

Pima County, AZ

Risk-assessment baseline packet

County FIPS: 04019 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 2027-11-02. Plan: Pima County (FEMA plan 108527), approved 2022-11-03.
Since the plan was approved on 2022-11-03: no new federal declaration.
NOAA Storm Events records since that date: 449 records (data through 2026-06-30).
Highest expected annual loss (FEMA National Risk Index, modeled total; see B1-a): Inland Flooding (\$347,357,076 a year), Heat Wave (\$133,121,244) and Wildfire (\$37,561,739).
Repetitive-loss flood properties now: FMA RL 1, SRL 0 (44 CFR 77.2); any definition: 20.
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; 04019 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 2022-11-03), page 2
4. Supports FEMA checklist item B1-a: hazard identification, page 3
5. Supports FEMA checklist item B1-b: hazard location, page 4
6. Supports FEMA checklist item B1-c: hazard extent, page 5
7. Supports FEMA checklist item B1-d: previous occurrences, page 7
8. Supports FEMA checklist item B1-e: probability of future events, page 11
9. Supports FEMA checklist item B1-f: hazards that vary across jurisdictions, page 13
10. Supports FEMA checklist items B2-a and B2-b: vulnerability and potential impacts, page 14
11. Supports FEMA checklist item B2-a: vulnerability (county context), page 16
12. Supports FEMA checklist item B2-c: repetitive loss properties, page 16
13. Sources, what the plan adds, disclaimer and citation, page 18

Plan clock

Status:Approved, expires 2027-11-02

Approved:2022-11-03

Plan:Pima County (FEMA plan 108527)

Days to expiry:398

What changed since your last plan (approved 2022-11-03)

New federal declarations:none

Repetitive loss now:FMA RL 1, SRL 0 (44 CFR 77.2); any definition: 20

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

Storm Events records since approval:449 records (data through 2026-06-30)

Repeat-flood change:this release sets the baseline count.

Plan status for every jurisdiction listed in this county

Source: 1

Jurisdiction	Type	Status	Plan	Approved	Expires	Days to expiry negative = days since expiry
Pima County	County	Approved, expires 2027-11-02	Pima County (FEMA plan 108527)	2022-11-03	2027-11-02	398
Marana town	Town	Approved, expires 2027-11-02	Pima County (FEMA plan 108527)	2022-11-03	2027-11-02	398
Oro Valley town	Town	Approved, expires 2027-11-02	Pima County (FEMA plan 108527)	2022-11-03	2027-11-02	398
Sahuarita town	Town	Approved, expires 2027-11-02	Pima County (FEMA plan 108527)	2022-11-03	2027-11-02	398
Tucson city	City	Approved, expires 2027-11-02	Pima County (FEMA plan 108527)	2022-11-03	2027-11-02	398

Plan 108527 covers 1 other participant: Pascua Yaqui Tribe of Arizona.

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 by EAL	Hazard	NRI risk rating	EAL rating	EAL buildings <i>modeled dollars per year</i>	EAL agriculture <i>modeled dollars per year</i>	Cost of expected deaths and injuries <i>FEMA's dollar value per year, not property damage</i>	EAL total (see note) <i>modeled dollars per year</i>	Storm Events records, 1996 to 2026-06-30 <i>count</i>	Storm Events coverage note
1	Inland Flooding	Very High	Very High	\$338,405,471	\$10,447	\$8,941,158	\$347,357,076	568	
2	Heat Wave	Very High	Very High	\$2,924	\$23,752	\$133,094,568	\$133,121,244	309	
3	Wildfire	Relatively High	Relatively High	\$35,184,860	\$462	\$2,376,417	\$37,561,739	53	
4	Earthquake	Relatively Moderate	Relatively Moderate	\$4,176,398	n/a	\$2,147,342	\$6,323,740		Storm Events does not record earthquakes.
5	Lightning	Very High	Relatively High	\$63,406	n/a	\$2,446,429	\$2,509,835	78	
6	Hail	Relatively Moderate	Relatively Moderate	\$1,797,492	\$918	\$11,487	\$1,809,897	152	
7	Strong Wind	Relatively Moderate	Relatively Moderate	\$655,227	\$136	\$658,070	\$1,313,432	681	Includes 23 High Wind and 16 Strong Wind records (NOAA non-thunderstorm wind types, outside NRI's Strong Wind definition).
8	Tornado	Relatively Low	Relatively Low	\$504,567	\$277	\$183,502	\$688,346	13	
9	Drought	Relatively Moderate	Relatively Moderate	n/a	\$458,566	n/a	\$458,566	74	
10	Winter Weather	Relatively Moderate	Relatively Moderate	\$48,671	under \$1	\$151,295	\$199,966	38	
11	Hurricane	Very Low	Very Low	\$4,174	\$596	under \$1	\$4,770	0	No recorded events in Storm Events since 1996 (data through 2026-06-30).
12	Landslide	Very Low	Very Low	\$1,602	n/a	\$632	\$2,235	8	

Rank by EAL	Hazard	NRI risk rating	EAL rating	EAL buildings <i>modeled dollars per year</i>	EAL agriculture <i>modeled dollars per year</i>	Cost of expected deaths and injuries <i>FEMA's dollar value per year, not property damage</i>	EAL total (see note) <i>modeled dollars per year</i>	Storm Events records, 1996 to 2026-06-30 <i>count</i>	Storm Events coverage note
13	Avalanche	Very Low	Very Low	\$5	n/a	\$353	\$358	0	No recorded events in Storm Events since 1996 (data through 2026-06-30).
14	Cold Wave	Very Low	Very Low	\$9	\$0	\$141	\$150	21	Includes 4 Frost/Freeze records (outside NRI's Cold Wave definition; counted in this table and in B1-d, not in the B1-e descriptor).

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.

Not applicable to this county per NRI, with no federal declaration and no Storm Events record since 1996: coastal flooding, ice storm, 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, 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 <i>NRI risk rating, score 0 to 100</i>
Avalanche	tract 43.25 (Very Low, 38.5); tract 9408 (Very Low, 38.5); tract 43.16 (Very Low, 36.0)
Earthquake	tract 52 (Relatively Moderate, 79.7); tract 1 (Relatively Moderate, 78.3); tract 5.02 (Relatively Low, 77.4)
Hurricane	tract 41.14 (Very Low, 20.6); tract 44.25 (Very Low, 20.4); tract 41.29 (Very Low, 19.7)
Landslide	tract 40.52 (Relatively Low, 90.2); tract 47.28 (Relatively Low, 89.4); tract 40.61 (Relatively Low, 89.1)
Tornado	tract 46.16 (Very Low, 19.9); tract 5.02 (Very Low, 19.3); tract 29.04 (Very Low, 18.6)
Wildfire	tract 43.25 (Very High, 99.9); tract 43.16 (Very High, 99.9); tract 41.29 (Very High, 99.8)

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 43.25 is Census Tract 43.25). FEMA's Resilience Analysis and Planning Tool maps the National Risk Index for every tract: <https://www.fema.gov/emergency-managers/practitioners/resilience-analysis-and-planning-tool>

Supports FEMA checklist item B1-c: hazard extent

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

Sources: 6, 7

Hazard	Scale	Records <i>count and years</i>	Observed range	Worst recorded event	Most damaging (when different)	How it applies to jurisdictions	Note
Avalanche	none (count and damage only)	0					Physical measure: in event narratives only (local data needed).
Cold/Wind Chill, Extreme Cold/Wind Chill	wind chill	17 records, 2011 to 2026 (17 zone-level)	1 day to 2 days (median 1 day); 16 with a recorded value	2 consecutive days, 2023-02-16 to 2023-02-17, 2 direct deaths, zone-level		Countywide (zone-level records).	Wind chill: in event narratives only (local data needed).
Frost/Freeze (outside NRI's Cold Wave definition)	crop damage	4 records, 2011 to 2015 (4 zone-level)		No crop damage reported in 4 records.	Frost/Freeze, 2011-02-02, \$1,000,000 property; \$0 crops, reported for the zone (2011 dollars)	Countywide (zone-level records).	Temperature: in event narratives only (local data needed).
Drought	U.S. Drought Monitor scale (D0 to D4)	74 records, 2011 to 2025 (74 zone-level)	71 days to 344 days (median 183 days); 9 with a recorded value	344 days (about 11.3 months), 2020-08-25 to 2021-08-03, a run of 14 consecutive Storm Events drought records, zone-level		Countywide (zone-level records).	Storm Events enters a drought at D2 or worse east of the Rockies and D3 or worse from the Rockies west (NWS Instruction 10-1605); NRI drought counts D3 and D4 only.
Earthquake	Modified Mercalli (local data)	0					Storm Events does not record earthquakes; the USGS earthquake catalog is the source.
Hail	hail size (inches)	190 records, 1957 to 2026	0.5 in to 3 in (median 1 in); 190 with a recorded value	3 in hail, 2002-08-28	Hail, 2015-06-30, \$2,000,000 property; \$0 crops (2015 dollars)	Event records naming jurisdictions in the plan: Tucson city (45 records), Marana town (6 records), Sahuarita town (4 records).	
Excessive Heat, Heat	heat index (in event narratives)	309 records, 2011 to 2026 (309 zone-level)	1 day to 31 days (median 1 day); 170 with a recorded value	31 consecutive days, 2023-07-11 to 2023-08-10, 30 direct deaths, zone-level		Countywide (zone-level records).	Heat index: in event narratives only (local data needed). Heat records from November to March (unseasonable warmth, not a heat wave) are counted but not used for the longest run.

Hazard	Scale	Records <i>count and years</i>	Observed range	Worst recorded event	Most damaging (when different)	How it applies to jurisdictions	Note
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.
Flash Flood, Flood, Lakeshore Flood	damage and flood days (flood depth: FIRM)	568 records, 1996 to 2026		Flash Flood, 1999-07-15, \$10,000,000 property; crops not reported (1999 dollars)		Event records naming jurisdictions in the plan: Tucson city (154 records), Marana town (16 records), Sahuarita town (14 records).	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)	8 records, 2020 to 2022		Debris Flow, 2022-07-28, \$10,000 property; \$0 crops (2022 dollars)		No event record names a jurisdiction in the plan.	Physical measure: in event narratives only (local data needed).
Lightning	annualized frequency (the measure FEMA's Local Mitigation Planning Handbook names)	78 records, 1996 to 2025		Lightning, 2010-07-10, \$0 property; \$0 crops (2010 dollars), 1 direct death, 1 direct injury	Lightning, 2008-08-07, \$210,000 property; \$0 crops (2008 dollars)	Event records naming jurisdictions in the plan: Tucson city (22 records), Sahuarita town (3 records), Marana town (2 records).	Storm Events lists lightning with damage or casualties; physical measure in event narratives only (local data needed).
High Wind and Strong Wind (outside NRI's Strong Wind definition)	wind speed (kt and mph)	39 records, 2011 to 2026 (39 zone-level)	39 kt (45 mph) to 85 kt (98 mph) (median 52 kt (60 mph)); 39 with a recorded value	85 kt (98 mph) measured gust, High Wind, 2026-01-10; NWS zone AZZ503	Strong Wind, 2011-05-09, \$11,200,000 property; \$0 crops, reported for the zone (2011 dollars)	Countywide (zone-level records).	
Thunderstorm Wind	wind speed (kt and mph)	803 records, 1955 to 2026	39 kt (45 mph) to 90 kt (104 mph) (median 52.5 kt (60 mph)); 700 with a recorded value	90 kt (104 mph), measurement type not recorded, Thunderstorm Wind, 1999-08-16	Thunderstorm Wind, 2024-07-14, \$25,000,000 property; \$0 crops (2024 dollars)	Event records naming jurisdictions in the plan: Tucson city (182 records), Marana town (16 records), Sahuarita town (15 records), Oro Valley town (1 record).	
Tornado	Enhanced Fujita (Fujita before Feb 2007)	30 records, 1954 to 2026	F/EF0 to F/EF2 (median F/EF0); 25 with a recorded value	F2 tornado, 1964-08-27, 33 yd wide, \$25,000 property; crops not recorded (1964 dollars), 2 direct deaths, 9 direct injuries	Tornado, 1992-07-06, \$2,500,000 property; crops not recorded (1992 dollars)	Event records naming jurisdictions in the plan: Marana town (2 records), Sahuarita town (2 records), Tucson city (2 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).

Hazard	Scale	Records <i>count and years</i>	Observed range	Worst recorded event	Most damaging (when different)	How it applies to jurisdictions	Note
Wildfire	acres burned (local data)	53 records, 2002 to 2025 (49 zone-level)		Wildfire, 2003-07-01, \$66,000,000 property; \$0 crops (2003 dollars)		No event record names a jurisdiction in the plan. Zone-level records (49) apply countywide.	Acres burned: in event narratives only (local data needed).
Winter Storm, Heavy Snow, Blizzard, Lake- Effect Snow, Winter Weather, Sleet	none in data (snowfall: local data)	38 records, 2010 to 2024 (38 zone-level)		Winter Storm, 2017-01-20, \$100,000 property; \$0 crops (2017 dollars); NWS zone AZZ514	Winter Weather, 2021-01-26, \$100,000 property; \$0 crops, reported for the zone (2021 dollars)	Countywide (zone-level records).	Snow depth: in event narratives only (local data needed).

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

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

Supports FEMA checklist item B1-d: previous occurrences

Federal declarations for this county: 15 declarations covering 11 separate hazard incidents counted in this packet (declarations for the same incident count once; non-natural and evacuation-only declarations are not counted).

Federal disaster declarations for this county

Sources: 1, 2, 3

Declared	Incident began	FEMA number	Type	Title	Mapped hazard	County Public Assistance <i>federal share obligated, nominal dollars</i>	Notes
2020-06-11	2020-06-11	FM-5312-AZ	Fire management	Big Horn Fire	Wildfire	no Public Assistance recorded	
2020-04-04	2020-01-20	DR-4524-AZ	Major disaster	COVID-19 Pandemic	Non-natural, not counted	\$18,749,004.92	
2020-03-13	2020-01-20	EM-3442-AZ	Emergency	COVID-19	Non-natural, not counted	no Public Assistance recorded	same incident as DR-4524
2006-09-07	2006-07-25	DR-1660-AZ	Major disaster	Severe Storms and Flooding	Inland Flooding	\$7,504,284.73	
2005-09-12	2005-08-29	EM-3241-AZ	Emergency	Hurricane Katrina Evacuation	Hurricane: evacuation support, not a local hazard event; not counted	\$818,404.36	
2003-07-14	2003-06-17	DR-1477-AZ	Major disaster	Aspen Fire	Wildfire	\$4,753,977.91	
2003-06-18	2003-06-17	FM-2470-AZ	Fire management	Aspen Fire	Wildfire	no Public Assistance recorded	same incident as DR-1477
1993-01-19	1993-01-05	DR-977-AZ	Major disaster	Severe Storms, Tornadoes & Flooding	Inland Flooding (primary); also designated: Tornado	no Public Assistance recorded	
1990-12-06	1990-07-08	DR-884-AZ	Major disaster	Severe Storms & Flooding	Inland Flooding	no Public Assistance recorded	
1983-10-05	1983-09-23	DR-691-AZ	Major disaster	Severe Storms & Flooding	Inland Flooding	no Public Assistance recorded	
1978-12-21	1978-12-21	DR-570-AZ	Major disaster	Severe Storms & Flooding	Inland Flooding	no Public Assistance recorded	
1978-03-04	1978-03-04	DR-551-AZ	Major disaster	Severe Storms & Flooding	Inland Flooding	no Public Assistance recorded	
1977-11-04	1977-11-04	DR-540-AZ	Major disaster	Severe Storms & Flooding	Inland Flooding	no Public Assistance recorded	

Declared	Incident began	FEMA number	Type	Title	Mapped hazard	County Public Assistance	
						<i>federal share obligated, nominal dollars</i>	Notes
1972-07-03	1972-07-03	DR-343-AZ	Major disaster	Severe Storms & Flooding	Inland Flooding	no Public Assistance recorded	
1966-04-30	1966-04-30	DR-217-AZ	Major disaster	Flooding	Inland Flooding	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
2000-10-27	2000-10-21	DR-1347-AZ	Major disaster	Severe Storms and Flooding	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.

15 Fire Management declarations (1990-06-27 to 1996-06-24) FEMA filed as Statewide with no county; each names one local fire. Listed on the state page.

Previous occurrences by hazard, with explicit no-event rows

Sources: 2, 6, 7

Hazard	Storm Events records, all years on file <i>(years in the Period column)</i>	Since plan approval records	In the 12 months before plan approval records	Last 5 years records	Declared incidents, all years <i>separate disasters</i>	Declared since approval <i>separate disasters</i>	Period	Statement
Avalanche	0	0	0	0	0	0	1996 to 2026-06-30	No recorded events, 1996 to 2026-06-30, NOAA NCEI Storm Events
Cold Wave	21	13	1	14	0	0	1996 to 2026-06-30	Includes 4 Frost/Freeze records.
Drought	74	21	3	24	0	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	190	20	9	29	0	0	1955 to 2026-06-30	
Heat Wave	309	205	23	228	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
Inland Flooding	568	52	37	89	9	0	1996 to 2026-06-30	
Landslide	8	0	6	6	0	0	1996 to 2026-06-30	
Lightning	78	8	2	10	0	0	1996 to 2026-06-30	
Strong Wind	842	101	30	132	0	0	1955 to 2026-06-30	Includes 23 High Wind and 16 Strong Wind records.

Hazard	Storm Events records, all years on file <i>(years in the Period column)</i>	Since plan approval <i>records</i>	In the 12 months before plan approval <i>records</i>	Last 5 years <i>records</i>	Declared incidents, all years <i>separate disasters</i>	Declared since approval <i>separate disasters</i>	Period	Statement
Tornado	30	5	1	6	1	0	1950 to 2026-06-30	
Wildfire	53	15	9	24	2	0	1996 to 2026-06-30	
Winter Weather	38	9	2	11	0	0	1996 to 2026-06-30	

Notable Storm Events records

Sources: 1, 6, 7

Date	Event type	Magnitude or extent	Damage <i>nominal dollars</i>	Deaths, injuries <i>direct only</i>	Location	Flags	Why listed
2026-01-10	High Wind	85 kt (98 mph) measured gust	\$0 property; \$0 crops, reported for the zone (2026 dollars)	0, 0	NWS zone AZZ503 (UPPER SANTA CRUZ RIVER AND ALTAR VALLEYS), zone-level	new since last plan; within last 5 years	B1-c worst recorded: High Wind and Strong Wind
2023-08-07	Heat		\$0 property; \$0 crops, reported for the zone (2023 dollars)	7, 0	NWS zone AZZ504 (TUCSON METRO AREA), zone-level	new since last plan; within last 5 years	deaths or injuries recorded
2023-07-15	Excessive Heat		\$0 property; \$0 crops, reported for the zone (2023 dollars)	5, 0	NWS zone AZZ503 (UPPER SANTA CRUZ RIVER AND ALTAR VALLEYS), zone-level	new since last plan; within last 5 years	deaths or injuries recorded
2023-07-11	Heat		\$0 property; \$0 crops, reported for the zone (2023 dollars)	6, 0	NWS zone AZZ504 (TUCSON METRO AREA), zone-level	new since last plan; within last 5 years	deaths or injuries recorded
2020-08-25	Drought		\$0 property; crops not reported, reported for the zone (2020 dollars)	0, 0	NWS zone AZZ504 (TUCSON METRO AREA), zone-level		B1-c worst recorded: Drought
2017-01-20	Winter Storm		\$100,000 property; \$0 crops, reported for the zone (2017 dollars)	0, 0	NWS zone AZZ514 (SANTA CATALINA AND RINCON MOUNTAINS), zone-level		B1-c worst recorded: Winter Storm, Heavy Snow, Blizzard, Lake-Effect Snow, Winter Weather, Sleet
2010-07-10	Lightning		\$0 property; \$0 crops (2010 dollars)	1, 1	(DMA)DAVIS MONTHAN A		B1-c worst recorded: Lightning
2003-07-01	Wildfire		\$66,000,000 property; \$0 crops (2003 dollars)	0, 0	SUMMERHAVEN		B1-c worst recorded: Wildfire
2002-08-28	Hail	3 in	\$10,000 property; \$0 crops (2002 dollars)	0, 0	TUCSON		B1-c worst recorded: Hail
1999-08-16	Thunderstorm Wind	90 kt (104 mph), measurement type not recorded	damage not reported	0, 0	TUSCON RYAN FLD ARPT		B1-c worst recorded: Thunderstorm Wind
1999-07-15	Flash Flood		\$10,000,000 property; crops not reported (1999 dollars)	0, 0	TUCSON		B1-c worst recorded: Flash Flood, Flood, Lakeshore Flood
1964-08-27	Tornado	F2, 33 yd wide	\$25,000 property; crops not recorded (1964 dollars)	2, 9	location not recorded		B1-c worst recorded: Tornado

The full list is in the Excel file, sheet "B1-d Storm Events history" (2,211 rows).

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

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

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

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

Probability: FEMA annualized frequency and descriptor per hazard

Sources: 5, 6

Hazard	FEMA annualized frequency (modeled) <i>unit per row</i>	Unit	In plain terms	Descriptor	Descriptor basis	NRI events or days in its record period (hail, wind and tornado are area-weighted, so can be fractional)	NRI period	Location	Note
Avalanche	0.01	events per year	about 1 in 100 years	Possible	FEMA annualized frequency (modeled)	0	1994 to 2023 (30 years)	see B1-f	0.01 is NRI's minimum avalanche frequency for a county in an avalanche susceptibility zone; NRI records no avalanche here, so the descriptor reflects the floor, not local events.
Cold Wave	0.00114	event-days per year	about 0.00114 days per year	Likely (from Storm Events: 6 of 30 years)	event-days in 6 of 30 years, 1996 to 2025 (20%)	0.0217	2005-11-12 to 2024-11-12 (19 years)	countywide	
Drought	57.3	event-days per year	about 57.3 days per year	Likely (from Storm Events: 11 of 30 years)	event-days in 11 of 30 years, 1996 to 2025 (36.7%)	2,821	2000 to 2025 (25.25 years; D3 and D4 only)	countywide	
Earthquake	0.0148	annual probability at a location	chance a given location in the county has at least minor-damage shaking in a year: 1.48%			not shown	modeled	see B1-f	No descriptor (Storm Events does not record earthquakes).
Hail	0.241	events per year	about 1 in 4 years	Likely	FEMA annualized frequency (modeled)	9.2 (modeled)	1986 to 2023 (38 years)	countywide	
Heat Wave	8.09	event-days per year	about 8.09 days per year	Likely (from Storm Events: 14 of 30 years)	event-days in 14 of 30 years, 1996 to 2025 (46.7%)	92.7	2005-11-12 to 2024-11-12 (19 years)	countywide	
Hurricane	0.0165	events per year	about 1 in 61 years	Possible	FEMA annualized frequency (modeled)	9	1851 to 2024 (Atlantic); 1949 to 2024 (Pacific)	see B1-f	NRI counts hurricane and tropical storm tracks passing within storm-force wind range; federal declarations are in B1-d.
Inland Flooding	12.8	event-days per year	about 12.8 days per year	Highly likely (from Storm Events: 30 of 30 years)	event-days in 30 of 30 years, 1996 to 2025 (100%)	359	1996 to 2023 (28 years)	see B1-f	
Landslide	2.14	events per year (modeled)	about 2.14 per year	Highly likely	FEMA annualized frequency (modeled)	not shown	modeled	see B1-f	
Lightning	42.8	days per year with a strike	about 42.8 days per year	Highly likely	FEMA annualized frequency (modeled)	not shown	1995 to 2023 (29 years; CONUS)	countywide	

Hazard	FEMA annualized frequency (modeled) <i>unit per row</i>	Unit	In plain terms	Descriptor	Descriptor basis	NRI events or days in its record period (hail, wind and tornado are area-weighted, so can be fractional)	NRI period	Location	Note
Strong Wind	0.795	events per year	about 0.79 per year	Likely	FEMA annualized frequency (modeled)	31	1986 to 2023 (38 years)	countywide	
Tornado	0.264	events per year	about 1 in 4 years	Likely	FEMA annualized frequency (modeled)	not shown	1950 to 2023 (EF2+); 1986 to 2023 (EF0-1)	see B1-f	
Wildfire	0.00435	annual probability at a location	chance a given location in the county burns in a year: 0.435%	Likely (from Storm Events: 12 of 30 years)	Storm Events records in 12 of 30 years, 1996 to 2025 (40%)	not shown	modeled	see B1-f	Descriptor from Storm Events, not NRI.
Winter Weather	1.8	event-days per year	about 1.8 days per year	Likely (from Storm Events: 14 of 30 years)	event-days in 14 of 30 years, 1996 to 2025 (46.7%)	34.2	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 <i>county-coded records</i>	Years in period	Events per year <i>events / years</i>
Hail	1.00-1.99 in	1996 to 2025	87	30	2.9
Hail	2.00 in+	1996 to 2025	1	30	0.0333
Thunderstorm Wind (counted as NRI Strong Wind)	50-64 kt	1996 to 2025	538	30	17.9
Thunderstorm Wind (counted as NRI Strong Wind)	65 kt+	1996 to 2025	45	30	1.5
Thunderstorm Wind (counted as NRI Strong Wind)	unmeasured or below 50 kt	1996 to 2025	54	30	1.8
Tornado	EF0-1	1996 to 2025	9	30	0.3
Tornado	EF2-3	1996 to 2025	0	30	0
Tornado	EF4-5	1996 to 2025	0	30	0
Tornado	unrated (EFU)	1996 to 2025	3	30	0.1

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

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

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

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

Range of census tract risk within the county

Source: 5

Hazard	Tracts <i>rated of all</i>	NRI risk score, 0 to 100			Tracts by rating
		Min	Median	Max	
Avalanche	14 of 270	27.5	32.1	38.5	Very Low 14, Not Applicable 256
Cold Wave	3 of 270	15.7	15.7	15.9	Very Low 3, No Rating 267
Drought	25 of 270	69.8	85.9	96.3	Relatively Moderate 5, Relatively Low 12, Very Low 8, No Rating 245
Earthquake	270 of 270	1.1	38.5	79.7	Relatively Moderate 2, Relatively Low 120, Very Low 148
Hail	270 of 270	1.4	48.6	71.9	Relatively Moderate 3, Relatively Low 234, Very Low 33
Heat Wave	270 of 270	1.8	97.0	99.6	Very High 167, Relatively High 99, Relatively Moderate 1, Very Low 3
Hurricane	270 of 270	9.3	13.2	20.6	Very Low 270
Inland Flooding	270 of 270	0.3	79.5	99.8	Very High 53, Relatively High 85, Relatively Moderate 75, Relatively Low 46, Very Low 11
Landslide	253 of 270	8.6	11.1	90.2	Relatively Low 7, Very Low 246, No Rating 17
Lightning	270 of 270	0.2	45.9	75.3	Relatively Moderate 106, Relatively Low 158, Very Low 6
Strong Wind	270 of 270	0.3	22.8	45.7	Relatively Low 188, Very Low 82

Hazard	Tracts <i>rated of all</i>	NRI risk score, 0 to 100			Tracts by rating
		Min	Median	Max	
Tornado	270 of 270	0.3	5.9	19.9	Very Low 270
Wildfire	229 of 270	18.7	87.9	99.9	Very High 6, Relatively High 47, Relatively Moderate 59, Relatively Low 55, Very Low 62, No Rating 41
Winter Weather	270 of 270	10.5	28.9	41.1	Relatively Low 265, Very Low 5

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, 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).

Each jurisdiction (starting figures from federal data)

Sources: 1, 3, 4, 6

Jurisdiction	Type	Plan status	Repetitive loss <i>FMA RL and SRL (44 CFR 77.2); repeat-flood, any definition</i>	Public Assistance to this jurisdiction <i>FEMA records matched by applicant name; federal share obligated, nominal dollars</i>	Event records naming this place <i>all years; since its plan</i>	Notes
Pima County	County	Approved, expires 2027-11-02	FMA RL 1, SRL 0; any 10	\$11,397,342.83	0 total; 0 since its plan	Includes \$5,121,882.10 for declarations not counted as hazard incidents (DR-4524-AZ, EM-3241-AZ).
Marana town	Town	Approved, expires 2027-11-02	FMA RL 0, SRL 0; any 0	\$248,379.93	42 total; 4 since its plan	Includes \$28,459.29 for declarations not counted as hazard incidents (DR-4524-AZ).
Oro Valley town	Town	Approved, expires 2027-11-02	FMA RL 0, SRL 0; any 1	\$1,081,127.89	1 total; 0 since its plan	
Sahuarita town	Town	Approved, expires 2027-11-02	FMA RL 0, SRL 0; any 0	\$70,259.53	38 total; 4 since its plan	Includes \$70,259.53 for declarations not counted as hazard incidents (DR-4524-AZ).
Tucson city	City	Approved, expires 2027-11-02	FMA RL 0, SRL 0; any 9	\$11,611,772.76	405 total; 20 since its plan	Includes \$10,518,473.22 for declarations not counted as hazard incidents (DR-4524-AZ, EM-3241-AZ).

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

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

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

Local data needed

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

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

- Future assets

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

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

Hazard	Building exposure <i>modeled dollars</i>	Agriculture exposure <i>modeled dollars</i>	Population exposed <i>people</i>	EAL buildings <i>modeled dollars per year</i>	EAL agriculture <i>modeled dollars per year</i>	Cost of expected deaths and injuries <i>FEMA's dollar value per year, not property damage</i>	EAL as % of exposure <i>buildings; agriculture where noted</i>	Storm Events damage since 2022-11-03 <i>county-coded records, property plus crops, nominal dollars</i>	Zone-level damage since plan <i>property plus crops, reported for the zone</i>	Public Assistance since plan <i>nominal dollars; see note</i>	Note
Avalanche	\$6,878,098	n/a	1	\$5	n/a	\$353	under 0.0001%				
Cold Wave	\$188,178,084	\$0	242	\$9	\$0	\$141	under 0.0001%		\$0		
Drought	n/a	\$58,574,345	n/a	n/a	\$458,566	n/a	0.783% (agriculture)		\$0		NRI has no building exposure for this hazard; agriculture shown
Earthquake	\$301,436,892,912	n/a	1,043,433	\$4,176,398	n/a	\$2,147,342	0.00139%				
Hail	\$177,785,184,675	\$97,169,496	1,042,716	\$1,797,492	\$918	\$11,487	0.00101%	\$140,000			
Heat Wave	\$177,785,184,675	\$97,169,496	1,042,716	\$2,924	\$23,752	\$133,094,568	under 0.0001%		\$0		
Hurricane	\$177,765,673,655	\$97,169,496	1,042,563	\$4,174	\$596	under \$1	under 0.0001%				
Inland Flooding	\$177,781,790,670	\$63,344,811	25,840	\$338,405,471	\$10,447	\$8,941,158	n/a (see note)	\$423,500			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	\$2,415,022,942	n/a	9,608	\$1,602	n/a	\$632	under 0.0001%				
Lightning	\$177,785,184,675	n/a	1,042,716	\$63,406	n/a	\$2,446,429	under 0.0001%	\$15,000			
Strong Wind	\$177,785,184,675	\$97,169,496	1,042,716	\$655,227	\$136	\$658,070	0.000369%	\$27,937,500	\$52,000		Storm Events damage since the plan includes 3 zone-level High Wind records (\$49,000) and 1 zone-level Strong Wind record (\$3,000); NOAA non-thunderstorm wind types, outside NRI's Strong Wind definition.
Tornado	\$177,785,184,675	\$97,169,496	1,042,716	\$504,567	\$277	\$183,502	0.000284%	\$50,000			
Wildfire	\$27,786,791,930	\$37,631,514	240,900	\$35,184,860	\$462	\$2,376,417	0.127%		\$530,000		
Winter Weather	\$177,071,708,346	\$97,152,150	1,039,528	\$48,671	under \$1	\$151,295	under 0.0001%		\$20,000		

Totals since 2022-11-03 (Storm Events through 2026-06-30): 176 county-coded records, 176 with a damage value recorded (including \$0), \$28,566,000; 273 zone-level records, 273 with a damage value recorded (including \$0), \$602,000 reported for the zone; Public Assistance: no counted declaration since the plan.

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

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

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

County context

Source: 5

Measure	Value
Population	1,042,716
Building value (total, not at risk)	\$177,785,184,675
Agriculture value (total, not at risk)	\$97,169,496
NRI risk rating (all hazards)	Relatively High
Expected annual loss, buildings and agriculture, all hazards	\$381,339,960
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)	\$150,011,393
Social vulnerability rating	Relatively Moderate
Community resilience rating	Relatively 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)	1	Severe repetitive loss, FMA definition (44 CFR 77.2)	0
Repetitive loss, NFIP insurance definition	19	Severe repetitive loss, NFIP insurance definition	0

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

Repeat-flood properties: county and state-level rows

Sources: 1, 4

Scope	RL, FMA <i>properties</i>	SRL, FMA <i>properties</i>	RL, NFIP <i>properties</i>	SRL, NFIP <i>properties</i>	Any category <i>properties</i>	Mitigated <i>properties</i>	Currently insured <i>properties</i>
County total	1	0	19	0	20	1	5
of which: Pima County (unincorporated area)	1	0	9	0	10	1	2
of which: Tucson city	0	0	9	0	9	0	3
of which: Oro Valley town	0	0	1	0	1	0	0
Statewide, no county in FEMA's file	0	1	0	0	1	1	0

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

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

Sources: 1, 4

Jurisdiction	NFIP community ID	RL, FMA <i>properties</i>	SRL, FMA <i>properties</i>	RL, NFIP <i>properties</i>	SRL, NFIP <i>properties</i>	Any category <i>properties</i>	Mitigated <i>properties</i>	Currently insured <i>properties</i>
Pima County	040073	1	0	9	0	10	1	2
Marana town	040118	0	0	0	0	0	0	0
Oro Valley town	040109	0	0	1	0	1	0	0
Sahuarita town	040137	0	0	0	0	0	0	0
Tucson city	040076	0	0	9	0	9	0	3

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

Sources: 1, 4

Occupancy group	RL, FMA <i>properties</i>	SRL, FMA <i>properties</i>	RL, NFIP <i>properties</i>	SRL, NFIP <i>properties</i>	Any category <i>properties</i>	Mitigated <i>properties</i>	Currently insured <i>properties</i>
single-family residential	1	0	14	0	15	1	4
2 to 4 unit residential	0	0	1	0	1	0	0
other residential	0	0	0	0	0	0	0
non-residential	0	0	4	0	4	0	1
not reported	0	0	0	0	0	0	0

FEMA's occupancy groups have no institutional class; institutional properties are counted in non-residential or other residential in the table by occupancy group.

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 1 property is FMA repetitive loss but not NFIP repetitive loss, and 19 properties are NFIP repetitive loss but not FMA repetitive loss.

Exact counts; no count suppression.

Sources

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

1. FEMA, OpenFEMA HazardMitigationPlanStatuses v1, version 2026-09-29T134039Z, pulled 2026-09-30, <https://www.fema.gov/api/open/v1/HazardMitigationPlanStatuses> (API)
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3. FEMA, OpenFEMA PublicAssistanceFundedProjectsSummaries v1, version 2026-09-29T150754Z, pulled 2026-09-30, <https://www.fema.gov/api/open/v1/PublicAssistanceFundedProjectsSummaries> (API)
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5. FEMA, FEMA National Risk Index 1.20.0 (December 2025), county and census tract tables, version 1.20.0, pulled 2026-09-30, https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_Counties.zip (download, 25 MB), https://www.fema.gov/about/reports-and-data/openfema/nri/v120/NRI_Table_CensusTracts.zip (download, 635 MB)
6. NOAA NCEI, NOAA NCEI Storm Events Database, details files (csvfiles v1.0), version c20260918, pulled 2026-09-30, <https://www.ncei.noaa.gov/pub/data/swdi/stormevents/csvfiles/>
7. NOAA National Weather Service, NWS county-public forecast zones correlation file, version bp03mr20 to bp16ap26 (11 files; newest bp16ap26), pulled 2026-09-30, <https://www.weather.gov/gis/ZoneCounty>
8. U.S. Census Bureau, Census 2024 Gazetteer, 2020 place by county, CT county-to-cousub crosswalk, version 2024-gazetteer, pulled 2026-09-30, https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gazetteer/2024_Gaz_counties_national.zip, [https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gazetteer/2024_Gaz_cousubs_national.zip](https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gaz_cousubs_national.zip), [https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gazetteer/2024_Gaz_place_national.zip](https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gaz_place_national.zip), [https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gazetteer/2024_Gaz_unsd_national.zip](https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gaz_unsd_national.zip), [https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gazetteer/2024_Gaz_elsd_national.zip](https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gaz_elsd_national.zip), [https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gazetteer/2024_Gaz_scsd_national.zip](https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2024_Gaz_scsd_national.zip), https://www2.census.gov/geo/docs/reference/codes2020/national_place_by_county2020.txt, https://www2.census.gov/geo/docs/reference/ct_change/ct_cou_to_cousub_crosswalk.xlsx (used to match place names and codes; no table prints its values)

What this packet is and what the plan adds

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

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

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

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Cite this: Hazard Plain (2026). Pima County, AZ: risk-assessment baseline packet, release 2026-10 (data as of 2026-09-30; County FIPS 04019). Automated baseline. <https://hazardplain.org/az/04019/> Built from FEMA OpenFEMA, the FEMA National Risk Index and NOAA NCEI Storm Events; source versions in the packet's Sources list.

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

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