

Michigan: Overview

Everything in the main manual and the skill guides applies in Michigan exactly as written. What's different here is the specific hazard profile and the state, local, and legal context around it. This page is the starting point; the other three pages under Michigan go deeper on laws, local resources, and the data behind the risks named here.

The Flint water crisis: when the water system itself is the hazard

In April 2014, the city of Flint switched its municipal water source from Detroit's system to the Flint River as a cost-saving measure. The river water corroded aging lead pipes, and roughly 100,000 residents were exposed to elevated lead levels before the city switched back to Detroit water 18 months later. A concurrent Legionnaires' disease outbreak, traced to the same water switch, killed at least 12 people. This is the second infrastructure-failure disaster covered on this site, after Ohio's East Palestine derailment, and it's the clearest illustration yet of why this manual treats water storage and testing as a real household priority, not a hypothetical one. See the Risks page for the full data.

The 2020 Midland dam failures: when aging infrastructure fails at once

On May 19, 2020, after days of heavy rain, the privately-owned Edenville Dam failed, and the sudden surge overwhelmed the downstream Sanford Dam within hours, both structures giving way on the same evening. Roughly 11,000 people evacuated with as little as 18 hours' warning; officials estimate that decision saved 10 to 20 lives. No deaths resulted, a genuinely fortunate outcome given the scale of the failure, but the event is a stark example of how quickly a flood risk can escalate when the infrastructure holding water back gives out.

What this means for how you use the rest of this manual

The manual's Tier structure and the skill guides apply without modification. What's different in Michigan: household water storage and a working water filter or purification method matter here specifically because Michigan has already had a real, sustained municipal water failure, and anyone living downstream of an aging dam, and Michigan has hundreds of them built decades ago, should treat evacuation-readiness as a genuine, not theoretical, plan.

Sources

- Flint water crisis timeline and health impact: Wikipedia, sourced to CDC and Michigan state records; NRDC
- Edenville and Sanford Dam failures: USGS; Mackinac Center

Michigan: Laws & Legal Considerations

Rainwater harvesting: legal and actively encouraged

Michigan places no state-level restriction on residential rainwater harvesting, and state law specifically encourages it as a cost-efficient practice.

Rule	Michigan
Source water	Rooftop or other catchment
Permit required	No, for typical residential outdoor systems; indoor non-potable systems fall under the Michigan Plumbing Code and require permits
Permitted uses	Non-potable: irrigation, and per Plumbing Code Appendix A, certain indoor non-potable fixtures with a permitted system
Potable use	Not addressed; the plumbing code requires potable water for drinking, bathing, and cooking fixtures, with no treatment or certification pathway for harvested rainwater
Underlying framework	Cost Effective Governmental Energy Use Act; 2018 Michigan Plumbing Code, Appendix A (Non-Potable Water Systems)

A local incentive worth knowing about

Washtenaw County offers a credit for installing a rain barrel or cistern, similar in spirit to Philadelphia’s rainwater subsidy program covered on Pennsylvania’s page, though smaller in scale. Check with your own county or municipality for similar local programs.

Where to find it: the Michigan Department of Environment, Great Lakes, and Energy (michigan.gov/egle) for state guidance; your local municipality for specific plumbing permit requirements.

Water rights: riparian rules that change depending on which shoreline you’re on

Michigan borders four of the five Great Lakes, more than any other state, and its riparian law reflects that: the rules that apply to an inland lake or stream are meaningfully different from the rules that apply to actual Great Lakes shoreline.

Water body type	How riparian rights work
Inland lakes and streams	Standard riparian doctrine: landowners bordering the water have reasonable-use rights, similar to most states covered on this site
The four bordering Great Lakes	Many standard riparian rules don't apply the same way; bottomlands ownership and shoreline rights follow a distinct legal framework specific to Great Lakes frontage

Michigan's Great Lakes Compact status, a contrast with Illinois

Michigan is a full member of the Great Lakes-St. Lawrence River Basin Water Resources Compact (2008), which treats groundwater and surface water in the Basin as one connected system and prohibits diversions outside it. This is a meaningfully different position from Illinois, which is exempt from certain Compact diversion provisions because of its pre-existing Chicago Sanitary and Ship Canal diversion; Michigan has no equivalent historical exemption.

Where to find it: the Michigan Lakes and Streams Association (mymlsa.org) publishes plain-language guidance distinguishing inland riparian rights from Great Lakes shoreline rights.

Concealed carry: shall-issue with a live-fire training requirement

Michigan requires a Concealed Pistol License (CPL) to carry concealed, issued at the county level, with a more demanding training component than some other shall-issue states covered on this site.

Requirement	Detail
Standard	Shall-issue: the county clerk must issue a CPL to any applicant meeting statutory requirements
Minimum age	21
Residency	Michigan resident for at least 6 months prior to application
Training required	8 hours total: at least 5 hours classroom (Michigan firearm law, safe handling/storage, use of deadly force, pistol fundamentals) plus at least 3 hours live-fire, firing a minimum of 30 rounds
Cost	\$100 state application fee, paid to the county clerk
Processing	Fingerprinting within 45 days of application; license issued or denied within 45 days of classifiable fingerprints

Sources

- Michigan rainwater harvesting rules and plumbing code requirements: LegalClarity; WKFR
- Michigan riparian rights on inland waters versus the Great Lakes: Michigan Lakes and Streams Association
- Great Lakes Compact membership and provisions: Great Lakes Compact, Wikipedia
- Michigan CPL requirements: Michigan State Police; CCW Hub

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Michigan: Local Resources

Michigan State Police and MIREADY

The Michigan State Police Emergency Management and Homeland Security Division runs public preparedness outreach through MIREADY, alongside a newer “Know Your Plan. Be Alert.” campaign specifically focused on getting residents signed up for local emergency alerts.

Where to find it: michigan.gov/miready.

MSU Extension: Michigan’s version of the other states’ land-grant Extension programs, delivered mostly online

Michigan State University Extension runs the same category of program as every other state covered on this site, but its Master Gardener path is structured differently from most: the core educational component is a 10-week online course rather than an in-person classroom series.

How Michigan's program differs from most other states' Master Gardener paths

The Foundations of Gardening course is fee-based, offered twice a year, and combines self-paced learning with weekly live sessions. After completing it, participants become eligible to join the volunteer program, and 40 hours of volunteer service within 12 months completes certification. This online-first structure is a genuine departure from the classroom-hours model most other states covered on this site use.

Where to find it: canr.msu.edu/master_gardener_volunteer_program.

CERT: Detroit’s own program plus county chapters statewide

Detroit runs its own CERT program directly through the city’s Homeland Security & Emergency Management department, alongside independent chapters in counties across the state.

What's available where

Detroit's CERT program runs free, quarterly 4-day training sessions, requiring all four sessions for certification. Outside the city, Monroe, Oakland, and Grand Traverse counties, along with cities like Ferndale and Dearborn Heights, run their own separate CERT chapters, the same decentralized-with-a-flagship-city pattern seen in a few other states covered on this site.

Where to find it: within Detroit, detroitmi.gov/dhsem. Elsewhere in Michigan, search “[your county] CERT” or check with your county’s emergency management office.

Sources

- Michigan State Police MIREADY and alert-sign-up campaigns: Michigan.gov MIREADY; MSP Newsroom
- MSU Extension Master Gardener Program structure: MSU Extension
- Detroit and county CERT program structure: City of Detroit; Oakland County

Michigan: Risks & Trends

Same standard as every other page on this site: every figure below is independently sourced, and figures that vary across sources, or measure genuinely different things, are flagged as such rather than collapsed into one number that looks more precise than the underlying data actually supports.

The Flint water crisis (2014-2015): a municipal water system as the hazard

Metric	Figure
Water source switched to Flint River	April 25, 2014
Switched back to Detroit water	October 16, 2015
Total residents exposed to elevated lead	~100,000
Children exposed to high lead levels	6,000-12,000
Legionnaires' disease cases, Genesee County	87, June 2014-November 2015
Legionnaires' disease deaths	12 confirmed (some later counts include 2 additional deaths, for 14 total)
State of emergency declared	December 15, 2015 (city); January 5, 2016 (state); January 16, 2016 (federal)

Why the death-toll figure varies slightly, and why that's not a red flag

The 12-death figure is the most commonly cited confirmed Legionnaires’ toll tied directly to the water switch; some later accounts include 2 additional deaths bringing the total to 14. This is the same kind of death-count evolution this site has flagged for other disasters (Winter Storm Uri, the 2021 Oregon heat dome), not a sign of unreliable reporting, just how mortality investigations for a slow-developing public health crisis typically resolve over time.

The crisis wasn’t caused by a natural event at all: switching the water source to save money, without adding required corrosion-control treatment, let the more corrosive river water leach lead directly from aging pipes into

tens of thousands of homes for a year and a half before the switch was reversed.

The Edenville and Sanford dam failures (2020): aging infrastructure, sudden failure

Metric	Figure
Date	May 19, 2020
Rainfall, Midland County (3 days prior)	4.7 in
Rainfall, Gladwin County (3 days prior)	up to 8 in
People evacuated	~11,000
Warning time before evacuation	~18 hours
Homes/buildings damaged	2,500+
Damage estimate	~\$200 million
Deaths	0
Estimated lives saved by early evacuation	10-20

The Edenville Dam’s earthen embankment failed first, washing away a 900-foot section, and the resulting surge overwhelmed the downstream Sanford Dam within hours, a cascading failure of two separate structures on the same evening. Both dams were privately owned and had a documented history of safety concerns before the failure.

What these two have in common

Neither of Michigan’s defining modern disasters was a hurricane, earthquake, or wildfire, both were failures of built infrastructure that Michigan residents had every reason to assume was safe: a water system and a set of aging dams. That’s a genuinely different risk character from most other states covered on this site, and it’s a direct argument for why household-level water storage, filtration, and evacuation planning matter even when the immediate cause of a disaster isn’t the weather.

Sources

- Flint water crisis timeline, exposure figures, and Legionnaires' disease death toll: Wikipedia, sourced to CDC and Michigan state records; NRDC
- Edenville and Sanford dam failure data: USGS; Mackinac Center