Climate Sustainability Plan 2022-2027

Contents

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Acknowledgements

2023 Environmental Commissioners

Emma Andrechek
Anna Colby, Vice Chair
Graham Diedrich
Tom Frazier
Kendra Grasseschi
Ned Jackson
Bill McConnell, Chair
Amelia Saffron
John Sarver
Courtney Wisinski

Additional review and edits provided by

Meridian Transportation Commission
Meridian Energy Team
The Good Food & Smart Composting Team
Land Preservation Advisory Board
Meridian Green Team
Susan Andrews
Samantha Diehl
LeRoy Harvey
Valerie Lafferty
Yu Man Lee
Sam Lovall
Lauren Schnoebelen
Brian Shorkey
Steve Thomas

Introduction

This document updates Meridian Township's Climate Sustainability Plan, originally adopted by reference in Meridian's 2017 Master Plan. It includes a growing list of objectives and action steps to reduce carbon emissions, the primary greenhouse gas causing global warming, and to protect our ecosystem. Many of the recommendations help reduce waste, save money, reduce the probability of catastrophic climate events, and create a more resilient and sustainable community. The ideas shared within are simply a starting point. They are intended to inspire awareness and collaboration and provide a stimulus for further action. They are a small but important and growing list of improvements we can make in our homes, neighborhoods, community organizations, schools, businesses, governments, and elsewhere. The Meridian Environmental Commission invites your ideas and participation.

Meridian Township has a long history of environmental stewardship. An updated Climate Sustainability Plan builds upon this legacy. In 2007, Meridian Township joined over 1,000 communities across the United States in signing the U.S. Mayors' Climate Protection Agreement. Ten years later, Meridian resolved to achieve the goals of the Paris Climate Accord and adopted a Climate Sustainability Plan.

Based on increasing awareness that our climate is changing due to global warming, the Paris Climate Accord challenges nations, states, and communities around the world to join in the goal of holding "the increase in the global average temperature to well below 2°C above pre-industrial levels" and pursue efforts "to limit temperature increase to 1.5°C above pre-industrial levels." In recent years, world leaders have stressed the need to limit global warming to 1.5°C by the end of this century. This is based on scientific evidence that crossing the 1.5°C threshold risks unleashing disastrous, climate change induced weather events. To limit global warming to 1.5°C, greenhouse gas emissions must peak before 2025 at the latest and show a 43% decline by 2030. This is an interim goal to reduce greenhouse gas emissions down to net zero by 2050[2]—a state of carbon neutrality, equal to pre-industrial levels, which is believed necessary to ward off catastrophic impacts of climate change.

Recognizing the urgency of the crisis and opportunities to build a better future for Michigan as we reduce our greenhouse gas emissions, Governor Gretchen Whitmer has taken bold and sustained action on climate change. In September 2020, she signed Executive Directive 2020-10, which committed Michigan to a goal of achieving economy-wide carbon neutrality no later than 2050 and maintaining net negative greenhouse gas emissions thereafter. Carbon neutrality means that any carbon dioxide released into the atmosphere is balanced by an equivalent amount being removed. Governor Whitmer also reaffirmed the goals in Executive Directive 2019-12, which committed Michigan to pursue at least a 26-28 percent reduction below 2005 levels in greenhouse gas emissions by 2025. In addition to the goals set by these directives, Michigan joined 24 other states and Puerto Rico – under the umbrella of the U.S. Climate Alliance – in committing to an interim goal of a 52 percent greenhouse gas reduction by 2030.

Executive Directive 2020-10 charged the Michigan Department of Environment, Great Lakes, and Energy, through its Office of Climate and Energy (OCE), with developing the *MI Healthy Climate Plan*

to serve as this state's action plan to reduce greenhouse gas emissions and transition toward economy-wide carbon neutrality with a focus on solutions that support communities disproportionately impacted by the changing climate. Meridian Township's update to its "Climate Sustainability Plan, intends to capture the intent of Michigan's plan while focusing on the local issues of Meridian.

Climate change is attributed to greenhouse gases, such as carbon dioxide (CO_2), which is released in abundance by burning fossil fuels. Unchecked, climate change may have severe impacts on our environment (weather in particular), health, food systems, global supply chains, and economy. These include poor air quality, negative impact on trees, increased infectious diseases, more frequent and intense periods of drought resulting in wildfires, and major rain events that lead to flooding. This plan will enable Meridian Township to:

- Contribute to worldwide efforts to curb greenhouse gas emissions.
- Contribute to statewide efforts to curb greenhouse gas emissions.
- Make our community a more sustainable, resilient, affordable, and vibrant place to live.
- Make our township government operations more energy and resource efficient and better prepared to deal with the impacts of climate change.

This plan calls for many actions related to energy efficiency, renewable energy, recycling/waste reduction, transportation, and water management. Objectives are included, which are crafted to:

- Achieve significant energy and water cost savings in township facilities and vehicle fleet.
- Obtain 50% of electricity used for township operations from renewable energy sources by 2025 and 100% by 2035.
- Reduce the volume of materials sent to landfills by 10% by 2035.

Township leadership will work with staff, the Energy Team, Environmental Commission, Transportation Commission, Food to Compost Committee, Wetland Education Team, Green Team, and other township boards and commissions to define responsibilities for implementing the plan. Monitoring will be important to determine plan impacts and what is working. Objectives and strategies in this plan are likely to evolve based on agendas, projects, and plans of the many committees, commissions, and departments involved, with the intention of developing a formal update at least every five years.

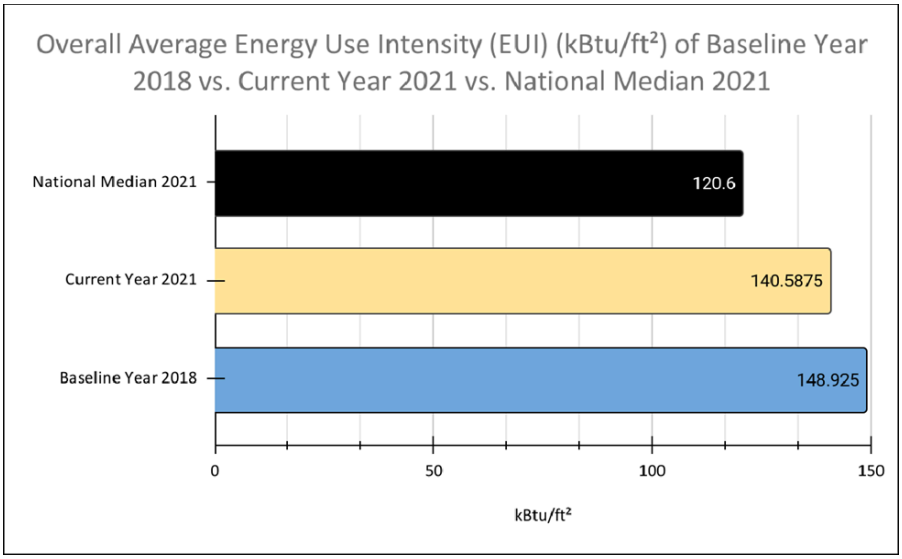
Energy Efficiency

Energy efficiency remains one of the quickest, safest, and most cost-effective ways to reduce greenhouse gas emissions and save money. Energy efficiency also offers other important security benefits helping to reduce power outages, shortages, and risk of grid failure during times of peak energy use.

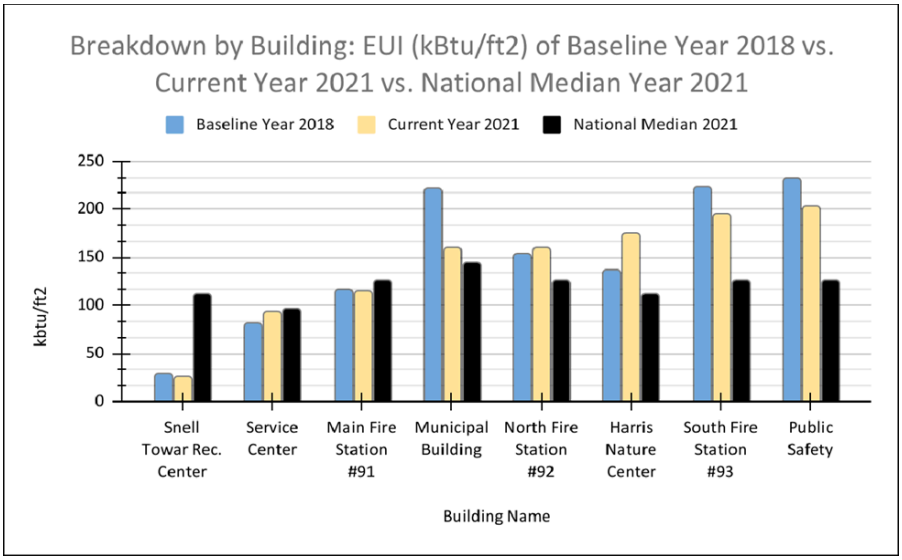
Past and Current Progress:

Meridian has invested in significant energy saving measures over the years. Recent improvements include a major overhaul of the HVAC system in the Municipal Building and LED office lighting improvements in the Public Safety, Municipal, and Service Center Buildings.

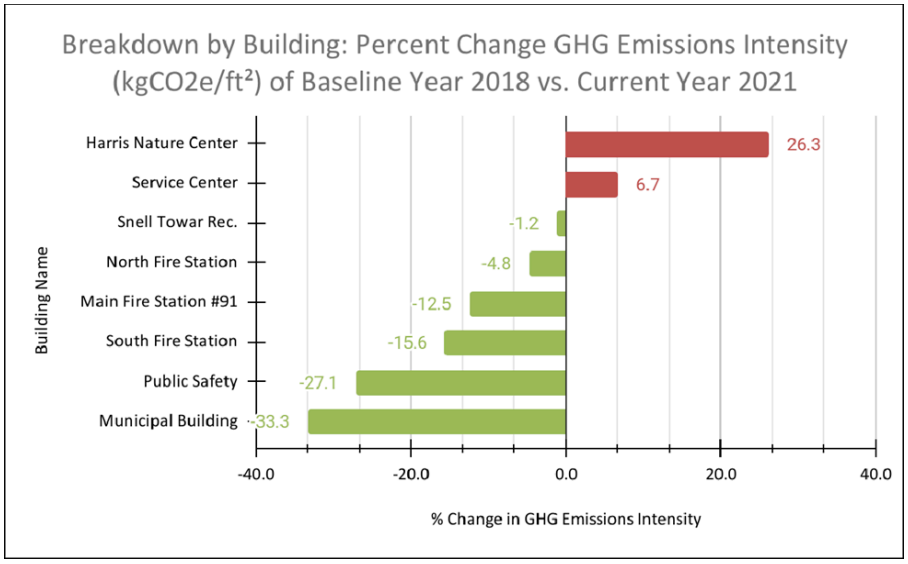
An Energy Benchmarking Study 2018-2021 revealed progress in energy savings. The average overall Energy Use Intensity (EUI) of buildings improved by 5.6% or 8.3 (kBtu/ft2) as illustrated below. However, the average EUI in 2021 is still about 16% higher than the National Median, indicating room for improvement.



The chart below illustrates the performance of Meridian's major buildings compared to the national average. Buildings on the far right have the greatest opportunity for improvement and savings.



This chart shows a significant reduction in greenhouse gas (GHG) emissions for most Township buildings.



The most improved building GHG emissions intensity was the Municipal Building with a 33.3% reduction followed by Public Safety with 27.1%, South Fire Station with 15.6%, Main Fire Station #91 with 12.5%, and Snell Towar Rec. with 1.2% reductions. The Harris Nature Center showed the least improved building GHG emissions intensity with an increase of 26.3% followed by the Service Center with a 6.7% increase.

Meridian has opportunities for energy savings, water savings, GHG reductions, and cost savings in its buildings, vehicle fleet, and in streetlighting. The Township spent $734,000 on energy and water

in 2021. This includes natural gas, electricity, propane, and streetlighting.

Energy Expenditures in 2021

Streetlights	$396,821
Electricity	$249,939
Natural Gas	$64,336
Water	$20,791
Propane	$2,483
Total	$734,370

Several energy audits have been performed over the years helping guide efficiency investments. New energy audits will help identify additional measures to pursue in years to come.

Meridian launched a streetlighting inventory to assist in keeping track of future improvements, outages, and streetlight districts in 2021. Meridian's ongoing support for the Michigan Municipal Association for Utility Issues (MI-MAUI) facilitates collaboration with other municipalities to negotiate mutually beneficial policies with Consumers Energy and other utility providers.

Objective a.1: Achieve significant energy cost savings and carbon emission reductions in Township facilities.

Strategies:

1. Complete implementation of recommendations from past energy studies.
2. Update energy audits through Consumers Energy and others.
3. Continue to track municipal energy consumption within the Township's Portfolio Manager account and update energy consumption metrics at least quarterly.
4. Prioritize energy efficiency opportunities at Municipal Building, Public Safety, South Fire Station, Harris Nature Center, and North Fire Station.
5. Obtain Energy Star designation for Township buildings where possible with a focus on the Municipal Building.
6. Explore opportunities to include energy saving in the Employee Handbook.
7. Explore opportunities to include LEED criteria or the equivalent for projects undertaken by the Township. LEED criteria includes measures related to energy efficiency, renewable

energy, recycling and waste management, transportation, and water management.

8. Budget funds for energy efficiency assessments at least once every five years. Utilize the Revolving Energy Fund as needed. Consider utilizing the Revolving Energy Fund for energy audits, heat pump at Harris, or other demonstration projects.
9. Address sustainability implications in proposals for capital improvements. The Township Manager will consider criteria related to energy efficiency, renewable energy, waste management, transportation, and water management when developing a capital improvement plan.
10. Make weatherizing and electrifying the Harris Nature Center a first priority. Explore switching from a propane energy system to a cold weather heat pump system at the Harris Nature Center. In many cases, switching from propane to a heat pump results in energy and cost savings. The Harris Nature Center is the only building benchmarked that utilizes propane for heating.
11. Resolve inverter connection issue with solar array at Harris Nature Center and create a solar meter for the Center in Portfolio Manager to add the missing electricity data. The energy usage and GHG emissions data would have looked differently if the solar array electricity generated and used would have been reported.

Objective a.2: Explore other opportunities and partnerships to achieve energy savings.

Strategies:

1. Identify and pursue State and Federal grant funding, pilot programs, and utility programs.
2. Pursue and build a partnership with MSU's new DOE grant funded IAC pilot program to provide free energy assessments to all qualifying Township facilities, which includes information on all available incentives and grants that the Township may pursue.
3. Further build partnerships with programs such as Michigan Green Community Network, EcoWorks, Clean Cities, Sustainability Forums, and expand collaboration with other local governments in our region.
4. Increase tree canopy throughout the township, especially in business areas, to reduce cooling loads. Consider the potential for future solar energy installations when determining tree placements. Propose ordinance changes and provide incentives for existing businesses to upgrade their parking lots and landscaping to increase tree cover and shade to be energy efficient and environmentally friendly.
5. Create incentives for the use of white roofs or green roofs to reduce cooling loads.
6. Identify opportunities and remove barriers to support the construction of accessory dwelling units and other housing options that indirectly affect energy consumption by improving density, reducing transportation costs, or improving resource efficiency.

Objective a.3: Provide educational opportunities for Township staff and residents about energy consumption, energy savings opportunities, and utility incentives.

Strategies:

1. Create an in-house “Green Team” involving interested staff that can help with outreach and brainstorming.
2. Improve delivery of information and data on energy consumption to building managers, Township staff, accounting/budgeting staff, and financial managers using Portfolio Manager and other tools.
3. Provide energy efficiency information to township residents, so they are aware of Township efforts and energy efficiency opportunities and programs to help improve their own homes, businesses, and neighborhoods.

Renewable Energy

Renewable energy systems continue to become more cost effective as technological advances lead to increased efficiencies and system costs decrease, while the cost of traditional power sources continue to increase. Meridian Township will develop and identify opportunities to install solar and other renewable energy systems at Township facilities and will encourage and facilitate residential and commercial installations. The focus on solar energy is based on its many cost-effective opportunities.

Past and Current Progress:

Meridian Township adopted a wind energy ordinance in May 2011 (Ord. No. 2011-05) to provide standards and regulations pertaining to the location, construction, design, maintenance, and abandonment of wind energy systems and anemometer towers.

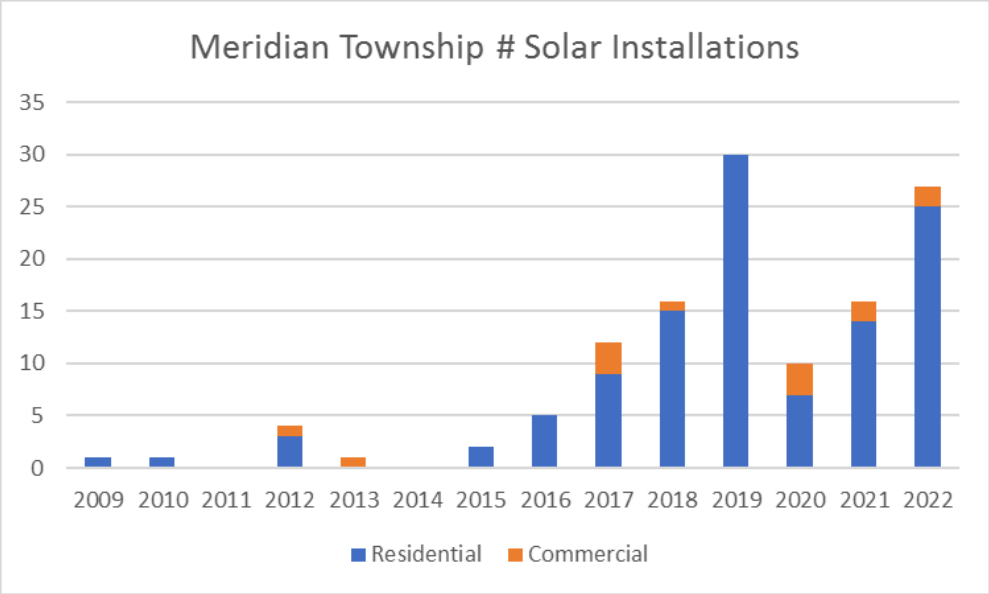
The Township worked with Peninsula Solar, Michigan Energy Options, U.S. Dept. of Energy, and Consumers Energy to create a solar demonstration and educational project at Harris Nature Center. The demonstration included a solar-powered webcam system and a grid-connected solar system.

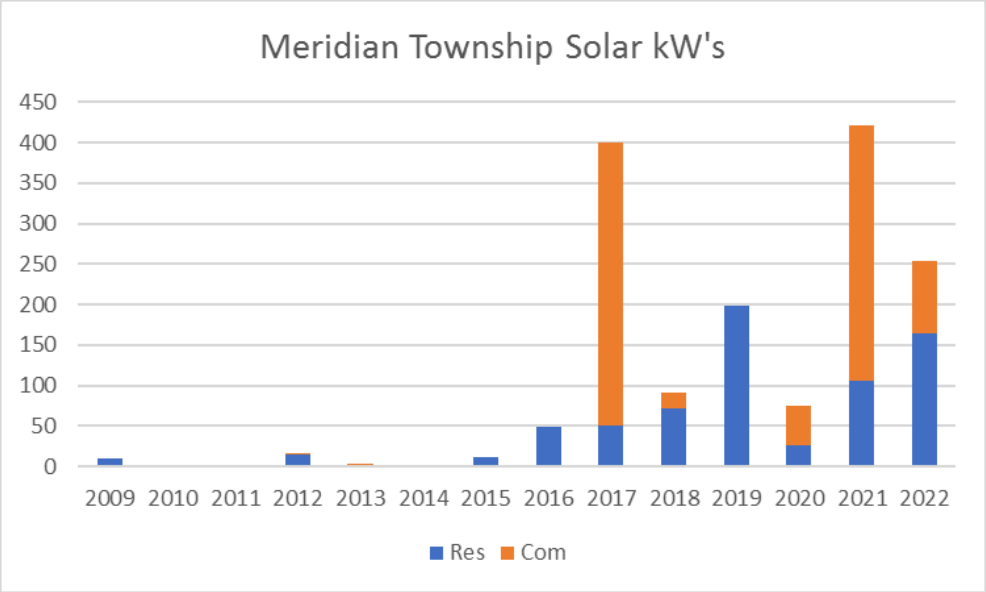
Two of the first solar arrays installed at Harris Nature Center

The Lansing Board of Water & Light (LBW&L) developed a 300 kW Community Solar project in Burcham Park on the border of Meridian Township. Since the Township has LBWL street lighting accounts, the Township Board authorized leasing 10 300-watt solar panels at the Burcham Park solar array. The Township will receive utility bill credits for 25 years based on electric production from the leased solar panels.

After the Township Board approved the Climate Sustainability Plan in October 2017, the Meridian Energy Team developed a workshop program to encourage and make it easier for homeowners, businesses, and churches to install solar electric systems on their buildings. The Meridian Energy Team worked with local civic organizations and houses of worship to hold a series of solar workshops in 2018. There were 11 workshops that reached 272 persons, and there was a significant increase in new solar system installations in 2018 and 2019.

In 2022, the Energy Team organized another series of "Solarize Workshops" to encourage and help residents install solar systems. Attendees deciding to purchase a solar system received group discounts on the cost for the workshop. Five workshops reached 97 residents, and 15 residents installed solar systems. At the end of 2022, the Township had 125 solar installations representing 1529 kW. Four Solarize Workshops are planned for 2023.





Meridian Township is working on achieving the 100% Renewable Energy Goal for Electricity for Township Operations. The Township has installed solar arrays at five municipal buildings including a recent 47 kW solar array on the carports at the Public Safety Building. The Township has achieved 62% of our 400 kW on-site solar goal, installing a total of 247 kW to date. This represents approximately 18% electricity savings because of solar arrays, bringing us more than halfway toward our 2035 goal of 30% electricity savings from on-site solar.

2018 Municipal Building	17.4
2020 Fire Station 3	36.5

2020	Marketplace on the Green	3.8
2021	Service Center	142.0
2022	Public Safety	47.0
Total		247.0 kW

Upper left: South Fire Station; Upper right: Municipal Building
Middle left: Marketplace on the Green; Middle right: Service Center:
Bottom: Public Safety Carports

Objective b.1: Develop Township policies and procedures that encourage the use of renewable energy.

Strategies

1. Revise Township ordinances and procedures to ensure that they encourage energy conservation and the use of renewable energy.
2. Develop renewable energy and other practices that reduce GHG emissions that can be included in the list of amenities allowed in mixed use and commercial planned unit developments (PUDs).
3. Encourage policies for electrification of buildings, vehicle fleets, and appliances so that more renewable energy can be utilized for energy.
4. Encourage policies that will make buildings solar-ready.

Objective b.2: Increase the use of renewable energy at Township facilities. Obtain 50% of Township electricity from renewable energy by 2025 and 100% by 2035.

Strategies

1. Pursue the installation of solar electric systems at Township facilities.
2. Participate in Community Solar or other green purchasing programs where possible.
3. Identify and seek grant funding for demonstrations of new renewable energy technologies.
4. Identify opportunities for non-grid connected applications like solar street lighting and solar lighting for signs.

Objective b.3: Provide educational opportunities regarding renewable energy options and encourage the installation of renewable energy at private and public facilities throughout the Township. Increase the number of solar installations in the township from 125 in 2012 to 250 by 2025.

Strategies

1. Provide educational opportunities on current and proposed policies, programs and incentives that could help Township residents, businesses, and institutions utilize renewable energy.
2. Share information about funding and vendors with residents and business owners.
3. Provide incentives to developers to employ renewable energy in site plans and construction of new development. Identify and adopt incentives to encourage greater use of renewable energy, e.g., incentives for net zero homes or solar systems and elimination of permit fees for solar systems.
4. Inventory, highlight, and promote Meridian homes and businesses that feature net-zero, renewable, LEED, and related features.
5. Educate homeowners' associations about solar power and encourage less restrictive covenants that inhibit the installation of solar energy systems.

Water and Green Infrastructure Management

(Note: This section was initially written by Kendra Grasseschi with input from Yu Man Lee, Susan Andrews, and Valerie Lafferty. Further additions, suggestions, and edits were provided by Lauren Schnoebelen, Steven Thomas, Sam Lovall, Ned Jackson, and members of the Land Preservation Advisory Board.)

Water and how it is managed impact almost all aspects of society, in particular health, food production, water supply and sanitation, ecosystem functions, and community recreation. Particularly useful and comprehensive discussions of these issues have been compiled by the EPA (see https://www.epa.gov/sites/default/files/2016-04/documents/ow-climate-change-adaptation-plan.pdf) as part of the agency's broader documentation on climate adaptation (see https://www.epa.gov/system/files/documents/2021-09/epa-climate-adaptation-plan-pdf-version.pdf).

The MI Healthy Climate Plan attests: "Many of the state's powerful natural carbon sinks have been developed or converted and lost their natural ability to store carbon, increasing net GHG emissions. Wetlands, in particular, are important carbon sinks and stocks. Building out green waterway infrastructure, like constructed wetlands, can yield both climate adaptation and mitigation benefits." Michigan's plan recommends avoiding further land-use conversions that increase GHG emissions and stewarding Michigan's natural resources by implementing land-use strategies that reduce GHG emissions in partnership with Michigan's tribal governments.

The Tihart-Cornell Wetland is one of many Meridian Wetlands requiring preservation.

Anticipated climate change impacts relevant to water management in Meridian Township fall into two broad categories: environmental effects, such as increasingly extreme weather trends with potential to bring flooding or drought; and human usage and disposal of the municipal water supply. Environmental effects of energy usage for drinking water production and wastewater treatment are also significant issues.

Stormwater and Drought:

Past and Current Progress:
The Township's website has a large section on stormwater management and pollution prevention (https://www.meridian.mi.us/community/green-meridian/stormwater-management) including the "Pollution Isn't Pretty" series of 30-second videos that range from "Sanitary Sewers vs. Storm Sewers" and "Washing Your Car" to "Pesticides and Fertilizers", along with "Green Infrastructure and Low Impact Development", and "Managing Riparian Lands". Further information is regularly distributed via educational booths and materials at local community events. However, the challenges presented by the changing climate raise additional considerations.

Per federal requirements, as a municipality with a separate storm sewer system, Meridian Township must apply for a stormwater discharge permit every five years. To promote a regional approach to stormwater management, the Township is a member of the Greater Lansing Regional Committee for Stormwater Management, which provides technical and educational initiatives to reduce pollution from stormwater runoff.

Objective c.1: **Increase resiliency toward extremes of weather by continuing to upgrade green infrastructure and other best management practices to minimize stormwater runoff and flood vulnerability while retaining enough surface water to mitigate drought damage.**

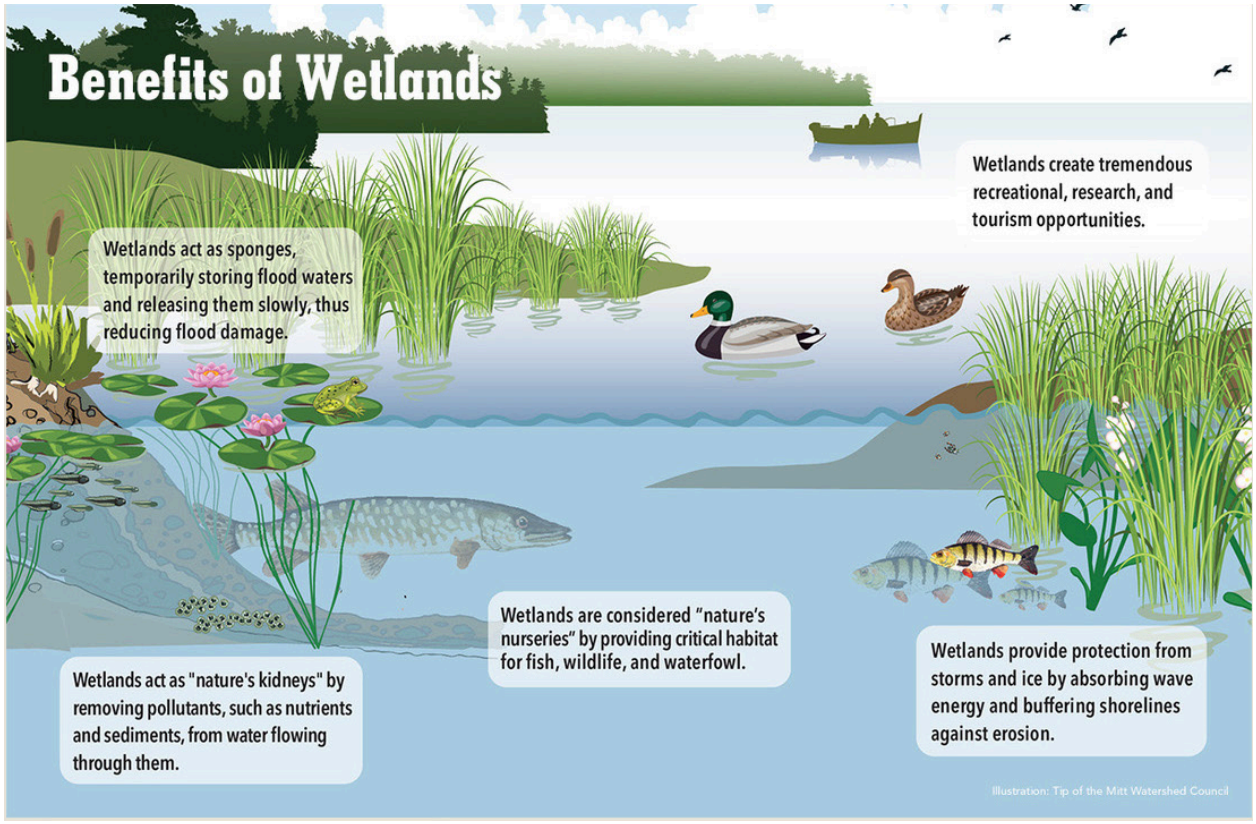
Strategies

1. Explore opportunities to partner with the Ingham County Drain Commissioner to control and minimize stormwater runoff.
2. Inventory and limit construction of new impervious surfaces.
3. Review and update planning criteria and policies as needed to accommodate expected changes in storm surges and extreme weather events.
4. Promote and incentivize the use of green stormwater infrastructure in all future project developments including porous pavements, green roofs, rain gardens, bioswales, riparian buffers, and retention ponds, and reusing stormwater for irrigation purposes.
5. Explore current and new ways to track green infrastructure projects.

Wetlands:
Wetlands cover over 25% of Meridian Township and play key roles in maintaining healthy watersheds and communities while providing resilience both to extreme precipitation events and to drought conditions. They help to mitigate climate change by providing significant carbon storage sinks as well.

Past and Current Progress:

Due to their ecological and social value, in 2011 the "no net loss" policy was adopted by the Meridian Township Board of Trustees which stipulates a wetland drained or filled must be replaced by a wetland of equal or greater size. To further their protection, the Township created a wetland ordinance that regulates wetlands as small as 0.25 acre in size. Information regarding the wetland ordinance is located at https://www.meridian.mi.us/community/green-meridian/wetland-protection.



Wetlands provide many benefits to our community. (Source: Tip of the Mitt Watershed Council)

The Township maintains a wetland inventory map and incorporates considerations of wetlands into their site plan review processes. In 2021, a Wetland Education Team was created to help develop educational resources for use by residents, developers, local landscapers, and contractors. Key information includes preserving and developing vegetative buffers and avoiding the use of fertilizers, pesticides, and herbicides.

Objective c.2: **Protect wetland ecosystem health and services by strengthening policies and activities that favor wetland area expansion, enhance wetland quality and resilience, and expand efforts to assure public awareness of the value and stewardship of wetlands.**

Strategies

1. **Inventory**: Regularly compile and assemble an updated inventory and assessment of the township's wetland quantity and quality, including updates from the State of Michigan's wetland maps and information from wetland delineations that have been completed as part of the Township's permitting processes.
2. **Protection:** Discourage development within wetlands, floodplains, wetland and floodplain fringe areas, and water retention areas, preferring infill development instead.
3. **Strengthen:** Regularly review, strengthen, and enforce the Township's existing wetland-relevant ordinances to protect and increase wetland acreage in the Township and address gaps or additional needs in wetland protection.
4. **Expansion:** Protect and expand wetland areas via continuing to purchase land preserves, managing and enhancing existing wetlands, and identifying priority areas for wetland protection and restoration.
5. **Water retention**: Promote and incentivize buffer expansion and native plantings around existing and newly developed wetlands to improve drought resistance and slow runoff.
6. **Education**: Create public signage identifying wetlands and their importance, seasonally distribute seasonal educational materials, and provide educational programs explaining wetlands' critical importance, protective functions, and stewardship opportunities.

Municipal Water:

Across the region, people rely almost exclusively on groundwater for their drinking water. Locally, East Lansing Meridian Water & Sewer Authority uses 30 municipal drinking water wells to supply ~75,000 residences and businesses with safe and reliable drinking water.

Past and Current Progress:

To help further protect the quality and quantity of our drinking water, Meridian Township is a member of the Groundwater Management Board, which focuses on both technical and educational initiatives to protect the future use of groundwater resources. Additionally, East Lansing-Meridian Water & Sewer Authority maintains a wellhead protection plan for both the City of East Lansing and Meridian Township. This plan is part of a voluntary program through the State of Michigan to protect public water supply systems that use groundwater from potential sources of contamination. As a community who relies almost exclusively on groundwater for drinking water needs, these plans help to protect the quality and quantity of local groundwater resources.

Objective c.3: **Incorporate the goals of the East Lansing-Meridian Water Sewer Authority's wellhead protection plan into Meridian Township activities.**

Strategies

1. Continue to incorporate wellhead protection into the Township's planning process, especially with a focus on zoning issues and subdivision control practices.
2. Coordinate with other communities, organizations, wellhead protection teams, and stakeholders to assure protection of regional drinking water sources.

3. Implement strategies from the Master Plan that protect groundwater resources and recharge areas.
4. Focus on the integration of activities, especially education and post-construction control requirements, required under the Township's Stormwater Phase II NPDES Permit with the goal of developing a wellhead protection plan.
5. Continue to identify abandoned wells within wellhead protection areas and work towards their permanent closure.

Water Treatment:
Sanitary sewerage collection, treatment, and disposal for the Township occurs in a treatment plant near the border between East Lansing and Lansing.

Past and Current Progress:
Over the past two decades, the sanitary sewerage systems in the Greater Lansing area, including Meridian Township, have been separated from stormwater sewers to prevent discharge of raw sewage into the environment. This separation minimizes the potential for impacts of extreme rain events on sanitary wastewater treatment.

Objective c.4: Continue to maintain the infrastructure needed for both water and sewage treatment while promoting public education on the importance of conservative water management.

Strategies

1. Develop and distribute educational materials for public distribution that explain where drinking water comes from, its costs, and how to protect it.
2. Ensure that township infrastructure and emergency personnel are in close contact with East Lansing-Meridian Water & Sewer Authority and Lansing Board of Water & Light regarding storm, drought, or other emergency water safety and supply plans and strategies. Of particular importance is wellhead protection, both of operational wells and of potentially abandoned wells that could contaminate groundwater sources.
3. Minimize water usage for lawn watering at Township facilities and parks and incentivize similar practices for large-scale users such as golf courses and home owner associations.
4. Use building audits of township buildings to identify water fixtures and practices to decrease usage of drinking water. Incentivize similar policies in the permitting of new construction projects.

Recycling and Waste Reduction

Recycling is an important environmental action taken by most Meridian Township residents and businesses. Recycling saves resources, prevents pollution, supports public health, and creates jobs. Harmful chemicals and greenhouse gases are released from rubbish in landfill sites. It takes less energy to create new items from recycled materials than it does to create new products from raw materials.

Past and Current Progress:

For over a decade Meridian Township has partnered with citizen groups, waste haulers, and recycling providers to bring recycling options to residents. During this time, Meridian has offered pick-up and drop-off of yard waste, paper, metal, glass, and #1/#2 plastic to its Recycling Center and Transfer Station at 5976 E. Lake Drive in Haslett. This has been expanded to include electronics, Styrofoam/expanded polystyrene, and food scraps. In addition, usable household furniture and knick-knacks are often reclaimed and refinished for resale.

In 2006, Granger began providing curbside recycling at no charge to their customers living in 1 to 5-unit single-family dwellings. In 2006, the Meridian Township Citizen's Recycling Advisory Committee formed and offered the first bi-annual community-wide recycling day. In 2007, Meridian hired a Recycling Coordinator to assist with recycling efforts in the township.

In 2015, larger residential recycling carts were offered, which helped increase recycling rates in the residential sector in 2016. In addition, more materials collected by Granger and other haulers are being processed locally at the Emterra Material Recovery Facility in Lansing.

In addition, more materials were collected at our Recycling Center. Large increases in recycling have occurred during the past several years. In 2020, almost 800,000 lbs of materials were collected with huge increases over 2019 in cardboard (66%), expanded polystyrene (90%), paper (42%), glass (39%), and other materials. In 2013, a food waste collection pilot project was launched.

Objective d.1: Increase recycling in owner-occupied dwelling units.

Strategies

1. Collaborate with Granger, Emterra, local municipalities, and others to promote recycling and best practices to reduce contamination and waste.
2. Expand the use of 96-gallon carts and remove disincentives for recycling.
3. Expand marketing and outreach to promote existing recycling services and options.
4. Collaborate with regional municipalities, the Regional Recycling Coordinating Committee (R2C2), Emterra, and other neighborhoods, organizations, and others to increase recycling.

Objective d.2: Expand recycling in multi-family housing and in other commercial settings.

Strategies

1. Establish an additional recycling drop-off facility in partnership with Granger and the State of Michigan.
2. Review Township purchasing policies for waste reduction opportunities including the use of

supplies that are compostable or higher recycled content.
3. Promote and expand current recycling efforts in multi-family housing.
4. Explore ordinances, policies, and programs that encourage recycling.
5. Provide technical assistance to managers and occupants of multi-family housing/apartments.
6. Review internal township recycling practices, procedures, and participation.

Objective d.3: Offer community- and region-wide recycling events and other partnerships including expanded recycling facilities and options.

Strategies

1. Establish an additional recycling drop-off facility in partnership with Granger and the State of Michigan.
2. Participate in the region's materials management planning process to help increase recycling access, infrastructure, and market development.
3. Increase recycling, composting, and reclamation of lumber, food, cooking oil, etc. at Meridian's Recycling Center.
4. Partner with local businesses, Meridian Township Farmers Market, schools, neighborhoods, governments, departments, parks, churches, and others to promote and offer recycling events and enhanced recycling opportunities.
5. Promote Ingham County household hazardous waste collections.
6. Explore collaborative processing and/or transfer of recyclables locally and/or in the region.
7. Identify and implement food, cooking oil/grease, composting, and related organic material recycling options.
8. Provide educational opportunities concerning the 5 R's: Refuse, Reduce, Reuse, Repurpose, & Recycle including simple instructions to reduce "wishcycling" and contamination.
9. Improve signage that promotes recycling and directions to recycling drop off facilities.
10. Promote re-usable bags, bottles, plastic waste reduction, compostable single-use alternatives, etc.
11. Consider an annual solid waste audit and participation in EGLE's Municipal Measure Program.
12. Explore state, county, and local licensing and reporting requirements for waste haulers.
13. Investigate the availability of additional data from Granger, Waste Management, Reclaimed by Design, or the State of Michigan that might be helpful.

Healthy Food Systems

Our food system contributes to around one-third of all greenhouse gas emissions globally (https://www.nrdc.org/issues/agriculture-food). While some greenhouse gas emissions are inevitable in order to grow, harvest, process, aggregate, and distribute foods, there is great potential to improve our food system in ways that will support our climate and reduce emissions.

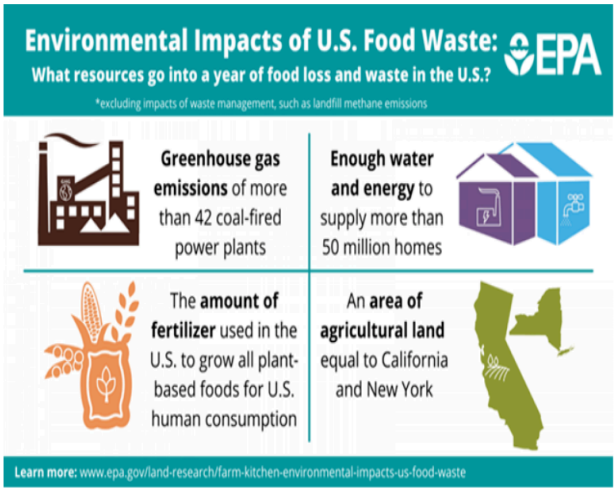


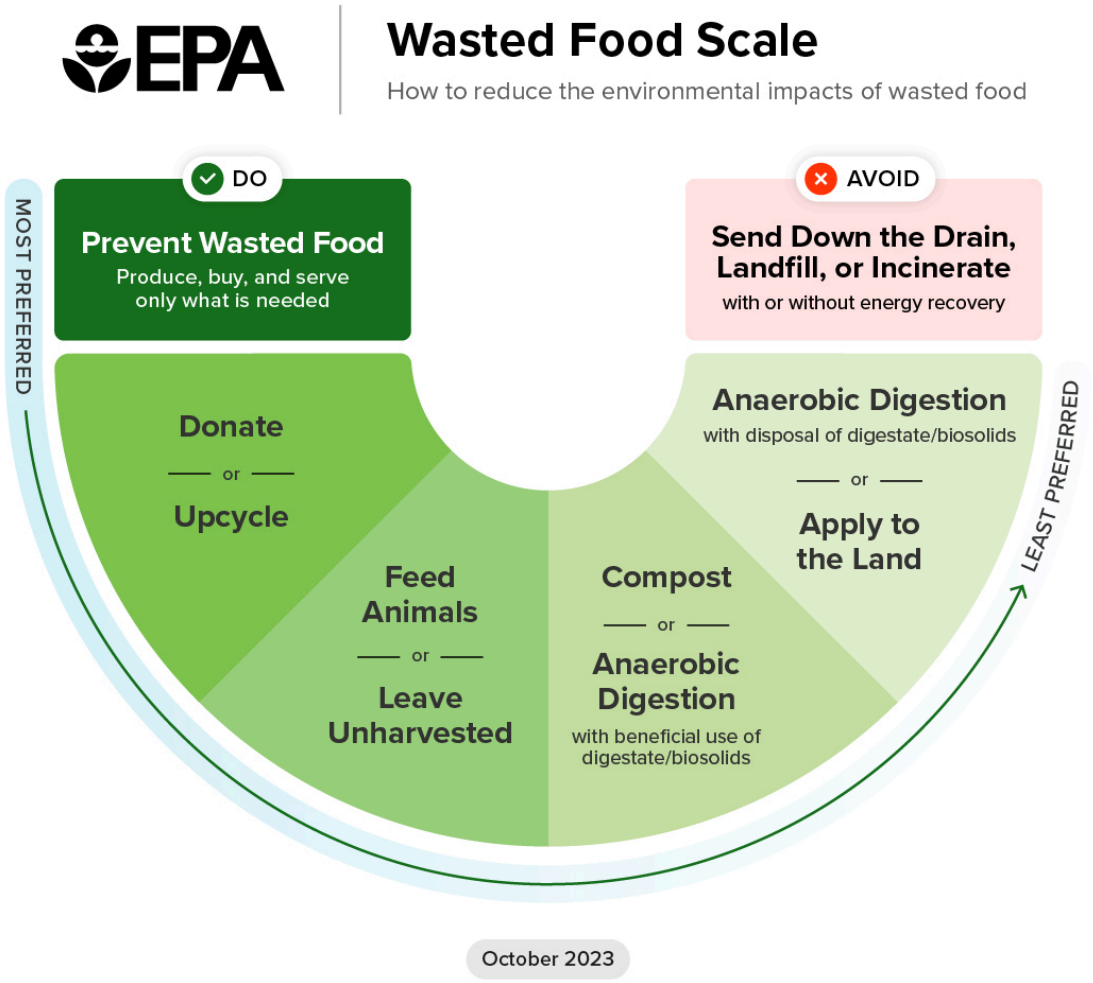
Image Credit: US EPA

One way to reduce the environmental impacts of our food system is to reduce food waste and divert wasted food from landfills. In the United States, up to 40% of food is wasted (https://www.usda.gov). The EPA estimates that the greenhouse gas emissions from food waste in the United States is equivalent to the annual emissions of 42 coal-fired plants (https://www.usda.gov/media).

Past and Current Progress:

In 2022, a volunteer-led gleaning program was started to collect unsold, fresh produce from Meridian Township Farmers Market vendors for distribution to area food banks, kitchens, and pantries. This gleaning program resulted in 4,740 pounds of food donations. In 2023, the gleaning program was expanded to encourage shoppers to directly purchase produce from vendors for donation, which supports area emergency food providers, residents in need, and local farmers and producers. In 2023, a pilot food scrap collection also began at the Market and Recycling Center where township residents can drop off food scraps for composting.

The gleaning program and food scraps collection are intended to reduce the environmental impact of wasted foodand decrease hunger and food insecurity (lack of consistent access to enough food).



Objective e.1: Reduce food waste & food insecurity.

"Food insecurity isn't driven by scarcity, it's a distribution issue."
EPA Report Highlights Climate Impacts of Wasted Food NRDC (2021)

Strategies:

1. Support and expand food rescue, i.e., the gleaning of edible food, initiatives within the township through activities such as:
    a. Supporting and growing efforts to glean fresh produce in the township for distribution to area food banks, kitchens, and pantries.
    b. Rescuing food from grocery stores, restaurants, and caterers
    c. Measuring food rescue metrics across the Township to create a baseline to compare growth over time.

d. Working with local schools to conduct one- or two-day cafeteria food waste audits and build interest in lunchroom gleaning or food rescue and composting.

2. Continue to grow the "Support a Pantry" program at the Market which encourages customers to purchase Market products, that may otherwise go to waste, for donation to pantries and soup kitchens.
3. Facilitating or otherwise supporting community outreach and education on topics such as the environmental impacts of food waste, the opportunity to address food waste at different stages of the food system (e.g., farming, production, processing, distribution, consumers), and the connection between food waste and food insecurity.

Objective e.2: Increase production and sourcing of local and sustainably-grown food products.

Strategies:

1. Encourage and support residents, businesses and institutions within the township, such as public schools and childcare centers, to increase the proportion of sustainable and locally grown foods on their menus.
2. Reduce barriers to use of the Farmers' Market to purchase more locally grown/prepared foods such as by offering shuttle services, market awareness through Meridian Cares target communities, delivering food boxes to homebound community members, and increasing bus service near the Farmers' Market.
3. Encourage and support the development of farm-to-school and school garden programs in schools in the Township.
4. Identify and reduce barriers to initiating and continuing farm businesses within the Township.
5. Initiate/Revisit farmland conservation/preservation collaboration within the County or locally to keep more farmland in farming and increase the supply of local foods. Work with the Township Planning Commission to incorporate farmland preservation and encourage the use of farmland for farming in the Township Master Plan.

Objective e.3: Decrease organic waste by increasing composting and other organic waste diversion practices.

Strategies:

1. Collaborate regionally to encourage joint cooperation with neighboring municipalities wherever possible to address systemic organic waste challenges.
2. Consider developing community composting (larger than backyard composting/smaller than industrial composting) site(s) to develop quality compost for community gardens and contribute toward development of self-reliant food system skills with residents.
3. Consider a pilot residential organic waste pick-up within a geography or grow the drop-off service to several convenient locations around the Township.
4. Explore the feasibility of an anaerobic digester.
5. Support efforts to increase organic waste management in commercial establishments like restaurants, independent living facilities, nursing homes, grocery stores and convenience markets.

6. Increase education and outreach to residents, commercial establishments, and schools to increase composting, including on topics such as vermiculture.
7. Consider policy change(s) such as requiring a percentage of topsoil fill to include commercial grade compost in the permitting process for replacement or new construction. Nutrient-rich compost builds soil vitality for healthier plants/produce, flourishing trees (to resist disease, provide shade and wildlife habitat), and increases soil absorbency to fight against flooding.

Transportation

Nationally, transportation produced 27% of greenhouse gases in 2020. (www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions). Public and non-motorized alternatives can reduce the impacts from these greenhouse gases. Scooters are a motorized alternative that burn less fuel and emit less GHG than automobiles. The most accessible alternative to burning fossil fuel is often overlooked: walking and biking. Transportation fuel use reduction measures decrease emissions, save the Township and residents money, enhance environmental quality, and promote public health. The Township will focus on its own fleet, walking and biking, and land use decisions. Land use decisions that lead to infill development and a greater use of public and non-motorized transportation can significantly reduce use of fossil fuel.

Past and Current Progress:

A Complete Streets Ordinance was adopted by the Meridian Township Board on Sept. 18, 2012. The ordinance is intended to provide safe, convenient, and comfortable routes for multiple modes of transportation including but not limited to walking, bicycling, personal vehicles, and public transportation.

The Township has 20 miles of trails and 80 miles of pedestrian/bicycle paths. The development and maintenance of the trails and pathways are funded through the Park Millage and Pedestrian/Bicycle Pathway Millage. They are maintained by Township Parks and Grounds Maintenance Staff. The purpose of the pedestrian/bicycle pathway system is to provide a network of interconnected pathways throughout Meridian Township that connect destination points including schools, libraries, parks, public buildings, commercial areas, and connecting routes outside the Township.

Since the adoption of the Climate Sustainability Plan in 2017, major accomplishments include safety conversions of Lake Lansing Road, Central Park Drive, and Jolly Road, along with the installation of safe mid-block pedestrian crossings on M-43.

The Meridian Township Transportation Commission began meeting in January 2017. The purpose of the commission is to review transportation services, both public and private, within the township as to their efficiency, sufficiency, and costs and make recommendations, if necessary, for improvements.

Objective f.1: Encourage Township employees and citizens to be smart commuters year-round.

Strategies

1. Continue to expand and close gaps in the bike and pedestrian pathways network. Promote bikeways and walkways.
2. Incentivize and encourage employees to be smart commuters year-round.
3. Partner with Capital Area Transportation Authority and others to promote “Clean Commute” options and identify efficient paratransit and Redi-Ride efficiency improvements.
4. Encourage bike/ebike transportation by offering secure parking at local stores/restaurants.
5. Consider engineering safe, separated/protected bike lanes to link residential areas to commercial districts.
6. Consider changing vehicular traffic lanes to bike/pedestrian traffic only on a periodic or

permanent basis to encourage bike/pedestrian use and recreation.

Objective f.2: Decrease the use of fossil fuel in the Township vehicle fleet.

Strategies

1. Choose the cleanest and most fuel-efficient vehicles that meet the department's needs.
2. Convert 47 vehicles of the township's fleet to electric vehicles by 2035. Use electric or hybrid vehicles whenever possible.
3. Implement the installation of charging infrastructure necessary to achieve the above strategies.
4. Identify and seek funding for alternative fuel vehicles and electric charging infrastructure.
5. Use efficient trip-planning to reduce the use of fuel.

Objective f.3: Use land-use planning to reduce vehicle miles traveled and fossil fuel use.

Strategies

1. Continue implementation of the Township's Complete Streets policy to ensure that entire roadways are designed and operated with all users in mind— including bicyclists, public transportation vehicles and riders, and pedestrians of all ages and abilities.
2. Use the Urban Services Boundary to reduce vehicle miles traveled and encourage infill and redevelopment.
3. Encourage cluster developments, mixed use, and other compact residential choices closer to shopping, public transit, and other services.
4. Offer incentives for sustainable developments.

Objective f.4: Provide educational opportunities on transportation alternatives that can reduce fossil fuel use.

Strategies

1. Provide educational opportunities concerning public transit, car sharing, smart commuting, and transportation-efficient communities including biking, walking, and driving safely, especially around bikers and walkers.
2. Continue membership in and partnerships with Greater Lansing Area Clean Cities (http://michigancleancities.org) and providers of efficient vehicles, equipment, and fuels.
3. Provide websites and apps that identify charging stations for electric vehicles. Map locations of public charging stations.
4. Promote the employee and volunteer bike-sharing program.

Conclusion

This update to Meridian Township's Climate Sustainability Plan documents activities implemented by the Township since signing the U.S. Mayors' Climate Protection Agreement in 2007. Much progress has been made, and the Township's departments and residents can be proud of the efforts to date.

The Township's adoption of a resolution supporting the Paris Climate Accord demonstrates a commitment to achieving the goals agreed upon by the international community to curb global warming and help rebuild the world's economies stronger, greener, and better. The Paris Agreement calls for transformation of production and consumption patterns to a "circular economy", which involves avoiding excessive consumption, waste, and use of fossil fuels by leasing, reusing, repairing, and recycling existing materials and products. Extraction and processing of natural resources causes half of global emissions and over 90% of biodiversity loss. Shifting to a circular economy is therefore crucial to achieving the Paris Climate Accord goal of limiting global temperature rise to 1.5 degrees Celsius above pre-industrial times.

Circular economy principles include using less resources, more sustainable materials and recycling the ones we have used. Energy supply, transportation, buildings, and waste management remain priority sectors for immediate climate action. Implementation of strategies outlined in this plan will support the Paris Climate Accord agenda and move Meridian Township toward a circular economy, while making our community more sustainable, resilient, affordable, and better prepared to manage the impacts of climate change.

Acknowledgements

Many organizations and citizens assisted in the development of this plan by providing presentations on climate change topics, comments on plan drafts, and suggestions for objectives and strategies.

Collaborating groups and organizations include the following:

- Consumers Energy
- Granger Waste Services
- Energy Team
- Good Food to Smart Composting Committee
- Green Team
- Lake Lansing Advisory Committee
- Meridian Communications, Engineering, Planning, Public Works, Assessing, Parks, Farmers' Market, and Engineering Staff
- Meridian Environmental Commission
- Meridian Green Dialogue
- Meridian Planning Commission
- Meridian Township Board
- Meridian Transportation Commission
- Michigan Green Communities Network
- Wetland Education Team
- Tri-County Regional Planning Commission

The Meridian Environmental Commission welcomes and appreciates your comments and suggestions as this Climate Sustainability Plan evolves in the months and years to come.