

Leelanau County, MI

Risk-assessment baseline packet

County FIPS: 26089 Release: 2026-10 Data as of: 2026-09-30 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.

Summary

Plan status as of 2026-09-30: Approved, expires 2029-09-23. Plan: Leelanau County HMP Update (FEMA plan 109435), approved 2024-09-24.
Since the plan was approved on 2024-09-24: no new federal declaration.
NOAA Storm Events records since that date: 10 records (data through 2026-06-30).
Highest expected annual loss (FEMA National Risk Index, modeled total; see B1-a): Cold Wave (\$9,038,884 a year), Inland Flooding (\$5,250,366) and Winter Weather (\$418,660).
Repetitive-loss flood properties now: FMA RL 0, SRL 0 (44 CFR 77.2); any definition: 0.
The tables that follow are organized by the items of FEMA's Local Mitigation Plan Review Tool, Element B (B1-a to B2-c); each heading says which item its tables support.

TERMS USED

EAL: expected annual loss: FEMA's modeled average yearly loss from a hazard.
NRI: FEMA's National Risk Index (version 1.20, December 2025).
NFIP: National Flood Insurance Program.
RL, SRL: repetitive loss and severe repetitive loss: flood-insured properties with repeated claims (definitions in B2-c).
FMA, HMGP: Flood Mitigation Assistance and Hazard Mitigation Grant Program, FEMA mitigation grants.
PA: FEMA Public Assistance: disaster aid to governments and some nonprofits.
Zone-level: NOAA logged the event for a National Weather Service forecast zone, which may include parts of neighboring counties.
County-coded: NOAA logged the event to this county.
FIPS: the federal code for a place; 26089 is this area.
D0 to D4: U.S. Drought Monitor categories, from abnormally dry (D0) to exceptional drought (D4).
F/EF, EFU: Fujita and Enhanced Fujita tornado ratings; EFU is an unrated tornado.
kt, CONUS: knots (1 kt is about 1.15 mph); the contiguous United States.
CFR: Code of Federal Regulations.
A4-a, E1-a: other items of FEMA's Local Mitigation Plan Review Tool (sources, and changes since the last plan).
Dollars: nominal (as reported, labeled with the year), not adjusted for inflation.

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Plan clock

Status:	Approved, expires 2029-09-23	Plan:	Leelanau County HMP Update (FEMA plan 109435)
Approved:	2024-09-24	Days to expiry:	1,089

What changed since your last plan (approved 2024-09-24)

New federal declarations:	none	Storm Events records since approval:	10 records (data through 2026-06-30)
Repetitive loss now:	FMA RL 0, SRL 0 (44 CFR 77.2); any definition: 0	Repeat-flood change:	this release sets the baseline count.

Sources: 1, 2, 4, 6 (numbered list at the end)

Plan status for every jurisdiction listed in this county: 15 rows, in the section "Plan clock: Plan status for every jurisdiction listed in this county" on the following pages.

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

Plan clock

Plan status for every jurisdiction listed in this county

Source: 1

Jurisdiction	Type	Status	Plan	Approved	Expires	Days to expiry negative = days since expiry	Notes
Leelanau County	County	Approved, expires 2029-09-23	Leelanau County HMP Update (FEMA plan 109435)	2024-09-24	2029-09-23	1,089	
Empire village	Village	Approved, expires 2029-09-23	Leelanau County HMP Update (FEMA plan 109435)	2024-09-24	2029-09-23	1,089	
Northport village	Village	Approved, expires 2029-09-23	Leelanau County HMP Update (FEMA plan 109435)	2024-09-24	2029-09-23	1,089	this jurisdiction approved 2024-10-10
Suttons Bay village	Village	Approved, expires 2029-09-23	Leelanau County HMP Update (FEMA plan 109435)	2024-09-24	2029-09-23	1,089	
Bingham township	Township	Approved, expires 2029-09-23	Leelanau County HMP Update (FEMA plan 109435)	2024-09-24	2029-09-23	1,089	
Centerville township	Township	Approved, expires 2029-09-23	Leelanau County HMP Update (FEMA plan 109435)	2024-09-24	2029-09-23	1,089	
Cleveland township	Township	Approved, expires 2029-09-23	Leelanau County HMP Update (FEMA plan 109435)	2024-09-24	2029-09-23	1,089	
Elmwood charter township	Township	Approved, expires 2029-09-23	Leelanau County HMP Update (FEMA plan 109435)	2024-09-24	2029-09-23	1,089	
Empire township	Township	Approved, expires 2029-09-23	Leelanau County HMP Update (FEMA plan 109435)	2024-09-24	2029-09-23	1,089	
Glen Arbor township	Township	Approved, expires 2029-09-23	Leelanau County HMP Update (FEMA plan 109435)	2024-09-24	2029-09-23	1,089	
Kasson township	Township	Approved, expires 2029-09-23	Leelanau County HMP Update (FEMA plan 109435)	2024-09-24	2029-09-23	1,089	this jurisdiction approved 2024-10-10
Leelanau township	Township	Approved, expires 2029-09-23	Leelanau County HMP Update (FEMA plan 109435)	2024-09-24	2029-09-23	1,089	this jurisdiction approved 2024-10-10
Leland township	Township	Approved, expires 2029-09-23	Leelanau County HMP Update (FEMA plan 109435)	2024-09-24	2029-09-23	1,089	
Solon township	Township	Approved, expires 2029-09-23	Leelanau County HMP Update (FEMA plan 109435)	2024-09-24	2029-09-23	1,089	this jurisdiction approved 2024-10-10
Suttons Bay township	Township	Approved, expires 2029-09-23	Leelanau County HMP Update (FEMA plan 109435)	2024-09-24	2029-09-23	1,089	

Supports FEMA checklist item B1-a: hazard identification

Hazards NRI does not cover (local data needed)

- 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)

Sources: 5, 6

Rank by EAL	Hazard	NRI risk rating	EAL rating	EAL buildings <i>modeled dollars per year</i>	EAL agriculture <i>modeled dollars per year</i>	Cost of expected deaths and injuries <i>FEMA's dollar value per year, not property damage</i>	EAL total (see note) <i>modeled dollars per year</i>	Storm Events records, 1996 to 2026-06-30 <i>count</i>	Storm Events coverage note
1	Cold Wave	Relatively High	Relatively High	\$175	\$1,889,111	\$7,149,598	\$9,038,884	4	Includes 1 Frost/Freeze record (outside NRI's Cold Wave definition; counted in this table and in B1-d, not in the B1-e descriptor).
2	Inland Flooding	Relatively Low	Relatively Low	\$5,249,927	\$30	\$409	\$5,250,366	8	
3	Winter Weather	Relatively High	Relatively High	\$2,146	\$621	\$415,893	\$418,660	142	
4	Strong Wind	Relatively Low	Relatively Low	\$203,473	\$1,105	\$38,815	\$243,393	59	Includes 13 High Wind and 3 Strong Wind records (NOAA non-thunderstorm wind types, outside NRI's Strong Wind definition).
5	Tornado	Very Low	Very Low	\$151,412	\$153	\$70,568	\$222,133	1	
6	Hail	Relatively Low	Relatively Low	\$99,337	\$64,348	\$12,185	\$175,870	37	
7	Lightning	Relatively Low	Relatively Low	\$5,541	n/a	\$108,784	\$114,325	2	
8	Heat Wave	Very Low	Very Low	\$477	under \$1	\$47,316	\$47,793	2	
9	Landslide	Relatively Low	Relatively Low	\$1,759	n/a	\$12,988	\$14,746	0	No recorded events in Storm Events since 1996 (data through 2026-06-30).
10	Coastal Flooding	Very Low	Very Low	\$9,666	n/a	\$463	\$10,129	0	No recorded events in Storm Events since 1996 (data through 2026-06-30).
11	Wildfire	Very Low	Very Low	\$4,745	\$4	\$344	\$5,093	0	No recorded events in Storm Events since 1996 (data through 2026-06-30).
12	Earthquake	Very Low	Very Low	\$3,042	n/a	\$643	\$3,684		Storm Events does not record earthquakes.

Rank by EAL	Hazard	NRI risk rating	EAL rating	EAL buildings <i>modeled dollars per year</i>	EAL agriculture <i>modeled dollars per year</i>	Cost of expected deaths and injuries <i>FEMA's dollar value per year, not property damage</i>	EAL total (see note) <i>modeled dollars per year</i>	Storm Events records, 1996 to 2026-06-30 <i>count</i>	Storm Events coverage note
13	Hurricane	Very Low	Very Low	\$1,826	\$738	under \$1	\$2,564	0	No recorded events in Storm Events since 1996 (data through 2026-06-30).
14	Ice Storm	Very Low	Very Low	\$920	n/a	\$1,518	\$2,438	4	
15	Drought	No Rating	No Expected Annual Losses	n/a	\$0	n/a	\$0	1	
	Tsunami	Insufficient Data	Insufficient Data	n/a	n/a	n/a	n/a	0	No recorded events in Storm Events since 1996 (data through 2026-06-30).

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

NRI risk rating combines expected annual loss with social vulnerability and community resilience; EAL rating rates expected annual loss alone. Both compare this county with all U.S. counties.

Local data needed: state and local landslide, wildfire and tsunami records (Storm Events records these hazards only in part).

Not applicable to this county per NRI, with no federal declaration and no Storm Events record since 1996: avalanche and volcanic activity. That is the evidence for leaving them out of the plan.

The state hazard mitigation plan also lists hazards for this county; FEMA asks the plan to explain any hazard it leaves out.

Supports FEMA checklist item B1-b: hazard location

Affects the whole county (national data give no location within it): Cold Wave, Drought, Hail, Heat Wave, Ice Storm, Lightning, Strong Wind and Winter Weather.

Coastal Flooding and Inland Flooding: The FEMA Flood Insurance Rate Map (FIRM) is the required location source for flooding. See the FEMA Flood Map Service Center (<https://msc.fema.gov>) for this county.

Hazards that vary within the county: highest-rated census tracts

Source: 5

Hazard	Highest-rated census tracts <i>NRI risk rating, score 0 to 100</i>
Earthquake	tract 9704 (Very Low, 4.6); tract 9703 (Very Low, 4.0); tract 9706.01 (Very Low, 3.9)
Hurricane	tract 9701 (Very Low, 28.5); tract 9703 (Very Low, 28.3); tract 9702.01 (Very Low, 27.5)
Landslide	tract 9703 (Relatively Moderate, 95.6); tract 9705.02 (Relatively Low, 95.4); tract 9705.01 (Relatively Low, 94.8)
Tornado	tract 9704 (Relatively Low, 39.5); tract 9703 (Relatively Low, 38.4); tract 9706.01 (Relatively Low, 37.2)
Tsunami	no tract has a National Risk Index rating for this hazard
Wildfire	tract 9704 (Relatively Low, 69.9); tract 9701 (Very Low, 63.6); tract 9706.01 (Very Low, 62.5)

Up to 3 census tracts per hazard, highest National Risk Index rating first, then highest score; a tract number is the Census tract number (for example 9704 is Census Tract 9704). FEMA's Resilience Analysis and Planning Tool maps the National Risk Index for every tract: <https://www.fema.gov/emergency-managers/practitioners/resilience-analysis-and-planning-tool>

Supports FEMA checklist item B1-c: hazard extent

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

Sources: 6, 7

Hazard	Scale	Records <i>count and years</i>	Observed range	Worst recorded event	Most damaging (when different)	How it applies to jurisdictions	Note
Coastal Flood, Storm Surge/ Tide	none in data (flood depth: FIRM)	0					Flood depth: see the FEMA Flood Insurance Rate Map.
Cold/Wind Chill, Extreme Cold/Wind Chill	wind chill	3 records, 2007 to 2026 (3 zone-level)	1 day to 3 days (median 2 days); 3 with a recorded value	3 consecutive days, 2026-01-22 to 2026-01-24, zone-level		Countywide (zone-level records).	Wind chill: in event narratives only (local data needed).
Frost/Freeze (outside NRI's Cold Wave definition)	crop damage	1 record, 2012 (1 zone-level)		Frost/Freeze, 2012-04-27, \$37,500,000 crop damage (2012 dollars); NWS zone MIZ020		Countywide (zone-level records).	Temperature: in event narratives only (local data needed).
Drought	U.S. Drought Monitor scale (D0 to D4)	1 record, 2001 (1 zone-level)	9 days; 1 with a recorded value	9 days, 2001-08-01 to 2001-08-09, zone-level		Countywide (zone-level records).	Storm Events enters a drought at D2 or worse east of the Rockies and D3 or worse from the Rockies west (NWS Instruction 10-1605); NRI drought counts D3 and D4 only.
Earthquake	Modified Mercalli (local data)	0					Storm Events does not record earthquakes; the USGS earthquake catalog is the source.
Hail	hail size (inches)	37 records, 1998 to 2025	0.75 in to 3 in (median 1 in); 37 with a recorded value	3 in hail, 2016-07-08		Event records naming jurisdictions in the plan: Suttons Bay township (8 records), Suttons Bay village (8 records), Leland township (7 records), Empire township (3 records), Empire village (3 records), Northport village (3 records), Bingham township (1 record), Glen Arbor township (1 record).	
Excessive Heat, Heat	heat index (in event narratives)	2 records, 2001 to 2018 (2 zone-level)	1 day to 9 days (median 5 days); 2 with a recorded value	9 consecutive days, 2001-08-01 to 2001-08-09, zone-level		Countywide (zone-level records).	Heat index: in event narratives only (local data needed).
Hurricane, Tropical Storm, Tropical Depression	Saffir-Simpson	0					Storm Events files every zone of a storm's episode under the storm's type; flooding from the storm is filed as Flood or Flash Flood records.
Ice Storm	Sperry-Piltz ice scale (local data)	4 records, 2001 to 2008 (4 zone-level)		No damage reported in 4 records.		Countywide (zone-level records).	Ice thickness: in event narratives only (local data needed).

Hazard	Scale	Records <i>count and years</i>	Observed range	Worst recorded event	Most damaging (when different)	How it applies to jurisdictions	Note
Flash Flood, Flood, Lakeshore Flood	damage and flood days (flood depth: FIRM)	8 records, 1999 to 2023 (3 zone-level)		Lakeshore Flood, 2019-10-21, \$175,000 property; \$0 crops (2019 dollars); NWS zone MIZ020		Event records naming jurisdictions in the plan: Empire township (1 record), Empire village (1 record), Solon township (1 record). Zone-level records (3) apply countywide.	Flood depth: see the FEMA Flood Insurance Rate Map. Storm Events damage is often \$0 or blank for floods, major ones included; FEMA Public Assistance by declaration (B1-d) shows which floods cost the most.
Debris Flow	none (count and damage only)	0					Physical measure: in event narratives only (local data needed).
Lightning	annualized frequency (the measure FEMA's Local Mitigation Planning Handbook names)	2 records, 2000 to 2007		Lightning, 2007-08-12, \$40,000 property; \$0 crops (2007 dollars)		No event record names a jurisdiction in the plan.	Storm Events lists lightning with damage or casualties; physical measure in event narratives only (local data needed).
High Wind and Strong Wind (outside NRI's Strong Wind definition)	wind speed (kt and mph)	16 records, 1998 to 2025 (16 zone-level)	41 kt (47 mph) to 68 kt (78 mph) (median 50 kt (58 mph)); 15 with a recorded value	68 kt (78 mph) measured gust, High Wind, 2003-11-12; NWS zone MIZ020	High Wind, 2005-11-13, \$25,000 property; crops not reported, reported for the zone (2005 dollars)	Countywide (zone-level records).	
Thunderstorm Wind	wind speed (kt and mph)	52 records, 1975 to 2025	50 kt (58 mph) to 78 kt (90 mph) (median 52 kt (60 mph)); 47 with a recorded value	78 kt (90 mph) estimated gust, Thunderstorm Wind, 2015-08-02		Event records naming jurisdictions in the plan: Leland township (7 records), Northport village (7 records), Suttons Bay township (7 records), Suttons Bay village (7 records), Empire township (4 records), Empire village (4 records), Glen Arbor township (4 records), Solon township (2 records), Bingham township (1 record).	
Tornado	Enhanced Fujita (Fujita before Feb 2007)	3 records, 1977 to 2011	F/EF0 to F/EF1 (median between F/EF0 and F/EF1); 2 with a recorded value	F1 tornado, 1977-07-31, 8.4 mi path length (whole path, pre-1996), 167 yd wide, \$25,000 property; crops not recorded (1977 dollars)	Tornado, 1978-08-15, \$250,000 property; crops not recorded (1978 dollars)	Event records naming jurisdictions in the plan: Leland township (1 record).	Before 1996 a tornado is listed once, under the county where it began, with its whole path's rating and length; from 1996 on, each county lists its own segment. Length is not used to rank tornadoes (see Methods).
Tsunami	none (count and damage only)	0					Physical measure: in event narratives only (local data needed).

Hazard	Scale	Records <i>count and years</i>	Observed range	Worst recorded event	Most damaging (when different)	How it applies to jurisdictions	Note
Wildfire	acres burned (local data)	0					Acres burned: in event narratives only (local data needed).
Winter Storm, Heavy Snow, Blizzard, Lake-Effect Snow, Winter Weather, Sleet	none in data (snowfall: local data)	142 records, 1996 to 2026 (142 zone-level)		Heavy Snow, 2012-03-02, \$650,000 property; \$13,000,000 crops (2012 dollars); NWS zone MIZ020		Countywide (zone-level records).	Snow depth: in event narratives only (local data needed).

Storm Events records are more complete after 1996; before 1996 only Tornado (from 1950), Hail and Thunderstorm Wind (from 1955) exist. Zone-level records whose zone no NWS zone-county file places in this county (mostly before 2020) are not counted here (the Methods page explains the zone matching).

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

Supports FEMA checklist item B1-d: previous occurrences

Federal declarations for this county: 5 declarations covering 2 separate hazard incidents counted in this packet (declarations for the same incident count once; non-natural and evacuation-only declarations are not counted).

Federal disaster declarations for this county

Sources: 1, 2, 3

Declared	Incident began	FEMA number	Type	Title	Mapped hazard	County Public Assistance <i>federal share obligated, nominal dollars</i>	Notes
2020-03-27	2020-01-20	DR-4494-MI	Major disaster	COVID-19 Pandemic	Non-natural, not counted	\$75,256.40	
2020-03-13	2020-01-20	EM-3455-MI	Emergency	COVID-19	Non-natural, not counted	no Public Assistance recorded	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	no Public Assistance recorded	
1978-01-27	1978-01-27	EM-3057-MI	Emergency	Blizzards & Snowstorms	Winter Weather	no Public Assistance recorded	
1977-03-02	1977-03-02	EM-3035-MI	Emergency	Drought	Drought	no Public Assistance recorded	

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.

Statewide declarations

Source: 2

Declared	Incident began	FEMA number	Type	Title	Mapped hazard
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, so they are listed on every county page in the state and not counted with county rows. Local data needed: whether each one affected this county.

Previous occurrences by hazard, with explicit no-event rows

Sources: 2, 6, 7

Hazard	Storm Events records, all years on file <i>(years in the Period column)</i>	Since plan approval <i>records</i>	In the 12 months before plan approval <i>records</i>	Last 5 years <i>records</i>	Declared incidents, all years <i>separate disasters</i>	Declared since approval <i>separate disasters</i>	Period	Statement
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	4	1	0	1	0	0	1996 to 2026-06-30	Includes 1 Frost/Freeze record.
Drought	1	0	0	0	1	0	1996 to 2026-06-30	
Earthquake	0	0	0	0	0	0		Storm Events does not record earthquakes; the USGS earthquake catalog is the source.
Hail	37	1	0	2	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	8	0	0	1	0	0	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	2	0	0	0	0	0	1996 to 2026-06-30	
Strong Wind	68	2	0	6	0	0	1955 to 2026-06-30	Includes 13 High Wind and 3 Strong Wind records.
Tornado	3	0	0	0	0	0	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

Hazard	Storm Events records, all years on file <i>(years in the Period column)</i>	Since plan approval <i>records</i>	In the 12 months before plan approval <i>records</i>	Last 5 years <i>records</i>	Declared incidents, all years <i>separate disasters</i>	Declared since approval <i>separate disasters</i>	Period	Statement
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	142	6	1	14	1	0	1996 to 2026-06-30	

Notable Storm Events records

Sources: 1, 6, 7

Date	Event type	Magnitude or extent	Damage <i>nominal dollars</i>	Deaths, injuries <i>direct only</i>	Location	Flags	Why listed
2026-01-22	Extreme Cold/ Wind Chill		damage not reported	0, 0	NWS zone MIZ020 (LEELANAU), zone-level	new since last plan; within last 5 years	B1-c worst recorded: Cold/Wind Chill, Extreme Cold/Wind Chill
2019-10-21	Lakeshore Flood		\$175,000 property; \$0 crops, reported for the zone (2019 dollars)	0, 0	NWS zone MIZ020 (LEELANAU), zone-level		B1-c worst recorded: Flash Flood, Flood, Lakeshore Flood
2016-07-08	Hail	3 in	\$85,000 property; \$2,000,000 crops (2016 dollars)	0, 0	EMPIRE to GLEN ARBOR		B1-c worst recorded: Hail
2015-08-02	Thunderstorm Wind	78 kt (90 mph) estimated gust	\$18,800,000 property; \$0 crops (2015 dollars)	0, 0	GLEN HAVEN to RENNIES		B1-c worst recorded: Thunderstorm Wind
2012-04-27	Frost/Freeze		\$0 property; \$37,500,000 crops, reported for the zone (2012 dollars)	0, 0	NWS zone MIZ020 (LEELANAU), zone-level		B1-c worst recorded: Frost/Freeze
2012-03-02	Heavy Snow		\$650,000 property; \$13,000,000 crops, reported for the zone (2012 dollars)	0, 0	NWS zone MIZ020 (LEELANAU), zone-level		B1-c worst recorded: Winter Storm, Heavy Snow, Blizzard, Lake-Effect Snow, Winter Weather, Sleet
2008-02-10	Extreme Cold/ Wind Chill		\$0 property; \$0 crops, reported for the zone (2008 dollars)	1, 0	NWS zone MIZ020 (LEELANAU), zone-level		deaths or injuries recorded
2007-08-12	Lightning		\$40,000 property; \$0 crops (2007 dollars)	0, 0	GREILICKVILLE		B1-c worst recorded: Lightning
2003-11-12	High Wind	68 kt (78 mph) measured gust	damage not reported	0, 0	NWS zone MIZ020 (LEELANAU), zone-level		B1-c worst recorded: High Wind and Strong Wind
2001-08-01	Heat		damage not reported	0, 0	NWS zone MIZ020 (LEELANAU), zone-level		B1-c worst recorded: Excessive Heat, Heat
2001-08-01	Drought		damage not reported	0, 0	NWS zone MIZ020 (LEELANAU), zone-level		B1-c worst recorded: Drought
1977-07-31	Tornado	F1, 8.4 mi path length (whole path, pre-1996), 167 yd wide	\$25,000 property; crops not recorded (1977 dollars)	0, 0	location not recorded		B1-c worst recorded: Tornado

The full list is in the Excel file, sheet "B1-d Storm Events history" (271 rows).

Location is the place NOAA recorded, as written in its data; it need not be a jurisdiction in this plan.

Local data needed: state-declared emergencies, from your state emergency management agency (federal data do not include them).

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

Supports FEMA checklist item B1-e: probability of future events

Probability: FEMA annualized frequency and descriptor per hazard

Sources: 5, 6

Hazard	FEMA annualized frequency (modeled) <i>unit per row</i>	Unit	In plain terms	Descriptor	Descriptor basis	NRI events or days in its record period (hail, wind and tornado are area-weighted, so can be fractional)	NRI period	Location	Note
Coastal Flooding	0.0136	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 descriptor: no Storm Events record 1996 to 2025
Cold Wave	0.789	event-days per year	about 0.789 days per year	Possible (from Storm Events: 2 of 30 years)	event-days in 2 of 30 years, 1996 to 2025 (6.67%)	15	2005-11-12 to 2024-11-12 (19 years)	countywide	
Drought	0	event-days per year	none modeled	Possible (from Storm Events: 1 of 30 years)	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); Storm Events has a record in 1 of 30 years. The descriptor comes from Storm Events, which counts D2 drought that NRI leaves out.
Earthquake	0.00026	annual probability at a location	chance a given location in the county has at least minor-damage shaking in a year: 0.026%			not shown	modeled	see B1-f	No descriptor (Storm Events does not record earthquakes).
Hail	0.599	events per year	about 0.6 per year	Likely	FEMA annualized frequency (modeled)	46.2 (modeled)	1986 to 2023 (38 years)	countywide	
Heat Wave	0.737	event-days per year	about 0.737 days per year	Possible (from Storm Events: 2 of 30 years)	event-days in 2 of 30 years, 1996 to 2025 (6.67%)	12	2005-11-12 to 2024-11-12 (19 years)	countywide	
Hurricane	0.01	events per year	about 1 in 100 years	Possible	FEMA annualized frequency (modeled)	0	1851 to 2024 (Atlantic)	see B1-f	NRI counts hurricane and tropical storm tracks passing within storm-force wind range; federal declarations are in B1-d.
Ice Storm	0.0149	event-days per year	about 0.0149 days per year	Likely (from Storm Events: 4 of 30 years)	event-days in 4 of 30 years, 1996 to 2025 (13.3%)	0	1946-12-31 to 2014-02-12 (67 years)	countywide	
Inland Flooding	0.25	event-days per year	about 0.25 days per year	Likely (from Storm Events: 6 of 30 years)	event-days in 6 of 30 years, 1996 to 2025 (20%)	7	1996 to 2023 (28 years)	see B1-f	

Hazard	FEMA annualized frequency (modeled) <i>unit per row</i>	Unit	In plain terms	Descriptor	Descriptor basis	NRI events or days in its record period (hail, wind and tornado are area-weighted, so can be fractional)	NRI period	Location	Note
Landslide	0.29	events per year (modeled)	about 1 in 3 years	Likely	FEMA annualized frequency (modeled)	not shown	modeled	see B1-f	
Lightning	24	days per year with a strike	about 24 days per year	Highly likely	FEMA annualized frequency (modeled)	not shown	1995 to 2023 (29 years; CONUS)	countywide	
Strong Wind	0.668	events per year	about 0.67 per year	Likely	FEMA annualized frequency (modeled)	8	1986 to 2023 (38 years)	countywide	
Tornado	0.166	events per year	about 1 in 6 years	Likely	FEMA annualized frequency (modeled)	not shown	1950 to 2023 (EF2+); 1986 to 2023 (EF0-1)	see B1-f	
Tsunami		annual probability at the most exposed location (used in place of a county value)			Storm Events records in 0 of 30 years, 1996 to 2025 (0%)	not shown	modeled	see B1-f	No descriptor: no Storm Events record 1996 to 2025
Wildfire	0.0000322	annual probability at a location	chance a given location in the county burns in a year: 0.00322%		Storm Events records in 0 of 30 years, 1996 to 2025 (0%)	not shown	modeled	see B1-f	No descriptor: no Storm Events record 1996 to 2025
Winter Weather	34.5	event-days per year	about 34.5 days per year	Highly likely (from Storm Events: 29 of 30 years)	event-days in 29 of 30 years, 1996 to 2025 (96.7%)	656	2005-11-12 to 2024-11-12 (19 years)	countywide	

FEMA annualized frequency (modeled) is the National Risk Index v1.20 (December 2025) estimate of how often a hazard affects this county in a year; it is not recorded events divided by years, and its unit differs by hazard (events, event-days, or days with a lightning strike per year). For earthquake, wildfire, coastal flooding and tsunami the value is the chance (or number of events) at a location in the county, not across the county, so no "1 in N years" is given and the descriptor comes from Storm Events where it has a record (none for earthquake). The Methods page gives each hazard's method, from FEMA's National Risk Index Technical Documentation v1.20.

Descriptor scale used in this packet (defined per unit)

Sources: 5, 6

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

Intensity bands: historical frequency (Storm Events)

Source: 6

Hazard	Band	Years	Events <i>county-coded records</i>	Years in period	Events per year <i>events / years</i>
Hail	1.00-1.99 in	1996 to 2025	21	30	0.7
Hail	2.00 in+	1996 to 2025	1	30	0.0333
Thunderstorm Wind (counted as NRI Strong Wind)	50-64 kt	1996 to 2025	42	30	1.4
Thunderstorm Wind (counted as NRI Strong Wind)	65 kt+	1996 to 2025	1	30	0.0333
Thunderstorm Wind (counted as NRI Strong Wind)	unmeasured or below 50 kt	1996 to 2025	0	30	0
Tornado	EF0-1	1996 to 2025	1	30	0.0333
Tornado	EF2-3	1996 to 2025	0	30	0
Tornado	EF4-5	1996 to 2025	0	30	0
Tornado	unrated (EFU)	1996 to 2025	0	30	0

The bands show how often events of each severity were recorded in this county, to profile how severe events have been (FEMA's probability item asks for the range of intensities).

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.

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 (<https://resilience.climate.gov/>).

Supports FEMA checklist item B1-f: hazards that vary across jurisdictions

Range of census tract risk within the county

Source: 5

Hazard	Tracts <i>rated of all</i>	NRI risk score, 0 to 100			Tracts by rating
		Min	Median	Max	
Coastal Flooding	9 of 9	69.8	78.4	81.8	Relatively Low 6, Very Low 3
Cold Wave	9 of 9	95.7	99.0	99.5	Very High 9
Drought	0 of 9				No Rating 9
Earthquake	9 of 9	0.8	2.9	4.6	Very Low 9
Hail	9 of 9	50.3	68.7	75.1	Relatively Moderate 4, Relatively Low 5
Heat Wave	9 of 9	4.2	6.4	9.7	Very Low 9
Hurricane	9 of 9	20.3	25.8	28.5	Very Low 9
Ice Storm	9 of 9	2.2	3.2	3.9	Very Low 9
Inland Flooding	9 of 9	13.8	47.6	81.6	Relatively High 1, Relatively Moderate 3, Relatively Low 4, Very Low 1
Landslide	9 of 9	90.0	93.3	95.6	Relatively Moderate 1, Relatively Low 8
Lightning	9 of 9	39.2	52.7	65.5	Relatively Moderate 7, Relatively Low 2
Strong Wind	9 of 9	46.0	64.9	73.7	Relatively Moderate 8, Relatively Low 1
Tornado	9 of 9	26.7	35.1	39.5	Relatively Low 8, Very Low 1
Tsunami	0 of 9				Insufficient Data 9
Wildfire	9 of 9	43.9	61.2	69.9	Relatively Low 1, Very Low 8
Winter Weather	9 of 9	95.8	98.0	99.1	Very High 8, Relatively High 1

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.

The score ranks a tract against all U.S. tracts (100 = highest). The rating is FEMA's category for the tract's risk value, computed differently, so the two can disagree.

Frequency data for cold wave, hail, heat wave, ice storm, lightning, strong wind and winter weather are county-wide or coarse (49 km grid or NWS zone), the same for every jurisdiction; the tract range mostly reflects where buildings and people are.

Each jurisdiction (starting figures from federal data)

Sources: 1, 3, 4, 6

Jurisdiction	Type	Plan status	Repetitive loss	Public Assistance to this jurisdiction	Event records naming this place
			<i>FMA RL and SRL (44 CFR 77.2); repeat-flood, any definition</i>	<i>FEMA records matched by applicant name; federal share obligated, nominal dollars</i>	<i>all years; since its plan</i>
Leelanau County	County	Approved, expires 2029-09-23	FMA RL 0, SRL 0; any 0	no Public Assistance recorded	0 total; 0 since its plan
Empire village	Village	Approved, expires 2029-09-23	FMA RL 0, SRL 0; any 0	no Public Assistance recorded	8 total; 0 since its plan
Northport village	Village	Approved, expires 2029-09-23	FMA RL 0, SRL 0; any 0	no Public Assistance recorded	10 total; 0 since its plan

Jurisdiction	Type	Plan status	Repetitive loss	Public Assistance to this jurisdiction	Event records naming this place
			<i>FMA RL and SRL (44 CFR 77.2); repeat-flood, any definition</i>	<i>FEMA records matched by applicant name; federal share obligated, nominal dollars</i>	<i>all years; since its plan</i>
Suttons Bay village	Village	Approved, expires 2029-09-23	FMA RL 0, SRL 0; any 0	no Public Assistance recorded	15 total; 0 since its plan
Bingham township	Township	Approved, expires 2029-09-23	FMA RL 0, SRL 0; any 0	no Public Assistance recorded	2 total; 1 since its plan
Centerville township	Township	Approved, expires 2029-09-23	FMA RL 0, SRL 0; any 0	no Public Assistance recorded	0 total; 0 since its plan
Cleveland township	Township	Approved, expires 2029-09-23	FMA RL 0, SRL 0; any 0	no Public Assistance recorded	0 total; 0 since its plan
Elmwood charter township	Township	Approved, expires 2029-09-23	FMA RL 0, SRL 0; any 0	no Public Assistance recorded	0 total; 0 since its plan
Empire township	Township	Approved, expires 2029-09-23	FMA RL 0, SRL 0; any 0	no Public Assistance recorded	8 total; 0 since its plan
Glen Arbor township	Township	Approved, expires 2029-09-23	FMA RL 0, SRL 0; any 0	no Public Assistance recorded	5 total; 1 since its plan
Kasson township	Township	Approved, expires 2029-09-23	FMA RL 0, SRL 0; any 0	no Public Assistance recorded	0 total; 0 since its plan
Leelanau township	Township	Approved, expires 2029-09-23	FMA RL 0, SRL 0; any 0	no Public Assistance recorded	0 total; 0 since its plan
Leland township	Township	Approved, expires 2029-09-23	FMA RL 0, SRL 0; any 0	no Public Assistance recorded	15 total; 0 since its plan
Solon township	Township	Approved, expires 2029-09-23	FMA RL 0, SRL 0; any 0	no Public Assistance recorded	3 total; 0 since its plan
Suttons Bay township	Township	Approved, expires 2029-09-23	FMA RL 0, SRL 0; any 0	no Public Assistance recorded	15 total; 0 since its plan

Repetitive-loss counts are for whole NFIP communities, which can extend beyond this county (see the note in B2-c).

County Public Assistance in B1-d also includes applicants filed under the county that are not jurisdictions in this plan (for example state agencies, special districts and nonprofits), so the jurisdiction rows add up to less.

Supports FEMA checklist items B2-a and B2-b: vulnerability and potential impacts

Local data needed

The table below gives county-level starting figures; the plan describes impacts for each jurisdiction and its own assets.

- Critical facilities and lifelines per hazard
- A problem statement per jurisdiction 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

Sources: 1, 2, 3, 5, 6, 7

Hazard	Building exposure <i>modeled dollars</i>	Agriculture exposure <i>modeled dollars</i>	Population exposed <i>people</i>	EAL buildings <i>modeled dollars per year</i>	EAL agriculture <i>modeled dollars per year</i>	Cost of expected deaths and injuries <i>FEMA's dollar value per year, not property damage</i>	EAL as % of exposure <i>buildings; agriculture where noted</i>	Storm Events damage since 2024-09-24 <i>county-coded records, property plus crops, nominal dollars</i>	Zone-level damage since plan <i>property plus crops, reported for the zone</i>	Public Assistance since plan <i>nominal dollars; see note</i>	Note
Coastal Flooding	\$1,611,769,931	n/a	408	\$9,666	n/a	\$463	0.0006%				
Cold Wave	\$8,374,514,205	\$54,639,013	22,255	\$175	\$1,889,111	\$7,149,598	under 0.0001%				
Drought	n/a	\$0	n/a	n/a	\$0	n/a					agriculture exposure is 0 in NRI
Earthquake	\$13,626,019,230	n/a	22,301	\$3,042	n/a	\$643	under 0.0001%				
Hail	\$8,374,514,205	\$54,639,013	22,255	\$99,337	\$64,348	\$12,185	0.00119%				
Heat Wave	\$8,374,514,205	\$54,639,013	22,255	\$477	under \$1	\$47,316	under 0.0001%				
Hurricane	\$8,374,514,205	\$54,639,013	22,255	\$1,826	\$738	under \$1	under 0.0001%				
Ice Storm	\$8,374,514,205	n/a	22,255	\$920	n/a	\$1,518	under 0.0001%				
Inland Flooding	\$8,329,447,096	\$8,811	274	\$5,249,927	\$30	\$409	n/a (see note)				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.
Landslide	\$544,085,553	n/a	1,599	\$1,759	n/a	\$12,988	0.000323%				
Lightning	\$8,374,514,205	n/a	22,255	\$5,541	n/a	\$108,784	under 0.0001%				
Strong Wind	\$8,374,514,205	\$54,639,013	22,255	\$203,473	\$1,105	\$38,815	0.00243%				
Tornado	\$8,374,514,205	\$54,639,013	22,255	\$151,412	\$153	\$70,568	0.00181%				
Tsunami	n/a	n/a	n/a	n/a	n/a	n/a					NRI publishes no building exposure for this county

Hazard	Building exposure <i>modeled dollars</i>	Agriculture exposure <i>modeled dollars</i>	Population exposed <i>people</i>	EAL buildings <i>modeled dollars per year</i>	EAL agriculture <i>modeled dollars per year</i>	Cost of expected deaths and injuries <i>FEMA's dollar value per year, not property damage</i>	EAL as % of exposure <i>buildings; agriculture where noted</i>	Storm Events damage since 2024-09-24 <i>county-coded records, property plus crops, nominal dollars</i>	Zone-level damage since plan <i>property plus crops, reported for the zone</i>	Public Assistance since plan <i>nominal dollars; see note</i>	Note
Wildfire	\$2,469,172,139	\$13,475,947	7,072	\$4,745	\$4	\$344	0.000192%				
Winter Weather	\$8,374,514,205	\$54,639,013	22,255	\$2,146	\$621	\$415,893	under 0.0001%				

Totals since 2024-09-24 (Storm Events through 2026-06-30): 2 county-coded records, 0 with a damage value recorded (including \$0), \$0; 8 zone-level records, 0 with a damage value recorded (including \$0), \$0 reported for the zone; Public Assistance: no counted declaration since the plan.

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 does not add up to the total; the unit total counts each declaration once.

NRI computes earthquake exposure on its own basis, so it exceeds the county building value in B2-a.

Supports FEMA checklist item B2-a: vulnerability (county context)

County context

Source: 5

Measure	Value
Population	22,255
Building value (total, not at risk)	\$8,374,514,205
Agriculture value (total, not at risk)	\$54,639,013
NRI risk rating (all hazards)	Relatively Low
Expected annual loss, buildings and agriculture, all hazards	\$7,690,554
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)	\$7,859,524
Social vulnerability rating	Relatively Moderate
Community resilience rating	Very High
NRI version	December 2025

FEMA's all-hazard expected annual loss adds buildings, agriculture and population equivalence; this table gives the property part and the population-equivalence part as separate rows.

Social vulnerability: higher means people are more likely to be harmed and slower to recover. Community resilience: lower means the community is less able to recover. High social vulnerability and low resilience both raise the NRI risk rating.

Supports FEMA checklist item B2-c: repetitive loss properties

Repetitive loss in this county, both definitions

Sources: 1, 4

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

The state NFIP coordinator's list, the source FEMA's Handbook names, often uses the NFIP insurance definition (second row).

Repeat-flood properties: county and state-level rows

Sources: 1, 4

Scope	RL, FMA <i>properties</i>	SRL, FMA <i>properties</i>	RL, NFIP <i>properties</i>	SRL, NFIP <i>properties</i>	Any category <i>properties</i>	Mitigated <i>properties</i>	Currently insured <i>properties</i>
County total	0	0	0	0	0	0	0
Statewide, no county in FEMA's file	0	0	4	0	4	0	0

The statewide row counts properties FEMA's file gives with no county in this state; they are listed for reference and are not in this county's counts.

Repeat-flood properties by jurisdiction in the plan (NFIP community)

Sources: 1, 4

Jurisdiction	NFIP community ID	RL, FMA <i>properties</i>	SRL, FMA <i>properties</i>	RL, NFIP <i>properties</i>	SRL, NFIP <i>properties</i>	Any category <i>properties</i>	Mitigated <i>properties</i>	Currently insured <i>properties</i>
Leelanau County	261889	0	0	0	0	0	0	0
Empire village	260605	0	0	0	0	0	0	0
Northport village	260580	0	0	0	0	0	0	0
Suttons Bay village	260283	0	0	0	0	0	0	0
Bingham township	260772	0	0	0	0	0	0	0
Centerville township	260625	0	0	0	0	0	0	0
Cleveland township	260302	0	0	0	0	0	0	0
Elmwood charter township	260113	0	0	0	0	0	0	0
Empire township	260765	0	0	0	0	0	0	0
Glen Arbor township	260604	0	0	0	0	0	0	0
Kasson township	261509	0	0	0	0	0	0	0
Leelanau township	260114	0	0	0	0	0	0	0
Leland township	260760	0	0	0	0	0	0	0

Jurisdiction	NFIP community ID	RL, FMA <i>properties</i>	SRL, FMA <i>properties</i>	RL, NFIP <i>properties</i>	SRL, NFIP <i>properties</i>	Any category <i>properties</i>	Mitigated <i>properties</i>	Currently insured <i>properties</i>
Solon township	261510	0	0	0	0	0	0	0
Suttons Bay township	260770	0	0	0	0	0	0	0

Counts by occupancy group for each jurisdiction are in the Excel file, sheet "B2-c Jurisdictions".

Jurisdiction 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 jurisdiction row, while the county table counts only its part in this county.

County repeat-flood properties by occupancy group: 0 in every occupancy group.

Sources: 1, 4

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. NFIP repetitive loss (the FEMA insurance definition) is 2 or more claims over \$1,000 in 10 years, and a property can leave that group once it is mitigated. Also shown: NFIP severe repetitive loss, any category, mitigated and currently insured. The Methods page gives the OpenFEMA field details.

Counts are aggregates of FEMA's public NFIP Multiple Loss Properties file (FEMA's data date 2026-08-02; file version 2026-08-04). No property is identified. County assignment is FEMA's geocode.

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

Exact counts; no count suppression.

Sources

Tables cite these sources by number. The full list, for the plan's bibliography (FEMA review item A4-a):

1. FEMA, OpenFEMA HazardMitigationPlanStatuses v1, version 2026-09-29T134039Z, pulled 2026-09-30, <https://www.fema.gov/api/open/v1/HazardMitigationPlanStatuses> (API)
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3. FEMA, OpenFEMA PublicAssistanceFundedProjectsSummaries v1, version 2026-09-29T150754Z, pulled 2026-09-30, <https://www.fema.gov/api/open/v1/PublicAssistanceFundedProjectsSummaries> (API)
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5. FEMA, FEMA National Risk Index 1.20.0 (December 2025), county and census tract tables, version 1.20.0, pulled 2026-09-30, https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_Counties.zip (download, 25 MB), https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_CensusTracts.zip (download, 635 MB)
6. NOAA NCEI, NOAA NCEI Storm Events Database, details files (csvfiles v1.0), version c20260918, pulled 2026-09-30, <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 2026-09-30, <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 2026-09-30, https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gazetteer/2024_Gaz_counties_national.zip, [https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gazetteer/2024_Gaz_cousubs_national.zip](https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gaz_cousubs_national.zip), [https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gazetteer/2024_Gaz_place_national.zip](https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gaz_place_national.zip), [https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gazetteer/2024_Gaz_unsd_national.zip](https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gaz_unsd_national.zip), [https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gazetteer/2024_Gaz_elsd_national.zip](https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gaz_elsd_national.zip), [https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gazetteer/2024_Gaz_scsd_national.zip](https://www2.census.gov/geo/docs/maps-data/data/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/ct_change/ct_cou_to_cousub_crosswalk.xlsx (used to match place names and codes; no table prints its values)

What this packet is and what the plan adds

This packet is the federal data for the plan's risk assessment, organized by the items of FEMA's Local Mitigation Plan Review Tool, Element B. Each section heading names the item its tables support; the plan and FEMA's review decide whether the item is met.

The plan adds what only the community has: local data on assets, critical facilities, development and each jurisdiction's impacts; local hazard history, including state-declared emergencies; the mitigation strategy; and adoption.

How the federal data are built: National Risk Index values are FEMA's model, not counts of events. Storm Events is more complete from 1996; zone-level records are placed by forecast zone, not by location in the county. Public Assistance for a jurisdiction is matched by applicant name. The Methods page gives every rule and the known edge cases.

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).

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Cite this: Hazard Plain (2026). Leelanau County, MI: risk-assessment baseline packet, release 2026-10 (data as of 2026-09-30; County FIPS 26089). Automated baseline. <https://hazardplain.org/mi/26089/> Built from FEMA OpenFEMA, the FEMA National Risk Index and NOAA NCEI Storm Events; source versions in the packet's Sources list.

Corrections: to report an error, name the packet, the table and what your records show. Contact: contact@hazardplain.org

Hazard Plain release 2026-10. As of 2026-09-30; Storm Events data through 2026-06-30. Automated baseline.