

Muskegon County, MI

Risk-assessment baseline packet

Unit **County area 26121** Release **2026-10** As of **2026-09-28** Storm Events data through **2026-06-30**

Hazard Plain is an independent product built from public federal data. It is not a FEMA document and is not reviewed or endorsed by FEMA or any state agency.

A starting point for the plan's risk assessment (FEMA Local Mitigation Plan Review Tool, Element B). It does not replace local data or FEMA review. Section headings say which FEMA review item each table supports; whether an item is satisfied is decided by the plan and its reviewers.

OPENFEMA DISCLAIMER

This product uses the Federal Emergency Management Agency's OpenFEMA API, but is not endorsed by FEMA. The Federal Government or FEMA cannot vouch for the data or analyses derived from these data after the data have been retrieved from the Agency's website(s).

Plan clock

Status	Approved, expires 2030-05-20	Plan	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)
Approved	2025-05-21	Expires	2030-05-20
As of	2026-09-28	Days	1,330 days to expiry

What changed since your last plan (approved 2025-05-21)

New federal declarations	DR-4925-MI (1 declaration row; 1 counted incident)	Storm Events records since approval	7 (data through 2026-06-30)
Repetitive loss now	FMA RL 0, SRL 0 (44 CFR 77.2); any definition: 5	Repeat-flood change	First release: no prior release to compare.

SOURCES: FEMA, OpenFEMA HazardMitigationPlanStatuses v1, version 2026-09-26T121003Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/HazardMitigationPlanStatuses> (API); FEMA, OpenFEMA DisasterDeclarationsSummaries v2, version 2026-09-27T010817Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v2/DisasterDeclarationsSummaries> (API); NOAA NCEI, NOAA NCEI Storm Events Database, details files (csvfiles v1.0), version c20260918, pulled 2026-09-28, <https://www.ncei.noaa.gov/pub/data/swdi/stormevents/csvfiles/>; FEMA, OpenFEMA NfipMultipleLossProperties v1, version 2026-08-04T164045Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/NfipMultipleLossProperties> (API)

Plan status for every jurisdiction listed in this county: 28 rows, in the section "Plan clock: Plan status for every jurisdiction listed in this county" after these cover pages.

State plan status and tribal plans in this state: see the state page.

CONTENTS

1. Plan clock, page 1

2. What changed since your last plan (approved 2025-05-21), page 1

3. Supports B1-a: hazards, page 3

4. Supports B1-b: location, page 5

5. Supports B1-c: extent, page 6

6. Supports B1-d: previous occurrences, page 9
7. Supports B1-e: probability, page 13

8. Supports B1-f: variation across the planning area, page 16

9. Supports B2-a and B2-b: assets and impacts, page 18

10. Supports B2-a: context, page 20

11. Supports B2-c: repetitive loss, page 20

12. Sources and OpenFEMA disclaimer, page 23

Plan clock

Plan status for every jurisdiction listed in this county

Jurisdiction	Type	Status	Plan	Approved	Expires	Days to expiry negative = days since expiry	Update underway	Notes
Muskegon County	County	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		member approved 2025-07-30
Casnovia village	Village	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		member approved 2025-07-30
Fruitport village	Village	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		member approved 2025-05-28
Lakewood Club village	Village	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		member approved 2025-06-04
Montague city	City	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		member approved 2025-07-23
Muskegon city	City	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		member approved 2025-07-23
Muskegon Heights city	City	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		member approved 2025-07-30
North Muskegon city	City	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		member approved 2025-05-28
Norton Shores city	City	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		member approved 2025-06-04
Ravenna village	Village	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		member approved 2025-07-30
Roosevelt Park city	City	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		member approved 2025-07-30
Whitehall city	City	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		member approved 2025-05-28
Blue Lake township	Township	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		member approved 2025-05-28
Casnovia township	Township	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		member approved 2025-07-23
Cedar Creek township	Township	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		member approved 2025-06-10

Jurisdiction	Type	Status	Plan	Approved	Expires	Days to expiry <i>negative = days since expiry</i>	Update underway	Notes
Dalton township	Township	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		member approved 2025-07-30
Egelston township	Township	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		
Fruitland township	Township	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		member approved 2025-05-28
Fruitport charter township	Township	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		member approved 2025-07-02
Holton township	Township	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		member approved 2025-06-10
Laketon township	Township	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		member approved 2025-05-28
Montague township	Township	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		member approved 2025-07-30
Moorland township	Township	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		
Muskegon charter township	Township	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		
Ravenna township	Township	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		member approved 2025-06-18
Sullivan township	Township	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		member approved 2025-07-16
White River township	Township	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		
Whitehall township	Township	Approved, expires 2030-05-20	Muskegon County 2025 Hazard Mitigation Plan (FEMA plan 110169)	2025-05-21	2030-05-20	1,330		member approved 2025-07-30

SOURCE
FEMA, OpenFEMA HazardMitigationPlanStatuses v1, version 2026-09-26T121003Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/HazardMitigationPlanStatuses> (API)

Supports B1-a: hazards

Hazards NRI does not cover: check locally

- dam failure (incl. upstream dams)
 - levee failure
 - flash flood as its own subtype
 - ice jams
- debris flows
 - erosion (riverine and coastal)
 - land subsidence and sinkholes
 - expansive soils

The 18 National Risk Index hazards, ranked by expected annual loss (EAL)

Rank by EAL	Hazard	NRI risk rating	EAL rating	EAL buildings <i>modeled dollars per year</i>	EAL agriculture <i>modeled dollars per year</i>	EAL population equivalence <i>statistical value of life and injury, \$13.7M per life, not property damage</i>	EAL total (see note) <i>modeled dollars per year</i>	Storm Events records since 1996 <i>count</i>	Evidence for an omission <i>NRI Not Applicable, no declaration and no Storm Events record since 1996</i>	Storm Events coverage note
1	Inland Flooding	Relatively Moderate	Relatively Moderate	\$17,127,857	\$8,395	\$1,376	\$17,137,628	14		
2	Tornado	Relatively Moderate	Relatively Moderate	\$1,516,364	\$1,373	\$2,376,657	\$3,894,394	3		
3	Strong Wind	Relatively High	Relatively High	\$2,021,651	\$290,132	\$1,139,056	\$3,450,839	118		Includes 18 High Wind records and 1 Strong Wind record, event types the NRI definition of this hazard leaves out.
4	Cold Wave	Relatively Low	Relatively Moderate	\$127	\$30,771	\$1,233,079	\$1,263,978	0		No recorded events in Storm Events since 1996 (data through 2026-06-30).
5	Heat Wave	Relatively Low	Relatively Low	\$4,414	\$1	\$631,832	\$636,247	0		No recorded events in Storm Events since 1996 (data through 2026-06-30).
6	Lightning	Relatively Moderate	Relatively Moderate	\$37,924		\$444,501	\$482,425	1		
7	Hail	Relatively Low	Relatively Low	\$222,536	\$17,725	\$24,085	\$264,346	49		
8	Earthquake	Very Low	Very Low	\$184,791		\$61,032	\$245,823			Not in Storm Events. Storm Events coverage of this hazard is limited; absence is not evidence of low risk.
9	Ice Storm	Relatively Moderate	Relatively Moderate	\$193,732		\$51,559	\$245,291	3		
10	Winter Weather	Relatively Low	Relatively Low	\$31,062	\$941	\$9,955	\$41,958	131		Includes 1 Sleet record, event types the NRI definition of this hazard leaves out.
11	Wildfire	Very Low	Very Low	\$11,685	\$9	\$2,416	\$14,110	0		No recorded events in Storm Events since 1996 (data through 2026-06-30). Storm Events coverage of this hazard is limited; absence is not evidence of low risk.
12	Coastal Flooding	Very Low	Very Low	\$6,832		\$616	\$7,448	0		No recorded events in Storm Events since 1996 (data through 2026-06-30).
13	Hurricane	Very Low	Very Low	\$5,700	\$1,030	\$4	\$6,734	0		No recorded events in Storm Events since 1996 (data through 2026-06-30).
14	Landslide	Very Low	Very Low	\$226		\$876	\$1,102	0		No recorded events in Storm Events since 1996 (data through 2026-06-30). Storm Events coverage of this hazard is limited; absence is not evidence of low risk.
15	Drought	No Rating	No Expected Annual Losses		\$0		\$0	0		No recorded events in Storm Events since 1996 (data through 2026-06-30).

Rank by EAL	Hazard	NRI risk rating	EAL rating	EAL buildings <i>modeled dollars per year</i>	EAL agriculture <i>modeled dollars per year</i>	EAL population equivalence <i>statistical value of life and injury, \$13.7M per life, not property damage</i>	EAL total (see note) <i>modeled dollars per year</i>	Storm Events records since 1996 <i>count</i>	Evidence for an omission <i>NRI Not Applicable, no declaration and no Storm Events record since 1996</i>	Storm Events coverage note
	Avalanche	Not Applicable	Not Applicable					0	NRI rates avalanche Not Applicable for this county, and no federal declaration for this county names it.	No recorded events in Storm Events since 1996 (data through 2026-06-30).
	Tsunami	Insufficient Data	Insufficient Data					0		No recorded events in Storm Events since 1996 (data through 2026-06-30). Storm Events coverage of this hazard is limited; absence is not evidence of low risk.
	Volcanic Activity	Not Applicable	Not Applicable					0	NRI rates volcanic activity Not Applicable for this county, and no federal declaration for this county names it.	No recorded events in Storm Events since 1996 (data through 2026-06-30). Storm Events coverage of this hazard is limited; absence is not evidence of low risk.

Total = buildings + agriculture + population equivalence; FEMA values each expected death (or 10 injuries) at \$13.7 million (2024 dollars).

SOURCES
FEMA, FEMA National Risk Index 1.20.0 (December 2025), county and census tract tables, version 1.20.0, pulled 2026-09-28, https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_Counties.zip (download, 25 MB), https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_CensusTracts.zip (download, 635 MB)
NOAA NCEI, NOAA NCEI Storm Events Database, details files (csvfiles v1.0), version c20260918, pulled 2026-09-28, <https://www.ncei.noaa.gov/pub/data/swdi/stormevents/csvfiles/>

Check your state hazard mitigation plan's hazard list for this county; explain any hazard you drop.

Supports B1-b: location

Where each hazard occurs

Hazard	Location	Census tracts rated <i>rated of all tracts</i>
Avalanche	Census tract rating counts from the National Risk Index tract table (see B1-f). Tract maps and place names are not in this packet.	0 of 45
Coastal Flooding	The FEMA Flood Insurance Rate Map (FIRM) is the required location source for flooding. See the FEMA Flood Map Service Center (https://msc.fema.gov) for this county.	36 of 45
Cold Wave	Affects the whole planning area; national data do not distinguish locations within the county. Confirm locally.	45 of 45
Drought	Affects the whole planning area; national data do not distinguish locations within the county. Confirm locally.	0 of 45
Earthquake	Census tract rating counts from the National Risk Index tract table (see B1-f). Tract maps and place names are not in this packet.	45 of 45
Hail	Affects the whole planning area; national data do not distinguish locations within the county. Confirm locally.	45 of 45
Heat Wave	Affects the whole planning area; national data do not distinguish locations within the county. Confirm locally.	45 of 45
Hurricane	Census tract rating counts from the National Risk Index tract table (see B1-f). Tract maps and place names are not in this packet.	45 of 45
Ice Storm	Affects the whole planning area; national data do not distinguish locations within the county. Confirm locally.	45 of 45
Inland Flooding	The FEMA Flood Insurance Rate Map (FIRM) is the required location source for flooding. See the FEMA Flood Map Service Center (https://msc.fema.gov) for this county.	45 of 45
Landslide	Census tract rating counts from the National Risk Index tract table (see B1-f). Tract maps and place names are not in this packet.	44 of 45

Hazard	Location	Census tracts rated <i>rated of all tracts</i>
Lightning	Affects the whole planning area; national data do not distinguish locations within the county. Confirm locally.	45 of 45
Strong Wind	Affects the whole planning area; national data do not distinguish locations within the county. Confirm locally.	45 of 45
Tornado	Census tract rating counts from the National Risk Index tract table (see B1-f). Tract maps and place names are not in this packet.	45 of 45
Tsunami	Census tract rating counts from the National Risk Index tract table (see B1-f). Tract maps and place names are not in this packet.	0 of 45
Volcanic Activity	Census tract rating counts from the National Risk Index tract table (see B1-f). Tract maps and place names are not in this packet.	0 of 45
Wildfire	Census tract rating counts from the National Risk Index tract table (see B1-f). Tract maps and place names are not in this packet.	43 of 45
Winter Weather	Affects the whole planning area; national data do not distinguish locations within the county. Confirm locally.	45 of 45

SOURCE
FEMA, FEMA National Risk Index 1.20.0 (December 2025), county and census tract tables, version 1.20.0, pulled 2026-09-28, https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_Counties.zip (download, 25 MB), https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_CensusTracts.zip (download, 635 MB)

Supports B1-c: extent

Extent: scale, observed range and worst recorded event per hazard

Hazard	Scale	Records <i>count, years</i>	Observed range	Worst recorded event	Most damaging (when different)	How it applies to members	Note
Avalanche	none (count and damage)	0					Physical measure: in event narratives only; local data required.
Coastal Flood, Storm Surge/ Tide	none in data (FIRM for depth)	0					Flood depth: see the FEMA Flood Insurance Rate Map.
Cold/Wind Chill, Extreme Cold/Wind Chill	wind chill	0					Wind chill: in event narratives only; local data required.
Frost/Freeze (outside NRI Cold Wave definition)	crop damage	0					Temperature: in event narratives only; local data required.
Drought	US Drought Monitor D-scale	0					Storm Events enters a drought at D2 or worse east of the Rockies and D3 or worse from the Rockies west (NWS Instruction 10-1605); NRI drought counts D3 and D4 only.
Earthquake	Modified Mercalli (local data)	0					No Storm Events record; local data required (e.g., USGS).

Hazard	Scale	Records <i>count, years</i>	Observed range	Worst recorded event	Most damaging (when different)	How it applies to members	Note
Hail	hail size (inches)	66, 1956 to 2024	0.75 in to 4 in (median 0.88 in); 66 with a recorded value	4 in hail, 1956-05-13	Hail, 2020-04-07, \$500,000 property; \$0 crops (2020 dollars)	Event records naming member places: Muskegon charter township (10 records), Muskegon city (10 records), Whitehall city (6 records), Whitehall township (6 records), Lakewood Club village (3 records), Montague city (3 records), Montague township (3 records), Fruitport charter township (2 records), Fruitport village (2 records), Holton township (2 records); and 3 more member places (see the XLSX file).	
Excessive Heat, Heat	heat index (narratives)	0					Heat index: in event narratives only; local data required.
Hurricane, Tropical Storm, Tropical Depression	Saffir-Simpson	0					Storm Events files every zone of a storm's episode under the storm's event type and category, so a Hurricane (Typhoon) record, especially an inland or remnant one, does not by itself mean hurricane-force winds here; read the damage and wind columns.
Ice Storm	Sperry-Piltz (local data)	3, 1997 to 2019 (3 zone- level)		Ice Storm, 2019-02-05, \$2,000,000 property; \$0 crops, reported for the zone (2019 dollars); NWS zone MIZ050 (MUSKEGON), zone-level: may include parts of neighboring counties		Zone-level records: applies countywide; national data do not locate these events within the county.	Ice thickness: in event narratives only; local data required.
Flash Flood, Flood, Lakeshore Flood	damage and flood days (FIRM for depth)	14, 1997 to 2020 (3 zone- level)		Flood, 2020-05-18, \$6,000,000 property; \$0 crops (2020 dollars)		Event records naming member places: Muskegon charter township (2 records), Muskegon city (2 records), Montague city (1 record), Montague township (1 record), Whitehall city (1 record), Whitehall township (1 record). Zone-level records (3) apply countywide.	Flood depth: see the FEMA Flood Insurance Rate Map. Storm Events damage can be \$0 or blank even for a major flood, so the worst record here may not be the worst flood; compare FEMA Public Assistance by declaration in B1-d.
Debris Flow	none (count and damage)	0					Physical measure: in event narratives only; local data required.

Hazard	Scale	Records <i>count, years</i>	Observed range	Worst recorded event	Most damaging (when different)	How it applies to members	Note
Lightning	annualized frequency (the measure FEMA's Local Mitigation Planning Handbook names)	1, 1998 to 1998		Lightning, 1998-07-21, \$40,000 property; crops not reported (1998 dollars)		Event records naming member places: Muskegon charter township (1 record), Muskegon city (1 record).	Storm Events lists lightning with damage or casualties; physical measure in event narratives only; local data required.
High Wind and Strong Wind (outside NRI Strong Wind definition)	wind speed (kt and mph)	19, 1997 to 2024 (19 zone-level)	42 kt (48 mph) to 67 kt (77 mph) (median 53.5 kt (62 mph)); 18 with a recorded value	67 kt (77 mph), measurement type not recorded, High Wind, 1998-11-10, 1 direct death (reported for the zone); NWS zone MIZ050 (MUSKEGON), zone-level: may include parts of neighboring counties	High Wind, 2017-03-08, \$15,000,000 property; \$0 crops, reported for the zone (2017 dollars)	Zone-level records: applies countywide; national data do not locate these events within the county.	
Thunderstorm Wind	wind speed (kt and mph)	152, 1956 to 2026	50 kt (58 mph) to 74 kt (85 mph) (median 53 kt (61 mph)); 108 with a recorded value	74 kt (85 mph) estimated gust, Thunderstorm Wind, 2014-04-12	Thunderstorm Wind, 1998-05-31, \$24,210,000 property; \$5,000,000 crops (1998 dollars)	Event records naming member places: Muskegon charter township (24 records), Muskegon city (24 records), Montague city (7 records), Montague township (7 records), Ravenna township (7 records), Ravenna village (7 records), Whitehall city (7 records), Whitehall township (7 records), Fruitport charter township (5 records), Fruitport village (5 records); and 9 more member places (see the XLSX file).	
Tornado	Enhanced Fujita (F before Feb 2007)	8, 1956 to 2013	F/EF0 to F/EF2 (median F/EF0); 6 with a recorded value	F2 tornado, 1965-09-04, 33 yd wide, \$25,000 property; crops not recorded (1965 dollars)	Tornado, 2013-11-17, \$50,000 property; \$0 crops (2013 dollars)	Event records naming member places: Roosevelt Park city (1 record).	From 1996 on, tornado records are per-county segments and length is the path length within this county (NWS Instruction 10-1605); records before 1996 may give the whole path length, including the path outside this county, and before 1996 a tornado is listed once, under the county where it began, with the whole path's rating; counties farther along the path may not list it. Length is not used to rank tornadoes.
Tsunami	none (count and damage)	0					Physical measure: in event narratives only; local data required.
Volcanic Ash, Volcanic Ashfall	Volcanic Explosivity Index (local data)	0					Physical measure: in event narratives only; local data required.

Hazard	Scale	Records <i>count, years</i>	Observed range	Worst recorded event	Most damaging (when different)	How it applies to members	Note
Wildfire	acres burned (local data)	0					Acres burned: in event narratives only; local data required.
Winter Storm, Heavy Snow, Blizzard, Lake-Effect Snow, Winter Weather, Sleet	none in data (snowfall local)	131, 1996 to 2026 (131 zone-level)		Heavy Snow, 2023-10-31, \$500,000 property; \$0 crops, reported for the zone (2023 dollars); NWS zone MIZ050 (MUSKEGON), zone-level: may include parts of neighboring counties		Zone-level records: applies countywide; national data do not locate these events within the county.	Snow depth: in event narratives only; local data required.

Where a hazard names more than 10 member places, the table lists the 10 with the most records; every place is in the XLSX file, sheet "B1-c Extent".

Storm Events records are more complete after 1996; before 1996 only Tornado (from 1950), Hail and Thunderstorm Wind (from 1955) exist. Zone-level records are placed with NWS zone-county files, which exist from 2020 on; an earlier record is placed by its zone number in the nearest later file only when its zone name matches that file, records from zones NWS renumbered are placed by name or left out, and a record whose zone is in no known file is left out of every count, so counts before 2020 can be low. Some current zones are also missing from the NWS files, so recent counts can be low too.

Dollars are nominal (as reported), labeled with the year; not adjusted for inflation.

SOURCES

NOAA NCEI, NOAA NCEI Storm Events Database, details files (csvfiles v1.0), version c20260918, pulled 2026-09-28, <https://www.ncei.noaa.gov/pub/data/swdi/stormevents/csvfiles/>
NOAA National Weather Service, NWS county-public forecast zones correlation file, version bp03mr20 to bp16ap26 (11 files; newest bp16ap26), pulled 2026-09-28, <https://www.weather.gov/gis/ZoneCounty>

Supports B1-d: previous occurrences

Declaration rows 14 Counted incidents 10

Federal disaster declarations for this county

Declared	Incident began	FEMA number	Type	Title	Mapped hazard	County Public Assistance <i>federal share obligated, nominal dollars</i>	Flags	Notes
2026-06-30	2026-04-10	DR-4925-MI	Major disaster	SEVERE STORMS, TORNADOES, AND FLOODING	Inland Flooding (primary); also designated: Tornado	PA not declared for this county	new since last plan; within last 5 years	
2020-03-27	2020-01-20	DR-4494-MI	Major disaster	COVID-19 PANDEMIC	Non-natural, not counted	\$3,499,763.35		
2020-03-13	2020-01-20	EM-3455-MI	Emergency	COVID-19	Non-natural, not counted	none found		same incident as DR-4494
2013-06-18	2013-04-16	DR-4121-MI	Major disaster	FLOODING	Inland Flooding	none found		
2005-09-07	2005-08-29	EM-3225-MI	Emergency	HURRICANE KATRINA EVACUATION	Hurricane: evacuation support, not a local hazard event; not counted	none found		
2004-06-30	2004-05-20	DR-1527-MI	Major disaster	SEVERE STORMS, TORNADOES, AND FLOODING	Inland Flooding; Tornado	PA not declared for this county		
2001-01-10	2000-12-11	EM-3160-MI	Emergency	SNOW	Winter Weather	\$89,884.50		
1999-01-27	1999-01-02	EM-3137-MI	Emergency	MI - SEVERE WEATHER 1/2 /99	Winter Weather	\$66,732.38		

Declared	Incident began	FEMA number	Type	Title	Mapped hazard	County Public Assistance	Flags	Notes
						<i>federal share obligated, nominal dollars</i>		
1998-06-24	1998-05-29	DR-1226-MI	Major disaster	SEVERE STORMS	Hazard not mapped (severe storm title names no single hazard); not counted	none found		
1986-09-18	1986-09-10	DR-774-MI	Major disaster	SEVERE STORMS & FLOODING	Inland Flooding	none found		
1985-09-18	1985-09-05	DR-744-MI	Major disaster	SEVERE STORMS AND FLOODING	Inland Flooding	none found		
1978-01-27	1978-01-27	EM-3057-MI	Emergency	BLIZZARDS & SNOWSTORMS	Winter Weather	none found		
1976-03-19	1976-03-19	DR-495-MI	Major disaster	SEVERE STORMS, TORNADOES, ICING & FLOODING	Inland Flooding; Tornado	none found		
1975-09-30	1975-09-30	DR-486-MI	Major disaster	SEVERE STORMS, HIGH WINDS & FLOODING	Inland Flooding (primary); also designated: Strong Wind	none found		

County Public Assistance: applicants the FEMA record places in this county, including any state agencies FEMA files there; statewide rows are listed on the state page; federal share obligated, nominal dollars. Dollars are nominal (as reported), labeled with the year; not adjusted for inflation.

SOURCES

FEMA, OpenFEMA DisasterDeclarationsSummaries v2, version 2026-09-27T010817Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v2/DisasterDeclarationsSummaries> (API)
FEMA, OpenFEMA PublicAssistanceFundedProjectsSummaries v1, version 2026-09-26T151157Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/PublicAssistanceFundedProjectsSummaries> (API)
FEMA, OpenFEMA HazardMitigationPlanStatuses v1, version 2026-09-26T121003Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/HazardMitigationPlanStatuses> (API)

Statewide declarations

Declared	Incident began	FEMA number	Type	Title	Mapped hazard	Flags	Notes
1956-04-05	1956-04-05	DR-53-MI	Major disaster	TORNADO	Tornado		
1953-06-09	1953-06-09	DR-6-MI	Major disaster	TORNADO	Tornado		
1953-06-02	1953-06-02	DR-4-MI	Major disaster	TORNADO	Tornado		

FEMA recorded these with designated area Statewide and no county. Listed on every county page in the state; not counted with county rows.

SOURCE

FEMA, OpenFEMA DisasterDeclarationsSummaries v2, version 2026-09-27T010817Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v2/DisasterDeclarationsSummaries> (API)

Previous occurrences by hazard, with explicit no-event rows

Hazard	Storm Events records <i>full period</i>	Since plan approval <i>records</i>	During plan review <i>records</i>	Last 5 years <i>records</i>	Declared incidents <i>distinct incidents</i>	Declared since approval <i>distinct incidents</i>	Period	Statement
Avalanche	0	0	0	0	0	0	1996 to 2026-06-30	No recorded events, 1996 to 2026-06-30, NOAA NCEI Storm Events
Coastal Flooding	0	0	0	0	0	0	1996 to 2026-06-30	No recorded events, 1996 to 2026-06-30, NOAA NCEI Storm Events
Cold Wave	0	0	0	0	0	0	1996 to 2026-06-30	No recorded events, 1996 to 2026-06-30, NOAA NCEI Storm Events
Drought	0	0	0	0	0	0	1996 to 2026-06-30	No recorded events, 1996 to 2026-06-30, NOAA NCEI Storm Events
Earthquake	0	0	0	0	0	0		No Storm Events record; local data required (e.g., USGS).

Hazard	Storm Events records <i>full period</i>	Since plan approval <i>records</i>	During plan review <i>records</i>	Last 5 years <i>records</i>	Declared incidents <i>distinct incidents</i>	Declared since approval <i>distinct incidents</i>	Period	Statement
Hail	66	0	1	3	0	0	1955 to 2026-06-30	
Heat Wave	0	0	0	0	0	0	1996 to 2026-06-30	No recorded events, 1996 to 2026-06-30, NOAA NCEI Storm Events
Hurricane	0	0	0	0	0	0	1996 to 2026-06-30	No recorded events, 1996 to 2026-06-30, NOAA NCEI Storm Events
Ice Storm	3	0	0	0	0	0	1996 to 2026-06-30	
Inland Flooding	14	0	0	0	7	1	1996 to 2026-06-30	
Landslide	0	0	0	0	0	0	1996 to 2026-06-30	No recorded events, 1996 to 2026-06-30, NOAA NCEI Storm Events
Lightning	1	0	0	0	0	0	1996 to 2026-06-30	
Strong Wind	171	2	7	15	1	0	1955 to 2026-06-30	Includes 18 High Wind records and 1 Strong Wind record, event types the NRI definition of this hazard leaves out.
Tornado	8	0	0	0	3	1	1950 to 2026-06-30	
Tsunami	0	0	0	0	0	0	1996 to 2026-06-30	No recorded events, 1996 to 2026-06-30, NOAA NCEI Storm Events
Volcanic Activity	0	0	0	0	0	0	1996 to 2026-06-30	No recorded events, 1996 to 2026-06-30, NOAA NCEI Storm Events
Wildfire	0	0	0	0	0	0	1996 to 2026-06-30	No recorded events, 1996 to 2026-06-30, NOAA NCEI Storm Events
Winter Weather	131	5	1	12	3	0	1996 to 2026-06-30	Includes 1 Sleet record, event types the NRI definition of this hazard leaves out.

SOURCES
NOAA NCEI, NOAA NCEI Storm Events Database, details files (csvfiles v1.0), version c20260918, pulled 2026-09-28, <https://www.ncei.noaa.gov/pub/data/swdi/stormevents/csvfiles/>
FEMA, OpenFEMA DisasterDeclarationsSummaries v2, version 2026-09-27T010817Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v2/DisasterDeclarationsSummaries> (API)
NOAA National Weather Service, NWS county-public forecast zones correlation file, version bp03mr20 to bp16ap26 (11 files; newest bp16ap26), pulled 2026-09-28, <https://www.weather.gov/gis/ZoneCounty>

Notable Storm Events records

Date	Event type	Magnitude or extent	Damage <i>nominal dollars</i>	Direct deaths, injuries <i>indirect not counted</i>	Location	Flags	Why listed
2023-10-31	Heavy Snow		\$500,000 property; \$0 crops, reported for the zone (2023 dollars)	0, 0	NWS zone MIZ050 (MUSKEGON), zone-level: may include parts of neighboring counties	within last 5 years	B1-c worst recorded: Winter Storm, Heavy Snow, Blizzard, Lake-Effect Snow, Winter Weather, Sleet
2020-05-18	Flood		\$6,000,000 property; \$0 crops (2020 dollars)	0, 0	MONTAGUE ARPT to NORTON SHRS		B1-c worst recorded: Flash Flood, Flood, Lakeshore Flood

Date	Event type	Magnitude or extent	Damage <i>nominal dollars</i>	Direct deaths, injuries <i>indirect not counted</i>	Location	Flags	Why listed
2019-02-05	Ice Storm		\$2,000,000 property; \$0 crops, reported for the zone (2019 dollars)	0, 0	NWS zone MIZ050 (MUSKEGON), zone-level: may include parts of neighboring counties		B1-c worst recorded: Ice Storm
2017-03-08	High Wind	52 kt (60 mph) estimated gust	\$15,000,000 property; \$0 crops, reported for the zone (2017 dollars)	0, 0	NWS zone MIZ050 (MUSKEGON), zone-level: may include parts of neighboring counties		B1-c most damaging: High Wind and Strong Wind (outside NRI Strong Wind definition)
2014-04-12	Thunderstorm Wind	74 kt (85 mph) estimated gust	\$1,000,000 property; \$0 crops (2014 dollars)	0, 0	MUSKEGON HGTS		B1-c worst recorded: Thunderstorm Wind
2013-11-17	Tornado	EF0, 3.86 mi within this county, 75 yd wide	\$50,000 property; \$0 crops (2013 dollars)	0, 0	TRENT to BAILEY		B1-c most damaging: Tornado
2002-08-21	Thunderstorm Wind	53 kt (61 mph) estimated	\$10,000 property; crops not reported (2002 dollars)	0, 2	NORTON SHRS		deaths or injuries recorded
1998-11-10	High Wind	67 kt (77 mph), measurement type not recorded	damage not reported	1, 0	NWS zone MIZ050 (MUSKEGON), zone-level: may include parts of neighboring counties		deaths or injuries recorded
1998-07-21	Lightning		\$40,000 property; crops not reported (1998 dollars)	0, 0	MUSKEGON		B1-c worst recorded: Lightning
1998-05-31	Thunderstorm Wind	speed not recorded	\$24,210,000 property; \$5,000,000 crops (1998 dollars)	0, 2	MONTAGUE to RAVENNA		deaths or injuries recorded
1965-09-04	Tornado	F2, 33 yd wide	\$25,000 property; crops not recorded (1965 dollars)	0, 0	location not recorded		B1-c worst recorded: Tornado
1956-05-13	Hail	4 in	damage not recorded (pre-1996 record)	0, 0	location not recorded		B1-c worst recorded: Hail

The full list is in the **XLSX** file, sheet "**B1-d Storm Events history**" (394 rows).

Storm Events records are more complete after 1996; before 1996 only Tornado (from 1950), Hail and Thunderstorm Wind (from 1955) exist. Zone-level records are placed with NWS zone-county files, which exist from 2020 on; an earlier record is placed by its zone number in the nearest later file only when its zone name matches that file, records from zones NWS renumbered are placed by name or left out, and a record whose zone is in no known file is left out of every count, so counts before 2020 can be low. Some current zones are also missing from the NWS files, so recent counts can be low too.

SOURCES

NOAA NCEI, NOAA NCEI Storm Events Database, details files (csvfiles v1.0), version c20260918, pulled 2026-09-28, <https://www.ncei.noaa.gov/pub/data/swdi/stormevents/csvfiles/>
 NOAA National Weather Service, NWS county-public forecast zones correlation file, version bp03mr20 to bp16ap26 (11 files; newest bp16ap26), pulled 2026-09-28, <https://www.weather.gov/gis/ZoneCounty>
 FEMA, OpenFEMA HazardMitigationPlanStatuses v1, version 2026-09-26T121003Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/HazardMitigationPlanStatuses> (API)

State-declared emergencies are not in federal data. Add them from your state emergency management agency.

Tribal and special-area declarations in this state are listed on the state page.

Supports B1-e: probability

Probability: FEMA annualized frequency and descriptor per hazard

Hazard	FEMA annualized frequency (modeled) <i>unit per row</i>	Unit	In plain terms	Descriptor	Descriptor basis	NRI events or days in its record period (hail, wind and tornado are area-weighted, so can be fractional)	NRI period	Location	Note
Avalanche		events per year					1994 to 2023 (30 years)	see B1-f	Not Applicable in NRI for this county; no descriptor.
Coastal Flooding	0.0123	events per year at a location (modeled)	about 0.012 per year at a given location in the county		Storm Events records in 0 of 30 years, 1996 to 2025 (0%)	not shown	modeled	see B1-f	No Storm Events record of this hazard, 1996 to 2025; descriptor not assigned (the NRI value is the chance at a location in the county, not how often the hazard affects the county)
Cold Wave	0.894	event-days per year	about 0.894 days per year		event-days in 0 of 30 years, 1996 to 2025 (0%)	6.14	2005-11-12 to 2024-11-12 (19 years)	countywide	No recorded event-days, 1996 to 2025; descriptor not assigned. Frost/Freeze records are not counted in this descriptor: they record crop freezes, not cold waves.
Drought	0	event-days per year	none modeled		event-days in 0 of 30 years, 1996 to 2025 (0%)	0	2000 to 2025 (25.25 years; D3 and D4 only)	countywide	No recorded event-days, 1996 to 2025; descriptor not assigned
Earthquake	0.00063	annual probability at a location	chance a given location in the county has at least minor-damage shaking in a year: 0.063%			not shown	modeled	see B1-f	Descriptor not assigned: the NRI value is the chance at a location in the county, not how often the hazard affects the county, and Storm Events does not record earthquakes.
Hail	1.03	events per year	about 1.03 per year	Highly likely	FEMA annualized frequency (modeled)	40.8 (modeled)	1986 to 2023 (38 years)	countywide	
Heat Wave	1.79	event-days per year	about 1.79 days per year		event-days in 0 of 30 years, 1996 to 2025 (0%)	10.5	2005-11-12 to 2024-11-12 (19 years)	countywide	No recorded event-days, 1996 to 2025; descriptor not assigned
Hurricane	0.00616	events per year	about 1 in 162 years	Unlikely	FEMA annualized frequency (modeled)	2	1851 to 2024 (Atlantic)	see B1-f	NRI counts hurricane and tropical storm tracks passing within storm-force wind range; federal declarations are counted separately in B1-d and need not match.
Ice Storm	1.04	event-days per year	about 1.04 days per year	Likely	event-days in 3 of 30 years, 1996 to 2025 (10%)	27	1946-12-31 to 2014-02-12 (67 years)	countywide	NRI gives about 1.04 ice storm event-days a year here (its annualized frequency over 67 years; not its event count divided by the years), but Storm Events has a record in only 3 of 30 years. NRI counts from a different source that records far more events than Storm Events, so this descriptor reads much lower than NRI's frequency; read the two together.

Hazard	FEMA annualized frequency (modeled) <i>unit per row</i>	Unit	In plain terms	Descriptor	Descriptor basis	NRI events or days in its record period (hail, wind and tornado are area-weighted, so can be fractional)	NRI period	Location	Note
Inland Flooding	0.429	event-days per year	about 0.429 days per year	Likely	event-days in 7 of 30 years, 1996 to 2025 (23.3%)	12	1996 to 2023 (28 years)	see B1-f	
Landslide	0.102	events per year (modeled)	about 1 in 10 years	Likely	FEMA annualized frequency (modeled)	not shown	modeled	see B1-f	
Lightning	31.1	days per year with a strike	about 31.1 days per year	Highly likely	FEMA annualized frequency (modeled)	not shown	1995 to 2023 (29 years; CONUS)	countywide	
Strong Wind	1.77	events per year	about 1.77 per year	Highly likely	FEMA annualized frequency (modeled)	25	1986 to 2023 (38 years)	countywide	
Tornado	0.274	events per year	about 1 in 4 years	Likely	FEMA annualized frequency (modeled)	not shown	1950 to 2023 (EF2+); 1986 to 2023 (EF0-1)	see B1-f	
Tsunami		annual probability at the most exposed location (used in place of a county value)			Storm Events records in 0 of 30 years, 1996 to 2025 (0%)	not shown	modeled	see B1-f	No Storm Events record of this hazard, 1996 to 2025; descriptor not assigned (the NRI value is the chance at a location in the county, not how often the hazard affects the county)
Volcanic Activity		annual probability				not shown	modeled	see B1-f	Not Applicable in NRI for this county; no descriptor.
Wildfire	0.0000632	annual probability at a location	chance a given location in the county burns in a year: 0.00632%		Storm Events records in 0 of 30 years, 1996 to 2025 (0%)	not shown	modeled	see B1-f	No Storm Events record of this hazard, 1996 to 2025; descriptor not assigned (the NRI value is the chance at a location in the county, not how often the hazard affects the county)
Winter Weather	29.7	event-days per year	about 29.7 days per year	Highly likely	event-days in 28 of 30 years, 1996 to 2025 (93.3%)	204	2005-11-12 to 2024-11-12 (19 years)	countywide	

FEMA annualized frequency (modeled) comes from the National Risk Index v1.20 (December 2025). It is not recorded events divided by years, and what it measures depends on the hazard. For most hazards it estimates how often the hazard affects this county each year: it counts events or event-days (drought, heat wave, cold wave, winter weather, ice storm and inland flooding are in days per year; lightning is the number of days per year with a recorded cloud-to-ground strike, from the NOAA Storm Prediction Center daily lightning climatology); it may count events in the surrounding area (hail, strong wind, tornado, hurricane and ice storm use a 49 km grid and buffers) and is averaged over the county's area; and some hazards use a minimum value for places with no recorded event. Earthquake, wildfire and coastal flooding are different: FEMA computes them for each census block and averages them over the county, so the value is the chance (for coastal flooding, the modeled number of floods per year) at a location in the county, which is lower than the chance that the hazard strikes somewhere in the county. Earthquake is the chance of at least minor-damage shaking (U.S. Geological Survey model); wildfire is the chance that a location burns in a large fire (U.S. Forest Service burn probability); coastal flooding comes from FEMA flood zones and NOAA high-tide flooding, so it can be above 1 where high-tide flooding is frequent. Tsunami is the value at the county's most exposed location, from recorded events and modeled return periods. For these four hazards the packet gives no "1 in N years" and takes the descriptor from Storm Events (none for earthquake) unless the value is 1 or more a year. Landslide is a U.S. Geological Survey modeled county rate spread by slope susceptibility. Volcanic activity is the chance that a volcano affecting the county erupts

in a year. Drought counts only extreme and exceptional drought (D3 and D4). Source: FEMA, National Risk Index Technical Documentation v1.20, sections 5.2.2 (Table 5), 5.2.3, 7.4, 10.4, 16.5, 17.1, 17.3.1, 17.5, 20.3.1, 21.4, 22.4 and 6 to 23.

SOURCES
FEMA, FEMA National Risk Index 1.20.0 (December 2025), county and census tract tables, version 1.20.0, pulled 2026-09-28, https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_Counties.zip (download, 25 MB), https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_CensusTracts.zip (download, 635 MB)
NOAA NCEI, NOAA NCEI Storm Events Database, details files (csvfiles v1.0), version c20260918, pulled 2026-09-28, <https://www.ncei.noaa.gov/pub/data/swdi/stormevents/csvfiles/>

Descriptor scale used in this packet (defined per unit)

Unit	Descriptor	Definition
events per year	Highly likely	1 or more per year
events per year	Likely	about once in 1 to 10 years
events per year	Possible	about once in 10 to 100 years
events per year	Unlikely	less than once in 100 years
annual probability	Likely	10% to under 100% chance in a given year
annual probability	Possible	1% to under 10% chance in a given year
annual probability	Unlikely	under 1% chance in a given year
event-days (share of years)	Highly likely	event-days recorded in 90% or more of years
event-days (share of years)	Likely	event-days recorded in 10% to under 90% of years
event-days (share of years)	Possible	event-days recorded in some years but under 10% of years
lightning strike-days	Highly likely	cloud-to-ground strikes on 1 or more days per year

SOURCES
FEMA, FEMA National Risk Index 1.20.0 (December 2025), county and census tract tables, version 1.20.0, pulled 2026-09-28, https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_Counties.zip (download, 25 MB), https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_CensusTracts.zip (download, 635 MB)
NOAA NCEI, NOAA NCEI Storm Events Database, details files (csvfiles v1.0), version c20260918, pulled 2026-09-28, <https://www.ncei.noaa.gov/pub/data/swdi/stormevents/csvfiles/>

Intensity bands: historical frequency (Storm Events)

Hazard	Band	Years	Events <i>county-coded records</i>	Years in period	Events per year <i>events / years</i>
Hail	1.00-1.99 in	1996 to 2025	17	30	0.567
Hail	2.00 in+	1996 to 2025	1	30	0.0333
Strong Wind (Thunderstorm Wind records)	50-64 kt	1996 to 2025	79	30	2.63
Strong Wind (Thunderstorm Wind records)	65 kt+	1996 to 2025	9	30	0.3
Strong Wind (Thunderstorm Wind records)	unmeasured or below 50 kt	1996 to 2025	9	30	0.3
Tornado	EF0-1	1996 to 2025	3	30	0.1
Tornado	EF2-3	1996 to 2025	0	30	0
Tornado	EF4-5	1996 to 2025	0	30	0
Tornado	unrated (EFU)	1996 to 2025	0	30	0

Hail smaller than 1 inch is not counted: on 2010-01-05 the National Weather Service raised its severe-hail threshold from 3/4 inch to 1 inch, so smaller reports became less common after 2009 (NWS Service Change Notice 09-52). NRI hail frequency uses a 0.75 inch threshold.

SOURCE
NOAA NCEI, NOAA NCEI Storm Events Database, details files (csvfiles v1.0), version c20260918, pulled 2026-09-28, <https://www.ncei.noaa.gov/pub/data/swdi/stormevents/csvfiles/>

Optional: future conditions. Not a required item in the 2025 FEMA Local Mitigation Planning Policy Guide; some states ask for it. The federal Climate Mapping for Resilience and Adaptation (CMRA) site gives county exposure to future climate conditions.

Supports B1-f: variation across the planning area

Range of census tract risk within the county

Hazard	Tracts rated of all	Risk score min NRI score, 0 to 100	Median	Max	Tracts by rating	Note
Avalanche	0 of 45				Not Applicable 45	
Coastal Flooding	36 of 45	68.0	72.3	80.0	Relatively Low 3, Very Low 33, No Rating 9	
Cold Wave	45 of 45	25.3	36.6	48.5	Relatively Moderate 1, Relatively Low 44	National data give a county-wide or coarse (49 km grid or NWS zone) frequency for this hazard, so they cannot show members' hazard differing. The tract range above mostly reflects where buildings and people are. Confirm locally.
Drought	0 of 45				No Rating 45	National data give a county-wide or coarse (49 km grid or NWS zone) frequency for this hazard, so they cannot show members' hazard differing. The tract range above mostly reflects where buildings and people are. Confirm locally.
Earthquake	45 of 45	4.3	17.1	37.5	Very Low 45	
Hail	45 of 45	32.5	45.8	62.7	Relatively Low 37, Very Low 8	National data give a county-wide or coarse (49 km grid or NWS zone) frequency for this hazard, so they cannot show members' hazard differing. The tract range above mostly reflects where buildings and people are. Confirm locally.
Heat Wave	45 of 45	7.2	20.2	34.6	Relatively Low 31, Very Low 14	National data give a county-wide or coarse (49 km grid or NWS zone) frequency for this hazard, so they cannot show members' hazard differing. The tract range above mostly reflects where buildings and people are. Confirm locally.
Hurricane	45 of 45	17.0	21.3	27.3	Very Low 45	
Ice Storm	45 of 45	26.3	53.2	75.5	Relatively Moderate 3, Relatively Low 40, Very Low 2	National data give a county-wide or coarse (49 km grid or NWS zone) frequency for this hazard, so they cannot show members' hazard differing. The tract range above mostly reflects where buildings and people are. Confirm locally.
Inland Flooding	45 of 45	4.5	27.1	61.8	Relatively Moderate 6, Relatively Low 29, Very Low 10	
Landslide	44 of 45	10.6	53.7	85.7	Relatively Low 2, Very Low 42, No Rating 1	
Lightning	45 of 45	25.4	47.7	65.5	Relatively Moderate 20, Relatively Low 25	National data give a county-wide or coarse (49 km grid or NWS zone) frequency for this hazard, so they cannot show members' hazard differing. The tract range above mostly reflects where buildings and people are. Confirm locally.
Strong Wind	45 of 45	64.1	87.0	96.1	Relatively High 30, Relatively Moderate 15	National data give a county-wide or coarse (49 km grid or NWS zone) frequency for this hazard, so they cannot show members' hazard differing. The tract range above mostly reflects where buildings and people are. Confirm locally.
Tornado	45 of 45	33.4	56.2	73.1	Relatively Moderate 29, Relatively Low 16	
Tsunami	0 of 45				Insufficient Data 45	
Volcanic Activity	0 of 45				Not Applicable 45	
Wildfire	43 of 45	20.4	42.5	71.3	Relatively Low 3, Very Low 40, No Rating 2	
Winter Weather	45 of 45	23.0	31.1	45.0	Relatively Low 45	National data give a county-wide or coarse (49 km grid or NWS zone) frequency for this hazard, so they cannot show members' hazard differing. The tract range above mostly reflects where buildings and people are. Confirm locally.

Rated tracts only: No Rating (score 0.0), Not Applicable and Insufficient Data tracts are counted but not used for the minimum, median and maximum.

SOURCE

FEMA, FEMA National Risk Index 1.20.0 (December 2025), county and census tract tables, version 1.20.0, pulled 2026-09-28, https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_Counties.zip (download, 25 MB), https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_CensusTracts.zip (download, 635 MB)

Per-member block (Starter, confirm locally)

Member	Type	Plan status	Repetitive loss <i>FMA RL and SRL (44 CFR 77.2); repeat-flood, any definition</i>	Public Assistance matched <i>federal share obligated, nominal dollars</i>	Event records naming this place <i>all years; since the member's plan</i>	Notes
Muskegon County	County	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 0	none found	0; 0	
Casnovia village	Village	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 0	none found	1; 0	
Fruitport village	Village	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 0	none found	7; 0	
Lakewood Club village	Village	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 0	none found	6; 0	
Montague city	City	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 0	\$7,684.50	11; 0	
Muskegon city	City	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 2	\$64,314	37; 0	Includes \$22,140 for declarations not counted as hazard incidents (DR-4494-MI).
Muskegon Heights city	City	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 0	none found	5; 0	
North Muskegon city	City	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 0	\$9,526.50	5; 0	
Norton Shores city	City	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 2	\$22,514.25	1; 0	
Ravenna village	Village	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 0	none found	7; 1	
Roosevelt Park city	City	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 0	\$6,338.25	2; 0	
Whitehall city	City	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 0	none found	14; 0	
Blue Lake township	Township	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 0	none found	0; 0	
Casnovia township	Township	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 0	none found	1; 0	
Cedar Creek township	Township	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 0	none found	0; 0	
Dalton township	Township	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 0	none found	3; 0	
Egelston township	Township	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 0	\$768	0; 0	

Member	Type	Plan status	Repetitive loss <i>FMA RL and SRL (44 CFR 77.2); repeat-flood, any definition</i>	Public Assistance matched <i>federal share obligated, nominal dollars</i>	Event records naming this place <i>all years; since the member's plan</i>	Notes
Fruitland township	Township	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 0	none found	0; 0	
Fruitport charter township	Township	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 0	none found	7; 0	
Holton township	Township	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 0	none found	4; 0	
Laketon township	Township	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 1	none found	0; 0	
Montague township	Township	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 0	none found	11; 0	
Moorland township	Township	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 0	none found	0; 0	
Muskegon charter township	Township	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 0	\$7,553.25	37; 0	
Ravenna township	Township	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 0	none found	7; 1	
Sullivan township	Township	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 0	none found	0; 0	
White River township	Township	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 0	none found	0; 0	
Whitehall township	Township	Approved, expires 2030-05-20	FMA RL 0, SRL 0; any 0	none found	14; 0	

Member rows are whole NFIP communities and need not add up to the county total: a community that extends into another county is counted in full on each member row, while the county table counts only its part in this county.

School districts and special districts get a plan clock row only.

SOURCES

FEMA, OpenFEMA HazardMitigationPlanStatuses v1, version 2026-09-26T121003Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/HazardMitigationPlanStatuses> (API)

FEMA, OpenFEMA NfipMultipleLossProperties v1, version 2026-08-04T164045Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/NfipMultipleLossProperties> (API)

FEMA, OpenFEMA PublicAssistanceFundedProjectsSummaries v1, version 2026-09-26T151157Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/PublicAssistanceFundedProjectsSummaries> (API)

NOAA NCEI, NOAA NCEI Storm Events Database, details files (csvfiles v1.0), version c20260918, pulled 2026-09-28, <https://www.ncei.noaa.gov/pub/data/swdi/stormevents/csvfiles/>

Supports B2-a and B2-b: assets and impacts

Local data required

County-level starter. The plan must describe impacts for each participant and its own assets.

- Critical facilities and lifelines per hazard
- A problem statement per participant per hazard
- Changes in development in hazard-prone areas since the last approval, or a statement of none (E1-a)

- Future assets

County-level starter: exposure, expected annual loss and damage since the plan

Hazard	Building exposure <i>modeled dollars</i>	Agriculture exposure <i>modeled dollars</i>	Population exposed <i>people</i>	EAL buildings <i>modeled dollars per year</i>	EAL agriculture <i>modeled dollars per year</i>	EAL population equivalence <i>statistical value of life and injury, \$13.7M per life, not property damage</i>	EAL as % of exposure <i>buildings; agriculture where noted</i>	Storm Events damage since 2025-05-21 <i>county-coded records, property plus crops, nominal dollars</i>	Zone-level damage since plan <i>property plus crops, reported for the zone</i>	Public Assistance since plan <i>nominal dollars; see note</i>	Note
Avalanche											Not Applicable in NRI for this county
Coastal Flooding	\$7,526,820,136		1,098	\$6,832		\$616	under 0.0001%				
Cold Wave	\$31,925,861,628	\$96,140,584	175,775	\$127	\$30,771	\$1,233,079	under 0.0001%				
Drought		\$0			\$0						agriculture exposure is 0 in NRI
Earthquake	\$56,420,751,920		175,824	\$184,791		\$61,032	0.000328%				
Hail	\$31,925,861,628	\$96,140,584	175,775	\$222,536	\$17,725	\$24,085	0.000697%				
Heat Wave	\$31,925,861,628	\$96,140,584	175,775	\$4,414	\$1	\$631,832	under 0.0001%				
Hurricane	\$31,874,791,799	\$96,140,584	175,585	\$5,700	\$1,030	\$4	under 0.0001%				
Ice Storm	\$31,869,274,325		175,551	\$193,732		\$51,559	0.000608%				
Inland Flooding	\$31,889,838,403	\$988,718	955	\$17,127,857	\$8,395	\$1,376	n/a (see note)			none found (1 declaration)	NRI counts the full building value of any census block with some flood loss; this is not the value of buildings in the floodplain. Use local FIRM overlays for B2-a/ B2-b. EAL as % of exposure: n/a.
Landslide	\$270,584,871		1,156	\$226		\$876	under 0.0001%				
Lightning	\$31,925,861,628		175,775	\$37,924		\$444,501	0.000119%				
Strong Wind	\$31,925,861,628	\$96,140,584	175,775	\$2,021,651	\$290,132	\$1,139,056	0.00633%				
Tornado	\$31,925,861,628	\$96,140,584	175,775	\$1,516,364	\$1,373	\$2,376,657	0.00475%			none found (1 declaration)	
Tsunami											NRI publishes no building exposure for this county
Volcanic Activity											Not Applicable in NRI for this county
Wildfire	\$2,624,890,296	\$17,025,772	22,110	\$11,685	\$9	\$2,416	0.000445%				
Winter Weather	\$31,925,861,628	\$96,140,584	175,775	\$31,062	\$941	\$9,955	under 0.0001%		\$0		

Totals since 2025-05-21 (Storm Events through 2026-06-30): 2 county-coded records, 0 with a damage value recorded (including \$0), \$0; 5 zone-level records, 1 with a damage value recorded (including \$0), \$0 reported for the zone; Public Assistance on counted declarations none found (1 declaration, 0 with PA).

Total = buildings + agriculture + population equivalence; FEMA values each expected death (or 10 injuries) at \$13.7 million (2024 dollars).

FEMA does not split Public Assistance by hazard. A declaration mapped to several hazards is listed under each of them with its full amount, so the per-hazard column must not be added up; the unit total counts each declaration once.

Dollars are nominal (as reported), labeled with the year; not adjusted for inflation.

SOURCES
FEMA, FEMA National Risk Index 1.20.0 (December 2025), county and census tract tables, version 1.20.0, pulled 2026-09-28, https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_Counties.zip (download, 25 MB), https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_CensusTracts.zip (download, 635 MB)
NOAA NCEI, NOAA NCEI Storm Events Database, details files (csvfiles v1.0), version c20260918, pulled 2026-09-28, <https://www.ncei.noaa.gov/pub/data/swdi/stormevents/csvfiles/>
NOAA National Weather Service, NWS county-public forecast zones correlation file, version bp03mr20 to bp16ap26 (11 files; newest bp16ap26), pulled 2026-09-28, <https://www.weather.gov/gis/ZoneCounty>
FEMA, OpenFEMA DisasterDeclarationsSummaries v2, version 2026-09-27T010817Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v2/DisasterDeclarationsSummaries> (API)
FEMA, OpenFEMA PublicAssistanceFundedProjectsSummaries v1, version 2026-09-26T151157Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/PublicAssistanceFundedProjectsSummaries> (API)
FEMA, OpenFEMA HazardMitigationPlanStatuses v1, version 2026-09-26T121003Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/HazardMitigationPlanStatuses> (API)

Supports B2-a: context

County context

Measure	Value
Population	175,775
Building value (total, not at risk)	\$31,925,861,628
Agriculture value (total, not at risk)	\$96,140,584
NRI risk rating (all hazards)	Relatively Low
Expected annual loss, buildings and agriculture, all hazards	\$21,715,280
Expected annual loss, population equivalence, all hazards (NRI values each statistical life at \$13.7M; a modeled value of expected deaths and injuries, not property damage)	\$5,977,044
Social vulnerability rating	Relatively Moderate
Community resilience rating	Very High
NRI version	December 2025

FEMA's all-hazard expected annual loss total adds buildings, agriculture and population equivalence; the two parts are shown separately so the property figure is not read as including the statistical value of life.

SOURCE
FEMA, FEMA National Risk Index 1.20.0 (December 2025), county and census tract tables, version 1.20.0, pulled 2026-09-28, https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_Counties.zip (download, 25 MB), https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_CensusTracts.zip (download, 635 MB)

Supports B2-c: repetitive loss

Repetitive loss in this county, both definitions

Definition	Properties	Severe repetitive loss	Properties
Repetitive loss, FMA definition (44 CFR 77.2)	0	Severe repetitive loss, FMA definition (44 CFR 77.2)	0
Repetitive loss, NFIP insurance definition	5	Severe repetitive loss, NFIP insurance definition	0

Your state NFIP coordinator's list may use the NFIP insurance definition, so its counts can be higher.

SOURCESFEMA, OpenFEMA NfipMultipleLossProperties v1, version 2026-08-04T164045Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/NfipMultipleLossProperties> (API)FEMA, OpenFEMA HazardMitigationPlanStatuses v1, version 2026-09-26T121003Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/HazardMitigationPlanStatuses> (API)**Repeat-flood properties: county and state-level rows**

Scope	RL, FMA <i>properties</i>	SRL, FMA <i>properties</i>	RL, NFIP <i>properties</i>	SRL, NFIP <i>properties</i>	Any category <i>properties</i>	Mitigated <i>properties</i>	Currently insured <i>properties</i>
County total	0	0	5	0	5	0	3
LAKETON, TOWNSHIP OF	0	0	1	0	1	0	1
MUSKEGON, CITY OF	0	0	2	0	2	0	2
NORTON SHORES, CITY OF	0	0	2	0	2	0	0
State level, not in this county: county not reported	0	0	4	0	4	0	0

SOURCESFEMA, OpenFEMA NfipMultipleLossProperties v1, version 2026-08-04T164045Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/NfipMultipleLossProperties> (API)FEMA, OpenFEMA HazardMitigationPlanStatuses v1, version 2026-09-26T121003Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/HazardMitigationPlanStatuses> (API)**Repeat-flood properties by plan member (NFIP community)**

Member	NFIP community ID	RL, FMA <i>properties</i>	SRL, FMA <i>properties</i>	RL, NFIP <i>properties</i>	SRL, NFIP <i>properties</i>	Any category <i>properties</i>	Mitigated <i>properties</i>	Currently insured <i>properties</i>	Note
Muskegon County	261816	0	0	0	0	0	0	0	
Casnovia village	260965	0	0	0	0	0	0	0	
Fruitport village	261201	0	0	0	0	0	0	0	
Lakewood Club village	261204	0	0	0	0	0	0	0	
Montague city	260160	0	0	0	0	0	0	0	
Muskegon city	260161	0	0	2	0	2	0	2	
Muskegon Heights city	260162	0	0	0	0	0	0	0	
North Muskegon city	260164	0	0	0	0	0	0	0	
Norton Shores city	260165	0	0	2	0	2	0	0	
Ravenna village	260464	0	0	0	0	0	0	0	
Roosevelt Park city	261206	0	0	0	0	0	0	0	
Whitehall city	260166	0	0	0	0	0	0	0	
Blue Lake township	261196	0	0	0	0	0	0	0	
Casnovia township	261197	0	0	0	0	0	0	0	
Cedar Creek township	261198	0	0	0	0	0	0	0	
Dalton township	261199	0	0	0	0	0	0	0	
Egelston township	260680	0	0	0	0	0	0	0	
Fruitland township	260265	0	0	0	0	0	0	0	
Fruitport charter township	261200	0	0	0	0	0	0	0	
Holton township	261203	0	0	0	0	0	0	0	

Member	NFIP community ID	RL, FMA <i>properties</i>	SRL, FMA <i>properties</i>	RL, NFIP <i>properties</i>	SRL, NFIP <i>properties</i>	Any category <i>properties</i>	Mitigated <i>properties</i>	Currently insured <i>properties</i>	Note
Laketon township	260159	0	0	1	0	1	0	1	
Montague township	261240	0	0	0	0	0	0	0	
Moorland township	261205	0	0	0	0	0	0	0	
Muskegon charter township	260163	0	0	0	0	0	0	0	
Ravenna township	260731	0	0	0	0	0	0	0	
Sullivan township	261207	0	0	0	0	0	0	0	
White River township	260299	0	0	0	0	0	0	0	
Whitehall township	261208	0	0	0	0	0	0	0	

Per-member types: XLSX sheet 'B2-c Members'.

Member rows are whole NFIP communities and need not add up to the county total: a community that extends into another county is counted in full on each member row, while the county table counts only its part in this county.

SOURCES

FEMA, OpenFEMA NfipMultipleLossProperties v1, version 2026-08-04T164045Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/NfipMultipleLossProperties> (API)

FEMA, OpenFEMA HazardMitigationPlanStatuses v1, version 2026-09-26T121003Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/HazardMitigationPlanStatuses> (API)

County repeat-flood properties by occupancy group

Occupancy group	RL, FMA <i>properties</i>	SRL, FMA <i>properties</i>	RL, NFIP <i>properties</i>	SRL, NFIP <i>properties</i>	Any category <i>properties</i>	Mitigated <i>properties</i>	Currently insured <i>properties</i>
single-family residential	0	0	5	0	5	0	3
2 to 4 unit residential	0	0	0	0	0	0	0
other residential	0	0	0	0	0	0	0
non-residential	0	0	0	0	0	0	0
not reported	0	0	0	0	0	0	0

Institutional properties cannot be separated in this data: FEMA's occupancy groups have no institutional class, so they fall in non-residential or other residential in the table by occupancy group.

SOURCES

FEMA, OpenFEMA NfipMultipleLossProperties v1, version 2026-08-04T164045Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/NfipMultipleLossProperties> (API)

FEMA, OpenFEMA HazardMitigationPlanStatuses v1, version 2026-09-26T121003Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/HazardMitigationPlanStatuses> (API)

FMA RL and FMA SRL are the Flood Mitigation Assistance definitions (44 CFR 77.2), the ones the FEMA Local Mitigation Planning Policy Guide cites; OpenFEMA's fmaRL field description omits the Increased Cost of Compliance clause of 44 CFR 77.2(i). NFIP repetitive loss (FEMA insurance definition, nfipRL) is 2 or more claims over \$1,000 in 10 years and can drop to false when a property is mitigated. Also shown: NFIP severe repetitive loss, any category, mitigated and currently insured.

Your state NFIP coordinator's list may use the NFIP insurance definition, so its counts can be higher.

Counts are aggregates of FEMA's public NFIP Multiple Loss Properties file (as of 2026-08-02). No property is identified. County assignment is FEMA's geocode.

Counts may differ from your state NFIP coordinator's list, which is the source the Handbook names.

In this county 0 properties are FMA repetitive loss but not NFIP repetitive loss, and 5 properties are NFIP repetitive loss but not FMA repetitive loss.

Exact counts; no count suppression.

Sources

Every table above lists its own sources. The full list, for the plan's bibliography (FEMA review item A4-a):

1. FEMA, OpenFEMA HazardMitigationPlanStatuses v1, version 2026-09-26T121003Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/HazardMitigationPlanStatuses> (API)
2. FEMA, OpenFEMA DisasterDeclarationsSummaries v2, version 2026-09-27T010817Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v2/DisasterDeclarationsSummaries> (API)
3. FEMA, OpenFEMA PublicAssistanceFundedProjectsSummaries v1, version 2026-09-26T151157Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/PublicAssistanceFundedProjectsSummaries> (API)
4. FEMA, OpenFEMA NfipMultipleLossProperties v1, version 2026-08-04T164045Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/NfipMultipleLossProperties> (API)
5. FEMA, FEMA National Risk Index 1.20.0 (December 2025), county and census tract tables, version 1.20.0, pulled 2026-09-28, https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_Counties.zip (download, 25 MB), https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_CensusTracts.zip (download, 635 MB)
6. NOAA NCEI, NOAA NCEI Storm Events Database, details files (csvfiles v1.0), version c20260918, pulled 2026-09-28, <https://www.ncei.noaa.gov/pub/data/swdi/stormevents/csvfiles/>
7. NOAA National Weather Service, NWS county-public forecast zones correlation file, version bp03mr20 to bp16ap26 (11 files; newest bp16ap26), pulled 2026-09-28, <https://www.weather.gov/gis/ZoneCounty>
8. U.S. Census Bureau, Census 2024 Gazetteer, 2020 place by county, CT county-to-cousub crosswalk, version 2024-gazetteer, pulled 2026-09-28, https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gazetteer/2024_Gaz_counties_national.zip, [https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gazetteer/2024_Gaz_cousubs_national.zip](https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gaz_cousubs_national.zip), [https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gazetteer/2024_Gaz_place_national.zip](https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gaz_place_national.zip), [https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gazetteer/2024_Gaz_unsd_national.zip](https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gaz_unsd_national.zip), [https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gazetteer/2024_Gaz_elsd_national.zip](https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gaz_elsd_national.zip), [https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gazetteer/2024_Gaz_scscd_national.zip](https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gaz_scscd_national.zip), https://www2.census.gov/geo/docs/reference/codes2020/national_place_by_county2020.txt, https://www2.census.gov/geo/docs/reference/ct_change/ct_cou_to_cousub_crosswalk.xlsx

OpenFEMA disclaimer

This product uses the Federal Emergency Management Agency's OpenFEMA API, but is not endorsed by FEMA. The Federal Government or FEMA cannot vouch for the data or analyses derived from these data after the data have been retrieved from the Agency's website(s).

Hazard Plain is an independent product built from public federal data. It is not a FEMA document and is not reviewed or endorsed by FEMA or any state agency.

Reuse, citation and corrections

Reuse and citation: Hazard Plain text and tables are licensed under Creative Commons Attribution 4.0 International (CC BY 4.0, <https://creativecommons.org/licenses/by/4.0/>); credit Hazard Plain and the release. The underlying federal data are public domain; OpenFEMA data are also subject to the OpenFEMA terms and conditions.

Cite this: Hazard Plain (2026). Muskegon County, MI: risk-assessment baseline packet, release 2026-10 (data as of 2026-09-28; County area 26121). Preview: automated baseline. Built from FEMA OpenFEMA, the FEMA National Risk Index and NOAA NCEI Storm Events; source versions in the packet's Sources list.

Corrections: to report an error, name the packet, the table and what your records show. Contact: to be added

Hazard Plain release 2026-10. As of 2026-09-28; Storm Events data through 2026-06-30. File hazard-plain_2026-10_MI_26121. Preview: automated baseline.