

Wisconsin Flood Resilience from a Whole Community Perspective

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WISCONSIN DEPARTMENT
of **HEALTH SERVICES**

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Agenda

Climate and Health Program

Flooding and Health in Wisconsin

Risk Assessment Flood Tool (RAFT)

Flood Resilience Scorecard (FRS)

Climate and Health Program

Study climate change impacts on public health.

Use best practices to identify adaptation strategies, tools, and trainings to help communities address health outcomes and climate change in an equitable way.

Raise public awareness on the connection between climate and health.

Build internal state agency capacity to address climate change within programmatic activities.

What we work on



Extreme Heat



Air Quality



Communications



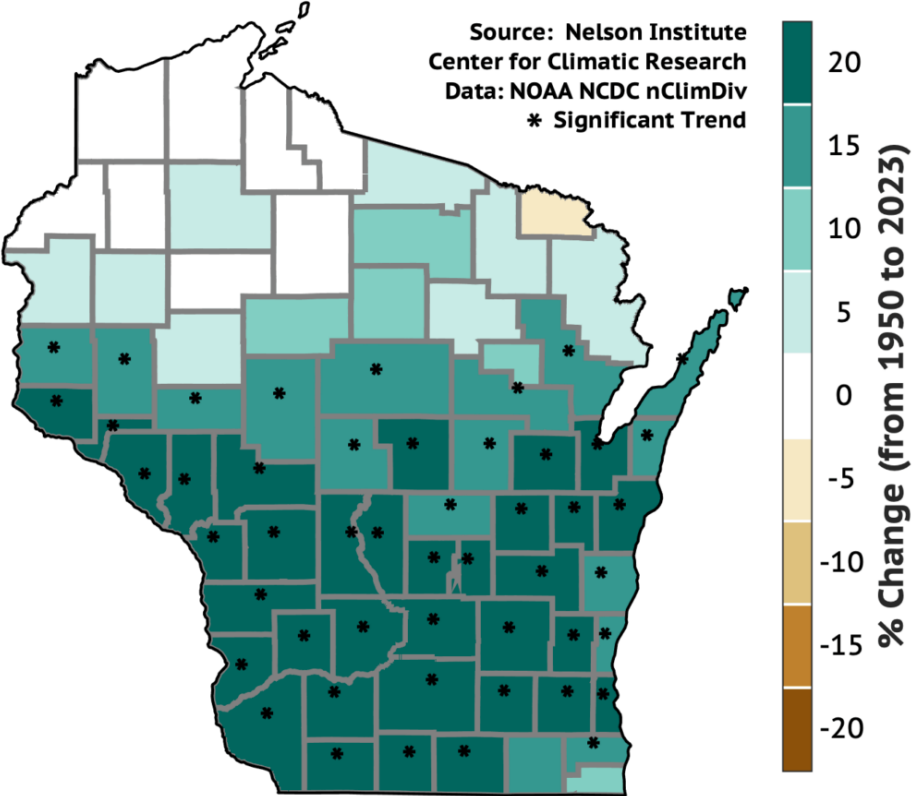
Flooding



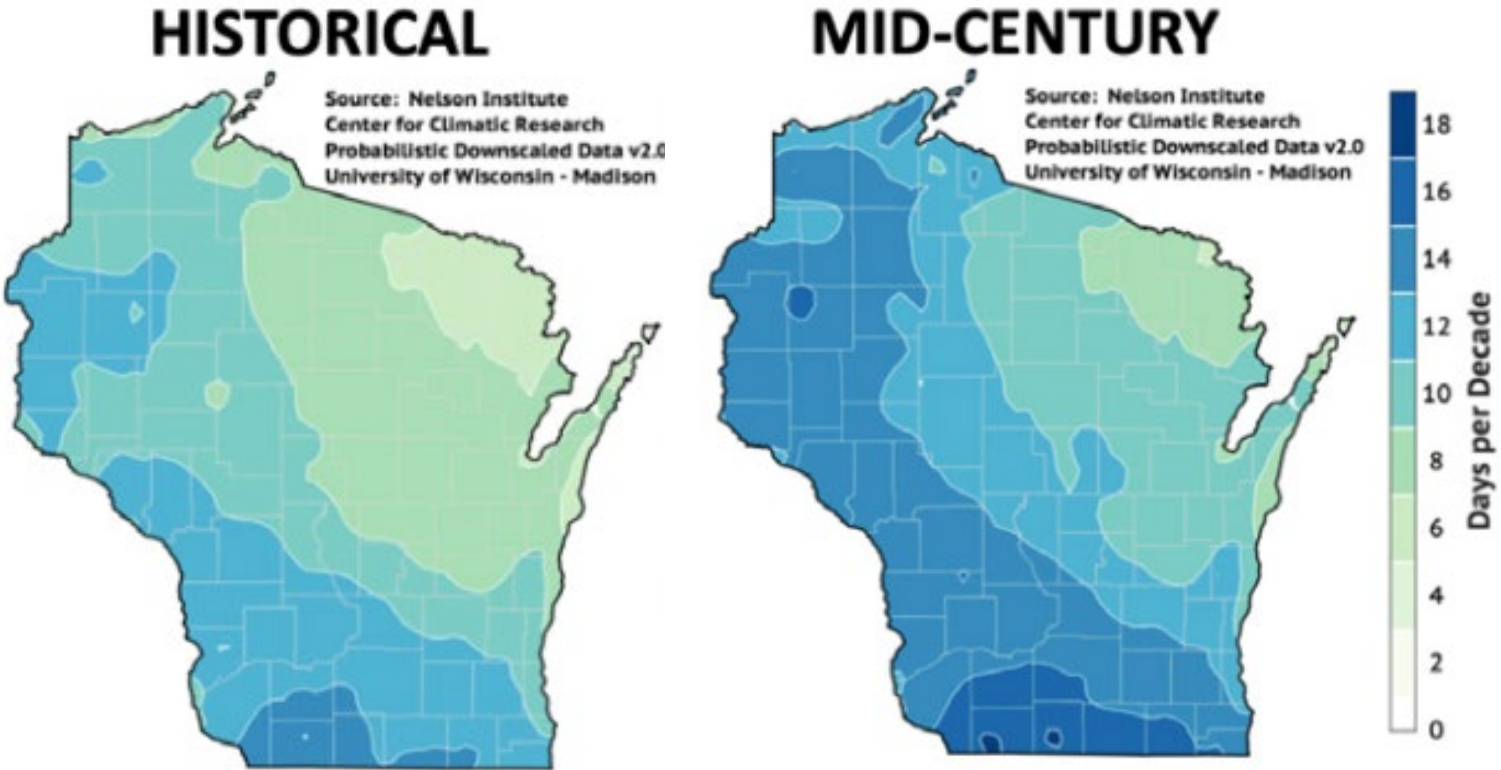
Flooding in Wisconsin

Flooding in Wisconsin

Historical Change in Annual PRCP (%)
from 1950 to 2023



Frequency of >2inch rain events



Public Health and Flooding

Health Impacts of Flooding (Du et al., 2010)

Immediate Consequences

- Drowning
- Electrocution
- Hypothermia
- Lack of access to medical records prescription drugs or electric medical equipment (e.g., respirators)
- Contact with sewage-related pathogens
- Contact with waterborne vectors (e.g., mosquitos)

Long-term Consequences

- Mold induced asthma
- Injuries while making repairs to flood damage
- Spread of communicable diseases in shelters
- Financial burden of recovery—strains resources for healthy food and routine healthcare
- Physiological effects
- Mental health and post-traumatic stress

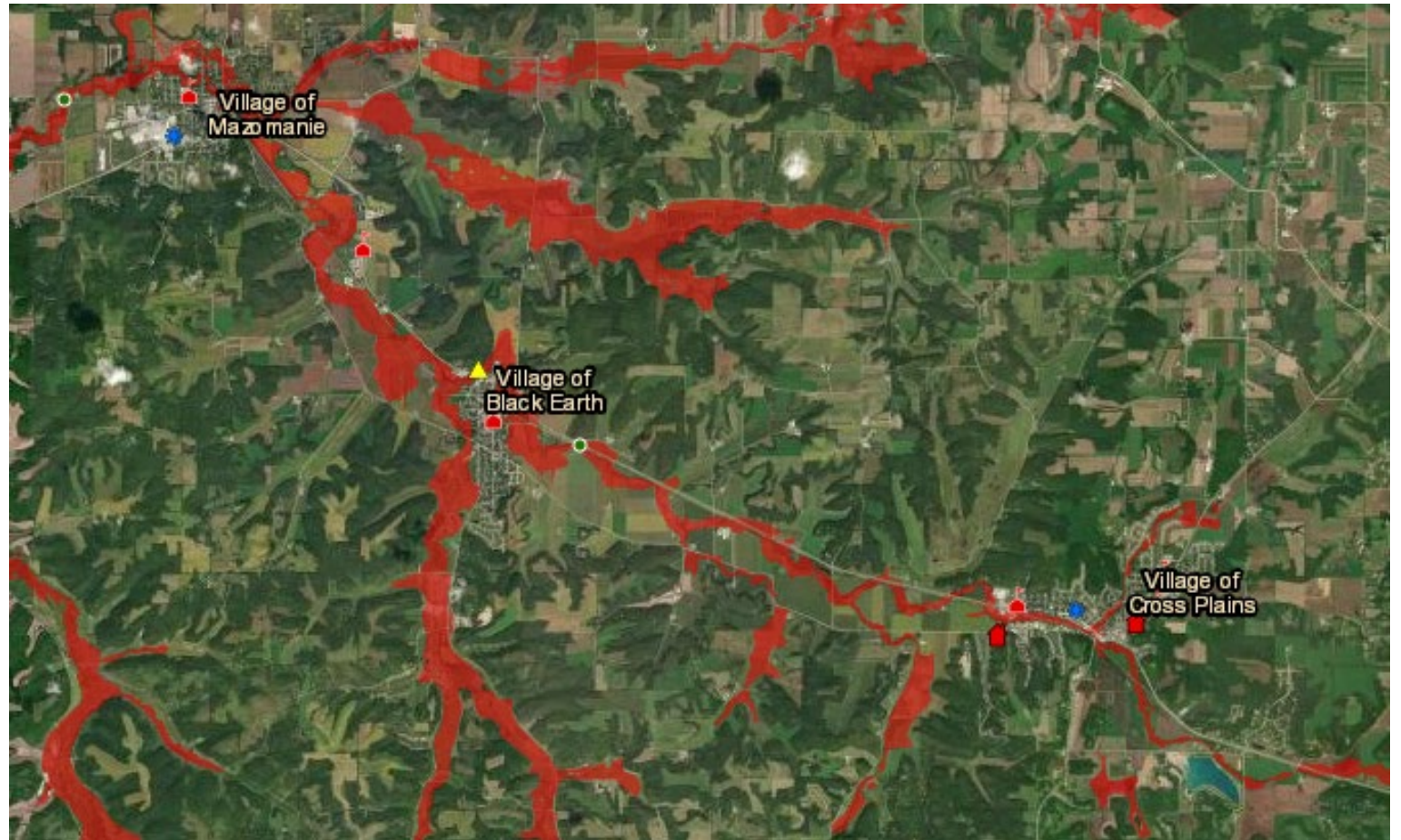
Public Health and Flooding

Infrastructure Risks in Wisconsin²

1 in 5 road miles

1 in 5 critical facilities

1 in 10 residential properties



² First Street Foundation, 2021



RAFT: Flood preparedness mapping resource

Risk Assessment Flood Tool

35 data layers from 12 state and federal agencies

Healthcare locations

Emergency management resources

Schools and childcare

Mitigation acquisition parcels

Impervious surface

Social Vulnerability Index

Private well locations

FEMA flood hazard layer

LIVE precipitation data, 72-hour precipitation forecast, flood advisory feeds, and river flood level status







Search...

Legend

River Flood Status - NWS (AHPS)

- Major Flooding
- Moderate Flooding
- Minor Flooding
- Near Flooding
- No Flooding
- Category Not Defined
- Low Water Threshold
- Forecast Not Current
- Out of Service

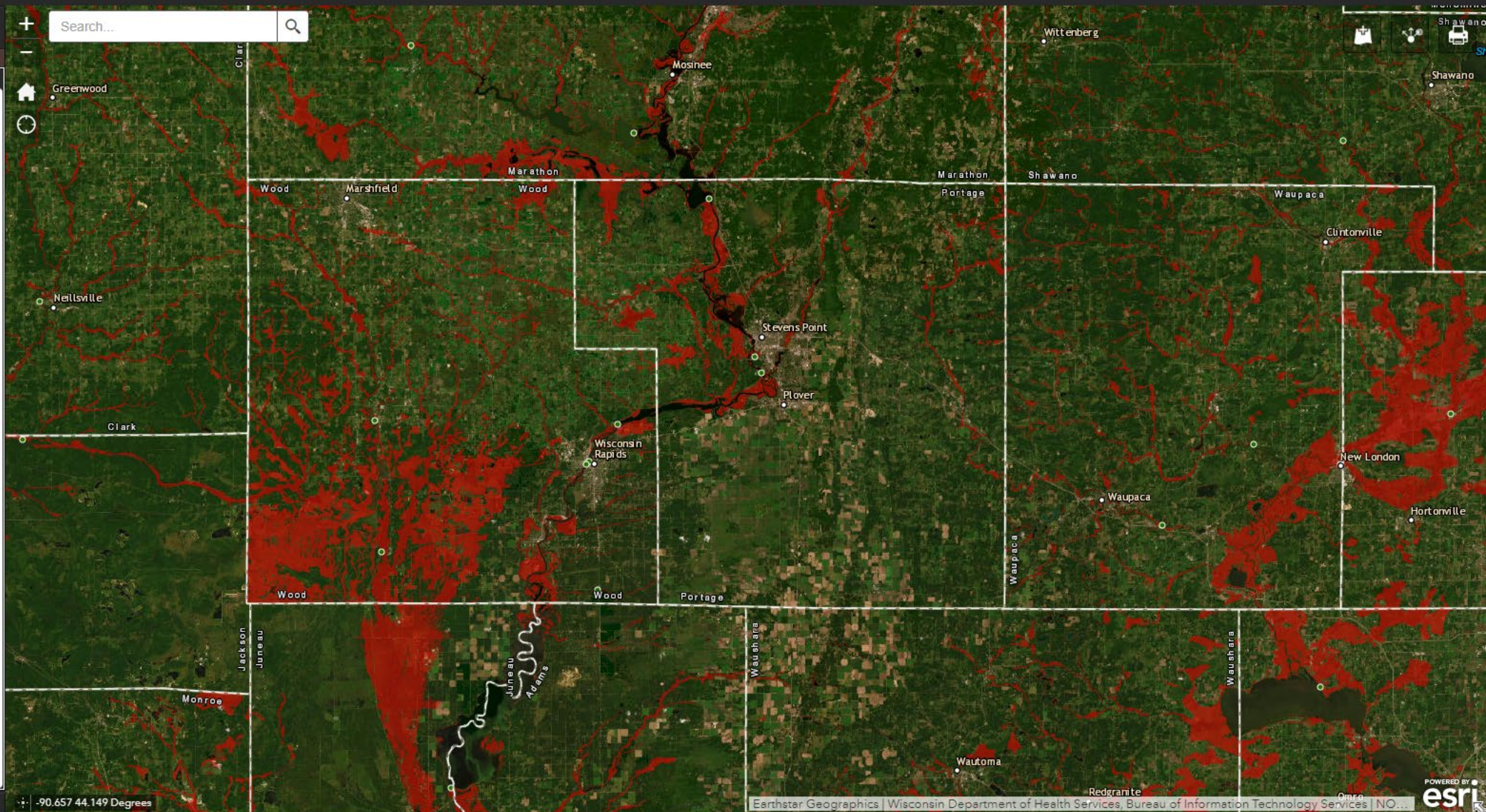
Flood Advisories (NWS)

-

Flood Hazard Layer (FEMA)

Special Flood Hazard Areas

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Layer List

Operational Layers

☒ River Flood Status - NWS (AHPS)

☐ Private Well Locations (WI DNR)

☒ Flood Advisories (NWS)

☒ Healthcare Locations

☒ Emergency Management Resources

☒ Schools and Childcare

☐ Mitigation Acquisition Parcels (WEM)

☒ Boundaries and Regions

☐ Current Precipitation (NOAA)

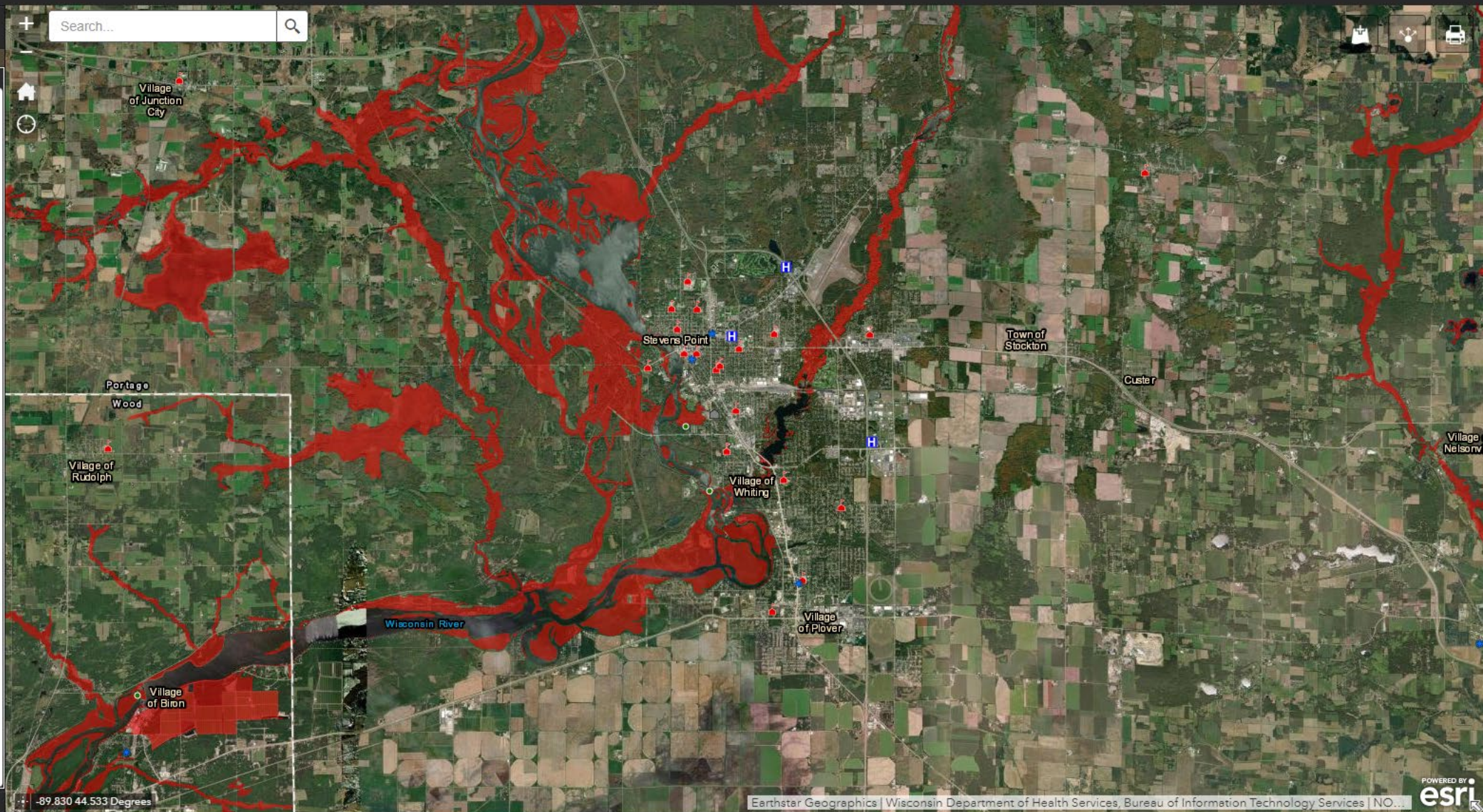
☒ Flood Hazard Layer (FEMA)

☐ Impervious Surface (NLCD)

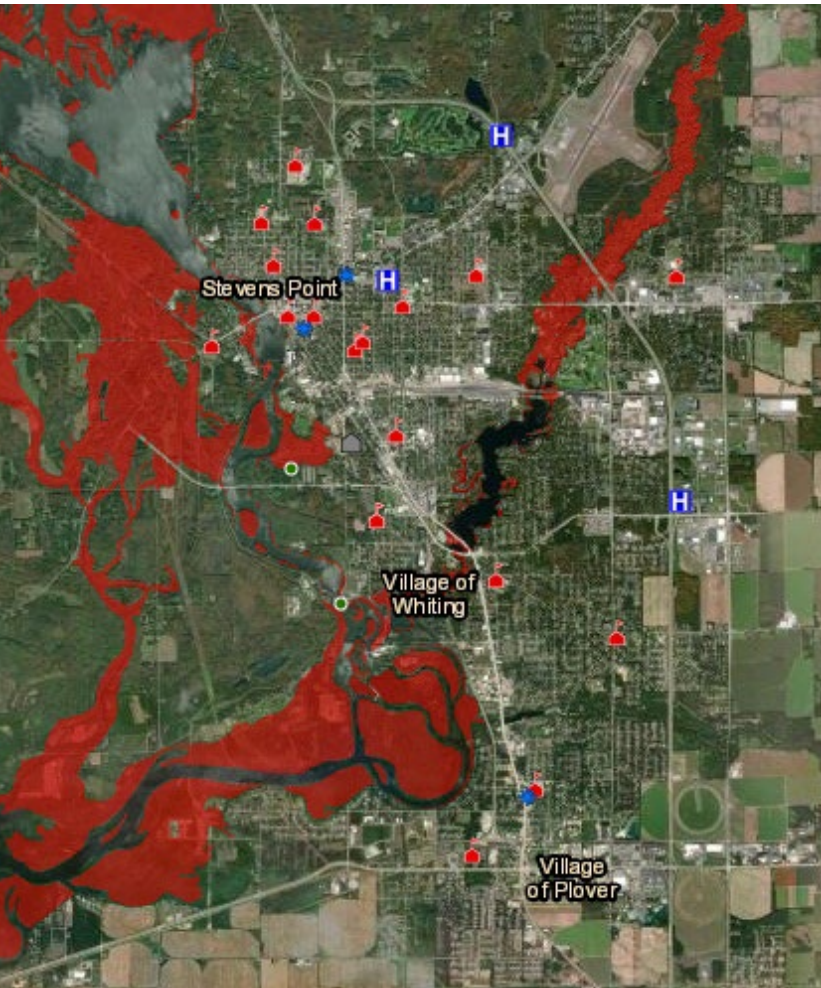
☐ Electrically Dependent (emPOWER)

☐ Social Vulnerability Index (CDC)

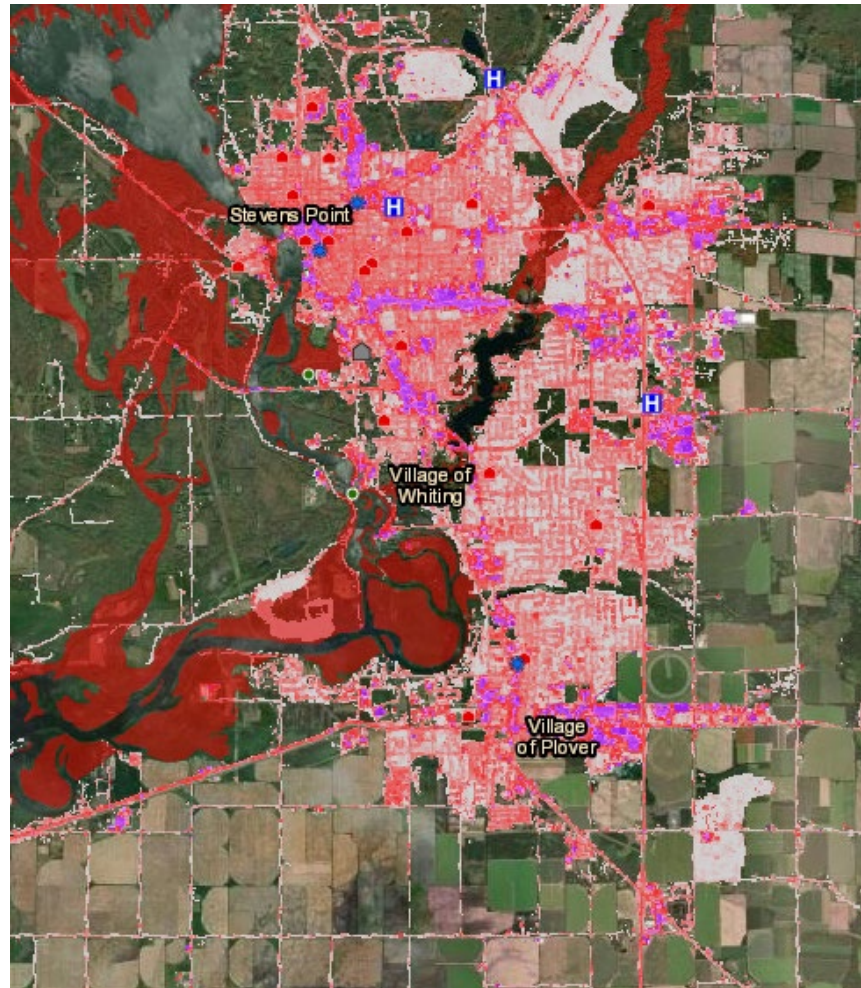
☐ Analysis Layers (WI DHS)



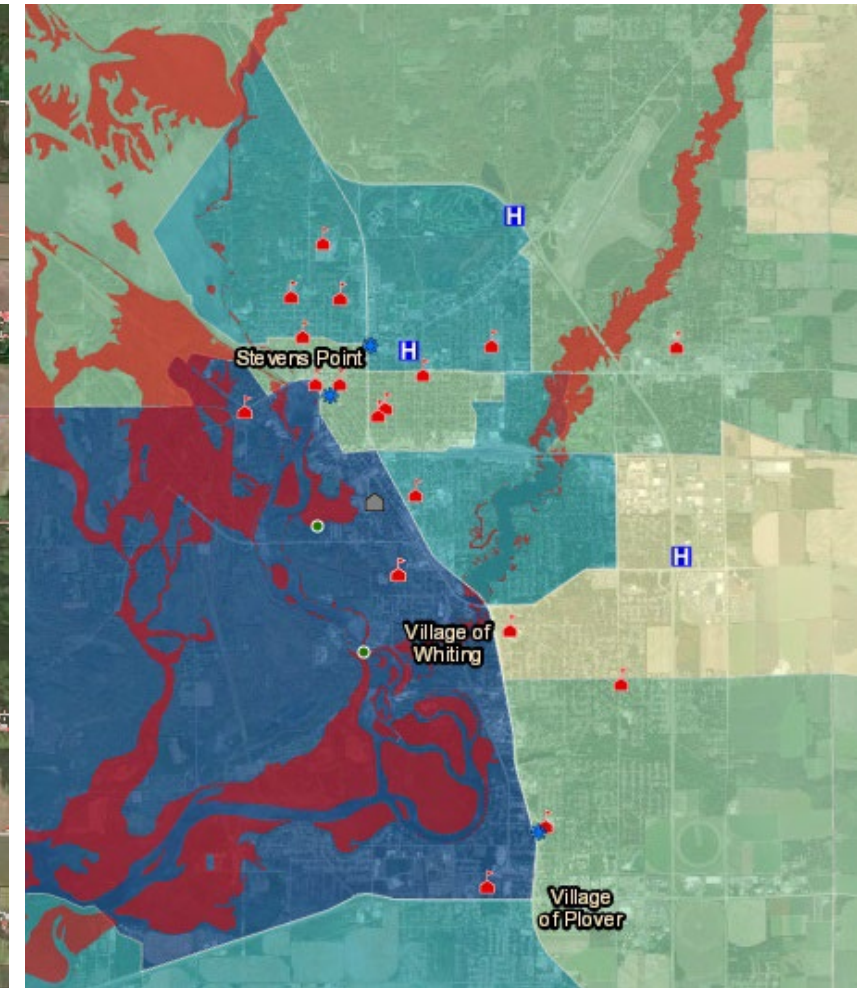
RAFT Optional Layers



Schools and health care

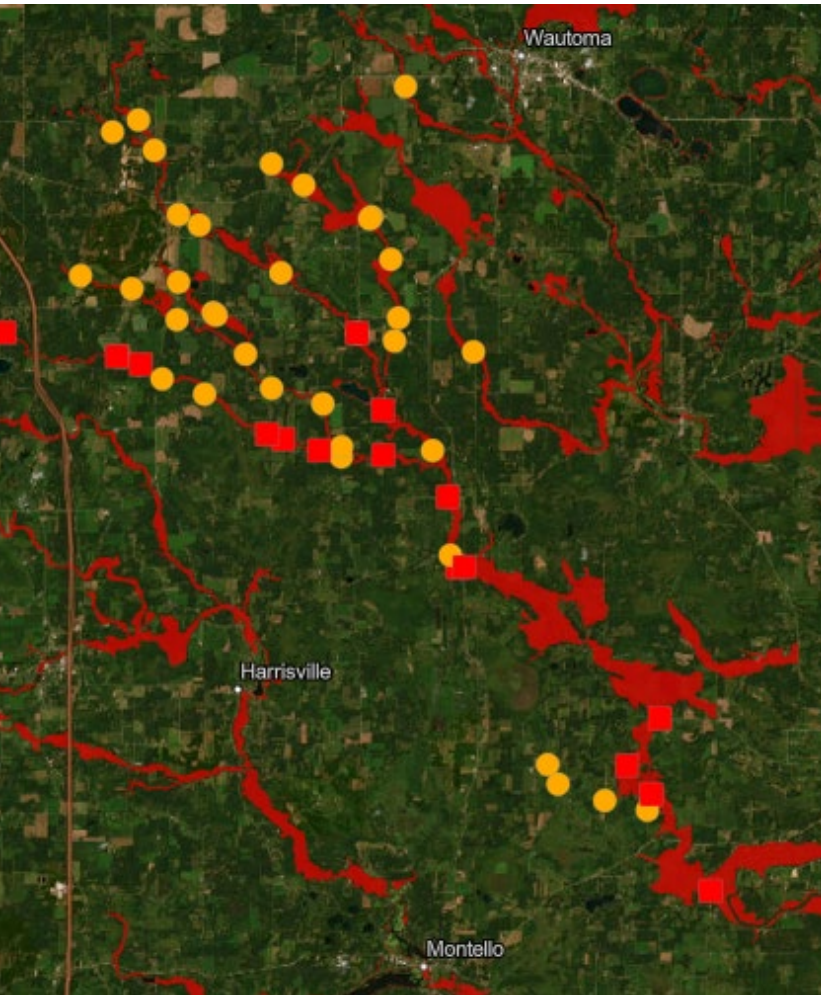


Impervious surface



Social Vulnerability Index

New Layers



Greatlakes stream crossing inventory



Culvert inventory



Non-driver inventory



How can RAFT be used?

Use RAFT to:

Emergency planning and preparedness

Develop plans addressing flooding with data driven decision making

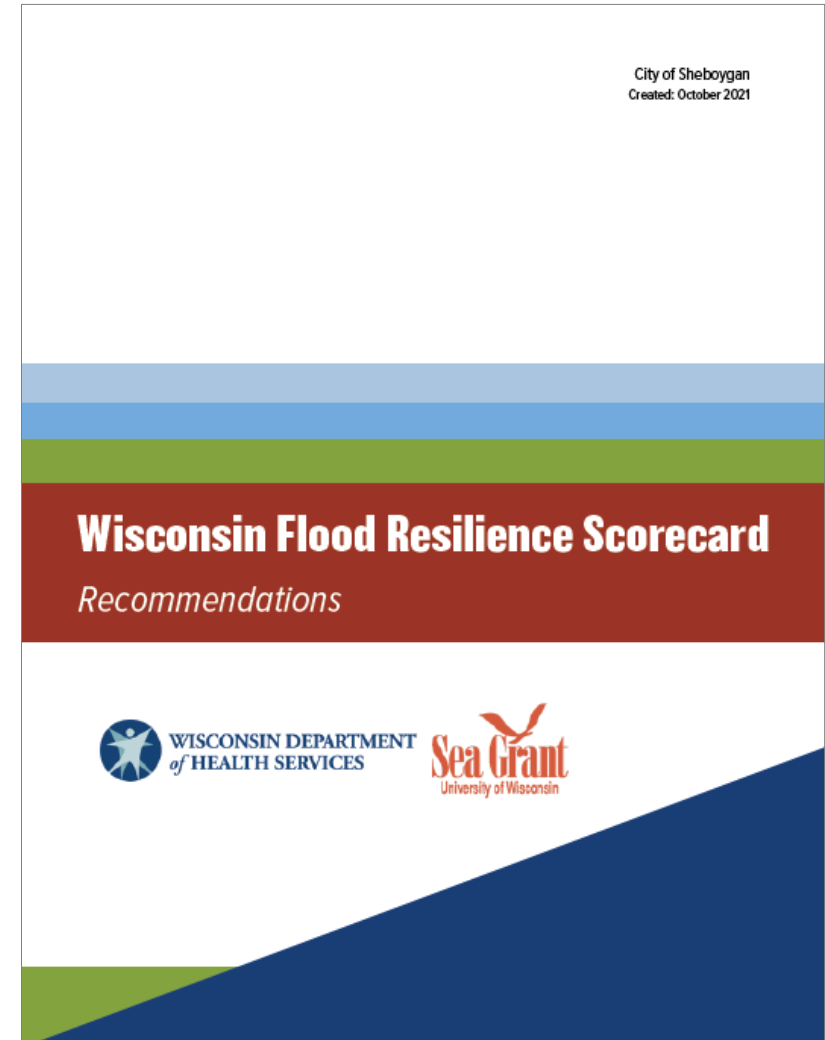
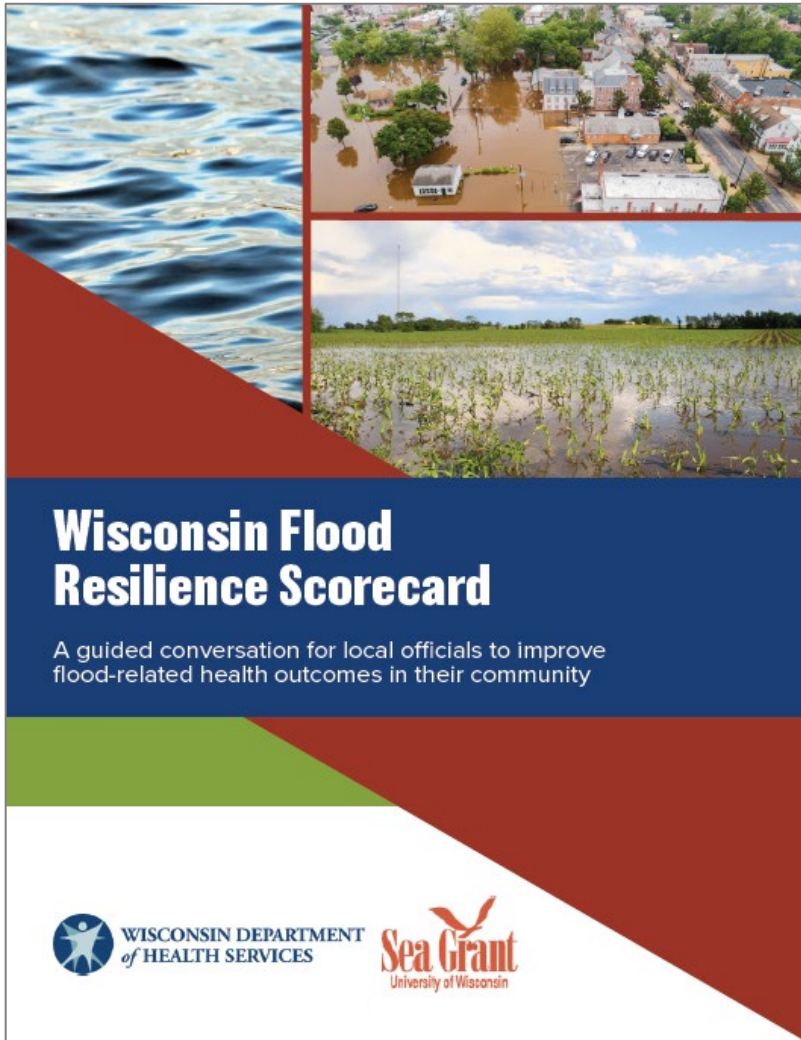
Understand where at-risk populations are close to flood hazard areas

Grant and financing applications



FRS: A comprehensive whole-community approach

Wisconsin Flood Resilience Scorecard (FRS)



FRS Data Companion



E-B3. What portion of your community (total area) is located on steep slopes (here meaning a slope greater than 10 degrees)?

- A. We have no steep slopes in our community
- B. Less than 10% of the community is on a steep slope
- C. Between 10-50% of the community is on a steep slope
- D. More than half of the community is on a steep slope

Steep slopes can be particularly susceptible to flood events as they more rapidly convey water and soils erode. Communities should be aware of the extent and location of steep slopes and adopt land use regulations, develop green and gray infrastructure, and encourage other projects to slow the flow of water.

Percentage Steep Slopes	5.07%
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Source: Natural Resources Conservation Service Geospatial Data Gateway



Environmental



Institutional

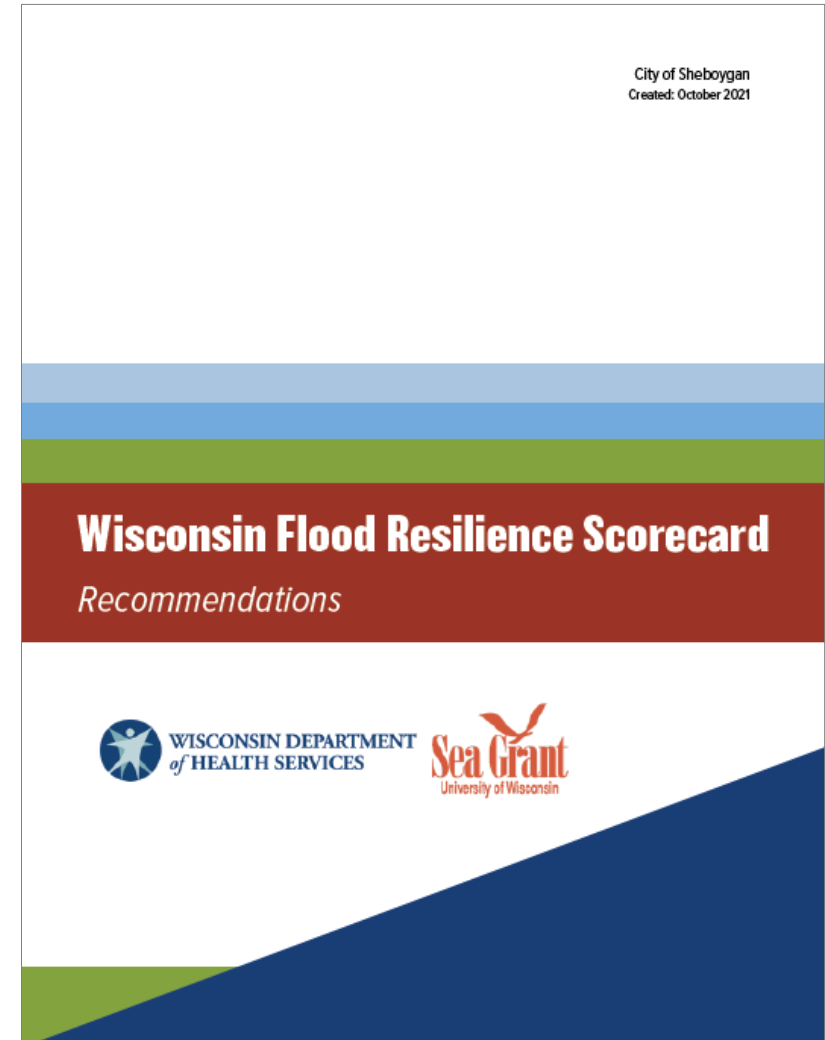


Social

FRS Recommendations

Specific recommendations for each Module
and section

Funding Resource List





How can the FRS be used?

Use the FRS to:

**A tool for
comprehensive
plans**

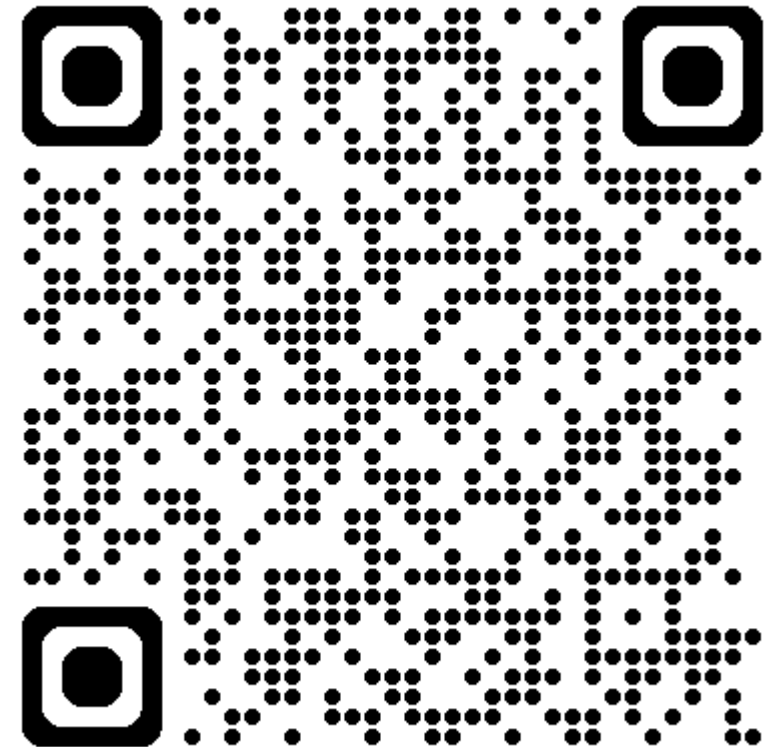
**Facilitate
conversations
around flooding**

**Assess 5-year
progress in various
plans**

**Grant and
financing
applications**

Risk Assessment Flood Tool
<https://www.dhs.wisconsin.gov/flood/raft.htm>

Flood Resilience Score Card
<https://www.dhs.wisconsin.gov/flood/frs.htm>





Thank you! Questions?

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