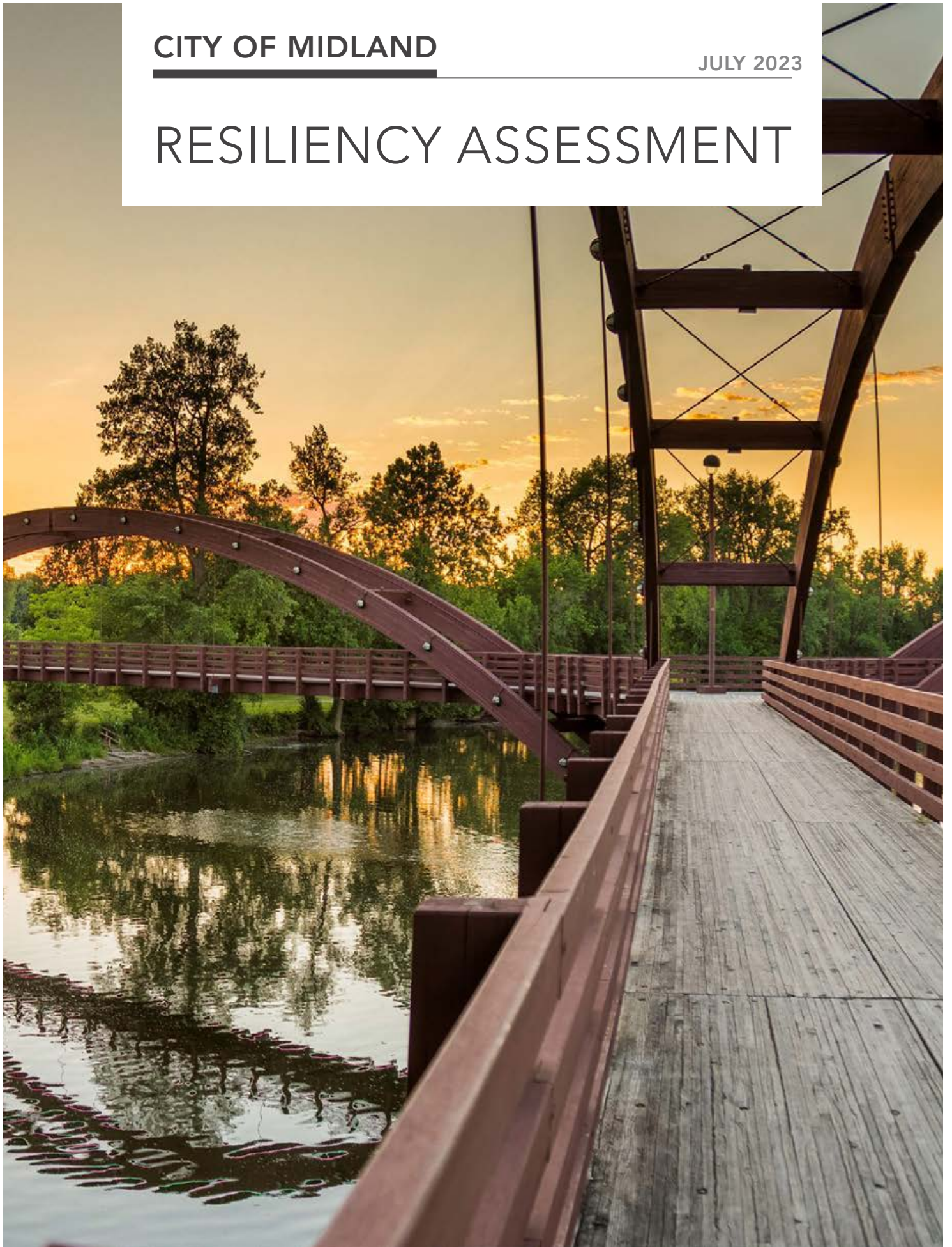


CITY OF MIDLAND

JULY 2023

RESILIENCY ASSESSMENT



ACKNOWLEDGMENTS

A special thanks to all the community members, elected officials, and others who contributed their time, energy, and enthusiasm. Their voices ensured this assessment reflects who Midland was, is, and desires to be as the City continues its resiliency journey.

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SECTION 1

PURPOSE



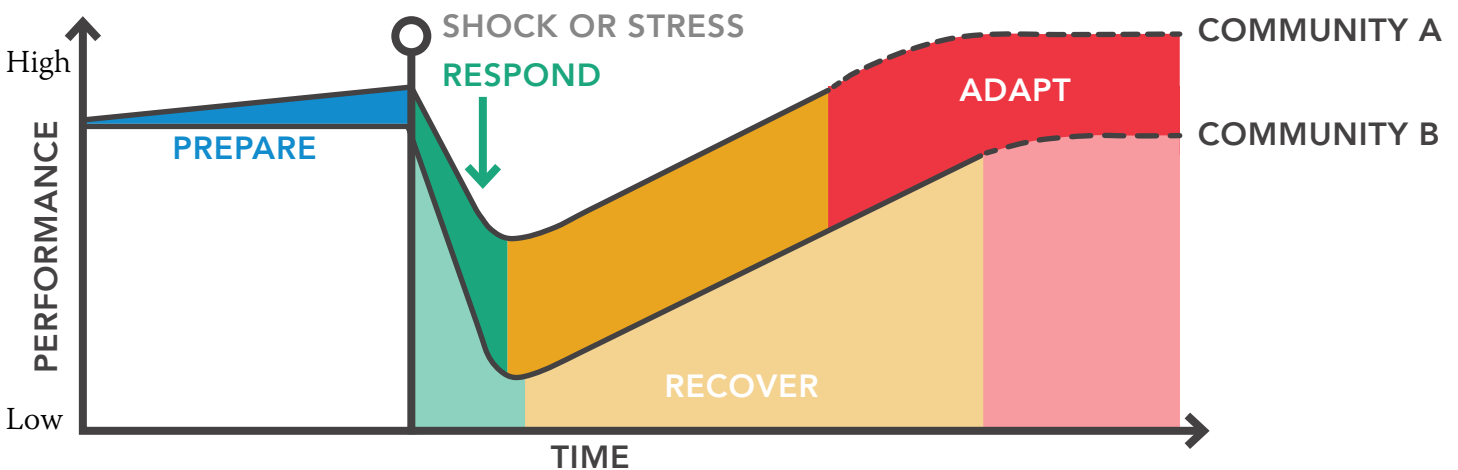
Image Source |
Jacob Boomsma

PURPOSE

The importance of building and maintaining resilient communities has never been more evident than in recent times. In 2020, Midland saw a catastrophic flood disrupt the community in the midst of a national social justice movement and global health crisis. Two years later, Midland is in the process of updating both its Master Plan and Parks and Recreation Plan, which will provide key opportunities to better prepare, respond, recover, and adapt to these types of events as they continue to increase in frequency and intensity.

To support Michigan's communities as they adapt to this ever-evolving landscape, the Michigan Economic Development Corporation (MEDC) developed and released the RRC Resiliency Toolkit in 2022. The toolkit serves as a valuable resource for communities like Midland, which are working towards building resilience using the four pillars of resiliency: people, place, infrastructure, and economy. MEDC is partnering with the City of Midland to assess local vulnerabilities and identify opportunities to build a more resilient community.

The graphic below shows how much faster a well-prepared community can bounce back after an event.



Adapted from M.E. Hynes, B. Ross, and CARRI, 2008

DEFINITIONS

SHOCKS

A shock is a sudden and unexpected event that can cause significant and immediate disruption to a system or community. Examples of shocks include natural disasters such as floods, earthquakes, or hurricanes, as well as human-made events such as terrorist attacks or pandemics. Shocks can have a severe impact on the system or community and can result in long-lasting effects if not adequately addressed.

STRESSORS

A stressor is a slow and gradual event that can accumulate over time, gradually weakening a system or community. Stressors can be environmental, social, or economic in nature, and can include factors such as climate change, economic downturns, or social inequalities. Unlike shocks, stressors may not always be immediately visible, but can have long-term effects that can accumulate over time, gradually reducing the resilience of a system or community.

RESILIENCY

Resiliency is the ability to overcome shocks and stressors. Each community is at a different phase along the continuum of resiliency.

FOUR RESILIENT PILLARS

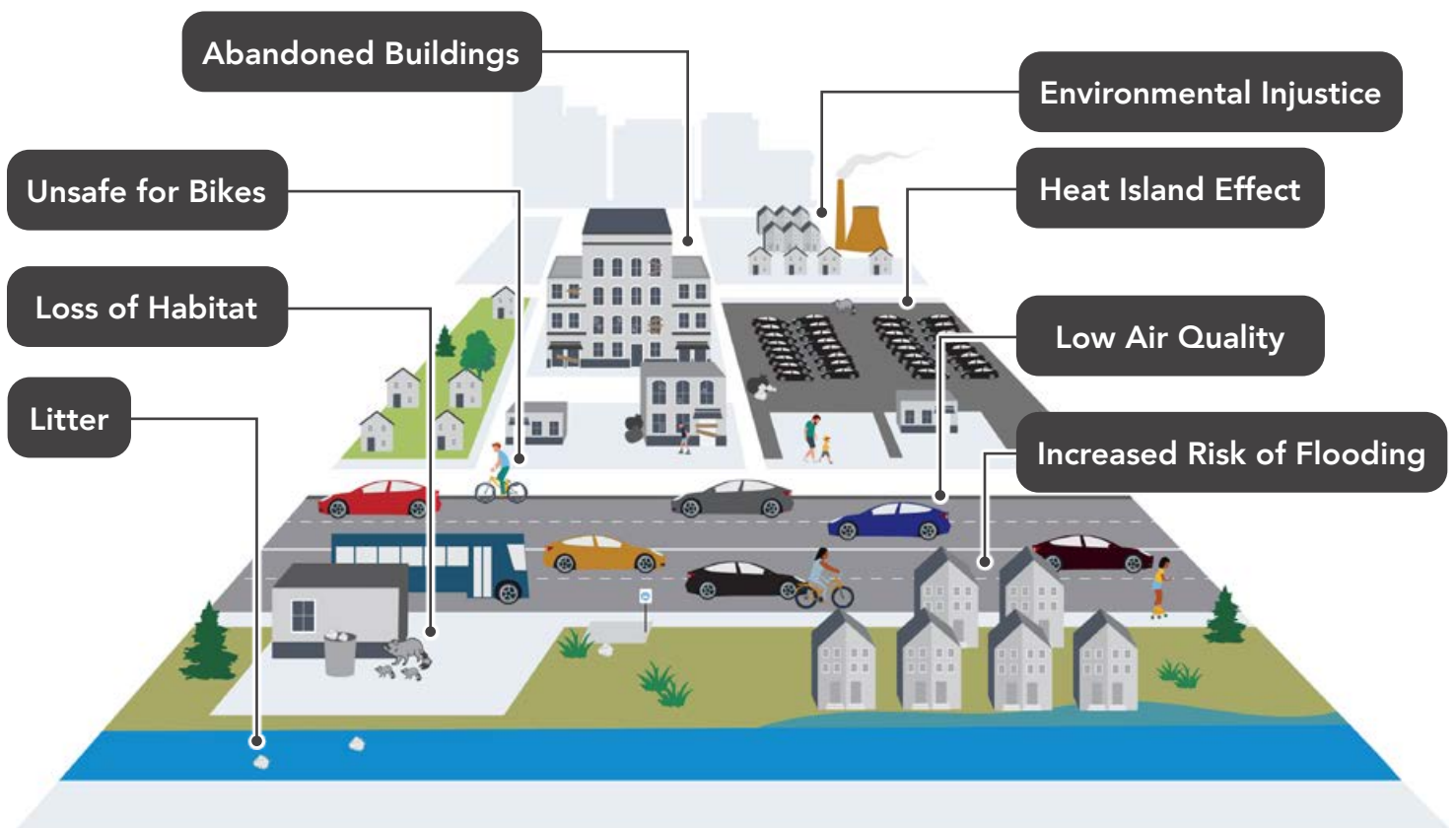
Resiliency is the ability to overcome shocks and stressors. Each community is at a different phase along the continuum of resiliency, making their individual shocks and stressors, and their ability to respond to them, unique.

Many components of a city's systems are related and can cause cascading failures that quickly present difficult conditions from which to recover. Managing shocks and stressors can prevent high costs and years of effort in rebuilding broken systems in the community. While several shocks and stressors are actively affecting Midland today, past shocks and stressors or potential future shocks and stressors are also important to understand.

For example, Dow Chemical Company laid the foundation for this city, leading a necessary economic boom in the middle of the 20th century, but as the city continues to grow, there are opportunities to diversify and expand business support and enhance economic resilience to weather unforeseen events such as the COVID-19 pandemic.

Diverse challenges such as the potential loss of an industry in the region, pressures on the housing market, or a gap in childcare services may seem like distinct issues but are actually highly interrelated and will require coordinated solutions from the City, county, and surrounding townships.

CHALLENGES A CITY FACES WITHOUT RESILIENCE PLANNING



A fully resilient community considers ways to become more resilient across four pillars: place, people, infrastructure, and economy. Resilient places focus on buildings and physical spaces, while resilient people refer to the health and wellbeing of community members. Resilient infrastructure considers the necessary systems that support society,

from water to wi-fi, and resilient economies consider the job opportunities, incomes, and services of Midland's workforce. This assessment focuses on the opportunities for Midland to enhance resilience across each of these pillars, taking into account current trends, staff capacity, potential partners, and other initiatives which are already underway.

BENEFITS RESULTING FROM RESILIENCE PLANNING

Local Economy

Fostering the growth of small businesses and focusing on local supply chain encourages confidence in the ability to withstand shocks to the community.

Ecosystem Services

Mindful land use can provide benefits to the humans, animals, plants, and insects who call the city home.

Complete Streets

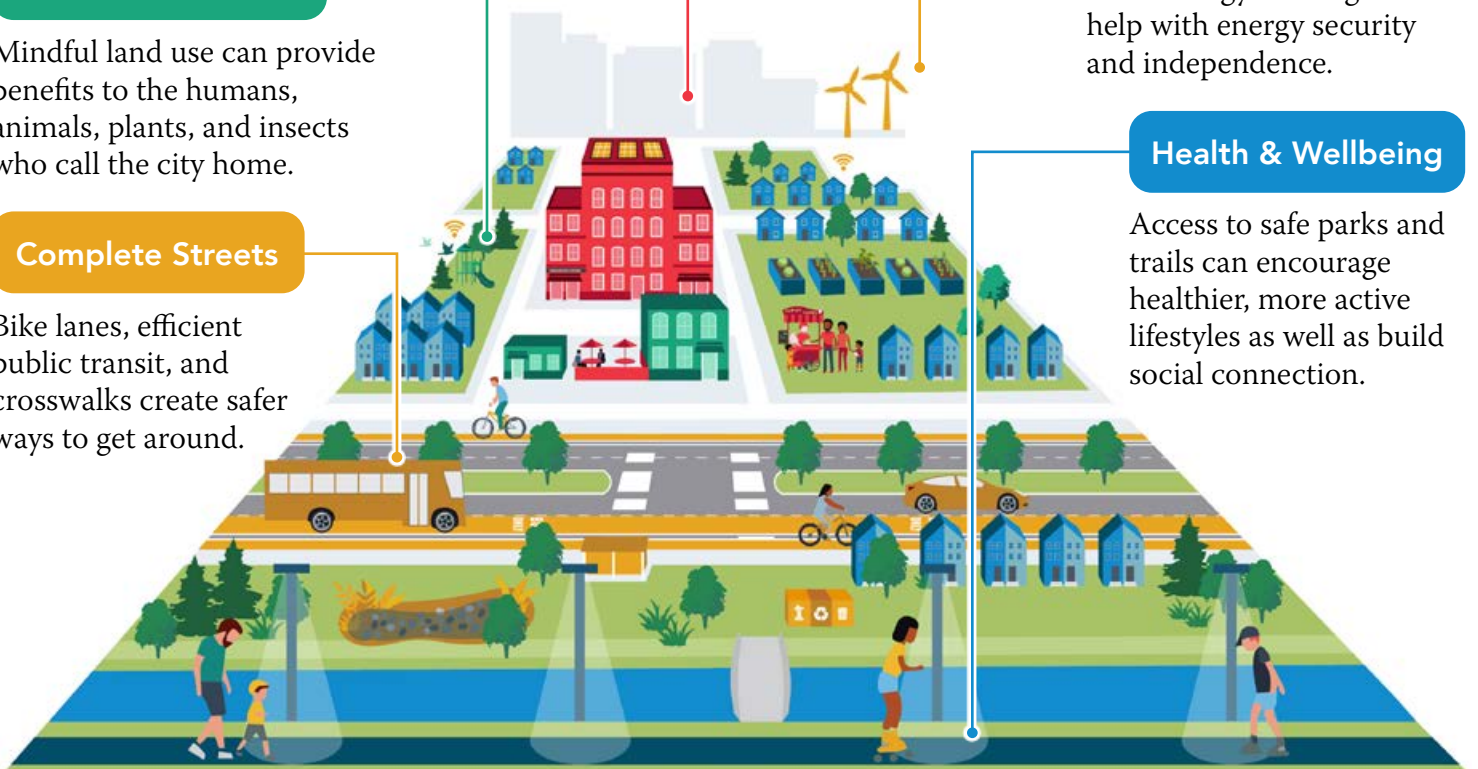
Bike lanes, efficient public transit, and crosswalks create safer ways to get around.

Renewable Energy

Wind and solar farms create clean energy. Microgrids can help with energy security and independence.

Health & Wellbeing

Access to safe parks and trails can encourage healthier, more active lifestyles as well as build social connection.



METHODOLOGY

This assessment was conducted by using a self-assessment survey completed by community leaders, a workshop with city staff and stakeholders, an analysis of local and national trends, and best practices. These sources resulted in a set of recommendations that reflect the extensive work of the City and its regional partners as well as the opportunities available that are specific to Midland and its needs.



PHASE 1 DEFINE EXISTING CONDITIONS

Self-assessment survey and city staff work sessions.

PHASE 2 ASSESS VULNERABILITIES

Resiliency workshop and one-on-one interviews with community leaders.

PHASE 3 IDENTIFY OPPORTUNITIES

Meeting with the Climate Adaptation Task Force and Master Plan engagement analysis.

PHASE 4 PRIORITIZE STRATEGIES

City staff work sessions.



TOP PRIORITIES



PLACE

- Flooding
- Declining building systems



PEOPLE

- Loss of affordable housing + financial burden
- Access to health care and resources



INFRASTRUCTURE

- Flooding
- Age of infrastructure



ECONOMY

- Large employer closure & economic dependency
- Lack of childcare services
- Public health emergencies
- Aging population

TOP ACTIONS

To start tackling these priorities, there are several key actions that could be used to boost community resilience in the near and long term.

Look for the starred items throughout the plan to learn about these and other key actions for tackling your biggest concerns!



PLACE

- ★ Promote district-scale stormwater management in lieu of site by site detention/retention.
- ★ Identify – and increase awareness of – energy efficiency incentive programs at federal, state, and local levels.

PEOPLE

- ★ Amend zoning to make the construction of more diverse housing types that fit a range of community affordability through a mixture of interventions.
- ★ Provide grant funding to bring homes up to building code as well as make basic repairs and energy efficiency improvements.
- ★ Partner with local hospitals and clinics to provide education, referral and follow-up, case management, home visiting, and telecare consultation for at-risk and vulnerable populations.

INFRASTRUCTURE

- ★ Reduce over time the percentage of residents living in designated high-risk flooding areas.outcomes for success.
- ★ Develop a schedule to bring all streets, curbs, and sidewalks up to condition. When possible, plan upgrades around State DOT improvement projects.
- ★ Monitor the age and condition of sewer infrastructure.

ECONOMY

- ★ Collaborate with young professionals to identify the concerns and needs of younger population.
- ★ Encourage industries to develop in-house programs around benefits for employees to reduce benefit/income burden.
- ★ Partner with major employers in Midland to complete an industry sector value chain and market analysis study to better understand areas of most need.
- ★ Support diversification initiatives that provide stability during downturns that disproportionately impact any single cluster or industry.

SECTION 2

CONTEXT

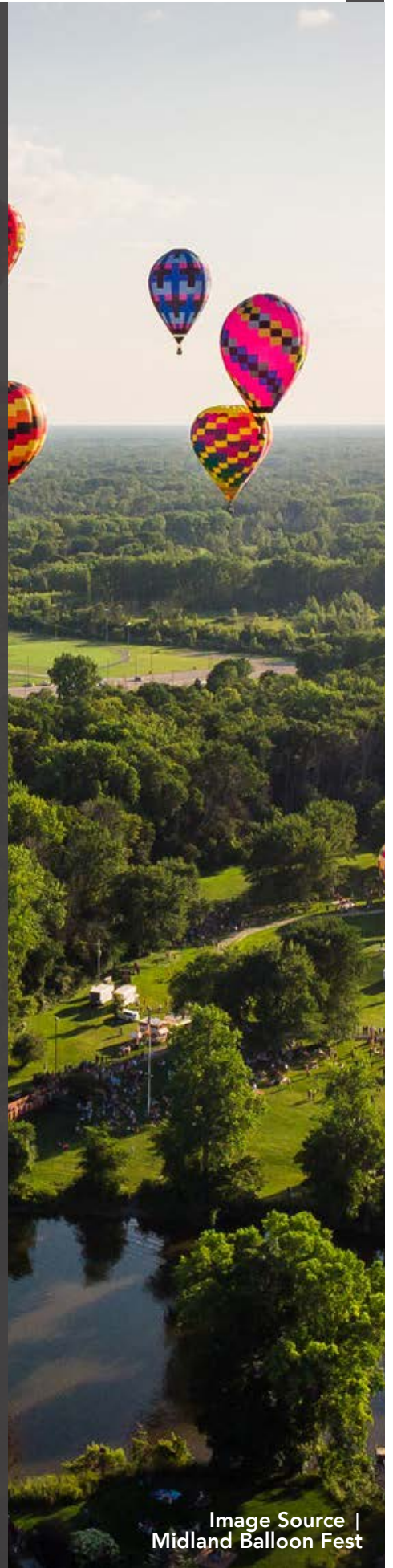
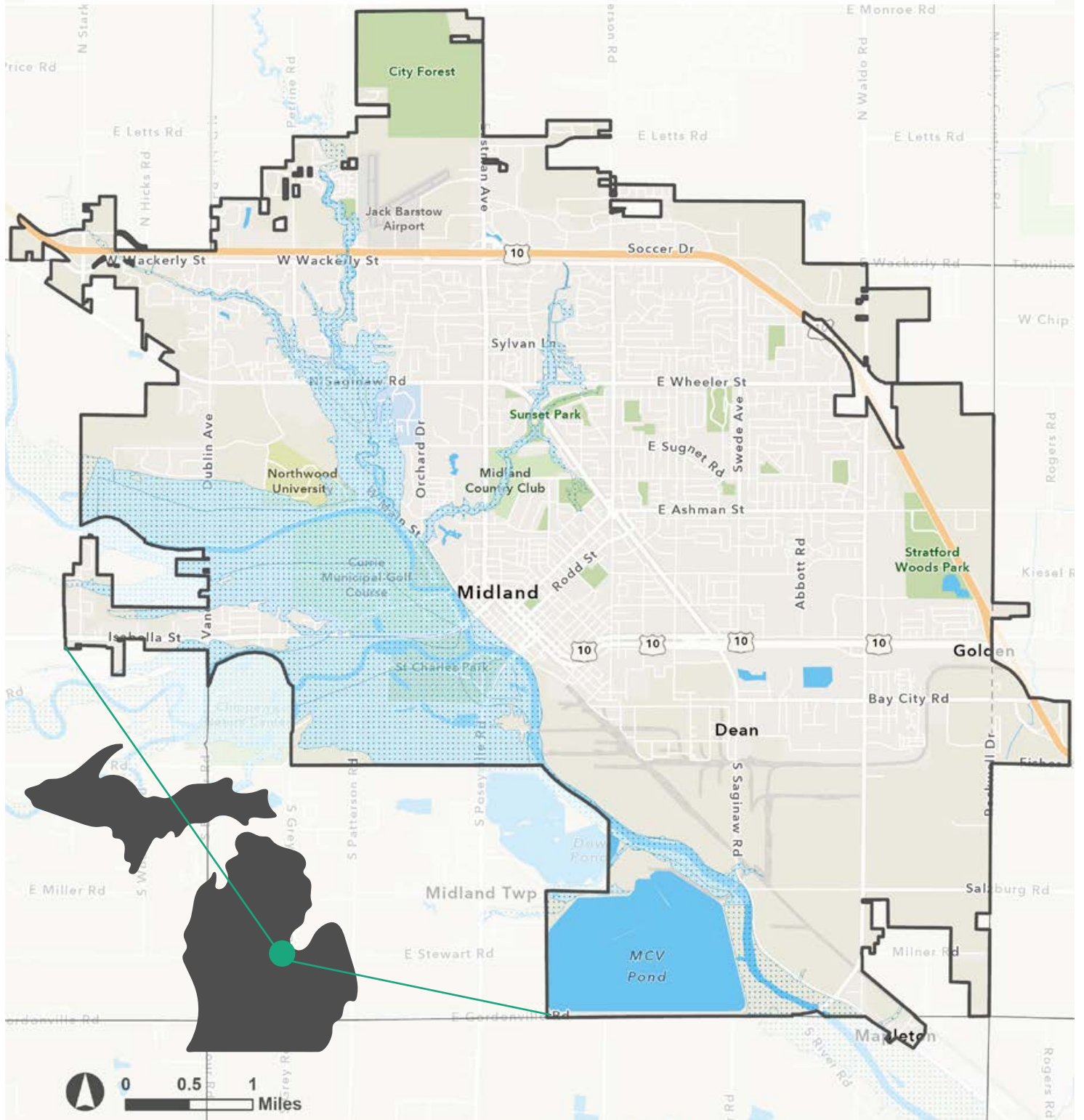


Image Source | Midland Balloon Fest

GEOGRAPHY

Geographic features can be barriers or assets depending on how they are used, respected, and accounted for. One of Midland's most defining features is its location along the Tittabawasee River, as it offers access to some of the most renowned and unique natural features in the city, including DOW Gardens and the nearby Chippewa Nature Preserves. However, Midland's proximity to this river led to widespread economic and housing challenges after dam failures upriver caused major flooding in the city.












CLIMATE

The U.S. has sustained 348 weather and climate disasters since 1980 where the overall damages or costs of each singular event reached or exceeded \$1 billion when adjusted for inflation. The total cost of these 348 events exceeds \$2.510 trillion.¹

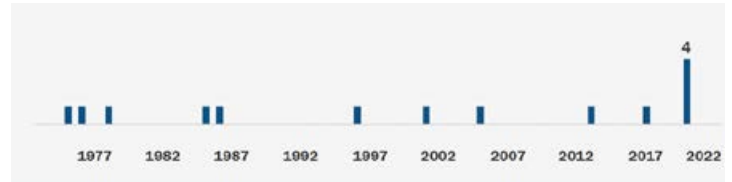
In Michigan alone, the governor has declared a major disaster 32 times since 1977, 12 in which Midland County was included. As the climate shifts, it has the potential to dramatically impact daily life. Increased heating days (days with temperatures over 100 degrees) will impact native ecology, tourism months, and more. Midland infrastructure and systems will need to be prepared to handle the needs of the community today and the stress of the future climate as well.²

IMPACTS ON MIDLAND^{3,4}

	34-50	Projected number of days over 90° F by 2060
	2-7	Projected number of days over 100° F by 2060
	1.2-2K	Projected cooling days by the end of the century
	3.49-3.77	Projected increase in inches of rainfall per year by 2060 (from 1961-1990 average)
	Projected increase in average annual temperature by season by 2060	
	Winter +3-3.5 °F	
	Spring +3.5-3.75 °F	
	Summer +5.25-5.5 °F	
	Fall +4.25-4.5 °F	

1 NOAA NCEI [U.S. Billion-Dollar Weather and Climate Disasters \(2023\)](#)
 2 FEMA [Disaster Declarations for States & Counties \(2023\)](#)
 3 NOAA [Climate Explorer](#)
 4 GLISA [Great Lakes Regional Climate Change Maps](#)

DISASTERS BY YEAR²



DISASTERS BY TYPE²

Midland County, Michigan		
12 Disaster Declaration(s) since 1/27/1978		
Incident Category	Incident Subcategory	Count
Flood		3
Other*	Biological	2
	Dam or Levee Break	2
Severe Storm		2
Snowstorm		2
Tropical Storm*	Hurricane	1

The projected impacts on Midland at left show a range of Lower Emissions to Higher Emissions. The difference in these numbers shows stabilization of current emissions versus what could happen if emissions continue to increase without action.

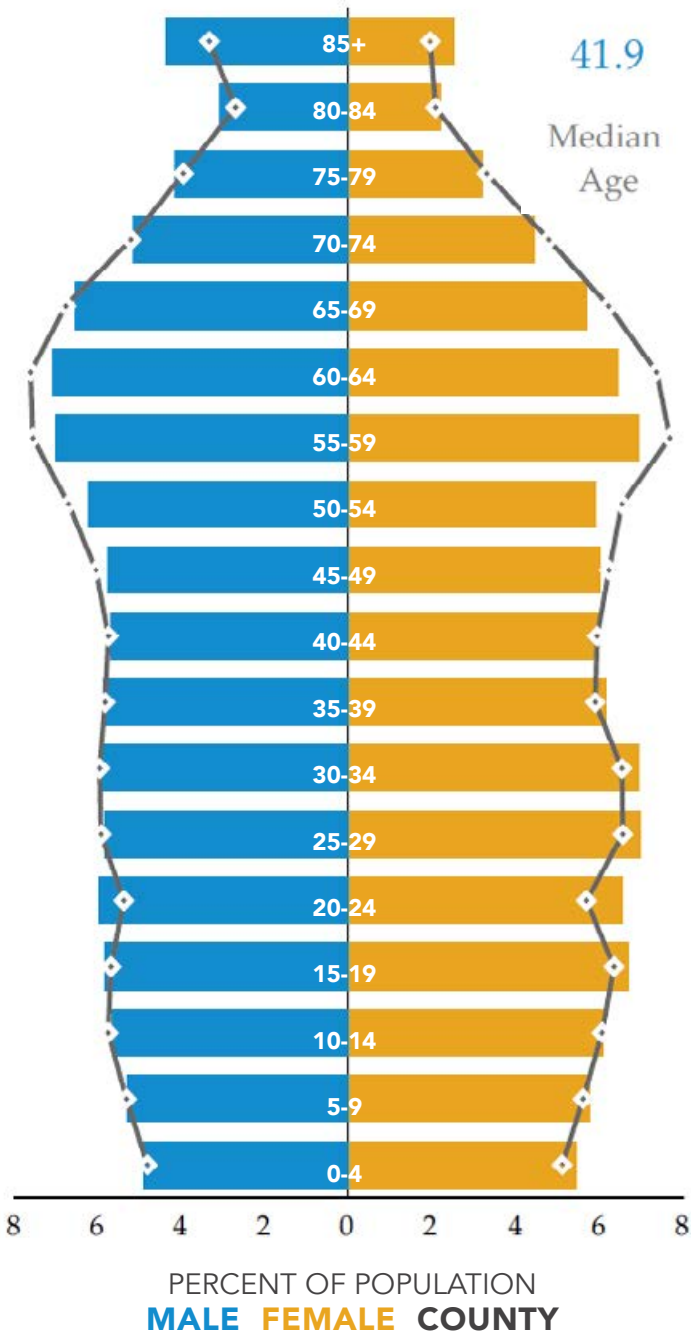
Midland could see between 1 and 2 additional months of warm temperatures by 2060.



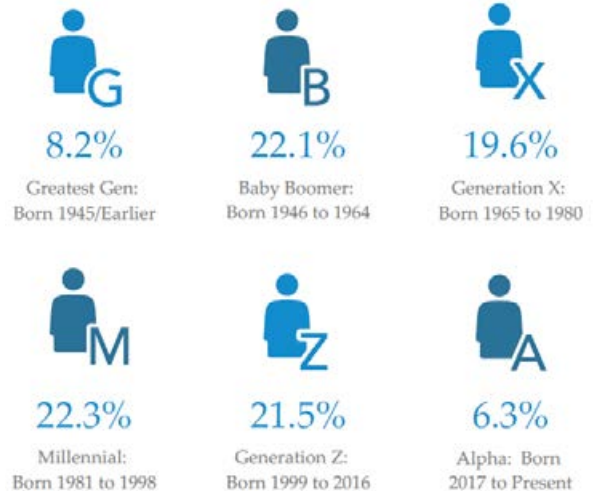
DEMOGRAPHICS

42,348
Population
Total

Age Profile: 5 Year Increments



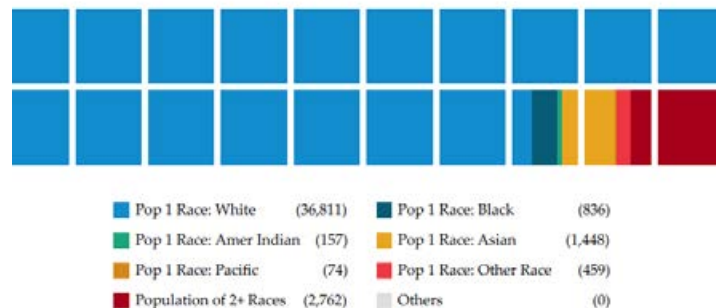
POPULATION BY GENERATION



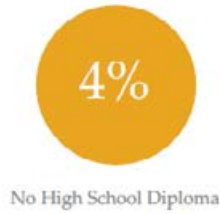
AT RISK POPULATION



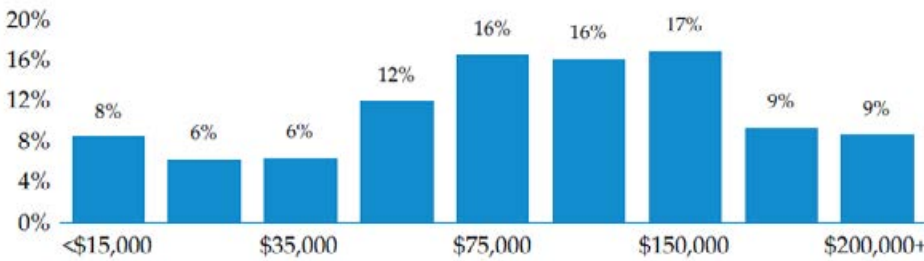
2020 Population by Race (U.S. Census)



EDUCATION



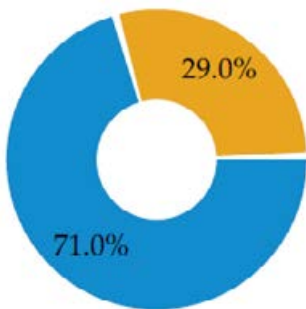
Household Income



POVERTY



Home Ownership

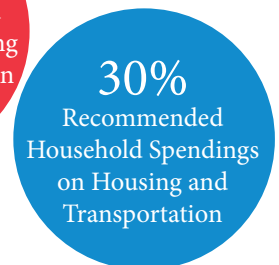
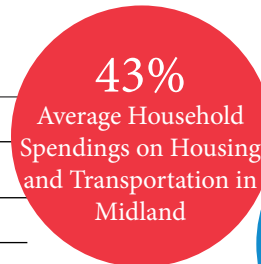


- Owner Occupied HUs
- Renter Occupied HUs

Home Value

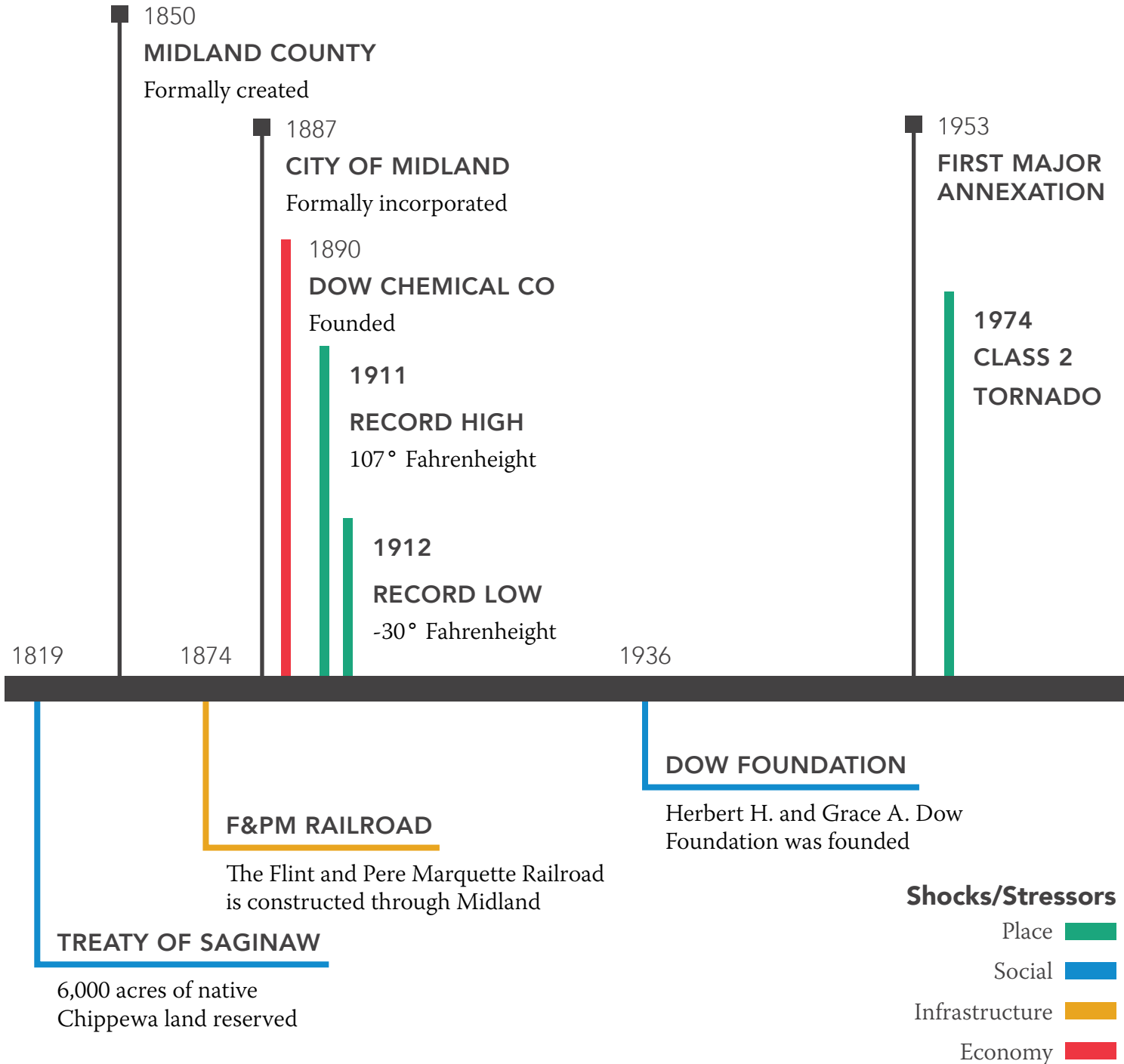


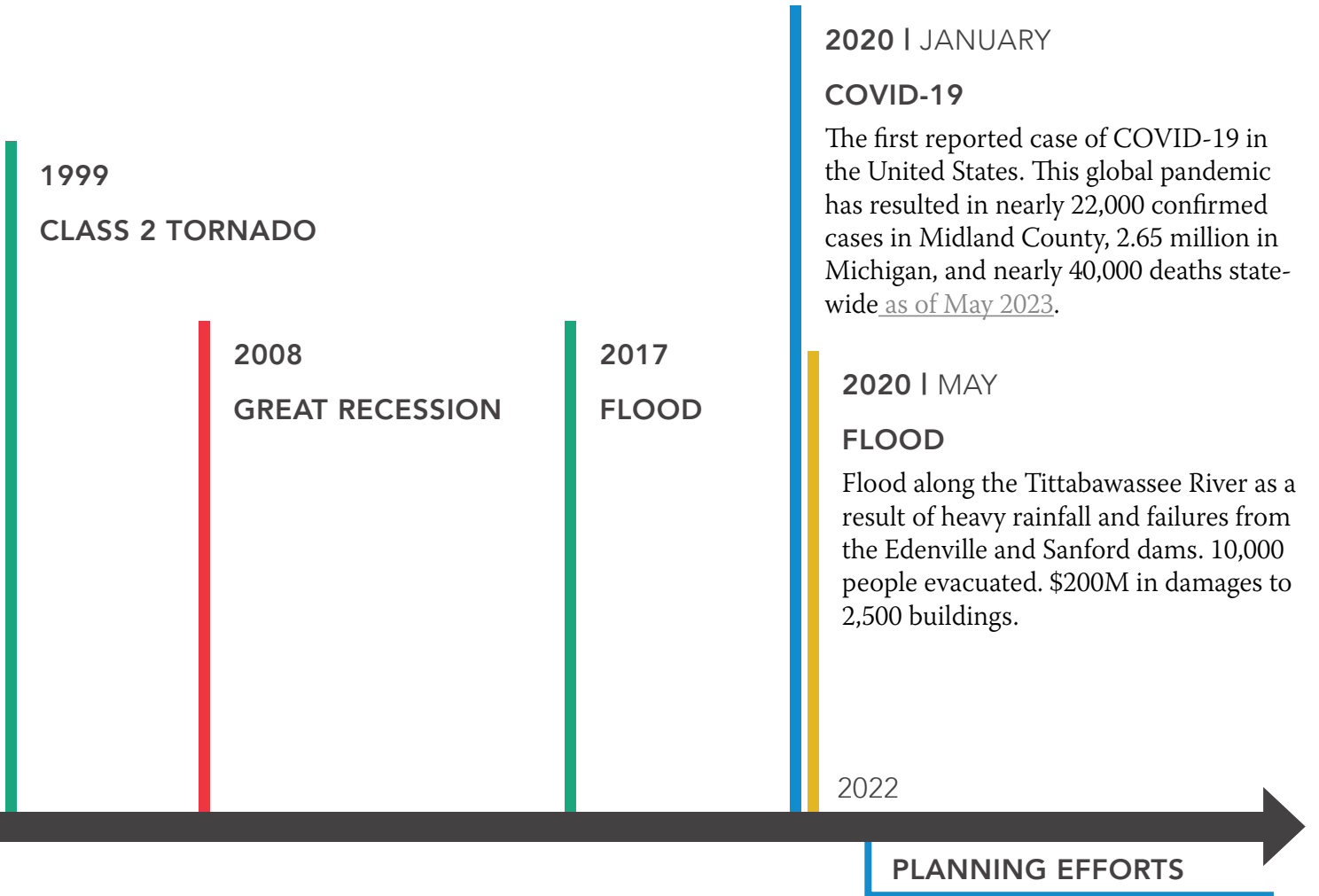
Housing and Transportation Costs as a Percent of Income	Population Counts	Percent of Population
< 24%	0	0%
24 - 36%	7,043	17.4%
36 - 45%	16,122	39.9%
45 - 54%	14,732	36.5%
54 - 66%	2,499	6.2%



HISTORY

Knowing the timeline of shocks, stressors, and significant events in a community help establish trends and show the long-term effects of actions. The events below have shaped Midland into the community it is today.





Shocks/Stressors

- Place
- Social
- Infrastructure
- Economy

The 'ReImagine the Riverfront' planning effort continues, with a focus on providing year-round recreational activity and open space meant to accommodate the 100 year floodplain that the project sits within.

Midland's comprehensive Master Plan update is also underway, prioritizing resilience and sustainable development guidance for the community for the next 30 years.

PRIOR PLANS

City plans establish priorities for staff to meet resident needs. A variety of these plans can and should be related to resiliency factors. This section analyzes what is currently included in plans and what could be included in the future.

PLANS

- Place
- Social
- Infrastructure
- Economy

CITY OF MIDLAND

- [Non-Motorized Transportation Plan \(2013\)](#)
- [Center City Redevelopment Plan \(2017\)](#)
- [Midland Master Plan \(2018\)](#)
- [Housing Assessment Volume 1 and Volume 2 \(2020\)](#)
- [Parks and Recreation Master Plan \(2021\)](#)
- [Midland Value per Acre Assessment \(2022\)](#)
- [Downtown Development Authority Strategic Plan \(2023\)](#)

MIDLAND COUNTY

- [Parks and Recreation Plan \(2014\)](#)
- [Midland County Transportation Study \(2017\)](#)
- [County Emergency Preparedness Guide \(2017\)](#)
- [Midland County Housing Analysis \(2018\)](#)
- [Independent-Based Service Delivery in Midland County \(2019\)](#)

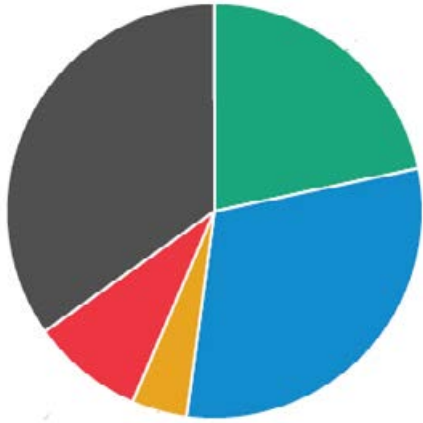
STATE OF MICHIGAN

- [Michigan Healthy Climate Plan \(2022\)](#) was developed by EGLE's new Office of Climate and Energy. It lays out an economy-wide carbon neutrality plan to achieve by 2050 specifically a 28% reduction of greenhouse gases (GHG) by 2025 (of 2005 levels) and 52% by 2050. While not a resiliency-focused document, the Plan represents the State's progress towards addressing climate change.
- [Climate and Health Adaptation Planning Guide for Michigan Communities | U.S. Climate Resilience Toolkit \(2020\)](#) offers case studies and ideas for building resilience in Michigan municipalities, focusing on Marquette as a pilot community.
- [Michigan Climate and Health Profile \(2015\)](#) discusses current and future health and climate concerns facing the state of Michigan and identifies regional challenges and areas of focus for communities in those areas.
- [MI Future Mobility Plan \(2022\)](#) outlines future opportunities for enhancements to autonomous and electric vehicle infrastructure.

SURVEY RESULTS

The self-assessment survey was taken by planning commission, city commission, city staff, and local and regional leaders in a variety of specialties ranging from affordable housing to job development.

Over a third of survey respondents were from community organizations.



- 22% Planning Commission Member
- 30% City Commission Member
- 9% City Planner
- 4% City Manager
- 35% Other Community Leaders

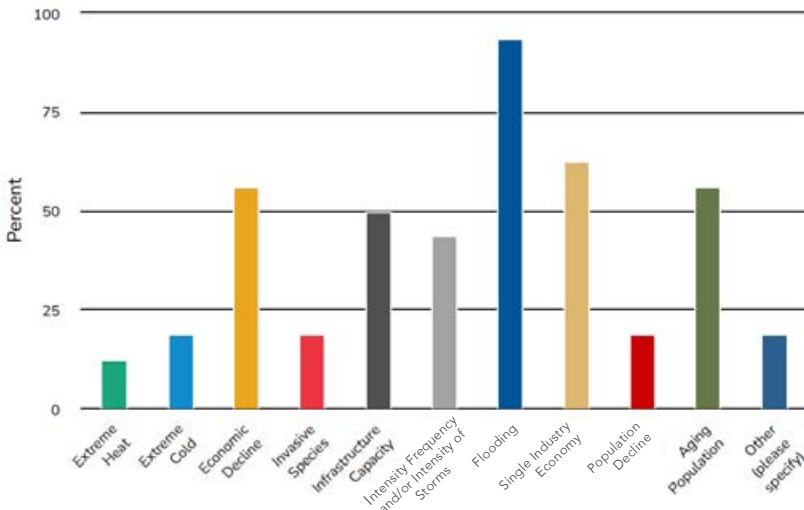
The survey asked what words and projects around resiliency are received positively; infrastructure, wellbeing, and flood mitigation were among top answers.

flood mitigation housing **wellbeing**
four lakes task force walkability
 economic diversification **infrastructure**
 sustainability natural resource protection

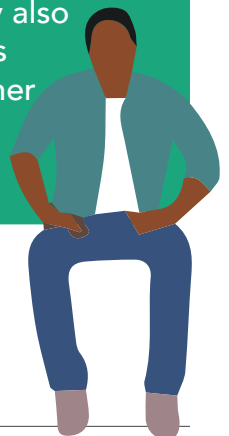
When asked which words or projects are received negatively, flooding and water infrastructure were common responses.

dams midland city center
footing drain disconnect program
 political polarization **flooding** road diets

Flooding, single-industry economy, economic decline, and aging population were the top shocks and stressors respondents believed have the greatest potential to impact the community.



Respondents agree that the City is aware of the need to prepare for disaster. They also feel that city departments know how to work together to prepare and respond. This is great news!



SECTION 3

PLACE



Image Source |
University of Michigan

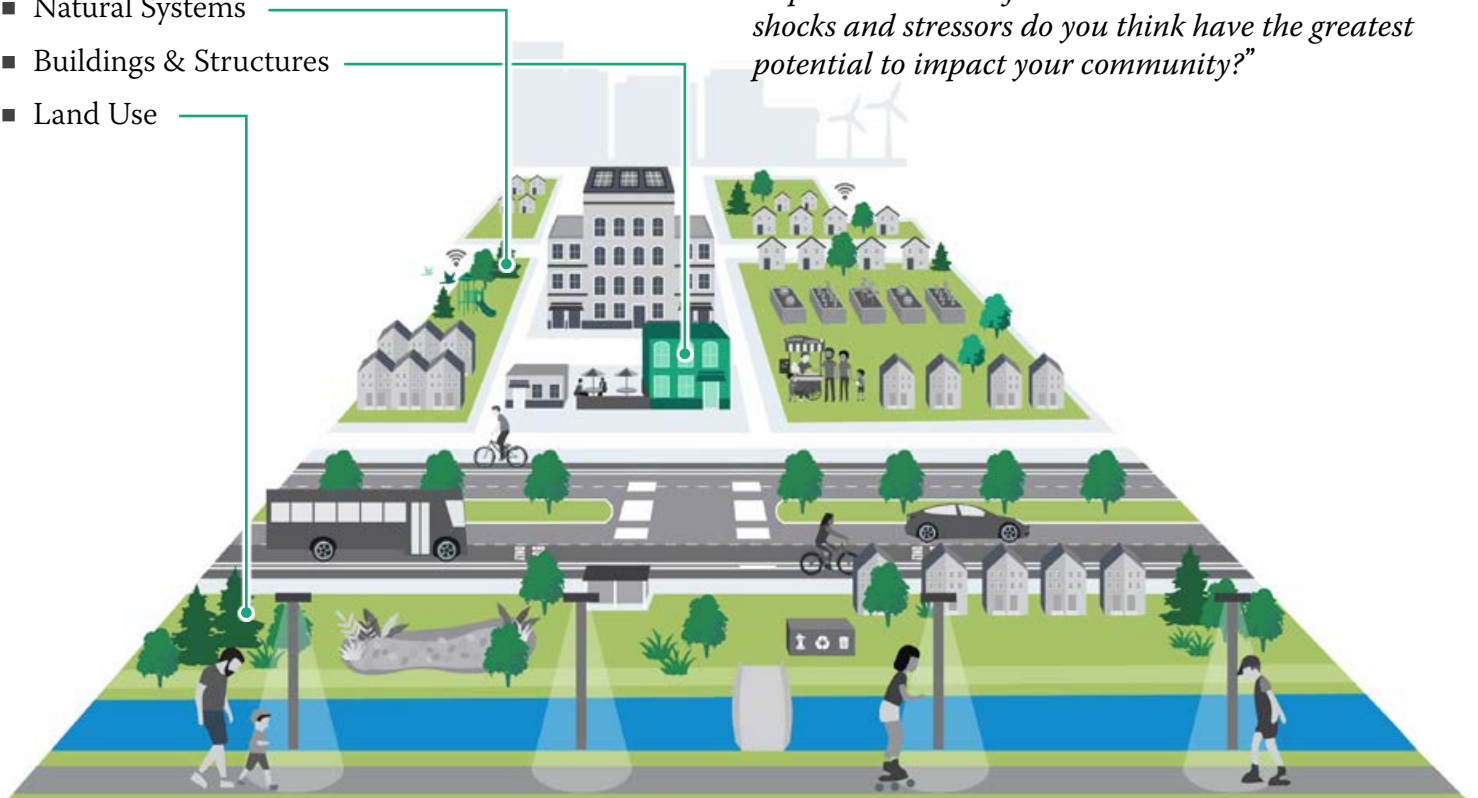
Resilient places include the spaces, structures, systems, and environments that our communities occupy.

These places are physical parks, open spaces, and cultural and historic buildings, but they are also the natural and manmade environments that support and impact our daily lives. They are influenced by the land use, development, and land management policies and practices of our communities.

CATEGORIES

Several categories fall under resilient places. This chapter features trends and recommendations for the following:

- Natural Systems
- Buildings & Structures
- Land Use



SHOCKS

- ★ Flooding
 - Loss of historic structures
 - Drought
 - Heatwaves
 - Extreme cold
 - Economic downturn

STRESSORS

- ★ Declining building systems
 - Fragmented habitat and systems
 - Rising temperatures and heat islands
 - Aging population
 - High energy use (CO2)
 - Brownfields/contamination
 - Sprawl
 - Shoreline encroachment

Shocks and stressors with the star symbol were top responses on the self-assessment when asked “What shocks and stressors do you think have the greatest potential to impact your community?”

NATURAL SYSTEMS

Role in Resiliency

Midland is a city which sees the confluence of several environmental phenomena. It is considered to be part of a low level drought area. It sees flooding due to the confluence of three rivers. The year 2022 held record heat and record chill nationwide. The flood and dams were among the top discussion points as both threats and opportunities as part of working sessions during the Midland City Modern engagement.

Trends

The City of Midland is surrounded by flourishing core habitat areas to the north and south, which create a serene sense of arrival to the city and contribute to overall area health. Maintaining these spaces should be a regional priority.

Midland experienced two major floods in less than 5 years. Four Lakes Task Force, Midland Emergency Management, and FEMA are working on managing necessary flood infrastructure.

Flooding mostly happens to the northwest and south of the Tittabawasee River, which makes them prime opportunities for restoration buffers.





Midland has some of the most unique natural assets and educational experiences in the state, including the Chippewa Nature Center, DOW Gardens, Pere-Marquette Rail Trail, and miles of waterfront.



Image Source | Midland County

Each section will show tables like the one below, offering guidance about action items, suggested timelines, and potential partnerships!



Opportunities

GOALS	ACTIONS	TIME-LINE	RESPONSIBLE PARTY
<p>Air Quality Ensure outdoor air quality is healthy for all segments of the population.</p>	<ul style="list-style-type: none"> ❑ Collaborate with local industry partners to monitor and improve air quality over time, including daily ratings, trends, and efforts to minimize the release of noxious odors or hazardous pollutants. ❑ Partner with the DOW Foundation and the Community Foundation’s ‘Public Arts Midland’ project to create interactive displays educating the public about the impacts of poor air quality on human health and the natural environment and the efforts they can take to reduce air pollution emissions and exposure. ❑ Collaborate with DOW to reduce and minimize the release of criteria, hazardous air pollutants, and noxious odors into the community. 	<p>Near</p> <p>Near</p> <p>Near</p>	<p>DOW</p> <p>DOW Foundation</p> <p>Arts Council of Midland</p>
<p>Green Infrastructure Maintain a network of GI that integrates with the built environment to maintain ecological systems and functions.</p>	<ul style="list-style-type: none"> ❑ Encourage on-site rainwater and runoff capture, reuse, and infiltration in new developments and existing developments using zoning requirements and approvals recommendations. ❑ Include the evaluation of green infrastructure potential during early site plan reviews of proposed developments and subdivisions. ❑ Incorporate green infrastructure enhancements as part of planned upgrades to public spaces and public buildings and, where possible, create demonstration projects to enhance public support. ★ Promote district-scale stormwater management in lieu of site-by-site detention/retention. 	<p>Near</p> <p>Near</p> <p>Near</p> <p>Near</p>	<p>DDA</p> <p>Michigan Works</p> <p>Community/ Technical Colleges</p>



Image Source: | Midland Balloon Fest

Opportunities

GOALS	ACTIONS	TIME-LINE	RESPONSIBLE PARTY
<p>Biodiversity Promote biodiversity and manage or prevent the proliferation of invasive species.</p>	<ul style="list-style-type: none"> ❑ Encourage the use of native vegetation to promote biodiversity using regulatory enhancements such as altering lawn ordinances to promote the use of low-mow, no-mow, and native plantings in place of lawns. ❑ Engage in restoring and maintaining critical water bodies and the buffer zones that protect those water bodies. ❑ Analyze potential use of parks for climate adaptation (especially those in flood plains) and survey residents for their preferences for park and recreation programming related to conservation or preservation. 	<p>Near</p> <p>Mid</p> <p>Long</p>	
<p>Urban Heat Island Monitor and mitigate the urban heat island effect.</p>	<ul style="list-style-type: none"> ❑ Increase tree canopy especially in areas at risk for urban heat island such as large surface parking lots utilizing a diverse variety of native tree species. ❑ Incentivize green roofs and pavement alternatives for new developments and site construction to reduce heat island effect, offset energy consumption, and help with groundwater infiltration. ❑ Create a tree planning program and tree succession plan in partnership with the City Forestry Division, Department of Natural Resources, and the Midland Conservation District. 	<p>Mid</p> <p>Long</p> <p>Near</p>	<p>City Forestry Division</p> <p>Dept of Natural Resources</p> <p>Midland Conservation District</p>

Tracking Metrics

- ❑ Acres protected lands (Chippewa Nature Preserve and Little Forks Nature Conservancy)
- ❑ Acres park lands
- ❑ Hydrology factors (Four Lakes Task Force)

BUILDINGS & STRUCTURES

Role in Resiliency

Buildings form a large part of the physical footprint of Midland and have a significant impact on community resiliency.

Over 91% of buildings in Midland were built prior to the turn of the century; it is important to ensure that these older structures are supported by efficient energy systems, proper and functional weatherproofing, and strong foundations. Continued maintenance, upgrades, and investments in existing infrastructure will have the most impact on the future resilience of buildings in the city aside from necessary flood-proofing measures.

Ensuring building owners, whose property is in the floodway, have flood insurance is another cornerstone to building resilience and equity. FEMA and Midland County Emergency Management have been hard at work since the 2020 flood reaching out to building owners in these areas.

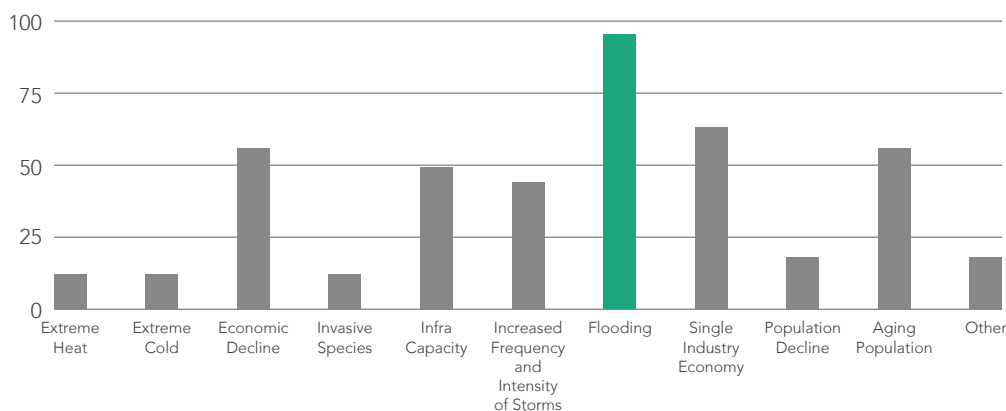
Source: [B25034](#) | 2021 American Community Survey Estimates

Current Actions

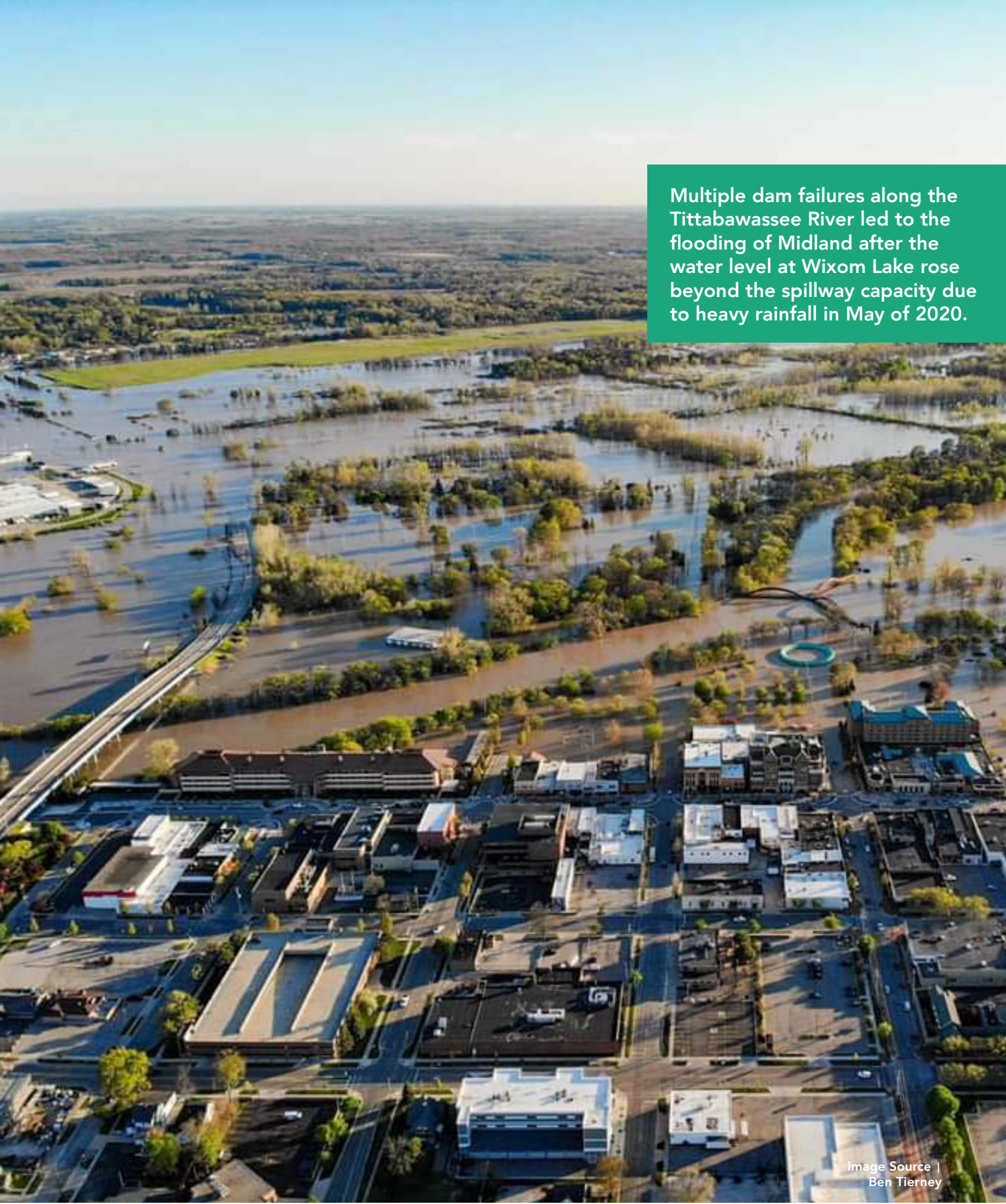
In 2022, the City of Midland received a FEMA grant to purchase approximately 20-25 properties in the floodway. While this opens the door for opportunities to reduce the amount of structures in the floodway, areas near the flood boundary should also be considered as FEMA maps are outdated and nationwide trends are showing that flooding often happens in neighborhoods just outside the typically regulated floodway.

Trends

Flooding and infrastructure capacity are top of mind. When city staff, elected official and community leaders were asked “Which of the following shocks and stressors do you think have the greatest potential to impact your community,” flooding was the #1 answer.



Midland is trending outward in growth, putting stress on the built and natural environments. Promoting adaptive reuse and sustainable development practices will help address these stressors by building density where infrastructure already exists and contribute to the strong neighborhood network celebrated in many of Midland’s oldest neighborhoods.



Multiple dam failures along the Tittabawasse River led to the flooding of Midland after the water level at Wixom Lake rose beyond the spillway capacity due to heavy rainfall in May of 2020.

Image Source | Ben Tierney



Opportunities

GOALS	ACTIONS	TIME-LINE	RESPONSIBLE PARTY
<p>Building Energy Efficiency</p> <p>Ensure new and existing buildings are energy efficient.</p>	<ul style="list-style-type: none"> ★ Identify – and increase awareness of – energy efficiency incentive programs at the federal (Section 179D tax deduction for commercial investments in energy efficiency improvements), state, regional, utility and local level. □ Pursue grants that enable the city to lead by example and create fully efficient facilities whether that be in the construction, rehabilitation, or operations and maintenance of city owned buildings and structures. □ Update building codes to require more energy efficient building materials and designs. 	<p>Near</p> <p>Near</p> <p>Near</p>	
<p>Flooding</p> <p>Promote land use practices that manage rain where it falls and limit development within the 100 year floodplain.</p>	<ul style="list-style-type: none"> □ Continue to purchase properties in the floodway as possible to aid in demolition or rehabilitation. □ Partner with the Midland County Emergency Management Department, Grace A. Dow Memorial Library, and other partners to enhance public education about the importance of preparing for floods as a property owner by collecting and sharing stories from residents. □ Document the partnerships created with nearby communities, businesses, and government authorities as well as regional entities as a result of the 2020 dam failure to have a record of the social capital built and create a clear path for support in the case of future events. 	<p>Long</p> <p>Near</p> <p>Near</p>	<p>Midland Co Emergency Management Dept</p> <p>Grace A. Dow Memorial Library</p>



Opportunities

GOALS	ACTIONS	TIME-LINE	RESPONSIBLE PARTY
<p>Historic & Cultural Assets</p> <p>Preserve, conserve, renovate, and adapt historic structures and sites to retain local, regional, and national history and heritage, and community culture.</p>	<ul style="list-style-type: none"> ❑ Incentivize the conservation and reuse of historic buildings by developing and implementing tools (i.e., design guidelines, adaptive reuse incentives, listings of historic buildings, etc.) to encourage conserving and reusing historic buildings. ❑ Participate in the Michigan Main Street Program. Michigan Main Street exists to help communities develop main street districts that attract both residents and businesses, promote commercial investment and spur economic growth by helping to educate and organize local stakeholders and partner organizations. Communities can leverage the benefits generated through RRC certification by participating in the Main Street Program to support overall community prosperity. <ul style="list-style-type: none"> ❑ Evaluate existing businesses and availability of historic or culturally significant buildings to identify distinct district themes; work with DDA to attract new businesses that are in alignment with these themes. Successful city models include Grand Rapids and Oklahoma City. Potential districts could include Downtown, Center City, The Commons, a University District around Northwood, an Adventure District around the Tridge Area, and a Garden District around the Dow Gardens and Center for the Arts. 	<p>Mid</p> <p>Long</p>	<p>West Main Street Historic District Commission</p> <p>Downtown Development Authority</p>

Tracking Metrics

- ❑ Ratio of homeowners in the floodplain with proper flood insurance (Midland County Emergency Management)
- ❑ Square footage of sustainable rated city owned and operated facilities
- ❑ Change in energy use over time (Consumers Energy)

LAND USE

Role in Resiliency

Midland community members love being in a neighborhood centric city, which is due in large part to historic development patterns and land use. The City has worked to modernize land use and zoning to meet best practices for equitable, compact community design.

Trends

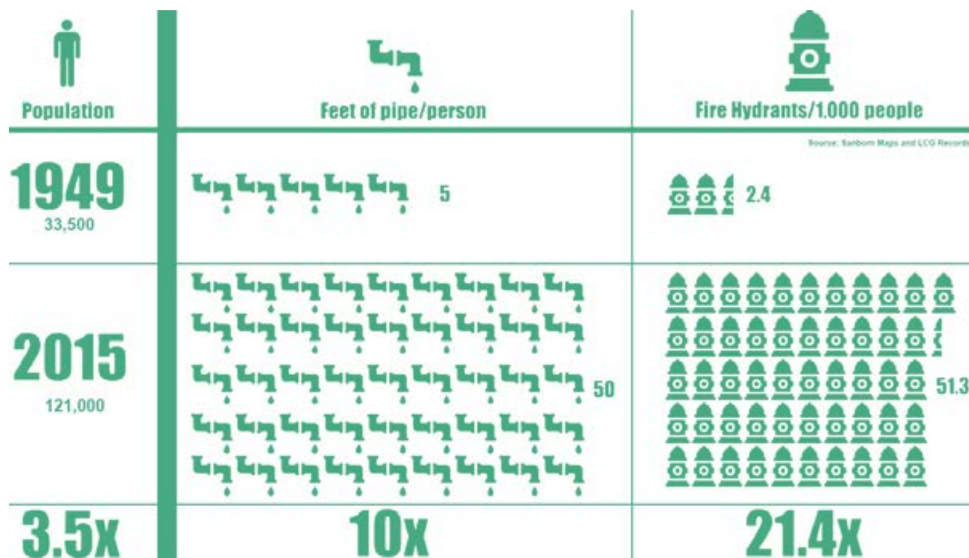
Midland has one of the most unique annexation policies in the state. It is one of the top 50 most broadly annexed towns in America according to a [study conducted by Urban3](#). Annexation is the process of bringing land from one jurisdiction to another by petition or resolution. The city has a history of annexation with surrounding jurisdictions in the Midland Urban Growth Area (MUGA) to promote orderly growth and provide quality water services. As the city boundary grows, so does the need and cost for infrastructure to support the growing community.

Midland is currently the **5th largest city** in the state of Michigan in terms of land size despite being **42nd in terms of population**.

Source: *2020 Decennial Census*

CASE STUDY FOR GROWTH IN GEORGIAN TOWN

Source: *Kronburg Urbanists Architects*



Midland has a much smaller density than other cities in the area, which may impact the ability to maintain efficient public services and quality of life over time.

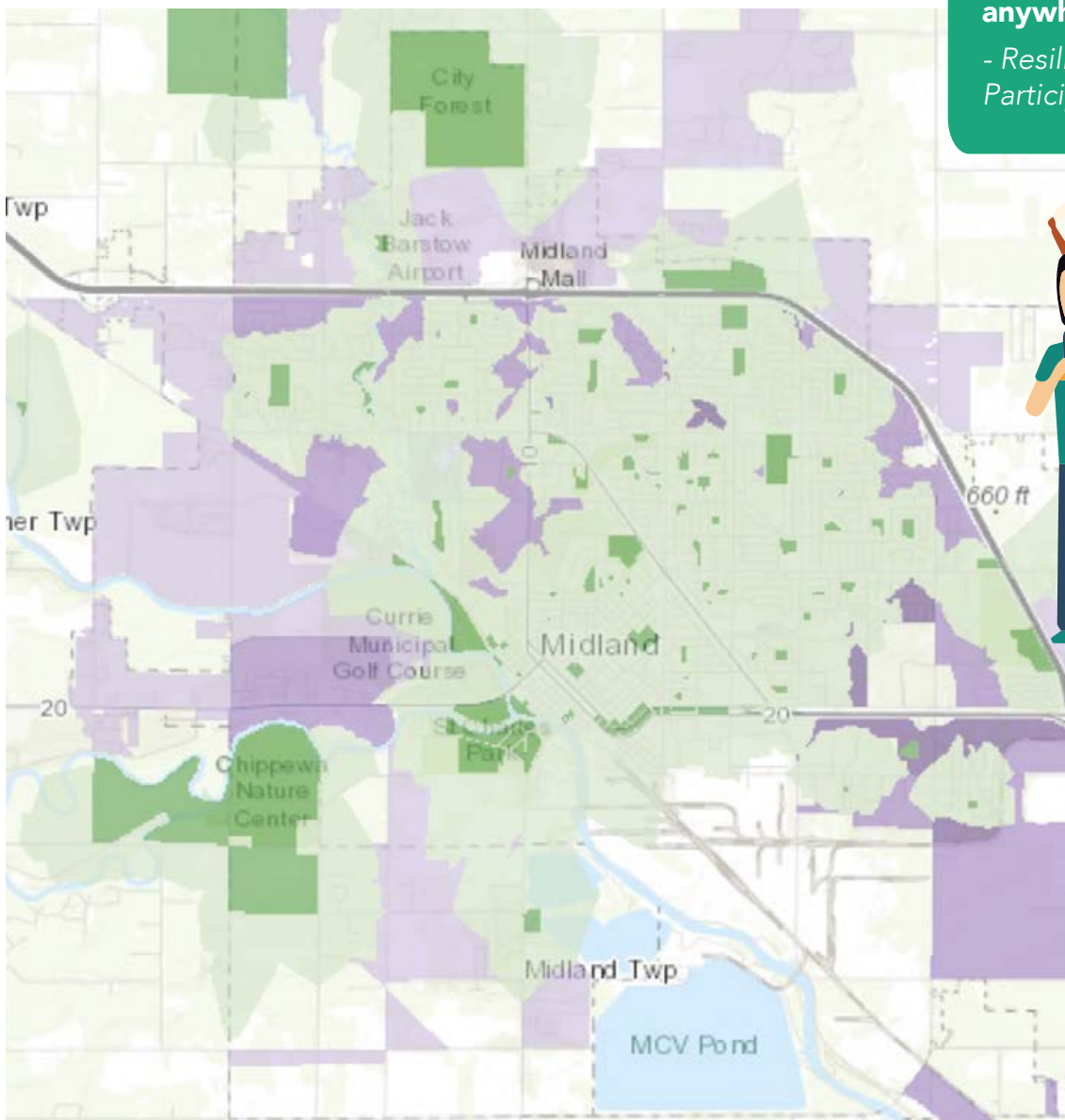


Trends

The map below shows areas within walking distance to parks in light green and accessibility gaps in purple. While the city has various green spaces, some of the most impressive parks are the least accessible. Adding trails and pathways in the designated priority areas will allow more residents to visit these parks without having to rely on personal vehicles.

One of the biggest issues with Midland neighborhoods is access. We need a car to get anywhere.

- Resiliency Workshop Participant



- Parks
- 10 minute walk service areas
- Priority areas for new parks ⓘ
- Moderate priority
- High priority
- Very high priority

Opportunities

GOALS	ACTIONS	TIME-LINE	RESPONSIBLE PARTY
<p>Redevelopment Focus growth and redevelopment in infill areas, increased density, and mixed-use development to reduce sprawl.</p>	<ul style="list-style-type: none"> ❑ Incentivize mixed-use development. Provide incentives and techniques for development to encourage their location on previously developed or infill sites. Zoning codes that include density bonuses, fee reductions, transfer of development rights, and other incentives to avoid greenfield development are particularly important. (APA, 2020. B.6.1) ❑ Educate residents and community groups about the importance of infill and redevelopment, brownfield assessment findings, and design strategies for compatible neighborhood development. ❑ Create a toolkit for complete neighborhoods defined as neighborhoods with walkable amenities within a 20 minute distance of residences. Insert diagram on slide 10. ❑ Walkable neighborhood services, consider flexibility in uses/parking for neighborhood/local commercial or live/work. ❑ Incentivize infill and redevelopment by streamlining the development review process. 	<p>Long</p> <p>Near</p> <p>Near</p> <p>Near</p> <p>Mid</p>	
<p>Midland Urban Growth Area Understand the impact of growth and annexation on the long term community health.</p>	<ul style="list-style-type: none"> ❑ Quantify the approximate cost of annexation and impacts on long-term utility maintenance to create better informed decisions about future annexations. ❑ Create clear criteria for annexation approvals that meets community values, capacity, and quality of life. 	<p>Near</p> <p>Mid</p>	

Opportunities

GOALS	ACTIONS	TIME-LINE	RESPONSIBLE PARTY
Environmental Impacts Minimize human encroachment and impact on natural features and systems.	<ul style="list-style-type: none"> ❑ Set waterfront setbacks that shift the building line further from the high water mark. ❑ Consider a flood overlay zone encompassing the projected worst case dam failure area that limits the amount of residential uses in the floodway. ❑ Engage with regional partners in restoring and maintaining the health of the Tittabawasee River and the buffer zones that protect it. ❑ Adopt a watershed management plan that integrates natural water bodies with human impacts. 	<ul style="list-style-type: none"> Long Mid Long Mid 	
Parks & Open Space Provide a system of accessible and quality parks, recreation, and open space that meet the needs of the community.	<ul style="list-style-type: none"> ❑ Evaluate availability, accessibility and quality of existing parks and open spaces for residents. ❑ Require large scale developments to adequately provide green space and incorporate on-site stormwater storage and refiltration. 	<ul style="list-style-type: none"> Near Mid 	Division of Parks & Recreation
Local Agriculture Encourage private, local and community agriculture at a variety of scales.	<ul style="list-style-type: none"> ❑ Continue to promote preservation of prime agricultural and forested land as part of a natural green belt along the Tittabawasee River to support the ecological enhancement of city resources while promoting carbon sequestration, contributing to the eco-tourism amenities of the area, and enhancing food security. 	<ul style="list-style-type: none"> Near 	

Tracking Metrics

- ❑ City of Midland incorporated acreage
- ❑ Acres vacant land
- ❑ Acres publicly owned land
- ❑ Acres of approved annexation annually
- ❑ Ratio of annexations submitted to annexations approved

SECTION 4

PEOPLE



Image Source |
Go Great Lakes Bay

Resilience depends on providing all people with fair access to the resources needed to ensure a stable, secure, and well-rounded quality of life.

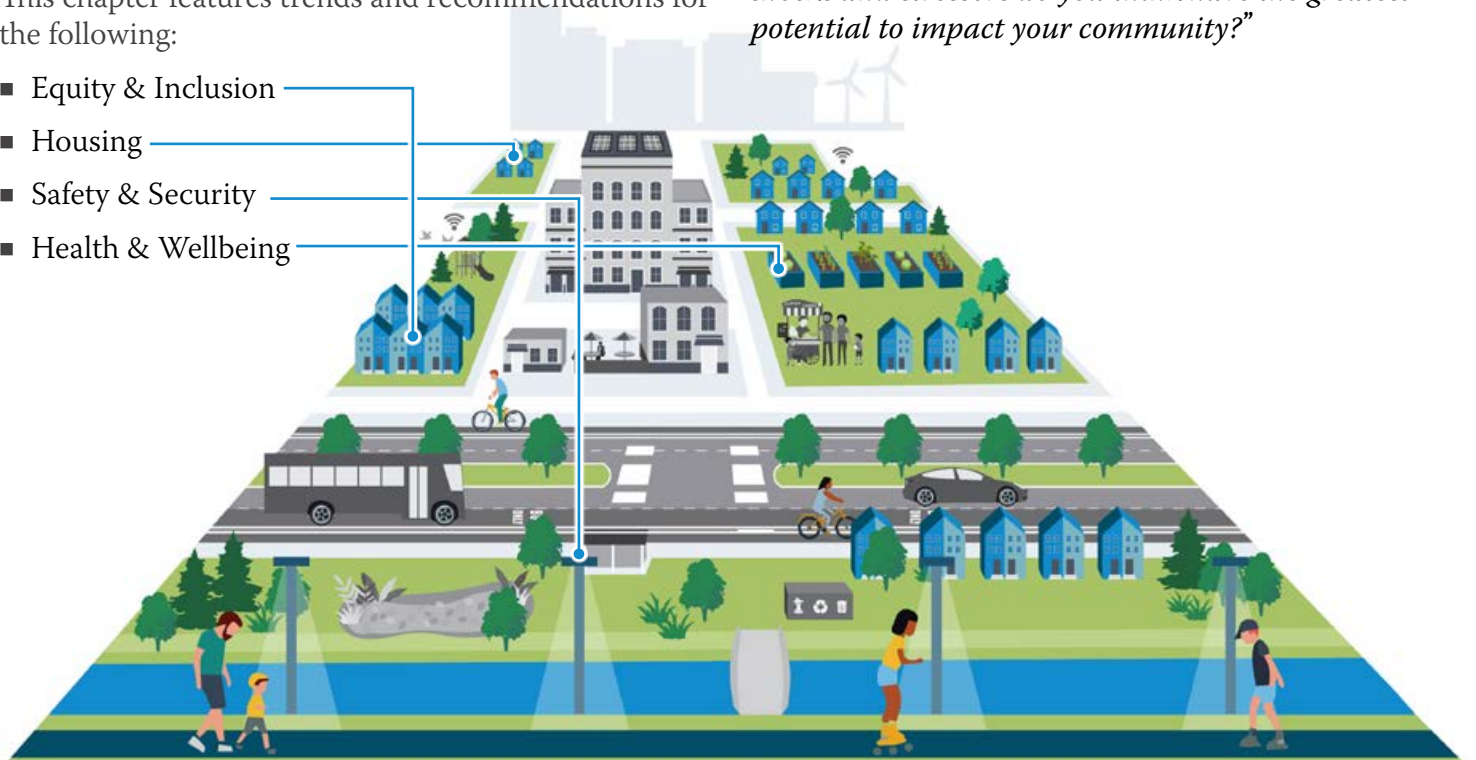
People are the foundation of a community. As individuals, residents exercise their voices, actions and rights in diverse ways, while collectively, the cultures, social groups and organizations they form provide support and momentum for the lives of Michiganders.

CATEGORIES

Resilience in a community depends on how people experience and interact with their environment.

This chapter features trends and recommendations for the following:

- Equity & Inclusion
- Housing
- Safety & Security
- Health & Wellbeing



SHOCKS

- Health emergencies + COVID-19
- ★ Loss of employment + financial burden
 - Educational
 - Resource crisis
 - Communication failure
 - Unreliable transportation/evacuation routes

STRESSORS

- Housing cost burden
- ★ Access to health care and resources
 - Poor diet and exercise/food insecurity
 - Less education + training/unemployment
 - Lack of wealth
 - Lack of family and social support/isolation
 - Violence/community safety
 - Structural racism

Shocks and stressors with the star symbol were top responses on the self-assessment when asked “What shocks and stressors do you think have the greatest potential to impact your community?”

EQUITY & INCLUSION

Role in Resiliency

A truly resilient Midland will take action to ensure equitable access to opportunities for civic participation; access to resources considering potential physical, language, or visual barriers; and actively work to lower rates of disparity by income, health, or race.

1 in 10 Midland households are living below the poverty line, more than double the rate of the state.

Source: *2020 Decennial Census*



Public assistance and access to resources are vital components of enhancing equity for the numerous community members who are reliant on these programs.

Source: *2020 Decennial Census*

Midland is less racially diverse than other Michigan communities; community members of color are some of the most susceptible to economic and social shocks and stressors.

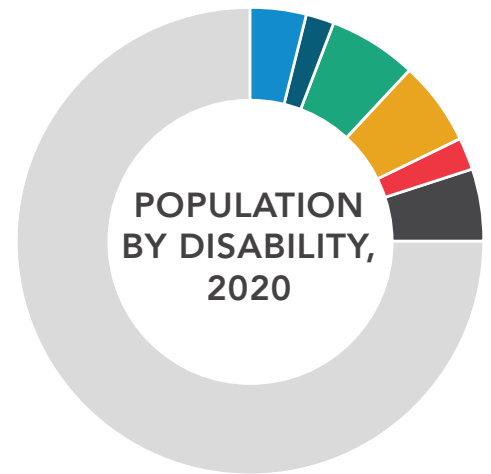
Source: *2020 Decennial Census*

Trends

1 in 4 Midland community members have some form of disability and would benefit from equitable accommodations such as enhanced access to services or adaptive engagement techniques.

- Hearing Difficulty 4%
- Vision Difficulty 2%
- Cognitive Difficulty 6%
- Ambulatory Difficulty 6%
- Self-Care Difficulty 2%
- Independent Living Difficulty 5%
- No Disabilities 75%

Source: *Table S1810 American Census Surveys*



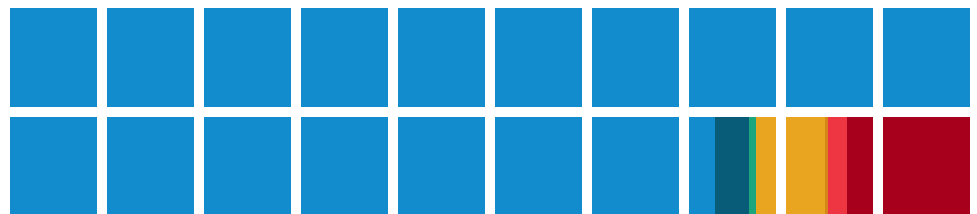
2021 Households Below the Poverty Level



2021 Households with Public Assistance Income



Households Receiving Food Stamps/SNAP



POPULATION BY RACE, 2020

- Pop 1 Race: White (17,988)
- Pop 1 Race: Black (618)
- Population of 2+ Races (1,344)
- Pop 1 Race: Amer Indian (305)
- Pop 1 Race: Asian (216)
- Pop 1 Race: Other Race (151)

Opportunities

GOALS	ACTIONS	TIME-LINE	RESPONSIBLE PARTY
<p>Civic Engagement</p> <p>Facilitate inclusive civic engagement and empower all community members to participate in local decision-making.</p>	<ul style="list-style-type: none"> ❑ Utilize collaborative problem solving and participatory planning to create a regional Task Force focused on putting community-based climate action, recovery and resiliency plans into effect (APA, 2020. P. 29, E.1.2). ❑ Update the City of Midland public participation plan to specify using a range of communication types in order to reach at-risk populations, such as those who are with literacy challenges, speak a language other than English, are deaf or hard of hearing, blind or visually impaired, or have mobility impairments. ❑ Maintain a publicly accessible inventory of social networks and groups (e.g. block captains, civic organizations, trusted elders) organized by geography or neighborhood. ❑ Lean on Leadership Midland to assist the local government and community with special events, services, and operations. These community leaders can help at any point in the process from collecting neighborhood opinion to aiding with implementation. 	<p>Near</p> <p>Near</p> <p>Near</p> <p>Near</p>	
<p>Civic & Human Rights</p> <p>Respect and protect the civil and human rights of all members of the community.</p>	<ul style="list-style-type: none"> ❑ Provide information about community issues, programs, services and activities that are accessible to limited English proficiency residents. ❑ Ensure community leadership and committees reflect the racial, gender, age, income, ethnic and other diversity of the community’s population. ❑ Provide training for police officers, public responders, and city staff focused on implicit bias, cultural responsiveness, and nondiscrimination. ❑ Write and pass anti-discrimination ordinances that apply to basic necessities such as housing, including eliminating the ability for landlords to deny tenant applications based on factors such as income source or criminal history. 	<p>Near</p> <p>Mid</p> <p>Near</p>	<p>Midland PD</p>

Tracking Metrics

- ❑ Gini Index (US Census Bureau)
- ❑ Alice Score (United Way)

HOUSING

Role in Resiliency

Housing is the foundation of strong neighborhoods and key to high quality of life. Strong housing networks are well connected to neighborhood necessities and amenities such as grocery stores, schools, and parks. They are physically and financially accessible. They are diverse enough to welcome people from their first apartments to their retirement homes and everything in between. Midland has a key opportunity to continue making its neighborhoods more accessible, safe, and resilient using strategic policies and incentives that build on its existing neighborhood fabric.

Trends

Housing Access¹

Of the 17,813 households in Midland, 70% is single family housing. To create a truly affordable and accessible housing market, Midland needs to have quality housing at a variety of scales which are affordable to community members at all income levels.

Homeowner Support²

Two of every three Midland households are owned and one is rented. Midland has a higher ratio of homeowners to renters than neighboring cities such as Saginaw, and current trends show a deficit in rentable units at a variety of income levels (see table at right).

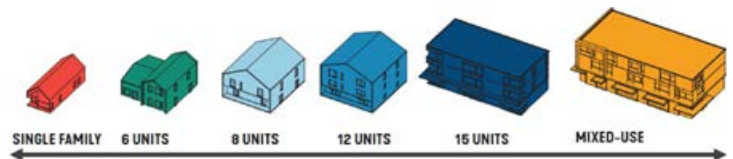
Affordable Housing³

The self-assessment survey showed 81% of respondents said affordable housing is currently facing a shock following the pandemic and dam failures. There is need throughout the county for more affordable rental options.

Most communities in America seek to be both economically sustainable and socially equitable...To meet such lofty goals, a community must have a housing market that functions toward those ends.

Midland County Housing Analysis

Spectrum of Housing Typologies



Gap Analysis of Renter Units by Income³

Gap Between Renter Units and Renter Households by Income		MIDLAND COUNTY	MIDLAND CITY
HOUSEHOLD INCOME	Approximate AMI Range	UNIT GAP	
Less than \$20,000	0-30%	-1,042	-1,024
\$20,000 - \$34,999	30-50%	2,837	2,313
\$35,000 - \$49,999	50-75%	-1	145
\$50,000 - \$74,999	75-110%	-1,025	-784
\$75,000+	110%+	-769	-650

Source: czb analysis of 2012-2016 American Community Survey Data.

Excess of homes (positive unit gap)
Deficit of homes (negative unit gap)

1 United States Decennial Census Survey, 2020
 2 American Community Survey Estimates, 2021
 3 Housing Analysis for Midland County, 2018

Opportunities

GOALS	ACTIONS	TIME-LINE	RESPONSIBLE PARTY
<p>Housing Access Provide a diversity of housing type and affordability options.</p>	<ul style="list-style-type: none"> ❑ Amend zoning to allow for a range of housing types to provide residents the opportunity to progress through various life stages while maintaining their attachment to a particular neighborhood. ★ Amend zoning to permit the construction of more diverse housing types that fit a range of community affordability through a mixture of interventions: <ul style="list-style-type: none"> ❑ Lower the minimum dwelling unit size in existing neighborhoods. ❑ Allow accessory dwelling units by right. ❑ Support mixed-use models for combined retail and housing development in Center City and Downtown Midland. ❑ Seek funding to support duplexes, triplexes, townhomes, and small apartment buildings. 	<p>Mid</p> <p>Long</p>	
<p>Homeownership Provide homebuyer assistance to encourage homeownership and wealth building.</p>	<ul style="list-style-type: none"> ★ Provide grant funding to bring homes up to building code as well as make basic repairs and energy efficiency improvements. ❑ Create a pathway to homeownership program by partnering with Habitat for Humanity and Mid-Michigan Community Action for financial and homebuyer education. 	<p>Near</p> <p>Long</p>	<p>Habitat for Humanity</p> <p>Consumers Energy</p>
<p>Affordable Housing Ensure adequate supply of affordable housing options to meet the needs of all residents.</p>	<ul style="list-style-type: none"> ❑ Identify appropriate locations for buyouts or development rights transfers of low-income housing units in floodplains or other locations at risk due to climate change and eliminate barriers that would prevent low-income residents in such locations from relocating (APA, 2020. P. 30, E.3.5). 	<p>Mid</p>	<p>Midland County Department of Emergency Preparedness</p>

Tracking Metrics

- ❑ Increased enrollment in energy efficiency programs/rebates (Consumers Energy)
- ❑ Decrease in vacant residential units (US Census)
- ❑ Increase in rental units for community members at the 0-30%, 50-75%, and 75-110% AMI markets (US Census)
- ❑ Decrease in cost burdened renters (US Census)
- ❑ Decrease in cost burdened households (US Census)

Did you know tracking progress over time helps measure progress and better determine next steps?



SAFETY & SECURITY

Role in Resiliency

Safety plays an important role in community resiliency by providing quality services and emergency response, pedestrian and motorist safety, safe shared spaces using tools such as lighting and ADA accessibility, and taking special considerations for community members in need of extra supports.

Current Actions

Several combined efforts between the police department and the community have been implemented to help prevent crime in Midland; included among these efforts are the MPD Crime Free Housing Program, Midland County Crime Stoppers, Business Watch, and Keeping Kids Safe.

In 2016, Midland was named the first community in Michigan - and just the 27th in the country - as an accredited Safe Community by the National Safety Council's Safe Communities America program.

Trends

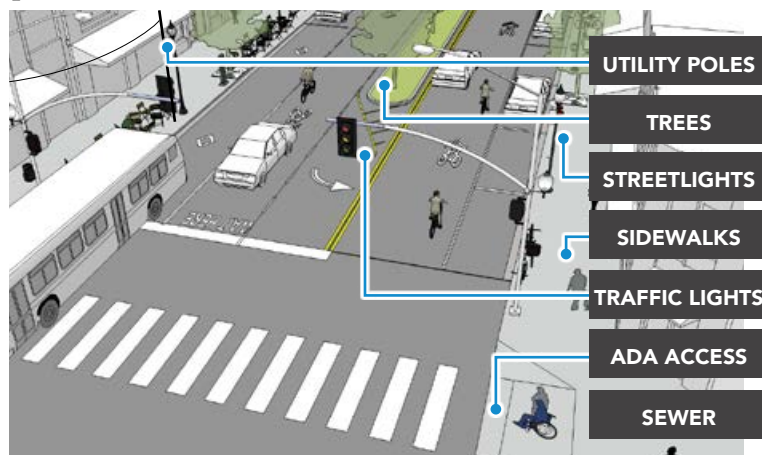
While Midland's age demographics are relatively consistent with the state of Michigan, residents mentioned concern over an aging population when asked what factors have the greatest potential to impact the community. Since 2010, there has been an increase in residents age 30 and over, with a modest decline in the 40-49 group. For residents of retirement age and older, safety is often a major concern, as physical mobility and mental cognizance start to decline over time.

1 in 5 Midland residents require some form of technological or nursing assistance due to difficulties related to disability.

Source: Table S1810 American Census Surveys

As Midland grows physically through annexation, city services also need to expand which requires more funds, resources, and infrastructure.

Building within the city where possible helps provide higher quality, more rapid, lower cost services. This graphic shows just some of the necessary components of a city block.



The city has experienced a dramatic decrease in the amount of reported crime over the last 20 years. In 2002, the Midland Police Department reported 880 property crimes and 75 violent crimes; in 2021, these numbers dropped to 296 and 47, respectively.

Source: Applied Geographic Solutions and FBI Crime Data Explorer

CRIME INDEX, 2020

Midland 42

Michigan 80

Bay City 344

Saginaw 465

Opportunities

GOALS	ACTIONS	TIME-LINE	RESPONSIBLE PARTY
<p>Crime & Community Safety</p> <p>Maintain an environment where people feel safe and welcomed in their communities.</p>	<ul style="list-style-type: none"> ❑ Partner with a local organization to provide mental health and dementia awareness training for first responders and municipal employees (AARP “Roadmap to Livability: Health”). ❑ Conduct a survey of community perceptions of safety, recognizing that some crimes are not reported and to illuminate safety issues that need to be addressed. 	<p>Near</p> <p>Near</p>	
<p>Pedestrian, Bicycle, & Transportation Safety</p> <p>Provide safe, efficient, accessible pedestrian, bicycle, and vehicular networks.</p>	<ul style="list-style-type: none"> ❑ Adopt a complete streets policy, making roads safe for all users (AARP “Roadmap to Livability: Transportation”) and a Vision Zero initiative to eliminate vehicle-caused pedestrian injuries and deaths. ❑ Implement a program to encourage businesses and property owners to keep sidewalks clear of snow and safe for pedestrians (AARP Roadmap to Livability: Transportation). ❑ Incorporate mobility assistance (ramps, hand railings, contrasting colors at boundaries, tactile paving), shaded places to rest, water fountains, emergency call stations, wayfinding with larger fonts and audio signals as standard improvements for roadway enhancements in larger commercial corridors and heavily trafficked roadways such as Saginaw Road. 	<p>Near</p> <p>Near</p> <p>Near</p>	

Tracking Metrics

- ❑ Number of violent and property crime over time (Midland PD)
- ❑ Number of crashes and accidents (Michigan Crash Analysis Tool, Midland PD)
- ❑ Change in school services due to annexation (i.e. new facilities or staff)
- ❑ Change in fire services due to annexation (i.e. new facilities or staff)
- ❑ Change in police services due to annexation (i.e. new facilities or staff)

HEALTH & WELLBEING

Role in Resiliency

Resilient communities prioritize health not only through proximity to health care and facilities, but also through mental health services, access to recreation, and healthy food options.

Trends

The region has strong infrastructure to support active lifestyles, although access to those facilities could be enhanced.

41%
of residents exercise at home 2+ times a week

Source: 2021 American Community Survey

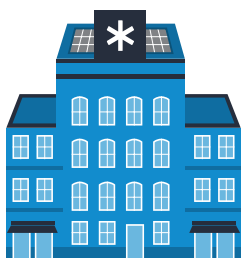
35
miles of trails in the City of Midland

Source: 5 Year Parks and Recreation Plan

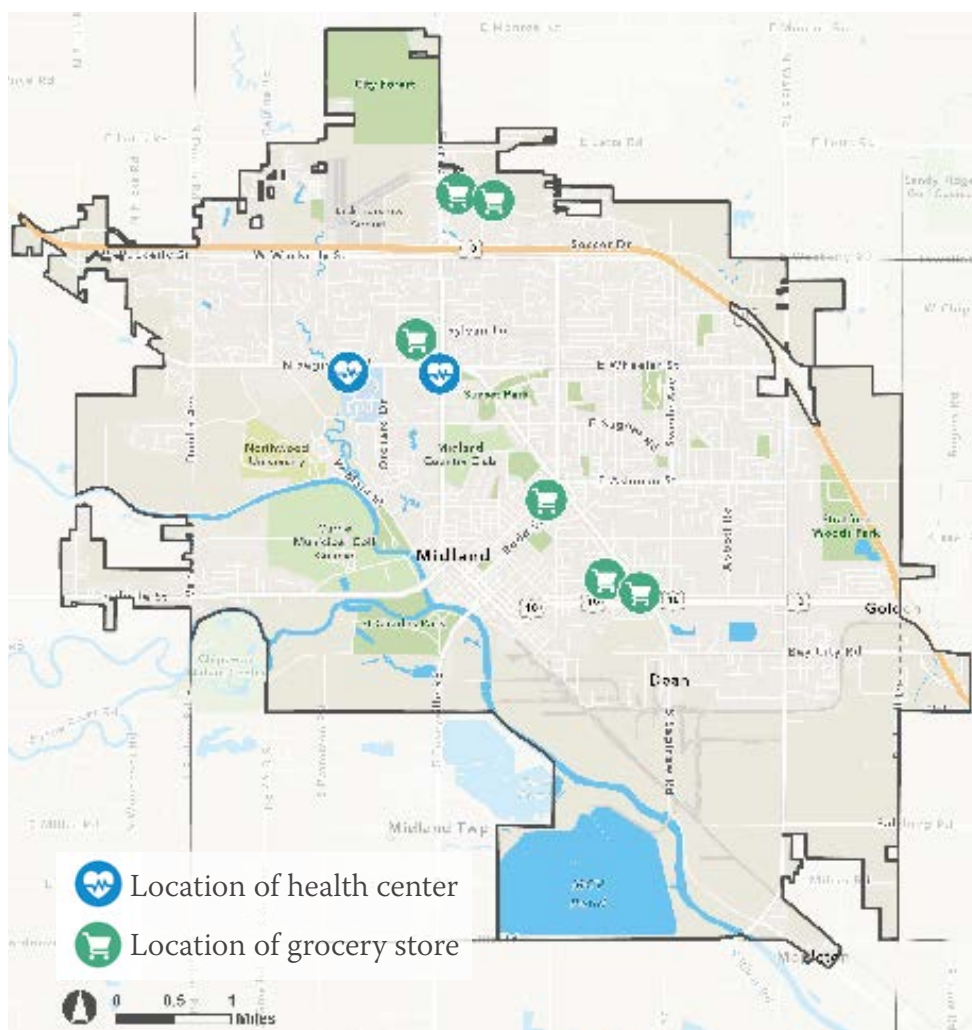


Public health is a major part of the daily life and economy in the city.

Source: Midland Business Alliance



MID MICHIGAN HEALTH SYSTEM IS THE TOP EMPLOYER IN THE COUNTY.



Opportunities

GOALS	ACTIONS	TIME-LINE	RESPONSIBLE PARTY
<p>Health Care Access</p> <p>Provide high quality local health systems that are accessible and responsive to community needs.</p>	<ul style="list-style-type: none"> ★ Partner with local hospitals and clinics to provide education, referral and follow-up, case management, home visiting, and telecare consultation for at-risk and vulnerable populations. □ Develop and expand a community center with programs for people of all ages—from toddlers to centenarians (AARP “Livability Roadmap: Health”). Community centers can also act as cooling and heating shelters. 	<p>Near</p> <p>Mid</p>	<p>MyMichigan Midland Memorial Hospital</p> <p>Midland Area Community Foundation United Way</p>
<p>Active Living</p> <p>Promote active lifestyles for adults and children to integrate physical activity into their daily routines.</p>	<ul style="list-style-type: none"> □ Develop and promote community programming for residents of all ages to engage in social and physical activity □ Build on existing assets such as Chippewa Nature Preserve and Dow Gardens 	<p>Mid</p> <p>Mid</p>	<p>Chippewa Nature Preserve</p> <p>Dow Gardens</p>
<p>Healthy Foods</p> <p>Ensure that adults and children of all income levels have physical and economic access to fresh and healthy food and have opportunities to learn about nutritious eating and food safety.</p>	<ul style="list-style-type: none"> □ Assess Midland for food deserts, and identify opportunities for the establishment of grocery stores in these areas. In dense neighborhoods, consider community maintained gardens to fill gaps within the food access network with affordable produce during the growing season. □ Support the establishment of a year-round market location for the Midland Area Farmer’s Market, in partnership with the Midland Business Alliance. □ Partner with organizations such as Midland United Way to support food assistance programs and emergency food programs, which can help Midland prepare for unanticipated pandemics and natural disasters, but also increase accessibility to healthier meal options. □ Partner with Midland DDA and Center City Authority to create food rescue programs, as in public-private partnerships between restaurants, hotels, and other venues of large food production with can partner with local food halls to make good food more widely available. 	<p>Mid</p> <p>Mid</p> <p>Near</p> <p>Near</p>	<p>Midland United Way</p> <p>Midland Downtown Development Authority</p> <p>Center City Authority</p> <p>Midland Area Farmer’s Market</p>

Tracking Metrics

- Heart disease, asthma, food deserts, and medically underserved populations (EPA EJ Screening Tool)
- Populations at risk (Center for Disease Control)

SECTION 5

INFRASTRUCTURE



Image Source |
Ben Tierney

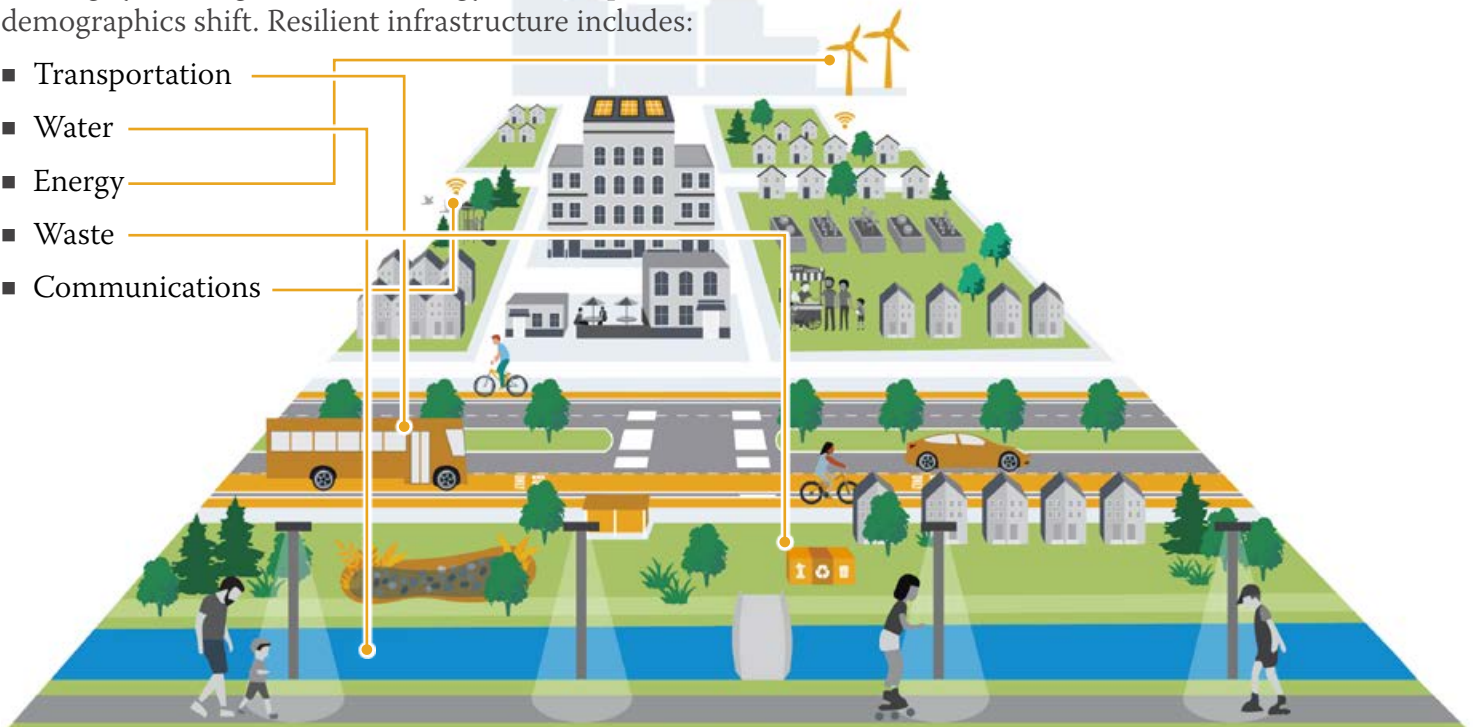
Robust infrastructure is critical to everyday life. Resiliency includes efficient transportation, a reliable power grid and communications outlets, and safe drinking water.

As infrastructure degrades over time, it is important to consider future shocks and stressors that may determine how effectively upgrades or replacements will serve the community in decades to come. While infrastructure is often a high cost investment, it can also be the source of costly catastrophes unless they are built properly upfront.

CATEGORIES

Infrastructure needs are continually evolving as existing systems age, new technology is developed, and demographics shift. Resilient infrastructure includes:

- Transportation
- Water
- Energy
- Waste
- Communications



SHOCKS

- Heatwaves
- ★ Flooding
- Wind Damage
- Winter Storms
- Cyber Attacks
- Dam Failure

STRESSORS

- ★ Age of infrastructure (pipes, wires)
 - Deferred maintenance
 - Emerging technologies integration (tech synchronization)
 - Increasing demand
 - Annual average precipitation rise
 - Drinking water access

Shocks and stressors with the star symbol were top responses on the self-assessment when asked "What shocks and stressors do you think have the greatest potential to impact your community?"

TRANSPORTATION

Role in Resiliency

Midland residents love the historic, dense, walkable neighborhoods from when the city was first founded. This is a strong foundation for urban transit which requires density to create regular routes. However, continual annexation and outward growth makes it hard to maintain this density or provide alternate ways for residents to access services. The greater role of transportation in resiliency is one of redundancy, offering several alternatives for when one option becomes unavailable.

“One of the biggest issues with Midland neighborhoods is access. We need a car to get anywhere.”
– Resiliency Workshop Participant



Trends

As of 2021, the City had 85 miles of major streets and 149 miles of local streets to maintain and to slowly bring in alignment with its Capital Improvement Plan goal of pursuing multi-modal transportation alternatives and a Complete Streets program. In early 2022, the Bipartisan Infrastructure Law granted Midland over \$450,000 for transportation infrastructure improvements. Task force conversations have revealed that the implementation of transportation strategies has had varying degrees of success. While the purchase of electric transit vans has been received positively, problems in bus programming software has led to decreased ridership.

Source: [*Congressman Dan Kildee*](#)

Current Actions

The current Capital Improvement Plan includes a sidewalk improvement program, street light upgrades, non-motorized infrastructure, and pavement projects at a few city-owned sites. In 2022, Midland County passed a Road Millage Renewal that will allocate funds to help maintain and improve roads and bridges throughout the county. In early 2023, the City purchased two electric transit vans for city-use; the City is further investigating electricity infrastructure improvements and charging stations to support the new vans and public interest in the EV market.

Source: [*Capital Improvement Plan*](#)

Midland is a member of the EV Smart Communities Program supported by the Michigan Municipal League, which is designed to create local readiness for electric vehicles.

Source: [*Michigan Municipal League*](#)

Midland has almost 20 miles of trails in city parks and is connected to the scenic 30 mile Pere-Marquette Rail Trail, which extends to the City of Clare. It's also connected through the Huron Eastern Railway and Lake State Railway.

Source: [*MDOT*](#)

Opportunities

GOALS	ACTIONS	TIME-LINE	RESPONSIBLE PARTY
Safe Roads Provide safe, well-maintained roads for all modes of transportation.	<ul style="list-style-type: none"> ❑ Partner with the county and state to develop and maintain multimodal, interconnected trade, logistics, and transportation systems to enhance freight mobility. ★ Develop a schedule to make all streets, curbs, and sidewalks safe and accessible. When possible, plan upgrades around State DOT improvement projects. ❑ Encourage infill and walkable improvements for new developments to enhanced walkability in Downtown and Center City. 	<ul style="list-style-type: none"> Long Near Long 	
Accessibility Provide diverse, convenient, affordable, safe and accessible transportation choices and modes with a priority on pedestrian, bicycle and transit infrastructure.	<ul style="list-style-type: none"> ❑ Align Midland’s focus on accessibility for people of all abilities by improving multimodal transportation options. <ul style="list-style-type: none"> ❑ Consider designs that further enhance pedestrian and cyclist facilities, bus lanes, and other transit improvements that can provide transportation options for those without cars. ❑ Bolster usage with education initiatives around using multimodal transportation options. ❑ Revise future land-use and zoning maps to encourage personal services (pharmacies, groceries, hardware stores, etc.) in localized areas and near access to transit and adequate bike and pedestrian infrastructure. ❑ Build upon existing bike and walking trails within the City and continue to participate in county and regional intra- and inter-county trailway planning to offer trail connectivity among residents, employment, and shopping destinations. ❑ Install sidewalks and/or pathways throughout the city/village and fill in missing sidewalk infrastructure, where feasible, introducing canopy cover in Center City to reduce exposure to heat, and ensuring benches are available at regular intervals along South Saginaw Road. 	<ul style="list-style-type: none"> Mid Long Mid Long 	Friends of the Pere Marquette Rail-Trail The Little Forks Conservancy

Tracking Metrics

- ❑ Increase mode split by increasing the use of transit, walking, and biking to lower amount of trip residents take driving alone (American Community Survey commuting mode-share data)
- ❑ Decreased Vehicle Miles Traveled (VMT) per capita
- ❑ Measurement of proportion of residents living in locations with mixed land uses.
- ❑ Miles of road improvements (or added if part of annexation)

WATER

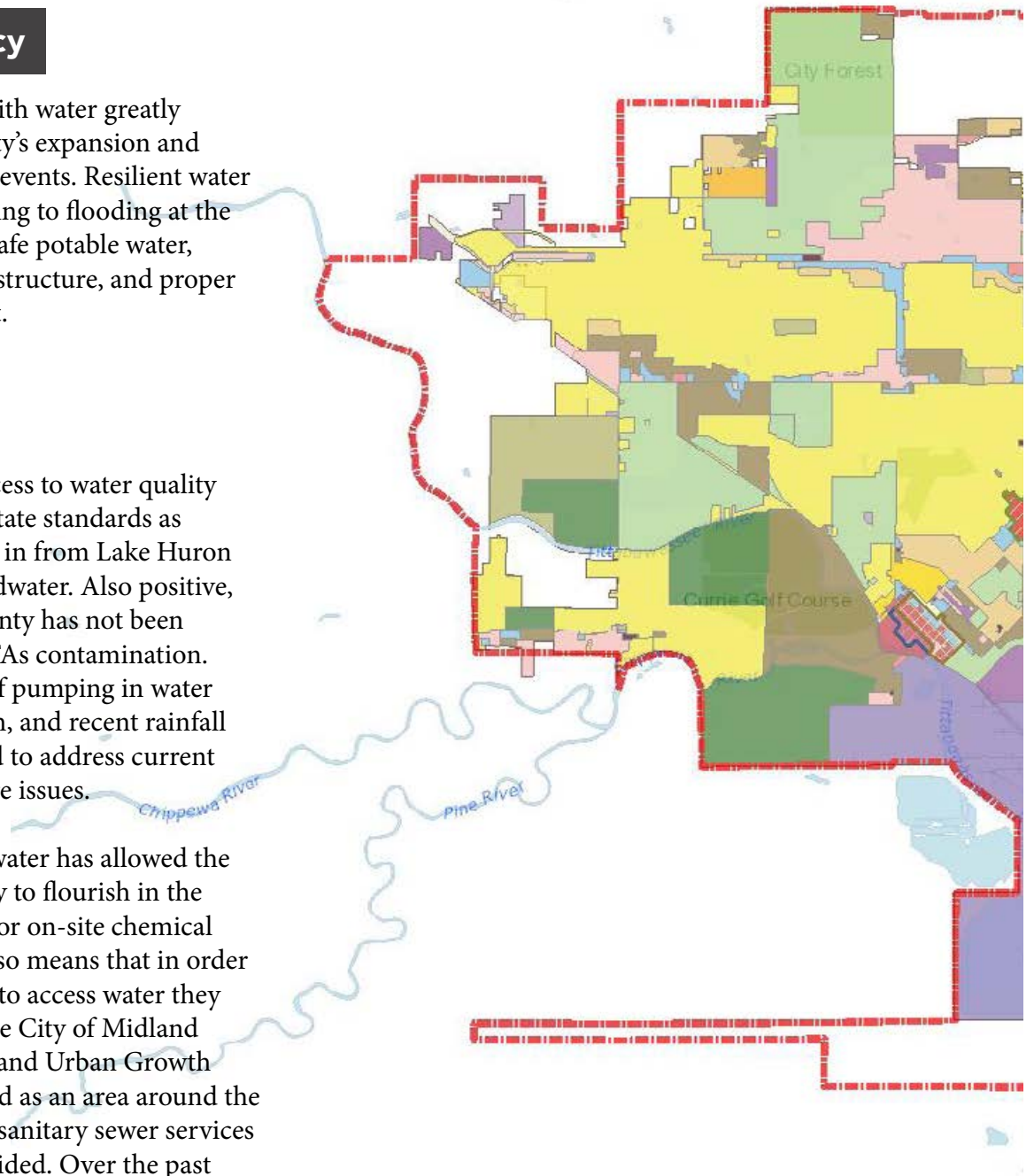
Role in Resiliency

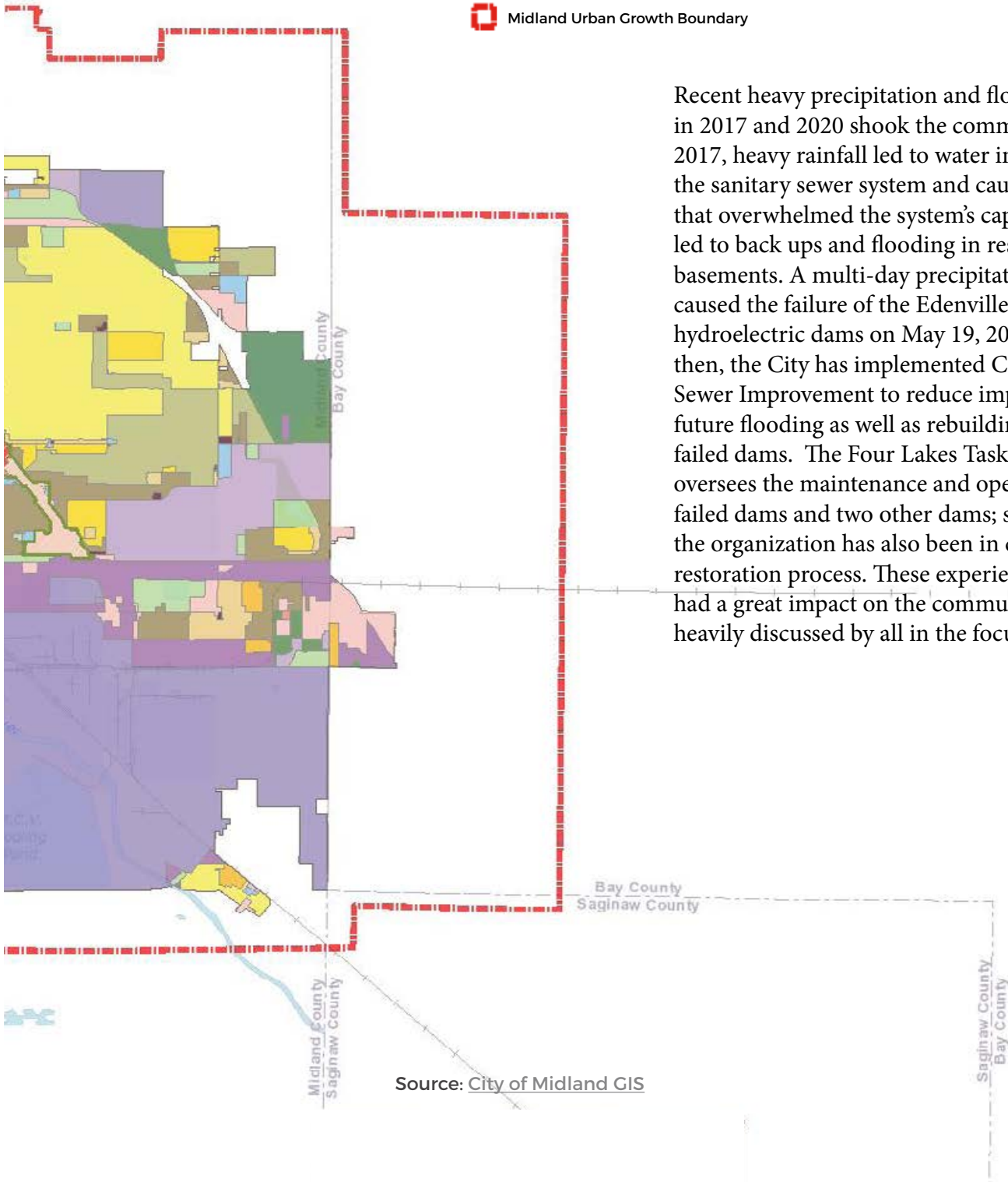
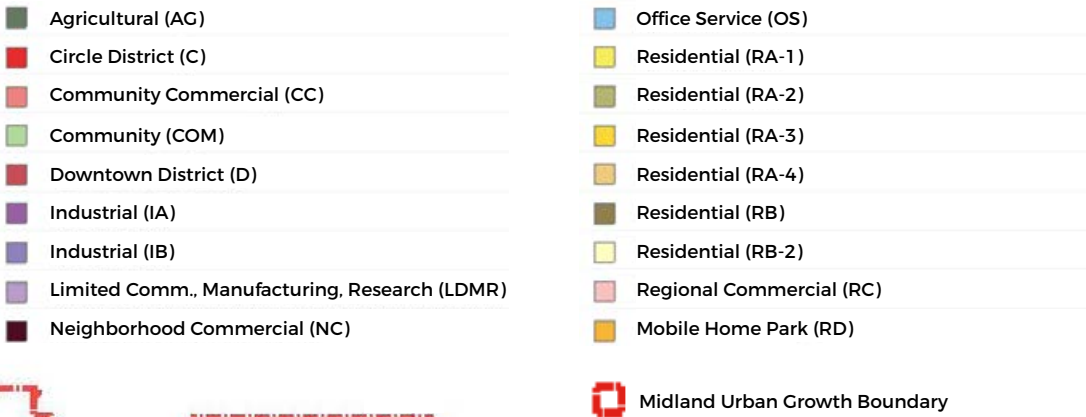
Midland's relationship with water greatly influences the community's expansion and reaction to precipitation events. Resilient water systems go beyond reacting to flooding at the river's banks to include safe potable water, reliable wastewater infrastructure, and proper stormwater management.

Trends

Overall, Midland has access to water quality well within federal and state standards as potable water is pumped in from Lake Huron due to briny local groundwater. Also positive, as of 2021, Midland County has not been identified as potential PFAs contamination. However, the necessity of pumping in water impacts the City's growth, and recent rainfall events highlight the need to address current stormwater infrastructure issues.

While the briny groundwater has allowed the Dow Chemical Company to flourish in the area as it uses the brine for on-site chemical containment ponds, it also means that in order for nearby communities to access water they must purchase it from the City of Midland or be annexed. The Midland Urban Growth Boundary was established as an area around the City to which water and sanitary sewer services could eventually be provided. Over the past few decades, the city has expanded within this area. However, annexation comes at a cost in order to expand the necessary services to newly acquired areas.





Recent heavy precipitation and flooding events in 2017 and 2020 shook the community. In 2017, heavy rainfall led to water infiltrating the sanitary sewer system and cause flooding that overwhelmed the system’s capacity and led to back ups and flooding in residential basements. A multi-day precipitation event caused the failure of the Edenville and Sanford hydroelectric dams on May 19, 2020. Since then, the City has implemented Concept 5 Sewer Improvement to reduce impacts of future flooding as well as rebuilding the two failed dams. The Four Lakes Task Force oversees the maintenance and operation of the failed dams and two other dams; since 2020, the organization has also been in charge of restoration process. These experiences have had a great impact on the community and were heavily discussed by all in the focus groups.

Source: [City of Midland GIS](#)

Current Actions

Concept 5 Sewer Improvement

Concept 5 is a \$48 million project to improve the City's response to precipitation events and reduce the amount of fresh water that flows into the sewer system and basement backups. Projects include increasing the size of some sewers and adding offline sanitary sewer storage as well as performing repairs and maintenance.

Source: [City of Midland](#)

Dam Restoration

Immediately following the dam failure, the Federal Energy Regulatory Commission ordered the levels lowered in the lakes, and the Four Lakes Task Force (FLTF) acquired the dams.

The FLTF has overseen the recovery of the dams as well as the restoration of the dams and lakes, including rebuilding the dams and restoring the impacted ecosystems. Hydroelectric capabilities were not restored due to non-ideal market conditions. Other restoration activities have included debris removal, shoreline restoration, and erosion management; some of these actions have been focused on bioengineering to create natural and resilient shorelines. Dam restoration will also include installing proper barriers to block upstream passage of invasive Sea Lampreys.

Source: [Four Lakes Task Force](#)



Did you know?

Sea Lampreys are parasitic fish with bodies similar to eels. They are native to the North and West Atlantic, but invaded the Great Lakes in the early 19th century. These fish are considered an invasive species, as they prey on many fish that are important to Michigan's fishing industry.

Source: NOAA

Image Source |
Ted Lawrence of Great Lakes Fishery Commission

Trends

The Four Lakes (Wixom, Sanford, Smallwood, and Secord) are an important part of Midland's culture and economy. The restoration of these lakes as recreation destinations is important not only to those who live in Midland, but to many Michiganders who spend summers on their boats and at the beaches with their families.



Opportunities

GOALS	ACTIONS	TIME-LINE	RESPONSIBLE PARTY
Water Consumption Minimize water use and demand while providing safe, accessible drinking water to all residents.	<ul style="list-style-type: none"> ❑ Continue the planning process and implement a communitywide water management plan to improve water efficiency and reductions by residential and commercial sectors. ❑ Audit drinking water distribution lines; repair or replace lines that are leaking, corroded, or cracked. Priority should be placed on addressing lead lines. ❑ Establish protocols in the case of insufficient clean water supply to meet the needs of low-income and other vulnerable populations. 	Near Mid Near	Public Works
Wastewater Systems Ensure regular sewer system and septic maintenance.	<ul style="list-style-type: none"> ★ Monitor the age and condition of sewer infrastructure and continue work of Concept 5 Sewer Improvements. 	Near	
Stormwater Management Minimize runoff into stormwater infrastructure and reduce flooding.	<ul style="list-style-type: none"> ❑ Retrofit existing streets to incorporate green infrastructure best practices to address stormwater management, wildlife passage, urban heat island impacts, and improve air quality and incorporate other natural systems best practices. ❑ Encourage residential and commercial rainwater capture and reuse as well as Low-impact development (LID). Educate the public on the benefits of LID and green infrastructure. ★ Reduce over time the percentage of residents living in designated high-risk flooding areas. 	Mid Near Long	

Tracking Metrics

- ❑ Sewer overflow data
- ❑ Stormwater systems condition and capacity
- ❑ Reduced flooding and sewer backup in residential areas
- ❑ Changes in size of sewer system over time
- ❑ Miles of sewer pipe improvements made (or added if part of annexation)

ENERGY

Role in Resiliency

Over 73% of global greenhouse gas emissions are produced by the energy sector; this includes energy use in buildings, transportation, and industry. Changes to the way energy is generated, transmitted, and used can drastically reduce carbon emissions to create

Trends

With the help of their electric utility, Consumers Energy, Midland is on the path to a renewable energy future. Consumers Energy pledged to stop using coal and reduce emissions by 60% by 2025 and reach net zero emissions from electric operations by 2040; as the largest electric utility in the lower peninsula, Midland will greatly benefit from this transition. The City of Midland also utilizes energy generated by the Midland Cogeneration Venture, a natural gas-fired combined electrical and steam energy generation plant uses gases collected from the City of Midland Sanitary Landfill.

Current Actions

Captured biogas released from the landfill is sent to the City's gas-to-energy facility that produces 1,600 megawatts of electricity and 1.5 million pounds per hour of steam, which is sold to the Dow Chemical Company.

Tracking Metrics

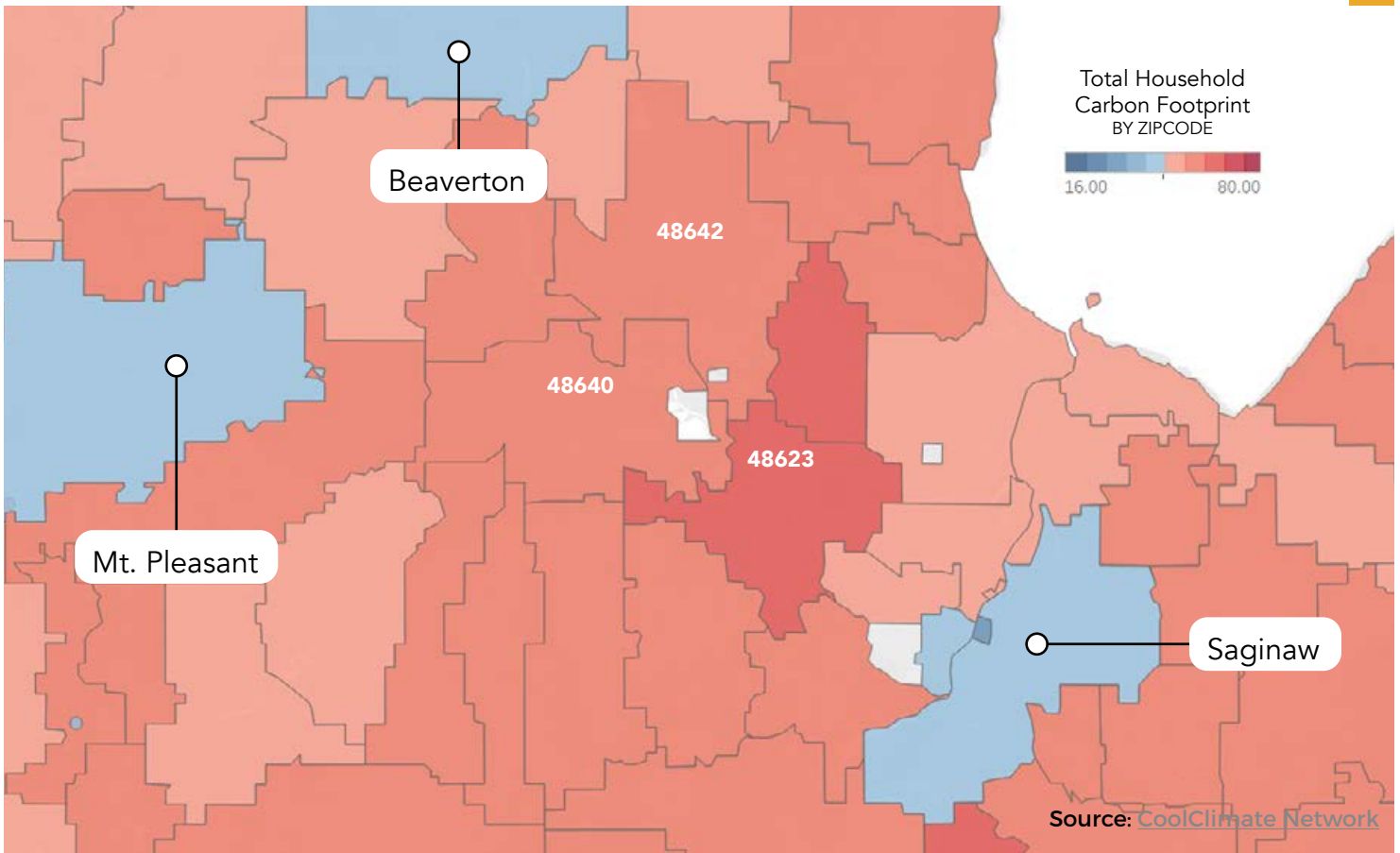
- ❑ Strong building codes adopted. New buildings to meet Enterprise Green Community or other third-party green building standard.
- ❑ Megawatts of utility scale solar installations added.
- ❑ Number of permits issued for window replacements, heat pump water heaters, envelope improvements.



Did you know?

Swapping 43W Halogen bulbs with 9W Energy Star certified LEDs can provide the same amount of lumens while saving nearly \$5 per year per bulb! LEDs are more efficient, too - meaning they last longer and won't lose 90% of their energy as heat like incandescent bulbs do.

Image Source |
De an Sun of Unsplash



Opportunities

GOALS	ACTIONS	TIME-LINE	RESPONSIBLE PARTY
<p>Sustainable Energy</p> <p>Reduce the energy use intensities of the built environment.</p>	<ul style="list-style-type: none"> Collaborate with Consumers Energy to expand Demand Response options for energy consumers. Demand response provides opportunities for consumers to improve the operation of the electric grid by reducing or shifting their energy usage during peak periods in response to time-based or notification of high electricity usage. Evaluate city buildings and facilities for energy efficiency improvement and possible on-site renewable energy opportunities. Promote microgrids as a strategy for community energy independence. 	<p>Near</p> <p>Near</p> <p>Mid</p>	<p>Consumers Energy</p>
<p>Carbon Footprint</p> <p>Lower the carbon footprint of the built environment.</p>	<ul style="list-style-type: none"> Promote local building insulation and weatherization programs to reduce heating and cooling costs while lowering the carbon footprint of buildings. These programs are an opportunity for a significant number of new jobs that can be prioritized for local residents. 	<p>Mid</p>	<p>Home Builder's Association</p>

WASTE

Role in Resiliency

Waste comes from the consumption of many products and processes. Creating sustainable waste programs requires addressing the storage, transportation, use, composting and disposal of municipal waste.

Current Actions

Yard waste pick up and composting continues to divert over 60,000 cubic yards of organic material from the landfill every year. In 2010, Midland adopted a single stream recycling program that increases ease of recycling for residents.

Source: [City of Midland](#)

Trends

There is a disconnect in service provisions between what the city provides and the outcomes they would like to see. For example, it would be more sustainable for the city to divert as many materials from the landfill as possible. However, the city provides dumpsters four times annually alongside regular trash pickup yet only provide recycling services once a month. While the current landfill has approximately 40 years remaining, expanding municipal composting and promoting recycling would extend the landfill's life.



THE AVERAGE
AMERICAN PRODUCES
4.4 LBS
OF TRASH PER DAY



COMPOSTING
CAN REDUCE
FOOD WASTE BY
20-30%



MICHIGAN'S RATE OF
RECYCLING
~15-20%
ONE OF THE LOWEST
IN THE COUNTRY

Source: [U.S. Environmental Protection Agency](#)



Image Source | Midland Recyclers

Opportunities

GOALS	ACTIONS	TIME-LINE	RESPONSIBLE PARTY
Waste Management Coordinate and promote community programs for waste, recycling, and compost.	<ul style="list-style-type: none"> ❑ Increase awareness of recycling services and support efforts to create a City composting program for residents. 	Near	Midland Recyclers Republic Services / WM Square Roots
	<ul style="list-style-type: none"> ❑ Promote expansion of composting and recycling by adopting a waste management plan. 	Near	
	<ul style="list-style-type: none"> ❑ Operate specific waste management programs for critical waste stream types found in the community, such as organic waste, hazardous waste, electronic waste, and construction and demolition waste. 	Mid	
	<ul style="list-style-type: none"> ❑ Create a public education campaign or a focused outreach effort to inform residents and businesses of their roles in achieving waste reduction targets. 	Near	
	<ul style="list-style-type: none"> ❑ Incentivize low-waste business practices such as reusable bags, refill stations, compostable materials, and returnable to-go containers. 	Mid	

Tracking Metrics

- ❑ Target net-zero municipal solid waste produced in the community (or reduce waste stream by % annually)
- ❑ Increase recycling rate among residents and businesses
- ❑ Cubic yards of waste diverted from the landfill

COMMUNICATIONS

Role in Resiliency

Resilient communication systems are critical to the safety and wellbeing of residents. Strong communication systems and broadband are as much a public necessity as water with the rise of the digital age. This became especially evident during the pandemic where isolation led to shifts in working and socializing. While most communication infrastructure is privatized, Midland can enhance redundancies and equitable access to information to protect commerce and public safety in the event of disasters.

Trends

Nearly 100% of the City of Midland has access to high-speed broadband. Midland County also continues to strive to expand its access to reliable internet. The city also has 5G mobile wireless coverage. Fiber exists only in a few select areas of the city.

Source: *Connected Nation*

Current Actions

In 2021, the Downtown Development Authority approved the installation of public wi-fi in the downtown area.

Source: *Midland Daily News*



Opportunities

GOALS	ACTIONS	TIME-LINE	RESPONSIBLE PARTY
Fiber & Broadband Strengthen and increase communications networks.	<ul style="list-style-type: none"> Partner with broadband providers to improve access to high-speed and reliable wireless broadband service throughout the community. Work with the business community to identify fiber needs. 	Mid	MiTCON Spectrum (Charter Comm) AT&T
Wi-Fi Offer free public access to Wi-Fi in easily accessible locations.	<ul style="list-style-type: none"> Expand free wi-fi zones in strategic areas of the city. 	Near	DDA, CCA, Spectrum, AT&T

Tracking Metrics

- Expansion of broadband and fiber internet
- Increase in total number of publicly accessible spaces offering free wi-fi

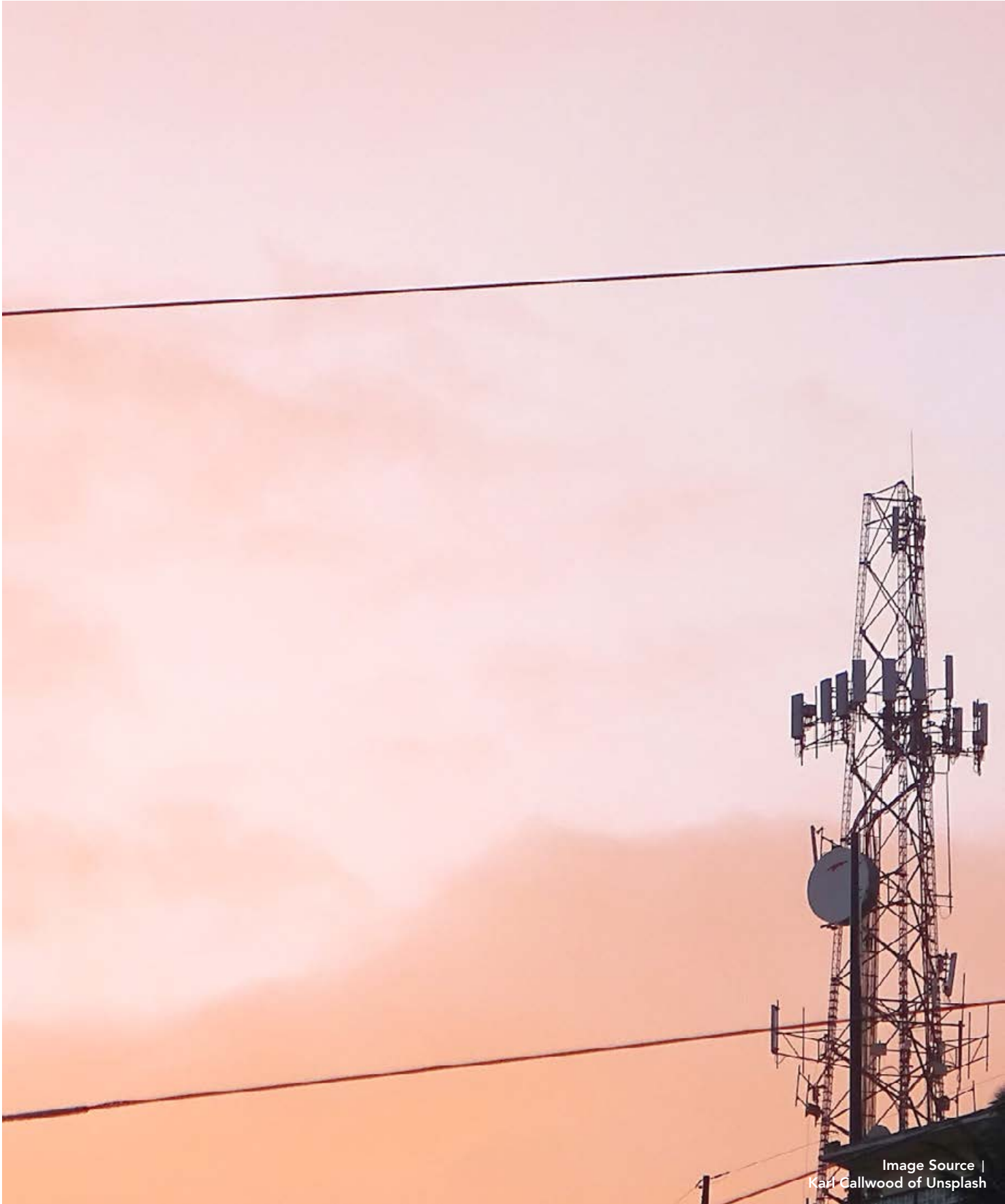


Image Source | Karl Callwood of Unsplash

SECTION 6

ECONOMY



Image Source | Midland Daily News

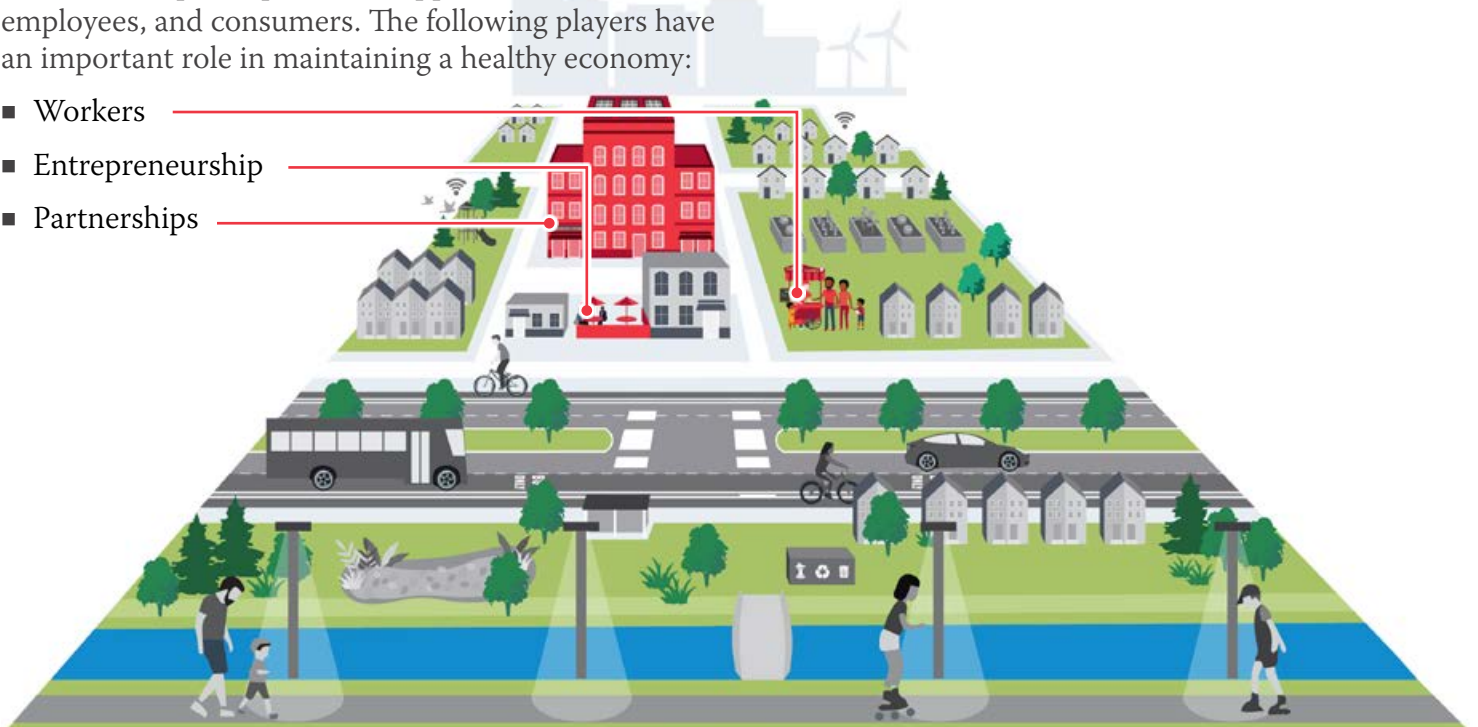
Resilient communities prepare residents to weather economic events by equipping communities with financial means and diverse skillsets.

Midland has strong industries in the area that have contributed to economic success and maintained a strong presence in the city. It is important to balance focus between these large institutions and the needs of small businesses that characterize Downtown and Center City.

CATEGORIES

Most simply, the economy refers to the management of available resources. A successful economy depends on the active participation of suppliers, businesses, employees, and consumers. The following players have an important role in maintaining a healthy economy:

- Workers
- Entrepreneurship
- Partnerships



SHOCKS

- Economic & local industry-specific downturns
- Local educational closure impacting production of employees/labor
- ★ Large employer closure
 - Supply chain issues via natural/human made disasters
 - Civil disturbances
- ★ Public health emergencies

STRESSORS

- ★ Aging population
 - Breakdown in partnerships
 - Climate adaptation costs
 - Declining tax bases & property values
 - Industrial or commercial activity decline
- ★ Economic dependency
 - Skills/job mismatch

Shocks and stressors with the star symbol were top responses on the self-assessment when asked "What shocks and stressors do you think have the greatest potential to impact your community?"

WORKERS

Role in Resiliency

Workers are the foundation of strong communities and strong economies. It is important to promote a diversity of work options so Midland can withstand losses and gains of major industries as the global economy shifts post pandemic. It is also important workers are prepared for the types of jobs available by promoting and uplifting training programs and university ties to area employers.

Trends

Childcare was identified as the third greatest stressor impacting the community in the self-assessment survey, just behind aging infrastructure and housing affordability. Encouraging new and innovative programs such as [SPARK Childcare](#) would fill this need, grow local business, and help workers.



Source: Resiliency Self-Assessment Survey

Midland has a slightly stronger performing economy than the state overall, but wage gaps and middle income jobs are a sector of need.

Source: 2020 Decennial Census



3 in 4
workers in
Midland are
college educated.



Midland has a lower
unemployment rate
than the State at
4.7%.



1 in 10
Midland residents
are living below the
poverty line.

Almost 1 in 5 residents work for either MidMichigan Health or DOW.

Source: 2020 Decennial Census and Midland Business Alliance



Leading Employers	# Employees
MidMichigan Health	4,878
DOW	4,003
Midland Public Schools	1,039
DuPont	697
Cortega Agriscience	664

Opportunities

GOALS	ACTIONS	TIME-LINE	RESPONSIBLE PARTY
<p>Workforce Development</p> <p>Expand job and educational training programs that support upward economic mobility, and better living wages so that all working people and their families can afford basic necessities.</p>	<ul style="list-style-type: none"> ❑ Partner with the local business community to support job training programs, apprenticeships, and strategies for lifelong learning to enable vulnerable workers to build their skills and education. ❑ Partner with career technical centers, community colleges, and employers to expand options for high school students to become industry certified while still in high school, as an alternative to college path. ★ Collaborate with existing young professionals to identify the concerns and needs of younger population. ❑ Enact a set of initiatives in order to better support young professionals and entrepreneurs such as: business seminars, speakers, business plan competitions, investment forums, social events, relocation support, mentoring, and referrals. ★ Partner with major employers in Midland to complete an industry sector value chain and market analysis study to better understand areas of most need. ❑ Support thriving commercial and entertainment pockets to retain young talent while maintaining respecting the quiet, safe, historically residential surrounding neighborhoods. 	<p>Near</p> <p>Near</p> <p>Near</p> <p>Near</p> <p>Near</p> <p>Mid</p>	<p>Northwood University</p> <p>Delta College</p> <p>Building Trades Program</p> <p>Midland Business Alliance</p> <p>Midland Downtown Development Authority</p>
<p>Supportive & Fair Benefits</p> <p>Provide benefits that support individuals and families during any stoppage of work, including retirement and unemployment.</p>	<ul style="list-style-type: none"> ★ Encourage industries to develop in-house programs around benefits for employees to reduce benefit/income burden and provide things like in-house childcare, additional days off, and flexible working hours to increase quality of life for workers. ❑ Encourage H. H. Dow High School, Midland High School, and Davenport University to offer hands-on classes for childcare services. This can provide learning opportunities about how to care for and teach young children while providing the community with a much-needed affordable and trusted service. 	<p>Mid</p> <p>Mid</p>	<p>H. H. Dow High School</p> <p>Midland High School</p> <p>Davenport University</p>

Tracking Metrics

- ❑ Employment by industry
- ❑ Percent of tri-city region employees located in Midland
- ❑ Amount of workforce housing within a mile radius of commercial cores

ENTREPRENEURSHIP

Role in Resiliency

Midland’s economy is heavily based in the manufacturing and health systems. 1 in 4 residents works in these industries. Industry diversity boosts community resilience by creating a pool of alternative employment opportunities for residents in the event of shocks and stressors such as the closing of a major employer’s office or declines in market demand.

Entrepreneurship will be a major growth opportunity for Midland. Creating the ideal environment to support small businesses and entrepreneurship will include financial partnerships, walkability enhancements, and support for neighborhood nodes of activity.

Leading Industries	% Employees
Manufacturing	22%
Health Care	17%
Retail	9%
Professional/Scientific/Tech Services	7%
Accommodation/Food Services	7%

Trends

There are few self-employed entrepreneurs in the city currently.

Source: *Table DP03 American Census Survey Estimates 2021*



Services serve as strong anchors in the city. Making walkable connections to service and retail centers will be key to support entrepreneurs and small businesses in the city.

SERVICES PROFILE, 2020

Source: 2020 Decennial Census



Opportunities

GOALS	ACTIONS	TIME-LINE	RESPONSIBLE PARTY
Business Retention & Development Strengthen and grow small and medium-sized enterprises.	<ul style="list-style-type: none"> ❑ Through programs for small businesses, promote business continuity and preparedness planning, such as ensuring businesses understand their vulnerabilities—including supply chains—in the face of disruptions and are prepared to take actions to resume operations after an event. ❑ Offer virtual interviewing and remote work opportunities to relieve the burden of transportation and create greater opportunity for people with disabilities. ❑ Promote purchasing preferences for locally produced goods and services in the local government and anchor institutions as well as creating/supporting promotional campaigns to bank locally, buy locally, or buy from small, independent businesses and retailers. 	<p>Mid</p> <p>Near</p> <p>Near</p>	<p>Midland Business Alliance</p> <p>Midland Area Chamber of Commerce</p> <p>Great Lakes Bay Region</p>
Innovation Incubation Create opportunities and incubators to support dynamic business activity.	<ul style="list-style-type: none"> ❑ Provide marketing and advertisement on new businesses to foster the reputation/services of new businesses. ❑ Provide focused support, resources, and services to young entrepreneurial companies. 	<p>Near</p> <p>Mid</p>	<p>Midland Business Alliance</p>
Available Capital Ensure local capital and investment opportunities are available for starting new businesses.	<ul style="list-style-type: none"> ★ Support diversification initiatives, such as targeting the development of emerging clusters or industries that (a) build on the region's unique assets and competitive strengths; and (b) provide stability during downturns that disproportionately impact any single cluster or industry. 	<p>Long</p>	<p>Midland Business Alliance</p>
Accessible Financing Ensure banking and financing support is available to all regardless of credit worthiness.	<ul style="list-style-type: none"> ❑ Partner with local banks and credit unions to provide residents get free financial counseling to help with credit repair, access to affordable and safe checking and savings accounts, home-ownership preparation, and retirement saving. ❑ Attract small to mid-size businesses by increasing opportunities and financial support. 	<p>Near</p> <p>Mid</p>	<p>Midland Center City</p> <p>Midland Downtown Development Authority</p>

Tracking Metrics

- ❑ Visitors per year
- ❑ Amount of vacant retail space in commercial cores
- ❑ Percentage of self-employed workers
- ❑ Population growth rate
- ❑ Patent & business license registration

PARTNERSHIPS

Role in Resiliency

Midland’s economy is part of a larger system which requires strong partnerships to support employment anchors and the employees who work there.

Trends

Midland has almost 18,000 people coming into the city to work daily from the outlying suburbs while almost 10,000 residents leave to work elsewhere. Strong regional partnerships will ensure both local and regional employers thrive so residents can as well.

Source: *2020 Decennial Census*



51,155

Daytime
Population



1,864

Total
Businesses



38,265

Total
Employees



Image Source | Go Great Lakes Bay

SECTION 7

TOP OPPORTUNITIES



Image Source |
My Michigan Beach

PRIORITIZATION

While all the opportunities in this assessment are applicable to Midland and are important to achieve well rounded resiliency, the city can only take on so much at once. Prioritization is key to effective implementation and based on 5 key principles.

RESOURCES

Are there adequate resources currently devoted to this initiative?

AWARENESS

Do the community, partners, and city staff recognize the importance of this initiative?

IMPACT

What impact will this initiative have on the community? In the short term? In the long term?

FEASIBILITY

Does city staff and/or a partner have the fiscal and staffing capacity to achieve this initiative? Why/why not?

PARTNERSHIP

Are there partners who can help to achieve this initiative?

This process identified two key priorities for the City of Midland that would have the most impact on the future resiliency of the city and region while aligning with existing partners and resources.

- Encourage infill to support existing communities.
- Rethink the future of neighborhood centers to better connect residents with resources.



NEXT STEPS

Once selecting the priority actions for Midland, action champions and responsible parties will need to regularly assess opportunities to make these goals a reality.

