

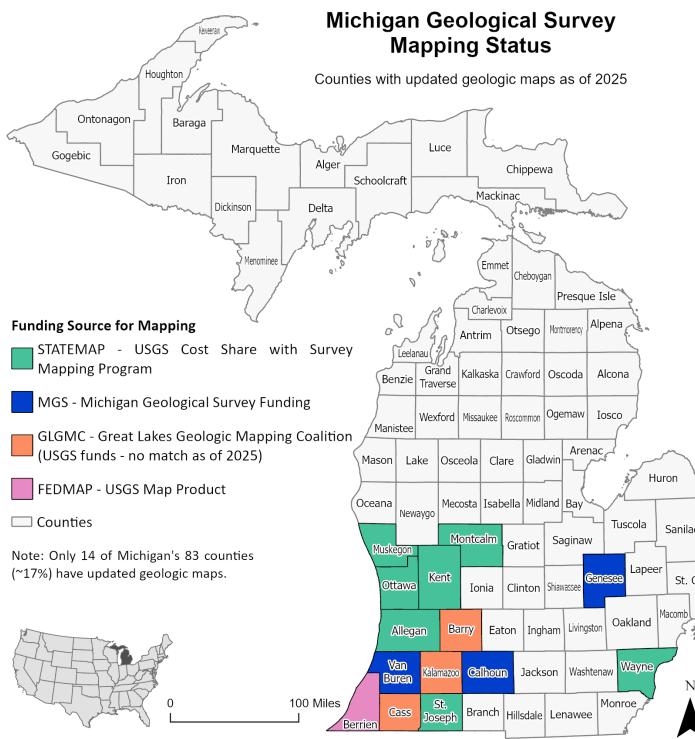
# Geologic Mapping



*How can Michigan's natural resources be identified, managed and protected without knowing the location, extent, and quality of those resources? That is the responsibility of MGS on behalf of all Michigan citizens.*

## Understanding Michigan's Geology

Geologic maps show water, hazards, and resources—above and below the surface. Creating these maps is the central mission of the Michigan Geological Survey (MGS). Without them Michigan lacks the tools for informed development, management, and protection of natural resources.



## Why Mapping Matters?



### Land Use Planning

Guides sustainable growth and local development.



### Public Safety

Identifies flood, erosion, and hazard zones.



### Environmental Protection

Supports groundwater and resource stewardship



### Economic Development

Locates building materials and mineral resources



### Energy & Resources

Informs exploration for renewable and traditional energy

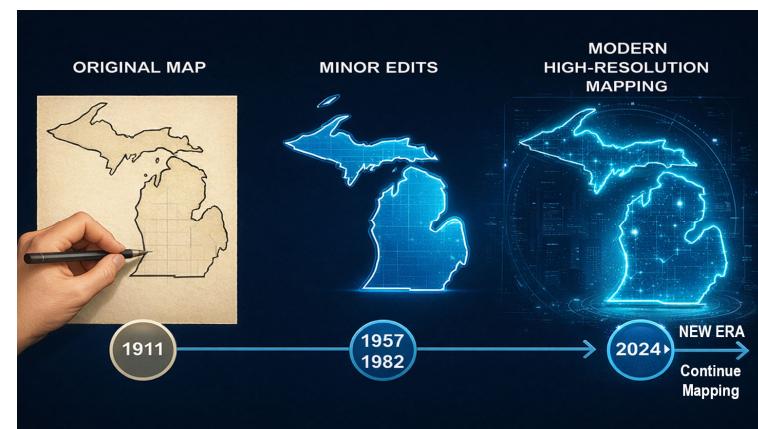


### Water Resources

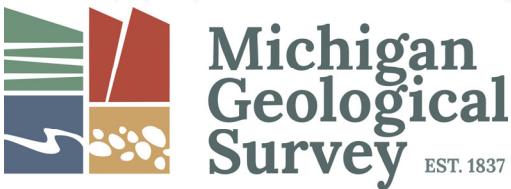
Improves understanding of water availability and supports sustainable water management.

## Michigan Needs Modern Maps

**Michigan is undermapped.** Century-old maps can't guide today's needs. The MGS's expert geoscientists create updated maps that reduce uncertainty, support better decisions, and protect public health and the environment.



# Geologic Mapping



## MGS Geologic Mapping Projects

### USGS STATEMAP

The USGS STATEMAP program is part of the National Cooperative Geologic Mapping Program (NCGMP) that grants state geological surveys dollar for dollar match for geologic mapping projects focusing on economic, social, and scientific interest.

**STATEMAP funding increased by 445% in 2023-2024 compared to Michigan's long-term average. USGS GLGMC also provided nearly \$200K from 2023-2025.**

### USGS EARTH MRI

The USGS Earth MRI program advances understanding of the nation's geology to identify critical mineral resources through partnerships that collect and share essential geologic maps and data. The data is also used to evaluate energy and groundwater resources and natural hazards.

**~\$1M in Federal investment and \$160,000 in cost share from 2023-2025.**

### USFS MAPPING

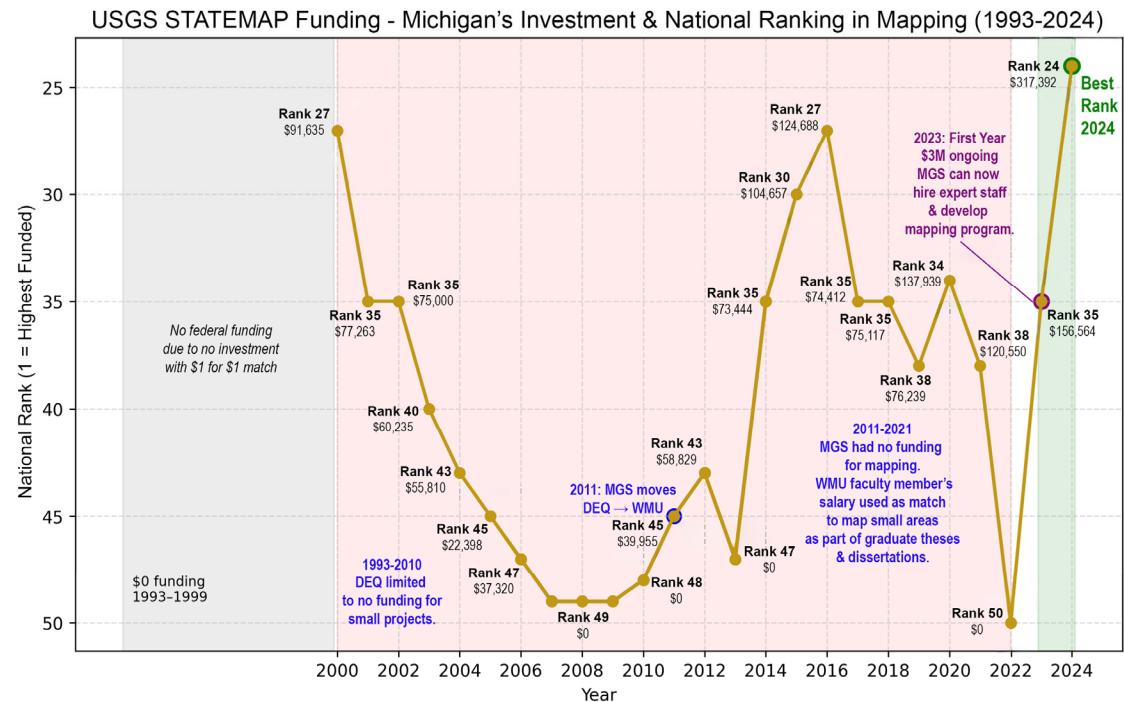
Under the Good Neighbor Authority with the U.S. Forest Service and Michigan DNR, the MGS maps forest lands—including karst areas—to improve understanding of groundwater, land use, and potential hazards on public lands.

**\$400,000 Federal investment from 2024 to 2028 with no cost match.**

### STATEWIDE AGGREGATES

A \$5 million investment and partnership with the Department of Natural Resources (DNR) in Michigan's first-ever statewide aggregates mapping project will catalog all known sand, gravel, and stone sites, while using surficial geology to identify potential new resource areas.

**\$5M investment by the State of Michigan from 2024 - 2029**



Over \$500,000 in 2023–2025 federal STATEMAP support—leveraged to more than \$1 million—has funded the initial replacement of Michigan's century-old maps. More than 80% of the state needs modern mapping, and the Survey may apply annually for Federal funds. However, the projects require matching funds from the state. A \$3M annual appropriation funds the salaries of Survey mapping staff to provide match. According to the American Geosciences Institute statistics, **every dollar spent on geological mapping yields at least \$7-\$10 in economic benefits generating up to \$10 million for 2023-2024 for Michigan for infrastructure and construction planning, resource exploration/recovery, water and environmental management, land use planning/hazard mitigation, and more.**

### Great Lakes States STATEMAP USGS Funding Investment 1993 - 2024

