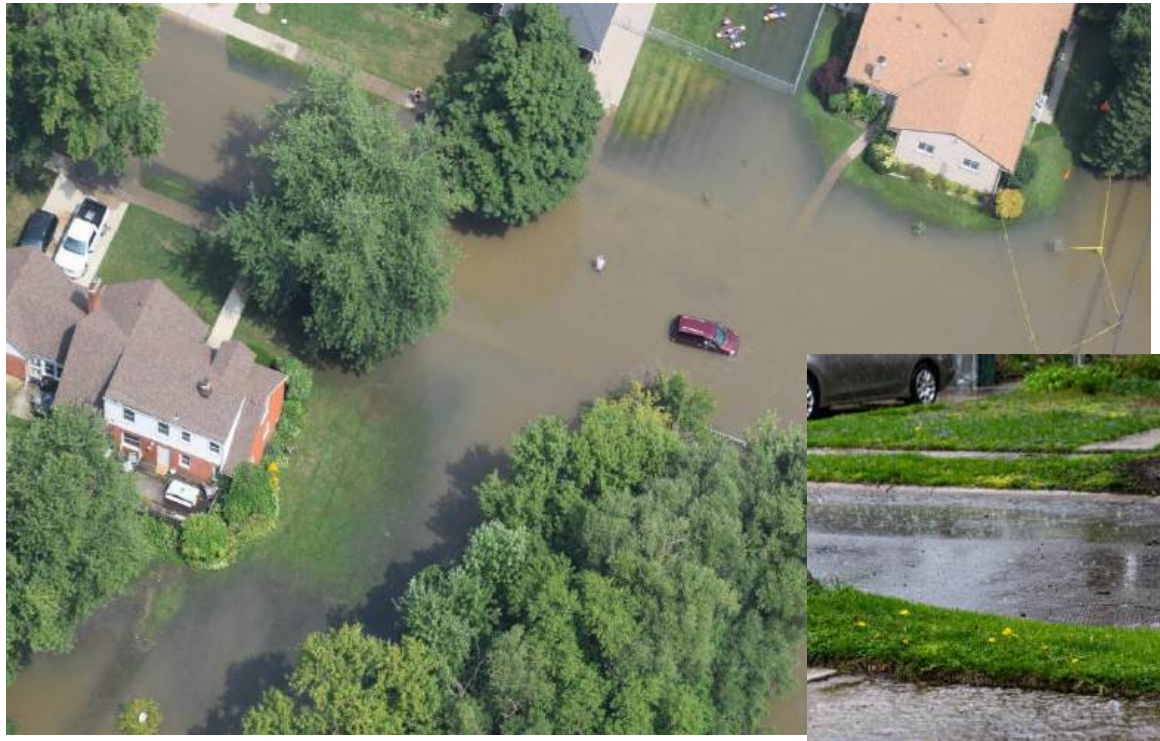
Flooding Task Force

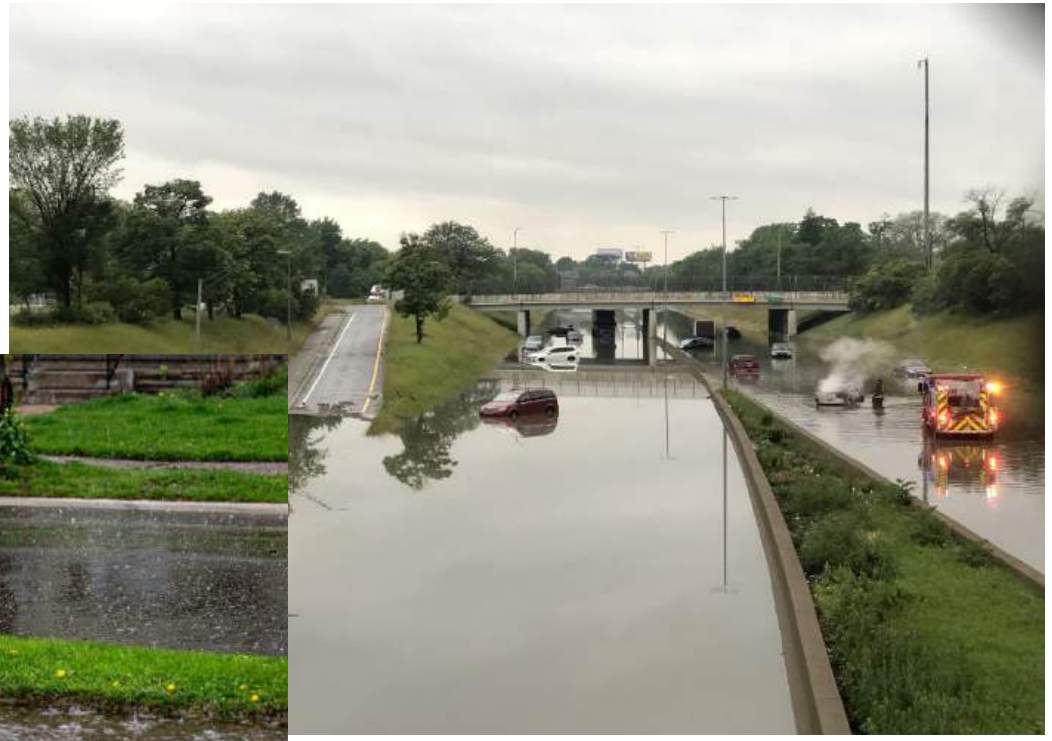
Meeting #1

September 18, 2025

SEMCOG
SOUTHEAST MICHIGAN COUNCIL OF GOVERNMENTS

Welcome to the Flooding Task Force





Meet your Co-Chairs

Flooding TASK FORCE

DON BROWN

Deputy Commissioner
Macomb County Public Works

TIM WOOLLEY

Mayor
City of Taylor

Today's Agenda

1. Introduction to the Task Force
   Don Brown, Deputy Commissioner, Macomb County Public Works, Co-Chair
   Tim Woolley, Mayor of Taylor, Co-Chair
2. Regional Partnerships & Collaboration
   Kelly Karll, Manager, SEMCOG Environment & Infrastructure
3. Flooding & Resilience Plan Overview
   Katie Grantham, Planner III, SEMCOG Environment & Infrastructure
4. Nature Based Solutions in Southeast Michigan
   Dan Christian, PE, Senior Water Resource Engineer, Tetra Tech
   Nathan Zgnilec, Project Manager, Drummond Carpenter
5. Conclusion & Next Steps

Introduction to the Task Force

Don Brown

Deputy Commissioner, Macomb County Public Works, Co-Chair

Tim Woolley

Mayor of Taylor, Co-Chair


GREEN ERAIN
MIX
ICE
SNOW
CADILLAC
75
TORONTO
SAGINAW
GRAND RAPIDS
69
196
KALAMAZOO
94
DETROIT
80
280
CLEVELAND
T WAYNE
75
71
77
5:59
78°
0:01 / 1:55

Flooding in Macomb County

Flooding in the City of Taylor

Task Force Member Introductions

What's one way flooding has directly impacted your community, your work, or even your family?

Rooted in Resilience: Building Southeast Michigan's Flood Future Together

Kelly Karll, PE

Manager, Environment & Infrastructure

Flooding Disasters in Southeast Michigan

4 Michigan has had **four** federal disaster declarations due to flooding in the last **five years**.

The 100-year rain event is now occurring multiple times in a single year.

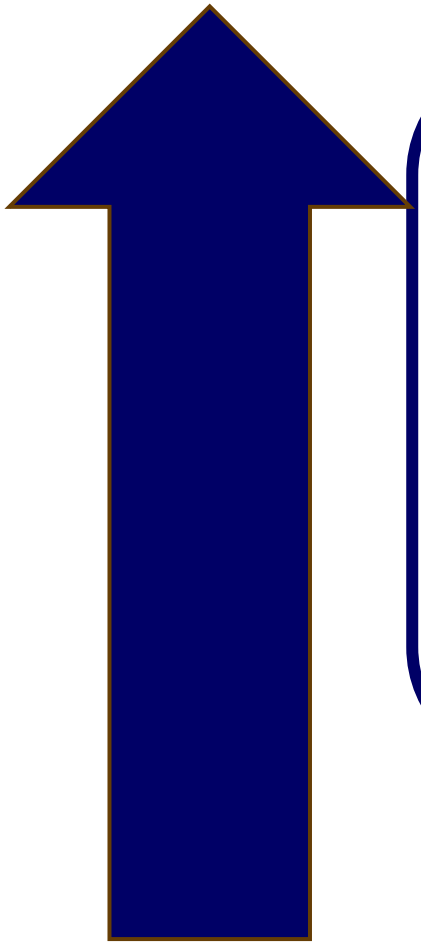
Infrastructure Grades(ASCE)

Roads	Bridges	Drinking Water	Wastewater	Stormwater
				
D	D	D	C	D

In Southeast Michigan:

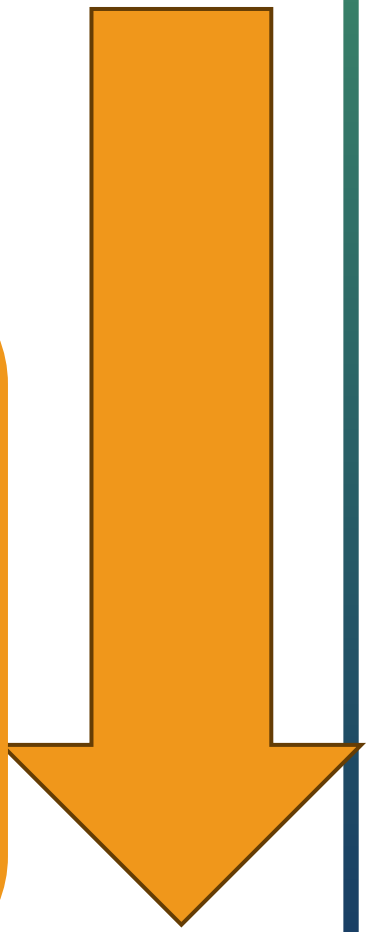
- **$3.1 Billion 'Planned' Road Construction 2026 – 2029**
- **$3 Billion in Annual Water Infrastructure Investment 'Needs'**

Growing Challenges



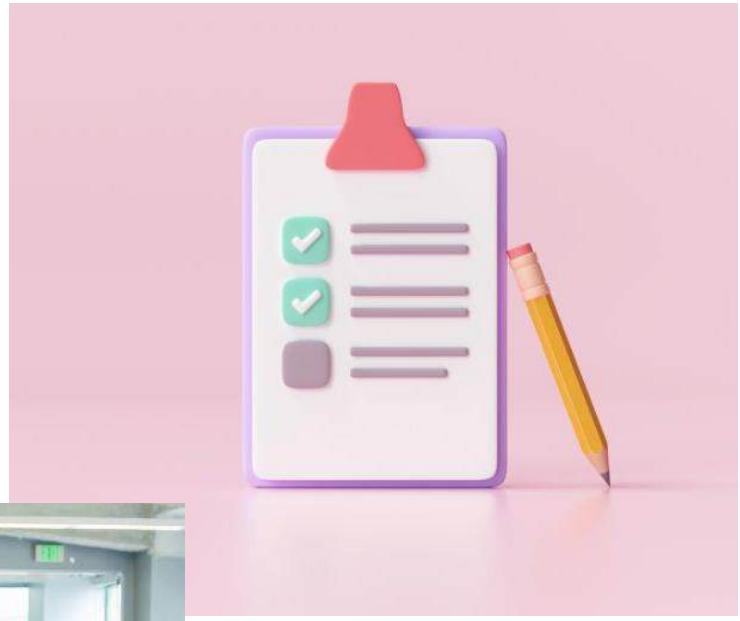
- Public Expectations
- Regulatory Requirements
- Infrastructure Costs

- Workforce Capacity
- Infrastructure Funding
- Regulatory Certainty



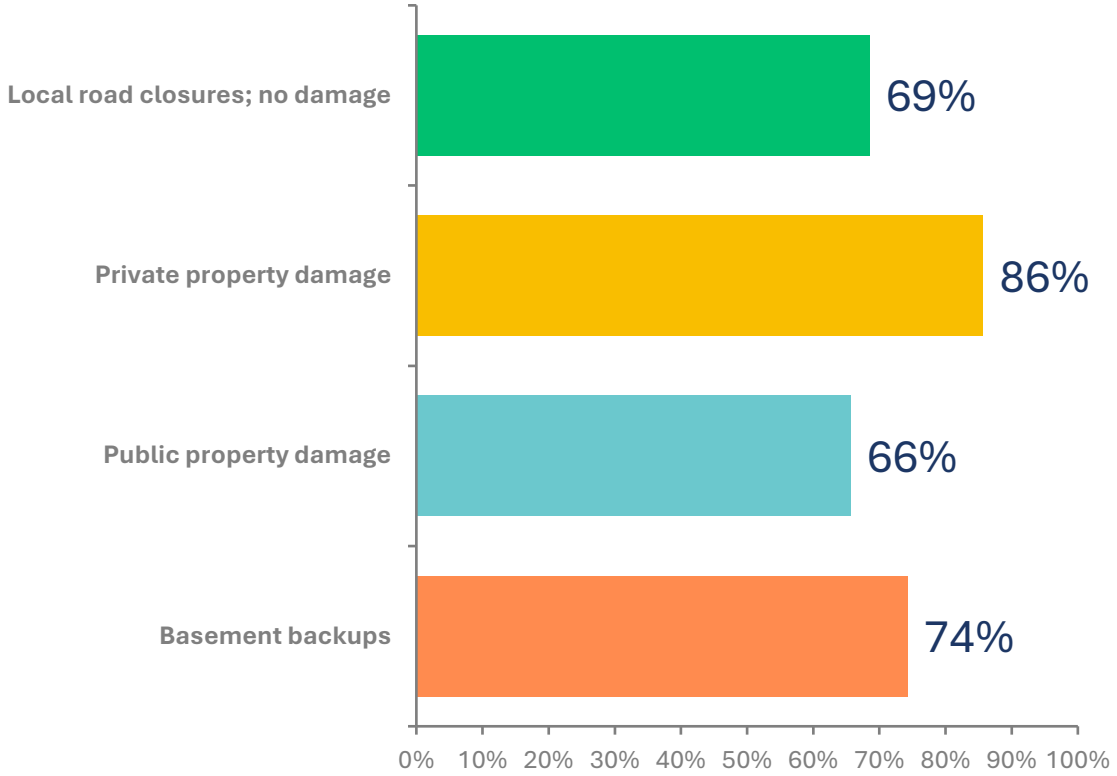
Total of 37 participants

- 97% of participants indicated their community/county experienced flooding in the last 5 years



Flooding Impacts Experienced

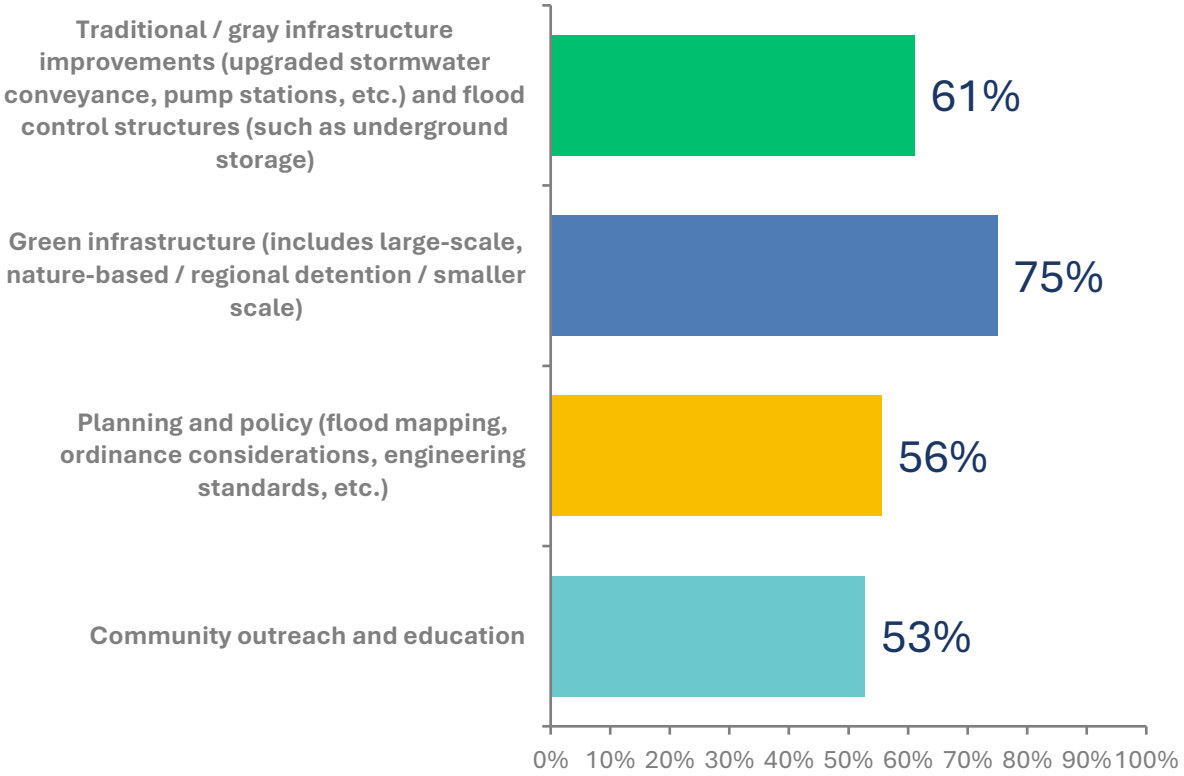
(Top 4)



- Comments:
  - "Flooding in our community has been awful. Our citizens sued the city."
  - "Overbank flooding causing street closures and property damage

Flood Mitigation Strategies

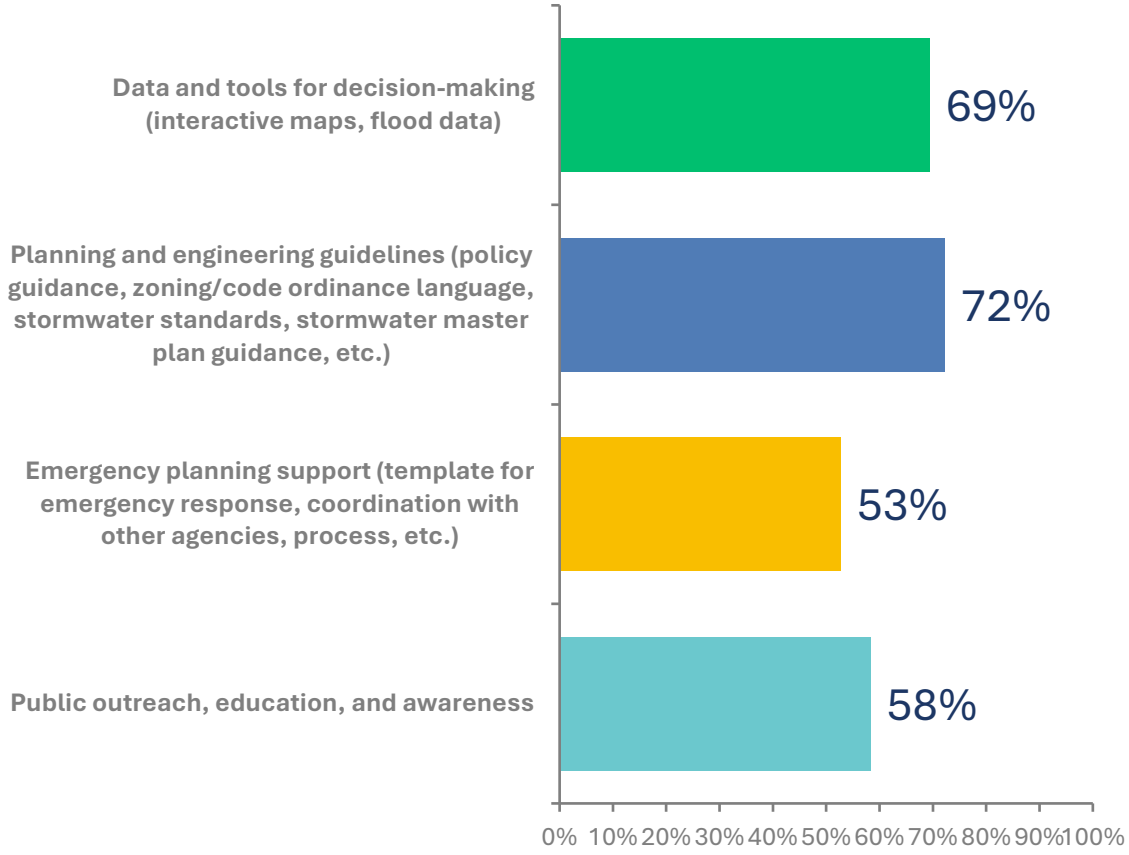
(Top 4)



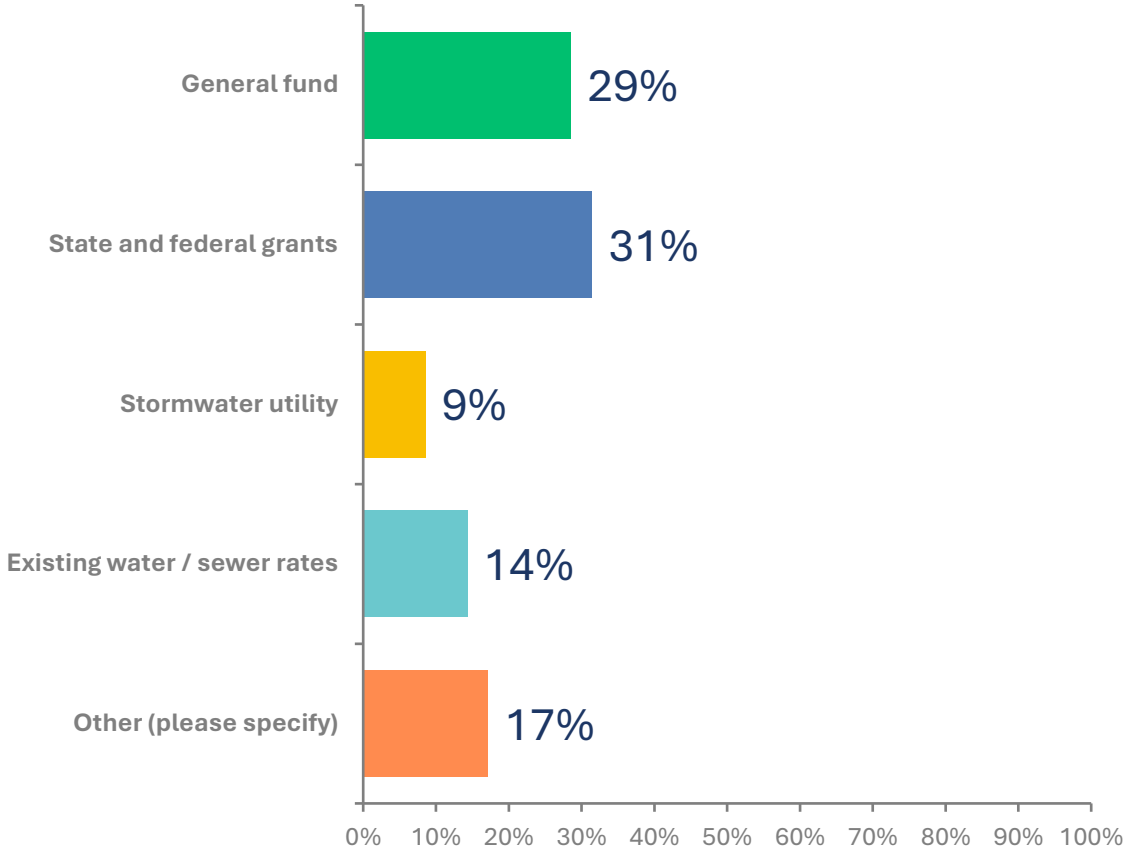
- Comments:
  - "Watershed management planning, emergency preparedness."
  - "Flood reporting through Flood Focus app with Freshwater Future."

Resources Needed (besides funding)

(top 4)



Funding Sources

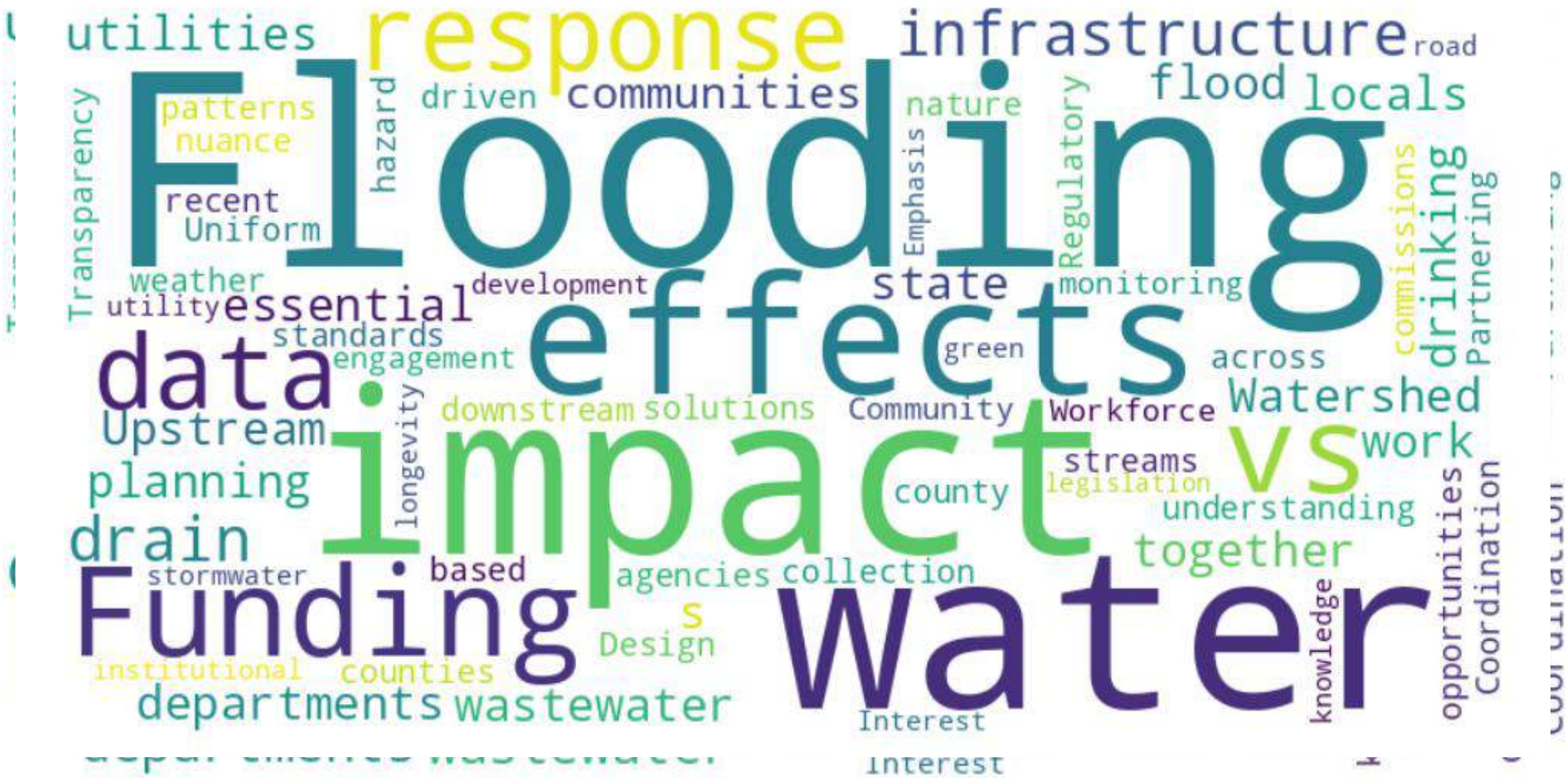


EMHSD Publication 106 (April 2024)
Emergency Management Homeland Security Division
Michigan Department of State Police

Do you have an Emergency Preparedness Plan specific to Flooding?

49% YES and 51% NO

Michigan Hazard Mitigation Plan


utilities
response
infrastructure
road
Flooding
patterns
nuance
driven
communities
flood
locals
hazard
nature
Emphasis
Regulatory
Transparency
recent
Uniform
commissions
drinking
Partnering
weather
development
state
monitoring
utility
essential
standards
effects
data
engagement
green
across
Watershed
downstream
solutions
Community
Workforce
Upstream
impact
vs
work
planning
streams
legislation
county
understanding
drain
longevity
together
stormwater
based
agencies
collection
Funding
water
S
Design
institutional
counties
departments
wastewater
Interest
knowledge
opportunities
Coordination

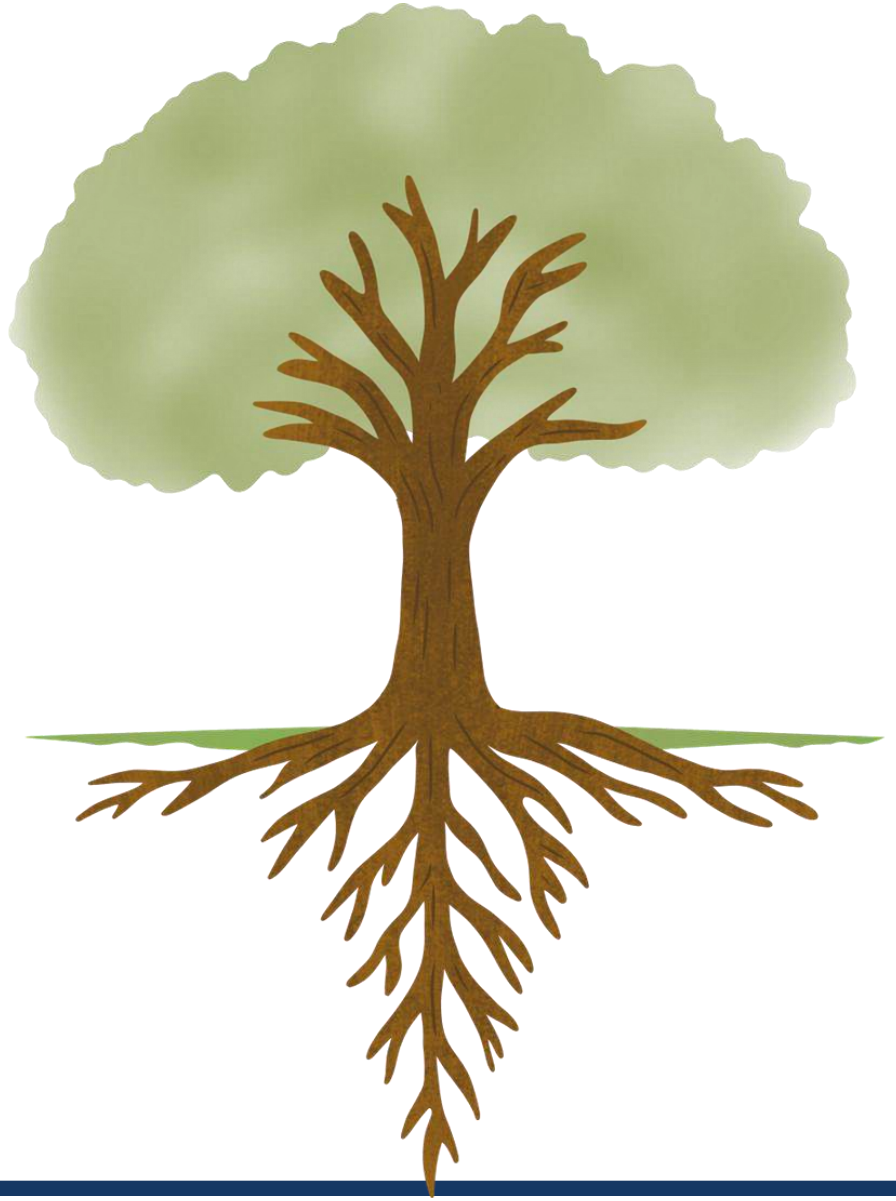
What do you hope to accomplish?

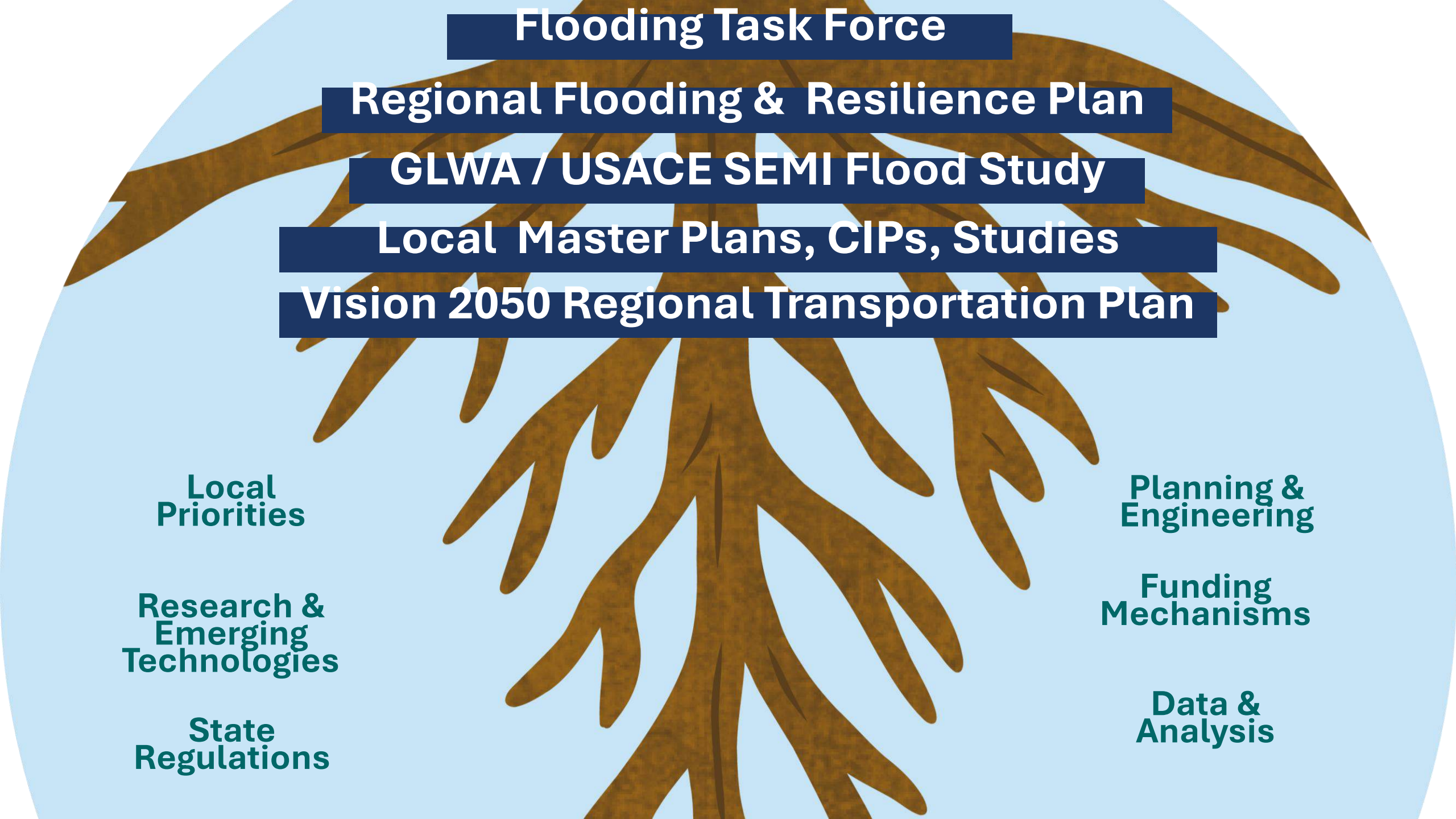
- **Collaboration**
- **Infrastructure**
- **Policy**
- **Education & Engagement**
- **Funding**

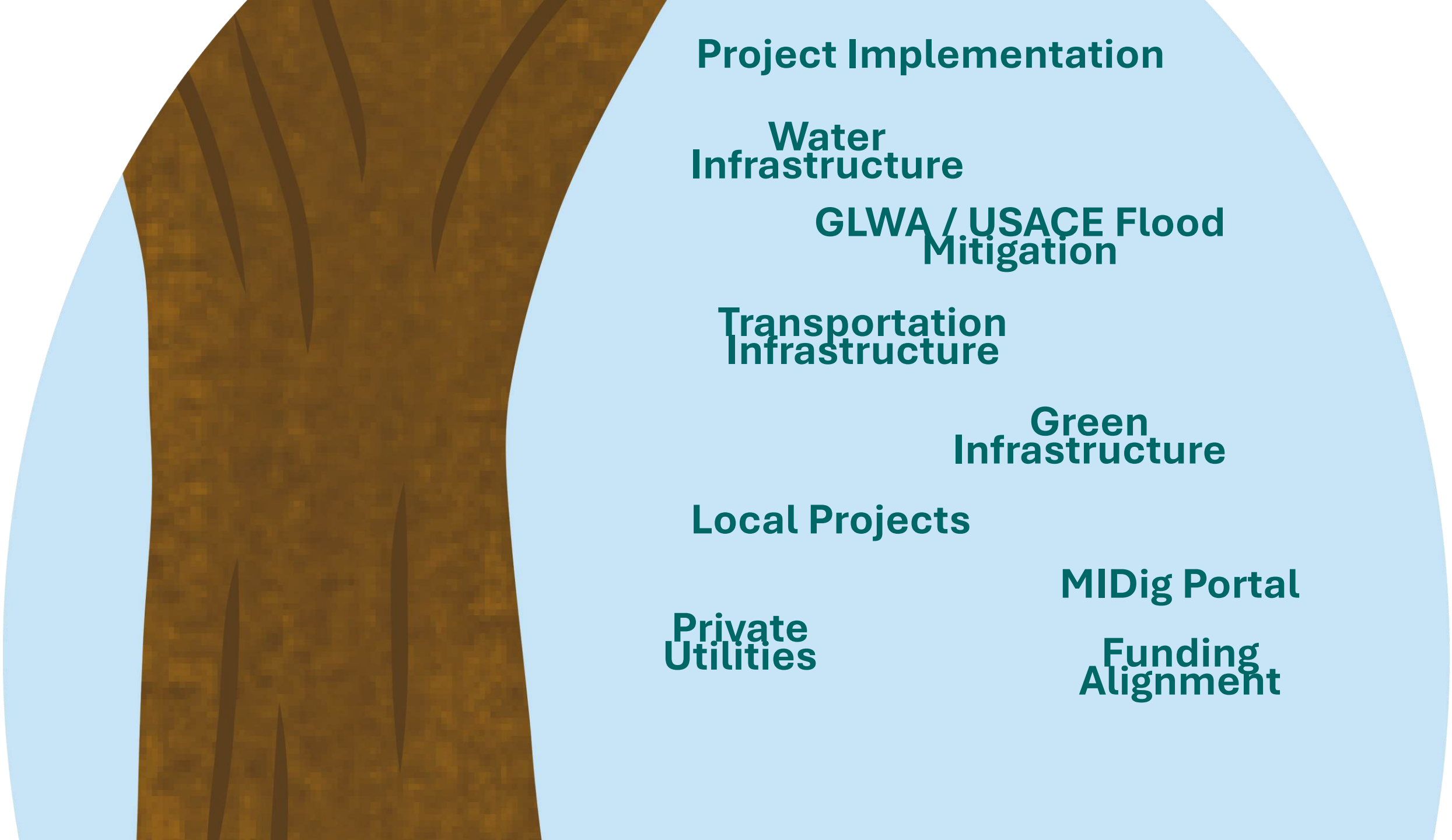
- regional solutions & shared responsibility
- co-develop policy frameworks
- partnerships
- Transparent communication and data sharing
- Green & sustainable stormwater management
- Stormwater utility legislation
- Public awareness
- Expertise & institutional knowledge
- Funding mechanisms

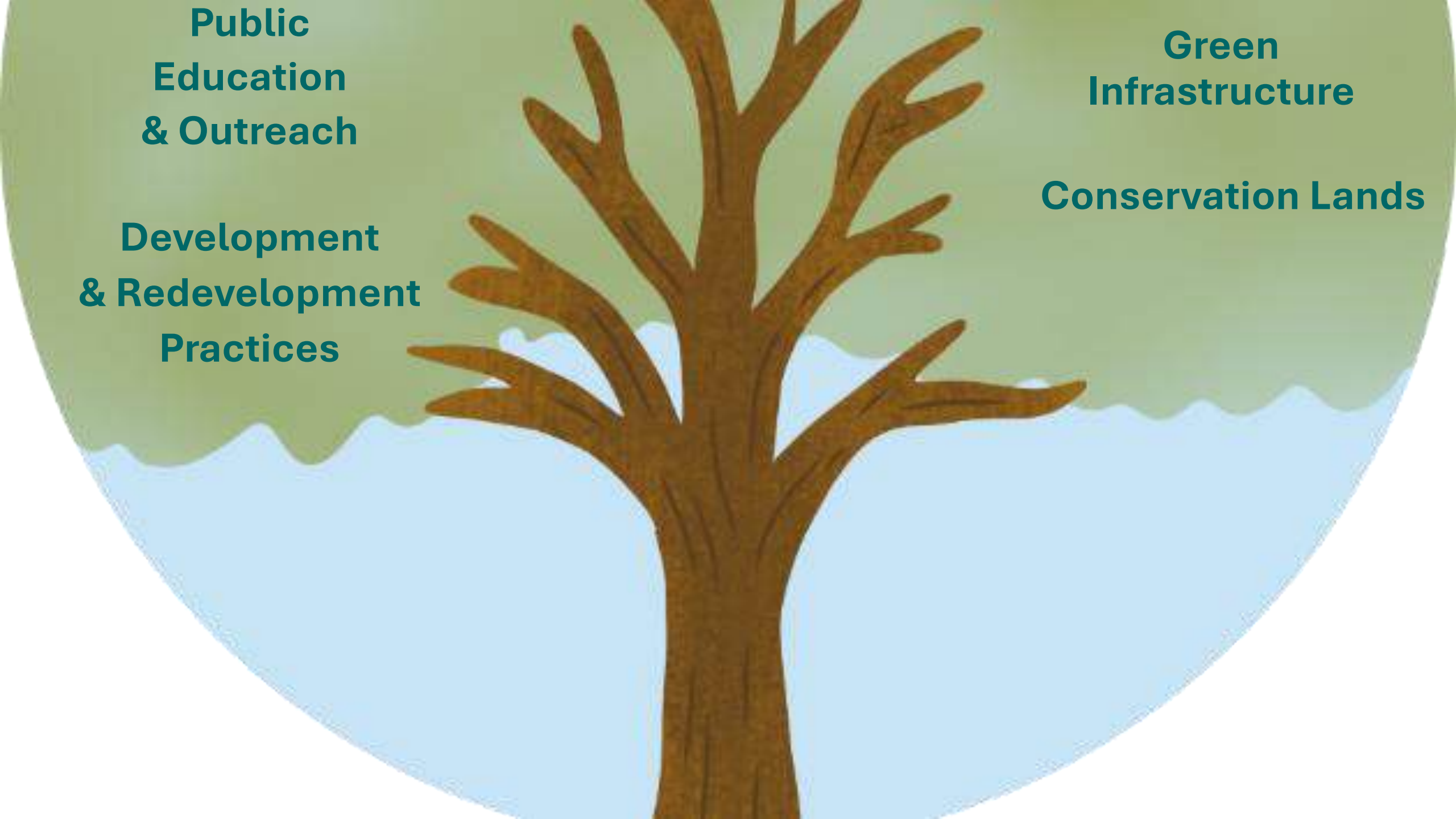
Tree of Resilience

The Southeast Michigan Tree of Resilience symbolizes our shared commitment to flood mitigation – not just for today but for future generations.




Flooding Task Force
Regional Flooding & Resilience Plan
GLWA / USACE SEMI Flood Study
Local Master Plans, CIPs, Studies
Vision 2050 Regional Transportation Plan
Local Priorities
Research & Emerging Technologies
State Regulations
Planning & Engineering
Funding Mechanisms
Data & Analysis


Project Implementation
Water Infrastructure
GLWA / USACE Flood Mitigation
Transportation Infrastructure
Green Infrastructure
Local Projects
MIDig Portal
Private Utilities
Funding Alignment


Public
Education
& Outreach
Development
& Redevelopment
Practices
Green
Infrastructure
Conservation Lands

Tree of Resilience

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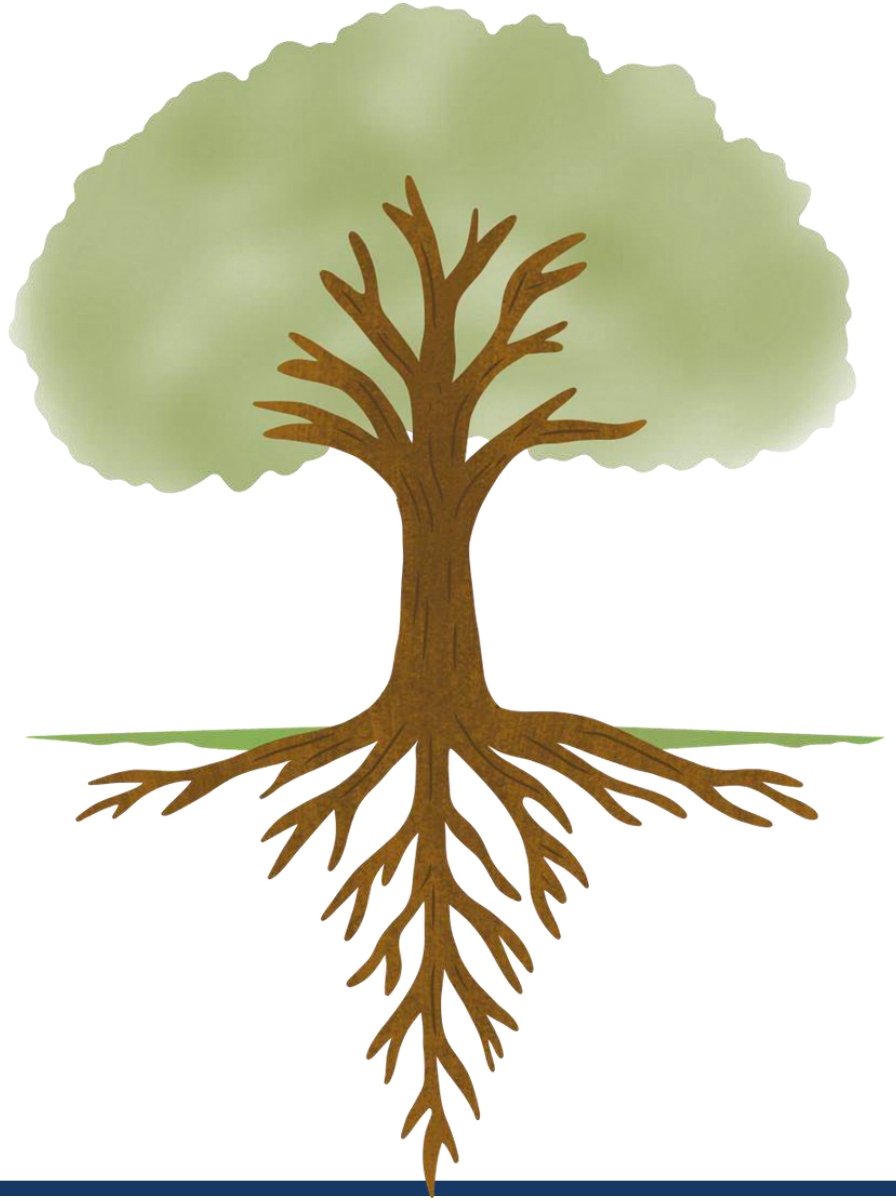


Regional Flooding & Resilience Plan

Katie Grantham

Planner III, SEMCOG
Environment & Infrastructure

When poll is active respond at **PollEv.com/semcog1**

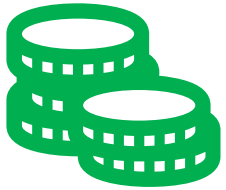
Send **semcog1** and your message to **22333**

In one or two words, what does resiliency mean for your community or organization?

Nobody has responded yet.

Hang tight! Responses are coming in.

Multiple Funding Sources



FHWA Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation (PROTECT) Discretionary Grant to SEMCOG

Erb Family Foundation Grant to the Metropolitan Affairs Coalition (MAC). MAC is a non-profit partner organization to SEMCOG.

MDOT's State Planning and Research (SPR) Program. Note that funds must be spent by September 30, 2025.

Meet the Team

SEMCOG

TETRA TECH

DRUMMOND CARPENTER
engineering + research

ICF

HRC
HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

Develop a Flooding & Resilience Plan

Develop a framework to mitigate flooding impacts across Southeast Michigan now and into the future, and build resilience within local communities to respond to flooding events

Examples of Resilience Improvement Plans

What resources, other than funding, would help you plan for and respond to flooding events? (Choose up to 3)

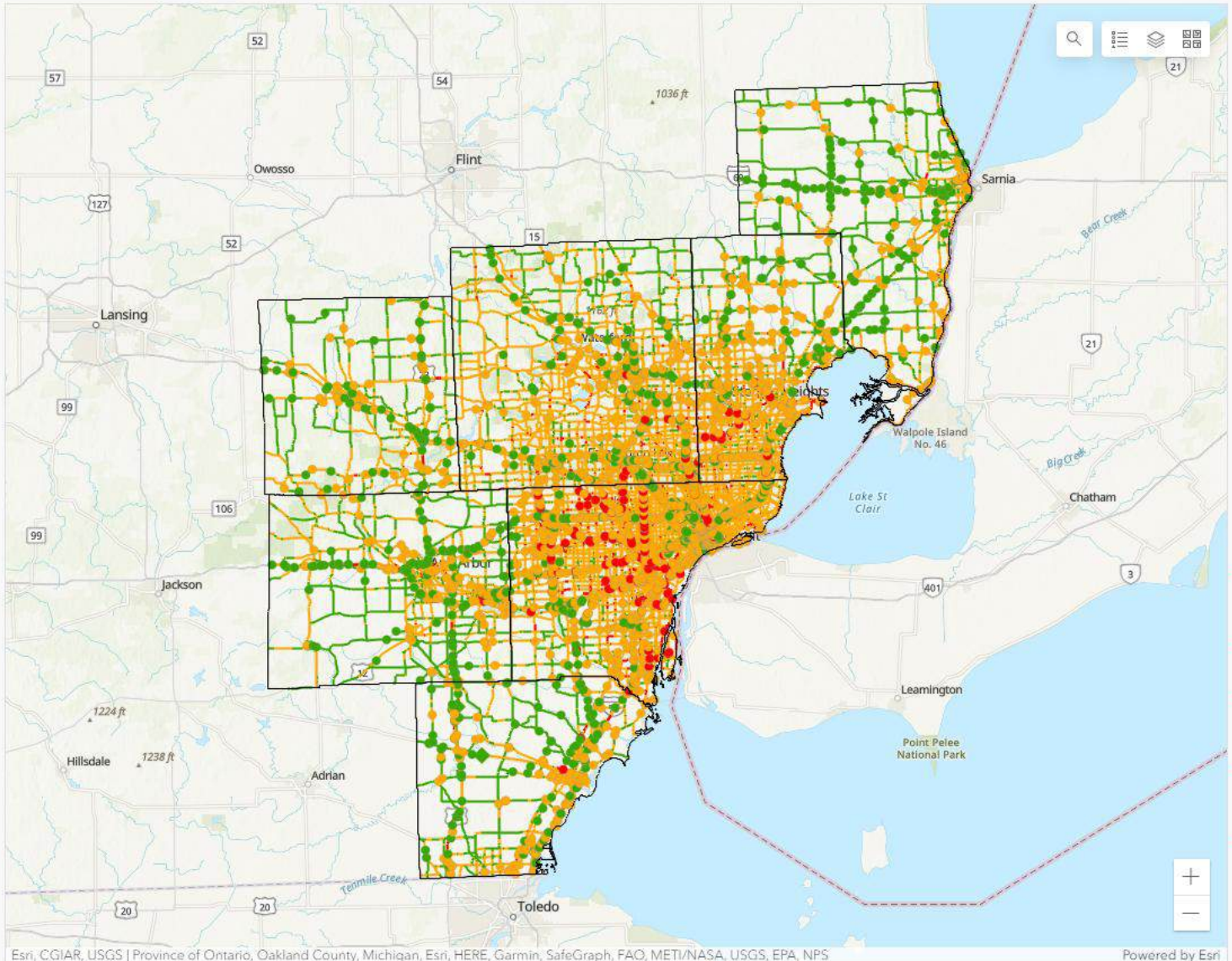
Data and tools for decision-making (interactive maps, flood data)	0%
Planning and engineering guidelines (policy guidance, zoning/code ordinance language, stormwater standards, stormwater master plan guidance, etc.)	0%
Emergency planning support (template for emergency response, coordination with other agencies, process, etc.)	0%
Public outreach, education, and awareness	0%
Regulatory support	0%
Trainings and workshops for staff	0%

Task Force Objectives

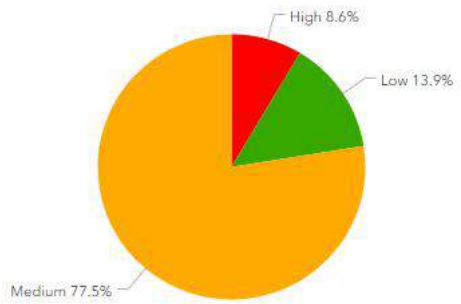
- Guide the development of the Flooding & Resilience Plan
- Provide feedback on nature-based solutions, conservation priorities, community flooding impacts and locations, infrastructure vulnerabilities and asset inventories and tools to support local decision-making.
- Establish a flooding collaboration framework with key messages for outreach and education for respective sectors on flooding vulnerabilities, community resiliency concerns, and opportunities for collaboration.
- Compile projects across transportation, environmental, water infrastructure, and private utility sectors that address flooding and stormwater infrastructure priorities with a collaborative framework for implementation success.
- Identify and prioritize regional policies and actions related to flooding and infrastructure resilience in the SEMCOG region

Flood Risk Tool Update

SEMCOG Flooding Risk Tool Dashboard



Roads Risk Rating Breakdown



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Roads | Bridges | Culverts | Pump Stations

Top 5 Road Segments at Risk

Within Filtered Assets

Road Name: **From:** Outer - **To:** Outer/S I 75
Criticality Score: 4.0 **Vulnerability Score:** 3.9

Road Name: Inkster Rd **From:** Edward N Hines Dr - **To:** Inkster/Edward Hines Cutoff
Criticality Score: 3.7 **Vulnerability Score:** 4.0

Road Name: Inkster Rd **From:** Clairview Dr - **To:** Edward N Hines Dr
Criticality Score: 3.7 **Vulnerability Score:** 4.0

Road Name: Telegraph Rd **From:** Shiawassee Dr - **To:** N US 24/E M 102 RAMP
Criticality Score: 3.7 **Vulnerability Score:** 3.9

Road Name: Telegraph Rd **From:** Shiawassee Dr - **To:** N US 24/E M 102 RAMP
Criticality Score: 3.7 **Vulnerability Score:** 3.9

Last update: 8 seconds ago

Roads | Bridges | Culverts | Pump Stations

Road Asset Count
71,599
Last update: 8 seconds ago

Bridge Asset Count
2,634
Last update: 8 seconds ago

Culverts Asset Count
2,634
Last update: 8 seconds ago

Pump Stations Asset Count
143
Last update: 8 seconds ago

Culvert Data Collection

- Coordinating with TAMC & MDOT
- Prioritize locations for culvert data collection
- Use data to update the flood risk tool with more accurate information

Large-Scale Nature-Based Solutions Analysis

- Desktop Planning Assessment & Project Identification
- Concept Plan Development

Southeast Michigan Resiliency Projects Workgroup

GLWA
Great Lakes Water Authority

SEMCOG

Next Work Group Meeting

September 24, 2025, 9am–Noon

SEMCOG Offices

Identify Projects for the Plan

- Develop a coordinated plan for the region with a focus on project implementation and how to get there
- Focus groups to collect projects from stakeholders
- Projects that are identified and included in the RIP are **eligible for lower match through PROTECT**

Public Outreach & Engagement

- Communicating with the public on regional resilience projects
- Understanding what's important to local communities for better planning
- Consistent messaging
- Outreach & educational materials

Project Timeline

September 2025

Task Force Kickoff

October 2025

Session at SEMCOG's GA

December 2025

Second Task Force Meeting

2026

3-4 Task Force Meetings

Public Engagement & Outreach

Technical Project Development

Dec 2026/Jan 2027

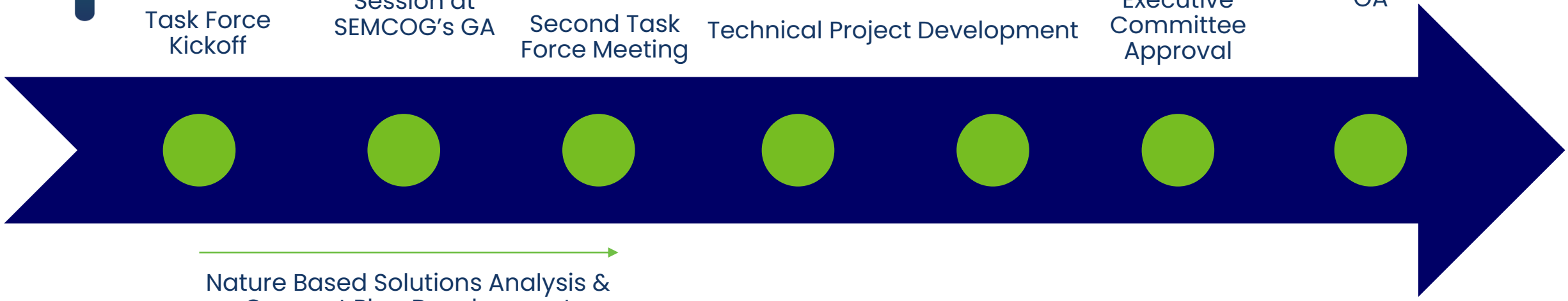
Last TF Meeting

Public Comment

Executive Committee Approval

March 2027

Approve Final Plan at GA



Nature Based Solutions Analysis & Concept Plan Development

Culvert Data Collection

Flood Risk Tool Update

Building Resilience in Southeast Michigan

Nature Based Solutions in Southeast Michigan

Dan Christian, PE, Senior Water Resource Engineer, Tetra Tech

Nathan Zgnilec, Project Manager, Drummond Carpenter

Why Stormwater Matters

- Municipalities face:
  - Flooding (property damage, service disruption).
  - Water quality (NPDES permits, public health, recreation).
  - Aging infrastructure (pipes sized for past rainfall, costly to replace).
- More frequent & intense storms

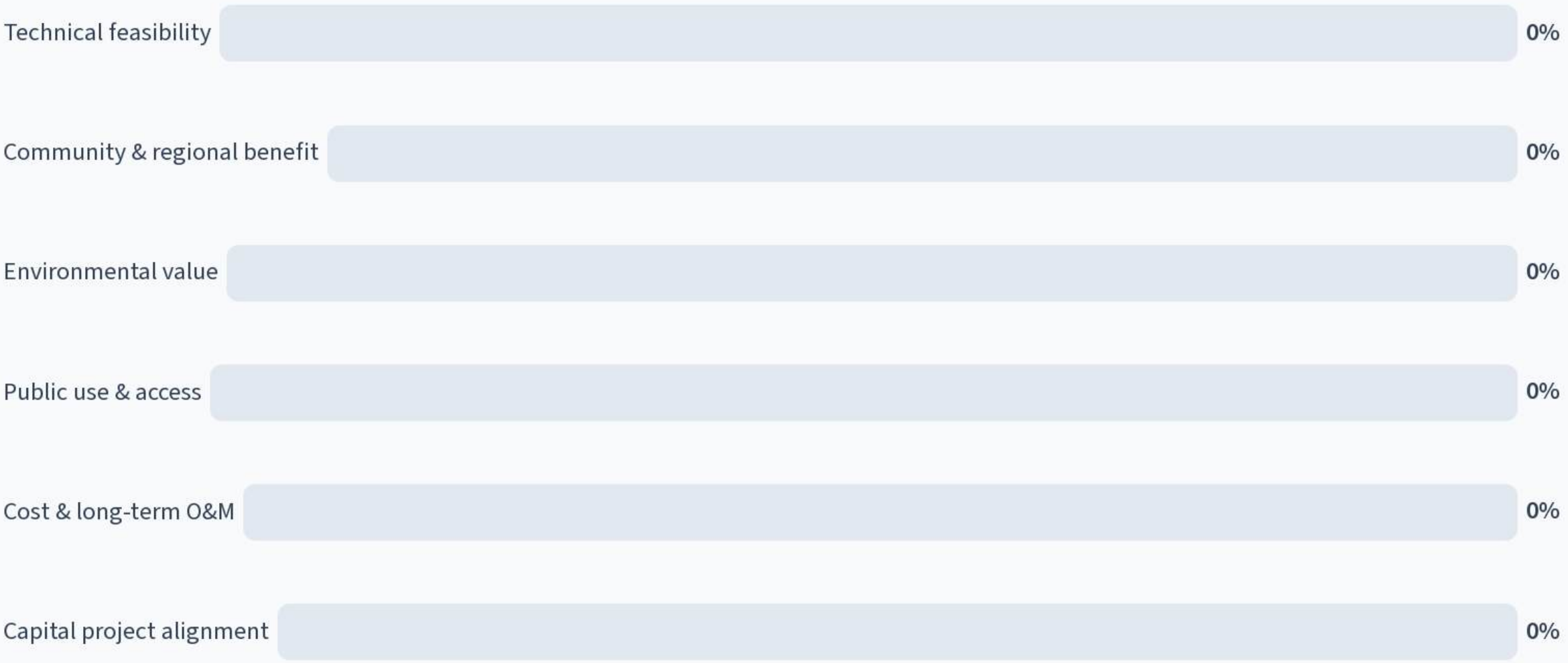
What Are Nature-based Solutions (NbS)?

- Infrastructure that **works with natural processes** to reduce flooding
- Provides **multiple community benefits** beyond flood control

Key Characteristics

- **Scalable**: from neighborhoods to watersheds
- **Multi-functional**: flood protection + recreation, ecology, equity
- **Economically smart**:
  - Avoids costly flood damages
  - Often **cheaper lifecycle costs** than gray infrastructure
  - **Catalyzes redevelopment & property value gains**

Other than flood reduction, what factors should carry the most weight in selecting and designing NbS concepts?



Co-Benefits Beyond Stormwater

Economics

- Avoided flood damages → lower recovery costs
- Lifecycle savings vs. gray infrastructure
- Catalyzes redevelopment & boosts property values

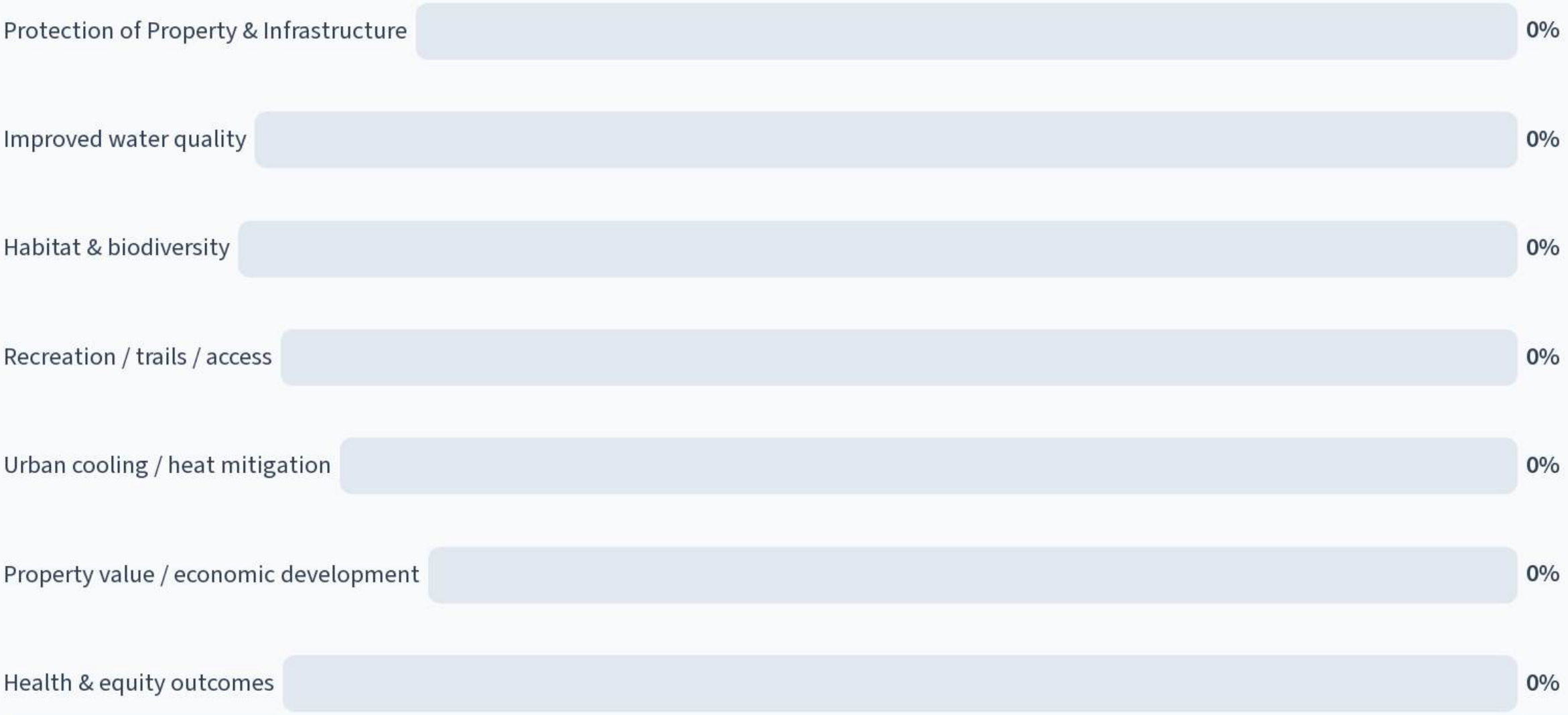
Environment

- Restores wetlands, rivers, and habitats
- Improves water quality & urban cooling
- Enhances climate resilience (heat & storms)

Community

- Safer, more resilient neighborhoods
- New parks, trails, and gathering spaces
- Supports public health & equity in underserved areas

Which co-benefits of NbS projects matter most from your perspective?

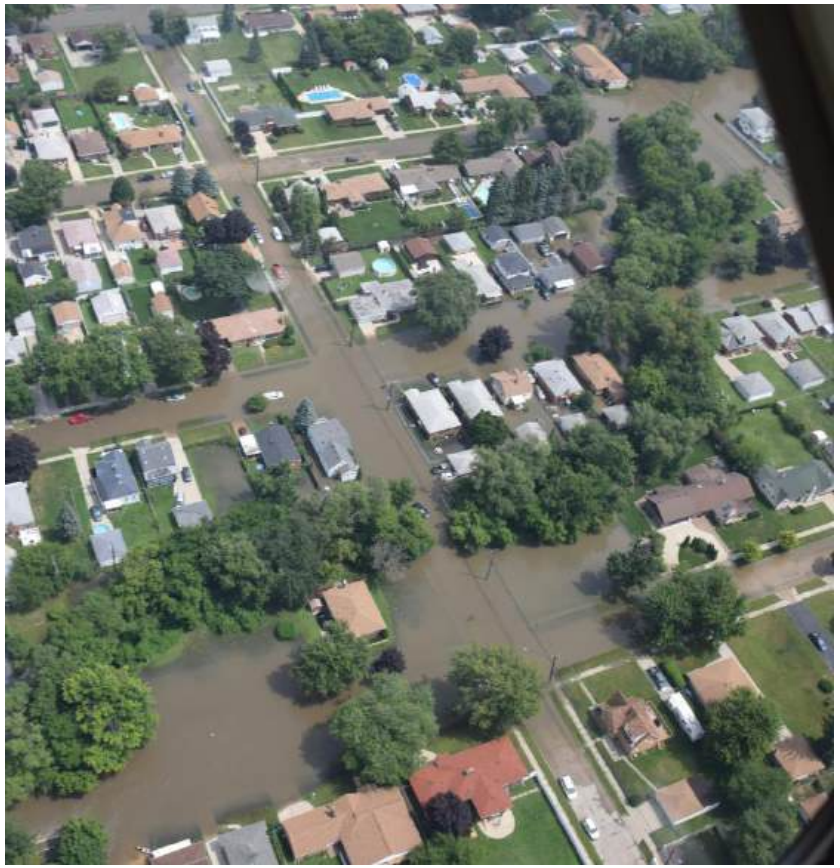


Nature-Based Solutions and Roadway Flooding

- NbS reduces roadway flooding and protects critical corridors
- Aligns with RTP (long-range transportation plan) priorities
- Supports local capital improvement projects (CIPs)
- Must become part of standard planning, not one-off projects

Linking NbS Opportunity Areas with GLWA/USACE Flood Study

- GLWA and USACE are updating system-wide flood models
- Models identify pinch points and flood-prone areas
- NbS opportunity areas can be overlaid with models
- Helps test NbS effectiveness at alleviating flooding hotspots



Categories of Large-Scale NbS Flood Projects

🌊 Floodplain Reconnection & Levee Setbacks

- Move levees back, give rivers space, reduce downstream flood peaks

🏞️ Urban Detention Parks & Multi-Use Basins

- Parks store millions of gallons, protecting neighborhoods during major storms

🌱 Stream Restoration & Daylighting

- Restore natural streams to slow floods, improve water quality, add amenities

🏘️ Buyouts & Greenways

- Convert flood-prone properties into greenways for safe flood storage

🌳 Watershed / Landscape Conservation

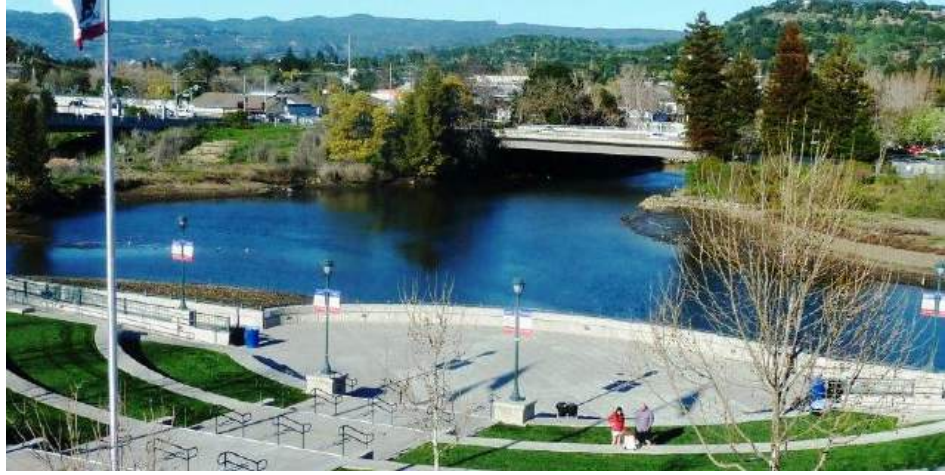
- Protect wetlands and forests to hold water, reduce downstream risk

🌐 Integrated Urban Blue-Green Networks

- Citywide sponge systems manage rainfall while cooling and greening neighborhoods

Floodplain Reconnection & Levee Setbacks

NbS in Practice

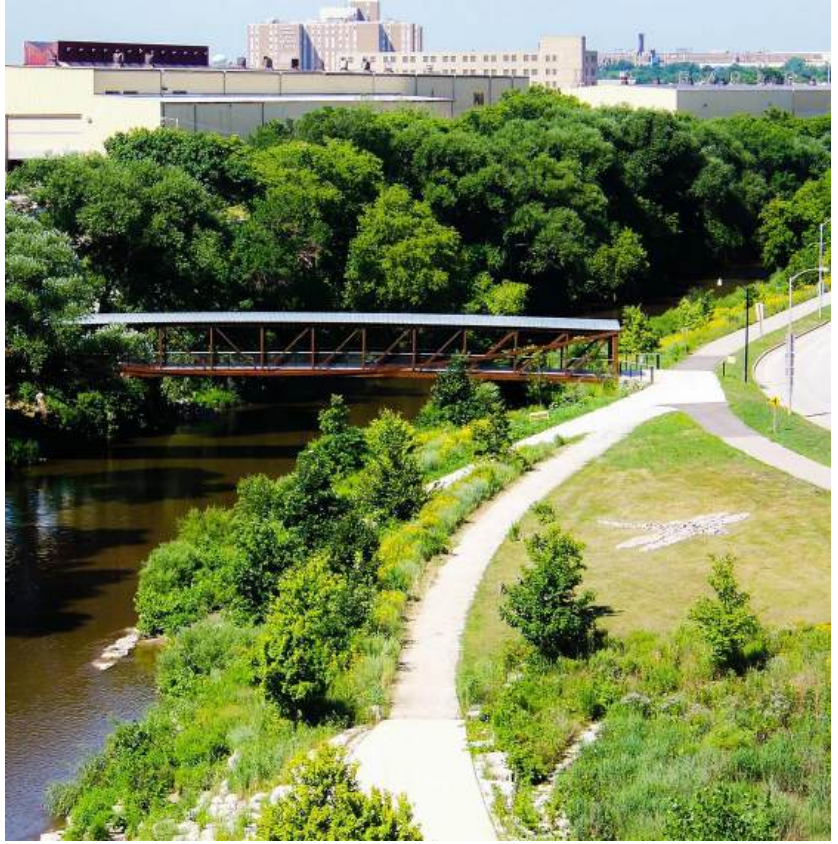


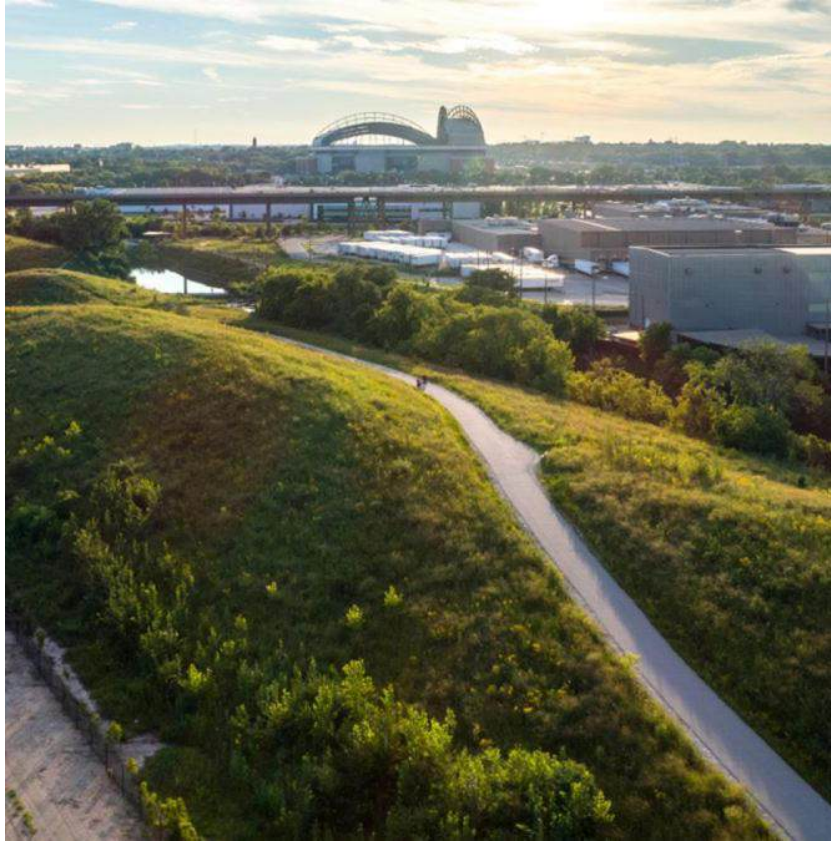
Napa River "Living River," CA – USACE + local

- 100-yr protection, bypass & terraces
- $26M annual damages avoided
- Riverfront renewal, habitat restored

Floodplains by Design, WA

- Reduced flood risk for 200+ homes
- State + local investment partnership
- Reconnected river, restored salmon habitat





Menomonee River Valley, Milwaukee, WI

- Manages 100-yr flood volumes
- 1,400% increase in land values
- 60 acres parks, 7 miles trails

Urban Detention Parks & Multi-Use Basins

NbS in Practice

Fellows Creek Wetland, Canton Township, MI

- Offline wetland detention within community park
- Reduces creek “flashiness” & improves water quality
- Restores wetland habitat and provides recreation

Historic Fourth Ward Park, Atlanta GA

- Flood Outcome: 4M gal storage, 500-yr storm
- Economics: Cheaper than tunnel, $2.5B redevelopment
- Community: 17-acre park, trails & play

Rodney Cook Sr. Park, Historic Vine City

- Flood Outcome: 10M gal storage, extreme storms
- Economics: $45M project, Westside revival
- Community: Park, trails, heritage monuments

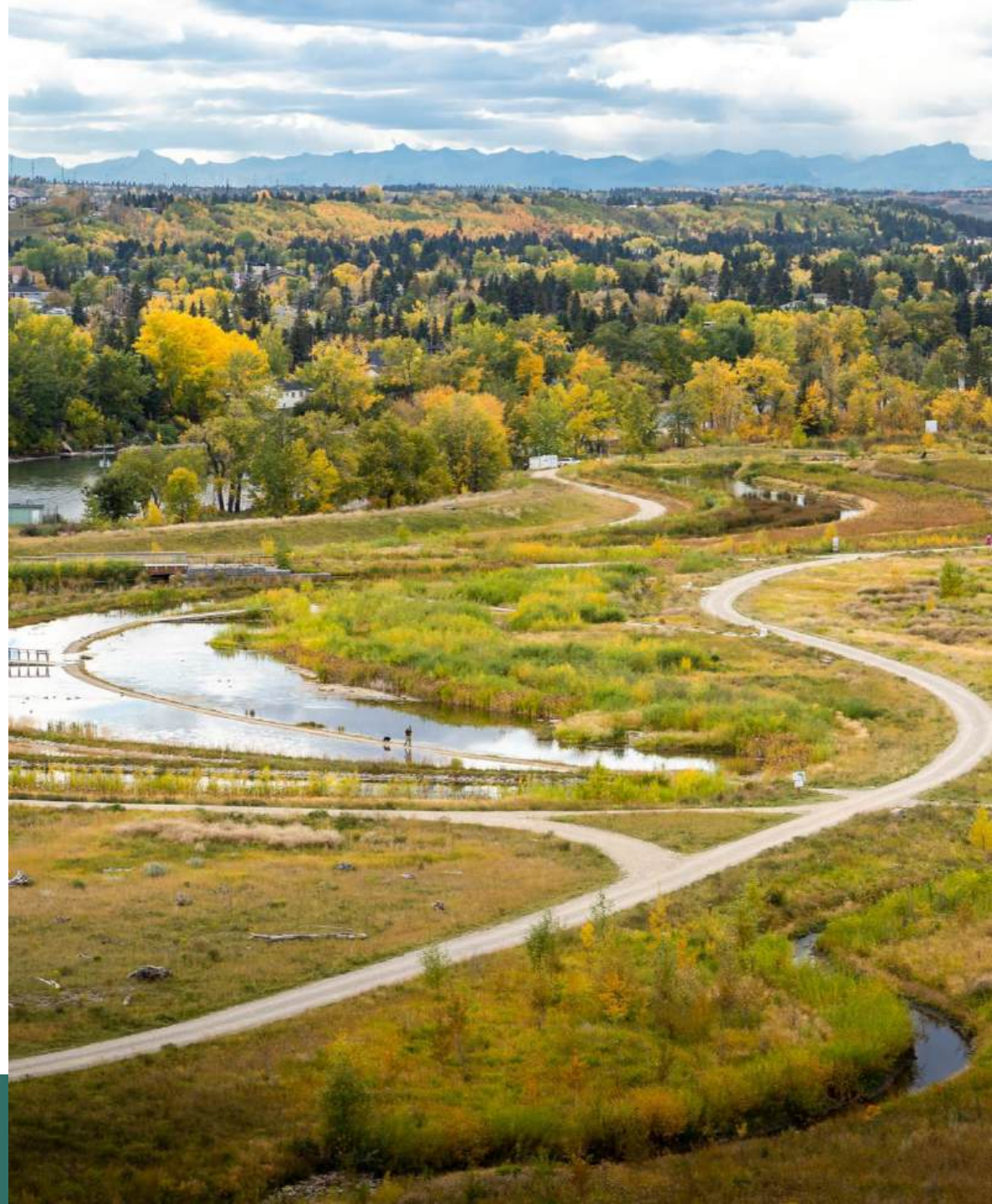



Milwaukee County Grounds, WI

- 315M gal storage basin
- $90M investment, reduced damages
- Creek restoration, habitat, recreation


Calgary, Alberta – Dale Hodges Park

- 100-acre stormwater treatment park
- Filters runoff from 1,800 ha
- 50% less sediment to river



Olympia, WA – Yauger park Regional Stormwater Complex

- 27M gal stormwater storage
- Serves 570-acre drainage basin
- Park ponds, bioswales, cleaner water

Enghaveparken Climate Park, Copenhagen (DK)

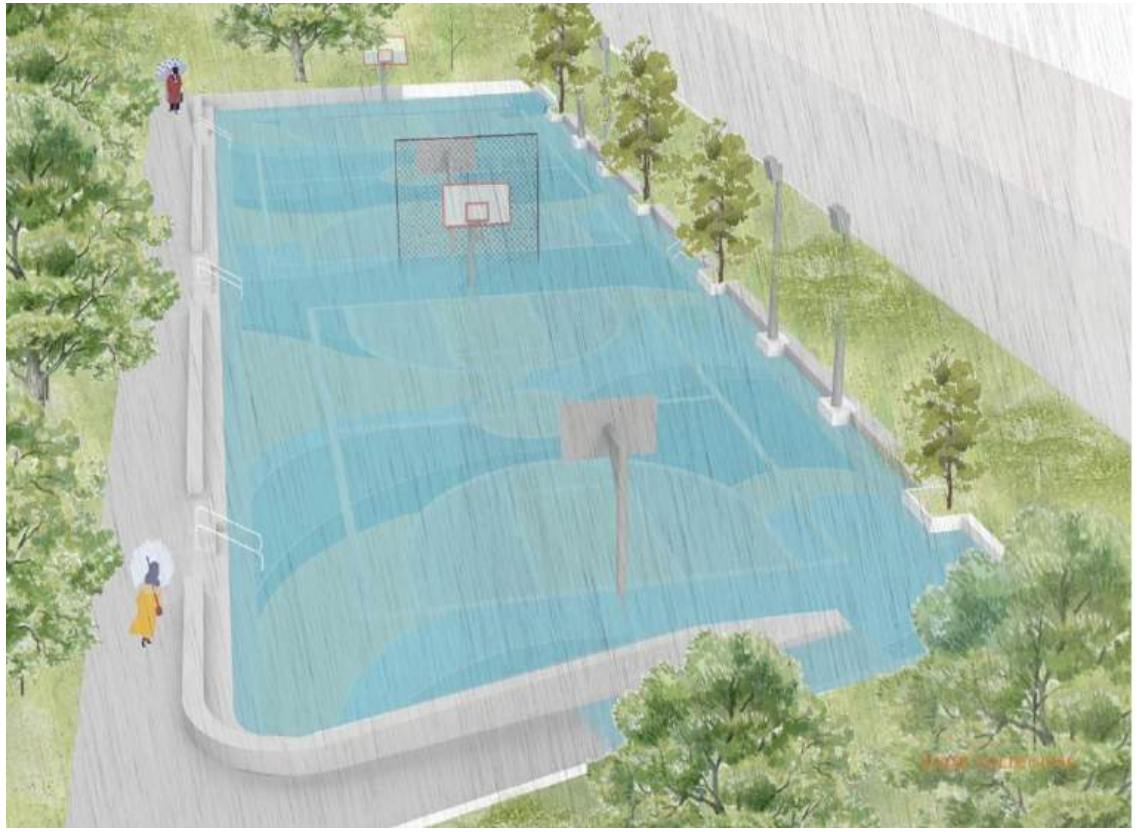
- 6M gal storage (Enghave Park)
- Preserves historic park, adds recreation
- Features sunken sports courts and terraced gardens
- Biodiversity + urban cooling

Heritage Park, Minneapolis, MN

- Treats runoff before Mississippi River
- Redevelopment anchored by stormwater system
- Wetlands, meadows, ponds as public park

Montgomery Drain, Lansing, MI

- Stores runoff from 1-sq-mile basin
- $45–50M rebuild with shared costs
- Trails, ponds, rain gardens, 1,500 trees



South Jamaica Houses Cloudburst Plan, NYC

- Retains stormwater in sunken courts
- $2M pilot cloudburst investment
- Community gardens + public green space

Stream Restoration & Daylighting

NbS in Practice

Kinnickinnic River naturalization, Milwaukee WI

- Removed concrete, widening and naturalizing the channel, and adding 26M gal detention facilities
- 377 homes protected
- Safer neighborhoods, green corridors, FEMA support

Lick Run Greenway, Cincinnati, OH

- Mile-long stream daylighted
- $193M consent-decree program
- Cuts CSOs, greenway & parks

Indian Creek Daylighting, Caldwell, ID

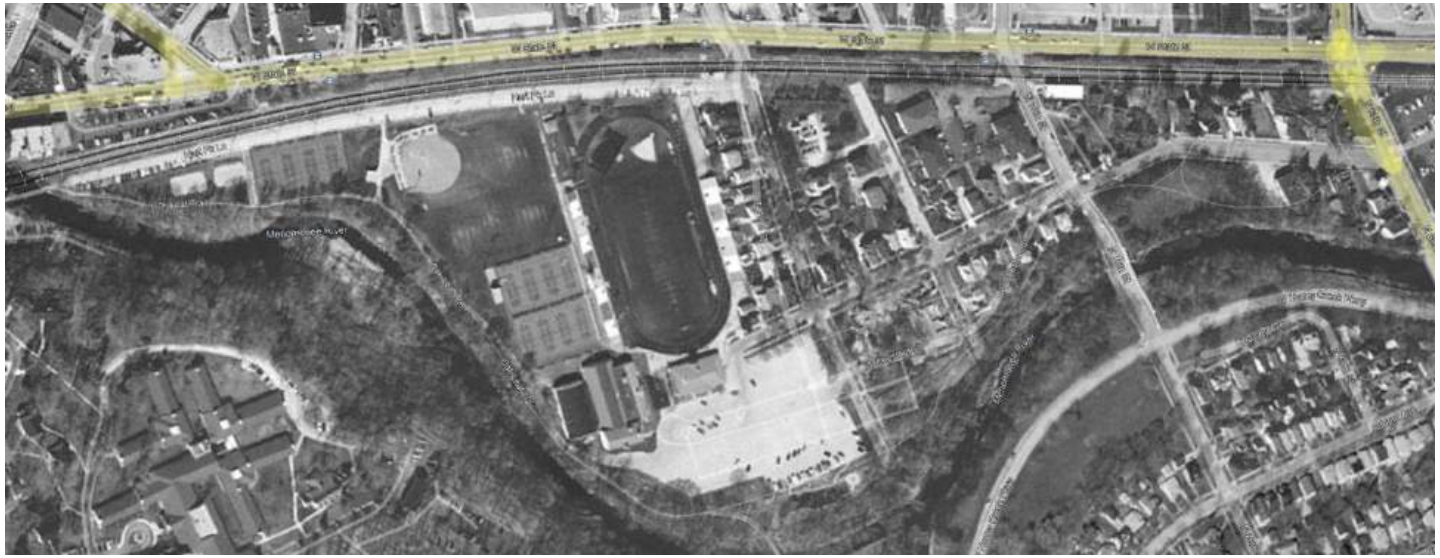
- 1,550 ft creek uncovered
- $25M+ downtown redevelopment catalyzed
- 6 acres greenbelt, festivals, trails

Buyouts & Greenways

NbS in Practice

Valley Park & Hart Park, Milwaukee, WI

- Flood-prone homes purchased, removed
- Expanded parks add flood storage capacity
- Recreation + safe community open space



Tallahassee, FL – Capital Cascade Greenway

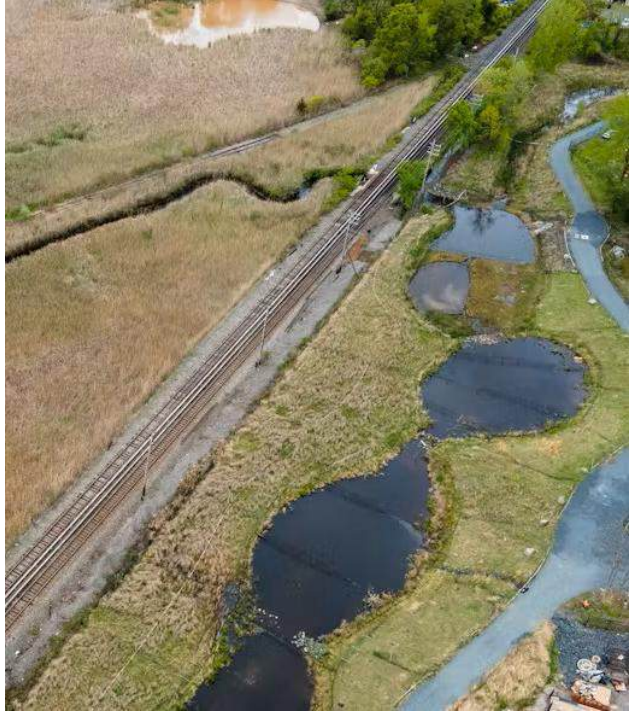
- 6-mile creek flood corridor
- ~$7.8M sales tax + grants
- Trails, parkland, cultural heritage

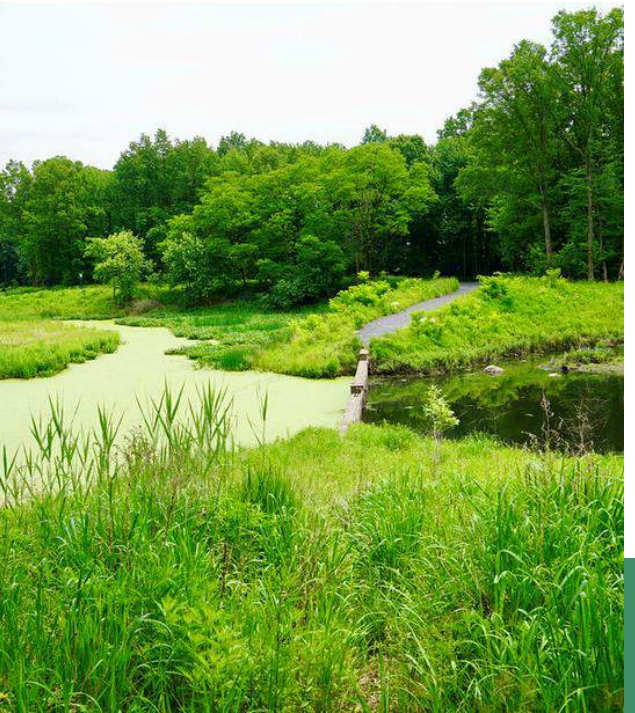
Watershed / Landscape Conservation

NbS in Practice

Greenseams, Milwaukee, WI

- MMSD works with The Conservation Fund to buy and protect flood-prone or hydric-soil lands
- Protects 3,200+ acres of land and ~65 miles of streams
- 1.3B to 3.2B gallons natural flood storage
- Green corridors, habitat + farmland protected

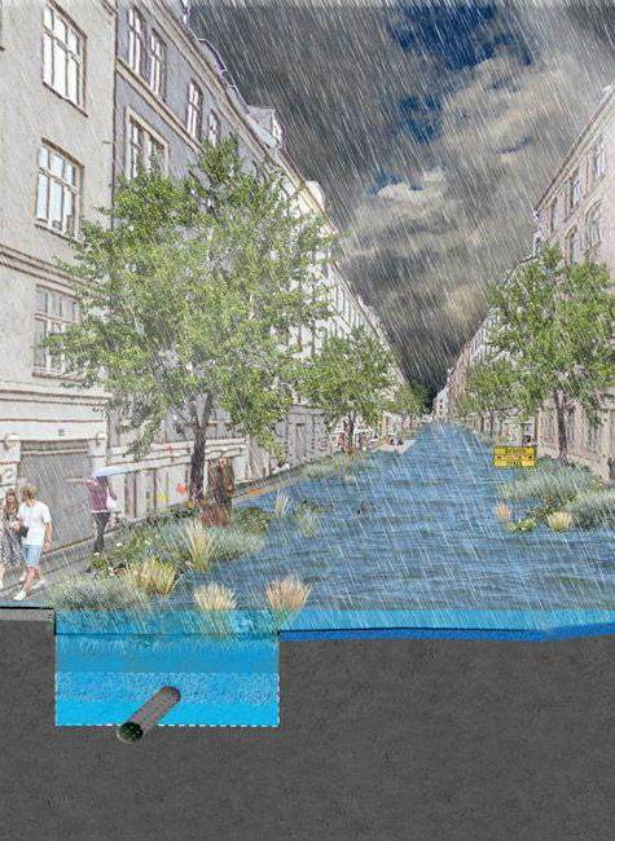



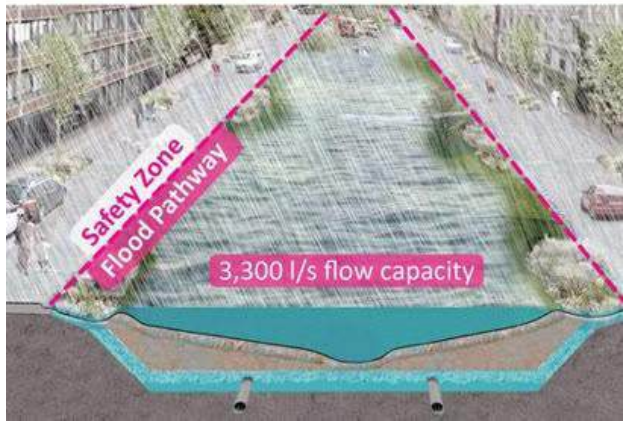

Bluebelt (Staten Island, Queens, Bronx), New York City

- Preserved wetlands, streams, community green space
- Protects 12,000 acres of developed land; no flooding in served areas
- Provides a cost-effective alternative to deep storm sewers

Integrated Urban Blue-Green Networks

NbS in Practice





Copenhagen Cloudburst Plan, DK

- 300+ blue-green surface projects
- $200M cheaper than gray pipes
- Citywide parks, boulevards manage floods

China Sponge Cities program

- Nationwide pilots in 30+ cities
- Permeable streets, parks, wetlands
- Urban flood resilience + water reuse

Please rank the barriers below from most significant (top) to least significant (bottom) for advancing large-scale NbS in our region.

- Funding & cost-share
- Land acquisition / site control
- Institutional silos & governance
- Regulatory & permitting hurdles
- O&M responsibilities
- Public/political support
- Technical uncertainty

Please rank the opportunities below from most important (top) to least important (bottom) for advancing large-scale NbS in our region.

New funding streams

Multi-benefit framing (aligning flood + parks + equity + habitat)

Partnerships & collaboration

Public demand & support

Policy alignment (resilience, hazard mitigation, sustainability goals)

Advances in design & modeling

Cost-effectiveness evidence

Identifying Sites for Large-Scale NbS in Southeast Michigan

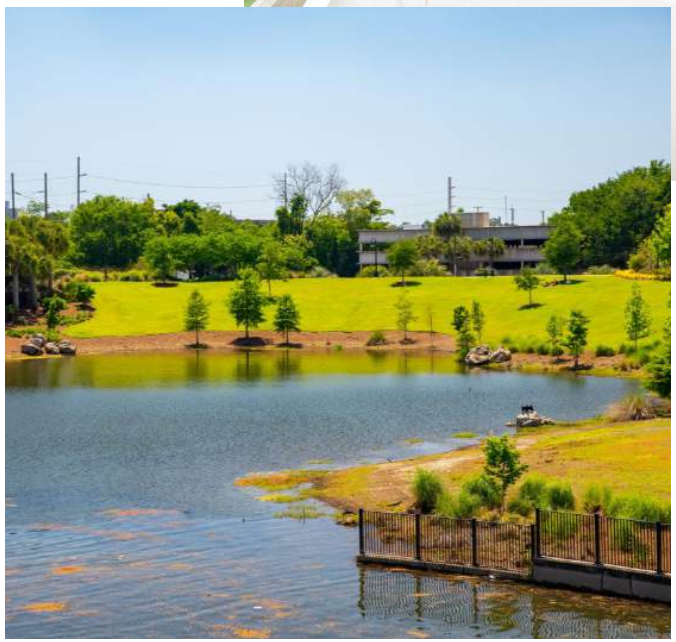
Where can NbS be implemented to address flooding?

IDENTIFY

SCREEN

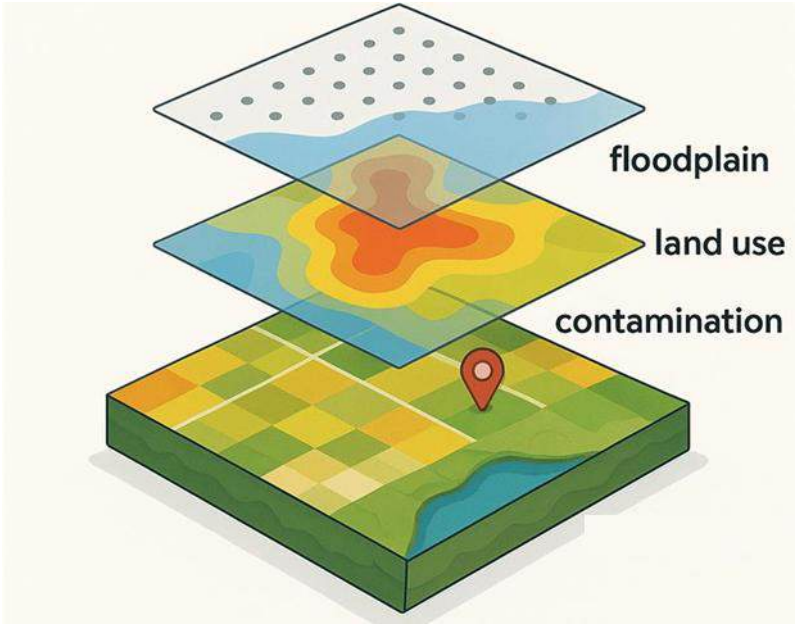
SELECT

CONCEPT PLAN



Site Identification

1. DESKTOP PLANNING ANALYSIS



2. STAKEHOLDER INPUT

- Consulted with +20 stakeholders
- Identified key sites of interest
- Suggestions were made in a variety of ways
- Additional insight on sites identified through **Desktop Planning Analysis**

Site Identification – Stakeholders

NbS & Regional Transportation System

- MDOT collaboration
- Regional Capital Improvement Project Planning

2050 REGIONAL TRANSPORTATION PLAN
VISION2050

Online Dashboard

Nature-Based Flood Reduction Reduction Opportunities

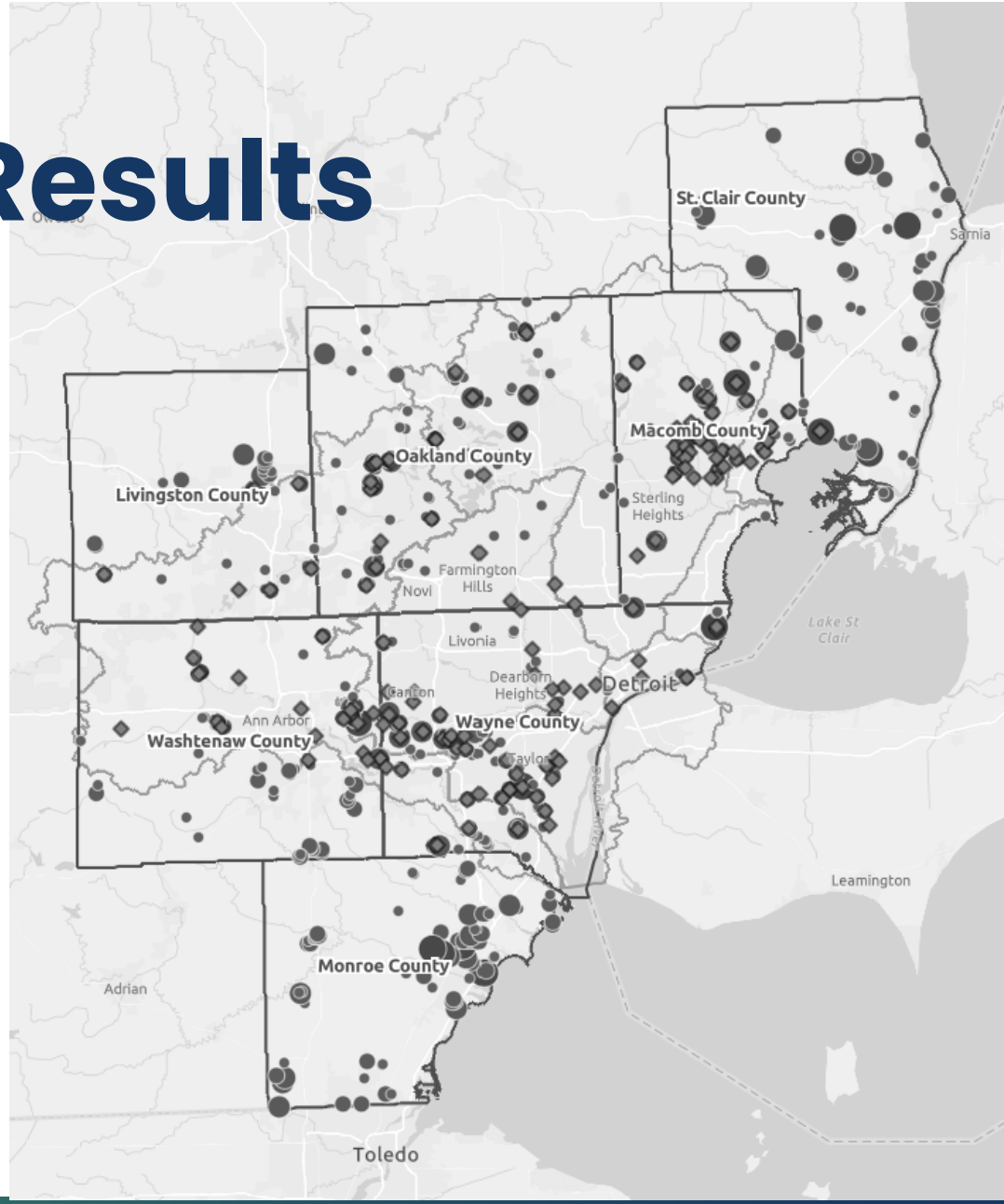
Site Identification – Results

DESKTOP PLANNING ANALYSIS

+700 potential sites identified

STAKEHOLDER INPUT

+50 sites suggested by stakeholders



SEMCOG

Nature-Based Flood Reduction Opportunities

Filter by Size

Size Greater Than

10

min is 0 acres

Size Less Than

106

max is 106 acres

Apply | Cancel

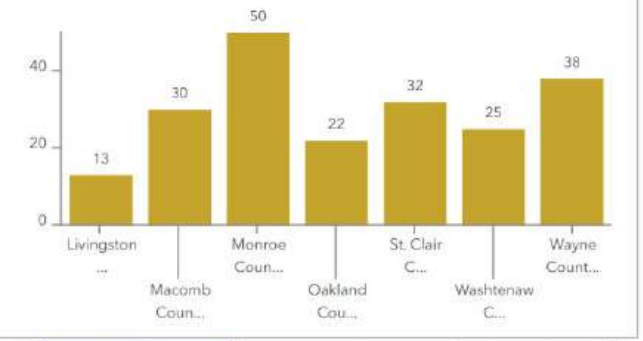
Filter by County

County

- All -

Apply | Cancel

Total Filtered Opportunity Areas: 210



County Summary | Watershed Summary | Ranking Summ

GIS Identified Opportunity Areas

Acres

- > 50 - 105.803
- > 25 - 50
- > 10 - 25
- > 5 - 10
- 0 - 5

County Lines

Project Watersheds

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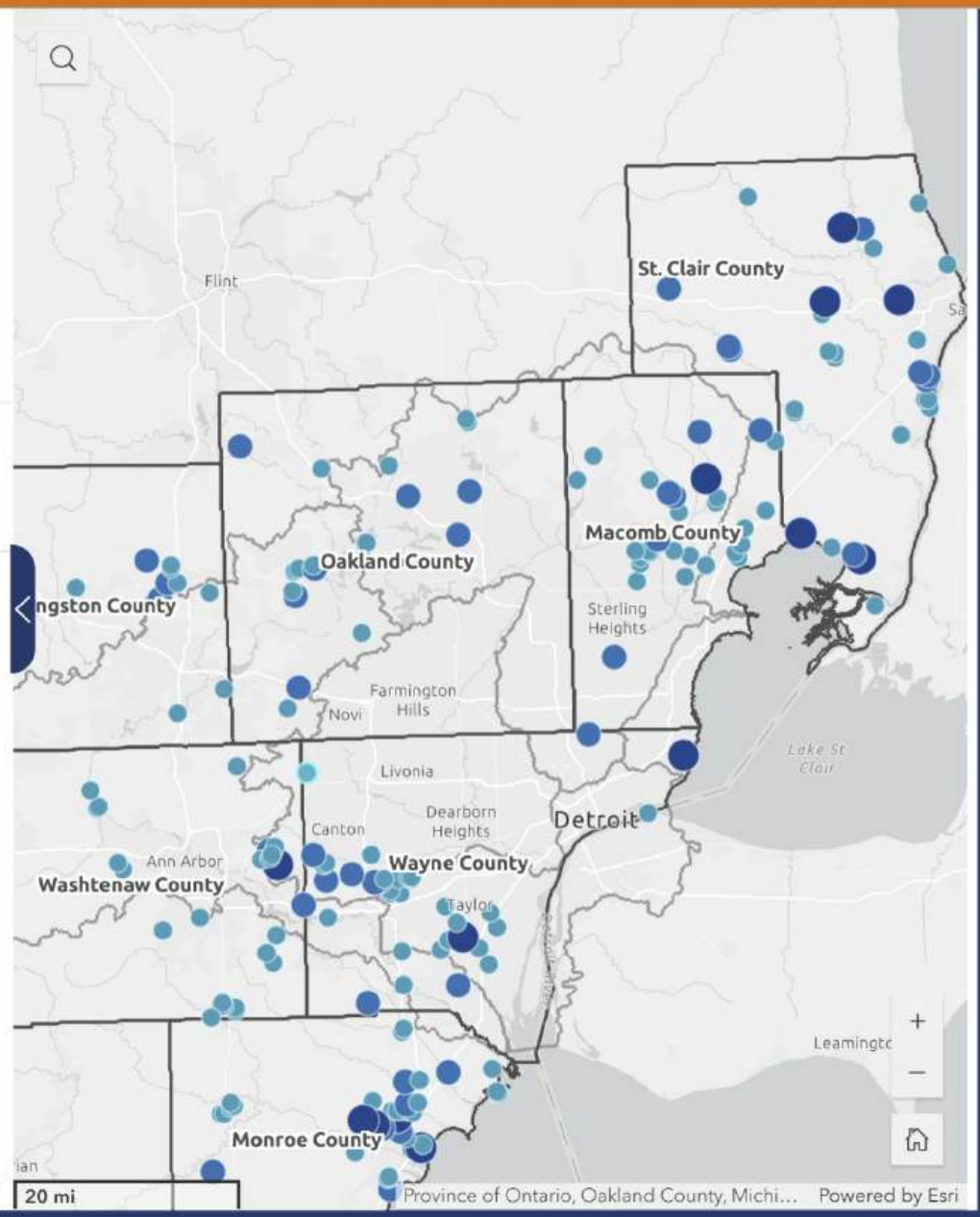

The factors in the table below were used to compile a ranking for each potential opportunity area polygon. *(Click here for more detailed ranking information)*

*click map feature to update information

GIS ...

Potential Water Storage Area

This opportunity area is in Wayne County and is 24.39 acres in size.

The average composite ranking for this polygon is 7.00, out of 13 possible. It also has an area weighted rank of 7.00.

Factor	Included?
Outside Park Access Buffer:	Yes
Within A Park Demand Area:	Yes
Existing Conservation Land:	Yes
Within Park Boundary:	Yes
Potential Wetland Restoration Area:	Yes
Potential Conservation Land:	Yes

SEMCOG

Nature-Based Flood Reduction Opportunities

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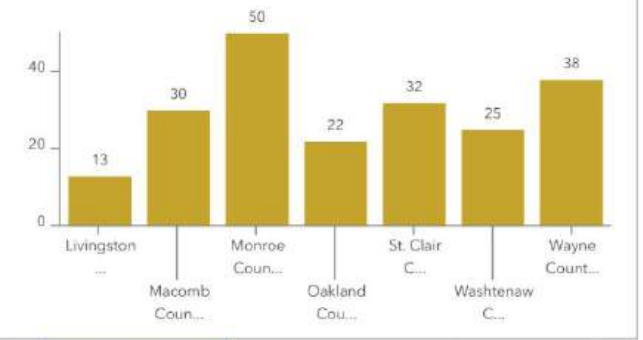

County Summary | Watershed Summary | Ranking Summ

Opportunity Area Follow-Up Rank

- Very High
- High
- Medium
- Low
- Very Low

GIS Identified Opportunity Areas

Acres

- > 50 - 105.803
- > 25 - 50
- > 10 - 25
- > 5 - 10
- 0 - 5

County Lines

Project Watersheds

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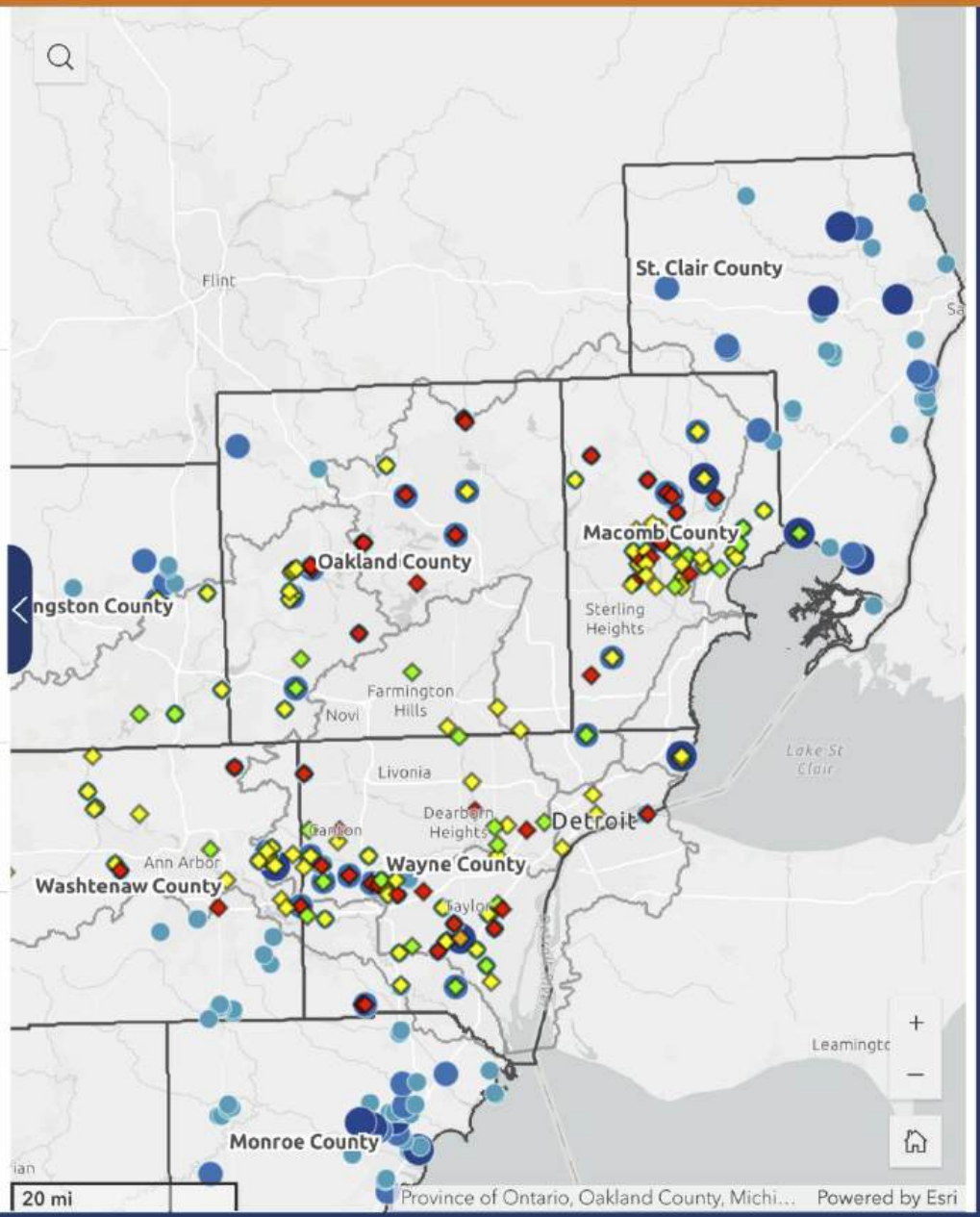

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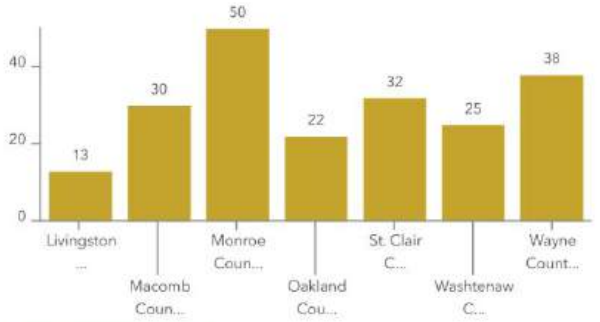

County Summary | Watershed Summary | Ranking Summ

Data Used in Analysis

Brownfields Site

Part 201 Environmental Contamination Sites

Michigan Part 115 Landfills

Underground Storage Tanks

Potential Wetland Restoration Areas

Existing Conservation Land

Park Access Buffer

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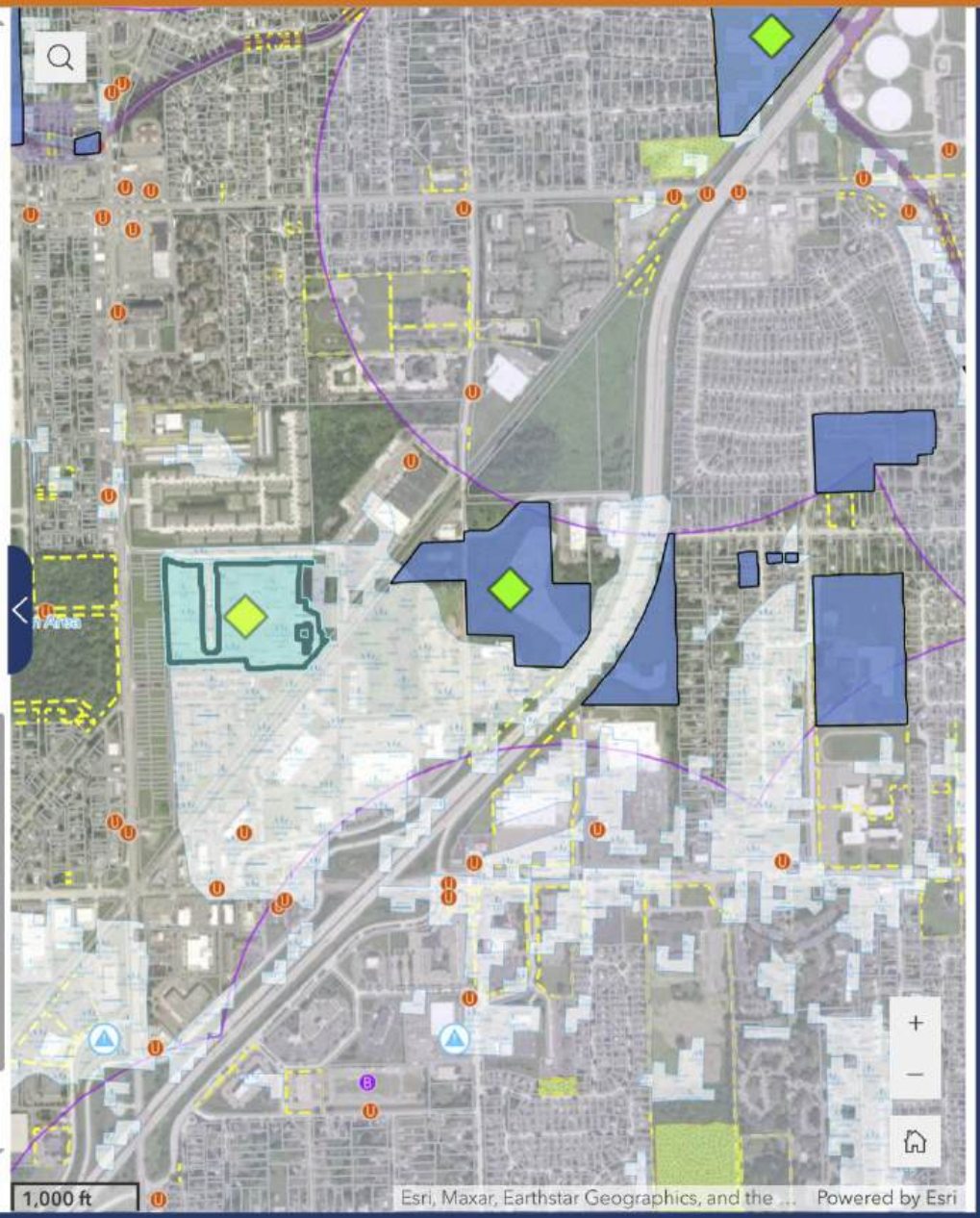


The factors in the table below were used to compile a ranking for each potential opportunity area polygon. *(Click here for more detailed ranking information)*

*click map feature to update information

GIS ...

Potential Water Storage Area

This opportunity area is in Wayne County and is 17.53 acres in size.

The average composite ranking for this polygon is 7.00, out of 13 possible. It also has an area weighted rank of 7.00.

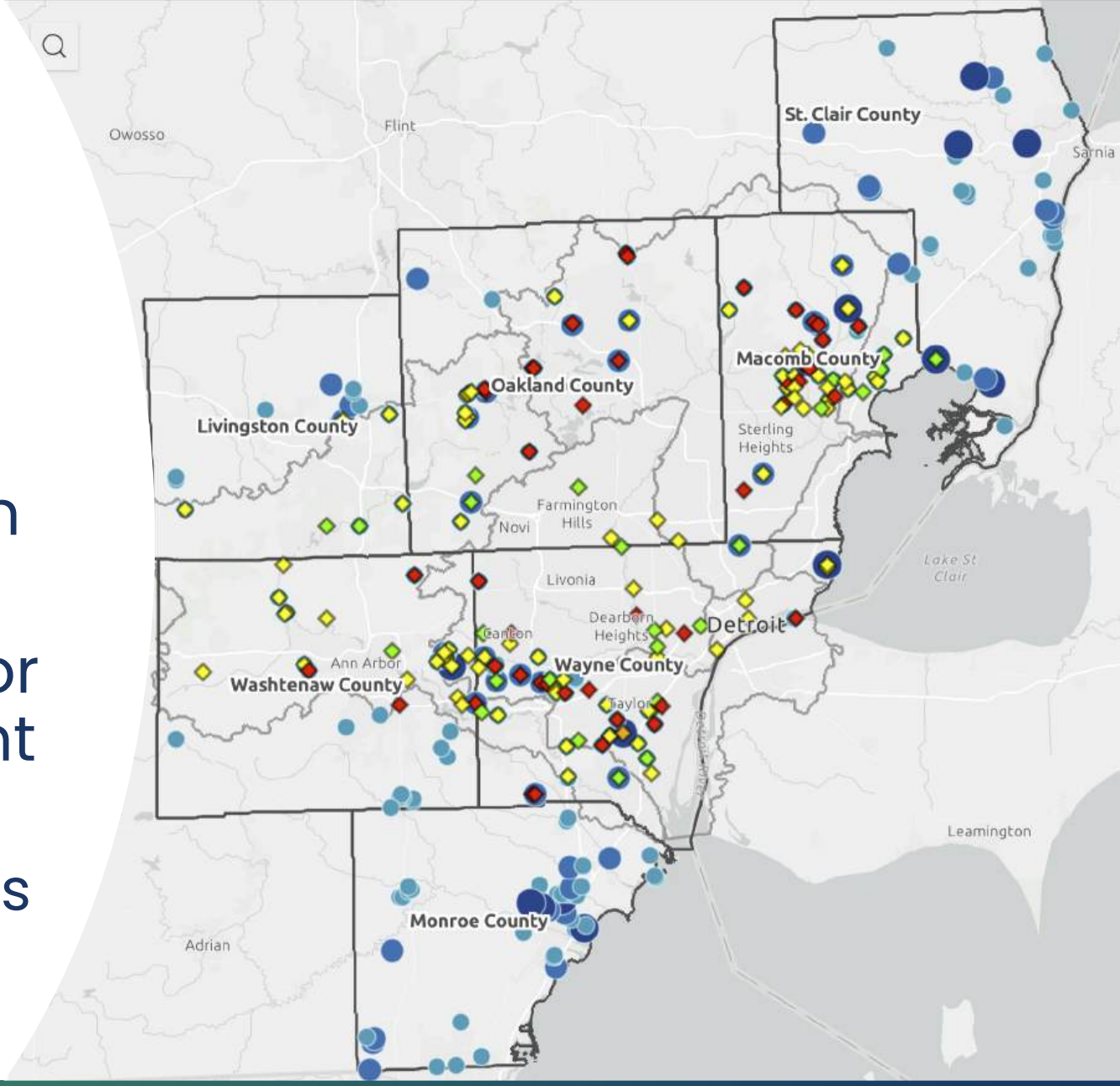
Factor	Included?
Outside Park Access Buffer:	Yes
Within A Park Demand Area:	
Existing Conservation Land:	
Within Park Boundary:	Yes
Potential Wetland Restoration Area:	Yes
Potential Conservation Land:	Yes

Site Screening
What makes a good site:

- Size of NbS site
- Location within watershed
- Drainage potential to NbS
- Proximity to known flooding
- Overlap with stakeholder interests
- Alignment with future capital investments
- Land use and ownership

Site Screening – Results

- Dozens of sites that align with RIP objectives
- 4 sites will be selected for conceptual development
  - 1 per watershed
  - variety of configurations

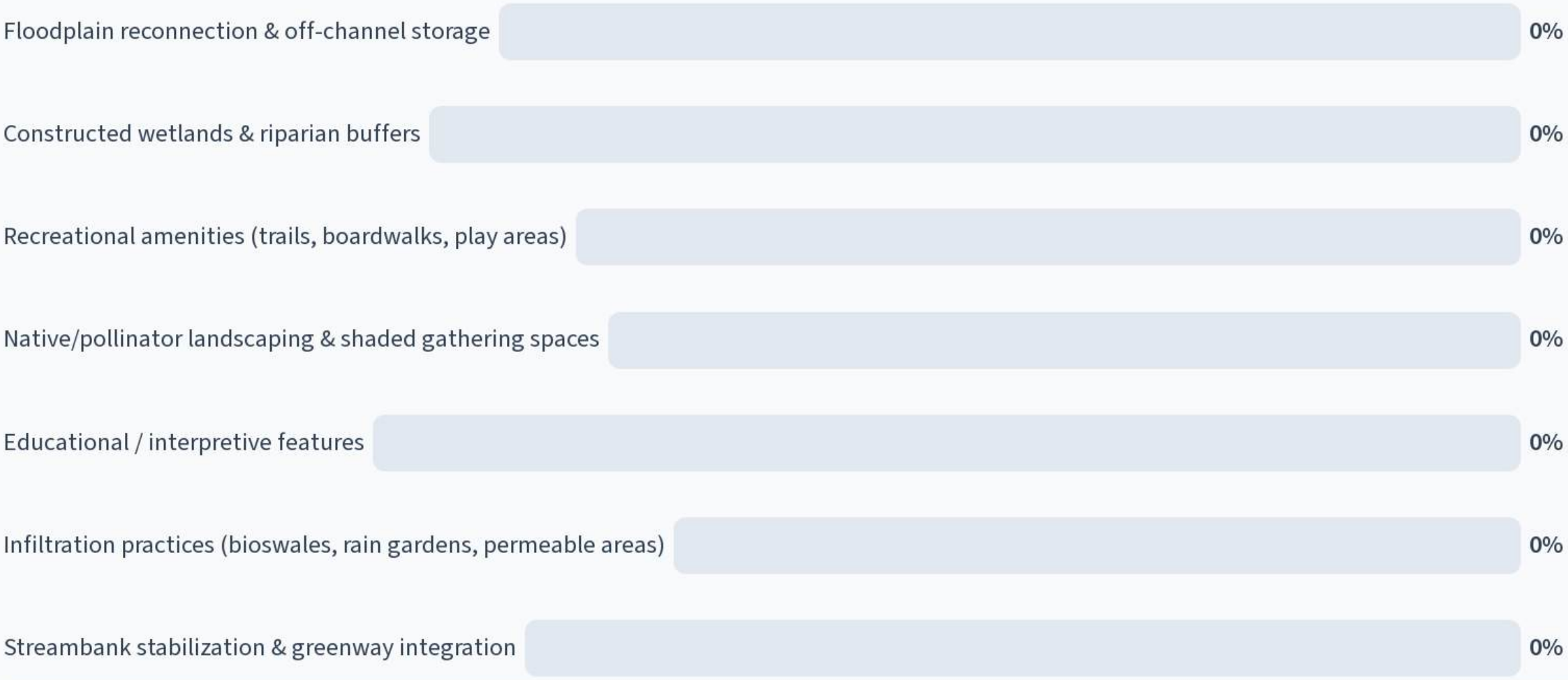


Conceptual Plans

Components

- Narrative & Basis of Design Report
- CAD Layouts and Cross Section Details
- Cost Estimate
- Renderings

Which design features would make NbS projects most valuable to your community or organization? (Choose up to 3)



Next Steps for NbS Selection

- Continue to compile NbS opportunities in SE MI
  - Review with TF organizations
  - Confirm sites in your area
- Select 4 sites for concept development
- Are you interested in exploring the sites in your community?

Conclusion & Next Steps

What we heard today

- The region is working together to build resilience
- The Task Force will help guide the development of a Flooding & Resilience Plan for Southeast Michigan
- Nature Based Solutions 101
- NbS Desktop Planning Analysis & Concept Plan Development

SEMCOG University Workshop: Crisis Management for Local Government Leaders

Date: October 8, 2025

Time: 9:00 a.m. - 2:30 p.m.

Where: SEMCOG Office

Our next meeting

- Share the Final Concept Plans and discuss next steps
- Provide an Update on the Flood Risk Tool
- Talk more about outreach and education

Join us for the Next Meeting!

December 2nd, 2025, 1-3pm

SEMCOG Offices

Join us for our next Task Force Meeting

December 2nd, 2025, 1-3pm

SEMCOG Offices