

Muscatine County, IA

Risk-assessment baseline packet

Unit **County area 19139** 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	Expired on 2025-10-23	Plan	Muscatine County (FEMA plan 106484)
Approved	2020-10-23	Expires	2025-10-23
As of	2026-09-28	Days	340 days since expiry
Update underway	none in FEMA's plan tracker		

Generally not eligible for FEMA mitigation project grants (HMGP, FMA) until a new plan is approved, barring a 44 CFR 201.6(a)(3) exception. Planning grants are not affected.

What changed since your last plan (approved 2020-10-23)

New federal declarations	DR-4784-IA (1 declaration row; 1 counted incident)	Storm Events records since approval	88 (data through 2026-06-30)
Repetitive loss now	FMA RL 1, SRL 5 (44 CFR 77.2); any definition: 46	Repeat-flood change	First release: no prior release to compare.

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

Plan status for every jurisdiction listed in this county

Jurisdiction	Type	Status	Plan	Approved	Expires	Days to expiry <i>negative = days since expiry</i>	Update underway	Notes
Muscatine County	County	Expired on 2025-10-23	Muscatine County (FEMA plan 106484)	2020-10-23	2025-10-23	-340		
Atalissa city	City	Expired on 2025-10-23	Muscatine County (FEMA plan 106484)	2020-10-23	2025-10-23	-340		
Conesville city	City	Expired on 2025-10-23	Muscatine County (FEMA plan 106484)	2020-10-23	2025-10-23	-340		
Durant city	City	Expired on 2026-02-23	Cedar County Multi-Jurisdiction Plan (FEMA plan 107204)	2021-02-23	2026-02-23	-217		member approved 2021-05-07
Fruitland city	City	Expired on 2025-10-23	Muscatine County (FEMA plan 106484)	2020-10-23	2025-10-23	-340		
Muscatine city	City	Expired on 2025-10-23	Muscatine County (FEMA plan 106484)	2020-10-23	2025-10-23	-340		

Jurisdiction	Type	Status	Plan	Approved	Expires	Days to expiry	Update underway	Notes
						<i>negative = days since expiry</i>		
Nichols city	City	Expired on 2025-10-23	Muscatine County (FEMA plan 106484)	2020-10-23	2025-10-23	-340		
Walcott city	City	Approved, expires 2028-03-12	Scott County (FEMA plan 108872)	2023-03-13	2028-03-12	531		member approved 2023-12-07
West Liberty city	City	Expired on 2025-10-23	Muscatine County (FEMA plan 106484)	2020-10-23	2025-10-23	-340		
Wilton city	City	Expired on 2025-10-23	Muscatine County (FEMA plan 106484)	2020-10-23	2025-10-23	-340		
Columbus Community School District	School/School District	Expired on 2026-02-16	Louisa County (FEMA plan 106926)	2021-02-16	2026-02-16	-224		member approved 2021-08-23
Louisa- Muscatine Community School District	School/School District	Expired on 2026-02-16	Louisa County (FEMA plan 106926)	2021-02-16	2026-02-16	-224		

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

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

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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 modeled dollars per year	EAL agriculture modeled dollars per year	EAL population equivalence statistical value of life and injury, \$13.7M per life, not property damage	EAL total (see note) modeled dollars per year	Storm Events records since 1996 count	Evidence for an omission NRI Not Applicable, no declaration and no Storm Events record since 1996	Storm Events coverage note
1	Inland Flooding	Relatively Low	Relatively Low	\$9,946,675	\$281	\$115,886	\$10,062,842	85		
2	Strong Wind	Relatively High	Relatively High	\$1,017,230	\$79,125	\$1,226,673	\$2,323,028	181		Includes 12 High Wind records and 1 Strong Wind record, event types the NRI definition of this hazard leaves out.
3	Hail	Relatively Moderate	Relatively Moderate	\$1,960,632	\$18,870	\$66,797	\$2,046,299	131		
4	Tornado	Relatively Low	Relatively Low	\$926,872	\$3,440	\$584,146	\$1,514,458	17		
5	Heat Wave	Relatively Low	Relatively Low	\$6,828	\$5	\$1,279,115	\$1,285,948	5		
6	Drought	Relatively Moderate	Relatively Moderate		\$964,790		\$964,790	15		
7	Cold Wave	Relatively Low	Relatively Low	\$1,517	\$115,566	\$598,053	\$715,137	20		Includes 6 Frost/Freeze records, event types the NRI definition of this hazard leaves out.
8	Lightning	Relatively Moderate	Relatively Moderate	\$14,764		\$538,214	\$552,978	4		
9	Earthquake	Very Low	Relatively Low	\$267,536		\$82,070	\$349,606			Not in Storm Events. Storm Events coverage of this hazard is limited; absence is not evidence of low risk.

Rank by EAL	Hazard	NRI risk rating	EAL rating	EAL buildings <i>modeled dollars per year</i>	EAL agriculture <i>modeled dollars per year</i>	EAL population equivalence <i>statistical value of life and injury, \$13.7M per life, not property damage</i>	EAL total (see note) <i>modeled dollars per year</i>	Storm Events records since 1996 <i>count</i>	Evidence for an omission <i>NRI Not Applicable, no declaration and no Storm Events record since 1996</i>	Storm Events coverage note
10	Ice Storm	Relatively Moderate	Relatively Moderate	\$158,985		\$105,902	\$264,887	8		
11	Winter Weather	Relatively Moderate	Relatively Moderate	\$3,193	\$348	\$118,802	\$122,344	140		
12	Wildfire	Very Low	Relatively Low	\$80,927	\$368	\$10,272	\$91,566	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.
13	Landslide	Relatively Low	Very Low	\$357		\$4,706	\$5,063	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.
14	Hurricane	Very Low	Very Low	\$1,509	\$1,562	under \$1	\$3,071	0		No recorded events in Storm Events since 1996 (data through 2026-06-30).
	Avalanche	Not Applicable	Not Applicable					0	NRI rates avalanche Not Applicable for this county, and no federal declaration for this county names it.	No recorded events in Storm Events since 1996 (data through 2026-06-30).
	Coastal Flooding	Not Applicable	Not Applicable					0	NRI rates coastal flooding 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	Not Applicable	Not Applicable					0	NRI rates tsunami 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.
	Volcanic Activity	Not Applicable	Not Applicable					0	NRI rates volcanic activity Not Applicable for this county, and no federal declaration for this county names it.	No recorded events in Storm Events since 1996 (data through 2026-06-30). Storm Events coverage of this hazard is limited; absence is not evidence of low risk.

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

SOURCES

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

https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_CensusTracts.zip (download, 635 MB)

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

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

Supports B1-b: location

Where each hazard occurs

Hazard	Location	Census tracts rated <i>rated of all tracts</i>
Avalanche	Census tract rating counts from the National Risk Index tract table (see B1-f). Tract maps and place names are not in this packet.	0 of 10
Coastal Flooding	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 10
Cold Wave	Affects the whole planning area; national data do not distinguish locations within the county. Confirm locally.	10 of 10
Drought	Affects the whole planning area; national data do not distinguish locations within the county. Confirm locally.	8 of 10
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.	10 of 10
Hail	Affects the whole planning area; national data do not distinguish locations within the county. Confirm locally.	10 of 10
Heat Wave	Affects the whole planning area; national data do not distinguish locations within the county. Confirm locally.	10 of 10
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.	10 of 10
Ice Storm	Affects the whole planning area; national data do not distinguish locations within the county. Confirm locally.	10 of 10
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.	10 of 10
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.	10 of 10
Lightning	Affects the whole planning area; national data do not distinguish locations within the county. Confirm locally.	10 of 10
Strong Wind	Affects the whole planning area; national data do not distinguish locations within the county. Confirm locally.	10 of 10
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.	10 of 10
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 10
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 10
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.	8 of 10
Winter Weather	Affects the whole planning area; national data do not distinguish locations within the county. Confirm locally.	10 of 10

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

Supports B1-c: extent

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

Hazard	Scale	Records <i>count, years</i>	Observed range	Worst recorded event	Most damaging (when different)	How it applies to members	Note
Avalanche	none (count and damage)	0					Physical measure: in event narratives only; local data required.
Coastal Flood, Storm Surge/ Tide	none in data (FIRM for depth)	0					Flood depth: see the FEMA Flood Insurance Rate Map.

Hazard	Scale	Records <i>count, years</i>	Observed range	Worst recorded event	Most damaging (when different)	How it applies to members	Note
Cold/Wind Chill, Extreme Cold/Wind Chill	wind chill	14, 1996 to 2019 (14 zone-level)	1 day to 31 days (median 3 days); 10 with a recorded value	31 days, 2000-12-01 to 2000-12-31, from 4 records, 1 of them a monthly summary (a monthly summary record covers most or all of a month; it does not count days at wave conditions), zone-level		Zone-level records: applies countywide; national data do not locate these events within the county.	Wind chill: in event narratives only; local data required.
Frost/Freeze (outside NRI Cold Wave definition)	crop damage	6, 2005 to 2012 (6 zone-level)		Frost/Freeze, 2005-05-03, \$396,000 crop damage, reported for the zone (2005 dollars); NWS zone IAZ067 (MUSCATINE), zone-level: may include parts of neighboring counties		Zone-level records: applies countywide; national data do not locate these events within the county.	Temperature: in event narratives only; local data required.
Drought	US Drought Monitor D-scale	15, 2003 to 2013 (15 zone-level)	15 days to 274 days (median 30.5 days); 6 with a recorded value	274 days (9 months), 2005-07-01 to 2006-03-31, a run of 9 consecutive Storm Events drought records, zone-level	Drought, 2003-08-01, property not reported; \$14,880,000 crops, reported for the zone (2003 dollars)	Zone-level records: applies countywide; national data do not locate these events within the county.	Storm Events enters a drought at D2 or worse east of the Rockies and D3 or worse from the Rockies west (NWS Instruction 10-1605); NRI drought counts D3 and D4 only.
Earthquake	Modified Mercalli (local data)	0					No Storm Events record; local data required (e.g., USGS).
Hail	hail size (inches)	160, 1965 to 2024	0.75 in to 2.75 in (median 1 in); 160 with a recorded value	2.75 in hail, 1975-05-11	Hail, 2000-05-18, \$250,000 property; crops not reported (2000 dollars)	Event records naming member places: Muscatine city (76 records), Conesville city (12 records), West Liberty city (8 records), Wilton city (8 records), Fruitland city (7 records), Atalissa city (4 records), Nichols city (4 records).	
Excessive Heat, Heat	heat index (narratives)	5, 1997 to 2013 (5 zone-level)	1 day to 13 days (median 4 days); 5 with a recorded value	13 consecutive days, 1999-07-19 to 1999-07-31, zone-level		Zone-level records: applies countywide; national data do not locate these events within the county.	Heat index: in event narratives only; local data required.
Hurricane, Tropical Storm, Tropical Depression	Saffir-Simpson	0					Storm Events files every zone of a storm's episode under the storm's event type and category, so a Hurricane (Typhoon) record, especially an inland or remnant one, does not by itself mean hurricane-force winds here; read the damage and wind columns.

Hazard	Scale	Records <i>count, years</i>	Observed range	Worst recorded event	Most damaging (when different)	How it applies to members	Note
Ice Storm	Sperry-Piltz (local data)	8, 2000 to 2024 (8 zone- level)		Ice Storm, 2007-02-24, \$496,000 property; \$0 crops, reported for the zone (2007 dollars); NWS zone IAZ067 (MUSCATINE), zone-level: may include parts of neighboring counties		Zone-level records: applies countywide; national data do not locate these events within the county.	Ice thickness: in event narratives only; local data required.
Flash Flood, Flood, Lakeshore Flood	damage and flood days (FIRM for depth)	85, 1996 to 2026 (18 zone- level)		Flood, 2008-06-01, \$9,100,000 property; \$0 crops (2008 dollars)		Event records naming member places: Muscatine city (34 records), Conesville city (8 records), Fruitland city (6 records), Atalissa city (3 records), Nichols city (2 records), West Liberty city (2 records), Wilton city (1 record). Zone-level records (18) 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)	4, 2002 to 2015		Lightning, 2015-05-04, \$0 property; \$0 crops (2015 dollars), 1 direct death, 1 direct injury	Lightning, 2012-03-19, \$2,000 property; \$0 crops (2012 dollars)	Event records naming member places: Muscatine city (2 records), Atalissa city (1 record), West Liberty city (1 record).	Storm Events lists lightning with damage or casualties; physical measure in event narratives only; local data required.
High Wind and Strong Wind (outside NRI Strong Wind definition)	wind speed (kt and mph)	13, 1996 to 2021 (13 zone- level)	35 kt (40 mph) to 53 kt (61 mph) (median 50 kt (58 mph)); 12 with a recorded value	53 kt (61 mph), measurement type not recorded, High Wind, 1998-11-09; NWS zone IAZ067 (MUSCATINE), zone-level: may include parts of neighboring counties	High Wind, 1997-04-06, \$100,000 property; crops not reported, reported for the zone (1997 dollars)	Zone-level records: applies countywide; national data do not locate these events within the county.	
Thunderstorm Wind	wind speed (kt and mph)	212, 1956 to 2026	50 kt (58 mph) to 78 kt (90 mph) (median 56 kt (64 mph)); 190 with a recorded value	78 kt (90 mph) estimated gust, Thunderstorm Wind, 2017-06-17	Thunderstorm Wind, 1998-06-29, \$1,500,000 property; crops not reported (1998 dollars)	Event records naming member places: Muscatine city (78 records), Atalissa city (13 records), West Liberty city (13 records), Wilton city (13 records), Nichols city (9 records), Fruitland city (7 records), Conesville city (2 records).	

Hazard	Scale	Records <i>count, years</i>	Observed range	Worst recorded event	Most damaging (when different)	How it applies to members	Note
Tornado	Enhanced Fujita (F before Feb 2007)	41, 1952 to 2026	F/EF0 to F/EF3 (median F/EF1); 39 with a recorded value	EF3 tornado, 2007-06-01, 10.19 mi within this county, 774 yd wide, \$15,000,000 property; crops not reported (2007 dollars), 6 direct injuries		Event records naming member places: Muscatine city (11 records), West Liberty city (5 records), Nichols city (3 records), Wilton city (2 records), Atalissa city (1 record), Conesville city (1 record), Fruitland city (1 record), Walcott city (1 record).	From 1996 on, tornado records are per-county segments and length is the path length within this county (NWS Instruction 10-1605); records before 1996 may give the whole path length, including the path outside this county, and before 1996 a tornado is listed once, under the county where it began, with the whole path's rating; counties farther along the path may not list it. Length is not used to rank tornadoes.
Tsunami	none (count and damage)	0					Physical measure: in event narratives only; local data required.
Volcanic Ash, Volcanic Ashfall	Volcanic Explosivity Index (local data)	0					Physical measure: in event narratives only; local data required.
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)	140, 1996 to 2026 (140 zone-level)		Heavy Snow, 2004-03-15, \$5,000 property; crops not reported, reported for the zone (2004 dollars); NWS zone IAZ067 (MUSCATINE), 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

21

Counted incidents

17

Federal disaster declarations for this county

Declared	Incident began	FEMA number	Type	Title	Mapped hazard	County Public Assistance		Flags	Notes
						federal share obligated,	nominal dollars		
2024-05-24	2024-05-20	DR-4784-IA	Major disaster	SEVERE STORMS, TORNADOES, AND FLOODING	Inland Flooding; Tornado	\$578,141.78		new since last plan; within last 5 years	
2020-08-17	2020-08-10	DR-4557-IA	Major disaster	SEVERE STORMS	Hazard not mapped (severe storm title names no single hazard); not counted	\$126,657.47		during plan review, check whether your last plan included it	
2020-03-23	2020-01-20	DR-4483-IA	Major disaster	COVID-19 PANDEMIC	Non-natural, not counted	\$48,623.56		during plan review, check whether your last plan included it	
2020-03-13	2020-01-20	EM-3480-IA	Emergency	COVID-19	Non-natural, not counted	none found		during plan review, check whether your last plan included it	same incident as DR-4483
2019-03-23	2019-03-12	DR-4421-IA	Major disaster	SEVERE STORMS AND FLOODING	Inland Flooding	\$1,203,385.49			
2014-08-05	2014-06-26	DR-4187-IA	Major disaster	SEVERE STORMS, TORNADOES, STRAIGHT-LINE WINDS, AND FLOODING	Inland Flooding; Strong Wind; Tornado	\$366,170.43			
2013-05-31	2013-04-17	DR-4119-IA	Major disaster	SEVERE STORMS, STRAIGHT-LINE WINDS, AND FLOODING	Inland Flooding (primary); also designated: Strong Wind	\$707,628.52			
2008-05-27	2008-05-25	DR-1763-IA	Major disaster	SEVERE STORMS, TORNADOES, AND FLOODING	Inland Flooding; Tornado	\$4,563,209.37			
2007-03-14	2007-02-23	DR-1688-IA	Major disaster	SEVERE WINTER STORMS	Winter Weather	\$216,359.06			
2005-09-10	2005-08-29	EM-3239-IA	Emergency	HURRICANE KATRINA EVACUATION	Hurricane: evacuation support, not a local hazard event; not counted	none found			
2004-05-25	2004-05-19	DR-1518-IA	Major disaster	SEVERE STORMS, TORNADOES, AND FLOODING	Inland Flooding; Tornado		PA not declared for this county		
2002-06-19	2002-06-03	DR-1420-IA	Major disaster	SEVERE STORMS AND FLOODING	Inland Flooding		PA not declared for this county		
2001-05-02	2001-04-08	DR-1367-IA	Major disaster	SEVERE STORMS, TORNADOES AND FLOODING	Inland Flooding; Tornado	\$79,894.15			
1998-07-02	1998-06-13	DR-1230-IA	Major disaster	SEVERE STORMS, TORNADOES AND FLOODING	Inland Flooding (primary); also designated: Tornado	none found			
1996-06-24	1996-05-08	DR-1121-IA	Major disaster	SEVERE STORMS AND FLOODING	Inland Flooding	none found			
1993-07-09	1993-04-13	DR-996-IA	Major disaster	SEVERE STORMS & FLOODING	Inland Flooding	none found			
1993-04-26	1993-03-26	DR-986-IA	Major disaster	SEVERE STORMS & FLOODING	Inland Flooding		PA not declared for this county		
1990-05-26	1990-05-18	DR-868-IA	Major disaster	SEVERE STORMS & FLOODING	Inland Flooding	none found			

Declared	Incident began	FEMA number	Type	Title	Mapped hazard	County Public Assistance	Flags	Notes
						<i>federal share obligated, nominal dollars</i>		
1973-05-23	1973-05-23	DR-386-IA	Major disaster	SEVERE STORMS & FLOODING	Inland Flooding	none found		
1969-04-25	1969-04-25	DR-259-IA	Major disaster	FLOODING	Inland Flooding	none found		
1965-04-22	1965-04-22	DR-193-IA	Major disaster	FLOODING	Inland Flooding	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
1962-09-05	1962-09-05	DR-133-IA	Major disaster	FLOODS	Inland Flooding		
1961-03-31	1961-03-31	DR-111-IA	Major disaster	FLOODS	Inland Flooding		
1958-07-05	1958-07-05	DR-86-IA	Major disaster	FLOODS	Inland Flooding		
1954-06-23	1954-06-23	DR-17-IA	Major disaster	FLOOD	Inland Flooding		
1953-06-11	1953-06-11	DR-8-IA	Major disaster	FLOOD	Inland Flooding		

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)

Public Assistance filed under this county for declarations that do not list it: 1 row, \$221,517.94

FEMA number	Declared	Title	Applicant	PA obligated
				<i>federal share obligated, nominal dollars</i>
DR-4126-IA	2013-07-02	SEVERE STORMS, TORNADOES, AND FLOODING	DO NOT USE Muscatine-Louisa Drainage District #13	\$221,517.94

FEMA's Public Assistance summaries file these applicants under this county, but FEMA's declaration rows for these disasters do not designate it (an electric cooperative or district serving several counties, for example). Not in any declaration row above and not counted.

SOURCES

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

Public Assistance not placed in a county in this state: 11 rows, \$7,881,708.52

Disaster number	Declared	Applicant	County field in FEMA data	PA obligated	Why not placed
				<i>federal share obligated, nominal dollars</i>	
4557	2020-08-17	The Evangelical Lutheran Good Samaritan Society	Minnehaha County	\$47,682.27	county field is a county of another state and the applicant name does not identify a place in the declaring state

Disaster number	Declared	Applicant	County field in FEMA data	PA obligated <i>federal share obligated, nominal dollars</i>	Why not placed
4483	2020-03-23	Gundersen Lutheran Health System, Inc	La Crosse County	\$326,644.22	county field is a county of another state and the applicant name does not identify a place in the declaring state
4421	2019-03-23	City of Bigelow	Nobles County	\$80,835.34	county field is a county of another state and the applicant name does not identify a place in the declaring state
4421	2019-03-23	Dairyland Power Cooperative	La Crosse County	\$247,337.47	county field is a county of another state and the applicant name does not identify a place in the declaring state
4421	2019-03-23	South Dakota Dept of Transportation	Hughes County	\$3,666,245.52	county field is a county of another state and the applicant name does not identify a place in the declaring state
4421	2019-03-23	City of Omaha Parks and Recreation Dept(The Omaha Parks and Recreation)	Douglas County	\$379,432.23	county field is a county of another state and the applicant name does not identify a place in the declaring state
4184	2014-07-24	South Dakota Dept of Transportation	Hughes County	\$1,245,084.61	county field is a county of another state and the applicant name does not identify a place in the declaring state
4181	2014-07-14	Lincoln Electric System	Lancaster County	\$383,692.95	county field is a county of another state and the applicant name does not identify a place in the declaring state
4114	2013-05-06	City of Bigelow	Nobles County	\$5,961.43	county field is a county of another state and the applicant name does not identify a place in the declaring state
1998	2011-06-27	Lincoln Electric System	Lancaster County	\$65,027.74	county field is a county of another state and the applicant name does not identify a place in the declaring state
1688	2007-03-14	Dairyland Power Cooperative	La Crosse County	\$1,433,764.74	county field is a county of another state and the applicant name does not identify a place in the declaring state

FEMA's Public Assistance summaries file these applicants under a county field that is not a county of this state (an Alaska school area, the former Valdez-Cordova Census Area, or another state's county), and the applicant name does not identify one place here. They are listed for the whole state and are not in any county total. Check whether any of them worked in your county.

SOURCE

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

Previous occurrences by hazard, with explicit no-event rows

Hazard	Storm Events records <i>full period</i>	Since plan approval records	During plan review records	Last 5 years records	Declared incidents <i>distinct incidents</i>	Declared since approval <i>distinct incidents</i>	Period	Statement
Avalanche	0	0	0	0	0	0	1996 to 2026-06-30	No recorded events, 1996 to 2026-06-30, NOAA NCEI Storm Events
Coastal Flooding	0	0	0	0	0	0	1996 to 2026-06-30	No recorded events, 1996 to 2026-06-30, NOAA NCEI Storm Events
Cold Wave	20	0	0	0	0	0	1996 to 2026-06-30	Includes 6 Frost/Freeze records, event types the NRI definition of this hazard leaves out.
Drought	15	0	0	0	0	0	1996 to 2026-06-30	
Earthquake	0	0	0	0	0	0		No Storm Events record; local data required (e.g., USGS).
Hail	160	18	11	18	0	0	1955 to 2026-06-30	
Heat Wave	5	0	0	0	0	0	1996 to 2026-06-30	

Hazard	Storm Events records <i>full period</i>	Since plan approval <i>records</i>	During plan review <i>records</i>	Last 5 years <i>records</i>	Declared incidents <i>distinct incidents</i>	Declared since approval <i>distinct incidents</i>	Period	Statement
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	8	1	0	1	0	0	1996 to 2026-06-30	
Inland Flooding	85	12	2	12	16	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	4	0	0	0	0	0	1996 to 2026-06-30	
Strong Wind	225	38	5	38	2	0	1955 to 2026-06-30	Includes 12 High Wind records and 1 Strong Wind record, event types the NRI definition of this hazard leaves out.
Tornado	41	4	0	4	6	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	140	15	4	10	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 <i>nominal dollars</i>	Direct deaths, injuries <i>indirect not counted</i>	Location	Flags	Why listed
2017-06-17	Thunderstorm Wind	78 kt (90 mph) estimated gust	\$0 property; \$0 crops (2017 dollars)	0, 0	ARDON		B1-c worst recorded: Thunderstorm Wind
2015-05-04	Lightning		\$0 property; \$0 crops (2015 dollars)	1, 1	MUSCATINE		deaths or injuries recorded
2013-06-24	Tornado	EF1, 6.5 mi within this county, 100 yd wide	\$500,000 property; \$0 crops (2013 dollars)	1, 0	MUSCATINE to SWEETLAND CENTER		deaths or injuries recorded
2008-06-01	Flood		\$9,100,000 property; \$0 crops (2008 dollars)	0, 0	MONTPELIER to FRUITLAND		B1-c worst recorded: Flash Flood, Flood, Lakeshore Flood
2007-06-01	Tornado	EF3, 10.19 mi within this county, 774 yd wide	\$15,000,000 property; crops not reported (2007 dollars)	0, 6	FRUITLAND to MUSCATINE		B1-c worst recorded: Tornado

			Direct deaths, injuries		Location	Flags	Why listed
Date	Event type	Magnitude or extent	Damage	indirect not counted			
			nominal dollars				
2006-04-13	Tornado	F1, 8.9 mi within this county, 440 yd wide	\$120,000 property; crops not reported (2006 dollars)	1, 1	NICHOLS		deaths or injuries recorded
2005-07-01	Drought		property not reported; \$8,540,000 crops, reported for the zone (2005 dollars)	0, 0	NWS zone IAZ067 (MUSCATINE), zone-level: may include parts of neighboring counties		B1-c worst recorded: Drought
2005-05-03	Frost/Freeze		property not reported; \$396,000 crops, reported for the zone (2005 dollars)	0, 0	NWS zone IAZ067 (MUSCATINE), zone-level: may include parts of neighboring counties		B1-c worst recorded: Frost/Freeze (outside NRI Cold Wave definition)
2000-12-01	Cold/Wind Chill		damage not reported	0, 0	NWS zone IAZ067 (MUSCATINE), zone-level: may include parts of neighboring counties		B1-c worst recorded: Cold/Wind Chill, Extreme Cold/Wind Chill
1999-07-19	Heat		damage not reported	0, 0	NWS zone IAZ067 (MUSCATINE), zone-level: may include parts of neighboring counties		B1-c worst recorded: Excessive Heat, Heat
1998-11-09	High Wind	53 kt (61 mph), measurement type not recorded	damage not reported	0, 0	NWS zone IAZ067 (MUSCATINE), zone-level: may include parts of neighboring counties		B1-c worst recorded: High Wind and Strong Wind (outside NRI Strong Wind definition)
1975-05-11	Hail	2.75 in	damage not recorded (pre-1996 record)	0, 0	location not recorded		B1-c worst recorded: Hail

The full list is in the XLSX file, sheet "B1-d Storm Events history" (703 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

FEMA annualized frequency (modeled)				NRI events or days in its record period (hail, wind and tornado are area-weighted, so can be fractional)		NRI period	Location	Note
Hazard	unit per row	Unit	In plain terms	Descriptor	Descriptor basis			
Avalanche		events per year				1994 to 2023 (30 years)	see B1-f	Not Applicable in NRI for this county; no descriptor.

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		events per year at a location (modeled)				not shown	modeled	see B1-f	Not Applicable in NRI for this county; no descriptor.
Cold Wave	6.47	event-days per year	about 6.47 days per year	Likely	event-days in 8 of 30 years, 1996 to 2025 (26.7%)	123	2005-11-12 to 2024-11-12 (19 years)	countywide	NRI gives about 6.47 cold wave event-days a year here (its annualized frequency over 19 years; not its event count divided by the years), but Storm Events has a record in only 8 of 30 years. NRI counts from a different source that records far more events than Storm Events, so this descriptor reads much lower than NRI's frequency; read the two together. Frost/Freeze records are not counted in this descriptor: they record crop freezes, not cold waves.
Drought	9.67	event-days per year	about 9.67 days per year	Likely	event-days in 5 of 30 years, 1996 to 2025 (16.7%)	350	2000 to 2025 (25.25 years; D3 and D4 only)	countywide	NRI gives about 9.67 drought event-days a year here (its annualized frequency over 25.25 years; not its event count divided by the years), but Storm Events has a record in only 5 of 30 years. NRI counts from a different source that records far more events than Storm Events, so this descriptor reads much lower than NRI's frequency; read the two together.
Earthquake	0.00105	annual probability at a location	chance a given location in the county has at least minor- damage shaking in a year: 0.105%			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	4.31	events per year	about 4.31 per year	Highly likely	FEMA annualized frequency (modeled)	163.7 (modeled)	1986 to 2023 (38 years)	countywide	
Heat Wave	7.26	event-days per year	about 7.26 days per year	Likely	event-days in 5 of 30 years, 1996 to 2025 (16.7%)	111	2005-11-12 to 2024-11-12 (19 years)	countywide	NRI gives about 7.26 heat wave event-days a year here (its annualized frequency over 19 years; not its event count divided by the years), but Storm Events has a record in only 5 of 30 years. NRI counts from a different source that records far more events than Storm Events, so this descriptor reads much lower than NRI's frequency; read the two together.
Hurricane	0.00631	events per year	about 1 in 158 years	Unlikely	FEMA annualized frequency (modeled)	2	1851 to 2024 (Atlantic)	see B1-f	NRI counts hurricane and tropical storm tracks passing within storm-force wind range; federal declarations are counted separately in B1-d and need not match.
Ice Storm	0.548	event-days per year	about 0.548 days per year	Likely	event-days in 6 of 30 years, 1996 to 2025 (20%)	37	1946-12-31 to 2014-02-12 (67 years)	countywide	

Hazard	FEMA annualized frequency (modeled) <i>unit per row</i>	Unit	In plain terms	Descriptor	Descriptor basis	NRI events or days in its record period (hail, wind and tornado are area-weighted, so can be fractional)	NRI period	Location	Note
Inland Flooding	2.54	event-days per year	about 2.54 days per year	Likely	event-days in 26 of 30 years, 1996 to 2025 (86.7%)	71	1996 to 2023 (28 years)	see B1-f	
Landslide	0.0922	events per year (modeled)	about 1 in 11 years	Possible	FEMA annualized frequency (modeled)	not shown	modeled	see B1-f	
Lightning	44.6	days per year with a strike	about 44.6 days per year	Highly likely	FEMA annualized frequency (modeled)	not shown	1995 to 2023 (29 years; CONUS)	countywide	
Strong Wind	6.43	events per year	about 6.43 per year	Highly likely	FEMA annualized frequency (modeled)	245	1986 to 2023 (38 years)	countywide	
Tornado	0.421	events per year	about 1 in 2 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)				not shown	modeled	see B1-f	Not Applicable in NRI for this county; no descriptor.
Volcanic Activity		annual probability				not shown	modeled	see B1-f	Not Applicable in NRI for this county; no descriptor.
Wildfire	0.000872	annual probability at a location	chance a given location in the county burns in a year: 0.0872%		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	15.2	event-days per year	about 15.2 days per year	Highly likely	event-days in 30 of 30 years, 1996 to 2025 (100%)	288	2005-11-12 to 2024-11-12 (19 years)	countywide	

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

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

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

Descriptor scale used in this packet (defined per unit)

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

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

Intensity bands: historical frequency (Storm Events)

Hazard	Band	Years	Events <i>county-coded records</i>	Years in period	Events per year <i>events / years</i>
Hail	1.00-1.99 in	1996 to 2025	70	30	2.33
Hail	2.00 in+	1996 to 2025	4	30	0.133
Strong Wind (Thunderstorm Wind records)	50-64 kt	1996 to 2025	140	30	4.67
Strong Wind (Thunderstorm Wind records)	65 kt+	1996 to 2025	20	30	0.667
Strong Wind (Thunderstorm Wind records)	unmeasured or below 50 kt	1996 to 2025	4	30	0.133
Tornado	EF0-1	1996 to 2025	11	30	0.367
Tornado	EF2-3	1996 to 2025	4	30	0.133
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 <i>rated of all</i>	Risk score min <i>NRI score, 0 to 100</i>	Median	Max	Tracts by rating	Note
Avalanche	0 of 10				Not Applicable 10	
Coastal Flooding	0 of 10				Not Applicable 10	
Cold Wave	10 of 10	44.9	56.8	67.4	Relatively Moderate 9, Relatively Low 1	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	8 of 10	73.4	91.5	97.6	Relatively Moderate 4, Relatively Low 2, Very Low 2, No Rating 2	National data give a county-wide or coarse (49 km grid or NWS zone) frequency for this hazard, so they cannot show members' hazard differing. Agriculture is all of NRI's expected annual loss for this hazard in the county, so the tract range above mostly reflects where crop and livestock value is, not where buildings and people are. Confirm locally.
Earthquake	10 of 10	27.3	53.7	68.8	Relatively Low 6, Very Low 4	
Hail	10 of 10	88.0	95.9	98.6	Very High 2, Relatively High 7, Relatively Moderate 1	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	10 of 10	68.7	84.7	91.9	Relatively High 6, Relatively Moderate 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.
Hurricane	10 of 10	17.6	25.3	32.8	Very Low 10	
Ice Storm	10 of 10	77.6	87.0	93.1	Relatively High 3, Relatively Moderate 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.
Inland Flooding	10 of 10	22.0	76.6	91.0	Relatively High 4, Relatively Moderate 4, Relatively Low 2	
Landslide	10 of 10	60.0	76.1	94.9	Relatively Low 3, Very Low 7	
Lightning	10 of 10	79.2	93.7	97.8	Very High 1, Relatively High 9	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	10 of 10	92.9	98.0	99.4	Very High 7, Relatively High 3	National data give a county-wide or coarse (49 km grid or NWS zone) frequency for this hazard, so they cannot show members' hazard differing. The tract range above mostly reflects where buildings and people are. Confirm locally.
Tornado	10 of 10	50.9	67.3	84.5	Relatively High 2, Relatively Moderate 7, Relatively Low 1	
Tsunami	0 of 10				Not Applicable 10	
Volcanic Activity	0 of 10				Not Applicable 10	
Wildfire	8 of 10	35.1	83.1	89.0	Relatively Moderate 1, Relatively Low 6, Very Low 1, No Rating 2	

Hazard	Tracts <i>rated of all</i>	Risk score min <i>NRI score, 0 to 100</i>	Median	Max	Tracts by rating	Note
Winter Weather	10 of 10	72.7	85.8	92.6	Relatively High 8, Relatively Moderate 2	National data give a county-wide or coarse (49 km grid or NWS zone) frequency for this hazard, so they cannot show members' hazard differing. The tract range above mostly reflects where buildings and people are. Confirm locally.

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

SOURCE

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

Per-member block (Starter, confirm locally)

Member	Type	Plan status	Repetitive loss <i>FMA RL and SRL (44 CFR 77.2); repeat- flood, any definition</i>	Public Assistance matched <i>federal share obligated, nominal dollars</i>	Event records naming this place <i>all years; since the member's plan</i>	Notes
Muscatine County	County	Expired on 2025-10-23	FMA RL 1, SRL 4; any 28	\$3,009,671.47	0; 0	Includes \$28,928.56 for declarations not counted as hazard incidents (DR-4483-IA).
Atalissa city	City	Expired on 2025-10-23	FMA RL 0, SRL 0; any 2	\$2,398.75	22; 6	
Conesville city	City	Expired on 2025-10-23	FMA RL 0, SRL 0; any 0	none found	23; 4	
Durant city	City	Expired on 2026-02-23	FMA RL 0, SRL 0; any 0	none found	0; 0	
Fruitland city	City	Expired on 2025-10-23	FMA RL 0, SRL 0; any 0	none found	21; 3	
Muscatine city	City	Expired on 2025-10-23	FMA RL 0, SRL 1; any 14	\$2,516,031.33	201; 24	Includes \$32,854.38 for declarations not counted as hazard incidents (DR-4483-IA, DR-4557-IA).
Nichols city	City	Expired on 2025-10-23	FMA RL 0, SRL 0; any 0	\$1,914.14	18; 5	
Walcott city	City	Approved, expires 2028-03-12	FMA RL 0, SRL 0; any 0	none found	1; 0	
West Liberty city	City	Expired on 2025-10-23	FMA RL 0, SRL 0; any 2	\$949,399.85	29; 9	
Wilton city	City	Expired on 2025-10-23	FMA RL 0, SRL 0; any 0	\$63,213.15	24; 7	Includes \$53,110.18 for declarations not counted as hazard incidents (DR-4557-IA).

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)

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

Local data required

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

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

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

Hazard	Building exposure <i>modeled dollars</i>	Agriculture exposure <i>modeled dollars</i>	Population exposed <i>people</i>	EAL buildings <i>modeled dollars per year</i>	EAL agriculture <i>modeled dollars per year</i>	EAL population equivalence <i>statistical value of life and injury, \$13.7M per life, not property damage</i>	EAL as % of exposure <i>buildings; agriculture where noted</i>	Storm Events damage since 2020-10-23 <i>county-coded records, property plus crops, nominal dollars</i>	Zone-level damage since plan <i>property plus crops, reported for the zone</i>	Public Assistance since plan <i>nominal dollars; see note</i>	Note
Avalanche											Not Applicable in NRI for this county
Coastal Flooding											Not Applicable in NRI for this county
Cold Wave	\$13,163,271,514	\$238,682,383	43,233	\$1,517	\$115,566	\$598,053	under 0.0001%				
Drought		\$106,148,497			\$964,790		0.909% (agriculture)				NRI has no building exposure for this hazard; agriculture shown
Earthquake	\$23,765,968,691		43,235	\$267,536		\$82,070	0.00113%				
Hail	\$13,163,271,514	\$238,682,383	43,233	\$1,960,632	\$18,870	\$66,797	0.0149%	\$0			
Heat Wave	\$13,163,271,514	\$238,682,383	43,233	\$6,828	\$5	\$1,279,115	under 0.0001%				
Hurricane	\$13,159,969,597	\$236,558,860	43,222	\$1,509	\$1,562	under \$1	under 0.0001%				
Ice Storm	\$13,163,271,514		43,233	\$158,985		\$105,902	0.00121%		\$0		
Inland Flooding	\$13,156,042,866	\$24,801,566	900	\$9,946,675	\$281	\$115,886	n/a (see note)	\$0		\$578,141.78	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	\$245,539,244		991	\$357		\$4,706	0.000145%				
Lightning	\$13,163,271,514		43,233	\$14,764		\$538,214	0.000112%				
Strong Wind	\$13,163,271,514	\$238,682,383	43,233	\$1,017,230	\$79,125	\$1,226,673	0.00773%	\$0	\$0		
Tornado	\$13,163,271,514	\$238,682,383	43,233	\$926,872	\$3,440	\$584,146	0.00704%	\$0		\$578,141.78	

Hazard	Building exposure <i>modeled dollars</i>	Agriculture exposure <i>modeled dollars</i>	Population exposed <i>people</i>	EAL buildings <i>modeled dollars per year</i>	EAL agriculture <i>modeled dollars per year</i>	EAL population equivalence <i>statistical value of life and injury, \$13.7M per life, not property damage</i>	EAL as % of exposure <i>buildings; agriculture where noted</i>	Storm Events damage since 2020-10-23 <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
Tsunami											Not Applicable in NRI for this county
Volcanic Activity											Not Applicable in NRI for this county
Wildfire	\$908,129,200	\$51,674,154	5,336	\$80,927	\$368	\$10,272	0.00891%				
Winter Weather	\$13,163,271,514	\$238,682,383	43,233	\$3,193	\$348	\$118,802	under 0.0001%		\$0		

Totals since 2020-10-23 (Storm Events through 2026-06-30): 71 county-coded records, 56 with a damage value recorded (including \$0), \$0; 17 zone-level records, 14 with a damage value recorded (including \$0), \$0 reported for the zone; Public Assistance on counted declarations \$578,141.78 (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 (download, 25 MB), https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_CensusTracts.zip (download, 635 MB)
NOAA NCEI, NOAA NCEI Storm Events Database, details files (csvfiles v1.0), version c20260918, pulled 2026-09-28, <https://www.ncei.noaa.gov/pub/data/swdi/stormevents/csvfiles/>
NOAA National Weather Service, NWS county-public forecast zones correlation file, version bp03mr20 to bp16ap26 (11 files; newest bp16ap26), pulled 2026-09-28, <https://www.weather.gov/gis/ZoneCounty>
FEMA, OpenFEMA DisasterDeclarationsSummaries v2, version 2026-09-27T010817Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v2/DisasterDeclarationsSummaries> (API)
FEMA, OpenFEMA PublicAssistanceFundedProjectsSummaries v1, version 2026-09-26T151157Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/PublicAssistanceFundedProjectsSummaries> (API)
FEMA, OpenFEMA HazardMitigationPlanStatuses v1, version 2026-09-26T121003Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/HazardMitigationPlanStatuses> (API)

Supports B2-a: context

County context

Measure	Value
Population	43,233
Building value (total, not at risk)	\$13,163,271,514
Agriculture value (total, not at risk)	\$238,682,383
NRI risk rating (all hazards)	Relatively Low
Expected annual loss, buildings and agriculture, all hazards	\$15,571,380
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)	\$4,730,636
Social vulnerability rating	Relatively 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 (download, 25 MB), https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_CensusTracts.zip (download, 635 MB)

Supports B2-c: repetitive loss

Repetitive loss in this county, both definitions

Definition	Properties	Severe repetitive loss	Properties
Repetitive loss, FMA definition (44 CFR 77.2)	1	Severe repetitive loss, FMA definition (44 CFR 77.2)	5
Repetitive loss, NFIP insurance definition	45	Severe repetitive loss, NFIP insurance definition	4

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 <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	1	5	45	4	46	1	13
ATALISSA, CITY OF	0	0	2	0	2	0	1
MUSCATINE, CITY OF	0	1	14	0	14	0	3
WEST LIBERTY, CITY OF	0	0	2	0	2	0	1
MUSCATINE COUNTY*	1	4	27	4	28	1	8
State level, not in this county: county not reported	0	0	1	0	1	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 <i>properties</i>	SRL, FMA <i>properties</i>	RL, NFIP <i>properties</i>	SRL, NFIP <i>properties</i>	Any category <i>properties</i>	Mitigated <i>properties</i>	Currently insured <i>properties</i>	Note
Muscatine County	190836	1	4	27	4	28	1	8	
Atalissa city	190211	0	0	2	0	2	0	1	
Conesville city	190721	0	0	0	0	0	0	0	
Durant city	190922	0	0	0	0	0	0	0	
Fruitland city	190212	0	0	0	0	0	0	0	
Muscatine city	190213	0	1	14	0	14	0	3	
Nichols city	190214	0	0	0	0	0	0	0	
Walcott city	190675	0	0	0	0	0	0	0	

Member	NFIP community ID	RL, FMA <i>properties</i>	SRL, FMA <i>properties</i>	RL, NFIP <i>properties</i>	SRL, NFIP <i>properties</i>	Any category <i>properties</i>	Mitigated <i>properties</i>	Currently insured <i>properties</i>	Note
West Liberty city	190215	0	0	2	0	2	0	1	
Wilton city	190686	0	0	0	0	0	0	0	

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

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

SOURCES

FEMA, OpenFEMA NfipMultipleLossProperties v1, version 2026-08-04T164045Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/NfipMultipleLossProperties> (API)
FEMA, OpenFEMA HazardMitigationPlanStatuses v1, version 2026-09-26T121003Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/HazardMitigationPlanStatuses> (API)

County repeat-flood properties by occupancy group

Occupancy group	RL, FMA <i>properties</i>	SRL, FMA <i>properties</i>	RL, NFIP <i>properties</i>	SRL, NFIP <i>properties</i>	Any category <i>properties</i>	Mitigated <i>properties</i>	Currently insured <i>properties</i>
single-family residential	1	4	36	3	37	1	8
2 to 4 unit residential	0	0	0	0	0	0	0
other residential	0	0	0	0	0	0	0
non-residential	0	1	9	1	9	0	5
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 45 properties are NFIP repetitive loss but not FMA repetitive loss.

Exact counts; no count suppression.

Sources

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

- 1. FEMA, OpenFEMA HazardMitigationPlanStatuses v1, version 2026-09-26T121003Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/HazardMitigationPlanStatuses> (API)
- 2. FEMA, OpenFEMA DisasterDeclarationsSummaries v2, version 2026-09-27T010817Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v2/DisasterDeclarationsSummaries> (API)
- 3. FEMA, OpenFEMA PublicAssistanceFundedProjectsSummaries v1, version 2026-09-26T151157Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/PublicAssistanceFundedProjectsSummaries> (API)
- 4. FEMA, OpenFEMA NfipMultipleLossProperties v1, version 2026-08-04T164045Z, pulled 2026-09-28, <https://www.fema.gov/api/open/v1/NfipMultipleLossProperties> (API)

5. FEMA, FEMA National Risk Index 1.20.0 (December 2025), county and census tract tables, version 1.20.0, pulled 2026-09-28, https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_Counties.zip (download, 25 MB), https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_CensusTracts.zip (download, 635 MB)
6. NOAA NCEI, NOAA NCEI Storm Events Database, details files (csvfiles v1.0), version c20260918, pulled 2026-09-28, <https://www.ncei.noaa.gov/pub/data/swdi/stormevents/csvfiles/>
7. NOAA National Weather Service, NWS county-public forecast zones correlation file, version bp03mr20 to bp16ap26 (11 files; newest bp16ap26), pulled 2026-09-28, <https://www.weather.gov/gis/ZoneCounty>
8. U.S. Census Bureau, Census 2024 Gazetteer, 2020 place by county, CT county-to-cousub crosswalk, version 2024-gazetteer, pulled 2026-09-28, https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gazetteer/2024_Gaz_counties_national.zip, https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gaz_cousubs_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_Gaz_unsd_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_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

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Cite this: Hazard Plain (2026). Muscatine County, IA: risk-assessment baseline packet, release 2026-10 (data as of 2026-09-28; County area 19139). Preview: automated baseline. Built from FEMA OpenFEMA, the FEMA National Risk Index and NOAA NCEI Storm Events; source versions in the packet's Sources list.

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

Hazard Plain release 2026-10. As of 2026-09-28; Storm Events data through 2026-06-30. File hazard-plain_2026-10_IA_19139. Preview: automated baseline.