and achieve the Township master plan outcomes?

Activities that increase the capacity of local government representatives or project partners to achieve master plan outcomes should receive higher priority because the only successful plan is a well-implemented plan.

2. Catalytic opportunity

To what extent will the project or activities stimulate other beneficial projects or activities?

Projects or activities that include greater potential for developing positive economic, environmental, or social impacts should receive higher priority.

3. Collaboration

To what extent will the project or activity improve and increase opportunities for partnership with other jurisdictions, agencies, organizations or volunteers or provide additional inclusiveness for residents?

Projects or activities that increase capacity for partnership, collaborations and inclusiveness should receive higher priority.

4. Diverse Users

To what extent does the activity involve infrastructure or services that will benefit diverse interest groups and support healthy and livable communities?

Facilities or services that can satisfy the needs of diverse interest groups and support healthy, livable communities should receive higher priority, whether those interest groups are based locally or regionally, because local sustainability is related to regional sustainability. The inclusion of diverse user groups increases the beneficiaries of the project, spreads the costs, and makes administrative allocation of funds more justifiable.

Table 2 Priority decision evaluations

Priority Decision Evaluations	
1	Capacity building
2	Catalytic opportunity
3	Collaboration
4	Diverse users
5	Diverse uses
6	Efficiency in non-critical systems
7	Flexibility
8	Integration with other jurisdictions
9	Prevent or mitigate risks
10	Redundancy in critical systems
11	Renewable resources
12	Replication
13	Strengthen critical systems and public health
14	Sustainability or resilience over time

5. Diverse Uses

To what extent does the facility or service satisfy multiple purposes?

Facilities or services that serve multiple purposes should receive higher priority because they have greater potential to satisfy diverse users, involve cost efficiencies, and invite greater political support.



6. Efficiency in non-critical systems

As related to non-critical needs, to what extent is the facility or service supported by non-governmental groups, other agencies or organizations, or volunteers (funding, implementation, or continuing maintenance)?

Facilities or services that are supported by organizations, agencies or individuals outside of or in addition to local government should receive higher priority because the greater number and diversity of stakeholder groups helps to ensure continued maintenance while governmental reserves are focused on critical systems.

7. Flexibility

To what extent can the facility or service be adapted to meet changing needs or contexts in the future?

Facilities or services that are more easily modified to adapt to changing conditions or needs should receive higher priority because of potential for greater sustainability and resilience.

8. Integration with other jurisdictions

To what extent does the facility or service also support the goals or strategies of other project or planning entities within the region?

Facilities or services that are consistent with the goals or strategies of other project collaborators or planning entities within the region should receive higher priority because of the potential to attract additional resources, funding, and work capacity; to address issues that cross jurisdictional boundaries; to deliver solutions to complex problems; to provide more coherence and support; and to provide broader benefits for all involved entities.

9. Prevent or mitigate risks

To what extent does the project or activity prevent or mitigate identified risks?

Projects or activities with greater potential to prevent or mitigate risks should receive higher priority, especially those that prevent irreversible loss.



Public beach access on Lake Superior

10. Redundancy in critical systems

As related to critical needs, to what extent does the activity or project provide redundancy or backup for other critical activities or systems?

Facilities or services that provide an alternative for critical systems should receive higher priority because of the greater capacity for sustainability and resilience.

11. Renewable resources

To what extent will the project or activity reduce dependence on non-renewable resources?

Projects or activities that provide greater sustainability by reducing dependence on non-renewable resources should receive higher priority.

12. Replication

To what extent can the project or activity be replicated to benefit or provide a positive role model for other locations?

Projects or activities with greater potential to positively influence others and other entities that will have a more far-reaching benefit should receive higher priority.

13. Strengthen critical systems and public health

To what extent does the activity, service, or project strengthen critical public health systems or environmental conditions?

Projects that are linked to critical human and environmental needs relating to water, food, energy, mobility, and public safety systems, or systems with a direct relationship to public health,



should receive higher priority than non-critical needs.

14. Sustainability or resilience over time

To what extent does the project have the necessary support over the life of the project?

Projects that have multi-year or long-term support for the life of the project should receive higher priority.

Measuring Progress

As part of monthly Township Board updates, all departments in the Township should assess and summarize progress toward the outcomes and targeted strategies of this plan which are intended to achieve greater community sustainability and resilience.





COMMUNITY HISTORY AND DEMOGRAPHICS

During the 1700s, the Ojibwa people (also known as the Chippewa) inhabited the area and used the area as a summer camping place. Early explorers used the name “Chocolate” for the area because of the dark brown color of the river that runs through the Township (the color is caused by tannic acid from decaying vegetation of the interconnected swamps and marshes).

The Chocolate River became the boundary for the Treaty of 1842 when the Chippewa gave the mineral lands to the west of the river to the United States government. The river name was changed to “Chocolay” in the late 1800s.

The Township became part of the colorful history of the iron ore industry in 1860 when Charles T. Harvey directed the building of a blast furnace at the mouth of the Chocolay River. Described as an expert furnace man, Lorenzo D. Harvey (no relation to Charles) was hired by Charles Harvey to come from Massachusetts to build furnaces. He built the furnace on the Chocolay River, thus making the first pig-iron in a blast furnace on Lake Superior.⁽¹⁰⁾

Sawmills were built to support the furnace operation which experienced many economic ups and downs over the following years, as there were issues related to exhaustion of the available timber within an economical hauling distance.

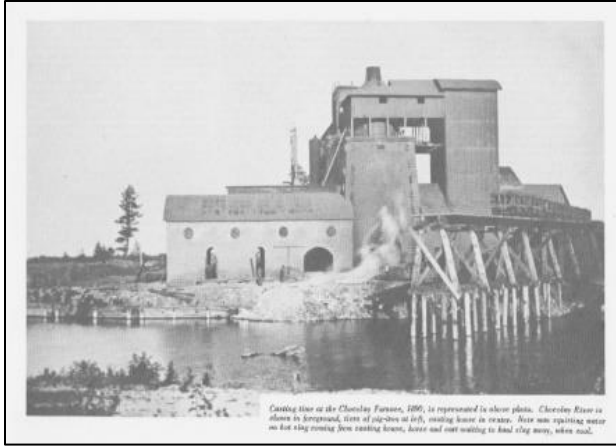
There was also a quarry located at the rock cut located across from the current MDOT Welcome Center.

Agriculture and Business

The State fish hatchery at Cherry Creek opened in 1922, and other businesses such as dairies and service businesses developed to support the growing community; however, farming and logging were mainstays of the Township’s economy for many years.

The most successful farmers settled on lands with hardwoods as opposed to pine, as the soils associated with the pines were not as productive. In those days, people farmed during the summer and cut timber in the winter to support their families. Early agricultural products included meat, hay, oats, dairy products, sweet corn, Christmas trees, blueberries, strawberries,





Casting time at the Chocoley Furnace, 1890

brambles, potatoes, gladiolus, maple syrup, and other vegetables.

Willow Farm (located on US 41 South adjacent to the Township property) was purchased in the 1920s. The white barns that are close to the highway were built in the 1920s by the Loudon Company which also built the Granot Loma barns in Powell Township. The main house, which was a summer home, was built in 1933 and used as a gathering place for community groups. The farm was an early dairy operation and changed to a horse boarding and riding stable in 1969. The first therapeutic riding program in the Upper Peninsula was started in 1973 at Willow Farm.

The only heritage farm in the Township is the Heitman farm located at the intersection of Green Garden and Mangum roads. This farm has seen three generations of activities.

Township Development

Early Developments

The Township became a political and geographical unit in 1860. Charles Harvey platted the Village of Harvey in 1864,⁽¹¹⁾ and portions of the village along Fairbanks, Terrace and Wright Streets were replatted in 1890. Lakewood, East Lakewood, and the Riverside Addition were platted in 1905 through 1906, which started the development of the Lake Superior shoreline in the Township. These developments were followed by the platting of Sinclair Heights east of Shot Point in 1906.

Lakeshore

Lakeshore and surrounding residential development continued with the platting of Hiawatha Shores in 1931,

while most of the remaining residential plats were established in the 1960s and 1970s. Lakeshore subdivisions include Agate Beaches along the Chocoley River Bayou (1965) and Woodside Estates with landward lots along Lakewood Lane, which began in 1971.

Chocoley River

Development along the Chocoley River began in 1966 with the Jacobson’s Riverside subdivision along Riverside and Riverdale Roads. South of M-28 East, riverside development began along County Road BU (also known as Timberlane) with Fernwood Park in 1977, and more recently the Timberlane Subdivision in 1991.

US 41 South

Development in the wooded acreage of the Township began with the Whispering Pines Addition along Ortman Road in 1966. The Brookfield Village Subdivision (along South Big Creek Road near the intersection of US 41 South) was platted in four different sections from 1970 through 1974. Simultaneous development along US 41 South happened with the Holiday Villa Estates along Carriage and Surrey Lanes in 1971.

The Woodvale Subdivision was platted along Ford, Ortman, Wildwood, Woodvale, and Aspen Roads off Cherry Creek Road in 1973 through 1977. The nearby residential plat of Ewing Park was created in 1977.

Highland Meadow was approved in 1977, and the Green Garden Hills Subdivision was developed along County Road 545 in 1977.

M-28 East

Lands along M-28 East began to be platted with the Riverland Subdivision, Grace

Estates, and Dana Estates in the early 1970s and Ridgewood Subdivision in 1978.

Plats were created along Kawbawgam Road from 1967 to 1972.

County Road 480

Development along County Road 480 began with Retirement Acres on Cedar Lane in 1974, followed by Briarwood Estates, Countryside Estates, and Candace Estates in the mid-1970s.

Recent Development

More recent subdivisions include Chocoley Downs (1992), Springwood Condos (2006), Bayou Condos (2007), and Ewing Pines (2007).



See *Subdivisions in Appendix B* for maps showing the locations of subdivisions in the Township.

Commercial and Industrial Development

Most commercial development was established along US 41 South and M-28 East in the village of Harvey or at the intersection of US 41 South and County Road 480 in Beaver Grove. Ewing Plaza was created in 1976, establishing the commercial area on the southwest intersection of US-41 South, M-28 East and Cherry Creek Road.

Ojibway Casino development started in 1994 and continued with an expansion that opened in 2019. A small commercial development was established at the intersection of M-28 East and Kawbawgam Road.

There are three industrial zones in the Township: a portion of the west side of Cherry Creek Road; at the intersection of US 41 South and South Big Creek Road; and east of Lion's Field on M-28 East.

Regional Context

Geography, Tourism, and Transportation

The Township is located in Marquette County in the Upper Peninsula of Michigan. Marquette County consists of 19 townships and the cities of Marquette, Negaunee, and Ishpeming. Marquette County is the most populous county in the Upper Peninsula, primarily because of the population in the City of Marquette.

Municipalities adjacent to the Township include Sands, West Branch, and Skandia townships in Marquette County, and Onota Township in Alger County. (See *Area Location* map in *Appendix B*).

Harvey, an unincorporated village in the Township, is about four miles from downtown Marquette, and is a census designated place. Beaver Grove is another unincorporated community in the Township.

Regional Relationships

Marquette County is one of six counties comprising the Central Upper Peninsula Region #12. This region, which includes Alger, Delta, Dickinson, Marquette, Menominee, and Schoolcraft counties, is rural and heavily forested with numerous inland lakes, state lands, and a portion of a national forest.

Average population density is about 24.5 persons per square mile throughout the region. The primary economies in the region are tourism, forest-based timber processing, service industries, and mining.

Regional Connections

Lake Superior Circle Tour

Established in 1986, the Lake Superior Circle Tour was the first official Great Lakes tour route and was established to provide a way for those wishing to stay close to the lake during their travels. Circling Lake Superior, this approximately 1,300 mile route passes through the Township and connects travelers to Michigan, Minnesota, Wisconsin and the Canadian province of Ontario.

North Country Trail

The North Country trail is America's longest National Scenic Trail stretching 4,600 miles from New York to North Dakota, linking seven states, ten National Forests, and more than 150 public lands. The trail enters the Township from the east near the Jeske Flooding area, continues through the sandy plains in the eastern portion of the Township along Lake LeVasseur, and merges with the Iron Ore Heritage Trail that continues into the City of Marquette and beyond. The North Country Trail provides direct access to the Noquemanon Trail network and several premier parks in the City of Marquette, including Presque Isle Park. Forest trails are located at Little Presque Isle, Harlow Lake, Blueberry Ridge, and Anderson Lake in Marquette County and many other locations.

*Heritage Heitman Farm
A three-generation farm*



Willow Farm





North Country Trail

Iron Ore Heritage Trail

The Iron Ore Heritage Trail provides a 47 mile multi-purpose trail that extends from the western portion of the County through the Township, ending at the Objiwa Casino.

Regional Attributes

Regional attractions include Pictured Rocks National Lakeshore, Seney National Wildlife Refuge, Hiawatha National Forest, Lake Superior State Forest, many state parks (including Van Riper, Craig Lake, Laughing Whitefish, Fayette and others), numerous waterfalls, multiple lighthouses and miles of beautiful sand beaches. The region is a popular destination for fall color tours, driving tours and lighthouse tours. Visitors to the Township often stop at one of three Lake Superior public beach access areas along M-28 East or at the MDOT Welcome Center; walk or cycle along the non-motorized paths; hunt and fish along the Chocoley and Sand Rivers or visit one of the twelve Township-owned recreational sites or other recreation locations in the Township.

Commercial and Public Transportation

Nearest commercial airports include K.I. Sawyer International Airport in Forsyth Township (about 15 miles from the Township offices), and the Delta County Airport in Escanaba (about 65 miles from the Township offices).

There are commercial ports in Marquette and Escanaba. There are no passenger rail services in the region, but freight rail service is available.

The Township contains the nexus of two County-wide public transit systems: MarqTran (Marquette County Transit) and ALTRAN (Alger County Transit).

Within the region, the highway transportation corridor of national and international significance is US 2, which runs from Acadia National Park in Maine to Seattle Washington. The corridor of local significance is US 41 / M-28 which runs from Sault Ste. Marie through the Township on its way to Houghton.

Education

Primary education (K - 12) is provided through the Marquette Area Public School District. Cherry Creek School, one of the elementary schools in the district, is located in the Township.

Regional secondary educational institutions include Northern Michigan University in Marquette and Bay College in Escanaba. Michigan Technological University is two hours away in Houghton.

Employment

The Township is a place of residence for workers in Marquette County (third among all County subdivisions); however, the number of workers living in the Township declined by 193 workers in 2018 from 2,766 workers in 2010. The number of workers employed in the Township also declined in 201 by 493 from 1,355 in 2010, placing the Township last among the larger entities in the County where workers are employed.⁽¹²⁾

The Township ranks second in the County for jobs supplied in the retail sector.⁽¹³⁾ Most residents would probably find this information to be surprising since the Township does not contain any visibly prominent employers or a congested highway corridor. The top industry sectors in the Township are retail trade and accommodation and food services.⁽¹⁴⁾

Within Marquette County, the City of Marquette is the primary source of jobs in most sectors. The City of Negaunee leads in the transportation and warehousing sector and the City of Ishpeming leads in the agriculture, forestry, fishing and hunting and mining, quarrying, oil and gas extraction sectors. Other townships that are secondary leaders in job provision include Ishpeming Township (second highest average in mining, quarrying, oil and gas extraction), Marquette Township (prominent in the retail trade and real estate rental and leasing



sectors), and Forsyth Township (second highest average in manufacturing and information sectors).

An economic downturn occurred between 2010 and 2018. In 2010, 6,436 workers worked in the County that did not live in the County; 5,731 County residents worked outside the County. These numbers changed in 2018; 5,841 workers worked in the County that did not live in the County while 7,077 workers that lived in the County worked outside the County.

In 2018, the largest increases in jobs in the County occurred in the construction, management, other services, and waste management categories. The largest decreases occurred in the information, finances and insurance, health care, and food services categories. These are indicators that the job sectors for future support of the Township are not providing opportunities that are close to where Township residents live or incomes that will support future infrastructure requirements.⁽¹⁵⁾ The future of the workforce can be addressed through economic development programs such as the MEDC *Regional Prosperity Initiative*.⁽¹⁶⁾

Natural Systems

The Township contains almost 61 square miles of diverse natural features, of which about one square mile is water.

Watersheds

The Township includes two major watersheds (Chocolay River and Sand River), both which flow into Lake Superior. The entire Chocolay River watershed encompasses 159 square miles; 41 square miles is within the Township. The Sand River watershed covers 19 square miles; 13 square miles is within the Township.

There are 86 miles of rivers and streams in the Township which are used for recreation and attract residential development. The Chocolay River with its tributaries is a dominant and outstanding natural asset of the Township and the area. The Michigan Department of Natural Resources classifies the watershed as a cold water system with a constant base flow that discharges from glacial deposits.⁽¹⁷⁾

Portions of the Chocolay and Sand River are designated trout streams by the State of Michigan.⁽¹⁸⁾ Not only do the gravelly moraines provide abundant groundwater flow, they also create ideal spawning habitat. Fishermen come to the rivers seeking brook

trout, brown trout, steelhead, and pink and chinook salmon.

Lakes and Impoundments

The Township has about 561 acres of lakes and impoundments. Within the Chocolay watershed, Lake LeVasseur is impounded on LeVasseur Creek, east of its junction with the Chocolay River. In the Sand River watershed, the James D. Jeske wildlife flooding area provides open water and marsh habitat.

There are a few mapped, named lakes in the Township that are not impoundments: First, Lake Kawbawgam, Quantz and Second. None of these lakes have public access.



A Township business center

Minerals

Unlike portions of the County to the north and west, the Township does not have known economically viable deposits of either ferrous or non-ferrous minerals (such as copper, gold, lead, silver, or zinc). Layers of glacial deposits throughout the Township provide locations that can be mined for gravel and sand.

Geological

Across the highway from the MDOT Welcome Center is a prominent cliff of exposed bedrock (known locally as “the Rock Cut”) that serves as part of the northern gateway to the Township.





Public beach access on Lake Superior

Eleven miles of the southern shore of Lake Superior serves as a portion of the Township’s northern and

northwestern borders. The shoreline contains spectacular stretches of beautiful sand beaches accessible to the public at the MDOT Welcome Center and three MDOT turnouts on M-28 East.

Structural Systems

The Township owns and operates 18.8 miles of sanitary sewer. 12.4 miles of this system are gravity lines, and the remaining 6.4 miles is forced main lines. DPW cleans and maintains this system. Discussions with KBIC to extend the system into tribal property are underway.

MDOT maintains US 41 South. The Marquette County Road Commission maintains all other public roads within the Township. County road maintenance is supported through a Township road millage.

Demographics

Population

In 2020, the population of Marquette County was 66,017. This was a decline from a population of 67,077 in 2010. The Township population increased by 14 from 5,903 in 2010, as shown in [Table 3.](#)⁽¹⁹⁾

Table 3 Marquette County population

Population	2020 Population	County Percent	Change from 2010
2020			
Marquette County	66,017		-1,060
Chocalay Township	5,917	9.0%	14
City of Marquette	20,629	31.2%	-726
City of Ishpeming	6,140	9.3%	-330
Forsyth Township	6,194	9.4%	30
All others	27,137	41.1%	-48
2010			
Marquette County	67,077		
Chocalay Township	5,903	8.8%	
City of Marquette	21,355	31.8%	
City of Ishpeming	6,470	9.6%	
Forsyth Township	6,164	9.2%	
All others	27,185	40.5%	



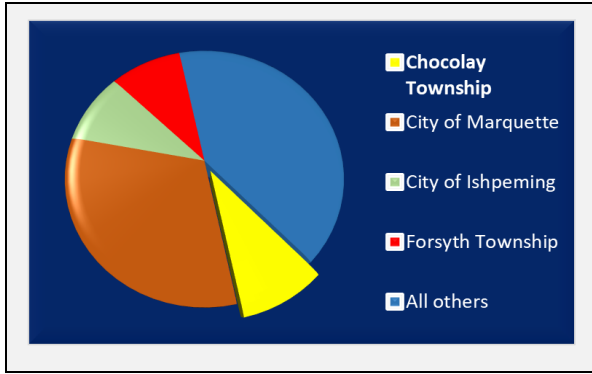


Figure 1 Marquette County population

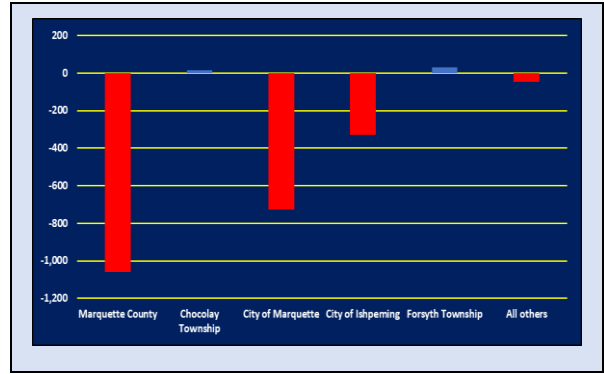


Figure 2 Marquette County population change

Housing

In 2019, the number of housing units in Marquette County was 34,850. This was an increase of 520 units from 34,330 in 2010. The Township housing units increased by 57 from 2,824 in 2010, as shown in [Table 4](#).⁽²⁰⁾

Table 4 Marquette County housing

Housing Units	Housing Units	Percent of County Housing Units	Change from 2010
2019			
Marquette County	34,850		520
Chocolay Township	2,881	8.3%	57
City of Marquette	8,863	25.4%	107
City of Ishpeming	3,243	9.3%	94
Forsyth Township	3,829	11.0%	-37
All others	16,034	46.0%	299
2010			
Marquette County	34,330		
Chocolay Township	2,824		
City of Marquette	8,756		
City of Ishpeming	3,149		
Forsyth Township	3,866		
All others	15,735		



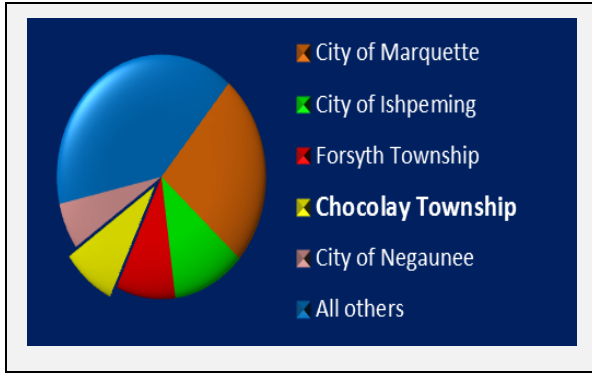


Figure 3 Marquette County housing units

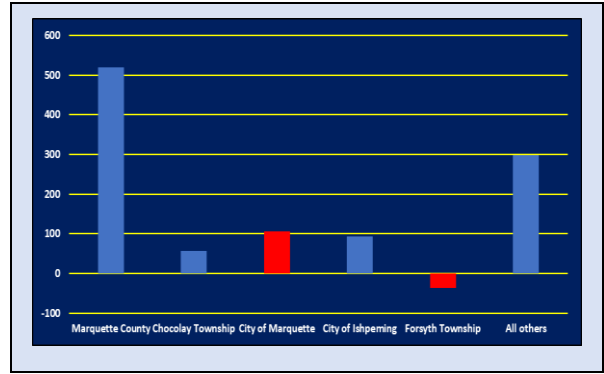


Figure 4 Marquette County housing units change

Employment

Where Workers Live

In 2018, Marquette County had 26,880 jobs for those that live in the County. This was a decline from 26,662 jobs in 2010. The Township numbers declined by 193 jobs (-.8 percent), as shown in [Table 5](#).⁽²¹⁾

Table 5 Job statistics – Where workers live

Employment	Jobs	Change From 2010	Percentage of County Jobs	Percentage Change
2018				
Marquette County	26,880	218		
Chocolay Township	2,573	-193	9.57%	-0.80%
City of Marquette	7,760	255	28.87%	0.72%
City of Ishpeming	2,834	-137	10.54%	-0.60%
City of Negaunee	2,222	94	8.27%	0.28%
Forsyth Township	2,203	432	8.20%	1.55%
Marquette Township	1,517	-34	5.64%	-0.17%
All others	7,771	-199	28.91%	-0.98%
2010				
Marquette County	26,662			
Chocolay Township	2,766		10.37%	
City of Marquette	7,505		28.15%	
City of Ishpeming	2,971		11.14%	
City of Negaunee	2,128		7.98%	
Forsyth Township	1,771		6.64%	
Marquette Township	1,551		5.82%	
All others	7,970		29.89%	



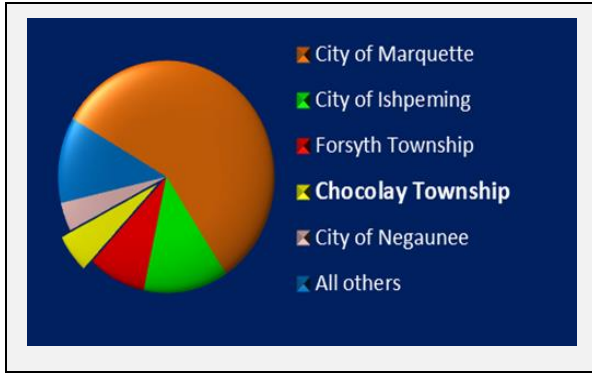


Figure 5 Where workers live

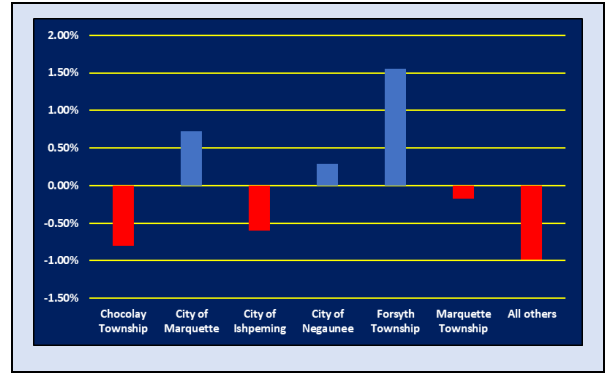


Figure 6 Where workers live percentage change

Where Workers Are Employed

In 2018, Marquette County had 25,644 jobs for those that work in the County. This was a decline from 27,367 jobs in 2010. The Township numbers declined by 463 jobs (-1.47 percent), as shown in [Table 6](#).⁽²²⁾

Table 6 Job statistics – Where workers are employed

Employment	Jobs	Change From 2010	Percentage of County Jobs	Percentage Change
2018				
Marquette County	25,644	-1,723		
Chocolay Township	892	-463	3.48%	-1.47%
City of Marquette	14,612	-899	56.98%	0.30%
City of Ishpeming	1,917	-88	7.48%	0.15%
City of Negaunee	1,291	-1,393	5.03%	-4.77%
Forsyth Township	1,513	533	5.90%	2.32%
Marquette Township	1,580	426	6.16%	1.94%
All others	3,839	161	14.97%	1.53%
2010				
Marquette County	27,367			27,367
Chocolay Township	1,355		4.95%	1,355
City of Marquette	15,511		56.68%	15,511
City of Ishpeming	2,005		7.33%	2,005
City of Negaunee	2,684		9.81%	2,684
Forsyth Township	980		3.58%	980
Marquette Township	1,154		4.22%	1,154
All others	3,678		13.44%	3,678



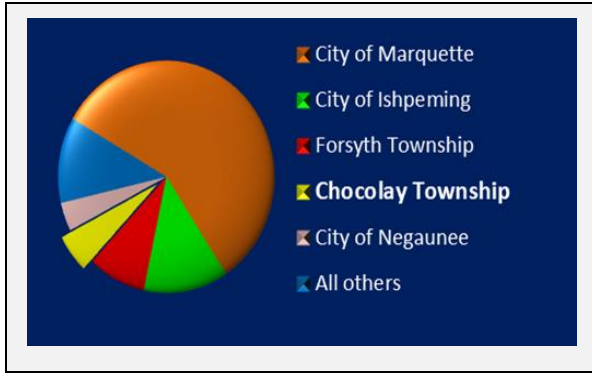


Figure 7 Where workers are employed

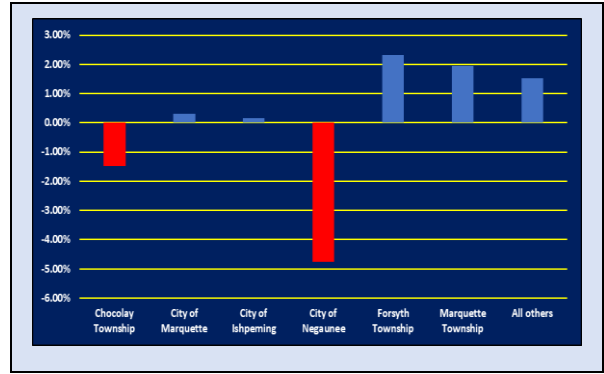


Figure 8 Where workers are employed percentage change

Economic Impact

Where Workers Live

Economic impact is affected by where workers live and work. In 2018, 25,644 workers were employed in Marquette County; this was a decline from 27,367 workers in 2010. The Township numbers declined by 463 workers overall, as shown in [Table 7](#).⁽²³⁾

Table 7 Inflow / outflow employment - Living in the selection area

Inflow / Outflow Job Counts	Number	Change From 2010
2018		
Marquette County	26,880	218
Chocolay Township	2,573	-193
City of Marquette	7,760	255
City of Ishpeming	2,834	-137
Forsyth Township	2,203	432
Marquette Township	1,517	-34
All others	9,993	-105
2010		
Marquette County	26,662	
Chocolay Township	2,766	
City of Marquette	7,505	
City of Ishpeming	2,971	
Forsyth Township	1,771	
Marquette Township	1,551	
All others	10,098	



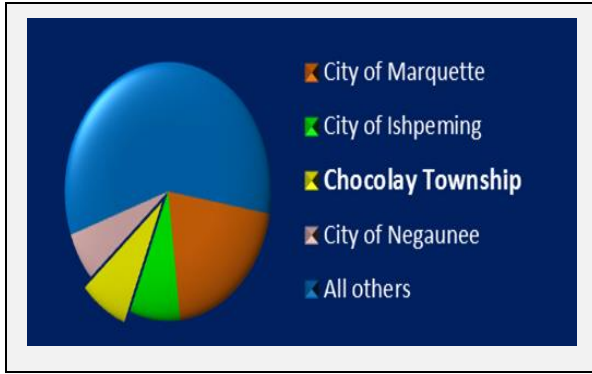


Figure 9 Living in the selected area

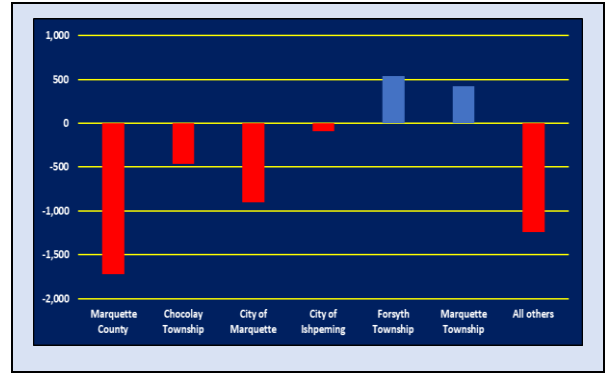


Figure 10 Selected area percentage change

Employed Away from Selection Area

In 2018, 5,841 workers were employed in Marquette County and living outside of the County; this was a decline from 6,436 workers in 2010. The Township numbers declined by 479 workers overall, as shown in [Table 8](#).⁽²⁴⁾

Table 8 Inflow / outflow employment – Living away from the selection area

Inflow / Outflow Job Counts	Number	Change From 2010	Percentage Living Outside of the Area	Percentage Change From 2010
2018				
Marquette County	-595	22.78%	-0.74%	-595
Chocolay Township	-479	82.40%	-7.19%	-479
City of Marquette	-664	69.79%	-0.24%	-664
City of Ishpeming	5	72.98%	3.45%	5
Forsyth Township	444	68.75%	7.22%	444
Marquette Township	385	91.20%	-0.31%	385
2010				
Marquette County	6,436		23.52%	
Chocolay Township	1,214		89.59%	
City of Marquette	10,862		70.03%	
City of Ishpeming	1,394		69.53%	
Forsyth Township	603		61.53%	
Marquette Township	1,056		91.51%	



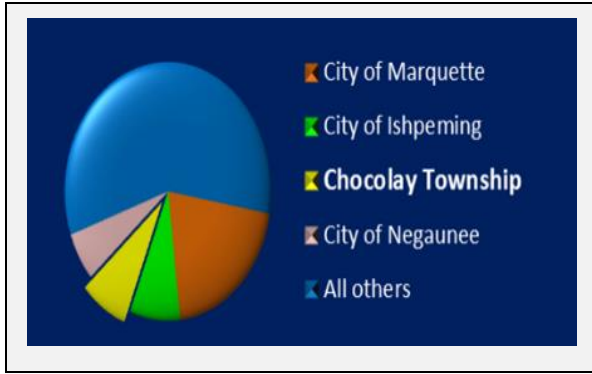


Figure 11 Employed away from selection area

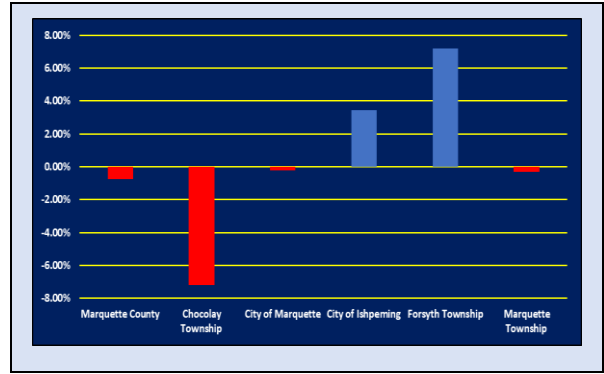


Figure 12 Away from area percentage change

Employed Within the Selection Area

In 2018, 19,803 workers were employed in Marquette County and living within the County; this was a decline from 20,931 workers in 2010. The Township numbers increased by 16 workers overall, as shown in [Table 9](#).⁽²⁵⁾

Table 9 Inflow / outflow employment – Living within the selection area

Inflow / Outflow Job Counts	Number	Change From 2010	Percentage Living Outside of the Area	Percentage Change From 2010
2018				
Marquette County	19,803	-1,128	77.22%	0.74%
Chocolay Township	157	16	17.60%	7.19%
City of Marquette	4,414	-235	30.21%	0.24%
City of Ishpeming	518	-93	27.02%	-3.45%
Forsyth Township	476	99	31.25%	-7.22%
Marquette Township	139	41	8.80%	0.31%
2010				
Marquette County	20,931		76.48%	
Chocolay Township	141		10.41%	
City of Marquette	4,649		29.97%	
City of Ishpeming	611		30.47%	
Forsyth Township	377		38.47%	
Marquette Township	98		8.49%	



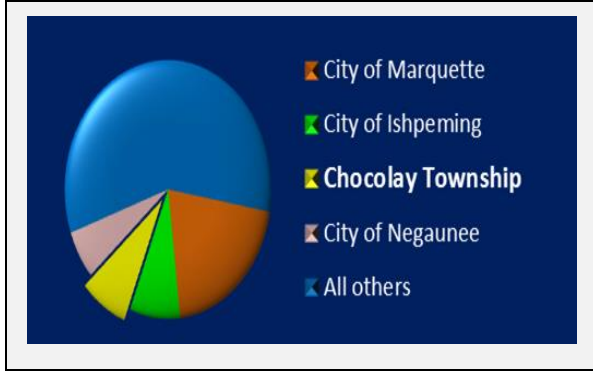


Figure 13 Employed and living in selection area

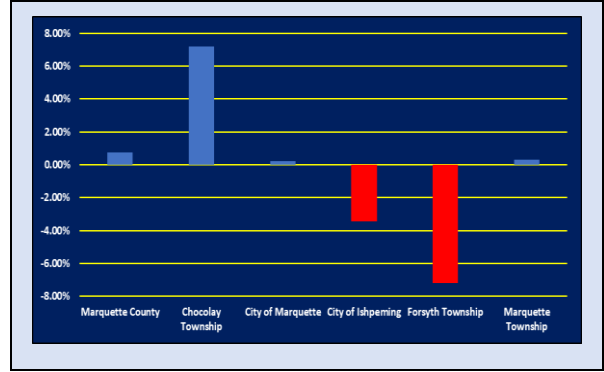


Figure 14 Living in and employed percentage change





COMMUNITY SYSTEMS

Critical community infrastructure systems and services include:

- Transportation
- Water
- Wastewater management
- Public energy
- Food
- Public safety and emergency services
- Public health
- Solid waste management and recycling
- Managed development and growth
- Managed Economy
- Public recreation

It is particularly important to plan for resilience in community systems so that any significant damage or insufficiency in one system does not create cascading failures in others, and that the economy, development, and growth are managed accordingly.

In providing for public well-being, the Township can enact and enforce ordinances that may be deemed necessary to provide for the public peace, health, and

safety of persons and property within the boundaries of the Township.

Local Government Financing

Local governments face both internal and external challenges. As with most other municipalities, the Township's challenges involve declining revenues and rising expenses, and the related problem of aging infrastructure. This impacts the Township's ability to provide essential services.

The Township collects taxes and generates revenues to perform functions and provide infrastructure and services that are needed for the well-being of the community that would not otherwise be provided by the private sector.



Profile

The seven member Township Board of Trustees directs the various activities and services of Township government through the approval of an annual budget. The budget adoption process incorporates input of staff, officers, trustees, and the public. The Township annually adopts budgets for the General Fund, Road Fund, Capital



Improvements Fund, and Sewer Fund. In 2020, total budget for all funds was \$2,345,700.

Major components of Township revenues include property taxes (30 percent of total budget), state revenue sharing (19 percent of total budget), and franchise fees (3 percent of total budget). Other small sources of income are related to administrative fines, fees, licenses, and interest income. User fees contribute to the Sewer Fund. KBIC 2% distribution and various grants also periodically contribute to revenues.

Major expenditures within the General Fund include salaries, contract services, and health insurance. The Township provides 14 full time jobs, 1 part-time job, 20 positions on boards and commissions and up to 24 volunteer firefighters.

The Township collects 3.6040 mills for Township operations and 1.6737 mills for road maintenance in the Township. Other millages collected are shown in Error! Reference source not found..



Risk Assessment

There has been a gradual decline in Township revenues. State shared revenues and interest earnings continue to fall annually.

Michigan constitutional sharing of the State sales tax revenue is slowly rising, but with declining net revenues, no new grants on the horizon, and inflationary increases in most of the Township's operating expenses, recent budgets have been balanced by minimizing capital expenditures, reducing the general fund balance and implementing minor increases in fees. It can be expected that rising economic uncertainty will increase the cost of borrowing and thereby reduce revenue options. The Township has typically avoided long-term debt situations.

As health care programs and costs change, the Township meets with insurance providers to ensure that the staff and Township are protected properly. The Township Board reviews the health care budget annually; if there is an increase in costs, employees absorb a portion of those cost increases.

General fund expenditures are typically projected to exceed revenues, requiring a use of fund balance to balance the budget. However, unanticipated KBIC and grant revenues and spending restraint by Township staff makes use of contingency dollars very rare.

The inability to generate enough revenue to match operating cost projections illustrates the tight fiscal constraints under which the Township must operate. It also makes the expansion of existing services or the provision of new services or facilities impossible without identifying new funding sources.



Opportunities

The State places limits on property tax rates, increases in assessments, and local government debt levels. Because of reduced State revenue-sharing levels and State limitations, the Township needs to develop a more diverse revenue stream that is not as dependent on property taxes.

In the past, local governments have responded to the increased burden of revenue-raising responsibility by reducing services, privatizing some public services,

Table 10 Township millage rates

Millage Rates	PRE	Non-PRE
Summer		
County Operating	5.2446	5.2446
State Education	6.0000	6.0000
Total	11.2446*	11.2446*
Winter		
County Aging	0.4431	0.4431
County Dispatch	0.4923	0.4923
County Maintenance of Effort	0.5448	0.5448
County Rescue	0.1510	0.1510
County Transit	0.5970	0.5970
Iron Ore Heritage Trail	0.1791	0.1791
ISD	0.2040	0.2040
Marquette Library	0.9907	0.9907
Marquette School Bond	0.5000	0.5000
Marquette School Operations	exempt	18.0000
Roads	1.6727	1.6727
Sinking Fund	0.9340	0.9340
Special Education	2.0000	2.0000
Township	3.6040	3.6040
Veterans Affairs	0.0800	0.0800
Total	12.3927*	30.3927*
Annual	23.6373*	41.6373*
*Does not include 1% administrative charge on total taxes		



and resorting more frequently to user fees. The State began to allow development impact fees and the creation of special tax districts such as business improvement or tax increment financing districts.

Impact Fee as Revenue

Impact fees are charged to a developer to recover a portion of the cost of certain off-site improvements or facilities to support the development. In this way, costs are born by the beneficiaries of the new development, not the entire community. Currently in the Township, impact fees would be low in most development areas because of the use of private well and septic systems versus public water and sewer infrastructure. Low impact fees could be attractive to development as long as reasonable service is provided, and provided the market is conducive to new development.

Residents of the Township would benefit from a larger tax base from which the Township could achieve revenues to support services; a sustainable strategy does not include long-term tax abatements.

Development Promotion

To increase the tax base, the Township should take a more proactive role in promoting and facilitating new development and redevelopment of underutilized existing commercial areas. Strategies may include meeting with property owners and developers, paying for development studies, pursuing brownfield funding, providing infrastructure support (public water or access roads), implementing zoning changes, simplifying approval procedures, and pursuing placemaking or aesthetic enhancement projects. These strategies may require innovative funding mechanisms or collaborations.

Corridor Improvement District

The Township could consider creating a Corridor Improvement District which would enable some alternate funding mechanisms such as lease or rental income, revenues from a Tax Increment Financing (TIF) plan, and proceeds from a special assessment district. This should only be considered if it is expected that development would not occur without such measures. The Township could issue bonds to finance public improvements. TIF revenues would materialize from the property tax levy applied to the increase in valuation. These revenues would be used to pay off the bonds.

TIF Qualification

To qualify as a development area under part 6 of the Michigan *Recodified Tax Increment Financing Act*⁽²⁶⁾, the area would have to meet the following conditions:

1. The corridor must have at least 51 percent of existing first-floor space classified as commercial.
2. The corridor must have been in existence for the past 30 years.
3. The corridor must be adjacent or is within 500 feet of a road classified as an arterial or collector according to the Federal Highway Administration.
4. The corridor must contain at least 10 contiguous parcels or at least five contiguous acres.
5. The corridor must be zoned to allow for mixed-use and high density residential.
6. The corridor must presently be served by municipal water or sewer.
7. The municipality must also agree to expedite the local permitting and inspection process in the development area and to modify its master plan to provide for walkable nonmotorized connections, including sidewalks and streetscapes throughout the area.⁽²⁷⁾



Example streetscape

The Township area that qualifies for a Corridor Improvement District is located along US-41 South / M-28 East where there is sewer service. The Township currently allows a mix of uses in this area across multiple zoning districts.

Every opportunity to obtain grants to leverage greater impact for Township investment should be pursued, especially in this development area.



Capital Improvement Program

The Township should maintain a capital improvements program (CIP) with at least a six year schedule of capital projects to avoid being confronted with a sudden need for large capital expenditures. This CIP should be in conformance with this master plan, and should be prepared by a collaboration of staff, the Planning Commission, and the Township Board. This avoids making capital decisions based solely on the effects on operating and maintenance costs; the priority decision criteria presented in [Error! Reference source not found.](#) in the *Community Values* section should serve as a guide.

The Township can ensure greater fiscal sustainability through considering life cycle costing for any given purchase.

Transportation

Because the majority of the Township durable goods and supplies are produced outside the region, the Township economy is heavily dependent on a safe and functional transportation system. Transportation is critical to regional commerce and public health.



Profile

Within the Township, the principal transportation mode is vehicular movement on public roads (see the *Township Roads* map in *Appendix B*). Alternate modes include public transit (Marq-Tran and ALTRAN bus services), private transit, and recreational (bicycle, snowmobile, and walking) which is accommodated seasonally.



Marq-Tran transit

Nearby transportation modes include air (Sawyer International Airport), bus (Indian Trails), rail (Canadian

National Railroad (CN), Escanaba and Lake Superior Railroad (E&LS), and Lake Superior and Ishpeming (LS&I – for Cliffs Natural Resources)), and water transportation (City of Marquette’s upper harbor).

Regional Connectors

ALTRAN (Alger County Transit) provides regional service between Marquette and Munising daily Monday through Friday.

Marq-Tran (Marquette County Transit) provides service between downtown Marquette and Sawyer International Airport via US 41 South and M-553, stopping at the Krist Oil Station in Harvey in route. From Marquette riders can travel through Negaunee and Ishpeming to western portions of the County to Republic Township, or south to K I Sawyer, Gwinn and Palmer.

Iron Ore Heritage Trail

The Iron Ore Heritage Trail has two main routes through Chocolay Township. One portion of the trail is crushed aggregate and utilizes an abandoned rail grade. This portion of the trail is used as a DNR snowmobile trail in the winter and is non-motorized the remainder of the year. The other portion of the trail is paved and runs from the Welcome Center parallel to US 41 South and east along the south side of M-28 East to the bridge overpass between Riverside Road and Superior Street, where it reconnects to the main trail route. This portion of the trail is mostly for non-motorized access but accommodates snowmobiles on some portions in the winter (see the *Existing Multi-Use Paths, Trails and Recreation Facilities* map in *Appendix B*).

The Township has been the fortunate recipient of grant funds for recent capital improvements to roadways, trails, and even portions of the sewer system, mostly through MDOT and the DNR.



Risk Assessment

Michigan’s road system is in serious decline. In 2020, 42 percent of Michigan’s roads were ranked in poor condition, but It is estimated that this number will increase to 46 percent by 2032.⁽²⁸⁾

In general, road maintenance in Michigan is more challenging because of climate related conditions, including damage from freeze / thaw cycles and the extra costs of snowplowing and road clearing.



Besides reducing maintenance and construction programs, agencies have delayed implementation of traffic safety measures (such as restriping of roads) and reduced or eliminated roadside mowing and brush control. To make up for insufficient state-collected funds, county road commissions have created partnerships with townships to supplement road budgets.

In Marquette County, the County Road Commission is responsible for all Township roads except US 41 South, M-28 East and private roads. The Road Commission reported that they fund maintenance and

construction of primary (numbered) roadways (such as County Road 480, County Road 545, and County Road 551) at 100 percent of costs. This accounts for almost 5.6 miles of roadways in the Township. However, there are almost 74 miles of local roadways in the Township.

Road Funding

For local roadways (lettered roads, subdivision roads and all other roads except private roads), State law requires that a percentage of funding for upgrades comes from sources other than those that fund the County Road Commission. The Marquette County Road Commission has a policy that requires townships cover a percent of the costs, with the Road Commission covering the remainder of the costs.; there is no guarantee, however, that the County Road Commission can provide that contribution. The Township pays 100 percent of costs if a private contractor does the work, or if matching funds are not available from the Road Commission. Either way, the Road Commission provides in-kind contributions of design and specification services for projects.

In 2007, the Marquette County Road Commission created a 17-year road resurfacing plan⁽²⁹⁾. This plan allowed for a Township commitment of \$225,000 annually with the Road Commission providing equal matching funds. However, the County matching funds did not materialize. The Township completed the first

five years of work in the plan while paying 100 percent of costs by the end of 2013. This included improvements to roadways in Harvey and the subdivisions of Ewing Plaza, Ewing Park, Candace, Fernwood Park, Riverside, Riverland, Holiday Villa

Estates, Briarwood Estates, and Countryside Estates. This work was funded by a road millage with another contribution from the general fund to complete the work that exceeded millage revenues.

The Township chose to delay implementation of another road millage until the firehall millage was retired and until Township staff could re-assess road conditions and propose a

maintenance / replacement schedule. A new 15 year road millage was passed in 2017.⁽³⁰⁾

The emerging road system in the Township exhibits problematic conditions. Much of the new residential development is served by an independent system that is not interconnected well to other developments or roadways. Single access systems do not provide redundancy in case of road closures due to natural disasters such as storms or wildfires. Bypass or frontage roads are needed in several locations to alleviate congestion, provide greater connectivity, alleviate safety concerns, and create new opportunity (see *Proposed new Roadways and Connections in Appendix E*).

There are many private roads in Chocolay Township (see *Appendix C*). These roads are privately maintained, and many were constructed prior to 2007 and were not built according to County Road Commission standards. Safety risks occur with roads that are not properly constructed and that cannot accommodate emergency services (such as fire trucks or ambulances), or community services (such as waste collection, school buses, or deliveries).

In 2007, the Township required property owners to sign hold harmless agreements and to file maintenance agreements to address Township liability, but this did not address the underlying safety and service concerns. In 2008, the hold harmless agreements were



US 41 South road construction



replaced with language that was added to the Township *Zoning Ordinance* requiring all private roads to meet the County Road Commission minimum standard.⁽³¹⁾

There are similar difficulties associated with seasonal roads in Chocoley Township. These are county roads meeting certain criteria that are not maintained or snowplowed from November through April. The Township has seen an increase in the number of newly constructed homes that are located on seasonal roads and occupied on a year round basis.

The Township should review and assess emergency services on private and seasonal roads for property owner consideration. In the future, barring revisions to State road funding, Chocoley Township taxpayers will bear a greater burden for transportation costs associated with public roadways.



Opportunities

Because the Township will have to assume greater costs associated with maintaining and improving the local road system, new long-term strategies are needed. The Township can generate funds for road improvements through millages, the general fund, special assessments, private developers, or donations from private citizens. There are also grants available for potential infrastructure projects.

It will be important for citizens to understand the importance of continued investments in capital preventive maintenance for recently resurfaced roadways. Without continued investment in crack and chip sealing, the previous investment in resurfacing will not be optimized.

It will be hard for citizens to accept more millage funds going to roadways that were recently improved while so many others await improvements. The Township should hold public information sessions and involve citizens in the road plan so that a good balance can be created between capital preventive maintenance and reconstruction schedules.

Before these information meetings take place, the Township needs to inventory the roadways to reaffirm the condition and create a reasonable maintenance / replacement plan. The voters could consider continuing a road millage that is paid by all taxpayers to support resurfacing and capital preventive maintenance efforts on an ongoing basis.

Additionally, the Township could coordinate neighborhood planning sessions to present information, discuss and reach agreement on the possibility of using special assessments to fund reconstruction in areas where conditions are particularly poor or where a higher level of performance is desired by residents. If State and County road funding improves, funding practices can be revised.

Road design must allow efficient traffic movement and access to adjacent properties. In general, traffic moves efficiently and functionally through the Township at this time.

Presentation of an *Asset Management Plan* to the Planning Commission and the Township Board should be completed each year prior to considerations for the Township budget to ensure that Township transportation and other assets are maintained properly. Presentation of this plan would ensure preparations are in place for road improvement and infrastructure grant possibilities.

The Township must work with the County to update maps regarding County roads to identify abandoned sections of the County roads.

Non-Motorized



Riding the bike path

The Township has made great strides in providing non-motorized infrastructure that connects the main commercial district, schools, and nearby residential areas.

The Iron Ore Heritage Trail Recreation Authority (IOHTA) designated the paved route paralleling US 41 South / M-28 East through the business corridor as an alternate business trail route while assuming



maintenance costs on the rail grade route. In 2014, the remainder of the Iron Ore Heritage Trail business route was paved, and ownership and maintenance responsibility were transferred to the Township. These trails support the attraction of visitors to the Township as well as provide transportation options for residents.

The Township may need to invest in equipment or arrange for collaborations for year-round maintenance of the Township-maintained trail sections. There is a need for bike racks, benches, wayfinding signs, lighting, and other amenities to enhance the trail and user perceptions of safety and security. Thermal comfort may be improved in some sections of the trail through the use of vegetation or other barriers to control the impact of wind and drifting snow. Winter maintenance should include snow removal for priority paved paths along the west side of the US-41 South / M-28 East corridor, or alternately, management of a snowpack on these paths to facilitate walking, fat tire biking, kicksledding, or cross-country skiing.

Transit Services

The Township needs to plan for further improvements to existing bus stops to better accommodate transit services, and also needs an all-weather transit station. The Township should consider the need for four-sided all weather transit structures

PUBLIC INPUT

In the 2010 survey, respondents ranked the “**expansion of sewer system and/or creating a township water supply**” as LESSER in importance than improvements and maintenance of existing roads, parks and open space and aesthetic improvements to the existing commercial corridor. There were only 5 people who noted poor water or lack of water/sewer services as a negative aspect of living in Chocolay Township. Additionally, “offer a water supply to all residents” was the LEAST supported item, followed closely by “offer a water supply to residents in the Harvey area”.

In the 2013 survey, many items were ranked of GREATER importance than expanded sewer or public water supply, including trail amenities, aesthetic enhancements, informational communications, and underground utilities. Most comments in favor of a public water supply mentioned areas with poor well water, such as Kawbawgam Road, or a need to support fire protection.

located close to mobile home parks and businesses that cater to pedestrians.

Grants should be sought for these improvements in collaboration with interested agencies, organizations, and businesses.

Access Management Standards

The Township has adopted access management standards to help ensure that future development does not adversely impact road function along the US 41 South / M-28 East corridor from the northwest boundary to the intersection of US 41 South / M-28 East and County Road 551 (Cherry Creek Road) and along intersecting streets within 350 feet of the highway right-of-way ⁽³²⁾.

The Township participates as a member of the US 41 South / M-28 East Corridor Advisory Group that meets monthly to review proposed access changes and corridor improvement opportunities.

If the Township anticipates additional commercial expansion along the highway beyond the confines of the existing Access Management Overlay District⁽³³⁾, the overlay district may need to be expanded before development occurs to ensure continued highway function. Future development can be facilitated by planning for the necessary service or frontage roads and connectors to preserve highway function and provide safer, more convenient access to businesses.

In future street plans, the Township needs to adopt strategies to provide greater redundancy through interconnected routes (see the *Proposed Access Changes* map in *Appendix E* for locations). However, there are existing access problems that need to be phased out if properties are redeveloped (see *Appendix E* for locations).

When new routes are developed, they should include elements of *Complete Streets* design⁽³⁴⁾ to provide for alternative transportation modes (such as walking, biking, electric scooters and wheelchairs, and public transit).

It is important that the Township address resident safety through a re-evaluation of policies and standards for private and seasonal roads and posting of fire number signs on all developed properties.

In the future, if energy costs impact transportation systems and threaten reliability and affordability of



transportation, the Township may need to consider coordinating a community ride-share system to activity centers, or a car-sharing program for residents. This could be a public / private or strictly private venture.

Water Systems

A clean, healthy, convenient, and affordable water supply is a critical need for all development.



Profile

Currently, there is no public water supply system in the Township. All development is served by wells.

To facilitate development and satisfy the increasing demand for utility services, the Township has conducted multiple assessments regarding the feasibility of a municipal water supply for portions of areas. This was precipitated in 1993 by the issuance of a health advisory concerning a groundwater contamination plume resulting from underground petroleum tanks and other unknown sources that contaminated shallow residential wells in the Harvey area east of US 41 South.

In 1993, after a public hearing, the Board resolved to own and operate a municipal water supply to serve the health advisory area in Harvey provided appropriate funding to construct the system was made available via the *Environmental Response Act*. This funding did not materialize.⁽³⁵⁾

The issue was extensively studied through an ad hoc water committee and private studies including a 1994 *Water System Feasibility Study for Chocolay Township*⁽³⁶⁾ and a 2001 *Water System Phasing Study*⁽³⁷⁾ for Chocolay and Sands Townships. These studies addressed both ground and surface water sources for a Township municipal system with a connection with the City of Marquette's water system.

The main issue has been the cost of the system. The 1994 study estimated that monthly costs per family would be over twice as high as the average rate in the region unless outside funding could be obtained. The connection to Marquette's system would require the resolution of extensive policy issues. In the meantime, the contaminated area underwent mitigation, and contaminated groundwater wells were replaced by drilling to a deeper aquifer. However, these types of wells are much more expensive.

In June of 1998, the Township Board voted to support the concept of forming a regional water and



Clean water supply

sewer authority with Chocolay Township, KBIC, and Sands Township.⁽³⁸⁾ Money was put into a water fund and grant opportunities were researched. Some funding sources were distributed based on the ratio of low to moderate income families in the project area, so a survey was conducted. Other grants were dependent on the affordability of the system.

The 2001 study indicated that Chocolay and Sands Townships should continue to use groundwater from existing individual residential and commercial wells unless the monitoring programs indicated immediate necessity. It was evident that the mitigation systems were effective at that time. However, the report indicated agreement with EGLE that the Harvey / Silver Creek area would eventually need a water supply and distribution system, and that development along Lakewood Lane and Kawbawgam Road should be considered for future connection.⁽³⁹⁾

The study recommended that if groundwater sampling indicated a community water system was needed, the option of choice would be a connection with the City of Marquette if there was a mutual agreement. The report cautioned against placing a municipal well in the Silver Creek area as the geology was less than optimal and a municipal system in that area could overdraw the local aquifer. The report indicated there was excellent groundwater in the Cherry Creek and Beaver Grove areas, so no public system would be needed there. Because of this, it would be difficult to convince users in this area as well as lending agencies that a municipal system was necessary.





Risk Assessment

Currently most wells for commercial development in Harvey fail to meet minimum isolation distances between a wellhead and a potential major source contaminant as required per the *Michigan Safe Drinking Water Act*.⁽⁴⁰⁾ This necessitates the issuance of multiple deviations through a complex approval process with EGLE and the County Health Department involving more strict sampling requirements and water supply oversight.

The Shot Point area has shallow soils with underlying fractured sandstone. There have been problems with contamination in shallow wells and chlorides in deeper wells.

In some areas along Kawbawgam Road, wells have been sunk into a buried swamp, resulting in rather undesirable water; one planned unit development was denied based on water supply concerns in this area.



Opportunities

Although the contamination issue has largely been mitigated at this time, the Township continues to consider the benefits of a municipal water system to create a stronger tax base through the support of new development.

The Township should periodically revisit the feasibility of a municipal water system, which could be altered by conditions (such as changing regulations, an increasing need for fire protection, further contamination, or increased demand). There may be future issues with capacity.

Costs for a public system may be justified if, as a consequence, the Township can remove limitations to density, thereby reducing per unit cost and increasing tax base. The furthest extent of such a system might include the Harvey area with extensions along Lakewood Lane and M-28 East to include adjacent subdivisions, the casino, Tribal residential areas, and development along Kawbawgam Road.

Assessment studies should be conducted to review and update the assessment projects conducted in previous years.

A cost analysis should include ancillary considerations (such as repaving roads as they are disrupted) and assessing the impact on user affordability (costs associated with wells and fire insurance versus monthly system user fees). System

costs could be reduced as other utilities are placed in these areas.

Wastewater Management

The process of treating wastewater and sewage involves removing contaminants through physical, chemical, and biological processes. This can either be done close to where the sewage is created (in decentralized septic tanks or other biological or aerobic treatment systems) or within a centralized system where wastes are collected and transported by a network of pipes and pump stations to the municipal treatment plant in Marquette.



Profile

Most of the Township’s sanitary sewer infrastructure was installed in 1975, with an extensive addition to the system in 2020 (see the *Township Sewer System* map in *Appendix B*). The remaining Township properties are serviced by septic tanks.



Wastewater treatment plant

With proper construction techniques and routine cleaning and inspection, the portion of the system consisting of pipes and manholes can be expected to deliver nearly 100 years of service. The pumps, motors and other mechanical and electrical components of the Township’s sewage pumping stations generally have a design life of 20 to 25 years.



Risk Assessment

All five of the Township’s pump stations have been replaced in 2021, financed through a twenty year bond issued in 2020. Risk is low for failures at each of the new stations.



The Township sewer system has a relatively small customer base (498.4 residential equivalent users and 212.52 non-residential equivalent users). Fees have historically covered regular operating costs but have not adequately provided for reinvestment. An increase of \$1 per month per equivalent user generates approximately \$8,600 per year.

Rate increases in recent years have gone to cover the Township's share of technology and equipment upgrades at the Marquette waste treatment plant, increases in wage and benefit costs for the portion of employee time allocated to the system, and replacement of the Township sewer cleaning equipment.

Fiscal feasibility of the sewer system is also related to energy costs. Expected increases in energy costs will continue to raise operating costs.

The Marquette County Health Department inspects and permits all private septic systems, ensuring that soil conditions will allow systems to operate properly and that they will not contaminate wells or surface water in the vicinity.



Opportunities

Maintaining the sewer infrastructure within the Township must be a priority since this is strictly a Township-owned responsibility.

Along with engineering assistance, staff has compiled data, identified locations of new lift stations and replacement needs for existing lift stations and grinder stations. Staff has formulated an asset management plan for the major components of the Township sewer system. Through the acquisition of United States Department of Agriculture (USDA) monies, the new lift stations, lift station replacements, and grinder station replacements were completed in 2021.

The sewer system was designed for expansion. Public support for a special assessment to fund construction and maintenance for expansion would be more likely if the expansion is funded by development, or if there are identified failures in private septic systems that cause public health risks and necessitate replacement of those private systems.

Township staff should require a copy of the Marquette County well and septic approvals as part of the process for new home builds and new home additions.

Public Energy

Although it is expected that the oil supply will be available for many years, it is likely that rising global demand will impact supplies in the near future. Rising demand (or shrinking supplies) will cause the price of oil to rise and become more volatile. A rise in the price of oil also impacts the price of electricity, natural gas, and other energy resources.

To be prepared, communities must anticipate probable effects of various energy situations which could impact the economy, municipal services, transportation, land use patterns, housing, and basic sustenance. For example, a rise in energy costs would impact the manufacturing and trucking industries, and the cost of transported goods would rise. Supply would become less certain, especially to remote rural areas like the Upper Peninsula.



Marquette Board of Power and Light solar array

Rising energy costs would challenge communities to cover costs of treating and pumping drinking water, treating wastewater, heating and cooling buildings, providing fuel for law enforcement and fire protection, repairing roadways, and picking up trash and recycling. Personal mobility, health care, and consumer patterns would be disrupted. Commuters may move closer to jobs. To address housing affordability, people formerly living apart may move in together, or people may look for more affordable types of housing within walking distance of necessities.



Profile

A portion of property owners in the Township obtain electricity from the Marquette Board of Light and Power (BLP), and the



remainder is served by Alger-Delta Cooperative Electric (Alger-Delta).

Some property owners in the Township have access to natural gas, but others must use propane, which is currently significantly more expensive. The Township offices and fire hall use natural gas.



Risk Assessment

Even a small change in a critical system can have far-reaching impacts. For a power company, lost revenue to cover fixed and embedded production costs translate into rate increases.

PUBLIC INPUT

Based on the 2013 survey results, the majority of respondents approved leasing Township land for alternative energy structures (solar, wind, geothermal, etc.) as follows:

- 47.6 % - Yes
- 27.6 % - Yes, as long as it doesn't cost taxpayers money
- 24.8 % - No

Electric rate increases will have greater impacts on higher energy users such as businesses, medical services, educational institutions, and local governments. This will translate into higher consumer

costs for goods, education, health care and public services.



Opportunities

The Township supports measures and policies to address the rising energy costs for homes, businesses, and transportation while enhancing energy and economic security.

Strategies

Sustainable energy use is based on a combination of strategies for the near-, mid-, and long- terms.

Near-term strategies (1-5 years) focus on education and conservation to address cost and supply disruption. The Township should engage in gathering of data on consumption and costs within the Township to develop strategies targeting the highest energy-consuming sectors. Mid-term strategies (6-10 years) focus on retrofit of existing assets and design strategies for efficiencies. Long-term strategies (10+ years) involve incorporating new technologies and new methods of generation.

Policy

The first step in a successful energy policy is to collect data on Township facility energy usage and costs. The Township should work with other public and private entities to gather data and identify trends in relation to local consumption and energy costs for the purpose of identifying at-risk businesses and institutions and working with them to identify energy strategies.

The Township's energy policies should prioritize energy conservation and efficiency criteria when making and evaluating plans, programs, and projects. Because of the unpredictability of the emergence and evolution of technology, the Township must consider a variety of possible energy options in land-use and transportation planning. In anticipation of price volatility, the Township could create an emergency fuel fund to help buffer spiraling costs in the future.

Conservation

Reducing consumption will reduce energy costs. The Township should continue to identify and implement energy conservation measures for public facilities (such as programmable thermostats, occupancy sensors, and power management for electronic equipment). Staff education may be necessary as these changes are implemented.

Efficiency Retrofits

The Township has conducted an energy analysis for the Township Hall and Fire Hall facilities and has already implemented some energy efficiency measures such as lighting upgrades and weatherization.

The Township should investigate opportunities to fund additional energy improvements with energy bonds payable through the resulting energy cost savings. Some communities have also promoted energy efficiency by allowing commercial property owners to receive a voluntary special assessment for financing energy upgrades by using the municipality's bonding authority to create a pool of available funding. Participants repay assessments with interest. This program is authorized by the *Property Assessed Clean Energy Act*.⁽⁴¹⁾

Production Options

A mix of energy generation options produces greater resilience. Increasing the share of energy produced by renewables will reduce greenhouse gas emissions,



improve air quality, enhance energy security, and reduce strain on the existing energy grid.

There are benefits for generating and distributing power on a local, decentralized basis. Smaller systems placed near the point of consumption decrease transmission and distribution power losses and can make cogeneration (using heat that is a byproduct of electricity production) possible.

The Township should consider implementation of alternative systems for energy production on Township properties (such as a solar array on the Beaver Grove Agriculture Area) or in collaboration with the private sector, especially if funding is made available. These systems could serve Township facilities or could be implemented on a community neighborhood scale. Such options could include cogeneration, solar, biomass, hydropower, wind, and geothermal installations.

The *Clean and Renewable Energy and Energy Waste Reduction Act*⁽⁴²⁾ required Michigan electric producers to obtain 10 percent of their electricity sales from renewable resources by 2015. As a result, a number of new renewable energy projects are operating in Michigan, and more are in the planning stages.

Not all sites are suitable for solar energy use. Many are shaded or lack proper orientation. In addition, renters and condominium owners lack property ownership for these installations. Installation costs are also prohibitive for some.

Community solar may be a viable alternative. With this option, the customer subscribes to a portion of an off-site shared solar energy facility, and then receives a portion of the benefit based on the investment. In this way, costs are shared by multiple owners with benefits divided among participants.

Some utilities are interested in participation in these projects. The Township should partner with other municipalities to explore the feasibility of community solar installations in the region, and to formulate a viable business model. This could provide an alternative for those who must rely on more expensive power options, or those who want to minimize risk through diverse generation. Similar options could be available for neighborhood-scale generation using other power sources such as wind. Reliable transmission systems are critical for managing intermittent supplies such as wind and solar.

Local governments generally retain control of siting decisions for renewable energy installations. The Township should ensure that zoning standards are supportive of appropriate scale renewable energy facilities across the Township. The Township may need to consider passing solar access ordinances to limit restrictive or prohibitive covenants for solar installations.

The Township should ensure that all public facilities serve as a positive demonstration model for conservation, efficiency, and even renewable energy generation. These model projects could be implemented in partnership with energy businesses for promotional purposes.

The Township could also consider tax incentives for property owners who implement renewable energy measures, ensuring at least that these measures do not increase property taxes.

Food Systems

Food is critical to the health and well-being of all citizens. The inability to access fresh, healthy, affordable food triggers health risks for many people in communities, resulting in lost wages, taxes, and jobs; decreased quality of life; and increased health care costs.⁽⁴³⁾

Food also impacts the local economy as food is a huge market in which every consumer must invest. When more components of the food system are supplied locally, the local economic multiplier effect is increased, and the hidden costs associated with importing food are decreased. A strong local food system increases food security, provides better nutrition, and contributes to a greater sense of



Marquette Farmer's Market



community. Additionally, the *Michigan Zoning Enabling Act*⁽⁴⁴⁾ requires local governments to provide for all lawful land uses where there is a demonstrated need and an appropriate location.



Profile

The food system consists of components related to growing, harvesting, packing, marketing, distributing, processing, consuming, and disposing of food-related wastes. Food can be grown, with one product or many, on small parcels of land (for family food) and large parcels of land (for commercial purposes). Farms may sell directly to consumers through Community Supported Agriculture (CSA) programs⁽⁴⁵⁾ or farmer's markets, or may sell to retail grocers, institutions, or restaurants. Farms may also sell directly to food processors or large-scale producers. Various laws impact these transactions.

Michigan has the essential building blocks of a strong and resilient food system including land and rich soil, abundant fresh water, skilled farmers, and a climate that supports diverse agriculture. However, Michigan's agricultural systems are under threat from demographic shifts, environmental factors, land use patterns, and industry consolidation.⁽⁴⁶⁾

In the central Upper Peninsula, \$430 million in food is consumed each year. \$400 million comes from outside the region, meaning dollars go elsewhere.⁽⁴⁷⁾



Risk Assessment

The average age of farmers across the United States in 2017 was 57.5 years, up 1.2 years from 2012.⁽⁴⁸⁾ This combined with a decline in farms across the Upper Peninsula over the last 30 years and the number of adults who are childless leaves a question of how local foods will be produced in the future.

Because of these concerns, there is an increase in the number of programs targeted at beginning farmers and ranchers. In particular, there is a rising need for resources and programs for the smaller-scale, more diversified operations .

Upper Peninsula farmers face many challenges. These include a challenging climate with shorter growing season, less productive soils, and microclimates that can include drought conditions or extreme weather events. Beginning farmers are even more challenged with limited access to start-up capital

for land and equipment, lack of training, limited marketing and distribution resources, and lack of storage and processing facilities. Of the 179 farms in Marquette County in 2017, 71% had sales of less than \$10,000 for the year.⁽⁴⁹⁾

Some negative impacts to the food system are irreversible, such as allowing development to occur on prime agricultural soils. Unpredictable and extreme weather events can impact how food is grown locally, nationally, and globally. Because our food often comes from very far away, we can be impacted by multiple events.

While food supply chains outside the region are well developed, local supply chains that provide food directly from field to table are only now developing. Policies, rules, and practices within the industry are designed to support large scale supply chains rather than local ones, and often serve as obstacles to local food systems. Requirements are often beyond the capacity of small or start-up businesses, ultimately constraining choices for both producers and consumers.

Local regulations can be prohibitive to agriculture, which is why the *Michigan Right to Farm Act* (RTFA)⁽⁵⁰⁾ was designed to override local agriculture regulation in some cases. This may, however, present problems for municipalities

who seek ways to permit an acceptable level of micro-agriculture which is consistent with local conditions and character without opening the door to all types or scales

of agriculture; real authority resides in the RTFA.

Agriculture is subject to risk due to rising energy costs for transporting raw materials, working the land, and processing and transporting produce. There may be food shortages related to spoilage in transit or storage because of power outages from energy disruptions. Rising production and distribution costs

PUBLIC INPUT
Based on the 2013 survey results, the majority of respondents approved leasing Township land for public use for food production (community garden or public greenhouse) as follows:
60.5 % - Yes
31.8 % - Yes, as long as it doesn't cost taxpayers money
7.7 % - No



PUBLIC INPUT

The 2013 survey attempted to gain public input about the appropriate scale or intensity of animal homesteading activities in their neighborhood.

Overall, the majority of respondents (over 50%) agreed with the following:

57.5 % - The keeping of less than ten small animals such as chickens, rabbits, turkeys, in a portable or fixed cage (similar to a dog pen with a shelter and run)

55.5 % - A chicken coop 100 square feet or less (10' x 10')

For the following items, a majority was not achieved by either those who agree or disagree. In this case, a decisive vote from those who said Maybe could indicate a majority either way.

The keeping of one or two potbelly pigs as pets like dogs:

201 Agree, 215 Disagree, 58 Maybe

The keeping of a couple of sheep or goats to control the growth of vegetation:

185 Agree, 232 Disagree, 65 Maybe

Overall, respondents did not support accessory homesteading activities involving medium to large animals or free-range poultry.

lead to rising prices for consumers and falling discretionary income. There may also be shortages in supply resulting from a lack of available supply.



Opportunities

Communities can benefit from greater localization of essential community needs such as food and hard goods, assuming supply is adequate. This will create new opportunities within the local economy, and certainly within close proximity to population centers such as Marquette. For example, if central Upper Peninsula residents purchased \$5 of food each week directly from farmers in the region, the purchases would generate \$45 million of new farm revenue for the region.⁽⁵¹⁾ This illustrates the power of local economic development, and the potential market for local food. There is increasing demand for local, fresh food, and large retailers are trying to capture this growing market for local food.

Food Technology

Advancements in food technology can yield new opportunity. For example, in North America, approximately two acres is required to feed a person for a year. A high-efficiency hydroponic farm needs just 0.1 acres to feed a person for a year, a 95% critical reduction in acreage.⁽⁵²⁾

The resilience of local food supplies depends on strengthening and improving the food system at all levels: food production in residential yards, small organic farms, larger traditional family farms, and large commercial farms. Diversity and sustainable growing practices are needed to ensure sufficient supply.

Although the food system primarily requires private sector participants, there are many things that local government can do to support local food systems. Agricultural opportunity can be facilitated through land use decisions, farmland preservation programs, and supportive zoning. The Township can start by advocating for local food production and increasing access to relevant information to support production and processing.

Although municipalities may be impacted by the *Michigan Right to Farm Act* pre-emptions, it is important for the Township to adopt policies and regulations to support local food systems at every level from production, processing, marketing, and distribution to waste management.

The Township can support agriculture as an interim use of publicly owned lands (especially the Beaver Grove Agriculture Area), thereby providing for community green space, public education, and outdoor centers for community. This can be facilitated through collaborative projects such as community gardens, food forests, community u-pick areas, community hoop houses, edible landscaping, farmer's markets, and farm incubators.

Latter stages of the food supply chain can be supported through projects to create or support kitchen incubators, community processing facilities, and mobile food vendors.

Local food supply projects must be supported by a public engagement and education process. It is essential for the Township to collaborate with other public, private, and nonprofit entities.



Public Safety and Emergency Services

Public safety and emergency services are the hallmark of government services, contributing directly to public health, safety, and welfare.



Profile

The Township provides excellent public safety and emergency services, and residents have been very supportive of funding for the services. The Township Police and Fire departments have also been successful in obtaining many grants to improve services and equipment.

Police Department

The Township Police Department was established in 1963; the priority at that time was to resolve dog complaints. By 1975, the Department purchased its first radar to control excessive speed.

Today the Department is a progressive, community-oriented department that responds to a variety of complaints, enforces Township ordinances and state laws, and assists in emergency calls.

Table 11 shows that over the last five years, the number of accidents has declined. Implementation of a diligent road patrol has aided in the reduction of total accidents.

Table 11 Police incidents

Year	2016	2017	2018	2019	2020
Accidents					
Injury accidents	26	25	23	16	15
Fatal accidents	0	0	0	0	0
Total accidents	110	146	112	112	114

Table 12 Police assistance calls

Description	2016	2017	2018	2019	2020
Incidents					
General assistance	890	842	941	1,095	1,053
Crimes against persons	133	75	79	105	109
Crimes against property	37	117	77	109	102
Traffic related	205	324	228	1,776	1,811
Juvenile	6	14	8	10	12
Animal	36	14	16	30	28
Drug law violation	16	18	20	6	4
Yearly Incident Totals	1,323	1,404	1,369	3,131	3,119
Citations	622	665	613	710	611

Table 12 presents incidents eliciting Department response for the last five years; the majority of police contact has been traffic related.

Technology has become a critical part of law enforcement solutions, and the Department has embraced the trend. The Department was the first in the Upper Peninsula to install in-car cameras, to wear body-worn cameras, and install in-car computers.

The Department received a *Snowmobile Enforcement* grant from the Michigan Department of Natural Resources in 1999, which has been renewed annually. The grant funding gives the Department the ability to enforce snowmobile speed limits and other trail rules, and to allow the Department to respond to trail-related complaints.

Social media has become an important part of the Department's public outreach. The Township police have used social media to post road closures, distribute important information (such as extreme road conditions and office closures), and provide community safety education.

Community Activities

Officers participate in community activities (such as Lion's Club Halloween party and the Silver Creek Church Neighborhood Block Party). Officers also provide fingerprinting for children at day care centers and at the Neighborhood Block Party.

Fire Department

Chocolay Fire Rescue was established in 1967 by a group of dedicated volunteers seeking to improve their community. They complete many hours of training while meeting four times each month. Training topics include firefighting, vehicle extrication, rescue, HAZMAT operations, and many more areas of life and property preservation. The Department is current staffed by a team of 24 men and women.

The Department provides professional level service to the public at minimal costs to taxpayers. The Department has mutual aid agreements with surrounding communities. See [Error! Reference source not found.](#) for Fire Department incident responses.



New Fire Station

After outgrowing its fire station three times in 30 years, the Township completed the construction in 2013 of a new Township fire hall which could accommodate future Department needs. The approximately \$2.1 million dollar 12,000 square foot project was funded through a voter-approved Township millage. The new fire station includes seven bays (including an equipment wash bay), mezzanine storage, offices, and a training room which can be used for public meetings. As part of the project, the emergency alert siren was replaced, and a 30,000 gallon underground storage tank was installed.

The Department established a mutual use agreement with KBIC for the use of the water tower at the casino.

Community Activities

The Department conducts Fire Safety Presentations for the students at Cherry Creek School and hosts fire station tours annually during Fire Prevention Week. The Department also assists with the Easter Egg Hunt and Neighborhood Block Party at the Silver Creek Church.



Risk Assessment

Risks for both departments involve budget constraints in relation to demand for services. In times of economic hardship, illegal activity and violence tend to escalate, necessitating additional investment in resources.

Additionally, rising energy costs in both departments would have a significant impact on the Township budget.

Table 13 Fire incidents

Department Call Volume	2016	2017	2018	2019	2020
Runs					
Fires	36	21	9	18	18
Overpressure rupture, explosion, overheat (no fire)	8	2	1	0	0
Rescue and emergency medical service (EMS) incidents	42	27	40	32	43
Hazardous condition (no fire), powerline down, tree on line	5	41	4	29	25
Service call	1	0	0	2	3
Good intent call	1	2	9	13	9
False alarm or false call	2	10	11	5	17
Severe weather and natural disaster	0	0	0	0	0
Special incident type	1	0	0	0	0
Total runs	96	103	74	99	115
Fires	2016	2017	2018	2019	2020
Structure fires	21	8	4	11	13
Vehicle fire	5	3	1	3	2
Brush fire	5	7	2	4	3
Total Fires	31	18	7	18	18
Rescue / EMS	2016	2017	2018	2019	2020
EMS assist, water rescue, backwoods rescue	27	26	22	12	13
Rescue all other	0	1	0	1	1
Total Rescue / EMS	27	27	22	13	14
Mutual Aid	2016	2017	2018	2019	2020
Mutual aid received	8	7	4	2	4
Mutual aid given	8	2	6	24	19
Total structure fires with mutual aid given or received	16	8	3	10	11
Total Mutual Aid	32	17	13	36	34



Both departments rely on continuous investment in equipment and fuel. The new Township fire station has resulted in an increase in operating costs.

Specifically, the Department has identified the following potential department risks:

- Lack of an adequate fireground training facility to provide realistic fire burns and suppression, vehicle extrication, and wildland fire suppression training.
- Lack of new members on the fire department. Trends show fewer volunteers showing interest in joining a fire department.
- Ability to send fire department personnel to professional trainings as necessary.
- Lack of adequate water supply locations in the Township for fire suppression.

Because the Township does not have a municipal water system, all water used in firefighting must be transported by tanker and mutual aid trucks or extracted from dry hydrants located along creeks and rivers, provided suitable access is available.

Opportunities

Both local public safety and emergency departments have a unique opportunity to be aware of community events and issues, and to connect with the public in meaningful ways. For example, as part of their community outreach activities, the Police Department performs free property inspections to help prevent break-ins and theft for property owners who are out of town for extended periods.

Both public safety departments may need to establish fuel reserves in case of fuel shortage.

Police Department Opportunities

Services can be improved through updated electronics. During the next five years the in-car laptop computers will be obsolete and require replacement.

To better serve businesses, the Department will need to update business information to assist in responding to emergencies or alarms.

The Police Department can implement energy saving measures by using vehicles that consume less energy, either through fuel efficiency, or by using alternate vehicles such as motorcycles and bicycles. The Department can also work with neighborhoods to establish watch groups for more targeted patrols.

Fire Department Opportunities

The Fire Department has identified several opportunities to help improve services and minimize risk to the residents of the Township:

- Video cameras that would allow fire fighters to record fire responses that later can be used for firefighter training and review of incidents
- GPS devices that would assist in quickly locating structures in emergency situations
- Purchase of a new wildland brush truck that would be specifically designed to fight wildland fires.
- Installation of a hydrant system in the village of Harvey for consistent water supply to the commercial district and higher populated residential areas.

This type of system would help reduce the Insurance Services Organization (ISO) rating for the Township, which would in turn reduce homeowner and business insurance premiums. This would happen in conjunction with the installation of a public water supply system in the Township.

- Supplement dry hydrant installations at river crossings in more remote areas by having dry hydrants connected to underground storage tanks. Potential areas include Green Garden in the southern portion of the Township and the vicinity of Shot Point in the eastern portion of the Township. This would also contribute to a favorable ISO rating.
- Keep turn-out gear current by replacing a percentage of gear each year.

Public Health

Community elements that can impact public health include transportation, walkability, safety and security,



UP Health System Marquette Hospital



shopping, housing, health services, access to local food, recreation and cultural activities, and community social connections. Demographic changes also impact overall public health, such as the aging population.



Profile

Most health care services are available in Marquette County, where hospitals, clinics and private practices provide a wide array of emergency, surgical, diagnostic, treatment, and wellness services.

Marq-Tran provides door-to-door transportation services for medical and dental appointments.

There is a lack of general medical services in the Township, although some specialty care is available.

Marquette General Hospital built a new facility and moved all emergency and medical services into that location, making for easier access to the hospital from the Township.



Risk Assessment

The population of the United States is aging. Since 2010, there was a 34% increase in the 65-and-older population. As a result, the growth has outpaced the growth of the working age population.⁽⁵³⁾

According to a study concluded in 2018, more than 15 million Americans aged 55 or older (nearly one in six) are childless, and levels are expected to increase. The report concludes that

“Changing demographic patterns, such as the aging of the population and increases in childlessness, alongside a growing trend of older people living alone, raise new questions about the experiences of older childless Americans as they navigate their later years, and whether they will have the support they may need in their oldest years.”⁽⁵⁴⁾

This demographic shift means that communities must focus on making changes that allow more people to age in place, or to have appropriate care if they cannot, while adjusting to a decrease in the workforce.

The median age in the Township has increased since 1990, and at 45 years is the highest in comparison to other jurisdictions including the City of Marquette, Marquette County, State of Michigan, and United States (see **Figure 15**).

Ironically, as a result of the recession which began in 2007, spending for aging supports and services is

shrinking at precisely the time when it is needed most. State and local governments are not adding new programs as they are increasingly financially distressed and struggling to maintain the status quo.

Transportation and housing are significant issues for aging residents. For example, walking paths that are poorly lit, poorly maintained, blocked by obstructions (such as snow), crossed by vehicular traffic, slippery with ice and snow, lacking in benches and public restrooms are a waste of public investment for many people. While able-bodied people may manage poor conditions, winter can virtually imprison the elderly or persons with disabilities if safety and shelter issues are not addressed.

Health care costs are expected to continue to increase. This will impact the Township budget for employees and will also impact disposable income for individuals.



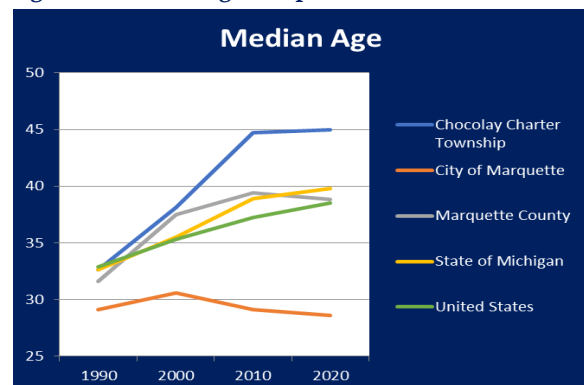
Opportunities

The biggest opportunity associated with planning for the aging population is that in meeting their needs, the Township should become more livable for all ages. Land use planning and regulations must focus on enabling a safe pedestrian environment, easy access to food sources and necessary services, a mix of housing types, and nearby health centers and recreational facilities. These things positively impact resident’s daily lives.

Livability Committee

The first step in improving community livability is to hear from the community, as citizen participation is key to community direction. The Township should organize a Livability Committee to evaluate community conditions and identify areas where it can be made more livable.

Figure 15 Median age comparison



The committee, consisting of members with diversity in income, age, and interests, should identify community-related issues and discuss strategies for improvements, which can be accomplished through volunteer or civic organizations, faith-based groups, businesses, or by volunteering for service.

This community assessment should identify places where people meet, shop, or recreate; transportation issues of significance (including driving, walking, or transit conditions); items that are essential but lacking in the community, and other common issues or challenges.

Once the issues are identified, they should be prioritized so solutions can be implemented in partnership with local government and other organizations. The goal should be planning solutions with universal and four season benefits and should consider climate-responsive design. Many strategies that impact public health and safety are addressed in other sections of this plan.

Solid Waste Management and Recycling

A sustainable waste management program encourages practices that promote environmentally sound disposal methods, maximizes the use of materials recovered from waste, and fosters resource conservation.



Profile

Township residents generate about 80 pounds of solid waste per resident per month. Total solid waste is approximately 240 tons per month. The Township produces approximately 5 percent of the annual landfill tonnage.⁽⁵⁵⁾

The Township contracts with a private hauler to provide curb-side garbage collection. Residents pay for garbage bag or vendor-provided waste and recyclable carts. Businesses hire private waste haulers for their solid waste.

Landfill

Solid waste is deposited in the Marquette County Landfill, which is located about eight miles west of the Township. Residents may haul their own waste (garbage and construction materials) to the landfill by obtaining a landfill permit from the Township. Metal items, cardboard and other recyclables can be dropped off at the landfill for free.

PUBLIC INPUT

Based on the 2013 survey results, recycling is an issue that is important to residents.

Respondents were asked to rate the importance of various issues facing Chocolay Township in the near or distant future. Rating was on a scale of 1 to 5, where 5 equals “Very Important” and 1 equals “Not Important”. Items receiving an average rating of 4 or more include “Maintain curbside recycling services” (4.58 rating) and “Improve curbside recycling services” (4.01 rating).

Township Waste Collection

Weekly curbside recycling is available and takes place along with garbage collection. There are no figures on the amount recycled, but sanitation workers report recyclables are put out at nearly every residence on collection day. Recycling collections involve fiber products (cardboard or similar materials or rigids (such as plastic and metal).

Cardboard can be dropped off at the Township Hall. Scrap metal pickup is negotiated by private contract with participating businesses.

Other Recycling

The Marquette County Solid Waste Management Authority provides for household hazardous waste collection free to County residents on a schedule from May through October at specific locations. The Authority also accepts drop-offs of compostable and organic materials (such as food, coffee filters and grounds, tea bags and leaves, cooking oil and grease, bones, soiled paper and cardboard, and vegetated material). Materials that can be recycled, recycling locations, and disposal of non-recyclable materials can be found on the Marquette County Solid Waste Management Authority web site.⁽⁵⁶⁾

Seasonally, brush can be dropped off at the Township Hall. Brush is chipped and provided to residents for landscaping.



Risk Assessment

Questions regarding solid waste management and recycling take a significant amount of staff time and generate a great deal of resident concern even though the information is readily available from several sources.



Rising energy costs will have a direct impact on waste management contracts and recycling costs, as these services are heavily dependent on transportation costs. The collection of waste and recyclables is essentially a trucking function which is wholly reliant on liquid fuel for operation; similarly, the trucking of recyclables for processing is dependent on transportation costs. A reduction or interruption in collection services could result in illegal dumping or stockpiling of junk and waste on private property.



Opportunities

The Township should continue to explore new solutions consistent with the goals of the Marquette County Solid Waste Management Authority (MCSWMA). Public education regarding solid waste management and recycling should continue on a regular basis through all available outreach methods. Township staff should stay abreast of issues as identified by the MCSWMA to proactively create solid waste management strategies.

The Township should pursue options for Township residents and businesses to contract with their choice of waste management and recycling firms for waste and recycling pick up.

The Township should also periodically solicit input from residents as to their satisfaction with these services.

Managed Development and Growth

Terms such as “sustainable development” and “smart growth” have become more commonplace in communities of all sizes, although these concepts are still debated in relation to local context. It is about getting the most out of future growth and development while avoiding negative consequences, and it is essential for Township consideration.



Profile

Although the Township has not faced the considerable growth pressures of Marquette Township, pressures could develop soon with build out in the jurisdictions adjacent to the City of Marquette. When communities face growth pressures, farmland and open space preservation, rural character, traffic issues, and lifestyles become important.

It is imperative that the Township continue to foster places that people care about even while seeking net

positive development.⁽⁵⁷⁾ The economic and social advantages of more compact or concentrated development are often weighed against aesthetic considerations relating to community character and quality of life, and against environmental impacts.

Higher density lowers the per capita costs of infrastructure capital and operating costs, and reduces per capita use of all types of energy, whether for transportation or heating and cooling. Movement of people and distribution of goods and services becomes more efficient with density, and housing becomes more affordable. This is particularly important during times of shrinking municipal and private budgets.

Density also creates conditions more supportive of vulnerable populations that rely on public transportation or must walk to obtain employment or essential goods and services. Low density single family housing may fail to meet the needs of single parent households, single-person households, empty nesters, and couples without children who now comprise the majority of American households. The fastest growing population groups, people in their mid-20s and the older population above 65 are the groups most likely to look for a more easily maintained alternative to low-density, single-family housing⁽⁵⁸⁾.

Density can have favorable environmental impacts when compact development is paired with open space preservation strategies. But density is not appropriate in every natural environment. Soils, water, geologic conditions, and other elements of local context impact development feasibility.



US 41 corridor garden



The Township provides limited opportunity for more dense development, but density is important to the resilience of the Township.

In 2008, the Township revised the Township zoning ordinance. One revision was to establish a new zoning district, known as Agriculture Forestry (AF). The minimum lot size for the district was set at a 20 acre minimum. Previously zoned districts RR-1, RR-2, and OS were combined and rezoned as AF. This effort made approximately 42 percent of properties non-conforming lots due to the new 20 acre minimum lot size.

Character Area Analysis

A character area analysis was conducted in 2013 that includes primary development patterns, circulation and access, natural features, land uses, public facilities, and zoning (see the *Character Area Descriptions in Appendix D* and the *Character Area maps in Appendix E*). This study was used as a basis for the 2013 public opinion survey (see results in *Appendix A*). Defined character areas for the study included the following:

1. Corridor strip commercial and mixed-use
2. Village mixed-use
3. Corridor cluster mixed-use
4. Isolated commercial
5. Village residential
6. Transportation-oriented residential
7. Water-oriented and recreational residential
8. Sub-urban residential
9. Sub-rural residential
10. Rural residential
11. Country estate
12. Agriculture and Forestry
13. Natural preserve
14. Recreational preserve



Risk Assessment

The Township has a strong rural tradition that may be impacted by development pressures.

Portions of the Township are located along the coastline of Lake Superior. Development pressures are particularly intense on the coastline where there are sensitive natural features and water quality concerns. People seeking to live along Lake Superior or the Chocolay River want to be able to enjoy the natural



Township residence

setting, but smaller lot widths often place residents near enough to neighbors to provoke conflict.

Some property owners utilize lakefront properties as vacation or investment homes. This can trigger conflict with year-round residents who require different values and standards. Portions of the Township serve as an edge community under pressure to provide housing and services to people accessing economic opportunities in the City of Marquette, and development pressures in both these areas work to undermine a land-based resource economy. Tensions mount between old and new residents, permanent and seasonal residents, and those who favor rural simplicity versus those who want urban amenities.

Within the commercial sector of the Township, vacant buildings that no longer serve a vital function reduce the viability of the district. Township civic activities are currently limited, contributing to a less coherent sense of place. Current zoning standards fail to embrace mixed-use and diverse housing opportunities as there are no undeveloped lands zoned for multi-family development, nor is there any provision for redevelopment for the purpose of multi-family housing. Only the PUD district provides for multi-family opportunity; however, this district is meant for properties with a five acre minimum. This does not facilitate infill development but encourages greenfield development.

The lack of a public water supply may limit some commercial and residential opportunity. Some areas would not geologically support an increase in water withdrawals for private wells or would have water quality issues. Sensitive natural areas and State-owned



lands offer additional limitations to development. All these conditions may discourage new investment unless the Township takes a more proactive role in shaping development patterns.

Energy costs can impact the long-range value of existing development patterns. The physical separation of where residents live from where they carry out the activities of everyday life – work, food, school, health care, and community – is the biggest threat posed by energy disruptions.

Remote properties may face disinvestment in the future if energy costs rise. The environmental and economic costs of winter energy consumption are also significant in the region, impacting economic viability.



Opportunities

For the Township, density does not mean large apartment buildings and high-rises. Density for the Township means new residential and commercial development at a density that is higher than what is typically found in the community.

Blending apartments into low-density communities can help pay for schools and other amenities without drastic increases in the number of students. Diverse housing options such as tiny homes, garcabins⁽⁵⁹⁾, granny flats⁽⁶⁰⁾, accessory dwelling units, condominiums, townhomes, or duplexes can increase density without having significant impacts on local character. Mixing apartments into commercial developments and small stores into neighborhoods can improve quality of life, provide an economic boost to the community, and help pay for infrastructure and public services that everyone needs.

“There is ample evidence to suggest that well-designed higher-density development, properly integrated into an existing community, can become a significant community asset that adds to the quality of life and property values for existing residents while addressing the needs of a growing and changing population.”⁽⁶¹⁾ “New multi-family housing,



Michigan Right to Farm Act considerations

particularly as part of mixed-use development, often makes an area more attractive than nearby communities that have fewer housing and retail choices.”⁽⁶²⁾

Multi-family housing should not be considered the housing of last resort for people who cannot afford single-family homes; condominiums are often the most sought after and highly appreciating real estate option.

To have a healthy balance of resource production lands, natural areas, wildlife corridors, and economically beneficial development, it is important to focus new development into already developed areas with all the basic infrastructure and services. Rural smart growth strategies address this healthy balance.⁽⁶³⁾ Smart growth principles for rural communities are based on supporting the rural landscape, helping existing places thrive, and creating great new places.

Supporting the rural landscape means ensuring the viability of the resource economy such as farming and forestry, promoting rural products in urban areas, supporting rural-urban links, and implementing land conservation and preservation strategies for resource production lands.

The Township should review the non-conforming lot size and zoning situation in the Agriculture Forestry district (AF). The Township should consider adding additional zoning districts to accommodate the smaller lots. During the review, the Township should establish the type of uses permitted in the newly established districts as compared to those in the existing AF district. Smaller lot sizes should be encouraged to allow for the establishment of hobby or small family farms.

To preserve agriculture and farmlands for future use, the Township should investigate ways to permit and preserve those lands. This investigation should include conversations with the State regarding the preservation of State-owned properties.

Residential uses of working lands should be very limited. The Township does have provisions for rural cluster development subdivisions and district planned unit developments. District planned unit developments, which allow a mixture of residential, commercial, and light manufacturing uses, are not permitted in the AF district. This is helpful to ensuring the viability of the resource economy. The Township



should review the rural cluster development subdivision regulations to ensure that these provisions as applied to typical situations are also supportive of the conservation of working lands.

The Township needs to amend the zoning ordinance to support the resource economy by allowing agricultural production, processing, packaging, and distribution (at appropriate scales) in more zoning districts, particularly the commercial, mixed use and agriculture-forestry zones (the *Michigan Right to Farm Act* will pre-empt the ability of the Township to limit such activities for commercial farm operations following *Generally Accepted Agricultural and Management Practices (GAAMPS)*)⁽⁶⁴⁾. The processing of raw food, fiber, and forestry materials into value-added products allows landowners to supplement their income and also supports local food systems and the local economy.

The Township should support the marketing and distribution of products from the local resource economy directly to consumers through farmer's markets and community supported agriculture and also through retail outlets in the developed area. These strategies may require changes to use and sign provisions in the zoning ordinance.

Existing places can thrive through concentrated economic development efforts and land use policies that promote redevelopment and reuse of existing developed areas. For example, encouraging form-based, rather than use-based development with a stronger commitment to compact, mixed-use patterns of development and increased density in the village of Harvey can develop a more vibrant urban landscape while preserving open space. Form-based codes also provide more predictability in the public realm, which encourages investment.

The Township should resist zoning more vacant land available for commercial or industrial development until the existing developed areas are more fully utilized; however, rezoning should be considered if there are no suitable properties to for the proposed development. An alternative would be to consider modifying the PUD provisions in the zoning ordinance for these purposes.

Providing core neighborhoods with essential services within walking distance (as described in traditional neighborhood development)⁽⁶⁵⁾ can be achieved

through an activity nodes overlay in strategic locations that accomplishes the following:

- Incorporates elements that support pedestrian environments and encourage transit use, walking, and bicycling
- Provides for a mix of uses
- Provides for parks and other public and private open spaces
- Provides for a mix of housing types and densities

Managed Economy



Profile

The State of Michigan, as part of the *Michigan Prosperity Initiative* ⁽⁶⁶⁾, has adopted 14 strategic categories requiring the right mix of people assets, place assets, and policy to promote and assist economic development. The strategies require effective collaboration among stakeholders including K-12 and higher education, local government, state government, and public, private, and nonprofit organizations. It is important to clarify the Township's role in creating economic prosperity.

People-based strategies involve enhancing talent. Such strategies embrace an entrepreneurial culture: advancing innovation and technology, educating and retooling our future workforce, attracting and retaining talent, and marketing each region. These strategies are generally pursued by educational institutions; state, regional and local organizations; and private and nongovernmental economic development organizations.

Policy-based strategies involve enhancing the business climate. Such strategies address creating an



US 41 South / M-28 intersection



entrepreneurial culture, increasing capital funding, diversifying and globally connecting business, shaping responsive government, designing a fair and competitive tax structure, and enhancing transportation connections. These strategies are generally pursued by State government; state, regional and local organizations; and private and nongovernmental economic development organizations.

Place-based strategies involve enhancing community assets. Such strategies address strengthening quality of place, marketing each region, seizing green opportunities, optimizing infrastructure investment, and enhancing transportation connections. These strategies are generally pursued by local governments; state, regional and local organizations; and private and nongovernmental economic development organizations.



Risk Assessment

The difficulty in managing a local economy is the interconnectedness of the local economy with the regional, national, and global economies. The Township is limited in what it can do to influence the economy even though the economy has direct impacts on local government financing. There is greater risk in failing to help manage the local economy. Net positive opportunities can be missed, and net negative situations can take root with long running implications.



Opportunities

The Township can assist in the following people-based strategies:

- Create a more business-friendly environment
- Provide entrepreneurial support
- Assist in expanding mentoring and internship opportunities

The Township should ensure that regulations and permitting processes are conducive to the development of local entrepreneurship. Site plan review standards should be analyzed to determine if application requirements and approval processes can be shortened for certain types of property improvements (such as the addition of accessory structures). Data (such as anticipated market area and target market served, products or services offered, and infrastructure and services needed) should be gathered. A business welcome packet with area

information should be provided, including copies of maps that may be useful to business patrons. The packet should include a brochure detailing applicable regulations and permit information.

The Township should develop an online business directory. The business owner or prospective business owners should be given the opportunity to be included in the directory, and properly permitted home occupations should also be included.

The Township should continue to work with area economic development and entrepreneurial support organizations. Working collaboratively, an information document can be created to refer prospective entrepreneurs to other organizations for business plan and financing support.

The Township can directly assist prospective entrepreneurs in locating potential local properties for use and assist in navigating the Township permitting process. The Township should also provide a document describing other permits that may be needed from the County and State.

The Township should participate in restarting the Chocolay Area Business Association (CABA). After restart, the Township and CABA should sponsor a yearly business meet and greet with local businesses, farmers, and those with home occupations to discuss support strategies including marketing efforts.

The Township can help expand mentoring and internship opportunities by utilizing students from Northern Michigan University or other educational institutions to assist in local government operations or special projects.



Chocolay Area Business Association logo



The Township should continue to invest in annual education and training to enhance Township staff talent.

Policy-Based Strategies

The Township can assist in the following policy-based strategies:

- Align local plans with regional assets, strategies, and plans
- Benchmark public sector economic development
- Expand regional processing of natural resource-based products
- Explore emerging opportunities to connect assets
- Gather, analyze, and regularly share business data
- Reform local government regulations
- Support the targeting of underutilized places

The Township should develop a method to keep current property information on vacant buildings and properties that are redevelopment opportunities. This information, including property owner contact information, should be made available to prospective



Example kitchen incubator

tenants or purchasers with the permission of the property owner.

The Township should stay abreast of policy and regulatory changes that impact local government and take appropriate action. The Township should also be aware of the contents of plans for adjoining jurisdictions, the County, and the region, and strive for consistency between the plans when possible. The Township should collaborate with other jurisdictions as much as possible to achieve the goals and strategies of the Township master plan.

The gathering and sharing of business data can be accomplished through a partnership with CABA and local and other regional organizations.

To provide for opportunities for expansion for natural resource-based products, the Township should promote and pursue a niche economic development opportunity associated with local food systems. The Township is optimally located between prime agricultural areas and the City of Marquette on regional transportation routes, and can provide diverse space for kitchen incubators, food processing facilities, food aggregation and storage facilities, and distribution centers.

Local zoning should reflect this goal. Local ordinances should support the operations of mobile food vendors at various locations in the Township near residential neighborhoods, in the commercial district, near public recreation areas, and near institutions such as Cherry Creek School.

The Township should explore opportunities for collaborations in planning and funding projects associated with connected assets such as trails, watersheds, prime habitats, and transportation corridors; and with inter-connected issues such as disaster mitigation, responses to climate change, tourism, and recreation.

Economic development benchmarks should be evaluated annually in conjunction with the preparation of a Township annual report.

Public Sector Benchmarks

Appropriate benchmarks for local public sector economic development should include:

- Number of businesses contained in the Township database
- Number of businesses in the online business directory
- Number of business support information documents provided
- Number of entrepreneurial referrals resulting in assistance
- Number of businesses attending the annual “meet and greet” event
- Number of interns involved in local government activities
- Number of Township employees, Township Board, and Township Commission members involved in mentoring activities
- Number of Township employees, Township Board,



and Township Commission members attending education and training programs

- Timeliness of prime redevelopment opportunity information
- Amount of private funds invested in the restoration of vacant, blighted, or underutilized properties
- Number of businesses associated with local food system support
- Number of collaborations involved in local economic development projects
- Number of businesses associated with “green” or “clean” technology industries
- Amount of grant funds leveraged for local or collaborative economic development projects
- Number of volunteers involved in supporting economic development initiatives

Place-Based Strategies

The Township can assist in the following place-based strategies:

- Leveraging vacant properties
- Regional marketing initiatives
- Development and revitalization of area properties
- Targeted community investments
- Targeted regional investments
- Renewable energy and resource promotion
- Grant funding

Placemaking

Placemaking involves value-added strategies that relate to local or regional assets and generate improved quality of life and enhanced economic impact while minimizing negative environmental impacts. These strategies attract people, businesses, and jobs. Because of these benefits, placemaking initiatives often receive funding priority.

In the Township, natural features offer inherent value of place. For example, lakeside property values are the highest in the Township. However, the built environment falls short of creating a sense of place. Placemaking projects must be based on thorough community visioning exercises. However, they must also consider the values of people they want to attract to the community.

The Township has identified cultural placemaking projects for the urban route of the Iron Ore Heritage Trail through the Township. Funding may be available for a historic mural detailing the iron ore heritage of

the Township to be located in the US 41 South pedestrian tunnel. Area artists should be favored in this effort if possible.

Local scouting organizations have expressed interest in coordinating a service project to decorate the exterior pedestrian tunnel entrances with handmade art tiles. This project should involve multiple generations of community members in a coordinated effort to decorate tiles around a community-chosen theme. The purpose of these projects is to provide a destination art installation to attract more users for this portion of the Iron Ore Heritage Trail, to educate the public on the iron ore history of Chocoley Township, and to involve the community in an effort to create a unique sense of place around this local amenity.

Another placemaking project is intended to draw visitors along the entire length of the Iron Ore Heritage Trail for the purpose of drawing attention to local businesses and providing family recreation. This project involves the creative positioning of geocaching stations along the route, either near the trail or on the properties of cooperating businesses or organizations. This project should also involve a coordinated community effort and could include multiple themes.



Placemaking example

Placemaking initiatives can be supported in form-based codes, as can climate-responsive design strategies.

In the Township, targeted investments in place-based assets should incorporate climate-responsive design⁽⁶⁷⁾ or making public places that are inviting all year. In this climate, this practice often focuses on making places more livable, comfortable, and



accessible in the winter (sometimes referred to as “winter cities” strategies).

According to Dr. Norman Pressman⁽⁶⁸⁾, high quality microclimates are an essential element of an ideal winter community, along with accommodating the winter needs of our most vulnerable groups and allowing residents to enjoy winter through special community festivals and events (these efforts can be facilitated by the Livability Committee as detailed in the *Public Health* portion of this section).

New public projects that are suitable for utilization in all seasons should receive highest priority for funding and implementation.

Form-based codes

Form-based codes can be used to implement climate-responsive design solutions. For example, taller buildings can be required to incorporate exterior balconies or stepped facades to help reduce wind speed and wind tunneling effect below. Wherever possible, ramps or stairs can be required to be covered to protect from snow and ice, and handrails can be provided for all public and private walkways. Roofs can be designed to keep snow and ice from shedding into parking areas or onto pedestrians. All developments should include snow management and storage areas. Outdoor recreation equipment should be constructed of better insulated materials (such as vinyl-coated metal) for greater year round use and comfort.

Favorable micro-climates that encourage year round outdoor activities can be created through “sun pocket” effects in public gathering areas rather than “wind tunnel” effects. This can be achieved by including vegetated buffers with coniferous trees, or creative arrangements of buildings, walls, fences, or berms to provide shelter for public areas.

The Township needs a community gathering space for year round entertainment in the village of Harvey near the Corning Street intersection where it is easily accessible from the entire village and supported by a safe road crossing. This space need not contain permanent structures but would ideally be able to “flex” with the season. For example, a privately sponsored gathering space could consist of a large yurt with vented fireplace or “outdoor” community oven on an insulated, raised platform that can serve as a winter shelter and eating / drinking space served by mobile food vendors. In the summer, the yurt could be

disassembled, and the platform used for café seating and as an outdoor concert venue.

Targeted investments in the rural community can be achieved through regional collaborations (such as supporting the efforts to sustain local farmers by promoting agritourism). The Township can assist in these efforts by ensuring that zoning regulations permit the operation of such resource-based businesses as breweries, wineries, wine tasting rooms, food stands, and other businesses selling or promoting the value-added products of local farms and crafters in the agriculture district. This would include the ability of producers to hold agriculture-related events, host



Form-based code example

guests, and construct educational or recreational facilities allowing visitors to experience and learn about their agricultural activities. This strategy supports direct marketing to consumers, which strengthens farm incomes and increases the viability of the occupation, contributing to local food systems.

Similarly, the Township should support local or regional “buy local” campaigns by making information available on the Township website and in resident mailings. The Township should participate in educating the public on the many economic and social benefits of supporting local businesses and organizations.

The Township should collaborate with the efforts of other area economic development organizations to promote the establishment of “clean” and “green” businesses in the Township. The Township should welcome the opportunity to host light manufacturing and assembly operations that create local jobs and do not threaten the environment or the rural character of the Township.



Public Recreation



Profile

Natural features, to a large extent, are what draw recreation enthusiasts to live in the Township. Residents prefer being close to their outdoor “playground”, enjoying activities such as fishing, gardening, hiking and biking, picking wild berries, relaxing on the beach, sledding, snowshoeing, snowmobiling, and watching birds.

The people of Chocolay Township enjoy recreation opportunities all across the region. Accordingly, the Township collaborates with other entities such as the Iron Ore Heritage Trail Recreation Authority and the State of Michigan to enhance recreation opportunity in the Township.

Other recreational opportunities in the Township are provided by the Cherry Creek Elementary School, Harvey Baptist Church (Community Garden), Silver Creek Church (portion of the disc golf course), the State of Michigan (M-28 turnouts and Welcome Center), and the U.P. Disc Golf Association. The Township is fortunate to have assistance from the Boy Scouts, Girl Scouts, regional Rotary Clubs, the Township-based Lion’s Club, and local citizens.

Featuring over 12 miles of beach along the Lake Superior shoreline, and a multitude of lakes, streams, and reservoirs throughout the Chocolay River watershed, the Township provides ample opportunity to enjoy nature-based recreation opportunities. Natural features facilitate some of the most valued recreation experiences in the Township, including biking and walking trails, hiking and nature trails, cross-country ski trails, and fishing and hunting opportunities.

Recreation Evaluation

In evaluating recreation opportunities, data was collected on the following:

- Capabilities of Township staff to maintain the facilities or programs
- Citizen preferences as expressed through public opinion surveys
- Existing character
- Existing parks and recreation facilities in relation to accessibility, current use, condition, and potential use
- Existing policies and regulations
- Existing Township-owned undeveloped parcels in

relation to potential use

- Natural features
- Needs for both residents and visitors
- Other lands open to public use
- Resources available to support facilities and programs
- Review of regional public and private recreational opportunities
- Transportation accessibility
- User preferences through focus group meetings and opinion surveys

In addition to the *Priority Decision Evaluations* (see [Error! Reference source not found.](#) in the *Community Values* section) the following criteria apply to recreation decisions:

- The extent to which the opportunity increases opportunities for partnership, collaboration, and inclusiveness
- The extent to which the opportunity supports four-season use
- Accessibility (universal or ADA access)

Table 14 highlights additional criteria that should be used to evaluate future opportunities for open space and natural area acquisition.

Table 14 Recreation decision evaluations

Priority Decision Evaluations

- 1 **Preservation of essential habitat areas to support plant and animal biodiversity**
- 2 **Presence of scenic resources**
- 3 **Public access to interactive natural experiences**
- 4 **Beneficial wildlife corridor connections**
- 5 **Water quality protection**
- 6 **Natural area protection**

The Township’s recreation infrastructure is presented in detail in the Township recreation plan and a summary is contained in this plan. ⁽⁶⁹⁾

An inventory of all parks and recreation facilities is provided in the Township recreation plan. This includes properties owned by the Township, cooperative facilities, facilities owned by other public entities, and private facilities.





Risk Assessment

Recreation opportunities are currently funded through the General Fund, with additional funds coming from grants, KBIC, and local donations (both financial and in-kind). Accordingly, recreation funding faces the same financial risks as overall Township funding.

The cost of energy resources will also impact financial resources available to operate and maintain recreational resources.

Representatives from the Township’s insurance provider conducted a risk assessment of all existing facilities and equipment in 2013. The analysis indicates a need to update various facilities to prevent or mitigate safety risks.



Opportunities

The most readily implementable recreation opportunity involves the promotion of existing recreation within the Township; the 2013 survey showed that many residents are not aware of existing facilities.

It can be assumed that non-residents are even less aware, unless they are involved in organized group activities. The Township can remedy this situation through signage; published and distributed maps, guides, and brochures (to be located at the Township Hall, area businesses, local civic locations, and the

Welcome Center); a Township newsletter; information on the Township website; promotion through social media; and collaborations with area tourism organizations.

There is a need to establish long-term maintenance plans for existing Township facilities, and to implement annual capital improvement planning based on life-cycle costing. The Township should consider conducting the risk assessment for Township properties with the Township insurance provider every two years to ensure that Township recreation facilities and equipment is safe for residents and visitors.

It is essential to address the needs of the aging population, and to provide more winter recreation opportunity. There is a need for a four season community center.

Greater attention to universal or ADA access is needed when upgrading or planning for new facilities.

In general, survey respondents favored cost efficient recreation opportunities that will not significantly add to the tax burden. Respondents also favored passive recreation opportunities that serve all age groups, such as walking / biking paths, fishing paths, and neighborhood parks.

Recreational strategies including both general and site specific activities and staff responsibilities are provided in detail in the Township recreation plan.⁽⁷⁰⁾





PRIVATE SYSTEMS

Private households and businesses face many of the same risks as the overall community, including risks related to financial condition, housing, transportation, energy, food, water, and critical goods and support services.

Population

As shown in **Figure 16**, the Township’s population has leveled since 1980.⁽⁷¹⁾ This is in contrast to the population of Marquette County, shown in **Figure 17**, which declined after 1980⁽⁷²⁾ and rebounded slightly between 2000 and 2010 for an overall downward trend.⁽⁷³⁾

Figure 16 Township population

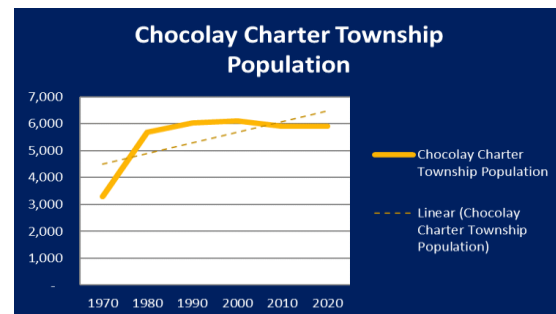


Figure 17 Marquette County population

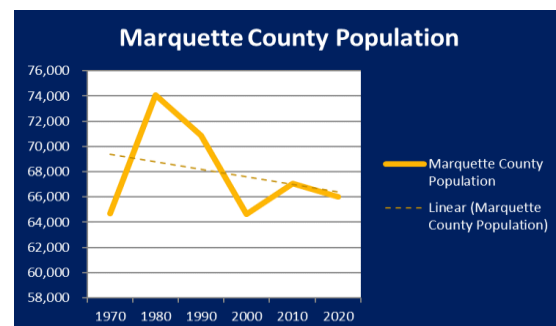


Table 15 identifies a support ratio comparison with the State of Michigan that shows that the Township has a greater support ratio of working to non-working age population than the State.⁽⁷⁴⁾ The difference is that the Township has fewer people in the working age bracket. The percentage of people aged 65 and older is the greater in the Township than the State (see the *Population Pyramids in Appendix G*).

Table 15 Population comparisons

2020 Support Ratio	Michigan	Marquette County	Chocolay Township
Total Population	10,077,331	66,017	5,899
% working age (16 years or older)	62.0%	57.9%	61.5%
% under 18	21.5%	17.8%	20.2%
% 65 and over	17.7%	19.6%	21.8%

Census Bureau estimates show that 75 percent of all families with children up to 17 years old have both parents in the labor force in the Township⁽⁷⁵⁾; median household income estimates are shown in **Table 16**. The Township’s median household income is estimated to be higher than all areas of comparison⁽⁷⁶⁾.

Table 16 Median household incomes

Entity	Median Income
Michigan	\$57,144
Marquette County	\$53,970
Chocolay Township	\$66,815
City of Marquette	\$43,977
Forsyth Township	\$51,746

The people of the Township have an excellent academic education level as shown in **Table 17**.

Average household size in the Township in 2010 is slightly lower than in Michigan (2.4 compared to 2.49).

Table 17 Education comparisons

Education	United States	Michigan	Marquette County	Chocolay Township	City of Ishpeming	City of Marquette	Forsyth Township
High school graduate	88.0%	90.8%	95.0%	94.1%	94.0%	95.1%	94.4%
Bachelor’s degree or higher	32.1%	29.1%	32.9%	44.0%	24.6%	44.1%	18.5%

Almost 28 percent of Township households had individuals under 18 years compared to 31.6 percent of State households. Average household size of renter-occupied housing units in Chocolay Township is smaller in comparison to owner-occupied units.⁽⁷⁷⁾

In the Township, a lower percentage of householders live alone than in the State. Of the single person households in the Township in 2010, there were more males than females; however, there were many more female single householders aged 65 and older. Additionally, there were 89 female-headed households (no husband) with children under 18 compared to 52 male-headed households (no wife) with children under 18.⁽⁷⁸⁾

Household Finances

Household financial resilience is related income versus expenditures, and decisions on saving versus spending. Expenditures are impacted by household location in relation to jobs and goods (transportation expenses) and in relation to services (utility fees). Expenditures are also impacted by housing choice (costs for upgrades, repairs, and energy), and taxes impact disposable income. Financial resilience is also strongly related to levels of debt.



Profile

Township households pay taxes to multiple entities, including the Township, Marquette Area Public Schools, and the County (see [Error! Reference source not found.](#)). Other millages may be approved by voters of Township tax district (such as the library, Iron Ore Heritage Trail, and Township roads). The Township currently has a moderate level of general operating millage levied in comparison to other jurisdictions within Marquette County.⁽⁷⁹⁾



Table 18 Poverty levels

Education	United States	Michigan	Marquette County	Chocolay Township	City of Ishpeming	City of Marquette	Forsyth Township
Median household income (2015-2019)	\$62,843	\$57,144	\$53,970	\$66,815	\$46,299	\$43,977	\$51,746
Per capita income (2019)	\$34,103	\$31,713	\$27,979	\$31,629	\$26,146	\$25,601	\$25,172
Percent in poverty	11.4%	13.0%	11.8%	10.7%	14.7%	25.0%	19.5%

As shown in **Table 18**, Median household income and per capita income are the highest in the County and exceed the numbers for Michigan and the United States. The poverty rate, although high at 10.7%, is the lowest in the County, and is below the numbers for Michigan and the United States.



Risk Assessment

Some risk factors for household financial resilience include variable or fixed incomes, rising costs, and rising debt. Those who have part-time jobs with variable hours cannot fully anticipate income. Those who live on fixed incomes may not always be able to anticipate variable expenses. These households are more vulnerable to rising costs for energy, food, medical care, and transportation. The ups and downs of the stock market also impacts those trying to use investment income for living expenses.



Opportunities

The best ways for households to work toward financial resilience is to reduce debt, save for contingencies, make sure there is effective insurance in place, and implement cost control measures in relation to transportation, energy, and sustenance.

Private Transportation



Profile

Because public transportation is limited, and the majority of Township residents work and shop outside the Township, transportation infrastructure is a critical local need (see **Table 5**, **Table 6**, **Table 7**, and **Table 8**). Reliable transportation improves the ability of participants to get to jobs, improve their financial situation, and change spending and saving patterns. Reliable transportation also improves access to health care, nutritious food, day

care options, educational opportunities, and increases community involvement.

According to Census Bureau data from 2002 through 2011, an average of 1,241 people were employed in Chocolay Township but live elsewhere. 2,573 people live in Chocolay Township but are employed elsewhere. Only 157 people lived and worked in Chocolay Township.⁽⁸⁰⁾ Most workers in the Township commute to their jobs.



Risk Assessment

People with lower incomes and those traveling greater distances are most vulnerable to fuel price increases. **Table 19** illustrates the impact of increased fuel prices for various income brackets, assuming Chocolay Township residents travel approximately 15 miles per day at an average efficiency of 20 miles per gallon.⁽⁸¹⁾

Notice that at an average gas mileage of 20 mpg, and a gas price of \$5 per gallon, average miles driven would have to decrease from 15 to 6 miles per vehicle per day for the percentage of fuel expenditures to income to stay the same as they were at \$2 per gallon. Assuming residents do not cut back on driving and continue to average 15 miles per vehicle per day, at a price of \$5 per gallon, fuel economy would have to increase to almost 51 miles per gallon for the percentage of fuel expenditures to income to stay the same as they are at \$2 per gallon and an average fuel efficiency of 20 miles per gallon.

Purchasing a fuel efficient vehicle may be beyond the reach of low income households, which indicates that people with lower incomes will have to reduce vehicle miles traveled since they cannot substantially increase the percentage of fuel expenditures as part of their income. They can do this by moving closer to jobs



(if housing is affordable) or they can look for alternative transportation options (such as using a bicycle, walking, public transit, or carpooling).

Whether these alternatives are feasible will depend on the distance residents need to travel and the availability and cost of public transit, and options will increase typical travel times. A car traveling at an average speed of 50 mph (average speed between Harvey and Marquette) goes about 8.3 miles in 10 minutes. At a pace of 9 mph, it would take a person on a bicycle almost one hour to travel the same distance.

Table 19 Impact of fuel prices on income

Fuel Price Comparison					
Price per Gallon	\$2.00	\$3.00	\$4.00	\$5.00	\$6.00
Cost per mile @20 miles per gallon average (MPG)	\$0.10	\$0.15	\$0.20	\$0.25	\$0.30
Costs @ 15 miles per vehicle per day	\$1.50	\$2.25	\$3.00	\$3.75	\$4.50
Costs per vehicle per year, (assume travel 6 days / week)	\$468.00	\$702.00	\$936.00	\$1,170.00	\$1,404.00
Fuel expenses as % yearly per person income \$50,000	0.94%	1.40%	1.87%	2.34%	2.81%
Fuel expenses as % yearly per person income - \$35,672*	1.31%	1.97%	2.2.62%	3.28%	3.94%
Fuel expenses as % yearly per person income \$15,000	3.12%	4.68%	6.24%	7.80%	9.36%
Fuel expenses as % yearly per person income \$10,000	4.68%	7.02%	9.36%	11.70%	14.04%
* 2019: ACS – 1 Year Estimates Profile ⁽⁸²⁾					

At a pace of 3 mph, it would take a person walking 2.75 hours to travel the same distance. It is unlikely that these commute times would be acceptable for most people, and the Township climate does not easily accommodate these alternate modes of travel for much of the year.

If enough people were impacted, public transit or carpooling would be a more suitable option for most people. Public transit buses do not take direct routes to individual destinations, resulting in increased commute times. These options would mean a big change in habits since people often make trips to multiple destinations, which may be difficult or

impossible when relying on carpooling or public transit.

The impact on lower income workers may be even more profound since they are more likely to own older and less fuel efficient vehicles. Gasoline may consume a more significant portion of their income, especially if land use patterns do not permit jobs near housing or provide the ability to work from home.

Rising fuel costs will impact the profitability of public transit agencies unless ridership increases, or fares are raised. Rising fuel costs will also increase

expenses for wholesalers and retailers of goods. These costs will most likely be passed along to the consumer if other costs cannot be decreased to compensate.



Opportunities

It is important that the Township

provide zoning opportunities for a variety of housing to be built near Marquette (where most people are employed).

One way to do this is to ensure that higher density housing options are permitted in the sewer district surrounding the village of Harvey. It is important to revise the zoning ordinance to accommodate mixed-use options (such as apartments above commercial or accessory dwelling units). This will make

lower cost housing options available, revitalize the village, and provide property owners with additional income opportunities. The priority is to change how existing structures can be used.

Critical Goods and Services

Another way to mitigate rising fuel prices is to reduce the distance that raw materials, goods, and people must travel to reach their endpoint.

The Township should ensure there are sufficient commercial and light industrial land use opportunities available so that critical goods and services are



undertaken and made available in close proximity to residents.

If fuel prices reach a prohibitive level, the Township can collaborate with other organizations to implement an electronic carpooling match system to facilitate ride share opportunities. Additional carpool lots may be needed in the future and should be considered along with future development.

Ride Share Lots and Programs

The Township can also encourage the development of car-sharing programs. A private, for-profit venture would operate as a rental service allowing members to reserve a rental car for variable time periods, and to pick it up somewhere nearby, such as in their neighborhood. This allows people who only use a car occasionally to forego car ownership. The rental rates would cover the fuel, maintenance, insurance, and parking fees for the vehicle at the home site, so these cars would need to have maximum utilization to ensure profitability. A non-profit organization could also coordinate a car-sharing program. Alternately, this type of program could develop from private agreements between neighbors, friends, or family maintaining a vehicle through similar sharing of usage and costs.

The Township should assist in providing locations for vehicle recharging stations in the Township.

To enhance ridership for public transportation, the Township should investigate opportunities to construct additional transit shelters in more locations (one such location should be near the Silver Creek Recreation Area).



Example vehicle charging station

These locations can be established by surveying residents regarding their need and willingness to use public transportation and locating stops near anticipated concentrations of users. Additional shelters would make the use of public transit more convenient and comfortable and possibly increase ridership. These shelters should be modest in cost and easy to maintain. Private enterprises might also support the development and maintenance of such structures if they could coordinate pick-ups from them.

Arranging flexible work options can help reduce transportation costs, such as telecommuting and four-day work weeks. These options should be explored as alternatives for Township employees.

Housing Resilience

Housing resilience relates to issues of affordability and diversity. Affordability is related to proximity to destinations, energy efficiency, and condition of the structure. Diversity is related to meeting the needs of the population as they continue to age and providing housing for a variety of economic circumstances.

Profile

There were 2,881 total housing units in the Township in 2020, and 94.9 percent were occupied compared to 76.22 percent in the County.

The homeowner vacancy rate in the Township was a low 0.9 percent, with renter vacancy rate much higher at 7.6 percent. Both these numbers are much lower than the State however, where the homeowner vacancy rate is 2.7 percent and renter vacancy rate is 11.5 percent.⁽⁸³⁾

Home Ownership

Of the owner occupied housing units, 66 percent had a mortgage or loan. The remainder were owned without debt.⁽⁸⁴⁾

The median value of owner-occupied units in the Township is estimated to be \$171,100, compared to a median value of \$126,300 in the County and \$128,600 in Michigan. The lake and river-front properties may influence this higher value.⁽⁸⁵⁾

The median selected monthly owner costs for housing units in the Township with a mortgage is moderate at \$1,177, compared to \$1,092 in the County and \$1,355 in the State. Median selected monthly owner costs for housing units in the Township without a mortgage is estimated to be \$338.⁽⁸⁶⁾



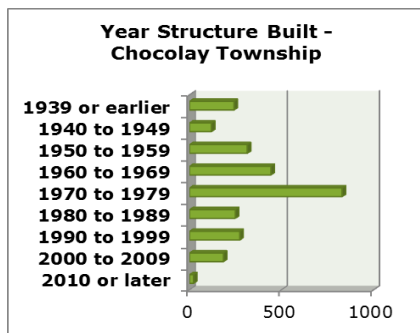
Median gross rent in the Township is estimated to be \$703, compared to \$504 in the County and \$755 in the State.⁽⁸⁷⁾

The housing market is strong near the City of Marquette. However, the national trend is for those retiring to abandon large single family homes for housing that fits better with their lifestyle choices and needs. Younger potential buyers seek more walkable and compact housing options near culture, entertainment, and restaurants. As a result, certain housing types, particularly single family homes, may sit vacant or underutilized, while there is an undersupply of alternatives.

Risk Assessment

Figure 18 shows the percent of housing built per decade. The largest percentage of Township housing was built in the 1970s. This indicates that repairs and energy efficiency upgrades may soon be needed. Homes built between 2000 and 2005 used 14 percent less energy per square foot than homes built in the 1980s, and 40 percent less energy per square foot than homes built before 1950.⁽⁸⁸⁾ However, larger home sizes have offset these efficiency improvements.

Figure 18 Housing per decade



According to the U.S. Department of Energy, 78 percent of total energy consumption in residential buildings comes from consumption of space heating and cooling, lighting, and water heating.⁽⁸⁹⁾ The climate of the Township dictates that heating is of primary concern much of the year.

Energy efficiency is even more of a concern in rental housing. When renters assume the costs of their utility bills, landlords do not have much financial incentive to make their units more energy efficient.

Opportunities

It will be important to facilitate community awareness of programs to improve housing affordability, such as energy optimization, weatherization, and renewable energy programs. Some lenders offer mortgages that allow the borrower to use the money saved in utility bills to finance energy improvements. In some states, property tax incentives have been used to ensure that the renewable energy system has no impact on assessed value of properties.

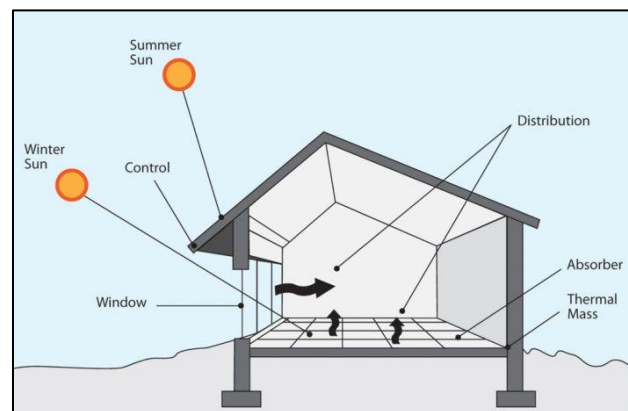
Federal tax credits are available for residential energy efficiency.⁽⁹⁰⁾

It is important to permit more multi-family housing, small houses (such as tiny homes) and accessory dwelling units which offer multiple benefits including energy efficiency, affordability, less maintenance, and care of senior or youth family members. On average, multi-family homes used 9 percent less Btu per household than mobile homes and 40 percent less than single-family homes.⁽⁹¹⁾

It is also important for homeowners to become more aware of energy usage, and to implement energy conservation measures. Changing habits is as important as changing infrastructure.


The construction of passive solar homes (see **Figure 19**) should be encouraged. In addition to being oriented to take advantage of the sun, these homes are heavily insulated, airtight, and use thermal mass for heat storage, thereby reducing energy use significantly. These homes improve resilience in case of a power failure because much less supplemental heat is needed. They have proven successful in northern climates and have been most widely used in Germany and Scandinavia.

Figure 19 Passive house design




Private Energy

Profile

 In the United States, the buildings sector accounted for about 38.9 percent of primary energy consumption in 2017, with industrial use and transportation absorbing the remaining 61.1 percent. Homes account for 52.4 percent of the energy use in the building sector, with commercial buildings accounting for 47.6 percent.

Trends for energy sources have changed, with an 8.3 percent drop in coal consumption and a 4.8 percent increase in renewables.⁽⁹²⁾

Risk Assessment

 As the price of electricity increases, more people will look to other energy sources for home heating and cooking needs if they are available. Alternative sources such as natural gas and propane will increase in price as energy production costs and consumer demands increase, forcing another search for other alternatives. Switching to wood-burning sources may increase the particulates in the air and result in increased fire risk. Additionally, local biomass supplies may prove insufficient, and sufficient quantities may not be able to be cut and moved to all destinations.

A significant increase in the cost of fuel will stress the budgets of households who are reliant on personal vehicles and will have an especially regressive effect on the Township's lower wage earners. Disposable income will decline as the price of many products rise (either because oil is a key input in the product or because the cost of transporting the product rises).

The potential impacts of energy scarcity include:

- The personal automobile becomes a less affordable means of transportation
- The need for public transportation increases
- The cost of food and other critical goods rise due to increases in transportation and production costs
- Commuting becomes a less affordable lifestyle
- People may look for smaller, more energy efficient homes; large or energy inefficient homes will decline in value. Those who have their net worth tied up in the larger homes may be negatively impacted.
- Alternative power sources could be needed if there are increasing power disruptions. This could include generators that run on multiple fuel




Example solar roof installation

sources, or renewable energy sources that are not tied to the grid.

Businesses that require more energy will be more vulnerable to rising costs. Warehouses, storage facilities, and churches use less energy. Medical buildings and food sales and service businesses are more vulnerable due to energy-intensive end uses and more frequent occupancy.

Opportunities

 Reducing per capita energy consumption is critical in reducing the impact of shocks or stresses associated with future energy costs or shortages. Buildings and transportation are the primary focus for savings, with passive strategies providing the highest levels of resilience. Retrofitting is critical given that 66% of the houses that will exist in 2050 are already standing.⁽⁹³⁾

Energy Incentive Programs

Marquette Board of Light and Power and Alger Delta Electric Cooperative offer energy optimization programs for both residential and commercial / industrial customers. These include:

- Agribusiness rebates for installation of energy efficient products and equipment (such as sprinklers, fans, heaters, controls, pumps, and refrigeration)
- Commercial and industrial rebates for installation of energy efficient products and equipment (lighting, HVAC, food service equipment, grocery and commercial refrigeration, industrial processes)
- Online home audit
- Rebates on efficient residential heating,



ventilation, and air conditioning

- Residential appliance recycling
- Residential low income programs for energy efficiency and weatherization
- Residential rebates on high efficiency products and appliances (such as LED fixtures, ceiling fans, power strips, and Energy Star appliances)

Michigan Saves is a public-private partnership which works with private lenders to provide affordable financing to help homes and business save energy and money. This program also supports local construction jobs.⁽⁹⁴⁾

Other Opportunities for Private Systems

Methane digesters transform locally generated waste into biogas which can be used for power in fixed installations such as power plants or pumping stations. The by-product of this process can be used as fertilizer for local gardens and farms. These systems may benefit private consumers.

Residents can increase water supply available for outdoor and non-potable indoor water use by

collecting rainwater from roofs and other runoffs. Avoiding the use of well water for irrigation takes the stress off well pumps and provides less shock to plants from cold water. Water storage capacity should be expanded to provide for short-term emergencies in power failures when well pumps will not work.



Example power storage system

Consumers should be encouraged to buy products that require less packaging that will be thrown away. Less waste means lower costs for transporting products. Household composting also reduces garbage and yields a valuable soil amendment product. Neighborhood scale composting programs can benefit community gardens.

Some neighborhoods are exploring ways to work

together through resilience circles. These groups provide an opportunity for learning, sharing skills, providing mutual aid, exchanging services, and pooling resources.

Residents should voice support for local regulations that permit them to raise food at their homes and increase their food security.





NATURAL SYSTEMS

Existing natural features and natural systems issues (such as disaster mitigation, hazard management, management of sensitive environmental areas and retention of productive land) determine the impact on natural systems in the Township.

An in-depth natural features inventory has been conducted for the Township (see the *Natural Features Inventory* maps in *Appendix B*).

Farmlands, Forests, and other Productive Lands

Actions dedicated to the preservation of productive lands are important to support the maintenance of a critical supply of land for the production of essential goods such as agriculture and timber products. Some economic benefits from productive farmlands include associated agricultural jobs and agritourism. In addition to economic benefits, there are environmental, cultural, and quality-of-life benefits (such as preservation of food and cover for wildlife, maintenance of air quality, groundwater recharge, stormwater storage, wetland protection, local food

security, recreation opportunities, and preservation of scenic landscapes and rural character).



Profile

The Township encompasses 60 square miles of land area (38,401 acres). The Township has approximately 3,638 acres of primary working lands that are characterized by cleared pasture, farms, and actively managed forests (primary working lands are identified as *Agriculture and Forestry* in the *Character Area Descriptions* found in *Appendix D* and on the *Character Area* maps included in *Appendix E*). Of these lands, 926 acres (25 percent) are publicly owned by the Township.

There are approximately 22,162 acres of natural preserve lands that are characterized by mostly wooded natural areas. Of these lands, 12,348 acres (56 percent) are publicly owned by the Township and the State (these natural preserve lands are identified as *Natural Preserve* in the *Character Area Descriptions* found in *Appendix D* and on the *Character Area* maps included in *Appendix E*). In total, these lands consist of



about 25,800 acres that are about 67 percent of the Township's total land area.

Agriculture Lands

The Township has an agricultural past, with some heritage farms still in existence. The Township is home to contemporary or hobby farms which distribute produce through local farmer's markets, direct to institutions, or direct to consumers through community supported agriculture (CSA) programs.

There are government-owned lands that are dedicated to agricultural production. The State owns approximately 700 acres of land that was managed as a State Prison farm and is now used for crop production. The Township owns 14 acres of farmland adjacent to the Beaver Grove Recreation Area that has the potential for agricultural use. In 2014, the Township Board approved a project to preserve these 14 acres for public agricultural use; however, that project never materialized.

Forest Lands

The Township contains approximately 12,348 acres of forest lands owned and managed by the State of Michigan, the DNR, or the Township. The rest is owned by either private individuals or corporations.

As of 2021, 813.31 privately owned acres are enrolled in the Commercial Forest Lands program through the DNR.⁽⁹⁵⁾ Enrollees receive a significant property tax reduction as an incentive to retain and manage their forest land for long-term timber production in support of the state's forest products industry. These lands are open to the public for food access (such as blueberries, morels and mushrooms) and for hunting and fishing, but cannot be used for agriculture, grazing, or industrial, residential, resort, or commercial activities.

In the state, the majority of forest land is in private ownership by families and individuals, so preservation and management programs for private citizens are very important to Michigan's future.



Risk Assessment

Land used for agriculture and forestry often cannot compete with the land's value for other uses, and the large contiguous parcels that these industries need for their operations are being fragmented into smaller blocks which are less economically viable for production. The fragmentation of farmland can result in decreased economic viability in an already challenging industry. This is one reason that the Township maintains a larger minimum parcel size for lands in the Agriculture / Forestry zoning district.



Heritage acreage

Agriculture Land Conversion

Farmlands are desirable for development because the land is generally level and already cleared of trees. Township lands that are at risk of conversion include the State lands that were once managed as a prison farm. Because the lands are close to Marquette, and located on good roadways, the lands are at risk of conversion to private use should the State decide to divest itself of the land. Good productive farmlands are in such short supply in the Upper Peninsula, particularly in close proximity to population centers, that such conversions should be discouraged or limited.

Forest Land Conversion

Expansion of residential uses leads to potential forest conversion, and one major problem associated with these conversions is increased risk of wildfire. This places a strain on firefighting resources in remote areas which are more difficult to access and are further from water sources. As humans move into forest habitat, they also pose a threat to wildlife habitats and forages.



Opportunities

Well-managed and sustainable agricultural lands can help address a changing climate, growing population, and serious concerns about the nation's food and energy security.



In some areas of the Township, Lake Superior offers a climate moderating effect for growing; however, some inland areas have different climate conditions. The Township has abundant surface waters and ample Superior shoreline, indicating an abundant supply of fresh water, but Township residents utilize groundwater, not surface or Great Lake water, and some groundwater supplies are less than ideal. The use



Farmland and Open Space Preservation Program

of surface water for food irrigation involves working through regulations relating to withdrawal amounts and water testing. Residents can also capture rainwater to help with irrigation and fire protection.

There are also less than ideal soils in many areas of the Township. The Michigan State University Upper Peninsula Research and Extension Center (UPREC)⁽⁹⁶⁾ in Chatham is doing applied research on building healthy soils, and offers educational opportunities related to successful growing in northern climates (such as a resident apprentice farmer program and agriculture-focused workshops).

Property owners can collaborate to voluntarily protect productive lands through conservation easements. The Township should provide awareness of programs for private property owners that encourage preservation or conservation of productive lands and share this information with property owners.

Local Government Action

It is difficult to weigh the long-term benefits of preserving productive lands and maintaining rural character versus the immediate gain in tax revenue from residential development. Because the Township still has many opportunities to increase the residential

tax base closer to the population center, prime productive lands can be preserved.

In developing a future land use plan, the Township should direct new development to areas that are not current productive farmlands. This can be done by maintaining larger minimum lot sizes on these lands to limit subdivision and making larger parcels closer to the population center available for residential subdivision, and this can contribute to more efficient provision of public services. Development types that conserve land for productive use, such as rural cluster development subdivisions or development-supported agriculture, can alternately be considered as conditional uses with special review in rural areas less suitable for productive use.

Land Development

The Township has already implemented the open space preservation mechanism (rural development subdivisions) in the Township *Zoning Ordinance*⁽⁹⁷⁾ per the *Michigan Zoning Enabling Act*.⁽⁹⁸⁾ This enables land zoned for residential development to be developed, at the option of the landowner, with the same number of dwelling units on a smaller portion of the land than specified in the zoning ordinance, provided at least 50 percent of the land area remains in a perpetually undeveloped state by legal means.

The Township should stay current on federal and state preservation programs, and also private foundation resources.

The least costly way to save farmland is to make it so valuable that farmers do not want to sell it. Local government regulations should support innovative programs that improve agricultural profits such as value-added production, processing, distribution, retail, and tourism facilities and energy solutions such as biomass digesters that turn manure into electricity.

State or Federal Government Action

USDA and the Natural Resources Conservation Service (NRCS) provide funding to preserve land for various purposes. In Michigan, the *Farmland and Open Space Preservation Program* consists of six methods for preserving farmland and open space; five of the programs involve agreements between the State and a landowner. The other program is designed to assist local units of government in implementing a local



purchase of development rights program using public funding.⁽⁹⁹⁾

Conservation Easements

Conservation easements are voluntary permanent restrictions that a landowner may put on property, requiring or prohibiting certain actions by easement, covenant, or condition in a deed, will, or other legal instruments. The purpose is to retain natural, scenic, or open condition, or to preserve agricultural or forest use. These easements must be recorded with the Marquette County Register of Deeds, and they run with the land regardless of ownership. This designation impacts the property assessment.

Under Michigan law, these easements may be granted to a governmental entity, charitable or education association, corporation, trust or other legal entity. Such an organization may include a charitable land trust that takes care of long-term enforcement and management.

Temporary agreements include farmland development rights agreements, local open space easements, and designated open space easements. These agreements involve preservation of land for certain purposes in exchange for certain tax benefits and exemptions from special assessments.

Watersheds

Today, humans are the primary agents of change in a watershed. Logging at the turn of the century, the fires which followed, and the continuing agriculture and settlement of areas resulted in profound, long-term changes to the landscape.



Profile

There are two watersheds in the Township: the Chocolay River watershed, and the Sand River watershed.

The Township is one caretaker of the Chocolay River watershed ecosystem. Five townships have boundaries within the Chocolay River watershed: Chocolay, Forsyth, Sands, Skandia, and West Branch.

As indicated in the 1999 *Chocolay River Watershed Restoration and Adaptive Management Plan*, the project manager drafted a statement regarding the watershed:

“The Chocolay River Watershed is a designated cold water fishery that is managed for trout and salmon and is a crucial watershed for the natural

reproduction of many Lake Superior fish species...”⁽¹⁰⁰⁾

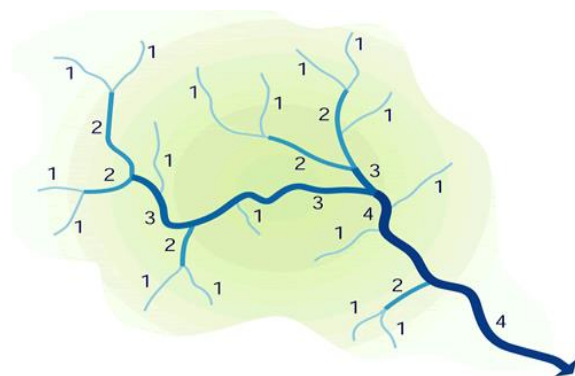
This statement indicates trout and salmon require cool, clean streams with gravel bottoms to feed and reproduce.

In the 1999 report, the year round residential population of the Chocolay River watershed was estimated at approximately 11,500 with some increase during summer months. 11 percent of the watershed was urban / residential use, 14 percent agriculture, and 60 percent forest.⁽¹⁰¹⁾

The first order (headwater) streams are not named or well-studied in the watershed. Named streams of the Chocolay River watershed that are in the Township include (with their stream order – see **Figure 20**):⁽¹⁰²⁾

- Big Creek (3,4)
- Cedar Creek (2)
- Cherry Creek (2)
- Chocolay River (5)
- Dorow Creek (2)
- Foster Creek (2,3)
- LeVasseur Creek (2,3)
- O’Neil Creek (2)
- Silver Creek (2)
- Voce Creek (2)

Figure 20 Watershed stream order



Big Creek, Cedar Creek, Cherry Creek, and Silver Creek are all important tributaries in the Chocolay River watershed that are fed by the Sands Plain aquifer. Generally, flood peaks in all four creeks dissipate quickly because stream gradients are steep, drainage areas are small, and sandy soils predominate.⁽¹⁰³⁾



Streams in the Chocoley River watershed have very consistent base flows, indicating a strong ground water influence (base flows emanating from ground water is what provides water in streams during the driest parts of the annual cycle).

There are two waterfalls in the watershed (Frohling Falls in Forsyth Township and Upper Chocoley Falls in West Branch Township). Public access to the watershed in the Township includes the DNR fishing access site on M-28 East, the Township Marina on Main Street (which includes a boat launch and kayak locker), the DNR access site on Mangum Road, the Township site on Green Garden Road, and Lake LeVasseur.



Frohling Falls

The riparian corridor provides habitat and areas of activity for many animals and plants.⁽¹⁰⁴⁾ Maintaining natural vegetation along stream corridors is important for perpetuating these features and functions. These areas provide for bird feeding, breeding, and nesting, and the movement of wildlife.

In 1990, the Chocoley River Watershed Council was formed to provide stewardship for the Chocoley River Watershed. It is not in active status today.



Risk Assessment

Almost half the soil types in the Chocoley River watershed are classified as highly erodible or potentially highly erodible. Sediments are caused by weathering and erosion. Agriculture can cause significant erosion.⁽¹⁰⁵⁾

Sedimentation

Too much suspended sediment causes stress to aquatic organisms and reduces light penetration into

the water. Excessive instream sand and sediment bedload is the primary factor limiting the natural production of aquatic invertebrates and fish.

Elevations in water temperatures can cause reduced oxygen concentrations. This happens in areas where the stream vegetated canopy is reduced, turbidity is high, or where water is impounded.

The causes of excessive sedimentation include land disturbance such as agricultural tilling; clearcutting of forests; culverts and bridges; grazing of cattle in the riparian area; housing and other development; poorly designed and maintained gravel pits; poorly designed selective cutting; and road construction and maintenance.

Watershed Threats

Possible watershed threats include:

- Agricultural tillage
- Agriculture and forestry activities using herbicides, pesticides, fertilizers, and nutrients
- Biological
- Chemical
- Closed landfills
- Fire training sites (PFAS)
- Flood control
- Forest management
- Household hazardous wastes
- Improper forestry practices
- Improper grazing management
- Introduction of exotic flora and fauna species (such as purple loosestrife, sea lamprey)
- Lampricides
- Physical – especially mobilization of sediments into streams
- Poor stewardship
- Recreational activities
- Road building and maintenance
- Social
- Stormwater runoff from streets (salts, oils, grease)
- Underground storage tanks and volatile organic compounds
- Urban activities such as municipal and industrial waste contaminants
- Wetland loss or degradation due to development
- Zoning and land use planning





Opportunities

The fact that ecosystems are inherently resilient is to the Township’s advantage. As stated in the 1999 report “... successful restoration usually has less to do with skillful manipulation of ecosystems than it does with staying out of nature’s way”.⁽¹⁰⁶⁾

Watershed Improvement

Watershed improvement projects are intended to control erosion, enhance fish migration, improve aquatic habitat, improve stream flow, manage water temperatures, protect groundwater and drinking water sources, and reduce sedimentation. Watershed projects include bank stabilization, cattle crossings, cattle exclusions, culvert replacement, dam removal (including beaver dams), rip-rap installation, sediment traps and stream crossings. Also included are seeding and tree planting, storm sewer maintenance and street sweeping, stream restoration, Adopt-A-Stream programs, stream monitoring, abandoned well closures, and water testing.

Municipality Participation

The best approach for the benefit of the watershed is one that encompasses all the municipalities within the watershed.

For example, a watershed overlay ordinance might be a way to get uniform zoning and development standards to benefit the entire watershed. However, due to the differences between local zoning ordinances, and the costs and expertise associated with changing regulations, this could be difficult to implement across the watershed. Such a project is best coordinated by a County or regional organization.

Sand River Watershed Documentation

Documentation of the Sand River watershed is essential. Although the watershed is small (9.5 miles), it reaches Lake Superior through the eastern end of the Township by crossing through Onota Township in Alger County.

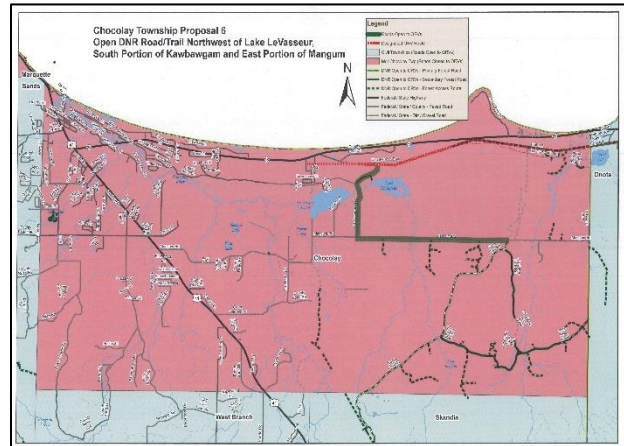
Development is minimal in this area in the Township; however, there are Township residents in that area that are prone to be flooded. Onota Township development exists on Sand River Road that impacts this watershed. The watershed encompasses a large wetland, Sand Lake, and the James Jeske Flooding. This

area is open to ATV / ORV travel and provides a through route for the North Country Trail.

Wetlands, Dunes, and other Areas of Particular Concern

In the past, drainage of wetlands for agriculture and mosquito control was the primary factor of loss of coastal wetlands. Today, activities associated with urban development (such as construction of residences, roadways, flood control structures, recreational facilities, and industrial sites) are the primary cause. Silviculture (controlling the establishment, growth, and composition of forests) is a major threat to northern forested wetlands.

Both the 2005 and 2015 Township master plans highlighted goals and strategies for areas of particular



Proposed Township ATV trail

concern. These areas were identified as cultural and natural resources which are significant because of their importance to human quality-of-life and the enrichment of the human experience.

This plan evaluates the risks and opportunities associated with these areas of particular concern from a larger ecosystem perspective. The focus is sensitive environmental areas such as floodplains, wetlands, dunes, steep slopes, and other natural features that provide vital ecosystem functions or that need protection so that other vital functions will not be compromised.

Wetlands

Wetlands reduce erosion, prevent flooding, filter contaminants, trap sediments, and serve as habitat for a wide variety of species including many game species. Michigan’s sand dunes are a unique natural resource of global significance as the largest assemblage of



freshwater dunes in the world.⁽¹⁰⁷⁾ Dunes support numerous threatened and endangered plant and animal species and provide outdoor recreation opportunity.



Profile

The Township's management programs consist mostly of zoning and development controls which, when combined with the efforts of other regulatory agencies, provides protection for areas of particular concern.

Wetland Development

Development restrictions are mandated by State law in wetlands. Most, but not all, wetlands are regulated by Michigan's wetland statute.⁽¹⁰⁸⁾ Michigan is one of two states that has the authority to administer Section 404 of the Federal *Clean Water Act*.⁽¹⁰⁹⁾ EGLE is the agency tasked with wetland protection in Michigan, and shares administration with the U.S. Army Corps of Engineers (USACE) for coastal waters.

Regulated (or jurisdictional) wetlands are those:

- That are located within 1,000 feet of a Great Lake or
- Connected to or located within 500 feet of an inland lake, pond, river, or stream or
- if not connected, greater than 5 acres in size, or determined by EGLE to be essential to the preservation of the State's natural resources

A permit from the State is required before dredging, removing, or permitting the removal of soil or minerals from a wetland; depositing or permitting the deposit of fill material in a wetland; constructing, operating, or maintaining any use or development in a wetland; or draining surface water from a wetland. In order for a permit to be issued, EGLE must determine that the activity would be lawful, that the permit would be in the public interest, that the permit is necessary to realize the benefits from the activity, that no unacceptable disruption to aquatic resources would occur, and that the proposed activity is wetland dependent or that no feasible and prudent alternatives exist.

Township Wetlands

Non-jurisdictional wetlands in the Township are not regulated. These are small, isolated wetlands that can be dredged and filled without a permit and yet often

serve many of the same functions as the regulated wetlands on a smaller scale. They can be particularly important as sites for unique plants, breeding areas for amphibians, habitat for wildlife as varied as black bears and wood ducks, and integral to groundwater recharge.



Township wetland map

Groundwater recharge is of particular concern in the Township with its relatively slow recharge rates. The Township could promote or offer reasons for the preservation or restoration of these wetlands through the site plan review process.

Local units of government are authorized to adopt and administer their own wetland regulations, provided they are at least as restrictive as state regulations. The Township should encourage the establishment of buffer zones or the preservation of native vegetation or mature trees around existing jurisdictional wetlands. EGLE must be notified if a community adopts a wetland ordinance, but EGLE has no review or approval authority.

Incentive Programs

The *Conservation Reserve Program (CRP)*⁽¹¹⁰⁾ is a voluntary program available to agricultural producers to help them safeguard environmentally sensitive land. Enrollees plant long-term, resource-conserving covers to improve the quality of water, control soil erosion, and enhance wildlife habitat. In return, the USDA Farm Service Agency (FSA) provides them with rental payments and cost-share assistance.

The EGLE Wetland Restoration Initiative⁽¹¹¹⁾ enrolls wetlands and buffers within the 100-year floodplain. There is also a non-floodplain wetland initiative.



Dunes

Both EGLE and the USACE regulate how private landowners manage the land along the Great Lakes according to the *Clean Water Act* and *Michigan Natural Resources and Environmental Protection Act, Part 325 (NREPA)*.⁽¹¹²⁾ These regulations relate to the ordinary high water mark (OHWM), which is a line defining the boundary between upland and bottomland as determined by EGLE or USACE.

Activities that are carried out using human power on a limited scale do not require permits. Mechanized activity or work on a large scale requires permits from both agencies.

There are two types of permits: general or individual. The general permit applies only to activities proposed below the OHWM and above the water's edge, such as leveling or grooming sand or constructing a path. This can only be done in areas naturally free of vegetation or where vegetation removal is in accord with NREPA. Natural lake contours and shoreline location may not be altered, and basins cannot be excavated. Grooming can only be done in the top four inches of sand, and plant roots cannot be disturbed. There are specific standards for construction of paths and mowing of vegetation. Other activities require individual permits.

Protection of the Lake Superior shoreline in the Township is furthered through enforcing the standards of the *Lake Superior Shoreline / Dune Protection Overlay District* defined in the *Township Zoning Ordinance*.⁽¹¹³⁾ The intent of the overlay district is to preserve the unique ecosystem, reduce the risk of structure damage from erosion and flooding, and protect property. The overlay district extends landward from the erosion hazard line (the landward edge of the zone of active erosion) to encompass the entire foredune, or to a maximum of 100 feet inland, whichever is the lesser distance.

Vegetative management occurs under recommendations and requirements of the principle use clause. Earthmoving changes are regulated through a conditional use permitting process. In general, the overlay district guides vegetative and topographical modifications and encourages the preservation and / or restoration of native vegetation for erosion control and habitat values.



Lake Superior shoreline

Shorelines

Section 6.8 in The Township *Zoning Ordinance* mandates that structures be set back 100 feet from the shorelines of water bodies, with options to increase the setback if water quality, aesthetics, or recreational value is threatened. This waterfront setback is not always adequate in areas of steep topography (such as the Chocoley River) where development in the riparian zone on steep slopes can lead to erosion and habitat degradation. The Township could establish a natural features overlay district to establish setbacks that would replace the shoreline / dune overlay language and provide overlays to bodies of water in the Township.

The zoning ordinance further mandates and defines natural cover for a strip 30 feet wide adjacent to the waterbody. The *Michigan Natural Resources and Environmental Protection Act, Part 301* ⁽¹¹⁴⁾ also dictates that work below the ordinary high water mark or highest legal lake level requires a permit from the State.

On an area greater than one acre, anyone disturbing soil, removing existing vegetation or changing topography within 500 feet of a lake or stream must obtain a *Soil Erosion and Sedimentation Permit* from the County. The Township could consider extending erosion control to areas less than one acre in size through site plan review standards.



Risk Assessment

Threats include peat mining (Michigan is one of the top suppliers in the United States⁽¹¹⁵⁾) and property development.



The removal of peat can degrade wetlands by releasing toxic metals, organic pollutants, and causing eutrophication of surface waters; increasing runoff; changing groundwater conditions; and leading to soil loss through fires.

Property development can lead to additional runoff and potential fire risk.

The greatest risk to the stability of these ecosystems is development pressure and mismanagement of the resources.



Opportunities

Instead of controlling watercourses, the Township should control how and where human activities are allowed that do not adversely affect water bodies and wetlands.

The Township should investigate support programs (such as the *Michigan Shoreland Stewards Program* (116)) to further protect shorelines throughout the Township.

Fire Hazards

In the Township, the natural hazard that has a high risk of occurring or which would have a high degree of potential damage if it did occur is a wildfire in the population areas and nearby wooded areas. This is particularly worsened by extensive jack pine forests with accumulated fuel sources in the eastern end of the Township.



Profile

Wildfires occur throughout the spring, summer, and fall in Michigan; however, most take place in March through May when the vegetation is dead, brown, and combustible with little green vegetation to serve as a barrier to wildfire. The burning of yard waste leads to the majority of

wildfires. Wildfires are also caused by vehicle exhaust, sparks from heavy equipment, campfires, fireworks, smoking, arson, and lightning.



Risk Assessment

The greatest risks of wildfire are in areas of jack pine forests (which are extensive in the Township, especially along Lake Superior) and in the State forests in the eastern end of the Township.

Forested areas of the Township are being increasingly populated as former camps are converted to year-round homes. This increases the exposure and vulnerability to wildfire. The development of homes and camps in forested areas increases fire risks through the introduction of activities and decrease of professional management and harvesting of mature trees.

Homes and camps in remote areas are at greater risks due to the difficulty of police, fire, and emergency services access to properties on substandard private roads or driveways, or to find the property address quickly. It may also be difficult to reach the remote areas traveled by off-road vehicles with fire suppression equipment.

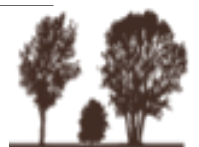
Wildfires are also costly in timber losses, with long-term effects including aesthetics, reduced soil productivity, changes to forest succession patterns, erosion, reduction in water quality, loss of wildlife and disruption of recreational use.⁽¹¹⁷⁾

Unattended campfires and use of fireworks can start fires, especially when high wind and dry conditions exist. Such fires are often started near the shores of lakes on soils with high organic content that smolder and later ignite.

Dune grass is one of the most important plants along the shoreline for holding sand in place and managing



2012 Duck Lake fire



erosion; however, it is also one of the most flammable plants, and therefore a major wildfire threat. Flames from dune grass fires can reach 10 to 20 feet high.

Other kinds of fire danger occur in the home or yard. Homes built before 1964, many of which are located along the lakeshore, are more problematic because of the balloon frame construction that allows fires to spread in wall cavities. Wiring fires may be caused by overloading circuits with appliances without circuit cut-offs. Candles and saunas are other sources of fires caused by human error.



Opportunities

The DNR uses its burn permits website to communicate to homeowners when it is safe to burn and when it is not.⁽¹¹⁸⁾ The DNR also provides resources for best burn practices.

The Township burn ordinance⁽¹¹⁹⁾ contains provisions that detail appropriate designs for covered burn barrels, setbacks of burn barrels from adjacent structures, prohibited materials for burning, and supervisory standards.

Support Programs

The *Michigan Shoreland Stewards Program*⁽¹²⁰⁾ provides information for landowners on protecting their property. This program not only offers information on protecting the shoreline, it also provides information on establishing fire buffers on private property.

The *Firewise USA* program is intended to create awareness for mitigating the risks of wildfire and can easily be implemented in the Township.⁽¹²¹⁾ Strategies in this program generally relate to controlling fuel sources for fires. The program also offers suggestions for zoning regulations to reduce fire risk.



Shorelines Stewards program

Response and Recovery

A 30,000 gallon underground tank was installed with the fire station project in 2013, improving response potential. Although a joint agreement for use of the casino water tower is in place, additional dry hydrants or other water storage facilities are still needed in the eastern portion of the Township near residential areas and jack pine stands. Regular maintenance inspections and testing on the dry hydrants should be established to ensure they remain functional.

Vegetation should be trimmed back from private roadways and driveways as fire vehicles and water tankers need a clearance 12 feet wide and 15 feet high for easy access. Steep grades, sharp curves, and narrow roads make it difficult or impossible for fire vehicles to respond to fires. If possible, a turn-around with a radius of 50 feet should be placed near homes to accommodate fire suppression vehicles.

Township fire numbers and enforcement of proper property addresses should be implemented.

Flood Hazards

Periodic flooding is the lifeblood of the riparian corridors, wetlands, beaches, and other natural areas. Flooding provides tangible benefits such as increased soil fertility, wetland creation, rejuvenation of spawning gravel, creation of barrier islands, promotion of aquatic habitat, transportation of woody material that provides fish habitat and bank stability, promotion of plant establishment, and the evolution of channels and shoreline features such as dunes.

It is common to think of floods as destructive forces of nature. However, floods do not cause damage or suffering; instead, human decisions about where to live, work, and play are the cause.



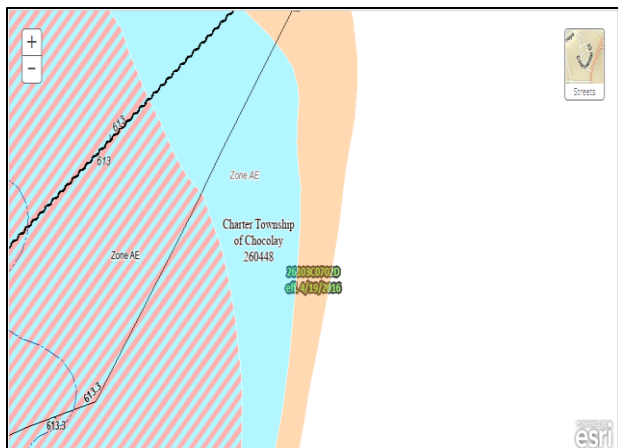
Profile

The Township participates in the National Flood Insurance program (NFIP). This program makes privately issued flood insurance available that is subsidized by the Federal government to communities that agree to manage flood prone areas within their boundaries to reduce future flood risks to new construction. This insurance is designed to provide an alternative to disaster assistance to meet the escalating costs of repairing flood damage.



The Township has adopted and enforces a floodplain management ordinance in cooperation with EGLE and the Marquette County Building Codes department. This ordinance meets NFIP requirements as FEMA flood insurance is not available in communities that do not participate in the NFIP.

In non-participating communities, federal officers and agencies may not provide any form of financial assistance for acquisition or construction purposes, and loans guaranteed by Federal agency lenders (such as the USDA Rural Housing Services, Federal Housing Administration, and the Department of Veterans Affairs) would be prohibited. No federal financial assistance may be provided for reconstruction or repair within the flood hazard area.



Township FEMA flood plain map extract

Flood hazard maps indicating Special Flood Hazard Areas (SFHA)⁽¹²²⁾ are available from FEMA (Township maps were updated in 2015). FEMA flood maps can be viewed online.⁽¹²³⁾

The floodway is the stream channel and that portion of the banks that must be kept free from encroachment in order to discharge the base flood without increasing flood levels by more than one foot. Major storms, flash floods, and increased upland development can cause flooding higher than the base flood elevation. For example, bringing and dumping fill in the floodplain reduces the ability of the floodplain to store floodwater, so the impacts of flooding will increase.

Development may take place within the SFHA if minimum requirements are met, as enforced by EGLE

and Marquette County Building Codes. Development should be prohibited in the floodway.

For virtually every mortgage transaction involving a structure, the lender will review the current flood maps to determine if the property is in the SFHA. If it is, the borrower is notified of the need to purchase flood insurance as a condition of receiving the loan. Review and notification also occur when a loan is sold on the secondary market, or when lenders do routine reviews of their mortgage portfolio.

Property owners who feel their property has been incorrectly included in a designated SFHA can seek a Letter of Map Amendment (LOMA) with a surveyor-certified elevation certificate.



Risk Assessment

Flood Plain Management

Management of flood prone areas has typically been development centered. A typical approach was to confine the waterway or water body to a predefined size and capacity that maximized the extent of developable or agricultural land and kept the flood water away from people and their property. Under such a framework, the floodplain served a human-centered role as a conveyance network to pass the excess water as quickly as possible, with no consideration for the loss of ecological function, the potential damage to downstream property owners, or the cultural, economic, or environmental effects of that strategy.

Floodplains have been viewed as suitable sites for development; the concern, if any, was to ensure that structures built there were elevated above some minimal flood level, so they were considered safe and able to be insured. As recent flood disasters and their aftermath have indicated, communities often respond to such disasters by applying more of the same techniques that caused or exacerbated the initial problem.

The Chocolay River drains 159 square miles, which presents potential flood areas throughout the Township (see the *Floodplain* map in *Appendix B*).

There have been many flood events within the Chocolay River watershed. Flooding can occur within a short time from excessive rainfall, a rapid snowmelt, or sudden backup of water from an ice jam at the mouth of the river; flooding has intensified in the past because of ice dams or sedimentation blocking the



mouth of the Chocolay River where it enters Lake Superior. Some homes were built too close to the river, and some are threatened by erosion. Some erosion down and across the river and streams is caused from rock armor installed by some property owners. Development in the Chocolay River drainage basin increases the amount and speed of run-off, increasing problems for development and structures downstream.

Silver Creek is a tributary to the Chocolay River; it can flood independently but is often flooded due to backwater effects of flooding on the Chocolay River.

Flooding can also occur on roadways in rapid melt situations when drainage ditches are inadequate, or ice or snow piles interfere with drainage. This is particularly problematic when the roadway is the only source of ingress or egress for several homes in an area.

Other areas of particular concern include portions of watercourses with narrower channels and steeper gradients, rock outcrops, and impermeable soil. Secondary hazards can include mudslides and subsidence of soil. Flooding can pollute drinking water sources, particularly when wells or septic tanks are flooded. Other underground services such as gas, electric, cable, and phone may be disrupted. In areas of particularly severe flooding, there could be permanent changes of river channels and shoreline, destruction of wildlife habitat, and financial hardship due to repair and replacement costs.

Flooding Events

In April 1985, spring rainfall combined with rapid snowmelt and a breached dam at Lake LeVasseur caused structural damage to homes in the Fernwood subdivision. It was reported that twelve units received major damage and 33 units received minor damage in this event.⁽¹²⁴⁾

In January 1986, the Chocolay River flooded when an ice dam formed at the mouth of the river. There was concern that the sewer system would flood, so the ice was blasted by the Michigan National Guard. Since then, the Township has declined further requests from residents to blast ice dams due to complaints of damages to nearby homes.

In July 2002, six structures in the upper Chocolay watershed were flooded when 5.6 inches of rain fell in an eight hour period. Prior to this, flood damage had

not been reported in this area, other than washed out culverts on Mangum Road and Green Garden Road in 1985.⁽¹²⁵⁾

In October 2016, ten residents and their pets were rescued from a flood event near Mangum Road.⁽¹²⁶⁾ The same area was flooded again in 2017.

Regional flooding impacts

The flood that required a rescue of Township residents also caused the collapse of a bridge on M-94, which required a \$1.8 million dollar project to replace it.⁽¹²⁷⁾

The Township could be negatively impacted by flooding on the Carp River. When flooding occurs from an ice or debris blockage near the Carp River mouth, the blockage may back up water, causing damage to the US 41 South / M-28 highway and disabling the City of Marquette's wastewater treatment facility that serves the Township.

In 2003, the Marquette area experienced devastating spring floods resulting from an excess of rain falling on frozen ground. Runoff from the storm event caused two regional dams to fail, flooding roads and bridges, and cut off utilities and property access.



2014 ice jam at the mouth of the Chocolay River

In August 2020, IOHTA contracted a firm to repair five sections of the trail that parallels Lake Superior. Erosion concerns developed after strong waves combined with high water levels damaged a portion of the trail. The Township Board approved funding for a portion of this repair.

Areas with only one main evacuation route are particularly vulnerable to disasters (such as Bayou Road, which is frequently cut off due to flooding).



It is expected that the area will experience warmer annual temperatures and an increase in extreme precipitation events, particularly more frequent rain events that occur in the spring when flooding is already a risk. Infrastructure may not be sufficient to handle more severe storm events.



Opportunities

One way to decrease flood impacts is to prevent development in flood prone areas. Township officials and local decision makers should keep in mind that the person seeking the development is likely not the only one impacted. Downstream property owners might be the ones who are negatively impacted.

Impervious surfaces increase run-off two to six times over that occurring on natural land. Alternatives include permeable pavement or biofiltration areas (rain gardens) instead of dense grass.

Vegetated buffers should be protected or restored along streams that run through agricultural land to protect water from pollutants, provide habitat, and preserve cooler water temperatures.

The Township must keep detailed reports of flood damage since FEMA mitigation grants and NFIP reporting are tied to documentation of repeat flooding.

The upper reaches of the Chocolay River watershed should be studied to determine the capacity of water storage areas to contain runoff. The Township should help create a greater awareness of natural water catchment strategies and consider adopting more low impact development standards in the zoning ordinance.

The Township should provide education materials and information events regarding area flooding, flood mitigation and the NFIP program.

Climate

Climate is not the same as weather. Climate is the set of meteorological conditions that prevail in a particular place or region over a long period of time. Weather is the state of the atmosphere at any given time and place (measured using temperature, humidity, precipitation, and wind). Climate variability describes fluctuations that are natural and brief. Climate change describes long-term (decades or longer) persistent weather pattern changes.

Globally, climate change impacts will vary widely per region. Extreme weather and climate events associated with climate change can include regionally variable droughts, flooding, extreme storms (rain and snow), wildfires, and heat waves. These events impact lives, livelihoods, health, ecosystems, economies, services, and infrastructure.



Profile

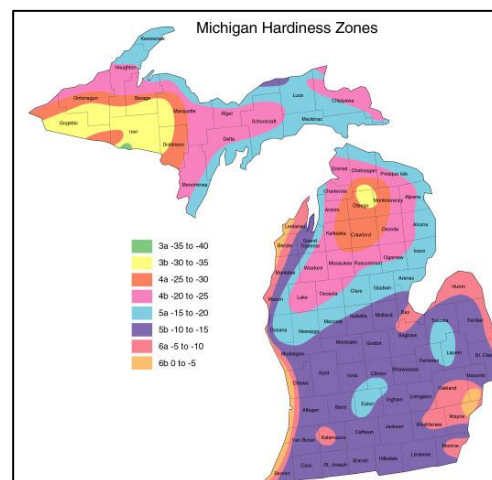
The Township is currently located in the USDA plant hardiness zones of 5a and 5b (see **Figure 21**). Area climate is characterized by an extended winter (November through March) and short, cool summers. The average first frost day is generally in mid-October, and the average last frost day is mid-May. ⁽¹²⁸⁾

Some regional indications of climate change include:

- Lake Superior has warmed 4.5 degrees Fahrenheit in only 30 years, which is twice as fast as air temperatures
- Regional data gathered since 1900 shows that the 2000s were the hottest decade, 1990s the second hottest, and 1980s the third hottest
- Plant hardiness zones are moving north ⁽¹²⁹⁾

The largest observed temperature increases in the Midwest have occurred in Minnesota and the Upper Peninsula of Michigan, and most models suggest further increases throughout the 21st century. These two areas are also predicted to experience the largest regional increase in winter temperatures. ⁽¹³⁰⁾ Plant hardiness zones are likely to shift 0.5 to 1.0 zone every 30 years. ⁽¹³¹⁾

Figure 21 Michigan plant hardiness zones



Great Lakes Impact

Lake Superior has a significant impact on the regional climate system. In the summer, the lake breeze circulation keeps the shoreline areas cooler compared to surrounding inland areas. Lake-effect precipitation is common in late fall and winter as cool air flows over warm lake waters.



Risk Assessment

It is projected that the following changes will take place near the Great Lakes over the next century:

- Number of days with low temperatures below 0 degrees Fahrenheit will drop by 50% or more
- Number of days with high temperatures above 90 degrees Fahrenheit will more than double
- Largest increases will occur over western portions of the Great Lakes region
- Extreme or heavy rainstorms will become 50 to 100 percent more frequent⁽¹³²⁾

Although the exact impacts of climate in any one area cannot be predicted because there are so many interacting variables, the likely risks of changes in this region include:

- Higher water temperatures
 - Higher bacterial counts leading to closing of beaches
 - Negative impacts to cold water fish and the microalgae that serve as a fish food supply
 - Increase in algae blooms and related fish kills
- More extreme weather
 - More extreme weather events involving wind, flooding or erratic freeze / thaw cycles causing property damage, utility service disruptions, and increasing insurance costs
 - Increased damage or erosion to Lake Superior beaches and cliffs due to extreme weather events, impacting tourism, infrastructure and property
 - Flooding that overwhelms stormwater management systems, damages infrastructure, and increases shoreline erosion along rivers
 - Warmer temperatures causing winter precipitation in the form of rain, sleet, ice, or ice on snow causing power problems, transportation issues, and tree damage
- Drought and changing lake levels
 - Agricultural challenges, stressed forests with increased vulnerability to pests (such as

emerald ash borer), and greater wildfire danger due to drought

- Declining snowfall, which impacts winter tourism, local culture and the local economy
- Less ice cover on the lake, resulting in more wave action (increasing shoreline erosion) and increased evaporation
- Falling lake levels that could disrupt the maritime shipping industry and create infrastructure challenges
- Rising lake levels that could increase dune and shoreline erosion and increase lakefront property damage due to wave action from wind storms



Moss-covered rocks

- Plant, animal, and human impact
 - Changes in animal migration patterns that put some organisms out of synch with food sources
 - Increased tree mortality and associated forest dieback due to increased temperatures and drought poses risks for carbon storage, biodiversity, wood production, water quality, and economic activity.
 - Changes in forest cover could negatively impact the forest product industry. There could be a decline in some species such as sugar maple, birch, jack pine, black spruce, balsam fir, quaking aspen, eastern hemlock, tamarack and possibly an increase in oak and hickory.
 - Warmer temperatures that could cause an increase in pests (such as ticks) and pest-related diseases
 - Warmer temperatures stressing wetlands, which are essential waterfowl and amphibian breeding grounds and sources of shelter, food, and storm protection



- Disruptive events causing emotional distress and social issues
- Populations migrating out of impacted areas, causing climate refugees to surge into other areas

Opportunities

Responses to climate change involve mitigation and adaptation. Mitigation strategies address the cause and may involve strategies such as reforestation (carbon sequestration). Adaptation strategies address the symptoms, and may involve strategies such as water resource management, stormwater control, and storm shelters.

The best opportunity for response to changes in climate is to be ready rather than react. Readiness means anticipating impacts and planning for solutions ahead of time to reduce risk and developing mitigation plans both at the Township and County levels. Required plans include disaster management, adjustments in technologies and infrastructure, energy management, ecosystem-based approaches, basic public health measures, and livelihood diversification.

Opportunities may include:

- Expansion in “green” jobs related to climate change adaptation, clean energy industry, infrastructure improvement projects, and emergency services
- Longer summer recreation season with more tourism
- Longer growing season
- Longer construction season
- Lower energy cost needs in winter (although higher in summer for air conditioning)

Strategies involve researching, identifying, and disseminating data on local conditions and vulnerabilities; improving outreach and



Couple at the Welcome Center visiting for the dog sled races

communications; and effecting or advocating various projects such as:

- Habitat protection and restoration – preserve or restore vegetation near cold water streams and rivers, wetlands, and Lake Superior for ecosystem health, flood control, and storm protection for infrastructure
- Plant diversity – advance planning for future plantings that fit changing conditions (especially trees which take longer to grow). Increased diversity may ensure productivity and survival even with climate variability.
- Better drainage systems for area roadways and development projects
- Advance planning for emergency response to climate events
- More widespread water conservation and water storage measures

The Township should continually assess the priority of these strategies based on an updated understanding of potential level, extent, and immediacy of projected impacts.





FUTURE LAND USE PLAN

The future land use plan is designed to accommodate Township development goals while providing an appropriate measure of protection for lands with environmental considerations (such as floodplains), desirable natural features, prime habitat, or natural resources production capabilities. The direction is to generate development opportunities where appropriate, while avoiding implementing change on parcels without a compelling reason.

Growth Sectors

Portions of the Township are either undeveloped or under-developed and have been identified as growth areas for infill, re-development, or development. (See the *Future Growth Sectors* map in *Appendix E*.)

Infill / Redevelopment Sector

This sector is currently developed but would support development of a more dense or intense nature.

Areas in this sector are generally located with direct access to main travel corridors such as US 41 South, M-28 East, County Road 480, or Cherry Creek

Road.

Sector areas include most of the current business district, mobile home parks, Hotel Place, and some large lot residential properties near Harvey or other densely developed neighborhoods.

The industrial area near the Varvil Center on M-28 East is also designated for infill or redevelopment.

Intended Growth Sector

This sector defines vacant areas that are targeted for future development.

Areas in this sector are generally located with direct access to main travel corridors such as US 41 South, M-28 East, County Road 480, or Cherry Creek Road.

Sector areas include the undeveloped portions of Willow Farm and adjacent properties, and undeveloped parcels north of Ford Road, several parcels east of the NMU golf course on M-28 East, and properties adjacent to Silver Creek (the Silver Creek properties will require environmentally sensitive development that is carefully sited with appropriate infrastructure due to floodplains and wetlands on a



portion of the parcels).

Sector areas for mixed-use development include the area behind the commercial and residential properties northeast of the intersection of US 41 South and M-28 East, and parcels in the same area on the south side of M-28 East.

Survey Information Related to Character Areas

In 2013, a public survey was conducted for the purposes of determining public preferences and perceptions for the area in which they had a residence or property. The survey was conducted with each

parcel in the Township identified by character area. The fourteen character areas were then used to develop the future land use plan for the *Master Plan, 2015 Edition*.

Much of the information in the character descriptions is still valid for this plan. The character area information was cross-referenced to the future land uses in this plan.

The information related to character areas can be found in Appendix L *Character Area Study and Maps* in the Township *Master Plan, 2015 Edition*.⁽¹³³⁾

Land Use Descriptions

Agriculture and Forestry (AF)



Historical tractor

Intent

The intent of this land use category is to preserve tracts of lands for forestry or agriculture activity, to promote open space for wildlife corridors, to increase food security, provide for wood products and fuel, protect wildlife habitat, reduce risk of wildfire, preserve rural character, and to provide outdoor recreation opportunities.

Agriculture and forestry areas are intended to allow resource production to take priority over other land uses by protecting these areas from the encroachment of residential and commercial development.

Character Area

Primary Working Lands is the character area that corresponds with this land use description.

Natural Features

Natural features include agricultural lands, rolling terrain, and large woodland tracts.

Land Uses and Development Patterns

This area is characterized by large farms, pasture lands and managed forests. The primary land use is agriculture and forestry production, with accompanying single-family residential for property owners.

Zoning

Current zoning is predominately Agriculture-Forestry (AF), with some larger parcels located in Single-Family Residential (R-1).

Circulation and Access

These properties are accessed from public or private roads or easements. Some snowmobiling and ATV traffic occurs in these areas.

Public Amenities and Utilities

All sanitary and water facilities are private.

Broadband / Cell Access

Broadband access and cell service is limited, especially in the low population density areas in the eastern and southern portions of the Township.

Preferred Amenities

Naturally occurring amenities are the primary preference for this land use.

Renewable energy systems should be encouraged, with solar permitted and small-scale residential wind systems allowed as an approved conditional use.

Future Land Uses and Development Patterns

This land use will incorporate regulations that will encourage maximum preservation of the viability of the land for contiguous productive use.



Existing small lots can be utilized for permitted uses provided setback requirements are met.

Other uses that are compatible with these primary uses will be encouraged in less productive areas, and in a way that preserves rural character.

Uses that are compatible with natural resources, such as low impact recreation, hunting camps and trails are permitted.

Uses that should be considered are accessory dwelling units (attached or over an accessory structure), garbins (small footprint dwelling space with garage underneath the residence), and smaller-footprint dwellings.

There are no restrictions on the scale or height of accessory structures used for agriculture or forestry activities, and limited restrictions will be used on residential accessory structures.

Additional uses of these lands for income production should be considered (such as agritourism,

corn mazes, private recreation, solar farms, and wedding venues).

These areas include lands that should not be divided into smaller parcels because of river corridors, wetlands and the preservation of scenic rural character. However, lot division requirements for these parcels should be reduced to a minimum of ten acres, with the potential of considering further minimum splits in the AF district in the Township *Zoning Ordinance*.

Considerations and Projects

Public / private partnerships that will provide broadband access and cell service throughout this land use should be a priority. This will increase the ability to work from home as well as provide additional contacts for public information and emergencies.

Conservation recreation lands (CR)



Township marina launch

Intent

The intent is to preserve lands primarily for conservation or recreation, and to protect lands that contain sensitive natural resources, natural features, valuable habitats (such as wetlands) and floodplains.

Character Area

Natural Preserve is the character area that corresponds with this land use description.

Natural Features

This area is rich in undisturbed or minimally disturbed natural features (such as continuous woodlands) and undeveloped water-front locations.

Land Uses and Development Patterns

This land use is primarily directed toward

conservation and land preservation.

Zoning

Conservation recreation land (such as the Chocoley Bayou Nature Preserve) are generally in the Single-Family Residential (R-1) and Waterfront Residential (WFR) zoning districts.

Circulation and Access

Access varies from locations on public or private roads and designated trails to access these parcels.

Public Amenities and Utilities

Properties are served by existing septic systems and wells.

Broadband / Cell Access

Broadband access and cell service may be limited, especially if the lands are located in the low population density areas in the eastern and southern portions of the Township.

Preferred Amenities and Utilities

Amenities may include interpretive signage for natural resources or features, seating areas, and walking paths.

Future Land Uses and Development Patterns

Although primarily directed toward conservation, the district will also accommodate compatible low-impact recreational uses and structures.



No land use other than recreational residential should be permitted.

Maintaining contiguous habitat to sustain local biodiversity is a priority.

Considerations and Projects

Sites will be selected for continued resource

Corridor mixed-use (MU-C)



Range Bank

Intent

The intent is to develop a live and work node along the US 41 South and M-28 East corridors to support commerce near affordable housing opportunities, to provide greater housing diversity, and to increase density to support utility infrastructure costs.

Character Areas

Corridor strip Commercial and Mixed Use, Corridor Cluster Mixed-Use, and Village Mixed Use are the character areas that correspond with this land use description.

Natural Features

Natural features are provided as part of the landscaping for the businesses and residences located in the corridor.

The Chocolate Area Business Association (CABA) constructed planting beds on the four corners of the US 41 South / M-28 East intersection which are taken care of by scouts and private citizens.

Silver Creek runs through a portion of this land use area.

There is some landscaping adjacent to the buildings on US 41 South, M-28 East and Cherry Creek Road; ground cover is generally mowed.

The Silver Creek Recreation Area, St. Louis the King Catholic Church, Silver Creek Church and Township Hall properties contain mature wooded stands of pines and

deciduous trees.

Public / private partnerships that will provide broadband access and cell service throughout this land use should be a priority. This will increase the ability to provide assistance in emergency situations.

deciduous trees.

There is a prominent sand hill behind the Silver Creek Church that is used as a sledding hill during the winter months.

Land Uses and Development Patterns

This land use category accommodates a mix of civic, commercial, higher density residential, industrial, institutional, and light industrial uses in beneficial combinations in, adjacent to, or near the sewer service area.

It is oriented toward larger local- and regional-serving, auto-oriented land uses.

The intent is not to create shallow strips or sprawl development that compromise good access management practices.

Current land uses include childcare providers, Cherry Creek Elementary School, churches, government offices, gas station / convenience stores, financial services, lodging, mobile home parks, recreation facilities, single-family residential, small apartment buildings, and small retail businesses oriented primarily to travelers and local customers rather than being a destination or regional attraction. The land use also includes a senior housing development.

A small plot community garden is located on the Harvey Baptist Church property on Silver Creek Road.

Zoning

The current zoning districts are Commercial (C), High-Density Residential (R-2), Industrial (I), Multi-Family Residential (MFR), Municipal Properties (MP), and Single-Family Residential (R-1).

Much of this land use is also in the Mixed Use Overlay District.

Circulation and Access

This mixed-use land use is intended to take the shape of an activity node with limited highway access points and mostly internal traffic circulation or shared access to support continued safe and efficient highway



function. It is important to incorporate multi-modal transportation modes when possible (particularly bus), or to locate any such new development in areas adjacent to existing or planned non-motorized trail systems.

Uses tend to be auto-oriented, with access directly onto Cherry Creek Road, M-28 East, and US 41 South. There is some circulation between adjacent parcels and shared use of driveways in this area.

Mobile home developments have their own internal circulation off multiple access drives and roadways. There are sidewalks adjacent to some parcels in the vicinity of the intersection of Silver Creek Road and US 41 South and adjacent to Cherry Creek School.

There is a pedestrian / non-motorized trail along US 41 South adjacent to some parcels with the exception of the northwestern parcels. The pedestrian / bike path along the east side of US 41 South has been designated as an alternate urban business route for the Iron Ore Heritage Trail and is used for snowmobile traffic during the winter season.

There is a pedestrian / bike path along US 41 South and continuing east along M-28 East and west along Cherry Creek Road. Portions of this path have been designated as an alternate urban business route for the Iron Ore Heritage Trail and are utilized for a snowmobile trail in the winter.

There is a commuter parking lot in the parking lot at the intersection of US 41 South and Cherry Creek Road which connects users to the Marquette County (MARQ-TRAN) and Alger County (ALTRAN) transit services.

Public Amenities and Utilities

Public sewer facilities are available in most of this developed area; private wells provide water.

Broadband / Cell Access

Broadband access and cell service is excellent in this land use.

Preferred Amenities and Utilities

The sewer system should be extended where necessary to accommodate new and existing development.

This area is a high priority for installation of a public water supply system to accommodate more dense development.

It is preferred that new developments incorporate green infrastructure such as bio-retention areas that utilize native landscaping and require minimal water and maintenance.

Permeable paving and other storm water and snowmelt retention designs should be considered for new projects.



Willow Farm

The provision of year-round public spaces such as public parks and gardens, trails and private outdoor eating / gathering areas is important to enhance social interaction and the pedestrian experience.

Community solar facilities would be particularly beneficial in this area.

Renewable energy systems should be encouraged, with solar permitted and small-scale residential wind systems allowed as an approved conditional use.

Future Land Uses and Development Patterns

A variety of residential options will be integrated with compatible commercial uses, either within the same building or in close proximity.

Accommodations for pedestrian circulation and multi-modal transportation options are a priority in this entire area. It is important to provide for year-round maintenance of non-motorized pathways throughout this area so that residents without access to vehicles can safely access critical goods and services.

Multi-family residential development will be accommodated in infill / redevelopment efforts by allowing residential uses over other uses (in one structure), accessory dwelling units (attached or detached), and apartment buildings and a broad range



of commercial, light manufacturing, and higher density residential.

Smaller dwelling units are encouraged to accommodate one-person households, particularly when designed to accommodate the disabled. New detached single-family housing developments will be discouraged unless created following a compact overlay development pattern such as development supported agriculture or cluster housing development with a permanent conservation easement for agriculture or shared public space where appropriate.

Low intensity commercial uses that do not utilize the sewer system (such as mini-storage facilities or commercial buildings used for storage as a principal use) will be discouraged in this area. However, accessory storage may be incorporated to facilitate the needs of residents of compact residential developments utilizing small housing units such as tiny houses, cottages, or mobile homes, or for businesses that require additional storage space.

Outdoor sales and food and beverage service would be allowed to encourage social interaction.

Considerations and Projects

Public art installations and wayfinding signage to area attractions should be a priority.

A geocaching project has been envisioned along the US 41 South corridor which would encourage

greater utilization of the entire length of the pedestrian / bike paths through the area.

The area would benefit from additional pedestrian / bike trail facilities along Silver Creek Road to accommodate the movement of children and other citizens to and from Cherry Creek School, neighborhood businesses, and recreation facilities.

A small transit station is needed to accommodate riders year-round.

Defined snowmobile traffic patterns need to be established, especially along the east side of US 41 South.

Access development to allow pedestrian and non-motorized traffic to access the businesses and facilities located on the west side of US 41 South from the tunnel to the northern border of the Township.

A plan for planting winter-resistant trees and shrubs along the corridor to enhance highway and gateway aesthetics should be developed and implemented.

Appropriate natural buffers and careful layout of structures is important to ensure compatibility between uses. Low impact development techniques may be required in the development of sensitive areas adjacent to waterways or wetlands.

A trail system from US 41 South to Silver Creek Road would provide connection from the business corridor to Silver Creek Recreation Area.

Neighborhood mixed-use (MU-N)



Prince of Peace Lutheran Church

Intent

The intent is to provide products, services, employment, and public spaces close to residential housing in areas outside of the village of Harvey.

Character Area

Isolated Commercial is the character area that corresponds with this land use description.

Natural Features

Landscaping and natural features are limited in this land use.

Land Uses and Development Patterns

This land use accommodates a mix of commercial and light manufacturing uses in combinations in designated nodes near neighborhoods.

This area allows for a mix of uses within a single building (such as ground floor commercial or office with upper story residential) and a mix of housing types along with other uses.

These developments are characterized by isolation from other similar uses.

Land uses are generally commercial retail and light manufacturing.

Zoning

Current zoning is Commercial (C) and Industrial (I).



Circulation and Access

Access to this land use is limited to automobile traffic.

Public Amenities and Utilities

Private sanitary facilities are utilized along with private water systems.

Broadband / Cell Access

Broadband access and cell service is limited, especially in the low residential density areas in the eastern and southern portions of the Township.

Preferred Amenities and Utilities

Public water should be provided where possible.

Future Land Uses and Development Patterns

Development should incorporate landscaping that is consistent with residential neighborhoods.

The type of development should be of small scale to maintain compatibility with the neighborhood.

Medium-density residential options that include accessory dwelling units (attached or detached),

garbins small footprint dwelling space with garage underneath the residence), smaller footprint dwellings, and small apartment buildings should be allowed.

Considerations and Projects

Infrastructure for pedestrian / non-motorized circulation and multi-modal transportation should be incorporated as soon as possible.

Private solar energy systems should be permitted, with small-scale residential-type wind systems allowed as an approved conditional use.

The provision of seasonal outdoor gathering spaces that function as a neighborhood hub is encouraged for a greater sense of community.

Public / private partnerships that will provide broadband access and cell service throughout this land use should be a priority. This will increase the ability to work from home as well as provide additional contacts for public information and emergencies.

Village mixed-use (MU-V)



Iron Ore Heritage Trail

Intent

The intent is to create an identifiable village center, to support commerce near affordable housing opportunities, to provide greater housing diversity, and to increase density to support utility infrastructure costs.

Character Area

Village Mixed Use is the character area that corresponds with this land use description.

Natural Features

Winter-resistant and well-tended trees and shrubs should be located in the right-of-way to enhance highway and gateway aesthetics. Appropriate natural buffers and careful layout of structures is important to

ensure compatibility between uses. Low impact development techniques may be required in the development of sensitive areas adjacent to waterways or wetlands.

Land Uses and Development Patterns

This land use accommodates a mix of commercial, light industrial, higher density residential, civic, and institutional uses in beneficial combinations in or adjacent to the sewer service area of Harvey. A variety of residential options will be integrated with compatible commercial uses, either within the same building or nearby.

Multi-family residential development will be accommodated as infill or redevelopment efforts by allowing residential uses over other uses (in one structure), accessory dwelling units (attached or detached), and apartment buildings.

Smaller dwelling units are encouraged to accommodate one-person households, particularly when designed to accommodate the elderly or persons with disabilities.

Low intensity primary commercial uses that do not utilize the sewer system (such as mini-storage facilities) as a principal use should be discouraged in this area. However, accessory storage may be



incorporated to facilitate the needs of residents of compact residential developments utilizing small housing units such as tiny houses, cottages, or mobile homes or businesses that need additional storage space for their business.

Zoning

The current zoning districts are Commercial (C), Industrial (I), Multi-Family Residential (MFR), Single-Family Residential (R-1), and High Density Residential (R-2).

Circulation and Access

Accommodations for pedestrian circulation and multi-modal transportation options are a priority in this area. It is important to provide for year-round maintenance of non-motorized pathways throughout this area so that residents without access to vehicles can safely access goods and services.

Public Amenities and Utilities

Public sewer facilities are available in most of this developed area and should be extended where necessary to accommodate existing and new development.

This area has close access to the Iron Ore Heritage Trail and public recreation access (Silver Creek Recreation Area, Township Marina, Welcome Center and the Township complex.

Broadband / Cell Access

Broadband access and cell service is generally good in this land use.

Preferred Amenities and Utilities

The provision of year-round public spaces such as public parks and gardens, trails and private outdoor eating and gathering areas is important to enhance social interaction and the pedestrian experience.

Public art installations and wayfinding signage to area attractions will be incorporated.

Outdoor sales and food and beverage service would also encourage social interaction.

Future Land Uses and Development Patterns

It is intended that accessory structures will be designed to be moderate in size and scale and of a character consistent with residential neighborhoods.

Uses that should be considered are accessory dwelling units (attached or over an accessory structure), garbins (small footprint dwelling space with garage underneath the residence), and smaller-footprint dwellings.

Control of outdoor storage of household goods and vehicles is particularly important in this land use.

Considerations and Projects

This area is a high priority for installation of a public water supply system to accommodate more dense development and to eliminate the need for variances, strict sampling requirements, and water supply oversight.

Community solar facilities would be particularly beneficial in this area. Private solar energy systems should be permitted, with small-scale residential wind systems allowed as an approved conditional use.

Neighborhood residential (R-N)



Township neighborhood

Intent

The intent is to accommodate primarily single-family residential uses within a neighborhood setting along residential streets.

Character Area

Sub-Urban Residential is the character area that corresponds with this land use description.

Natural Features

The predominant pattern of natural features is well-maintained lawns, landscaping, trees, and gardens. There may be areas of surrounding woodlands.

Land Uses and Development Patterns

This land use contains both platted and unplatted areas that can accommodate moderately dense residential development.

This area includes residential subdivisions that are characterized by small lots with homes closely set to



each other and to the road. Fences often provide privacy and containment for pets and children.

The single-family residential use predominates.

Zoning

The current zoning districts are Agriculture / Forestry (AF) and Single-Family Residential (R-1).

Circulation and Access

These properties are mostly accessed by driveways along public or private roads without pedestrian / non-motorized facilities.

Access is typically from one main road which provides access to internal streets. There are typically no sidewalks in these developments, so the main transportation option is the automobile.

Public Amenities and Utilities

Some properties along Riverside Drive and the north side of M-28 East have access to the public sewer system, but most currently have private sanitary facilities. All properties have private well systems.

Broadband / Cell Access

Broadband access and cell service is generally good in this land use.

Preferred Amenities and Utilities

Where appropriate, neighborhood-serving sewer systems could be incorporated.

Community solar facilities would be particularly beneficial in these areas.

Residential solar energy systems should be

permitted, with small-scale residential wind systems allowed as an approved conditional use.

Future Land Uses and Development Patterns

It is intended that accessory structures will be designed to be moderate in size and scale and of a character consistent with residential neighborhoods.

Uses that should be considered are accessory dwelling units (attached or over an accessory structure), garbins (small footprint dwelling space with garage underneath the residence), and smaller-footprint dwellings.

It is preferred that new single-family development be accommodated through the subdivision (plat) process or by utilizing a compact overlay development pattern (such as development-supported agriculture or cluster housing development with a permanent conservation easement for shared public space).

Control of outdoor storage of household goods and vehicles is particularly important in this land use.

Considerations and Projects

Where possible, it is highly desirable to add pedestrian / non-motorized facilities at least along the major roadways leading to the neighborhood. It would be beneficial to create pedestrian / non-motorized paths along roadways to provide alternative transportation options in and to this land use.

Consideration should be directed at ensuring continued maintenance of properties.

Public use (P)



Jeske Flooding landing

Intent

The intent is to include Township or other publicly owned properties that are used for governmental administration activities, recreation, and other purposes that provide a public benefit, and to include

private properties that are developed for public recreation use.

Character Area

Recreational Preserve is the character area that corresponds with this land use description.

Natural Features

Natural features vary depending on location and use; most provide a variety of natural areas, open spaces, waterways, and woodlands.

Land Uses and Development Patterns

Diverse with some formal development with the intent to use as public space.

Zoning

The current zoning districts are Agriculture / Forestry (AF) and Municipal Properties (MP).



Circulation and Access

Circulation and access depend on location and use. Access is through primary and secondary roadways; some areas can be accessed via pedestrian / non-motorized paths or waterways.

Public Amenities and Utilities

Utility infrastructure varies depending on location and property use.

Broadband / Cell Access

Broadband access and cell service is limited in the low residential density areas in the eastern and southern portions of the Township.

Preferred Amenities

Elements of focus include multiuse paths or trails, wayfinding signage, and public art which can be enjoyed by all generations of residents and visitors at their own convenience.

Future Land Uses and Development Patterns

This land use has a common element of public use. Development patterns will vary depending on the use,

ranging from primarily recreation-based activities to government offices.

The Township should preserve natural features for public use when possible. Landscaping should be designed for minimal maintenance requirements, with a preference for native and edible plants and fruit trees.

Considerations and Projects

Where feasible, the goal should be to provide universal access to all public facilities.

Renewable energy sources should be utilized as soon as possible in as many locations as possible, with solar permitted and small-scale residential wind systems allowed as an approved conditional use.

Development for these areas should follow the recommendations in the Township recreation plan.

Public / private partnerships that will provide broadband access and cell service throughout this land use should be a priority. This will increase the ability to provide assistance in emergency situations.

Rural residential (R-R)



Rural winter view

Intent

The intent is to accommodate single-family residential uses in rural settings.

Character Areas

Transportation-Oriented Residential, Sub-Rural Residential, Rural Residential and Country Estate are the character areas that correspond with this land use description.

Natural Features

The terrain is level upland with a few river or stream crossings.

These areas are characterized by lots with

remaining natural areas, open spaces, and woodlands. These are some of the most scenic areas of the Township.

Land Uses and Development Patterns

This land use contains mostly unplatted areas with less dense residential development.

This area contains gems of the rural environment, including larger homes with well-maintained lawns, landscaping, and surrounding woodlands.

These are generally parcels one to five acres in size dedicated primarily to residential development in a natural, quiet, and rural setting.

The primary pattern is narrow or shallow residential lots along major highway corridors.

The predominant land use is single-family residential, home occupations, and small scale agriculture.

Zoning

Current zoning is Agriculture / Forestry (AF) and Single-Family Residential (R-1). The parcels in the AF zoning district generally do not conform to the minimum twenty-acre lot size.



Circulation and Access

These properties are accessed by driveways along public or private roads or an easement across another property. Pedestrian / non-motorized facilities (such as improvements and provisions made to accommodate or encourage walking) do not exist.

There are no alternative transportation options in this land use.

Public Amenities and Utilities

All sanitary and water facilities are private.

Broadband / Cell Access

Broadband access and cell service is limited throughout this land use.

Preferred Amenities and Utilities

The preferred amenity is maintenance of rural character and privacy. Outdoor storage areas should be well buffered from roadways and adjacent properties.

This land use is generally within a managed growth area, and, in some cases, adjacent to intended growth areas.

Future Land Uses and Development Patterns

Regulations for accessory structures should provide for larger, taller structures accommodating indoor storage of vehicles and campers provided there is appropriate buffering from the roadway and

adjacent parcels.

Uses that should be considered are accessory dwelling units (attached or over an accessory structure), garbins (small footprint dwelling space with garage underneath the residence), and smaller-footprint dwellings.

These areas include lands that should not be divided into smaller parcels because of river corridors, wetlands, and the preservation of scenic rural character; however, lot division requirements for these parcels should be reduced to a minimum of ten acres.

Based on the public opinion survey regarding future land uses in neighborhoods, a new zoning district may need to be created to accommodate this character area.

Considerations and Projects

Community solar facilities would be particularly beneficial in these areas to improve reliability and reduce costs.

Residential solar energy systems should be permitted, with small-scale residential wind systems allowed as an approved conditional use.

Where possible it would be advisable to develop pedestrian / non-motorized paths along nearby roadways that lead to these developments to create transportation alternatives.

Village residential (R-V)



Home in Harvey

Intent

The intent is to accommodate primarily modest single-family residences on small lots in a compact urban setting.

Character Area

Village Residential is the character area that corresponds with this land use description.

Natural Features

Natural features include residential landscaping and mature trees. There are no prominent geologic or water features in this area.

Land Uses and Development Patterns

This land use consists of small lots (as little as 50' wide) in a platted area of the Township in the village of Harvey that have mostly been developed according to the preferred land use pattern.

The dominant land use is single-family residential with some multi-family development.

Zoning

This character area is zoned primarily High-Density Residential (R-2) with some Commercial (C) and Multi-Family Residential (MFR).

The MFR zoning district includes a mobile home park and a condominium development.



Circulation and Access

These properties are accessed by driveways along public roads.

The east and west parcels are connected by a pedestrian / non-motorized path that goes through a tunnel under US 41 South at the west end of Fairbanks Street.

Public Amenities and Utilities

These properties have access to the public sewer system and have private water facilities.

Broadband / Cell Access

Broadband access and cell service is excellent in this land use.

Preferred Amenities and Utilities

Accommodations for pedestrian circulation and multi-modal transportation options are a priority in this area.

Solar energy systems should be permitted, with small-scale residential wind systems allowed as an approved conditional use.

Future Land Uses and Development Patterns

Uses that may be allowed include one accessory

dwelling unit per parcel (attached or over an accessory structure) or duplexes.

Control of outdoor storage of household goods and vehicles is important in this dense developed area.

This land use should be included in a future managed growth area to maintain affordable housing close to alternative transportation options.

Smaller dwelling units (such as tiny homes) should be encouraged to accommodate one-person households, particularly when designed to accommodate the elderly and persons with disabilities.

Considerations and Projects

This is a prime area for a public water system in the future.

Some portions of this land use may be suitable for redevelopment or infill with higher density mixed-use with live / work units, secondary apartments, smaller housing footprints and neighborhood-serving commercial.

Water-oriented residential (R-W)



Lakeside home

Intent

The intent is to provide opportunity for residential development along the shorelines of bodies of water, with particular attention paid to preserving dunes and riparian boundaries, water quality and views, and preventing erosion.

Character Area

Water-Oriented and Recreational Residential is the character area that corresponds with this land use description.

Natural Features

Natural features are the defining characteristic of this character area; important features include beaches, dunes, lakes, rivers, scenic views, and woodlands.

Land Uses and Development Patterns

These high demand residential lots are primarily characterized by their location on or near the Lake Superior shoreline, the Chocoy River, Lake Kawbawgam and other inland waterways.

Lots are typically narrow and long along Lake Superior.

Land uses include a variety of single-family residential uses ranging from seasonal camps to large permanent homes.

Zoning

Primary zoning districts include Single-Family Residential (R-1) and Waterfront Residential (WFR).

Circulation and Access

These properties are accessed from private driveways onto public or private roadways, or through easements across other properties. Some are also



accessible from the Iron Ore Heritage Trail and the ATV / snowmobile trail at the eastern end of the Township.

Public Amenities and Utilities

Some properties along Main Street, Lakewood Lane, M-28 East to the casino, and Riverside Road have sewer facilities; the majority of homes have individual septic systems.

Private wells provide access to water.

Broadband / Cell Access

Broadband access and cell service is good in most of the western portion of this land use. Service is unreliable in the eastern and southern portions of the Township, especially in the Shot Point area.

Preferred Amenities and Utilities

Beach access and water access are the preferred amenities in this land use.

Future Land Uses and Development Patterns

This sector is identified for redevelopment and infill growth with special considerations to protect water resources.

It may be advisable to make minimum lot width requirements along Lake Superior consistent with the majority of lots which are 100 feet. This would allow some further lot splits in this high demand area but would retain existing character.

Establishment of a deeper setback from the Lake Superior shoreline should be considered to control potential loss of structures along the lakeshore and to

preserve the natural beachfront as it changes over time.

Residential solar energy systems should be permitted, with small-scale residential wind systems allowed as an approved conditional use.

A uniform standard of measurement from water's edge (such as the highwater mark) should be a priority.

Uses that should be considered are accessory dwelling units (attached or over an accessory structure), garbins (small footprint dwelling space with garage underneath the residence), and smaller-footprint dwellings.

Riparian areas and dunes will be protected by regulations pertaining to retention of natural vegetation, limitations on grading and fill, control of runoff, and increased setbacks of structures.

Ground coverage will be minimized, and open space will be maximized. Paved spaces should drain toward vegetated bio-filter areas instead of draining toward a water body.

Considerations and Projects

Future projects include key trail connections for more residents to gain access to the Iron Ore Heritage Trail without having to utilize crossroads that are widely spaced. Some areas may be appropriate for sidewalk development to assist in this goal.

Projects that concentrate on wildfire mitigation, dune protection, erosion control, and flood mitigation should be a priority for this land use, especially along Lake Superior and the Chocolay River.

Future Land Use Relationship to Zoning

Table 20 illustrates the relationship between future land use, current zoning, and future zoning.

The future land uses correlate closely with future zoning but may not be the same; there could be more zoning districts than future land uses. For example, if proposed use or dimensional regulations are different for properties fronting Lake Superior from properties fronting inland water bodies, there could be a need for two waterfront residential zoning districts.

The privately owned public use areas will not be zoned the same as the publicly owned public use areas, but the opportunity for that use will be preserved regardless of zoning district.

It is the intent of the future zoning plan not to have multiple zoning district designations for one

parcel; in other words, the entire parcel will have one zoning designation. Allowing multiple zoning designations per parcel makes it difficult to administer zoning requirements and is confusing for the property owner. It can also result in costly development delays.

The primary zoning change as a result of the future land uses (see the *Future Land Use* maps in *Appendix E*) will be the creation of three new mixed-use zoning districts to allow greater opportunity and diversity of uses along portions of the corridor, adjacent to neighborhoods, and within the village of Harvey.

The primary change in residential zoning districts will be the addition of the rural-residential category for larger parcels less than 20 acres. Built Planned Unit



Development (PUD) projects will still be designated as PUD on the future zoning map, but approved PUDs that were not built within the designated time (and have consequently expired) will revert to designations per the future land use map.

Table 20 Comparison of future land use, current zoning, and future zoning

Future Land Use	Current Zoning (134)	Future Zoning
Agriculture and Forestry (AF)	Agriculture / Forestry (AF) Single Family Residential (R-1) State Lands Waterfront Residential (WFR)	Agriculture Forestry (AF) Residential Rural (R-R)
Conservation Recreation (CR)	Single Family Residential (R-1) Waterfront Residential (WFR)	Conservation Recreation (CR)
Corridor Mixed-Use (MU-C)	Industrial (I) Single Family Residential (R-1)	Mixed Use Corridor (MU-C)
Neighborhood Mixed-Use (MU-N)	Agriculture /-Forestry (AF) Commercial (C) Industrial (I) Multi-Family Residential (MFR) Single Family Residential (R-1) High Density Residential (R-2)	Mixed Use Neighborhood (MU-N)
Neighborhood Residential (R-N)	Agriculture / Forestry (AF) Single Family Residential (R-1) Waterfront Residential (WFR)	Residential Neighborhood (R-N)
Public Use (P)	Agriculture / Forestry (AF) Municipal Properties (MP) Single Family Residential (R-1) State Lands Waterfront Residential (WFR) -- MDOT turnouts and MDOT Welcome Center	Agriculture Forestry (AF) Conservation Recreation (CR) Municipal Properties (MP)
Rural Residential (R-R)	Agriculture / Forestry (AF) Single Family Residential (R-1)	Residential Rural (R-R)
Village Mixed-Use (MU-V)	Commercial (C) Industrial (I) Multi-Family Residential (MFR) Single Family Residential (R-1) High Density Residential (R-2)	Mixed Use Village (MU-V)
Village Residential (R-V)	Single Family Residential (R-1) High Density Residential (R-2)	Residential Village (R-V)
Water-Oriented Residential (R-W)	Agriculture Forestry (AF) Single Family Residential (R-1) State Lands Waterfront Residential (WFR)	Lake Superior Waterfront (R-S) Residential Waterfront 2 (R-W)



Overlay Development Patterns Conservation Cluster Subdivision (CCS)

As permitted by the *Michigan Zoning Enabling Act PA 110 of 2006 as amended* and the *Township Zoning Ordinance*, rural cluster development subdivisions supporting open space preservation may currently be implemented in districts when in conformance with various standards (such as the suitability for on-site water supply and sewage disposal). The Conservation Cluster Subdivision proposed overlay development pattern is similar but would allow land in any zoning district to be developed with the same number of dwelling units as allowed in the

underlying zoning district for the entire parcel but situated on half the land. A density bonus may also be allowed to achieve certain district goals. The other half will remain perpetually in an undeveloped state by means of a conservation easement, plat dedication, restrictive covenant or other legal means that runs with the land. Currently, the undeveloped state may include natural state, agriculture, open space, recreational trails, picnic areas, greenways, or linear parks but does not include golf courses. The undeveloped land may or may not be retained for public use. There are prime properties in other future land use areas that would be suitable for this development pattern.

Development Supported Agriculture (DSA)

This development pattern is a planned residential development with farming as the central amenity, similar to residential developments that are built around golf courses. The design is intended to incubate small-scale farms that co-exist with residential land development. The purpose is to build a local food economy with associated health and economic benefits, put people more in touch with sources of their food, preserve agricultural land, and offer access to beneficial rural culture within appropriate urban

and rural settings.

Similar to the Conservation Cluster Subdivision pattern, this pattern allows land zoned for residential development to be developed with the same number of dwelling units as allowed for the entire parcel but

on half the land (with a density bonus to achieve district goals). The other half will remain perpetually as a working farm by means of a conservation easement, plat dedication, restrictive covenant or other legal means that runs with the land.

This farm may be dedicated to food production, equestrian pursuits, community

gardens, and other uses as long as they relate to productive agricultural use.

Planned Unit Development (PUD)

Currently the Planned Unit Development is implemented as a zoning district in the *Township Zoning Ordinance* and involves a rezoning process. This future land use would implement a planned unit development as an overlay zoning district to be utilized in appropriate areas without the rezoning process, and with approval of the Planning Commission and Township Board. The intent is to accommodate innovative land developments with a mix of uses in a flexible design meeting the stated goals and purposes of this plan.

This development pattern could be implemented in any zoning district except AF, and there should be no minimum lot size established.

This development pattern should incorporate innovative elements (such as renewable energy infrastructure, shared parking or storage, or a live and work unit on a residential lot in a neighborhood).

The development pattern could also be used for a hospital, medical or research campus development, or a neighborhood center with libraries, cultural centers, schools, botanical gardens, and parks.



Conservation Cluster Subdivision example





ZONING PLAN

After the master plan is approved, the next step is to revise the Township *Zoning Ordinance* so that language in the ordinance corresponds to the intent of the master plan.

Administrative Standards and Procedures

The Township *Zoning Ordinance* should be reorganized to have one administrative article containing all necessary application and procedure guides to benefit the general reader. Currently the administrative standards and procedures are scattered among the following articles and sections:

- Section 1.6 *Administrative Standards and Procedures*
- Section 5.3 *US-41 / M 28 Access Management Overlay District*
- Section 6.6 *Wind Energy Conversion Systems (WECS) Conditions for Approval Within All Districts With Chocloy Township*
- Section 6.7 *Road Frontage Requirements*
- Section 6.9 *Home Occupations*
- Section 6.10 *Accessory Housing Unit*

- Section 6.12 *Rural Cluster Development Subdivisions*
- Section 6.13 *Fees in Escrow for Professional Reviews*
- Article VII *Mining and Mineral Extraction*
- Article IX *Site Plan Review*
- Article X *Planned Unit Development*
- Article XI *Landscape and Grading Requirements*
- Article XII *Site Condominium*
- Article XIV *Nonconforming Uses and Structures*
- Article XV *Zoning Board of Appeals – Powers, Duties, Rules*
- Article XVI *Conditional Use Permits*
- Article XVII *Zoning Administration*
- Article XVIII *Signs and Fences*
- Article XIX *Zoning Maps*

These provisions could be combined into one Article listing the different types of permits and associated application requirements and review procedures. The general procedures associated with appeals, zoning amendments, and enforcement should be included.



The conditions for approval would be contained along with the other zoning standards in a different part of the zoning ordinance.

The current notification standards should be reviewed for additional ways to notify the public of items that require a public hearing. Current notification requirement is for a “newspaper of general circulation in the Township” and a notification distance of 500 feet from the “subject property”.

Mining Journal public notice

There is a statement in section IX (B) *Site Plan Review* that a site plan denied by the Zoning Administrator can be appealed to the Planning Commission. There is a statement in section 9.3 (C) *Approved Plans and Amendments* that appeals of site plans denied by the Planning Commission shall be heard by the Township Board. Both of these statements should be reviewed to be consistent with the process defined in the *Michigan Zoning Enabling Act*.⁽¹³⁵⁾

There is a statement in Section 17.2 *Zoning Compliance Permits* that “No zoning compliance permit shall remain valid if the use or structure it authorizes becomes nonconforming.” The legality of this statement should be investigated, unless this refers to permits for items never developed.

Definitions, Uses, and Measurement Standards

Township *Zoning Ordinance* definitions and standards need to be reviewed for consistency with State and Federal legislation, particularly with regard to agriculture, condominiums, manufactured homes, renewable energy systems, State-regulated residential care facilities (such as foster and day care), and wireless communications towers.

Some definitions should match those in the *Michigan Zoning Enabling Act*⁽¹³⁶⁾ or other applicable legislation such as the *Michigan Right-to-Farm Act*.⁽¹³⁷⁾ Limitations to local regulation as contained in the zoning enabling act should be discussed and provided for in the new zoning ordinance. This relates to biofuel production facilities, conditional rezonings, instruction in craft or fine art as a home occupation, regulation or control of oil or gas wells or extraction of natural resources (mining), open space preservation, purchase of development rights, residential uses of property for foster or childcare, and wireless communications.

Zoning Ordinance Definition Review

Zoning ordinance definitions that may need revisions for clarity or intent include:

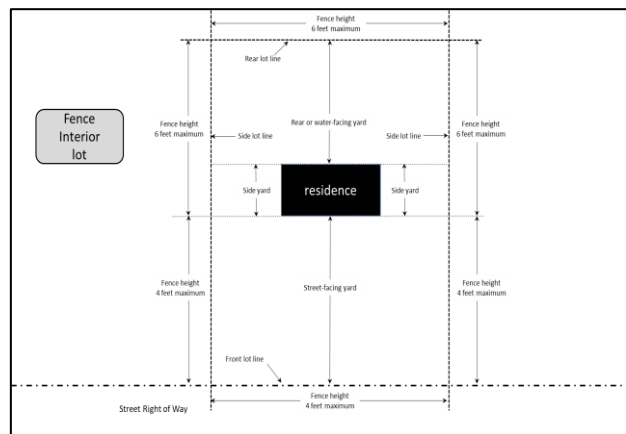
- Accessory Building Or Structure
Cannot really conform in all respects with standards for principal buildings when they have different setback and height requirements
- Accessory Housing Unit
- Boilers/Units, Outdoor Wood Burning and Outdoor Wood Boilers
Delete the Boilers/Units, Outdoor Wood Burning definition
- Building
- Building Height and Height
Building height does not specify measurement from the grade before or after alteration, but height specifies measurement from the natural grade. These terms also conflict in what they measure to, whether the average height or highest point.
Add illustrations to demonstrate the measurements
- Clinic
- Common Land vs Common Open Space
Determine the difference in the definitions



- **Conditional Use**
Does not require approval by the Township Board, making it inconsistent with the conditional use standards
- **Conditional Use Fees**
Remove the references to the fees for the Zoning Board of Appeals and the fee schedule
- **Conservation Design Subdivision and Rural Cluster Development Subdivision**
Both refer to the same thing, but both are not needed – use the proper term and definition from the Michigan *Zoning Enabling Act*
- **Contractors Shop And Contractors Yard**
Regulate outdoor storage and reduce problems with interpretation of the meaning of contractor
- **Day Camp**
- **Deck**
Defined as a structure but not mentioned in the definition of structure where open porches of a certain type are excluded. This impacts how they are handled for permitting and nonconformities
- **Dwelling, Multi-Family**
Should be defined as three or more units, with duplexes regulated separately
- **Family**
Consider case law to avoid legal issues
- **Move section 16.3 Fees to Floor Area and Floor Area Ratio**
Even though floor area ratio depends on the definition of floor area, they contain different exclusions
- **Golf Courses**
Add exclusion for disc golf course.
- **Ground Coverage Ratio**
Rewrite the definition to clarify the language; review the percentages in Section 6.1, footnote D
- **Kennel**
- **Lot (parcel and unit)**
Defined as contiguous land in the same ownership which creates problems when the word lot is used in lot area, nonconforming lot, lot line, and other definitions.
- **Lot Area**
Does not include areas under water, but it is questionable whether this includes wetlands and intermittently covered areas. Context may

accommodate counting the entire area within the parcel boundaries for simplification.

- **Lot Line, Side**
The defined word is used in the definition and is unclear
- **Lot, Nonconforming And Nonconforming Lot**
Different definitions for the same thing, delete Lot, Nonconforming
- **Setback**
Needs to be reconciled with the definition of structure, it is unclear whether this applies to porches and decks, and it should not apply to signs and fences



Sample fence setbacks

- **Structure**
Consider all the implications of what is included and excluded, and ensure this definition is consistent with the intent of the other items that depend on this definition. For example, all structures need permits, but fences and decks are excluded from the definition of structure but still need permits.
All definitions, regardless of use, should be consolidated in the *Definitions* section of the *Zoning Ordinance*. This prevents variation of a definition if used in multiple sections in the ordinance (such as found in Section 5.3 (Q) *US-41 / M-28 Access Management Overlay District* for lot width and setbacks). Other sections that currently have definitions include:
 - 5.5 Mixed Use Overlay District
 - 8.1 Off-Street Parking Requirements
 - 12.3 Definitions (Site Condominium)
 - 18.2 Fences



Clear vision triangle	A triangular-shaped portion of land established at street intersections in which nothing is erected, placed, planted, or allowed to grow in such a manner as to limit or obstruct the sight distance of motorists entering or leaving the intersection.	
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Sample ordinance definition with picture

accommodate the disabled.

Height exemptions should be considered for chimneys, smokestacks, church steeples and spires, flagpoles, amateur radio towers, and residential wind systems.

Definitions from other Township ordinances, if the same as the *Zoning Ordinance*, must match the language in the *Zoning Ordinance*.

When possible, sample pictures or illustrations should be included with the definition. This would help clarify the meaning and intent of the definition.

Regulations should be removed from the definitions (such as Accessory Building or Structure, Frontage Line, Rural Character, and Variance).

Unused definitions should be deleted (such as Mental Health Center, Ordinary High Water Mark, and Recreational Unit).

Additional definitions are needed for Corner Lots, Erosion Hazard Line, Mixed Use, and Private Road.

Zoning Ordinance Additions and Corrections

A measurement standards section should be added to address building height in relation to grade, height of other structures, lot measurements, setbacks, and lot coverage. Building height should be measured from finished grade (which is illustrated on elevation plans), but the adding of fill above the established natural grade of adjacent land should be prohibited so that buildings are not erected taller than the established natural grade plus the building height limitation. This will also help avoid issues of runoff or erosion on adjacent properties. The standard regarding fill to increase height is found in Section 11.11 *Building Grades, Fill To Increase Height*; it should be moved to the measurement standards or it could be overlooked.

The ordinance should address height and setback exemptions. For example, if freestanding solar energy structures are to be regulated as accessory structures, there may need to be an allowance for modification of setback requirements not to exceed a certain percent for optimal solar placement on a lot without going through the variance process. Other items to be considered for setback modifications or exclusions include awnings and other architectural projections (such as fire escapes and chimneys), small structures (such as sheds), and structures or ramps to

All use standards should be reviewed for consistency with the master plan to make sure the *Zoning Ordinance* does not have the effect of totally prohibiting a lawful land use in the Township, provided there is a demonstrated need for that land use in the Township or surrounding area.

All permitted and conditional uses should be reviewed with the intent of designating uses that are appropriate for each zoning district. Permitted and conditional uses should be consistent with those found in Section 5.5 *Mixed Use Overlay District*.

The *Zoning Ordinance* should not attempt to regulate uses by exclusion, meaning if it is not mentioned, it is assumed not allowed. This could lead to delays in processing requests that may involve zoning ordinance interpretations or amendments or could also lead to legal challenges. There should be an attempt to have more detailed use standards, with the idea that most uses can be allowed somewhere provided appropriate conditions are met. Uses that should be considered include:

- Accessory dwelling units
- Accessory homesteading activities
- Agricultural service establishments
- Agritourism
- Apiaries
- Assembly vs manufacturing
- Community gardens
- Community or commercial solar or wind installations
- Composting
- Farmer's markets and food stands
- Group housing
- Indoor and outdoor entertainment and recreation uses
- Industrial service establishments (various levels)
- Junk yards
- Mixed use development
- Multi-unit commercial



- Outdoor food and beverage service (including food trucks)
- Outdoor sales
- Outdoor storage
- Parks
- Recreational units
- Sawmills
- Sexually-oriented businesses
- Social, educational, and religious institutions
- Tourist service establishments
- Transient amusement
- Warehousing and storage

Accessory Housing

Regulations for accessory housing units (attached and detached) need to be revised to reflect the intent of the various future land use areas. Rentals of single-family homes should be discussed in relation to other lodging options, with conditions for approval related to the number of units offered and exterior impact. For example, transient lodging facilities could be classified into different scales of activity, such as:

- Level 1 – one unit
- Level 2 – two to five units
- Level 3 –more than five units

Level 1 would include single-family homes being used as a single unit for rent. Level 2 could include single unit or property use (such as bed and breakfasts, tourist inns, and small resorts). Level 3 could accommodate a larger commercial use (such as campgrounds, group camps, hotels, motels, residence inns, and resorts). Each level would have appropriate conditions for approval based on the zoning district.

Temporary occupation of a recreational structure on a lot and related conditions should be defined, especially for those wishing to stay on a property during construction of the residence.

Miscellaneous Zoning Standards

All regulations that are based on zoning districts will have to be updated (such as Section 6.11 *Commercial Vehicle Parking in Residential Districts* and Section IX *Site Plan Review*).

With the addition of mixed use districts, there will need to be standards for different buffer types to be used between various uses or districts.

There should be some effort to plan for on-street parking in appropriate areas in the village. This can be



Garbin example

done during the development planning process for this area. Parking standards should also address location of parking and provide for conditional reductions in parking requirements if the use utilizes non-motorized or group transportation, shared parking, public parking, or on-street parking.

All lot splits for development sites of less than one acre that are land divisions meeting the definition of a subdivision or a site condominium must adhere to the Marquette County Health Department standards governing onsite water supply and sewage disposal for land divisions and subdivisions. It is recommended that the Township refrain from granting approval for these proposed splits until Health Department review and approval is complete.

Currently the minimum lot size is less than one acre in the R-1, R-2, WFR, and C zoning districts. The Township could consider increasing the minimum lot size to one acre in the R-1 and WFR districts unless the development is platted or created under a conservation development plan with appropriate health department approvals.

Many of the lots along the lake are 100 feet in lot width, which is nonconforming with the ordinance requirement of 125 feet. The Township should consider whether to reduce the minimum lot size width to reflect the majority of existing parcels, or whether to encourage lot widths of 125 feet in the R-1 and WFR districts on the few remaining undivided parcels (and parcels in other future zoning districts with similar conditions).

The allowed floor area ratio, maximum ground coverage ratio, and minimum landscaped open space

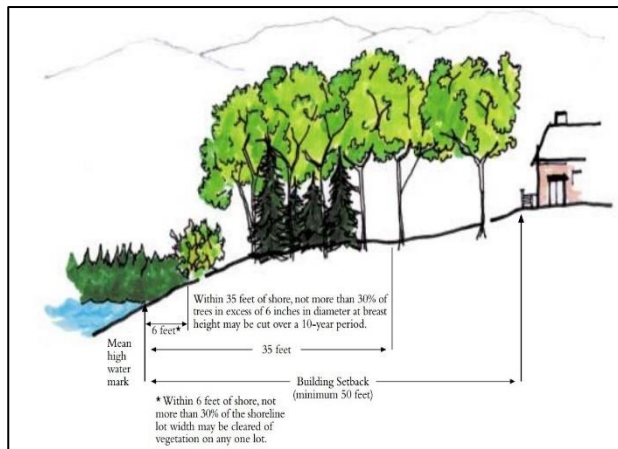


provisions should be reviewed for appropriate definition and reasonableness.

The minimum floor area for a dwelling unit may need to be reduced to accommodate tiny homes or cottage developments for seniors. This will facilitate more affordable housing for people who can no longer care for, pay for, or who no longer need larger homes.

The provision of Section 6.4 *Non-Conforming Lots of Record* in the *Zoning Ordinance* regarding the combination of contiguous parcels under the same ownership to reduce dimensional nonconformities should be reviewed for practicality and administration issues.

Consequences need to be specified for noncompliance with the vegetation requirements of the waterfront setback standards of Section 6.8 *Waterfront Setback* in the *Zoning Ordinance*.



Shoreline setback example

Section 6.12 *Rural Cluster Development Subdivisions* in the *Zoning Ordinance* should be reviewed for consistency with the intent of the master plan. The examples should be reviewed to determine if they are aligned with the standards as provided in the *Michigan Zoning Enabling Act*.⁽¹³⁸⁾

Simplified site plan review submittals could be allowed for some types of commercial site plan reviews when the more detailed requirements are not really necessary.

Consideration should be given to eliminating the minimum lot size and width for Planned Unit Developments provided they meet the other goals for such developments. The Township needs to review the districts in which PUDs are permitted.

All other articles and sections in the *Zoning Ordinance* should be reviewed for consistency with the master plan.

Suggested Zoning Ordinance Table of Contents

A suggested table of contents for the Township *Zoning Ordinance* revision is:

Section 1 Introductory Provisions

- Title
- Purpose
- Legal Basis
- History and Repeal of Prior Ordinances
- Jurisdiction and Applicability
- Relationship to Other Regulations
- Vested Rights
- Severability
- How to Use the Ordinance
- Ordinance Interpretation
- Map Interpretation

Section 2 Definitions and Diagrams

- Definitions
- Diagrams and Illustrations

Section 3 General Provisions

- Accessory Structures
- Essential Services
- Environment
 - Nuisance
 - Open Space Preservation
 - Stormwater
- Fences
- Landscaping and Screening
- Lots
 - Division or Combination of Lots
 - Number of Dwellings on a Lot
 - Yard and Setback Exceptions
- Outdoor Lighting
- Parking and Loading
- Permanent Dwellings
- Private Roads
- Public Facilities, and Utilities
- Road Frontage
- Signs



- Structures
 - Height Exemptions
 - Measurement Standards
 - Height in Relation to Grade and Fill
 - Structure footprints
 - Structures Requiring Permits
- Temporary Dwellings
- Waterfront Setback

Section 4 Use Regulations

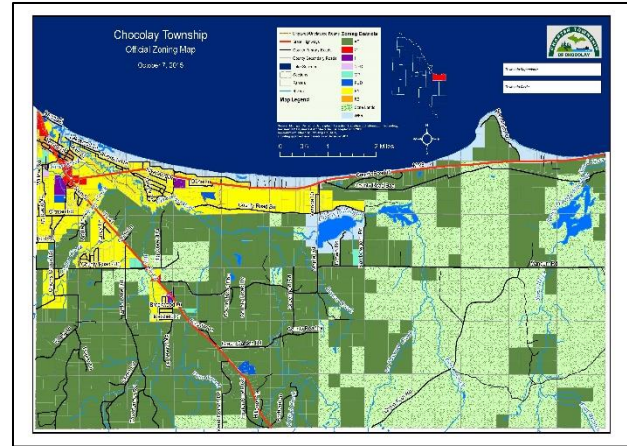
- Principal, Accessory, and Temporary Uses

Section 5 Zoning Districts and District Regulations

- Conditional Uses
 - Principal
 - Accessory
- Development Requirements including Lot Configuration
 - Minimum Lot Area
 - Minimum Lot Width
 - Maximum Ground Coverage
- Intent, Uses by Right
 - Principal
 - Accessory
- Maximum Height (Principal and Accessory Structures)
 - Principal
 - Accessory
- Minimum Structure Setbacks
 - Principal
 - Accessory
- Miscellaneous Standards for each Zoning District
 - Commercial vehicle
 - Recreational unit parking

Section 6 Overlay Zoning Districts Regulations

- Lake Superior Shoreline / Dune Protection
- Mixed Use
- Snowmobile Trail
- US 41 South / M-28 East Access Management



Township zoning map

Section 7 Development Standards

- Conditional Uses
- Open Space Preservation Developments
- Planned Unit Development
- Site Condominiums

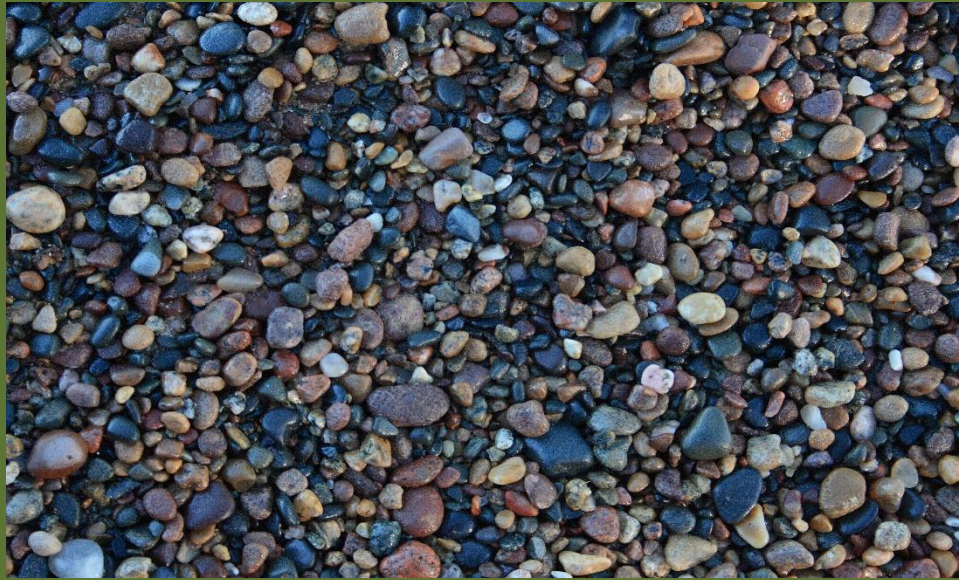
Section 8 Zoning Administration

- Amendments
- Duties
- Nonconformities
- Performance Guarantees
- Permit Details
- Procedures
 - Appeals and Interpretation Procedures
 - Application Contents and Procedures
 - Conditional Rezoning
 - Conditional Use Permit
 - Notice and Hearing
 - Open Space Preservation Development
 - Planned Unit Development
 - Site Condominium
 - Site Plan Review and Permitting
- Types of Permits
- Violations and Penalties

Section 9 Zoning Maps

(See *Zoning Maps* in *Appendix B* for current maps).





STRATEGIES

So successfully apply the guidance and direction from this plan, strategies must be developed and implemented for that to occur. For this plan, there are fourteen strategies that develop a direction for the successful implementation of the master plan. Each strategy is designed to interconnect with the others, but each strategy can also be addressed independently. **Table 21** shows the strategies and the assigned code for project reference.

The strategies are further divided into three distinct task categories:

1) Administrative (A)

Items in this category are generally assigned to Township staff for completion. Tasks

include research, planning, education, maintenance, and operations.

2) Capital improvements (C)

Items in this category generally require financial outlay. Financial outlay includes monies received from Township revenues, grants and other funding sources.

3) Regulatory (R)

Items in this category generally require changes to Township regulations. Tasks include review and update of the Township Zoning Ordinance, Township ordinances, and changes required as a result of Federal, State or County regulations.



Table 21 Strategy codes

Strategy	Strategy Code	Strategy	Strategy Code
Community fiscal sustainability	CF	Natural systems	NS
Economic development	ED	Public safety, emergency, and health services	PS
Energy infrastructure	EI	Recreation	RC
Food systems	FS	Solid waste and recycling	SW
Future land use and development	FL	Transportation - community	TC
General	GN	Transportation – household	TH
Housing	HO	Water and wastewater infrastructure	WW

Community Fiscal Sustainability

Community fiscal sustainability strategies focus on creating a more diverse revenue stream that is less dependent on property taxes while optimizing the property tax base.

Strategy	Task Type	Task
CF-1 Promote new development and facilitate redevelopment of underutilized existing commercial areas to expand the tax base.	A	Initiate conversation between property owners, developers, real estate agents, and business assistance organizations to determine development and business support direction.
	A	Pursue brownfield funding for properties that may be contaminated.
	A	Pursue opportunities to obtain grants to leverage greater impact for Township investment.
	A	Develop and implement permit approval procedures that are simple and easy to follow for the applicant.
	C	Commission a development study which would explore the feasibility of establishing a corridor improvement district that would provide alternate funding mechanisms (such as lease or rental income, proceeds from special assessments, and revenues from a tax increment financing plan).
	C	Finance infrastructure (roadways, water supply, and sewer system) through bonds for public improvements.
	C	Target placemaking or aesthetic enhancement projects for community improvement.
	R	Develop and implement zoning changes, particularly zoning for mixed-use including high-density residential use.
CF-2 Maintain an annual Capital Improvements Plan (CIP) to better anticipate and plan for Township capital expenditures.	R	Develop a site plan review process that identifies all criteria necessary for Planning Commission consideration.
	A	With collaboration between staff, the Planning Commission, and the Township Board, develop and implement a capital improvement plan that identifies existing infrastructure maintenance, repair needs, and projects with a six year schedule that links current and future investment costs. Provide a clear listing of planned capital improvements (type, location, date, cost, metrics to be achieved, and financing means) in the plan. Include anticipated maintenance / repair costs for current and planned assets and the year or years those expenses would likely occur.



Economic Development

Economic development strategies concentrate on people-based, policy-based, and place-based ways to build talent, provide a more productive business climate, and enhance community assets.

Strategy	Task Type	Task
<p>ED-1</p> <p>Promote economic development through talent development and attraction, entrepreneurship, innovation, and technology.</p>	A	Support “buy local” programs by educating citizens on the importance of the programs.
	A	Purchase government supplies and services locally when possible and fiscally feasible.
	A	Collaborate with local and regional organizations to support educational efforts and community projects that address retraining and re-localization.
	A	Collaborate in retraining efforts by providing use of Township meeting space at no charge.
	A	Fund internship opportunities for high school and college students seeking to learn more about local governance or implementation of special projects.
	A	Support an effort to utilize local retirees and volunteers to teach skills.
	A	Foster local businesses and “green” jobs that provide a viable alternative to distant suppliers and markets and are more relevant to future needs.
	A	Collaborate in infrastructure investments that support workforce and economic development (such as high speed internet access and improved cell phone service for local residents).
	A	Continue to invest in annual education and training to enhance Township staff development.
	A	Develop a Township-wide business directory that includes local products and services. Add home occupations to the directory.
	A	Develop and distribute business welcome packets that contain area information and permitting processes.
	A	Collaborate with area entrepreneurial assistance organizations to support prospective entrepreneurs or new business owners, and to assist with existing business growth opportunities.
	A	Directly assist prospective entrepreneurs in locating potential properties and navigating the permitting process.
	A	In association with area business groups, sponsor a yearly business meet and greet for local businesses, farmers, and those with home occupations to discuss support strategies. Include topics related to marketing and redevelopment.
A	Assist in restarting the Chocolay Area Business Association (CABA) and become a participating member.	
C	Partner in efforts to perform feasibility studies and obtain funds for the creation of small business incubators to improve the success of small business start-ups and assist in local job creation.	



Strategy	Task Type	Task
	R	Ensure that regulations and permitting processes are conducive to the development of local entrepreneurship (such as simplified site plan review application requirements and a simple registration process for businesses entering existing structures).
<p>ED-2 Assist in policy-based strategies to promote economic development through collaboration, regulation, and asset planning.</p>	A	<p>Keep current property information on vacant buildings and prime redevelopment opportunities.</p> <p>This information, including property owner contact information, should be made available to prospective tenants or purchasers with the permission of the property owner.</p> <p>It can be gathered through a partnership with other business development organizations and realtors.</p>
	A	Review the contents of plans for Marquette County, adjoining jurisdictions, and the region, and strive for consistency between the plans when possible.
	C	Explore opportunities for collaboration in regional planning and funding projects associated with connected assets (such as habitats, trails, transportation corridors, utility systems, and watersheds).
	C	Explore opportunities for collaboration in regional planning and funding projects associated with inter-connected issues (such as climate response, disaster mitigation, recreation, and tourism).
	R	Regularly review policy and regulatory changes that impact local government and businesses and take appropriate action.
	R	<p>Promote and pursue a niche economic development opportunity associated with local food systems, including the support of kitchen incubators, food processing facilities, food aggregation and storage facilities, distribution centers, and agritourism (such as breweries, events, food stands, farmer’s markets, wineries, tasting rooms, and other distributors of value-added agriculture-related offerings).</p> <p>The Township <i>Zoning Ordinance</i> should reflect this task.</p>
	R	Ensure that local ordinances support the operations of mobile food vendors at various locations in the Township (such as near residential neighborhoods, in the commercial district, near public recreation areas, and near churches and schools).
<p>ED-3 Promote economic development through investment in placemaking, marketing, and special initiatives.</p>	A	Conduct community visioning exercises related to placemaking and economic development.
	A	Participate in joint promotion of day and multi-day trips within the region.
	A	Partner with other community groups to enhance cultural and entertainment assets to attract economic investment and new residents.
	A	Partner with other community groups to provide new public gathering places.
	A	Involve the community and local businesses in creating a geo-caching network along the Heritage Trail routes.



Strategy	Task Type	Task
	A	Involve churches, civic organizations, seniors, and children in a multi-generational art project to enhance the pedestrian tunnel and entrances and other locations along the bike path that celebrates the Township and regional history.
	A	Participate with local businesses and volunteer organizations to establish an annual festival (such as <i>Chocolay Days</i>) for Township residents and visitors.
	A	Recognize volunteers, organizations, and businesses annually at a Township Board meeting or special get-together.
	A	With local partners, establish a beautification committee for the US 41 South corridor.
	A	Promote agritourism within the Township.
	C	Develop a tree-lined corridor on US 41 South with trees that are winter and salt resistant.
	C	Pursue the possibility of creating a community gathering space for year round entertainment in the village of Harvey near the Corning Street intersection.
	C	Create and distribute wayfinding signs and maps to assist visitors in locating local natural, cultural, entertainment, recreational, and business attractions.
	C	Partner with the Marquette County Convention and Visitor's Bureau in regional promotion opportunities.
	C	Find ways to celebrate community by implementing art projects and aesthetic enhancements along both Iron Ore Heritage Trail routes.
	R	Support placemaking initiatives through form-based codes for prime development areas (such as the business corridors).
	R	Prioritize climate-responsive design strategies.

Energy Infrastructure

Energy system strategies relate to readiness for changes in future energy supply and costs by ensuring greater reliability of supply and increased affordability through alternate production, efficiency, and conservation measures at both the community and household levels. Outcomes address re-localization, preparation for shortages and disruptions, and community solutions.

Strategy	Task Type	Task
EI-1 Prepare for possible shortages and disruptions in energy resources for Township operations.	A	Consider the feasibility of creating an emergency fuel fund to help buffer fuel cost variability in the future.
	A	Arrange for an emergency fuel resource to prepare for a shortage, and prioritize availability to public safety and emergency responders, farmers, truckers, and other critical goods and services providers.



Strategy	Task Type	Task
EI-2 Plan and implement energy conservation, energy efficiency, and alternative production measures in Township facilities.	A	Avoid idling vehicles and reduce vehicle miles traveled.
	A	Collect data on Township facility energy usage and costs to facilitate energy conservation.
	A	Reduce mowing frequency on Township properties by planting low-mow grasses or naturalizing more areas so that no mowing is required.
	A	Investigate opportunities to fund energy improvements with energy bonds payable through the resulting energy cost savings.
	C	Utilize vehicles that offer greater fuel efficiency. This might include alternative types of vehicles such as bicycles or motorcycles when appropriate.
	R	Consider energy conservation and efficiency criteria when making and evaluating plans, programs, and projects.
	R	Ensure that zoning standards are supportive of appropriate scale renewable energy facilities across the Township. For example, the Township may need to consider passing solar access regulations to limit restrictive or prohibitive covenants for solar installations.
EI-3 Facilitate greater awareness of energy conservation, energy efficiency, and alternative production measures in the private sector.	A	Educate and encourage homeowners to install renewable energy systems to support economic growth and improve housing resilience.
	A	Collect and distribute information from area utility providers, lenders, and other organizations to benefit Township residents.
	A	Collect and distribute information regarding energy technology improvements or other energy solutions.
EI-4 Plan for disruption of energy systems.	C	Participate in regional planning initiatives to anticipate the probable effects of various energy situations which could impact the economy, municipal services, transportation systems, land use patterns, housing, and basic food services.
EI-5 Plan and implement energy conservation, energy efficiency, and alternative production measures.	C	Continue to identify and implement energy conservation measures for public facilities (such as occupancy sensors, programmable thermostats, power management for electronic equipment and staff education measures).
	C	Continue to identify and implement energy measures for public facilities (such as energy efficient appliances, lighting, electronics, and water heating systems).
	C	Consider demand controlled ventilation for the HVAC system at Township Hall and a gas-fired radiant tube heater for the Township garage.
	C	Transition fleet vehicles to more energy efficient models as they are replaced or consider using alternative forms of transportation for enforcement and public works activities (biodiesel and natural gas powered, electric vehicles, and motorcycles).



Strategy	Task Type	Task
	C	Incorporate long-term strategies for new methods of energy generation for use on Township properties (such as biomass, cogeneration, geothermal, hydropower, solar, and wind installations).
	C	Explore community solar or wind installations as a viable option for properties that lack solar orientation, or people that lack property ownership or available funds for private systems. A typical business plan could be developed in partnership with adjacent jurisdictions.
	C	Ensure that all public facilities serve as a positive demonstration model for conservation, efficiency, and renewable energy generation. These model projects could be implemented in partnership with energy businesses for promotional purposes.
	C	Look for alternative paving materials that are not as subject to energy supply and cost disruptions.
	C	Incorporate permaculture principles to reduce landscaping maintenance and provide water catchment for irrigation on Township properties.
	C	Consider purchasing back-up generators for Township facilities that run on diverse fuel resources. The focus should be the Township Hall and the Township Police Department.
	C	Obtain a professional analysis of energy system improvements including fiscal impact.

Food Systems

Food systems strategies address outcomes related to public health, economic development, environmental stewardship, and social connectedness, with the direction of strengthening and improving the local food system that include production, processing, marketing and distribution.

Strategy	Task Type	Task
FS-1 Advocate for the strengthening of local food systems.	A	Continue staff participation in the activities of the U. P. Food Exchange (UPFE) and other regional organizations and initiatives that focus on growth of local food systems.
	A	Stay informed about State legislation and County standards impacting the growing, irrigation, and distribution of food, and continue staff training and participation in advocating for regulations that support local food systems.
	A	Build public, private, and non-profit partnerships to support healthy eating and active living strategies (such as supporting local food entrepreneurs or allowing municipal property to serve as a drop-off site for Community Supported Agriculture (CSA) shares).



Strategy	Task Type	Task
	C	Support appropriate projects, facilities, research and partnerships that increase production capacity and lengthen the growing season within the community (such as community gardens or farms, community hoop houses, edible landscaping in public areas, hydroponic or aquaculture facilities, public food forests, and u-pick areas).
	C	Support appropriate projects, facilities, research and partnerships that enhance diverse local food processing and distribution options (such as community food processing facilities and community kitchen incubators).
	C	Ensure that Township-sponsored projects and facilities are a demonstration of sustainable agriculture practices that promote long-term environmental stewardship and minimize potential nuisance impacts. Projects and facilities must be consistent with Generally Accepted Agricultural and Management Practices (GAAMPs) as defined by the State of Michigan.
	C	Consider leasing Township-owned land to non-profit or community partners to support the local food system where appropriate.
FS-2 Amend regulations to support local food systems in more areas of the Township.	R	Amend regulations to increase production opportunities by allowing accessory homesteading activities that are acceptable to most residents in each zoning district. This may involve changes to the Township ordinances.
	R	Amend the Township <i>Zoning Ordinance</i> to increase production opportunities by implementing regulations to encourage the preservation of prime farmlands for primary agriculture use, and to continue the preservation of high quality fish and wildlife habitat primarily for fishing and hunting.
	R	Amend the Township <i>Zoning Ordinance</i> to allow agriculture as a permitted use in the Municipal Properties (MP) zoning district to support agriculture as a use of publicly-owned lands.
	R	Amend the Township <i>Zoning Ordinance</i> to allow food processing facilities (mobile or fixed) in mixed-use, commercial, industrial, agricultural zoning districts. Review other zoning districts to determine if there is a feasibility of including these facilities in those districts.
	R	Amend the Township <i>Zoning Ordinance</i> to allow food marketing and distribution facilities (mobile or fixed) with appropriate restrictions in all districts. Examples include farm stores or tasting rooms, farmer’s markets, food stands, and mobile vendors (such as food trucks) that feature products produced locally.
	R	Amend the Township <i>Zoning Ordinance</i> to expand the accessory commercial uses permitted in the agriculture / forestry zoning district to allow agritourism, energy production facilities (such as biomass or methane digesters processing), and packaging and direct marketing of products produced on-site.



Future Land Use and Development

Future land use and development strategies address outcomes related to sustainable development and balanced growth, support of community character, and protection of places people care about.

Strategy	Task Type	Task
FL-1 Increase the likelihood that property owners will place productive lands into temporary or permanent preservation programs to ensure long-term viability for production.	A	Research and distribute information regarding various government or foundation programs, resources, and tax advantages for agricultural land preservation or forest preservation programs. This may include encouraging property owners to collaborate to voluntarily protect productive lands.
	A	Continue to encourage and support the growing of food at private residences and on other suitable public lands to reduce the need to convert forest lands for agricultural production.
FL-2 Ensure land divisions are accomplished accurately.	R	Update the Township land division, subdivision control, and lot splitting ordinance language with legislative changes when they occur.
FL-3 Support proximity of housing to employment.	R	Revise the Township <i>Zoning Ordinance</i> to accommodate mixed-use options including diverse housing options (such as apartments over commercial, townhomes and other multi-family options, and accessory dwelling units in the sewer district of Harvey and appropriate locations in nearby neighborhoods).
	R	Revise the Township <i>Zoning Ordinance</i> to accommodate sufficient low impact commercial and light industrial land uses, particularly those that are neighborhood-serving or create jobs near population centers.
FL-4 Increase beneficial density in or near the sewer district and at preferred locations within walking distance of population centers.	R	Amend the Planned Unit Development (PUD) provisions in the Township <i>Zoning Ordinance</i> to allow for a reduction in minimum lot size if certain stated goals of the Master Plan are satisfied by the development (such as housing diversity, incorporation of renewable energy, neighborhood-serving mixed-use, redevelopment of underutilized properties, and provision of neighborhood parks) and appropriate buffers are maintained.
	R	Develop zoning ordinance language to encourage the provision of essential commercial services within walking distance of neighborhood clusters.
FL-5 Consider changes to the zoning ordinance.	R	Revise administrative provisions of the Township <i>Zoning Ordinance</i> for greater clarity and direction to support consistent interpretation and enforcement.
	R	Revise land use provisions of the Township <i>Zoning Ordinance</i> for greater detail and clarity.
	R	Revise the definition of multi-family so as not to include duplexes, and permit duplexes by right in more zoning districts.
	R	Revise the definition of ground coverage ratio to reflect the area of all impervious surfaces. Additionally, implement a minimum open space requirement.



Strategy	Task Type	Task
	R	Revise the example given for a rural cluster development subdivision.
	R	Revise regulations for telecommunications facilities and mineral extraction to be consistent with state legislation.
	R	Revise minimum lot widths to reduce the number of non-conforming lots in zoning districts. Priority for this revision should be the Single Family Residential (R-1) and Waterfront Residential (WFR) districts. Most lots in these districts do not meet the minimum lot width of 125 feet.
	R	Consider splitting the Agriculture / Forestry (AF) district into smaller zoning districts to accommodate the smaller acreage parcels to reduce the number of non-conforming parcels in the AF district.
	R	Consider increasing the minimum lot size in some districts where they could conflict with County Health Department requirements.
	R	Customize the fence location provisions in the Waterfront residential district to permit privacy fences between the road and the residence.
	R	Consider adding a public hearing requirement for site plan reviews, revise the districts subject to site plan review to include MFR, WFR, AF, and MP, and amend the ordinance to say site plan review appeals are appealed to the Zoning Board of Appeals.
	R	Review parking standards for possible changes where results are not comparable among uses.
FL-6 Develop a plan to enhance the utilization of the primary business and residential areas in the village of Harvey.	C	Conduct a market study among area realtors and developers to determine levels of demand for specific development types and identify known barriers to development in Harvey.
	C	Interview the County Health Department, local well drillers, and area engineers to identify and anticipate known barriers and opportunities related to water and waste management systems in the project area.
	C	Estimate the costs versus benefits of both public and private water supply systems and the projected impact of each for new development or redevelopment.
	C	Engage the community in a visioning process to support a placemaking strategy and form-based code for the US 41 South / M-28 East business corridor.
	C	Interview key property owners in the project area to determine their willingness to participate to achieve the community vision, and to identify key obstacles and complementary opportunities.
	C	Conduct a build-out analysis to determine the appropriate density to support the demand, level of services and amenities necessary to achieve the community vision.



Strategy	Task Type	Task
	C	Work with MDOT, MarqTran, the Iron Ore Heritage Trail Recreation Authority and other interest groups to incorporate multiple transportation modes (such as biking, electric scooters, public transit, walking, and wheelchairs) and context sensitive design elements to achieve the placemaking plan.
	C	Provide plans and basic designs for natural stormwater management techniques.
	C	Estimate costs of the public elements needed to support the village enhancement plan, such as interconnecting roadways or frontage roads.
	C	Recommend preferred funding mechanisms to support the village enhancement plan, which may include the establishment of a Corridor Improvement Authority district.
FL-7 Map the various aspects of areas within the Township to provide accurate geographic data.	C	Update and maintain land use GIS (Geographic Information Systems) software to facilitate collaborative planning and data sharing.

General

General strategies address all other topic areas not otherwise covered.

Strategy	Task Type	Task
GN-1 Determine general Township direction regarding activities, development, and priorities.	A	Continue to hold annual joint meetings of the Township Board and Planning Commission to discuss and achieve consensus on future activities, development, and priorities.
GN-2 Provide annual reports to the Board regarding Township activities related to the master plan.	A	Provide an annual report to the Township Board that assesses and summarizes yearly progress toward the outcomes and targeted strategies for the Township as outlined in the master plan.
GN-3 Develop a general education process for both Township residents and visitors to the community.	A	Facilitate public education on topics relating to resilience and sustainability. Examples include: <ul style="list-style-type: none"> ◆ Protection of property from climate-related issues ◆ Recycling / waste management ◆ Water conservation (such greywater management, rainwater capture, and safe use of surface water for garden irrigation)
	A	Develop and distribute a Township information document that provides general information to Township residents and visitors. The guide should cover general information, Township ordinances, recreation, and building / permit requirements.



Strategy	Task Type	Task
GN-4 Establish Planning Commission and Zoning Board of Review examination of other jurisdictional plans.	A	Facilitate Planning Commission review of other jurisdictional plans (such as the County Road Commission annual capital improvement program, local master plans, and local zoning ordinance updates).
	A	Budget to send Planning Commissioners and Zoning Board of Appeals members to meetings held in other jurisdictions for training and experience.
GN-5 Participate in regional planning initiatives that benefit multiple jurisdictions.	C	Collaborate in regional planning initiatives that benefit multiple jurisdictions such as: <ul style="list-style-type: none"> ◆ County risk management plan ◆ Regional energy plan ◆ Regional infrastructure plan ◆ Regional public transportation plan ◆ Regional recreation plan ◆ Regional sewer capacity study ◆ Regional strategic growth plan ◆ Regional watershed plan
GN-6 Communicate with the general public through various forms of media outreach.	A	Develop a communication and media platform that will reach as many members of the general public as possible. All communication should be ADA-compatible. Media communications should include: <ul style="list-style-type: none"> ◆ Maps and other direction-based information ◆ Media outreach ◆ Social media platforms ◆ Township signs ◆ Township web site ◆ Wayfinding signs
GN-7 Map the various aspects of areas within the Township to provide accurate geographic data to area citizens and visitors.	C	Develop and maintain GIS-based stories and directional documents for residents and visitors to the area.

Housing

Housing strategies are related to issues of affordability through diversity of supply and improved energy efficiencies.

Strategy	Task Type	Task
HO-1 Increase community awareness of programs to improve housing affordability.	A	Develop materials that provide community awareness for programs that can reduce costs of ownership (such as energy optimization / weatherization and renewable energy programs).
HO-2 Increase community awareness of climate-resilient housing designs.	A	Develop materials that provide community awareness for housing designs that provide greater climate resilience (such as use of composite materials, solar orientation, and related landscaping). Research these options with Marquette County Building Codes before introducing to the public as a viable option.



Strategy	Task Type	Task
HO-3 Amend the Township <i>Zoning Ordinance</i> to encourage greater housing diversity and affordability.	R	Designate additional areas for multi-family housing, either by changing the boundaries of the Multi-Family Residential (MFR) zoning district, or by accommodating multi-family housing in additional zoning districts by an appropriate mechanism with appropriate limitations.
	R	Designate areas that are suitable for homes of smaller size (such as tiny homes). This can be done by reducing the minimum square footage requirement for residences, allowing them as accessory housing units with special conditions, and / or allowing them within the context of new developments.
	R	Accommodate accessory dwelling units (attached or detached) with appropriate conditions and in appropriate areas with language in the zoning ordinance.

Natural Systems

Natural systems strategies address outcomes for improved readiness in response to climate hazards, protection of areas of particular concern, and optimization of regional opportunities related to natural ecosystems and resources.

Strategy	Task Type	Task
NS-1 Take steps to build capacity for climate adaptation.	A	Collaborate with non-profit organizations, County Planning, Great Lakes stakeholder groups, and other regional partners, and attend targeted training sessions, to stay informed of research and data that will help anticipate climate change impacts. Critical things to monitor include: <ul style="list-style-type: none"> ◆ Areas in need of dune restoration ◆ Critical habitat to be protected ◆ Invasive species ◆ Key areas where power lines should be buried to reduce risk of power disruption ◆ Public and private infrastructure that is vulnerable to impacts
	A	Collaborate with non-profits organizations, County Planning, Great Lakes stakeholder groups, and other regional partners to plan and identify mitigation and adaptation strategies for anticipated climate impacts. Such strategies might include encouraging plant diversity, designing better drainage systems for roadways, planning for disaster response, or water conservation and storage measures.
	A	Encourage residents to increase the water supply available for non-potable use by collecting rainwater and other runoffs.



Strategy	Task Type	Task
<p>NS-2</p> <p>Enhance the capacity for water storage in the Chocolay River basin to help mitigate flooding and enhance the ecosystem.</p>	A	Keep detailed reports of flood incidents and damage to assist in obtaining federal and state mitigation grants.
	A	As part of site plan review, encourage developers to add natural containment systems and pervious capture systems as part of the development.
	A	Research viable options for removing ice dams or sedimentation at the mouth of the Chocolay River that could contribute to increased risk of flooding.
	C	Consider collaborating with other jurisdictions, agencies, volunteer organizations (such as Trout Unlimited) and Northern Michigan University to implement projects to improve the watershed (such as culvert replacement, managed stream crossings, sediment traps, stream monitoring and maintenance, stream restoration, tree planting, and water testing.
	R	Consider adopting low impact development standards for better management of water runoff and soil erosion.
	R	<p>Implement regulations establishing minimum open space and maximum impervious surface coverage on lots in residential subdivisions and along shorelines.</p> <p>The intent is to control the risk of overbuilding and putting incompatible massive structures on a lot, and to reduce runoff into waterbodies.</p> <p>Impervious surface coverage can be reduced through substitution of pervious surfaces such as gravel, permeable pavement, or biofiltration areas.</p>
	R	<p>Continue to enforce the minimum waterfront setback and shoreline vegetation maintenance provisions and communicate the importance to decision makers in relation to minimizing the downstream impact of encroachments and improving water habitats.</p> <p>Add clarity for the consequences of noncompliance with vegetation requirements.</p>
	R	Work with appropriate agencies to encourage homeowners to remove infrastructure that hardens shorelines and other artificial river channeling devices to reduce problems for downstream development, to reduce sediment impact, and to reduce erosion damage.
<p>NS-3</p> <p>Protect the natural shorelines on Lake Superior and within the Chocolay River Watershed.</p>	R	Develop a natural features setback and include the language in the zoning ordinance.
	R	<p>Clarify the language for the Lake Superior Shoreline / Dune Protection Overlay district boundaries in the Township Zoning Ordinance.</p> <p>Include a definition of erosion hazard line and consider establishing the ordinary high water mark as the starting point for the 100 feet measurement for waterfront setback.</p>



Strategy	Task Type	Task
NS-4 Develop a watershed and forestry management plan for assets located in the Township.	A	In collaboration with all affected agencies, update the <i>Chocoday River Watershed Restoration and Adaptive Management Plan</i> .
	A	In collaboration with the USDA and Marquette County, update the soil survey for the County.
	A	Review forestry management practices with the DNR, with concentration on forests on state lands located in the eastern portion of the Township.
	C	Contract with a forestry management agency to evaluate tree sustainability and management on Township properties, especially at Silver Creek Recreation Area and Voce Creek Recreation Area.
NS-5 Engage Township citizens in natural resource preservation.	A	Develop information and participate in state and national programs designed to protect shorelines and natural features. Suggested programs are: <ul style="list-style-type: none"> ◆ <i>FireWise</i> (National Fire Protection Association) ◆ <i>Michigan Shoreline Steward</i> (Michigan Shoreline Stewards) ◆ <i>StormReady</i> (National Weather Service)
	A	Provide homeowners with information regarding the <i>National Flood Insurance Program</i> (NFIP).
	A	Develop and implement the FEMA <i>Community Rating System</i> to mitigate flood damage and to provide lower flood insurance rates for area residents.
	A	Develop a list of survey services that provide homeowners seeking relief from flood insurance rates with the ability to obtain elevation certificates.
NS-6 Develop community-wide flood mitigation awareness.	A	Facilitate community awareness of issues related to possible flooding by preparing and distributing brochures with information on flood preparation (such as keeping lists of personal property to facilitate insurance claims, preparing evacuation plans, preparing a hazard kit, and storing clean water in case of contamination).
	A	Keep detailed reports of flood incidents and damage to assist in obtaining federal and state mitigation grants.
NS-7 Consider a purchase of development rights (PDR) ordinance.	C	Consider a Purchase of Development Rights (PDR) ordinance consistent with the <i>Michigan Zoning Enabling Act</i> to seek federal, state, or local funds to support the program to preserve prime productive lands. ⁽¹³⁹⁾



Public Safety, Emergency, and Health Services

Public safety, emergency and health services strategies are designed to mitigate public safety risks, provide for the fiscal sustainability of services, and promote efficiencies in providing better service.

Strategy	Task Type	Task
PS-1 Continue to facilitate timely emergency response to all areas of the Township.	A	Prepare and distribute educational materials regarding the importance of conspicuously posting addresses to facilitate timely emergency services.
	A	Prepare and distribute educational materials regarding the importance of trimming vegetation along private roadways and driveways to facilitate 12 feet wide and 15 feet high clearance for emergency vehicles. This information should include the elimination of steep road grades, tight curves, and narrow roads, and should demonstrate constructing a turn-around radius of 50 feet near homes when possible.
	A	Identify funding sources for the building of additional connecting roads for areas with only one road access.
	C	Purchase a GPS unit to assist in quickly locating structures.
	C	Work with the County Road Commission to provide and maintain better drainage systems for roadways to prepare for anticipated climate variability which may include increased incidents of flash flooding.
	R	Work with the County Road Commission to create minimum construction and maintenance standards for private driveways that serve more than one parcel.
PS-2 Attract and retain new members for the volunteer fire department.	A	Create a mechanism for attracting and retaining new members for the volunteer fire department.
PS-3 Involve the fire and police department in community outreach.	A	Dedicate a percentage of department time to community outreach activities (such as assisting in community events, maintaining public alert systems via social media or texts, and providing educational presentations).
PS-4 Continually take steps to prepare for improved general emergency response.	A	Establish a business database to assist in responding to business emergencies or alarms.
	A	Partner with the County to periodically update and review the County hazard mitigation plan and implement applicable strategies.
	A	Identify alternate evacuation travel routes.
	A	Identify locations for public storm shelters.
	R	Require all Township properties to post a fire number that provides a readable address in the event of an emergency. Update the Township <i>Address Numbers</i> ordinance to reflect this change.
PS-5 Facilitate community awareness of issues related to possible energy disruptions.	A	Prepare and distribute “What to do if” guides in case of emergency, especially oriented toward winter outages.
	A	Prepare and distribute educational materials regarding the dangers of fuel-storage and non-conventional home heating practices and related safety measures.



Strategy	Task Type	Task
PS-6 Establish a Livability Committee to evaluate community conditions and identify areas for improvement.	A	Provide meeting space and staff support as needed.
	A	Assist in recruiting members of diverse income, age, and interests for the committee.
	A	Assist in conducting a community audit of livability factors (such as community gathering spaces, modes of motorized and non-motorized transportation, recreation areas, and shopping areas).
	A	Assist in developing strategies for livability improvements.
	A	Facilitate planning sessions on the topic of neighborhood resilience with the goal of establishing resilience circles in each neighborhood to assist households in working together to solve issues or prepare for change.
PS-7 Take steps to strengthen community support mechanisms and networks.	A	Consider neighborhood watch groups to passively assist in public safety and enforcement tasks by notifying appropriate officials.
PS-8 Facilitate community awareness of issues related to possible wildfires.	A	Prepare and distribute brochures with information on best burn practices.
	A	Frequently distribute <i>Firewise</i> educational materials that detail strategies for homeowners to mitigate risks of wildfire.
	R	Review the Township <i>Outdoor and Open Burning</i> ordinance to ensure language is relevant and current with State regulations.
PS-9 Establish fire department processes and procedures that ensure fire protection is available throughout the Township.	A	Perform regularly scheduled maintenance inspections on the dry hydrants to ensure they remain functional.
	C	Consider creating a fireground training facility to provide realistic training for area departments in suppressing various types of fires and extrication from vehicles.
PS-10 Continue technology innovations that improve police department efficiencies and operations.	C	Continue to update as required software to allow greater efficiency and safety for officers when issuing citations.
	C	Continue to update as required the in-car computers and cameras with more space-efficient and technologically advanced models.
PS-11 Continue to fund technology innovations that improve fire department efficiencies and operations.	C	Purchase dash cameras to facilitate in-house review of incidents for training purposes.
	C	Purchase a dedicated truck designed to fight wildland fires.



Recreation

Recreation strategies of the master plan are very limited, as they are presented in detail in the Township recreation plan⁽¹⁴⁰⁾ that is sent to the DNR for grant submittals. A priority implementation matrix and cost projections for the recreational capital projects are included in the plan.

Strategy	Task Type	Task
RC-1 Prepare, adopt and maintain a recreation plan to facilitate DNR grant funding and contribute to comprehensive capital improvements planning.	A	Review the recreation plan annually to determine if updates are required. Submit any revised plan to the DNR per DNR submission requirements and adopt a new plan per DNR requirements.

Solid Waste and Recycling

Solid waste and recycling strategies promote environmentally sound disposal and recovery methods and foster resource conservation while providing fiscally sustainable services.

Strategy	Task Type	Task
SW-1 Continue to explore new solutions consistent with the goals of the Marquette County Solid Waste Management Authority to provide optimal processing of solid waste and recyclable materials.	A	Stay informed about waste management issues and concerns within the community and region.
	A	Continue public outreach and education activities to achieve recycling of the most waste possible and encourage environmentally sound waste practices.
SW-2 Provide waste and recycle pickup alternatives.	A	Research private / public locations and transfer stations for waste and recycle drop off. Include brush drop off locations.
	A	Periodically seek input from residents on levels of satisfaction and participation in waste management services.
	R	Explore requiring residents to contract with their own waste and recycle pickup services. Reflect this change in Township ordinances.

Transportation – Community

Community transportation strategies address optimal maintenance of the existing road system, improvement of road network connectivity and circulation, and enhanced multi-modal transportation assets.

Strategy	Task Type	Task
TC-1 Develop and maintain a comprehensive asset management plan for existing roadways. This plan will be developed in collaboration with MDOT and the Marquette County Road Commission.	A	Staff should attend training in new technologies for pavement management and for asset management.
	A	Evaluate and update the PASAR ratings for local roads as developed by the Marquette County Road Commission at least every two years.
	A	Performance targets (such as an average PASER rating or percentage of roadways achieving a particular PASER threshold to be achieved by a particular year) should be set.



Strategy	Task Type	Task
	A	Road information should be entered and evaluated within a RoadSoft database maintained by the Township and data will be exported to the County Road Commission and MDOT to assess the appropriate treatments, candidate projects, and project costs for the optimal preservation strategy.
	A	Conduct a trade-off analysis to determine the appropriate percentage of the annual road millage expenditure that will be allocated to structural improvements (to address current needs) and capital preventive maintenance (to reduce future costs), with the goal that lesser amounts will go toward structural improvement over the years with the implementation of a successful capital preventive maintenance program.
	A	Prepare educational materials and hold public information / neighborhood planning sessions to present the road plan to the public for comment, emphasizing the value of capital preventive maintenance for recently resurfaced roadways.
	C	Continue a road millage or other funding options after Township staff and officials re-assess road conditions and propose a road maintenance / replacement schedule.
	C	Establish a recommended annual level of road expenditure that can be realistically supported by an approved millage or special assessment that will adequately address future sustainability of roadways and respond to resident concerns. The millage may start out higher based on the need to address capital preventive maintenance for recently improved roadways and pressing structural concerns, but the goal is to reduce the millage over time as capital preventive maintenance reflect reduced costs.
TC-2 Improve road network connectivity and circulation.	A	Assess and pursue opportunities to improve development connectivity and traffic circulation to provide greater safety and redundancy within the road network, to support alternative transportation systems, and to further economic development.
	C	Pursue innovative funding mechanisms to construct the new connector or access roads (such as developer contributions, special assessments, and TIF funding).
	C	Research possible new road connections that provide multiple access routes into residential subdivisions, businesses, and other activity centers.
	R	If the Planning Commission anticipates the development of new clusters of commercial development along the highway corridors, they should consider expanding the boundaries of the Access Management Overlay District to include those areas and to preserve highway function and safety.
TC-3 Monitor and improve safety on private and seasonal roads.	A	Research ways to improve conditions for residents who live on private and seasonal roads within the Township.
	A	The Planning Commission and staff should work with property owners to implement the recommendations of the <i>US-41 / M-28 Access Management Plan</i> including the closure of driveways, construction of service or frontage roads, sharing of driveways, interconnection of parking lots, and other



Strategy	Task Type	Task
		property interconnections.
	R	The Township Planning Commission should discuss current private and seasonal road conditions and regulations with the Fire Department and other emergency services providers to balance affordable access to new development with safety concerns related to road construction and maintenance.
	R	The Township Board should consider the implementation of a special assessment or other funding mechanisms to fund road improvements on private roads as needed.
TC-4 Ensure that new subdivisions include multiple access connections and accommodations for multi-modal motorized and non-motorized transportation infrastructure.	R	The Planning Commission must review transportation access for new and re-designed projects to ensure that the transportation infrastructure supports the project and the surrounding neighborhoods.
TC-5 Enhance multi-modal and alternative transportation assets.	A	Because of the inherent health benefits, the ability to serve multiple population groups, and the security associated with alternative modes of transportation, actively pursue opportunities to enhance multi-modal transportation assets within the Township.
	A	Coordinate planning for a community ride-share system or car-sharing program for area residents to mitigate rising energy costs that threaten the reliability and affordability of transportation. This could be either a public / private project or private for-profit or non-profit venture and should involve adjacent jurisdictions as well.
	C	In collaboration with MDOT and the County Road Commission, seek opportunities to design or reconfigure roadways and public easements to accommodate multiple user groups (such as youth and the aging population). These opportunities should utilize appropriate <i>Complete Streets</i> techniques (such as bicycle lanes, bicycle racks along the bike path, curb ramps, handicapped accessible facilities, marked crosswalks, parallel shared-use paths or wide shoulders, safety medians, shared lane markings, and traffic calming techniques).
	C	Enhance the usability of multi-modal pathways by installing appropriate amenities (such as benches, bike racks, lighting, safety markings across driveways and through parking lots, and wayfinding signage for area businesses and attractions).
	C	Work with ALTRAN and MarqTran to seek funding to construct a four-season transit station in the Township. The project may involve a property purchase or easement.
	C	Work with local community organizations, MarqTran, MDOT and local businesses to improve the accessibility, usability, and attractiveness of the existing bus stops (near Krist Oil gas station and Park and Ride facility at the intersection of US 41 South and Cherry Creek Road).



Strategy	Task Type	Task
	C	Work with local community organizations, MarqTran, the County Road Commission, MDOT and local businesses to construct additional transit shelters in locations such as the Silver Creek Recreation Area and Family Dollar Store. Determine optimal locations by surveying residents regarding needs. Explore the feasibility of cost-sharing with private transit organizations who can also utilize the stops.
	C	Enhance the usability of multi-modal pathways by improving thermal comfort using vegetation or other barriers or screens to control the impact of drifting snow, sun, and wind.
	C	Enhance the usability of multi-modal pathways by establishing funding and a plan for maintenance for the alternative business route for the Iron Ore Heritage Trail through Harvey (east and west side of the highway corridor) and the connectors on Silver Creek and Cherry Creek Roads. Usability should include repair of cracks and bumps on the pathway, provisions for adequate drainage, and winter snow removal or snowpack for winter use considerations.
	C	Identify funding and locations to install electric vehicle charging stations throughout the community on public and private property. Investigate methods to fund the electricity costs through a solar or wind installation, non-profit agency, or through user fees.

Transportation – Household

Household transportation strategies encourage reliable transportation options to support household fiscal sustainability and to provide access to essential goods and services.

Strategy	Task Type	Task
TH-1 Develop alternative transportation options.	A	Research and provide samples of car-sharing agreements that can be implemented between friends, neighbors, and family members, specifying ways to share maintenance, fuel, and insurance costs and coordinate parking / storage options.
	A	Facilitate designated car-sharing parking stalls throughout the Township at multiple convenient locations that are readily accessible for those utilizing private agreements.
	A	Work with nearby jurisdictions to ensure that car-share or bike rental options are available at convenient locations for group commuters to utilize to reach diverse destinations.
	A	Provide education to area businesses regarding optional flexible work options that can reduce transportation costs, such as telecommuting and four-day work schedules.



Water and Wastewater Infrastructure

Water and wastewater systems management strategies support efficient provisioning for critical public needs.

Strategy	Task Type	Task
WW-1 Provide long-term asset management activities for the Township sewer system.	C	Obtain an engineering analysis to identify and evaluate options for replacement of obsolete equipment and piping and prioritization of replacement work.
	C	Identify funding opportunities to facilitate necessary improvements and determine phasing of the projects.
	C	Assess the adequacy of Chocolay Township’s reserve capacity at the Marquette Wastewater Treatment Plant in relation to a potential need to expand the system to accommodate future development / redevelopment and to address potential additions to the system when private septic systems fail. This assessment should be conducted in collaboration with the City of Marquette and Marquette Township (co-owners of the treatment plant).
WW-2 Investigate the benefits of a municipal water system to support new development, to meet changing needs or regulations, to provide increased fire protection, or to reduce further well contamination.	C	Collaborate in studies to determine the adequacy of area aquifers and groundwater sources in relation to domestic, agricultural, and fire suppression needs in the years to come, particularly if there are changing regulations, contamination concerns, or increasing demands leading to supply concerns. Particular areas of interest include the US 41 South / M-28 East commercial corridor and the areas surrounding the KBIC casino. Include ancillary costs (such as road repaving) in a cost / benefit analysis comparing the costs of wells and fire insurance versus the monthly water system user fees.



PHOTO AND IMAGE CREDITS

Page	Caption	Credit
Cover	none (Willow Farm)	Township staff
Inside cover	none (mailbox on Shot Point Road)	Township staff
1	none (sunset)	Township staff
2	Master plan considerations	Township staff
3	Silver Creek Recreation Area dugouts	Township staff
4	Lake Superior life saving station	Township staff
5	FEMA flood plain FIRMette	FEMA (https://msc.fema.gov/arcgis/rest/directories/arcgisjobs/nfhl_print/mscprintb_gpserver/j97ee2a6481544c8491899f7892284591/scratch/FIRMETTE_b374246f-a361-4f29-bf24-617b8fd7c694.pdf)
	Chocolay River flood	Township staff
	Casino project	Township staff
6	Proposed satellite launch site	MAMA (https://upnorthlive.com/news/local/chippewa-county-chosen-as-site-for-command-control-center-for-michigan-aerospace)
	Shiras steam plant	Mining Journal (https://www.miningjournal.net/news/front-page-news/2018/06/blk-shuts-down-shiras-steam-plant/)
	Silver Creek tennis / pickleball courts	Township staff
	Road repaving	Township staff
9	none (chairs on Lakewood Lane)	Township staff
10	Fall drive in the Township	Township staff
11	Fall apples	Township staff
13	Public beach access on Lake Superior	Township staff
15	none (Heightman Farm barn)	Township staff
16	Casting time at the Chocolay Furnace, 1890	Chocolay Township History then and now ... (http://www.chocolay.org/documents/townshiphistory.pdf , page 5)
17	Heritage Heitman Farm A three-generation farm	Township staff
17	Willow Farm	Township staff
18	North Country Trail	Ryan Soucy, Township resident
19	A Township business center	Realtyhive.com (https://www.realtyhive.com/commercial/5083-5089-S-Us41-Marquette-MI-49855)
20	Public beach on Lake Superior	Eve Lindsey, Township resident
28	none (Welcome Center)	Township staff
32	Example streetscape	Montgomery Planning (https://montgomeryplanning.org/planning/environment/water-and-wetlands/streetscapes/)
31	Marq_Transit	Marq-Tran (https://marq-tran.com/marquette-county-transit-authority-northern-michigan-university-campus-bus-route/)



Page	Caption	Credit
32	US 41 South road construction	Mining Journal (https://www.miningjournal.net/news/local/2019/07/traffic-changes-coming-to-us-41-project/)
33	Riding the bike path	Township staff
35	Clean water supply	NBC News (https://nbc25news.com/news/local/15m-in-grants-going-to-help-michigan-towns-and-cities-provide-safe-drinking-water)
36	Wastewater treatment plant	Marquette County (https://www.marquettemi.gov/municipal-utilities/)
37	Marquette Board of Power and Light solar array	BLP (https://npr.brightspotcdn.com/dims4/default/a2c213f/2147483647/strip/true/crop/1793x999+0+101/resize/560x312!/format/webp/quality/90/?url=http%3A%2F%2Fnpr-brightspot.s3.amazonaws.com%2Flegacy%2Fsites%2Fwnmu%2Ffiles%2F201709%2Fsolar-panels-1.jpg)
39	Marquette Farmer's Market	Mining Journal (https://www.miningjournal.net/news/front-page-news/2021/09/a-night-at-the-farmers-market/)
44	UP Health System Marquette Hospital	UP Health System Marquette (https://www.mgh.org/our-locations/uphs-marquette)
47	US 41 corridor garden	Township staff
48	Township residence	Eve Lindsey, Township resident
49	Michigan Right to Farm Act considerations	Michigan Right to Farm Act (https://www.michigan.gov/mdard/0,4610,7-125-1599_1605---,00.html)
50	US 41 South / M-28 intersection	Township staff
51	Chocolay Area Business Association logo	Chocolay Area Business Association (https://chocolaybusiness.com/)
52	Example kitchen incubator	Econsult Solutions Inc. (https://econsultsolutions.com/how-shared-kitchen-spaces-are-changing-the-economy/)
53	Placemaking example	Neighbors in Action (https://neighborsinaction.org/placemaking/)
54	Form-based code example	Michigan Municipal League (https://www.mml.org/pdf/map_article_issue28.pdf)
57	none (Main Street bayou)	Township staff
61	Example vehicle charging station	SentinelSource.com (https://www.sentinelsource.com/news/local/peterborough-to-install-electric-vehicle-charging-station-downtown/article_855d2167-9ba2-5c85-9c98-8a4ca693f488.html)
62	Passive house design (figure)	Green Building Advisor (https://www.greenbuildingadvisor.com/article/gba-prime-sneak-peek-reassessing-passive-solar-design-principles)
63	Example solar roof installation	Union of Concerned Scientists (https://blog.ucsusa.org/rachel-cleetus/clean-energy-incentive-program-ceip/)
64	Example power storage system	PowerGrid International (https://www.power-grid.com/energy-storage/ct-regulators-approve-energy-storage-incentive-program/#gref)
65	none (local flowers)	Eve Lindsey, Township resident
66	Heritage acreage	Township staff



Page	Caption	Credit
67	Farmland and Open Space Preservation Program	WRNJ radio (https://wrnjradio.com/farmland-preservation-bills-advance-to-governor-murphys-desk/)
68	Watershed stream order (figure)	Environmental Protection Agency (https://www.epa.gov/sites/default/files/2016-01/documents/whatzzzzup_article.pdf)
69	Frohling Falls	Waterfalls of the Keweenaw Area (https://www.waterfallsofthekeweenaw.com/west-branch-chocolay-river/frohling-falls/)
70	Proposed Township ATV trail	Township staff
71	Township wetland map	Township staff
72	Lake Superior shoreline	Township staff
73	2012 Duck Lake fire	Wildfire Today (https://wildfiretoday.com/2012/05/28/duck-lake-fire-in-michigan-burns-95-structures-and-over-22000-acres/?sfw=pass1633963489 , Michigan DNR photo)
74	Shorelines Stewards Program	MI Shoreland Stewards (https://www.mishorelinepartnership.org/shoreland-stewards.html)
75	Township FEMA flood plain map extract	FEMA (FEMA (https://msc.fema.gov/portal/search?AddressQuery=timber%20lane%20marquette%20michigan#searchresultsanchor))
76	2014 ice jam at the mouth of the Chocolay River	Township staff
77	Michigan plant hardiness zones (figure)	Purdue University (https://hort.purdue.edu/newcrop/cropmap/michigan/default.html)
78	Moss-covered rocks	Township staff
79	Couple at the Welcome Center visiting for the dog sled races	Eve Lindsey, Township resident
80	none (Shot Point shoreline)	Township staff
81	Historical tractor	Township staff
82	Township marina launch	Township staff
83	Range Bank	Township staff
84	Willow Farm	Township staff
85	Prince of Peace Lutheran Church	Township staff
86	Iron Ore Heritage Trail	Google Search (https://www.google.com/travel/things-to-do/see-all?g2lb=4649665%2C4640247%2C4306835%2C4270442%2C4317915%2C4597339%2C4419364%2C4679302%2C4371334%2C4258168%2C4596364%2C4641139%2C4605861%2C2503781%2C4670134%2C2502548%2C4686527%2C4624411%2C2503771%2C4401769%2C4291517%2C4270859%2C4284970&hl=en-US&gl=us&ssta=1&dest_mid=%2Fm%2F0vcn8&dest_state_type=sattd&dest_src=ts&sa=X&ved=2ahUKewjspbWD1_f0AhWOWc0KHZLcBgUQ69EBKAF6BAgEEAk#ttdm=46.372766_-87.338514_9&ttdmf=%252Fg%252F11c3yw1_7b)
87	Township neighborhood	Zillo.com (https://www.zillow.com/homedetails/105-Meadow-Ln-Marquette-MI-49855/106470701_zpid/)
88	Jeske Flooding landing	Township staff
89	Rural winter view	Eve Lindsey, Township resident



Page	Caption	Credit
90	Home in Harvey	Zillo.com (https://www.zillow.com/harvey-marquette-mi/)
91	Lakeside home	Zillo.com (https://www.zillow.com/homedetails/749-Lakewood-Ln-Marquette-MI-49855/106468600_zpid/)
94	Conservation Cluster Subdivision example	Chester County Planning Commission (https://www.chescoplanning.org/MuniCorner/Tools/Cluster.cfm)
95	None (bikepath bridge over the Chocolay River)	Township staff
96	Mining Journal public notice	Township staff
97	Sample fence setbacks (figure)	Township staff
98	Sample ordinance definition with picture	Township staff
99	Garbin example	Cabin Life .com (https://www.cabinlife.com/articles/garbin)
100	Shoreline setback example (figure)	Adirondack Park Agency (https://apa.ny.gov/Documents/Flyers/ShorelineRestrictions.pdf)
101	Township zoning map	Township staff
101		Township staff
102	none (rocks on Lake Superior beach)	Township staff



REFERENCES

- 1 *Michigan Planning Enabling Act, Act 33 of 2008*. See <http://www.legislature.mi.gov/documents/mcl/pdf/mcl-Act-33-of-2008.pdf>.
- 2 *Michigan Zoning Enabling Act, Act 110 of 2006*. See [http://www.legislature.mi.gov/\(x3eqqx2ix0ez34nsk1zysl45\)/documents/mcl/pdf/mcl-Act-110-of-2006.pdf](http://www.legislature.mi.gov/(x3eqqx2ix0ez34nsk1zysl45)/documents/mcl/pdf/mcl-Act-110-of-2006.pdf).
- 3 *Chocolay Township rates among state's safest places*. *The Mining Journal*, January 12, 2015. See <https://www.miningjournal.net/opinion/editorial/2015/01/chocolay-township-rates-among-state-s-safest-places/>
- 4 *Great Lakes Coastal Reporting Tool*. Superior Watershed Partnership. See <https://superiorwatersheds.org/report-erosion-hazard#:~:text=The%20Great%20Lakes%20Coastal%20Reporting,improper%20off%2Droad%20vehicle%20use>
- 5 *Great Lakes Shoreviewer*. See <http://www.greatlakesshoreviewer.org/#/great-lakes>
- 6 *21st Century Infrastructure Commission Report*. See https://www.michigan.gov/documents/snyder/21st_Century_Infrastructure_Commission_Final_Report_1_5_44276_7.pdf
- 7 *Master Plan, 2015 Edition Appendix A*. See <http://www.chocolay.org/documents/2015masterplanappendices.pdf>
- 8 Section 6.7 *Road Frontage Requirements* in the *Chocolay Township Zoning Ordinance*. See <http://www.chocolay.org/documents/ordinances/zoningordinance.pdf>.
- 9 *The Next Four Decades, The Older Population in the United States: 2010 to 2050*. Census.gov. See <https://www.census.gov/prod/2010pubs/p25-1138.pdf>
- 10 *Chocolay Township History then and now*. Chocolay Township. 2008. See <https://www.chocolay.org/documents/townshiphistory.pdf>.
- 11 *Chocolay Township History then and now*. Chocolay Township. 2008. See <https://www.chocolay.org/documents/townshiphistory.pdf>.
- 12 *OnTheMap* Application. U.S. Census Bureau. 2020. See <http://onthemap.ces.census.gov/>.
Information is derived from payroll tax (Unemployment Insurance) payment records maintained by the State, Bureau of Labor Statistic's Quarterly Census of Employment and Wages (QCEW) and Census Bureau source. This typically does not include data on agriculture and some public sector jobs, though on average 96% of all private-sector jobs are covered.
- 13 *OnTheMap* Application. U.S. Census Bureau. 2020. See <http://onthemap.ces.census.gov/>.
Information is derived from payroll tax (Unemployment Insurance) payment records maintained by the State, Bureau of Labor Statistic's Quarterly Census of Employment and Wages (QCEW) and Census Bureau source. This typically does not include data on agriculture and some public sector jobs, though on average 96% of all private-sector jobs are covered.
- 14 *OnTheMap* Application. U.S. Census Bureau. 2020. See <http://onthemap.ces.census.gov/>.
Information is derived from payroll tax (Unemployment Insurance) payment records maintained by the State, Bureau of Labor Statistic's Quarterly Census of Employment and Wages (QCEW) and Census Bureau source. This typically does not include data on agriculture and some public sector jobs, though on average 96% of all private-sector jobs are covered.
- 15 *OnTheMap* Application. U.S. Census Bureau. 2020. See <http://onthemap.ces.census.gov/>.
Information is derived from payroll tax (Unemployment Insurance) payment records maintained by the State, Bureau of Labor Statistic's Quarterly Census of Employment and Wages (QCEW) and Census Bureau source.



This typically does not include data on agriculture and some public sector jobs, though on average 96% of all private-sector jobs are covered.

- 16 *Regional Prosperity Initiative*. Michigan Economic Development Corporation. See <https://www.michiganbusiness.org/about-medc/regional-prosperity-initiative>.
- 17 *Chocolay River Watershed Restoration and Adaptive Management Plan*, page 19. Premo, Dean B. 1999. A White Water Associates, Inc., project completed under contract with Marquette County Soil Conservation District and under direction of the Chocolay River Watershed Council. See https://www.michigan.gov/documents/deq/nps-chocolay-plan_315271_7.pdf.
- 18 *Fisheries Order 210.21, Designated Trout Stream for Michigan*. Michigan Department of Natural Resources. See https://www.michigan.gov/documents/dnr/FO_210.21_Trout_Streams_ACTION_700801_7.pdf.
- 19 *Quick Facts Michigan*. United States Census Bureau. 2021. See <https://www.census.gov/quickfacts/MI>.
- 20 United States Census Bureau. 2021. See <https://data.census.gov/cedsci/>.
- 21 U.S. Census Bureau. 2013. OnTheMap Application. Longitudinal-Employer Household Dynamics Program. For 2002-2011 all jobs. <https://onthemap.ces.census.gov/>.
- 22 U.S. Census Bureau. 2013. OnTheMap Application. Longitudinal-Employer Household Dynamics Program. For 2002-2011 all jobs. <https://onthemap.ces.census.gov/>.
- 23 U.S. Census Bureau. 2013. OnTheMap Application. Longitudinal-Employer Household Dynamics Program. For 2002-2011 all jobs. <https://onthemap.ces.census.gov/>.
- 24 U.S. Census Bureau. 2013. OnTheMap Application. Longitudinal-Employer Household Dynamics Program. For 2002-2011 all jobs. <https://onthemap.ces.census.gov/>.
- 25 U.S. Census Bureau. 2013. OnTheMap Application. Longitudinal-Employer Household Dynamics Program. For 2002-2011 all jobs. <https://onthemap.ces.census.gov/>.
- 26 *Recodified Tax Increment Financing Act (Excerpt), Act 57 of 2018, Part 6 Corridor Improvement Authorities*. State of Michigan. See [http://www.legislature.mi.gov/\(S\(etdrw3dxdcdgt1gzcmpdkrgg\)\)/documents/mcl/pdf/mcl-57-2018-6.pdf](http://www.legislature.mi.gov/(S(etdrw3dxdcdgt1gzcmpdkrgg))/documents/mcl/pdf/mcl-57-2018-6.pdf).
- 27 *Corridor Improvement Authority*. Michigan Economic Development Corporation. See <https://www.miplace.org/4a6903/globalassets/documents/fact-sheets/corridor-improvement-authority-pa-280.pdf>.
- 28 *Michigan's 2020 Roads & Bridges Annual Report*. See https://www.michigan.gov/documents/tamc/2020_TAMC_Roads_Bridges_Annual_Report_WEB_723463_7.pdf.
- 29 *Chocolay Board approves request for roadwork*. *The Mining Journal*. See <https://www.miningjournal.net/news/front-page-news/2017/07/chocolay-board-approves-request-for-roadwork/>.
- 30 *Most millage proposals pass*. *The Mining Journal*. See <https://www.miningjournal.net/news/2017/11/most-millage-proposals-pass/>.
- 31 Section 6.7 *Road Frontage Requirements* in the *Chocolay Township Zoning Ordinance*. See <http://www.chocolay.org/documents/ordinances/zoningordinance.pdf>.
- 32 *2004 US-41/M-28 Comprehensive Corridor And Access Management Plan*, updated in 2010. See https://www.co.marquette.mi.us/departments/planning/AM_Plan.php#.YTi5B45KiUk.
- 33 Section 5.3 *US 41 / M-28 Access Management Overlay District* in the *Chocolay Township Zoning Ordinance*. See <http://www.chocolay.org/documents/ordinances/zoningordinance.pdf>.
- 34 *Complete Streets*, United States Department of Transportation. See <https://www.transportation.gov/mission/health/complete-streets>.
- 35 Township Board minutes, page 2, January 18, 1993. Chocolay Township archives.
- 36 *Water System Feasibility Study for Chocolay Township*. 1994. Chocolay Township archives.



- 37 *Water System Phasing Study*. 2001. Chocolay Township archives.
- 38 May 18, 1998 Chocolay Township Board minutes, page 9. See <http://www.chocolay.org/agendasandminutesfiles/combinedminutes/board/1998boardminutes.pdf>
- 39 *Water System Phasing Study*. 2001. Chocolay Township archives.
- 40 *Safe Drinking Water Act, Act 399 of 1976*. State of Michigan. See [https://www.legislature.mi.gov/\(S\(5ueeavn2mz0skbousw2kqksj\)\)/documents/mcl/pdf/mcl-Act-399-of-1976.pdf](https://www.legislature.mi.gov/(S(5ueeavn2mz0skbousw2kqksj))/documents/mcl/pdf/mcl-Act-399-of-1976.pdf).
- 41 *Property Assessed Clean Energy Act, Act 270 of 2010*. State of Michigan. See [https://www.legislature.mi.gov/\(S\(ocdfkddkswn1m4ont4wvvdvs\)\)/documents/mcl/pdf/mcl-Act-270-of-2010.pdf](https://www.legislature.mi.gov/(S(ocdfkddkswn1m4ont4wvvdvs))/documents/mcl/pdf/mcl-Act-270-of-2010.pdf).
- 42 *Clean and Renewable Energy and Energy Waste Reduction Act, Act 295 of 2008*. State of Michigan. See <http://www.legislature.mi.gov/%28S%28zovnn1an1tdvcy55sp04phbe%29%29/documents/mcl/pdf/mcl-Act-295-of-2008.pdf>.
- 43 *Michigan Community and Regional Food Systems Planning Policy*. Michigan Association of Planning. June 2, 2014. See <https://www.planningmi.org/assets/docs/Policies/MAP%20Food%20Systems%20Planning%20Policy.pdf>.
- 44 *Michigan Zoning Enabling Act of 2006*. See [http://www.legislature.mi.gov/\(x3eqqx2ix0ez34nsk1zysl45\)/documents/mcl/pdf/mcl-Act-110-of-2006.pdf](http://www.legislature.mi.gov/(x3eqqx2ix0ez34nsk1zysl45)/documents/mcl/pdf/mcl-Act-110-of-2006.pdf).
- 45 *Community Supported Agriculture*. See <https://www.localharvest.org/csa/>.
- 46 *Michigan Community and Regional Food Systems Planning Policy*. Michigan Association of Planning. June 2, 2014. See <https://www.planningmi.org/assets/docs/Policies/MAP%20Food%20Systems%20Planning%20Policy.pdf>.
- 47 *Upper Peninsula (Michigan) Local Farm & Food Economy*. Ken Meter. Crossroads Resource Center (Minneapolis. October 30, 2013. See <http://www.crcworks.org/crcdocs/upsun13.pdf>.
- 48 *Farm Producers*. Census of Agriculture. 2017. Page 2. See https://www.nass.usda.gov/Publications/Highlights/2019/2017Census_Farm_Producers.pdf.
- 49 *County Summary Highlights*. United States Department of Agriculture. 2017, page 9. See https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_2_County_Level/Michigan/st26_2_0001_0001.pdf.
- 50 *Michigan Right to Farm Act, Act 93 of 1981*. See <http://www.legislature.mi.gov/documents/mcl/pdf/mcl-Act-93-of-1981.pdf>.
- 51 *Upper Peninsula (Michigan) Local Farm & Food Economy*. Ken Meter. Crossroads Resource Center (Minneapolis. October 30, 2013. See <http://www.crcworks.org/crcdocs/upsun13.pdf>.
- 52 "Future Proofing Cities: Strategies to Help Cities Develop Capacities to Absorb Future Shocks and Stresses", Craig Applegath, 2012.
- 53 *Shift in Working Age Population Relative to Older and Younger Americans*. United States Census Bureau. 2020. See <https://www.census.gov/library/stories/2020/06/working-age-population-not-keeping-pace-with-growth-in-older-americans.html>.
- 54 *Childless Older Americans: 2018*. U.S. Census Bureau. See <https://www.census.gov/content/dam/Census/library/publications/2021/demo/p70-173.pdf>.
- 55 *2020 Annual Report of the Marquette County Solid Waste Management Authority*. Marquette County Solid Waste Management Authority. See <https://www.recycle906.com/>.
- 56 Marquette County Solid Waste Management Authority. See <https://www.recycle906.com/>.
- 57 *What is Positive Development?*. See <https://netpositivedesign.org/>.
- 58 See <https://www.statista.com/statistics/241488/population-of-the-us-by-sex-and-age/>.
- 59 *Combination of a garage and a cabin*. See <https://www.cabinlife.com/articles/garbin>.



- 60 Designed for one or two persons, a granny flat is a self-contained living area usually located on the grounds of a single-family home, and is considered a popular way for families to accommodate aging parents. See <https://www.thespruce.com/what-is-a-granny-flat-1695933>.
- 61 *Higher-Density Development Myth and Fact*. Urban Land Institute, 2005. See https://uli.org/wp-content/uploads/ULI-Documents/HigherDensity_MythFact.ashx_.pdf.
- 62 *Top Ten State and Local Strategies to Increase Affordable Housing Supply*, Arthur C. Nelson, *Housing Facts & Findings*, Volume 5, Issue 1. See <https://community-wealth.org/sites/clone.community-wealth.org/files/downloads/article-nelson.pdf>.
- 63 *APA Policy Guide on Smart Growth*. American Planning Association. See <https://www.planning.org/policy/guides/adopted/smartgrowth.htm>.
- 64 *What are GAAMPs?*. Michigan Department of Agriculture & Rural Development. See https://www.michigan.gov/mdard/0,4610,7-125-1599_1605-297733--,00.html.
- 65 *Traditional Neighborhood Development*. National League of Cities. See <https://www.nlc.org/resource/traditional-neighborhood-development/>.
- 66 *Regional Prosperity Initiative*. Michigan Department of Transportation. See https://www.michigan.gov/mdot/0,4616,7-151-9623_85502---,00.html
- 67 *What Architects Must Know About Climate Responsive Architecture*. See <https://www.re-thinkingthefuture.com/rtf-fresh-perspectives/a1060-what-architects-must-know-about-climate-responsive-architecture/>.
- 68 Dr. Norman Pressman was the founding president of the Winter Cities Institute and was a consultant in climate-responsive urban design emphasizing “winter cities”. See <https://wintercities.com/home/>.
- 69 *Charter Township of Chocoday Recreation & Natural Resource Conservation Plan, 2020 through 2024*. See <http://www.chocoday.org/documents/2020recreationplan.pdf>.
- 70 *Recreation & Natural Resource Conservation Plan, 2020 through 2024*. See <http://www.chocoday.org/documents/2020recreationplan.pdf>.
- 71 *Quick Facts Michigan*. United States Census Bureau. 2021. See <https://www.census.gov/quickfacts/MI>.
- 72 The County population decline was due in part to the closure of the K.I. Sawyer Air Force Base in 1995.
- 73 *Quick Facts Michigan*. United States Census Bureau. 2021. See <https://www.census.gov/quickfacts/MI>.
- 74 U.S. Census data, 2010 Decennial Census.
- 75 2008-2012 American Community Survey Estimates.
- 76 *Quick Facts Michigan*. United States Census Bureau. 2021. See <https://www.census.gov/quickfacts/MI>.
- 77 U.S. Census data, 2010 Decennial Census.
- 78 U.S. Census data, 2010 Decennial Census.
- 79 *Property Tax Information*. Marquette County. See https://www.co.marquette.mi.us/records_and_property/property_tax_information.php#.YAGfjOhKiM8.
- 80 U.S. Census Bureau. 2013. OnTheMap Application. Longitudinal-Employer Household Dynamics Program. For 2002-2011 all jobs. <https://onthemap.ces.census.gov/>.
- 81 Based on US EPA’s computer model – MOBILE 6.2 – for estimating emissions from highway vehicles. 2002. See <https://nepis.epa.gov/Exe/ZyPDF.cgi/P1001DSD.PDF?Dockey=P1001DSD.PDF>.
- 82 *2019: ACS -1 Year Estimates Profiles*. United States Census Bureau. 2019. See <https://data.census.gov/cedsci/table?d=ACS%201-Year%20Estimates%20Data%20Profiles&tid=ACSDP1Y2019.DP03&hidePreview=false>.
- 83 2010 U.S. Decennial Census data, Summary File 1.
- 84 2010 U.S. Decennial Census data, Summary File 1.
- 85 2008-2012 American Community Survey 5-Year Estimates.



- 86 2008-2012 American Community Survey 5-Year Estimates. Includes the sum of payments for mortgages and similar debts on property; real estate taxes; fire, hazard, and flood insurance; utilities; and fuels.
- 87 2008-2012 American Community Survey 5-Year Estimates.
- 88 *2011 Building Energy Data Book*. U.S. Department of Energy. March 2012, page 62. See <https://ieer.org/wp/wp-content/uploads/2012/03/DOE-2011-Buildings-Energy-DataBook-BEDB.pdf>.
- 89 *2011 Building Energy Data Book*. U.S. Department of Energy. March 2012, page 22. See <https://ieer.org/wp/wp-content/uploads/2012/03/DOE-2011-Buildings-Energy-DataBook-BEDB.pdf>.
- 90 *Federal Income Tax Credits and Other Incentives for Energy Efficiency*. Energy Star. See https://www.energystar.gov/about/federal_tax_credits.
- 91 *2011 Building Energy Data Book*. U.S. Department of Energy. March 2012, page 63. See <https://ieer.org/wp/wp-content/uploads/2012/03/DOE-2011-Buildings-Energy-DataBook-BEDB.pdf>.
- 92 *2017 Renewable Energy Data Book*. U.S. Department of Energy. See <https://www.nrel.gov/docs/fy19osti/72170.pdf>.
- 93 2012. *Future Proofing Cities: Strategies to help cities develop capacities to absorb future shocks and stresses*, Applegath, Craig.
- 94 *Michigan Saves*. See <https://michigansaves.org/>
- 95 *Michigan Department Of Natural Resources Forest Resources Division Commercial Forest Program - Hunter List*. September 1, 2021. See https://www2.dnr.state.mi.us/Publications/pdfs/ForestsLandWater/Commercial_Forest/CF_Marquette_List.pdf.
- 96 The Michigan State University Upper Peninsula Research and Extension Center was established in 1899 in Chatham Michigan. See <https://www.canr.msu.edu/uprc/>.
- 97 Section 6.12 *Rural Cluster Development Subdivisions* in the *Township Zoning Ordinance*. See <http://www.chocolay.org/documents/ordinances/zoningordinance.pdf>.
- 98 *Michigan Zoning Enabling Act, Act 110 of 2008*. See [http://www.legislature.mi.gov/\(x3eqqx2ix0ez34nsk1zysl45\)/documents/mcl/pdf/mcl-Act-110-of-2006.pdf](http://www.legislature.mi.gov/(x3eqqx2ix0ez34nsk1zysl45)/documents/mcl/pdf/mcl-Act-110-of-2006.pdf).
- 99 *The Farmland and Open Space Preservation Program*. Michigan Department of Agriculture. See https://www.michigan.gov/mdard/0,4610,7-125-1599_2558-10301--,00.html.
- 100 *Chocolay River Watershed Restoration and Adaptive Management Plan*, page 37. Premo, Dean B. 1999. A White Water Associates, Inc., project completed under contract with Marquette County Soil Conservation District and under direction of the Chocolay River Watershed Council. See https://www.michigan.gov/documents/deq/nps-chocolay-plan_315271_7.pdf.
- 101 *Chocolay River Watershed Restoration and Adaptive Management Plan*, page 24. Premo, Dean B. 1999. A White Water Associates, Inc., project completed under contract with Marquette County Soil Conservation District and under direction of the Chocolay River Watershed Council. See https://www.michigan.gov/documents/deq/nps-chocolay-plan_315271_7.pdf.
- 102 *Chocolay River Watershed Restoration and Adaptive Management Plan*, page 32. Premo, Dean B. 1999. A White Water Associates, Inc., project completed under contract with Marquette County Soil Conservation District and under direction of the Chocolay River Watershed Council. See https://www.michigan.gov/documents/deq/nps-chocolay-plan_315271_7.pdf.
- 103 *Chocolay River Watershed Restoration and Adaptive Management Plan*, page 18. Premo, Dean B. 1999. A White Water Associates, Inc., project completed under contract with Marquette County Soil Conservation District and under direction of the Chocolay River Watershed Council. See https://www.michigan.gov/documents/deq/nps-chocolay-plan_315271_7.pdf.
- 104 The riparian area is the zone adjacent to the water that both influences and is influenced by the water.
- 105 *Chocolay River Watershed Restoration and Adaptive Management Plan*, page 20. Premo, Dean B. 1999. A White Water Associates, Inc., project completed under contract with Marquette County Soil Conservation



- District and under direction of the Chocolate River Watershed Council. See https://www.michigan.gov/documents/deq/nps-chocolate-plan_315271_7.pdf.
- 106 *Chocolate River Watershed Restoration and Adaptive Management Plan*, page 3. Premo, Dean B. 1999. A White Water Associates, Inc., project completed under contract with Marquette County Soil Conservation District and under direction of the Chocolate River Watershed Council. See https://www.michigan.gov/documents/deq/nps-chocolate-plan_315271_7.pdf.
- 107 *Sand Dunes*. Michigan Department of Natural Resources. See https://www.michigan.gov/oac/0,5736,7-329-68731_72453-356449--00.html#:~:text=Michigan%20is%20home%20to%20the,great%20about%20the%20Great%20Lakes.
- 108 *Natural Resources and Environmental Protection Act (Excerpt) Act 451 Of 1994, Part 303 Wetlands Protection*. State of Michigan. See [http://www.legislature.mi.gov/\(S\(qskyhs55riyizi553oiexhri\)\)/documents/mcl/pdf/mcl-451-1994-iii-1-inland-waters-303.pdf](http://www.legislature.mi.gov/(S(qskyhs55riyizi553oiexhri))/documents/mcl/pdf/mcl-451-1994-iii-1-inland-waters-303.pdf).
- 109 *Summary of the Clean Water Act*. Environmental Protection Agency. See <https://www.epa.gov/laws-regulations/summary-clean-water-act>.
- 110 *Conservation Reserve Program*. USDA. See <https://www.fsa.usda.gov/programs-and-services/conservation-programs/conservation-reserve-program/>.
- 111 *Wetland Restoration and Watershed Planning*. Michigan EGLE. See [https://www.michigan.gov/egle/0,9429,7-135-3313_3687-10419--00.html#:~:text=Michigan's%20Wetland%20Conservation%20Strategy%20\(1997,ten%20percent%20of%20historic%20losses\)](https://www.michigan.gov/egle/0,9429,7-135-3313_3687-10419--00.html#:~:text=Michigan's%20Wetland%20Conservation%20Strategy%20(1997,ten%20percent%20of%20historic%20losses)).
- 112 *Natural Resources and Environmental Protection Act (Excerpt) Act 451 Of 1994, Part 325 Great Lakes Submerged Lands*. State of Michigan. See <http://www.legislature.mi.gov/documents/mcl/pdf/mcl-451-1994-III-1-THE-GREAT-LAKES-325.pdf>.
- 113 Section 5.2 *Lake Superior Shoreline / Dune Protection Overlay District* in the *Township Zoning Ordinance*. See <http://www.chocolate.org/documents/ordinances/zoningordinance.pdf>.
- 114 *Natural Resources and Environmental Protection Act (Excerpt) Act 451 Of 1994, Part 301 Inland Lakes and Streams*. State of Michigan. See [https://www.legislature.mi.gov/\(S\(bpzxfu55bkob1n55dme4enmu\)\)/documents/mcl/pdf/mcl-451-1994-III-1-INLAND-WATERS-301.pdf](https://www.legislature.mi.gov/(S(bpzxfu55bkob1n55dme4enmu))/documents/mcl/pdf/mcl-451-1994-III-1-INLAND-WATERS-301.pdf).
- 115 *Peat*. United States Geological Survey (USGS). See <https://pubs.usgs.gov/periodicals/mcs2020/mcs2020-peat.pdf>.
- 116 *Michigan Shoreland Stewards Program*. See <https://www.mishorelandstewards.org/>.
- 117 *Hazard Mitigation Plan for the County of Marquette*, MI chapter 2, page 2-8. Marquette County Resource Management/Development Department. 2007. See https://www.co.marquette.mi.us/departments/planning/docs/Hazard_Mitigation_Plan/Chapter_3_Flooding.pdf.
- 118 *Permission to Burn (Burn Permit)*. Michigan Department of Natural Resources. See https://www.michigan.gov/dnr/0,4570,7-350-79136_79237_80917_81046---,00.html.
- 119 Township Ordinance 59 *Outdoor and Open Burning*. See <http://www.chocolate.org/documents/ordinances/ordinance59outdoorandopenburning.pdf>.
- 120 *Michigan Shoreland Stewards Program*. See <https://www.mishorelandstewards.org/>.
- 121 *Firewise USA*. National Fire Protection Association. See <https://www.nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire/Firewise-USA>.
- 122 A SFHA is a high-risk area defined as any land that would be inundated by a flood having a one percent chance of occurring in any given year (also referred to as the base flood or 100-year flood).
- 123 FEMA Flood Map Service Center. See <https://msc.fema.gov/portal/home>.
- 124 *Hazard Mitigation Plan for the County of Marquette*, MI chapter 3, page 3-7. Marquette County Resource



- Management/Development Department. 2007. See https://www.co.marquette.mi.us/departments/planning/docs/Hazard_Mitigation_Plan/Chapter_3_Flooding.pdf.
- 125 *Marquette County Hazard Mitigation Plan*, 2013. See https://files4.1.revize.com/marquettemi/departments/planning/docs/Hazard_Mitigation_Plan/Chapter_3_Flooding.pdf
- 126 *Upper Peninsula woman grateful after overnight flood rescue*. TV6 News. See <https://fox11online.com/news/local/northwoods/upper-michigan-woman-grateful-after-overnight-flood-rescue>.
- 127 *MDOT to build bridge over M-94 washout*. *Mining Journal*. See <https://www.miningjournal.net/news/local/2017/03/mdot-to-build-bridge-over-m-94-washout/>.
- 128 Plant Hardiness Zones (see <https://www.plantmaps.com/49855>).
- 129 *Lake Superior Climate Adaptation, Mitigation, and Implementation Plan*, page 10. Superior Watershed Partnership, 2015. (see <https://www.superiorwatersheds.org/images/climate-jan.pdf>).
- 130 *Climate Ready Great Lakes*, NOAA and Sea Grant presentation, module 1. See <https://www.regions.noaa.gov/great-lakes/index.php/project/climate-ready-great-lakes/>.
- 131 *Climate Ready Great Lakes*, NOAA and Sea Grant training, module 1. See <https://www.regions.noaa.gov/great-lakes/index.php/project/climate-ready-great-lakes/>.
- 132 *Climate Ready Great Lakes*, NOAA and Sea Grant training, module 1. See <https://www.regions.noaa.gov/great-lakes/index.php/project/climate-ready-great-lakes/>.
- 133 *Master Plan, 2015 Edition, Appendix L*. See <http://www.chocolay.org/documents/2015masterplanappendices.pdf>
- 134 *Section IV Zoning District Regulations in the Township Zoning Ordinance*. See <http://www.chocolay.org/documents/ordinances/zoningordinance.pdf>.
- 135 *Michigan Zoning Enabling Act, Act 110 of 2006*. See [http://www.legislature.mi.gov/\(x3eqqx2ix0ez34nsk1zysl45\)/documents/mcl/pdf/mcl-Act-110-of-2006.pdf](http://www.legislature.mi.gov/(x3eqqx2ix0ez34nsk1zysl45)/documents/mcl/pdf/mcl-Act-110-of-2006.pdf).
- 136 *Michigan Zoning Enabling Act, Act 110 of 2006*. See [http://www.legislature.mi.gov/\(x3eqqx2ix0ez34nsk1zysl45\)/documents/mcl/pdf/mcl-Act-110-of-2006.pdf](http://www.legislature.mi.gov/(x3eqqx2ix0ez34nsk1zysl45)/documents/mcl/pdf/mcl-Act-110-of-2006.pdf).
- 137 *Michigan Right to Farm Act, Act 93 of 1981*. See <http://www.legislature.mi.gov/documents/mcl/pdf/mcl-Act-93-of-1981.pdf>.
- 138 *Michigan Zoning Enabling Act, Act 110 of 2006*. See [http://www.legislature.mi.gov/\(x3eqqx2ix0ez34nsk1zysl45\)/documents/mcl/pdf/mcl-Act-110-of-2006.pdf](http://www.legislature.mi.gov/(x3eqqx2ix0ez34nsk1zysl45)/documents/mcl/pdf/mcl-Act-110-of-2006.pdf).
- 139 *Michigan Zoning Enabling Act, Act 110 of 2006*. See [http://www.legislature.mi.gov/\(x3eqqx2ix0ez34nsk1zysl45\)/documents/mcl/pdf/mcl-Act-110-of-2006.pdf](http://www.legislature.mi.gov/(x3eqqx2ix0ez34nsk1zysl45)/documents/mcl/pdf/mcl-Act-110-of-2006.pdf).
- 140 *Charter Township of Chocolay Recreation & Natural Resource Conservation Plan, 2020 through 2024*. See <http://www.chocolay.org/documents/2020recreationplan.pdf>.

