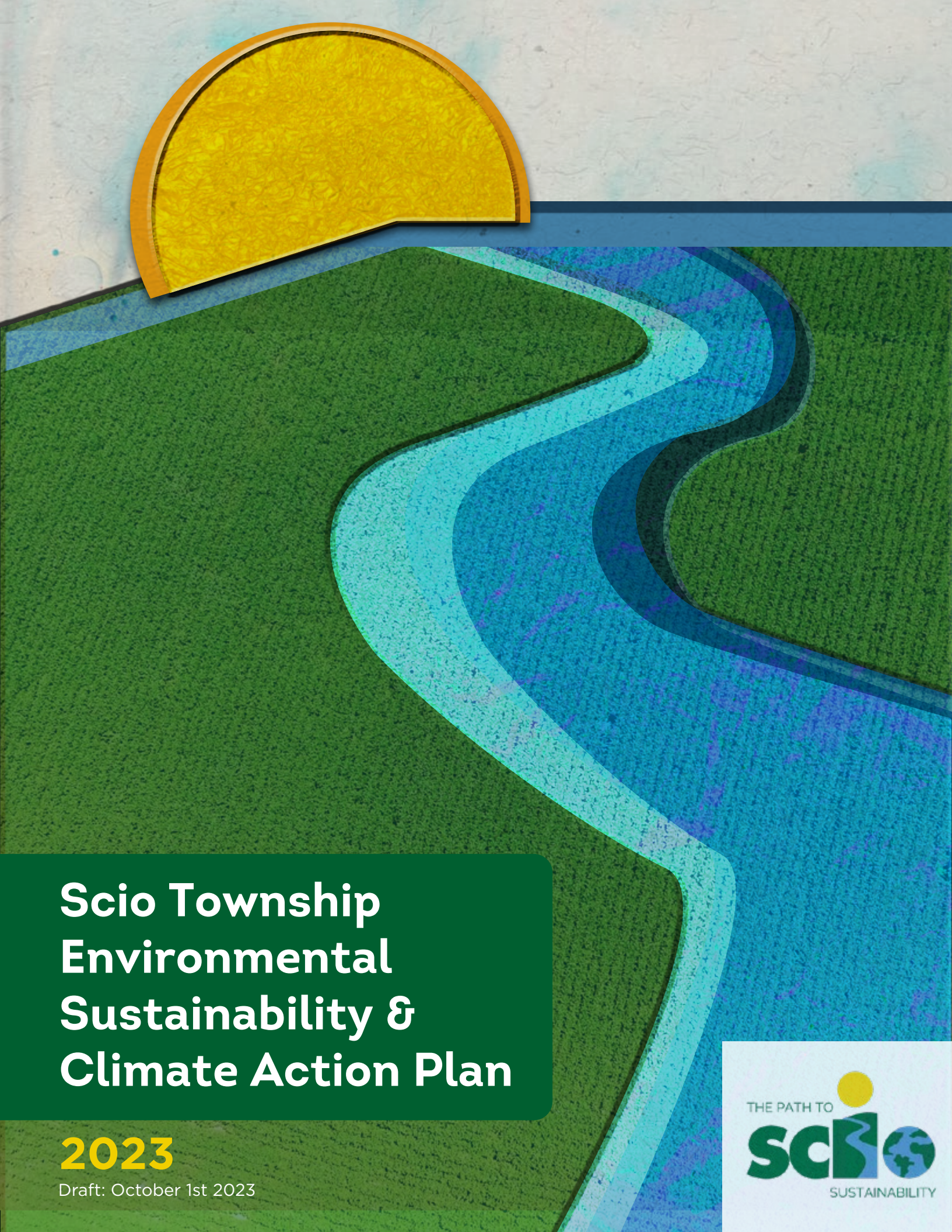


Scio Township Environmental Sustainability & Climate Action Plan

2023

Draft: October 1st 2023

THE PATH TO scio SUSTAINABILITY

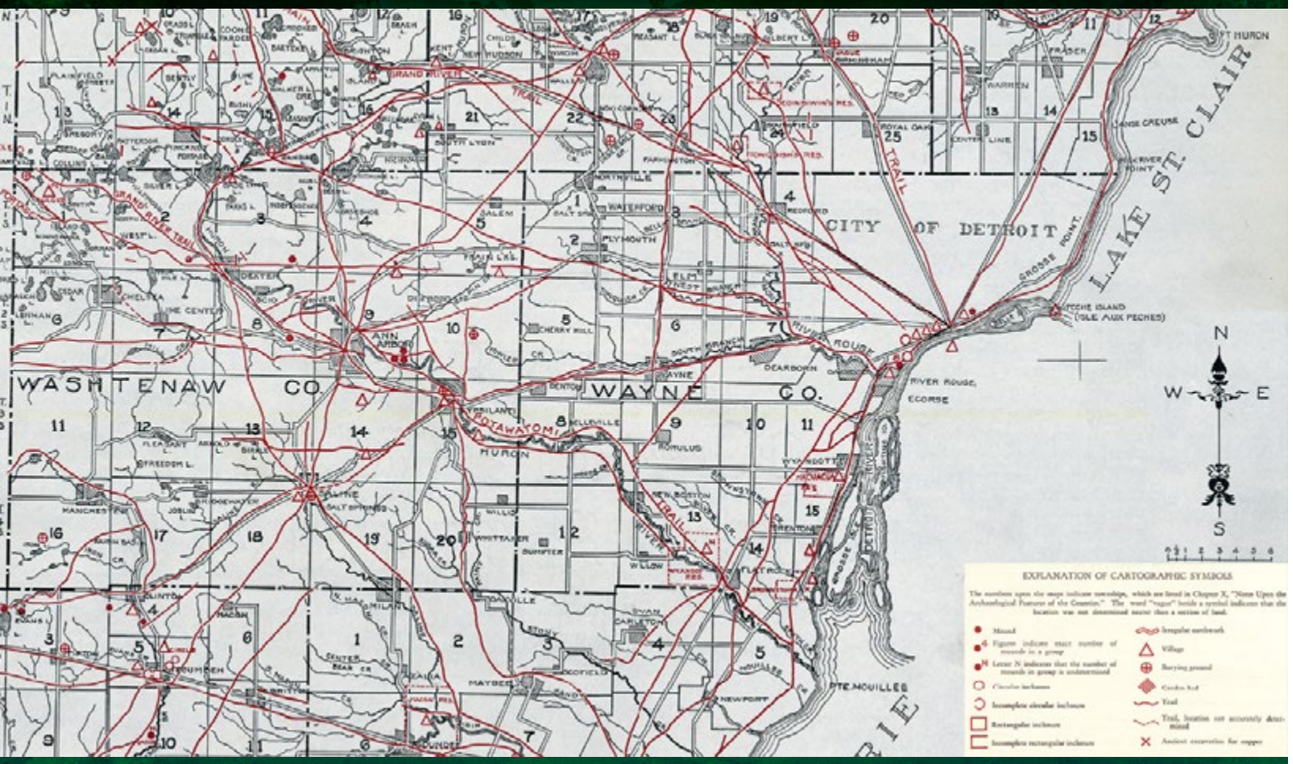
Land Acknowledgement

Adapted from the Washtenaw Community College acknowledgement

We humbly acknowledge that Scio Township occupies the ancestral, traditional, and contemporary lands of diverse native peoples. The taking of this land was formalized, in a process alien to native cultures, by the Treaty of Detroit in 1807, with the Anishinaabe (ä-ni-shi-ˈno-bā), including the Odawa, Ojibwe (ō-ˋjib- wą̇) and Potawatomi (pätəˋwätəmē), and with the Wyandot (wī-ən-ˌdät). Many other native peoples lived on this land at different times including the Fox, Sauk (ˋsok), Shawnee (sho-ˈnē), Kickapoo (ˈkikəˌpü), Miami (mē-ä-mē), Musketoon (ˌməskəˋtün), and Cherokee (ˋcher-ə- ˌkē).

People in Scio Township have benefited from the use of this land and from its life, beauty, and spirit. We recognize our responsibility to understand and care for this land, and we honor, with our deepest gratitude, the native people who have stewarded it for generations.

Acknowledgment by itself is a small gesture. But let this step be an opening to greater public consciousness of Native history, sovereignty and cultural rights, and a step toward equitable relationship and reconciliation.



Excerpt from Archaeological Atlas of Michigan

THE PATH TO SCIO SUSTAINABILITY

"Scio Township commits itself to a just transition to net zero GHG emissions due to township operations no later than 2030 and to the same goal through all sectors of the township by 2035."

From the climate resolution unanimously approved by the Board of Trustees on July 26, 2022

Vision

We envision Scio Township as a welcoming, resilient, carbon neutral, sustainable community that embraces citizen well-being, environmental and economic viability.

The 2023 Scio Township Environmental Sustainability & Climate Action Plan (ESCAP) will guide and integrate with township operations, services, planning, policies, ordinances, and investments to ensure the most sustainable, inclusive, GHG emission reduction options are implemented. The ESCAP will foster regional cooperation and community engagement in meeting climate and sustainability goals. Scio Township will specifically collaborate on the implementation of **Resilient Washtenaw** the county's Climate Action Plan, along with other cities, townships, and villages in Washtenaw County.

Table of Contents

Background

What is Environmental Sustainability?

The widely-accepted definition of sustainability is ***"the ability to meet the needs of the present population without compromising the ability of future generations to meet their needs."*** A sustainability mindset compels a community to make decisions based on economic, environmental, and social impacts in the long-term, rather than just the short-term.

Sustainability efforts in Scio Township need to address not only reduction of GHG emissions and waste, protection of eco-systems, but also equitable distribution of resources and resilience in response to climate-related and other emergencies.

Why is Climate Action Important?

Climate change is affecting our planet from pole to pole. NOAA monitors global climate data and here are some of the changes NOAA has recorded. You can explore more at the Global Climate Dashboard.

- Global temperatures rose about 1.8°F (1°C) from 1901 to 2020.
- Sea level rise has accelerated from 1.7 mm/year throughout most of the twentieth century to 3.2 mm/year since 1993.
- Glaciers are shrinking: average thickness of 30 well-studied glaciers has decreased more than 60 feet since 1980.
- The area covered by sea ice in the Arctic at the end of summer has shrunk by about 40% since 1979.
- The amount of carbon dioxide in the atmosphere has risen by 25% since 1958, and by about 40% since the Industrial Revolution.
- Snow is melting earlier compared to long-term averages

The greenhouse gas emissions from human activities are driving climate change and continue to rise. They are now at their highest levels in history. Without action, the world's average surface temperature is projected to rise over the 21st century and is likely to surpass 3 degrees Celsius this century—with some areas of the world expected to warm even more. The poorest and most vulnerable people are being affected the most.

Climate change is impacting Scio Township through more intense rain events, more frequent days with very high temperatures, and changes in plant growing cycles and wildlife populations.

Introduction

To The Environmental Sustainability Climate Action Plan (ESCAP)

Recognizing the need to act, in July 2021, the Township Planning Commission appointed and charged the Environmental Sustainability Task Force with developing an Environmental Sustainability Plan.

The Scio Township Environmental Sustainability & Climate Action Plan (ESCAP) is referenced in the Scio Township Master Plan and should be reviewed at least every 5 years with the Master Plan. In addition, an annual progress report should be issued to the community.

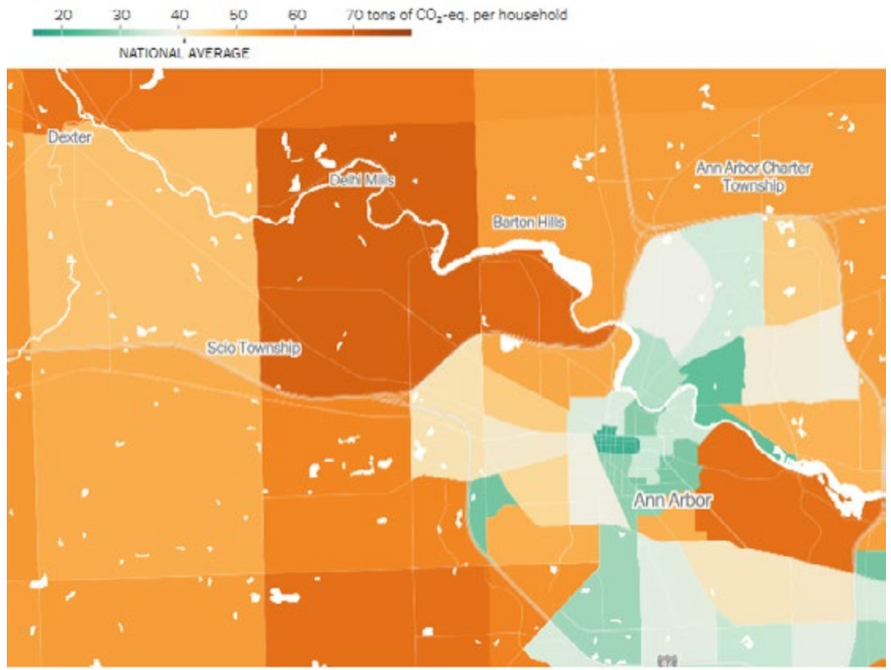
The ESCAP includes a set of aggressive but practical strategies, principles, goals, and actions to help Scio Township reach carbon neutrality, as an organization by 2030, and as a community, by 2035. This plan specifically supports the July 26, 2022 Resolution adopted by the Board of Trustees, and aligns with Resilient Washtenaw goals.

SCIO TOWNSHIP CONSUMPTION BASED EMISSIONS

A map of emissions linked to the way people consume goods and services offers a different way to view what is driving global warming. Usually, greenhouse gases are measured at the source: power plants burning natural gas or coal, cows belching methane or cars and trucks burning gasoline. But a consumption-based analysis assigns those emissions to the households that are ultimately responsible for them: the people who use electricity, drive cars, eat food and buy goods.

The map below is from a NYT article "The Climate Impact of Your Neighborhood, Mapped" and is based on research from the University of California, Berkeley that estimates what are known as consumption-based emissions. The data was produced by EcoDataLab, a consulting firm partnered with the university.

As part of Washtenaw County, Scio Township will rely on the County to track total GreenHouse Gas Emissions:



Emissions here are **higher than** the national average.

Average household emissions by source:

TRANSPORTATION	**Higher** than average
HOUSING	**Higher** than average
FOOD	**Higher** than average
GOODS	**Higher** than average
SERVICES	**Higher** than average

What Goes Into a Household's Emissions Footprint?

TRANSPORTATION	Gasoline, motor oil, air travel, vehicle manufacturing, other transportation
HOUSING	Home electricity, natural gas, fuel oil, housing construction and maintenance, other
SERVICES	Healthcare, education, other services (emissions from electricity, other sources)
FOOD	Meat, dairy, cereals, fruits, vegetables, other food, dining out (production, other sources)
GOODS	Apparel, furniture, appliances, other goods (manufacturing, maintenance, other sources)

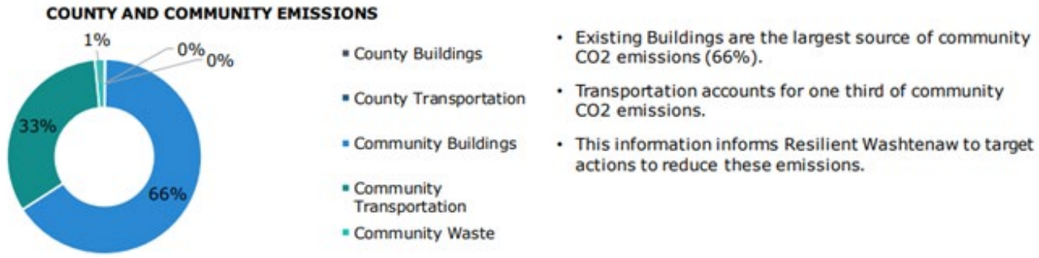
The Problem: County Emissions

In 2019, Washtenaw County emitted 4,490,000 metric tons of carbon dioxide. Of these 4.49 million metric tons, Washtenaw County operations contributed 8,452 metric tons of carbon dioxide emissions in 2019 or 0.17% of total Countywide emissions.

Forecasting future emissions using business as usual assumptions, Countywide emissions would drop to approximately 4.25 million metric tons by 2030 and to 4 million metric tons by 2035. These reductions are largely the result of advances in technology and efforts underway within several municipalities and organizations. The data in this report show us how much work must be done quickly in the next 12 years to achieve carbon neutrality.

Climate change work requires us to reduce emissions, mitigate emissions through actions that either empower emission reduction or offset emissions by reducing them in other sectors, and to adapt to cope with the unavoidable impacts of climate change and become more resilient. The actions in this plan are designed to reduce emissions, increase our community adaptation, and to build resiliency with the County.

Where our Emissions Originate

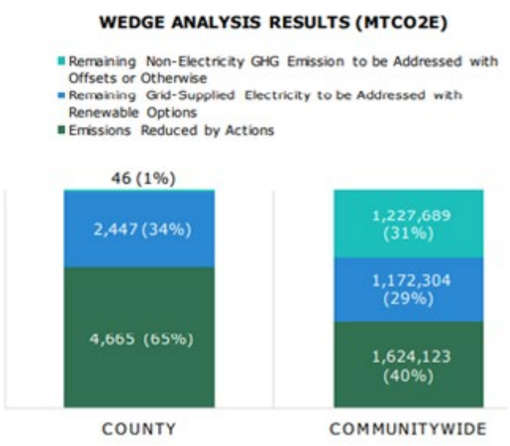


- Existing Buildings are the largest source of community CO2 emissions (66%).
- Transportation accounts for one third of community CO2 emissions.
- This information informs Resilient Washtenaw to target actions to reduce these emissions.

GHGI, BAU, and Wedge Analysis

The Greenhouse Gas Inventory (GHGI) measures the current sources of greenhouse gas emissions for both County operations and communitywide activity. From this, a Business as Usual (BAU) forecast estimates future trends in emissions. Next, we conducted a wedge analysis by estimating the impact of our Actions to reduce emissions to meet our Goals within our timeline. Any remaining emissions will be the result of grid-supplied electricity that continues to be produced, in-part, by fossil fuels by the utilities, continued use of fossil fuels in transportation or onsite in buildings, or emissions from waste and wastewater management.

We estimate that through direct mitigation actions we can reduce greenhouse gas emissions by ~65% for the County's operations and by ~40% for communitywide emissions. The County will still need to offset ~34% of emissions coming from grid-supplied electricity and utilize a very small number of offsets (<1%) to achieve carbon neutrality. Communitywide emissions will require significant offsets, including ~29% for grid supplied electricity and ~31% for all other sources of emissions.



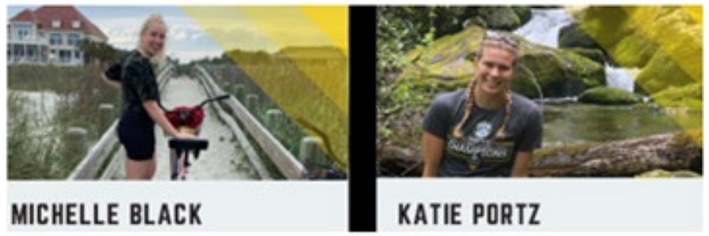
View the entire Washtenaw County Climate Action Plan **HERE**

PLAN DEVELOPMENT HISTORY

2020

The Planning Commission conceived of the Environmental Sustainability Task Forces (ESTF) during the 2020 update to the Master Plan, in order to develop a plan that would holistically address environmental sustainability and climate action in the township.

May 2021



This supplemental planning process started in May 2021 with foundational research conducted by two U-M School for Environment and Sustainability (SEAS) Interns.

July 2021 — 20 months — March 2023

The Planning Commission appointed the Environmental Sustainability Task Force on July 26, 2021. Following a foundational training by the summer SEAS interns, the task force met monthly and developed the ESCAP over the following 20 months Progress working sessions were held with the planning commission on March 15, 2022, November 14, 2022 and March 13, 2023. Scio Board, Commission and committee members were invited to these public meetings.

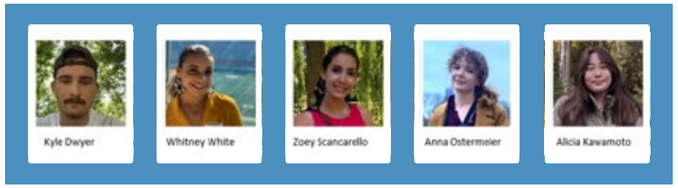
Task Force Members (all 24 members who contributed during the 20-month period)

Rosa Bushkuhl
Hob Calhoun
Anna Cone
Jackie Couteau
Jan Culbertson
Bill Currie
Karen Duff
Dana Dougherty
Margaret Engle
Chris Ferone
Andy Houde
Bob Hyde
Jeff Jackson
Cathy Jaskiewicz
Jeannine LaPrad
Elizabeth LaPorte
Marty Mayo
Charlie Nielsen
Celeste Novak
Norm Roller
Chad Rowe
Tim Redmond
Jane Vogel
Gerd Walter
Steve Wyzgoski

COMMUNITY ENGAGEMENT

INTRODUCTION

Community engagement for the development of the Environmental Sustainability Climate Action Plan (ESCAP) was spearheaded by a team of master's students in partnership with the Scio Township Task Force.



The team was composed of five graduate students from the University of Michigan School of Environment and Sustainability (SEAS). The student team worked with the Working Groups beginning in December 2021 and completed their collaboration in April 2023. Each team member worked directly with a Working Group. The team's primary goal was to ensure community engagement was done effectively. The team determined the engagement strategies most effective for reaching key interest groups in the community to maximize participation and promote greater diversity and inclusion throughout the process. Community feedback played a key role in the creation of the ESCAP and will play a critical role in the plan's implementation. The team's facilitation of community engagement promoted the plan's capacity to address community members' distinctive concerns related to climate change. The team researched other relevant climate action and engagement plans to inform outreach strategies. The two primary forms of engagement undertaken for the creation of the ESCAP were a public input survey and a series of key interest group interviews.

GATHERING INPUT FROM SCIO RESIDENTS

The five Working Groups in the Task Force created a list of initial goals, strategies, and actions for the ESCAP which the student team used to design their public input survey. The purpose of their survey was to gather feedback and information about public knowledge on and support for the Working Group's goals, strategies, and actions.

Once available to the public, via the online survey platform Qualtrics, the survey was shared with Scio Township residents through a variety of methods to encourage greater participation and diversity of perspectives. The survey was distributed broadly through the township newsletter, social media platforms, and website. The Task Force also shared the survey with their friends, family, coworkers, and community members. The student team reached out to homeowners associations and co-housing communities, requesting that they include the survey information in their newsletters and other online communication platforms, such as NextDoor and Facebook. The student team also distributed surveys at a variety of events during the summer, including the Ann Arbor Green Fair. During the 2022 summer elections, the team distributed the survey to residents voting at the two largest polling sites. The team posted yard signs with survey information for the remaining polling locations. This variety of outreach methods supported the team's goal of reaching many Scio community members.

GATHERING INPUT FROM KEY INTEREST GROUPS

In addition to survey input from Scio residents, it was also necessary for the student team to gather feedback from key interest groups within Scio Township. The student research team collaborated closely with Task Force members and interviewees to identify key interest groups and individual interview contacts. Key interest groups included Scio Township operations, the Fire Department, the Parks and Recreation Advisory Board, the Transportation Alternatives Planning Committee (TAP), the Land Preservation Commission (LPC), and local farms. Through interviews during the summer of 2022, students compiled expert insights on the Scio Township Sustainability Task Force's first iteration of goals, strategies, and actions for the ESCAP. Task Force members were involved in the creation of interview questions to ensure interviewees provided useful and actionable information. Through the interview process, the student team also built greater support of the ESCAP.

SURVEY AND INTERVIEW OUTCOMES AND REPORT

In total, 283 residents responded to the survey during the roughly 3 months that it was open. Of those, not all completed the full survey. 209 of the respondents completed 98% or more of the survey, and 10 interviews were conducted. The team analyzed the results of the survey and interviews and compiled the results into a report available to the public via the Task Force Shared Drive (link). Each Working Group was given specific feedback relevant to their initial goals and strategies. The report that was shared with each group gave them information to determine what members of the community thought of their goals and what goals may need to be removed, adjusted, or added.

SURVEY AND INTERVIEW OUTCOMES AND REPORT

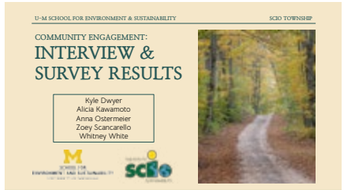
June - September 2022

283 **Residents responded to the survey**

Of those, not all completed the full survey.

209 **of the respondents completed 98% or more of the survey**

10 **interviews were conducted.**



The team analyzed the results of the survey and interviews and compiled the results into a report available to the public **HERE**

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AREAS OF FOCUS:

- **ENERGY, BUILDINGS, & INFRASTRUCTURE**
- **WATER RESOURCES PROTECTION & HEALTH**
- **TRANSPORTATION & MOBILITY**
- **GREEN INFRASTRUCTURE & NATURAL ECOSYSTEM HEALTH**
- **MATERIALS, WASTE & THE CIRCULAR ECONOMY**
- **RESILIENCE & EMERGENCY PREPAREDNESS**
- **REGENERATIVEAGRICULTURE & LOCAL FOOD SYSTEMS**

COMMUNITY OUTREACH

Many of the recommendations contained in this document involve concepts and activities that may be new to Scio residents. **However, the values and actions that will be necessary to implement the plan will require support from the community. In order to gain this support, it will be important to continue to engage the public:**

1. **on the concepts themselves;**
2. **on the importance of these actions to the health and welfare of the community's future; and**
3. **the need for active participation from Scio residents to achieve success.**

The Sustainability Task Force's success will depend on volunteer labor and communications; the only way to change behavior and raise awareness is to connect with the entire Scio Township community.

Scio needs to establish robust communications and outreach to and with residents – for the sustainability effort itself, but also for the Township in general.

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PLAN OVERVIEW

Person walking paths at Township Hall Park
Image Source: Scio Township

Plan Overview

Scio Township's Environmental Sustainability Climate Action Plan (ESCAP) is based on the Township Board of Trustees Resolution setting the goals of achieving carbon neutrality in township operations by 2030 and communitywide by 2035. It also aligns with and relies on Resilient Washtenaw, the county's climate action plan.

This action plan contains objectives, actions, and strategies for implementation over the 10 years, focusing on the near term. It is laid out six sections.

The next section describes the core of the plan through seven focus topics each with its own vision, objectives, actions, and metrics. This provides the context for "What We're Going to Do" to successfully advance toward the township's sustainability and climate action goals.

The fifth section, Strategies for Accomplishing Desired Outcomes: describes the "How We're Going to Do it," including implementation strategies, roles, partnerships, resources needed, funding and financing, progress tracking, education and outreach, and additional considerations.

Finally, an Appendices section provides a list of acronyms of key partners, descriptions of recognized energy efficiency programs and green building organizations, a glossary, the Climate Emergency Resolution, and direct web links to supplementary resources.

Measurable targets for the next version of the plan will be created based on the baseline data collected during the evaluations of actions implementation by the end of March 2025.

The plan is created to be flexible in nature and will be regularly updated based on new data and information. Note the Township's fiscal year is defined as April 1- March 31.

AREAS OF FOCUS:

- **ENERGY, BUILDINGS & INFRASTRUCTURE**
- **REGENERATIVEAGRICULTURE & LOCAL FOOD SYSTEMS**
- **TRANSPORTATION & MOBILITY**
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- **GREEN INFRASTRUCTURE & NATURAL ECOSYSTEM HEALTH**
- **MATERIALS, WASTE & THE CIRCULAR ECONOMY**
- **RESILIENCE & EMERGENCY PREPAREDNESS**

STRATEGIES FOR ACCOMPLISHING THE DESIRED OUTCOMES

Critical components for successful implementation of the ESCAP's actions include staff leadership, ongoing ESTF committee work, funding and project financing, resources to support ordinance and policy creation and revision, county-wide collaboration, and significantly improved tools devoted to education, communication, and outreach.

Charge a key staff member, who reports to the BOT or Township Manager, with the responsibility of overseeing the implementation of the ESCAP with the assistance of a permanent ESTF. To be successful, Sustainability and Climate Action needs to be integrated into the leadership and operations of the Township. In addition to a key staff member, we recommend a Leadership Team that will coordinate the implementation of the ESCAP as well as coordinate the paid and voluntary support.

Key components of implementation include:

- Community Outreach, Education and Equity
- Resource Identification: Collaborations/Funding/Grant Writing
- Decarbonization of Township Operations
- Policy and Ordinance creation and updating

Leadership Team		
Community	Planning	Operations
Supervisor/Clerk	PC	Twsp. Manager
Trustee	LPC	Fire
Ambassador Lead	Roads	Utilities & Grounds
	PPP	Administation
	DDA	Facilities
	Transportation	Ambassador lead
Communications	Policy Research	Grant Writer
ESTF Working Groups		

ESTF Working Groups
Implementation/Research
Agriculture & local food systens
Energy/buildings/utilities/water/resilience
Green Infrastructure/Natural Eco systems
Mobility & Transportation
Materials/Waste/Circular Economy
fleets/equipment
Communications/Education/Outreach
ambassadors
recognition
events

Key Collaborators
2030 District
WRMMA/RAA
WCRC
WCWRC
HRWC
WCCD
MSU Extension
WATS
SEMCOG
A2 Zero
Resilient Washtenaw
Other Townships
EGLE
IRA--funding
Ecology Center
BRAG/WCA
reuse businesses

PROPOSED TOWNSHIP SUSTAINABILITY LEADERSHIP STRUCTURE

STRATEGIES FOR ACCOMPLISHING THE DESIRED OUTCOMES

The success of reaching the community goal of carbon neutrality of 2035 relies on the entire Scio community, the ESTF supports implementation of a rigorous and sustained community engagement plan.

The 2022-2023 SEAS Masters Project team developed the following community engagement plan moving forward **CLICK HERE TO READ THE PLAN:**

ENERGY, BUILDINGS & INFRASTRUCTURE

- Solar zoning update
- Engineering spec update
- Fire station energy audit
- Set Renewables goal & Community solar sites
- Facility Transition plan
- Adopt Zero Code for new township facilites
- Plan requirements for water and energy performance targets
- Communicate existing resources
- Education of staff/community

GREEN INFRASTRUCTURE & NATURAL ECOSYSTEM HEALTH

- Tree Canopy baseline, health and expansion planning
- Fill stormwater ordinance & maintenance gaps
- Develop Envir. Overlay for sensitive, natural area protection
- Review all ordinances for environmental updates
- HRWC review of ordinances
- Communicate existing resources
- Education of staff/communitv

WATER RESOURCES PROTECTION & HEALTH

- Groundwater protection--CARD
- Support periodic septic system inspections
- Partner w/ A2 on Source Water Protection Plan
- Communicate existing resources
- Education of staff/community

TRANSPORTATION & MOBILITY

- Identify who is responsible for transportation planning in the Township
- Ev charging/bike infrastructure zoning update
- Fleet/equipment electrification plan
- Public transit millage team
- Communicate existing resources
- Education of staff/community

NEAR TERM ACTIONS

- Purchasing & Contracting requirements
- October event with Fire open house
- Policy & Ordinances Updating and Creation

MATERIALS, WASTE & THE CIRCULAR ECONOMY

- Recycling access for those who don't have it
- Central compost site feasibility
- RAA circular economy industrial park status
- Urban wood reutilization
- Construction demolition recycling requirements
- Communicate existing resources
- Education of staff/community

REGENERATIVEAGRICULTURE & LOCAL FOOD SYSTEMS

- Obtain data on size & production of farms
- Feasibility of farmers market
- Review policies & ordinances for barriers/incentives
- Look into payments for regenerative agriculture proctices
- Communicate existing resources
- Edcuation staff/community

RESILIENCE & EMERGENCY PREPAREDNESS

- Identify Resilent Hub location & budget
- Identify areas susceptable to flooding
- Identify wind event vulnerabilites
- Communicate existing resources
- Education of staff/community

YE 2024 ESCAP related Budget	
Recycling	
Central recycling for those who don't have access	$40,000
Facilities	
HVAC replacement	grant
Fire station energy audit	grant
Temp Staff	
ESTF Summer Interns	$10,000
Planning Budget	
Jackson Rd Corridor Study (my guess)	$10,000
Planning-sustainability	$15,000
Bike parking/ storage review	
EV charging	
Native Landscape/tree canopy	
storm water management--single family	
storm water management-when renovating/change of use	
work with WCWRC to update storm regs	
solar as primary use	
HRWC ordinance/policy review	
solar setback execptions	
update site plan to include energy/water data	
ADUs	
complete current list	
complete PUD	
density height bldg separation review-especially Jackson Rd Corridor	
Mapping: Ag production/Tree canopy	
Environmental overlay of sensitive areas+plume	
Engineering	$10,000
Specifications update including:	
Urban wood use	
low embodied carbon concrete	
review for sustainability	
ESTF October event	
	sponsors
TOTAL FOR Planning Projects line item	$35,000
Support for Communications hire/website listserv use/enews	
We need someone website trained & tech/graphics savy at least part time decicated to township communications	

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FOCUS AREAS

- ENERGY, BUILDINGS & INFRASTRUCTURE
- REGENERATIVEAGRICULTURE & LOCAL FOOD SYSTEMS
- TRANSPORTATION & MOBILITY
- WATER RESOURCES PROTECTION & HEALTH
- GREEN INFRASTRUCTURE & NATURAL ECOSYSTEM HEALTH
- MATERIALS, WASTE & THE CIRCULAR ECONOMY
- RESILIENCE & EMERGENCY PREPAREDNESS

Scio Outside volunteers spreading native seeds

Vision

Scio Township rapidly transforms its built environment from a major contributor of greenhouse gas emissions to a central solution to the climate crisis through energy efficiency, electrification, renewable energy and the use low embodied carbon materials and carbon sequestering. Limited use of natural gas during the transition is offset through local projects, increasing our tree canopy, and supporting regenerative agriculture or other long term, documented means of carbon sequestration. These strategies lead to a healthy, safe, and resilient community.

Scio Fire Station's Solar Panels

Energy, Buildings & Infrastructure

DEFINITION

The Energy, Buildings, and Infrastructure sector includes all residential, commercial, and industrial buildings along with road, sidewalks, and utility infrastructure within the Township. This sector is a significant contributor to Greenhouse Gas (GHG) emissions with estimates of 40% -70% of total GHG emissions. Direct emissions include fossil fuels burned on site for space heating, water heating, and cooking, as well as the manufacture and production of building materials. Indirect sources (60%) primarily result from the use of fossil fuels in the off-site production of utility (DTE) supplied electricity.

Health & Wellness Considerations

Buildings have a big impact on our health and wellbeing. On average we spend about 90% of our time indoors. In Michigan, air pollution from burning fuels in buildings led to an estimated 841 early deaths and $9,419 billion in health impact costs in 2017.

Renewable Energy Considerations

The movement towards the use of renewable energy sources for production of electricity is critical to the goal of reducing GHG emissions. As a rural and suburban township, Scio has the land and roof capacity to meet most residential and single-story building needs. Currently, Scio Township does not allow renewable energy generation as a primary use, so zoning needs updating to allow for community solar. Ultimately, Scio Township's success in transitioning to 100%renewables is contingent on DTE's progress. DTE is currently proposing to increase its renewable energy component from its current 15% to 100% by the year 2050..

Energy Efficiency Considerations

Increasing energy efficiency can help reduce GHG emissions and result in significant cost savings for both homes and businesses. Building design will play a major role in the future efficiency and comfort of constructed facilities.

Circular Economy Considerations

The extraction, manufacturing and production of building materials contributes significantly (11%) to GHG emissions. Recent advances in technology allow us to now measure and potentially reduce embedded carbon in buildings. In addition, buildings, and their associated land development, contribute to land and water related impacts including biodiversity loss and water stress.

Equity Considerations

Families that live in properties that are not energy efficient are also those that can least afford high-cost utility bills. These households may lack the ability to pay for energy efficiency improvements or access renewable energy options. Families with fewer resources must dedicate a disproportionately larger share of their income towards energy costs, which exacerbates other vulnerabilities. Renters of both single-family homes and multi-family housing usually do not have the ability to implement energy efficiency measures to the buildings they live in. Energy efficiency retrofits are often the responsibility of the landlord, while the costs associated with the resulting energy use are usually paid by the occupant.

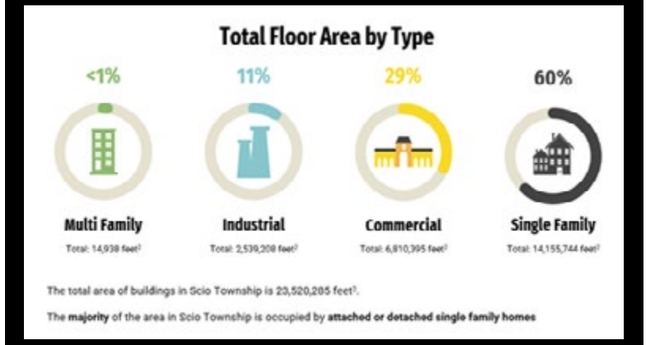
CURRENT STATE

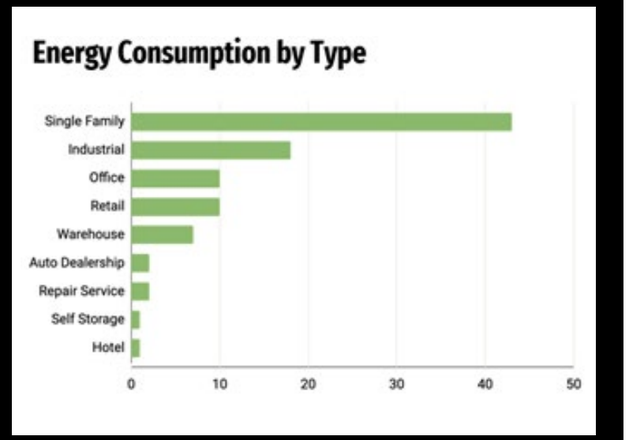
of

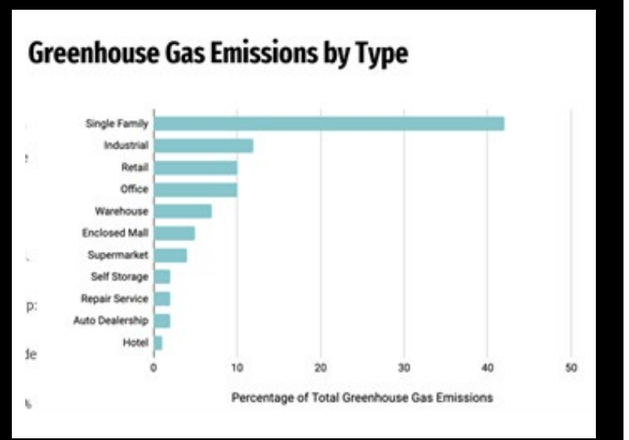
Energy, Buildings & Infrastructure

SCIO BUILDING STOCK

DTE does not break down power use by township boundaries, so the ESTF completed a building stock analysis and applied standard energy use intensity rates to estimate total building energy use and GHG emissions.







TOWNSHIP OPERATIONS

In 2022, the Green House Gas (GHG) Emissions from Scio's buildings and utility services totaled 379 MT CO2e. This is ~12% reduction from 429.7 MT CO2e in 2019. This reduction can be contributed to some efficiency measures and the increase in renewable power generation in the grid. Scio Township has not calculated other sources of GHG emissions from its its operations.

All power serving Scio Township buildings and infrastructure (except for 7 street lights) is enrolled in MI Green Power at 85%, as of March 2023. The DTE grid averages 15% renewable, so the combination totals 100% renewable power. Street lights are not metered and not eligible for enrollment. All except 2 street lights are LED.

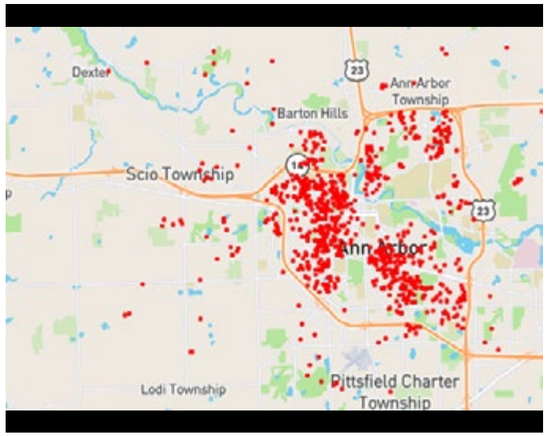
Scio Township Hall and Fire Station are benchmarked by the A2 2030 District. An ASHRAE Level II Audit has been completed on the Township Hall, and a lighting retrofit project is 85% complete. The HVAC systems were also retro-commissioned. A study was completed to replace 3 older rooftop HVAC units with heat pumps.

The fire station has an on-site solar installation in progress that will supply about 76% of the fire department's power and 33% of the sheriff department's power.

The utilities department routinely studies the water and sewer system to minimize leaks and infiltration.

Scio Township buildings emit ~ 95,414 MT CO2e/yr. Single Family homes represent the largest GHG emission sector.

There has been one Solarize Program initiated in Scio Township. Ann Arbor Solarize has tracked their installations on this map. The program has significantly increased rooftop residential solar and is available to Scio Residents:



The Ann Arbor 2030 District has launched a Commercial Solar Program open to any commercial, multifamily or institutional building in Washtenaw County.

The Scio Fire Station is part of this program's pilot. One Scio business has requested technical assistance, since the program launched.

ENERGY AND BUILDINGS	Timeline	Lead/Partners	GHG Reduction	Cost & Funding	Other Values Benefited
KEY:	N: 1-3 years M: 3-5 years L: 5 years +	Who is the lead? Who are key Scio/Community partners?	GHG emission I to III for emission reductions	See Legend Below	
1. Increase Township & Community Energy Efficiency					
1.1 Benchmark township operations and reduce energy & water use	N	Staff, A22030D	I	PR $	
1.2 Connect educational and financial resources with Scio residences and businesses to reduce their energy and municipal water use	N-L	ESTF, Staff	II	PR $	
1.3 Adopt atime of listing/sale residential reporting ordinance of energy use & cost	M	ESTF, BOT	II	PR $	
1.4 Develop a recognition plan to reward progress for residential and business	N	ESTF	-	PR $	
2. Decarbonize the built environment by eliminating, and if needed, offsetting, the use of fossil fuels in building operations & materials					
2.1 Develop "buy clean policies and specifications" for Township procurement by 2024.	N	Staff, BOT, OHM	I	PR $	H&W
2.2 Develop building electrification plans for Township buildings and infrastructure to achieve CN by 2030.	N	Staff, BOT	-	PR $$	
a. Implement those plans	L	Staff, BOT	II	CIP+ $$$$	H&W, IAQ
2.3 Encourage/require all new development to be primarily electric, Zero Net Carbon Emissions, and use low embodied carbon materials	N	PC, BOT	II	PR $	
a. Update zoning code and township ordinances to require/incentivized carbon neutral projects	N	PC, BOT	II	PR $	
2.4 Connect educational and financial resources with Scio residences and businesses to transition from fossil fuels by 2035	N-L	ESTF, Staff	III	PR $	H&W, IAQ
2.5 Promote home and business electrification, support solar bulk buys	N-L	ESTF	I	PR $	

PR= Programs/programming, **CIP**= Capital Improvement Projects,
CIP*= Capital projects with an ROI

$=	PR	0-$10K	CIP	0-$75K
$$=	PR	$10K-$30K	CIP	$75K-$200K
$$$=	PR	$30K-$120K	CIP	$200K-$500K
$$$$=	PR	>$120K	CIP	>$500K

GHG Reduction: Favorable= F, Neutral= N, Not Favorable= NF
GHG Reduction Potential: blank = none, I = some, II = medium, III = high
Values: Equity/Access= EQ/A, Health/Wellbeing= H/W, Economy= Econ, Natural Ecosystems= NE, Resilience= R
Other Benefits: IAQ = Improve Air Quality, IEQ = Improve Equity, IHW = Improve Health & Wellness, ILP = Increase Land Preservation, INE = Improve Natural Ecosystems, IR = Improve Resilience, ISQ = Improve Soil Quality, IWC = Improve Water Quality, WR = Waste Reduction

ENERGY AND BUILDINGS	Timeline	Lead/Partners	GHG Reduction	Cost & Funding	Other Values Benefited
KEY:	N: 1-3 years M: 3-5 years L: 5 years +	Who is the lead? Who are key Scio/Community partners?	GHG emission I to III for emission reductions	See Legend Below	
3. Increase local renewable energy production and decarbonize the power grid					
3.1 Set goal for township renewable energy production (private, township & community)	N	ESTF, PC, BOT	II	PR $	H&W, IAQ
3.2 Expand A2 Zero Solarize program for residential rooftop solar in Scio	N	ESTF, OSI	III	PR $	
a. Facilitate Scio residents & business sharing their solar experiences	N	ESTF	-	PR $	
3.3 Connect educational and financial resources for on-site solar generation for Scio businesses	N-L	ESTF, A22030D	III	PR $	
3.4 Plan and implement Community/Utility Solar in the Township	L	PC, BOT	III	PR $	H&W, IAQ
a. Identify sites for Community solar and partner with DTE or others to develop	N	PC	-	PR $	
b. Coordinate with DTE to upgrade distribution infrastructure	N	BOT	-	PR $	
3.5 Encourage enrollment in MIGreen Power (or similar programs) throughout the Township	N	ESTF	II	PR $	
3.6 Promote A2 Area Commercial Solar Program	N	ESTF, A22030D	I	PR $	
3.7 Advocate for 100% renewable power for all by 2035.	N-L	ESTF	III	PR $	H&W, IAQ
3.8 Reduce local barriers to installing onsite renewable energy	N	PC, BOT	I	PR $	
4 . Develop and promote local, additional, carbon offset programs					
4.1 Collaborate with County initiatives	N-L	WC	II	PR $	
4.2 Investigate creation of Scio Carbon Offset Programs: additional land/canopy preservation; regenerative agriculture, tree planting & preservation	L	ESTF, LPC, PC, BOT, WC	II	PR $$	ILP,INE

Energy Buildings and infrastructure Metrics

Metric	Baseline	Goal
Scio Building Energy Use Intensity (2019 baseline)	87.7 kBtu/SF/yr	↓
Township building & utility GHG emissions (2019 baseline)	427.7 MT CO2e/yr	↓
County-wide Building GHG emissions		↓
Number of all electric new buildings/developments	0	↑
Number of Net Zero new buildings/devleopment	0	↑
Number of LED Streetlights	5	↑
Use of low embodied concrete in Township projects	0	↑
Number of residential solarize/solar installations	29	↑
Number of commercial solar installations	unknown	↑
Number of community solar installations	0	↑

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Vision

Scio Township envisions the development of a safe, accessible, and comprehensive multi-modal transportation system that provides connections among homes, workplaces, education, shopping, and other amenities while significantly reducing our carbon footprint.

The Wave

Transportation & Mobility

DEFINITION

The Transportation and Mobility sector includes both motorized and non-motorized transportation and all the infrastructure required to create an integrated system. This includes driving cars (electric vehicles or EVs, plug-in electric hybrids, and internal combustion engines), using public transit, riding bicycles (traditional and electric), using other personal mobility devices, and walking. It also includes infrastructure such as EV charging stations; bus routes and schedules, stops, and shelters; bicycle pathways, lanes, and parking; and pedestrian walkways and crosswalks. Finally, this sector will also address the use of outdoor power equipment.

According to the Environmental Protection Agency (EPA), in 2019 the transportation sector of the U.S. economy produced 29% of greenhouse gas emissions, more than any other sector. Of that 29%, more than half of these emissions can be attributed to passenger cars, medium- and heavy-duty trucks, and light-duty trucks, including sport utility vehicles, pickup trucks, and minivans. Transportation emissions also include toxic chemicals (e.g., nitrogen oxides and carbon monoxide) that contribute to air pollution and public health issues. As one of the largest contributors to the township's carbon footprint, transportation planning to reduce carbon emissions will be carefully considered

.

Scio Township is primarily a rural community, located west of the City of Ann Arbor. Residents are proud of its preserves, open spaces, and rural character. But its low-density development has created a heavily car-dependent community, resulting in many vehicle miles traveled (VMT). Washtenaw County residents clocked in at 10,211 VMT per person in 2015, with estimates likely to be higher in 2022. The average Washtenaw County VMT numbers include many more urban residents who do not drive as much as Scio residents. Among Scio households, 98.2% of have cars, and 74.4% drive alone to work, with an average commute time of more than 25 minutes. The majority of residents drive vehicles with internal combustion engines.

FOR SCIO TO REDUCE ITS CARBON FOOTPRINT AND TRANSPORTATION RELATED AIR POLLUTION, RESIDENTS CAN MAKE THREE TYPES OF CHANGES IN THEIR TRANSPORTATION CHOICES.

- For residents traveling longer distances that require driving, an electric vehicle (EV) or plug-in-electric hybrid (PHEV) might be a good option. These vehicles decrease transportation-related carbon emissions, and improve air quality, especially as Detroit Edison (DTE) power generation moves to more renewable sources of energy or as residents solarize their own homes.
- For residents traveling along a transit route (AAATA or WAVE), buses are an easy, cost-effective, and convenient way to reduce both Scio's carbon footprint and VMT. Increased bus travel will result in a reduction in traffic congestion, and an improvement in air quality.
- For residents traveling shorter distances — including getting to a bus stop — riding a bicycle or walking is a healthy and sustainable option.

As Scio implements plans to make all transportation choices safer, more convenient, and enjoyable for everyone, residents are empowered to choose a variety of transportation options that will reduce our carbon footprint while improving safety, public health, and equity in the community.

CURRENT STATE OF TRANSPORTATION & MOBILITY IN SCIO TOWNSHIP

Support for Non-Motorized Transportation

- Washtenaw's Border-to-Border Trail (B2B), when completed, will run east-west across the width of Scio Township. The Zeeb Rd. The Connector, which will create more access to this non-motorized trail system, is also approaching completion.
- Scio recently approved a PROS (Parks, Recreation, and Open Space) Plan to implement a township-wide non-motorized transportation plan, outline the current Trails and Pathways Plan, and establish the development of a continuous pathway system as a goal.
- Scio Township's Zoning Ordinance requires provision for off-street bicycle parking (2 for every 20 automobile parking spaces, with a minimum of two required for all sites).
- According to the ESTF's public input survey in 2022, 47% of residents surveyed supported reducing VMT by up to 25%, supporting the provision of safer, protected bike lanes (45%) and walkways (43%) to help achieve that goal

EV Infrastructure

- Six visible and easily accessible public charger ports are currently available for use at Meijer in Scio Township, including two DC ports . According to the US Dept. of Energy, there are 12 more public charger ports in Scio Township, three of which are DC . Almost all of the EV chargers are located at car dealerships along Jackson Rd. The public may access these EV chargers by contacting the dealerships.

Safety

- According to SEMCOG, Scio Township sustained 506 motor vehicle accidents in 2021, including two fatalities, six involving serious injuries, and 67 involving minor injuries. Five of these crashes involved pedestrians.

Township Fleet

- The township fleet consists of 13 vehicles, none of which are currently electric

Township Policies

- Scio Township's Board of Trustees declared a climate emergency on July 26, 2022. The Board committed the township to a just transition to net zero greenhouse gas emissions due to township operations no later than 2030, and to the same goal through all sectors of the township by 2035.
- Scio's PROS Plan includes a commitment to a non-motorized transportation system that connects neighborhoods, parks, schools, shopping, employment, Township and County facilities, the Village of Dexter, and the City of Ann Arbor. The PROS Plan is interconnected, multimodal, easily accessible, and safe.

Public Transit

- The Ann Arbor Area Transportation Authority (AATA) runs one of its routes from downtown Ann Arbor along Jackson Road to Zeeb Road and back. The route runs every half hour, from 6:00 am to 10:30 pm weekdays, with reduced hours on the weekends. AAATA service allows riders to travel throughout Ann Arbor and Ypsilanti.
- The Western-Washtenaw Area Value Express (WAVE) runs a non-profit bus service along the Township's Jackson Road corridor, from Parkland Plaza to Dexter and Chelsea. WAVE also offers flexible scheduling of shuttles throughout the western part of the county by advance request.
- The Scio DDA recently purchased and installed five bus shelters along the Jackson corridor to accommodate transit users for both AATA and WAVE services.
- According to the ESTF's public input survey in 2022, Scio residents think expanding and connecting public transit is the best way to decrease VMT (46%).

TRANSPORTATION & MOBILITY WORKING GROUP

KEY:	Timeline N: 1-3 years M: 3-5 years L: 5 years +	Lead/Partners Who is the lead? Who are key Scio/Community partners?	GHG Reduction GHG emission I to III for emission reductions	Cost & Funding See Legend	Other Impacts
1: Increase use of EVs and PHEVs					
1.1 Amend zoning ordinance to require public EV charging stations with new non-residential development and EV-ready infrastructure in new residential developments.	N	PC,ESTF, BOT	II	PR $	IAQ
1.2 Educate residents and other stakeholders about EVs and PHEVs and available incentives.	M	ESTF, Staff, WC	II	PR $	IAQ
1.3 Electrify Scio Township's fleet.	N	Fire and Utilities, BOT	II	CIP $$$$	IAQ
1.4 Advocate for residents of multi-family dwellings to have access to charging facilities at home.	N-M	ESTF	II	PR $	IAQ, H&W
1. 5 Advocate for electrification of transit vehicles.	N	ESTF/BOT	II	PR $	IAQ
1.6 Facilitate a conversation among DTE and Scio car dealerships to minimize costs associated with upgrading grid infrastructure for multiple DC fast chargers.	N	ESTF	II	PR $	
2: Reduce vehicle miles traveled (VMT).					
2.1 Advocate for a safe, accessible, comprehensive transit system., including ongoing financing, township planning and oversight	L	ESTF,WC, AAATA, WAVE, SEMCOG	II	PR $$	IAQ, H&W
2.2 Educate residents on existing transit options.	M	ESTF, Staff, 2023 SEAS Team	II	PR $	IAQ, H&W
2.3 Advocate for development of affordable and higher-density housing options near transit corridors.	L	PC, BOT, WC, ESTF	II	PR $$	IAQ, H&W, IE
2.4 Advocate for a network of safe, well-maintained multi-use pathways.	L	ESTF, PPP, WCRC	II	PR $	IAQ, H&W
2.5 Update zoning ordinance to require a full range of bicycle parking infrastructure within new developments, addressing specific use type needs from short-term outdoor parking to covered parking for weather protection to the security of bike lockers or indoor bike rooms.	N	PC, BOT, ESTF, OSI	II	PR $	IAQ
2.6 Investigating bringing EV car sharing to Scio Township in higher density areas.					
3: Reduce carbon emissions from outdoor power equipment.					
3.1 Educate residents about electric power equipment options.	N	ESTF, Staff	I	PR $	IAQ
3.2 Convert township operations' equipment to all-electric, including contractors.	N	ESTF/Utilities, Fire, PPP, BOT	I	CIP $$	IAQ

Mobility Metrics

Metric	Baseline	Goal
Vehicle Miles Traveled-gasoline (VMT)*	10,211 per person countywide in 2015 (WATS)	↓
Transportation to Work-Mode Share	74% drove alone 8% carpooled 2% public transit 2% walked <1% biked 1% other 13% worked at home (SEMCOG 2020 Community Profile)	Drove alone ↓ All others ↑
% Electric Fleet Vehicles	0% (2023: 13 vehicles)	↑
# EVs registered	1,409 MT CO2e (GHG Inventory-2018)	↑
Public EV Chargers	6 (at Meijer - 2 are DC)	↑
Annual Motor Vehicle Crashes	506 8 Fatal/Serious Injuries (2021 SEMCOG Community Profile)	↓
Miles of Multi-Use Pathways; total miles and miles of those separated from roadways	4.8 miles (Google Maps)	↑

PR= Programs/programming, **CIP**= Capital Improvement Projects,
CIP*= Capital projects with an ROI

$=	PR	0-$10K	CIP	0-$75K
$$=	PR	$10K-$30K	CIP	$75K-$200K
$$$=	PR	$30K-$120K	CIP	$200K-$500K
$$$$=	PR	>$120K	CIP	>$500K

GHG Reduction: Favorable= F, Neutral= N, Not Favorable= NF
GHG Reduction Potential: blank = none, I = some, II = medium, III = high
Values: Equity/Access= EQ/A, Health/Wellbeing= H/W, Economy= Econ, Natural Ecosystems= NE, Resilience= R
Other Benefits: IAQ = Improve Air Quality, IEQ = Improve Equity, IHW = Improve Health & Wellness, ILP = Increase Land Preservation, INE = Improve Natural Ecosystems, IR = Improve Resilience, ISQ = Improve Soil Quality, IWC = Improve Water Quality, WR = Waste Reduction

Vision

Our environment - air, water, land/ground/soil - is healthy for life to flourish here in Scio Township. Agricultural systems need to be non-polluting and regenerative, continually improving soil health and protecting water purity. A healthy local food program relies on such an agricultural system for nutrient-rich healthy fresh foods. Access to locally produced healthy food is essential to individual and community wellness. A thriving local food system provides strong environmental, economic, and social benefits to our community. Therefore, Scio nurtures local agricultural producers from small-scale home gardeners to small and large commercial farms in a way that supports sustainability for all residents

REGENERATIVE AGRICULTURE & LOCAL FOOD SYSTEMS

DEFINITIONS

Regenerative Agriculture

The long-term sustainability of agriculture and food production, whether food produced directly for people or food that is fed to animals, depends on healthy living soil. Since bacteria and mycelium, among other factors, play a key role in maintaining soil health and the ability of soil to feed the plants that feed people and animals, soil health must be continually respected, observed, and regenerated.

Local Food Systems

Regenerative agriculture is the first and most important step in forming a strong local food program. A local food system includes an expanding network of farms producing food for local consumption. There are many steps from farms to local citizens' plates, including processors, consolidators, direct on-farm and farmers' markets, distributors, and food retailers. And the systems that get fresh food from the farm to the table, must then include the systems that deal with the waste. A strong local food system provides economic benefits in jobs and economic welfare, It also provides increased food supply resilience by not having to rely on food produced far away, often in other distant countries. A local food system also provides the beauty of open space, and environmental benefits that come from a healthy ecosystem.

CURRENT STATE OF REGENERATIVE AGRICULTURE & LOCAL FOOD SYSTEMS

The following statistics need to be developed and maintained:

- According to (SEMCOG) 2015 Land Use and Land Cover GIS data 27.8% of Scio Land us used for agriculture.
- There are 2 PA 116 Enrolled Properties
- There are 11 Active Farms under permanent conservation easements within Scio.
- There are X farms on X acres based entirely in Scio Township.
- There are X farms based outside Scio Township but which work seven owned or leased land in Scio Township.
- Of Scio's farms, X of them could be called "small farm" operations, usually 40 or less acres and focusing on a broad range of products often marketed directly
- A review of township ordinances is need to determine which promote or re-strict the production, processing, and marketing of local foods.

PR= Programs/programming, **CIP**= Capital Improvement Projects, **CIP***= Capital projects with an ROI

$=	PR	0-$10K	CIP	0-$75K
$$=	PR	$10K-$30K	CIP	$75K-$200K
$$$=	PR	$30K-$120K	CIP	$200K-$500K
$$$$=	PR	>$120K	CIP	>$500K

Regenerative Agriculture & Local Food System

KEY:	Timeline N: 1-3 years M: 3-5 years L: 5 years +	Lead/Partners Who is the lead? Who are key Scio/Community partners?	GHG Reduction GHG emission I to III for emission reductions	Cost & Funding See Legend	Other Impacts
1. Develop Agriculture and Food System Policy					
1.1 Create an inventory of Scio's food system infrastructure, including large and smaller operations, including agricultural, processing and distribution.	N	ESTF, PC, WCCD	-	PR $	
1.2 Review of Scio ordinances to identify restrictions constraining local food production and distribution	N	PC, BOT	-	PR $	
1.3 Review policies for drainage, detention and controls to ensure that best practices in the agricultural sector are followed	N	HRWC	-	PR $	IWQ
1.4 Expand knowledge of local government and institutional resources regarding re-generative agriculture, land and distribution of production	M	U-M, MSU, EMU, WC, SOM	I	PR $	
2. Promote Regenerative Agricultural Practices					
2.1 Identify ecologically unsafe agricultural and production/processing practices within Scio and develop remediation policies and strategies	M-L	WC, MSU EXT, HRWC	I	PR $	IWQ
2.2 Connect farms to sustainable agricultural practices and humane animal husbandry resources	N	WC, MSU EXT, HRWC	I	PR $	ISQ
2.3 Develop local product distribution and food waste programs	L	WC, WCCD, Food Gatherers	II	PR $	
2.4 Review ordinances and update best practices to prevent environmental degradation, and restore and protect freshwater resources	N	PC, LPC, HRWC, WCWRC	-	PR $	IWQ
3. Develop Public Education and Support for local food					
3.1 Strengthen local composting efforts by creating a Scio sustainable composting site	M	ESTF, Project Gow, RAA	I	CIP S	
3.2 Identify and ncourage practices that will address and mitigate food waste in Scio businesses and residences	N	MSU EXT, GFL, RAA	I	PR $	
3.3 Develop a communication program to build resident awareness of the benefits of eating locally produced food, including where to obtain local foods.	N	MSU EXT, GFL, RAA	I	PR $	IHW
3.4 Promote Scio's Buy-Protect-Sell program among communities of potential farm families needing land for farming.	N	LPC	-	PR $	IE, ILP

GHG Reduction: Favorable= F, Neutral= N, Not Favorable= NF
GHG Reduction Potential: blank = none, I = some, II = medium, III = high
Values: Equity/Access= EQ/A, Health/Wellbeing= H/W, Economy= Econ, Natural Ecosystems= NE, Resilience= R
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RESOURCES/COSTS/TIMEFRAME

Resources include information and support systems already in place via federal (USDA, FSA, etc.), state (MDARD, MIFFS, MSU Ext., etc), and county (WCCD, WCEC) pro-grams, local institutional help via Uof M, EMU, WCC, and the wide knowledge that re-sides in Scio's citizens.

Resources needed from Scio Township will be human help needed to gather and monitor information per above and to continually disseminate information and encouragement to citizens that will hasten adoption of sustainable practices.

Regenerative Agriculture And Local Food Systems Metrics

Metric	Goal
Preserved agricultural land	↑
Number of farms practicing regenerative agriculture	↑
Number of farms run by young farmers	↑
Diversity of products farmed	↑
Number of local restaurants procuring locally grown products	↑

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Vision

Scio Township prioritizes the intrinsic value of clean water to the community's health and environment by promoting and achieving high water quality through best management and conservation practices, and resilient infrastructure. Scio has significantly reduced the impacts to our local waters from non-point source pollution, especially agricultural and lawn fertilizers, animal & human waste, sediment, and chemical contaminants specifically 1,4 dioxane and PFAS.

Mill Creek Sloan Preserve

WATER RESOURCES PROTECTION & HEALTH

DEFINITIONS

Water Resource Protection and **Health** address the quality and availability of our groundwater, surface water and municipal water.

Groundwater is water that exists underground in saturated zones beneath the land surface. The upper surface of the saturated zone is called the water table. Aquifers, hand-dug wells, and artesian wells are different types of groundwater sources.

Aquifers are replenished with water from the surface through a process called "groundwater recharge." This occurs as a part of the hydrologic cycle when water from rainfall percolates into underlying aquifers.

Surface Water is any body of water above ground, including streams, rivers, lakes, wetlands, reservoirs, creeks, and detention ponds.

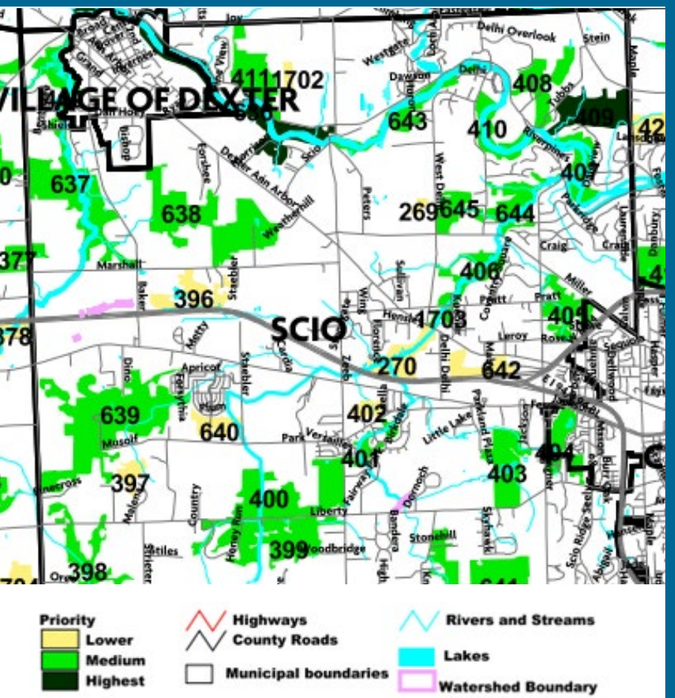
Municipal Water is centrally treated and distributed through pumping stations. Scio's municipal water is purchased from the City of Ann Arbor. Approximately 85% of this water comes from the Huron River and the remaining 15% from municipal wells. The treatment and conveyance of water is energy intensive.

Storm Water is water that falls during rain and snow storms. Storm water is managed with both formal systems and through the natural green infrastructure of the township. This issue will be discussed in the next section, Green Infrastructure & Ecosystem Health.

CURRENT STATE
of
GROUND WATER

GROUND WATER

Huron River Watershed Council has mapped critical ground water recharge areas. There are several highest priority and multiple medium priority areas. These areas should be of highest priority to protect and restore. Washtenaw County Water Resources Commission regulations prioritize techniques that reduce stormwater runoff by preserving natural systems including infiltration.



According to the Huron River Watershed Council, there are **several major sources of groundwater contamination**.

CLICK HERE to see the Bioreserve Map of Scio Township from the HRWC

FAILING SEPTIC SYSTEMS

Inspection of existing septic systems, managed by the Washtenaw County Health Department, is required upon a change of property ownership. Otherwise, there are no requirements that existing septic systems be inspected and maintained. As a result, aging septic systems contribute to both nutrient and bacterial contamination of our surface and groundwater.

The only community waste water facility in the township is the Loch Alpine Sewer Association (LASA) which is monitored by the State of Michigan. A community waste water facility has recently been approved by EGLE for a new senior living development, Heritage Woods, near Baker and I-94. These private facilities are required to have professional operators and have individual operation and monitoring plans reporting to the State of Michigan.

IMPROPER USE & Disposal of Household Chemicals

Household products that can catch fire, react, or explode under certain circumstances, or that are corrosive or toxic to people and animals require special care when you use and dispose of them. This Care prevents their hazardous ingredients from getting into our water, soil, and air where they can threaten public health. CLICK HERE to learn more.

IMPROPER USE & Disposal of De-Icing Salts

Road salt is an important tool for making roads, parking lots, driveways, and sidewalks safer during ice and snowstorms. But as the snow melts and becomes runoff, this salty water washes into our lakes, rivers, and streams. It has an especially quick and easy path to our waterbodies through curbside storm drains, which do not filter or treat runoff.

Increased levels of chloride from road salt and other de-icers in our freshwater systems are harmful or toxic to aquatic organisms. They damage or kill vegetation and makes drinking water unhealthy for people. CLICK HERE to learn more.

IMPROPER USE & Disposal of Garden Fertilizers & Pesticides

Phosphorus contributes to excessive aquatic plant growth, nuisance algal blooms and decreased oxygen levels in our freshwater lakes, rivers, and streams. Runoff from fertilized residential lawns is the primary source of phosphorus contaminants entering the Huron River. In urban settings, storm drains carry runoff to our waterways without filters or treatment. For waterfront properties, runoff can wash directly into the adjacent waterway. CLICK HERE to learn more.

CURRENT STATE of GROUND WATER

MICHIGAN LAW RESTRICTS THE APPLICATION OF FERTILIZERS CONTAINING PHOSPHORUS TO TURF GRASS (with limited ecxeptions).

OTHER SOURCES OF CONTAMINATION

- **Poorly Maintained & Improperly Abandoned Wells...**
  are potential pathways for bacterial and other contaminants entering the groundwater. Wells are permitted by Washtenaw County.
- **Natural Substances.**
  Evidence of contamination from natural substances such as sulfur and iron is found in the bad taste or odor of the well water, and stains on water fixtures.

1,4-DIOXANE

A large 1,4-dioxane plume is spreading beneath western Ann Arbor and Scio Township due to decades of pollution from the Gelman Sciences (now Pall Corp., a division of Danaher Corp.) facility on Wagner Road. A plume is an area underground where the dioxane is moving through soil or water.

The plume exists because dioxane does not stick to soil particles, so it can move from soil into groundwater and eventually reach surface water. The plume likely originated around 1966 when Gelman began using dioxane in their manufacturing process.

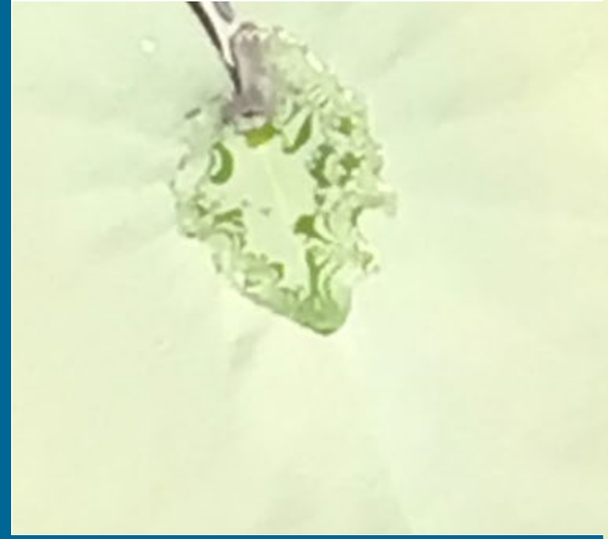
Due to concerns about potential movement of the 1,4-dioxane plume to residential areas located north of M-14, Scio Township has completed three rounds of sampling that expand on the state-funded program and use Method 522, a US Environmental Protection Agency analytical method that detects 1,4-dioxane down to 0.12 ppb.

In 2016, Scio Township, Ann Arbor Township and the Sierra Club petitioned the US Environmental Protection Agency (EPA) to evaluate the site for the National Priorities List.

Scio Township participates in the Coalition for Action on Remediation of Dioxane (CARD) which is a partnership of local governments and citizens that looks at strategies for addressing the groundwater contamination from the industrial solvent 1,4-dioxane, released by Gelman Sciences, Inc. The groundwater contamination has expanded in Washtenaw County to an area over three miles long and one mile wide.

More information and maps can be found HERE.

CURRENT STATE
of
SURFACE WATER



SURFACE WATER

A watershed embodies all the life-sustaining connections and interconnections needed for clean water. First among these is the fundamental and inseparable connection between water and land.

Scio Township is a member of the Upper Middle Huron River Watershed and collaborates with the Huron River Watershed Council (HRWC), which monitors and reports on the health of the entire watershed. Scio Township lies within the Boyden, Honey and Mill Creeksheds.

The overall health of these resources as compiled by the HRWC:

BOYDEN CREEKSHED	HONEY CREEKSHED	MILL CREEKSHED
Overall Score: 53/100	Overall Score: 54/100	Overall Score: 71/100
Report HERE	Report HERE	Report HERE

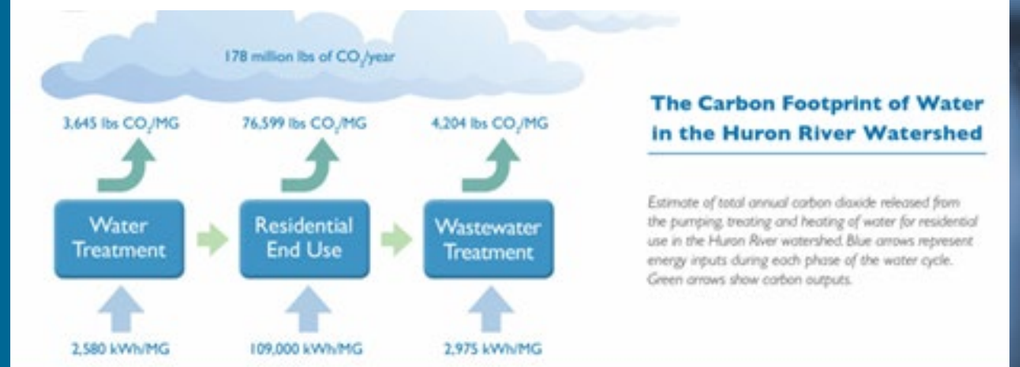
Scale Key: 75-100: Healthy to Pristine; 50-74: Impacted to Slightly Impacted; 25-49: Highly Impacted; 0-24: Extremely Disturbed

THE HURON RIVER WATERSHED COUNCIL LISTS THE FOLLOWING THREATS TO THE WATERSHED:

Threats	
Hexavalent Chromium	Dams and Impoundments
PFAS and the Huron River	Invasive Species
Climate Change	Development Impact
1,4 Dioxane	Flooding
Non-point Source Pollution (Stormwater Runoff)	Groundwater Contamination
Bacterial Contamination	Impaired Waterbodies
Soil Erosion and Sedimentation	Coal Tar
Microplastics Pollution in the Huron River	

https://www.hrwc.org/pfas-found-in-fish-throughout-huron-and-rouge-river-watersheds/

CURRENT STATE of MUNICIPAL WATER



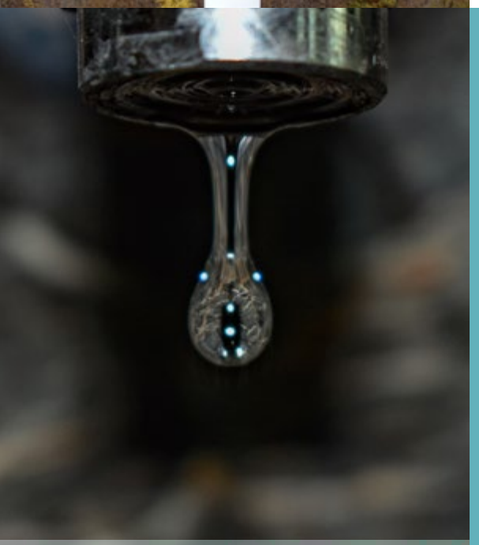
The Carbon Footprint of Water in the Huron River Watershed

Estimate of total annual carbon dioxide released from the pumping, treating and heating of water for residential use in the Huron River watershed. Blue arrows represent energy inputs during each phase of the water cycle. Green arrows show carbon outputs.

EQUIVALENT TO ANNUAL EMISSIONS OF 17,000 PASSENGER VEHICLES

Water/Energy Numbers

- 13% of the nations electricity consumption is associated with water use
- Energy to run faucet for 5 min is equal to that needed for 14 hours of 60-watt light bulb
- 50% of total energy consumed by City of Ann Arbor goes to drinking water and wastewater treatment
- In Michigan 17% of all residential energy use goes to heating water. Third after space heating and cooling.
- 5% of nations overall CO_2 emissions come from energy used to move, treat and use water. Equivalent of CO_2 produced annually by 53 million cars.



www.epa.gov/watersense

MUNICIPAL WATER

Higher density residential and many commercial areas of the township are served by the community's Water and Sewer District. Scio's water system postdates the use of lead pipes, however lead solder was used until banned in 1986. Water is purchased from the City of Ann Arbor an issues an annual quality report: Annual Quality Report.

INDOOR Water Efficiency

The Environmental Policy Act of 1992 mandated maximum water consumption for toilets at 1.6 gallons per flush (gpf), urinals at 1.0 gpf, faucets at 2.5 gallons per minute (gpm) and 2.5 gpm for showerheads. According to a 2011 **study** in the Journal of the American Water Works Association, by 2008 a typical single-family household used 32 fewer gallons of water every day than an identical household in 1978, largely due to more efficient plumbing. However, technology continues to improve and building and home owners are encourage to use WaterSense labeled products to maximize water conservation.

EPA Water Sense | Smart Outdoor Practices

OUTDOOR Water Efficiency

The average American family of 4, uses 320 gallons of water per day, about 30 percent of which is devoted to outdoor uses. More than half of that outdoor water is used for watering lawns and gardens. Nationwide, landscape irrigation is estimated to account for nearly one-third of all residential water use, totaling nearly 9 billion gallons per day.

Outdoor water efficiency starts with the landscape itself. The soil, slopes, plantings, and placement and plant selection can make the difference between a water-smart landscape and irrigation dependency. The best landscape design requires no irrigation after the first year of establishing plantings.

WATER PROTECTION, RESORATION & CONSERVATION	Initial Cost	Department/ Potential Partners	GHG Reduction	Cost & Funding	Other Values Benefited
KEY:	N: 1-3 years M: 3-5 years L: 5 years +	Who is the lead? Who are key Scio/Community partners?	GHG emission I to III for emission reductions	See Legend	
1. Review and expand township ordinances & policies					
1.1 Ensure that best and leading low impact practices are required and being implemented for new developments	N	PC, WCWRC	I	PR $	IWQ, INE
1.2 Consider an ordinance overlay to protect designated recharge areas and ensure development does not extend the Gelman plume.	N	PC, BOT		PR $	IWQ
1.3 Update ordinances to require updating storm water management at the time of building or site renovation.	N	PC, BOT		PR $	IWQ IR
1.4 Update ordinances to require storm water management for single family home construction	N	PC, BOT		PR $	IWQ, IR
1.5 Map current areas of flooding and develop a plan to address the issues and predict future issues	M	WCWRC, PC		PR $	IR
1.6 Obtain 3rd party to advise the township on Community Waste Water Facility proposals and the the long-term health and well-being of the Township and its residents.	N	PC, BOT		PR $	IWQ
1.7 Work with the Road Commission to complete a road capacity analysis, or have the Township conduct one to evaluate capacity and drainage.	M	BOT, CWRC, RAC		PR $	IWQ
2. Engage residents, businesses & HOAs in water protection, restoration & conservation					
2.1 Encourage the installation of Water Sense plumbing fixtures throughout the township	ongoing	ESTF	I	PR $	
2.2 Develop and promote an education program to encourage water conservation for residential, commercial, institutional and municipal sectors.	ongoing	WCWRC, BOT	I	PR $	IWQ, IR
2.3 Promote rain gardens and work with the WCWRC to improve existing storm water management systems across the township.	ongoing	ESTF, WCWRC, WCCD	I	PR $	IWQ, INE
2.4 Reduce the use of potable water on large, open grassy areas such a golf courses and landscaped yards	ongoing	ESTF, HRWC	I	PR $	IWQ
2.5 Educate residents and builders about the locations and sizes of groundwater recharge areas and review zoning ordinances and other land use requirements to ensure that the recharge areas are protected.	ongoing	ESTF, PC		PR $	IWQ

WATER PROTECTION, RESORATION & CONSERVATION	Initial Cost	Department/ Potential Partners	GHG Reduction	Cost & Funding	Other Values Benefited
KEY:	N: 1-3 years M: 3-5 years L: 5 years +	Who is the lead? Who are key Scio/Community partners?	GHG emission I to III for emission reductions	See Legend	
3. Prevent and Clean up Groundwater contaminents					
3.1 Work with and support the Coalition for Action on Remediation of Dioxane (CARD), a partnership of local governments and citizens that look at strategies to address the groundwater contamination from 1,4-dioxane, released by Gelman Sciences, Inc	ongoing	CARD, EPA, EGLE		PR $$	IWQ
3.2 Continue to provide Method 522 testing of private wells within the designated plume area where the Dioxane is spreading. This method detects the presence of Dioxane down to .2ppb.	ongoing	BOT		PR $$	IWQ
3.3 Work closely with HRWC and promote their programs	ongoing	HRWC		PR $	IWQ
3.4 Collaborate with the City of Ann Arbor in implementing their Source Water Protection Plan	ongoing	HRWC, AA		PR $	IWQ

PR= Programs/programming, **CIP**= Capital Improvement Projects,
CIP*= Capital projects with an ROI

$=	PR	0-$10K	CIP	0-$75K
$$=	PR	$10K-$30K	CIP	$75K-$200K
$$$=	PR	$30K-$120K	CIP	$200K-$500K
$$$$=	PR	>$120K	CIP	>$500K

GHG Reduction: Favorable= F, Neutral= N, Not Favorable= NF **GHG Reduction Potential:** blank = none, I = some, II = medium, III = high

Values: Equity/Access= EQ/A, Health/ Wellbeing= H/W, Economy= Econ, Natural Ecosystems= NE, Resilience= R
Other Benefits: IAQ = Improve Air Quality, IEQ = Improve Equity, IHW = Improve Health & Wellness, ILP = Increase Land Preservation, INE = Improve Natural Ecosystems, IR = Improve Resilience, ISQ = Improve Soil Quality, IWC = Improve Water Quality, WR = Waste Reduction

Water Protection, Restoration, And Conservation Metrics
Metric
Implement an existing Septic field inspection program
Contaminant prevention and clean up especially containing and cleaning up the Gelman Plume
Actual REU use by building type reduced by 20% from current calculations
Reduce and ultimately eliminate landscape irrigation

Vision

Scio Township is home to healthy natural ecosystems supporting clean air, water quality, soils, and resident wellness, as well as reducing energy use in buildings, urban heat islands and mitigating the impacts of climate change. Commercial, municipal and residential properties have completed sustainable and resilient land development and restoration projects using nature-based solutions.

Scio Nature Walk

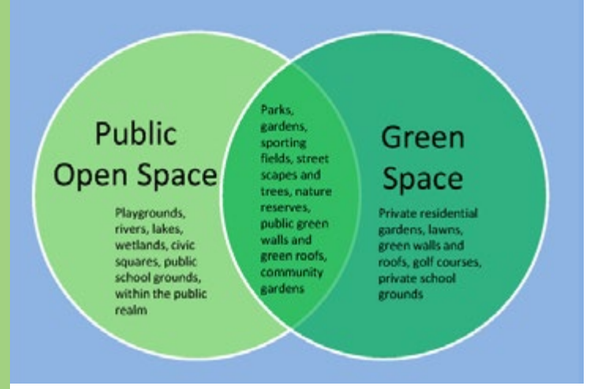
GREEN INFRASTRUCTURE & NATURAL ECOSYSTEM HEALTH

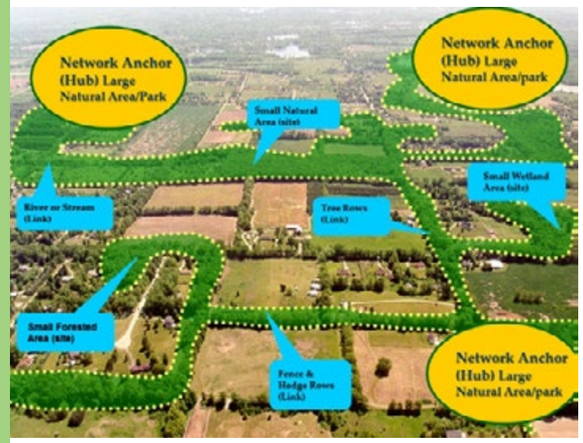
DEFINITIONS

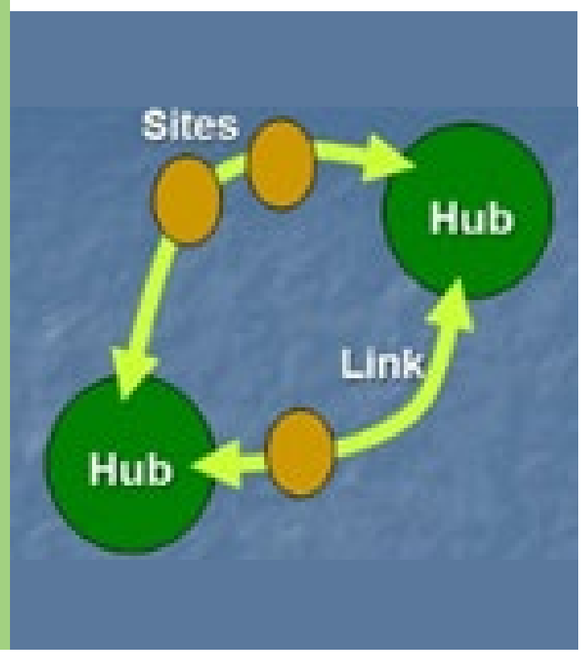
The natural ecosystem is a community of living and non-living organisms, where each component interacts together as a unit through biological, physical, and chemical processes. The distinctiveness of natural ecosystems is that they are purely natural and their formations are not in any way influenced by human activity. The components enabling the interactions that make up the natural ecosystems include soil, plants, sunlight, air, water, microorganisms, and animals. Examples of natural ecosystems are forests, mountains, rivers, etc.

Human-Made or Artificial Ecosystems develop when human beings modify the already existing ecosystem to meet their purpose or create an ecosystem of their own that mimics the natural condition, those are called artificial ecosystems. Examples of this type of ecosystem include aquariums, crop fields, gardens, dams, etc.

One of the main differences between natural and artificial ecosystems is that the latter requires constant attention as they are not self-sustainable.







GREEN SPACES

Green Spaces are any vegetated areas of land or water within or adjoining an urban area. The quality of green space makes a dramatic difference in its environmental benefit. It is also important that these green spaces are linked to a network of natural areas.

GREEN INFRASTRUCTURE

Green infrastructure is designed to manage stormwater and help it infiltrate into the ground instead of directing runoff into the stormwater system. CLICK HERE to learn more.

Traditional stormwater management such as gray infrastructure (also called structural) uses conventional pipe drainage and water treatment systems that are designed to move stormwater away from where it falls as quickly as possible.

Green Infrastructure uses plants, soils, and other elements and practices to manage water and filter pollutants close to where it falls. Infiltration protects surface water quality and reduces flooding downstream.

Stormwater runoff is a major cause of water pollution in our local rivers and lakes. Green infrastructure reduces and treats stormwater at its source while providing economic, environmental, and social benefits.

THE HONEY CREEK WATERSHED IN SCIO TWP. HAS UNDERGONE SIGNIFICANT SUBURBAN DEVELOPMENT.

Over 15% of this watershed incorporates impervious surfaces.

The accumulation of silt (siltation) on the creek bottom tells us that the creek is receiving large amounts fo runoff during heavy rainfall.

Impermeable surfaces such as concrete, asphalt and compacted soils do not allow water to infiltrate. In watersheds with a lot of impermeable surfaces, stormwater races downhill, gathering speed and picking up dirt and debris along the way. If storm drains become clogged with that debris, the stormwater has nowhere to go, and flooding occurs.

Large floods are uncommon in watersheds where open spaces and permeable surfaces like fields and parks allow water to infiltrate, or where there are wetlands that buffer flood effects. Communities that want to reduce flooding know they must slow down the runoff and increase the number of permeable surfaces in their developments. They can do this by incorporating green infrastructure into planning and design of their neighborhoods, business districts, and transportation and drainage systems. In this way, a nuisance – stormwater – becomes valuable resource that nourishes parks and other green spaces.

Why are Green Infrastructure & Natural Ecosystem Health Important?

Green infrastructure is designed to manage stormwater and help it infiltrate into the ground instead of directing runoff into the stormwater system. Traditional stormwater management such as gray infrastructure uses conventional pipe drainage and water treatment systems that are designed to move stormwater away from where it falls as quickly as possible.

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Greenspace, plays a central role in supporting community health, improving air, soil, and water quality, reducing energy use in buildings, and supporting climate-change mitigation. Greenspace includes any permeable vegetated surface, public or private, set apart for recreational, aesthetic, or ecosystem services. It is space set aside for providing life-essential benefits people and other living things obtain from properly-functioning ecosystems.

NATURAL AREAS PROVIDE HABITAT FOR MANY ANIMALS & PLANTS, LIKE THIS LEOPARD FROG.

ENABLE CARBON SEQUESTRATION

Within a greenspace carbon sequestration is sometimes referred to as biological or terrestrial sequestration. Plants convert carbon dioxide into biomass (leaves, stems, etc.) through photosynthesis and with a greater amount of greenspace, the more CO2 will be removed from the atmosphere

MITIGATE STORMWATER INFILTRATION & FLOOD MITIGATION

Greenspace helps protect from flash flooding by absorbing water through roots and slowing down rainwater run-off. Native plants have deep roots that can also mitigate erosion and can filter the water through Phyto filtration.

REDUCE THE URBAN HEAT ISLAND EFFECT

The more vegetated greenspace in a community, the better the cooling effects. High levels of impervious surfaces (a surface that does not allow water to infiltrate such as pavement and buildings) results in an increased urban heat island effect, which elevates the temperature of the near-surface air, buildings, and pavement higher than the surrounding areas. Ideally, a greenspace would contain the vertical architecture, or levels of a natural forest (canopy, understory, and shrub, herbaceous, and ground layers).

ENHANCE SOIL BIOLOGY

Soil is a vital living ecosystem teaming with microorganisms (bacteria, protozoa, fungi) and macroorganisms (worms, beetles, bees) that work symbiotically to break down carbon-rich organic matter and release nutrient-rich waste into the soil (carbon, phosphorus, nitrogen). In fact, it is estimated that soil is home to about one third of all Earth's living organisms! Additionally, just as importantly, soil can absorb and hold rainwater and filter potential pollutants, and the biomass (organic matter) within the soil can sequester CO2.

IMPROVE HUMAN HEALTH

In addition to the countless ecosystem services greenspace provides, it is also good for humans. Actions as ordinary as going outside, looking out a window, or simply looking at one tree can increase our mood and reduce stress. In fact, recently, our understanding of the human value of greenspace has been expanded to include mental and physical health benefits, such that some doctors have even started prescribing parks as a remedy to patients' health issues.

PURIFY & HUMIDIFY THE AIR

Plants purify the air when the plants absorb light, carbon dioxide, and water to manufacture sugar. That chemical process, known as photosynthesis, creates fresh oxygen, which in turn purifies the air for humans and other animals.

SUPPORT POLLINATORS

Animal species that pollinate plants, termed pollinators, carry pollen, either accidentally or intentionally, from the male part of a flower to the female part of the same or another flower. This pollen transfer must occur for the plant to be fertilized and produce seeds, fruits, or young plants. These pollinators are needed to pollinate 90% of flowering plants and one third of our food crops and they also contribute to the intricate web that supports the biological diversity in natural ecosystems

CURRENT STATE of GREEN INFRASTRUCTURE AND NATURAL ECOSYSTEM HEALTH

SCIO TOWNSHIP'S CURRENT LAND USE

Table 1 - Land Use

Land Use	Acres 2020	Percent 2020
Agriculture	5,513	27.8%
Single-family Residential	4,399	22.2%
Multiple-family residential	77	0.4%
Commercial & Office	604	3.0%
Industrial	542	2.7%
Extractive & Barren	133	0.7%
Institutional	241	1.2%
Cultural, Outdoor recreation & Cemetery	541	2.7%
Telecommunications and Utilities	89	0.4%
Under Development	-	0.0%
Grassland & Shrub	910	4.6%
Woodland & Wetland	6,753	34.1%
Water	28	0.1%
Total	19,830	100.0%

Source: SEMCOG 2015 Land Use/Land Cover GIS Data

NOTE: This is existing land use vs zoning

FUTURE LAND USE (FROM THE 2021 MASTER LAND USE PLAN)

63% TO BE OPEN SPACE, AGRICULTURAL, RECREATION & CONSERVATION.

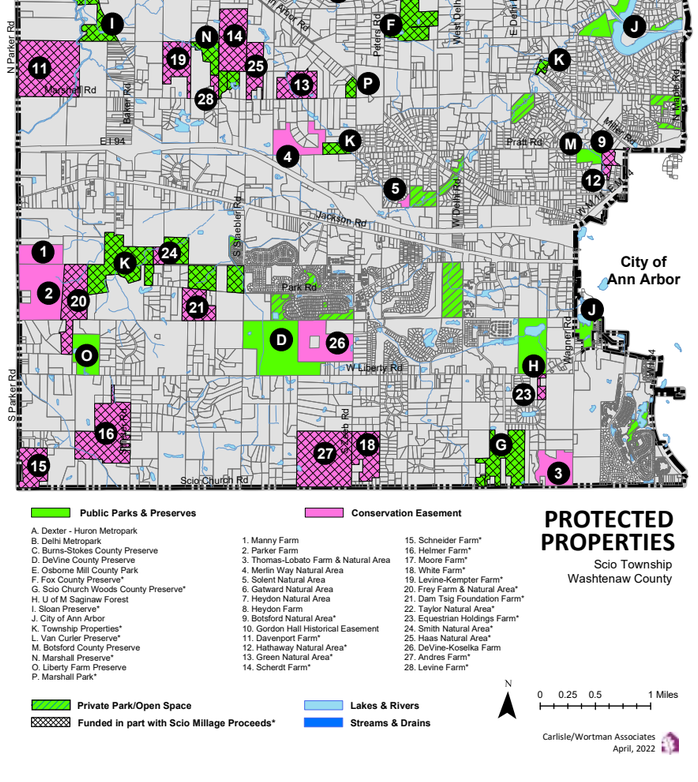
Category	Planned Acreage	Percentage
Open Space, Agricultural and Rural Residential	6,488	35%
Low Density Residential	3,543	19%
Medium Density Residential	364	2%
High Density Residential	834	4%
Recreation/Conservation	5,172	28%
Mixed Use Commercial	495	3%
Composite Commercial	125	1%
Mixed Use Highway Commercial	125	1%
Mixed Use Office/Industrial	598	3%
Office/Industrial	712	4%
General Industrial	66	0%
Unmarked	144	1%
Total	**18,666**	**100%**

LAND USE IN SCIO TOWNSHIP

Human activities coupled with natural variations in the carbon cycle, have resulted in a significant increase in the concentration of carbon dioxide (CO_2) and other "greenhouse gases" in the atmosphere, thus causing measurable global warming. Controlling atmospheric CO_2 requires deliberate action that combines reducing emissions and increasing storage, while planning for adaptation to the changes that result. Greenspace protection and enhancement is one of the most important avenues for lowering our environmental footprint.

Land Use in Scio Township is planned through the Master Land Use Plan, which is reviewed every 5 years. Scio uses this planning tool and the boundaries of the water and sewer district to direct higher density mixed use development to areas along the Jackson Road Corridor and I-94 highway intersections with arterial roads. The 2021 Master Plan recognized the need for higher density multifamily housing in this area and allowed it as a single use.

LAND PRESERVATION IN SCIO TOWNSHIP



PROTECTED PROPERTIES
Scio Township
Washtenaw County

The Scio Township Land Preservation Millage has been acting to preserve critical land and open spaces throughout the community since 2004. The millage was renewed in 2012 through 2024 and is intended to: Permanently preserve farmland, open space, wildlife habitat, scenic views, and protect drinking water sources and the water quality of rivers and streams, and provide new parks, recreational opportunities, and trails by funding the voluntary purchase of land or interests in land throughout the Township (Approved Millage Text Language, www.sciotownship.org).

CURRENT STATE
of
GREEN INFRASTRUCTURE AND NATURAL ECOSYSTEM HEALTH

TRACKING CHANGES IN SCIO TOWNSHIP LAND COVER THAT MAY AFFECT SUSTAINABILITY

Two types of land cover that often influence the sustainability of landscapes are tree canopy cover and impervious surfaces. Moreover, as tree canopy cover decreases impervious surfaces may increase. Detecting changes in Tree Canopy, as discussed earlier in the plan, are typically very important factors when considering how to mitigate negative changes in climate, as described in other parts of this section of the plan. SEMCOG statistics for nearly this time period (shown in the table below) suggest that the area covered by Impervious Surfaces has not changed much, while the area occupied by Tree Canopy has expanded by 14%. As a result, the area in Tree Canopy after the change is now estimated at over half the total area of the township (see table below).

Scio Township Change in Tree Canopy and Impervious Surfaces

Based on SEMCOG data 2010-2022

2010		2022		CHANGE
Tree Canopy	**37%**	Tree Canopy	**51%**	+ 14%
Impervious Surfaces	**11%**	Impervious Surfaces	**10%**	- 01%

Interestingly, such changes do not appear to have occurred the in the covered by tree canopy in google earth photos of the township for about the same time period (see figure below).

2011 and 2022 Natural Color Google Earth Photographs of Scio Township

2011 **2022**

Comparing the Google Earth images side-by-side, it is easy to see that quite a bit of forest has been removed in the central and northeast areas of the township above Jackson Road (dark green (2011) to lighter green (2022)). Closer inspection reveals new roads, driveways and roofs in these areas. Since the latter are impervious surfaces, it seems like a loss of forest replaced to some degree by impervious surfaces has occurred. Because of the importance of knowing the real changes in the Tree Canopy and Impervious Surfaces, we will double check the accuracy of the 2022 SEMCOG land cover map and statistics. We propose to accomplish this by comparing 2022 land cover mapping results generated by processing 2022 Sentinel 2 satellite multispectral data to calculate independent estimates of the Tree Canopy and Impervious Surfaces areas. We will coordinate our findings with SEMCOG.

CURRENT STATE of GREEN INFRASTRUCTURE AND NATURAL ECOSYSTEM HEALTH

The 2023 - 2027 Scio Township Parks, Recreation, and Open Space Master Plan (aka the PROS Plan) articulates a vision for parks and recreation in Scio Township.

BREAKDOWN OF PARKS AND PRESERVE LAND USE FROM THE PROS PLAN

Type of Park	NRPA Standard (Per 1000 pop.)	Required (Based on 17,552 population)	Existing	Deficiency / Surplus
Close-to-home Parkland	6.25 - 10.5 acres	109.4 - 183.8 acres	405 acres	221.2 acre surplus
Regional Parks	15 - 20 acres	262.5 - 350 ac.	729 acres (within Township)	379 acre surplus
Conservancy Land Holdings	n/a	n/a	2,034.9 acres	n/a
Private Recreation Facilities	n/a	n/a	174 acres	n/a

Scio Township's Zoning Ordinance has served to encourage open space and best storm water management practices, but needs a sustainability lens update to employ current research and in limiting impervious surfaces, canopy protection, invasive species, and landscape planning. All township owned properties should lead by example. Scio Fire will be installing a native landscape in conjunction with its solar installation.

Scio has banned the use of high PAH pavement sealers, including coal tar-based sealers, but more education is needed in the community to curb their use.

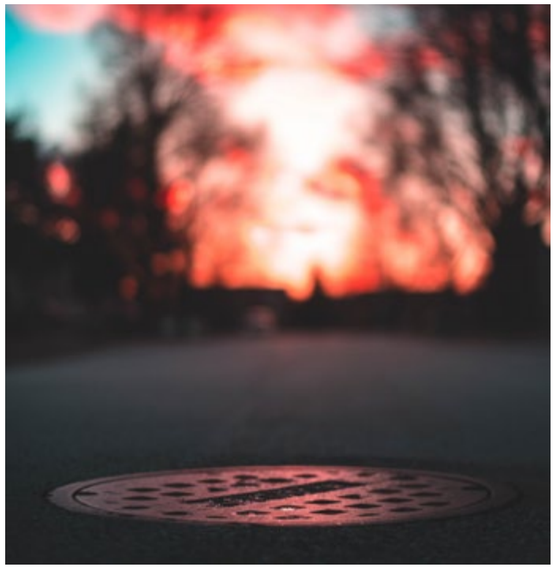
STORMWATER MANAGEMENT GAPS

In the 1970s storm water management shifted from "draining swamps" to focusing on water quality. The 1980s saw more stormwater regulations, mostly focused on detention ponds. Scio Township began working with the Washtenaw County Water Resources Commissioner (WCWRC) to review development proposals in the mid-1990s. Current practice has moved from detention ponds to planted infiltration basins, better known as rain gardens and bioswales, with a goal of water quality and returning more storm water to aquafers.

Several older developments built before the standards went into effect, have recurring flooding. In addition, while there are storm water management requirements for new roads, single family home building outside of planned subdivions have no requirements.

Most, but not all, storm water drainage structures along county roads fall under the Washtenaw County Road Commission's (WCRC) jurisdiction. Sediment, salts, oils etc. typically wash off the road and into storm drains or ditches that discharge into creeks and streams.

Private developers and individual property owners have responsibility for private storm water systems. These systems are not always maintained.



Greenspace & Natural Ecosystems	Timeline	Lead/Partners	GHG Reduction	Cost & Funding	Other Values Benefited
KEY:	N: 1-3 years M: 3-5 years L: 5 years +	Who is the lead? Who are key Scio/ Community partners?	GHG emission I to III for emission reductions	See Legend Below	
1. Expand, restore, and preserve green space and natural ecosystems					
1.1 Prepare and implement a plan to restore natural ecosystems and increase the tree canopy, eliminate evasive speacies, and reduce the amount of unused turf areas on township property.	N	BOT, PPP	II	PR $, CIP $$	INE, IWQ
1.2 Review Scio ordinances to increase protection of existing natural features, especially old growth trees, designated bioreserve areas and remove invasive species	N	PC, BOT	II	PR $	INE
1.3 Update Scio ordinances to reduce turf grass & encourage native plantings	N	PC, BOT		PR $	IWQ, INE
1.4 Acurately measure and improve key metrics (set a 2035 goal)	N	PC	II	PR $	INE
1.5 Develop & implement a tree planting policy for the tree fund	N	PC, PPP	I	PR $	INE
1.6 Increase the number of households with walkable access to parks and preserves	M	LP, PPP			INE
2. Promote Public Education and Support for greenspace and natural ecosytem expansion restoration and preservation					
2.1 Encourage residents, businesses and HOAs to decrease their unused turf grass areas and increase their tree canopy	M	DDA, MSU EXT, WCCD	I	PR $	IWQ, INE
2.2 Develop a communication program to increase awareness of the benefits of native landscaping, including rain gardens and prairies	N	MSU EXT, WCCD		PR $	IWQ, INE
2.3 Promote Scio's Parks and Preserves as living laboratories for natural ecosystems	ongoing	PPP	I	PR $	IWQ, INE
2.4 Hold a teach-in on land-use highlighting the importance of reducing impervious surfaces and increasing tree canopy.	N	PC	I	PR $	NE R

PR= Programs/programming, **CIP**= Capital Improvement Projects,
CIP*= Capital projects with an ROI

$=	PR	0-$10K	CIP	0-$75K
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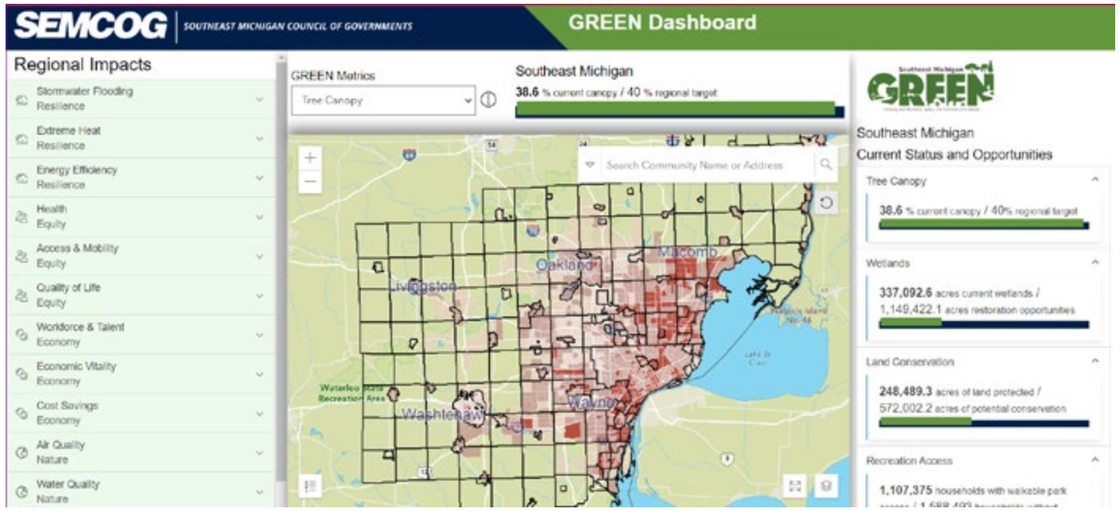
Other Benefits: IAQ = Improve Air Quality, IEQ = Improve Equity, IHW = Improve Health & Wellness, ILP = Increase Land Preservation, INE = Improve Natural Ecosystems, IR = Improve Resilience, ISQ = Improve Soil Quality, IWC = Improve Water Quality, WR = Waste Reduction

Green Infrastructure And Natural Ecosystem Health Metrics

Metric	Baseline	Goal
Agricultural land	11,722 acres	Maintain in production/increase regenerative practices
Permanent Conservation (includes ag, parks & preserves)	3,222 acres	Increase by 10-15%
Tree canopy coverage	51.7%	Increase to achieve equity; improve quality
Impervious Surfaces	10%	Any increase managed by green infrastructure
Current Wetlands	1,998 acres	Increase through restoration by 30%
Wetland Restoration Opportunity	4560 acres	Decrease through restoration
Recreation Access (walkable)	907/3753 households	Increase - all R-1 & multifamily areas w/walkable access



SEMCOG GREEN DASHBOARD

Note: Scio should verify SEMCOG data through Satellite Analysis to determine our baselines and change over time more accurately.

Vision

Scio Township's vision includes reducing solid waste sent to landfills through a commitment to composting, a strong emphasis on reusing and recycling used materials, reclaiming cut trees and waste lumber, and making the township a center for reclamation of reusable construction materials. This will reduce the overall carbon footprint of all products involved, as well as enriching Scio's soil and boosting the local economy.

Materials, Waste, & Circular Economy

DEFINITION

The Materials, Waste, and Circular Economy sector focuses on how the community handles its waste streams and all the ways it works to reduce them. Included here are landfill use, recycling opportunities, reuse of materials, composting programs, along with initiatives, programs, and partners to help make the best possible use of municipal solid waste (MSW) rather than sending it to the landfill.

Sending so many of our resources to landfills, rather than being reused or recycled, creates a host of problems. For example, the EPA estimates that landfills emitted over 84 million metric tons of greenhouse gases (GHG) nationally in 2021, fueling climate change. Other issues include all the resources used to make new products, including GHG emitted in the manufacturing process, land used for landfills that could otherwise be preserved or productively developed, and lost soil nutrients when food waste is not composted.

Per a new state law, all Michigan counties will be required to create a plan for improved recycling and composting of solid waste, with the goal of increasing the state's recycling rate from its current 19 percent to 45 percent by 2030. Scio Township has the opportunity to be a pacesetter for this effort by taking the initiative on improving its solid waste management and working with other local organizations to spread improvement practices throughout Washtenaw County.

Scio Township will reduce local waste through increased composting education and opportunities for both residents and businesses, including community composting; filling in the gaps in our current recycling programs so that all recyclable materials are actually recycled; encouragement of a local marketplace for reusable items, with special emphasis on lumber products from trees harvested during land development projects; and establishing an Industrial District of new businesses for processing and re-use of recycled materials.

CURRENT STATE OF MATERIALS, WASTE & CIRCULAR ECONOMY IN SCIO TOWNSHIP

Solid Waste Management

- Scio Township has contracted with GFL for waste-hauling services since 2021, including curbside recycling for single-family homes as well as yard waste collection. Multi-family housing and businesses may not receive recycling services. Over a third of Scio residents surveyed support more access to recycling in the township.
- Washtenaw County's Home Toxics Center, located in Scio, is a county-wide household hazardous waste program accepting many items for reuse, recycling, or safe disposal.
- The Recycle Ann Arbor Recovery Yard, Michigan's only non-profit construction and demolition recycler, is located in Scio Township.

Composting Efforts

- Over a third of Scio residents surveyed currently compost at home, and a similar proportion would support a community composting program.
- Project Grow is a local nonprofit that sets up and manages community gardens. There is an opportunity to partner with them for a similar setup in Scio Township.

Special Considerations for Scio

- Due to Scio's rural character and its relatively fast rate of development, there is a great opportunity to reclaim lumber and other lumber products such as mulch from timber that is cut during the land development process as well as during building construction and demolition. There are also businesses taking the lead in providing the market for these products, such as Urban Ashes.
- Scio is home to a number of businesses and non-profits which create a market to buy, sell, and trade items for reuse.

MATERIALS, WASTE & CIRCULAR ECONOMY

KEY:	Timeline N: 1-3 years M: 3-5 years L: 5 years +	Lead/Partners Who is the lead? Who are key Scio/Community partners?	GHG Reduction GHG emission I to III for emission reductions	Cost & Funding See Legend	Other Impacts
1. Increase Township & Community Composting					
1.1 Increase Township resident awareness of the benefits of composting for personal and community gardens	N	Project Grow, ESTF	I	PR $	H&W
1.2 Encourage local businesses that generate food waste to compost some or all of it instead of sending it to the landfill	N	ESTF		PR $	WR
1.3 Establish community compost collection site(s)	M	ESTF, BOT, PC, RAA	I	PR $S	WR
1.4 Establish community composting site and program	M-L	ESTF, WCCD, Project Grow	I	PR $S	WR
2. Increase Township and Community Recycling and Re Use					
2.1 Identify local groups and businesses that sell or swap used items that have value to others and educate Township residents on this process	N	ESTF, Staff	II	PR $	WR
2.2 Secure a contract with RAA/GFL to fill in gaps in areas covered, and items collected that are not currently handled by GFL. This includes a separate contract with Scio Farms Estates.	N-L	RAA, BOT, ESTF, WRRMA	II	PR $$	WR
2.3 Identiy small local businesses that are not currently recycling and encourage participation in above program	N-L	ESTF,DDA, Staff	II	PR $	WR
2.4 Work with Recycle Ann Arbor Recovery Yard on Jackson Rd to establish an Industrial District of new businesses for processing and re-use of materials that would otherwise be headed to the landfill	M-L	RAA, BOT, ESTF, WRRMA	II	PR $	WR
2.5 Work with the BOT and the PC to write Ordinances for mandating recycling of demolition and construction waste in plans that come up for approval	M	ESTF, PC, RAA	II	PR $	WR
2.6 Work with the Township staff to add a search capability to include our reuse and recycle partners so that Scio residents can find used items and determine where to take their used items	M	ESTF, Staff	II	PR $	WR
3. Increase local production of lumber from development & township tree cutting					
3.1 Identify local partners who would perform generate lumber from cut trees	M	ESTF Urban Wood Network	I	PR $	
3.2 Work with the Board of Trustees (BOT) and the Planning Commission (PC) to write Ordinances for mandating harvesting of trees, rather than merely allowing removal, in plans that come up for approval	M-L	ESTF, PC, BOT	I	PR $	
3.3 Set up a marketplace for harvested trees and for reusable construction materials	M	ESTF, Urban Wood Network	I	PR $	

Materials, Waste, & Circular Economy Metrics

Metric	Baseline	Goal
Tree removal usage	Firewood & mulch	Boards. lumber, firewood & mulch
Home & business recycling	65% household + 50% business recycling	80% household + 75% business recycling
Composting	25% household + 15% business composting	75% household and business composting
ReUse	Multiple Thrift Shops. Scio has the largest number of such facilities in the county.	Encourage and educate residents and businesses.

PR= Programs/programming, **CIP**= Capital Improvement Projects,
CIP*= Capital projects with an ROI

$=	PR	0-$10K	CIP	0-$75K
$$=	PR	$10K-$30K	CIP	$75K-$200K
$$$=	PR	$30K-$120K	CIP	$200K-$500K
$$$$=	PR	>$120K	CIP	>$500K

GHG Reduction: Favorable= F, Neutral= N, Not Favorable= NF **GHG Reduction Potential:** blank = none, I = some, II = medium, III = high

Values: Equity/Access= EQ/A, Health/ Wellbeing= H/W, Economy= Econ, Natural Ecosystems= NE, Resilience= R
Other Benefits: IAQ = Improve Air Quality, IEQ = Improve Equity, IHW = Improve Health & Wellness, ILP = Increase Land Preservation, INE = Improve Natural Ecosystems, IR = Improve Resilience, ISQ = Improve Soil Quality, IWC = Improve Water Quality, WR = Waste Reduction

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Vision

Scio Township sees a future in which residents, land, and resources are protected from the worst effects of extreme weather events and other emergencies. This will be accomplished through proactive planning and action to harden utilities, prevent or mitigate flooding, manage open spaces to minimize the risk of wildfire, and create a system of resilience hubs to help cope with the worst effects of emergencies that do occur.

Climate Resilience & Emergency Preparedness

DEFINITION

The Climate Resilience and Emergency Preparedness sector is concerned with the township's vulnerability to and proactive planning for climate change-related emergencies. The goals are to keep Scio residents safe and healthy while minimizing damage to property, infrastructure, and natural resources; as well as the ability to recover quickly from any emergencies. Focus areas are hardening utilities, controlling flooding, developing resilience hubs to protect residents affected by an emergency, encouraging solar power with battery storage as a backup power source during power outages, and managing our parks and open spaces to reduce the risk of wildfire.

Scio is expected to get hotter and slightly wetter with a possibility of more extreme weather events. This means a range of things from temperature extremes of freezing cold (aka polar vortex) to heat waves, strong winter storms, thunderstorms, and tornados. The increase of rainstorms that would have once counted as "100 year rains" cannot be discounted, especially as this is a key standard in flood control designs. But probably the biggest regular source of problems will be high winds. The number of high wind events is expected to increase in Scio. High winds do damage to buildings and structures, knock trees over on roads, blocking them, and, of course, can knock out power lines and other utilities that are mounted on poles. The loss of power will make any already bad situation worse, especially as a high wind event is likely to occur with some other type of weather such as heavy rains. In short, climate change is likely to increase the stress on Scio Township's infrastructure and utilities and, unless we make that infrastructure more resilient, we will see an increased need for emergency services.

Scio and Washtenaw County have good emergency preparedness structures in place to handle any emergencies, but the Township can start working toward increased resiliency.

CURRENT STATE OF RESILIENCE AND EMERGENCY PREPAREDNESS IN SCIO TOWNSHIP

Scio Township Fire Department

- The Scio Township Fire Department currently manages most local emergencies in conjunction with the Washtenaw County Sheriff.

Washtenaw County Sheriff's Office

- The Sheriff's office operates the Washtenaw Emergency Operations Center (EOC) that coordinates responses to larger emergencies along with the American Red Cross. The EOC handles any local coordination in an emergency with the State EOC (managed by the Michigan State Police) and the federal authorities (FEMA).

Infrastructure and Utilities

- DTE provides the electric and gas utilities in Scio Township.
- The Scio Township Utilities Department provides water and sewer services to many of Scio's residents on or near the Jackson corridor. Its water is purchased from the City of Ann Arbor. Loch Alpine has its own separate sanitary authority, providing its own water and sewer system. Many Scio residents get their water from private wells and are on private septic systems.

Management for Wildfire Prevention

- There are several companies and municipal entities (Washtenaw County Parks) that manage prescribed burns of grasslands within the community.

Flood Control

- The Huron River Watershed Council, a nonprofit coalition of residents, businesses, and local governments, monitors runoff levels and contaminants that this brings into the river and works on restoration projects to prepare the watershed for future climate change. Their projects include green infrastructure such as rain gardens, shoreline buffer zones, and consultation about "green street" technology to provide effective stormwater management.
- The Washtenaw County Water Resources Commissioner's Office, as the government agency responsible for the county's drains, has a part in managing flood-related emergencies. It provides assistance with rain gardens and other green infrastructure, even providing controlled burns in these and other green stormwater features.

Resilience Hubs

- The Washtenaw County Emergency Operations Center (EOC), operated through the Sheriff's Office, handles emergency response coordination and communication during emergencies in the county, although there is no direct provision for warming/cooling centers.

Resilience & Emergency Preparedness

KEY:	Timeline N: 1-3 years M: 3-5 years L: 5 years +	Lead/Partners Who is the lead? Who are key Scio/Community partners?	GHG Reduction GHG emission I to III for emission reductions	Cost & Funding See Legend	Other Impacts
1. Coordinate With Washtenaw County to Maintain Emergency Prepardness					
1.1 Washtenaw County Emergency Operations Center (EOC) managed by the Sheriff handles larger emergencies with assistance from the American Red Cross. It also coordinates upwards with the State of Michigan EOC and FEMA	ongoing	Fire, WC, Sheriff		PR $	IR
1.2 Recruit and train Community Emergency Response Team (CERT) to be able to respond at a neighborhood level	N	Fire		PR $	IR
1.3 Plan for emergency services infrastructure that will be necessary over the next 50 years	ongoing	Fire/BOT		CIP $$$	IR
2. Set Up 1-2 Resilience Centers in the Township					
2.1 Locate Potential Resilience Sites	L	WC, OSI		CIP $$	IR
2.2 Equip 1-2 sites.	M	ESTF, BOT		PR $	IR, IE
3. Harden Township Utilities					
3.1 Work with DTE to harden electric grid	L	BOT, DTE		PR $	IR
3.2 Harden Township Utilities	L	Utilities, BOT		CIP $$	IR
4. Reduce Flooding in the Township					
4.1 Identify areas of flooding	N	WCWRC, BOT		PR $	IR, IWC
4.2 Develop and impement a flood mitigation plan	L	WCWRC, BOT		CIP $$	IR, IWC
4.3 Increae tree canopy, restore wetlands, reduce unused turf grass areas, implement freen infrasturcuture throughout the township	ongoing	PC, PPP, BOT	I	CIP $$	IR, IWC

Climate Resilience & Emergency Preparedness Metrics

Metric	Baseline	Goal
# Resilience Hubs	0	↑

PR= Programs/programming, **CIP**= Capital Improvement Projects,
CIP*= Capital projects with an ROI

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Appendices

Appendix I Glossary

100-year rainstorm: According to historical data about precipitation and flooding, this term refers to the probability of a hydrologic event of this magnitude occurring in any given year. The common misconception is that an event of this magnitude could only occur once every 100 years.

Accessibility: Refers to the quality of being easy to obtain or use or of being able to be reached or entered.

Age-friendly: A local response to help to identify and address barriers to the well-being and participation of older peopl eand encourage active aging by optimizing opportunities for health, participation and security.

Attainable housing: Unsubsidized market rate housing that is appropriate and suitable for the households living in Scio Township.

Bidirectional flow capability: In a unidirectional (one-way) electric vehicle (EV) charger, electricity flows from the electric grid into the electric vehicle. With a bidirectional (two-way) EV charger, electricity can flow both ways and re-enter the electric grid.

Biodiversity: The variety of life in a habitat or ecosystem. Biodiversity at the genetic, species, and community level is essential for the processes that support life on Earth.

Building life cycle: Refers to the view of a building over the course of its entire life, viewing it not just as an operational building, but taking into account the design, construction, operation, demolition and waste treatment.

Business-as-usual: The level of emissions that would result if future development trends follow those of the past and no changes in policies take place.

Carbon Neutrality: Achieving a state where the net amount of greenhouse gas emissions emitted into the atmosphere is reduced to zero by taking actions to minimize those emissions and/or by purchasing offsets.

Carbon Offset: A project to mitigate GHG emissions that is measurable, additional, and verifiable. Carbon Offset programs recognize the value of new emission reductions and create an opportunity to "offset" carbon use (e.g., jet travel) with carbon reductions elsewhere (e.g., local land preservation, tree planting). Carbon Offsets are one strategy to meet emission reduction goals.

Climate change: Climate change refers to the long-term changes in the average weather patterns that have come to define Earth's local, regional, and global climates. Changes observed in Earth's climate since the early 20th century are primarily driven by human activities, particularly fossil fuel burning, which increases heat-trapping greenhouse gas levels in Earth's atmosphere and raise Earth's average surface temperature. Key indicators of climate change from the data record include: global land and ocean temperature increases; rising sea levels; ice loss at Earth's poles and in mountain glaciers; frequency and severity changes in extreme weather such as hurricanes, heatwaves, wildfires, droughts, floods and precipitation; and cloud and vegetation cover changes.

Climate Impacts: Effects on natural and human systems that result from climate related hazards.

Climate resilience: Climate resilience is defined as the capacity of a community, business, or natural environment to prevent, withstand, respond to, and recover from climate impacts and disruptions.

Complete streets: Roadways that make it safer and easier for users of all ages, abilities, and modes to get around. These streets typically have design elements that include bus lanes, sidewalks, accessible signaling, curb extensions, and street trees or other vegetation.

Ecological buffer: A zone or an area that serves not for any anthropogenic use but as a conserved natural habitat where plants and animals can thrive.

Environmental sustainability: Environmental sustainability refers to fostering practices that reduce pollution, waste, and damages to the natural surroundings. The objective of having a healthy environment is for resources to exist for future generations.

Equity: In this report, equity refers to 1) fairness, 2) distribution of resources to reduce inequalities, and 3) redistribution of resources to level the playing field. Equity and inclusion has been part of the process in developing the plan through seeking to engage community members that typically are not represented in Scio Township's environmental sustainability conversations.

ESCAP: Environmental Sustainability Climate Action Plan

EV: Electric vehicles are vehicles that derive all or part of their power from electricity.

Green Jobs: Jobs in the fields or areas of specialization that eliminate or reduce carbon emissions. Examples are renewable energy-related jobs (production, installation) and building trades focused on electrification.

Green stormwater infrastructure (GSI): A method of storing stormwater using the natural environment, i.e., bioswales, rain gardens, green roofs, etc. rather than "gray infrastructure" such as sewer pipes and basins.

Greenhouse gas (GHG) emissions: Greenhouse gasses (GHGs), such as carbon dioxide, methane, nitrous oxide, and fluorinated gasses, trap heat in the atmosphere and contribute to global warming. GHG emissions and removals associated with human activities can be tracked across sectors, including transportation, industry, electricity, agriculture, and land use.

Heat Island (also referred to as Urban Heat Island): "Urban heat islands" occur when cities replace natural land cover with dense concentrations of pavement, buildings, and other surfaces that absorb and retain heat. This effect increases energy costs (e.g., for air conditioning), air pollution levels, and heat-related illness and mortality.

Just Transition: A framework for a fair shift to an economy that is ecologically sustainable, equitable, and just for all its members.

LED: Light-emitting diode, which is an energy-efficient mainstream lighting technology.

LID: Low impact development are systems and practices that use or mimic natural processes that result in the infiltration, evapotranspiration, or use of stormwater in order to protect water quality and associated aquatic habitat.

Locally-Owned Utility: Also known as a municipal utility, this is a type of utility that is owned and operated by a local government or other local public entity.

Municipal Fleet: Includes a Scio's public works vehicles, administrative vehicles, public safety and emergency services vehicles, and if applicable, maintenance equipment.

Native plants: Plants that have been growing in area prior to European settlement.

No-mow zone: An area with a reduced frequency of mowing that allows native plants and grasses to grow.

Product life cycles: An approach to managing the stages of a product's existence so that any negative impact on the environment is minimized.

Renewable energy: Renewable energy is energy that is derived from non-fossil fuel natural sources or processes that are naturally and constantly replenished. Examples include wind and solar energy.

Ride-sharing: Includes carpooling or vanpooling, an arrangement in which a passenger travels in a private vehicle driven by its owner, free or for a fee, especially as arranged by means of a website or app.

ROI: Return on investment is the methodology for identifying and quantifying the net financial benefits of projects and initiatives.

RPS: Renewable portfolio standards are policies designed to increase energy utility suppliers' use of renewable energy sources for electricity generation.

Safe Routes to Parks: The Safe Routes to Parks action framework was developed to implement environmental, policy, and program strategies to create safe walking and biking access to parks.

Safe Routes to School: The Safe Routes to School programs aim to make it safer for students to walk and bike to school and encourage more walking and biking where safety is not a barrier.

Single-occupancy vehicles: Vehicles designed to accommodate one or more people, but are being used by only one person (the driver).

Tree Canopy: In an urban setting, this refers to the area of a city that is shaded by trees. This shade offers benefits, like by lowering temperatures in the summer, and also provide habitat for wildlife.

Urban Heat Island: See Heat Island.

Water infrastructure: Refers to the extensive network of drinking water, wastewater, and stormwater infrastructure to provide the public with safe and clean drinking water. Gray infrastructure includes water treatment plants, distribution lines, sewer lines, and storage facilities. Green infrastructure includes bioswales, rain gardens, green roofs, and other methods which replicate the natural management of stormwater runoff.

Wayfinding: Environmental signage that encompasses the ways people navigate from place to place in physical space.

Zero waste of resources: Materials of economic value, whether for reuse, resale, or recycling, that won't be thrown away or end up in the landfill

Appendix II Frequently Used Acronyms

AAATA: Ann Arbor Area Transportation Authority (The Ride)

ARPA: American Rescue Plan Act of 2021

BAU: Business as Usual

BOT: Board of Trustees

CBO: Community Based Organization

CDBG: Community Development Block Grant

CVA: Climate Vulnerability Analysis

CVT: Cites, Villages, and Townships

DTE: DTE Energy

EGLE: Michigan Department of Environment, Great Lakes and Energy

EPR: Extended Producer Responsibility

ESCAP: Environmental Sustainability Action Plan

ESTF: Scio Environmental Sustainability Task Force

EV: Electrical Vehicle

FEMA: Federal Emergency Management Administration

GHGI: Greenhouse Gas Inventory

GLISA: Great Lakes Integrated Sciences and Assessment

HOA: Home Owner's Associations

HRWC: Huron River Watershed Council

IRA: Inflation Reduction Act

LPC: Scio Land Preservation Commission

MDARD: Michigan Department of Agriculture and Rural Development

MDNR: Michigan Department of Natural Resources

MDOT: Michigan Department of Transportation

MEDC: Michigan Economic Development Council

MPG: Miles Per Gallon

MPGE: Miles per Gallon Equivalent

MPSC: Michigan Public Service Commission

MWBE: Minority and Women owned Businesses and Enterprises

NGO: Non-Government Organizations

OSI: City of Ann Arbor Office of Sustainability and Innovation

PC: Scio Planning Commission

PPP: Scio Parks Preserves and Pathways Committee

RAA: Recycle Ann Arbor

SEMCOG: Southeast Michigan Council of Governments

VMT: Vehicle Miles Traveled

WATS: Washtenaw Area Transportation Study

WAVE: Western-Washtenaw Area Value Express

WCHD: Washtenaw County Health Department

WCDPW: Washtenaw County Department of Public Works

WCPARC: Washtenaw County Parks and Recreation Commission

WCRC: Washtenaw County Road Commission

WCWRC: Washtenaw County Water Resources Commissioner

WISD: Washtenaw Intermediate School District

WRRMA: Washtenaw Regional Resource Management Authority

Appendix III Climate Emergency Resolution

https://www.sciotownship.org/home/showpublisheddocument/1684/637991795001370000

Appendix IV Scio Vulnerability Assessment

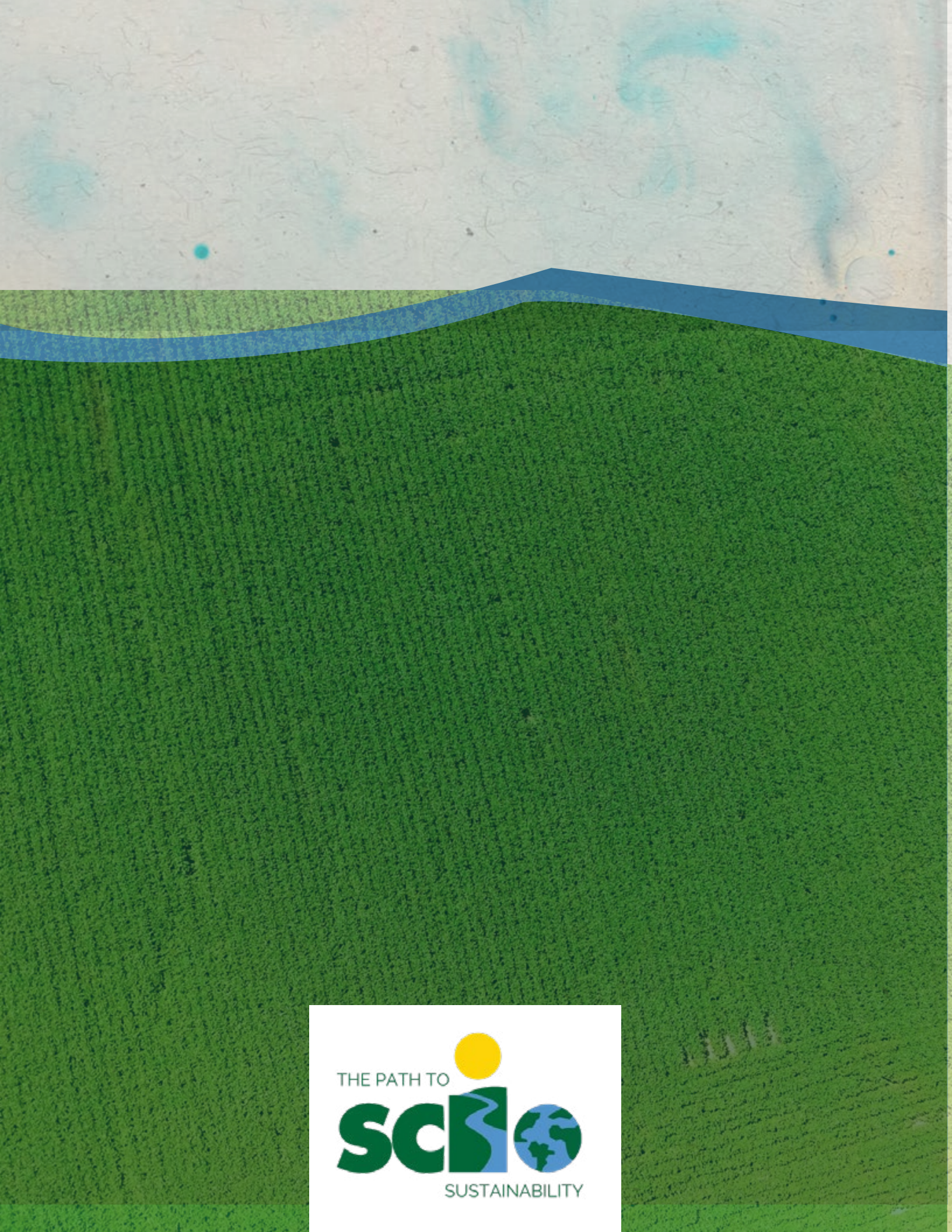
https://drive.google.com/drive/u/0/folders/1tKTt1LDDgCeLoSqhYFBQ09WuCx2sNKfd

Appendix V Acknowledgements

The Scio Township Environmental Sustainability Task Force would like to thank the following people and organizations for their contributions to the format and content of this document:

- City of Ann Arbor; City of Ann Arbor Parks & Recreation
- City of Royal Oak
- Huron River Watershed Council
- 2022-2023 U-M SEAS Project Team
- Scio Township Planning Commission
- Washtenaw County; Resilient Washtenaw

Scio Township Environmental Sustainability and Climate Action Plan Certificate of Adoption:


THE PATH TO
SUSTAINABILITY