

# **Coastal Resilience**

## **Anticipate, React, Adapt**

**Trenton, MI**  
**City Council and Planning Commission Joint Meeting**  
**May 9, 2022**

# What makes Trenton being a Coastal Community so Special?

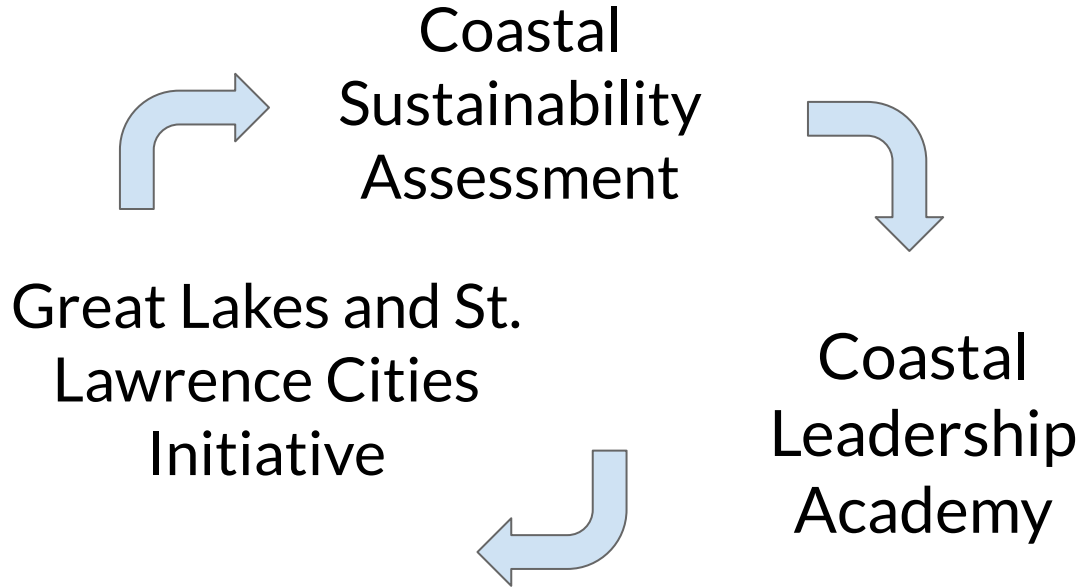
Coastal Resilience  
in Trenton Michigan  
May 2022

- Trenton is one of 300 communities located on the coast of Michigan.
- Trenton makes up 4.5 miles (16%), and the West Jefferson Coal Coordinated communities make up 15 miles (54%), of the 28 mile Detroit River coastline.
- Using 2003 data, roughly 1M boats are registered to MI residents
- 2017 data, MI ports and harbors produce \$19.7B in economic impact, \$15.4B of that is water based tourism and recreation.
- The Detroit Riverfront is 3.5 miles long, and sees 3M visitors who spend \$43.7M and created \$4.5M in tax revenues.
- The “Walleye Capital of the World” fishing industry is estimated to be worth \$1B annually



[Link to Detroit Heritage Water Trail Imagery - Elizabeth Park Canal](#)

# Let's get the ball rolling!



# Coastal Sustainability Assessment

Michigan's Coastal Management Program is funding several initiatives to help communities wisely manage coastal land. MCMP collaborated with SEMCOG and the Land Information Access Association (LIAA) to deliver a Coastal Sustainability Assessment at no local cost.

- Inventory of coastal data, policies, regulations, and practices in the master plan, zoning ordinance, and county Hazard Mitigation Plan
- Comparison to a standardized Coastal Sustainability Assessment
- Review of assessment with key staff
- Maps of heat vulnerability and future flooding scenarios prepared for each coastal community, with data available to the community
- Public presentation of findings (tonight!)
- An interactive final report detailing the findings of the mapping assessment and the Community Sustainability Assessment. This report will include suggestions for next steps for each community

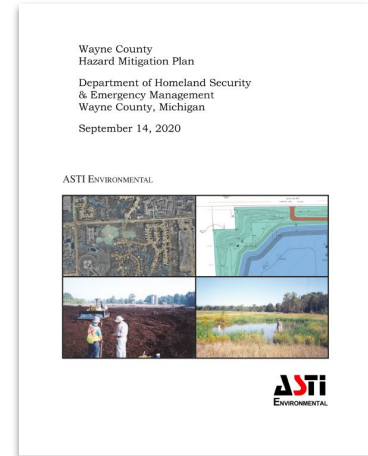
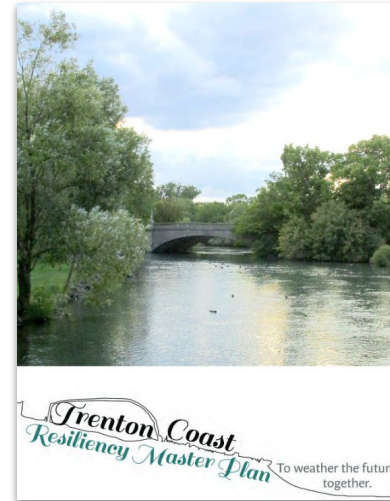
# Coastal Sustainability Inventory

Coastal Resilience  
in Trenton Michigan  
May 2022

- Trenton Coast Resiliency Master Plan
- Trenton Zoning Ordinance

*(plan and ordinance were funded through a previous partnership between MCMP and the Michigan Association of Planning - Trenton has been involved in this partnership for a long time now!)*

- Wayne County Hazard Mitigation Plan
- Special assistance from Trenton's Emergency Coordinator, Paul Haley



# Coastal Sustainability Inventory

Coastal Resilience  
in Trenton Michigan  
May 2022

## Findings

- The Trenton Coast Resiliency Master Plan pays extensive attention to coastal conditions and policies
- The document ties coastal land use to economic resilience
- The zoning ordinance contains a unique Waterfront Revitalization district, impervious surface standards, and wetlands preservation provisions
- General ordinances address flooding and stormwater management
- Wayne County Hazard Mitigation Plan adopted in 2020
- Trenton identified at risk of riverine and urban flooding, shoreline erosion, and storm sewer infrastructure failure

# Coastal Sustainability Assessment Tool

Coastal Resilience  
in Trenton Michigan  
May 2022

Sustainability benchmarks are used as indicators of local resilience. Communities are scored with a

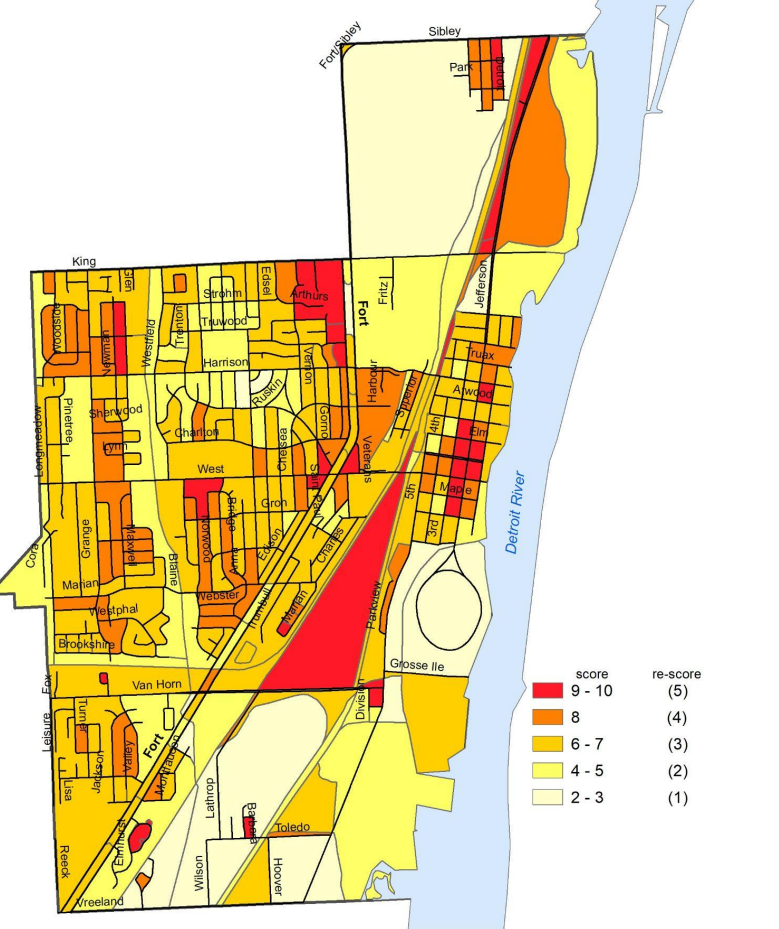
- Y (Yes) if the principle is reflected in its planning and zoning efforts;
- I (Improve) if efforts to advance the principle are present but could be improved;
- N (No) if the community hasn't considered the principle; and
- NA (Not Applicable) if the principle isn't reflected in local conditions

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

## Trenton Assessment review team

Wendy Pate, Trenton City Council  
Dean Creech, Trenton City Administrator  
Paul Haley, Trenton Emergency Coordinator  
Michelle Bennett, Trenton City Planner  
Leah DuMouchel, LIAA  
Barry Hicks, LIAA

**Map 9**  
**Relative Environmental Exposure to Extreme Heat Events**



**Coastal Resilience**  
 in Trenton Michigan  
 May 2022

# Assessment

## Data Gathering and Mapping

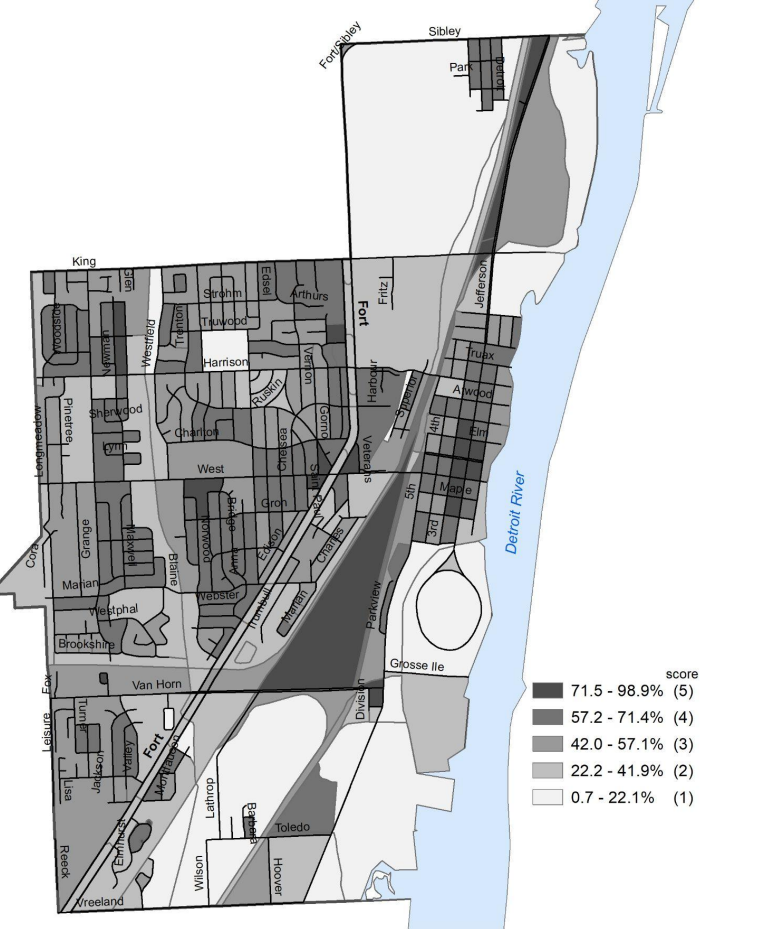
- Lake levels and erosion are mapped and updated
- A vulnerability assessment of Trenton’s people and structures was conducted during the master plan process
  - An economic assessment of structures at risk is a logical next step
  - A buildout analysis could be conducted to see how much future value is planned for at-risk areas
- The City keeps records of which structures have flooded
- Risk information is made public through the master plan

Data Source:  
 SEMCOG,  
 U.S. Census Bureau (2010), ACS (2015-2019)

Prepared March 2021 by LIAA for SEMCOG.  
 0 0.35 0.7 1.05 1.4 Miles  
 N ↑



**Map 7**  
**Percent Impervious Surface Exposure**



# Coastal Resilience in Trenton Michigan

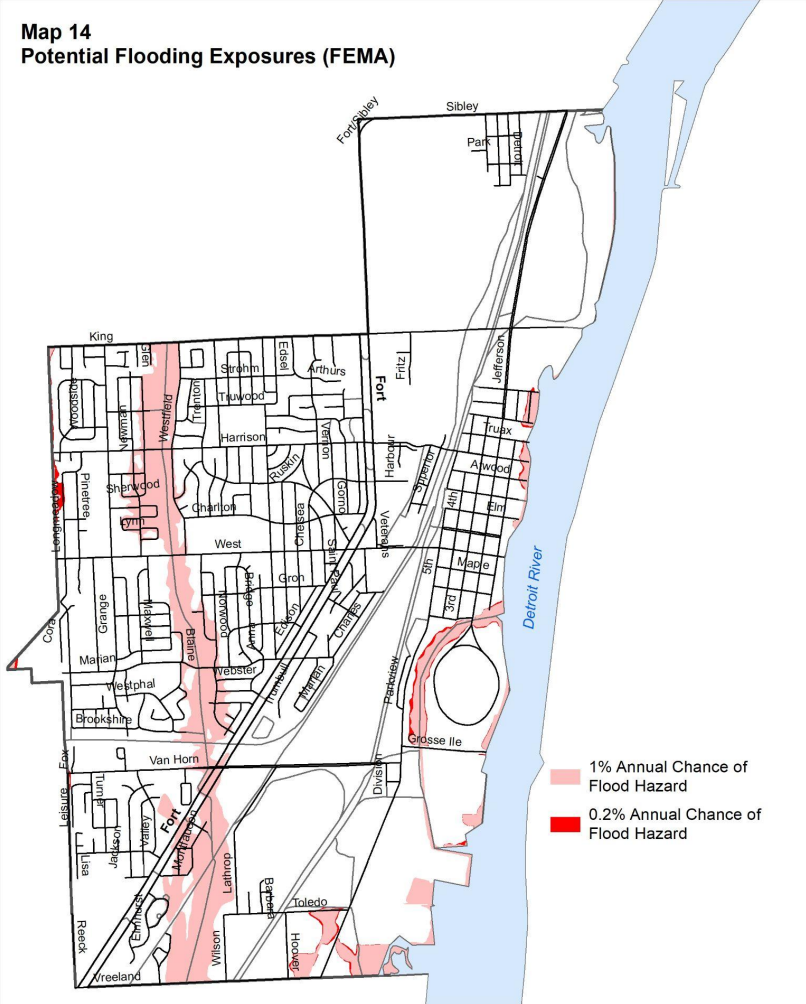
May 2022

# Assessment Zoning Regulations

- Regulations to protect property from flooding are in a police power ordinance rather than the zoning ordinance
  - Pro: Applies immediately, no properties are exempted due to legacy zoning
  - Con: Can be missed in the development review process; Trenton uses engineering as a bridge
- Impervious surfaces are addressed in both master plan and zoning ordinance
- Planning and zoning both support a natural buffer around the Frank and Poet drain to minimize flood damage
- Vegetation requirements abutting the coast are supported in the master plan and called out during development of the W-R district
  - Implementing them in the zoning ordinance should be part of the next zoning amendment

Data Sources:  
 SEMCOG,  
 U.S. Census Bureau (2010), ACS (2015-2019)

Map 14  
Potential Flooding Exposures (FEMA)



Coastal Resilience  
in Trenton Michigan  
May 2022

# Assessment

## Critical Facilities and Infrastructure

- Critical facilities prevented from locating in floodplain
- Trenton has an emergency coordinator, emergency operations center, and emergency operation plan

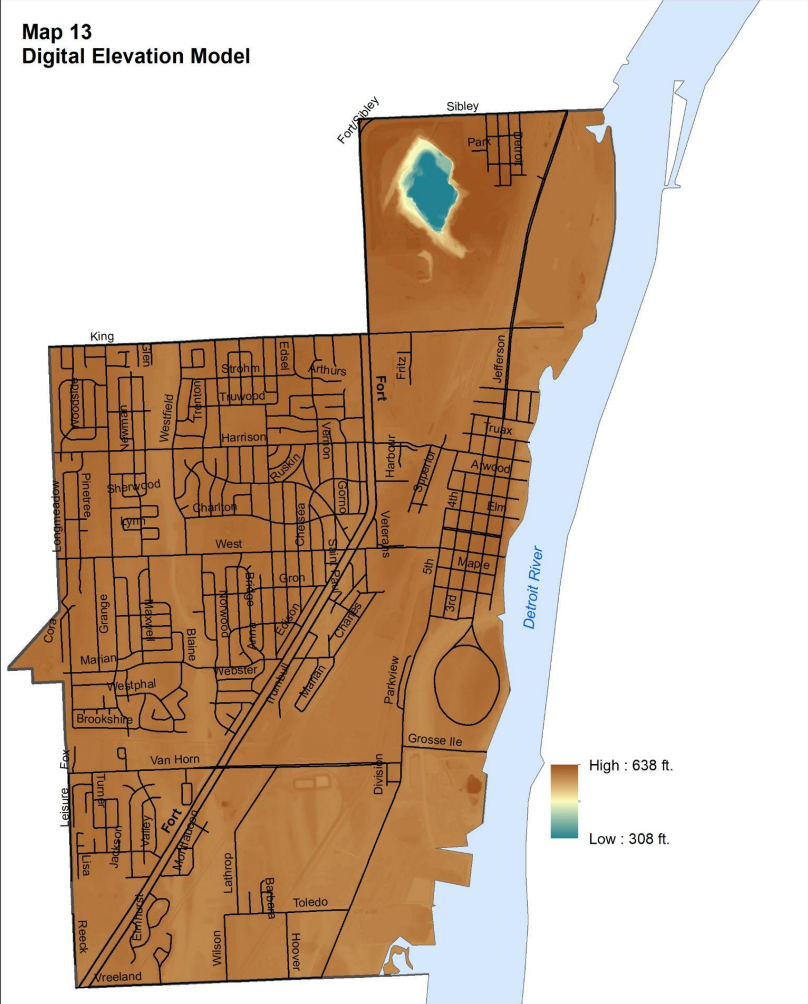
## Disaster Preparedness

- Nixle and Code Red available to disperse information
- Emergency facilities are available and centrally located
- Emergency Management Coordinator engages in scenario planning, awarded Federal Threats and Hazards Identification and Risk Assessment

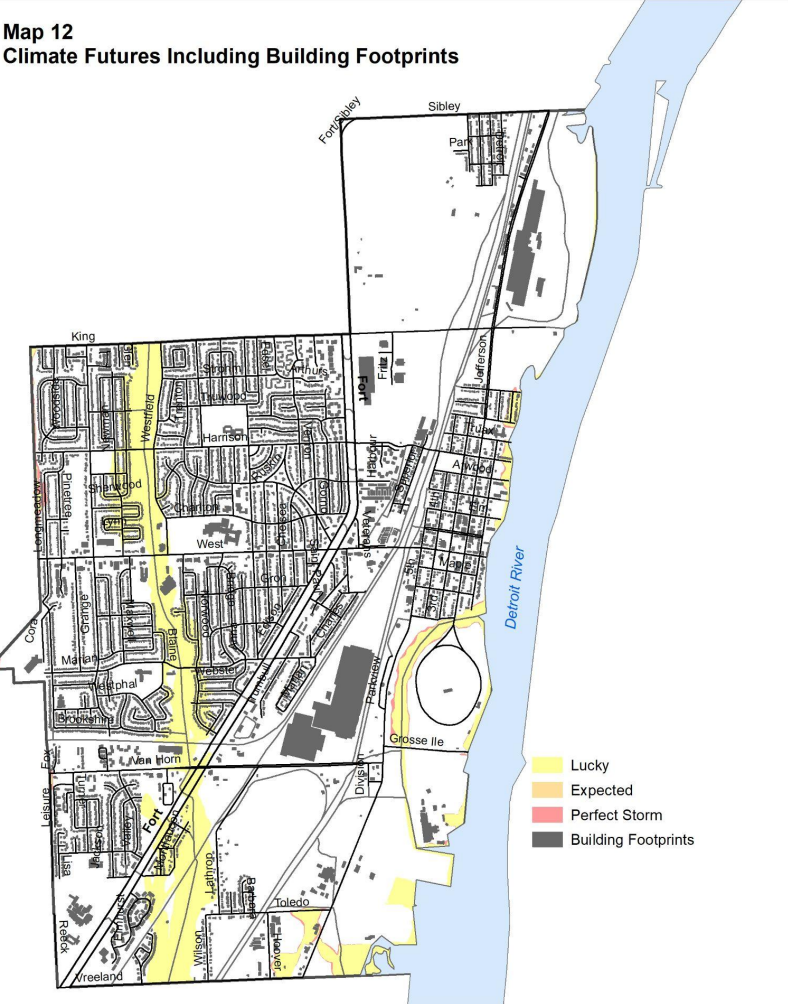
Data Sources:  
SEMCOG, FEMA

# Assessment Professional Training

- Planning consultant is trained in GIS/mapping
  - HMP action item: Wayne County to offer in-house GIS training for communities
- Municipal staff attend professional trainings
- Building inspectors are certified
- Planning commissioners get training via planning consultant



Map 12  
Climate Futures Including Building Footprints



Coastal Resilience  
in Trenton Michigan  
May 2022

# Assessment Hazard Planning

- Trenton participates in FEMA Community Rating System
- Long-term coastal hazards are assessed with existing seawalls in place
  - No projections are considered for after they fail
- City's investment of millions of dollars in separating combined sewers is paying off: in 2018 flood, only 14 of 8500 homes were affected
- County can order multi-jurisdictional mutual aid under its Emergency Operations Plan

Data Sources:  
SEMOG, FEMA

# Coastal Sustainability Assessment Tool

Coastal Resilience  
in Trenton Michigan  
May 2022

## Summary of opportunities

- Conduct additional risk planning and assessment
  - Economic assessment of structures currently identified as vulnerable
  - Scenario planning that considers possible future hazards and incorporates the cost and risk of maintaining the existing seawall system
  - Buildout analysis to see how much future value is planned for at-risk areas
- Adopt waterfront landscape regulations
- Participate in GIS training as offered by SEMCOG/Wayne County
- Training for the Planning Commission

# Coastal Leadership Academy

A three part pilot training module developed by the Michigan Coastal Management Program and the Michigan Association of Planning.

Funded through a grant from the National Oceanic and Atmospheric Administration, U.S. Department of Commerce, and hosted by SEMCOG.

- For communities facing increase of coastal hazards such as lake level variation, flooding, and erosion.
- We were part of the DCC Coal Community group represented in the training
- To gain knowledge and tools to guide future growth and wise development for their communities, while protecting their unique coastal natural and cultural resources.



# Learning Objectives

Coastal Resilience  
in Trenton Michigan  
May 2022

- Describe how Great Lakes dynamics impact coastal shorelines, property and infrastructure over time
- Access data sources to help understand local coastal conditions
- Apply resiliency planning principles to your local situation
- Identify planning tools that can support coastal resiliency
- Define a realistic path for taking action

**Building Coastal Resilience Series**  
6 videos • 1,073 views • Last updated on Oct 29, 2020

Michigan EGLE **SUBSCRIBE**

- 1 **Building Coastal Resilience: Planning for a Resilient Future (6/6)**  
Michigan EGLE 11:29
- 2 **Building Coastal Resilience - Adaptation Strategies (5/6)**  
Michigan EGLE 10:07
- 3 **Building Coastal Resilience: Data and Tools for Making Informed Decisions (4/6)**  
Michigan EGLE 11:37
- 4 **Building Coastal Resilience: Protecting the Coast for Everyone (3/6)**  
Michigan EGLE 11:31
- 5 **Building Coastal Resilience: The Impacts of Water Levels and Weather (2/6)**  
Michigan EGLE 8:26
- 6 **Building Coastal Resilience: Introduction to the Michigan Coastline (1/6)**  
Michigan EGLE 10:00

[Link to EGLE Building Coastal Resilience YouTube Series](#)

# Examples

## Coastal Resilience in Trenton Michigan

May 2022

### Plans and Tools

- Zoning: shoreline setbacks, coastal/shoreline district overlay, PUD, rezoning
- Environmental regulations: flood plain, tree replacement, wetland protection, open space preservations, stormwater management
- Stand alone waterfront plans can identify desirable futures for the waterfront/downtown: redevelopment, public access, marinas, tourism
- Parks and rec stand alone plans can be aligned with master plan, CIP can connect with resilience infrastructure

### Community Story

Harrison Township Model Waterfront plan: An RRC town, blue-green trailways, similar values, strengths and weaknesses



See p.28 document (32 pdf): [Link to Harrison Township Waterfront Plan](#)



# Action Plans

Coastal Resilience  
in Trenton Michigan  
May 2022

## 5 Ws

**WHO** refers to the people and organizations that need to be involved in your process

**WHAT** refers to which climate hazards and sectors will be the focus of your effort

**WHERE** refers to the planning area

**WHEN** refers to the planning horizon(s)

**WHY** refers to your motivations, desired outcomes, and outputs

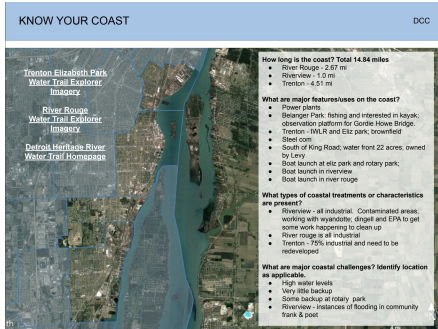
## 1. DCC Taskforce

Create mission statement, EDA grant application, SEMCOG/LIAA, Community Foundation/Great Lakes Way, DCC Economic Development Director

## 2. Project Implementation

Redevelopment/Acquisition, Conversations with large private property landowners and environmental agencies for funding, cleanup and site prep, educate other community stakeholders and develop champions

**KNOW YOUR COAST** DCC



**How long is the coast?** Total 14.84 miles

- River Rouge - 2.87 mi
- Riverview - 1 mi
- Trenton - 4.51 mi

**What are major features/uses on the coast?**

- Plover slits
- Belonger Park, fishing and interested in kayak, observation platform for Gordie Howe Bridge
- Trenton - WLR and Elz park, brownfield
- Steel core
- South of King Road, water front 22 acres, owned by LRV
- Boat launch at elz park and rotary park
- Boat launch in riverview
- Boat launch in river rouge

**What types of coastal treatments or characteristics are present?**

- Riverview - all industrial, contaminated areas, working with wastewater, dredge and EPA to get some work happening to clean up
- River Rouge - all industrial
- Trenton - 75% industrial and need to be redeveloped

**What are major coastal challenges? Identify location as applicable.**

- High water levels
- Very little backup
- Some backup at rotary park
- Riverview - instances of flooding in community park & pool

**The Ws: WHO** DCC

**WHO** refers to the people and organizations that need to be involved in your process. This is where you identify your core team, technical experts, community members, and other stakeholders that need to be engaged in your effort.

**CORE TEAM**

Who will do the daily work of a coastal resiliency effort?

- McKenna - a consulting agency for River Rouge
- Planning Commission
- Beckett Raeder

**DECISION MAKERS**

Who has the authority to initiate the effort?

- City Council
- Presidential Planning Commission (Depending on Project)

Who has the authority to implement recommendations?

- City Council
- City Administrator
- Parks & Recreation Director
- City Manager

What is the public's role in decision-making?

- Hold public hearings to provide input.
- Yearly public engagement meetings
- In some communities, when development comes in, people are so excited for there to be new development, they don't think about what the community actually needs, and that can lead to poor planning.
- Start early with the public!

**IMPACTED POPULATIONS**

What groups are most affected by coastal conditions?

- Senior Center in Trenton
- Homeowners
- Park Users - Trenton, River Rouge
- Beckett Raeder

What groups are already influential in coastal planning conversations?

- Friends of the Detroit River
- Friends of the Rouge
- Sierra Club (sometimes)
- Federal Government working on superfund site

Usually in the community at large

**STAKEHOLDERS**

Who are the local coast/shoreline champions?

- City Council Champion
- John Harig

Who has coastal expertise?

- John Harig
- Emergency Managers
- Friends of the Detroit River (Rose Ellison, Bob Burns)

**The Ws: WHAT** DCC

**WHAT** refers to which climate hazards and sectors will be the focus of your effort. When identifying which climate hazards and sectors to focus on, your team will need to determine if you are using a simple or complex approach.

**HAZARDS**

What will you measure? (Examples: rainfall, water level, frequency of wind events)

- Flooding
- Erosion
- Mosquitoes
- Algal Blooms
- We need to measure everything!
- Wind and wave actions
- Water Levels
- Combined Sewer Overflows
- Contamination Levels
- Illicit Discharges

**SECTORS**

What must be improved? (Examples: housing, water supply and treatment, tourism economy)

- Recreation and tourism - trails and kayak launch underwater, we want to make sure that everyone has access
- Soil and Groundwater quality - elimination of contaminants
- Improving Water Quality for Fishing purposes
- Is soil contamination running off into the Detroit River, and how does that impact the ecosystems?

**PRIORITIZATION**

Which of these hazards and sectors must be addressed for your effort to be a success?

- Trenton - Coastal Flooding that impacts Recreation and Tourism
- River Rouge - Flooding, and to take care of the mosquitoes
- Riverview - Contamination Levels & Illicit Discharges to improve water quality and usability (Want to live in Riverview and have a river view)

**STRATEGIES AND COMMITMENTS: ACTION PLAN 1** DCC

**WHAT** we will do:

- Redevelopment & Subarea plans - coastal focused

**HOW** we will get this effort off the ground:

**Action 1: Meet as a group of communities to collectively pursue funding, including mission, priorities, and goals**

Who will do this?

- DCC Task Force
- Who will it happen?
  - Finished application process in late 2021, project will be ongoing depending on funds

**Action 2: Receive initial grant funding**

Who will do this?

- Economic Development Director from DCC
- Leaders, stakeholders and planners for each community
- Great Lakes Way (Community Foundation)
- SEMCOG assessments with LIAA

When will it happen?

- Beginning summer 2022 through fall

**Action 3: Analysis of existing conditions and identification of future project opportunities**

Who will do this?

- DCC
- Consultants and engineers
- Project champions
- Members of the public

When will it happen?

- 2023 assessments of some sites expected to be complete
- OTE closure will take three years
- Some park improvements complete by summer (plans)

**WHO** must be involved for this effort to be successful?

- DCC
- Community leaders
- Great Lakes Way
- SEMCOG/LIAA
- Consultants and engineers
- Congressional reps
- EGLE & MEDC

[Link to DCC Work Boards from Coastal Leadership Academy](#)

# Want to learn more?

The Coastal Leadership  
Academy platform will remain  
available until June 2022 at:

<https://miapa.mclms.net/en/>

Username = SECLA  
Password = 2022

# Great Lakes and St Lawrence Cities Initiative

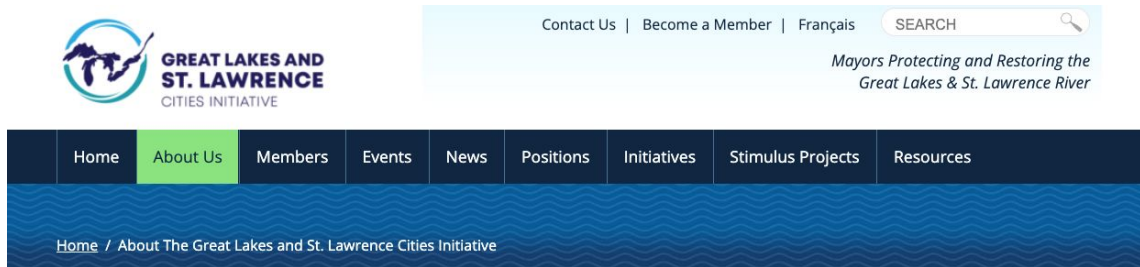
Working with Southeast Michigan's shoreline mayors to advance the development of municipal projects to strengthen coastal resilience, restore habitat, and modernize water infrastructure in shoreline areas.  
Funded by the Erb Family Foundation.

A technical consultant will develop implementation frameworks for coastal resilience projects, with a priority on nature-based solutions. These frameworks will be designed to support future, more detailed planning with a focus on aligning projects with funding opportunities and the next phase of implementation.

# Timeline

- Fall 2021: assemble team, review plans, identify locations
- Winter 2022: Narrow list of potential projects to 10-15 - at this time it looks like downriver will get ½ of the projects
- Spring 2022: technical consultants develop implementation frameworks, site visits
- Fall 2022: Funding and frameworks finalized, suggestions presents, funding opportunities explored

## Coastal Resilience in Trenton Michigan May 2022



### About The Great Lakes and St. Lawrence Cities Initiative

The Vision of the Great Lakes and St. Lawrence Cities Initiative

Our Sponsors

Board of Directors

Careers

Staff

### About The Great Lakes and St. Lawrence Cities Initiative

#### About Us

**The Great Lakes and St. Lawrence Cities Initiative** is a binational coalition of 128 U.S. and Canadian mayors and local officials working to advance the protection and restoration of the Great Lakes and St. Lawrence River. The Cities Initiative and local officials integrate environmental, economic and social agendas and sustain a resource that represents approximately 20 percent of the world's surface freshwater supply, provides drinking water for 40 million people, and is the foundation upon which a strong regional economy is based. Members of the Cities Initiative work together and with other orders of government and stakeholders to improve infrastructure, programs and services and increase investments that protect and restore this globally significant freshwater resource. Only by working together to protect the Great Lakes and the St. Lawrence can we preserve and enhance the quality of life and economic well-being of the people of the region.



# RRC Update

Redevelopment Ready  
Communities® (RRC) is...

- Voluntary technical assistance initiative offered through the Michigan Economic Development Corporation (MEDC)
- Builds a foundation of planning, zoning, and economic development best practices to integrate into a city's daily operations
- Trenton is on the path to certification

# RRC Update

Coastal Resilience  
in Trenton Michigan

May 2022

Completed	In progress	What's Next
Master Plan	CIP	Economic Development addendum
Annual Report	Bylaws	Marketing Plan
Public Participation Plan	Zoning Ordinance amendments	Board and Commission Training/Orientation
Downtown Corridor Plan	Bylaws	<b>Waterfront</b>

# Waterfront Best Practices

Coastal Resilience  
in Trenton Michigan  
May 2022



Redevelopment Ready Communities®  
**Best Practices**  
Appendix: Waterfront Communities

[Link to Waterfront Best Practices  
\(miplace.org\)](https://miplace.org)

RRC® WATERFRONT PLANNING  
TOOLKIT AND GUIDELINES



[Link to Waterfront Best Practices Toolkit  
\(miplace.org\)](https://miplace.org)

Coastal Resilience  
in Trenton Michigan

May 2022

# Questions



# CLA Links For Further Exploration

Coastal Resilience  
in Trenton Michigan

May 2022

<https://semcog.org/environment>

<https://semcog.org/trailexplorer>

<https://www.terrain360.com/map/detroit-heritage-river-water-trail/visual#9.92/42.211/-83.0646>

<https://semcog.org/plans-for-the-region/environment/climate-resilience>

<https://coast.noaa.gov/floodexposure/#-9259970,5174080,14z/eyJiljoiaW1hZ2VyeSJ9>

[https://www.glerl.noaa.gov/data/dashboard/GLD\\_HTML5.html](https://www.glerl.noaa.gov/data/dashboard/GLD_HTML5.html)

<https://coast.noaa.gov/llv/>

<https://www.lre.usace.army.mil/Missions/Great-Lakes-Information/Great-Lakes-Water-Levels/Water-Level-Forecast/Monthly-Bulletin-of-Great-Lakes-Water-Levels/>

## Coastal Resilience in Trenton Michigan

May 2022

<https://portal1-geo.sabu.mtu.edu/mtuarcgis/apps/webappviewer/index.html?id=d758800bb18e460ab39aa66631051156>

<https://mnfi.maps.arcgis.com/apps/View/index.html?appid=c701370ef9364ff18a9ea4d841fadb2f>

<https://mnfi.anr.msu.edu/reports/MNFI-Report-2019-07.pdf>

<https://coast.noaa.gov/digitalcoast/data/hardened-shorelines.html>

<https://www.glahf.org/>

<https://www.glahf.org/wetlandexplorer/>

<https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd>

<https://msc.fema.gov/portal/home>

<https://coast.noaa.gov/digitalcoast/tools/flood-exposure.html>

<https://mnfi.maps.arcgis.com/apps/MapSeries/index.html?appid=a2232d34a57644baac2687f5481033c2>