

# Grand Traverse County, MI

## Risk-assessment baseline packet

Unit **County area 26055** 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          | <b>Approved, expires 2027-09-27</b> | Plan    | <b>Grand Traverse County NHMP (Update) (FEMA plan 107334)</b> |
| Approved        | <b>2022-09-28</b>                   | Expires | <b>2027-09-27</b>                                             |
| As of           | <b>2026-09-28</b>                   | Days    | <b>364 days to expiry</b>                                     |
| Update underway | <b>none in FEMA's plan tracker</b>  |         |                                                               |

### What changed since your last plan (approved 2022-09-28)

|                          |                                                           |                                     |                                                    |
|--------------------------|-----------------------------------------------------------|-------------------------------------|----------------------------------------------------|
| New federal declarations | <b>DR-4925-MI (1 declaration row; 1 counted incident)</b> | Storm Events records since approval | <b>45 (data through 2026-06-30)</b>                |
| Repetitive loss now      | <b>FMA RL 1, SRL 0 (44 CFR 77.2); any definition: 6</b>   | Repeat-flood change                 | <b>First release: no prior release to compare.</b> |

**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: 17 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 2022-09-28), page 1
3. Supports B1-a: hazards, page 3
4. Supports B1-b: location, page 5
5. Supports B1-c: extent, page 5
6. Supports B1-d: previous occurrences, page 9
7. Supports B1-e: probability, page 12
8. Supports B1-f: variation across the planning area, page 15
9. Supports B2-a and B2-b: assets and impacts, page 17
10. Supports B2-a: context, page 19
11. Supports B2-c: repetitive loss, page 19
12. Sources and OpenFEMA disclaimer, page 21

## Plan clock

### Plan status for every jurisdiction listed in this county

| Jurisdiction              | Type     | Status                                                                   | Plan                                                                          | Approved                                 | Expires                 | Days to expiry<br><i>negative = days since expiry</i> | Update underway                                       | Notes                                      |
|---------------------------|----------|--------------------------------------------------------------------------|-------------------------------------------------------------------------------|------------------------------------------|-------------------------|-------------------------------------------------------|-------------------------------------------------------|--------------------------------------------|
| Grand Traverse County     | County   | Approved, expires 2027-09-27                                             | Grand Traverse County NHMP (Update) (FEMA plan 107334)                        | 2022-09-28                               | 2027-09-27              | 364                                                   |                                                       |                                            |
| Fife Lake village         | Village  | Approved, expires 2027-09-27                                             | Grand Traverse County NHMP (Update) (FEMA plan 107334)                        | 2022-09-28                               | 2027-09-27              | 364                                                   |                                                       | member approved 2024-01-23                 |
| Kingsley village          | Village  | Approved, expires 2027-09-27                                             | Grand Traverse County NHMP (Update) (FEMA plan 107334)                        | 2022-09-28                               | 2027-09-27              | 364                                                   |                                                       | member approved 2022-12-19                 |
| Traverse City city        | City     | Approved, expires 2027-09-27                                             | Grand Traverse County NHMP (Update) (FEMA plan 107334)                        | 2022-09-28                               | 2027-09-27              | 364                                                   |                                                       | member approved 2022-11-14                 |
| Acme township             | Township | Approved, expires 2027-09-27                                             | Grand Traverse County NHMP (Update) (FEMA plan 107334)                        | 2022-09-28                               | 2027-09-27              | 364                                                   |                                                       | member approved 2022-10-11                 |
| Blair township            | Township | Approved, expires 2027-09-27                                             | Grand Traverse County NHMP (Update) (FEMA plan 107334)                        | 2022-09-28                               | 2027-09-27              | 364                                                   |                                                       | member approved 2022-12-07                 |
| East Bay township         | Township | Approved, expires 2027-09-27                                             | Grand Traverse County NHMP (Update) (FEMA plan 107334)                        | 2022-09-28                               | 2027-09-27              | 364                                                   |                                                       | member approved 2022-12-07                 |
| Fife Lake township        | Township | Plan 107334 approved 2022-09-28, pending adoption here; not yet eligible | Grand Traverse County NHMP (Update) (FEMA plan 107334), pending adoption here | 2022-09-28 by FEMA; not yet adopted here | 2027-09-27 once adopted |                                                       | FEMA tracker shows a plan approvable pending adoption | Not yet eligible: adopt the approved plan. |
| Garfield charter township | Township | Approved, expires 2027-09-27                                             | Grand Traverse County NHMP (Update) (FEMA plan 107334)                        | 2022-09-28                               | 2027-09-27              | 364                                                   |                                                       | member approved 2022-10-13                 |
| Grant township            | Township | Approved, expires 2027-09-27                                             | Grand Traverse County NHMP (Update) (FEMA plan 107334)                        | 2022-09-28                               | 2027-09-27              | 364                                                   |                                                       | member approved 2023-03-07                 |
| Green Lake township       | Township | Approved, expires 2027-09-27                                             | Grand Traverse County NHMP (Update) (FEMA plan 107334)                        | 2022-09-28                               | 2027-09-27              | 364                                                   |                                                       | member approved 2022-12-07                 |
| Long Lake township        | Township | Approved, expires 2027-09-27                                             | Grand Traverse County NHMP (Update) (FEMA plan 107334)                        | 2022-09-28                               | 2027-09-27              | 364                                                   |                                                       | member approved 2022-10-13                 |
| Mayfield township         | Township | Approved, expires 2027-09-27                                             | Grand Traverse County NHMP (Update) (FEMA plan 107334)                        | 2022-09-28                               | 2027-09-27              | 364                                                   |                                                       | member approved 2022-12-07                 |
| Paradise township         | Township | Approved, expires 2027-09-27                                             | Grand Traverse County NHMP (Update) (FEMA plan 107334)                        | 2022-09-28                               | 2027-09-27              | 364                                                   |                                                       | member approved 2022-11-14                 |

| Jurisdiction        | Type     | Status                                                                   | Plan                                                                          | Approved                                 | Expires                 | Days to expiry<br><i>negative = days since expiry</i> | Update underway                                       | Notes                                      |
|---------------------|----------|--------------------------------------------------------------------------|-------------------------------------------------------------------------------|------------------------------------------|-------------------------|-------------------------------------------------------|-------------------------------------------------------|--------------------------------------------|
| Peninsula township  | Township | Approved, expires 2027-09-27                                             | Grand Traverse County NHMP (Update) (FEMA plan 107334)                        | 2022-09-28                               | 2027-09-27              | 364                                                   |                                                       | member approved 2022-11-14                 |
| Union township      | Township | Plan 107334 approved 2022-09-28, pending adoption here; not yet eligible | Grand Traverse County NHMP (Update) (FEMA plan 107334), pending adoption here | 2022-09-28 by FEMA; not yet adopted here | 2027-09-27 once adopted |                                                       | FEMA tracker shows a plan approvable pending adoption | Not yet eligible: adopt the approved plan. |
| Whitewater township | Township | Approved, expires 2027-09-27                                             | Grand Traverse County NHMP (Update) (FEMA plan 107334)                        | 2022-09-28                               | 2027-09-27              | 364                                                   |                                                       | member approved 2023-08-25                 |

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<br><i>modeled dollars per year</i> | EAL agriculture<br><i>modeled dollars per year</i> | EAL population equivalence<br><i>statistical value of life and injury, \$13.7M per life, not property damage</i> | EAL total<br><i>(see note)</i><br><i>modeled dollars per year</i> | Storm Events records since 1996<br><i>count</i> | Evidence for an omission<br><i>NRI Not Applicable, no declaration and no Storm Events record since 1996</i> | Storm Events coverage note                                                                                        |
|-------------|-----------------|---------------------|---------------------|--------------------------------------------------|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| 1           | Cold Wave       | Relatively High     | Relatively High     | \$53                                             | \$755,648                                          | \$15,040,973                                                                                                     | \$15,796,674                                                      | 5                                               |                                                                                                             | Includes 1 Frost/Freeze record, event types the NRI definition of this hazard leaves out.                         |
| 2           | Inland Flooding | Relatively Low      | Relatively Low      | \$10,480,695                                     | \$1,184                                            | \$611                                                                                                            | \$10,482,489                                                      | 20                                              |                                                                                                             |                                                                                                                   |
| 3           | Winter Weather  | Very High           | Very High           | \$18,295                                         | \$446                                              | \$1,588,855                                                                                                      | \$1,607,596                                                       | 137                                             |                                                                                                             |                                                                                                                   |
| 4           | Tornado         | Relatively Low      | Relatively Low      | \$439,119                                        | \$226                                              | \$767,390                                                                                                        | \$1,206,735                                                       | 1                                               |                                                                                                             |                                                                                                                   |
| 5           | Strong Wind     | Relatively Moderate | Relatively Moderate | \$540,612                                        | \$1,405                                            | \$320,313                                                                                                        | \$862,331                                                         | 74                                              |                                                                                                             | Includes 8 High Wind records and 2 Strong Wind records, event types the NRI definition of this hazard leaves out. |
| 6           | Lightning       | Relatively Moderate | Relatively Moderate | \$11,345                                         |                                                    | \$538,214                                                                                                        | \$549,559                                                         | 7                                               |                                                                                                             |                                                                                                                   |

| Rank<br>by<br>EAL | Hazard               | NRI risk<br>rating   | EAL rating                      | EAL<br>buildings<br><i>modeled dollars<br/>per year</i> | EAL<br>agriculture<br><i>modeled<br/>dollars per<br/>year</i> | EAL population<br>equivalence<br><i>statistical value of life<br/>and injury, \$13.7M per<br/>life, not property<br/>damage</i> | EAL total<br>(see note)<br><i>modeled dollars<br/>per year</i> | Storm<br>Events<br>records<br>since 1996<br><i>count</i> | Evidence for an omission<br><i>NRI Not Applicable, no<br/>declaration and no Storm Events<br/>record since 1996</i> | Storm Events coverage note                                                                                                                                     |
|-------------------|----------------------|----------------------|---------------------------------|---------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7                 | Hail                 | Relatively<br>Low    | Relatively<br>Low               | \$264,145                                               | \$38,044                                                      | \$70,320                                                                                                                        | \$372,508                                                      | 43                                                       |                                                                                                                     |                                                                                                                                                                |
| 8                 | Heat Wave            | Very Low             | Relatively<br>Low               | \$1,233                                                 | under \$1                                                     | \$202,458                                                                                                                       | \$203,691                                                      | 2                                                        |                                                                                                                     |                                                                                                                                                                |
| 9                 | Earthquake           | Very Low             | Very Low                        | \$15,573                                                |                                                               | \$4,706                                                                                                                         | \$20,279                                                       |                                                          |                                                                                                                     | Not in Storm Events. Storm Events coverage of this hazard is limited; absence is not evidence of low risk.                                                     |
| 10                | Wildfire             | Very Low             | Very Low                        | \$15,859                                                | \$6                                                           | \$2,749                                                                                                                         | \$18,614                                                       | 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. |
| 11                | Landslide            | Relatively<br>Low    | Relatively<br>Low               | \$1,817                                                 |                                                               | \$14,520                                                                                                                        | \$16,337                                                       | 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<br>Flooding  | Very Low             | Very Low                        | \$7,798                                                 |                                                               | \$585                                                                                                                           | \$8,383                                                        | 0                                                        |                                                                                                                     | No recorded events in Storm Events since 1996 (data through 2026-06-30).                                                                                       |
| 13                | Hurricane            | Very Low             | Very Low                        | \$5,560                                                 | \$676                                                         | \$2                                                                                                                             | \$6,238                                                        | 0                                                        |                                                                                                                     | No recorded events in Storm Events since 1996 (data through 2026-06-30).                                                                                       |
| 14                | Ice Storm            | Very Low             | Very Low                        | \$3,823                                                 |                                                               | \$2,136                                                                                                                         | \$5,959                                                        | 4                                                        |                                                                                                                     |                                                                                                                                                                |
| 15                | Drought              | No Rating            | No Expected<br>Annual<br>Losses |                                                         | \$0                                                           |                                                                                                                                 | \$0                                                            | 1                                                        |                                                                                                                     |                                                                                                                                                                |
|                   | Avalanche            | Not<br>Applicable    | Not<br>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<br>Data | Insufficient<br>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<br>Activity | Not<br>Applicable    | Not<br>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](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](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<br><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 23                                           |
| Coastal Flooding  | The FEMA Flood Insurance Rate Map (FIRM) is the required location source for flooding. See the FEMA Flood Map Service Center ( <a href="https://msc.fema.gov">https://msc.fema.gov</a> ) for this county. | 9 of 23                                           |
| Cold Wave         | Affects the whole planning area; national data do not distinguish locations within the county. Confirm locally.                                                                                           | 23 of 23                                          |
| Drought           | Affects the whole planning area; national data do not distinguish locations within the county. Confirm locally.                                                                                           | 0 of 23                                           |
| 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.                                                                        | 23 of 23                                          |
| Hail              | Affects the whole planning area; national data do not distinguish locations within the county. Confirm locally.                                                                                           | 23 of 23                                          |
| Heat Wave         | Affects the whole planning area; national data do not distinguish locations within the county. Confirm locally.                                                                                           | 23 of 23                                          |
| 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.                                                                        | 23 of 23                                          |
| Ice Storm         | Affects the whole planning area; national data do not distinguish locations within the county. Confirm locally.                                                                                           | 23 of 23                                          |
| Inland Flooding   | The FEMA Flood Insurance Rate Map (FIRM) is the required location source for flooding. See the FEMA Flood Map Service Center ( <a href="https://msc.fema.gov">https://msc.fema.gov</a> ) for this county. | 23 of 23                                          |
| 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.                                                                        | 23 of 23                                          |
| Lightning         | Affects the whole planning area; national data do not distinguish locations within the county. Confirm locally.                                                                                           | 23 of 23                                          |
| Strong Wind       | Affects the whole planning area; national data do not distinguish locations within the county. Confirm locally.                                                                                           | 23 of 23                                          |
| 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.                                                                        | 23 of 23                                          |
| 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 23                                           |
| 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 23                                           |
| 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.                                                                        | 23 of 23                                          |
| Winter Weather    | Affects the whole planning area; national data do not distinguish locations within the county. Confirm locally.                                                                                           | 23 of 23                                          |

**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](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](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<br><i>count, years</i> | Observed range | Worst recorded event | Most damaging<br>(when different) | How it applies to members | Note                                                             |
|-----------|-------------------------|--------------------------------|----------------|----------------------|-----------------------------------|---------------------------|------------------------------------------------------------------|
| Avalanche | none (count and damage) | 0                              |                |                      |                                   |                           | Physical measure: in event narratives only; local data required. |

| Hazard                                                   | Scale                                | Records<br><i>count, years</i>        | Observed range                                                 | Worst recorded event                                                                                                                                                                                   | Most damaging<br>(when different)                                  | How it applies to members                                                                                                                                                                            | Note                                                                                                                                                                                                                                                                                       |
|----------------------------------------------------------|--------------------------------------|---------------------------------------|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Coastal Flood,<br>Storm Surge/<br>Tide                   | none in data<br>(FIRM for<br>depth)  | 0                                     |                                                                |                                                                                                                                                                                                        |                                                                    |                                                                                                                                                                                                      | Flood depth: see the<br>FEMA Flood Insurance<br>Rate Map.                                                                                                                                                                                                                                  |
| Cold/Wind<br>Chill, Extreme<br>Cold/Wind<br>Chill        | wind chill                           | 4, 2007 to<br>2026 (4 zone-<br>level) | 1 day to 3 days<br>(median 2 days); 4<br>with a recorded value | 3 consecutive days,<br>2026-01-22 to<br>2026-01-24, zone-level                                                                                                                                         |                                                                    | Zone-level records: applies countywide; national data do not<br>locate these events within the county.                                                                                               | Wind chill: in event<br>narratives only; local<br>data required.                                                                                                                                                                                                                           |
| Frost/Freeze<br>(outside NRI<br>Cold Wave<br>definition) | crop damage                          | 1, 2012 to<br>2012 (1 zone-<br>level) |                                                                | Frost/Freeze, 2012-04-27,<br>\$15,000,000 crop<br>damage, reported for the<br>zone (2012 dollars); NWS<br>zone MIZ026 (GRAND<br>TRAVERSE), zone-level:<br>may include parts of<br>neighboring counties |                                                                    | Zone-level records: applies countywide; national data do not<br>locate these events within the county.                                                                                               | Temperature: in event<br>narratives only; local<br>data required.                                                                                                                                                                                                                          |
| Drought                                                  | US Drought<br>Monitor D-<br>scale    | 1, 2001 to<br>2001 (1 zone-<br>level) | 9 days; 1 with a<br>recorded value                             | 9 days, 2001-08-01 to<br>2001-08-09, zone-level                                                                                                                                                        |                                                                    | Zone-level records: applies countywide; national data do not<br>locate these events within the county.                                                                                               | Storm Events enters a<br>drought at D2 or worse<br>east of the Rockies and<br>D3 or worse from the<br>Rockies west (NWS<br>Instruction 10-1605);<br>NRI drought counts D3<br>and D4 only.                                                                                                  |
| Earthquake                                               | Modified<br>Mercalli (local<br>data) | 0                                     |                                                                |                                                                                                                                                                                                        |                                                                    |                                                                                                                                                                                                      | No Storm Events<br>record; local data<br>required (e.g., USGS).                                                                                                                                                                                                                            |
| Hail                                                     | hail size<br>(inches)                | 52, 1958 to<br>2026                   | 0.75 in to 2 in<br>(median 1 in); 52 with<br>a recorded value  | 2 in hail, 1980-07-07                                                                                                                                                                                  | Hail, 2023-08-03,<br>\$5,000 property; \$0<br>crops (2023 dollars) | Event records naming member places: Traverse City city (14<br>records), Kingsley village (5 records), Fife Lake township (4<br>records), Fife Lake village (4 records), Acme township (1<br>record). |                                                                                                                                                                                                                                                                                            |
| Excessive<br>Heat, Heat                                  | heat index<br>(narratives)           | 2, 2001 to<br>2018 (2 zone-<br>level) | 1 day to 9 days<br>(median 5 days); 2<br>with a recorded value | 9 consecutive days,<br>2001-08-01 to<br>2001-08-09, zone-level                                                                                                                                         |                                                                    | Zone-level records: applies countywide; national data do not<br>locate these events within the county.                                                                                               | Heat index: in event<br>narratives only; local<br>data required.                                                                                                                                                                                                                           |
| Hurricane,<br>Tropical Storm,<br>Tropical<br>Depression  | Saffir-Simpson                       | 0                                     |                                                                |                                                                                                                                                                                                        |                                                                    |                                                                                                                                                                                                      | Storm Events files<br>every zone of a storm's<br>episode under the<br>storm's event type and<br>category, so a<br>Hurricane (Typhoon)<br>record, especially an<br>inland or remnant one,<br>does not by itself mean<br>hurricane-force winds<br>here; read the damage<br>and wind columns. |
| Ice Storm                                                | Sperry-Piltz<br>(local data)         | 4, 2001 to<br>2008 (4 zone-<br>level) |                                                                | No damage reported in 4<br>records.                                                                                                                                                                    |                                                                    | Zone-level records: applies countywide; national data do not<br>locate these events within the county.                                                                                               | Ice thickness: in event<br>narratives only; local<br>data required.                                                                                                                                                                                                                        |

| Hazard                                                         | Scale                                                                              | Records<br><i>count, years</i>   | Observed range                                                                     | Worst recorded event                                                                                                                         | Most damaging<br>(when different)                                             | How it applies to members                                                                                                                                                                                                   | Note                                                                                                                                                                                                                            |
|----------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Flash Flood, Flood, Lakeshore Flood                            | damage and flood days (FIRM for depth)                                             | 20, 1999 to 2023 (2 zone-level)  |                                                                                    | Flash Flood, 2012-10-06, \$1,800,000 property; \$0 crops (2012 dollars)                                                                      |                                                                               | Event records naming member places: Traverse City city (11 records), Mayfield township (1 record). Zone-level records (2) 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.                                                                                                                                                                |
| Lightning                                                      | annualized frequency (the measure FEMA's Local Mitigation Planning Handbook names) | 7, 2000 to 2025                  |                                                                                    | Lightning, 2000-09-01, damage not reported, 1 direct death, 1 direct injury                                                                  | Lightning, 2002-04-18, \$125,000 property; crops not reported (2002 dollars)  | Event records naming member places: Traverse City city (2 records).                                                                                                                                                         | 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)                                                            | 10, 1998 to 2025 (10 zone-level) | 40 kt (46 mph) to 61 kt (70 mph) (median 53 kt (61 mph)); 9 with a recorded value  | 61 kt (70 mph) measured gust, High Wind, 2021-12-16; NWS zone MIZ026 (GRAND TRAVERSE), zone-level: may include parts of neighboring counties |                                                                               | Zone-level records: applies countywide; national data do not locate these events within the county.                                                                                                                         |                                                                                                                                                                                                                                 |
| Thunderstorm Wind                                              | wind speed (kt and mph)                                                            | 91, 1955 to 2025                 | 40 kt (46 mph) to 70 kt (81 mph) (median 52 kt (60 mph)); 75 with a recorded value | 70 kt (81 mph), measurement type not recorded, Thunderstorm Wind, 1987-07-20                                                                 | Thunderstorm Wind, 2015-08-02, \$7,800,000 property; \$0 crops (2015 dollars) | Event records naming member places: Traverse City city (23 records), Acme township (4 records), Kingsley village (4 records), Fife Lake township (3 records), Fife Lake village (3 records), Mayfield township (2 records). |                                                                                                                                                                                                                                 |

| Hazard                                                                      | Scale                                   | Records<br><i>count, years</i>     | Observed range                                                           | Worst recorded event                                                                                                                                                                                                              | Most damaging<br>(when different)                                          | How it applies to members                                                                           | Note                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------|-----------------------------------------|------------------------------------|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tornado                                                                     | Enhanced Fujita (F before Feb 2007)     | 5, 1956 to 2025                    | F/EF2 to F/EF4 (median between F/EF2 and F/EF3); 4 with a recorded value | F4 tornado, 1956-04-03, 15.4 mi path length (records before 1996 may include the whole path; rating and listing come from the county where the tornado began), 400 yd wide, \$250,000 property; crops not recorded (1956 dollars) | Tornado, 1969-06-26, \$250,000 property; crops not recorded (1969 dollars) | No event record names a member place.                                                               | 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.                                                                                                                                                                                                                                                                                                                                                              |
| 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)           | 137, 1996 to 2026 (137 zone-level) |                                                                          | Heavy Snow, 2012-03-02, \$600,000 property; \$5,000,000 crops, reported for the zone (2012 dollars); NWS zone MIZ026 (GRAND TRAVERSE), 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.                                                                                                                                                                                                                                                                                                                                                                    |

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 6 Counted incidents 3

Federal disaster declarations for this county

| Declared   | Incident began | FEMA number | Type           | Title                                  | Mapped hazard                                                        | County Public Assistance<br><small>federal share obligated,<br/>nominal dollars</small> | Flags                                    | Notes                    |
|------------|----------------|-------------|----------------|----------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------|--------------------------|
| 2026-06-30 | 2026-04-10     | DR-4925-MI  | Major disaster | SEVERE STORMS, TORNADOES, AND FLOODING | Inland Flooding (primary); also designated: Tornado                  | \$85,657.30                                                                             | 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                                             | \$18,138,904.80                                                                         |                                          |                          |
| 2020-03-13 | 2020-01-20     | EM-3455-MI  | Emergency      | COVID-19                               | Non-natural, not counted                                             | none found                                                                              |                                          | same incident as DR-4494 |
| 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                                                                              |                                          |                          |
| 1978-01-27 | 1978-01-27     | EM-3057-MI  | Emergency      | BLIZZARDS & SNOWSTORMS                 | Winter Weather                                                       | none found                                                                              |                                          |                          |
| 1977-03-02 | 1977-03-02     | EM-3035-MI  | Emergency      | DROUGHT                                | Drought                                                              | 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<br><small>full period</small> | Since plan approval<br><small>records</small> | During plan review<br><small>records</small> | Last 5 years<br><small>records</small> | Declared incidents<br><small>distinct incidents</small> | Declared since approval<br><small>distinct incidents</small> | 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 |

| <b>Hazard</b>     | <b>Storm Events<br/>records</b><br><i>full period</i> | <b>Since plan<br/>approval</b><br><i>records</i> | <b>During plan<br/>review</b><br><i>records</i> | <b>Last 5<br/>years</b><br><i>records</i> | <b>Declared<br/>incidents</b><br><i>distinct incidents</i> | <b>Declared since<br/>approval</b><br><i>distinct incidents</i> | <b>Period</b>      | <b>Statement</b>                                                                                                  |
|-------------------|-------------------------------------------------------|--------------------------------------------------|-------------------------------------------------|-------------------------------------------|------------------------------------------------------------|-----------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------|
| 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         | 5                                                     | 2                                                | 0                                               | 2                                         | 0                                                          | 0                                                               | 1996 to 2026-06-30 | Includes 1 Frost/Freeze record, event types the NRI definition of this hazard leaves out.                         |
| Drought           | 1                                                     | 0                                                | 0                                               | 0                                         | 1                                                          | 0                                                               | 1996 to 2026-06-30 |                                                                                                                   |
| Earthquake        | 0                                                     | 0                                                | 0                                               | 0                                         | 0                                                          | 0                                                               |                    | No Storm Events record; local data required (e.g., USGS).                                                         |
| Hail              | 52                                                    | 11                                               | 1                                               | 12                                        | 0                                                          | 0                                                               | 1955 to 2026-06-30 |                                                                                                                   |
| Heat Wave         | 2                                                     | 0                                                | 0                                               | 0                                         | 0                                                          | 0                                                               | 1996 to 2026-06-30 |                                                                                                                   |
| 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         | 4                                                     | 0                                                | 0                                               | 0                                         | 0                                                          | 0                                                               | 1996 to 2026-06-30 |                                                                                                                   |
| Inland Flooding   | 20                                                    | 6                                                | 0                                               | 6                                         | 1                                                          | 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         | 7                                                     | 1                                                | 0                                               | 1                                         | 0                                                          | 0                                                               | 1996 to 2026-06-30 |                                                                                                                   |
| Strong Wind       | 101                                                   | 11                                               | 2                                               | 13                                        | 0                                                          | 0                                                               | 1955 to 2026-06-30 | Includes 8 High Wind records and 2 Strong Wind records, event types the NRI definition of this hazard leaves out. |
| Tornado           | 5                                                     | 1                                                | 0                                               | 1                                         | 1                                                          | 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    | 137                                                   | 13                                               | 3                                               | 16                                        | 1                                                          | 0                                                               | 1996 to 2026-06-30 |                                                                                                                   |

**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<br><i>nominal dollars</i>                                            | Direct<br>deaths,<br>injuries<br><i>indirect not<br/>counted</i> | Location                                                                                | Flags                                                                             | Why listed                                                                                       |
|------------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| 2026-01-22 | Extreme Cold/<br>Wind Chill |                                                                                                                                                        | damage not reported                                                         | 0, 0                                                             | NWS zone MIZ026 (GRAND TRAVERSE), zone-level: may include parts of neighboring counties | new since last plan; within last 5 years                                          | B1-c worst recorded: Cold/Wind Chill, Extreme Cold/Wind Chill                                    |
| 2021-12-16 | High Wind                   | 61 kt (70 mph) measured gust                                                                                                                           | \$50,000 property; \$0 crops, reported for the zone (2021 dollars)          | 0, 0                                                             | NWS zone MIZ026 (GRAND TRAVERSE), zone-level: may include parts of neighboring counties | during plan review, check whether your last plan included it; within last 5 years | B1-c worst recorded: High Wind and Strong Wind (outside NRI Strong Wind definition)              |
| 2012-10-06 | Flash Flood                 |                                                                                                                                                        | \$1,800,000 property; \$0 crops (2012 dollars)                              | 0, 0                                                             | GRAWN to MAYFIELD                                                                       |                                                                                   | B1-c worst recorded: Flash Flood, Flood, Lakeshore Flood                                         |
| 2012-04-27 | Frost/Freeze                |                                                                                                                                                        | \$0 property; \$15,000,000 crops, reported for the zone (2012 dollars)      | 0, 0                                                             | NWS zone MIZ026 (GRAND TRAVERSE), zone-level: may include parts of neighboring counties |                                                                                   | B1-c worst recorded: Frost/Freeze (outside NRI Cold Wave definition)                             |
| 2012-03-02 | Heavy Snow                  |                                                                                                                                                        | \$600,000 property; \$5,000,000 crops, reported for the zone (2012 dollars) | 0, 0                                                             | NWS zone MIZ026 (GRAND TRAVERSE), zone-level: may include parts of neighboring counties |                                                                                   | B1-c worst recorded: Winter Storm, Heavy Snow, Blizzard, Lake-Effect Snow, Winter Weather, Sleet |
| 2001-08-01 | Heat                        |                                                                                                                                                        | damage not reported                                                         | 0, 0                                                             | NWS zone MIZ026 (GRAND TRAVERSE), zone-level: may include parts of neighboring counties |                                                                                   | B1-c worst recorded: Excessive Heat, Heat                                                        |
| 2001-08-01 | Drought                     |                                                                                                                                                        | damage not reported                                                         | 0, 0                                                             | NWS zone MIZ026 (GRAND TRAVERSE), zone-level: may include parts of neighboring counties |                                                                                   | B1-c worst recorded: Drought                                                                     |
| 2000-09-01 | Lightning                   |                                                                                                                                                        | damage not reported                                                         | 1, 1                                                             | TRAVERSE CITY                                                                           |                                                                                   | deaths or injuries recorded                                                                      |
| 1989-10-14 | Thunderstorm Wind           | 50 kt (58 mph), measurement type not recorded                                                                                                          | damage not recorded (pre-1996 record)                                       | 0, 2                                                             | location not recorded                                                                   |                                                                                   | deaths or injuries recorded                                                                      |
| 1987-07-20 | Thunderstorm Wind           | 70 kt (81 mph), measurement type not recorded                                                                                                          | damage not recorded (pre-1996 record)                                       | 0, 0                                                             | location not recorded                                                                   |                                                                                   | B1-c worst recorded: Thunderstorm Wind                                                           |
| 1980-07-07 | Hail                        | 2 in                                                                                                                                                   | damage not recorded (pre-1996 record)                                       | 0, 0                                                             | location not recorded                                                                   |                                                                                   | B1-c worst recorded: Hail                                                                        |
| 1956-04-03 | Tornado                     | F4, 15.4 mi path length (records before 1996 may include the whole path; rating and listing come from the county where the tornado began), 400 yd wide | \$250,000 property; crops not recorded (1956 dollars)                       | 0, 0                                                             | location not recorded                                                                   |                                                                                   | B1-c worst recorded: Tornado                                                                     |

The full list is in the **XLSX** file, sheet "B1-d Storm Events history" (334 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<br>annualized<br>frequency<br>(modeled)<br><i>unit per row</i> | Unit                                    | In plain terms                                                                             | Descriptor | Descriptor<br>basis                                      | NRI events or days in its<br>record period (hail, wind<br>and tornado are area-<br>weighted, so can be<br>fractional) | NRI period                                 | Location   | Note                                                                                                                                                                                                                                                                                  |
|------------------|---------------------------------------------------------------------|-----------------------------------------|--------------------------------------------------------------------------------------------|------------|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Avalanche        |                                                                     | events per year                         |                                                                                            |            |                                                          |                                                                                                                       | 1994 to 2023<br>(30 years)                 | see B1-f   | Not Applicable in NRI for this county; no descriptor.                                                                                                                                                                                                                                 |
| Coastal Flooding | 0.0135                                                              | events per year at a location (modeled) | about 0.014 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        | 0.895                                                               | event-days per year                     | about 0.895 days per year                                                                  | Possible   | event-days in 2 of 30 years, 1996 to 2025 (6.67%)        | 17                                                                                                                    | 2005-11-12 to 2024-11-12 (19 years)        | countywide | Frost/Freeze records are not counted in this descriptor: they record crop freezes, not cold waves.                                                                                                                                                                                    |
| Drought          | 0                                                                   | event-days per year                     | none modeled                                                                               | Possible   | event-days in 1 of 30 years, 1996 to 2025 (3.33%)        | 0                                                                                                                     | 2000 to 2025 (25.25 years; D3 and D4 only) | countywide | NRI models no drought event-days here (2000 to 2025, 25.25 years; D3 and D4 only), but Storm Events has a record in 1 of 30 years. The descriptor comes from Storm Events, which records events NRI's definition leaves out, so the two use different thresholds; read them together. |
| Earthquake       | 0.000329                                                            | annual probability at a location        | chance a given location in the county has at least minor-damage shaking in a year: 0.0329% |            |                                                          | 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             | 0.786                                                               | events per year                         | about 0.79 per year                                                                        | Likely     | FEMA annualized frequency (modeled)                      | 31.3 (modeled)                                                                                                        | 1986 to 2023 (38 years)                    | countywide |                                                                                                                                                                                                                                                                                       |
| Heat Wave        | 0.737                                                               | event-days per year                     | about 0.737 days per year                                                                  | Possible   | event-days in 2 of 30 years, 1996 to 2025 (6.67%)        | 12                                                                                                                    | 2005-11-12 to 2024-11-12 (19 years)        | countywide |                                                                                                                                                                                                                                                                                       |

| Hazard            | FEMA<br>annualized<br>frequency<br>(modeled)<br><i>unit per row</i> | Unit                                                                              | In plain terms                                                  | Descriptor    | Descriptor<br>basis                                      | NRI events or days in its<br>record period (hail, wind<br>and tornado are area-<br>weighted, so can be<br>fractional) | NRI period                                | Location   | Note                                                                                                                                                                                |
|-------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------|---------------|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hurricane         | 0.01                                                                | events per year                                                                   | about 1 in 100 years                                            | Possible      | FEMA<br>annualized<br>frequency<br>(modeled)             | 0                                                                                                                     | 1851 to 2024<br>(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         | 0.0742                                                              | event-days per year                                                               | about 0.0742 days per year                                      | Likely        | event-days in 4 of 30 years, 1996 to 2025 (13.3%)        | 4                                                                                                                     | 1946-12-31 to 2014-02-12 (67 years)       | countywide |                                                                                                                                                                                     |
| Inland Flooding   | 0.607                                                               | event-days per year                                                               | about 0.607 days per year                                       | Likely        | event-days in 10 of 30 years, 1996 to 2025 (33.3%)       | 17                                                                                                                    | 1996 to 2023 (28 years)                   | see B1-f   |                                                                                                                                                                                     |
| Landslide         | 0.194                                                               | events per year (modeled)                                                         | about 1 in 5 years                                              | Likely        | FEMA<br>annualized<br>frequency<br>(modeled)             | not shown                                                                                                             | modeled                                   | see B1-f   |                                                                                                                                                                                     |
| Lightning         | 25.8                                                                | days per year with a strike                                                       | about 25.8 days per year                                        | Highly likely | FEMA<br>annualized<br>frequency<br>(modeled)             | not shown                                                                                                             | 1995 to 2023 (29 years; CONUS)            | countywide |                                                                                                                                                                                     |
| Strong Wind       | 0.877                                                               | events per year                                                                   | about 0.88 per year                                             | Likely        | FEMA<br>annualized<br>frequency<br>(modeled)             | 29                                                                                                                    | 1986 to 2023 (38 years)                   | countywide |                                                                                                                                                                                     |
| Tornado           | 0.0737                                                              | events per year                                                                   | about 1 in 14 years                                             | Possible      | FEMA<br>annualized<br>frequency<br>(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          | 0.0000832                                                           | annual probability at a location                                                  | chance a given location in the county burns in a year: 0.00832% |               | 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    | 30.8                                                                | event-days per year                                                               | about 30.8 days per year                                        | Highly likely | event-days in 29 of 30 years, 1996 to 2025 (96.7%)       | 586                                                                                                                   | 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](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](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](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](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<br><i>county-coded records</i> | Years in period | Events per year<br><i>events / years</i> |
|-----------------------------------------|---------------------------|--------------|---------------------------------------|-----------------|------------------------------------------|
| Hail                                    | 1.00-1.99 in              | 1996 to 2025 | 25                                    | 30              | 0.833                                    |
| Hail                                    | 2.00 in+                  | 1996 to 2025 | 0                                     | 30              | 0                                        |
| Strong Wind (Thunderstorm Wind records) | 50-64 kt                  | 1996 to 2025 | 59                                    | 30              | 1.97                                     |
| Strong Wind (Thunderstorm Wind records) | 65 kt+                    | 1996 to 2025 | 3                                     | 30              | 0.1                                      |
| Strong Wind (Thunderstorm Wind records) | unmeasured or below 50 kt | 1996 to 2025 | 2                                     | 30              | 0.0667                                   |
| Tornado                                 | EF0-1                     | 1996 to 2025 | 0                                     | 30              | 0                                        |
| Tornado                                 | EF2-3                     | 1996 to 2025 | 0                                     | 30              | 0                                        |

| Hazard  | Band          | Years        | Events<br><i>county-coded records</i> | Years in period | Events per year<br><i>events / years</i> |
|---------|---------------|--------------|---------------------------------------|-----------------|------------------------------------------|
| Tornado | EF4-5         | 1996 to 2025 | 0                                     | 30              | 0                                        |
| Tornado | unrated (EFU) | 1996 to 2025 | 1                                     | 30              | 0.0333                                   |

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<br><i>rated of<br/>all</i> | Risk score<br>min<br><i>NRI score, 0<br/>to 100</i> | Median | Max  | Tracts by rating                                               | Note                                                                                                                                                                                                                                 |
|---------------------|-----------------------------------|-----------------------------------------------------|--------|------|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Avalanche           | 0 of 23                           |                                                     |        |      | Not Applicable 23                                              |                                                                                                                                                                                                                                      |
| Coastal<br>Flooding | 9 of 23                           | 73.3                                                | 77.1   | 81.8 | Relatively Low 5, Very Low 4, No<br>Rating 14                  |                                                                                                                                                                                                                                      |
| Cold Wave           | 23 of 23                          | 84.0                                                | 97.5   | 99.2 | Very High 16, Relatively High 7                                | 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 23                           |                                                     |        |      | No Rating 23                                                   | 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          | 23 of 23                          | 0.3                                                 | 4.2    | 13.7 | Very Low 23                                                    |                                                                                                                                                                                                                                      |
| Hail                | 23 of 23                          | 40.3                                                | 61.4   | 79.4 | Relatively Moderate 5, Relatively<br>Low 18                    | 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           | 23 of 23                          | 3.7                                                 | 10.5   | 16.1 | Very Low 23                                                    | 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           | 23 of 23                          | 17.9                                                | 24.7   | 29.9 | Very Low 23                                                    |                                                                                                                                                                                                                                      |
| Ice Storm           | 23 of 23                          | 0.8                                                 | 2.1    | 19.1 | Very Low 23                                                    | 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<br>Flooding  | 23 of 23                          | 3.1                                                 | 31.9   | 66.9 | Relatively Moderate 4, Relatively<br>Low 14, Very Low 5        |                                                                                                                                                                                                                                      |
| Landslide           | 23 of 23                          | 52.7                                                | 80.1   | 96.2 | Relatively Moderate 1, Relatively<br>Low 9, Very Low 13        |                                                                                                                                                                                                                                      |
| Lightning           | 23 of 23                          | 38.8                                                | 71.9   | 82.3 | Relatively High 6, Relatively<br>Moderate 13, Relatively Low 4 | 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         | 23 of 23                          | 35.9                                                | 69.3   | 84.4 | Relatively High 3, Relatively<br>Moderate 15, Relatively Low 5 | 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. |

| Hazard            | Tracts<br>rated of<br>all | Risk score<br>min<br>NRI score, 0<br>to 100 | Median | Max  | Tracts by rating                                     | Note                                                                                                                                                                                                                                 |
|-------------------|---------------------------|---------------------------------------------|--------|------|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tornado           | 23 of 23                  | 28.1                                        | 45.4   | 56.8 | Relatively Moderate 2, Relatively Low 20, Very Low 1 |                                                                                                                                                                                                                                      |
| Tsunami           | 0 of 23                   |                                             |        |      | Insufficient Data 23                                 |                                                                                                                                                                                                                                      |
| Volcanic Activity | 0 of 23                   |                                             |        |      | Not Applicable 23                                    |                                                                                                                                                                                                                                      |
| Wildfire          | 23 of 23                  | 30.2                                        | 58.8   | 75.8 | Relatively Low 4, Very Low 19                        |                                                                                                                                                                                                                                      |
| Winter Weather    | 23 of 23                  | 93.5                                        | 99.0   | 99.6 | Very High 19, Relatively High 4                      | 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](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](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<br><i>FMA RL and SRL (44 CFR 77.2); repeat-flood, any definition</i> | Public Assistance matched<br><i>federal share obligated, nominal dollars</i> | Event records naming this place<br><i>all years; since the member's plan</i> | Notes                                                                               |
|---------------------------|----------|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Grand Traverse County     | County   | Approved, expires 2027-09-27                                             | FMA RL 0, SRL 0; any 0                                                               | \$22,286.68                                                                  | 0; 0                                                                         |                                                                                     |
| Fife Lake village         | Village  | Approved, expires 2027-09-27                                             | FMA RL 0, SRL 0; any 0                                                               | none found                                                                   | 7; 1                                                                         |                                                                                     |
| Kingsley village          | Village  | Approved, expires 2027-09-27                                             | FMA RL 0, SRL 0; any 0                                                               | none found                                                                   | 9; 2                                                                         |                                                                                     |
| Traverse City city        | City     | Approved, expires 2027-09-27                                             | FMA RL 0, SRL 0; any 2                                                               | \$19,425.61                                                                  | 50; 9                                                                        | Includes \$19,425.61 for declarations not counted as hazard incidents (DR-4494-MI). |
| Acme township             | Township | Approved, expires 2027-09-27                                             | FMA RL 0, SRL 0; any 0                                                               | none found                                                                   | 5; 2                                                                         |                                                                                     |
| Blair township            | Township | Approved, expires 2027-09-27                                             | FMA RL 0, SRL 0; any 2                                                               | none found                                                                   | 0; 0                                                                         |                                                                                     |
| East Bay township         | Township | Approved, expires 2027-09-27                                             | FMA RL 1, SRL 0; any 1                                                               | none found                                                                   | 0; 0                                                                         |                                                                                     |
| Fife Lake township        | Township | Plan 107334 approved 2022-09-28, pending adoption here; not yet eligible | FMA RL 0, SRL 0; any 0                                                               | none found                                                                   | 7; no approved plan                                                          |                                                                                     |
| Garfield charter township | Township | Approved, expires 2027-09-27                                             | FMA RL 0, SRL 0; any 1                                                               | \$63,370.62                                                                  | 0; 0                                                                         |                                                                                     |

| Member              | Type     | Plan status                                                              | Repetitive loss<br><i>FMA RL and SRL (44 CFR 77.2); repeat-flood, any definition</i> | Public Assistance matched<br><i>federal share obligated, nominal dollars</i> | Event records naming this place<br><i>all years; since the member's plan</i> | Notes                                                                              |
|---------------------|----------|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Grant township      | Township | Approved, expires 2027-09-27                                             | FMA RL 0, SRL 0; any 0                                                               | none found                                                                   | 0; 0                                                                         |                                                                                    |
| Green Lake township | Township | Approved, expires 2027-09-27                                             | FMA RL 0, SRL 0; any 0                                                               | none found                                                                   | 0; 0                                                                         |                                                                                    |
| Long Lake township  | Township | Approved, expires 2027-09-27                                             | FMA RL 0, SRL 0; any 0                                                               | none found                                                                   | 0; 0                                                                         |                                                                                    |
| Mayfield township   | Township | Approved, expires 2027-09-27                                             | FMA RL 0, SRL 0; any 0                                                               | none found                                                                   | 3; 0                                                                         |                                                                                    |
| Paradise township   | Township | Approved, expires 2027-09-27                                             | FMA RL 0, SRL 0; any 0                                                               | none found                                                                   | 0; 0                                                                         |                                                                                    |
| Peninsula township  | Township | Approved, expires 2027-09-27                                             | FMA RL 0, SRL 0; any 0                                                               | \$4,126.42                                                                   | 0; 0                                                                         | Includes \$4,126.42 for declarations not counted as hazard incidents (DR-4494-MI). |
| Union township      | Township | Plan 107334 approved 2022-09-28, pending adoption here; not yet eligible | FMA RL 0, SRL 0; any 0                                                               | none found                                                                   | 0; no approved plan                                                          |                                                                                    |
| Whitewater township | Township | Approved, expires 2027-09-27                                             | FMA RL 0, SRL 0; any 0                                                               | none found                                                                   | 0; 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<br><i>modeled dollars</i> | Agriculture exposure<br><i>modeled dollars</i> | Population exposed<br><i>people</i> | EAL buildings<br><i>modeled dollars per year</i> | EAL agriculture<br><i>modeled dollars per year</i> | EAL population equivalence<br><i>statistical value of life and injury, \$13.7M per life, not property damage</i> | EAL as % of exposure<br><i>buildings; agriculture where noted</i> | Storm Events damage since 2022-09-28<br><i>county-coded records, property plus crops, nominal dollars</i> | Zone-level damage since plan<br><i>property plus crops, reported for the zone</i> | Public Assistance since plan<br><i>nominal dollars; see note</i> | Note                                                                                                                                                                                                 |
|-------------------|---------------------------------------------|------------------------------------------------|-------------------------------------|--------------------------------------------------|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Avalanche         |                                             |                                                |                                     |                                                  |                                                    |                                                                                                                  |                                                                   |                                                                                                           |                                                                                   |                                                                  | Not Applicable in NRI for this county                                                                                                                                                                |
| Coastal Flooding  | \$1,871,805,033                             |                                                | 863                                 | \$7,798                                          |                                                    | \$585                                                                                                            | 0.000417%                                                         |                                                                                                           |                                                                                   |                                                                  |                                                                                                                                                                                                      |
| Cold Wave         | \$21,634,589,900                            | \$43,914,545                                   | 95,178                              | \$53                                             | \$755,648                                          | \$15,040,973                                                                                                     | under 0.0001%                                                     |                                                                                                           |                                                                                   |                                                                  |                                                                                                                                                                                                      |
| Drought           |                                             | \$0                                            |                                     |                                                  | \$0                                                |                                                                                                                  |                                                                   |                                                                                                           |                                                                                   |                                                                  | agriculture exposure is 0 in NRI                                                                                                                                                                     |
| Earthquake        | \$37,791,913,882                            |                                                | 95,238                              | \$15,573                                         |                                                    | \$4,706                                                                                                          | under 0.0001%                                                     |                                                                                                           |                                                                                   |                                                                  |                                                                                                                                                                                                      |
| Hail              | \$21,634,589,900                            | \$43,914,545                                   | 95,178                              | \$264,145                                        | \$38,044                                           | \$70,320                                                                                                         | 0.00122%                                                          | \$6,000                                                                                                   |                                                                                   |                                                                  |                                                                                                                                                                                                      |
| Heat Wave         | \$21,634,589,900                            | \$43,914,545                                   | 95,178                              | \$1,233                                          | under \$1                                          | \$202,458                                                                                                        | under 0.0001%                                                     |                                                                                                           |                                                                                   |                                                                  |                                                                                                                                                                                                      |
| Hurricane         | \$21,634,589,900                            | \$43,914,545                                   | 95,178                              | \$5,560                                          | \$676                                              | \$2                                                                                                              | under 0.0001%                                                     |                                                                                                           |                                                                                   |                                                                  |                                                                                                                                                                                                      |
| Ice Storm         | \$21,634,589,900                            |                                                | 95,178                              | \$3,823                                          |                                                    | \$2,136                                                                                                          | under 0.0001%                                                     |                                                                                                           |                                                                                   |                                                                  |                                                                                                                                                                                                      |
| Inland Flooding   | \$21,577,926,562                            | \$142,142                                      | 636                                 | \$10,480,695                                     | \$1,184                                            | \$611                                                                                                            | n/a (see note)                                                    | \$0                                                                                                       |                                                                                   | \$85,657.30                                                      | 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         | \$620,316,483                               |                                                | 2,814                               | \$1,817                                          |                                                    | \$14,520                                                                                                         | 0.000293%                                                         |                                                                                                           |                                                                                   |                                                                  |                                                                                                                                                                                                      |
| Lightning         | \$21,634,589,900                            |                                                | 95,178                              | \$11,345                                         |                                                    | \$538,214                                                                                                        | under 0.0001%                                                     | \$12,000                                                                                                  |                                                                                   |                                                                  |                                                                                                                                                                                                      |
| Strong Wind       | \$21,634,589,900                            | \$43,914,545                                   | 95,178                              | \$540,612                                        | \$1,405                                            | \$320,313                                                                                                        | 0.0025%                                                           | \$40,000                                                                                                  | \$2,000                                                                           |                                                                  | Storm Events damage since the plan includes 1 zone-level Strong Wind record (\$2,000), an event type the NRI definition of this hazard leaves out.                                                   |
| Tornado           | \$21,634,589,900                            | \$43,914,545                                   | 95,178                              | \$439,119                                        | \$226                                              | \$767,390                                                                                                        | 0.00203%                                                          |                                                                                                           |                                                                                   | \$85,657.30                                                      |                                                                                                                                                                                                      |
| Tsunami           |                                             |                                                |                                     |                                                  |                                                    |                                                                                                                  |                                                                   |                                                                                                           |                                                                                   |                                                                  | NRI publishes no building exposure for this county                                                                                                                                                   |
| Volcanic Activity |                                             |                                                |                                     |                                                  |                                                    |                                                                                                                  |                                                                   |                                                                                                           |                                                                                   |                                                                  | Not Applicable in NRI for this county                                                                                                                                                                |
| Wildfire          | \$2,742,471,435                             | \$8,851,571                                    | 20,831                              | \$15,859                                         | \$6                                                | \$2,749                                                                                                          | 0.000578%                                                         |                                                                                                           |                                                                                   |                                                                  |                                                                                                                                                                                                      |
| Winter Weather    | \$21,634,589,900                            | \$43,914,545                                   | 95,178                              | \$18,295                                         | \$446                                              | \$1,588,855                                                                                                      | under 0.0001%                                                     |                                                                                                           | \$0                                                                               |                                                                  |                                                                                                                                                                                                      |

Totals since 2022-09-28 (Storm Events through 2026-06-30): 28 county-coded records, 22 with a damage value recorded (including \$0), \$58,000; 17 zone-level records, 5 with a damage value recorded (including \$0), \$2,000 reported for the zone; Public Assistance on counted declarations \$85,657.30 (1 declaration, 1 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](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](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                                                                                                                                                                    | 95,178           |
| Building value (total, not at risk)                                                                                                                                           | \$21,634,589,900 |
| Agriculture value (total, not at risk)                                                                                                                                        | \$43,914,545     |
| NRI risk rating (all hazards)                                                                                                                                                 | Relatively Low   |
| Expected annual loss, buildings and agriculture, all hazards                                                                                                                  | \$12,603,562     |
| 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) | \$18,553,833     |
| Social vulnerability rating                                                                                                                                                   | Very Low         |
| 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](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](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) | 1          | 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.

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)

**Repeat-flood properties: county and state-level rows**

| Scope                                                | RL, FMA<br><i>properties</i> | SRL, FMA<br><i>properties</i> | RL, NFIP<br><i>properties</i> | SRL, NFIP<br><i>properties</i> | Any category<br><i>properties</i> | Mitigated<br><i>properties</i> | Currently insured<br><i>properties</i> |
|------------------------------------------------------|------------------------------|-------------------------------|-------------------------------|--------------------------------|-----------------------------------|--------------------------------|----------------------------------------|
| County total                                         | 1                            | 0                             | 5                             | 0                              | 6                                 | 0                              | 4                                      |
| TRAVERSE CITY, CITY OF                               | 0                            | 0                             | 2                             | 0                              | 2                                 | 0                              | 2                                      |
| EAST BAY, CHARTER TOWNSHIP OF                        | 1                            | 0                             | 0                             | 0                              | 1                                 | 0                              | 1                                      |
| GARFIELD, CHARTER TOWNSHIP OF                        | 0                            | 0                             | 1                             | 0                              | 1                                 | 0                              | 0                                      |
| BLAIR, TOWNSHIP OF                                   | 0                            | 0                             | 2                             | 0                              | 2                                 | 0                              | 1                                      |
| State level, not in this county: county not reported | 0                            | 0                             | 4                             | 0                              | 4                                 | 0                              | 0                                      |

**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)**Repeat-flood properties by plan member (NFIP community)**

| Member                    | NFIP community ID | RL, FMA<br><i>properties</i> | SRL, FMA<br><i>properties</i> | RL, NFIP<br><i>properties</i> | SRL, NFIP<br><i>properties</i> | Any category<br><i>properties</i> | Mitigated<br><i>properties</i> | Currently insured<br><i>properties</i> | Note |
|---------------------------|-------------------|------------------------------|-------------------------------|-------------------------------|--------------------------------|-----------------------------------|--------------------------------|----------------------------------------|------|
| Grand Traverse County     | 261880            | 0                            | 0                             | 0                             | 0                              | 0                                 | 0                              | 0                                      |      |
| Fife Lake village         | 260406            | 0                            | 0                             | 0                             | 0                              | 0                                 | 0                              | 0                                      |      |
| Kingsley village          | 261878            | 0                            | 0                             | 0                             | 0                              | 0                                 | 0                              | 0                                      |      |
| Traverse City city        | 260082            | 0                            | 0                             | 2                             | 0                              | 2                                 | 0                              | 2                                      |      |
| Acme township             | 260749            | 0                            | 0                             | 0                             | 0                              | 0                                 | 0                              | 0                                      |      |
| Blair township            | 260780            | 0                            | 0                             | 2                             | 0                              | 2                                 | 0                              | 1                                      |      |
| East Bay township         | 260746            | 1                            | 0                             | 0                             | 0                              | 1                                 | 0                              | 1                                      |      |
| Fife Lake township        | 260405            | 0                            | 0                             | 0                             | 0                              | 0                                 | 0                              | 0                                      |      |
| Garfield charter township | 260753            | 0                            | 0                             | 1                             | 0                              | 1                                 | 0                              | 0                                      |      |
| Grant township            | 261802            | 0                            | 0                             | 0                             | 0                              | 0                                 | 0                              | 0                                      |      |
| Green Lake township       | 261877            | 0                            | 0                             | 0                             | 0                              | 0                                 | 0                              | 0                                      |      |
| Long Lake township        | 260782            | 0                            | 0                             | 0                             | 0                              | 0                                 | 0                              | 0                                      |      |
| Mayfield township         | 261879            | 0                            | 0                             | 0                             | 0                              | 0                                 | 0                              | 0                                      |      |
| Paradise township         | 260830            | 0                            | 0                             | 0                             | 0                              | 0                                 | 0                              | 0                                      |      |
| Peninsula township        | 260747            | 0                            | 0                             | 0                             | 0                              | 0                                 | 0                              | 0                                      |      |
| Union township            | 260805            | 0                            | 0                             | 0                             | 0                              | 0                                 | 0                              | 0                                      |      |
| Whitewater township       | 260794            | 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<br><i>properties</i> | SRL, FMA<br><i>properties</i> | RL, NFIP<br><i>properties</i> | SRL, NFIP<br><i>properties</i> | Any category<br><i>properties</i> | Mitigated<br><i>properties</i> | Currently insured<br><i>properties</i> |
|---------------------------|------------------------------|-------------------------------|-------------------------------|--------------------------------|-----------------------------------|--------------------------------|----------------------------------------|
| single-family residential | 1                            | 0                             | 4                             | 0                              | 5                                 | 0                              | 4                                      |
| 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                             | 1                             | 0                              | 1                                 | 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 fmaRI field description omits the Increased Cost of Compliance clause of 44 CFR 77.2(i). NFIP repetitive loss (FEMA insurance definition, nfipRI) 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 1 property is 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](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](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_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_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_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_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_Gazetteer/2024_Gaz_elsd_national.zip)

gazetteer/2024\_Gazetteer/2024\_Gaz\_scsd\_national.zip, [https://www2.census.gov/geo/docs/reference/codes2020/national\\_place\\_by\\_county2020.txt](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](https://www2.census.gov/geo/docs/reference/ct_change/ct_cou_to_cousub_crosswalk.xlsx)

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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\_26055. Preview: automated baseline.