

# Douglas County, MO

Risk-assessment baseline packet

County FIPS: 29067    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 2028-04-17. Plan: Douglas County (2023) (FEMA plan 108936), approved 2023-04-18.

Since the plan was approved on 2023-04-18: 3 new hazard declarations (3 incidents) and 158 NOAA Storm Events records; details under "What changed since your last plan".

Highest expected annual loss (FEMA National Risk Index, modeled total; see B1-a): Inland Flooding (\$2,534,923 a year), Tornado (\$877,675) and Heat Wave (\$789,171).

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; 29067 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.

## CONTENTS

1. Summary and terms used, page 1
2. Plan clock, page 2
3. What changed since your last plan (approved 2023-04-18), page 2
4. B1-a: hazard identification, page 3
5. B1-b: hazard location, page 4
6. B1-c: hazard extent, page 5
7. B1-d: previous occurrences, page 7
8. B1-e: probability of future events, page 12
9. B1-f: hazards that vary across jurisdictions, page 14
10. B2-a and B2-b: vulnerability and potential impacts, page 16
11. B2-a: vulnerability (county context), page 17
12. B2-c: repetitive loss properties, page 18
13. Sources, what the plan adds, disclaimer and citation, page 19

Plan clock

Status:Approved, expires 2028-04-17

Approved:2023-04-18

Plan:Douglas County (2023) (FEMA plan 108936)

Days to expiry:565

What changed since your last plan (approved 2023-04-18)

New federal declarations:

3 new hazard declarations (3 incidents): DR-4855-MO (Severe Storms, Tornadoes, Straight-Line Winds, and Flooding), DR-4872-MO (Severe Storms, Straight-Line Winds, Tornadoes, and Flooding), DR-4885-MO (Severe Storms and Flooding)

Repetitive loss now:

FMA RL 0, SRL 0 (44 CFR 77.2); any definition: 0

Storm Events records since approval:

158 records (data through 2026-06-30)

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

Source: 1

| Jurisdiction                         | Type           | Status                       | Plan                                     | Approved   | Expires    | Days to expiry<br><small>negative = days since expiry</small> |
|--------------------------------------|----------------|------------------------------|------------------------------------------|------------|------------|---------------------------------------------------------------|
| Douglas County (unincorporated area) | Unincorporated | Approved, expires 2028-04-17 | Douglas County (2023) (FEMA plan 108936) | 2023-04-18 | 2028-04-17 | 565                                                           |
| Ava city                             | City           | Approved, expires 2028-04-17 | Douglas County (2023) (FEMA plan 108936) | 2023-04-18 | 2028-04-17 | 565                                                           |

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

## 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<br>by EAL | Hazard          | NRI risk<br>rating  | EAL rating          | EAL buildings<br><i>modeled dollars<br/>per year</i> | EAL<br>agriculture<br><i>modeled dollars<br/>per year</i> | Cost of expected<br>deaths and injuries<br><i>FEMA's dollar value per<br/>year; not property<br/>damage</i> | EAL total (see<br>note)<br><i>modeled dollars<br/>per year</i> | Storm Events records,<br>1996 to 2026-06-30<br><i>count</i> | Storm Events coverage note                                                                                                           |
|----------------|-----------------|---------------------|---------------------|------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| 1              | Inland Flooding | Very Low            | Very Low            | \$2,410,353                                          | \$662                                                     | \$123,908                                                                                                   | \$2,534,923                                                    | 394                                                         |                                                                                                                                      |
| 2              | Tornado         | Relatively Low      | Relatively Low      | \$287,663                                            | \$1,406                                                   | \$588,605                                                                                                   | \$877,675                                                      | 33                                                          |                                                                                                                                      |
| 3              | Heat Wave       | Relatively Low      | Relatively Low      | \$29                                                 | \$2                                                       | \$789,140                                                                                                   | \$789,171                                                      | 9                                                           |                                                                                                                                      |
| 4              | Cold Wave       | Relatively Low      | Relatively Low      | \$38                                                 | \$119,279                                                 | \$542,129                                                                                                   | \$661,445                                                      | 8                                                           | Includes 2 Frost/Freeze records (outside NRI's Cold Wave definition; counted in this table and in B1-d, not in the B1-e descriptor). |
| 5              | Strong Wind     | Relatively Moderate | Relatively Moderate | \$342,907                                            | \$972                                                     | \$257,692                                                                                                   | \$601,571                                                      | 252                                                         | Includes 2 High Wind records (a NOAA non-thunderstorm wind type, outside NRI's Strong Wind definition).                              |
| 6              | Earthquake      | Relatively Low      | Relatively Low      | \$264,204                                            | n/a                                                       | \$175,879                                                                                                   | \$440,083                                                      |                                                             | Storm Events does not record earthquakes.                                                                                            |
| 7              | Ice Storm       | Relatively Moderate | Relatively Moderate | \$326,369                                            | n/a                                                       | \$29,385                                                                                                    | \$355,754                                                      | 9                                                           |                                                                                                                                      |
| 8              | Lightning       | Relatively Low      | Relatively Low      | \$6,264                                              | n/a                                                       | \$91,982                                                                                                    | \$98,246                                                       | 8                                                           |                                                                                                                                      |
| 9              | Wildfire        | Very Low            | Very Low            | \$46,331                                             | \$259                                                     | \$15,417                                                                                                    | \$62,008                                                       | 1                                                           |                                                                                                                                      |
| 10             | Hail            | Very Low            | Very Low            | \$47,520                                             | \$902                                                     | \$2,618                                                                                                     | \$51,040                                                       | 222                                                         |                                                                                                                                      |
| 11             | Winter Weather  | Relatively Low      | Relatively Low      | \$23,813                                             | \$46                                                      | \$8,712                                                                                                     | \$32,570                                                       | 47                                                          |                                                                                                                                      |
| 12             | Drought         | Very Low            | Very Low            | n/a                                                  | \$12,377                                                  | n/a                                                                                                         | \$12,377                                                       | 25                                                          |                                                                                                                                      |

| Rank<br>by EAL | Hazard    | NRI risk<br>rating | EAL rating | EAL buildings<br><i>modeled dollars<br/>per year</i> | EAL agriculture<br><i>modeled dollars<br/>per year</i> | Cost of expected<br>deaths and injuries<br><i>FEMA's dollar value per<br/>year, not property<br/>damage</i> | EAL total (see<br>note)<br><i>modeled dollars<br/>per year</i> | Storm Events records,<br>1996 to 2026-06-30<br><i>count</i> | Storm Events coverage note                                               |
|----------------|-----------|--------------------|------------|------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------------------|
| 13             | Hurricane | Very Low           | Very Low   | \$6,348                                              | \$2,855                                                | \$40                                                                                                        | \$9,243                                                        | 0                                                           | No recorded events in Storm Events since 1996 (data through 2026-06-30). |
| 14             | Landslide | Relatively Low     | Very Low   | \$5,703                                              | n/a                                                    | \$2,535                                                                                                     | \$8,238                                                        | 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 records (Storm Events records this hazard only in part).

Not applicable to this county per NRI, with no federal declaration and no Storm Events record since 1996: avalanche, coastal flooding, tsunami 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.

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<br><i>NRI risk rating, score 0 to 100</i>                                             |
|------------|-------------------------------------------------------------------------------------------------------------------|
| Earthquake | tract 9505 (Relatively Moderate, 84.5); tract 9501 (Relatively Low, 76.1); tract 9502 (Relatively Low, 69.4)      |
| Hurricane  | tract 9501 (Very Low, 46.9); tract 9505 (Very Low, 45.6); tract 9502 (Very Low, 43.4)                             |
| Landslide  | tract 9501 (Relatively Moderate, 96.8); tract 9502 (Relatively Moderate, 96.2); tract 9505 (Relatively Low, 82.3) |
| Tornado    | tract 9505 (Very High, 94.0); tract 9502 (Relatively High, 86.5); tract 9501 (Relatively High, 86.2)              |
| Wildfire   | tract 9502 (Relatively Moderate, 90.1); tract 9505 (Relatively Moderate, 88.3); tract 9501 (Relatively Low, 88.2) |

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 9505 is Census Tract 9505). 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<br><i>count and years</i>         | Observed range                                                 | Worst recorded event                                                                                           | Most damaging<br>(when different)                                             | How it applies to jurisdictions                                                                                  | Note                                                                                                                                                                                                          |
|---------------------------------------------------|-------------------------------------------|-------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cold/Wind Chill, Extreme Cold/Wind Chill          | wind chill                                | 6 records, 2000 to 2025 (6 zone-level)    | 1 day to 23 days (median 3 days); 5 with a recorded value      | 2000-12-12 to 2001-01-03 (2 records, 1 of them a monthly summary record), zone-level                           |                                                                               | Countywide (zone-level records).                                                                                 |                                                                                                                                                                                                               |
| Frost/Freeze (outside NRI's Cold Wave definition) | crop damage                               | 2 records, 2007 to 2021 (2 zone-level)    |                                                                | Frost/Freeze, 2007-04-07, \$67,200 crop damage (2007 dollars); NWS zone MOZ096                                 |                                                                               | Countywide (zone-level records).                                                                                 |                                                                                                                                                                                                               |
| Drought                                           | U.S. Drought Monitor scale (D0 to D4)     | 25 records, 1999 to 2026 (25 zone-level)  | 30 days to 153 days (median 61 days); 11 with a recorded value | 153 days (5 months), 2012-06-01 to 2012-10-31, a run of 5 consecutive Storm Events drought records, zone-level | Drought, 2012-08-01, \$0 property; \$560,000 crops (zone total, 2012 dollars) | 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)                        | 241 records, 1963 to 2026                 | 0.75 in to 4.5 in (median 1 in); 241 with a recorded value     | 4.5 in hail, 2001-04-03                                                                                        | Hail, 2024-05-08, \$1,300,000 property; \$0 crops (2024 dollars)              | Event records naming jurisdictions in the plan: Ava city (49 records).                                           |                                                                                                                                                                                                               |
| Excessive Heat, Heat                              | heat index (in event narratives)          | 9 records, 1999 to 2012 (9 zone-level)    | 9 days to 92 days (median 25.5 days); 4 with a recorded value  | June 2012 to August 2012 (3 monthly summary records), zone-level                                               |                                                                               | Countywide (zone-level records).                                                                                 |                                                                                                                                                                                                               |
| 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)       | 9 records, 1996 to 2025 (9 zone-level)    |                                                                | Ice Storm, 1996-11-24, \$100,000 property; crops not reported (1996 dollars); NWS zone MOZ096                  |                                                                               | Countywide (zone-level records).                                                                                 |                                                                                                                                                                                                               |
| Flash Flood, Flood, Lakeshore Flood               | damage and flood days (flood depth: FIRM) | 394 records, 1996 to 2026 (15 zone-level) |                                                                | Flash Flood, 2024-11-05, \$11,700,000 property; \$0 crops (2024 dollars)                                       |                                                                               | Event records naming jurisdictions in the plan: Ava city (90 records). Zone-level records (15) 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                                         |                                                                |                                                                                                                |                                                                               |                                                                                                                  |                                                                                                                                                                                                               |

| Hazard                                                                      | Scale                                                                              | Records<br><i>count and years</i>        | Observed range                                                                      | Worst recorded event                                                                             | Most damaging<br>(when different)                                              | How it applies to jurisdictions                                        | Note                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lightning                                                                   | annualized frequency (the measure FEMA's Local Mitigation Planning Handbook names) | 8 records, 2001 to 2022                  |                                                                                     | Lightning, 2021-05-09, \$37,000 property; \$0 crops (2021 dollars)                               |                                                                                | Event records naming jurisdictions in the plan: Ava city (4 records).  | Storm Events lists lightning with damage or casualties.                                                                                                                                                              |
| High Wind and Strong Wind (outside NRI's Strong Wind definition)            | wind speed (kt and mph)                                                            | 2 records, 2008 to 2014 (2 zone-level)   | 50 kt (58 mph) to 52 kt (60 mph) (median 51 kt (59 mph)); 2 with a recorded value   | 52 kt (60 mph) estimated gust, High Wind, 2008-09-14; NWS zone MOZ096                            | High Wind, 2014-02-20, \$25,000 property; \$0 crops (zone total, 2014 dollars) | Countywide (zone-level records).                                       |                                                                                                                                                                                                                      |
| Thunderstorm Wind                                                           | wind speed (kt and mph)                                                            | 260 records, 1975 to 2026                | 50 kt (58 mph) to 72 kt (83 mph) (median 52 kt (60 mph)); 237 with a recorded value | 72 kt (83 mph) measured gust, Thunderstorm Wind, 2014-04-27                                      | Thunderstorm Wind, 2009-05-08, \$5,000,000 property; \$0 crops (2009 dollars)  | Event records naming jurisdictions in the plan: Ava city (89 records). |                                                                                                                                                                                                                      |
| Tornado                                                                     | Enhanced Fujita (Fujita before Feb 2007)                                           | 42 records, 1957 to 2026                 | F/EF0 to F/EF3 (median F/EF1); 42 with a recorded value                             | F3 tornado, 1979-04-11, 400 yd wide, \$250 property; crops not recorded (1979 dollars)           | Tornado, 1990-05-12, \$2,500,000 property; crops not recorded (1990 dollars)   | Event records naming jurisdictions in the plan: Ava city (4 records).  | 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). |
| Wildfire                                                                    | acres burned (local data)                                                          | 1 record, 2025 (1 zone-level)            |                                                                                     | Wildfire, 2025-03-19, \$2,000 property; \$0 crops (2025 dollars); NWS zone MOZ096                |                                                                                | Countywide (zone-level records).                                       |                                                                                                                                                                                                                      |
| Winter Storm, Heavy Snow, Blizzard, Lake-Effect Snow, Winter Weather, Sleet | none in data (snowfall: local data)                                                | 47 records, 1996 to 2026 (47 zone-level) |                                                                                     | Winter Storm, 1999-01-01, \$125,000 property; crops not reported (1999 dollars); NWS zone MOZ096 |                                                                                | Countywide (zone-level records).                                       |                                                                                                                                                                                                                      |

In event narratives only (local data needed): wind chill, temperature, heat index, ice thickness, acres burned and snow depth; any physical measure of debris flow and lightning.

Storm Events records are more complete after 1996; before 1996 only Tornado (from 1950), Hail and Thunderstorm Wind (from 1955) exist. Zone-level records from zones that 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.

A monthly summary record covers most or all of a month; it does not count days at wave conditions.

## Supports FEMA checklist item B1-d: previous occurrences

Federal declarations for this county: 25 declarations covering 21 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<br><i>federal share obligated, nominal dollars</i>                                                     | Flags                                    | Notes                    |
|------------|----------------|-------------|----------------|-------------------------------------------------------------|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|--------------------------|
| 2025-07-22 | 2025-05-23     | DR-4885-MO  | Major disaster | Severe Storms and Flooding                                  | Inland Flooding                       | \$2,100,083.62                                                                                                                  | new since last plan; within last 5 years |                          |
| 2025-05-21 | 2025-03-30     | DR-4872-MO  | Major disaster | Severe Storms, Straight-Line Winds, Tornadoes, and Flooding | Inland Flooding; Strong Wind; Tornado | \$844,469.12                                                                                                                    | new since last plan; within last 5 years |                          |
| 2025-01-01 | 2024-11-03     | DR-4855-MO  | Major disaster | Severe Storms, Tornadoes, Straight-Line Winds, and Flooding | Inland Flooding; Strong Wind; Tornado | \$1,622,188.99                                                                                                                  | new since last plan; within last 5 years |                          |
| 2020-07-09 | 2020-05-03     | DR-4552-MO  | Major disaster | Severe Storms, Tornadoes, Straight-Line Winds, and Flooding | Inland Flooding; Strong Wind; Tornado | no Public Assistance recorded                                                                                                   |                                          |                          |
| 2020-03-26 | 2020-01-20     | DR-4490-MO  | Major disaster | COVID-19 Pandemic                                           | Non-natural, not counted              | none placed in this county by FEMA's record; \$369,154.74 for this declaration is not placed in any county (see the state page) |                                          |                          |
| 2020-03-13 | 2020-01-20     | EM-3482-MO  | Emergency      | COVID-19                                                    | Non-natural, not counted              | no Public Assistance recorded                                                                                                   |                                          | same incident as DR-4490 |

| Declared   | Incident began | FEMA number | Type           | Title                                                       | Mapped hazard                                                    | County Public Assistance                 |                               | Flags | Notes                    |
|------------|----------------|-------------|----------------|-------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------|-------------------------------|-------|--------------------------|
|            |                |             |                |                                                             |                                                                  | federal share obligated, nominal dollars |                               |       |                          |
| 2019-07-09 | 2019-04-29     | DR-4451-MO  | Major disaster | Severe Storms, Tornadoes, and Flooding                      | Inland Flooding; Tornado                                         |                                          | \$49,754.24                   |       |                          |
| 2017-06-02 | 2017-04-28     | DR-4317-MO  | Major disaster | Severe Storms, Tornadoes, Straight-Line Winds and Flooding  | Inland Flooding (primary); also designated: Strong Wind, Tornado |                                          | \$868,347.55                  |       |                          |
| 2016-01-21 | 2015-12-23     | DR-4250-MO  | Major disaster | Severe Storms, Tornadoes, Straight-Line Winds, and Flooding | Inland Flooding (primary); also designated: Strong Wind, Tornado |                                          | \$412,913.32                  |       |                          |
| 2016-01-02 | 2015-12-22     | EM-3374-MO  | Emergency      | Severe Storms, Tornadoes, Straight-Line Winds, and Flooding | Inland Flooding (primary); also designated: Strong Wind, Tornado |                                          | no Public Assistance recorded |       | same incident as DR-4250 |
| 2015-08-07 | 2015-05-15     | DR-4238-MO  | Major disaster | Severe Storms, Tornadoes, Straight-Line Winds, and Flooding | Inland Flooding; Strong Wind; Tornado                            |                                          | \$301,147.16                  |       |                          |
| 2011-05-09 | 2011-04-19     | DR-1980-MO  | Major disaster | Severe Storms, Tornadoes, and Flooding                      | Inland Flooding; Tornado                                         |                                          | \$245,324.46                  |       |                          |
| 2011-02-03 | 2011-01-31     | EM-3317-MO  | Emergency      | Severe Winter Storm                                         | Winter Weather                                                   |                                          | no Public Assistance recorded |       |                          |
| 2009-06-19 | 2009-05-08     | DR-1847-MO  | Major disaster | Severe Storms, Tornadoes, and Flooding                      | Inland Flooding; Tornado                                         |                                          | \$35,126.88                   |       |                          |

| Declared   | Incident began | FEMA number | Type           | Title                                  | Mapped hazard                                                        | County Public Assistance                        | Flags | Notes |
|------------|----------------|-------------|----------------|----------------------------------------|----------------------------------------------------------------------|-------------------------------------------------|-------|-------|
|            |                |             |                |                                        |                                                                      | <i>federal share obligated, nominal dollars</i> |       |       |
| 2009-01-30 | 2009-01-26     | EM-3303-MO  | Emergency      | Severe Winter Storm                    | Ice Storm                                                            | no Public Assistance recorded                   |       |       |
| 2008-11-13 | 2008-09-11     | DR-1809-MO  | Major disaster | Severe Storms, Flooding, and a Tornado | Inland Flooding; Tornado                                             | \$384,609.64                                    |       |       |
| 2008-03-19 | 2008-03-17     | DR-1749-MO  | Major disaster | Severe Storms and Flooding             | Inland Flooding                                                      | \$594,808.31                                    |       |       |
| 2008-03-12 | 2008-02-10     | DR-1748-MO  | Major disaster | Severe Winter Storms and Flooding      | Ice Storm                                                            | \$93,238.13                                     |       |       |
| 2007-12-12 | 2007-12-08     | EM-3281-MO  | Emergency      | Severe Winter Storms                   | Ice Storm                                                            | no Public Assistance recorded                   |       |       |
| 2005-09-10 | 2005-08-29     | EM-3232-MO  | Emergency      | Hurricane Katrina Evacuation           | Hurricane: evacuation support, not a local hazard event; not counted | no Public Assistance recorded                   |       |       |
| 2003-05-06 | 2003-05-04     | DR-1463-MO  | Major disaster | Severe Storms, Tornadoes, and Flooding | Inland Flooding; Tornado                                             | PA not declared for this county                 |       |       |
| 2002-05-06 | 2002-04-24     | DR-1412-MO  | Major disaster | Severe Storms, Tornadoes and Flooding  | Inland Flooding; Tornado                                             | \$459,081.44                                    |       |       |
| 1993-07-09 | 1993-06-10     | DR-995-MO   | Major disaster | Severe Storms & Flooding               | Inland Flooding                                                      | no Public Assistance recorded                   |       |       |
| 1976-09-24 | 1976-09-24     | EM-3017-MO  | Emergency      | Drought                                | Drought                                                              | no Public Assistance recorded                   |       |       |
| 1973-04-19 | 1973-04-19     | DR-372-MO   | Major disaster | Heavy Rains, Tornadoes & Flooding      | Inland Flooding; Tornado                                             | 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                                       |
|------------|----------------|-------------|----------------|--------------------------|-----------------------------------------------------|
| 1964-07-08 | 1964-07-08     | DR-173-MO   | Major disaster | Severe Storms & Flooding | Inland Flooding                                     |
| 1961-05-27 | 1961-05-27     | DR-114-MO   | Major disaster | Floods                   | Inland Flooding                                     |
| 1960-04-20 | 1960-04-20     | DR-100-MO   | Major disaster | Floods                   | Inland Flooding                                     |
| 1957-05-22 | 1957-05-22     | DR-75-MO    | Major disaster | Tornadoes & Floods       | Tornado (primary); also designated: Inland Flooding |

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.

Public Assistance not placed in any Missouri county: 24 rows, \$2,272,582.85; listed on the Missouri state page.

Source: 3

Previous occurrences by hazard, with explicit no-event rows

Sources: 2, 6, 7

| Hazard          | Storm Events records,<br>all years on file<br><i>(years in the Period column)</i> | Since plan<br>approval<br>records | In the 12 months before<br>plan approval<br>records | Last 5<br>years<br>records | Declared incidents,<br>all years<br><i>separate disasters</i> | Declared since<br>approval<br><i>separate disasters</i> | Period             | Statement                                                                            |
|-----------------|-----------------------------------------------------------------------------------|-----------------------------------|-----------------------------------------------------|----------------------------|---------------------------------------------------------------|---------------------------------------------------------|--------------------|--------------------------------------------------------------------------------------|
| Cold Wave       | 8                                                                                 | 2                                 | 1                                                   | 3                          | 0                                                             | 0                                                       | 1996 to 2026-06-30 | Includes 2 Frost/Freeze records.                                                     |
| Drought         | 25                                                                                | 10                                | 3                                                   | 13                         | 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            | 241                                                                               | 31                                | 19                                                  | 55                         | 0                                                             | 0                                                       | 1955 to 2026-06-30 |                                                                                      |
| Heat Wave       | 9                                                                                 | 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       | 9                                                                                 | 2                                 | 0                                                   | 2                          | 3                                                             | 0                                                       | 1996 to 2026-06-30 |                                                                                      |
| Inland Flooding | 394                                                                               | 57                                | 24                                                  | 103                        | 16                                                            | 3                                                       | 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       | 8                                                                                 | 0                                 | 1                                                   | 1                          | 0                                                             | 0                                                       | 1996 to 2026-06-30 |                                                                                      |
| Strong Wind     | 262                                                                               | 43                                | 13                                                  | 61                         | 6                                                             | 2                                                       | 1955 to 2026-06-30 | Includes 2 High Wind records.                                                        |
| Tornado         | 42                                                                                | 7                                 | 0                                                   | 7                          | 13                                                            | 2                                                       | 1950 to 2026-06-30 |                                                                                      |

| Hazard            | Storm Events records,<br>all years on file<br><i>(years in the Period column)</i> | Since plan<br>approval<br><i>records</i> | In the 12 months before<br>plan approval<br><i>records</i> | Last 5<br>years<br><i>records</i> | Declared incidents,<br>all years<br><i>separate disasters</i> | Declared since<br>approval<br><i>separate disasters</i> | Period                | Statement |
|-------------------|-----------------------------------------------------------------------------------|------------------------------------------|------------------------------------------------------------|-----------------------------------|---------------------------------------------------------------|---------------------------------------------------------|-----------------------|-----------|
| Wildfire          | 1                                                                                 | 1                                        | 0                                                          | 1                                 | 0                                                             | 0                                                       | 1996 to<br>2026-06-30 |           |
| Winter<br>Weather | 47                                                                                | 5                                        | 5                                                          | 15                                | 1                                                             | 0                                                       | 1996 to<br>2026-06-30 |           |

Notable Storm Events records

Sources: 1, 6, 7

| Date       | Event type                 | Magnitude or extent              | Damage<br><i>nominal dollars</i>                                     | Deaths,<br>injuries<br><i>direct only</i> | Location                                 | Flags                                       | Why listed                                                       |
|------------|----------------------------|----------------------------------|----------------------------------------------------------------------|-------------------------------------------|------------------------------------------|---------------------------------------------|------------------------------------------------------------------|
| 2024-11-05 | Flash Flood                |                                  | \$11,700,000 property; \$0 crops (2024 dollars)                      | 0, 0                                      | AVA MUNI MEML ARPT                       | new since last plan;<br>within last 5 years | B1-c worst recorded: Flash Flood, Flood, Lakeshore Flood         |
| 2021-05-09 | Lightning                  |                                  | \$37,000 property; \$0 crops (2021 dollars)                          | 0, 0                                      | AVA                                      |                                             | B1-c worst recorded: Lightning                                   |
| 2019-04-30 | Flash Flood                |                                  | \$0 property; \$0 crops (2019 dollars)                               | 1, 0                                      | SWEDEN                                   |                                             | deaths or injuries recorded                                      |
| 2015-12-27 | Flood                      |                                  | \$0 property; \$0 crops (2015 dollars)                               | 1, 0                                      | SMALLETT                                 |                                             | deaths or injuries recorded                                      |
| 2014-04-27 | Thunderstorm<br>Wind       | 72 kt (83 mph)<br>measured gust  | \$0 property; \$0 crops (2014 dollars)                               | 0, 0                                      | AVA                                      |                                             | B1-c worst recorded: Thunderstorm<br>Wind                        |
| 2012-06-01 | Heat                       |                                  | \$0 property; \$0 crops (zone total, 2012 dollars)                   | 0, 0                                      | NWS zone MOZ096<br>(DOUGLAS), zone-level |                                             | B1-c worst recorded: Excessive Heat,<br>Heat                     |
| 2008-09-14 | High Wind                  | 52 kt (60 mph)<br>estimated gust | \$0 property; \$0 crops (zone total, 2008 dollars)                   | 0, 0                                      | NWS zone MOZ096<br>(DOUGLAS), zone-level |                                             | B1-c worst recorded: High Wind and<br>Strong Wind                |
| 2007-04-07 | Frost/Freeze               |                                  | \$0 property; \$67,200 crops (zone total, 2007 dollars)              | 0, 0                                      | NWS zone MOZ096<br>(DOUGLAS), zone-level |                                             | B1-c worst recorded: Frost/Freeze                                |
| 2000-12-12 | Extreme Cold/Wind<br>Chill |                                  | \$0 property; \$0 crops (zone total, 2000 dollars)                   | 0, 0                                      | NWS zone MOZ096<br>(DOUGLAS), zone-level |                                             | B1-c worst recorded: Cold/Wind Chill,<br>Extreme Cold/Wind Chill |
| 1998-05-06 | Flash Flood                |                                  | damage not reported                                                  | 2, 0                                      | ANN                                      |                                             | deaths or injuries recorded                                      |
| 1996-11-24 | Ice Storm                  |                                  | \$100,000 property; crops not reported<br>(zone total, 1996 dollars) | 0, 0                                      | NWS zone MOZ096<br>(DOUGLAS), zone-level |                                             | B1-c worst recorded: Ice Storm                                   |
| 1979-04-11 | Tornado                    | F3, 400 yd wide                  | \$250 property; crops not recorded (1979 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" (1,046 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).

FEMA's declaration data list no tribal or special-area declarations for this state.

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

### Probability: FEMA annualized frequency and descriptor per hazard

Sources: 5, 6

| Hazard             | FEMA<br>annualized<br>frequency<br>(modeled)<br><i>unit per row</i> | Unit                                   | In plain terms                                                                                        | Descriptor       | Descriptor basis                                                         | NRI events or days in its record<br>period (hail, wind and tornado<br>are area-weighted, so can be<br>fractional) | NRI period                                       | Location   | Note                                                                                                                             |
|--------------------|---------------------------------------------------------------------|----------------------------------------|-------------------------------------------------------------------------------------------------------|------------------|--------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------|
| Cold Wave          | 2.11                                                                | event-days<br>per year                 | about 2.11 days per<br>year                                                                           | Likely           | Storm Events event-<br>days in 5 of 30 years,<br>1996 to 2025<br>(16.7%) | 40                                                                                                                | 2005-11-12 to<br>2024-11-12 (19<br>years)        | countywide |                                                                                                                                  |
| Drought            | 2.32                                                                | event-days<br>per year                 | about 2.32 days per<br>year                                                                           | Likely           | Storm Events event-<br>days in 9 of 30 years,<br>1996 to 2025 (30%)      | 63                                                                                                                | 2000 to 2025<br>(25.25 years; D3<br>and D4 only) | countywide |                                                                                                                                  |
| Earthquake         | 0.00352                                                             | annual<br>probability at<br>a location | chance a given location<br>in the county has at<br>least minor-damage<br>shaking in a year:<br>0.352% |                  |                                                                          | not shown                                                                                                         | modeled                                          | see B1-f   | No descriptor (Storm Events<br>does not record earthquakes).                                                                     |
| Hail               | 6.14                                                                | events per<br>year                     | about 6.14 per year                                                                                   | Highly<br>likely | FEMA annualized<br>frequency (modeled)                                   | 233.5 (modeled)                                                                                                   | 1986 to 2023 (38<br>years)                       | countywide |                                                                                                                                  |
| Heat Wave          | 12.6                                                                | event-days<br>per year                 | about 12.6 days per<br>year                                                                           | Likely           | Storm Events event-<br>days in 4 of 30 years,<br>1996 to 2025<br>(13.3%) | 190                                                                                                               | 2005-11-12 to<br>2024-11-12 (19<br>years)        | countywide |                                                                                                                                  |
| Hurricane          | 0.0156                                                              | events per<br>year                     | about 1 in 64 years                                                                                   | Possible         | FEMA annualized<br>frequency (modeled)                                   | 6                                                                                                                 | 1851 to 2024<br>(Atlantic)                       | see B1-f   | NRI counts hurricane and tropical<br>storm tracks passing within<br>storm-force wind range; federal<br>declarations are in B1-d. |
| Ice Storm          | 1.6                                                                 | event-days<br>per year                 | about 1.6 days per year                                                                               | Likely           | Storm Events event-<br>days in 8 of 30 years,<br>1996 to 2025<br>(26.7%) | 108                                                                                                               | 1946-12-31 to<br>2014-02-12 (67<br>years)        | countywide |                                                                                                                                  |
| Inland<br>Flooding | 6.43                                                                | event-days<br>per year                 | about 6.43 days per<br>year                                                                           | Highly<br>likely | Storm Events event-<br>days in 30 of 30<br>years, 1996 to 2025<br>(100%) | 180                                                                                                               | 1996 to 2023 (28<br>years)                       | see B1-f   |                                                                                                                                  |
| Landslide          | 2.09                                                                | events per<br>year<br>(modeled)        | about 2.09 per year                                                                                   | Highly<br>likely | FEMA annualized<br>frequency (modeled)                                   | not shown                                                                                                         | modeled                                          | see B1-f   |                                                                                                                                  |
| Lightning          | 57                                                                  | days per year<br>with a strike         | about 57 days per year                                                                                | Highly<br>likely | FEMA annualized<br>frequency (modeled)                                   | not shown                                                                                                         | 1995 to 2023 (29<br>years; CONUS)                | countywide |                                                                                                                                  |
| Strong<br>Wind     | 4.65                                                                | events per<br>year                     | about 4.65 per year                                                                                   | Highly<br>likely | FEMA annualized<br>frequency (modeled)                                   | 177                                                                                                               | 1986 to 2023 (38<br>years)                       | countywide |                                                                                                                                  |

| Hazard         | FEMA annualized frequency (modeled)<br><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 |
|----------------|------------------------------------------------------------|----------------------------------|---------------------------------------------------------------|------------|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-------------------------------------------|------------|------|
| Tornado        | 0.507                                                      | events per year                  | about 0.51 per year                                           | Likely     | FEMA annualized frequency (modeled)                             | not shown                                                                                                | 1950 to 2023 (EF2+); 1986 to 2023 (EF0-1) | see B1-f   |      |
| Wildfire       | 0.00206                                                    | annual probability at a location | chance a given location in the county burns in a year: 0.206% | Possible   | Storm Events records in 1 of 30 years, 1996 to 2025 (3.33%)     | not shown                                                                                                | modeled                                   | see B1-f   |      |
| Winter Weather | 10.9                                                       | event-days per year              | about 10.9 days per year                                      | Likely     | Storm Events event-days in 23 of 30 years, 1996 to 2025 (76.7%) | 208                                                                                                      | 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.

Where NRI gives event-days, the descriptor comes from the share of years with a Storm Events record; NRI's source records more events, so the two differ.

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<br><i>county-coded records</i> | Years in period | Events per year<br><i>events / years</i> |
|------------------------------------------------|---------------------------|--------------|---------------------------------------|-----------------|------------------------------------------|
| Hail                                           | 1.00-1.99 in              | 1996 to 2025 | 122                                   | 30              | 4.07                                     |
| Hail                                           | 2.00 in+                  | 1996 to 2025 | 17                                    | 30              | 0.567                                    |
| Thunderstorm Wind (counted as NRI Strong Wind) | 50-64 kt                  | 1996 to 2025 | 211                                   | 30              | 7.03                                     |
| Thunderstorm Wind (counted as NRI Strong Wind) | 65 kt+                    | 1996 to 2025 | 17                                    | 30              | 0.567                                    |
| Thunderstorm Wind (counted as NRI Strong Wind) | unmeasured or below 50 kt | 1996 to 2025 | 13                                    | 30              | 0.433                                    |
| Tornado                                        | EF0-1                     | 1996 to 2025 | 29                                    | 30              | 0.967                                    |
| Tornado                                        | EF2-3                     | 1996 to 2025 | 2                                     | 30              | 0.0667                                   |
| 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<br><i>rated of all</i> | NRI risk score, 0 to 100 |        |      | Tracts by rating                         |
|-----------------|-------------------------------|--------------------------|--------|------|------------------------------------------|
|                 |                               | Min                      | Median | Max  |                                          |
| Cold Wave       | 3 of 3                        | 87.8                     | 87.9   | 89.2 | Relatively High 3                        |
| Drought         | 1 of 3                        | 90.1                     | 90.1   | 90.1 | Relatively Low 1, No Rating 2            |
| Earthquake      | 3 of 3                        | 69.4                     | 76.1   | 84.5 | Relatively Moderate 1, Relatively Low 2  |
| Hail            | 3 of 3                        | 66.9                     | 67.2   | 75.0 | Relatively Moderate 1, Relatively Low 2  |
| Heat Wave       | 3 of 3                        | 94.1                     | 94.9   | 96.1 | Relatively High 3                        |
| Hurricane       | 3 of 3                        | 43.4                     | 45.6   | 46.9 | Very Low 3                               |
| Ice Storm       | 3 of 3                        | 97.8                     | 98.0   | 99.2 | Very High 3                              |
| Inland Flooding | 3 of 3                        | 70.8                     | 76.7   | 84.4 | Relatively High 1, Relatively Moderate 2 |
| Landslide       | 3 of 3                        | 82.3                     | 96.2   | 96.8 | Relatively Moderate 2, Relatively Low 1  |
| Lightning       | 3 of 3                        | 83.2                     | 86.5   | 92.1 | Relatively High 3                        |
| Strong Wind     | 3 of 3                        | 97.2                     | 97.9   | 99.1 | Very High 3                              |

| Hazard         | Tracts<br><i>rated of all</i> | NRI risk score, 0 to 100 |        |      | Tracts by rating                        |
|----------------|-------------------------------|--------------------------|--------|------|-----------------------------------------|
|                |                               | Min                      | Median | Max  |                                         |
| Tornado        | 3 of 3                        | 86.2                     | 86.5   | 94.0 | Very High 1, Relatively High 2          |
| Wildfire       | 3 of 3                        | 88.2                     | 88.3   | 90.1 | Relatively Moderate 2, Relatively Low 1 |
| Winter Weather | 3 of 3                        | 84.3                     | 84.6   | 91.5 | Relatively High 3                       |

Drought: Agriculture is all of NRI's expected annual loss for this hazard in the county, so the tract range mostly reflects where crop and livestock value is.

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, drought, 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 (crop and livestock value where a line above names agriculture).

This county has 3 census tracts; the minimum, median and maximum come from those 3.

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> |
| Douglas County (unincorporated area) | Unincorporated | Approved, expires 2028-04-17 | FMA RL 0, SRL 0; any 0                                            | \$7,878,477.38                                                                          | 0 total; 0 since its plan        |
| Ava city                             | City           | Approved, expires 2028-04-17 | FMA RL 0, SRL 0; any 0                                            | \$120,739.23                                                                            | 236 total; 30 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<br>modeled dollars | Agriculture exposure<br>modeled dollars | Population exposed<br>people | EAL buildings<br>modeled dollars per year | EAL agriculture<br>modeled dollars per year | Cost of expected deaths and injuries<br>FEMA's dollar value per year, not property damage | EAL as % of exposure<br>buildings; agriculture where noted | Storm Events damage since 2023-04-18<br>county-coded records, property plus crops, nominal dollars | Zone-level damage since plan<br>property plus crops, reported for the zone | Public Assistance since plan<br>nominal dollars; see note | Note                                                                                                                                                                      |
|-----------------|--------------------------------------|-----------------------------------------|------------------------------|-------------------------------------------|---------------------------------------------|-------------------------------------------------------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cold Wave       | \$2,220,617,177                      | \$43,464,354                            | 11,559                       | \$38                                      | \$119,279                                   | \$542,129                                                                                 | under 0.0001%                                              |                                                                                                    | \$0                                                                        |                                                           |                                                                                                                                                                           |
| Drought         | n/a                                  | \$1,519,342                             | n/a                          | n/a                                       | \$12,377                                    | n/a                                                                                       | 0.815% (agriculture)                                       |                                                                                                    | \$65,000                                                                   |                                                           | NRI has no building exposure for this hazard; agriculture shown                                                                                                           |
| Earthquake      | \$3,628,016,135                      | n/a                                     | 11,578                       | \$264,204                                 | n/a                                         | \$175,879                                                                                 | 0.00728%                                                   |                                                                                                    |                                                                            |                                                           |                                                                                                                                                                           |
| Hail            | \$2,220,617,177                      | \$43,464,354                            | 11,559                       | \$47,520                                  | \$902                                       | \$2,618                                                                                   | 0.00214%                                                   | \$1,640,000                                                                                        |                                                                            |                                                           |                                                                                                                                                                           |
| Heat Wave       | \$2,220,617,177                      | \$43,464,354                            | 11,559                       | \$29                                      | \$2                                         | \$789,140                                                                                 | under 0.0001%                                              |                                                                                                    |                                                                            |                                                           |                                                                                                                                                                           |
| Hurricane       | \$2,220,617,177                      | \$43,369,657                            | 11,559                       | \$6,348                                   | \$2,855                                     | \$40                                                                                      | 0.000286%                                                  |                                                                                                    |                                                                            |                                                           |                                                                                                                                                                           |
| Ice Storm       | \$2,220,617,177                      | n/a                                     | 11,559                       | \$326,369                                 | n/a                                         | \$29,385                                                                                  | 0.0147%                                                    |                                                                                                    | \$0                                                                        |                                                           |                                                                                                                                                                           |
| Inland Flooding | \$2,219,994,643                      | \$9,042                                 | 14                           | \$2,410,353                               | \$662                                       | \$123,908                                                                                 | n/a (see note)                                             | \$11,700,000                                                                                       |                                                                            | \$4,566,741.73                                            | 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       | \$131,915,191                        | n/a                                     | 730                          | \$5,703                                   | n/a                                         | \$2,535                                                                                   | 0.00432%                                                   |                                                                                                    |                                                                            |                                                           |                                                                                                                                                                           |
| Lightning       | \$2,220,617,177                      | n/a                                     | 11,559                       | \$6,264                                   | n/a                                         | \$91,982                                                                                  | 0.000282%                                                  |                                                                                                    |                                                                            |                                                           |                                                                                                                                                                           |
| Strong Wind     | \$2,220,617,177                      | \$43,464,354                            | 11,559                       | \$342,907                                 | \$972                                       | \$257,692                                                                                 | 0.0154%                                                    | \$69,500                                                                                           |                                                                            | \$2,466,658.11                                            |                                                                                                                                                                           |
| Tornado         | \$2,220,617,177                      | \$43,464,354                            | 11,559                       | \$287,663                                 | \$1,406                                     | \$588,605                                                                                 | 0.013%                                                     | \$170,000                                                                                          |                                                                            | \$2,466,658.11                                            |                                                                                                                                                                           |

| Hazard         | Building exposure<br><i>modeled dollars</i> | Agriculture exposure<br><i>modeled dollars</i> | Population exposed<br><i>people</i> | EAL buildings<br><i>modeled dollars per year</i> | EAL agriculture<br><i>modeled dollars per year</i> | Cost of expected deaths and injuries<br><i>FEMA's dollar value per year, not property damage</i> | EAL as % of exposure<br><i>buildings; agriculture where noted</i> | Storm Events damage since 2023-04-18<br><i>county-coded records, property plus crops, nominal dollars</i> | Zone-level damage since plan<br><i>property plus crops, reported for the zone</i> | Public Assistance since plan<br><i>nominal dollars; see note</i> | Note |
|----------------|---------------------------------------------|------------------------------------------------|-------------------------------------|--------------------------------------------------|----------------------------------------------------|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------|------|
| Wildfire       | \$240,755,404                               | \$17,678,243                                   | 3,919                               | \$46,331                                         | \$259                                              | \$15,417                                                                                         | 0.0192%                                                           |                                                                                                           | \$2,000                                                                           |                                                                  |      |
| Winter Weather | \$2,220,617,177                             | \$43,464,354                                   | 11,559                              | \$23,813                                         | \$46                                               | \$8,712                                                                                          | 0.00107%                                                          |                                                                                                           | \$0                                                                               |                                                                  |      |

Totals since 2023-04-18 (Storm Events through 2026-06-30): 138 county-coded records, 138 with a damage value recorded (including \$0), \$13,579,500; 20 zone-level records, 19 with a damage value recorded (including \$0), \$67,000 reported for the zone; Public Assistance: \$4,566,741.73 on 3 counted declarations.

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                                                                                                                                                                    | 11,559          |
| Building value (total, not at risk)                                                                                                                                           | \$2,220,617,177 |
| Agriculture value (total, not at risk)                                                                                                                                        | \$43,464,354    |
| NRI risk rating (all hazards)                                                                                                                                                 | Very Low        |
| Expected annual loss, buildings and agriculture, all hazards                                                                                                                  | \$3,906,304     |
| 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) | \$2,628,041     |
| Social vulnerability rating                                                                                                                                                   | Relatively High |
| Community resilience rating                                                                                                                                                   | Very Low        |
| 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<br><i>properties</i> | SRL, FMA<br><i>properties</i> | RL, NFIP<br><i>properties</i> | SRL, NFIP<br><i>properties</i> | Any category<br><i>properties</i> | Mitigated<br><i>properties</i> | Currently insured<br><i>properties</i> |
|-------------------------------------|------------------------------|-------------------------------|-------------------------------|--------------------------------|-----------------------------------|--------------------------------|----------------------------------------|
| County total                        | 0                            | 0                             | 0                             | 0                              | 0                                 | 0                              | 0                                      |
| Statewide, no county in FEMA's file | 0                            | 0                             | 3                             | 0                              | 3                                 | 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<br><i>properties</i> | SRL, FMA<br><i>properties</i> | RL, NFIP<br><i>properties</i> | SRL, NFIP<br><i>properties</i> | Any category<br><i>properties</i> | Mitigated<br><i>properties</i> | Currently insured<br><i>properties</i> |
|--------------------------------------|-------------------|------------------------------|-------------------------------|-------------------------------|--------------------------------|-----------------------------------|--------------------------------|----------------------------------------|
| Douglas County (unincorporated area) | 290800            | 0                            | 0                             | 0                             | 0                              | 0                                 | 0                              | 0                                      |
| Ava city                             | 290121            | 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)
  2. FEMA, OpenFEMA DisasterDeclarationsSummaries v2, version 2026-09-29T162832Z, pulled 2026-09-30, <https://www.fema.gov/api/open/v2/DisasterDeclarationsSummaries> (API)
  3. FEMA, OpenFEMA PublicAssistanceFundedProjectsSummaries v1, version 2026-09-29T150754Z, pulled 2026-09-30, <https://www.fema.gov/api/open/v1/PublicAssistanceFundedProjectsSummaries> (API)
  4. FEMA, OpenFEMA NfipMultipleLossProperties v1, version 2026-08-04T164045Z, pulled 2026-09-30, <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 2026-09-30, [https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI\\_Table\\_Counties.zip](https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_Counties.zip) (download, 25 MB), [https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI\\_Table\\_CensusTracts.zip](https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_CensusTracts.zip) (download, 635 MB)
  6. NOAA NCEI, NOAA NCEI Storm Events Database, details files (csvfiles v1.0), version c20260918, pulled 2026-09-30, <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_counties_national.zip), [https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024\\_Gazetteer/2024\\_Gaz\\_cousubs\\_national.zip](https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gaz_cousubs_national.zip), [https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024\\_Gazetteer/2024\\_Gaz\\_place\\_national.zip](https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gaz_place_national.zip), [https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024\\_Gazetteer/2024\\_Gaz\\_unsd\\_national.zip](https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gaz_unsd_national.zip), [https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024\\_Gazetteer/2024\\_Gaz\\_elsd\\_national.zip](https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gaz_elsd_national.zip), [https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024\\_Gazetteer/2024\\_Gaz\\_scscd\\_national.zip](https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gaz_scscd_national.zip), [https://www2.census.gov/geo/docs/reference/codes2020/national\\_place\\_by\\_county2020.txt](https://www2.census.gov/geo/docs/reference/codes2020/national_place_by_county2020.txt), [https://www2.census.gov/geo/docs/reference/ct\\_change/ct\\_cou\\_to\\_cousub\\_crosswalk.xlsx](https://www2.census.gov/geo/docs/reference/ct_change/ct_cou_to_cousub_crosswalk.xlsx) (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 (the summary on page 1 says how it is organized); the plan and FEMA's review decide whether each 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).

---

## Reuse, citation and corrections

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

Cite this: Hazard Plain (2026). Douglas County, MO: risk-assessment baseline packet, release 2026-10 (data as of 2026-09-30; County FIPS 29067). Automated baseline. <https://hazardplain.org/mo/29067/> 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](mailto:contact@hazardplain.org)