PAGE CITY COUNCIL
697 Vista Avenue
Page, AZ 86040

Mike Farrow, Vice Mayor
Kenna Hettinger, Councilor
Tom Preller, Councilor
Debi Roundtree, Councilor
John Kocjan, Councilor
Amanda Hammond, Councilor
Steven Kidman, Mayor

MEETING NOTICES

Consent Agenda: This portion is a means of expediting routine matters. All items approved will be done by one undebatable motion passed unanimously. Any item may be removed for debate on request of any member of City Council. Items removed from the Consent Portion become the first items of business of the Regular Agenda.

Hear From the Citizens: The City of Page welcomes public engagement, and the public may comment and address the City Council during this portion of the agenda. To request to speak, complete and submit the Request to Speak form PRIOR to the start of the meeting. When called to speak, please step up to the lectern, speak clearly into the microphone, and begin by stating your name for the record. Hear From the Citizens provides a time for the public to speak about matters that are NOT listed on the posted Agenda. The City Council cannot discuss or take legal action on any matters during the Hear From the Citizens. At the conclusion of the Hear From the Citizens, individual members of the City Council may respond to criticism made by those who have addressed the City Council, may ask Staff to review a matter, and/or may ask that a matter be put on a future agenda. If the topic you are commenting about is listed on the current agenda, you will be called to speak during that agenda item. Comments are limited to 3 minutes each speaker and 30 minutes in total. If you are with a group, please designate a spokesperson.

This agenda may be subject to change up to 24 hours prior to the meeting.

Pursuant to A.R.S. §38.431.02, notice is hereby given to the members of the City Council and to the general public that the Page City Council will hold a meeting open to the public. Supporting documents and Staff reports, which were furnished to the City Council, with this agenda, are available for review at cityofpage.org or at the City Clerk's Office. Councilmembers of the City of Page City Council will attend either in person or by technological means. City Council may vote to go into Executive Session for the purpose of obtaining legal advice from the City Attorney on any item listed on the agenda, pursuant to A.R.S. §38-431.03 (A)(3). City Council may modify the agenda order, if necessary.

Persons with disabilities should call the City Clerk's Office, at 928-645-4205 for program and services information and accessibility.

NOTICE TO PARENTS: Parents and legal guardians have the right to consent before the City of Page makes a video or voice recording of a minor child A.R.S. §1-602.A.9.
City Council meetings are audio and video recorded. Parents or guardians may either submit a written consent to the City Clerk’s Office, or by allowing a minor to be present and/or participate in the meeting, parents or guardians waive this right.

If you would like to receive email notification for City Council agendas, please sign up for subscriptions on our website at cityofpage.org.

City Council
Regular Meeting

City Hall
697 Vista Ave, Page AZ
July 8, 2026 at 5:30 PM

Notice of Public Meeting and Agenda

Page City Council may discuss and take action on any item listed on the agenda

1. Call to Order and Opening Activities

2. Roll Call

3. Community Recognition - None Scheduled

4. Consent Agenda

1. City Council Special 1 Minutes - June 24, 2026
2. City Council Special 2 Minutes - June 24, 2026
3. City Council Regular Minutes - June 24, 2026
4. NTUA Wireless Service Agreement Amendment

5. Public Hearings

1. Liquor License — Lake Powell Espresso

6. Hear From The Citizens

7. Reports and Announcements

1. Mayor's Reports and Announcements

A. Senator Gallego Visit

B. "Water Team" Update

C. Fourth of July Comments

2. City Manager's Current Events Summary

8. Boards and Commissions

1. Council Liaison Reports on Board Meetings
2. Council Liaison Designations

9. Unfinished Business

1. Amendment to Purchase Agreement with Premium Builders, LLC

10. New Business

1. Liquor License — Lake Powell Espresso
2. Coconino County Multi-Jurisdictional Hazard Mitigation Plan - Resolution 1350-26
3. Arizona Mutual Aid Compact

11. Potential Future Agenda Items

Items in this section are not for substantive discussion or formal action. This section is used only for

Council to decide if they would like the item added to a future agenda for discussion and possible action at a subsequent meeting.

1. Review Lake Powell Boulevard Safety

12. Executive Sessions - None Scheduled

Adjourn

Next Regular Meeting: Wednesday, July 22, 2026 at 5:30 p.m.

CERTIFICATION OF POSTING OF NOTICE
The undersigned hereby certifies that a copy of the attached notice was duly posted at the following places: City Hall Bulletin Board located at 697 Vista Avenue, Page, Arizona; Justice Building Bulletin Board located at 547 Vista Avenue, Page, Arizona; U. S. Post Office Lobby located at 44 Sixth Avenue, Page, Arizona, on the ____ day of _____, 20___, at _____ a.m./p.m. in accordance with the statement filed by the City of Page City Council with the City Clerk.

_____
CITY CLERK'S OFFICE

REQUEST FOR COUNCIL ACTION

Request for Council Action:
Meeting Type: Regular Meeting
Meeting Date: July 8, 2026
Department: City Clerk
Presented by:
Cindy Scott, City Clerk

Brief Title: City Council Special 1 Minutes - June 24, 2026

Agenda Section: Consent Agenda
Agenda Sub-category: Minutes
Action: Motion
PowerPoint Needed?: No

Request for Council Action

Recommended Action:
Move to approve the City Council Special 1 Meeting Minutes from June 24, 2026.

Background:
N/A

Alternatives Considered:
N/A

Advisory Board/Commission Action:
N/A

Fiscal Impact:
Fiscal Year:
Amount Requested:
Line Item(s):

Budget Impact:

Notes:

Attachments:
1. 06 24 2026 Spec 1 Min DRAFT (Budget)

PAGE CITY COUNCIL
SPECIAL MEETING MINUTES
June 24, 2026

A Special Meeting of the Page City Council was held at 5:15 p.m. on the 24th day of June 2026, in the Council Chambers at City Hall in Page, Arizona. Mayor Steven Kidman presided. Vice Mayor Mike Farrow, Councilor Kenna Hettinger, Councilor Tom Preller, Councilor John Kocjan, Councilor Debi Roundtree, and Councilor Amanda Hammond (via Zoom) were present.

Mayor Kidman called the meeting to order at 5:17 p.m.

Staff members present: City Manager, Frank Marbury; City Attorney, Joshua Smith; IT Director, Kane Scott; Police Chief, Tim Lange; Police Lieutenant, Ted Barnard; Administrative Manager, Alie Stamat; Finance Director, Linda Watson; Finance Analyst, Aspen Lindsey; Public Works Director, Tim Westover; Public Information Officer, Adam Geller; Management Analyst, Robin Crowther; Deputy City Clerk, Cassie Scott; and City Clerk, Cindy Scott.

PUBLIC HEARINGS

Fiscal Year 2027 Budget Adoption

Mayor opened the public hearing.
Proponents: None
Opponents: None
Mayor closed the public hearing.

ITEMS FOR BUSINESS

Resolution 1346-26 - Adoption of Final Budget FY 2027

Clerk introduced Resolution 1346-26 by title only.

A RESOLUTION OF THE MAYOR AND CITY COUNCIL OF THE CITY OF PAGE, COCONINO COUNTY, ARIZONA, ADOPTING A BUDGET FOR THE FISCAL YEAR 2027

Motion was made by Councilor Kocjan to adopt Resolution 1346-26. The motion was seconded by Councilor Hettinger.
Councilor Roundtree commented.
The motion passed with Mayor Kidman, Vice Mayor Farrow, Councilor Kocjan, Councilor Hettinger, Councilor Preller, and Councilor Hammond in favor. Councilor Roundtree was opposed.

ADJOURN

The meeting was adjourned at 5:18 p.m.

Cindy Scott, City Clerk

Steven R. Kidman, Mayor

CERTIFICATION

I hereby certify that the foregoing minutes are a true and correct copy of the minutes of the City Council Regular Meeting, held on the 24th day of June 2026. I further certify that the meeting was duly called and held and that a quorum was present.

Dated this 8th day of July 2026

Cindy Scott, City Clerk

REQUEST FOR COUNCIL ACTION

Request for Council Action:
Meeting Type: Regular Meeting
Meeting Date: July 8, 2026
Department: City Clerk
Presented by: Cindy Scott, City Clerk

Brief Title: City Council Special 2 Minutes - June 24, 2026

Agenda Section: Consent Agenda
Agenda Sub-category: Minutes
Action:
PowerPoint Needed?: No

Request for Council Action

Recommended Action:
Move to approve the City Council Special 2 Meeting Minutes from June 24, 2026.

Background:
N/A

Alternatives Considered:
N/A

Advisory Board/Commission Action:
N/A

Fiscal Impact:
Fiscal Year:
Amount Requested:
Line Item(s):

Budget Impact:

Notes:

Attachments:
1. 06 24 2026 Spec 2 Min DRAFT (Axon)

PAGE CITY COUNCIL
SPECIAL MEETING MINUTES
June 24, 2026

A Special Meeting of the Page City Council was held at 5:25 p.m. on the 24th day of June 2026, in the Council Chambers at City Hall in Page, Arizona. Mayor Steven Kidman presided. Vice Mayor Mike Farrow, Councilor Kenna Hettinger, Councilor Tom Preller, Councilor John Kocjan, Councilor Debi Roundtree, and Councilor Amanda Hammond (via Zoom) were present.

Mayor Kidman called the meeting to order at 5:25 p.m.

Staff members present: City Manager, Frank Marbury; City Attorney, Joshua Smith; IT Director, Kane Scott; Police Chief, Tim Lange; Police Lieutenant, Ted Barnard; Administrative Manager, Alie Stamat; Public Works Director, Tim Westover; Public Information Officer, Adam Geller; Management Analyst, Robin Crowther; Deputy City Clerk, Cassie Scott; and City Clerk, Cindy Scott.

ITEMS FOR BUSINESS

Axon 10 Year Contract

Motion was made by Vice Mayor Farrow to approve the Axon Master Agreement and 10-year service expenditure as quoted. The motion was seconded by Councilor Kocjan and passed unanimously upon a vote.

ADJOURN

The meeting was adjourned at 5:27 p.m.

_____ _____

Cindy Scott, City Clerk Steven R. Kidman, Mayor

CERTIFICATION

I hereby certify that the foregoing minutes are a true and correct copy of the minutes of the City Council Regular Meeting, held on the 24th day of June 2026. I further certify that the meeting was duly called and held and that a quorum was present.

Dated this 8th day of July 2026

_____

Cindy Scott, City Clerk

REQUEST FOR COUNCIL ACTION

Request for Council Action:
Meeting Type: Regular Meeting
Meeting Date: July 8, 2026
Department: City Clerk
Presented by:
Cindy Scott, City Clerk

Brief Title: City Council Regular Minutes - June 24, 2026

Agenda Section: Consent Agenda
Agenda Sub-category: Minutes
Action: Motion
PowerPoint Needed?: No

Request for Council Action

Recommended Action:
Move to approve the City Council Regular Minutes from June 24, 2026.

Background:
N/A

Alternatives Considered:
N/A

Advisory Board/Commission Action:
N/A

Fiscal Impact:
Fiscal Year:
Amount Requested:
Line Item(s):

Budget Impact:

Notes:

Attachments:
1. 06 24 2026 Reg Min DRAFT

PAGE CITY COUNCIL
REGULAR MEETING MINUTES
June 24, 2026

A Regular Meeting of the Page City Council was held at 5:30 p.m. on the 24th day of June 2026, in the Council Chambers at City Hall in Page, Arizona. Mayor Steven Kidman presided. Vice Mayor Mike Farrow, Councilor Kenna Hettinger, Councilor Tom Preller, Councilor John Kocjan, Councilor Debi Roundtree, and Councilor Amanda Hammond (via Zoom) were present. There was a moment of meditation. Mayor Kidman led the Pledge of Allegiance.

Mayor Kidman called the meeting to order at 5:30 p.m.

Staff members present: City Manager, Frank Marbury; City Attorney, Joshua Smith; IT Director, Kane Scott; Police Chief, Tim Lange; Police Lieutenant, Ted Barnard; Administrative Manager, Alie Stamat; Fire Chief, Jeff Reed; Public Works Director, Tim Westover; Public Information Officer, Adam Geller; Management Analyst, Robin Crowther; Deputy City Clerk, Cassie Scott; and City Clerk, Cindy Scott.

COMMUNITY RECOGNITION
None scheduled.

CONSENT AGENDA
City Council Regular Minutes — June 10, 2026
Resolution 1347-26 - CFO Designation for Fiscal Year 2027
Motion made by Councilor Kocjan to approve the Consent Agenda. The motion was seconded by Councilor Preller and passed unanimously upon a vote.

PUBLIC HEARINGS
Public Hearing for Minor General Plan Amendment Case #MGPA-2026-01 – Portion of Parcel 802-20-005A from Open Space and Undevelopable to Business Commerce Land Use Designation
City Manager Marbury provided information for both Public Hearing items.
Mayor Kidman opened the Public Hearing.
Proponents: None
Opponents: None
Mayor Kidman closed the Public Hearing.

Public Hearing for Zone Change Case #ZON-2026-02 – Portion of Parcel 802-20-005A from Parks & Open Space (POS) and Undevelopable (UNDV) to Community Commercial (C-2) Zoning
Mayor Kidman opened the Public Hearing.
Proponents: None
Opponents: None
Mayor Kidman closed the Public Hearing.

HEAR FROM THE CITIZENS
No citizens addressed the City Council.

REPORTS AND ANNOUNCEMENTS
MAYOR'S REPORTS AND ANNOUNCEMENTS
None.

CITY MANAGER'S CURRENT EVENTS SUMMARY
City Manager Marbury provided information about some upcoming events.

BOARDS AND COMMISSIONS
Discussion by the City Council pertaining to reports on board meetings by Board Liaisons
None.

Planning and Zoning Commission Appointments
Motion was made by Councilor Roundtree to appoint Jim Walker to the Planning and Zoning Commission with a term ending June 30, 2029. The motion was seconded by Councilor Kocjan
There was discussion.
The motion passed unanimously upon a vote.
Motion was made by Vice Mayor Farrow to appoint Brian Carey to the Planning and Zoning Commission with a term ending June 30, 2029. The motion was seconded by Mayor Kidman.
Discussion continued.
The motion passed with Mayor Kidman, Vice Mayor Farrow, Councilor Preller, Councilor Hettinger, and Council Kocjan in favor. Councilor Roundtree and Councilor Hammond were opposed.

Parks and Recreation Advisory Board Appointments
Motion was made by Councilor Roundtree to accept Shannon Garrison, Paul Baughman, and Valerie Hunter to serve on the Parks and Recreation Advisory Board with a term ending June 30, 2029. The motion was seconded by Councilor Preller and passed unanimously upon a vote.

Page Utility Enterprises Board Appointment — Resolution 1348-26
Clerk introduced Resolution 1348-26 by title only.

A RESOLUTION OF THE MAYOR AND CITY COUNCIL OF THE CITY OF PAGE, COCONINO COUNTY, ARIZONA, MAKING AN APPOINTMENT TO THE PAGE UTILITY ENTERPRISES BOARD PER CHAPTER 31 CITY ORGANIZATIONS SECTION 31.57 PAGE UTILITY ENTERPRISES BOARD OF THE PAGE, ARIZONA CODE OF ORDINANCES

There was discussion.
Motion was made by Councilor Preller to adopt Resolution 1348-26 with Alan Nelson being re-appointed to the Page Utility Enterprises Board for a term ending June 30, 2031. The motion was seconded by Councilor Roundtree and passed unanimously

upon a vote.

Library Advisory Board Appointments
Motion was made by Councilor Roundtree for Camille Hammond to remain on the Board and Cheryl Weiss to be placed on the Board with a term ending June 30, 2029. The motion was seconded by Councilor Preller and passed with Mayor Kidman, Vice Mayor Farrow, Councilor Kocjan, Councilor Hettinger, Councilor Preller, and Councilor Roundtree in favor. Councilor Hammond abstained.

Youth Advisory Commission Appointment
Motion was made by Councilor Preller to re-appoint Lily Crim to the Youth Advisory Commission with a term expiring June 30, 2029. The motion was seconded by Councilor Hettinger.
Councilor Preller and Councilor Kocjan made comments encouraging youth to join the Commission.
The motion passed unanimously upon a vote.

Public Safety Personnel Retirement System Board Appointments
Motion was made by Councilor Preller to re-appoint Traci Parker and Joshua Adams to the Public Safety Personnel Retirement System Board with a term ending June 30, 2030. The motion was seconded by Councilor Hettinger and passed unanimously upon a vote.

Substance Abuse Task Force Appointment
Motion was made by Councilor Roundtree to appoint Sharon Watson to the Substance Abuse Task Force with a term ending June 30, 2027. The motion was seconded by Councilor Hettinger and passed unanimously upon a vote.

UNFINISHED BUSINESS

City-Owned Properties at 105 and 109 Aero Avenue
City Manager Marbury provided information.
There was discussion.
Motion was made by Councilor Hammond to follow staff's recommendation, sell the lots, and establish a blight fund with the proceeds. The motion was seconded by Mayor Kidman.
There was discussion.
Councilor Hammond amended the motion to remove the establishment of a blight fund. The amendment was seconded by Councilor Preller.
The amendment passed with Mayor Kidman, Councilor Hettinger, Councilor Preller, Councilor Hammond, and Councilor Kocjan in favor. Vice Mayor Farrow and Councilor Roundtree were opposed.
Discussion continued.
Councilor Kocjan moved to call for the question. Councilor Hammond seconded.
Mayor Kidman clarified the intent of the vote to call for the question. The motion passed unanimously upon a vote.
The amended motion passed with Mayor Kidman, Councilor Hammond, Councilor

Preller, and Councilor Hettinger in favor. Vice Mayor Farrow, Councilor Roundtree, and Councilor Kocjan were opposed.

Ordinance 753-26 - Short-Term Rental Regulations and License

Clerk introduced Ordinance 753-26 by title only.

AN ORDINANCE OF THE MAYOR AND CITY COUNCIL OF THE CITY OF PAGE, COCONINO COUNTY, ARIZONA, AMENDING THE PAGE CITY CODE OF ORDINANCES BY ADDING CHAPTER 113: SHORT-TERM RENTAL REGULATIONS

Motion was made by Councilor Roundtree to accept Ordinance 753-26-STR license for short-term rentals including the regulation with trafficking requirement. The motion failed for lack of a second.

Motion was made by Vice Mayor Farrow to adopt Ordinance 753-26 without the Human Trafficking training requirement. The motion was seconded by Councilor Kocjan.

There was discussion.

The motion passed with Mayor Kidman, Vice Mayor Farrow, Councilor Kocjan, Councilor Hettinger, and Councilor Preller in favor. Councilor Roundtree and Councilor Hammond were opposed.

NEW BUSINESS

Resolution 1349-26 Minor General Plan Amendment
(Case #MGPA-2026-01 – Portion of Parcel 802-20-005A from Open Space and Undevelopable to Business Commerce Land Use Designation)

Clerk introduced Resolution 1349-26 by title only.

A RESOLUTION OF THE MAYOR AND CITY COUNCIL OF THE CITY OF PAGE, COCONINO COUNTY, ARIZONA, ADOPTING A MINOR GENERAL PLAN AMENDMENT TO THE 2040 CITY OF PAGE GENERAL PLAN FUTURE LAND USE MAP FOR A PORTION OF PARCEL 802-20-005A FROM OPEN SPACE AND UNDEVELOPABLE TO BUSINESS COMMERCE.

Motion was made by Councilor Kocjan to adopt Resolution 1349-26 and approve the minor general plan amendment with findings 1-8 of the “Minor General Plan Amendment Review Criteria” in the staff report. The motion was seconded by Councilor Hammond and passed unanimously upon a vote.

Ordinance 755-26 - Zone Change
(Case #ZON-2026-02 – Portion of Parcel 802-20-005A from Parks & Open Space (POS) and Undevelopable (UNDV) to Community Commercial (C-2) Zoning)

Clerk introduced Ordinance 755-26 by title only.

AN ORDINANCE OF THE MAYOR AND CITY COUNCIL OF THE CITY OF PAGE, COCONINO COUNTY, ARIZONA, AMENDING THE ZONING CLASSIFICATION OF APPROXIMATELY 75 ACRES OF A PORTION OF PARCEL 802-20-005A FROM PARKS AND OPEN SPACE (POS) AND UNDEVELOPABLE (UNDV) TO COMMUNITY COMMERCIAL (C-2) ZONING

Motion was made by Councilor Hettinger to adopt Ordinance 755-26 option A, which is staff’s recommendation, and approve the rezone with findings 1-5 of the “Official Zoning Map Amendment Review Criteria” in the staff report. The motion was seconded by Vice Mayor Farrow.

There was discussion.

The motion passed with Mayor Kidman, Vice Mayor Farrow, Councilor Kocjan, Councilor Hettinger, and Councilor Preller in favor. Councilor Roundtree and Councilor Hammond were opposed.

Ordinance 754-26 - Revising Park Hours

Clerk introduced Ordinance 754-26 by title only.

AN ORDINANCE OF THE MAYOR AND CITY COUNCIL OF THE CITY OF PAGE, COCONINO COUNTY, ARIZONA, AMENDING SECTION 93.07 OF THE CITY OF PAGE CODE OF ORDINANCES, RELATING TO PARK HOURS

Motion was made by Councilor Roundtree to accept Ordinance 754-26-revising park hours. The motion was seconded by Councilor Hettinger.
There was discussion.
The motion passed with Mayor Kidman, Councilor Kocjan, Councilor Hettinger, Councilor Preller, and Councilor Roundtree. Vice Mayor Farrow and Councilor Hammond were opposed.

Mutual Aid Agreement for Ambulance Services

City Attorney Smith provided information.
Motion was made by Councilor Kocjan to approve the Mutual Aid Agreement with Kane County Human Resource Special Service District and authorize the mayor to sign. The motion was seconded by Councilor Hettinger.
Councilor Hettinger expressed her appreciation for agencies working together.
The motion passed unanimously upon a vote.

Special Events Liquor License Application — Grand Circle Arts Alliance

Motion was made by Councilor Preller to approve the Arizona Department of Liquor License for Grand Circle Arts Alliance. The motion was seconded by Councilor Hettinger and passed unanimously upon a vote.

POTENTIAL FUTURE AGENDA ITEMS

None.

EXECUTIVE SESSIONS

Motion was made by Councilor Hettinger to enter Executive Session consecutively for two (2) Executive Session items and move to the conference room at 6:51 p.m. The motion was seconded by Councilor Preller and passed unanimously upon a vote.

Mayor reconvened the Regular City Council meeting at 8:26 p.m.

EXECUTIVE SESSION

Performance Evaluation - Frank Marbury

No action taken.

Performance Evaluation – Cindy Scott

No action taken.

ADJOURN
The meeting was adjourned at 8:26 p.m.

Cindy Scott, City Clerk

Steven R. Kidman, Mayor

CERTIFICATION

I hereby certify that the foregoing minutes are a true and correct copy of the minutes of the City Council Regular Meeting, held on the 24th day of June 2026. I further certify that the meeting was duly called and held and that a quorum was present.

Dated this 8th day of July 2026

Cindy Scott, City Clerk

REQUEST FOR COUNCIL ACTION

Request for Council Action:
Meeting Type: Regular Meeting
Meeting Date: July 8, 2026
Department: Information Technology
Presented by:
Josh Smith, City Attorney
Kane Scott, IT Director

Brief Title: NTUA Wireless Service Agreement Amendment

Agenda Section: Consent Agenda
Agenda Sub-category: Agenda Item
Action: Motion
PowerPoint Needed?: No

Request for Council Action

Recommended Action:
Move to approve the Erate telecommunication service agreement with Choice Wireless and allow the City Manager to sign the agreement.

Background:
The Page Public Library submitted an application to Erate for a 5000 MB up and down Internet service. Choice Wireless responded to the Erate with a monthly charge. Erate approved and funded the Choice Wireless project at 90%. This amendment executes the 1-year extension of the 5-year agreement started in 2025.

Alternatives Considered:
N/A

Advisory Board/Commission Action:
N/A

Fiscal Impact:
Fiscal Year: 2026
Amount Requested: 14,584.84
Line Item(s):

Budget Impact: 14,584.84

Notes:
$145,848.36 funded at 90% = $131,263.52 the City of Page to pay $14,584.48 yearly or $1215.40 monthly.

Attachments:
1. Page Library_NTUAW_Amendment_6.26.26
2. PAGE PUBLIC LIBRARY Funding Commitment Decision Letter

AMENDMENT NO. 1
To
TELECOMMUNICATIONS SERVICE AGREEMENT

This Amendment No. 1 to Telecommunications Service Agreement (the "Amendment") is made and entered into as of the 26th day of June, 2026 ("Amendment Effective Date") by and between NTUA Wireless, LLC, a Delaware limited liability company ("Company"), and Page Public Library ("Customer").

WHEREAS, Company and Customer entered into a Broadband Service Agreement dated as of March 3, 2025 ("Agreement");

WHEREAS, Company and Customer now desire to make certain modifications and amendments to the Agreement; and

NOW, THEREFORE, in consideration of the mutual promises contained herein, and for other good and valuable consideration, the receipt and sufficiency of which the Parties acknowledge, the Parties hereby agree as follows:

The Agreement shall be amended as follows:

1. The Parties hereby agree that, pursuant to Section 2 of the Agreement, the Term of the Agreement shall be extended for a one-year period immediately following the Initial Term to terminate on June 30, 2027.

2. Section 2 of the Agreement is deleted in its entirety and replaced with the following:

Term – The Initial Term of this Agreement shall be for one (1) year beginning as of the Initial Service Date (the "Initial Term") through June 30, 2026. This Agreement may be renewed for up to four (4) one-year terms by written notice to the Company prior to the expiry of the then-current term. Customer, through the City Manager, is authorized to execute all contemplated extensions of this Agreement, subject to applicable law and the terms and conditions of the Agreement, by providing such written notice to Company.

3. General Terms and Conditions.

(a) Unless otherwise stated, all capitalized terms used in this Amendment shall have the same meaning as set forth in the Agreement. All headings in this Amendment are for reference purposes only.

(b) Except as set forth herein, all other provisions of the Agreement are ratified and remain unchanged and in full force and effect.

(c) In case of any inconsistencies between the terms and conditions of the Agreement and the terms and conditions contained in this Amendment, the terms and conditions contained in this Amendment shall control.

(d) This Amendment may be signed in any number of counterparts and each counterpart shall represent a fully executed original as if signed by both Company and Customer. Delivery of an executed counterpart of a signature page to this Amendment by facsimile or in electronic format (e.g. ".pdf" or ".tif") shall be effective as delivery of a manually executed counterpart of this Amendment.

[Signature page follows.]

IN WITNESS WHEREOF, NTUA Wireless, LLC and Page Public Library have executed this Amendment as of the date of the last party's signature.

NTUA Wireless, LLC

Signature: _____ Date: _____

Printed Name: _____

Title: _____

Page Public Library

Signature: _____ Date: _____

Printed Name: _____

Title: _____

May 2, 2026

Funding Commitment Decision Letter

Funding Year 2026

Contact Information:
Kane Scott
PAGE PUBLIC LIBRARY
PO BOX 1776, 479 LAKE POWELL BOULEVARD
PAGE, AZ 86040
kscott@pageaz.gov

FCC Form 471: 261007956

BEN: 143168
Wave: 1
Application Nickname: Library Internet

Totals

Total Committed	**$131,263.52**

What is in this letter?

Thank you for submitting your application for Funding Year 2026 Schools and Libraries Program (E-rate) funding. Attached to this letter, you will find the funding statuses for the FCC Form(s) 471, Services Ordered and Certification Form, that you submitted and referenced above.

The Universal Service Administrative Company (USAC) is sending this information to both the associated applicant(s) and the service provider(s) so that you can work together to complete the funding process.

Next Steps

1. Work with your service provider(s) to determine if your bills will be discounted or if you will request reimbursement from USAC after paying the full cost for the services you receive.

2. Review the Children's Internet Protection Act (CIPA) requirements and file the FCC Form 486 (Service Confirmation and CIPA Certification Form). **The deadline to submit this form is 120 days from the date of this letter or from the service start date (whichever is later).**

3. Invoice USAC

- **If you (the applicant) are invoicing USAC:** You must pay your service provider(s) the full cost for the services you receive and file the FCC Form 472, the Billed Entity Applicant Reimbursement (BEAR) Form, to invoice USAC for reimbursement of the discounted amount.

- **If your service provider(s) is invoicing USAC:** The service provider(s) must provide services, bill the applicant for the non-discounted share, and file the FCC Form 474, the Service Provider Invoice (SPI) form, to invoice USAC for reimbursement for the discounted portion of costs. Every funding year, service providers must file an FCC Form 473, the Service Provider Annual Certification Form, to be able to submit invoices and to receive disbursements.

- **To receive an invoice deadline extension, the applicant or service** provider must request an extension on or before the last date to invoice. **If you anticipate, for any reason, that invoices cannot be filed on time,** USAC will grant a one-time, 120-day invoice deadline extension if timely requested.

How to Appeal or Request a Waiver of a Decision

You can appeal or request a waiver of a decision in this letter **within 60 calendar days** of the date of this letter. Failure to meet this deadline will result in an automatic dismissal of your appeal or waiver request.

Note: The Federal Communications Commission (FCC) will not accept appeals of USAC decisions that have not first been appealed to USAC. However, if you are seeking a waiver of E-rate program rules, you must submit your request to the FCC and not to USAC. USAC is not able to waive the E-rate program rules.

- **To submit your appeal to USAC,** visit the Appeals section in the E-rate Productivity Center (EPC) and provide the required information. USAC will reply to your appeal submissions to confirm receipt. Visit USAC's website for additional information on submitting an appeal to USAC, including step-by-step instructions.

- **To request a waiver of the FCC's rules,** please submit it to the FCC in proceeding number CC Docket No. 02-6 using the Electronic Comment Filing System (ECFS). Include your contact information, a statement that your filing is a waiver request, identifying information, the FCC rule(s) for which you are seeking a waiver, a full description of the relevant facts that you believe support your waiver request and any related relief, and any supporting documentation.

For appeals to USAC or to the FCC, be sure to keep a copy of your entire appeal, including any correspondence and documentation, and provide a copy to the affected service provider(s).

Obligation to Pay Non-Discount Portion

Applicants are required to pay the non-discount portion of the cost of the eligible products and/or services to their service providers. Service providers are required to bill applicants for the non-discount portion of costs for the eligible products and/or services. The FCC stated that requiring applicants to pay the non-discounted share of costs ensures efficiency and accountability in the program. If using the BEAR invoicing method, the applicant must pay the service provider in full (the non-discount plus discount portion) **before** seeking reimbursement from USAC. If using the SPI invoicing method, the service provider must first bill the applicant **before** invoicing USAC.

Notice on Rules and Funds Availability

The applicants' receipt of funding commitments is contingent on their compliance with all statutory, regulatory, and procedural requirements of the Schools and Libraries Program and the FCC's rules. Applicants who have received funding commitments continue to be subject to audits and other reviews that USAC and/or the FCC may undertake to assure that committed funds are being used in accordance with such requirements. USAC may be required to reduce or cancel funding commitments that were not issued in accordance with such requirements, whether due to action or inaction of USAC, the applicant, or the service provider. USAC, and other appropriate authorities (including but not limited to the FCC), may pursue enforcement actions and other means of recourse to collect improperly disbursed funds.

Funding Commitment Decision Overview

Funding Year 2026

Application Comments for FCC Form 471: #261007956

The applicant did not submit any RAL corrections.

Funding Commitment Decision Overview

Funding Request Number (FRN)	Service Provider Name	Amount Requested	Amount Committed	Status
2699008599	NTUA Wireless, LLC	$131,263.52	$131,263.52	Funded

FRN	Service Type	Status
2699008599	Data Transmission and/or Internet Access	Funded

Dollars Committed			
Monthly Cost		**One-time Cost**	
Months of Service	12		
Total Eligible Recurring Charges	$145,848.36	Total Eligible One Time Charges	$0.00
Total Pre-discount Charges		$145,848.36	
Discount Rate		**90.00%**	
Committed Amount		**$131,263.52**	

Dates	
Service Start Date	**7/1/2026**
Contract Expiration Date	**6/30/2027**
Contract Award Date	3/12/2025
Service Delivery Deadline	6/30/2027
Expiration Date (All Extensions)	6/30/2030

Service Provider and Contract Information	
Service Provider	NTUA Wireless, LLC
SPIN (498ID)	143035541
Contract Number	
Account Number	
Establishing FCC Form 470	250014986
Invoicing Method	Service Provider - FCC Form 474 (SPI Form)

Consultant Information	
Consultant Name	
Consultant's Employer	
CRN	

Funding Commitment Decision Comments

MR1: Approved as submitted.

REQUEST FOR COUNCIL ACTION

Request for Council Action:
Meeting Type: Regular Meeting
Meeting Date: July 8, 2026
Department: City Clerk
Presented by:
Steven Kidman, Mayor

Brief Title: Liquor License — Lake Powell Espresso

Agenda Section: Public Hearings
Agenda Sub-category: Agenda Item
Action: Other
PowerPoint Needed?: No

Request for Council Action

Recommended Action:
Mayor to open the Public Hearing.

Mayor to close the Public Hearing.

Background:
The City Clerk's office received an application for a Series #12 (Restaurant) Liquor License from the Arizona Department of Liquor Licenses and Control for Lake Powell Espresso / Erin Cranston. In accordance with A.R.S. 4-201 (b) the public hearing has been scheduled to hear comments in favor or opposing the issuance of this Liquor License.

Action on this item will be done under the New Business portion of the agenda.

Alternatives Considered:
N/A

Advisory Board/Commission Action:
N/A

Fiscal Impact:
Fiscal Year:
Amount Requested:
Line Item(s):

Budget Impact:

Notes:

Attachments:
1. 03 16 2026 JOB #390109 Application Redacted

State of Arizona
Department of Liquor Licenses and Control

Created 06/04/2026 @ 04:23:09 PM

Local Governing Body Report

LICENSE

Number:		Type:	012 RESTAURANT
Name:	LAKE POWELL ESPRESSO		
State:	Pending		
Issue Date:		Expiration Date:	
Original Issue Date:			
Location:	625 ELM STREET PAGE, AZ 86040 USA		
Mailing Address:	PO BOX 7205 PAGE, AZ 86040 USA		
Phone:	(831)240-6099		
Alt. Phone:			
Email:	LPESPRESSO28@GMAIL.COM		

AGENT

Name:	ERIN LYNNE CRANSTON
Gender:	[redacted]
Correspondence Address:	PO BOX 7205 PAGE, AZ 86040 USA
Phone:	(831)240-6099
Alt. Phone:	[redacted]
Email:	[redacted]

OWNER

Name:	LAKE POWELL ESPRESSO LLC		
Contact Name:	ERIN LYNNE CRANSTON		
Type:	LIMITED LIABILITY COMPANY		
AZ CC File Number:	1978764	State of Incorporation:	AZ
Incorporation Date:	04/25/2019		
Correspondence Address:	PO BOX 7205 PAGE, AZ 86040 USA		
Phone:	(831)240-6099		
Alt. Phone:			
Email:	[redacted]		

Officers / Stockholders

60th Day -
8/3/26

Name:	Title:	% Interest:
ERIN LYNN CRANSTON	Member	100.00

LAKE POWELL ESPRESSO LLC - Member

Name: ERIN LYNN CRANSTON
Gender: [redacted]
Correspondence Address: PO BOX 7205
PAGE, AZ 86040
USA
Phone: (831)240-6099
Alt. Phone:
Email: [redacted]

APPLICATION INFORMATION

Application Number: 390109
Application Type: New Application
Created Date: 03/16/2026

QUESTIONS & ANSWERS

012 Restaurant

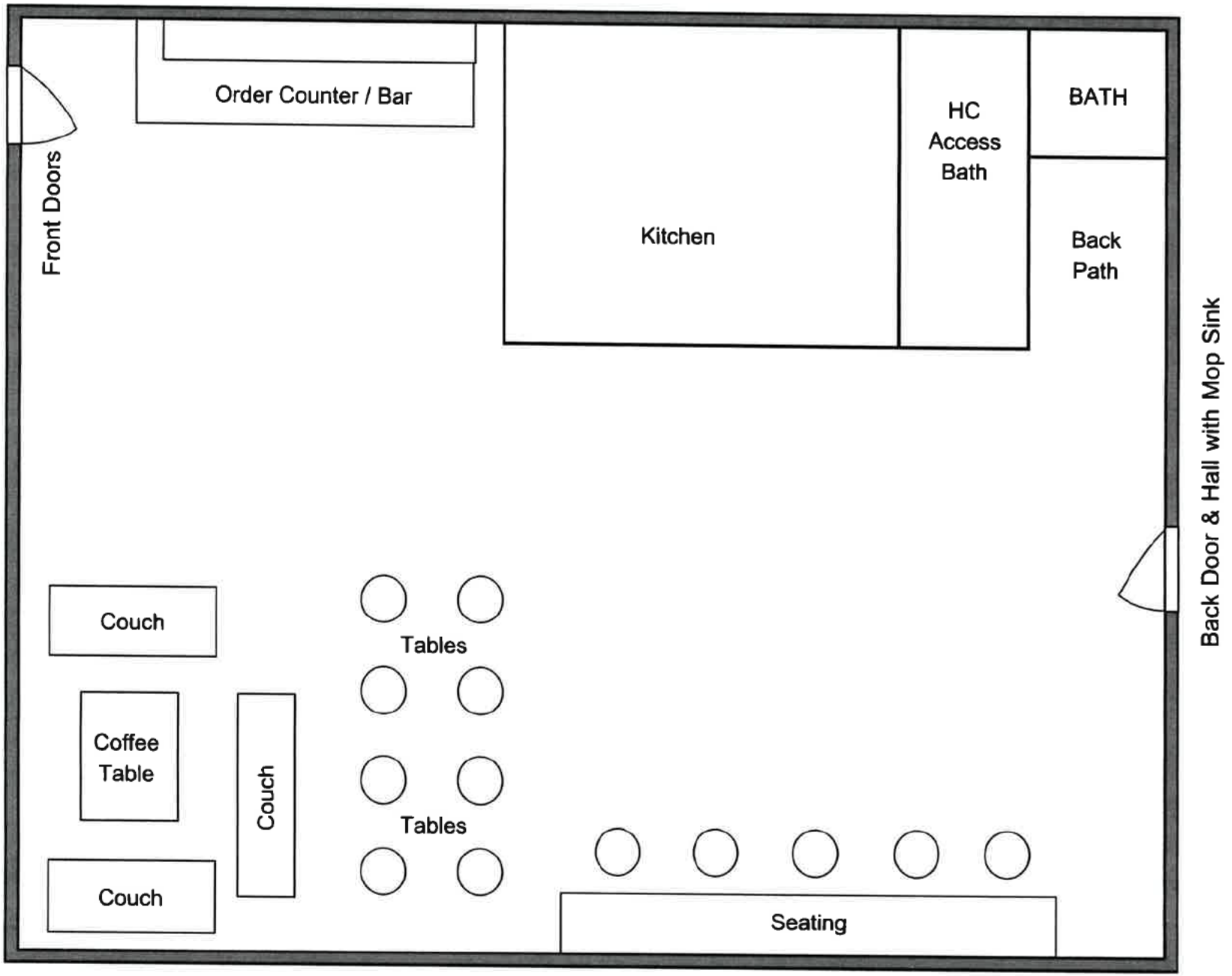
1) Are you applying for an Interim Permit (INP)?
   No
2) Are you one of the following? Please indicate below.
   Property Tenant
   Subtenant
   Property Owner
   Property Purchaser
   Property Management Company
   KTLG LLC
3) Is there a penalty if lease is not fulfilled?
   No
4) Is the Business located within the incorporated limits of the city or town of which it is located?
   Yes
5) What is the total money borrowed for the business not including the lease?
   Please list each amount owed to lenders/individuals.
   10,000 Square loan
6) Are there walk-up or drive-through windows on the premises?
   No
7) Does the establishment have a patio?
   No
8) Is your licensed premises now closed due to construction, renovation or redesign or rebuild?
   Yes
   If yes, what is your estimated completion date?
   May15, 2026
9) What type of business will this license be used for?
   Cafe and Restaurant

DOCUMENTS

DOCUMENT TYPE	FILE NAME	UPLOADED DATE
DIAGRAM/FLOOR PLAN	Screenshot_20260430_120119_ChatGPT.jpg	04/30/2026
MENU	LP MENU 1.jpg	04/30/2026
MISCELLANEOUS	Alien Status.pdf	04/30/2026
QUESTIONNAIRE	05052025_Personal Information Questionnaire.pdf	04/30/2026
RECORDS REQUIRED FOR AUDIT	Audit.pdf	04/30/2026
MISCELLANEOUS	20260430_125737.jpg	04/30/2026
MISCELLANEOUS	20260430_125807.jpg	04/30/2026
RESTAURANT OPERATION PLAN	Operation Plan.pdf	04/30/2026
	Alien.pdf	05/07/2026
	Questionaire.pdf	05/07/2026
	APP.pdf	05/15/2026
	DIAGRAM.pdf	05/15/2026
	Non Alcohol Drink Menu.jpg	05/15/2026
	Statement.pdf	05/26/2026

AMENDMENT

'26 5 18 Liq. Dept


Order Counter / Bar
Front Doors
Kitchen
HC
Access
Bath
BATH
Back
Path
Back Door & Hall with Mop Sink
Couch
Coffee
Table
Couch
Couch
Tables
Tables
Seating

— Drink Menu —



COFFEE BASED

ESPRESSO SINGLE	2
ESPRESSO DOUBLE	3
DRIP COFFEE	3 / 4
AMERICANO	3 / 4
LATTE	5 / 6
FLAT WHITE	5 / 6
CAPPUCCINO	4 / 5
CAFE AU LAIT	3.50 / 4.50
CORTATO	3.25 / 4.25
RED EYE	4.25 / 5.25
CARAMEL LATTE MACCHIATO	5 / 6
ESPRESSO MACCHIATO	2.25 / 3.25
MOCHA / WHITE MOCHA	5 / 6
BULLETPROOF	6
COLD BREW	4 / 5
FRAPPUCCINO	5 / 6

NO CAFF

HOT CHOCOLATE	3.50 / 4.50
FROZEN HOT CHOCOLATE	4 / 5
FRESH OJ	4 / 5
LEMONADE	3 / 4
SAGE LEMONADE	3.50 / 4.50
LEMONADE CHILLERS	3.75 / 4.75
GOLDEN LATTE	5 / 6
STRAWBERRY DREAM	4 / 5
MILK	3 / 4
STEAMER	3.50 / 4.50

EXTRA SHOT	1.50
ADD SYRUP	.75
SUB MILK	1.00
ADD WHIP	.50

LPE

Lake Powell Espresso

LPESPRESSO.COM

@LPESPRESSO

612 N NAVAJO DR. PAGE, AZ

928.612.8071

TEA BASED

TAZO TEA	2 / 3
MATCHA TEA	5 / 6
CHAI TEA LATTE	4 / 5
LONDON FOG LATTE	4 / 5
SEASONAL TEA	3.50 / 4.50
SEASONAL TEA PALMER	4 / 5
ARNOLD PALMER	3.50 / 4.50
MATCHA WITH STRAWBERRY COLD FOAM	6 / 6.50
MATCHA WITH TROPICAL COLD FOAM	5.50 / 7

SPECIALTY DRINKS

CHERRY CORDIAL MOCHA	5.50 / 7
ALMOND JOY LATTE	5.50 / 7
LOST CLOUDS WHITE MOCHA	5.50 / 7
BIRTHDAY CAKE MOCHA	5.50 / 7
SMORES MOCHA	5.50 / 7
CREME BRULEE LATTE	5.50 / 7
OREO FRAPPUCCINO	5.50 / 7
JAVA CHIP FRAPPUCCINO	5.50 / 7

RECEIVED
Dec 5 '19 4:48 PM
PAGE COUNTY

BREAKFAST AND LUNCH SERVED ALL DAY

BREAKFAST

VEGGIE FRITTATA 12
A SLICE OF HOMEMADE FRITTATA FILLED WITH A MIXTURE OF EGGS, CREAM, SPINACH, FETA, AND TOMATO SLICES.

POWELL PANINI 13
CREAMY SCRAMBLED EGG, AND MONTEREY JACK CHEESE SERVED ON A FLAKY CROISSANT WITH A SIDE OF OUR HOMEMADE SRIRACHA MAYO.
ADD SLICED HAM OR BACON 2.50

BREAKFAST BURRITO 15
CHOICE OF APPLE SMOKED BACON OR CHORIZO, WITH SCRAMBLED EGGS, HASHBROWNS, AND SHREDDED CHEESE, WRAPPED IN A FLOUR TORTILLA WITH A SIDE OF SOUR CREAM AND SALSA.

AVOCADO BAGEL 13
TOASTED BAGEL, AVOCADO, TOPPED WITH A HARD BOILED EGG, AND GREEN ONION.

LOX BAGEL 16
CHOICE OF EVERYTHING BAGEL OR PLAIN BAGEL, TOPPED WITH SMOKED SALMON, CAPERS, RED ONION, AND FRESH DILL.

COOKIE BUTTER WAFFLES 13
TWO BELGIAN STYLE WAFFLES TOPPED WITH CREAMY COOKIE BUTTER AND POWDERED SUGAR, SERVED WITH A SIDE OF MAPLE SYRUP.

LUNCH

SANDWICHES & WRAPS SERVED WITH CHIPS
SUB FRUIT CUP +1
SUB GLUTEN FREE BREAD +2

TURKEY CRANBERRY PANINI 15
TURKEY, CRANBERRY, CREAM CHEESE, MONTEREY JACK CHEESE AND GREENS.

CHICKEN BACON AVOCADO PANINI 15
CHICKEN, BACON, AVOCADO, MONTEREY JACK CHEESE, AND SOUTHWEST AIOLI.

FOUR CHEESE PANINI 14
MONTEREY JACK, PROVOLONE, BRIE, AND PARMESAN CHEESE TOPPED WITH FIG JAM.

CHICKEN BERRY FETA SALAD 15
ROASTED CHICKEN, BERRIES, CRAISINS, BACON CRUMBLES, PECANS, AND FETA CHEESE ON TOP OF A BED OF GREENS AND DRIZZLED WITH A RASPBERRY VINAIGRETTE.
*CAN BE MADE INTO A WRAP

CHICKEN CAESAR SALAD 15
ROASTED CHICKEN, PARMESAN CHEESE SHAVINGS, CROUTONS, PEPPER, AND CAESAR DRESSING.
*NO MEAT 11
*CAN BE MADE INTO A WRAP

SWEET CHICKEN CHILI SALAD 15
ROASTED CHICKEN, SWEET CHILI, MANDARIN ORANGES, GREEN ONION, AND CRUNCHY WONTONS ON A BED OF LETTUCE. TOPPED WITH A DRIZZLE OF OUR HOUSEMADE SWEET CHILI GINGER SOY VINAIGRETTE.
*CAN BE MADE INTO A WRAP

BLACK BEAN HUMMUS WRAP 15
HUMMUS, MONTEREY JACK CHEESE, ROASTED RED PEPPERS, CUCUMBER, SPINACH, AND TOMATO SLICES WRAPPED IN A FLOUR TORTILLA.

SIDES

FRUIT - 3.50
CITRUS SALAD - 3.50
GUACAMOLE - 4
BAGEL & CREAM CHEESE - 4.50
CHIPS - 2.50
4 SLICED TOMATOES - 2
HAM/TURKEY/BACON - 3.50
HARD BOILED EGG - 2

REQUEST FOR COUNCIL ACTION

Request for Council Action:
Meeting Type: Regular Meeting
Meeting Date: July 8, 2026
Department: City Council
Presented by: Steven Kidman, Mayor

Brief Title: Senator Gallego Visit

Agenda Section: Reports and Announcements
Agenda Sub-category: Agenda Item
Action:
PowerPoint Needed?: No

Request for Council Action

Recommended Action:
None - Report only.

Background:
N/A

Alternatives Considered:
N/A

Advisory Board/Commission Action:
N/A

Fiscal Impact:
Fiscal Year:
Amount Requested:
Line Item(s):

Budget Impact:

Notes:

Attachments:
None

REQUEST FOR COUNCIL ACTION

Request for Council Action:
Meeting Type: Regular Meeting
Meeting Date: July 8, 2026
Department: City Council
Presented by: Steven Kidman, Mayor

Brief Title: "Water Team" Update

Agenda Section: Reports and Announcements
Agenda Sub-category: Agenda Item
Action:
PowerPoint Needed?: No

Request for Council Action

Recommended Action:
None - Report only.

Background:
N/A

Alternatives Considered:
N/A

Advisory Board/Commission Action:
N/A

Fiscal Impact:
Fiscal Year:
Amount Requested:
Line Item(s):

Budget Impact:

Notes:

Attachments:
None

REQUEST FOR COUNCIL ACTION

Request for Council Action:
Meeting Type: Regular Meeting
Meeting Date: July 8, 2026
Department: City Council
Presented by: Steven Kidman, Mayor

Brief Title: Fourth of July Comments

Agenda Section: Reports and Announcements
Agenda Sub-category: Agenda Item
Action:
PowerPoint Needed?: No

Request for Council Action

Recommended Action:
None - Report only.

Background:
N/A

Alternatives Considered:
N/A

Advisory Board/Commission Action:
N/A

Fiscal Impact:
Fiscal Year:
Amount Requested:
Line Item(s):

Budget Impact:

Notes:

Attachments:
None

REQUEST FOR COUNCIL ACTION

Request for Council Action:
Meeting Type: Regular Meeting
Meeting Date: July 8, 2026
Department: City Council
Presented by:

Brief Title: Council Liaison Reports on Board Meetings

Agenda Section: Boards and Commissions
Agenda Sub-category: Administrative Report
Action:
PowerPoint Needed?: No

Request for Council Action

Recommended Action:

Background:

Alternatives Considered:

Advisory Board/Commission Action:

Fiscal Impact:
Fiscal Year:
Amount Requested:
Line Item(s):

Budget Impact:

Notes:

Attachments:
None

REQUEST FOR COUNCIL ACTION

Request for Council Action:
Meeting Type: Regular Meeting
Meeting Date: July 8, 2026
Department: City Council
Presented by:
Steven Kidman, Mayor

Brief Title: Council Liaison Designations

Agenda Section: Boards and Commissions
Agenda Sub-category: Agenda Item
Action: Motion
PowerPoint Needed?: No

Request for Council Action

Recommended Action:
Move to appoint Council Liaisons to the respective Boards and Commissions as designated by the Mayor.

Background:
Page City Code requires Council representatives to be appointed at the first regular meeting of the Council in July of each year by the Mayor and shall serve a term of two years.

Alternatives Considered:
N/A

Advisory Board/Commission Action:
N/A

Fiscal Impact:
Fiscal Year:
Amount Requested:
Line Item(s):

Budget Impact:

Notes:

Attachments:
None

REQUEST FOR COUNCIL ACTION

Request for Council Action:
Meeting Type: Regular Meeting
Meeting Date: July 8, 2026
Department: City Attorney
Presented by:
Josh Smith, City Attorney

Brief Title: Amendment to Purchase Agreement with Premium Builders, LLC

Agenda Section: Unfinished Business
Agenda Sub-category: Agreement/Contract
Action: Motion
PowerPoint Needed?: No

Request for Council Action

Recommended Action:
Move to approve the Amendment to the Purchase Agreement with Premium Builders, LLC.

Background:
Premium Builders LLC has requested to make a slight adjustment to the legal description of Phase 2 based upon an existing city utility easement in the vicinity. The amendment reduces the size of the parcel by around .5 acres.

Alternatives Considered:
N/A

Advisory Board/Commission Action:
N/A

Fiscal Impact:
Fiscal Year:
Amount Requested:
Line Item(s):

Budget Impact:

Notes:

Attachments:
1. Premium Builders Amendment-rev Phase 2

AMENDMENT TO AGREEMENT FOR THE PURCHASE OF REAL ESTATE

This Amendment is effective the 8th day of July, 2026, by and between the City of Page, a municipal corporation organized and existing under the laws of the State of Arizona (the "Seller"), and Premium Builders, LLC (hereinafter "Buyer").

RECITALS

Whereas, the parties entered into an Agreement for the Purchase of Real Estate ("Agreement") on or about February 17, 2026; and

Whereas, the parties now desire to amend the Agreement as set forth herein.

NOW, THEREFORE, in consideration of the foregoing and the mutual promises and covenants contained herein, and for other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the parties agree as follows:

AGREEMENT

1. Incorporation by Reference. Except as outlined herein, the original Agreement for the Purchase of Real Estate, entered into by the parties on or about February 17, 2026, is hereby incorporated by reference into this Amendment. The parties hereto agree to be bound by all terms, conditions, covenants, and obligations in said Agreement as if each were again fully set forth verbatim herein.

2. Exhibit A, Phase 1 and Phase 2 is hereby modified as set forth in Exhibit A attached hereto.

IN WITNESS WHEREOF, the parties hereto have entered into this Amendment on the date indicated above.

CITY OF PAGE

BY:_____
Mayor

ATTEST:

_____
City Clerk

APPROVED AS TO FORM:

_____
City Attorney

PREMIUM BUILDERS, LLC

_____
By:

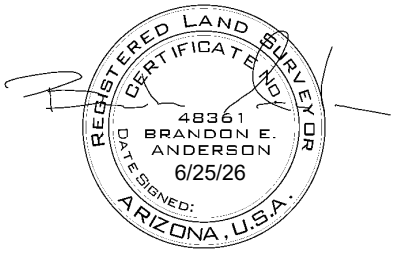
ROSENBERG ASSOCIATES™
CIVIL ENGINEERS LAND SURVEYORS

Exhibit “A”

Beginning at the southwest corner of Tract F-1 of the Minor Subdivision recorded as Case 9, Map 45 with the Coconino County Recorder’s Office, said point being South 89°42'28" West 519.59 feet along the section line and North 00°16'28" East 603.16 feet from the Southeast Corner of Section 31, Township 41 North, Range 7 East, Gila & Salt River Meridian, and running;

thence North 00°16'28" East 715.61 feet along the westerly line of said Tract F-1;
thence South 89°43'33" East 444.24 feet;
thence South 00°16'27" West 388.51 feet;
thence South 12°22'28" East 234.65 feet;
thence South 26°05'38" East 103.56 feet to the southerly line of said Tract F-1;
thence South 89°42'28" West 541.65 feet along said southerly line of said Tract F-1 to the Point of Beginning.

Containing 329,758 square feet or 7.57 acres.



EXPIRES: 9/30/2026

REQUEST FOR COUNCIL ACTION

Request for Council Action:
Meeting Type: Regular Meeting
Meeting Date: July 8, 2026
Department: City Clerk
Presented by:
Steven Kidman, Mayor

Brief Title: Liquor License — Lake Powell Espresso

Agenda Section: New Business
Agenda Sub-category: Agenda Item
Action: Motion
PowerPoint Needed?: No

Request for Council Action

Recommended Action:
Move to approve the Arizona Department of Liquor Licenses and Control Application for a Series #12 (Restaurant) Liquor License for Lake Powell Espresso / Erin Cranston.

Background:
Background materials for this item are included in the Public Hearing portion of this Liquor License Application.

The City Clerk's Office received an Arizona Department of Liquor Licenses and Control Application for a Series #12 (Restaurant) Liquor License for Lake Powell Espresso / Erin Cranston.

As required by Arizona Revised Statutes, the public hearing was held during an earlier portion of this meeting.

The Arizona Department of Liquor Licenses and Control will be notified of the action taken and will make the final determination.

Alternatives Considered:
N/A

Advisory Board/Commission Action:
N/A

Fiscal Impact:
Fiscal Year:
Amount Requested:
Line Item(s):

Budget Impact:

Notes:

Attachments:

1. 03 16 2026 JOB #390109 Application Redacted

State of Arizona
Department of Liquor Licenses and Control

Created 06/04/2026 @ 04:23:09 PM

Local Governing Body Report

LICENSE

Number:		Type:	012 RESTAURANT
Name:	LAKE POWELL ESPRESSO		
State:	Pending		
Issue Date:		Expiration Date:	
Original Issue Date:			
Location:	625 ELM STREET PAGE, AZ 86040 USA		
Mailing Address:	PO BOX 7205 PAGE, AZ 86040 USA		
Phone:	(831)240-6099		
Alt. Phone:			
Email:	LPESPRESSO28@GMAIL.COM		

AGENT

Name:	ERIN LYNNE CRANSTON
Gender:	[redacted]
Correspondence Address:	PO BOX 7205 PAGE, AZ 86040 USA
Phone:	(831)240-6099
Alt. Phone:	[redacted]
Email:	[redacted]

OWNER

Name:	LAKE POWELL ESPRESSO LLC		
Contact Name:	ERIN LYNNE CRANSTON		
Type:	LIMITED LIABILITY COMPANY		
AZ CC File Number:	1978764	State of Incorporation:	AZ
Incorporation Date:	04/25/2019		
Correspondence Address:	PO BOX 7205 PAGE, AZ 86040 USA		
Phone:	(831)240-6099		
Alt. Phone:			
Email:	[redacted]		

Officers / Stockholders

60th Day -
8/3/26

Name:	Title:	% Interest:
ERIN LYNN CRANSTON	Member	100.00

LAKE POWELL ESPRESSO LLC - Member

Name: ERIN LYNN CRANSTON
Gender: [redacted]
Correspondence Address: PO BOX 7205
PAGE, AZ 86040
USA
Phone: (831)240-6099
Alt. Phone:
Email: [redacted]

APPLICATION INFORMATION

Application Number: 390109
Application Type: New Application
Created Date: 03/16/2026

QUESTIONS & ANSWERS

012 Restaurant

1) Are you applying for an Interim Permit (INP)?
   No
2) Are you one of the following? Please indicate below.
   Property Tenant
   Subtenant
   Property Owner
   Property Purchaser
   Property Management Company
   KTLG LLC
3) Is there a penalty if lease is not fulfilled?
   No
4) Is the Business located within the incorporated limits of the city or town of which it is located?
   Yes
5) What is the total money borrowed for the business not including the lease?
   Please list each amount owed to lenders/individuals.
   10,000 Square loan
6) Are there walk-up or drive-through windows on the premises?
   No
7) Does the establishment have a patio?
   No
8) Is your licensed premises now closed due to construction, renovation or redesign or rebuild?
   Yes
   If yes, what is your estimated completion date?
   May15, 2026
9) What type of business will this license be used for?
   Cafe and Restaurant

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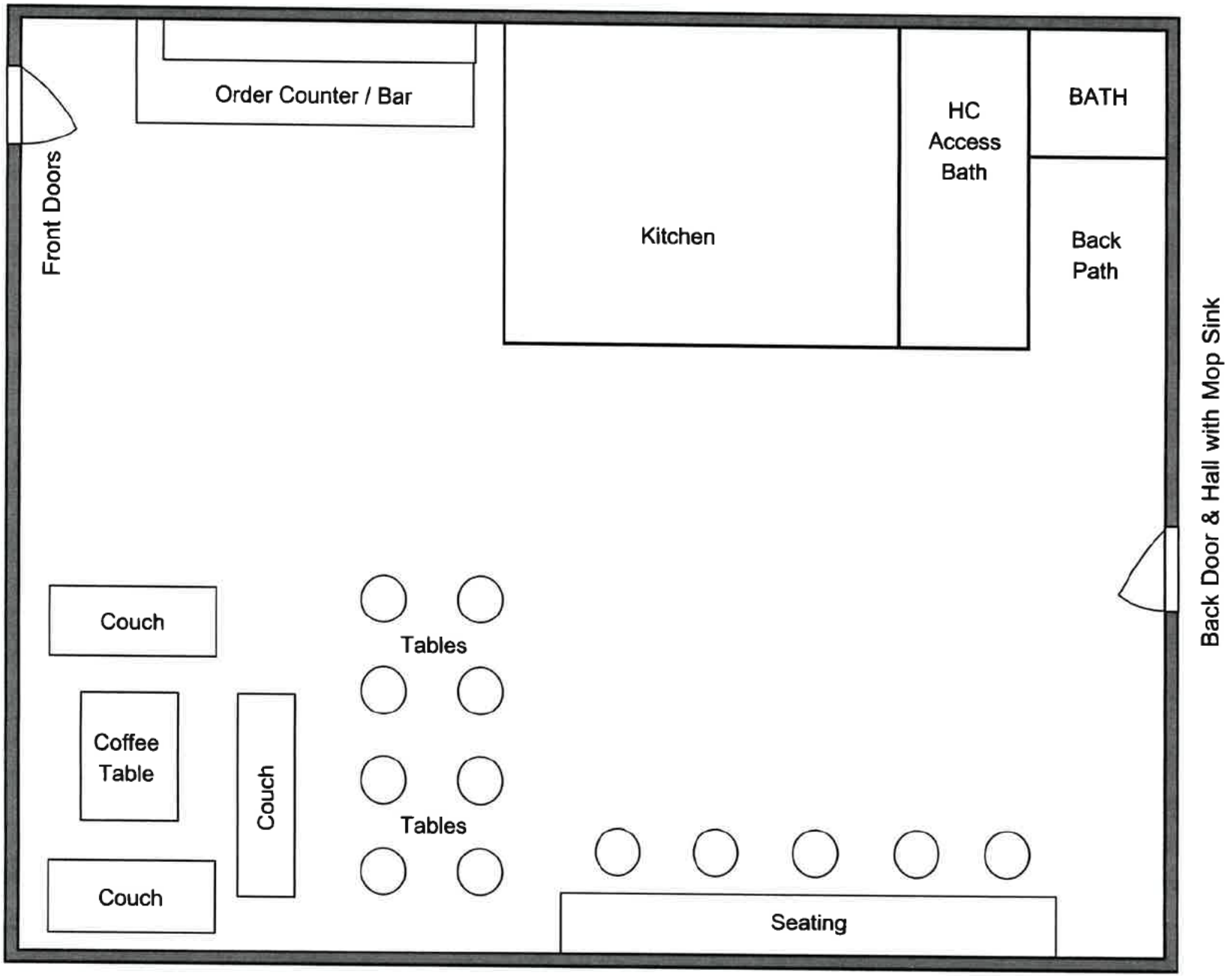
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	Non Alcohol Drink Menu.jpg	05/15/2026
	Statement.pdf	05/26/2026

625 ELM Street

2021 SQ FT



AMENDMENT


Order Counter / Bar
Front Doors
Kitchen
HC
Access
Bath
BATH
Back
Path
Back Door & Hall with Mop Sink
Couch
Coffee
Table
Couch
Couch
Tables
Tables
Seating

– Drink Menu –



COFFEE BASED

ESPRESSO SINGLE	2
ESPRESSO DOUBLE	3
DRIP COFFEE	3 / 4
AMERICANO	3 / 4
LATTE	5 / 6
FLAT WHITE	5 / 6
CAPPUCCINO	4 / 5
CAFE AU LAIT	3.50 / 4.50
CORTATO	3.25 / 4.25
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ESPRESSO MACCHIATO	2.25 / 3.25
MOCHA / WHITE MOCHA	5 / 6
BULLETPROOF	6
COLD BREW	4 / 5
FRAPPUCCINO	5 / 6

NO CAFF

HOT CHOCOLATE	3.50 / 4.50
FROZEN HOT CHOCOLATE	4 / 5
FRESH OJ	4 / 5
LEMONADE	3 / 4
SAGE LEMONADE	3.50 / 4.50
LEMONADE CHILLERS	3.75 / 4.75
GOLDEN LATTE	5 / 6
STRAWBERRY DREAM	4 / 5
MILK	3 / 4
STEAMER	3.50 / 4.50

EXTRA SHOT	1.50
ADD SYRUP	.75
SUB MILK	1.00
ADD WHIP	.50

LPE

Lake Powell Espresso

LPESPRESSO.COM

@LPESPRESSO

612 N NAVAJO DR. PAGE, AZ

928.612.8071

TEA BASED

TAZO TEA	2 / 3
MATCHA TEA	5 / 6
CHAI TEA LATTE	4 / 5
LONDON FOG LATTE	4 / 5
SEASONAL TEA	3.50 / 4.50
SEASONAL TEA PALMER	4 / 5
ARNOLD PALMER	3.50 / 4.50
MATCHA WITH STRAWBERRY COLD FOAM	6 / 6.50
MATCHA WITH TROPICAL COLD FOAM	5.50 / 7

SPECIALTY DRINKS

CHERRY CORDIAL MOCHA	5.50 / 7
ALMOND JOY LATTE	5.50 / 7
LOST CLOUDS WHITE MOCHA	5.50 / 7
BIRTHDAY CAKE MOCHA	5.50 / 7
SMORES MOCHA	5.50 / 7
CREME BRULEE LATTE	5.50 / 7
OREO FRAPPUCCINO	5.50 / 7
JAVA CHIP FRAPPUCCINO	5.50 / 7

RECEIVED
Dec 5 '19 4:48 PM
ADMIN

BREAKFAST AND LUNCH SERVED ALL DAY

BREAKFAST

VEGGIE FRITTATA 12
A SLICE OF HOMEMADE FRITTATA FILLED WITH A MIXTURE OF EGGS, CREAM, SPINACH, FETA, AND TOMATO SLICES.

POWELL PANINI 13
CREAMY SCRAMBLED EGG, AND MONTEREY JACK CHEESE SERVED ON A FLAKY CROISSANT WITH A SIDE OF OUR HOMEMADE SRIRACHA MAYO.
ADD SLICED HAM OR BACON 2.50

BREAKFAST BURRITO 15
CHOICE OF APPLE SMOKED BACON OR CHORIZO, WITH SCRAMBLED EGGS, HASHBROWNS, AND SHREDDED CHEESE, WRAPPED IN A FLOUR TORTILLA WITH A SIDE OF SOUR CREAM AND SALSA.

AVOCADO BAGEL 13
TOASTED BAGEL, AVOCADO, TOPPED WITH A HARD BOILED EGG, AND GREEN ONION.

LOX BAGEL 16
CHOICE OF EVERYTHING BAGEL OR PLAIN BAGEL, TOPPED WITH SMOKED SALMON, CAPERS, RED ONION, AND FRESH DILL.

COOKIE BUTTER WAFFLES 13
TWO BELGIAN STYLE WAFFLES TOPPED WITH CREAMY COOKIE BUTTER AND POWDERED SUGAR, SERVED WITH A SIDE OF MAPLE SYRUP.

LUNCH

SANDWICHES & WRAPS SERVED WITH CHIPS
SUB FRUIT CUP +1
SUB GLUTEN FREE BREAD +2

TURKEY CRANBERRY PANINI 15
TURKEY, CRANBERRY, CREAM CHEESE, MONTEREY JACK CHEESE AND GREENS.

CHICKEN BACON AVOCADO PANINI 15
CHICKEN, BACON, AVOCADO, MONTEREY JACK CHEESE, AND SOUTHWEST AIOLI.

FOUR CHEESE PANINI 14
MONTEREY JACK, PROVOLONE, BRIE, AND PARMESAN CHEESE TOPPED WITH FIG JAM.

CHICKEN BERRY FETA SALAD 15
ROASTED CHICKEN, BERRIES, CRAISINS, BACON CRUMBLES, PECANS, AND FETA CHEESE ON TOP OF A BED OF GREENS AND DRIZZLED WITH A RASPBERRY VINAIGRETTE.
*CAN BE MADE INTO A WRAP

CHICKEN CAESAR SALAD 15
ROASTED CHICKEN, PARMESAN CHEESE SHAVINGS, CROUTONS, PEPPER, AND CAESAR DRESSING.
*NO MEAT 11
*CAN BE MADE INTO A WRAP

SWEET CHICKEN CHILI SALAD 15
ROASTED CHICKEN, SWEET CHILI, MANDARIN ORANGES, GREEN ONION, AND CRUNCHY WONTONS ON A BED OF LETTUCE. TOPPED WITH A DRIZZLE OF OUR HOUSEMADE SWEET CHILI GINGER SOY VINAIGRETTE.
*CAN BE MADE INTO A WRAP

BLACK BEAN HUMMUS WRAP 15
HUMMUS, MONTEREY JACK CHEESE, ROASTED RED PEPPERS, CUCUMBER, SPINACH, AND TOMATO SLICES WRAPPED IN A FLOUR TORTILLA.

SIDES

FRUIT - 3.50
CITRUS SALAD - 3.50
GUACAMOLE - 4
BAGEL &
CREAM CHEESE - 4.50
CHIPS - 2.50
4 SLICED TOMATOES - 2
HAM/TURKEY/BACON - 3.50
HARD BOILED EGG - 2

REQUEST FOR COUNCIL ACTION

Request for Council Action:
Meeting Type: Regular Meeting
Meeting Date: July 8, 2026
Department: City Manager
Presented by:
Frank Marbury, City Manager

Brief Title: Coconino County Multi-Jurisdictional Hazard Mitigation Plan - Resolution 1350-26

Agenda Section: New Business
Agenda Sub-category: Agenda Item
Action: Resolution
Motion
PowerPoint Needed?: No

Request for Council Action

Recommended Action:
Clerk to introduce Resolution 1350-26 by title only. Move to adopt Resolution 1350-26.

Background:
Tim Carter from Coconino County Emergency Management will present the Coconino County Multi-Jurisdictional Hazard Mitigation Plan (HMP). Any jurisdiction wishing to receive federal funding for hazard mitigation, or emergency mitigation measures, must have a valid HMP.

Alternatives Considered:
N/A

Advisory Board/Commission Action:
N/A

Fiscal Impact:
Fiscal Year:
Amount Requested:
Line Item(s):

Budget Impact:

Notes:

Attachments:
1. 2026 Coconino County MJHMP_Final
2. Resolution 1350-26



Coconino County

Multi-Jurisdictional Hazard Mitigation Plan Update

2026

COCONINO COUNTY ARIZONA

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Record of Reviews and Revisions

Revision #	Date	Sections Reviewed or Revisions Made	Entered by

Section 1: Hazard Mitigation Program and Requirements

Coconino County (County) alongside the cities/towns of Flagstaff, Fredonia, Page, Northern Arizona University (NAU), Tusayan, and Williams (Planning Team) have prepared the 2026 Multi-Jurisdiction Hazard Mitigation Plan (MJHMP) to assess the natural and human caused risks to the planning area so as to reduce the potential impact of the hazards by creating mitigation strategies. The 2026 MJHMP represents all the jurisdictions' commitment to create safer, more resilient communities by taking actions to reduce risk and by committing resources to lessen the effects of hazards on people and property.

This plan complies with the Federal Disaster Mitigation Act (2000), Federal Register 44 CFR Parts 201 and 206, which modified the Robert T. Stafford Disaster Relief and Emergency Assistance Act by adding a new section, 322 - Mitigation Planning. This law, as of November 1, 2004, requires local governments to develop and submit hazard mitigation plans as a condition of receiving Hazard Mitigation Grant Program (HMGP) and other mitigation project grants. The Planning Group has coordinated preparation of the MJHMP in cooperation with the State of Arizona, other jurisdictions, the County's and city/towns' departments, community stakeholders, partner agencies, and members of the public.

This section of the MJHMP provides a brief description of hazard mitigation planning, local mitigation plan requirements, and an outline of the 2026 MJHMP. There is also an overview of Federal Emergency Management Agency (FEMA) programs and grants related to hazard mitigation.

1.1 Hazard Mitigation Planning

Hazard mitigation is any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards. In general, hazard mitigation is done to minimize the impact of a hazard event before it occurs, with the goal of reducing losses from future disasters. 44 CFR § 201.1(b) describes the purpose of mitigation planning for local governments to identify the hazards that impact them, to identify actions and activities to reduce losses from those hazards, and to establish a coordinated process to implement the plan, taking advantage of a wide range of resources. For the Planning Team, hazard mitigation planning is a process that will:

- Identify and profile hazards that affect the planning area.
- Analyze the population and facilities at risk from those hazards.
- Develop mitigation strategies and actions to lessen or reduce impact of profiled hazards.
- Implement the strategy and actions that may involve planning, policy changes, programs, projects, and other activities.

The Planning Team's implementation of mitigation actions, which may be short-term or long-term strategies, is the primary objective of the planning process. This type of planning will supplement the other comprehensive planning and emergency management programs.

1.2 Local Mitigation Planning Requirements

Hazard mitigation planning is governed by the Stafford Act, as amended by the Disaster Mitigation Act of 2000 (DMA 2000), and by federal regulations implementing the Stafford Act. DMA 2000 revised the Stafford Act to require state, local, and tribal governments to develop and submit to FEMA a mitigation plan that outlines processes for identifying the natural hazards, risks, and vulnerabilities of the jurisdiction. Plan approval by FEMA is a prerequisite to receiving federal hazard mitigation grant funds (see 42 USC § 5165(a).

To implement the mitigation planning requirements of the Stafford Act, FEMA promulgated 44 CFR Part 201, the federal regulations governing the planning process, plan content, and the process for obtaining approval of the plan from FEMA. The planning requirements set forth in the CFR are identified throughout this plan mirroring the order of the FEMA Regulation Checklist in the Local Mitigation Plan Review Tool.

FEMA has produced a *Local Mitigation Plan Review Tool,* which has been tailored by FEMA Region IX as an appendix to the *Local Mitigation Planning Handbook (2025),* to demonstrate how the mitigation plan meets the regulation in 44 CFR § 201.6 and offers State and FEMA Mitigation Planners an opportunity to provide feedback to the jurisdiction. The Plan Review Tool has a regulation checklist that provides a summary of FEMA's evaluation of whether the plan has addressed all requirements. Local planners can also use the checklist prior to submitting the plan for approval to ensure they have addressed all the requirements. The Local Mitigation Plan Review Tool Regulation Checklist is provided in **Appendix A** of this document.

1.3 Hazard Mitigation Plan Description

The 2026 MJHMP consists of the sections and appendices described below:

Table 1-1: Plan Sections, Appendices, and Descriptions

Section 1: **Hazard Mitigation Program and Requirements**	Includes background on hazard mitigation planning, lists the MJHMP planning requirements, provides a description of the plan, and discusses grants related to hazard mitigation.
Section 2: **Introduction and Planning Process**	Introduces the update to the MJHMP and describes the planning process for the 2026 MJHMP, including an overview of how the MJHMP was prepared, identification of the MJHMP Planning Team, involvement of outside agencies and communities, the inclusion of related plans, reports and information, and stakeholder and public outreach activities.
Section 3: **Planning Area Description**	Includes a description of the natural and built out state of the Planning Team, including climate, geography, demographics, and economic conditions.
Section 4: **Capability Assessment**	Identifies and evaluates the resources available to participating jurisdictions for hazard mitigation in the County.
Section 5: **Hazard Analysis and Risk Assessment**	Provides a list of the hazards identified in the 2026 MJHMP, a profile of each hazard and hazard summary, and a risk assessment of the planning area.

Section 6: **Mitigation Strategy**	Identifies and evaluates the current, ongoing, and completed mitigation projects and programs of the participating jurisdictions and lists their mitigation strategies for reducing potential losses.
Section 7: **Plan Maintenance Procedures**	Describes procedures for updating the MJHMP to keep it current and for continuance of public engagement in the planning process.
Section 8: **Plan Approval and Adoption**	Includes documentation of AZ DEMA and FEMA review process and documentation of MJHMP adoption by the elected leadership of each participating jurisdiction.
Appendix A	Contains the FEMA Local Mitigation Plan Review Tool, which documents compliance with the MJHMP planning requirements of 44 CFR Part 201.
Appendix B	Contains documentation of the planning process for the Planning Team, including meetings, presentations, emails, etc.
Appendix C	Contains documentation of the planning process including meetings, presentations held for the stakeholders and public, and other stakeholder/public outreach efforts.
Appendix C	Lists acronyms and abbreviations used in the 2026 MJHMP.

1.4 Grant Programs with Mitigation Plan Requirements

Currently, four FEMA grant programs provide funding to local entities that have a FEMA-approved local mitigation plan that meets federal hazard mitigation plan requirements. Two of the grant programs are authorized under the Stafford Act. The remaining two programs are authorized under the National Flood Insurance Act and the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act.

1.4.1 Stafford Act Grant Programs

Funding is provided to state, local, and tribal governments that have an approved MJHMP through the following programs.

Hazard Mitigation Grant Program (HMGP)

The HMGP provides grants to implement long-term hazard mitigation measures after declaration of a major disaster. Its purpose is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. To qualify for HMGP funding, projects must provide a long-term solution to a problem and the project's potential savings must exceed the cost of implementing the project.

HMGP Funds may be used to protect either public or private property or to purchase property that has been subjected to, or is in danger of, repetitive damage. The amount of funding available for the HMGP under a particular disaster declaration is limited. Under the program, the federal government may provide a state or tribe with up to 20% of the total disaster grants awarded by FEMA and may provide up to 75% of the cost of projects approved under the program.

The Building Resilient Infrastructure and Communities (BRIC) Program

The new BRIC grant program is for pre-disaster mitigation activities and replaces FEMA's existing Pre-Disaster Mitigation program. The BRIC priorities are to:

- Incentivize public infrastructure projects.
- Incentivize projects that mitigate risk to one or more lifelines.
- Incentivize projects that incorporate nature-based solution.
- Incentivize the adoptions and enforcement of modern building codes.

BRIC will support states, local communities, tribes, and territories as they undertake hazard mitigation projects, reducing the risks they face from disasters and natural hazards. The BRIC program guiding principles are supporting communities through capability and capacity-building, encouraging and enabling innovation, promoting partnerships, enabling large projects, maintaining flexibility, and providing consistency. The federal government provides up to 75% of the cost of projects approved under the program.

1.4.2 National Flood Insurance Act Grant Programs

Flood Mitigation Assistance Program

The goal of the Flood Mitigation Assistance (FMA) Grant Program is to reduce or eliminate flood insurance claims under the National Flood Insurance Program (NFIP). This program emphasizes mitigating repetitive loss (RL) properties. The primary source of funding for the FMA program is the National Flood Insurance Fund. Grant funding is available for planning, project, and technical assistance. Project grants are awarded to local entities to apply mitigation measures to reduce flood losses to properties insured under the NFIP. In FY 2024, FMA funding totaled $600 million nationally. The cost-share for this grant is 75% federal and 25% nonfederal. However, a cost-share of 90% federal and 10% nonfederal is available in certain situations to mitigate severe repetitive loss (SRL) properties.

Repetitive Flood Claims Program

The Repetitive Flood Claims (RFC) Program provides funding to reduce or eliminate the long-term risk of flood damage to residential and non-residential structures insured under the NFIP. Structures considered for mitigation must have had one or more claim payments for flood damage. All RFC grants are eligible for up to 100% federal assistance.

Section 2: Introduction and Planning Process

The requirements for documentation of the MJHMP planning process are described below. This section summarizes the Planning Team's hazard mitigation planning efforts in 2025-2026. In addition, the section describes public and stakeholder outreach efforts as part of the MJHMP planning process. The section also summarizes the review and incorporation of existing plans, studies, and reports used to develop the MJHMP. Documentation of the 2026 MJHMP planning process for the Planning Team is provided in **Appendix B** and documentation of the planning process for the public and stakeholders is found in **Appendix C**. These appendices document the planning meetings and outreach, and include meeting agendas, presentation, materials, and other documentation used to conduct the planning process.

FEMA REGULATION CHECKLIST: PLANNING PROCESS

44 CFR § 201.6(c)(1): The plan shall include documentation of the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

Elements

A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? 44 CFR § 201.6(c)(1).

A2. Does the plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development as well as businesses, academia, and other private and non-profit interests to be involved in the planning process? 44 CFR 201.6(b)(2)

A3. Does the Plan document how the public was involved in the planning process during the drafting stage and prior to plan approval? 44 CFR 201.6(b)(1) and 201.6(c)(1)

A4. Does the plan describe the review and incorporation of existing plans, studies, reports, and technical information? 44 CFR 201.6(b)(3)

Source: FEMA, *Local Mitigation Planning Handbook,* June 2025.

The planning process began with the Planning Team establishing the planning area and inviting stakeholders within the area to participate in the process. In addition, the Planning Team identified the financial and technical resources required to update the MJHMP. Once all the Planning Team's financial and technical resources were identified, the Planning Team established a schedule for the process.

2.1 Plan History

This version of MJHMP is an update to the 2021 MJHMP. It contains the updated status of previous mitigation activities plus new mitigation actions identified by each of the six previously participating jurisdictions, including new capabilities, and updates the risk assessment and vulnerability analysis. In addition, the MJHMP integrates a new participating jurisdiction, Northern Arizona University, and removes terrorism from the list of hazards.

The 2026 iteration of the MJHMP maintained the original nine hazards identified in 2021 (Dam Failure, Drought, Earthquake, Flood, Hazardous Materials and Transport Accidents, Severe Wind, Wildland Fire, and Winter Storms) while adding Pandemics to the formal list. The plan also acknowledged five additional hazards (Aviation Accident, Climate Change, Extended Power Outage, Excessive Heat, and Terrorism) which were identified by one or more jurisdictions has having notable impact and requiring consideration.

Based on a review of regional hazard events and developing threats, the 2026 edition of the MJHMP integrates all but one of the 14 hazards identified in the 2021 MJHMP and expands the definition of Pandemic/Public Health Outbreak. Terrorism was removed due to the sensitive nature of such information, its thorough discussion in local and regional law enforcement and security planning, and its non-applicability for mitigation grant funding. The hazard's removal is not a reflection of changes to regional risk. The pandemic was expanded to include public health

outbreaks, discussion of zoonotic diseases, invasive species, and endemic regional diseases. This change was made due to an increase in identified risk and available information, and growing overlap with other hazards that fall within mitigation funding programs.

The Planning Team recognizes that several of the hazards identified in this plan, notably Aviation Accident, Extended Power Outage, and Hazardous Materials/Transportation Accidents are predominately man-made and may not be eligible for mitigation assistance without a clear overlap with environmental, geological, atmospheric, or biological hazard risk or events. Additionally, a number of hazards identified in the plan, such as Dam Inundation, Wildfire, and Aviation Accident, affect only select participating jurisdictions. This is captured in Section 3 and reflected in risk assessments. Jurisdictions with little to no exposure to certain hazards, as specified in their risk assessments, are not obligated to develop mitigation actions for those hazards.

2.2 Plan Background, Purpose and Authority

Each year in the United States, disasters take the lives of hundreds of people and injure thousands more. Nationwide, taxpayers pay billions of dollars annually to help communities, organizations, businesses, and individuals recover from disasters. These monies only partially reflect the true cost of disasters, because additional expenses to insurance companies and non-governmental organizations are not reimbursed by tax dollars. Many disasters are predictable, and much of the damage caused by these events can be alleviated or even eliminated.

Hazard mitigation is defined by FEMA as “any sustained action taken to reduce or eliminate long-term risk to human life and property from a hazard event.” A 2019 cost-benefit analysis on hazard mitigation, the most in-depth available to date, concluded that adopting the latest building code requirements is affordable and saves $11 per $1 invested, above-code design could save $4 per $1 cost, private-sector building retrofit projects could save $4 per $1 cost, lifeline retrofit saves $4 per $1 cost, and Federal grants save $6 per $1 cost. The findings provide evidence that mitigation activities are highly cost-effective, in addition to saving lives and preventing injuries.[1]

Examples of hazard mitigation measures include, but are not limited to the following:

- Development of mitigation standards, regulations, policies, and programs.
- Land use/zoning policies.
- Strong building code and floodplain management regulations.
- Dam safety program, seawalls, and levee systems.
- Acquisition of flood prone and environmentally sensitive lands.
- Retrofitting/hardening/elevating structures and critical facilities.
- Relocation of structures, infrastructure, and facilities out of vulnerable areas.
- Public awareness/education campaigns.
- Improvement of warning and evacuation systems.

Hazard mitigation planning is the process through which hazards that threaten the County are identified, likely impacts of those hazards are determined, mitigation goals are set, and appropriate strategies to lessen impacts are determined, prioritized, and implemented. This Plan documents the planning process employed by the Planning Team. The MJHMP identifies relevant

[1] National Institute of Building Science Multi-Hazard Mitigation Council, 2019, Natural Hazard Mitigation Saves: 2019 Report

hazards and risks and identifies the strategy that will be used to decrease vulnerability and increase resiliency and sustainability.

This MJHMP was prepared pursuant to the requirements of the Disaster Mitigation Act of 2000 and the implementing regulations set forth in the Federal Register (hereafter, these requirements will be referred to collectively as the DMA 2000). While the act emphasized the need for mitigation plans and more coordinated mitigation planning and implementation efforts, the regulations established the requirements that hazard mitigation plans must meet in order to be eligible for certain Federal disaster assistance and hazard mitigation funding under the Robert T. Stafford Disaster Relief and Emergency Act.

Information in this MJHMP will be used to help guide and coordinate mitigation activities and decisions for future land use. Proactive mitigation planning will help reduce the cost of disaster response and recovery to the County and its property owners by protecting structures, reducing exposure and minimizing overall County impacts and disruption. The County has been affected by hazards in the past and is thus committed to reducing future disaster impacts and maintaining eligibility for Federal funding.

This is a multi-jurisdictional plan that geographically covers participating jurisdictions within Coconino County boundaries (hereinafter referred to as the Planning Area). The following jurisdictions participated in the planning process: Coconino County, the City of Flagstaff, the Town of Fredonia, Northern Arizona University, the City of Page, the Town of Tusayan, and the City of Williams.

2.3 Planning Process Description

In April 2025, the planning process for the 2026 MJHMP began. Key staff from participating jurisdictions were invited to participate in the Planning Team for the purpose of developing the MJHMP. In addition, solicitations were sent to other key stakeholders through emails sent by the County. During the plan review phase, feedback was requested from adjacent Counties and key stakeholders via email. See **Appendix B** for documentation of this engagement.

2.4 Planning Team

The role of the Planning Team was to perform the review, coordination, research, and planning activities required to update the 2026 MJHMP. Attendance by each participating jurisdiction was required at the Planning Team meetings as they were structured to progress through the planning process. Steps and procedures for updating the MJHMP were presented and discussed at each Planning Team meeting, and assignments for data collection or planning were provided. Each meeting was built on information discussed and assignments given at the previous meeting. Planning team member responsibilities also included:

- Providing supporting data.
- Conveying information and assignments received at the Planning Team meetings to other involved parties within their respective jurisdictions such as those involved in public engagement.
- Ensuring that requested assignments were completed and returned on a timely basis.
- Reviewing the draft MJHMP.
- Coordinating official adoption of the MJHMP.

Members of the Planning Team are listed in **Table 2-1** below. To ensure manageable meeting sizes, each jurisdiction sent a limited number of representatives to MJHMP Planning Team

meetings. The remainder supported the planning process via data collection and informal planning efforts in their given jurisdiction.

Table 2-1: MJHMP Planning Team Members

Jurisdiction	Organization	Name	Key Role
Federal	National Weather Service	Brian Klimowski	Provided information on meteorological hazards and climate change.
Federal	National Weather Service	Megan Taylor	Provided information on meteorological hazards and climate change.
Arizona	Arizona Department of Emergency and Military Affairs	Brittnie Britton	Provided guidance/assistance in planning update and meeting requirements.
Arizona	Arizona Department of Emergency and Military Affairs	Destiny Colorado	Provided guidance/assistance in planning update and meeting requirements.
Arizona	Arizona Department of Emergency and Military Affairs	Dustin Kirk	Represented DEMA from the state's perspective.
Arizona	Arizona State University, Geographical Sciences and Urban Planning	Erinanne Saffell	Provided information on meteorological hazards and climate change.
Arizona	Department of Water Resources	Theresa Johnson	Provided guidance/assistance in planning update and meeting requirements.
Bellemont	Camp Navajo	Tim Irwin	Provided guidance and input from a regional perspective as it pertains to Camp Navajo and regional response.
Flagstaff	Engineering Section	Paul Mood	Provided input on capability assessment. Provided guidance on capital projects funding and execution.
Flagstaff	Fire Department	Mark Gaillard	Provided jurisdiction specific information.
Flagstaff	Police Department	Collin Seay	Provided jurisdiction specific information.
Flagstaff	Police Department	Ryan Darr	Provided jurisdiction specific information.
Flagstaff	Grants and Contracts, Emergency Management	Stacey Brechler-Knaggs	Planning Team participant.
Flagstaff	Emergency Management	Daniel Kelly	Planning Team participant.
Flagstaff	Planning & Development Services	Sara Dechter	Provided guidance on planning and development.
Flagstaff	Sustainability Office	Sam Wiley	Provided jurisdiction specific information.
Flagstaff	Sustainability Office	Nicole Antonopoulos	Planning Team participant.
Flagstaff	Sustainability Office	Steven Thompson	Planning Team participant.

Jurisdiction	Organization	Name	Key Role
Flagstaff	Water Services	Ed Schenk	Provided input on capability assessment. Provided guidance on stormwater related information.
Flagstaff	Water Services	Tim Harrington	Provided jurisdiction specific information.
Page	Fire Department	Erin Harris	Provided jurisdiction specific information.
Page	Fire Department	Jeff Reed	Provided jurisdiction specific information.
Page	Police Department	Chief Tim Lange	Provided jurisdiction specific information.
Page	Police Department	Ted Barnard	Provided jurisdiction specific information.
Page	Water Resources Department	Bryan Hill	Provided guidance and information related to flooding.
Williams	Emergency Services, Police Department	Theresa Johnson	Provided jurisdiction specific information.
Williams	Emergency Services, Fire Department	Chase Pearson	Provided jurisdiction specific information.
Williams	Emergency Services, Fire Department	Cameron Maebe	Provided jurisdiction specific information.
Williams	Police Department	John Gregory	Provided jurisdiction specific information.
Williams	City Manager	Tim Pettit	Provided jurisdiction specific information.
Coconino County	Emergency Management Department	Chance Wnuck	Coordinated the collection of updated data/info from jurisdictions.
Coconino County	Emergency Management Department	Tim Carter	Provided County specific information.
Coconino County	Emergency Management Department	Kelsey Nielsen	Provided County specific information.
Coconino County	Emergency Management Department	Lana Kahle	Coordinated public outreach to all participating jurisdictions.
Coconino County	Flood Control District/Forest Restoration	Jay Smith	Provided hazard related information.
Coconino County	Flood Control District	Lucinda Andreani	Provided hazard related information.
Coconino County	Public Works	Stephen Anderson	Provided jurisdiction specific information.
Coconino County	Public Works	Chad Auker	Provided jurisdiction specific information.
Coconino County	Community Development	Jason Christelman	Provided jurisdiction specific information.
Coconino County	Sheriff's Office	Stephen McNerney	Provided County regional information.

Jurisdiction	Organization	Name	Key Role
Coconino County	Sheriff's Office	Gerritt Boeck	Provided County regional information.
Coconino County	Sheriff's Office	James Steng	Provided County regional information.
Northern Arizona University (NAU)	Office of Emergency Management	Whitney McKay	NAU Emergency Manager; provided NAU specific information and planning capabilities.
Coconino County	Information Technology / GIS	Nathan Renn	Provided jurisdiction specific information.
Northern Arizona University (NAU)	Capital Planning & Campus Operations	Jeffrey McKay	Provided jurisdiction specific information.
Northern Arizona University (NAU)	School of Forestry	Victor Morfin	Provided jurisdiction specific information.
Northern Arizona University (NAU)	STEM Teaching and Learning	Sean Michael Ryan	Provided jurisdiction specific information.
Ponderosa Fire District	Fire Department	Lee Antonides	Provided wildland fire related information/data.
Summit Fire District	Fire Department	Earl Callendar	Provided jurisdiction specific information and coordination.
Fredonia	Town Mayor	Don Johnson	Provided assistance in identifying mitigation activities for the town's community hazards.
Fredonia	Fire Department	Clayton Johnson	Town Manager; provided jurisdiction information.
Tusayan	Fire Department	Greg Brush	Provided input on the community's data/information for plan.
Tusayan	Town Manager's Office	Clarinda Vail	Provided jurisdiction specific information.

2.4.1 Planning Team Activities

Four formal planning meetings were held with Planning Team. These were facilitated by the Coconino County Department of Emergency Management, which also sent meeting notices and disseminated ensuing documents for review, action, and record keeping. **Table 2-2** lists milestone Planning Team activities. Full descriptions and documentation of Planning Team activities are contained in **Appendix B**.

Table 2-2: Planning Activities

Date	Activity/Meeting	Purpose
May 6, 2025	MJHMP Planning Team Kickoff Meeting	Introduction of Planning Team members, discussion of update process, review critical tasks, and brief data collection tools.
July 10, 2025	MJHMP Planning Team Meeting #1	Review project management plan, align expectations, review potential hazards and select those that pose risks.

Date	Activity/Meeting	Purpose
August 25, 2025	MJHMP Planning Team Meeting #2	Review of hazard risk assessments, update of mitigation goals, and description of mitigation action planning requirements.
October 20, 2025	MJHMP Planning Team Meeting #3	Review of outstanding information requirements, mitigation action planning outputs, and draft plan. Briefing of approval process and steps for finalizing the draft plan.

2.4.2 Other Jurisdictions Agency / Organizational Participation

Multiple additional organizations were engaged as part of the planning process, with several participating in Planning Team meetings. These were sent invitations to participate in the overall planning process or specific meetings via email. Planning Team Meeting notes, captured in **Appendix B**, document their participation. **Table 2-3** captures the organizations and staff who participated in the planning process.

Copies of the draft MJHMP were provided to the Planning Team, AZ DEMA, regional utilities, and neighboring counties/jurisdictions for review, as documented in **Appendix C**. The organizations and jurisdictions engaged outside of the Planning Team in this review process are also listed in **Table 2-3**.

Table 2-3: Other Organization/Jurisdictional Participants

Organization	Staff	Engagement
American Red Cross	Mel Miller	Planning Team Invitee/Participant
American Red Cross	Jeremy Sleeter	Planning Team Invitee/Participant
JE Fuller	Joe Loverich	Planning Team Invitee/Participant
Arizona State University	Erinanne Saffell	Planning Team Invitee/Participant
Camp Navajo	Tim Irwin	Planning Team Invitee/Participant
Navajo County	Catrina Jenkins	Draft MJHMP Review
Yavapai County, AZ	Ashley Alquist	Draft MJHMP Review
Mohave County, AZ	Mike Browning	Draft MJHMP Review
Flagstaff Downtown Business Alliance	Hunter Herbert	Planning Team Invitee/Participant
Arizona Public Service	Janet Dean	Provided jurisdiction specific information
Gila County, AZ	Carl Melford	Draft MJHMP Review
Kane County, UT	Lt. Alan Alldredge	Draft MJHMP Review
San Juan County, UT	Tammy Gallegos	Draft MJHMP Review
Arizona Public Service Electric	Rachel Porter	Draft MJHMP Review
Kinder Morgan	Cody Cox	Draft MJHMP Review
Energy Transfer	Brad Monell	Draft MJHMP Review
AZ Dept. of Forestry and Fire Management	Rick Miller	Draft MJHMP Review

Organization	Staff	Engagement
Unisource Energy Services	Richard Perez	Planning Team Invitee/Participant
USDA – Coconino National Forest	Aaron Mayville	Draft MJHMP Review
USDA - Kaibab National Forest	Nicole Branton	Draft MJHMP Review
NPS – Grand Canyon National Park	Justin Culley	Draft MJHMP Review

2.5 Community Engagement

Once the planning process commenced, the Planning Team provided public notification through their websites and social media accounts accompanied by a hazard mitigation awareness campaign. This was followed by an online survey, advertised via the same mediums, which solicited input from the public regarding hazards of concern, potential mitigation activities, and household disaster readiness/needs. A summary of risk assessment findings and planned mitigation efforts was presented to the public via advertised City/Town Council, NAU leadership, and County Board of Supervisor meetings, which included solicitation of public feedback from the public. Finally, the draft plan was published for public engagement for 30 days via each jurisdiction's respective websites, with attendant public awareness messaging via those websites and social media.

Feedback from these public engagement efforts is integrated throughout the plan. Responses to the public engagement survey conducted at the start of the planning effort were utilized to identify and profile hazards, as well as develop the risk assessments captured in Section 4 of the MJHMP. They additionally informed the development of mitigation actions. Feedback garnered from the public presentations was utilized to refine the plan, and particularly the mitigation actions identified in Section 5. Feedback on the draft MJHMP was integrated throughout the plan where appropriate.

Appendix C provides documentation of community engagement efforts and public participation.

2.6 References and Documents

The Planning Team used a multitude of resource documents and references to inform and guide the MJHMP update. **Table 2-4** contains a comprehensive list of planning documents, references, and tools utilized to create the current plan. Specific sources, including statistical data and news reports, are citied directly in Sections 3 and 4.

Table 2-4: Guidance and Tools

Referenced Document or Technical Source	Resource Type	Description of Reference and Its Use
Tusayan General Plan	Plan	Tusayan's comprehensive plan includes transportation, land use, impacts on land, and housing. Updated plan will be adopted in June 2026.
City of Page General Plan	Plan	Page's General plan including land use, economic development and demographics.
Fredonia General Plan	Plan	Fredonia's comprehensive plans and future goals.

Referenced Document or Technical Source	Resource Type	Description of Reference and Its Use
Flagstaff Regional Plan 2030	Plan	Flagstaff's plan for future sustainability and regional policy.
Flagstaff Regional Plan 2045	Plan	Flagstaff's plan for future sustainability and regional policy. (Pending voter approval in May 2026)
Coconino County Emergency Operations Plan	Plan	Information on Coconino's response in the event of an emergency.
Flagstaff Climate Action and Adaptation Plan	Report	A plan outlines Flagstaff's response to rising temperatures, increased wildland fires, and other threats.
Climate Profile for Flagstaff	Report	Examination of Flagstaff and Coconino County's historical climate and projected climate in the future.
State of Arizona Hazard Mitigation Plan	Plan	A resource for disaster resistance and mitigation in the State of Arizona.
Arizona Commerce Authority	Website data and community profiles	Demographic and economic data for the County. Used for community descriptions.
EPA Regional Resilience Toolkit	Data/Toolkit	A resource for focusing on the development of resilient communities on the regional scale at which disasters happen.
Arizona Department of Emergency and Military Affairs	Data and planning resource	Statewide disaster declaration information and hazard mitigation planning guidance
Arizona Department of Water Resources	Technical resource	Data on drought conditions and statewide drought management (AzGDTF), and dam safety data. Used in risk assessment.
Arizona State Land Department	Data source	Statewide GIS coverage (ALRIS) and wildland fire hazard profile information (Division of Forestry). Used in the risk assessment.
Arizona Wildland Urban Interface Assessment	Report	Wildland fire hazard profile data and urban interface at risk communities. Used in the risk assessment.
Arizona State Climate Office	Website reference	Weather and climate data for the State of Arizona. Information on operational, educational, planning, and research endeavors. Used for community descriptions.
Northern Arizona University Ecological Restoration Institute (NAU ERI)	Technical resource	Research and implementation strategies supporting ecological restoration and climate adaptation in western forest landscapes.

Referenced Document or Technical Source	Resource Type	Description of Reference and Its Use
Federal Emergency Management Agency	Technical and planning resource	Resource for MJHMP guidance (how-to series), floodplain and flooding related NFIP data (mapping, repetitive loss, NFIP statistics), and historic hazard incidents. Used in the risk assessment and mitigation strategy.
HAZUS-MH	Technical resource	Based data sets within the program were used in the vulnerability analysis.
National Centers for Environmental Information	Technical resource	Resource for weather related data and historic hazard event data used in risk assessment.
National Integrated Drought Information System (2025)	Technical resource	Source for drought related projections and conditions. Used in the risk assessment.
National Inventory of Dams (2025)	Technical resource	Database used in the dam failure hazard profiling. Used in the risk assessment.
National Weather Service	Technical resource	Source for hazard information, data sets, and historic event records used in risk assessment.
United States Geological Survey (2025). Earthquake Hazards Program.	Technical data	Source for geological hazard data and incident data. Used in the risk assessment.
Western Regional Climate Center	Website data	Online resources for climate data used in climate discussion.

Section 3: Planning Area Description

This section includes detailed descriptions of the County and the five participating cities/towns that form the Planning Team for the MJHMP. **Section 3.1** addresses the overall County.

3.1 Location and Geography

Coconino is the second largest county in the country, second to only San Bernardino County (California). It is a topographically diverse area with a wide range of climatic conditions, vegetation, and wildlife. Located in north-central Arizona, the County is larger than nine US states and the entire country of Switzerland. Its land mass encompasses over 18,600 square miles. Coconino is characterized by deep canyons and rugged mountains with elevations that range from 1,350 feet at the bottom of the Grand Canyon to 12,633 feet at the top of the San Francisco Peaks. Most of the county is located between 5,000 and 7,000 feet in elevation. The County limits generally lie between longitudes 110.75 to 113.35° west and latitudes 34.26 to 37.01° north.

Coconino resides in the North Region of the state. The region is located at the highest elevation in Arizona and is made up of the Chino/Coconino Grasslands and Shrub-Steppe ecoregions. County land and ecological characteristics of the County have been mapped into three terrestrial ecoregions described below.

- **Arizona Mountain Forests** – Contains a mountainous landscape, including the Mogollon Rim and the San Francisco Mountains, and covers approximately 40% of the County. The ecoregion also includes the north (Kaibab Plateau) and south rims of the Grand Canyon; the volcanic San Francisco Peaks just north of Flagstaff, Arizona; and Carlsbad Caverns National Park in New Mexico and the adjacent Guadalupe Mountains National Park in Texas; among other important areas. Notwithstanding these reserves, this magnificent region is only 11% protected, and a mere 6% of habitat outside protected areas is considered intact.[1] Elevations in this zone range from approximately 4,000 to just under 13,000 feet, resulting in comparatively cool summers and cold winters. Vegetation is comprised largely of a mix of Scrub Grassland, Mogollon Chaparral Scrubland, Great Basin Conifer Woodland, Rocky Mountain Conifer Forest, and Plains Grassland.

- **Colorado Plateau Shrublands** – Covers approximately 55% of the County with elevations that average around 4,000-5,000 feet. Vegetation in this ecoregion is comprised mainly of Plains Grassland and Great Basin Desert scrub. Temperatures can vary widely in this zone, with comparatively warm summers and cool winters. The area's geological formation, shaped by the Colorado River and its tributaries, contributes to its dramatic landscapes and complex biological zones, supporting over 300 endemic plant species and various wildlife, including iconic mammals like mule deer and numerous bird species.[2]

- **Mojave Desert** – Covers a small part of the western-central County, with elevations that range from 1,500 - 4,000 feet on some mountain locations. Typically, the climate in this ecoregion is very hot and dry during the summer and comparatively warm during the winter.

The County's landscape is comprised mainly of two fire adapted ecosystem types and regimes. Naturally occurring wildland fires play an important role in our ecosystem. However, long-term mismanagement has altered the type and frequency of fires, therefore creating unnaturally hazardous fire conditions across much of our landscape. The fire adapted ecosystem types are described as follows:

Moderately frequent fire regimes

In shrublands or forests containing plants with seeds that require fire to germinate, moderately frequent fires allow the growth from those fire-dependent seeds to eventually return the vegetation to pre-fire condition. These ecosystems are also resilient to fire, but if fire returns before the new vegetation matures and produces more seeds, the vegetation could be replaced by a different type, such as grass.

Fires in these systems could increase in frequency for a variety of reasons, including more human activity in the area leading to accidental fire starts, or invasive plants which dry out and burn readily before the re-growing vegetation can reach maturity. Public awareness, invasive species management, or strategic fire suppression strategies can reduce the frequency of fire and increase resilience in such systems.

High frequency, predominantly low severity fire regimes

Fire occurs, or historically occurred frequently in some ecosystems, such as Ponderosa pine or mixed-conifer forests. When fire burns through the understory, the resilience of these forests depends on the survival of the adult trees with thick bark (i.e. a fire-adapted trait). If fire is excluded from these forests, fuel in the understory can accumulate significant amounts. When fire eventually returns, it may be so severe that it kills the mature trees.

Promoting resilience in such forests after an extended period without fire, often made worse by extended periods of drought, generally involves reducing the fuel load through thinning, prescribed fire under suitable weather conditions, and other means. Once much of the fuel is removed, fire is more likely to burn with low severity, and most adult trees will not be killed. Because these forests are adapted to frequent fire, long-term resilience can only be maintained by allowing fire to burn frequently enough to both reduce fuels and support ecological functions.[3] It is also recommended by experts that communities could employ multiple strategies to be more resilient to wildfire. Strategies include practices like zoning, building policy, landscape regulations, vegetation, and forestry management, and public education and preparedness campaigns[4].

3.2 Rivers and Watersheds

The County is characterized by many water courses. The more prominent perennial watercourses include Oak Creek, Chevelon Creek, Kanab Creek, West and East Clear Creek, and Coconino Wash. Watersheds include Upper Rio de Flag, Lake Mary, Walnut Creek, and portions of the Colorado River basin.[2] There are also numerous ephemeral watercourses that drain into the more prominent watercourses. The County is also populated by several natural and man-made lakes that serve as critical water supply sources for both humans and wildlife.

3.3 Climate

The climate in the County varies with location and elevation. The County's climate shifts significantly with both location and elevation. In summer, conditions range from hot and dry at the bottom of the Grand Canyon to mild, moderate temperatures in the forested regions. Winter temperatures vary from just above freezing to single digits in the higher mountain areas.Climatic statistics for weather stations within the County are produced by the Western Region Climate Center (WRCC) and span records dating back to the early 1900's. Statistics for the Flagstaff WSO AP, Page, and Phantom Ranch Stations are provided in the following discussions.

Average temperatures within the County vary widely depending upon location and elevation. County-wide, temperatures range from well below freezing during the winter months to nearly 100°F during the summer. Average extreme temperatures can exceed either end of the spectrum by as much as 10-15°F.

Annual precipitation across the County varies significantly with both location and elevation. Also, for most of the county, precipitation comes in the form of rain, snow, hail, or sleet. In general, average rainfall across the county ranges from six to 25 inches (6"-25"). Average annual snowfall totals can range from zero to 100 inches (0"-100") and greater for locations above 7,000 feet.

From November to March, storm systems from the Pacific Ocean cross the state as broad winter storms that produce mild precipitation events and snowstorms at higher elevations. Summer rainfall begins early in July and usually lasts until mid-September. Moisture-bearing winds move into Arizona at the surface from the southwest (i.e. Gulf of California) and aloft from the southeast (i.e. Gulf of Mexico). This shift in wind direction, termed the North American Monsoon, produces summer rains as thunderstorms that result largely from excessive heating of land surface and subsequent lift of moisture-laden air, especially in the primary mountain ranges. Thunderstorms often come with strong winds, blowing dust, and hailstorms.

Arizona climate can also be largely impacted by the opposite extreme weather events known as El Niño and La Niña, or El Niño/Southern Oscillation (ENSO). ENSO refers to strong variations in

[2] Coconino County Watersheds

sea-surface temperatures, rainfall, surface air pressure, and atmospheric circulation from the Pacific Ocean year-to-year.[5] El Niño represents the warm phase of the ENSO cycle, while La Niña represents the cold phase. ENSO affects weather patterns across the Southwest, causing wetter winter seasons due to El Niño's influence on tropical storms and subsequent higher than average precipitation, and dryer winters during La Niña events, when the pattern is reversed.[6] The recorded weather patterns in the Flagstaff from 1970—2000 found nearly double the average of snowfall from El Niño events to La Niña events and about triple the average of precipitation.[7]

Table 3-1: Average Climate Data for Flagstaff

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Avg High (F)	43	46	52	59	68	79	82	79	74	64	52	43
Avg Precipitation (Inches)	2.05	2.17	1.88	0.89	0.77	0.30	2.61	3.04	1.84	1.52	1.55	1.90
Avg Snowfall (Inches)	20.9	19.3	15.6	5.0	1.1	0	0	0	0	1.5	8.2	18.5

Source: U.S. Climate Data website, January 2025

3.4 History

According to archeological records and tribal historical sources, the County has been inhabited by a variety of native tribes for over 12,000 years – with some estimates ranging as far as 16,000 years.[8] The name Coconino is believed to originate from the Hopi name for the inhabitants of the Grand Canyon area – the Havasupai and Yavapai.[9] Today, the County remains home to six tribal nations: Navajo, Hopi, Havasupai, Hualapai, Kaibab-Paiute, and San Juan Southern Paiute. Each operates as a sovereign nation with its own unique culture, history, and relationship with the land.

The County was crossed by Spanish expeditions during the 16th, 17th, and 18th centuries, and by fur trappers and traders in the 1820s and 1830s. Cattle and sheep ranching was started in the 1870s, and when the railroad began serving the area a decade later, the lumber industry boomed.

The County was carved out of Yavapai County by the 16th Territorial Assembly in 1891. That same year, an election was held to determine the permanent county seat. Flagstaff, which had been designated as the temporary County seat, won over Williams by a vote of 419 to 97. In 1891, the population of the County was 4,000. Flagstaff remains the County seat, and the original County courthouse is still in use.

3.5 Government

The County elects five members to the Board of Supervisors by district for four-year terms. The Board establishes administrative policy and direction for the County and maintains budgetary oversight over all County departments to ensure funds are expended within given guidelines. The duties, responsibilities, and authority of the Board of Supervisors are expressly provided in the Constitution and/or laws of the state.

The County Manager is responsible for the daily management of County government under the policy direction of the Board of Supervisors. The County Manager's responsibilities include:

- Implement and administer policies established by Board of Supervisors, including County budget.

- Interact with County-elected officials, governmental agencies, and community groups.
- Provide support for Board of Supervisors' initiatives and programs.
- Supervise appointed department heads.

With six tribal nations under tribal jurisdiction, totaling over 7,000 square miles within the County, the County works closely with them to identify and implement joint solutions to issues of mutual interest.

The County has a dedicated Department of Emergency Management, Flood Control District, and Sheriff's Office that work to guide hazard mitigation programming and provide emergency services. Fire and emergency medical services within areas administered by the County are provided by 17 fire districts along with Coconino County's Emergency Medical Services which is coordinated by the Health and Human Services Department (CCHHS). These collaborate extensively with municipal, state, tribal, and federal emergency resources due to their intimate proximity and shared operational needs.

Figure 3.1 below delineates the locations of the participating Planning Team jurisdictions within the County. Note that the City of Sedona lies on the border of Yavapai and Coconino Counties. While Sedona is formally included in Yavapai County's hazard mitigation plan, Coconino County coordinates work closely with the city to implement joint hazard mitigation efforts – particularly for those parts of the city within Coconino County. These mitigation efforts are directly integrated into the County's mitigation strategy. **Figure 3.2** includes the tribal land locations in the County. **Figures 3.3-3.6** illustrate Land Jurisdiction and Property Ownership, Tribal Nations, Geographic Features, Transportation Routes, and Terrestrial Ecoregions throughout the county as well.

Figure 3.1: Coconino County Overview

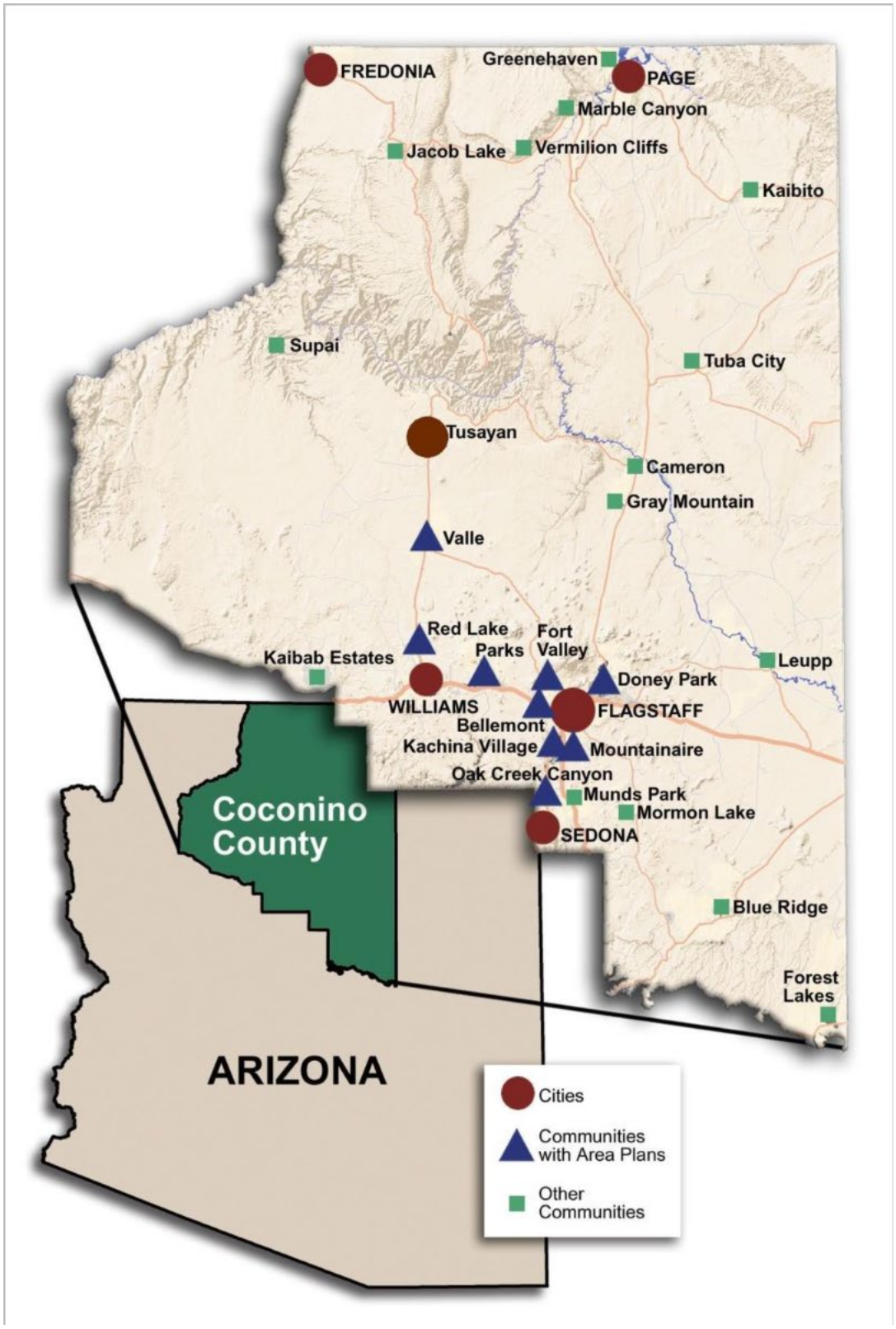


Figure 3.2: Jurisdictions and Communities of Coconino County[10]

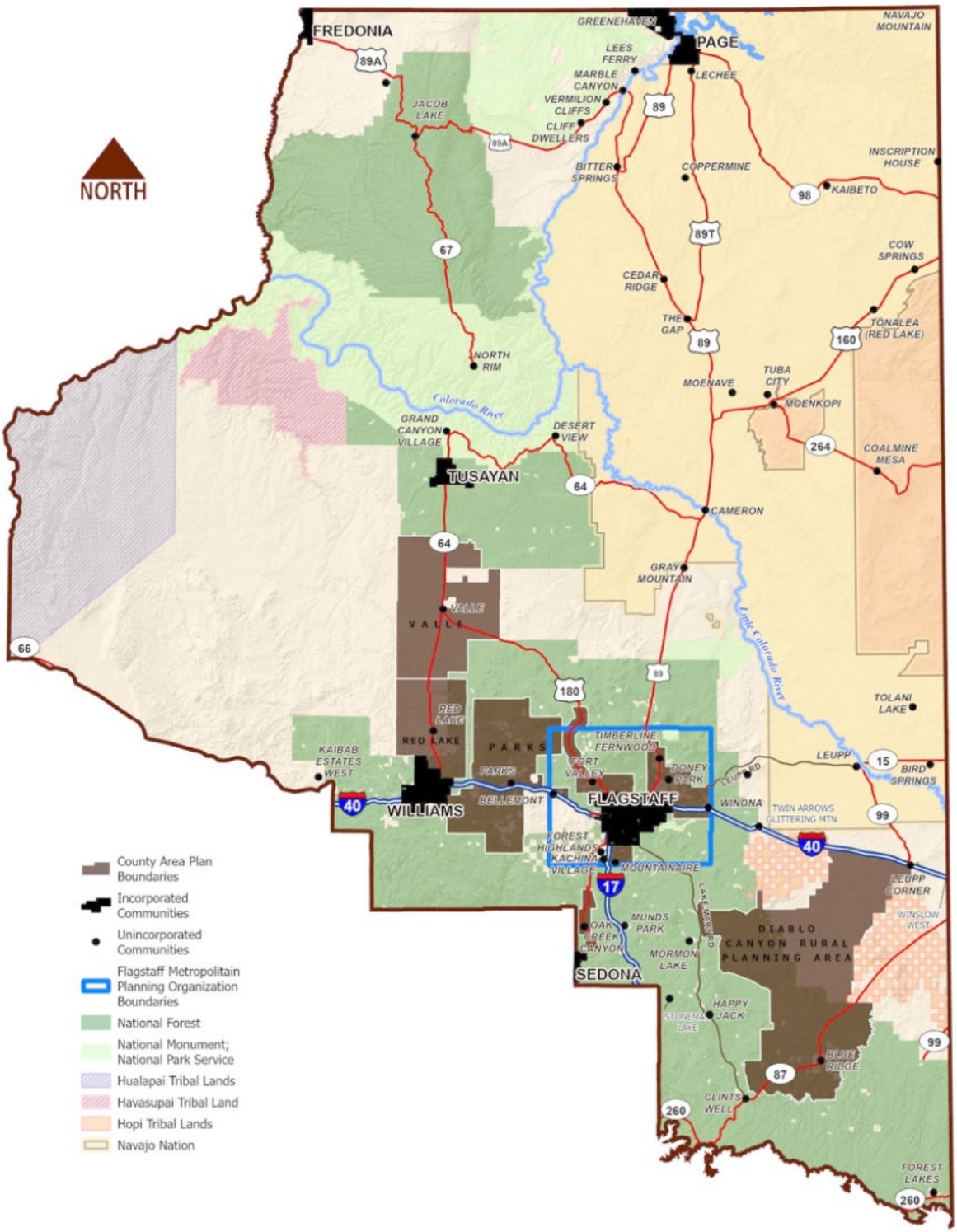


Figure 3.3: Land Jurisdiction and Property Ownership[11]

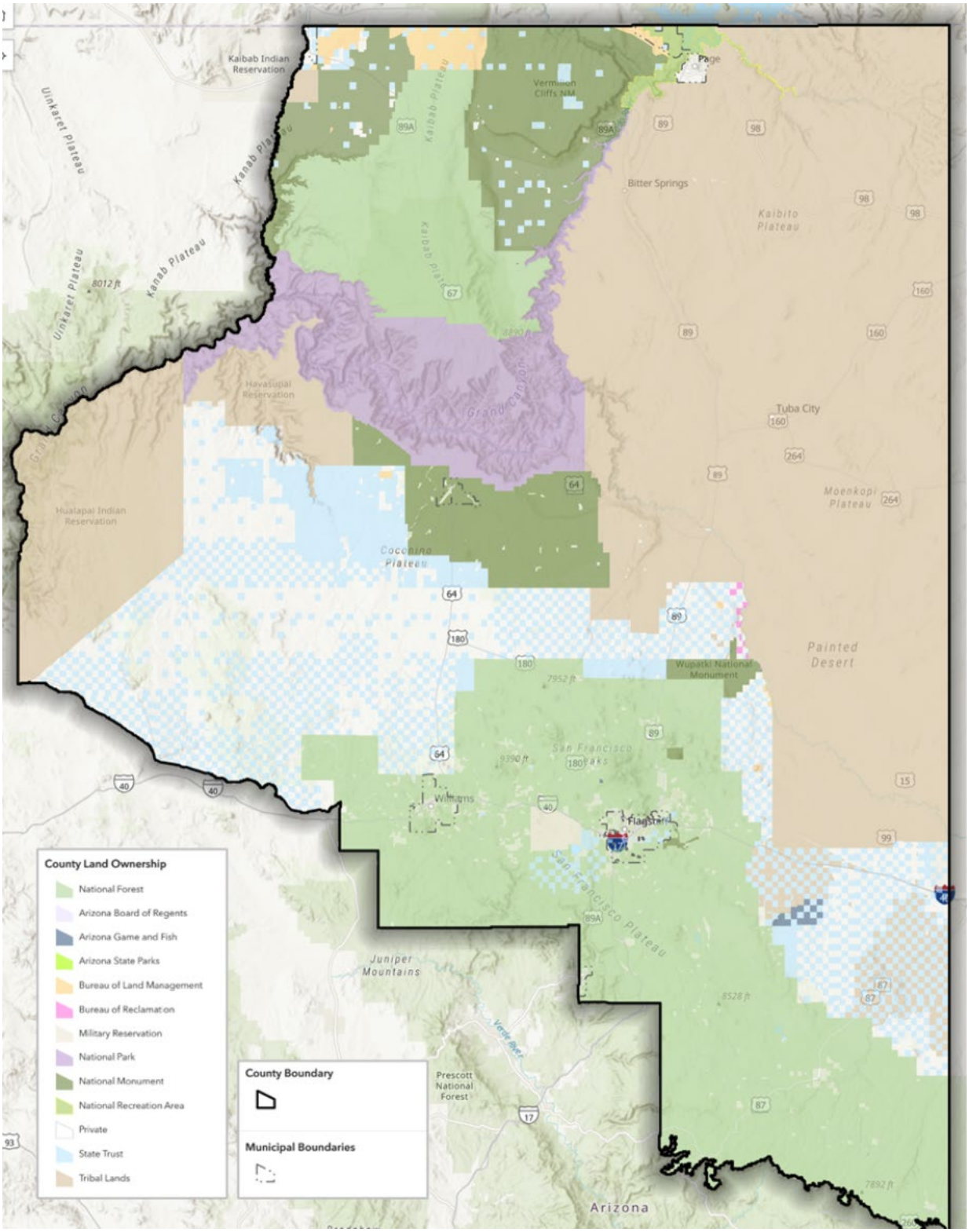


Figure 3.4: Tribal Nations in Coconino County[12]



Figure 3.5: Coconino County Geographic Features and Transportation Routes

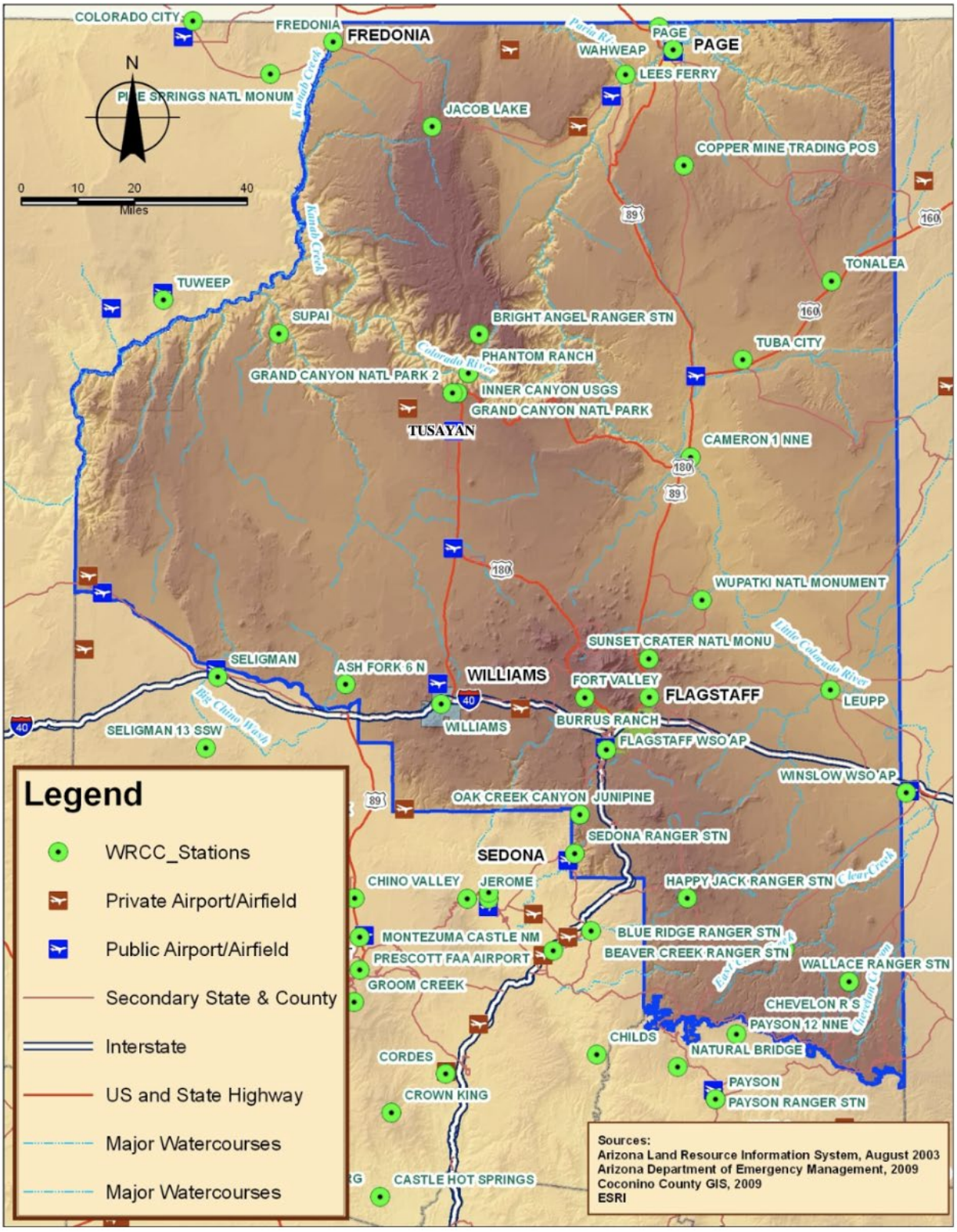
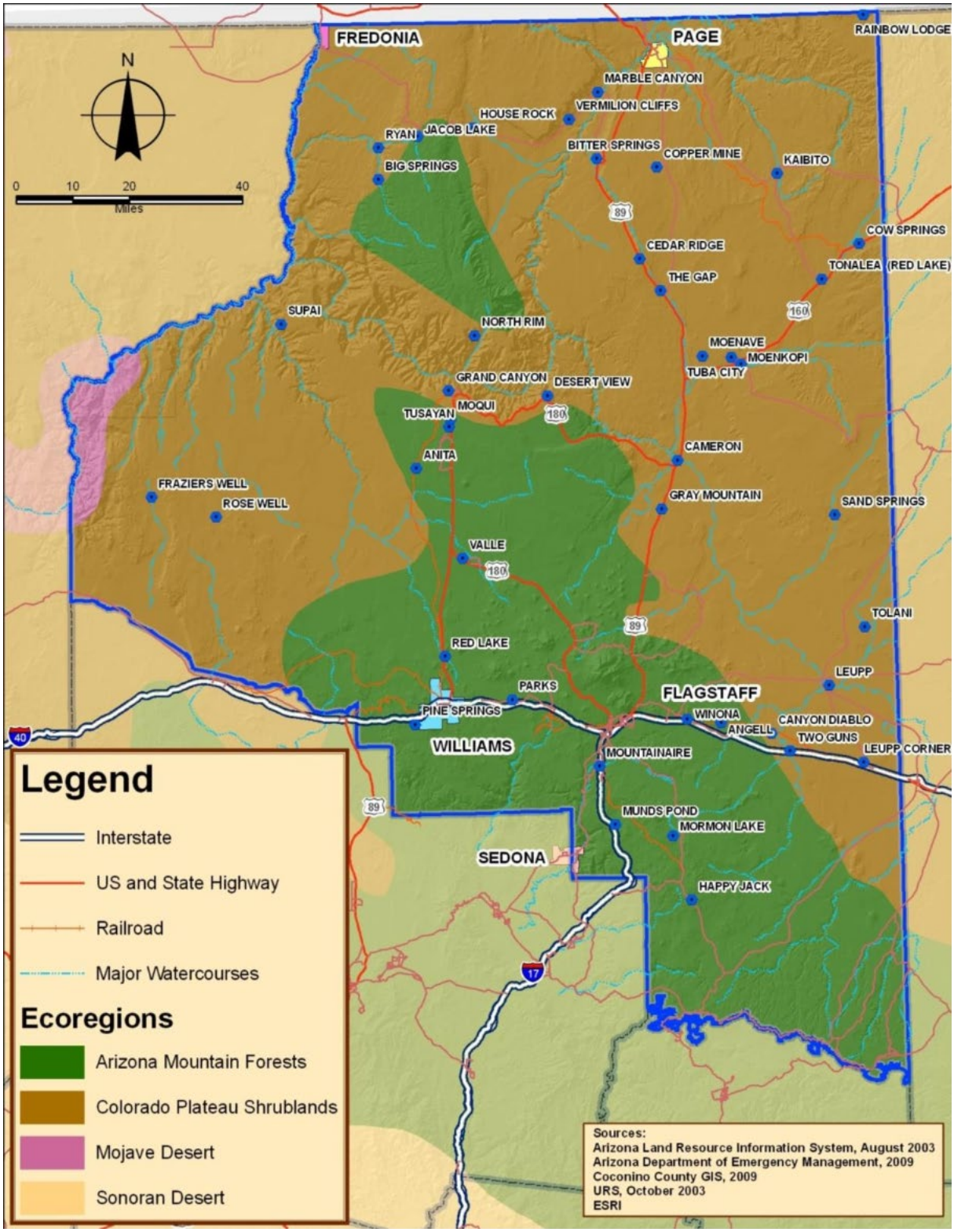


Figure 3.6: Coconino County Terrestrial Ecoregions



3.6 Economy

Originally focused on agricultural and resource extraction, Coconino County's economy has diversified significantly. Leading economic drivers are now tourism and outdoor recreation (including astrotourism), education and health services, public and governmental services, science and research (particularly biosciences and astronomy), ranching, and forestry/natural products.[13] The education and health services industries are heavily driven by the presence of Northern Arizona University, Coconino Community College, Flagstaff Medical Center, and a growing array of medical facilities. The Tourism trade is heavily driven by the presence of Grand Canyon National Park, four national forests, four national monuments, and numerous other points of recreational, geological, ecologic, or socio-cultural interest.

The County's total workforce over the age of 16 grew significantly from 74,860 to 75,637 between 2019 and 2023 while the unemployment rate fell from 5.3% to 3.4%. The leading employment industries for the County are detailed in **Table 3-1** below. [14]

Table 3-1: Coconino County Major Employment Industries

Industry	Estimate (2019)	% Workforce (2019)	Estimate (2023)	% Workforce (2023)
Educational services, health care and social assistance	22,041	32.2%	21,219	29.7%
Arts, entertainment, recreation, accommodation and food services	13,249	19.3%	13,286	18.6%
Professional, scientific, and management, and administrative and waste management services	4,960	7.2%	6,019	8.4%
Retail trade	8,056	11.8%	5,422	7.6%
Manufacturing	3,767	5.5%	4,774	6.7%
Construction	2,443	3.6%	4,505	6.3%
Transportation, warehousing, utilities	3,335	4.9%	3,974	5.6%
Other services, except public administration	2,277	3.3%	3,497	4.9%
Finance and insurance, and real estate and rental and leasing	1,639	2.4%	2,957	4.1%
Public administration	4,335	6.3%	2,853	4%
Information	791	1.2%	1,302	1.8%
Wholesale trade	493	.7%	935	1.3%
Agriculture, forestry, fishing and hunting, and mining	1,122	1.6%	743	1%

3.7 Population and Demographics

The Coconino is comprised of six incorporated communities, six indigenous nations, nine communities with area plans, 12 communities without area plans, and one rural planning area as seen in **Table 3-2** below.

Table 3-2: Coconino County Communities and Native American Nations

Incorporated Communities	Unincorporated (Area Plan)	Unincorporated (No Area Plan)	Native American Nations
• Flagstaff • Fredonia • Page • Sedona (part) • Tusayan • Williams	• Bellemont • Doney Park, Timberline, Fernwood, Mountain View • Fort Valley Highway 180 Scenic Corridor • Kachina Village • Mountainaire Parks • Valle • Red Lake • Oak Creek Canyon • Diablo Canyon Rural Planning Area	• Alpine Ranchos • Cameron • Blue Ridge, Happy Jack, and Clints Well • Glittering Mountain and Twin Arrows • Gray Mountain • Greenehaven • Forest Highlands • Forest Lakes • Kaibab Estates West • Mormon Lake and Lake Mary • Munds Park • Tuba City • Winslow West and Leupp Corner • Arizona Strip Communities ○ Vermilion Cliffs, Marble Canyon, Cliff Dwellers, Badger Creek	• Havasupai Tribe • Hopi Tribe • Hualapai Nation • Navajo Nation • Kaibab Tribe of the Paiute Indians • San Juan Southern Paiute

The County has a total population of 144,472 residents with a median household income of $71,738 and a poverty rate of 18.6%.[15] The median age is 32.7 years, with 16.5% of residents aged 16 years and younger, and 15.4% of residents aged 65 years and older.[16] Approximately 4.1% are veterans, 15% have a disability, and 16.9% speak English less than 'very well'.[17] A summary of the County's racial and ethnic composition, future population estimates, and population densities are captured in **Table 3-2, 3-3, and 3-4** respectively.

Table 3-3 Coconino County Racial and Ethnic Demographics[18]

County Demographics	2019	2023
Population	**143,476**	**144,472**
White alone	63.9%	56.2%
Black or African American	N (1.2% is 5-year estimate)	1.7%
American Indian or Alaska Native	25.9%	25.2%
Native Hawaiian or Other Pacific Islander	N (.2% is 5-year estimate)	N (.1% is 5-year estimate)
Asian	1.9%	2.2%
Two or More Races	4.3%	11.5%
Hispanic or Latino	14.3%	15.6%

Table 3-4: Population Estimates for Coconino County[19]

Jurisdiction	2020	2025	2030	2035	2040
Coconino County (unincorporated)	**145,101 (53,155)**	**152,265 (55,612)**	**155,172 (56,447)**	**157,881 (57,224)**	**159,557 (57,641)**
Flagstaff	76,831	80,850	82,954	84,917	86,288
Fredonia	1,323	1,328	1,282	1,240	1,193
Page	7,440	7,646	7,688	7,728	7,723
Sedona (Part)	2,547	2,570	2,525	2,483	2,431
Tusayan	603	611	612	613	610
Williams	3,202	3,648	3,663	3,677	3,670

Table 3-5: Estimated Population Densities of Coconino County[20]

Jurisdiction	Land Area (sq. mi.)	Population Density	
		2019	2023
Coconino County	18,616.4	7.2	7.8
Flagstaff	66.08	1029.2	1163.59
Fredonia	8.9	187.7	122.1
Page	38.2	426.3	194
Sedona (part)	6	424.5	428.3
Tusayan	16.8	33.2	22.2
Williams	43.8	70.3	75.8

3.8 Transportation

Major transportation corridors that pass through the County include Interstates 17 and 40 and the Burlington-Northern Santa Fe (BNSF) Railway. AMTRAK operates on the BNSF line and maintains depots in Flagstaff and Williams. Other major roadways include U.S. Highways 89, 89A, 160, and 180; State Routes 64, 66, 67, 87, 89, 89A, 98, 99, 260, and 264, and Indian Routes 2, 15 and 18. Regional railways include the Grand Canyon Railway between Williams and Grand Canyon National Park, as well as the Black Mesa and Lake Powell Railroad – which is inactive and in the process being repurposed by the Navajo Nation.

Major road transit systems supporting regional transport and intercity transport include the Northern Arizona Intergovernmental Public Transit Authority (or Mountain Line), the Page Express, Hopi Senom Transit, Greyhound, the Mountain Express Shuttle, as well as a variety of private services.

Flagstaff operates the Flagstaff-Pulliam Airport (FLG) – the largest commercial airport in the County. Other commercial airports are the Grand Canyon National Park Airport (GCN) located in Tusayan and the Page Municipal Airport (PGA). Smaller, general aviation airports include Marble Canyon (MYH), Tuba City (TBC), H.A. Clark Memorial Field (KCMR) in Williams, and Valle (VLE) in Williams.

3.9 Land Use and Development Trends

According to the Coconino County Comprehensive Plan, the County is a complex tapestry of municipal, state, tribal, county, federal, and special jurisdictions.[21] Though the County's geographical area spans nearly 12 million acres, nearly 80% is owned and managed by federal agencies or indigenous nations (39% each), 10% is State land, and 12% is private land. To further complicate the situation, few of these areas are contiguous. Most notably, a significant proportion of the private, state, and tribal lands are interspersed in a checkerboard pattern that

makes reconciliation and coordination of land use, emergency services provision, and access a significant challenge. County land use regulations only apply to private lands and lands owned by indigenous nations not within a reservation, or fee simple Federal agencies with a significant presence in the County include the Bureau of Land Management, the US Forest Service, the National Park Services, the Bureau of Reclamation, and the Department of Defense. Major State stakeholders include the State Land Trust, Arizona State Parks, and Arizona Game and Fish.

Private land use within the County's unincorporated areas (12% of land mass) can be broadly classified as open space (3.7% or 53,319 acres), residential (96.1% or 1.386M acres), and employment areas consisting of industrial and commercial applications (.2% or 2,277 acres). Of the lands zoned for these uses, approximately 86% is developed or actively in permitted use (98%, 85%, and 52% respectively). However, it is important to note that approximately 77% of private lands (over 1.1M acres) are large ranches – which is classified as residential land use – leaving around 286,000 acres available for more dense residential development. While open space and residential uses are dispersed throughout the county, employment areas are primarily centered around key intersections, transportation corridors, and near incorporated areas. Developing unincorporated areas are also clustered around incorporated areas or situated along major transportation routes.

Development of private lands in Coconino County is deeply influenced by ongoing challenges in regulating the development of private properties, coordination of land uses, the fulfillment of housing and infrastructure demand, and the balancing of environmental and development priorities. State law provides private property owners extensive rights to split or divide their property and develop it independently from the subdivision process or County oversight – leading to wildcat subdivisions that often cause significant environmental issues, are built despite natural hazard exposure, and have little access to infrastructure or emergency services. Development of gated communities and the presence of inholdings (properties isolated by other jurisdictions and non-aligned land uses) have also made it difficult to effectively implement zoning and coordinate among property owners to prevent incompatible land uses, develop and maintain shared infrastructure, maintain public access to open space, and mitigate viewshed and character impacts. Meanwhile, Coconino is experiencing an affordable housing shortage, in parallel with its incorporated areas. This is partially due to its checkerboard pattern of properties in remote, rural, areas combined with large lot zoning and few available lots – which limit access, increase development costs, and frequently makes the cost of travel for employment by residents uneconomical. This is exacerbated by a burgeoning demand for second homes and their use as short term rentals, which ultimately remove affordable housing and potential development lots from the local housing market. Lastly, the County faces substantial challenges in balancing development demand, economic needs, environmental concerns, and community concerns due to the fragmentation of regulatory powers over properties (due to the checkerboard pattern) and legal constraints regarding the regulation of mining operations near incompatible land uses (particularly regarding aggregates, minerals, and uranium).

To address these issues, the County has implemented a variety of initiatives and controls. These include collaboration with other Counties to amend Arizona law for greater control of land split/division processes; creation of a rural planning area process to identify and incentivize protection of rural and agricultural areas; permitting processes for short term rentals; incentives for removal or renovation of non-conforming land uses; allowance of accessory dwelling units in all residential districts, and encouragement of denser and mixed-use development in appropriate areas; implementation of rural growth boundaries around major areas of rapid development (particularly for the communities growing around Flagstaff); and encouragement of annexation in support of land use alignment. In addition, the County is adopting strategies to discourage and combat fragmented and incompatible land uses, encourage the clustering

of future development around self-sustaining rural centers and utility/public service hubs, as well encouragement of commercial and residential development that aligns with landscape and environmental conservation, and ensuring close engagement with communities and Tribal Governments.

Future development trends can be expected to reflect the challenges and management efforts described above. New developments will be encouraged surrounding transportation corridors and shipping routes, where there is existing or planned public infrastructure, seeking to develop vibrant rural hubs (particularly where Rural Area Plans have been developed – see **Figure 3.2**). These will be encouraged to feature clustered commercial and industrial areas with proximate residential development that supports denser, mixed-use development with support for compatible agricultural activity where appropriate. At the same time, adaptive reuse of existing vacant buildings and underutilized properties will be encouraged – particularly if they have historical or cultural value for preservation. This combination is expected to help maximize the use of land available for development while increasing community self-sufficiency and lowering both commutes and the cost of living. In addition, they will help the County to balance its social, economic, and environmental requirements in a way that supports regional vitality, reduces risk, and preserves the natural landscape and community character.

3.10 Social Vulnerability

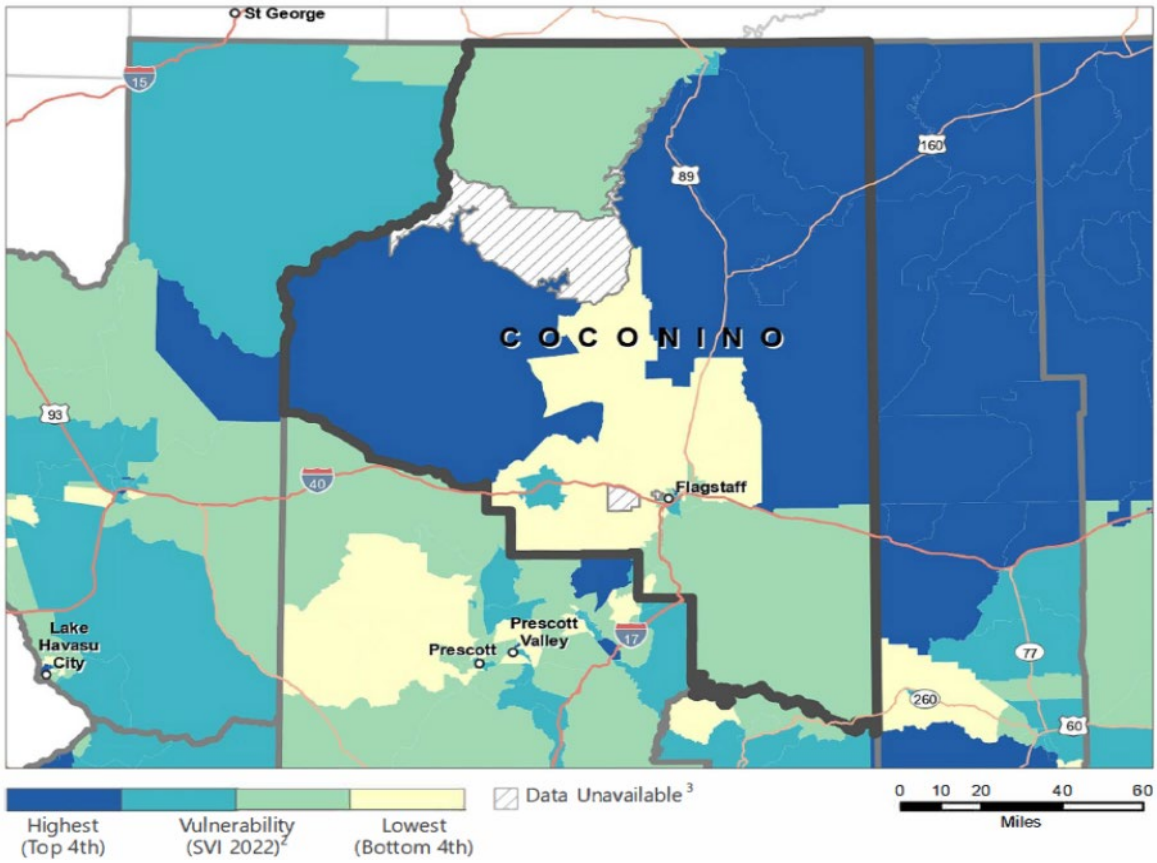
The social vulnerability index is a tool that was developed by the Center for Disease Control (CDC) Agency for Toxic Substances and Diseases Registry (ATSDR) to identify the places and communities in greatest need during an emergency, and the most in need of investment, by analyzing the demographic factors that represent the social determinates of health. The index analyzes and integrates the available demographic data into a probabilistic representation of key themes that indicate whether a community is particularly vulnerable to disease or injury. The themes include socio-economic status, household characteristics, racial and ethnic minority status, housing type, and transportation. The Arizona Department of Health Services expanded this tool by incorporating additional themes determined to be specifically impactful to the experience of Arizona residents to make the Arizona Social Vulnerability Index (AZSVI).[22] These include rent burden, food insecurity, population density, air quality, tree cover, heat vulnerability, water costs, and internet access. The CDC tool analyzes data at the county, census tract, and zip code scales, while the AZSVI functions solely at the census tract level. Census tracts reflect areas with 1,200 to 8,000 people.

Coconino County is composed of 36 census tracts. Of these, the AZSVI rates six as having high overall risk, six as moderate to high risk, and 12 as having low to moderate risk.[23] The areas of high risk reflect the jurisdictions of the City of Williams, Navajo Nation, and the Hopi Tribe. The areas of moderate to high risk are found in central and southern Flagstaff, the City of Page, Tusayan, the unincorporated lands predominately West of Route 64, Hualapai Tribal Lands, and Havasupai Tribal Lands. Tracts with low to moderate risk run from the County's Southeast corner, through much of Flagstaff, to its Northwest corner. Note that these assessments can shift at different scales of analysis, and pockets of vulnerability may be concealed by aggregate data. This is reflected regarding Fredonia – which rates a high vulnerability rating when examined through the CDC/ATSDR SVI at the zip-code scale. The CDC/ATSDR SVI scale rates an overall vulnerability score of .8031, indicating a high level of vulnerability.[24]

Within the unincorporated portions of the County under its direct jurisdiction, key trends in vulnerability factors include elevated vulnerability scores regarding socioeconomic and household characteristics in the North and West of the County, elevated concentrations of

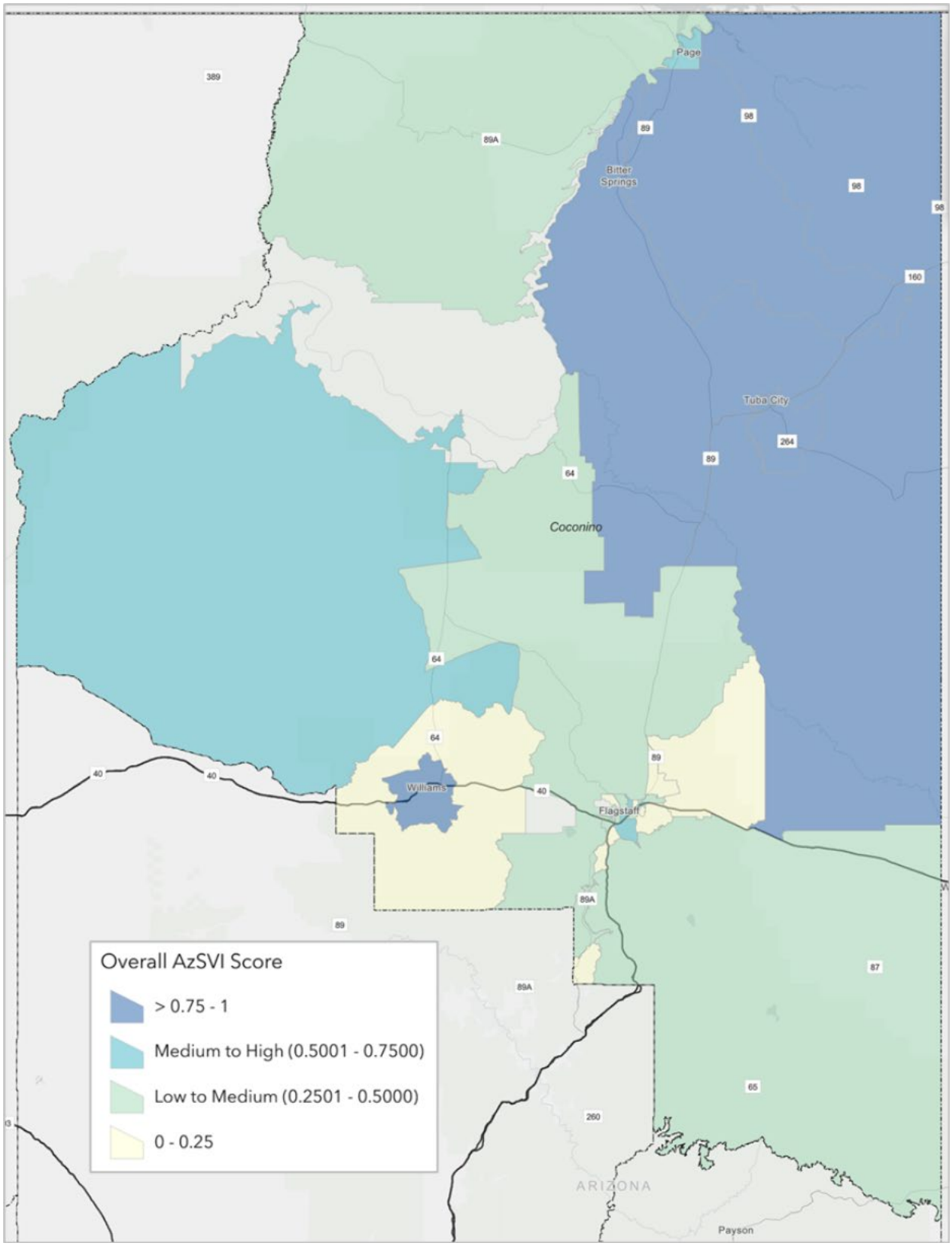
racial and ethnic minorities in tracts north of Interstate 40, and universally elevated scores regarding housing type, transportation, and Arizona-specific factors. Notably elevated themes within these categories include poverty rates, housing cost burden, education level, access to health insurance, percentage of persons below the age of 17, percentage of persons with disabilities, the percentage of mobile home housing units, use of group quarters, percentage of high-density multi-unit housing structures, rent burden, food insecurity, heat vulnerability, healthcare access, and the cost of water (notably high). These observations reflect the findings of the 2024 Coconino Community Health Needs Assessment, which identified affordable housing and homelessness, cost of living, availability of physical and mental health services (both from a quantity and transportation accessibility perspective), access to healthy foods, and transportation.25Detailed examination of social vulnerability factors and themes for incorporated areas will be examined in subsequent sections.

Figure 3.7: Center for Disease Control Overall Social Vulnerability Index Ratings



NOTE: This display of SVI ratings reflects how the cumulative social vulnerability score for each census tract ranks when compared to all others in the nation. The results are broken into quartiles that reflect the United States' most and least vulnerable communities.

Figure 3.8: Coconino County Overall Arizona Social Vulnerability Index Scores



3.11 Participating Jurisdictions

The city/town planning area descriptions are contained below. Location and geography, rivers and watersheds, transportation and climate are addressed in the overall County planning area description.

3.11.1 Flagstaff

Flagstaff is located at 35°11' 53.8224' N 111°39'4.6764'W. The city lies near the southwestern edge of the Colorado Plateau within the San Francisco volcanic field, along the western side of the largest contiguous ponderosa pine forest in the continental United States. The city sits at 7,000 feet next to Mount Elden, south of the San Francisco Peaks, the highest mountain range in Arizona. The city occupies 66 square miles.

History

Flagstaff has a rich Native American history with early tribes, such as the Sinagua and Anasazi tribes inhabiting the land over 800 years ago. Since then, many indigenous peoples have called this land home, including the Navajo, Hopi, Havasupai, Kaibab Paiute, and Hualapai peoples.[1]

According to the City of Flagstaff[2], in 1855 Lieutenant Beale, in surveying a road from the Rio Grande River in New Mexico to Fort Tejon in California, passed over the spot where Flagstaff now stands and erected a flag at its eastern-most edge. The city's first recognized permanent settler, Thomas F. McMillan, arrived in 1876 and built a cabin at the base of Mars Hill. In 1882, the area was selected to be a railroad hub for the transcontinental railroad, and the Town of Flagstaff was established. The name was drawn from very tall pine tree made into a flagpole in 1876 to celebrate the nation's centennial. The town was selected as the county seat when Coconino County was established in 1891.

The establishment of the railway, alongside the areas fresh water supply and abundant natural resources, enabled rapid growth of multiple industries including cattle ranching, sheep herding, and lumber – all of which remain major industries to this day. By 1886, Flagstaff was the biggest town on the main railroad line between Albuquerque and the West Coast. By the 1890s, Flagstaff saw 80-100 trains travel through town each day on one of the busiest railway corridors in the United States. This growth, combined with the city's emergence as a popular tourist stopover on Route 66, led the town to incorporate as a city in 1928.

At the turn of the century, Flagstaff's infrastructure and dark, clear skies began to attract the academic community. In 1894, Dr. Percival Lowell chose Flagstaff as the site for the Lowell Observatory. This was followed by the US Naval Observatory Flagstaff Station in 1955, which solidified the area's place in astronomical research. The Arizona Teacher's College was established in 1899 – evolving into Northern Arizona University in 1966. In the 1960's the town was a hub for research, development, and training in support of the Apollo program's lunar expeditions.[3] In 1991, Coconino Community College was opened in the city, providing affordable and accessible education to communities throughout Coconino County.

The 1970's and 1980's saw Flagstaff experience a downturn due to economic changes, eroding infrastructure, and population growth. This was countered in the 1990s and 2000's via city-wide redevelopment and revitalization efforts that overhauled the downtown area, expanded the local airport, renewed infrastructure, support for industrial activity, and expanded services for the growing population. This has included expanded support for the tourism industry, with a focus on hosting events and festivals, outdoor recreation, and astro-tourism. In

2001, the city was recognized as the world's first "International Dark-Sky City" by the International Dark-Sky Association.

Government

The city government is organized under a council-manager form of government. The mayor and seven city council members are elected directly by the public for two- and four-year terms respectively. In turn, the city council appoints a city manager to implement its policies and manage day-to-day operations via the government's 16 divisions. The city maintains its own fire and police departments as well as a dedicated emergency management function, which is housed under the city's Management Services Department in the Grants, Contracts, and Emergency Management Section. This section works closely with Coconino County Emergency Management since they are both located within City limits.

Economy

In its early days, the city's economic base comprised the lumber, railroad, and ranching industries. Today, these have largely been replaced by advanced manufacturing, astronomy bioscience, craft brewing, digital/e-commerce, entrepreneurship, healthcare, retail and tourism. Tourism is a particularly large contributor to the economy, with over six million visitors per year that support over 8,000 jobs and generates over $563M annually.[4]

Top local employers include Northern Arizona University, Flagstaff Medical Center, W.L Gore & Associates, Flagstaff Unified School District, and Coconino County (with 2,600-1,200 employes each), and there are a further 14 employers who engage 650-100 employees each. However, the vast majority of employers in the city engage fewer than 20 employees apiece – making small businesses and entrepreneurs a key part of the local economy. This is reflected by the City's support for the Northern Arizona Center for Entrepreneurship and Technology, which provides both facilities and programming to support entrepreneurs and business start-ups.[5] Notable employers in the scientific and high-tech research space include Lowell Observatory, Northern Arizona University, the United States Naval Observatory Flagstaff Station (NOFS) and the United States Geological Survey's (USGS) Flagstaff campus.

The city's total workforce over the age of 16 grew from 43,304 to 46,510 from 2019 to 2023 and the unemployment rate fell from 8.8% to 5%.[6] It is important to note that nearly 25% of the city's population consists of students enrolled in Northern Arizona University.[7] As such, the city has a notably high percentage of persons over the age of 16 who are not engaged in the workforce (29.8% as of 2023). The leading employment industries are noted in **Table 3-6** below.[8]

Table 3-6: City of Flagstaff Major Employment Industries

Industry	Estimate (2019)	% Workforce (2019)	Estimate (2023)	% Workforce (2023)
Agriculture, forestry, fishing and hunting, and mining	491	1.2%	278	.6%
Arts, entertainment, recreation, accommodation and food services	7,101	18%	8,846	20%
Construction	490	1.2%	1,877	4.2%
Educational services, health care and social assistance	13,448	34.1%	14,751	33.4%
Finance and insurance, and real estate and rental and leasing	1,227	3.1%	1,408	3.2%
Information	418	1.1%	1,148	2.6%
Manufacturing	1,900	4.8%	3,174	7.2%

Industry	Estimate (2019)	% Workforce (2019)	Estimate (2023)	% Workforce (2023)
Other services, except public administration	1,313	3.3%	2,627	5.9%
Professional, scientific, and management, and administrative and waste management services	2,803	7.1%	3,289	7.4%
Public administration	2,557	6.5%	1,629	3.7%
Retail trade	5,267	13.3%	2,637	6%
Transportation, warehousing, utilities	2,142	5.4%	1,876	4.2%
Wholesale trade	326	.8%	653	1.5%

Key Critical Infrastructure Facilities and Community Assets

Flagstaff supports an array of critical infrastructure facilities that support both the city, as well as broader regional and county-wide needs. Key facilities include six police stations, two prison facilities, seven fire stations, 32 medical facilities (including three hospitals, 12 nursing homes, two urgent care facilities, two dialysis centers, and 13 pharmacies), a train and bus station, and an airport.[9] A new bus station for the Mountain Lines, called the Downtown Connection Center, is currently under development.[10] In addition, the city contains approximately 28 local, 15 County, 6 state, and 8 federal government buildings.[11]

Supporting the city are a variety of utilities sites. This includes two wastewater treatment facilities, two major power transformer sites, two dams, two landfills, a materials recovery facility, and two potable water treatment plants.[12] Regional power supplies are primarily routed along the southern edge of the City's main developed area running from the Northeast to the Southwest.[13] The Statewide Broadband fiber optic cables run along I-40 and I-17. The bulk of the City's water supply is provided by a combination of three lakes/drainage basins outside of the City's jurisdictional boundaries (30% of water supply), as well as a combination of deep wells, shallow wells, and hauled water sources within, and adjacent to, its boundaries (50%).[14] Access to the San Francisco Peaks Inner Basin, which historically provides 10% of the city's water supply, was cut off for two years following the Schults Fire and Monsoon-triggered debris flows of 2010.

Flagstaff has a diverse array of community assets. These include 66 places of worship, 48 schools and higher education facilities, 2 public libraries, 7 museums, a visitors' center, and a center for the arts.[15] In terms of historical assets, over 650 sites have been identified through surveys, with 300 individual properties captured in the city's local historic overlay alone. The bulk of these fall within the city's four National Register historic districts and three local historic districts – nearly all of which are clustered around the City's downtown area.[16] Notable environmental resources within the City's boundaries include the NAZ Audubon Bird Sanctuary, Fox Glenn Prairie Dog Colony, Southside Community Garden, the Flagstaff Urban Farm Incubator at McAllister Ranch, the urban forest of Buffalo Park, large stands of ponderosa pines, and multiple natural springs.[17] Approximately 24 parks are distributed throughout Flagstaff covering approximately 1,470 acres.[18] Notable community assets adjacent to the City include the Arboretum at Flagstaff, Fort Tuthill (including its amphitheater), Walnut Canyon National Monument, Flagstaff Area National Monuments, Wupatki National Monument, and Sunset Crater Volcano National Monument.

Most the Flagstaff's critical infrastructure and community assets are located within the City's main developed areas North of I-40 and adjacent to Highway 180 and 89 – bounded by Mount Elden. However, residential communities and critical infrastructure outside city boundaries, particularly supporting the power and water supply, closely tie the Flagstaff to surrounding

communities in Coconino County. These include Bellmont, Mountainaire, Fort Valley, Timberline-Fernwood, Doney Park, Winona, and Kachina Village – which fall within the Summit, Highlands, Flagstaff Ranch, and Westwood Fire Districts.

Population and Demographics

Flagstaff has a population of 76,333 residents with a median household income of $60,041 and a poverty rate of 17.5%.[19] Though median household income has increased at the City level, available data shows that this has not been evenly distributed, with negative changes occurring in the City's Southern and Eastern communities.[20] The median age is 26 years, with 15.5% of residents aged 16 years and younger, and 9.1% of residents aged 65 years and older.[21] A significant proportion of the City's population is comprised of students at Northern Arizona University. This is reflected by the fact that, as of 2023, 30.4% of the population is between the ages of 15 and 24 years. A summary of the City's racial and ethnic composition, as captured by the American Community Survey, is in **Table 3-7**:[22]

Table 3-7: City of Flagstaff – Race and Hispanic/Latino Origin Demographics

Select Demographics	2019	2023
Population	75,044	76,333
White alone	78.3%	64.6%
Black or African American	2%	2%
American Indian or Alaska Native	7.8%	12.6%
Native Hawaiian or Other Pacific Islander	.3%	.2%
Asian	3.1%	2.7%
Two or More Races	5.3%	11.1%
Hispanic or Latino	19.3%	19.7%

Land Use and Development Trends

Flagstaff has an area of approximately 64 square miles or 40,960 acres. The city features a wide diversity of land uses, with commercial and industrial activities tightly situated around Interstate 40, Route 66 and Route 89 (to a much lesser degree. Notable concentrations of high-density development and commercial activity can be found around to the West of Northern Arizona University, Flagstaff's Downtown Central Business District, the Sunnyside Historic District, and in the area between Routes 66 and 89 at their intersection. Radiating out of these areas are residential districts, which transition from high to low rural densities, with most high density and manufactured housing adjacent to commercial areas or special districts (such as the University or Coconino County Community College. The far Northwest corner, Northern edge, and nearly the entire Southern side of the city are public open space or forest. Historical Preservation Overlay Zones significantly control development in the Downtown and Sunnyside areas. In addition, to help maintain its "mountain-town feel" and protect the city natural resources, Flagstaff has established an urban growth boundary to limit future development. This leaves limited open space, beyond a substantial number of smaller parcel-sized empty lots, for future new development.

The Flagstaff Regional Plan 2030 emphasized support for compact development to reduce sprawl and conserve natural resources. This approach emphasized reinvestment and infill development, the creation of activity centers and commercial corridors, as well as higher density and clustered/mixed land uses, to reduce sprawl, protect open space, and promote efficiencies in infrastructure and services.[23] A particular focus of this plan was the handling of mounting pressure

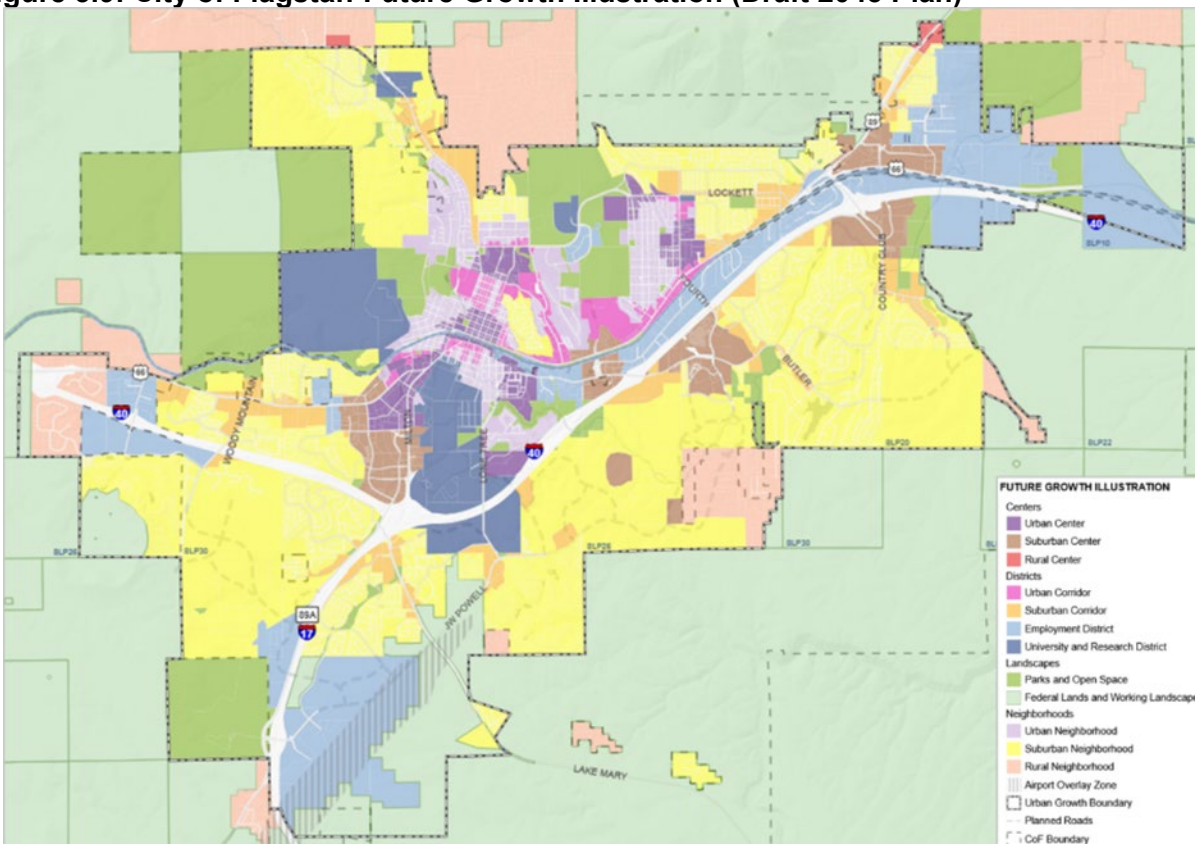
for affordable housing, which already outpaced available stock, without depleting available land and negatively impacting the City.[24] While this successfully supported development of over 5,000 housing units, this was not enough both fill the existing deficit and meet growing demand. As a result, the City declared a housing emergency in 2020 and elevated the issue of housing attainability and equity in its draft 2045 plan.[25]

The updated regional plan reiterates the prior plan's development approach while expanding support for residential development and neighborhood commercial within the city's urban growth boundary. They are to the southwest of I-40 and I-17 interchange has several large vacant parcels that may be proposed for development in the next decade. The State Land Parcel in this area was sold at auction and is in the early phases of proposing development. Development of this area can change access and road alignments along Woody Mountain Road and Purple Sage.

Coconino County expects that will parallel this development by supporting the development of rural neighborhoods and hubs to the North along Route 180 and 89 (connecting with the communities of Fort Valley and Doney Park) will also see growth pressures. The 2045 Plan carries forward City also plans to increase industrial and business land use around the airport and along Interstate 40 near its boundaries, as well as facilitating creation of a large university and research district West of Lowell Observatory. The 2045 Regional Plan also removed that area without an assigned area and place type and added a category of Federal Lands and Working Landscapes to discuss the pattern of Federal, state and rural private properties found in and around Flagstaff, Bellmont, Kachina/Mountainaire, Doney Park and Ft. Valley.

Figure 3.9 shows the city's approximate existing land uses.

Figure 3.9: City of Flagstaff Future Growth Illustration (Draft 2045 Plan)



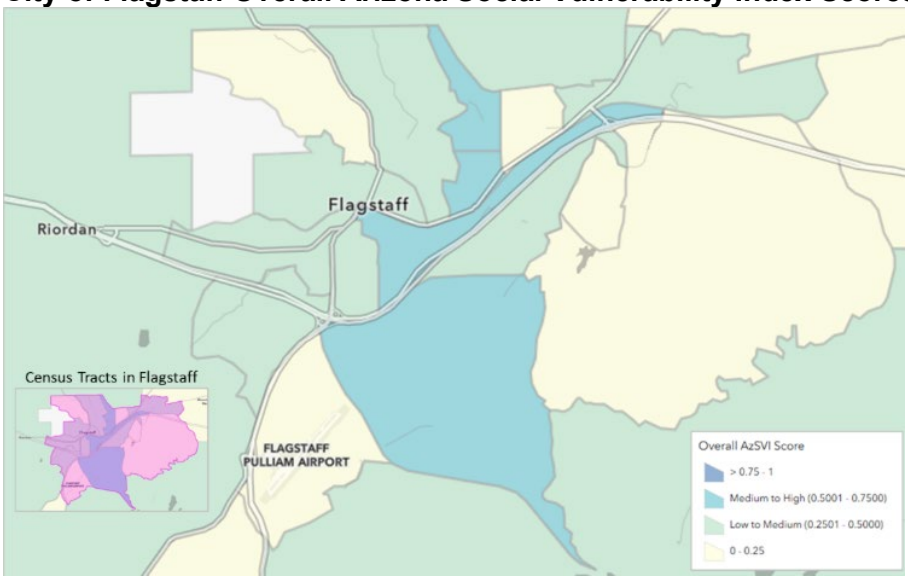
Social Vulnerability

The population within Flagstaff's jurisdictional boundaries is captured in 16 census tracts – several of which extend beyond city limits into Coconino County. Of these, the majority have aggregate low to moderate social vulnerability scores. However, Census Tracts 3.01, 3.02, 8, and 9.02 (listed from North to South and represented in blue in **Figure 3.10**) have moderate to high ratings of .71, .64, .59, and .63 out of 1.0 respectively. Examined specifically, these share elevated risk ratings (around .6 or higher) for their socioeconomic, race and ethnic minority concentration, and housing type and transportation themes. The Northernmost tract, 3.01, additionally has elevated scores for the Household Characteristics theme. That said, virtually all Census tracts show elevated Housing Type and Transportation and Socioeconomic scores – though balanced by low ratings in other thematic areas.[27]

These ratings reflect the challenges identified in Flagstaff's draft regional plan, which identify housing insecurity and displacement, cost of living, disproportionate homelessness and economic impacts on minorities, food insecurity, and access to mental health care as key issues.[28] It additionally highlights how challenges with provision of attainable housing can make it difficult to attract and retain key employers in the region and support the seasonal waves of workers that enable the tourist industry – both of which are key to long term regional economic stability and welfare.[29] The Arizona Social Vulnerability Index additionally notes the following risk factors: a significant proportion of the city with over 16%, or over 25%, of the population living 150% below the poverty line, universally high housing and rent cost burden, a significant proportion of the population below the age of 17, moderate to high concentrations of traditionally underserved racial and ethnic minorities, select areas with an elevated proportion of persons without health insurance, extensive use of multi-unit structures, and high population density.

Note that Census Tract 10, which contains Northern Arizona University, scored highly in many social vulnerability themes due to the concentration of students who live within it and their attendant limitations.

Figure 3.10: City of Flagstaff Overall Arizona Social Vulnerability Index Scores



3.11.2 Fredonia

The incorporated Town of Fredonia is located at 36°56'44"N 112°31'36" W and encompasses an area of approximately 4,400 acres in the extreme north-western part of the County, four miles south of the Arizona-Utah border and north of the Grand Canyon. The elevation for Fredonia is 4,625 feet.

History

The current site of Fredonia was originally inhabited by the Kaibab Paiute tribe. This tribe can trace their ancestry to living in the desert from over 10,000 years ago.[1]The area was additionally inhabited and traveled by the Anasazi, Navajo, Hopi, and other Native American tribes. The town was settled in 1885 by Mormon pioneers from southern Utah who capitalized on the available water in Kanab Creek to establish a small agricultural and ranching community.[2] Timber logging, sawmill and mining industries induced modest population growth from about 500 in the mid 1950's to 1,040 by 1980. At the same time, the town's situation on Highway 89, its position as the gateway to Grand Canyon National Park's Northern Rim, and its central location between multiple major national parks and monuments helped to steadily build a tourist industry. Unfortunately, this growth was confounded by the re-routing of Highway 89 in the 1960s and the shutdown of multiple major mining and logging enterprises in the 1990s. The largest of these, involving the shutdown of the Kaibab Forest Products mill in 1995, resulted in the layoff of roughly 200 workers.[3] Despite this, the town has pivoted and steadily recovered thanks to a steadily growing flow of tourists and a focus on supporting both tourist and outdoor recreation service providers. A significant portion of this activity is related to river trips for tourists down the Colorado River.

Government

The town has a town manager/town council government with three elected council members, a mayor, and vice mayor. The mayor is elected directly by the public to act as chief executive, and the vice mayor is designated by the town council. The council may hire a town manager to serve as the administrative head of government and guide day-to-day operations. The town provides its own emergency services via the Fredonia Police and Fire Departments and coordinates provision of electricity, water, sewer, and sanitation services via its public works and utilities departments. The town maintains mutual aid agreements with Colorado City, Kanab County, Utah, and Kane County, Utah – providing for fire and emergency medical mutual aid assistance.

Economy

Fredonia's economy is primarily based on both tourism and agriculture.[4] In addition, the town's central location in northern Arizona in relation to major recreational areas has made it an attractive warehousing point for expedition outfitters and guides. Between 2019 and 2023, the town's civilian workforce dropped from approximately 555 to 365 people. The major employer industries are in **Table 3-11** below.[5]

Table 3-11: Town of Fredonia Major Employment Industries

Industry	Estimate (2019)	% Workforce (2019)	Estimate (2023)	% Workforce (2023)
Arts, entertainment, recreation, and accommodation and food services	104	19/.8%	132	27.4%
Educational services, health care and social assistance	32	6.1%	82	17%
Manufacturing	19	3.6%	58	12%

Industry	Estimate (2019)	% Workforce (2019)	Estimate (2023)	% Workforce (2023)
Professional, scientific, and management, and administrative and waste management services	12	2.3%	45	9.3%
Transportation, warehousing, utilities	0	0%	43	8.9%
Retail trade	83	15.8%	43	8.9%
Other services, except public administration	119	22.7%	31	6.4%
Finance and insurance, and real estate and rental and leasing	30	5.7%	24	5%
Information	11	2.1%	24	5%
Agriculture, forestry, fishing and hunting, and mining	1	.2%	0	0%
Construction	86	16.4%	0	0%
Public administration	27	5.2%	0	0%
Wholesale trade	0	0%	0	0%

**Note that estimates of zero have a potential error of +/- 12. Given the small population, ACS error can be significant.*

Population and Demographics

Fredonia has a population of 1,084 residents with a median household income of $60,476 and a poverty rate of 22.3%. The median age is 43.1 years, with 15.2% under 16 years of age and 17.1% over the age of 65.[6] A summary of the Town's racial and ethnic composition, as captured by the American Community Survey, is in **Table 3-12**.[7]

Town Demographics	2019	2023
Population	1,040	1,084
White alone	75.3%	73%
Black or African American	0%	0%
American Indian or Alaska Native	12.8%	17.7%
Asian	0%	1%
Some other race	4.7%	2.9%
Two or More Races	7.2%	4.33%
Hispanic or Latino	8.3%	9.9%

Key Critical Infrastructure Facilities and Community Assets

Critical infrastructure facilities in Fredonia include the town hall, post office, a cell phone tower, and stations for the town's police and fire departments. As a major waypoint for regional electricity infrastructure, the town is also host to three power transformers supporting major power lines that supply the Northern Rim of the Grand Canyon. A flood reduction dam runs along much of the town's Northern and Eastern edge.

Community assets include the Fredonia Moccasin Unified School District (elementary and high schools), the Church of Jesus Christ of Latter-Day Saints, Trinity Church, and the Fredonia Public Library – all of which also serve as emergency shelters for the town. The town also maintains three parks, a senior center, a swimming pool, and multiple sports field and courts for public use. A private museum on the North side of town, called the Red Pueblo Museum

and Heritage Park, holds many artifacts from local Native American tribes and the earliest settlers of Fredonia.[8] The Northern Kaibab Ranger District Office of the US Forest Service is also located in Fredonia.

Land Use and Development Trends

Most of Fredonia is composed of low-density residential development interspersed with light retail, commercial, and public land uses. The majority of this is clustered in the center-West side of the jurisdiction alongside Kanab Creek. Dedicated industrial space is located outside the main town to the North and Southeast. Meanwhile, agricultural uses are concentrated in the Southwest and far North of the jurisdiction. While there are some new development projects occurring within the main town area for affordable housing and commercial space, no plans to significantly change existing land use have been published.

Social Vulnerability

Due to its small population, Fredonia is not discretely distinguished from its surrounding rural communities at the census area or zip code tabulation area levels (which are used for SVI analysis). That said, census tract 20, which includes Fredonia, has an aggregate AZSVI score of .41 out of 1.0, which indicates low to moderate vulnerability. However, the town did rate a high vulnerability score of .86 for the housing type and transportation theme and moderate vulnerability score of .49 regarding Arizona-specific factors. [9]

On closer examination, notably elevated vulnerability factors include the proportion of persons with no health insurance, the proportion of persons aged 17 or younger, the proportion of persons with a disability, the proportion of housing structure with 10 or more units, the percentage of persons in group quarters, the proportion of persons experiencing food insecurity, the level of heat vulnerability, and the level of access to healthcare (in terms of drive time).

3.11.3 Northern Arizona University

Northern Arizona University (NAU) is a state-wide higher education institution with its main (mountain) campus located in the City of Flagstaff, Arizona. The campus is situated on the eastern side of the city North of Interstate 40, south of East Butler Avenue, and between South Milton Road and South Lone Tree Road to the west and east respectively. Like the City of Flagstaff, NAU's main campus sits at around 7,000 feet in elevation.

History

NAU is a public, comprehensive university that was founded in 1899 as a teacher training school called the Northern Arizona Normal School.[1] The original school supported 23 students in a single room schoolhouse – eventually growing into Arizona State Teachers College at Flagstaff in 1929.[2] During the Great Depression, the school served as an important source for jobs and hope to the surrounding community, supported the Navy's V-12 College Education Program during the Second World War, and veteran education programs afterward. In this time, the school's programming expanded significantly allowing it to transform into Arizona State College. In 1966 the Arizona Board of Regents granted the institution university status along with its current name. This supported NAU's provision of doctoral level education and eventual expansion to having multiple facilities state-wide. Today, the University supports tens of thousands of students, faculty, and staff across ten separate colleges with research and higher education programming in administration and management, business, communication and languages, criminal justice, education and counseling, environment and sustainability, healthcare, hospitality and tourism, humanities and arts, mathematics and data analysis, nursing, parks and recreation, science, and social and behavioral sciences. The current main campus sits on land sacred to multiple Native Americans tribes including the Apache, Hopi, Hualapai, Navajo, and Yavapai. [3]

Governance

Public universities in Arizona, including NAU, are guided by a shared governing board called the Arizona Board of Regents (ABOR). ABOR provides policy guidance in NAU's capital development plans, strategic plans, legal affairs, and public and constituent outreach. The ABOR appoints NAU's President, who serves as the institutions lead administrator. In this role, they are responsible for strategic planning, budget management, and public affairs along with other duties delegated by the ABOR.[4] The President is supported by the members of the President's Cabinet, who are responsible for advancing, leading, and coordinating the University's efforts.

Hazard and risk management at the University is led by multiple offices which focus on different aspects of internal and external hazard and threats. These include:

- **Enterprise Risk Management Oversight Committee (ERMOC):** A committee appointed by the University President. The committee provides a structured approach to identifying, assessing, managing, and monitoring risks that could impact the University's ability to achieve its mission. This includes developing mitigation strategies as well as evaluating the effectiveness of these strategies.

- **Office of Risk Management:** Situated within Contracting and Procurement Services, this office is responsible for managing the University's property, liability, vehicle, and travel insurance. It additionally implements the university's state mandated loss prevention program. This is led by a Loss Prevention Coordinator and the Loss Prevention Committee – composed of representatives from across departments and meets regularly to review losses, identify trends, and develop corrective measures).[5]

- **Office of Emergency Management:** Situated in the NAU Police Department[6], this office is responsible for facilitating university-wide hazard mitigation, planning, response, and recovery programming for man-made and natural hazards that occur in and around campus. To facilitate integrated and coordinated effort, the Office organizes and facilitates the Emergency Management Advisory Group (EMAG) which includes representatives across the University and meets regularly.[7]

- **Office of Environmental Health and Safety:** Responsible for ensuring the safety of university personnel, students, and facilities in the conduct of day-to-day operations. In particular, the office is responsible for building fire safety, the management of hazardous materials (including radioactive, biological, and chemical agents), the safety of minors on campus, off-campus field safety, and research animal safety programs. Activities include development of procedures, planning, training, inspections, and policy implementation.[8]

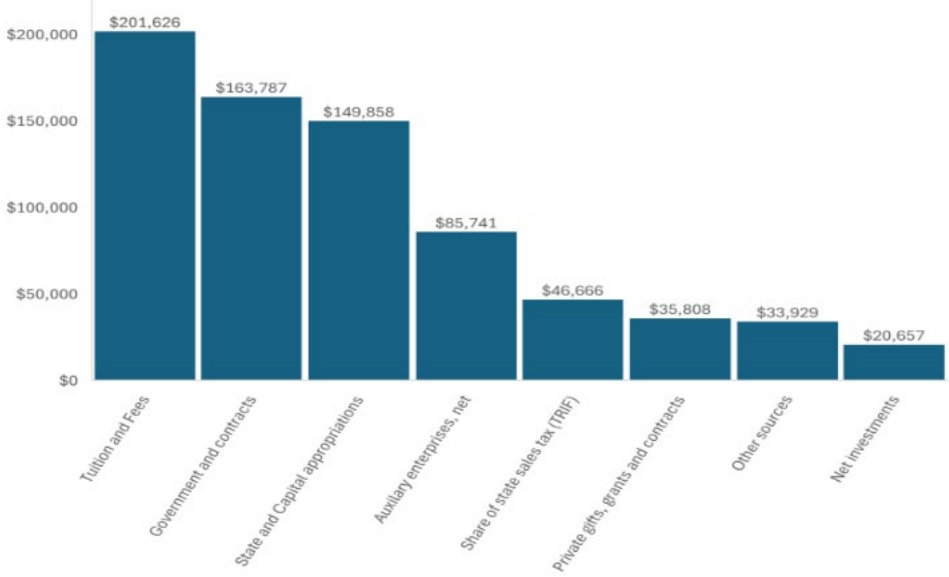
- **Campus Health Services:** Responsible for providing medical, counseling, and health promotion programming to students and faculty on campus. It is also NAU's lead in guiding campus public health efforts– to include infectious disease monitoring and management.[9]

Economy

In their 2024 Annual Comprehensive Financial Report, NAU outlined their total revenue along with the operating and non-operating revenues, respectively. Operating revenues for the

university include resources generated by the university fulfilling their instruction while non-operating revenues include state appropriations, non-capital gains, and gifts.[10]

Figure 3-13: NAU Total Revenue – Fiscal Year 2024 (in thousands)



NAU significantly impacts the local Flagstaff economy through employment, student spending, and university operations. According to NAU, the school contributes $1.9 billion to the local economy.[11] The presence of the university attracts businesses and services that cater to the needs of students and staff, contributing to the economic vitality of Flagstaff and Coconino County. In 2023, Northern Arizona University paid a median of $294M in salaries, which represents 45.2% of their overall expenditure ($650M) and a 10% growth from the previous year.

Key Critical Infrastructure Facilities and Community Assets

Critical infrastructure on campus includes an array of utility infrastructure and key facilities that provide essential services to students, faculty, and staff on campus. Utility infrastructure includes extensive subterranean power, water, sewage, and communications infrastructure. Key supporting facilities include a major regional APS power station on the southern edge of campus, and two heating and cooling plants located on the northern and southern sides of campus respectively. Transportation on campus is supported by a network of roads, bike paths, and trails (paved and unpaved) that are supplemented by roads running through the adjacent community. University Transit Services provide shuttle transport via two routes on campus (the Louie and Jacks buses), and partners with the Mountain Line to provide bus transit through campus to the wider community (particularly Woodlands Village and the Mountain Line Downtown Connection Center). Campus Health's facility is on the northern side of campus, adjacent to Lumberjack Stadium and the NAU Police Department is situated in the southeast off East Pine Knoll Drive. While NAU does not operate their own hospital, they closely partner with Northern Arizona Healthcare (NAH), who operate Flagstaff Medical Center and Verde Valley Medical Center.[12]

While NAU itself is identified as a community asset, there are several facilities and features on the campus of particular importance. Key among these are the University's art museums and libraries. Museums include the NAU Art Meusem, Clara M. Lovett Art Museum, and the Marguerite Hettel Weiss Art Museum – all situated in a single building on the northern end of

campus near the NAU North Quad. In addition, though not within the University itself, the Riordan Mansion State Historic Park is located directly adjacent to the west. NAU's primary library is the Cline Library, located just south of the art museums on the northwest edge of campus. Cline Library is the largest academic library in Northern Arizona and houses extensive physical and digital collections, as well as local and regional archives, including culturally sensitive and indigenous heritage materials. Additional community assets include the Center for Native American and Indigenous Futures (CNAIF), which was created to honor and maintain local indigenous cultures, and the J. Lawerence Walkup Skydome, which hosts a variety of major sporting and entertainment events throughout the year.[13]

Population and Demographics

NAU's main campus serves a diverse and sizable student body that includes both resident and distance learners. As of Spring 2025, NAU has enrolled approximately 25,748 students across all modes of instruction. This includes Flagstaff/Phoenix Bioscience Core, statewide, Yuma, and online students.[14] In the NAU Master Plan, it was cited that approximately 68% of enrolled students (17,509) are located in the Flagstaff area, with the rest being online or both online and located within Arizona. As for the faculty and staff at NAU, there are a total of 4,927 employees as of Fall of 2024 according to the report completed by NAU's Office of Strategic Planning.[15] The majority of NAU staff live within Flagstaff or surrounding communities in Coconino County.

Table 3-14: Ethnicity of NAU Students and Faculty & Staff

Demographics	Students (Undergrad & Graduate)	Staff and Faculty (Full and Part-Time)
Population	25,748	4,927
White alone	50%	66%
Black or African American	3%	2%
American Indian or Alaska Native	4%	6%
Native Hawaiian or Other Pacific Islander	0.2%	.002%
Asian	4%	4%
Hispanic or Latino	25%	11%
Unknown	3%	3%
Two or more races	5%	2%
US Nonresident (International)	0%	5%

Land Use and Development Trends

NAU's main campus covers 600 acres of land which are a mixture of high-density construction, forested greenways, and ponderosa forest. Facilities on campus are predominately used to support academic, research, and athletic programming – as well as the University's substantial residential population.[16] Facilities include 44 academic and administrative buildings, 55 support facilities, and 26 residential buildings. It additionally supports a conference center, a cultural center, and multiple multi-use spaces and auditoriums. Student life is supported by a variety of facilities including recreation centers, a student union, and dining halls. Key research facilities on campus Key research facilities on campus include the Research Greenhouse Complex and the Applied Research and Development building, home to multiple research programs including the Pathogen and Microbiome Institute.

NAU operates a variety of research centers, institutes, and partnership facilities" would be more appropriate here as they are not all owned by NAU and/or are programs within key academic program areas.

In 2023, NAU completed their Smart Campus Master Plan, which is a 10-year plan that outlines specific development actions the University will use to meet evolving challenges and capitalize on opportunities facing public institutions of higher education.[18] The Smart Campus Master Plan includes input from the 2021 NAU Climate Action Plan Analysis, which engaged university administration, faculty, operations, and students to identify the best means of expanding university climate adaptation and mitigation activities and programs.[19]

The Smart Campus Master Plan looks to make a series of building renovations, removals, and additions, as well as improvements to supporting infrastructure and open spaces. These projects are guided by the planning and development framework identified in the figure below. Major development and land use changes identified in the plan include:

- Consolidation of administrative offices, student support services, and academic buildings
- Enhancement of intersections, crosswalks, and parking areas to improve safety
- Accessibility improvements through increased cycling routes and wayfinding aids.
- Expansion of native culture representation on campus via incorporation of medicinal plants in landscaping and installation of art and flags acknowledging indigenous cultures
- Execution of deferred maintenance and improvements to key infrastructure and buildings.
- Implementation of new technologies including smart sidewalks, signage, learning environments, and automated building systems.

Figure 3-15: NAU Planning and Development Framework[20]

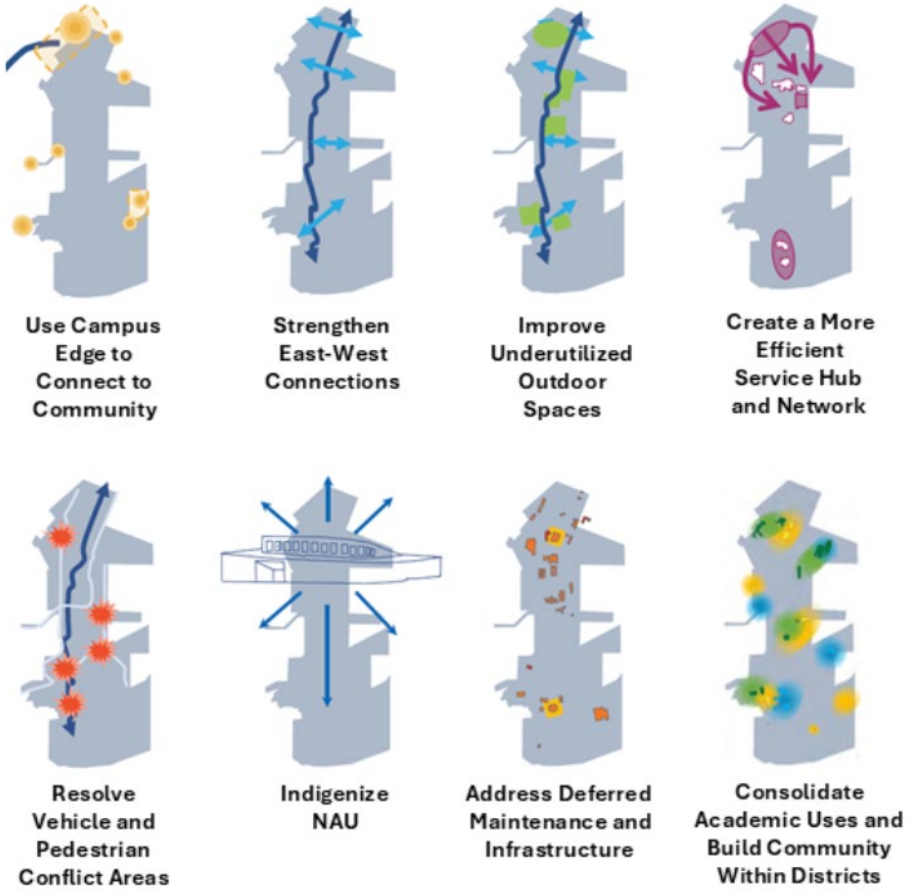


Figure 3-16: NAU Primary Building Use[21]

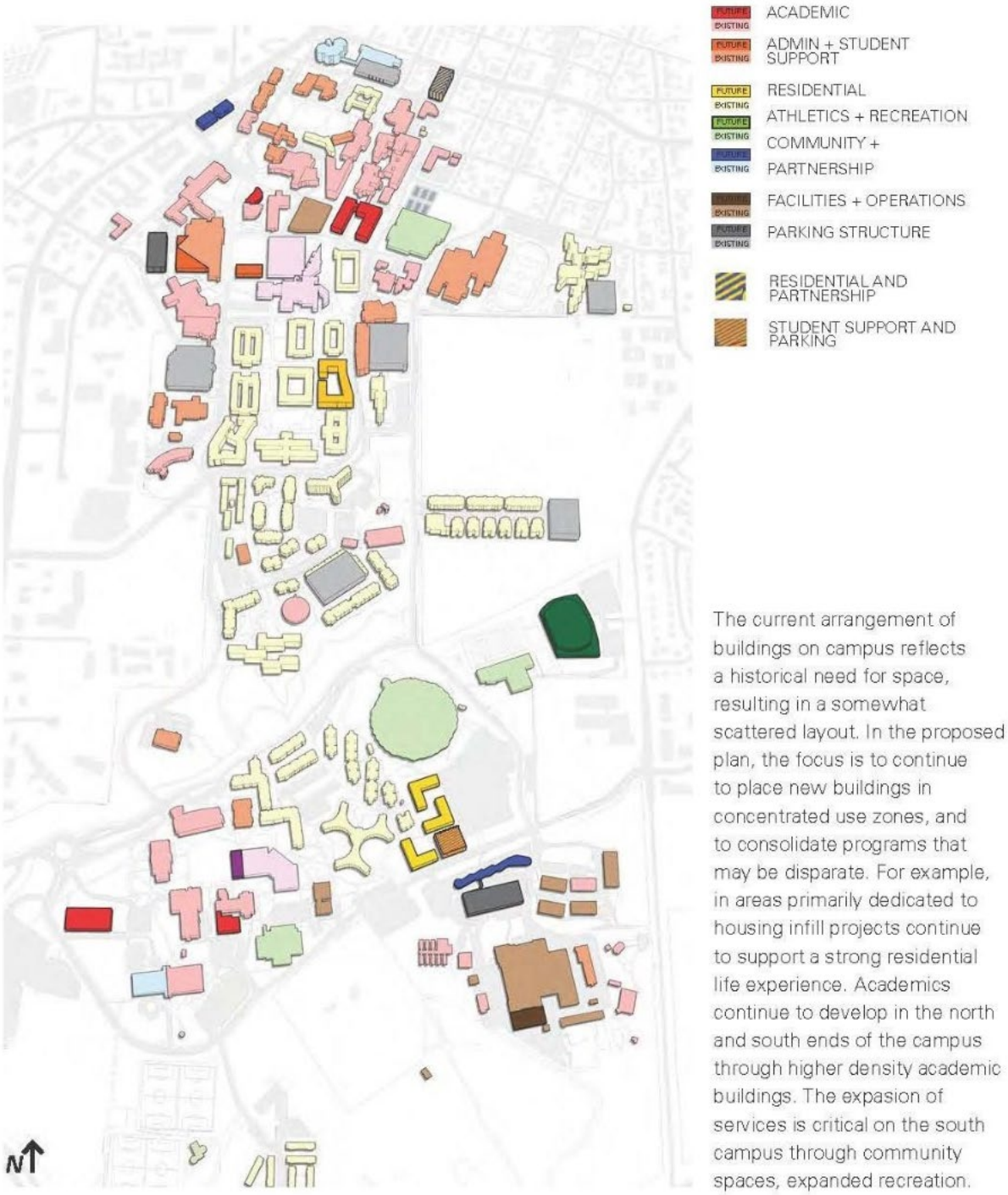
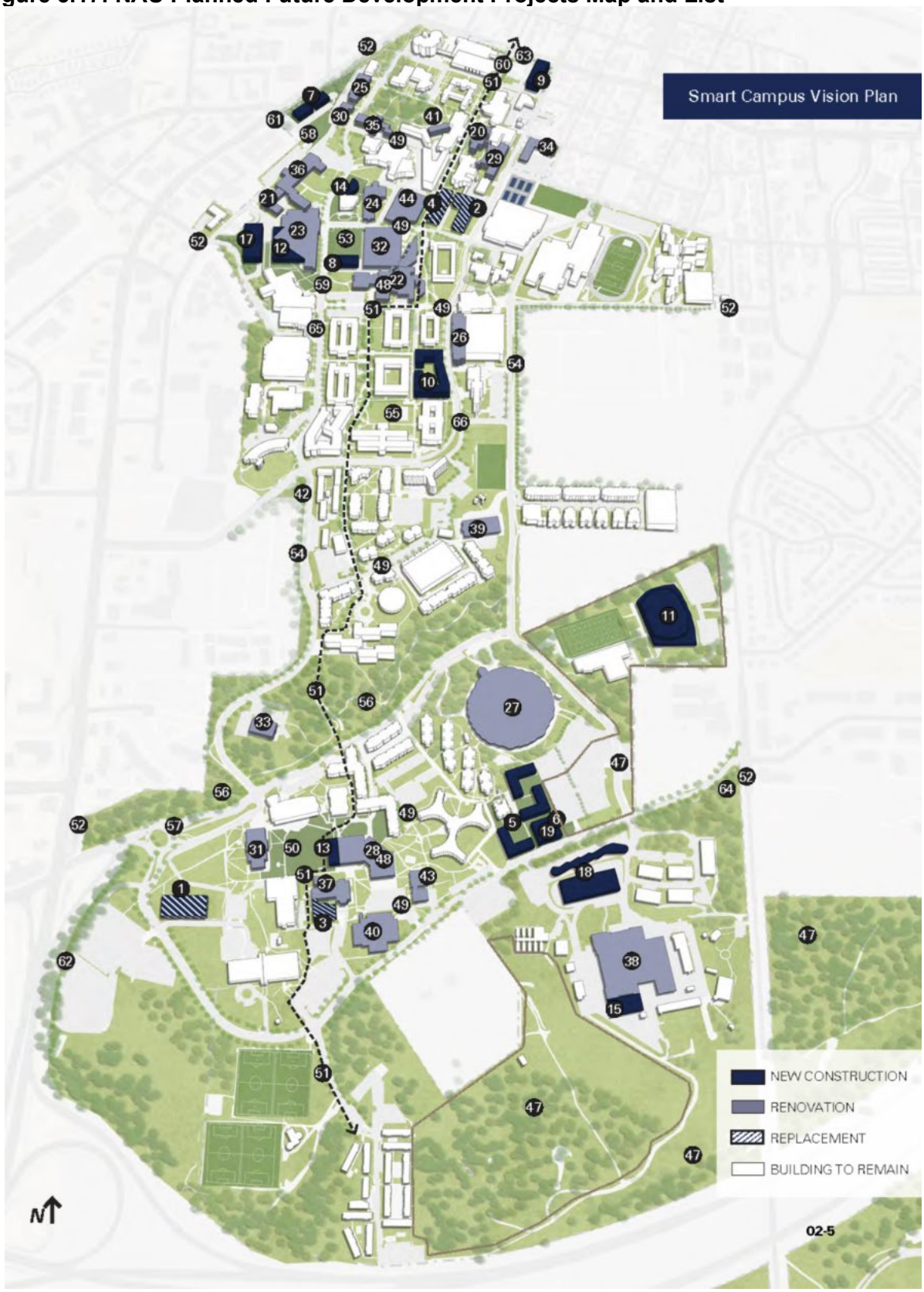


Figure 3.17: NAU Planned Future Development Projects Map and List[22]



REPLACEMENT BUILDINGS	
1	Social and Behavioral Sciences Replacement Building
2	Interdisciplinary Science and Academic Complex (ISAAC)
3	Nursing Replacement Building
4	Arts and Letters Replacement Building
NET-NEW BUILDINGS	
5	South Campus Apartment Complex
6	South Campus Community, Recreation, and Wellness Building
7	Milton Community Building
8	Student Pavilion Building
9	Northend Mixed-Use Complex
10	Central Campus Apartment Complex
11	Multi-purpose Arena
ADDITIONS	
12	Cline Library Addition
13	Du Bois Student Union Addition
14	Native American Cultural Center Addition
15	Facility Services Addition
16	Engineering Addition (location TBD)
PARKING STRUCTURES	
17	North Campus + Cline Library Parking Structure
18	South Campus Parking Structure + Transportation Center
19	South Campus Residential Parking Structure
BUILDING AND SYSTEMS RENOVATIONS	
20	Physical Sciences (19)
21	Institute For Human Development (27A)
22	University Union (30A-C)
23	Cline Library (28)
24	Adel Mathematics (20)
25	Gammage (01)
26	Student and Academic Services (00)
27	J. Lawrence Walkup Skydome (73)
28	Du Bois Ballroom (04)
29	Biological Sciences (21)
30	Geology Building (12)
31	Raul H. Castro Social and Behavioral Sciences (05)
32	University Union Fieldhouse (30)
BUILDING AND SYSTEMS RENOVATIONS (CONTINUED)	
33	Babbitt Administrative Center (51)
34	South Beaver Street School (07A)
35	Old Main (10)
36	Eastburn Education Center (27)
37	Health Professions (00)
38	Facility Services (77)
39	ROTC and C4P Lab Building (47A)
40	Rolle Activity Center (06)
41	Bury Hall (08)
INFRASTRUCTURE	
42	Interconnect North and South Heating Systems
43	Conversion of South Campus Plant to Low Temperature Hot Water
44	Conversion of North Campus Plant to Low Temperature Hot Water
45	Conversion of existing buildings from local heating systems to a centralized heating system (multiple)
46	Deep energy retrofits (multiple)
47	Woody biomass and/or geothermal conversion project
48	Electrify campus commercial kitchens
OPEN SPACE	
49	East West Connections (multiple)
50	South Quad Improvements
51	Pedway Improvements
52	Trails Connections to FUTS
53	Library Plaza and Gathering Lawn
54	Cemetery Screenings
55	Central Quad Improvements
56	Sinclair Wash Improvements / Walk of Nations
CIRCULATION	
57	McConnell Drive Improvements
58	Milton Entry and Connection to S. Riordan Ranch Street
59	Pedestrianize Knoles Drive
60	Pedestrianize Humphrey's Street
EDGE IMPROVEMENTS	
61	Milton Edge Open Space and Indigenous Welcome Signage
62	I-17 Edge Gateway Signage and Landscape
63	Bulter Avenue and Humphrey's Street Gateway Signage + Landscape
64	Lone Tree Road and Pine Knoll Drive Gateway Signage and Landscape
65	Riordan Road and Knoles Drive Gateway Signage and Landscape
66	University Drive and San Fransisco Street Gateway Signage and Landscape

Social Vulnerability Index

Northern Arizona University's main campus is encapsulated by Census Tract 10. The Arizona SVI aggregate rating for this tract is .44, indicating low to moderate vulnerability. However, the tract features significant variability in its component thematic ratings. While Household Characteristics and Arizona-Specific factors are rated as low vulnerability (.01 and .03), Racial and Ethnic Minority factors are low to moderate (.44), while Socioeconomic Status and Housing and Transportation related factors have notably elevated vulnerability (.86 and .96).[23]

The elevated Socioeconomic Status vulnerability score is directly associated with the resident student population's high unemployment rate, low income, and high housing cost burden – which is relatively traditional among on-campus resident undergraduate students. Meanwhile, the elevated Housing and Transportation vulnerability rating reflects the prevalence of high resident density, multi-unit structures, and group quarters combined with limited individual vehicle access and reliance on public transit or other modes of transport. Combined, these factors highlight how the resident student population constitutes a specific at-risk population.

Note that this assessment only reflects the on-campus population. Students that live off campus in the surrounding community are captured in the City of Flagstaff and Coconino County profiles.

Figure 3.18: NAU Overall Arizona Social Vulnerability Index Scores



3.11.4 Page

The City of Page, AZ is located adjacent to the Utah border at 36°54′51″N 111°27′35″W. The incorporated City has a total area of 22 square miles and a broader municipal planning area of 22 square miles. The city's elevation is approximately 4,300 feet.

History

Page, Arizona is one of the youngest communities in not only Coconino County but the United States. Page is unique in its conception as it was founded in 1957 as a housing community for workers and their families during the construction of the nearby Glen Canyon Dam on the Colorado River. The City of Page was originally home to the Kaibab Paiute and Navajo tribes. The city's 16.6 square mile site was obtained in a land exchange with the Navajo Nation. The city is perched atop Manson Mesa at an elevation of 4,300 feet above sea level and 600 feet above Lake Powell.

The city was originally called Government Camp, but later named after John C. Page, commissioner of the Bureau of Reclamation. After the dam was completed in the 1960s, the city was officially incorporated on March 1, 1975. It grew steadily to today's population of over 7,000 residents. As the reservoir began to fill, more settlers and tourists alike began to come to Page. The city has become the gateway to the Glen Canyon National Recreation Area and Lake Powell, attracting over three million visitors per year. Additionally, the city sits adjacent to Navajo Nation – the largest remaining Native American tribe.[1]

Government

The city council consists of a mayor who serves a two-year term and six councilors who serve staggered four-year terms. The mayor and vice mayor are council members.[2] The municipal operations are directed by a city manager who is hired by city council. The city is served by its own police and fire departments which provide comprehensive emergency services.

Economy

Page's economy is primarily driven by tourism, hospitality, a thriving industrial park, the federal government, and public utilities (particularly associated with Lake Powell). The city's total workforce over the age of 16 has grown slightly from 3,475 in 2019 to 3,707 in 2023. In addition, recreation and tourism-oriented firms experience seasonal employment peaks from March through November. Major employer industries in 2023 are noted in **Table 3-19** below.[3]

Table 3-19: City of Page Major Employment Industries

Industry	Estimate (2019)	% Workforce (2019)	Estimate (2023)	% Workforce (2023)
Arts, entertainment, recreation, and accommodation and food services	1,042	30%	1,173	31.6%
Educational services, health care and social assistance	723	20.8%	901	24.3%
Retail trade	368	10.6	369	10%
Professional, scientific, and management, and administrative and waste management services	233	6.7%	314	8.5%
Finance and insurance, and real estate and rental and leasing	66	1.9%	293	7.9%
Other services, except public administration	271	7.8%	287	7.7%
Wholesale trade	0	0%	173	4.7%
Public administration	160	4.6	97	2.6%

Industry	Estimate (2019)	% Workforce (2019)	Estimate (2023)	% Workforce (2023)
Construction	69	2%	72	1.9%
Transportation, warehousing, utilities	404	11.6%	28	.8%
Agriculture, forestry, fishing and hunting, and mining	0	0%	0	0%
Information	0	0%	0	0%
Manufacturing	139	4%	0	0%

**Note that estimates of zero have a potential error of +/- 20. Given the small population, the ACS error can be significant.*

Key Critical Infrastructure Facilities and Community Assets

Page is a regional hub of critical infrastructure that supports both local and regional needs. Within the City, the town has a hospital supported by several clinics; multiple assisted living facilities; stations for the Page Fire Department, Police Department and Coconino Sheriff's Office; two cellular towers; a City Hall and Justice Court; six schools; a post office; and the Page Municipal Airport which has a lighted 5,500-foot paved runway for regional flights. A municipal waste-water treatment is situated on the far west side of town. Adjacent to the city is the Glen Canyon Dam and hydroelectric powerplant that generates nearly 4,717 GWh every year and supplies nearly all Mountain States in the Southwest. This powerplant is supported by a series of transformers and transmission wires located directly adjacent to, and within, the City's boundaries. The facility is run by the US Bureau of Reclamation. In addition to providing power, the Dam serves as flood mitigation for the Colorado River, protects the Hoover dam from sediment buildup, and acts as the delineation for water supplies rights between the "Upper Basin" and "Lower Basin" states.

Within the City, major community assets include the Navajo Cultural Center, the Powell Museum and Visitor Center, the Glen Canyon National Recreation Area, six municipal parks, the Page Sports Complex, the Page Community Center, the Page Public Library, the John Wesley Powell Museum, and the Carl Hayden Visitor Center. The area also has a 102-acre industrial park. In addition to these sites, the community has several key environmental assets that are closely related to the area's history and tourist economy. These include Horseshoe Bend, the Rim View Trail, the Glen Canyon National Recreation Area, and Lake Powell itself (which is accessed by two dedicated marinas).

Population and Demographics

Page has a population of 7,407 residents with a median household income of $88,452 and a poverty rate of 11.2%. The median age is 28.4 years, with 68.7% of residents aged 18 years and older, and 6.4% of residents aged 65 years and older. [4] A summary of the City's racial and ethnic composition, as captured by the American Community Survey, is in Table 3-20.[5]

Table 3-20: City of Page – Race and Hispanic/Latino Origin Demographics

City Demographics	2019	2023
Population	7,531	7,407
White alone	35.2%	44.6%
American Indian or Alaska Native	56.6%	43.7%
Two or More Races	3.0%	7.7%
Black or African American	0.6%	0.7%
Asian	.9%	.2%
Some other race	3.7%	3.1%
Hispanic or Latino	7.6%	7.9%

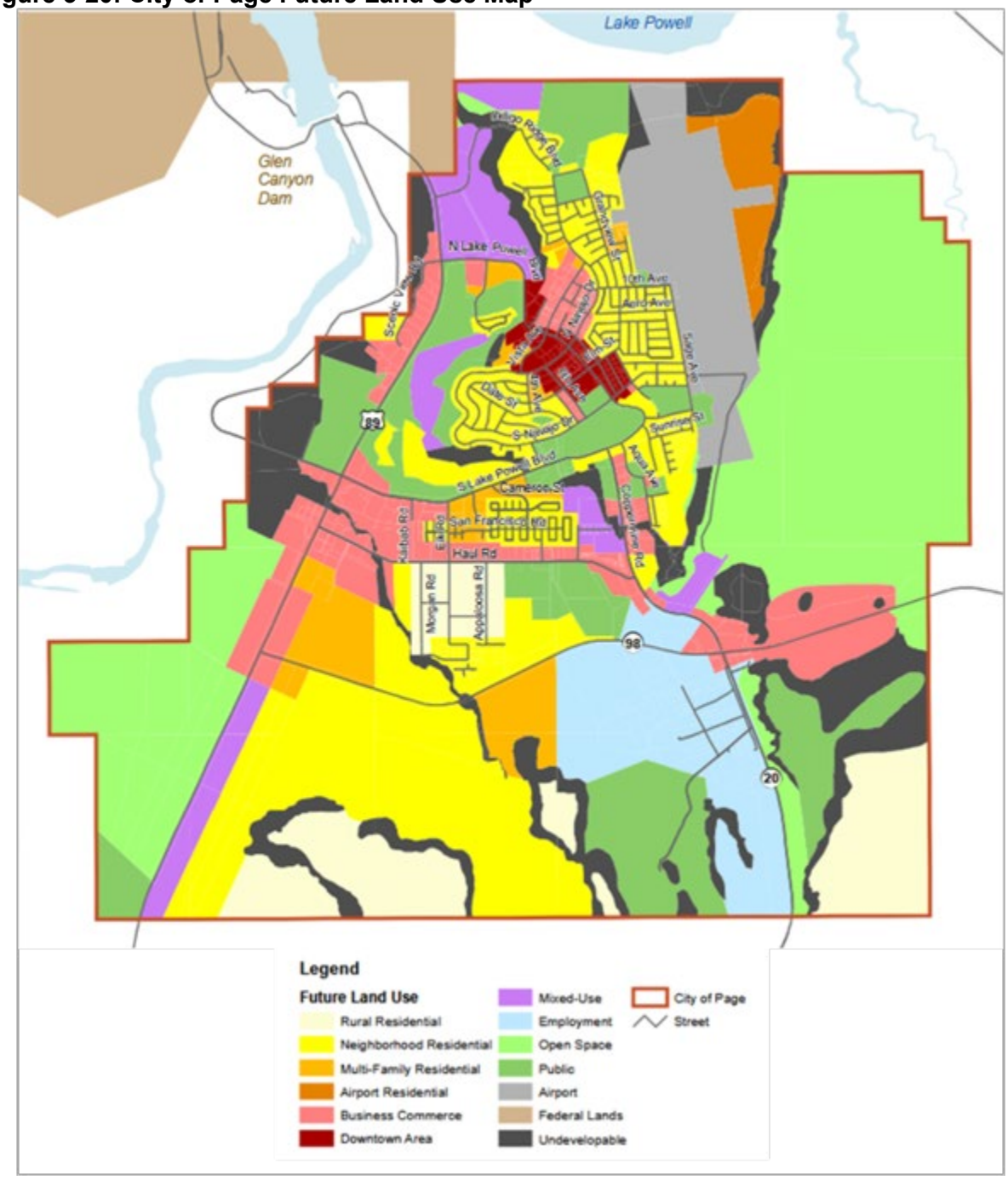
Land Use and Development Trends

According to the City's 2040 General Plan, published in December 2022, the City owns nearly 83% of all land within its municipal planning area. This has allowed it to avoid "leapfrog sprawl" and deliberately develop a contiguous and contained development pattern within the City's 15.55 square mile focus area for development (bounded by Coppermine Road and the Page Municipal Airport to the East, Highway 89 to the West, Highway 98 to the South, and the Colorado River canyon to the North). Within this space, the city expects to experience 5% annual population and density growth. The major factors impacting City growth include available and affordable housing stock, the availability and cost of land, and development of adequate infrastructure (particularly water and electrical).[6]

The City's plan for addressing these issues while further incentivizing growth involves focusing development on fully leveraging the available space within its focus area. In doing this, the City plans to steadily increase density through support for mixed-use and neighborhood residential development. This approach will be used to convert existing lower-density land uses to more fully leveraged forms while ensuring that they remain compatible with existing uses and the City's character. The most significant area of new development will be on the Southern edge of town, where open space will be re-zoned for neighborhood and rural residential development. In addition, the city aims to support the development of a medical complex, expansion of the Page Municipal Airport, protection of existing industrial and business park developments, expansion of infrastructure as fiscally practicable, further interconnection and expansion of the city's green spaces, and implementation of more green infrastructure.

In 2024, Navajo Nation President Buu Nygren signed a lease agreement with Navajo-owned Horseshoe Bend Holdings, LLC, to build a "world-class" resort on more than 400 acres overlooking Horseshoe Bend.[7] This will be directly adjacent to Page's Southwest corner near Highway 89.

Figure 3-20: City of Page Future Land Use Map



Social Vulnerability

The City of Page is represented by two contiguous census tracts separated by Highway 98 – tract 21.01 to the Northeast and tract 21.02 to the Southwest. The first tract is rated to have medium to high social vulnerability with an Arizona Social Vulnerability Index score of .54 out of 1.0. However, this moderate average belies counterbalancing vulnerability themes, with extremely low vulnerability ratings regarding household characteristics and Arizona-specific factors (.11 and .27 respectively), but high-risk ratings for socioeconomic, racial and ethnic minority, and housing type/transportation themes (.75, .65, and .86 respectively). The second tract is scored at

moderate to high vulnerability with an aggregate vulnerability score of .7 out of 1.0. This tract has more consistently elevated scores, with household characteristics, racial and ethnic minority, and housing type/transportation themes receiving substantially elevated scores (.69, .82, and .93 respectively) while socioeconomic and Arizona-specific factors had moderate ratings.[8]

On closer examination, both the Northeast and Southwest census tracts share several vulnerability factors, including a substantial concentration of racial and ethnic minorities, a high percentage of households using mobile homes, low tree cover, and moderate heat vulnerability. However, the Northeast census tract is characterized by a high housing cost burden, a substantial number of persons living 150% below the poverty line, a high percentage of individuals with disabilities, and an elevated rent burden. In contrast, the Southwest census tract has an elevated unemployment rate, a high concentration of persons under the age of 17, a high percentage of houses with more occupants than rooms, and a high number of persons experiencing food insecurity.[9]

Figure 3-21: City of Page Overall Arizona Social Vulnerability Index Score



3.11.5 Tusayan

Tusayan is located at 35°58′32″N 112°7′45″W. At 143 acres, it is the smallest town in Arizona by area.

History

Tusayan, Arizona, also known as the "Gateway to Grand Canyon National Park", is nestled between the rich Kaibab National Forest and the Grand Canyon. While it is adjacent to one of the World's Seven Natural Wonders, it has its own vibrant history. It is documented that some of the earliest inhabitants of Tusayan were the Ancestral Puebloans, who are believed to be the ancestors of the Hopi, Zuni, and other Puebloan tribes. Tree-ring dating shows that the town of Tusayan was inhabited by 1185 CE and potentially earlier.[1]

Due to its close proximity to the Grand Canyon, George Reed, a Forest Service ranger working in the then-called Tusayan Forest Reserve, settled a homestead and vegetable farm in Coconino Wash. A new highway in 1928 connecting the Grand Canyon to nearby Williams

brought new population growth, and Tusayan became a community.[2] Tusayan incorporated in 2010 after 20 years of voter review/elections.

Government

The government consists of a town council and town manager. The five-member council directs the course of local governance through its power to pass ordinances, levy taxes, award contracts, and appoint certain town officers (such as the town manager, town attorney, and members of town committees and commissions). The mayor, who is elected directly, is a member of the council and acts as the official head of the town at public and ceremonial occasions. Council members are elected at large to overlapping, four-year terms. The council members choose a vice mayor from among the council.

The town is uniquely situated in that it does not have an emergency services department, but rather, a set of contracts for all major emergency services. The town manager's office coordinates these services with internal and external partners such as the Coconino County Sheriff's Office (CCSO), Coconino County Emergency Management (CCEM), and Arizona Department of Transportation (ADOT). Additionally, Tusayan Fire District is a separate district from the town which was established in 1996 at the request of the Grand Canyon National Park.[3] Utilities are contracted with regional partners such as the Tusayan Sanitation District and Arizona Public Service.

Economy

The economy of the town is almost exclusively based on tourism. The town has more than 1,000 hotel rooms with restaurants, gift shops, and entertainment establishments like an IMAX Theater. Tour operators offer unique jeep and horseback trips while aircraft companies provide exclusive plane and helicopter sightseeing experiences of the Grand Canyon from the adjacent Grand Canyon Airport. The town's proximity to alpine and Nordic skiing facilities provides for winter economic activity. The National Park Service and National Forest Service are major employers. Additionally, a couple of cattle ranching enterprises contribute to the area's economy. Major employer industries are noted in **Table 3-23** below.[4]

Table 3-22: Town of Tusayan Major Employment Industries

Industry	Estimate (2019)	% Workforce (2019)	Estimate (2023)	% Workforce (2023)
Arts, entertainment, recreation, accommodation, and food services	167	62.1%	185	69.3%
Public administration	11	4.1%	55	20.6%
Retail trade	15	5.6%	21	7.9%
Professional, scientific, and management, and administrative and waste management services	9	3.3%	6	2.2%
Construction	14	5.2%	0	0%
Finance and insurance, and real estate and rental and leasing	12	4.5%	0	0%
Educational services, health care and social assistance	18	6.7%	0	0%
Transportation, warehousing, utilities	23	8.6%	0	0%

**Note that estimates of zero have a potential error of +/- 14. Given the small population, the ACS error can be significant.*

Key Critical Infrastructure Facilities and Community Assets

Critical infrastructure and facility sites in Tusayan include the town hall, the Tusayan Fire Department, the Tusayan Sanitation District's wastewater treatment plant, and the Grand Canyon National Park Airport. Telecommunications are provided by two major cellular towers to the

North and West of Town. The town is serviced by APS Power via a substation in the National Forest which is the only power feed for the town and surrounding populated areas. A series of water storage tanks for the town are also located on the Grand Canyon National Airport property.

Tusayan is home to several hotels, restaurants, businesses, residences, gas/charging stations, a large camper village, and several locations on the National Register of Historic Places. These include the Moqui Ranger Station and the Tusayan Lookout Tree. In sum, the town has the largest concentration of tourist services for the entire Grand Canyon, including 1,038 hotel rooms – all of which experience surges during peak tourist season (May-September).

In addition to being adjacent to Grand Canyon National Park, and surrounded by the Kaibab National Forest, Tusayan falls within the southern segment of the Baaj Nwaavjo I'Tah Kukveni Grand Canyon National Monument established in 2023. This massive space contains numerous historic and cultural sites, as well as multiple areas of critical environmental concern. Together, these protected natural areas serve as visitor attractions for hunting, camping, hiking, and related uses – which are key to the local economy.

Population and Demographics

Tusayan has a population of 374 residents with a median household income of $77,987 and a poverty rate of 12.4%. The median age is 25.8 years, with 19% of residents being under 16 years and virtually none being 65 years and over.[5] A summary of the Town's racial and ethnic composition, as captured by the American Community Survey, is in **Table 3-24**.[6]

Table 3-23: Town of Tusayan - Race and Hispanic/Latino Origin Demographics

Town Demographics	2019	2023
Population	297	374
White alone	62.6%	23.5%
Black or African American	2.4%	0%
American Indian or Alaska Native	15.2%	58.3%
Asian	8.4%	0%
Some other race	10.2%	7%
Two or More Races	1.3%	11.2%
Hispanic or Latino	22.9%	27.5%

**Note that estimates of zero have a potential error of +/- 11. Given the small population, the ACS error can be significant.*

Land Use and Development Trends:

Most of the land in Tusayan is owned by a relatively small group of entities, the vast majority being the state and federal government or special districts. Approximately 84% of land is comprised of the Kaibab National Forest. The Arizona Department of Transportation owns approximately 964 acres comprised of the Grand Canyon National Park Airport and the right-of-way to State Highway 64. The Grand Canyon Unified School District owns 80 acres on the West side of the town's main developed area. The South Grand Canyon Sanitary District owns eight acres, also in the Western portion of the main developed area. Most of the rest of the land is privately owned, including the 355-acre Kotzin Ranch and Ten X Ranch parcels. [7]

Much of the town's economic activities and existing land uses are centered around Highway 64. This includes hotels, restaurants, and related services and the community fire station. Residential areas include the growing Camper Village that provides interim housing for workers, manufactured/mobile home parks at the North and West sides of town, and denser multi- and single-family housing on the West side.

The town has both benefited and been constrained by its position in the Kaibab National Forest. The forest provides a beautiful natural setting but limits the ability of the town to expand. There are few undeveloped properties left in the core area of town with access appropriate for commercial or multi-family use. Ownership opportunities are also limited due to the control of the land by a handful of entities. A key challenge resulting from this has been the creation of affordable and accessible housing for residents and temporary workers as commercial land uses expand. There is a total of 142.3 acres of vacant commercially zoned land available to the town and 42.2 acres of undeveloped residentially zoned land.

Future development is focused on further enhancing commercial use around Highway 64 and supporting the development of additional housing – particularly through the creation of additional multi-family housing, mixed use spaces, and the long-term transition of mobile home parks to housing units based on market demand. The largest of these efforts are town-approved mixed-use commercial development plan for the private properties of Camper Village, Kotzin Ranch, and TenX Ranch that include the creation of an additional 1,800 multi-family units that would meet local demand. However, the project is subject to securing guarantees regarding infrastructure (particularly regarding roads, utilities, and water allocations), completing a federal environmental review process due to its overlap with Forest Service lands, and resolving ongoing concerns regarding environmental impacts to Grand Canyon National Park, indigenous communities, and the regional water supply.

Figure 3-24: Tusayan Future Land Use Zoning Map (Jurisdiction)

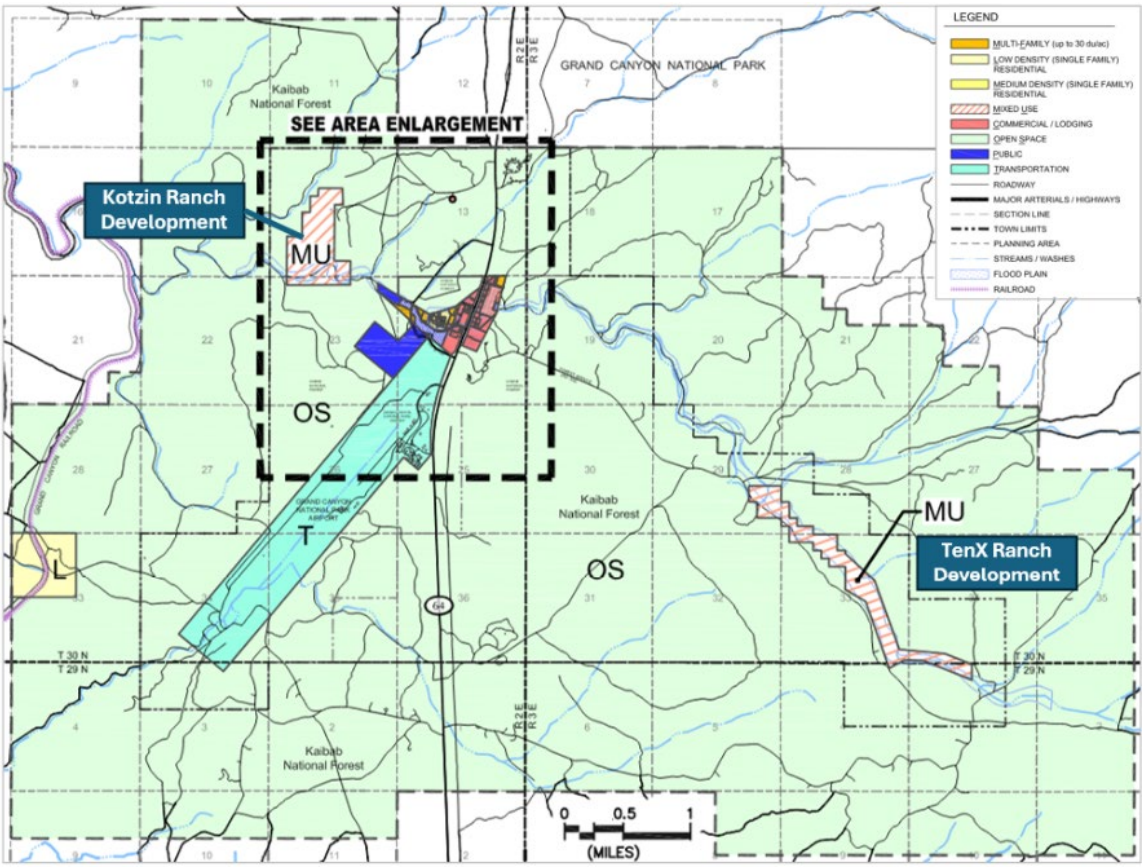
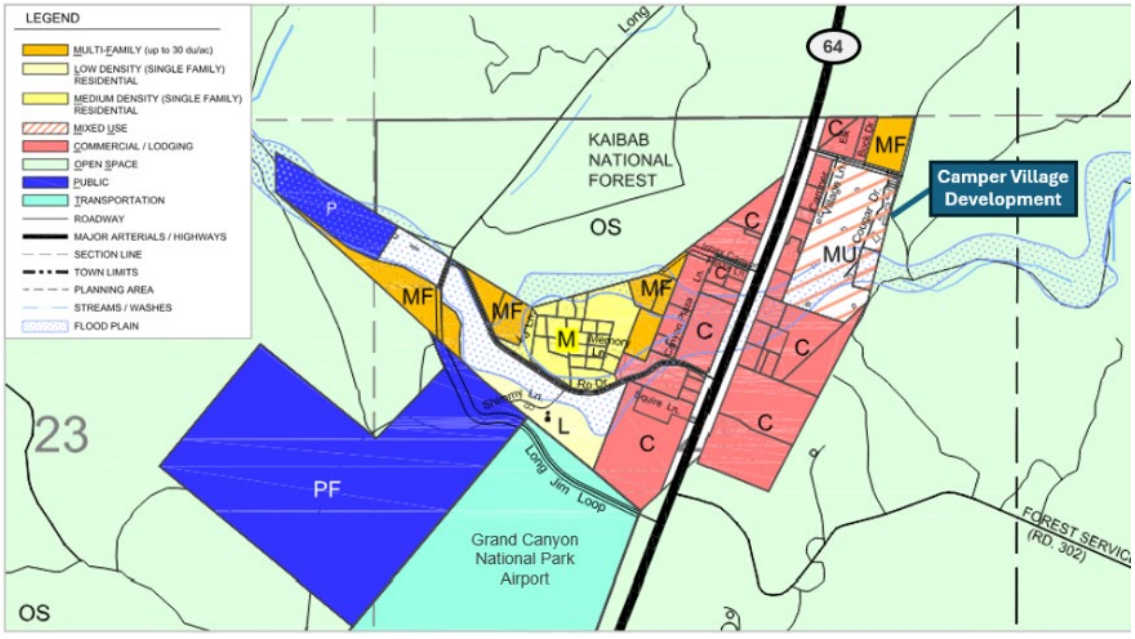


Figure 3-25: Tusayan Future Land Use Zoning Map (Main Town Area)



Social Vulnerability

Due to its small population, the Tusayan is not distinguished from Census Tract 23.01 – which covers nearly the entire Western half of Coconino County, or Zip Code Tabulation Area 86023, which covers most of the Grand Canyon. As a result, specific social vulnerability data for the Town specifically is limited. However, themes can be drawn from each which may apply.

The Arizona Social Vulnerability Index data for Census Tract 23.01 rates the region as moderate to high vulnerability with a score of .74 out of 1.00. Notable themes include Housing and Transportation and Arizona-specific factors, rated at .97 and .79 respectively. Socio-economic, household characteristic, and racial and ethnic minority themes are rated between .51 and .6. Notably high risk factors include: high housing cost burden, a significant proportion of the population more than 150% below the poverty line, percentage of the population without health insurance, proportion of the population below 17, the proportion of the population from racial and ethnic minorities, percentage of households in mobile homes, percentage of persons in group quarters, heat vulnerability, access to healthcare, and water cost.[8]

Meanwhile Zip Code Tabulation Area 86023 is identified by the Center for Disease Control's (CDC) Agency for Toxic Substances and Disease Registry (ATSDR) as having moderate to high vulnerability, with a composite score of .5076 out of 1.00. This dataset highlights housing and transportation factors as the source of greatest risk, with a score of .9975, while the concentration of racial and ethnic minorities follows with a score of .6287. Factors of note here included the proportion of persons in group quarters, the proportion of mobile homes out of all housing units, and the volume of individual occupying available housing units, and the proportion of the population that are from minority racial and ethnic groups.[9]

It is important to note that the Town's focus on tourism, and the supporting housing infrastructure for itinerant or seasonal workers created by area businesses, likely reflect or exacerbate some of the social vulnerability factors identified. Additional challenges are posed by the annual influx of tourists (peaking between May and September) which significantly increase population density and needs while potentially creating additional, unmeasured, changes to vulnerability factors (such as increased persons with limited English proficiency, disabilities, or medical needs).

3.11.6 Williams

The City of Williams is located at 35°14′58″N 112°11′24″W at 6,800 feet in elevation. Bill Williams Mountain rises to an elevation of 9,256 feet just south of Williams.

History

Williams, Arizona was named after William Sherley "Old Bill" Williams, a famous trapper, trader, scout and mountain man, who often trapped in the area. The statue of "Old Bill" stands in Monument Park, located on the west side of the city. The City of Williams sits on land that was inhabited for thousands of years by several Native American tribes including the Yavapai, Hualapai, and Havasupai. These tribes, fur trappers, and cattle ranchers frequented the area before the town was founded. It was incorporated on July 9, 1901.

The city was built on a strong livestock industry that was also supplemented by sawmill operations. Post WWII, automobile leisure travel led to an expansion in tourist support services in the city such as hotels, gas stations, and restaurants. It's believed that the evolving changes in transportation have made a lasting impact on the city. Automobile congestion in the Grand Canyon area inspired the revival of rail service from Williams to the Canyon in 1989. Carrying 300,000 passengers annually, the railway brought tourists into the heart of the City[1]. Williams was the last city whose section of Route 66 was bypassed due to lawsuits that kept the last section of

Interstate 40 in Arizona from being built around the city. The Williams Historic Business District and Urban Route 66, Williams are on the National Register of Historic Places.[2]

Government

The city has a city council/city manager form of government. The seven-member city council is the legislative body, oversees the operations of the city government, and sets policy by approving programs, appropriating funds, enacting laws and appointing the city manager and other officers. The mayor, who is elected by the public, serves a two-year term, while council members serve overlapping four-year terms. The city manager is appointed by city council and responsible for directing the city's daily operations. The city provides its own fire, police and emergency medical services.

Economy

Williams' economy is heavily driven by tourism, since the City serves as a major waypoint on the southerly route to Grand Canyon National Park. The city's total workforce over the age of 16 grew slightly from approximately 1,403 in 2019 to 1,426 in 2023. The leading employment industries are in **Table 3-27** below.[3]

Table 3-26: City of Williams Major Employment Industries

Industry	Estimate (2019)	% Workforce (2019)	Estimate (2023)	% Workforce (2023)
Arts, entertainment, recreation, and accommodation and food services	342	24.4%	423	29.7%
Finance and insurance, and real estate and rental and leasing	51	3.6%	242	17%
Retail trade	196	14%	224	15.7%
Educational services, health care and social assistance	203	14.5%	115	8.1%
Construction	104	7.4%	86	6%
Manufacturing	43	3.1%	85	6%
Information	0	0%	81	5.7%
Other services, except public administration	76	5.4%	45	3.2%
Transportation, warehousing, utilities	143	10.2%	42	2.9%
Professional, scientific, and management, and administrative and waste management services	78	5.6%	39	2.7%
Public administration	101	7.2%	25	1.8%
Agriculture, forestry, fishing and hunting, and mining	51	3.6%	19	1.3%
Wholesale trade	15	1.1%	0	0%

**Note that estimates of zero have a potential error of +/- 14. Given the small population, ACS error can be significant.*

Key Critical Infrastructure Facilities and Community Assets

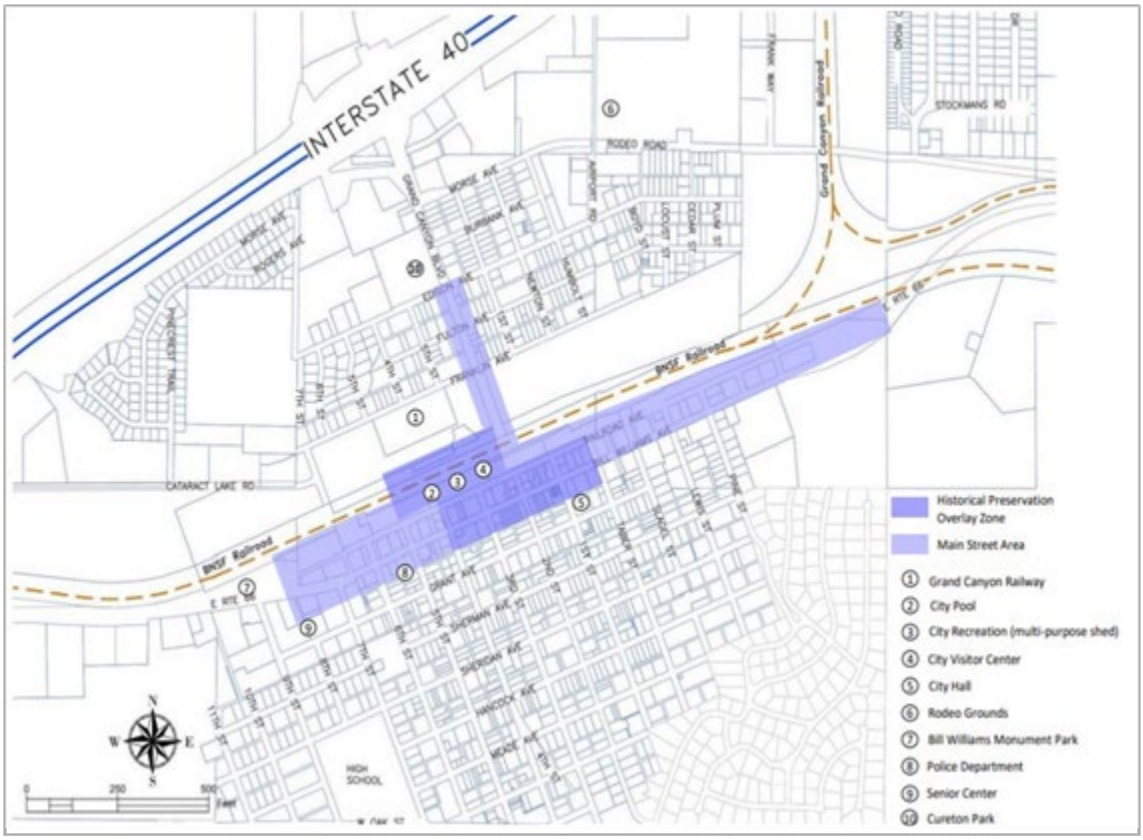
Critical infrastructure and facility sites in Williams include the city's water plant and distribution center, which provides clean and filtered water to the city, and the wastewater plant, which cleans city sewage and water for its return to the environment. The water plant is fed by three producing wells that support the City's potable water supply. The city maintains storage of 3.3 million gallons of treated water for emergency use, which is estimated to supply City customers for approximately 3 days. This is supplemented by the City's five reservoir lakes and four dams

which can hold 867 million gallons of water and could support the City's water needs for up to three years. Access to water is identified as an economic constraint and an ongoing challenge.[4]

The City owns the electrical power distribution system under contract by Arizona Public Service Company, which includes two major power transformer stations. Natural gas is provided by Unisource Energy Services. Century Link and Telcom West provide regional communications, with major transmission stations located on Bill Williams Mountain, and the Statewide Broadband Initiative is installing a major fiber optic cable along I40. Major transport hubs include the Williams Bus Station (Amtrak), HA Clark Memorial Airfield, and the Grand Canyon Railway.

Williams is home to several community assets including the Camp Clover Ranger Station; Williams Elementary, Middle, and High Schools (which also acts as emergency shelters for the community), and several additional historical sites in its Main Street/Historical District – which is also its main tourist center. Williams is also home to Canyon Coaster Adventure Park and Bearizona Wildlife Park, which attract thousands of visitors a year.

Figure 3.27: Williams Main Street Area and Historic District



Population and Demographics

Williams has a population of 3,322 residents with a median household income of $66,183 and a poverty rate of 24.9%. The median age is 42.1 years, with 23% of residents being under 16 years and 21.4% aged 65 years and older.[5] A summary of the City's racial and ethnic composition, as captured by the American Community Survey, is in **Table 3-29**.[6]

Table 3-29: City of Williams – Race and Hispanic/Latino Origin Demographics

Select Demographics	2019	2023
Total Population	3,176	3,322
White Alone	75.7%	59.3%
Some other race alone	11.8%	22.6%
American Indian or Alaska Native	5.5%	.30%
Two or More Races	2.7%	10.98%
Black or African American alone	3.6%	1.29%
Asian alone	0.6%	1.05%
Hispanic or Latino	37.6%	33.6%

Land Use and Development Trends

The City has an area of approximately 43.8 square miles, or 28,832 acres. Nearly 90% of the community's area is federal land. Approximately 25,600 acres of the Kaibab National Forest are within the municipal boundaries, surrounding the developed portions of the community. Currently, developed land concentrates in a compact core area of approximately 3,200 acres or 11% of the city. There are a variety of uses in that limited area ranging from commercial enterprises (20% of land use), public use (7%), industrial (2%), and housing (50%) – with approximately 70% of the city vacant and 30% still developable (albeit mostly national forest).[7] Within an 18-mile radius of town, there are seven lakes and reservoirs. The downtown business district of Williams is listed on the National Register of Historic Places, and many of the downtown buildings were constructed around 1900. This is protected by a Historical Preservation Overlay Zone that controls development projects in that area.

The City's 2023 General Plan states an intent to incentivize projects that:

- Enhance appearance and visibility of I-40 and adjacent Gateway Area business uses, especially through new land use designations, to invite large scale project innovations. In addition, continue Main Street/Historic District revitalization with tourist and quality of life enhancements to scenic and historic qualities. This includes creation of additional capacity and more East-West through streets.
- Seek out innovative ways to create and retain local jobs by encouraging light industry, technical, and artisan trades, as well as incentivize innovative developments that match its special heritage.
- Provide additional workforce housing in areas such as Garland Prairie and Cataract Lake Road, potentially by providing density bonuses and accepting lower cost building methods, that provides affordable workforce housing near future commercial construction and the Historic District.

Nearby, the National Forest Foundation is looking to remove 100 years of overgrowth on some of the steepest terrain to protect both the landscape and the City of Williams from high-intensity fire and flooding. It is estimated that the Bill Williams Mountain Restoration Project will have 1,200 acres thinned off the steepest slope at the top of Bill Williams Mountain at completion. These areas specifically have some of the highest wildfire and post-fire flooding risk. The Bill Williams Mountain Steep Slope Forest Restoration Project is the most complex restoration project ever conducted by the Southwest Region of the National Forest Foundation (NFF) since establishing the Northern Arizona Forest Fund (NAFF) in 2015. [8]

Social Vulnerability

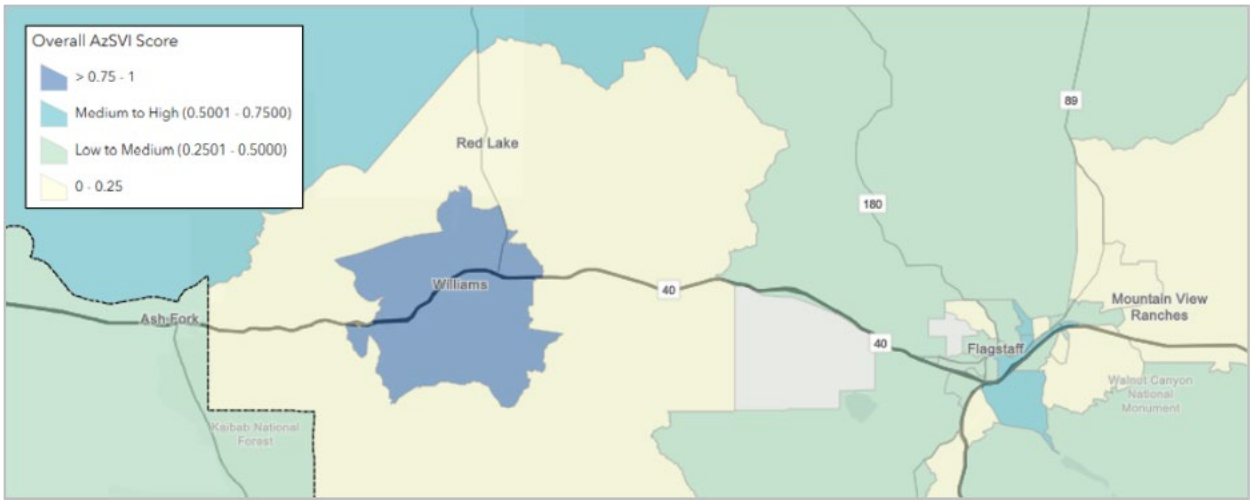
According to the Arizona Social Vulnerability Index (AZSVI), the City of Williams' social vulnerability rating is high, with an aggregate score of 0.77 out of 1.00. The themes that contribute most to the city's high vulnerability score are Household Characteristics and Arizona Specific Factors, rated at .88 and .76 respectively. All other social vulnerability themes were evaluated at between .6 and .67, which is considered moderate risk.[9]

Household Characteristics that have elevated risk ratings regarding the population percentage under the age of 17 (22.4%)[10], with disabilities (20.8%)[11], and the percentage of single parent households (7.5% - though now reduced to 4.2% according to 2023 data)[12]. These demographics are more likely to face greater challenges during emergencies and disasters – particularly regarding evacuation, access to resources, and need for additional support services.

Arizona Specific Factors refer to health factors and indicators specific to the State. Williams had high risk ratings on cost of water ($1000/10,000 gallons), rent burden (26.9% of households us 35% or more of income on rent), air quality (PM2.5 measurement of 32.8), heat vulnerability (34.1% of population has 3 or more have heat vulnerability factors), and household cell phone access (13.9% are without access).[13] Data for this measure is drawn from official Arizona state records; however, the metric reflects water vulnerability—the proportion of the population exceeding a set rate threshold—rather than actual consumer costs.[3]

AZSVI also identifies heightened vulnerability ratings regarding the number of households without vehicles (6.4%) and the proportion of racial and ethnic minorities (50.9%).

Figure 3.30: City of Williams Overall Arizona Social Vulnerability Index Score



[3] Water Cost – Williams, AZ

Section 4: Hazard Analysis and Risk Assessment

The risk assessment for the County and participating jurisdictions was performed using a County-wide, multi-jurisdictional process, with much of the information gathering and analysis accomplished by the Planning Team. This integrated approach was employed because many hazard events are likely to affect numerous jurisdictions within the County and are not often relegated to a single jurisdictional boundary. The vulnerability analysis was performed to reflect vulnerability at an individual jurisdictional level, and at a County-wide level.

FEMA REGULATION CHECKLIST: RISK ASSESSMENT

44 CFR §201.6(c)(2)(i): A description of the type, location, and extent of all natural hazards that can affect the jurisdiction. The plan must include information on previous occurrences of hazard events and on the probability of future hazard events.

44 CFR § 201.6(c)(2)(ii): A description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description must include an overall summary of each hazard and its impact on the community. All plans approved after October 1, 2008 must also address NFIP insured structures that have been repetitively damaged by floods. The plan should describe vulnerability in terms of: the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas; an estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(ii)(A) of this section and a description of the methodology used to prepare the estimate; providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

44 CFR § 201.6(c)(2)(iii): For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.

44 CFR § 201.6(c)(3)(iv): For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit.

44 CFR § 201.6 (d)(3): "A local jurisdiction must review and revise its plan to reflect . . . progress in local mitigation efforts . . .."

ELEMENTS

B1. Does the plan include a description of the type, location, and extent of all natural hazards that can affect the jurisdiction? Does the plan also include information on previous occurrences of hazard events and on the probability of future hazard events? (Requirement 44 CFR §201.6(c)(2)(i))

B2. Does the plan include a summary of the jurisdiction's vulnerability and the impacts on the community from the identified hazards? Does this summary also address NFIP-insured structures that have been repetitively damaged by floods? (Requirement 44 CFR § 201.6(c)(2)(ii))

E1. Was the Plan revised to reflect progress in local mitigation efforts? (Requirement 44 CFR § 201.6(d)(3))

E2. Was the plan revised to reflect changes in priorities and progress in local mitigation efforts? (Requirement 44 CFR § 201.6(d)(3))

Source: FEMA, *Local Mitigation Planning Handbook,* June 2025

Note: The requirements of 201.6(c)(2)(ii) are jointly fulfilled by the content in Section 3 and 4, as well as Section 5.3.5

4.1 Emergency and Disaster Declaration History

The Planning Team was able to identify the chronology of past major hazard events. **Table 4.1** captures the frequency of federal emergency and disaster declarations for incidents occurring in Coconino County from 1970 to 2025. **Table 4.2** captures Arizona state emergency declarations for incidents that occurred from 1966 to 2019 (data for 2020-2025 has not been publicly published). **Table 4.3** shows the frequency of emergency declarations/proclamations by participating jurisdictions and the hazard events they were for from 2020 to 2025.

Table 4-1: State and Federal Disaster Declarations Including Coconino County (2010-2025)[4]

Hazard Event by Frequency	Federal Declaration (1970 – 2019)	Federal Declaration (2020– 2025)	Total Declarations
Severe Storm (Often Winter Storm or with Flooding)	18	1	19
Fire	9	2	11
Flooding	5	3	8
Pandemic	0	1	1
Drought	1	0	1
Freezing	1	0	1
Hurricane	1	0	1

Table 4-2: State Declared Emergencies Including Coconino County (1966-2019)[5]

Hazard Event by Frequency	Number of Declarations	Notes
Wildland Fire	24	Hazard events identified as "Other" include: • Hurricane Katrina Evac, Emergency Supply Airlift, Potable Water, Homeless Sheltering, SAR • Y2K, HWY 89 Collapse, HWY 89 flood damage repair, Prison Escapee (2x), 9/11 Attack • Grasshopper Infestation, Forest Health, OP Good Neighbor (fire forest mgmt.) • Opioid health emergency
Other	22	
Winter Storm	10	
Flooding / Debris Flows	8	
Drought	3	
HAZMAT Incident	2	
High Winds / Tornado	1	
Aviation Accident	1	
Earthquake / Seismic	1	

[4] FEMA Disasters and other Declarations
[5] 2021 Coconino County MJHMP

Table 4-3: Local and County Emergency Declarations in Coconino County (2020-2025)[6]

Jurisdiction	Flood/ Debris Flow	Outbreak/ Pandemic	Winter Storm	Wildland Fire	Other	Totals
Coconino	5	1	1	1	0	**8**
Flagstaff	5	1	0	0	0	**6**
Fredonia	0	1	0	2	1	**4**
NAU	2	1	5	0	1	**8**
Page	0	1	0	0	0	**1**
Tusayan	1	1	0	0	0	**2**
Williams	0	1	0	0	0	**1**
Totals	**13**	**7**	**6**	**3**	**2**	N/A
Note: Hazard events identified as other include riots and an EMS service access crisis						

4.2 Hazard Identification

For this MJHMP update, the list of hazards identified in the 2021 MJHMP was reviewed by the Planning Team with the goal of updating and refining it to reflect observed shifts in regional hazard frequency, behaviors, and hazard exposure as well as the latest research and data regarding those hazards in the region. The hazard identification process included an initial survey of available resources to identify events and developing trends. This information, and the original list of hazards, were subsequently reviewed and evaluated by the Planning Team – screening the list of potential hazards via the following considerations:

- Knowledge on behalf of the Planning Team about risk associated with each hazard;
- Past events (especially events that have occurred during the last plan cycle);
- The ability/desire of Planning Team to develop effective mitigation actions for hazard.

The planning team elected to retain the prior plan's all-hazards approach and virtually all hazards, with select adjustments. The Planning Team elected to remove Terrorism from the updated plan outright. This is not because the hazard does not exist in the region but rather reflects the sensitivity of the information needed to effective risk assessment and the integration of related mitigation, protection, and prevention in existing law enforcement and security-focused planning mechanisms. In addition, Public Health Outbreak and Pandemic was renamed to Disease Outbreaks, Epidemics, and Pandemics for clarity and to reflect the increased connection between such issues and other hazards, especially climate change. It also reflects how management of these issues have increasingly required more traditional mitigation efforts, as well as consideration in the mitigations for other hazards (such as consideration of the management of vector species in flood control efforts).

[6] Local declaration data collected directly from participating jurisdictions as part of 2026 MJHMP development

The resulting list of hazards identified for the 2026 MJHMP includes:

- Aviation Accident
- Climate Change
- Dam Failure
- Disease Outbreaks, Epidemics, and Pandemics
- Drought
- Earthquake and Seismic Hazards
- Excessive Heat
- Extended Power Outage
- Flood, Flash Flood, and Post-Wildfire Flooding / Debris Flows
- HAZMAT Release, Pipeline Failure, and Transport Accidents
- High Winds and Tornadoes
- Wildland Fire
- Winter Storms

Based on the information collected in the hazard risk profiles in Section 4.3, and the planning area community profiles in Section 2, the risk for each of these hazards was analyzed using a Calculated Priority Risk Index (CPRI). The CPRI examines four criteria for each hazard (probability, magnitude/severity, warning time, and duration. The process for this analysis is described below.

Calculated Priority Risk Index (CPRI) Analysis Process

1. Hazards are rated 1 to 4 in whole numbers for each CPRI category using definitions in **Table 4-4**.
2. Each category is weighted by a percentage (see **Table 4-4**). Ratings and their weighted scores (weight x rating) are captured for each hazard.
3. The weighted scores for each hazard are summed to create a cumulative weighted score. This score represents the comparative risk posed by a hazard where:
    - 0 is no risk (N)
    - 1–1.99 is low risk (L)
    - 2–2.99 is moderate risk (M)
    - 3–3.99 is high risk (H)
    - 4 is severe risk (S)

The results of the Coconino County CPRI are in **Table 4-5** and provide an overall summary for the planning area. The results for all other jurisdictions are summarized in the vulnerability section of each hazard profile.

Table 4-4: Calculated Priority Risk Index

CPRI Category	Degree of Risk Chart			Assigned Weight
	Level ID	Description	Index Rating	
Probability	Unlikely	Extremely rare with no documented history of occurrences or events. Annual probability is less than 0.001.	**1**	**45%**
	Possible	Rare occurrences with at least one documented or anecdotal historic event. Annual probability of between 0.01 and 0.001.	**2**	
	Likely	Occasional occurrence with at least two or more documented historical events. Annual probability of between 0.1 and 0.01.	**3**	
	Highly Likely	Frequent events with a well-documented history of occurrence. Annual probability of greater than 0.1.	**4**	
Magnitude-Severity	Negligible	Negligible property damages (less than 5% of critical and non-critical facilities and infrastructure). Injuries or illnesses are treatable with first aid, and there are no deaths. Negligible quality of life lost. Shut down of critical facilities for less than 24 hours.	**1**	**30%**
	Limited	Slight property damages (between 5% and 25%) to critical and non-critical facilities and infrastructure). Injuries and illnesses do not result in permanent disability, and there are no deaths. Moderate quality of life lost. Shut down of critical facilities for more than one day and less than one week.	**2**	
	Critical	Moderate property damages (between 25% and 50%) of critical and non-critical facilities and infrastructures). Injuries or illnesses result in permanent disability and at least one death. Shut down of critical facilities for more than one week and less than one month.	**3**	
	Catastrophic	Severe property damages (>50%) of critical and non-critical facilities and infrastructure). Injuries or illnesses result in permanent disability and multiple deaths. Shut down of critical facilities for more than one month.	**4**	
Warning Time	> than 24 hours	Population receives greater than 24 hours of warning.	**1**	**15%**
	12 to 24 hours	Population receives between 12 and 24 hours of warning.	**2**	
	6 to 12 hours	Population receives between six and 12 hours of warning.	**3**	
	< than 6 hours	Population receives less than six hours of warning.	**4**	
Duration	< than 6 hours	Disaster event will last less than six hours.	**1**	**10%**
	6 to 24 hours	Disaster event will last between six and 24 hours.	**2**	
	24 hrs. to 1 week	Disaster event will last between 24 hours and one week.	**3**	
	> than 1 week	Disaster event will last more than one week.	**4**	

Table 4-5: Coconino County CPRI Results

Hazard		Category and Weight				Cumulative Weighted Score	Risk Level
		Probability	Magnitude/ Severity	Warning Time	Duration		
		45%	30%	15%	10%		
Wildland Fire	***Index Rating (R)***	4	4	4	4	**4**	**S**
	Weighted Score (WS)	1.8	1.2	.6	.4		
Flood, Flash Flood, and Post Wildfire Flood / Debris Flows	***R***	4	3	4	4	**3.7**	**H**
	WS	1.8	.9	.6	.4		
Extended Power Outage	***R***	4	3	4	4	**3.7**	**H**
	WS	1.8	.9	.6	.4		
Winter Storm	***R***	4	4	1	4	**3.7**	**H**
	WS	1,8	1.2	.15	.4		
Climate Change	***R***	4	4	1	4	**3.55**	**H**
	WS	1.8	1.2	.15	.4		
Drought	***R***	4	3	1	4	**3.25**	**H**
	WS	1.8	.9	.15	.4		
Excessive Heat	***R***	4	3	1	4	**3.25**	**H**
	WS	1.8	.9	.15	.4		
Disease Outbreaks, Epidemics, and Pandemics	***R***	3	4	2	4	**3.25**	**H**
	WS	1.35	1.2	.3	.4		
HAZMAT Release, Pipeline Failure, Transport Accident	***R***	3	3	4	3	**3.15**	**H**
	WS	1.35	1.2	.3	.4		
Aviation Accident	***R***	3	3	4	2	**3.05**	**H**
	WS	1.35	.9	.6	.2		
Earthquake and Seismic Hazards	***R***	3	2	4	4	**2.95**	**M**
	WS	1.35	.6	.6	.4		
High Winds / Tornado	***R***	3	3	3	2	**2.9**	**M**
	WS	1.35	.9	.6	.3		
Dam Failure	***R***	2	3	3	4	**2.65**	**M**
	WS	.9	.9	.45	.4		

Table 4-5: CPRI Hazard Risk Scoring

Risk Level	Severe (S)	High	Moderate	Low	None
Rank Score	4.0	3.0 – 3.99	2 – 2.99	1 – 1.99	0

Each jurisdiction considered which of the analyzed hazards posed a significant enough risk to their specific community to warrant mitigation efforts. Below is a summary of the hazards selected for mitigation by each jurisdiction. These selections are the basis for each jurisdiction's mitigation strategy. Final hazard selection was based on the individual jurisdiction CPRI, input provided during Planning Team meetings, and follow-up mitigation activity development.

Table 4-6: Hazards by Jurisdiction

Jurisdiction/ Hazard	Aircraft Accident	Climate Change	Disease Outbreak/ Epidemic, and Pandemic	Dam Failure	Drought	Earthquake and Seismic Hazards	Extended Power Outage	Excessive Heat	Flood, Flash Flood, Post-Fire Flood / Debris Flow	HAZMAT, Pipeline, Transport Accident	High Winds / Tornado	Wildland Fire	Winter Storm
Coconino County	*	**	X	X	X	X	*	X	X	*	X	X	X
Flagstaff	X	**	X	X	X	X	*	X	X	*	X	X	X
Fredonia	*	**	X	X	X	X	*	X	X	*	X	X	X
NAU	*	**	X		X	X	*	X	X	*	X	X	X
Page	*	**	X	X	X	X	*	X	X	*	X		X
Tusayan	X	**	X		X	X	*	X	X	*	X	X	X
Williams	*	**	X	X	X	X	*	X	X	*	X	X	X

** These jurisdictions acknowledge the risk posed by these man-made and technological hazards to the jurisdiction. However, in alignment with DMA 2000, it has selected to address these hazards through other planning mechanisms and initiatives.*

*** These jurisdictions acknowledge the risk posed by climate change. However, for the purposes of this plan, they have elected to address this risk through mitigation of the natural hazards known to be exacerbated by climate change, as outlined in the hazard descriptions that follow.*

4.3 Hazard Risk Profiles

The requirements for hazard profiles are stipulated in DMA 2000 and its implementing regulations. The hazards that the hazard mitigation team selected for the 2026 MJHMP have been profiled using federal, state, regional, and local resources that have mapped, documented, or reported on hazards. Both natural and man-made hazards are included. The hazard profiles consist of describing the nature of each hazard and include the following:

- Description
- History
- Location
- Extent
- Regulatory context (as applicable)
- Probability of future events
- Vulnerability

- Loss estimates
- Development Trends

4.3.1 Aviation Accident

Description

The National Transportation Safety Board (NTSB) defines an airplane accident as an occurrence associated with the operation of an aircraft that takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage (see 49 CFR 830).

History

Since the start of incident tracking by the NTSB in 1964, there have been approximately 400 aircraft accidents within the geographic boundaries of Coconino County, inclusive of both in-flight and ground incidents. Most accidents involve small private and commercial aircraft, are minor in nature, and result in no injuries or fatalities. However, there have been significant historical aviation accidents resulting in loss of life involving the county. An example is the June 1956 aviation crash over the Grand Canyon, in which a Trans World Airline flight collided with a United Air Lines flight mid-air due to failed safety systems. This resulted in 128 fatalities. Recent examples of aviation accidents in the county include the following: [1]

- **June 8, 2025 (Flagstaff)** – During takeoff, a Cessna 180J veered to the left due to gusty conditions and aborted takeoff. While attempting to compensate, the plane's right wing hit the runway, and the airplane conducted a hard right ground loop – resulting in significant wing damage.
- **April 19, 2023 (Valle)** – A pilot on a cross-country flight noticed an unexplained issue with fuel draw and decided to land. Due to engine issues, the pilot decided to abort When applying full power during the go around, the airplane stalled and both wings and empennage struck the ground.
- **November 4, 2023 (Page) –** A hot air balloon launched as part of the Arizona Balloon made an uncontrolled descent after experiencing double burner failure approximately 75 feet off the ground. It crashed into a parked car and one of the balloon passengers suffered serious injuries.
- **January 26, 2022 (Williams) –** The pilot of a Beech F33A erroneously activated the auxiliary fuel boost pump shortly after takeoff to compensate for a perceived cylinder heating issue, causing total loss of engine power. They performed a forced landing in an open field resulting in substantial damage to the airplane and one minor injury to the aircraft's occupant.
- **April 15, 2021 (Williams) –** During a night cross-country flight, the pilot of Cessna 140A lost control due to spatial disorientation shortly after takeoff. The aircraft crashed into a hill 1,440 feet north of the departing runway at Clark Memorial Field. Both the pilot and passenger were fatally injured.

Location

Virtually all historical aircraft accidents have occurred in or around Page, Tusayan, Flagstaff, or Williams. Each of these jurisdictions host regional airports or local airfields that actively support private and/or

commercial aviation activity. Most incidents have occurred either at the airports themselves or outside of developed urban areas.

- **Flagstaff Pulliam Airport (FLG) –** A commercial airport supporting regional and national commercial flights as well as private aircraft operations. The airport covers 763 acres with one runway, 3/21 measuring 8,800 x 150 ft.
- **Grand Canyon National Park Airport (GCN) –** A state-owned airport located in Tusayan. The airport covers 859 acres and has one runway, 3/21 measuring 8,999 x 150.
- **Page Municipal Airport (KPGA/PGA) –** A commercial service airport supporting regional commercial and private aircraft operations. The airport covers 536 acres and has two runways, 15/33 measuring 5,950 ft x 150 ft, and 07/25 measuring 2,200 ft x 75 ft.
- **H. A. Clark Memorial Field Airport (KCMR/CMR) –** A public-use airport located in Williams, Arizona that covers 303 acres and servicing one runway, 18/36 which measures 6,000 ft x 100 ft.
- **Valle Airport (VLE/40G) –** A privately owned airport available for public use that covers 339 acres. It is located mid-way between Williams and Tusayan to the west of Interstate 180 at its intersection with Highway 64. Supports a single runway, 01/19 measuring 4199 x 45 ft.
- **Tuba City Airport (TBC/T03) –** A publicly owned airport open for public use that covers 350 acres. Supports a single runway, 15/33 measuring 6230 x 75 feet. Livestock is located on the airport grounds. One of six airports owned by Navajo Nation.
- **Marble Canyon Airport (MYH/L41) –** A privately owned, public-use airstrip covering 80 acres located 10 miles southwest of the City of Page on the western bank of the Colorado River. Supports a single runway, 03/21 measuring 3715 ft x 34ft. Supports small-scale commercial flights and private flights for daylight operations only.

Extent

In aviation, an accident is defined by the Convention on International Civil Aviation Annex 13 as an occurrence associated with the operation of an aircraft, which takes place from the time any person boards the aircraft with the intention of flight until all such persons have disembarked, and in which a) a person is fatally or seriously injured, b) the aircraft sustains significant damage or structural failure, or c) the aircraft goes missing or becomes completely inaccessible. Annex 13 defines an incident as an occurrence, other than an accident, associated with operation of an aircraft that affects or could affect safety of operation. Hull loss occurs if an aircraft is destroyed, damaged beyond repair, lost, or becomes completely inaccessible.

Aircraft accidents involving small private aircraft, which are historically the most common, would be traumatic for the immediate impact area – but generally limited in size and direct impacts. Such incidents are generally successfully managed by emergency services and have limited secondary impacts. They also often occur outside of major populated areas or have reduced impact due to pilot efforts. Such incidents can generally be resolved within days, with minimal loss of life of physical damage and infrastructure disruption being minimal or rapidly compensated for and repaired.

On the opposite end of the spectrum, the crash of a large commercial aircraft, such as an airliner, within a major populated area or major environmental asset would be catastrophic. A large area would be affected by plane wreckage, burning fuel, destroyed buildings, and casualties beyond the capability of

local fire and emergency medical services personnel. Media attention would be overwhelming. Any air accident will involve coordination among federal, state, and local agencies to provide the necessary resources to manage such an event. Mass casualty transportation accidents typically require these agencies to establish a unified command post; activate disaster mortuary teams; set up medical stations; and develop a plan for moving patients and resources. Resolution of the emergency and the subsequent investigation could take weeks and recovery, including reconstruction and environmental clean-up could take years. Secondary impacts of such an event could be extensive and include major economic or infrastructure disruption, environmental contamination, and wildfire.

Beyond accidents involving aircraft crashes outside airports, there are a variety of aircraft incidents that can cause substantial impacts. These include the loss of payloads off military aircraft and the jettison of fuel over populated areas or sensitive ecological resources. Such incidents generally have low to moderate impacts – but can take significant time and resources to manage and recover from due to the complexity of their impacts, the geographic areas affected, and the variety of jurisdictional authorities involved.

Regulatory Context

14 CFR Part 139 requires the Federal Aviation Administration (FAA) to issue airport operating certificates to airports that:

- Serve scheduled and unscheduled air carrier aircraft with more than thirty (30) seats;
- Serve scheduled air carrier operations in aircraft with more than nine seats but less than 31 seats
- The FAA Administrator requires to have a certificate.

This part does not apply to airports at which air carrier passenger operations are conducted only because the airport has been designated as an alternate airport.

Airport Operating Certificates serve to ensure safety in air transportation. To obtain a certificate, an airport must agree to certain operational and safety standards and provide such things as firefighting and rescue equipment. These requirements vary depending on the size of the airport and the type of flights available. FAA Circular 150 Series provides detailed guidance on airport operations and management.

Probability of Future Events

Since the last hazard mitigation plan update there has been a slight increase in the number of aviation accidents. Between 2015 and 2019 the NTSB recorded 10 aviation accidents. Between 2020 and 2025 there were 14. Based upon recent hazard history (2020-2025), aviation accidents occur in Coconino County an average of 2.16 times per year, ranging from 0 - 4 occurrences. All these incidents have involved small private or commercial aircraft and resulted in minor damage and limited injuries and fatalities.

According to the NTSB, between 2008 and 2023 there were 21,844 aviation accidents nationwide, of which 3,916 involved a fatality – resulting in 6,821 fatalities of which 6,748 were aboard the aircraft. Of these accidents, 20,684 involved general aviation (which flew over 321 million flight hours) and 1,176 involved air carriers, commuter flights, or on-demand carriers (commercial aviation – which flew over 343 million flight hours). This translates to 5.97 and 1.38 accidents per 100,000 flight hours for general aviation and commercial aviation respectively. Accidents involving fatalities are even lower, with .252 and 1.081 accidents with fatalities per 100,000 flight hours for commercial and general aviation respectively (.004 for major air carriers). This data reflects the data that the probability of aircraft accidents is low, with substantially higher probability that an accident will be smaller, general aviation aircraft rather than large commercial aircraft. In addition, the probability of an accident involving fatalities, especially outside of the aircraft, is very low (particularly with large commercial carriers that also pose the highest threat).[2]

Vulnerability

All participating jurisdictions are vulnerable to this hazard. While the bulk of aircraft passing through the region, particularly major commuter flights, travel along well-defined flight baths between major urban areas, general and small-scale commercial aviation, particularly supporting tourism, agriculture, and mining, range across virtually all corners of the county.

While there is little that jurisdictions can do to harden their built environment to withstand aircraft accidents, those with airports have limited the number of sensitive facilities and infrastructure within the immediate surrounds of the facilities. However, the City of Flagstaff, Northern Arizona University, Williams, and Tusayan all have a substantial amount of their built environment or multiple critical infrastructure facilities, within the direct flight paths of these airports. The City of Page has a substantial proportion of its residential development directly adjacent to their airport.

Table 4-7 contains a summary of the Jurisdictional Planning Team's assessment of their jurisdiction's vulnerability to aviation incident.

Table 4-7 captures the Planning Team's estimation of their jurisdictions' risk for this hazard.

Table 4-7: CPRI Rating for Aviation Accident

Jurisdiction	Probability 45%	Magnitude/Severity 30%	Warning Time 15%	Duration 10%	CPRI Score (Max 4.0)
Coconino County	3	3	4	2	**3.05**
Flagstaff	4	3	4	3	**3.6**
Fredonia	1	1	4	2	**1.55**
NAU	2	3	4	2	**2.6**
Page	2	3	4	2	**2.6**
Tusayan	3	3	4	2	**3.05**
Williams	2	2	4	2	**2.3**
County-wide average CPRI =					**2.68**

Loss Estimates

Loss estimates for aviation accidents are difficult to predict. Most aviation accidents involve small, non-commercial aircraft with limited passengers and crew. Large passenger aircraft may have as many as a few hundred passengers and crew. Buildings and facilities at or near crash sites are also potentially at risk although few crashes have resulted in extensive damage to ground facilities or casualties of people on the ground. Aircraft incidents that have area affects, such as the jettison of fuel, may have high health and ecological impacts that are also hard to predict or estimate.

Development Trend Analysis

Due to the continuing expansion of nearly all urban areas within the County, and the ongoing popularity of local tourist destinations such as Grand Canyon National Park, there is steady growth in both air traffic and the size of nearby urbanized areas. While most airports in the county are located well outside densely populated areas, current and planned future development increases the overlap of urban areas and airport takeoff and landing flight paths. Together, these inherently increase the risk of aviation accidents that could affect the population of Coconino County. However, the increase in risk is limited due to its geographically specific nature and the predominance of small commercial and general aviation in most areas with substantial exposure.

4.3.2 Climate Change

Description

The earth's climate is changing. The state has warmed about two degrees Fahrenheit (°F) in the last century. Throughout the southwestern United States, heat waves are becoming more common, and snow is melting earlier in spring. In the coming decades, changing climate is likely to decrease the flow of water in the Colorado River, threaten the health of livestock, increase the frequency and intensity of wildland fire, and convert some rangelands to desert.

The climate is changing because the earth is warming. People have increased the amount of carbon dioxide in the air by 40% since the late 1700s. Other heat-trapping greenhouse gases are also increasing. These gases have warmed the surface and lower atmosphere of our planet by about one degree during the last 50 years. Evaporation increases as the atmosphere warms, which increases humidity, average rainfall, and the frequency of heavy rainstorms in many places, but contributes to drought in others. Greenhouse gases are also changing the world's oceans and ice cover. Carbon dioxide reacts with water to form carbonic acid, so the oceans are becoming more acidic. The surface of the ocean has warmed about one degree during the last 80 years.

The U.S. Environmental Protection Agency (EPA) describes climate change as "any significant change in the measures of climate lasting for an extended period of time. In other words, climate change includes major changes in temperature, precipitation, or wind patterns, among other effects, that occur over several decades or longer."

Many people confuse climate change with global warming, the recent and ongoing rise in global average temperatures near earth's surface. However, global warming represents only one aspect of climate change. The earth's average temperature has risen by 1.4°F over the past century and is projected to rise another 2°F to 11.5°F over the next hundred years. Rising global temperatures have been accompanied by changes in weather and climate. Many places have seen changes in rainfall resulting in more floods, droughts, or intense rain, as well as more frequent and severe heat waves. The planet's oceans and glaciers have also experienced changes. Oceans are warming and becoming more acidic, ice caps are melting, and sea levels are rising. The effects of these indicators include:

- **Greenhouse Gases** – Human activities have increased the emissions of greenhouse gases. As a result of the increase in emissions, average concentrations of heat-trapping gases in the atmosphere are also increasing.
- **Weather and Climate** – Average U.S. and global temperatures are increasing, while attributes of weather and climate, such as precipitation, drought, and tropical cyclone activity, are changing.
- **Oceans** – Average oceanic temperatures are increasing. Sea levels are rising around the world due to thermal expansion and increases from ice melt, and waters are becoming more acidic.

- **Snow and Ice** – Glaciers in the U.S. and around the world are generally shrinking, while snowfall and snow cover in the U.S. have decreased overall. The extent of the Arctic Sea ice is declining.
- **Health and Society** – Warmer temperatures and later fall frosts allow ragweed plants to produce pollen later into the year, potentially prolonging allergy season. The length of ragweed pollen season has increased at ten out of eleven locations studied in the central U.S. and Canada since 1995. The change becomes more pronounced from south to north. Additional impacts to health and society are the impacts of wildfire smoke exposure, heat-related illnesses, and the impacts to mental health following significant disaster incidents.
- **Ecosystems** – Many areas are experiencing earlier spring events, such as peak stream runoff and flower blooms. Bird migration patterns are changing, and wildland fire zone size has increased.

History

Climate change has occurred throughout the history of the planet. Due to variations in the earth's inclination to the sun, volcanic activity, and other factors such as asteroid impacts, the amount of solar radiation reaching the earth's surface rises and falls. The temperature of the planet correlates to the amount of solar radiation arriving at the surface and with it the climate.

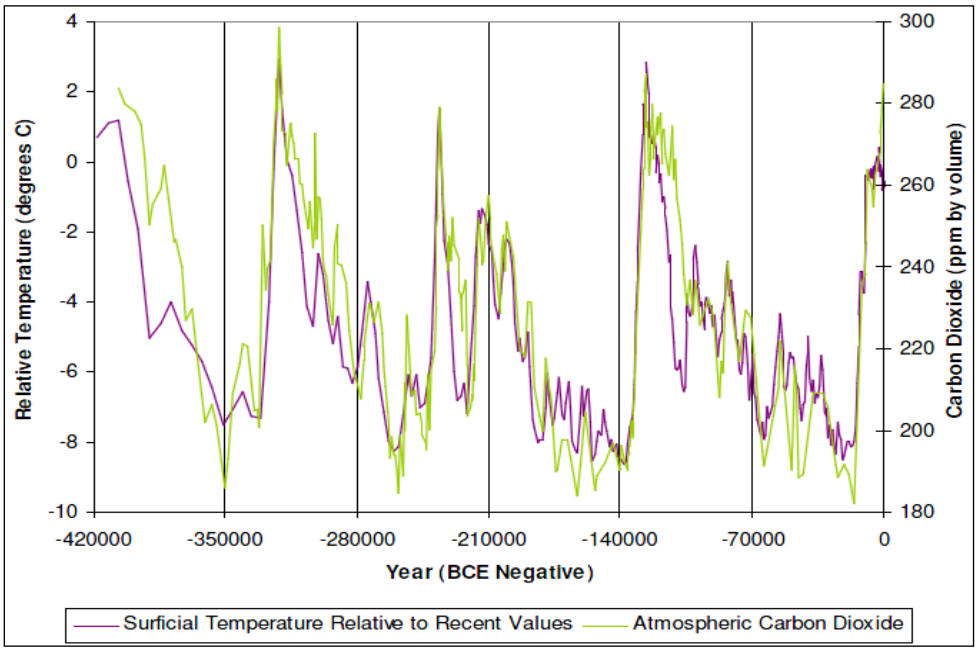
In relatively recent history, the last glacial period, popularly known as the Ice Age, occurred from c. 110,000 to 12,000 years ago. This most recent glacial period is part of a larger pattern of glacial and interglacial periods known as the Quaternary glaciation (c. 2,588,000 years ago to present). From this point of view, scientists consider this "ice age" to be merely the latest glaciation event in a much larger ice age, one that dates back over two million years and is still ongoing.

During this last glacial period, there were several changes between glacier advance and retreat. The Last Glacial Maximum, the maximum extent of glaciation within the last glacial period, was approximately 22,000 years ago. While the general pattern of global cooling and glacier advance was similar, local differences in the development of glacier advance and retreat make it difficult to compare the details from continent to continent. Generally, the pattern of temperature variation and glaciation has lagged atmospheric carbon dioxide (CO2) content. **Figure 4.1** depicts global variations during the past 400,000 years as a correlation between temperature and atmospheric CO2 content in part per million.[7]

Starting 22,000 years ago, the planet has slowly warmed and the glaciers retreated to high northern latitudes and mountains. In the last several decades of this period, human activity has likely led to a rapid increase in atmospheric CO2 and a matching rise in global temperature. The result has been that climate change may be accelerating.

[7] Hogg, A.M., 2008, Glacial cycles and carbon dioxide: A conceptual model. Geophysical Research Letters, 35, L01701

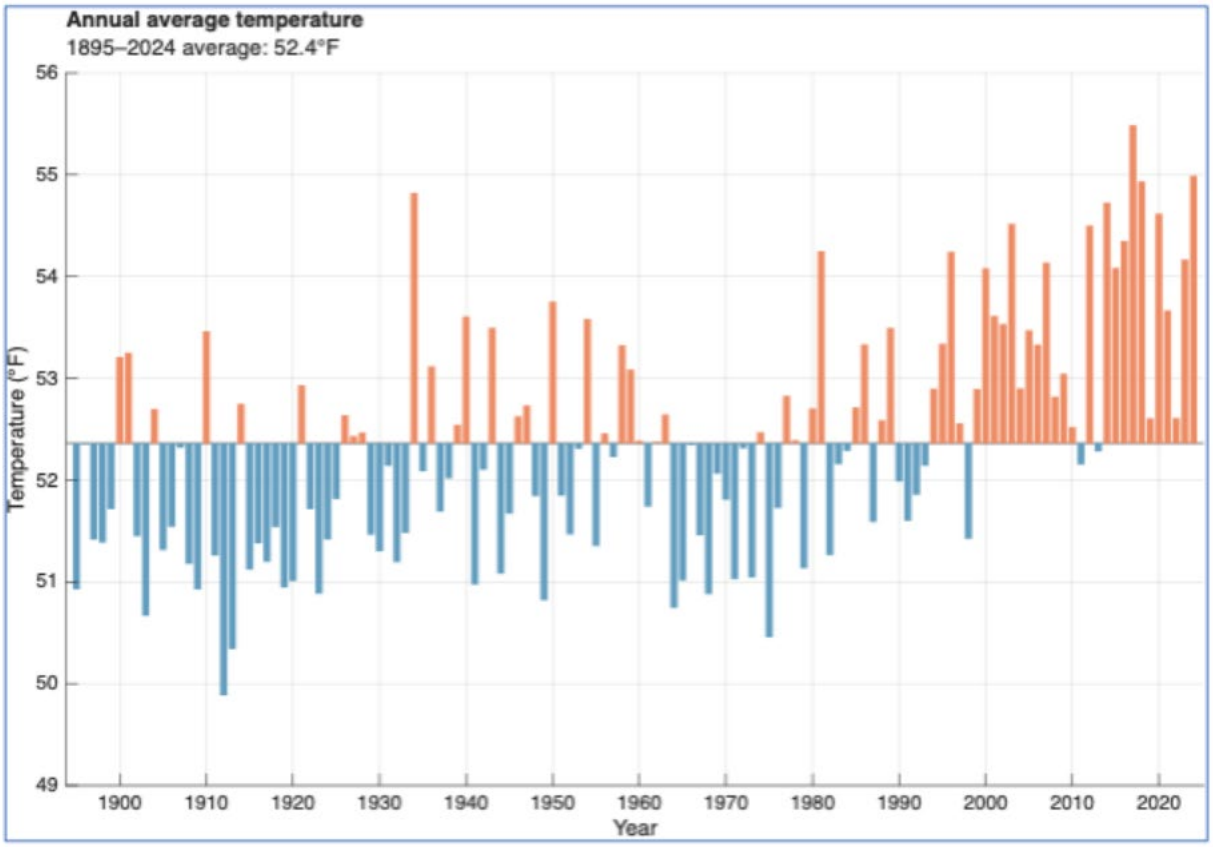
Figure 4.1: Temperature and Atmospheric CO2 Variation Past 400,000 Years



In the State of Arizona, temperatures have risen an average of 2.5 degrees Fahrenheit since the beginning of the 20th century, with the first 21 years of the century being the warmest on record for the state as seen in **Figure 4.2**. This has been paired with upward trends in average temperatures and extreme heat events, as well as a significant spike in average and extremely warm nights (which multiplies the impact of high heat events on organisms). In parallel, the seasonal monsoonal rains that feed regional snowpack and water supplies have reduced on average while taking on a more intense and sporadic form. The result is less overall water being deposited annually, more destructive rainfall events, and less capture of rainwater in snowpack, aquifers, and regional water systems. Regional snowpack in the Colorado River Basin alone has shown massive reductions, with reductions of 20-80% being observed in the areas surrounding Arizona's Coconino and Sitgreaves National Forests alone. As a result, though the region traditionally has extended wet and dry periods, water levels have reached historic lows as seen in **Figure 4.2**. What is even more concerning is that the region has not experienced an upward trend in the frequency of extreme precipitation events, like much of the rest of the country, that would otherwise partially ameliorate the situation. While current projections for rainfall are unclear, the combined result of these factors is expected to be an ongoing exacerbation of drought intensity during both dry and cool seasons.[8] These trends are reflected in specific studies that make projections for both Coconino County and the City of Flagstaff.[9]

[8] NOAA National Center for Environmental Information – State Climate Summaries 2022 - Arizona
[9] Climate Profile for the City of Flagstaff – University of Arizona CLIMAS 2018

Figure 4.2: Average annual temperatures for Coconino County 1895-2024[10]



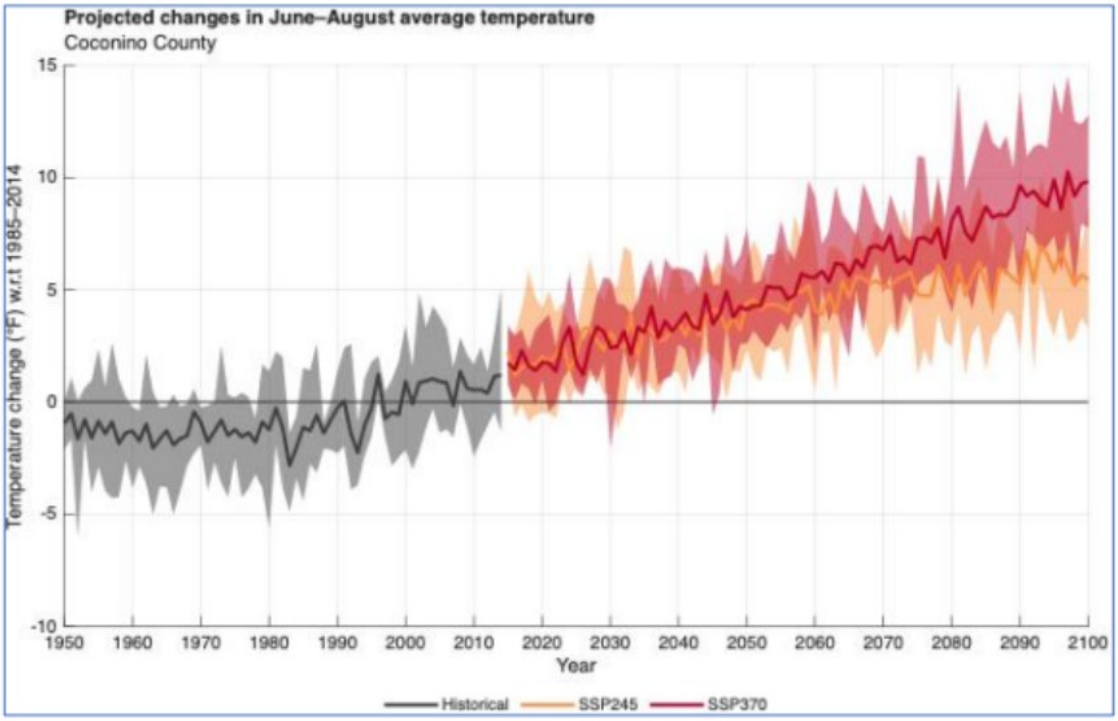
Regional research and reporting for the Southwest United States conducted by the University of Arizona[11] projects the following climatic changes:

- Continuation of warming trends, with longer and hotter heat waves in summer.
- Decreases in average precipitation in the southern Southwest, with a potential for stable or increased precipitation in the northern Southwest.
- Precipitation extremes in winter will become more frequent and intense.
- Late-season snowpack will continue to decrease
- Continued decline in river flow and soil moisture, with hotter, more severe, and frequent droughts
- Flooding will become more frequent and intense in some seasons and regions and less frequent and intense in others (this is expected to be determined by highly local storm mechanisms)

[10] Average Annual Temperature for Coconino County
[11] Assessment of Climate Change in the Southwest United States – University of Arizona

Figure 4.3: Model Projections of Average Temperature for Coconino County during June-August[12]

Figure A14: Downscaled model projections of average temperature for Coconino County during June–August.



Location

Warming and climate change are occurring globally with wide variations based on geography and latitude. The shared trend across regions has been general increases in temperature, more extreme weather events of greater size and scale, and a decrease in the accuracy of predictive models for these events. However, severity, extent of impacts, and capacity for adaptation are heavily dependent on regional ecosystem sensitivity and the tolerance range for environmental stressors of inhabitant species.

Extent

More widespread drought and associated crop failure, movement of invasive species, more frequent wildland fire, increased energy emergencies, and more intense climate events such as storms and extreme heat will occur throughout the County. Direct impacts are likely to include: [13]

- **Water Availability –** Increases in the need for water paired with reduction in supply. Rising temperatures accelerate evaporation, increasing demand for all human applications (particularly agriculture) while reducing overall availability due to insufficient recharge from precipitation and snowpacks. Earlier snowmelt further exacerbates the issue by reducing the water released during the hottest months with the greatest demand. While dams will continue to capture meltwater for

[12] Model Projections of Average Temperature for Coconino County during June-August
[13] EPA What Climate Change Means for Arizona

later use (though less than previously), upstream areas will encounter greater water scarcity – creating greater strain on ecosystems, fish, water-based recreation, and landowners.

- **Agriculture –** Increasing droughts and higher temperatures are likely to affect top agricultural products, cattle and lumber. Hot temperatures threaten cows' health and cause them to eat less, grow more slowly, and produce less milk. Livestock operations could also be impaired by fire, the lack of water, and changes in the landscape from grassland to woody shrubs more typical of a desert. Reduced availability of water would also create challenges for irrigated farms.
- **Wildland Fires and Changing Landscapes –** Higher temperatures and drought are likely to increase the severity, frequency, and extent of wildland fire, which could harm property, livelihoods, and human health. The combination of more fires and drier conditions may expand deserts and otherwise change parts of the County's landscape. Many plants and animals living in arid lands are already near the limits of what they can tolerate. A warmer and drier climate would generally extend deserts to higher elevations and expand their geographic ranges. In some cases, native vegetation may persist and delay or prevent expansion of the desert. In other cases, fires or livestock grazing may accelerate conversion of grassland to desert in response to a changing climate. For similar reasons, some forests may change to desert or grassland.
- **Pests –** Warmer and drier conditions make forests more susceptible to pests. Drought reduces the ability of trees to mount a defense against attacks from pests such as bark beetles, which have infested 100,000s of acres in Arizona. Temperature controls the life cycle and winter mortality rates of many pests. With higher winter temperatures, some pests can persist year-round, and new pests and diseases may become established.
- **Heat Hazards –** Hot days can be unhealthy, even deadly. Certain people are especially vulnerable, including children, the elderly, the sick, and the poor. High air temperatures can cause heat stroke and dehydration, and affect people's cardiovascular, respiratory, and nervous systems. Higher temperatures are amplified in urban settings where paved and other surfaces tend to store heat. Construction crews may have to increasingly operate on altered schedules to avoid daytime heat.
- **Air Quality –** As the climate changes, continued progress toward clean air will be more difficult. Rising temperatures can increase the formation of ground-level ozone, a key component of smog. Ozone has a variety of health effects, aggravates lung diseases such as asthma, and increases the risk of premature death from heart or lung disease. In addition, the increase in frequency and scale of wildfires will increase the exposure of populations to smoke and the toxins it can carry. This can further impair air quality and increase medical visits for chest pains, respiratory problems, and heart problems.
- **Tribal Community Impacts –** Changing the climate threatens natural resources and public health of tribal communities. Rising temperatures, flooding, and increasing drought are likely to decrease the availability of certain fish, game, and wild plants on which tribes have relied for generations. Water may be less available for domestic consumption, especially for those who are not served by either municipal systems or reliable wells who must haul water to meet daily needs. Degradation of the land itself may increasingly threaten roads, homes, and grazing areas.

Extreme heat may also create health problems for households without electricity – which is common in tribal areas.

Regulatory Context

The state of Arizona has enacted multiple laws that directly advance climate adaptation, with most having been adopted since 2020. However, the state has not developed or adopted a state-wide climate adaptation plan to guide such efforts. In 2024, the Governor established the Governor's Office of Resilience in part to coordinate and advance adaptation advocacy and initiatives.

Table 4-8 contains state-wide regulations and guidance for climate change.

Table 4-8: Statewide Climate Guidance

Resource Name	Sector(s) Covered	Date
The Clean Arizona Plan; Priority Climate Action Plan State of Arizona	All	2025
Coal Plant Securitization (HB 2679)	Energy policy and coal retirement	2025
Alternative Designation of 100-year Assured Water Supply	Water security	2024
Arizona Extreme Heat Preparedness Plan	Emergency preparedness.	2024
Energy Efficiency Resource Standards for Utilities Arizona Corporation Commission Docket E-00000V-19-0034	Building energy efficiency	2022
Healthy Soils Technical Assistance Program Authorizations (HB 2079)	Conservation districts and invasive species	2021
Arizona Statewide Transportation Electrification Plan	Transportation plans and targets	2021
Arizona Climate and Health Adaption Plan 2017	Public health	2017
Arizona Extreme Weather, Climate, and Health Profile Report	Public health, frontline communities	2015
Preliminary Study of Climate Adaption for the Statewide Transportation System in Arizona	Emergency preparedness, land use and built environment, transportation	2013

Resource Name	Sector(s) Covered	Date
Appliance and Equipment Efficiency Standards (ARS 44-1375)	Building Standards	2009
Clean Energy and Renewable Portfolio Standards (AAC 14-2-1801)	Energy policy	2007

In 2012 the City of Flagstaff was included in the Arizona Resiliency and Preparedness Study. In 2018, the City adopted its own Climate Action and Adoption Plan.

Probability of Future Events

Climate change is an ongoing occurrence. Essentially, it has occurred, is occurring and will continue to occur for several decades, centuries or longer. Climate change is ongoing. While individual impacts of climate change may be seen as discreet events such as drought or excessive heat, climate change is a continuous process.

Vulnerability

Table 4-9 captures the Planning Team's estimation of their jurisdictions' risk for this hazard.

Table 4-9: CPRI Rating for Climate Change

Jurisdiction	Probability 45%	Magnitude/Severity 30%	Warning Time 15%	Duration 10%	CPRI Score (Max 4.0)
Coconino County	4	4	1	4	**3.55**
Flagstaff	4	4	1	4	**3.55**
Fredonia	3	2	4	3	**2.85**
NAU	4	4	1	4	**3.55**
Page	1	1	4	4	**1.75**
Tusayan	4	4	1	4	**3.55**
Williams	4	3	1	4	**3.25**
County-wide average CPRI =					**3.15**

Loss Estimates

Losses from climate change are difficult to separate from the hazards that it exacerbates, such as drought, wildland fire and extreme heat. Losses associated with climate change induced severity and occurrence of these hazards can run into millions of dollars and result in injuries and fatalities.

More directly, the impacts of climate change can be expected to incur escalating costs on communities in terms of infrastructure upgrades, public infrastructure upgrades, public health interventions, emergency response, disaster recovery, environmental restoration, and public education.[14] Many of these costs require long-term and proactive investment. Key cost areas are likely to include:

- **Water Management**
    - Purchases of water during shortages, development of water scarcity management plans, and deployment of monitoring tools.
    - Upgrades of infrastructure to reduce water loss and increase capture/retention capability, as well as improvements to water and wastewater treatment system energy efficiency.
- **Energy Infrastructure**
    - Increased cooling costs for buildings, energy efficiency retrofits, upgrades of temperature control systems and heat reduction features in new and existing buildings.
    - Expansion of energy infrastructure to support increased day and nighttime demand, as well as the deployment of thermal and dust resistant parts to minimize mechanical failures.
    - Deployment of smart grid power flow control systems to minimize outages.
- **Built Environment Modifications**
    - Increased damage to roads, sidewalks, buildings, and subterranean infrastructure due to high temperatures and soil expansion and contraction dynamics.
    - Removal, relocation, acquisition, and/or demolition of private and public structures and infrastructure damaged by fire or flood.
    - Implementation of flood, fire, heat, and erosion mitigation measures, as well as the update of regulations and building codes to support risk reduction measures.
- **Wildfire Management**
    - Fire suppression, including staffing, equipment, and aviation.
    - Post-fire landscape rehabilitation and stabilization to prevent debris flows and erosion.
- **Public Health**
    - Expanded need to build, manage, staff, and supply cooling centers for longer periods; track high risk individuals; and deploy mobile crisis intervention services in affected communities.
    - Increased demand for publicly financed air conditioning and urban features that reduce temperatures in public spaces (i.e. trees, shade facilities, etc.).
    - Increased costs for prevention and treatment of vector and heat induced illnesses, exacerbated chronic illnesses, and water supply protection from algal blooms.

Developmental Trends

Climate change is accelerating. The effects of climate change will become more pronounced as the amount of atmospheric greenhouse gases increases and global temperatures continue to rise. The

[14] Climate Impacts and Costs - Center for Climate Integrity 2023

warming effect of greenhouse gases lags the actual increase in the amount released, meaning that a return to cooler temperatures will occur long after the maximum concentration of gases takes place and at a slower pace than the increase. Climate change will result in secondary effects to numerous hazards, in most cases increasing their severity or probability of occurring, or both. The effects will be experienced throughout the planning area and represent increased risk compared to the previous hazard mitigation plan.

4.3.3 Dam Failure

Description

A dam failure is the structural collapse of a dam that releases the water stored in the impounded reservoir. Dam failures usually result due to the age of the structure, inadequate spillway capacity used in construction, or structural damage caused by an earthquake or flood. When a dam fails, large quantities of water may be suddenly released with a great potential to cause human casualties, economic loss, physical damage, and environmental disruption – known as dam inundation. This type of disaster is especially dangerous because it can occur suddenly, providing little warning or evacuation time for the downstream communities. Flows resulting from dam failure generally are much larger than the capacity of the downstream channels and therefore lead to extensive flooding. Flood damage occurs as a result of the momentum of the torrent caused by sediment-laden water flooding over channel banks and the impact of debris carried by the flow. Impacts may be compounded by contaminants such as chemicals, sewage, and fuel, stored in ostensibly safe locations, that have been carried off in the flood. Long term impacts are similar to flooding events.

History

Dam failures are a rare event in Arizona, with only five major incidents on record. The County has an even more limited history of incidents. Its only recorded dam failure was a cattle water tank impounded by what was known as the Redlands Dam near the Grand Canyon. However, there was also a near miss that occurred at the Railroad Tank Dam.

- **Redlands Dam:** During August 16, 2008, heavy rain from thunderstorms over the Cataract Creek and Havasu Creek drainages caused flash flooding that started in the Village of Supai at approximately 11:30 PM MST. The flooding lasted several days and caused damage to homes in the Village of Supai. There was extensive damage to Havasu Canyon and the campground below the village. Many campers were stranded during the night in trees and on picnic tables. Approximately 426 people were evacuated by helicopter and there was significant damage to the landscape.[15] The Redlands Dam on Cataract Creek, miles upstream of the Village of Supai, breached during this incident and was initially assumed to have been the cause of flooding in Supai. However, the breach was later determined to be of little consequence to flooding in Supai. The National Weather Service stated they were alerted that the dam collapsed three hours after the major flood caused damage to the nearby campground.[16]

- **Railroad Tank Dam:** In 2023, snowmelt runoff placed the Railroad Tank Dam, outside Parks, at risk of failure, although no loss of structural integrity materialized.

[15] FEMA 2013, Federal Guidelines for Inundation Mapping of Flood Risks Associated with Dam Incidents and Failures
[16] New York Times, September 2, 2008, New Interest in Warning System After Grand Canyon Flood

Location

Based on the United State Army Corps of Engineers (USACE) National Inventory of Dams (NID) database, there are 45 dams in the County. Of the 45 dams, 13 are under federal jurisdiction and 32 are under state jurisdiction. Those under federal jurisdiction are owned and operated by federal agencies. Those under state jurisdiction are owned and operated by state departments, local jurisdictions, and private parties.

Dam inundation hazards extend downhill from a given dam and its associated spillways into a floodway. The floodway extends as far as the volume of water to be released is expected to extend and pool before rejoining a waterway, losing velocity, being captured in low terrain, or being absorbed into the ground.

In subsequent sections, **Figure 4.3** shows the locations of the dams in Coconino County, as captured in the NID, and **Figure 4.4** shows the select locations identified where inundation zones captured in FEMA flood maps significantly overlap with built areas, resulting in substantial hazard exposure. Dedicated inundation maps and modeling for significant and high-hazard dams are not yet universally developed or available. This is a future development goal and work in progress for the NID.

Regulatory Context

At the Federal level, the Flood Control Act of 1944 assigned responsibility for the development of numerous flood control dams by the federal government to USACE, which it subsequently owned and operated. This responsibility was expanded in 1972 by the National Dam Inspection Act (Public Law 92-367), which authorized USACE to inventory and inspect all federal dams and non-federal dams. This led to development of the Federal Guidelines for Dam Safety in 1979. During the same year, FEMA was established as a given authority to coordinate all dam safety efforts. The Water Resources Development Act of 1986 established the National Dam Safety Review Board and the NID. In 1996, the National Dam Safety Program was established by Congress, which reinforced and expanded support for dam safety. This program was reauthorized in 2006 and 2014 and further expanded in 2016 via the Water Infrastructure Improvement for the Nation Act. Today, FEMA coordinates whole of government safety programming while USACE retains regulatory jurisdiction over all federal dams - working with federal owning and operating agencies to ensure safety. USACE efforts are guided by standing agency policies and procedures.[17]

At the state level, Arizona Revised Statue Title 45 – Waters, Chapter 6, Article 1 – Supervision of Dams, Reservoirs, and Projects (§45-1201) assigns responsibility for safety oversight of non-federal dams to the Arizona Department of Water Resources (ADWR). Arizona Administrative Code Chapter 15, Article 12 establishes a state dam safety program and details specifications for dam safety in the state. Most notably, it specifies inspection frequency, emergency action plan (EAP) requirements, and design safety specifications. ADWR is empowered to identify safety deficiencies that may adversely affect safe operation of dams and enforce their redress. In 1988, the Arizona legislature established a Dam Repair Fund to be administered by ADWR for rehabilitating unsafe dams.

ADWR conducts field investigations and participates in flood mitigation programs with the goal of minimizing the risk of loss of life and property. Per regulatory requirement, ADWR regularly inspects non-federal dams at intervals dictated by each dam's downstream hazard potential classification. High hazard dams are inspected annually, significant hazard dams every three years, and low hazard dams every five years.

[17] FEMA Federal Guidelines for Dan Safety 2023; Congressional Research Service – Dam Safety Overview and the Federal Role (CRS Product R45981)

Extent

USACE utilizes a standardized system for classifying the downstream hazard of dams, as well as dam condition within the NID. **Table 4.10** and **Table 4.11** contain the definitions of these systems respectively.

Table 4-10: NID Downstream Hazard Classifications

Classification	Loss of Human Life	Economic, Environmental, Lifeline Losses
Low	None expected	Low and generally limited to owner
Significant	None expected	Yes
High	Probable. One or more expected.	Yes (but not necessary for this classification)

Note: *Hazard potential assesses the consequences of failure, not the probability of failure. ADWR additionally has a "Very Low" classification that reflects low likelihood and impacts that are limited to the property owner or within the 100-year floodplain. Select ratings are submitted by the state to NID.*

Table 4-11: Dam Condition Assessment Categories[18]

Rating	Definition
Satisfactory	No existing or potential dam safety deficiencies are recognized. Acceptable performance is expected under all loading conditions (static, hydrologic, seismic) in accordance with the minimum applicable state or federal regulatory criteria or tolerable risk guidelines. Typical circumstances: • No existing deficiencies or potentially unsafe conditions are recognized, with the exception of minor operational and maintenance items that require attention.
Fair	No existing dam safety deficiencies are recognized for normal operating conditions. Rare or extreme hydrologic and/or seismic events may result in a dam safety deficiency. Risk may be in the range to take further action. Note: Rare or extreme event is defined by the regulatory agency based on their minimum applicable state or federal criteria. Other circumstances include: • Lack of maintenance requires attention to prevent developing safety concerns • Maintenance conditions may exist that require remedial action greater than routine work and/or secondary studies or investigations. • Interim or permanent risk reduction measures may be under consideration

[18] National Inventory of Dams Data Dictionary – August 2024

Rating	Definition
Poor	A dam safety deficiency is recognized for normal operating conditions which may realistically occur. Remedial action is necessary. POOR may also be used when uncertainties exist as to critical analysis parameters which identify a potential dam safety deficiency. Investigations and studies are necessary. Other circumstances include: • Dam has multiple deficiencies or a significant deficiency that requires remedial work. • Lack of maintenance (erosion, sinkholes, settlement, cracking, unwanted vegetation, animal burrows, inoperable outlet gates) has affected the integrity or the operation of the dam under normal operational conditions and requires remedial action to resolve. • Critical design information is needed to evaluate the potential performance of the dam. • Interim or permanent risk reduction measures may be under consideration
Unsatisfactory	A dam safety deficiency is recognized as requires immediate or emergency remedial action for problem resolution. Typical Circumstances: • A critical component of the dam has deteriorated to unacceptable condition or failed. • A safety inspection indicates major structural distress (excessive uncontrolled seepage, cracks, slides, sinkholes, severe deterioration, etc.), advanced deterioration, or operational deficiencies which could lead to failure of the dam or its appurtenant structures under normal operating conditions. • Reservoir restrictions or other interim risk reduction measures are required. • A partial or complete reservoir drawdown may be mandated by the state or federal regulatory agency.

Note: *The NID also rates dams as Not Rated if the dam has not been inspected, is not under state or federal jurisdiction, or has been inspected but, for whatever reason, has not been rated. Not available is provided when the condition assessment is not provided.*

ADWR assigns dams state-specific safety ratings and classifies those they deem unsafe for rehabilitation. Examples of safety deficiencies include lack of an adequate emergency action plan (EAP), inability to safely pass the required Inflow Design Flood (IDF), embankment erosion, dam stability, etc. Unsafe dams are considered those with safety deficiencies in the dam or spillway that could result in failure with subsequent loss of human life or significant property damage. **Table 4-12** and **Table 4-13** summarize these systems.

Table 4-12: ADWR Dam Safety Categories

Safety Rating	Definition
No Deficiency	No safety deficiencies found.
Safety Deficiency	One or more conditions at the dam impair or adversely affect the safe operation of the dam.
Unsafe Non-emergency	Safety deficiencies in a dam or spillway could result in failure of the dam with subsequent loss of human life or significant property damage. Failure is not considered imminent.
Unsafe Non-emergency Elevated Risk	Safety deficiencies in a dam or spillway could result in failure of the dam with subsequent loss of human life or significant property damage. Concern the dam could fail during a 100-yr or smaller flood.
Unsafe Emergency	The dam is at an imminent risk of failure.

Table 4-13: ADWR Unsafe Dam Classifications[19]

ADWR Safety Rating	Definition
Category 1	Unsafe Dams with Elevated Risk of Failure
Category 2	Unsafe Dams Requiring Rehabilitation or Removal
Category 3	Unsafe Dams with Uncertain Stability during Extreme Events (Requiring Study)
Category 4	Unsafe Dams Pending Evaluation of Flood-Passing Capacity (Requiring Study)

Note: *The ADWR Dam Safety Ratings and Unsafe Dam Classifications are not publicly published.*

Available NID data for Coconino County indicates that, of its 45 dams, 16 or 36% meet the “high” or “significant” hazard classification. State and Federally regulated dams with this level of hazard are required to have an Emergency Action Plan (EAP). According to NID records, 14 or 88% of those with a “high” or “significant” hazard rating have an EAP prepared. These proportions have not changed since the last update to this plan. The US Army Corps of Engineers (USACE), which maintains the NID, is progressively working on integrating EAPs and dam inundation maps, where applicable, into the database.

Table 4-14 provides a summary of the hazard classifications of dams in the County while **Table 4-15** provides a detailed review of each dam. Dams with elevated risk characteristics have their relevant metrics highlighted in color. **Figure 4.3** shows the dam locations, their hazard classifications, and whether they fall under state or federal regulation. [20]

[19] AZDWR Dam Safety Frequently Asked Questions
[20] National Inventory of Dams (NID), Summary for Coconino County

Table 4-14: NID Hazard Classification of Dams

High	Significant	Low
13	3	29

Table 4-13 details the potential hazard level classification for each dam in Coconino County as estimated by NID. Their locations can be seen in **Figure 4.6.**

Table 4-15 NID Hazard Classification and Inspection Status of Coconino Dams

Dam Name	Location	Hazard	EAP*	Condition**	Owner
ASHURST LAKE	Sunrise	Low	No	Not Rated	AZ Game & Fish Dept.
BEAR CANYON	Winslow	Low	No	Not Rated	AZ Game & Fish Dept.
BIG ASO	Ash Fork	Low	No	Not Rated	Curt Wells
BIG SUPAI TANK	Williams	Low	No	Not Rated	Warren Smith Contracting Inc.
BROKEN TANK	Flagstaff	Low	No	Not Rated	3 Canyon Ranches
CANYON DIABLO	Leupp	Low	No	Not Available	Bureau of Reclamation
CC CRAGIN	Kinder Crossing	High	Yes	Not Available	N/A
CHEVELON CANYON	Winslow	Low	No	Not Rated	AZ Game & Fish Dept.
CITY	Williams	High	Yes	Satisfactory	City of Williams
CLAY AVENUE WASH DAM	Flagstaff	Low	No	Not Rated	US Army Corp of Engineers
COCONINO	Sunrise	Low	No	Not Rated	AZ Game & Fish Dept.
CONTINENTAL #1	Flagstaff	High	Yes	Satisfactory	Flagstaff Golf Maintenance Co.
CONTINENTAL #2	Flagstaff	High	Yes	Satisfactory	Continental Country Club
DOGTOWN	Williams	Significant	Yes	Fair	City of Williams
FOXBORO LAKE DAM	Indian Gardens	Low	No	Not Rated	USDA Forest Service

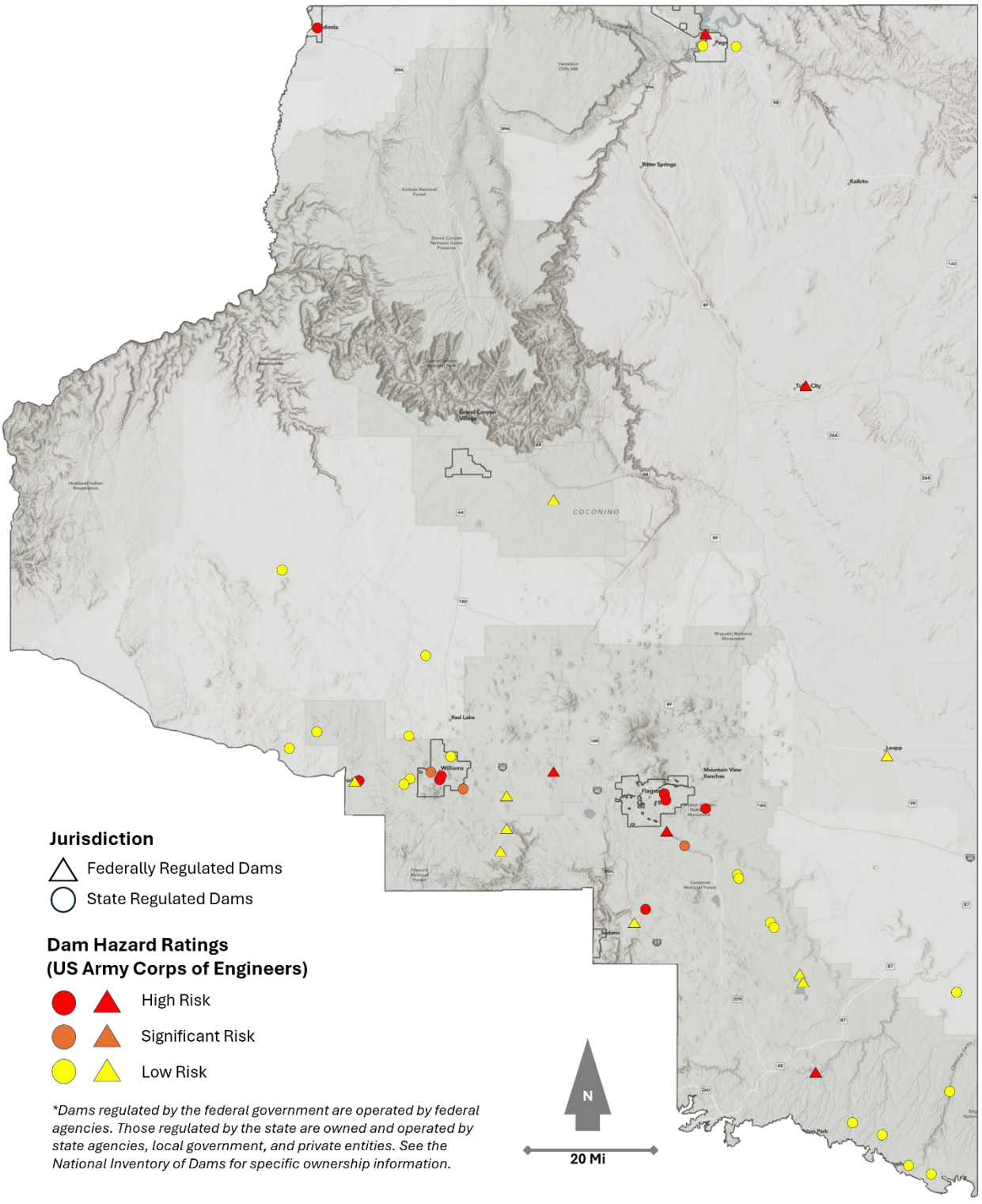
Dam Name	Location	Hazard	EAP*	Condition**	Owner
GLEN CANYON	Lees Ferry	High	Yes	Not Available	Bureau of Reclamation
KAIBAB	Williams	Low	No	Not Rated	City of Williams
KINNIKINICK	Two Guns	Low	No	Not Rated	AZ Game & Fish Dept.
KNOLL	Winslow	Low	No	Not Rated	AZ Game & Fish Dept.
LONG POINT DAM	Williams	Low	No	Not Rated	AZ State Land Dept
LOWER LAKE MARY	Flagstaff	High	Yes	Not Rated	USDA Forest Service
MASONRY #2	Ash Fork	High	Yes	Satisfactory	Ash Fork Water Services
MCLELLAN	Ash Fork	Low	No	Not Rated	McLellan Lake Properties, Inc.
MORTON	Two Guns	Low	No	Not Rated	Flying M. Land & Cattle Co.
NAVAJO EVAP POND	Page	Low	No	Not Rated	Salt River Project
NUMBER 10 TANK	Flagstaff	Low	No	Not Rated	AZ State Land Department
ODELL	Munds Park	High	Yes	Poor	Pinewood Country Club
PAGE EFFLUENT PONDS	Page	Low	No	Not Rated	City of Page
RAILROAD TANK DAM	Parks	High	No	Not Rated	USDA Forest Service
RUSSELL TANK DAM	Supai	Low	No	Not Rated	USDA Forest Service
SANTA FE	Williams	High	Yes	Satisfactory	City of Williams
SCHOLZ DAM	Parks	Low	No	Not Rated	USDA Forest Service
SOLDIER ANNEX DAM	Two Guns	Low	No	Not Rated	USDA Forest Service

Dam Name	Location	Hazard	EAP*	Condition**	Owner
STEEL DAM	Ash Fork	Low	No	Not Rated	USDA Forest Service
SWEETWOOD (K4)	Williams	Low	No	Not Rated	Perrin Ranch LLC
TOM TANK	Williams	Low	No	Not Rated	AZ State Land Dept.
TREMAINE RESERVOIR	Two Guns	Low	No	Fair	USDA Forest Service
UPPER LAKE MARY	Flagstaff	Significant	Yes	Satisfactory	City of Flagstaff
WALNUT CANYON	Winona	High	No	Poor	Warren and Joan Smith
WEST CATARACT CREEK	Williams	Significant	Yes	Fair	City of Williams
WHITEHORSE DAM	Williams	Low	No	Not Rated	USDA Forest Service
WILLOW SPRINGS	Winslow	Low	No	Not Rated	AZ Game & Fish Dept.
WOODS CANYON	Winslow	Low	No	Not Rated	AZ Game & Fish Dept.

*This column identifies if an Emergency Action Plan (EAPs) has been prepared and approved.

**An Association of State Dam Safety Officials Performance Report from 2022 for Arizona indicates that state reporting of dam condition to the NID is optional and generally limited to dams with high hazard rating – reporting the condition of both high and significant hazard dams is above average engagement.

Figure 4.3: USACE NID Dam Hazard Potential Map for Coconino County [21]



[21] National Inventory of Dams; Coconino County Hazard Explorer

Probability of Future Events

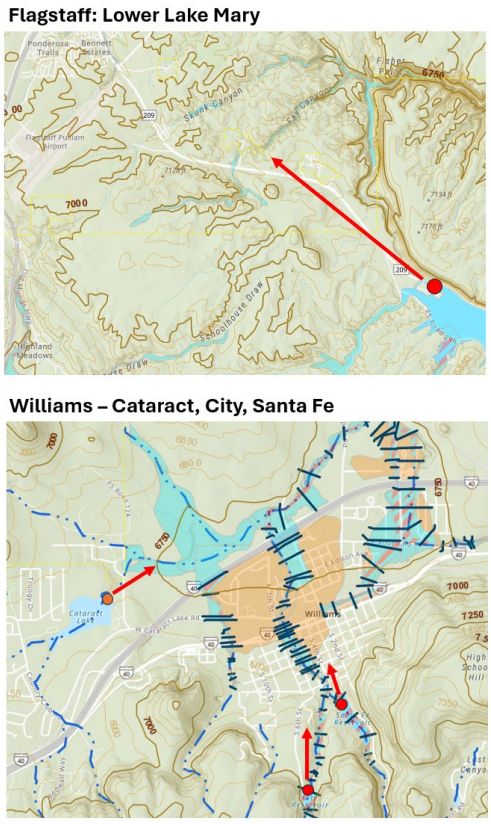
Dam failure is an extremely rare event with a likelihood of occurring less than one percent annually. The National Risk Index has no estimates for this hazard.

Vulnerability

Dam failure and inundation tend to be low probability, high impact threats due to the adjacence of dams, lakes, and water reservoirs to populated areas; the limited notice available prior to hazard event occurrence, and the immense force generated by rapidly moving waters. Communities and populations notably vulnerable to these hazards are those that fall within projected floodways and inundation areas, who occupy lightly constructed or mobile structures, do not have access to vehicles for evacuation, and have extenuating circumstances that may interfere with receipt of, or action on, emergency alerts and notifications (e.g. those experiencing homelessness, without cell phones, or who have access and functional needs).

A review of existing Coconino County Floodplain data reveals notable dam failure and inundation hazard exposures in Williams and Flagstaff (shown in **Figure 4.4**). In the broader County, there are multiple smaller concentrations of exposure in communities such as Munds Park, Bellflower, and Lake Mary – but most rural exposures are notional without detailed inundation analysis. A final notable threat is posed by the Glen Canyon Dam which, if breached, would likely bypass Page while causing extensive, catastrophic, impacts many miles downstream. This hazard requires focused and specialized analysis.

Figure 4.4: Select High Risk and Exposure Dam Inundation Areas[22]



[22] Coconino County Floodplain Inquiry Map

NOTE: These maps are drawn from FEMA floodplain data, which shows general flooding behavior – which does not necessarily reflect dam inundation behavior. In such an event, one can expect flows from the breached areas to be broader and affect more areas outside the depicted flood area in alignment with the face of the dam or spillway that would be breached.

Table 4-15 captures the Planning Team's estimation of their jurisdictions' risk for this hazard.

Table 4-15: CPRI Rating for Dam Failure

Jurisdiction	Probability 45%	Magnitude/Severity 30%	Warning Time 15%	Duration 10%	CPRI Score (Max 4.0)
Coconino County	2	3	3	4	**2.65**
Flagstaff	-	-	-	-	**-**
Fredonia	1	3	3	4	**2.2**
NAU	1	1	1	1	**1**
Page	1	1	4	4	**1.75**
Tusayan	1	4	3	4	**2.5**
Williams	1	2	3	3	**1.8**
County-wide average CPRI =					**1.98**

Loss Estimates

In 2015, only four dams had a delineated inundation limit downstream of the dam associated with dam failure. Based on this information, the results of this analysis are expected to underestimate the vulnerability of people and infrastructure within the County.

For example, no dam failure inundation limits were provided for Glen Canyon Dam (GCD) on the Colorado River near Page. However, a failure of the GCD would be catastrophic. The flood wave from such an event would likely cause the Hoover Dam downstream to fail and flood thousands of properties on its way down to the Gulf of California. To replace both GCD and the Hoover Dam would cost in excess of $36 billion and the economic losses as a result of lost water and power to the states benefitting from the Colorado River Storage Project would have a significant impact on the economy of the nation.[23] In the immediate aftermath of such a failure, communities surrounding GCD would experience severe endangerment of potable water supplies due to the proximity of GCD to the potable water pipeline, which runs from Roaring Springs to Grand Canyon Village. This will add additional pressure to surrounding jurisdictions such as Tusayan if an event requires water assistance provision.

Since no common methodology is available for obtaining losses from the exposure values, estimates of the loss-to-exposure ratios were assumed based on the perceived potential for damage. Any storm event, or series of storm events of sufficient magnitude to cause a dam failure scenario, would have potentially catastrophic consequences in the inundation area. Flood waves from these types of events travel very fast and possess tremendously destructive energy due to the debris of the entrain. Accordingly, an

[23] TriData, 2005

average event-based loss-to-exposure ratio for the inundation areas with a high hazard rating is estimated to be 0.25. Low rated areas are zero.

The Planning Team recognizes that the probability of a dam failure occurring on multiple (or all) structures at the same time is essentially zero. Accordingly, the loss estimates presented below are intended to serve as a collective evaluation of the potential exposure and losses to dam failure inundation events.

In 2015, $4.2 million in asset related losses were estimated for dam failure inundation for all the participating jurisdictions in the County. An additional $52.2 million in losses to HAZUS defined residential, commercial, and industrial facilities was estimated for all participating jurisdictions. With inflation and the inevitable increase in development in Coconino, this number has likely increased. Regarding human vulnerability, it had previously been calculated that 1.96% of the total County projected population is potentially exposed to a dam failure inundation event. Given the steady increase in County population projections from 2019-2025, this estimate has risen from 2,812 people (2015) to 2,845 people (2024). The potential for deaths and injuries is directly related to the warning time and type of event. Given the magnitude of such an event(s), it is realistic to anticipate at least one death and several injuries. There is also a high probability of population displacement for inhabitants within the downstream inundation limits of the dam(s).

Development Trend Analysis

Dam failure places downstream populations at risk. In addition to the flow of water released from the reservoir, the inundation stream picks up large debris which results in a scouring effect that compounds damage. The flood protection afforded by dams in the County has encouraged development of lands immediately downstream of the structures. This has been accelerated in multiple participating jurisdictions (particularly Flagstaff and Williams) where population and economic growth are significantly raising demand for housing development. However, prohibition of development in at-risk areas is often not feasible. Instead, public awareness measures such as notices on final plats and public education on dam safety are mitigation efforts employed by local county and city/town officials. Also, EAPs that establish potential dam failure inundation limits, notification procedures, and thresholds are also prepared for response to potential dam related disasters.

The rapid, ongoing spike in development are also posing risk and costs on dam owners known as “hazard creep”. This is where a dam originally constructed and operated as “low” or “significant” hazard gets reclassified to high hazard due to new downstream development. This shift triggers a significant increase in building design and maintenance requirements – requiring the owner to retrofit the dam or remove it at their own expense. To counter this, ADWR provides reclassified dams, that are considered unsafe, opportunities to get grants and loans form the state Dam Repair Fund.[24]

4.3.4 Drought

Description

Drought is an extended period of years when a region is deficient in its water supply or consistently receives below average precipitation. Drought patterns in the West are related to large-scale climate patterns in the Pacific and Atlantic oceans, such as the El Niño–Southern Oscillation in the Pacific, and the Atlantic Multidecadal Oscillation in the Atlantic. As these large-scale ocean climate patterns vary in relation to each other, drought conditions in the U.S. shift from region to region.

Drought is a normal part of virtually every climate on the planet, including areas of high and low rainfall. It is different from normal aridity, which is a permanent characteristic of the climate in areas of low rainfall. Drought is the result of a natural decline in the expected precipitation over an extended period of time,

[24] AZDWR Dam Safety Frequently Asked Questions

typically one or more seasons in length. The severity of drought can be aggravated by other climatic factors, such as prolonged high winds and low relative humidity.

Drought is a complex natural hazard which is reflected in the four definitions commonly used to describe it:

- **Meteorological –** Drought is defined solely on the degree of dryness, expressed as a departure of actual precipitation from an expected average based on monthly, seasonal, or annual time scales.
- **Hydrological –** Drought is related to the effects of precipitation shortfalls on stream flows and reservoir, lake, and groundwater levels.
- **Agricultural –** Drought is defined principally in terms of naturally occurring soil moisture deficiencies relative to water demands of plant life, usually arid crops.
- **Socioeconomic –** Drought associates the supply and demand of economic goods or services with elements of meteorological, hydrologic, and agricultural drought. Socioeconomic drought occurs when the demand for water exceeds the supply as a result of weather-related supply shortfall.

Drought severity is determined by numerous factors including duration, intensity, and geographic extent as well as regional water supply demand from humans and vegetation. This multi-dimensional nature makes drought difficult to define in exact terms and poses difficulties in terms of comprehensive risk assessments.

Drought differs from other natural hazards in three ways. First, the onset and end of a drought are difficult to determine due to the slow accumulation and lingering effects of an event after its apparent end. Second, the lack of an exact and universally accepted definition adds to the confusion of its existence and severity. Third, in contrast with other natural hazards, the impact of drought is less obvious and are often spread over an extremely large geographic area. These characteristics have hindered the preparation of drought contingency or mitigation plans by many governments.

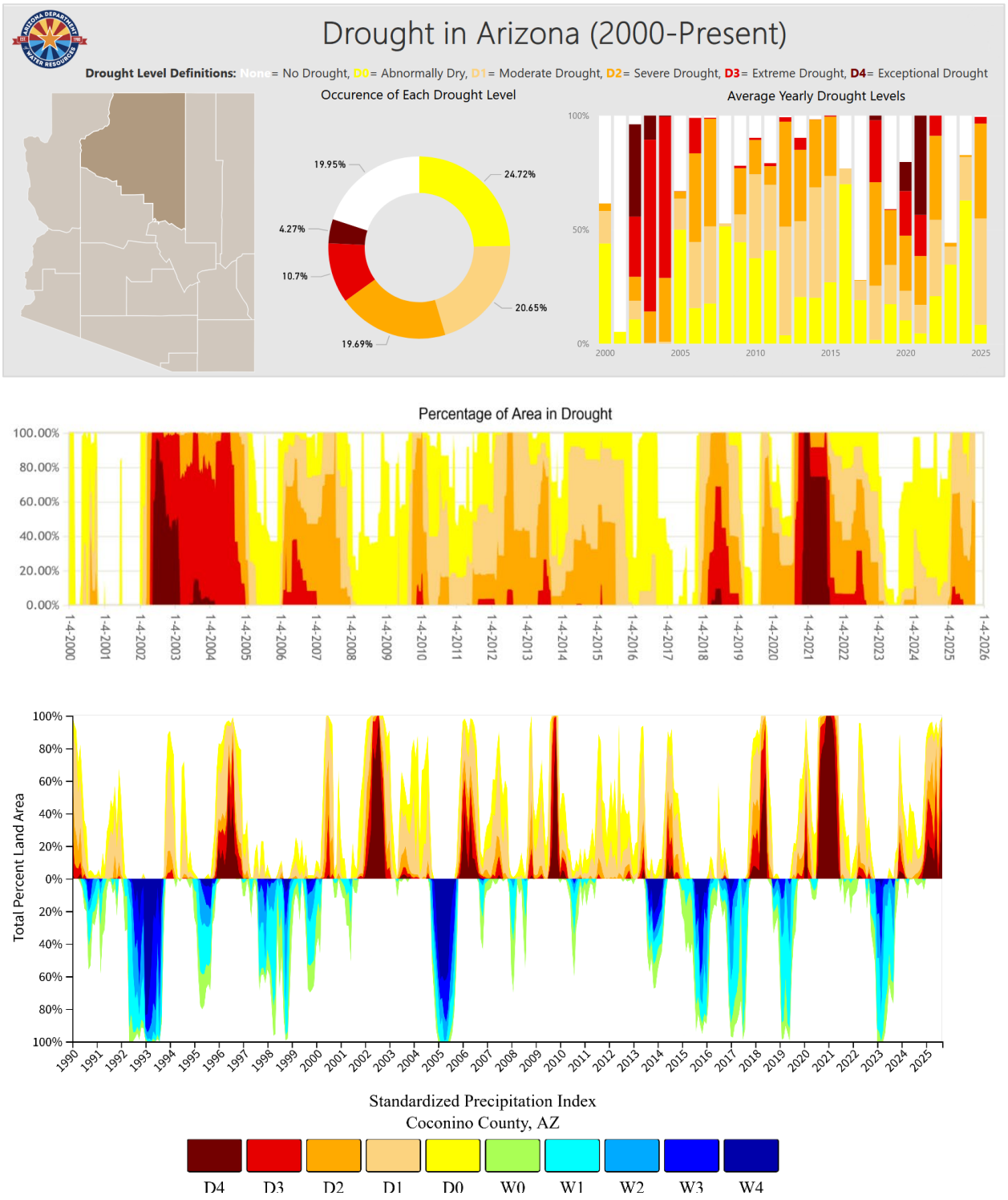
History

Arizona has experienced multiple severe and sustained droughts declared as emergencies/disasters. Prolonged droughts occurred from 1995-1905 and then again from 1941-1965. A third, which started in the 1990s, is currently ongoing. The standing Governor's drought emergency declaration has been regularly renewed since its issuance in June 1999, along with a Drought Declaration effective since May 2007.[25]

Since 2000, the longest duration of drought (D1-D4) in Arizona lasted 512 weeks beginning on August 18, 2009, and ending on June 4, 2019. The most intense periods of drought occurred in July 2002 and November-December 2021 where D4 affected 96.69% and 100% of Arizona land respectively. **Figure 4.8** depicts the duration and severity of droughts from 2000 through 2020. From 1994-2025, there have been more months and years with below normal precipitation than months/ years with above normal precipitation. Historical droughts have lasted up to 60 years, with reduced streamflow lasting an average of 25 years.[26]

[25] AZDWR Drought Interagency Coordination Group; Drought Emergency Declaration PCA 99006; Drought Declaration Executive Order 2008-10
[26] State of Arizona Hazard Mitigation Plan 2023

Figure 4.8: Coconino Drought and Precipitation History (2000-2025)[27]



[27] AZDWR Drought Dashboard; US Drought Monitor – Coconino County, AZ; NOAA NIDIS – Coconino County

Location

Arizona is particularly susceptible to drought due to its arid conditions and low precipitation patterns. All of the County is susceptible to drought.

Extent

Drought produces a variety of impacts that span many sectors of the economy such as reduced crops, rangeland, hydropower, and forest productivity; increased wildfire hazard; reduced water levels; increased livestock and wildlife mortality; increased dust storms; and water rationing are a few examples of direct impacts. These problems can reduce income for farmers and agribusiness; increase prices for food, lumber, and potable water; expand unemployment; cause public health outbreaks; reduce tax revenues, increase social and political conflict and crime; spur migration; and lead to bank loan foreclosures for farmers and businesses. If such conditions persist for several years, the economy and population of the County could experience significant declines – especially in water-intensive industries such as agriculture.

Sustained drought conditions will also have secondary impacts to other hazards such as fissures, flooding, subsidence and wildland fire. Extended drought may weaken and dry the grasses, shrubs, and trees of wildland fire areas, making them more susceptible to ignition. Drought also tends to reduce the vegetative cover in watersheds and hence decrease the interception of rainfall and increase the flooding hazard. Subsidence and fissure conditions are aggravated when lean surface water supplies force the pumping of more groundwater to supply the demand without the benefit of recharge from normal rainfall.

The long-term regional impacts of prolonged and intensive drought also include complex effects on the vitality and function of natural systems. Natural systems support human ones by providing the resources and biodiversity necessary to support life and the complex demands of human activities such as agriculture. The capacity of natural systems to endure stressors is based on an ecosystem's ecological resilience. While arid biomes like Arizona tend to have greater resilience to drought due to ongoing evolutionary adaptation to prevalent conditions and historical drought events, extended and exacerbated droughts are multiplying the effect of existing environmental damage and competing resource demand from humans with catastrophic effect. This is particularly true as deeply resilient systems, such as the water cycle of the Colorado River Basin (which includes all of Arizona) where the primary source of water, snowpack, is being reduced by climate change while its deep natural reserves, aquifers, are steadily strained beyond their natural recharge rates, contaminated, and depleted beyond functional recovery. The ultimate effect of such system breakdown is desertification – where the combination of climate change and biodiversity loss create a positive feedback loop of land degradation that can steadily transform arid land into desert.[28]

There is no commonly accepted return period or non-exceedance probability for defining the risk from drought (such as the 100-year or 1% annual chance of flood). The magnitude of drought is usually measured in time and the severity of the hydrologic deficit. There are several resources available to evaluate drought status and even project very near future expected conditions.

Drought is classified by a variety of indices and categories. **Figure 4.9** below depicts three that are widely used. It contains severity classification ranges for each indicator for each dryness level. Because the ranges of the various indicators often do not coincide, the final drought category tends to be based on what the majority of the indicators show and on local observations.

The Standardized Precipitation Index is a widely used tool to categorize drought in terms of soil moisture at short scales and groundwater or reservoir storage in the long term. It is effective for cross-regional comparison because it is calculated by determining the number of standard deviations that observed precipitation differs from the long term mean for an area. However, it is limited in its ability to reflect all

[28] Desertification in the US; Univ. of Arizona – Study finds humans outweigh climate in depleting Arizona's water supply

the dynamics of drought, relies solely on precipitation data, and does not integrate considerations for temperature, runoff, streamflow, and water availability.[29]

The Palmer Drought Severity Index (PDSI) is a commonly used index that measures the severity of drought for agriculture and water resource management. It is calculated from observed temperature and precipitation values to estimate relative dryness. It is a standardized index that generally spans -10 (dry) to +10 (wet). Maps of operational agencies like NOAA typically show a range of -4 to +4, but more extreme values are possible. The PDSI has been reasonably successful at quantifying long-term drought. However, due to its simplicity, the Palmer Index does not reflect all the variables of drought and loses accuracy in areas reliant on water supplies from snowpack. The US Drought Monitor accounts for this by integrating additional variables into its drought category classification.[30]

Figure 4.9: National Drought Mitigation Center Drought Severity Classifications

Drought Severity	Return Period (years)	Description of Possible Impacts	Drought Monitoring Indices		
			Standardized Precipitation Index (SPI)	NDMC* Drought Category	Palmer Drought Index
Minor Drought	3 to 4	Going into drought; short-term dryness slowing growth of crops or pastures; fire risk above average. Coming out of drought; some lingering water deficits; pastures or crops not fully recovered.	-0.5 to -0.7	D0	-1.0 to -1.9
Moderate Drought	5 to 9	Some damage to crops or pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing or imminent, voluntary water use restrictions requested.	-0.8 to -1.2	D1	-2.0 to -2.9
Severe Drought	10 to 17	Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed.	-1.3 to -1.5	D2	-3.0 to -3.9
Extreme Drought	18 to 43	Major crop and pasture losses; extreme fire danger; widespread water shortages or restrictions.	-1.6 to -1.9	D3	-4.0 to -4.9
Exceptional Drought	44+	Exceptional and widespread crop and pasture losses; exceptional fire risk; shortages of water in reservoirs, streams, and wells creating water emergencies.	less than -2	D4	-5.0 or less

Regulatory Context

In 2003, Governor Janet Napolitano created the Arizona Interagency Drought Task Force, led by ADWR, which developed the Arizona Drought Preparedness Operational Plan and Water Conservation Strategy. The plan includes criteria for determining both short and long-term drought status for each of the 15 major watersheds in the state using assessments that are based on precipitation and stream flow. The plan also established a Drought Interagency Coordinating Group, which reports to the Governor on drought status, in addition to local drought impact groups in each county and the State Drought Monitoring Technical Committee. The Interagency Coordination Group identifies drought mitigation and adaptation measures, review and update the Plan, and advise the Governor on the need for drought declarations. It also develops the Arizona Drought Preparedness Annual Report. Counties use these reports to identify and implement drought management actions in their drought plans. The State Drought Monitoring

[29] NSF NCAR Climate Data Guide – Standardized Precipitation Index
[30] EPA Technical Documentation: Temperature and Drought in the Southwest

Technical Committee uses the Standardized Precipitation Index (SPI) for the short-term drought status and a combination of the SPI and streamflow for the long-term drought status.[31]

The National Integrated Drought Information System (NIDIS) Act of 2006 (Public Law 109-430) prescribes an interagency approach for drought monitoring, forecasting, and early warning (NIDIS, 2007). The NIDIS maintains the U.S. Drought Portal, which is a centralized, web-based access point to several drought related resources including the U.S. Drought Monitor (USDM) and the U.S. Seasonal Drought Outlook (USSDO).

In response to the expanding challenges of drought and its impact on water supplies throughout the state, a diverse and evolving array of laws, regulations, and executive orders have been implemented to regulate state water supplies and groundwater extraction. Notable examples include the1980 Groundwater Management Act and Arizona Administrative Code's requirement for municipal water providers to develop drought response plans to guide water supply system management during supply shortages. In 2023 the Governor established a Water Policy Council, chaired by the Arizona Department of Water Resources, to provide policy guidance for updating water stewardship. This group contributed to development and passage of SB 1611 in June 2025, which established a credit program that incentivizes lower water-intensive uses of agricultural land, aquifer protection, and supports housing development.[32]

Probability of Future Events

The County has experienced drought conditions ranging from abnormally dry to extreme drought over the past five years as winter storms sweep across the northern third of the state one year then stay north of the state in other years, leaving large precipitation deficits. While the current 32-year drought is longer than the 16-year wet period that preceded it, it is still shorter than the 37-year drought of the mid-20th century. There are no trends or other indicators that the drought will end soon.

Drought in northern Arizona is generally characterized by extreme variability in precipitation from year-to-year. However, with Arizona winters warming substantially over the last 30-40 years, it can be expected that coming years will trend towards less than average precipitation, lower soil moisture profiles, reduced reservoir recharge, higher than average snow, and earlier spring runoff – all adding to long term drought conditions. Climate change is expected to exacerbate this dynamic by increasing the variability in precipitation and extreme temperatures while causing longer and more frequent droughts.[33]

Vulnerability

Vulnerability to drought is heavily predicated by the likely severity of drought events, the resilience of local ecological systems to them, and the availability of clean and cost-effective water supplies for human use. While Coconino County has universal exposure to drought conditions, its higher elevation and extensive natural infrastructure have generally reduced the severity of drought events. However, water supplies have become increasingly sparse and the increasing demand of growing populations in developed areas strains existing supply while increasing competition with agricultural activity. Virtually all participating jurisdictions in this plan have identified the securing of expanded and renewable water sources as a key strategic goal. The infrastructure that secures and provides these supplies (canals, aqueducts, dams, pipelines, reservoirs) are vulnerable to natural hazard events such as earthquakes and wildfires and have previously been impacted by them to the detriment of the local water supply for extended periods (months and years). Loss of critical supplies due to these hazard events could significantly exacerbate the impacts of severe droughts if they occur concurrently. The effects of climate change in terms of increasing dryness, ambient temperatures, reduced natural water supply, and

[31] Arizona Drought Preparedness Plan; AZ DICG Fact Sheet ; Arizona Drought Preparedness Annual Report
[32] Arizona Administrative Code Title 12, Ch. 13; Executive Order 4 – Water Policy Council; AZDWR Ag-to-Urban
[33] Arizona Drought Preparedness Annual Report 2024

progressive loss and/or transformation of regional ecology can only be expected to increase County-wide vulnerability.

A number of communities and populations are disproportionately impacted by drought. These include rural populations with limited water supply options, tribal nations, high poverty communities, low-income households, and communities reliant on income or sustenance from agricultural activity. Extended periods of drought can additionally have significant impacts on businesses and individuals reliant on the tourist industry due to decreases in visitation.

When attempting to evaluate the vulnerability of the County to drought, it is helpful to remember that potable water in the County is derived from surface, ground, and reclaimed water.

Surface water to the County usually comes from several sources such as the Colorado River, (stored in Lake Powell near Page), small lakes in the Lake Mary area serving the Flagstaff area, and Cataract Creek in Williams. This surface water is a major renewable resource for the County, but can vary dramatically between years, seasons, and locations due to the state's desert climate.

Groundwater is the other primary water source in the County obtained by drilling wells and pumping from large subsurface natural reservoirs known as aquifers. While a significant supply of water remains stored in the aquifers, groundwater has historically been pumped out much more rapidly than it can be replenished through natural recharge and has led to a condition known as overdraft. Furthermore, ground water depths on the Colorado Plateau range from 2,000 feet to over a mile deep.

Reclaimed water, or effluent, is another source of water in the County and is the only increasing source of water in the County, although it constitutes only a small amount of the overall water used. As the regional population grows, increasing amounts of reclaimed water will be available for agricultural, golf course, and landscape irrigation, as well as industrial cooling and maintenance of wildlife areas.

Table 4-16 captures the estimated risk of participating jurisdictions for this hazard.

Table 4-16: CPRI Rating for Drought

Jurisdiction	Probability 45%	Magnitude/Severity 30%	Warning Time 15%	Duration 10%	CPRI Score (Max 4.0)
Coconino County	4	3	1	4	**3.25**
Flagstaff	4	3	1	4	**3.25**
Fredonia	2	1	1	4	**1.75**
NAU	4	3	1	4	**3.25**
Page	4	2	1	4	**2.95**
Tusayan	4	4	1	4	**3.55**
Williams	4	4	1	4	**3.55**
County-wide average CPRI =					**3.08**

Loss Estimates

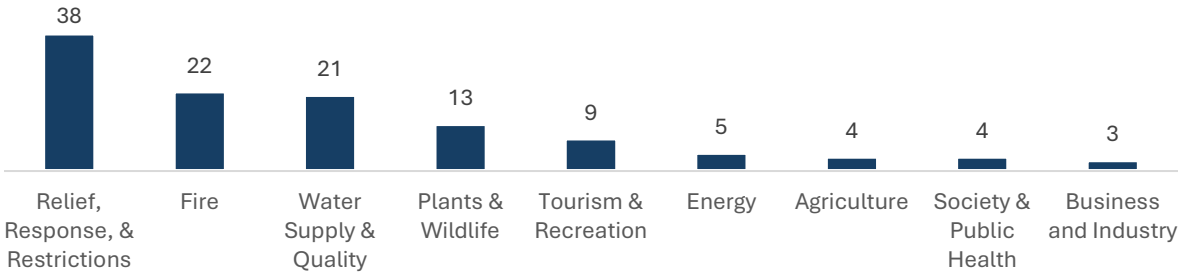
No standardized methodology exists for estimating losses due to drought and drought does not generally have a direct impact on critical and non-critical facilities and building stock. A direct correlation to loss of human life due to drought is improbable for the County in the hazard's current form. Instead, drought vulnerability is primarily measured by its potential impact to certain sectors of the County economy and natural resources, particularly crop and livestock agriculture, municipal and industrial water supply, recreation/tourism, and wildlife and wildlife habitat.

Existing standardized risk assessment tools provide limited assistance in loss estimation effort due to limited data and methodology, resulting in severe underestimation (ex: the National Risk Index solely focuses on crop exposure and impact – estimating $799 in annualized losses based on SHELDUS system estimates).

A very loose indicator of drought impacts is the volume of USDA disaster payments received by local farmers and ranchers. From 1994-2024, County farmers and rancher received just over $30.8 million in disaster related assistance from the U.S Department of Agriculture (USDA) for crop and livestock damage and impact relief (which includes $3.9 million for COVID-19 relief).[34] Based on this data, Non-COVID annualized disaster agricultural assistance grew from approximately $2.18 million during 2014-2020 to $2.225 million during 2021-2025.[35]This reflects the steadily growing frequency of disasters and their impacts on agriculture, which is likely to be reflected in drought-specific impacts and related hazards being exacerbated by climate change (heat, wildfire, etc.).

The National Drought Mitigation Center's tracker of drought impacts for Coconino County captures a total of 111 drought impact events across multiple categories since 1996 (its earliest records). Of these, a just under a quarter (20) occurred from 2015-2019 and just under half (50) occurred from 2020-2025. The distribution of impacts and categories can be seen in **Figure 4.10**.[36]

Figure 4.10: NDMC Drought Impact Reporter Dashboard – Coconino Impact Events (2020-2025)



**Note: This data set solely represents the frequency of events and does not represent magnitude of impact or cost.*

Developmental Trends

In addition to the increasing impacts of climate change, shifts in agriculture and development are generating additional drought vulnerability and risk at local, county, and regional scales. Industrial agriculture activities throughout the state have seen a recent increase in water-intensive activities that are drawing heavily from major aquifers (e.g. tree nuts, alfalfa, and mega-dairies), partially in connection to a spike in foreign land purchases.[37] This trend is exacerbating ongoing concerns regarding the impact

[34] EWG Farm Subsidy Database
[35] Prior iterations of the MJHMP citing the same source noted provision of $13.1M (2014-2020) and $18M (1995-2020)
[36] NDMC Drought Impact Reporter Dashboard – Coconino, AZ
[37] AP - Tensions are bubbling up at thirsty Arizona alfalfa farms as foreign firms exploit unregulated water; Food and Water Watch – Fact Sheet Big Ag is Draining Arizona Dry

on unregulated rural groundwater pumping on regional water supplies and drought conditions in the short and long term. The emerging prevalence of data center developments is also creating substantial strain due to their extreme demand for water for cooling. A recent estimate shows that the average datacenter requires 6.3-acre feet of water per acre, 2.2 more than golf courses and agricultural irrigation (the next nearest water intensive activities, the latter of which makes up 74% of state water use).[38] Meanwhile, population growth continues to increase with attendant residential water supply demands. The effects of this growing demand are being exacerbated by the emergence of 'wildcat subdivisions' whose developers manage to evade requirements to demonstrate adequate long-term water access by subdividing and selling parcels and properties of sizes that skirt under regulatory reporting requirements.[39] The result is high risk communities, increasing depletion of regional supplies, and political conflict. As availability decreases and demand increases, there will be a heightened risk of drought and emergent water scarcity in areas that have traditionally been irrigated or relied on local water sources.

4.3.5 Earthquake / Seismic Hazards

Description

Ground shaking, landslides, liquefaction, and amplification are the specific hazards associated with earthquakes. The severity of these hazards depends on several factors, including soil and slope conditions, proximity to the fault, earthquake magnitude and depth, and the type of earthquake:

- **Ground Shaking** – Ground shaking is the motion felt on the earth's surface caused by seismic waves from an earthquake. It is the primary cause of earthquake damage. The strength of ground shaking depends on the magnitude of the earthquake, the type of fault, and distance from the epicenter. Buildings on poorly consolidated and thick soils will typically see more damage than buildings on consolidated soils and bedrock.
- **Amplification** – Soils and soft sedimentary rocks near the earth's surface can modify ground shaking caused by earthquakes. One of these modifications is amplification. Amplification increases the magnitude of the seismic waves generated by the earthquake. The amount of amplification is influenced by the thickness of geologic materials and their physical properties. Buildings and other structures built on soft and unconsolidated soils can face greater risk. Amplification can also occur in areas with deep sediment-filled basins and ridge tops.
- **Earthquake-Induced Landslides** – Earthquake-induced landslides are secondary earthquake hazards that occur from ground shaking. They can destroy the roads, buildings, utilities, and other critical facilities necessary to respond and recover from an earthquake and are common in areas with steep slopes.
- **Liquefaction** – Liquefaction, a secondary earthquake hazard, occurs when ground shaking causes wet granular soils to change from a solid state to a liquid state. This results in the loss of soil strength and the soil's ability to support weight. Buildings and their occupants are at risk when the ground can no longer support these buildings and structures. In some cases, this ground may be subject to liquefaction, depending on the depth of the water table. Liquefaction occurs primarily in saturated and loose, fine- to medium-grained soils, in areas where the groundwater table lies within 50 feet of the ground surface. Liquefaction is known to occur in southern and western Arizona.

While most earthquakes are caused by the interface of tectonic plates and the release of pressure along fault lines, they can also be caused by earth subsidence, mining activity (e.g. fracking, wastewater

[38] AZ Solar Energy Industries Association - Arizona Water Demand Analysis by Land Use Category 2024
[39] Fast Company – How wildcat subdivisions are making Arizona's drought worse

injection, and reservoir injection), and the movement of magma through cracks deep in the Earth's crust (a form of volcanic activity). The latter is particularly common in Northern Arizona.

Landslides occur periodically throughout the region in steep areas and regularly impact roads, property, and critical infrastructure. Geographically limited in nature, they tend to occur when the stability of slopes is compromised or supporting ground fails – often due to heavy rains or earthquakes. The risk is exacerbated when ground contains layers of material that do not cohere well or are easily liquified or erodible. Landslides may move in inches per year or miles per hour. This section focuses on geologic and seismically caused landslides versus the debris flows that occur during rainstorm events (discussed in the flooding section).

History

Small to moderate intensity earthquakes occur regularly in Coconino County, with notably strong events having occurred in Fredonia (originating just across the Utah border), Williams, Flagstaff, and Valle (near Grand Canyon). Since 1850, only twelve earthquakes affecting the County have been greater than M5 in strength (the largest being an M6, and the most recent occurring in 2005). These have caused only minor damage and no injuries or deaths. However, the region experiences near continuous seismic activity – with numerous smaller earthquakes occurring every year. The largest between 2020 and 2025 was a M4 that occurred 9 kilometers north of Williams in 2020. However, the largest earthquake to effect Arizona was a 7.2 that occurred in 1887 in northern Sonora, Mexico – which is part of the Arizona Earthquake Belt.

Landslides are a common event in Arizona, and the state landslide database contains over 6,300 locations identified as historic, active, or developing landslides. Coconino contains a significant proportion, likely thousands, of these due to its relatively rugged terrain. Since nearly 50% of landslides occur in tribal areas and go un-reported – it is likely that the number is substantially larger than those currently identified.[40]

Notable earthquakes and landslide events are listed below. Unless otherwise noted, data on the earthquake is drawn from the Northern Arizona University Arizona Earthquake Information Center.[41]

- **November 30, 2014 –** An M4.7 occurs near the Oak Creek fault zone, with an epicenter roughly seven miles north of Sedona and sixteen miles south-southwest of Flagstaff approximately 3.1 miles below the surface of the Earth.[42]
- **February 20, 2013 –** A toreva block landslide cuts through US Route 89 at the Echo Cliffs south of Page. Incident closes 23-miles of highway and requires over $25 million in repairs that took over two years to complete. Closure of major route significantly disrupts tourism in Page. Spurred creation of the AzSLID landslide inventory database and expanded mapping and mitigation efforts.[43]
- **October 31, 2009 –** An "earthquake swarm" occurs near Sunset Crater, Arizona, 15 miles northeast of Flagstaff. Approximately 120 small magnitude earthquakes of M2 or smaller occur during a six-hour period, with the largest being an M2.9 tremor.
- **April 25 to May 17, 1993** – An M4.8 foreshock is followed by a M5.5 mainshock four days later, and 28 kilometers to the north, at Cataract Creek near Valle near the South Rim of the Grand Canyon. Numerous

[40] AZGS Landslides are Surprisingly Large and Widespread in Arizona
[41] Northern Arizona University, Arizona Earthquake Information Center, Earthquake Catalog (1830-2023)
[42] The Arizona Geological Survey, December 2014, M 4.7 earthquake rocks Sedona – Flagstaff, Arizona
[43] COPUS – Arizona Statewide Landslide Inventory Database 2015 ; AZGS Landslides in Arizona Just The Facts

aftershocks occur in the same area over next 22 days. The largest occur within the first four days with around the same strength as the foreshock. The series causes minor damage to Grand Canyon Village.[44]

- **July 21, 1959 –** Fredonia experiences a M5.5 earthquake with aftershocks that lasts over 17 hours with an epicenter 16 kilometers underground.
- **January 1 to January 15, 1935 –** Two VI Intensity earthquakes at the Grand Canyon awakened sleepers, causing a distinct subterranean rumble, movement of homes, and cracked walls. Part of a series of four earthquakes with intensities ranging between II and VI.
- **August 18, 1912 –** Major M6.2 tremor occurs near Lockett Tanks damaging homes in Williams and being felt in Flagstaff. Shaking widely felt throughout northern Arizona.
- **September 24, 1910 –** An M6 earthquake occurs near Cedar Wash with aftershocks extending over a subsequent four hours. Shaking widely felt throughout northern Arizona.
- **January 25, 1906 –** First and largest damaging earthquake in Coconino ruptures and causes a violent shock in Flagstaff. Achieves M6.2 on the Richter Scale and rating as a Mercalli VIII. Event extends over 13 hours with aftershocks. Shaking widely felt throughout northern Arizona.

Location

Arizona is prone to earthquakes, particularly along the Arizona Seismic Belt that runs from the northwest to the southeast side of the state (loosely following the canyons and mountain ranges that run from Zion National Park and the Grand Canyon to Apache National Forest and Gila National Forest, as well as trailing down to Sonora in Mexico). Coconino County contains a significant amount of the Arizona Belt, with most earthquakes west of Page, Tuba City, and the Painted Desert near established fault lines. **Figure 4.11,** on the following page, depicts the location of historic earthquakes and fault lines in or near Coconino County.

Earthquakes generally occur in the vicinity of active quaternary fault lines where stress is built up in the Earth's crust and where there is often sign of historical seismic activity. Quaternary faults are those where there is observable evidence of seismic activity in the last 1.6 million years. The following fault systems are of note for the threat they pose to built environments and human populations.

- **Bright Angel Fault System (Tusayan, Grand Canyon):** A series of quaternary faults that traverse around 50 miles, southwest to northeast, from the Coconino Plateau, through Tusayan and Grand Canyon Village, to the North Rim. The town and airport sit directly in one of its branches.
- **Cataract Creek Fault System (Williams/Flagstaff):** A series of faults near Valle that are believed to have been the origin of the three major earthquakes that impacted Flagstaff between 1906, 1910, and 1912. It runs 35 miles northwest to southeast from just north of Long Point in the Coconino Plateau to the edge of Red Lake Valley and Williams. It recently generated an M5.5 in 1993.
- **Lake Mary Fault Zone (Flagstaff):** A series of Holocene to Pleistocene high-angle normal faults that run 25 miles from Mormon Lake, alongside the bounds of Lake Mary, and into the areas of Walnut Canyon and southern Flagstaff (between Pine Canyon and Elaine Lake – which has been slated for future development). Researchers believe that a partial rupture of the fault would yield an M6-M6.3 earthquake, while a full rupture, though much less likely, would cause an M6-M7 earthquake with several feet of movement. The area is active, as demonstrated by a 2011 earthquake swarm and a 2021 M3.3 that

[44] Arizona Geological Survey, Earthquakes Threaten Arizona; Harvard ADS, Cataract Creek Earthquake Sequence

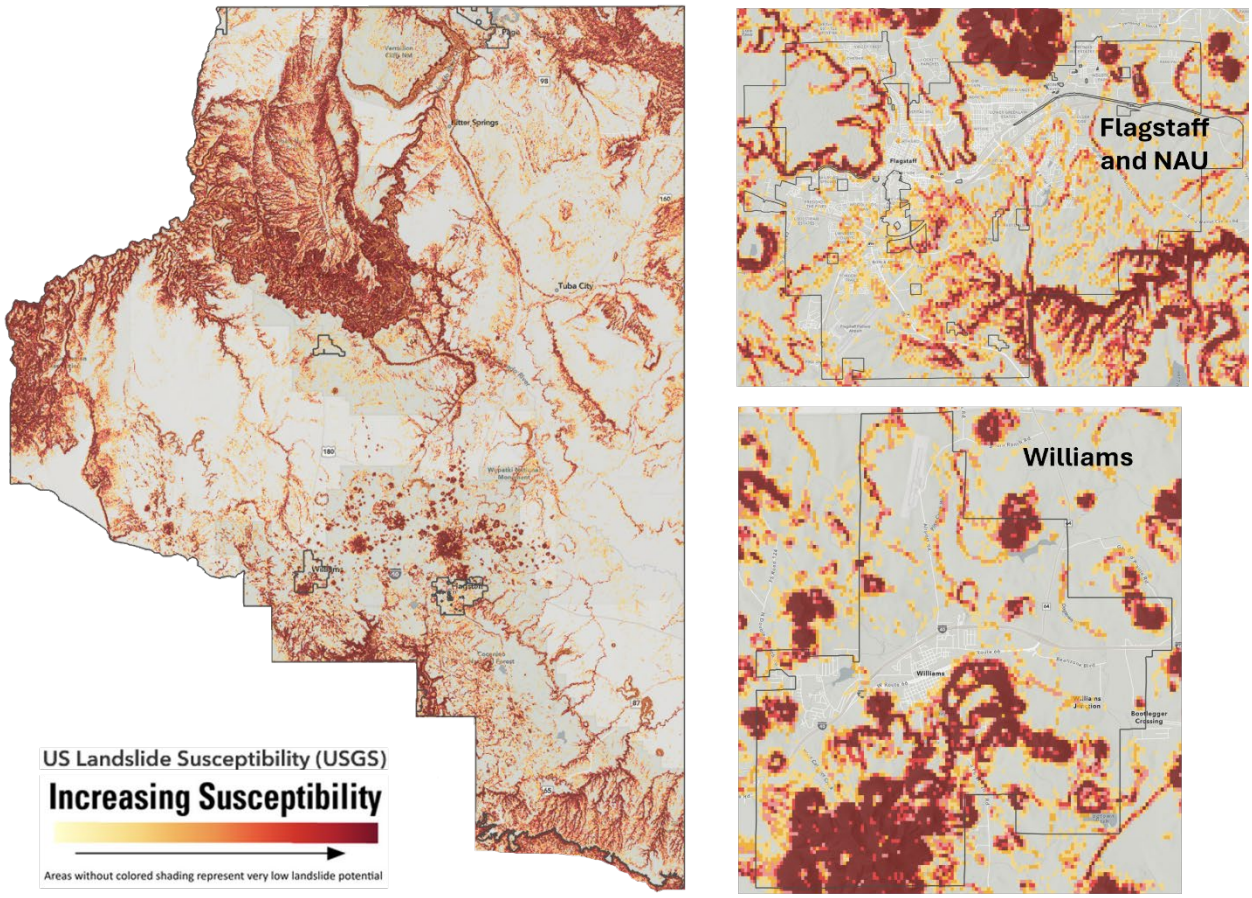
occurred near South 4th Street in Flagstaff. However, researchers believe the fault has low recurrence intervals. [45]

- **West Kaibab Fault System (Fredonia):** One of the most seismically active areas in Arizona with 156 documented events including an M5.75 in 1959 and a swarm in 2012. Runs north to south for 50 miles across the Kaibab Plateau from the Utah border to the edges of the Grand Canyon. [46]
- **Other Internal (Flagstaff, Williams)**: A series of smaller, individual fault lines and zones fall between Flagstaff and Williams These include the Oak Creek North Fault Zone, Bellmont Fault, Garland Prairies West Faults, and the Bill Williams Fault. These are distinguished by their combination of activity and their overlap with ongoing developments and the I40 highway.
- **Other External (Fredonia, Williams, Flagstaff)**: The United States Geological Survey, in developing probable scenarios for major earthquakes for the Earthquake Hazards Program, focused on the Big Chino Fault, Aubry Fault Zone, Sevier/Toroweap Fault Zone and Hurricane Fault Zone (these can be seen on the left side of the inset map in **Figure 4.12**. These faults are mostly situated in Mohave and Yavapai Counties, but run contiguously with – and occasionally within, the Coconino border from Chino Valley to the Kaibab Indian Reservation and the Utah border (roughly 170 miles). These are significant because they are projected to have the capacity to create earthquakes in excess of M7 that could generate strong to severe (Mercalli Scale VI-VIII) shaking in Fredonia and the Havasupai Reservation, disrupt overlapping east-west transportation and utility routes (particularly I40), and cause Moderate to Severe (Mercalli Scale V-VI) shaking in) as far as Grand Canyon Village, Williams, Tusayan, and Flagstaff. A selection of the current ShakeMap models for these events is in **Figure 4.13**. Note that these scenarios assume a rupture at the center of the fault area – and shifts in its location and depth could substantially alter impacts.[47]

Landslides occur in locations with substantial elevation change, and particularly in locations with steep slopes. These features are found throughout the terrain of Coconino County. Approximately 40.2% of the county's area, approximately 7,486 square miles, is susceptible to the hazard. While most of these areas are in rural and uninhabited areas, per USGS landslide susceptibility mapping, a substantial proportion of Williams and Flagstaff are exposed to potentially susceptible slopes while Fredonia, Tusayan, and Page have relatively limited exposure. In the broader County, most major transport routes and infrastructure overlap with, or are adjacent to high-susceptibility slopes. The Arizona Geological Survey is engaged in ongoing detailed mapping and assessment of landslides adjacent to major transportation routes (the listing of which is beyond the scope of this plan).[48] **Figure 4.11** captures a snapshot of the prevalence of landslide susceptibility for the whole County and select cities with high overlap and exposure.

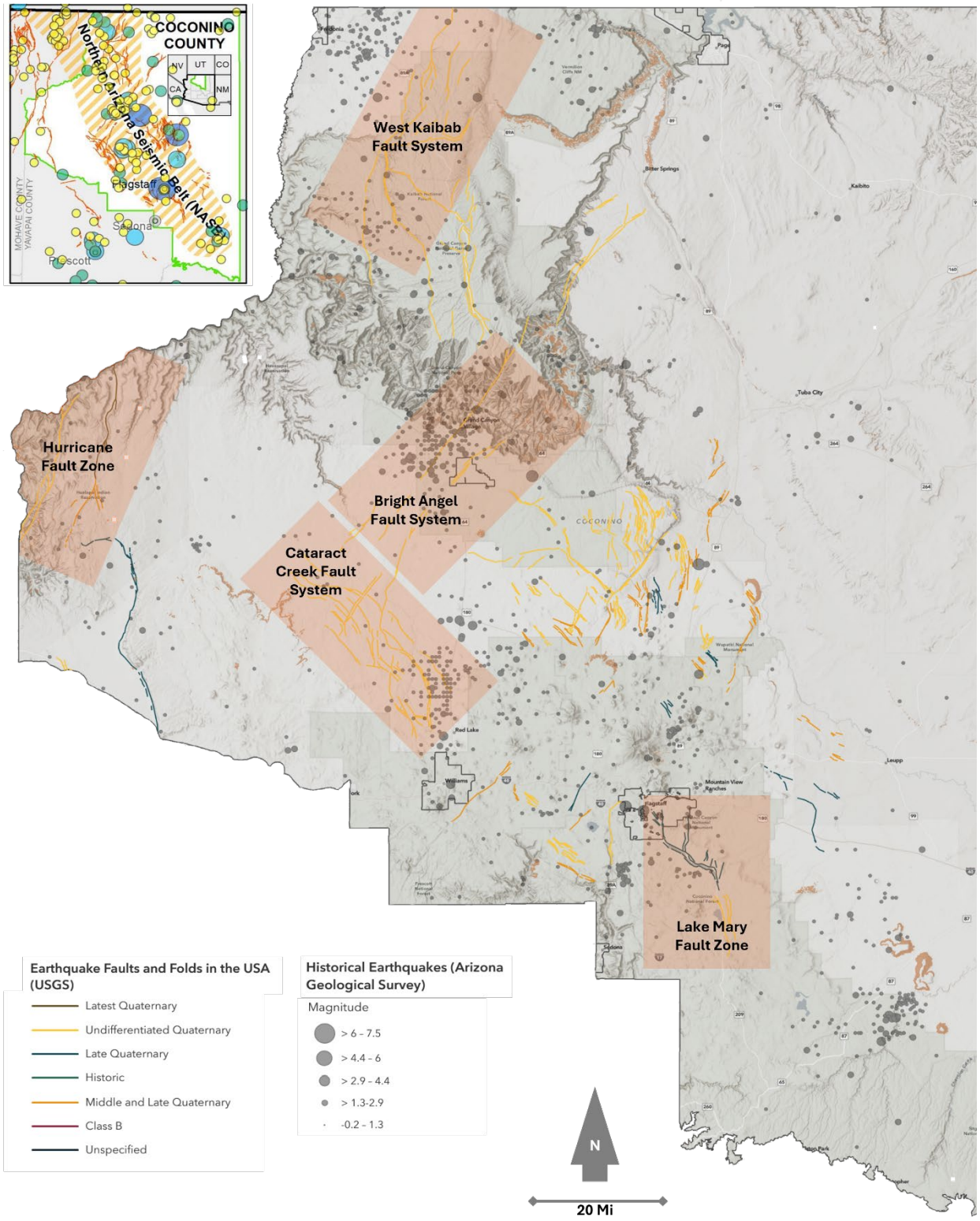
[45] Arizona Geological Survey – University of Arizona - Lake Mary Fault and Google Earth Tour of Faults Threaten Flagstaff (YouTube Videos); Arizona Geological Survey Detailed Geologic and Geomorphic Mapping and Characterization of the Lake Mary Fault Zone; NAU AEIC The Lake Mary Fault and Flagstaff, AZ (Brumbaugh)
[46] Harvard ADS Seismicity and Tectonics of the West Kaibab Fault Zone AZ
[47] Arizona Geological Survey – Big Chino Fault (Youtube Video)
[48] AZGS Landslide Mapping Along the I-17 Corridor from Anthem to Flagstaff

Figure 4.11: Landslide Susceptibility in Coconino[49]



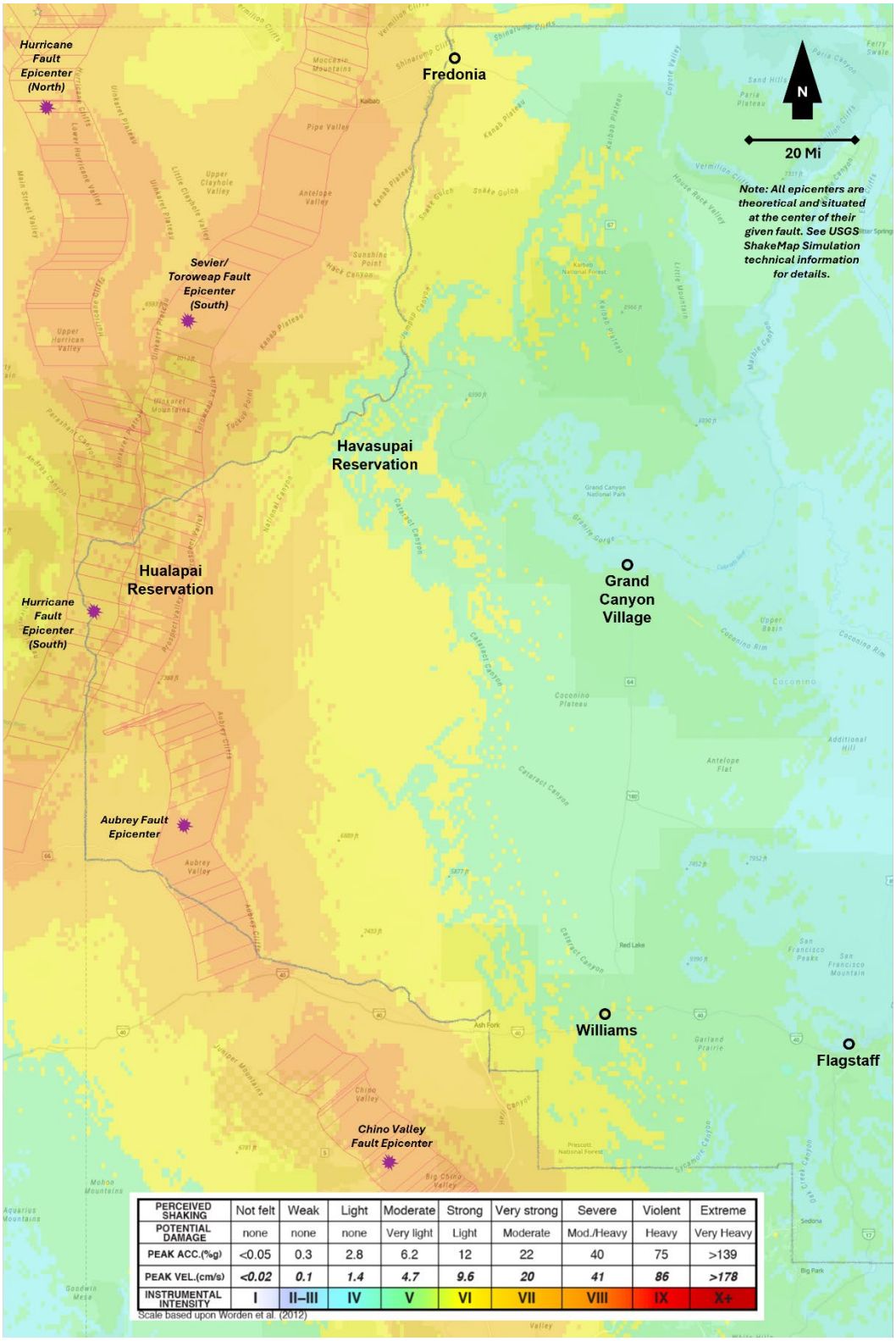
[49] USGS Landslide Inventory and Susceptibility Map; Coconino County Hazard Mitigation Viewer

Figure 4.12: Historic Earthquakes and Major Fault Lines in Coconino[50]



[50] Coconino Hazard Explorer; Arizona Geology Magazine 07-07-13; AZGS Natural Hazards in Arizona

Figure 4.13: USGS ShakeMap Earthquake Planning Scenarios for Arizona[51]



[51] USGS Earthquake Scenario Map (BSSC 2014) – Interactive Map

Extent

The magnitude of any earthquake is directly related to the length of the rupture of the earthquake producing fault. Length of the fault does not predict the measure of ground movement. Ground movement and resulting shaking is determined by the depth of the earthquake hypocenter, directionality of the rupture propagation and amplifying or dampening effects of the geomorphology of soils of the affected region. For example, the relatively small M6.3 earthquake that struck Christchurch, New Zealand in 2011 resulted in severe damage and loss of life due to its very shallow hypocenter. Distance from the fault lessens potential ground shaking subject to the factors previously cited.

Substantial earthquakes of moderate to extreme intensity (per the Mercalli Intensity Scale below) can be expected to cause exponentially greater levels of structural damage the more intense the shaking becomes. This is heavily predicated on the design and construction of the buildings, if the building codes they are held to align with expected seismic forces, and if grandfathered structures have been retrofitted to meet the standard. Beyond buildings, even moderate events can damage transportation infrastructure (roads, railways, and airport runways), substantially damage utilities (water distribution, sewer, and power transmission), cause hazardous material spills, break dams (resulting in a dam inundation event), and damage communications infrastructure (especially fiberoptic cables and cellular towers). Falling objects and damaged infrastructure can cause secondary hazards, resulting in further injury or fatalities. Strong earthquakes can also cause small tsunamis on reservoirs and lakes that imperil boats and adjacent properties. In extreme circumstances, major tectonic activity can even temporarily reverse the flow of rivers (such as occurring to the Mississippi River in 1812 during a tectonic uplift event on the New Madrid Fault). Tertiary impacts due to infrastructure disruption could have significant immediate and long-term impacts on health, safety, the economy, and long-term community viability – especially if power or water supplies are disrupted or lost for extended periods of time.

The Richter scale is often used to rate the strength of an earthquake and is an indirect measure of seismic energy released. The scale is logarithmic, with each one-point increase corresponding to a ten-fold increase in the amplitude of the seismic shock waves generated by the earthquake. However, in actual energy released, each one-point increase on the Richter scale corresponds to about a 32-fold increase in energy released. Therefore, a magnitude (M) 7.0 earthquake is 100 times (10×10) more powerful than an M5 earthquake and releases 1,024 times (32×32) the energy.

The Modified Mercalli Intensity (MMI) scale, as shown in **Table 4-17**, quantifies the intensity of ground shaking. Intensity in this scale is a function of distance from the epicenter (the closer a site is to the epicenter, the greater the intensity at that site), ground acceleration, duration of ground shaking, and degree of structural damage. The MMI rates earthquake severity by the amount of damage and perceived shaking.

Table 4-17: Modified Mercalli Intensity Scale

	Severity	Damage	Description
I	Micro	Little to none	Not felt except by few under especially favorable conditions.
II	Minor	Little to none	Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing.
III	Minor	Hanging objects move	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration similar to the passing of a truck. Duration estimated.
IV	Light	Hanging	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed. Walls make cracking sound.

	Severity	Damage	Description
		objects move	Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Light	Pictures move	Felt by nearly everyone. Many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Moderate	Objects fall	Felt by all, many frightened. Some heavy furniture moved. Few instances of fallen plaster. Damage slight.
VII	Strong	Non-structural damage	Damage is negligible in buildings of good design and construction; but slight to moderate in well-built ordinary structures; damage is considerable in poorly built or badly designed structures; some chimneys are broken. Noticed by motorists.
VIII	Severe	Moderate damage	Damage is slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage is great in poorly built structures. The fall of chimneys, factory stacks, columns, monuments, and walls occur. Heavy furniture is overturned. Sand and mud are ejected into small amounts. Changes occur in well water. Motorists are disturbed.
IX	Violent	Extreme Damage	Damage is considerable in specially designed structures; well-designed frame structures are thrown off kilter. Damage is great in substantial buildings, with partial collapse. Buildings are shifted off foundations. Liquefaction occurs. Underground pipes are broken.
X	Extreme	Extreme Damage	Some well-built wooden structures destroyed. Most masonry and frame structures are destroyed with foundations. Rails bent. Landslides are considerable from riverbanks and steep slopes. Sand and mud are shifted. Water is splashed over banks.
XII	Extreme	Total Damage	Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly. Broad fissures. Underground pipelines completely out of service. Earth slumps and landslips occur on soft ground
XIII	Extreme	Total Destruction	Damage is total. Waves are seen on ground surfaces. Lines of sight and level are distorted. Objects are thrown upward into the air.

Regulatory Context

While Arizona does not have specific regulations related to seismic hazards, State I Administrative Code Title 7, Education Chapter 6, Section 760. Laws and Building Codes states: To the extent required by law, school buildings shall be in compliance with federal, state and local building and fire codes and laws that are applicable to the particular building. At a minimum, the 1997 Uniform Building Code (UBC) is required to be met for new school facility construction and as required, for building renovations in existing schools.

In 1994, Arizona established the Arizona Council for Earthquake Safety via Executive Order 93-3. This body provides a platform for cooperation and coordination for the holistic address of earthquake hazards.

Coconino County and the jurisdictions of Flagstaff, Page, Fredonia, and Tusayan have adopted versions of international building codes that integrate specifications for seismic resilient construction (post-1994). Northern Arizona University complies with Flagstaff and Coconino County building codes. Standing guidance for most jurisdictions explicitly require in their design criteria that, at minimum, new building

designs integrate features that meet Seismic Design Category C (where seismic measures are required for critical facilities expecting moderate shaking, and all other structures expecting severe shaking).[52]

Probability of Future Events

While earthquakes in Coconino County are common, those of adequate strength and intensity to cause damage are not – and have high return periods. Their infrequency of occurrence, and Coconino County's relatively short historical record (going back to 1850), makes it difficult to generate reliable statistical distributions to determine their natural frequency of occurrence. However, datasets have been improving.

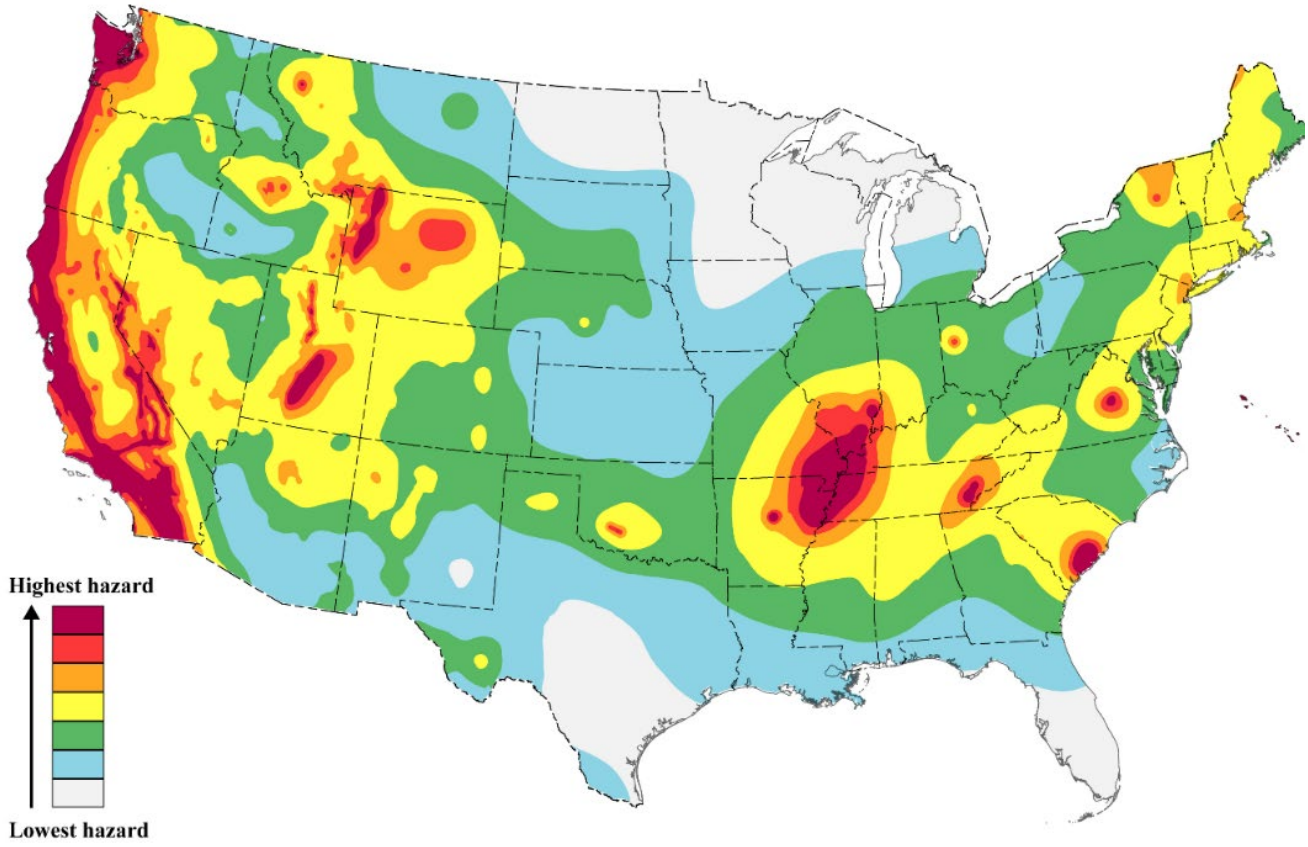
The 2023 National Seismic Hazard Model, visualized in **Figure 4.17**, indicates that the majority of Coconino County has a 5-25% chance of an earthquake rated at MMI VI or greater in the next 100 years. There is a 50% chance that there will be an earthquake greater than MMI III or IV, a 10% chance of one greater than MMI V, and a 2% chance of one greater than VI in the next 50 years.[53]

The primary exception to this analysis, based on available data, is the area North of Flagstaff, west of Gray Mountain, and east of the Cataract and Bright Angel fault systems, that are heavily crisscrossed by faults but lacks significant population centers. This area has a 25-50% chance of an MMI VI or greater in the next 100 years, and a 10% and 2% chance of an earthquake greater than MM VI and VIII respectively in the next 50 years (one tier greater than most of the rest of the county). It is important to note that earthquakes of such size tend to have extensive regional impacts beyond their origins. As such, the elevated risk created by these probabilities are shared by Coconino County, Willams, Flagstaff, and Tusayan.

According to the Arizona Geological Survey, an M5 or greater earthquake occurs approximately every 10 years in the Arizona.[54] Landslides are an ongoing hazard that is difficult to predict but occurs regularly with enabling conditions. The National Risk Index estimates their occurrence at .1 events per year.

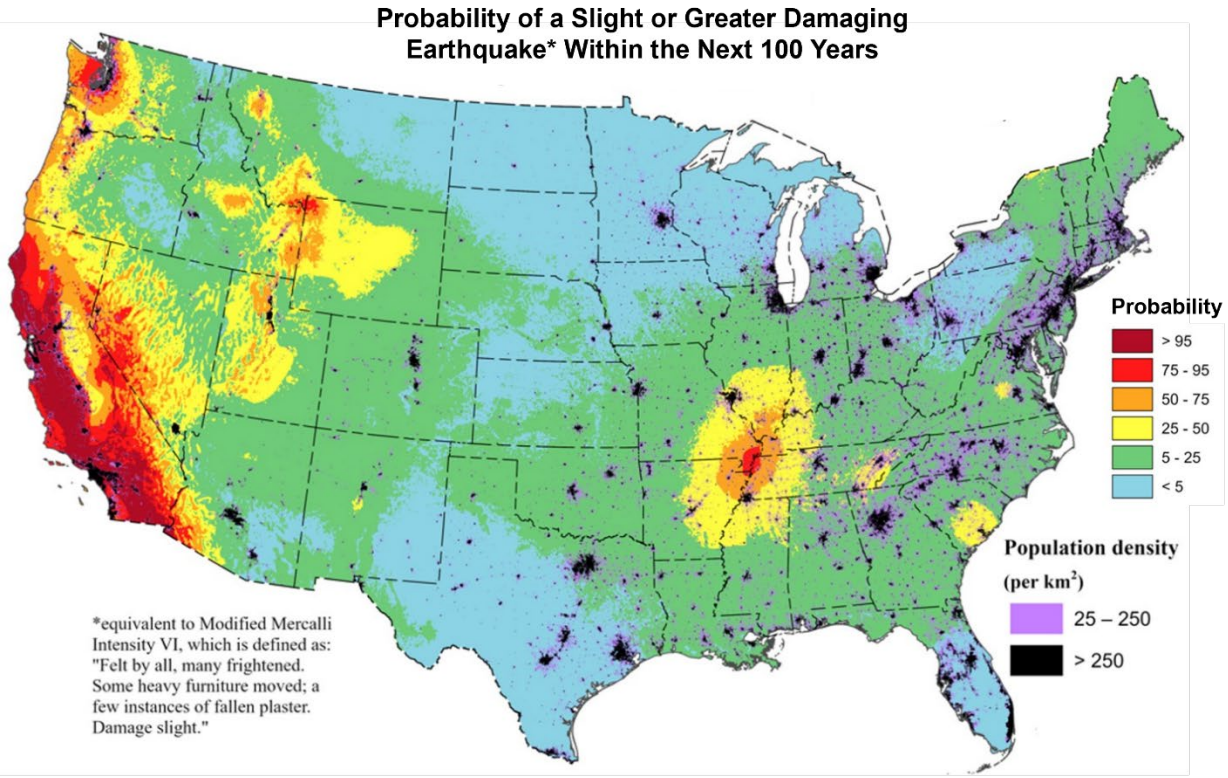
[52] Technical Services Information Bureau Seismic Design Categories ; ASCE 7 Risk Category Summary
[53] Sage Journals – The 2023 US 40-State National Seismic Hazard Model: Overview and Implications
[54] Arizona Geological Survey, Center for Natural Hazards - Earthquakes

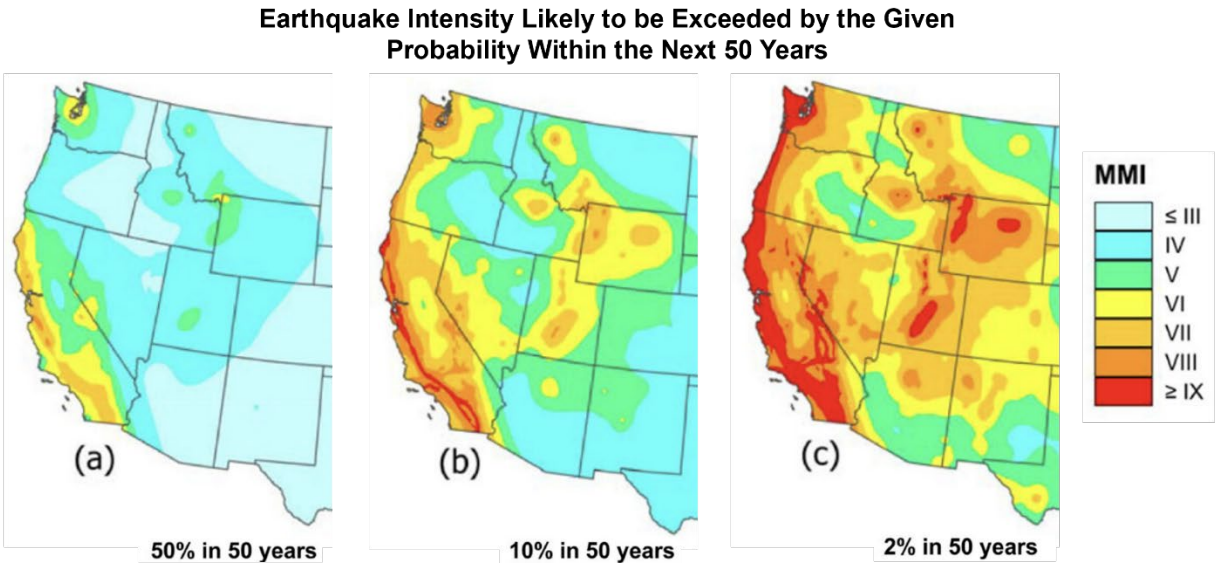
Figure 4.16: USGS 2023 National Seismic Hazard Model (2% in 50 Year Probability of Excedence)[55]



[55] USGS National Seismic Hazard Model 2023 – shows MMI VI or higher

Figure 4.17: USGS 2023 Seismic Hazard Estimates – Modified Mercalli Intensity Probabilities





Vulnerability

Primary vulnerability to earthquakes is predicated by the resilience of the built environment and critical infrastructure to withstand the earthquake forces they may be exposed to. While moder building codes and improving earthquake hazard models for guiding construction have significantly improved the safety of modern structures since 1994 (when the most recent major improvements to seismic codes occurred) historical and grandfathered structures that have not been retrofitted for seismic safety continue to pose a substantial risk. While permitting for significant modifications to existing structures triggers building code upgrade requirements, these updates tend to lag significantly – allowing building stock to remain vulnerable for decades on end despite regulatory efforts. This is particularly true for structures built before 1976, before which building materials and methods did not integrate considerations for earthquakes.

A 2022 report developed by the Arizona Geological Survey identified and mapped over 3,316 pre-1976 structures and 2,200 potential unreinforced masonry buildings, which are particularly vulnerable to seismic activity, in Flagstaff and Northern Arizona University alone. These include all types of property uses including commercial, residential, and community infrastructure (schools, churches, theaters, and more). The team noted challenges in gathering the necessary data due to different authorities between Counties and Cities, and notable disparities between sources (particularly between city/county records and the National Register of Historic Buildings). The study's findings indicate that there may be substantial seismic vulnerability within the County, and in all participating jurisdictions, that has not been adequately defined and must be mitigated to minimize risk to all but the largest earthquakes.[56]

In addition to older building stock, earthquake vulnerability is posed by the prevalence of ageing infrastructure and temporary, mobile, or lightly constructed structures for housing. These are substantially less resilient to seismic events and can be a direct cause of fatalities and secondary hazards and impacts. In particular, the prevalence of high-risk dams and the region's reliance on fragile water and power supplies indicates that there is substantial vulnerability to secondary and cascading impacts of a major seismic event.

Direct landslide vulnerability is predicated on site selection and the placement of structures on, or adjacent to, landmass at risk of landslide. The vulnerability of such structures is determined by how reliant the structure is on potentially mobile sediment, how quickly a catastrophic failure can occur, the volume and mass of material that a failure will displace, and the velocity and distance the material is expected to travel. Vulnerability to secondary impacts is based on the level of dependence on structures at risk.

The National Risk Index estimates that over $1.7 trillion and $518.6 billion in structures, people, and agriculture are exposed to earthquakes and landslides respectively in the County.

Table 4-18 captures the Planning Team's estimation of their jurisdictions' risk for this hazard.

Table 4-18: CPRI Rating for Earthquake and Seismic Hazards

Jurisdiction	Probability 45%	Magnitude/Severity 30%	Warning Time 15%	Duration 10%	CPRI Score (Max 4.0)
Coconino County	3	2	4	4	**2.95**
Flagstaff	3	2	4	4	**2.95**
Fredonia	2	1	4	3	**2.1**
NAU	3	2	4	4	**2.95**
Page	4	2	1	4	**2.95**
Tusayan	3	1	4	2	**2.45**
Williams	2	2	4	3	**2.4**
County-wide average CPRI =					**2.68**

[56] Arizona Geographical Survey –Assessing Unreinforced Masonry Buildings in Flagstaff and Yuma, Arizona

Loss Estimates

Earthquakes could potentially disrupt major transportation routes in the County. These include Interstates 17 and 40, U.S. Highways 160 and 180, State Routes 64, 66, 67, 87, 89, 89A, 98, 99, 260, and 264, and Indian Routes 2, 15, and 18. Burlington-Northern Santa Fe (BNSF) Railway runs through the middle of the county. Hazardous material cargo includes numerous TIER II reportable products and the highly volatile Bakken crude product. AMTRAK passenger trains also operate on the BNSF lines with depots located in Flagstaff and Williams. Air traffic in Flagstaff, Grand Canyon National Park, Williams, Page, Tuba City, and Valle could also be impacted.

Utility disruption due to earthquakes is a potential risk as well. Arizona Public Service (APS) is the predominant provider of electricity to the County except for the Navajo Nation which has its own electricity supplier, Navajo Tribal Utility Authority. Natural gas and propane disruption to cities and areas throughout the County could be a possibility. Cellular communication disruption during a major event is also probable.

Loss of water and sewer service is another possibility. Most incorporated areas within the County have their own water system and wastewater or sewer system. Water for the City of Flagstaff comes from over forty (40) wells. Surface water is stored in Lake Mary and a spring from the Inner Basin in the San Francisco Peaks. The City of Williams' water supply comes from wells or lakes and reservoirs. After treatment, water is distributed to storage tanks and then gravity fed to customers. Page receives all of their water from Lake Powell. After being treated at their city plant, it is distributed directly to their customers. Outside of these areas, residents receive their water piped from private water companies, hire commercial water haulers, or haul the water themselves. Privately owned wells exist in many parts of the County, but many residents rely on hauled water. Although the incorporated areas may have wastewater systems, most residents outside the cities have septic systems for sewer.

Landslide losses can range from thousands to billions of dollars depending on circumstance. Small scale, rapid onset incidents can cause select damage or disruption to property, agriculture, or infrastructure that can be resolved with minimal cost and delay. Large rapid onset incidents, like the event previously cited near Page, can result in tens of millions of dollars in repair costs and further millions of dollars in secondary impacts ranging from economic costs to elevated mortality due to longer medical transport times. Large scale slow or varying rate landslides can be some of the most impactful – with significant value in properties and infrastructure being damaged or made untenable that were previously considered safe and secure.

The National Risk Index evaluates the estimated annualized losses due to earthquakes and landslide at just over $4.6 million and $439,000 respectively.

Developmental Trends

The County is geographically located in a general area of numerous seismic zones, and the potential exists for damage to critical infrastructure and facilities, and perhaps loss of life. As population growth continues, potential impacts to local economies will increase – especially as urban development expands outside existing cities and towns along major transportation routes. The proposed development of southern Flagstaff over the top of the Lake Mary Fault Line's northern and most active branches, as well as the extension of development along Interstate 40 and Routes 64, 180, and 89 can be expected to significantly increase exposure to seismic hazards – especially as they encroach on higher risk regions. The concurrent increased load on already strained critical infrastructure and resources, such as the electrical grid and water supply, will further expand the potential impact of a major seismic event. This is especially true for locations that have a limited number of options in terms of storage, transmission/transport, available supply, and physical access.

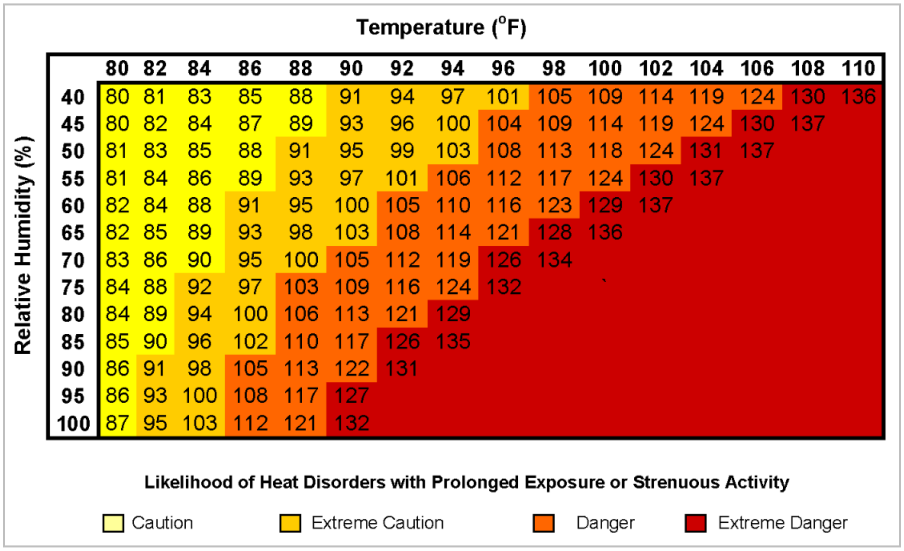
4.3.6 Excessive Heat

Description

Excessive heat is a circumstance in which apparent or actual temperatures exceed 90°F for 2-3 days. This temperature is the evidence-based threshold for when heat becomes substantially more hazardous for large portions of the population. This is because it is the point at which any further increases in air temperature and humidity begin to exceed the human body's capacity to effectively shed excess heat by sweating (which primarily leverages evaporation). By exceeding this system's cooling capacity, core temperatures begin to rise quickly. The combined rise in core temperature and the onset of dehydration places substantial strain on neurological, cardio-vascular, and respiratory systems – impairing cognition and critical system functions, exacerbating environmental and chronic health issues, and overwhelming individuals with weaker constitutions. This combination has made this hazard the deadliest of all weather-related hazards.

Due to the critical interplay between humidity levels and air temperature in the impacts of this hazard, the Heat Index, or apparent temperature, is a critical tool. This is a subjective measure of what conditions feel like to the human body when relative humidity is factored into the actual air temperature. Relative humidity is a measure of the amount of water in the air compared with the amount of water that air can hold at the current temperature. In short, it is a measure of how close the air is to being saturated with moisture. This is important because, when the relative humidity is high, the increased moisture content in the air decreases the evaporation of perspiration or sweat. Therefore, the body feels warmer when it is humid. For example, in the heat index chart below, a hot and very humid air mass with a temperature of 94°F and a relative humidity of 45% yields an apparent temperature of 100°F. Holding the temperature constant and increasing the relative humidity to 60% yields an apparent temperature of 110°F.

Figure 4.16: National Weather Service Heat Index



However, recent studies show that the impacts of excessive heat are not solely determined by the apparent temperature or how long plants and animals are exposed to excessive heat conditions – it is also the quality of the relief they get between exposures. As such, having adequately low daily minimum temperatures at night or facilities where one can get relief is critical. Without these, the body is unable to relax and repair – causing physiological impacts to accumulate and compound.

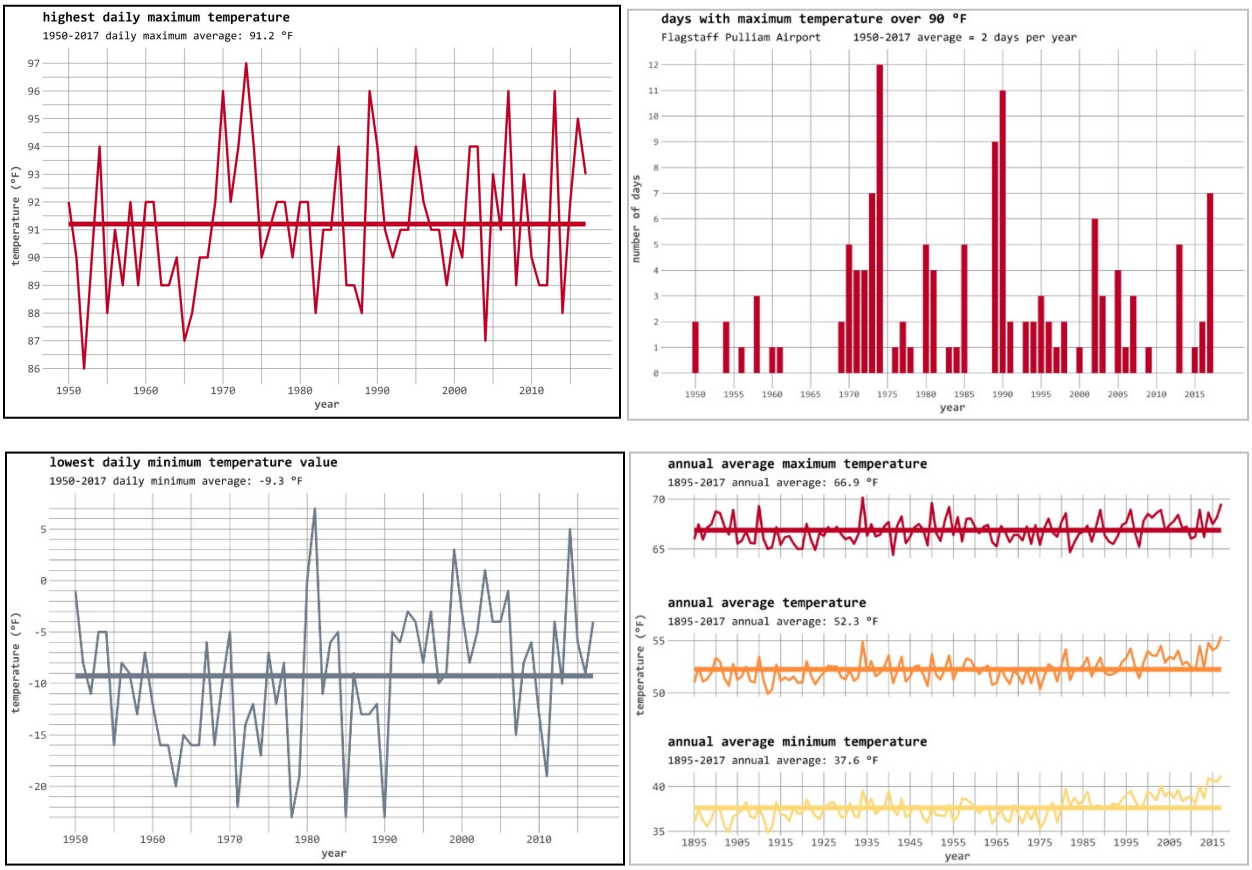
History

Since the early 20th century, average surface temperatures worldwide have risen at an average rate of 0.15°F per decade (1.5°F per century). In the United States, average temperatures have risen more quickly since the late 1970s (0.36 to 0.55°F per decade), with eight of the top ten warmest years on record since 1880. Global temperatures are expected to increase between 2.5°F and 10.4°F over the next century.

The trend of increasing temperatures and days spent above 90°F has been reflected in Coconino County's weather data.[57] From 1950 to 2017, the County experienced an average of two days over 90°F per year. Of those 67 years, only six saw 90°F temperatures on more than five days – the maximum being 12. Between 2015 and 2019 there were two years with those conditions (six and ten days respectively) and a total of 23 excessive heat events identified by the National Weather Service. This increased precipitously between 2020 and 2025, where five of the six years experienced more than five days above 90°F – all of which broke prior records with 13 to 17 days each at that temperature. In addition, the National Weather Service documented 75 distinct excessive heat events during that period.

Data from the National Weather Service Flagstaff Station shows the steady increase in temperatures since 1970 in the diagrams below. Note that the high of 97°F in August 2020 tied the 1973 record.

Figure 4.17: National Weather Service Temperature Trends from Flagstaff Station[58]



[57] NOAA Regional Climate Centers Applied Climate Information System; NOAA Storm Events Database
[58] Climate Profile for the City of Flagstaff, University of Arizona (2018)

Location

Excessive heat occurs most frequently at the County's lower elevations. Fredonia and Page experience excessive heat more frequently than Flagstaff, Tusayan, or Williams. The Southwest is experiencing more rapid temperature rise than the rest of the nation. As temperatures rise, excessive heat will become more common at higher elevations.

Extent

Extreme heat can occur quickly and without warning. These events have wide-area effects and strain both living creatures and infrastructure systems. Surges in heat-related medical emergencies, environmental health issues, and chronic health issue complications can rapidly increase the load on emergency services and healthcare systems while increasing public healthcare costs. Heat effects on physical infrastructure, as well as ongoing power demand surges from air conditioning use, can also be expected to strain the grid and available power supplies – potentially leading to power outages. These events also cause economic costs through damage to crops and livestock, equipment damage, and disruption of outdoor work or events. Last but not least, plant and animal life is significantly impacted by climactic changes and ecological changes as well as damage to the region's iconic Ponderosa Pine population have already been noted.

The National Weather Service issues the following excessive heat event notifications:

- **Heat Impacts in NWS weekly forecast email for Excessive Heat –** Period of excessive heat is possible within the next three to five days. A heat advisory or excessive heat warning may eventually be needed.
- **Heat Advisory –** Period of excessive heat is expected. The combination of hot temperatures and high humidity will create a situation in which heat related illnesses are possible.
- **Excessive Heat Watch –** Prolonged period of dangerous excessive heat possible within 48 hours.
- **Excessive Heat Warning –** Prolonged period of dangerous excessive heat is expected within 24 hours. The combination of hot temperatures and high humidity will create a dangerous situation in which heat related illnesses are likely. Issued when heat indices are expected to reach at least 105°F for more than three hours per day for two consecutive days, or more than 115°F for any period of time.

Regulatory Context

Over the last five years, the state of Arizona has increased its coordination and guidance surrounding excessive emergencies. In 2023, the Governor established an Office of Resilience to help lead and coordinate climate adaptation efforts, appointed a Chief Heat Officer, and issued Executive Order 2023-16 to guide integrated state-level extreme heat planning and preparedness efforts. This led to creation of the Arizona Extreme Heat Preparedness Plan, published in March 2024.[59]

OSHA does not have a specific standard that covers working in hot environments. Nonetheless, under the Occupational Safety and Health Act, employers have a duty to protect workers from recognized serious hazards in the workplace, including heat-related hazards. OSHA has cited employers for injuries related to excessive heat and provides guidance resources for safeguarding workers from heat stress.[60]

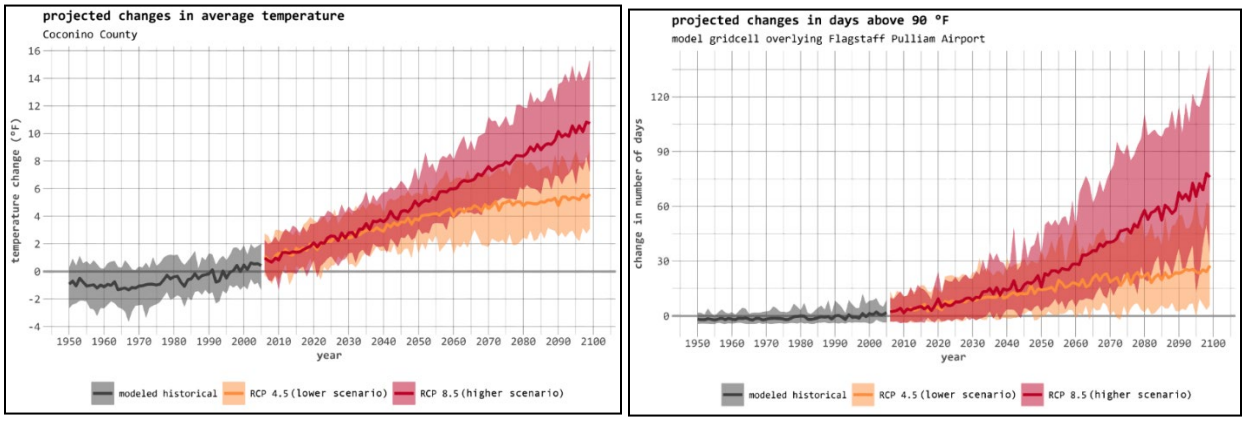
[59] Arizona's Extreme Heat Preparedness Plan; Arizona Extreme Heat Preparedness Website
[60] OSHA Heat Exposure Website

In May 2025, the Arizona Governor issued Executive Order 2025-09 which directed the Arizona Division of Occupational Safety and Health to form a Workplace Heat Safety Task Force and develop guidelines for worksite heat safety to ensure clear guidance for employers. This follows a failed legislative effort in late 2024 and early 2025 to enact statutory requirements for state adoption of employer standards for heat illness prevention as well as baseline safety requirements.[61]

Probability of Future Events

While the number of days that excessive heat will occur on an annual basis is difficult to predict, it is nearly certain to occur on an annual basis. As global temperatures rise, more days of excessive heat will occur yearly. The figure below shows the projected increases in average temperatures and total number of days per year over 90° F. Based on these projections, Coconino is expected to exceed global average temperature growth and have between 28 and 80 days above 90° F per year by 2100.

Figure 4.18: Projected changes in average temperature and days above 90° F[62]



Vulnerability

Excessive heat events are more intense at lower altitudes and in places with limited water and tree cover to reflect and absorb heat. They are additionally more intense in urban areas which are affected by the urban heat island effect. This is a dynamic in which urban areas experience higher temperatures than surrounding rural areas. This is due to a combination of heat trapping, pollution, heat emissions from human activities, and the disruption of natural cooling processes and features. These higher temperatures are particularly noticeable and impactful at night – where absorbed energy radiates from built surfaces and continues to heat urban areas well beyond normal cooling periods.

Ageing infrastructure designed to operate at lower temperatures, or demand loads tend to experience greater strain and disruption. Stressed or damaged systems frequently include power grid components, roads, irrigation and aqueduct systems, and temperature control systems. Failure in power systems can cause cascading disruptions to sewer and water systems with major health and safety consequences.

Populations with elevated vulnerability to excessive heat events include: the elderly, young children, individuals with chronic health conditions, outdoor workers, people experiencing homelessness, persons with low income, individuals with access and functional needs, and athletes. People in areas with minimal tree cover and access to cooling centers, or who have limited social supports are also affected more.

Table 4-19 captures the Planning Team's estimation of their jurisdictions' risk for this hazard.

[61] Arizona Executive Order 2024-09; Arizona Senate Bill 1416
[62] Climate Profile for the City of Flagstaff, University of Arizona (2018)

Table 4-19: CPRI Ratings for Excessive Heat

Jurisdiction	Probability 45%	Magnitude/Severity 30%	Warning Time 15%	Duration 10%	CPRI Score (Max 4.0)
Coconino County	4	3	1	4	**3.25**
Flagstaff	3	2	1	3	**2.4**
Fredonia	3	1	1	3	**2.1**
NAU	4	3	1	4	**3.25**
Page	4	1	1	4	**2.65**
Tusayan	4	3	1	4	**3.25**
Williams	3	3	1	2	**2.6**
County-wide average CPRI =					**2.79**

Loss Estimates

Heat is the leading weather-related cause of death in the United States, and fatality rates are increasing. From 1999 to 2023 (the hottest year on record), approximately 21,500 people died of heat related causes. In that same period, annual fatalities more than doubled from 1,100 to 2,300 – with the greatest growth occurring after 2016.[63] This increase has paralleled the increase in temperatures and the growing number of excessive heat events. On average, more people are killed by heat in the U.S. than by tornadoes, hurricanes, floods, and lightning combined.

In Arizona, the number of heat-caused and heat related deaths has increased exponentially. Between 2012 and 2023, heat-caused deaths increased from between 50 and 105 per year to 460 while heat-related deaths increased from between 91 and 156 to 990. The growth in both statistics reflects national patterns, with exponential growth beginning in 2016. Coconino County specifically had 33 heat caused and 47 heat related deaths in the same period– generally seeing less than six deaths per year.[64]

According to the National Risk Index, Coconino can expect to experience annual losses of $7,343 due to excessive heat events. This is primarily due to population impacts.[65]

Developmental Trends

As the population in the County continues to grow and as the general climate becomes warmer, more people and infrastructure will be exposed to excessive heat – which will also occur more frequently. In turn, there will be an ever-increasing demand and reliance on consistent power provision from the electrical grid.

[63] Heat Related Deaths on the Rise in US Since 2016, Journal of the American Medical Association
[64] AZDHS Heat-Caused & Heat-Related Deaths from Exposure to Excessive Natural Heat in Arizona (2012-2023)
[65] National Risk Index – Coconino County, AZ

4.3.7 Extended Power Outage

Description

A power outage is the loss of the electricity supply to an area. In addition to most natural hazards, power failure can result from a defect in a power station, damage to a power line or other part of the distribution system, a short circuit, or the overloading of electricity mains. Power outages may also occur pursuant to a public safety power shutoff – when utilities de-energize power lines to manage power grid risk created by high load demand or to prevent fire ignition via downed power lines during high-risk fire weather.

A power outage may be referred to as a blackout if power is lost completely or as a brownout if some power supply is retained, but the voltage level is below the minimum level specified for the system, and a short circuit indicates a loss of power for a short amount of time (usually seconds). Some brownouts, called voltage reductions, are made intentionally to prevent a full power outage.

Planned or unplanned power outages can significantly disrupt critical infrastructure and have cascading effects that threaten public safety and health – particularly through disruption of safety, environmental health, and life support systems.

History

While there is no public listing of power outage incidents, Coconino community members highlighted power outages as a regular experience, with many highlighting 10 to 20 separate experiences in the Hazard Mitigation Survey. Local news reports reflect this, showing significant events occurring on a regular basis.

Note: Power outages are typically measured by the number of customers without power, which reflects the number of businesses and households. The number of people affected is around two to three times higher.

- **May 2025 –** High winds cause a power outage in Williams by downing power poles along Interstate 40. Approximately 1,200 customers lose power, some for multiple days.[66]
- **January 2023 –** Snow damage causes outage for 1,440 Munds Park customers.[67]
- **February 2023** – Around 6000 customers around Munds Park, Bellemont, and Continental Country Club lose power during a major snowstorm– nearly 24% of county electric customers.[68]
- **December 2022 –** A major winter storm leads to 690 customers in Flagstaff and 40 in Tusayan. Days earlier, 4,280 customers lost power due to unknown interference of a major power line.[69]
- **September 2022** – During a major rainstorm, 1,500 Flagstaff residents reported power outages that lasted for approximately 24 hours.[70]
- **July 2020 –** Three consecutive unplanned outages in east Flagstaff left 3,500 residents without power due to above and underground line failures and an operator error.[71]

[66] Williams Independent, May 2025, Power Outage Affects More than 1200 Customers In and Around Williams
[67] AZCentral, January 2023, More than 1,400 APS customers without power in Munds Park
[68] USA Today, February 2023, Nearly 10,000 homes and businesses without power amid winter storm
[69] Arizona's Family, December 2022, Flagstaff power outages
[70] Arizona Daily Sun, February 2022, Thousands without power in Coconino as wind and snow snarl travel
[71] Arizona Daily Sun, July 2020, Repeated power outages hit east Flagstaff neighborhood

- **November 2019 –** Power outage due to snow causes Tusayan to proclaim an emergency. [72]

Location

Power outages occur throughout the County and affect the entire region.

Extent

A single power outage event can easily affect tens of thousands of persons depending on the scale of infrastructure affected and the cause. Impacts are generally more severe, the larger the area affected, the greater the number of infrastructure systems affected, and the longer the incident. However, severe impacts can occur in a highly localized incident if it occurs concurrently with hazards that isolate the affected area from assistance or prevent evacuation.

Power outages can quickly disrupt safety, health, and critical services – causing traffic and lighting failures, disabling medical devices and environmental control systems, spoiling food, halting businesses, and disrupting communications. Over days, these events strain emergency services, disrupt water and sanitation systems, create grid instability, and damages local economies. Outages extending over a week can cause cascading effects that include damage to key infrastructure; supply chain disruption; public health outbreaks related to chronic, infectious, and environmental maladies; major population shifts; and creation of environmental hazards from trash and pollution. Impacts may be amplified where concurrent hazard events or emergencies are occurring, or significant concentrations of vulnerable populations are exposed.

Vulnerability

While the entire planning area is affected by power outages, impacts can be particularly severe in smaller unincorporated communities and rural jurisdictions where alternate power sources, support capabilities, and access by emergency services can be limited. Such areas tend to experience longer outages, more complex impacts, and more frequent occurrences. The greater frequency of occurrences in these areas is partially due to increased exposure to related hazards (such as wildfire) and their comparative lack of redundant transmission and distribution infrastructure. Tusayan, Page, and Fredonia specifically identify as power islands due to their reliance on single feeds for general access to electricity. These locations have experienced power outages during severe weather events, wildfires, and high-risk wildfire weather events.

Particularly vulnerable population groups include those dependent on medical equipment, elderly or youth, low-income youth and households without power, people experiencing homelessness, and communities reliant on local power generation.

The heat island effect in urban areas during the summer months and extreme cold during winter storm events in rural and reservation communities can exacerbate the felt effects of a power outage.

Table 4-20 captures the Planning Team's estimation of their jurisdictions' risk for this hazard.

[72] Associated Press, November 2019, Snowy Grand Canyon Town Declares Emergency

Table 4-20: CPRI Rating for Extended Power Outage

Jurisdiction	Probability 45%	Magnitude/Severity 30%	Warning Time 15%	Duration 10%	CPRI Score (Max 4.0)
Coconino County	4	3	4	4	**3.7**
Flagstaff	4	3	4	4	**3.7**
Fredonia	2	2	4	3	**2.4**
NAU	4	4	4	4	**4**
Page	1	2	4	1	**1.75**
Tusayan	4	1	4	2	**2.9**
Williams	3	3	4	3	**3.15**
County-wide average CPRI =					**3.09**

Probability of Future Events

Based on available data, significant power outages occur at least one to three times per year in parallel with seasonal severe weather events during the monsoon and wildfire seasons. However, the probability of future events and the breadth of areas likely to be affected is increasing. This is due to the increasing frequency and severity of causative hazards (described previously), the expanding application of public safety power shutoffs to prevent wildfires, and the increasing effects of climate change, technological/cybersecurity threats, growing power demand, and ageing infrastructure.

The ongoing increase in probability of occurrence additionally increases the risk of cascading hazard events such as hazardous material and transportation accidents and public health outbreak/pandemics. Meanwhile, the impacts of winter storms and excessive heat events are likely to be exacerbated by the growing frequency of power outage events.

Climate change has the potential to cause a significant increase in severe weather events resulting in impacts to the local electrical grid. A Climate Central analysis of outage data shows a 67% increase in major power outages from weather-related events between 2000 and 2014.[73] Two-thirds of states, including Arizona, experienced an increase in outages caused by extreme weather.

Loss Estimates

The impacts of power outages are generally calculated in terms of economic cost and the costs to restore systems. However, impacts also include fatalities, injuries, medical costs, property loss, and infrastructure damage due to lack of power. These are often difficult to fully capture since they are often not reported, actively collected, or cannot be directly associated with the incident. With this in mind, researchers have developed a variety of models to estimate losses utilizing accessible data – such as they number and types of customers affected, average down time, and time to repair. Such tools include the Berkeley Lab Interruption Cost Estimate Calculator (ICE) and the Power Outage Economics Tool (POET).[74]

[73] Kenward and Raja. Climate Central. “Blackout: Extreme Weather, Climate Change, and Power Outages.” 2014.
[74] Berkeley Lab Cost of Power Interruptions – ICE Calculator

On integrating available hazard event data into ICE, the model indicates that the historic trend of monsoon season and winter storm related extended power outages have generated costs ranging between tens of thousands and tens of millions of dollars each year (with the amount being higher the greater the proportion of non-residential customers are affected).

While these costs are expected to increase in line with the growing frequency of causative hazard events, they can be expected to balloon as public safety power shutoffs are increasingly applied to manage wildfire and infrastructure damage risk. This is because such planned actions, as prevention measures, are applied to large geographic areas based on climate conditions, and their duration is based on how long hazardous conditions last (versus repair time). This is likely to result in a much greater disruption and cost, particularly during wildfire season, than has previously been seen.

Developmental Trends

The community profile for Coconino County highlights plans for development of multiple new communities along major transportation corridors. While these initiatives will help to alleviate housing cost and scarcity challenges, they will increase power demand and the load on existing power infrastructure. Though mostly located adjacent to major highways, the location of these communities in relatively rural areas increases the risk of isolation and reliance on an extremely limited number of power feeds. Augmentation of existing infrastructure, addition of redundant power transmission and generation/storage capabilities may be necessary to minimize the likelihood and impact of major power outage events.

Trends in employment and the adoption of technology-based services across the County and the country should also be taken into consideration. The impact of a major, long-term power outage will impact more services and economies than it would have even a decade ago, as remote work relying on internet connectivity and power becomes more common. Rural communities throughout Coconino County have less access to power than many urban communities, which may make them more resilient to major power outage events due to existing capabilities for self-reliance. Many residents throughout Coconino County are already heavily self-reliant, having generators, solar, and other backup power sources as a result of “living off the grid” and previous experience with disasters. However, greater support for technology infrastructure and businesses is likely to increase future power dependence and the need for adaptive and resilient grids.

Healthcare facilities are ever more dependent on technology (e.g., electronic health records) and utilities (refrigeration, heating, and cooling) during severe weather events, making power a critical commodity. The size of the County and the long distances that some clients must travel to receive health services already limit healthcare access. This distance can be disastrously increased by power outage disruptions.

The increasing use of digital infrastructure to manage the grid has led to an increased likelihood of extended power outage due to cyberattacks. While federal assessments indicate that cyberattacks could cause widespread power outages in the United States, the scale of power outages that may result from a cyberattack is uncertain due to assessment limitations.[75] The Director of National Intelligence’s 2022 Annual Threat Assessment determined that threat actors are increasingly capable of attacking the grid.[76] Despite ongoing protection, prevention, and preparedness efforts recent assessments indicate both increasing threats and vulnerabilities as technology evolves and existing infrastructure becomes obsolete.[77]

[75] GAO-19-332 Action Needed to Address Significant Cybersecurity Risks Facing the electric Grid.
[76] Securing the US Electricity Grid from Cyberattacks, GAO 2022
[77] Grid Cyber Threats a Rising Concern in 2025; IEEE - Cyber Security Risks in Modern Power Grids (2024)

4.3.8 Flood, Flash Flood, and Post-Wildfire Flooding / Debris Flows

Description

For the purpose of this MJHMP, the hazard of flooding will pertain to floods that result from precipitation and runoff related events. Flooding due to dam failures is addressed separately. The three seasonal atmospheric events that tend to trigger floods in the County are:

- **Tropical Storm Remnants** – Some of the worst flooding tends to occur when the remnants of a hurricane that has been downgraded to a tropical storm or tropical depression enter the state. These events occur infrequently and mostly in early autumn and usually bring heavy and intense precipitation over large regions causing severe flooding.
- **Winter Rains** – Winter brings the threat of low intensity, but long duration rains covering large areas can cause extensive flooding and erosion, particularly when combined with snowmelt. In particular rain-on-snow events can be devastating due to the rapid snowmelt and frozen ground conditions that lead to increased run-off and flooding. If Arizona experiences a regular increase of rainy winters instead of snow, this could potentially be a challenge for the limited capacity of reservoirs and could create dangerous road conditions and heavier-than-usual snow and slush on buildings causing roof collapses. Rain-on-snow events in the Western U.S. are most common from October-May.[78]
- **Summer Monsoon** – A third atmospheric condition that brings flooding to Arizona is the annual summer monsoon. In mid to late summer the southerly monsoon circulation brings humid subtropical air into the state. Solar heating triggers afternoon and evening thunderstorms that can produce extremely intense, short duration bursts of rainfall. The thunderstorm rains are mostly translated into runoff and in some instances, the accumulation of runoff occurs very quickly resulting in a rapidly moving flood wave referred to as a flash flood. Flash floods tend to be very localized and cause significant flooding of local watercourses.

Damaging floods in the County can be primarily categorized as either riverine or local area flows. Riverine flooding occurs along established watercourses when the bank full capacity of a wash is exceeded by storm runoff or snowmelt and the overbank areas become inundated. Local area flooding can be the result of poorly designed or planned development wherein natural flow paths are altered, blocked or obliterated, and localized ponding and conveyance problems result. In some cases, adequately designed and planned developments may experience flooding as a result of wildland fire damage due to the new lack of vegetation available to soak up rainwater. Erosion is also often associated with damage due to floods.

Warmer ocean and atmosphere temperatures over the past 20 years have led to an increase in atmospheric moisture available for precipitation, resulting in some heavier rain- and snowfall events than the average in northern Arizona. Recent years have had fewer cold winter storms, resulting in warmer winter conditions. Warmer temperatures can lead to fewer winter snow events, and more winter rain events, but more importantly for flooding, more rain-on-snow events. So far, the climate division record for Coconino, Navajo, and Apache Counties shows significant warming over the last 20 years. But there is no clear trend in the frequency of extreme precipitation, though the record shows extreme annual variation.

[78] Gregory J. McCabe, Martyn P. Clark, and Lauren E. Hay, 2007, Rain-on-Snow Events in the Western United States

Precipitation during the monsoon season can be particularly heavy for short durations, and when these heavy rains fall on burn areas the flash flooding includes large debris flows. The warmer eastern Pacific Ocean waters also increase the potential for eastern Pacific hurricane formation off the coast of central America and Mexico, which bring additional moisture to the monsoon events in August and September, even if the tropical storms dissipate before reaching Arizona.

Debris flows are a hazard that may occur after large wildland fires. Wildland fire can significantly alter the hydrologic response of a watershed to the extent that even modest rainstorms can produce dangerous flash floods and debris flows. The USGS conducts post-fire debris-flow hazard assessments for select fires in the western United States. It uses geospatial data related to basin morphometry, burn severity, soil properties, and rainfall characteristics to estimate the probability and volume of debris flows that may occur in response to a design storm.

Wildfire-related flooding and increased runoff may continue for several years in a burn area, but it is unusual for post-fire debris flows to occur beyond the second rainy season. Some of the largest debris-flow events happen during the first post-fire storm season. It takes much less rainfall to trigger debris flows from burned basins than from unburned areas. Any storm that has intensities greater than about 0.4 inches per hour poses the risk of producing debris flows.

While multiple factors can affect debris-flow occurrence, post-fire debris flows generally are triggered by one of two processes: 1) surface erosion caused by rainfall runoff, and 2) landslides caused by rainfall seeping into the ground. Surface-erosion runoff processes are by far the most prevalent contributors to debris flows. This is because fires commonly reduce the rate at which water can seep into the soil. Landslide processes are much less common causes of fire-related debris flow, but prolonged heavy rains may increase soil moisture even after a wildland fire. The wetted soil can then fail, producing infiltration-triggered landslides, which may be shallow or deep-seated landslides (greater than 10'-15' deep).

History of Events

Flooding and post-wildfire debris flows, often paired with severe storms, are the most common cause for emergency declarations in Coconino County, as well as supporting state and federal declarations (though closely contended by wildfire). From 2020 to 2025 there have been 13 local emergencies in Coconino, Flagstaff, NAU, and Tusayan. These have yielded three federal declarations. This shows a marked increase since, between 1967 and 2020, Coconino County was involved in 12 state and/or federally declared flooding-based disaster declarations. These incidents have frequently come subsequent or in tandem with other seasonal events – including monsoonal storms, recent wildfires, and severe winter storms. The following list of incidents provides a representative sample of major flooding events that have impacted the County:

- **August 2023:** A two to three inches of rain in a short period leads to a flood event that caused water two to three feet deep and 300 feet wide to sweep through the center of Tusayan and over Highway 64. The flood resulted in extensive first story damage to buildings and vehicles, the evacuation of 100 residents and guests, power outages, and a shelter-in place order for 70 students at a local school. Travel through the area was disrupted for several days.[79]
- **July-August 2022:** A series of over 40 major monsoonal storms result in significant debris flows and flash flooding in areas downstream of the Pipeline and Museum Fire burn scars in and around northern Flagstaff. This threat leads to State and Federal emergency declarations and

[79] ABC 12 – 'Storm of epic proportions': Cleanup underway after massive flood submerged Tusayan underwater; CNN – Heavy flooding near Grand Canyon's southern rim prompted power outages and over 100 evacuations

deployment of the Arizona National Guard for flood fighting. Floods impact numerous structures and overflow several highways, leading to their temporary closure.[80]

- **July-August 2021:** In July, rain in flagstaff causes roads in and around NAU to become flooded and impassable. Rain in Sedona at the same time causes a sewage overflow and E. Coli danger in a nearby creek. In August, strong thunderstorms drop 2-4 inches of rain on the Museum Fire burn scar and Fort Valley areas resulting in significant flash flooding in Rio de Flag and Fort Valey. The flood damages schools, closes a highway, and damages over 24 homes.[81]
- **February 3, 2019:** Oak Creek in Sedona rose seven feet between 6:15 AM and 8:30 AM. Numerous low water crossings in Oak Creek Canyon were flooded. The creek dropped below bank full by 7:00 PM on February 4 in Sedona. The river gauge at Page Springs rose 9 feet between noon and 2:30 PM. At the peak of the flooding at Page Springs RV Park, a foot of water was flowing through the park. at the peak of the flooding. One large tree and several small trees came down. Red mud was deposited throughout the RV park. The water continued to flow downstream from Sedona into the Verde River where it was no longer a flood issue.[82]
- **July 11-12, 2018:** Deep monsoon moisture over northern Arizona allowed strong thunderstorms to develop into a 1000-year rainfall event. Heavy rain from thunderstorms caused flash flooding in the northern drainages of the Schultz Fire scar and created two flood waves which impacted the Supai area. A total of 172 visitors in the Supai campground were evacuated, campers were displaced, and 15 campers were stranded on high ground as tents and belongings were swept away.[83] The County crews spent two weeks removing debris from water channels and roads.[84]
- **July 2014:** The event of July 8th was one of the largest urban flood events ever recorded for the City of Flagstaff. The storm that led to flooding was a very rare event. Estimates indicate that the storm event was one that would be expected to occur once every 100 years (i.e. 1% chance of occurring in any given year) and possibly only once every 500 years (i.e. .2% chance of occurring in any given year) based on an approximately 100-year climate record. Several residential structures were evacuated during debris removal and cleanup.[85]
- **2013:** Record monsoon activity contributed to flooding incidents in Kaibab Estates West, McCann Estates in the Doney Park area, and Havasupai Village. Some homes in McCann estates sustained significant damage. It is important to note this particular flooding of McCann estates was unrelated to the Schultz Burn impacts but was the result of three significant rainfalls on the watershed areas above McCann Estates. The water treatment facility in Havasupai was temporarily disabled, and potable water and sandbags were flown in by helicopter.
- **2011-2014:** Additional post-fire flooding related to the Schultz Burn contributed to property damage, debris flows, and damage to utilities, roads, and some structures.

[80] AZ Central – We're in a major flood fight': More than 1,500 homes at risk of flooding around Flagstaff
[81] NWS – Flash Flood Emergency in Flagstaff August 17, 2021; KAFF News – Flood Waters Close Roads In and Around NAU Saturday Night As Monsoon Storms Continue in Flagstaff; KNAU – More Flooding in Flagstaff
[82] National Centers for Environmental Information (NCEI) formerly NCDC
[83] National Weather Service, Flagstaff
[84] National Centers for Environmental Information
[85] Weather.gov, July 2014, Month in Review for Northern Arizona

- **July 2010:** Heavy rain from thunderstorms over the Schultz Burn area of the San Francisco Peaks near Flagstaff Arizona caused severe post fire flooding and loss of a child's life in the residential areas inclusive of Doney Park, and Timberline-Fernwood. The aftermath of the largest wild land fire in Arizona in 2010 and subsequent sediment and ash-laden floods caused extensive damage to homes, property, and infrastructure up to four miles from the burn. The Schultz Fire caused significant impact to portions of several watersheds.[86]
- **August 2008:** Heavy rain from thunderstorms over the Cataract Creek and Havasu Creek drainages caused flash flooding that started in the Village of Supai. Radar estimated between three to four inches of rain over several square miles in the Cataract Creek drainage during the afternoon. Additional heavy rain from thunderstorms on August 17 contributed to heavy runoff into the canyon. Cataract Canyon/Creek becomes Havasu Canyon/Creek at Havasu Springs about a mile upstream from the Village of Supai. Flooding lasted several days and damaged several homes.[87]
- **July-August 2006:** In July, heavy rain caused three debris slides over Highway 89A in Oak Creek Canyon near Sedona. One slide was 100 feet wide and covered the road four feet deep. This area was below the Brins Fire scar area. In August, heavy rain caused at least three rockslides on Highway 89A through Oak Creek Canyon below the area impacted by the 2006 Brins Fire. The Highway was closed until the slides could be cleared.
- **December 2004:** A strong Pacific storm struck Arizona Dec. 28–29, causing heavy rain and snowmelt that produced excessive runoff from Williams and Flagstaff to Winslow and south to Prescott and Black Canyon City. The governor declared a state of emergency for Coconino and Yavapai counties and authorized $200,000 in aid. Impacts included high water, mud- and rockslides, numerous road closures and evacuations (70 people in SW Flagstaff after an earthen dam was overtopped), many creeks rising, a 14-mile closure of Highway 89 between Flagstaff and Sedona, damage to 150 homes (~$1 million) and about $1 million in road and bridge damage.[88]

Location

Flooding is the most common hazard in the state of Arizona. All of the planning area is susceptible to both flooding and flash flooding. The maps in **Figures 4.19 through 4.21** show the key areas of flood risk in populated areas of Coconino County. [89] In these figures, blue indicates a regulatory floodway, light purple shows areas subject to a .2% annual chance of flooding (a one in 500-year event), and dark purple indicates areas subject to a 1% annual chance of flooding (a one in 100-year event). Locations currently prioritized for flood mitigation efforts by the Coconino County Flood Control District include Tusayan/Ten X Ranch, Fort Valley, Kachina Village, Sedona/Oak Creek Canyon, Mountainair, Munds Park, and Mountain Dell.[90] Data on NFIP insured properties repetitively damaged by flooding are captured in **Section 5.3.5.**

[86] Arizona Hydrological Society Annual symposium, 2011, Field Trip Guide to the 2010 Schultz Burn Area
[87] National Climactic Data Center, 2008
[88] National Climactic Data Center, 2008
[89] Mapping in these figures 4.19-4.23 drawn from Coconino County Hazard Explorer and Floodplain Inquiry
[90] Detailed analysis, mapping, and project plans are available on the Coconino County Flood District Website

Figure 4.19: Flooding Risk in the City of Williams and Sedona/Oak Valley (in Coconino County)

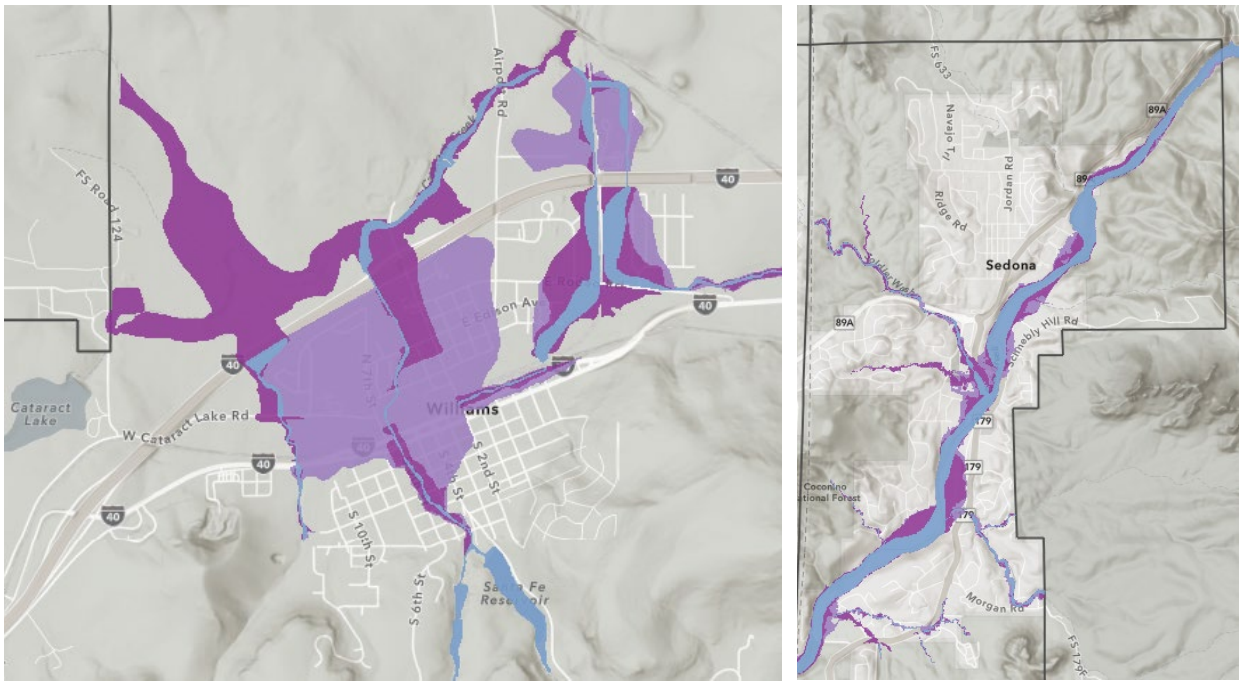
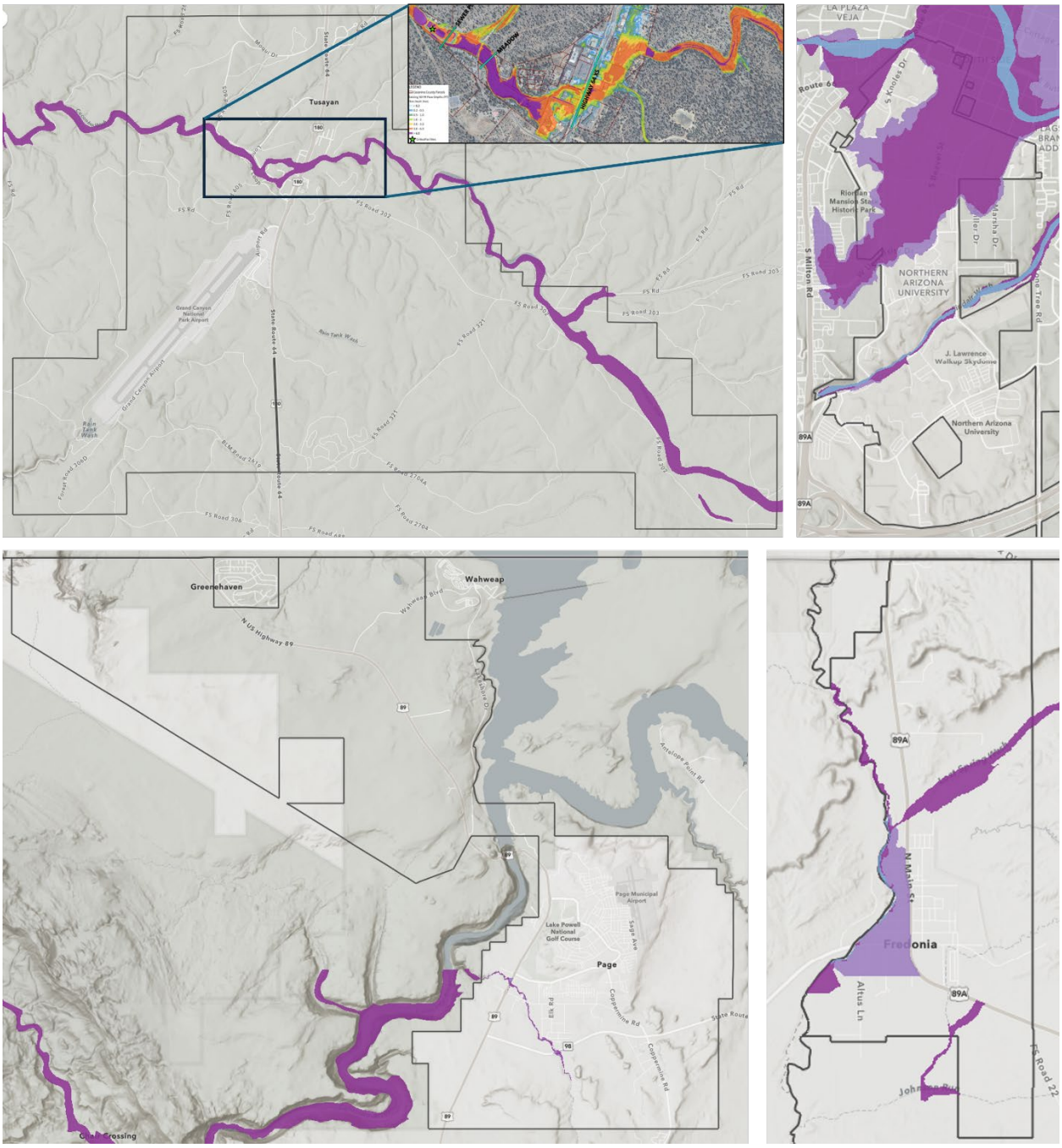


Figure 4.20: Flood Hazard in Tusayan, Fredonia, and Page (Clockwise) [91]



[91] Tusayan inset drawn from Coconino Flood Control District - Tusayan Draining Master Plan Presentation

Figure 4.21: Flood Hazard in Flagstaff and Mountain Dell[92]

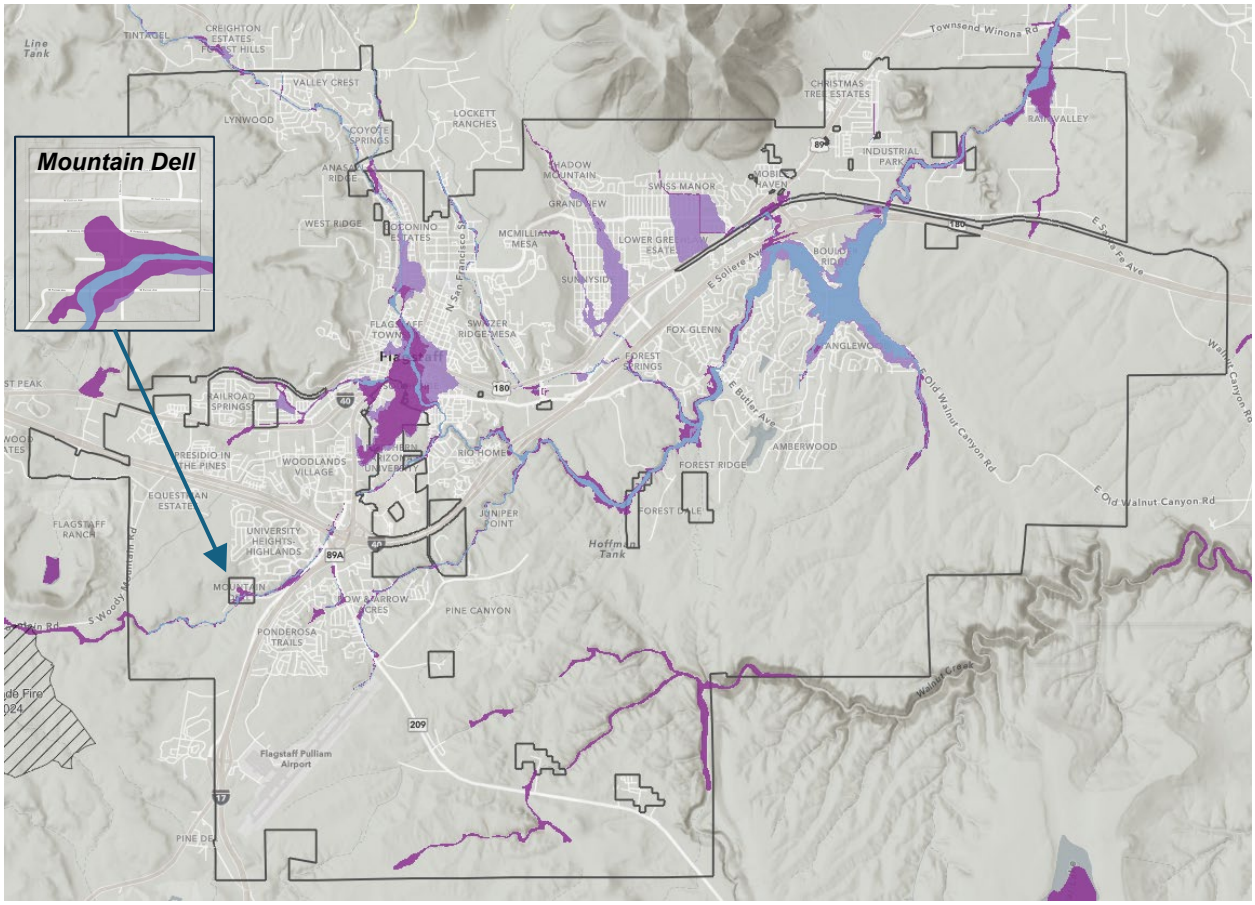
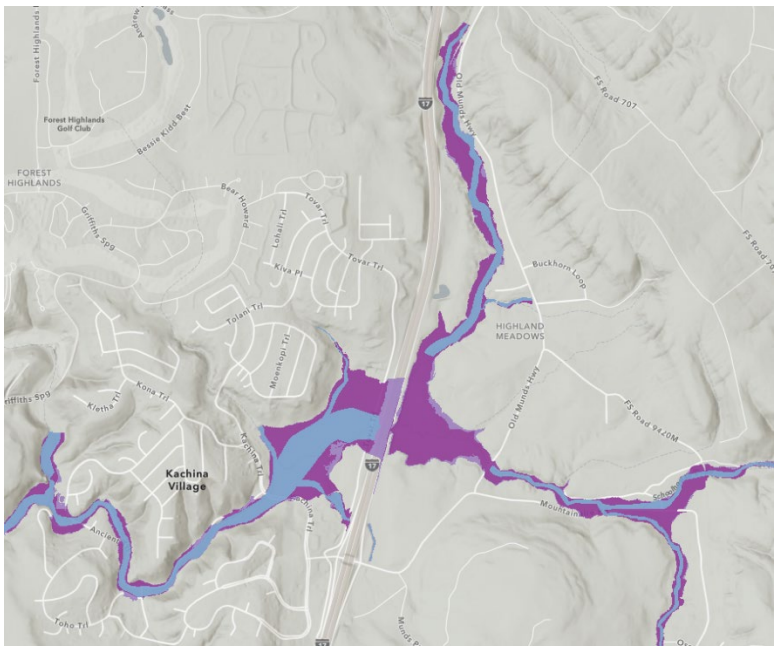
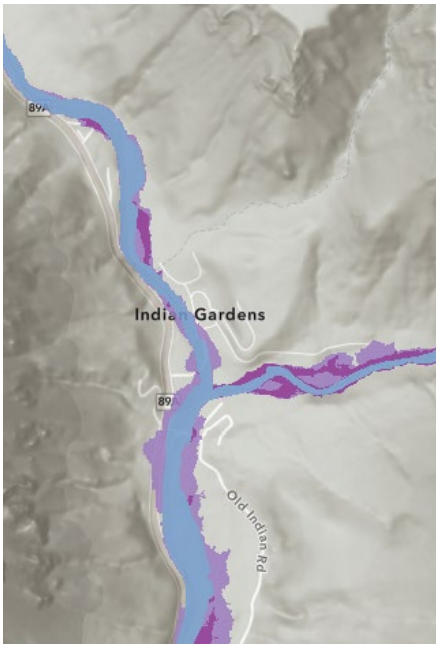


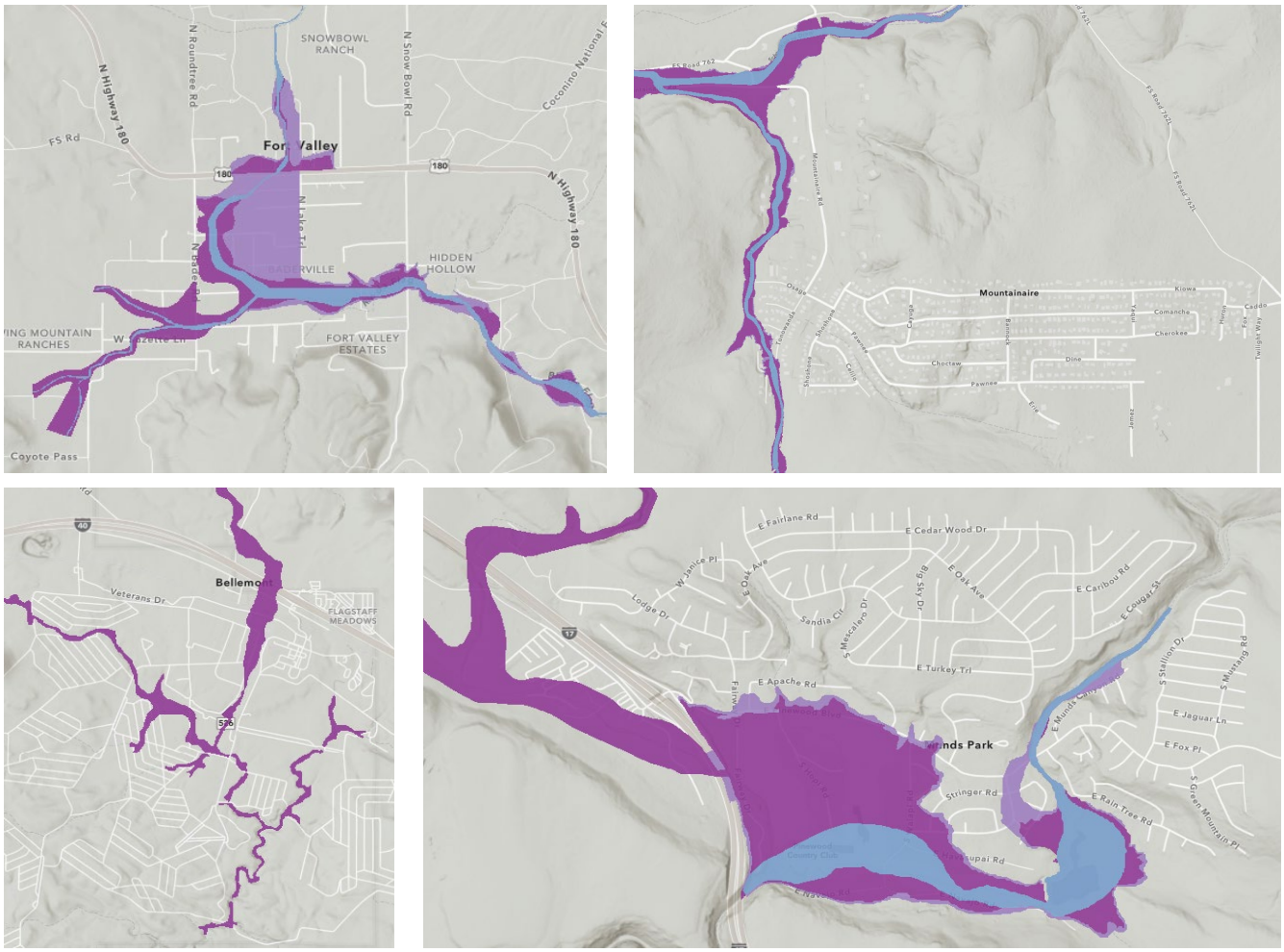
Figure 4.22: Flood Hazard in Kachina Village and Indian Gardens





92

Figure 4.23: Flood Hazard in Fort Valley, Mountainair, Bellmont, and Munds Park (Clockwise)

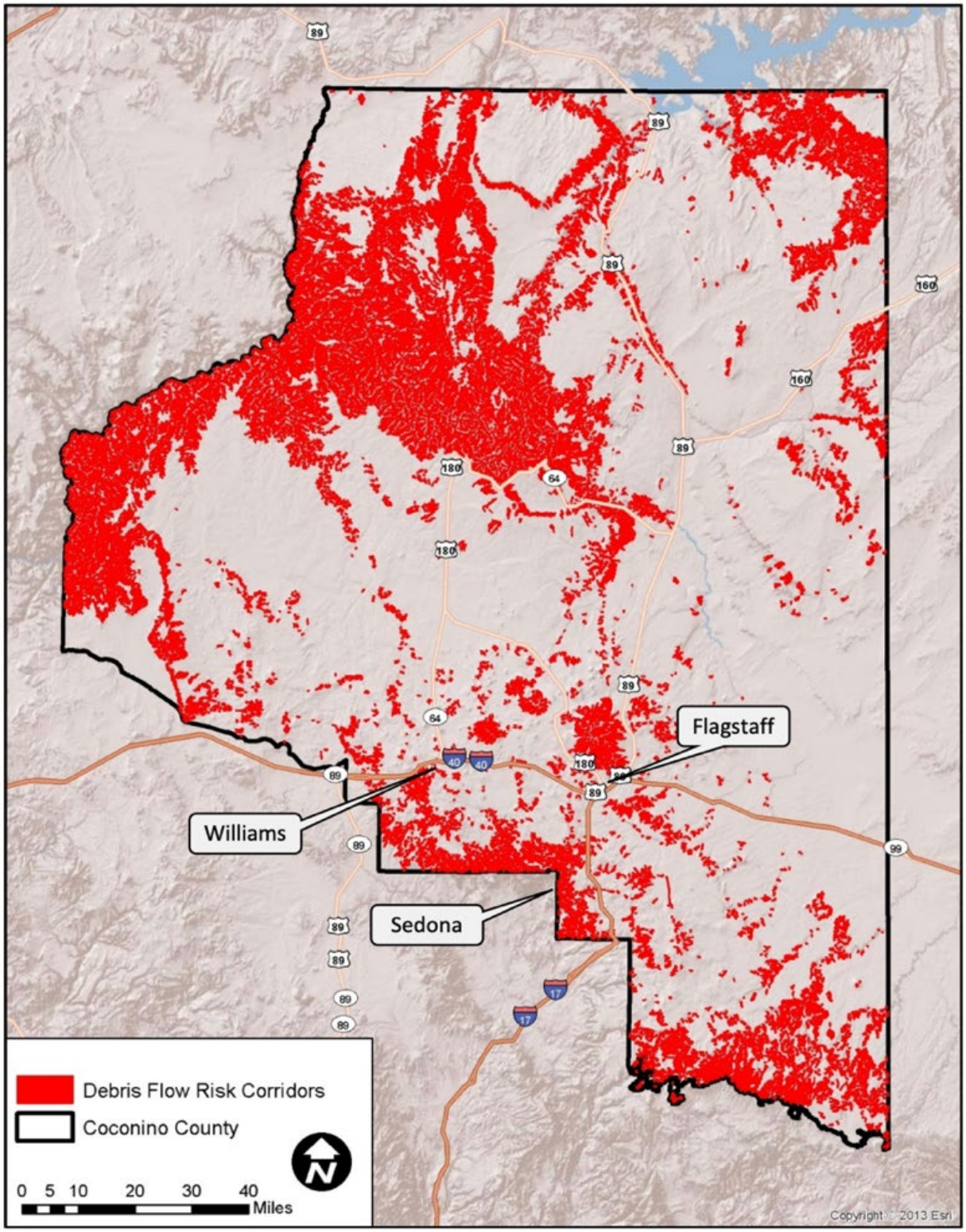


In 2017, the Arizona Geological Survey at the University of Arizona produced a Post-Wildfire Debris Flow & Flooding Assessment for Coconino County. The Assessment identified areas that are at risk for flooding and debris flows in the aftermath of a wildland fire. The study concluded that up to 34% of the buildings, and up to 26% of the critical facilities in the County are at some level of increased risk of post-fire flooding. The study also concluded that forest health initiatives can effectively mitigate as much as 58% of the post-fire flood and debris flow risk. The study also generated a map of locations with high-probability post-wildfire debris flow corridors, as seen in **Figure 4.24**.

For detailed risk assessments, the USGS conducts post-fire debris-flow hazard assessments for select fires in the western United States. They use geospatial data related to basin morphometry, burn severity, soil properties, and rainfall characteristics to estimate the probability and volume of debris flows that may occur in response to a design storm. The assessment provides a map of potential debris flows. Their GIS dashboard provides the most up to date debris flow hazard forecasts. Detailed analysis and mapping of specific locations and scenarios is also published on the Coconino County Flood District website.

As of the development of this plan, fire scars are of primary concern for future post-fire debris flows including, but not limited to White Sage, Dragon Bravo, Museum, Pipeline West, and Schultz/Pipeline fire areas.

Figure 4.24: Post-Wildfire Debris Flow Corridors[93]



[93] AZGS Post-Wildfire Debris-Flow & Flooding Assessment: Coconino County, Arizona

Extent

Flooding can cause severe threats to human safety, including drowning, injuries, displacement, and increased risk of waterborne disease, while also damaging critical infrastructure such as roads, bridges, utilities, buildings, and communication networks. Economically, floods produce direct losses to homes and businesses, disrupt productivity, and raise recovery and insurance costs. Environmentally, floods drive erosion, spread contaminants from sewage and chemicals, alter waterways, and degrade habitats, and socially they can produce long-term effects like homelessness, mental-health strain, and disrupted services such as schools and healthcare.

Post-wildfire debris flows pose additional and often intensified hazards: burned slopes that repel water generate rapid, high-energy flows of water, ash, soil, and rock that can move quickly enough to destroy structures and bury roads. These flows increase downstream flood peaks, cause flash flooding, carry heavy sediment loads and contaminants that degrade water quality and aquatic ecosystems, clog or damage infrastructure (culverts, bridges, water systems), and reduce access for emergency response. Because landscapes altered by fire can remain unstable for years, debris-flow and flood risk may persist until vegetation and soil structure recover, lengthening recovery time and raising the probability of repeat events.

The magnitude of flooding that is used as the standard for floodplain management in the U.S. is a flood with a probability of occurrence of one percent in any given year. This flood is also known as the 100-year flood or base flood. The most readily available source of information regarding the 100-year flood, as well as the 500-year flood (i.e. 0.2% probability of occurrence in any given year), is the system of Flood Insurance Rate Maps (FIRMs) prepared by FEMA. These maps are used to support the NFIP.

The USGS and other agencies refer to the percent chance of occurrence as an Annual Exceedance Probability (AEP). An AEP is always a fraction of one. A 0.2 AEP flood has a twenty percent (20%) chance of occurring in any given year, and this corresponds to a five-year recurrence-interval flood. Recurrence-interval terminology tends to be more understandable for flood intensity comparisons but may be misleading because a 100-year flood can occur two years in a row.

Regulatory Context

The Legislature of the State of Arizona has, in ARS 48-3601 through 48-3628, delegated responsibility and set parameters for county flood control districts to adopt regulations designed to promote public health, safety, and general welfare. Through these authorities, the Board of Directors of the Coconino County Flood Control District have defined and regularly updated zoning ordinances and floodplain regulations to minimize public and private losses due to flood conditions. To support their efforts, the Arizona Department of Water Resources (AZDWR) provides a variety of guidelines for floodplain management via its State Standards Working Group.[94]

The State Legislature has also established provisions for a state-supported flood warning program, managed by the AZDWR, that provides local jurisdictions with up to 75% of the funding for planning, design, and implementation of flood warning systems. These are captured in ARS 45-1501 through 45-1506.

In May 2018, the Coconino County Flood Control District Board of Directors affirmed the boundaries of the Flood Control District (FCD) to ensure the District was established according to Arizona Revised Statutes.[95] This review also found that the Flood Control District tax must be levied on all taxable properties within the County including the municipalities of Flagstaff, Fredonia, and Page that manage their own floodplain administration responsibilities. As of May 2018, Coconino County taxes all private properties within all municipalities consistent with Arizona's other counties.

[94] AZDWR Arizona Model Ordinances and Standards
[95] Coconino County Flood Control District Website. 2018. "FCD Tax Fact Sheet."

Probability of Future Events

NOAA has records for 322 flooding events that have occurred since 1996. From 2015-2019 there were 46 documented events while, from 2020-2025 there have been 114. Local reports indicate that 46 separate events occurred in 2022 alone. This indicates that the frequency and probability of flooding and debris flow events is increasing in tandem with the increasing occurrence of major wildfires and severe storm events – both of which are being exacerbated by climate change. Specific localized probabilities can be estimated using the following methodologies that rely on local terrain and post-fire land treatment:

- **Flood and Flash Flood Probability:** The probability and magnitude of flood hazards in the County jurisdictions are based on the 1% probability floodplains delineated on FEMA Flood Insurance Rate Maps (FIRMs), plus any provisional floodplain delineations used for in-house purposes by participating jurisdictions. Two designations of flood hazard are used, with HIGH hazard areas being any "A" zone and MEDIUM flood hazard being "Shaded X" zones. All "A" zones represent areas with a one percent (1%) probability of being flooded at a depth of one foot or greater in any given year. All "Shaded X" zones represent areas with a 0.2% probability of being flooded at a depth of one foot or greater in any given year. These two storms are often referred to as the 100-year and 500-year storm, respectively.
- **Post-Wildfire Flooding/Debris Flows:** In the Arizona Geological Survey Assessment mentioned previously, the two pilot studies that were conducted utilized modeling to predict debris flow probability and volumes based on three burn scenarios – treated, treated to 8200 ft. elevation, and untreated. An emphasis of the study was to understand and quantify the impact of increased forest health due to forest treatments (e.g. thinning, control burns, etc.) on downstream flood risk. The two pilot studies were conducted for Fort Valley and the City of Williams. The probabilities determined are outlined in the tables below. The report determined that treatment can effectively reduce post-fire discharges by 58%. The specific results are captured in **Table 4-21** below.

Table 4-21: Fort Valley Debris Flow Probability

Location	Modeled Scenario	Probability of Debris Flow in a 1-Year Event	Basin Hazard Class Ranking
Fort Valley	Treated All	45% - 77%	Moderate to High
	Treated to 8200 Elevation	66% - 99%	Moderate to High
	Untreated	77% - 99%	High
Williams	Treated	38% - 94%	Low to High
	Untreated	66% - 99%	Moderate to High

While the long-term probability of causative events continues to increase, and flooding events continue to increase in the County as a whole, ongoing flood mitigation efforts have begun to show an effect in lowering the frequency and probability of flooding in populated areas. Both 2023 and 2024 saw significantly reduced events and impacts in County communities – particularly near recent wildfire burn scars around Flagstaff where significant flood mitigation features have been implemented. Additional mitigation efforts are in place, or in-development, for communities such as Fort Valley, Kachina

Village/Mountainair, Munds Park, Mountain Dell, and Tusayan. It should also be noted that local jurisdictions within the county maintain their own FEMA floodplains. These can be expected to significantly reduce or eliminate the impacts of smaller rainfall events while moderating the effect of medium to large incidents as they are completed – though their efficacy in the long term will be based on the extent, maintained condition, and scale of the measures in place. Larger 100 and 500-year flooding events can still be expected to occur at their projected frequency and have substantial impacts – though these may be reduced by ongoing mitigation efforts.[96]

Vulnerability

Low-lying land, river floodplains, and areas immediately downstream of steep terrain and wildfire burn scars, especially narrow canyons and alluvial fans, are most geographically vulnerable to flooding and flood-related debris flows. Urban neighborhoods with extensive impervious surfaces and inadequate drainage, informal settlements on flood-prone land, and low-income housing near waterways face higher exposure because infrastructure and services are often weaker. Insurance cost increases and regional withdrawal by home insurers are a growing issue in addition to the long-term costs of hazard events like flooding. These high-risk events are likely to increase in frequency and cost as insurance coverage decreases. Rural communities are reliant on single access roads and remote populations lack timely evacuation options and emergency services. Vulnerable populations include children, older adults, people with disabilities or limited mobility, individuals without private transportation, and those with low incomes who cannot afford floodproofing or insurance; linguistic minorities and people with limited access to early-warning information are also at higher risk.

Notably vulnerable pieces of critical infrastructure to major flood and post-fire debris flows are reservoirs and water systems. These can become clogged with sediment and fouled by contaminants to such a degree that water is made unusable while the infrastructure to contain and transport it is rendered inoperable. This can severely disrupt local and regional water supplies for multiple months or years – particularly if critical reservoirs are affected. Response and recovery to such impacts is extremely expensive, requiring procurement and shipping of alternate water sources, drilling of ancillary wells to create new local sources, dredging, redesigning or replacing waterways and pipelines, as well as implementation of enhanced water treatment capabilities.[97]

Table 4-23 captures the Planning Team's estimation of their jurisdictions' risk for this hazard.

[96] KNAU – Coconino County reports flood measures near Timberline are working; Coconino County Flood District – Tusayan Draining master Plan Presentation 10/14/2025
[97] Circle of Blue – With Wildfire-Prevention Work, Flagstaff Seeks to Avoid the Next Devastating Flood; NAU - The Economic Impact of Post Fire Flooding: Bill Williams Mountain

Table 4-23: CPRI Rating for Flooding / Flash Flood and Post-Wildfire Flood / Debris Flows

Jurisdiction	Probability 45%	Magnitude/Severity 30%	Warning Time 15%	Duration 10%	CPRI Score (Max 4.0)
Coconino County	4	3	4	4	**3.7**
Flagstaff	4	3	4	4	**3.7**
Fredonia	2	2	4	3	**2.4**
NAU	4	3	4	4	**3.7**
Page	2	2	3	1	**2.05**
Tusayan	2	3	4	3	**2.7**
Williams	4	3	4	2	**3.5**
County-wide average CPRI =					**3.11**

Loss Estimates

According to the National Risk Index, Coconino's estimated annual losses to riverine flooding is $11,350,020, which places it in the 97.4 percentile of potential impacts in the United States.[98] The index values the property, population, and agriculture exposed to this form of flooding in the county at $86.8 billion (with $2.6 billion in building value and $84,397 in agricultural losses).

Detailed scenario modeling for post-wildfire flooding in highly populated and developed regions such as Williams or Flagstaff indicates that major incidents within, or directly adjacent to their jurisdictions, can result in tremendous single-event losses. A 2018 estimate of the damage that could occur from a catastrophic fire on Bill Williams Mountain, just south of Williams, forecast total costs ranging from $379 million to $694 million. Of these costs, roughly $214 million to $390 million could be attributed to primary and secondary impacts of flooding and debris-flows.[99] A 2023 study of the potential costs of fires in the San Francisco Peaks, just north of Flagstaff, estimated total costs ranging from $535.2 million to $2.8 billion. Of these costs, roughly $360.6 million to $2.4 billion could be attributed to flooding and debris flow primary and secondary impacts. [100] Costs integrated in these studies included flood specific property damage; utility, infrastructure, and trade disruption; lost property value due to flooding; revenue and sales tax loss; tourism loss; and long-term recovery costs. Both studies noted that their estimates were conservative in nature.[101]

The long-term economic effects of these events cannot be underestimated. Both of the studies mentioned previously drew data from the 2010 Schultz Fire as a baseline. In this event alone, property values were

[98] National Risk Index Community Profile – Coconino County, AZ
[99] NAU – The Economic Impact of Post Fire Flooding: Bill Williams Mountain 2018
[100] NAU – The True Cost of Wildfire on the San Francisco Peaks 2023
[101] Note: For the purpose of this plan, all costs that were not explicitly disambiguated or specific to a given hazard were split 50/50 between flooding and fire respectively (e.g. long-term recovery costs)

estimated to fall overall by 12% in Flagstaff, and 13.4% in the county overall when adjusted for overall market decline.[102] Residents estimated property loss from the fire and flood at approximately 30%.[103]

The costs and impacts of post-wildfire flooding also do not always come in the immediate aftermath of a given fire – often occurring once or multiple times for several years after the wildfire event. A major example of this is the Museum Fire in 2019, which was followed by two dry years and then monsoonal rain in 2021. The resulting flooding and debris flows resulted in a combined $7.8 million in public and private damages and over $1.8 million in response costs in and around Flagstaff. This would have been precipitously higher if the Coconino County Flood District had not invested $3.4 million in targeted mitigation projects.[104]

Developmental Trends

The potential for floods, flash floods and post-wildfire debris flows continue to increase throughout the planning area. Climate change has the potential to cause more frequent and more damaging flood incidents by increasing the rate and severity of rainstorm events. The warmer weather and increased moisture in storm systems can be further exacerbated by atmospheric rivers, which can create flooding throughout Arizona. The resulting deluges from these events can increase the frequency and size of major flooding events that approach or exceed the 100 and 500-year floodplains. Since historical and ongoing developments are generally permitted based on historical 100-year floodplain data, the risk of flooding events along with alluvial fans to existing and new developments is substantial.

This risk is magnified regarding debris flows. There is an ongoing trend of high-value residential and infrastructure development in rural areas that are in, or adjacent to, regions of heightened wildland fire and flooding risk. As wildland fires become larger and more frequent, they are priming wider areas for debris flow events at more frequent intervals. Heavier rainfall events will subsequently trigger these events more frequently at scale. These events can deliver major secondary impacts to communities recovering from wildland fire, but also significantly expand the breadth of the disaster affected area / population. Ongoing mitigation efforts will need to expand to encompass these newly developed areas while enhancing existing protections to successfully continue to mitigate impacts.

4.3.9 High Winds and Tornados

Description

The hazard of severe wind encompasses all climatic events that produce damaging winds. For the County, severe winds usually result from either extreme pressure gradients that usually occur in the spring and early summer months, or from thunderstorms. Thunderstorms can occur year-round and are usually associated with cold fronts in the winter, monsoonal activity in the summer, and tropical storms in the late summer or early fall. Three types of damaging wind features typically accompany thunderstorms: 1) downbursts, 2) straight line winds, and 3) tornadoes.

Downbursts are columns of air moving rapidly downward through a thunderstorm. When the air reaches the ground, it spreads out in all directions, creating horizontal wind gusts of eighty miles per hour (80 mph) or higher. Downburst winds have been measured as high as 140 mph. Some of the air curls back upward with the potential to generate a new thunderstorm cell.

Downbursts are called macrobursts when the diameter is greater than 2.5 miles, and microbursts when the diameter is 2.5 miles or less. They can be either dry or wet downbursts, where the wet downburst contains precipitation that continues all the way down to the ground, while the precipitation in a dry

[102] NAU Ecological Restoration Institute, “A Full Cost Accounting of the 2010 Schultz Fire,” May 2013.
[103] NAU Ecological Restoration Institute, “A Full Cost Accounting of the 2010 Schultz Fire,” May 2013.
[104] Southwest Fire Science Consortium – Post-Fire Flooding: The Museum Fire storymap

downburst evaporates on the way to the ground, decreasing the air temperature and increasing the air speed.

In a microburst the wind speeds are highest near the location where the downdraft reaches the surface and are reduced as they move outward due to the friction of objects at the surface. Typical damage from downbursts includes uprooted trees, downed power lines, mobile homes knocked off foundations, block walls and fences blown down, and porches and awnings blown off homes.

Straight line winds develop similarly to downbursts but are usually sustained for greater periods when a thunderstorm reaches the mature stage. They travel parallel to the ground surface at speeds of 75 miles per hour (mph) or higher. These winds are frequently responsible for generating dust and sandstorms, reducing visibility and creating hazardous driving conditions.

A tornado is a rapidly rotating funnel or vortex of air that extends toward the ground from a cumulonimbus cloud. Most funnel clouds do not touch the ground, but when the lower tip of the funnel cloud touches the earth, it becomes a tornado and can cause extensive damage. For the County, tornadoes are the least common severe wind to accompany a thunderstorm. These events can come with hail, which are balls of ice that accumulate in clouds where water droplets freeze, collide, and are layered with ice until they are too heavy to be supported by the storm's updrafts.

Note that the weather systems associated with these high wind events tend to be accompanied by lighting. This is due to the electrical buildup that happens in thunderstorms, where high winds cause water and ice particles to collide. Resulting areas of highly polarized molecules lower the resistance of air, allowing connection with opposite charged molecules in the air or ground – resulting in a neutralizing discharge.

History

Since the start of tornado tracking by the National Oceanic and Atmospheric Administration in 1957 and wind events in 1996, Coconino County has experienced a total of 427 events of which 48 have been tornadoes. From 2015 to 2019, there were 53 high wind events and three tornadoes. From 2020 to 2025 there have been 116 high wind events and seven tornadoes. Significant documented events include:

- **October 3, 2022 –** An EF-1 tornado touched down 8 miles west-northwest of Williams in Junipine Estates neighborhood damaging or destroying 10 structures and knocking out power for the entire community. Total value of direct damage from storm event estimated at $353,000.[105]
- **October 27, 2020 –** A cold front drops daytime temperatures 20 to 25 degrees below normal and causes 70 knot winds between downtown Flagstaff and the Flagstaff Mall. It knocks down a 50-foot ponderosa pine, causing significant damage to a house. Value of damage estimated at $35,000.[106]
- **September 14, 2011 –** An EF-2 tornado touches down north of Flagstaff in the San Francisco Peaks, causing substantial forest damage along Humprey's Trail. Hail from storm event caused approximately $5,000 in damage.
- **October 6, 2010 –** 11 tornadoes touched down in the County. Of the 11 tornadoes, two were EF-3, four were EF-2, two were EF-1, and three were EF-0.[107] Seven people were injured, and 101 homes suffered various levels of damage. The area of Bellemont Arizona was the hardest hit. The Flagstaff Meadows subdivision had three homes completely destroyed, nine homes had major damage, and fifteen homes experienced minor damage. I-40 and the BNSF rail line run east and west parallel and next to the Flagstaff Meadows housing area. Several vehicles along the I-40 corridor were flipped over, and the BNSF railroad

[105] NOAA Storm Events Database Record 1055701
[106] NOAA Storm Events Database Record 932214
[107] National Weather Service Flagstaff Office

experienced a 20-rail car derailment.[108] Total damages as recorded by the National Weather Services was approximately $1.635 million.

- **April 2010 –** Strong winds and blowing dust closed a stretch of Interstate 40 between Meteor Crater rest area and Winslow for several hours twice during the month. Blowing dust reduced visibility so much so, that the Arizona Department of Transportation closed the 17-mile stretch of interstate. Strong, sustained southwest winds of 30-40 mph, with gusts of 45-55 mph, were recorded.[109]
- **September 2000 –** A strong dust devil at the Coconino County Fairgrounds caused property damage and personal injuries. The dust devil ripped shingles off two roofs, blew down four large tents, blew over a ticket booth and split the supporting beams on a permanent structure. Two people sustained minor scrapes and bruises, and one person reported a back injury.[110]
- **June 1995 –** Very strong north to northeast winds caused significant damage and combined with cold temperatures to produce extremely cold wind chills above 9,000 feet in the San Francisco Peaks area north of Flagstaff. The highest wind gust of 105 mph was recorded by the Arizona Snowbowl ski area at 3:00 P.M. MST at an elevation of 10,800 feet. Winds blew down approximately 80 trees in the Arizona Snowbowl. One fallen tree caused several thousand dollars damage to a ski lift. Communication lines and power were down also for several hours on the morning of June 18.[111]

Location

All of the County is subject to high winds and potentially tornadoes. Thunderstorms with associated macro and micro-bursts occur more frequently at higher altitudes. An area of notable historic impact is the Glen Canyon Recreation Area / Lake Powell, where severe wind events transform the lake's water surface into dangerous waves that have proven to be fatal and extremely damaging to the surrounding marinas.

Extent

High wind events generally occur across large geographic areas in association with major meteorological shifts and storm events. Localized geography, air pressure, and temperature shifts can lead to particularly strong winds occurring within a larger event which can result in damage. They often occur concurrently with storms and heavy rainfall and can result in dust storms that can cause power outages, public health outbreaks (see Valley Fever), and transportation accidents. The average wind speed of recorded high wind events is 55.39 knots, and the median is 53 knots, the highest recorded wind speed was 99 knots.[112]

Powerful tornadoes can leave a path of near total destruction several hundred yards in width and several miles long. They often occur in clusters that include more than a single destructive funnel. They have the potential to cause extensive damage to dozens or even hundreds of city blocks. Tornadoes are generally accompanied by high winds, rain, and hail – which can additionally cause flooding and impact damage. In addition to immediate life safety threats and property damage, tornadoes can cause power outages, fires, and hazardous material and transportation accidents. The bulk of documented tornadoes in Coconino County are EF-0 or EF-1 in strength, with the largest being an EF-3.[113] Hail can be up to baseball sized.

The lightning generated alongside these storm events generally strikes features that are tall compared to their surroundings, conductive, and carry a distinct positive or negative charge. However, individuals and objects adjacent or connected to the location or object struck can also be affected. This can lead to indirect injuries and fatalities since lighting can be 10-100 million volts. Lightning strikes can also cause

[108] US National Weather Service Flagstaff Arizona Facebook page
[109] Arizona Daily Sun, April 2010
[110] National Climatic Data Center, 2008
[111] National Climatic Data Center, 2008
[112] NOAA Storm Events Database – Coconino County, AZ High Wind Events
[113] NOAA Storm Events Database – Coconino County, AZ Tornado Events

severe damage to property and infrastructure, as well as fire, through energy discharge and electrical overload. Conspicuously tall structures and those without lightning rods tend to be at greatest risk. Most injuries and fatalities have occurred to hikers often in high or exposed areas.

The NWS issues a severe thunderstorm watch when conditions are favorable for the development of severe thunderstorms. The local NWS office considers a thunderstorm severe if it produces hail at least a 1" in diameter or larger, winds of 58 mph or higher, or tornadoes. When a watch is issued for a region, residents are encouraged to continue normal activities but should remain alert for signs of approaching storms and continue to listen to weather forecasts and statements from the local NWS office.

When a severe thunderstorm has been detected by weather radar or one has been reported by trained storm spotters, the local NWS office will issue a severe thunderstorm warning. A severe thunderstorm warning is an urgent message to the affected counties that a severe thunderstorm is imminent. The warning time provided by a severe thunderstorm watch may be on the order of hours, while a severe thunderstorm warning typically provides an hour or less warning time.

Wind events, other than tornadoes, are measured on the Beufort Scale, shown in **Table 4-24** below.

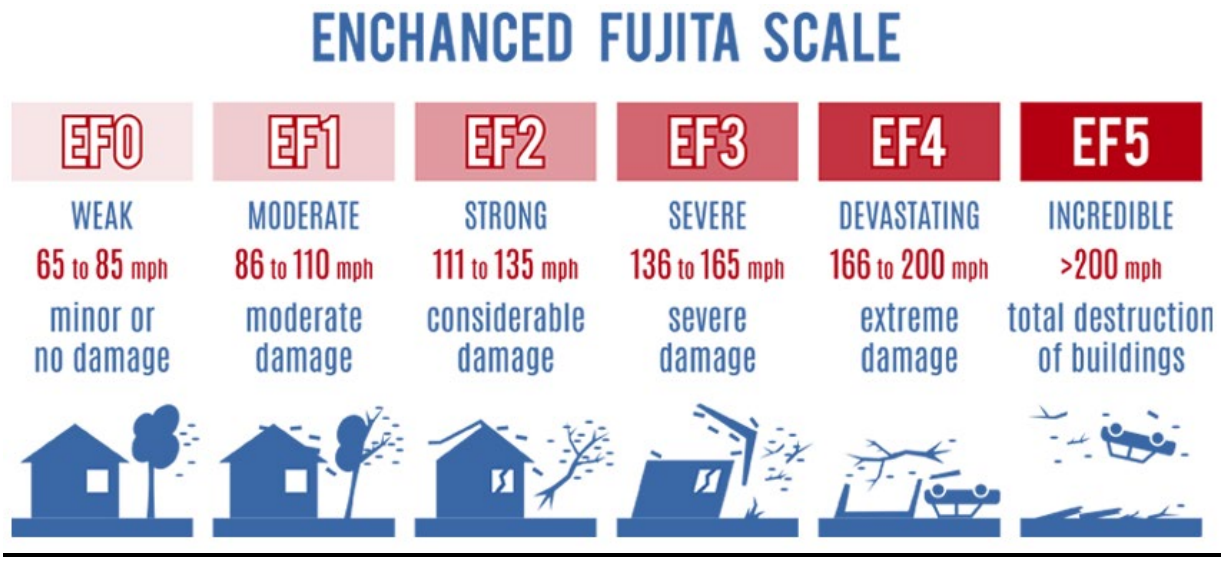
Table 4-23: Beufort Scale

Force	Wind (Knots)	WM Class	Appearance of Wind Effects	
			On the Water	On Land
0	Less than 1	Calm	Sea surface smooth and mirror-like.	Calm, smoke rises vertically.
1	1-3	Light Air	Scaly ripples, no foam crests.	Smoke drift indicates wind direction and still wind vanes.
2	4-6	Light Breeze	Small wavelets, crests glassy, no breaking.	Wind felt on face, leaves rustle, and vanes begin to move.
3	7-10	Gentle Breeze	Large wavelets, crests begin to break, scattered whitecaps.	Leaves and small twigs constantly moving and light flags extended.
4	11-16	Moderate Breeze	Small waves 1-4 feet becoming longer, numerous whitecaps.	Dust, leaves, and loose paper lifted; small tree branches move.
5	17-21	Fresh Breeze	Moderate waves 4-8 feet taking longer form, many whitecaps, some spray.	Small trees in leaf begin to sway.
6	22-27	Strong Breeze	Larger waves 8-13 feet, whitecaps common, more spray.	Larger tree branches moving and whistling in wires.
7	28-33	Near Gale	Sea heaps up, waves 13-19 feet, white foam streaks off breakers.	Whole trees moving and resistance felt walking against wind.
8	34-40	Gale	Moderately high (18-25 feet) waves of greater length, edges of crests begin to break into spindrift, foam blown in streaks.	Twigs breaking off trees and generally impedes progress.
9	41-47	Strong Gale	High waves (23-32 feet), sea begins to roll, dense streaks of foam, spray may reduce visibility.	Slight structural damage occurs, slate blows off roofs.

Force	Wind (Knots)	WM Class	Appearance of Wind Effects	
			On the Water	On Land
10	48-55	Storm	Very high waves (29-41 feet) with overhanging crests, sea white with densely blown foam, heavy rolling, lowered visibility.	Seldom experienced on land, trees broken or uprooted, and considerable structural damage.

The Fujita Scale is used to categorize tornadoes. **Figure 4.23** lists scale values with their affects.

Figure 4.24: Enhanced Fujita Scale and Effects



Regulatory Context

City and County building codes include regulations for structural design to resist wind damage.

Vulnerability

The entire County is exposed to the hazard of high-wind and tornado events, as well as their attendant hazards of hail and lightning.

High winds pose the greatest threat to individuals outdoors and lightly constructed structures such as tents and mobile homes. Individuals and properties with extensive unsecured objects or trees nearby (sick or with shallow root systems) also tend to be vulnerable to impacts. Ageing and high-exposure infrastructure such as power lines can also be at significant risk when placed under high wind strain or exposed to resultant dust storms. Meanwhile, the power of tornadoes generally ensures that all but the most robust above-ground structures are at risk of damage when a tornado occurs. Large, robust structures built to resist extremely high winds, often per building codes, may resist the bulk of direct impacts but still endure external and infrastructure damage that renders the facility inoperable or uninhabitable.

Table 4-25 captures the Planning Team's estimation of their jurisdictions' risk for this hazard.

Table 4-25: CPRI Rating for High Wind / Tornado

Jurisdiction	Probability 45%	Magnitude/Severity 30%	Warning Time 15%	Duration 10%	CPRI Score (Max 4.0)
Coconino County	3	3	3	2	**2.9**
Flagstaff	2	2	2	1	**1.9**
Fredonia	1	1	4	2	**1.55**
NAU	3	3	3	2	**2.9**
Page	2	2	2	2	**2**
Tusayan	2	3	3	2	**2.45**
Williams	3	2	3	2	**2.6**
County-wide average CPRI =					**2.33**

Probability of Future Events

High winds may be expected to occur in the County over 24 times per year. Tornadoes occur less frequently, averaging 1.1 documented occurrences per year with a range of 0 to 2 events per year (excluding the 2010 tornado outbreak). The interval between years with events ranges from 1 to 6 years. Hail associated with these storms occurs multiple times annually, while lightning strikes are more variable, occurring one to three times every few years.

Warming temperatures across the southwest are not expected to change the severe wind climatology. The current regime of severe winds, primarily from thunderstorms, should not change in the future as there is no evidence of an increase of pressure gradients or other forcing factors. Downbursts from summer thunderstorms will continue to be the primary source of high wind events, but there is no evidence to indicate a trend of increases in frequency or intensity.

Loss Estimates

Since the start of data collection by the National Oceanic and Atmospheric Administration, high wind events have caused approximately $147,500 in structure and agricultural damage and 17 injuries. Most events cause no damage whatsoever. With the percentage of structures built to moder, wind resistant, building codes increasing, it is likely that damage and impacts will remain steady or decrease.

Most recorded tornadoes that occur in Coconino County are brief and cause little to no damage. However, the tornado outbreak of 2010 caused approximately $1.635 million in damage and the recent strike of Junipine Estates by a tornado in 2022 resulted in over $353,000 in damages. Similar or greater losses can be expected in the future – especially as development expands in the County. That said, should a tornado touchdown and travel across a large, populated area, losses extending into the hundreds of millions of dollars can be expected (to include the impacts of secondary hazards and cascading impacts such power outages and infrastructure disruption) – in addition to fatalities and injuries.

According to the National Risk Index, estimated annual losses for high wind events and tornadoes are $18,842 and $257,758 per year.[114] Annual losses for hail and lightning are $9,498 and $2.7 million respectively. However, note that the expected loss due to lightning is significantly influenced by the number of injuries and fatalities it has caused. When isolated, the property damage associated with lightning strikes is only $35,844. That said, available records indicate that lightning has caused a total of 7 deaths and 43 injuries since major incidents were first tracked in 1997, with some strikes causing up to

[114] National Risk Index - Coconino County, AZ

eight casualties at a time.[115] Strikes have additionally been known to cause wildfires or significant property damage – with one incident in 2023 leading to $600,000 in property damage.

Developmental Trends

Expanding development within the County will increase population exposure to high winds and tornadoes, as well as their secondary hazards and cascading impacts. However, in lieu of a catastrophic event, the increase in annual losses is expected to be small.

4.3.10 HAZMAT Release, Pipeline Failure, and Transport Accidents

Description

Hazardous material is defined as any material that, due to its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released. Hazardous materials include but are not limited to hazardous substances, hazardous wastes, and any material that a business or local implementing agency has a reasonable basis to believe would be injurious to the health and safety of persons or would be harmful to the environment if released. Effects of exposure may be felt over seconds, minutes, or hours (i.e. short-term effects) or not emerge until days, weeks, or even years after (i.e. long-term effects). Some substances are harmful after a single exposure of short duration, but others require long episodes of exposure or repeated exposure over time to cause harm.

Hazardous material releases can occur from industrial facilities at fixed sites or along transportation corridors such as rail and roadways. Past hazardous material releases are contained in the history section. Hazards from releases cause include fire, explosion, toxicity, corrosiveness, and asphyxiation. These releases may cause long-term impacts to both individuals affected by the initial release and the surrounding environment or personal property, and can result in short-term or long-term evacuations, depending on the size and scale of the incident.

Mobile incidents include those that occur on a roadway or a railroad. These incident-related releases are dangerous because they can occur anywhere, including near human populations, critical facilities, or environmentally sensitive areas. Mobile incident-related releases can also be more difficult to mitigate because of the great area over which any given incident might occur and the potential distance of the incident site from response resources.

Pipelines are the safest and most reliable way to transport natural gas, crude oil, liquid petroleum products, and chemical products, there is still an inherent risk due to the nature of hazardous materials.

The release of hazardous substances from stationary sources such as storage facilities or manufacturing plants can be caused by human error, equipment failure, intentional dumping, acts of terrorism, or natural phenomena. Earthquakes pose a particular risk because they can damage or destroy facilities containing hazardous substances. The threat posed by a hazardous-material event can be amplified by restricted access, reduced fire suppression and spill containment capability, and cutoff of response resources.

History

Recent and notable hazardous materials release and spill events in Coconino County include\:

- Grand Canyon, 2021-2025 – The Dragon Bravo Fire (2025) encroached on Grand Canyon Village and burns down the Indian Gardens Pump Station, a water treatment and distribution facility, resulting in the release of its supply of chlorine gas. This delayed firefighting efforts and forced mass evacuation from

[115] NOAA Storm Events Database – Lightning in Coconino AZ

surrounding areas. This was built on top of nearly five years of accidental air releases from the facilities ranging from 10,300-21,150 pounds per year.[116]

- Flagstaff, August 2020 – An overturned tanker truck released 1,000 gallons of gasoline onto the ground. The gasoline flowed into a storm drain and an unnamed creek.
- Flagstaff, March 2020 – A tractor trailer is involved in a single-vehicle accident while exiting I-40 at exit 198. In the process, its attached tanker trailer rolls over, begins to leak and catches fire. Around 8,787 gallons of gasoline were destroyed. An unknown amount of this fuel was spilled and made it into the storm drain system versus burning.
- Page, September 2018 – A storage tank experienced a transfer line rupture, causing a spill of materials into secondary containment.
- Flagstaff, March 2018 – A natural gas explosion occurred along a distribution line at a private residence. The occupant sustained burns to the hand and face.
- Bellemont, October 2000 – On Halloween night, October 31, 2000, two west bound trains on the BNSF rail line collided in Bellemont Arizona, a community of approximately 1000 people, and approximately ten miles from Flagstaff. A large quantity of diesel fuel was released from one locomotive and caught fire. Atmospheric conditions were favorable for smoke dissipation for public safety, and the diesel fuel was allowed to burn as it was released to avoid water table and soil contamination. This collision caused the closure of east bound and west bound I-40 and evacuation of local residents throughout the night. There was one crewmember fatality.

According to the United States Coast Guard National Response Center (USCG NRC), there have been 100 hazardous materials releases in Coconino County, 82 of which took place in jurisdictions named in this plan between 2021 through 2025. A tally of these reports is in the Table 4-26 below.

Table 4-26: USCG NRC Reports by Jurisdiction in Coconino County[117]

Jurisdiction	2015-2020	2021-2025
Unincorporated Coconino County	0	7
Page	22	24
Flagstaff	40	40
Fredonia	1	5
Williams	4	6

According to the Department of Transportation (DOT) Pipeline and Hazardous Materials Safety Administration, there were 38 hazardous materials transport incidents reported in Coconino County from 2015 to 2019, and 67 incidents from 2020 to 2025. All but five incidents involved highway transportation, with four involving air transport

[116] NOAA HYSPLIT Helps officials make call for evacuation at the Grand Canyon, EPA TRI Facility Report: US National Park Service – Grand Canyon National Park (86023SNTNLALBRI)
[117] US Coast Guard National Response Center Reports

and one involving rail through Flagstaff. Table 4-27 captures the specific jurisdictions in which these incidents occurred.118 National Transportation Safety Board and Department of Transportation records indicate that there were no pipeline incidents in Coconino County from 2015 to 2025.

Table 4-27: DOT PHMSA Datamart Hazardous Materials Incidents

Jurisdiction	2015-2019	2020-2025
Unincorporated	1	1
Flagstaff	36	65
Williams	1	1

Location

The largest concentration of extremely hazardous substances storage and facilities are in Flagstaff, followed by the unincorporated areas, then Page, and finally Williams. A review of the Environmental Protection Agency's (EPA) Facility Registry Service's shows the following distribution of sites that produce, store, or transport hazardous substances; are involved in spills and cleanup or remediation efforts; or are regulated and at risk for accidental release of chemicals. Table 4-28captures site distribution by jurisdiction. The majority of the FRS sites identified below are predominately either within or adjacent to urban areas or along the County's major transportation routes – particularly I-40, and Routes 64, 89, 89A, and 180

Table 4-28: EPA FRS Sites in Coconino County by Jurisdiction[119]

Jurisdictions	Sites
Coconino County (All)	2,938 (Includes 68 Tribal, 1,440 Federal 105 Sedona)
Coconino County (Unincorporated Area)	399
Flagstaff	591
Fredonia	28
NAU	9
Page	127
Tusayan	27
Williams	114

Note: The FRS system's allocation of locations and associated jurisdictions do not always align with jurisdictional boundaries. Numbers are approximate due to manual disaggregation of data to more accurately represent distribution of sites within jurisdictions.

[118] US DOT Pipeline and Hazardous Materials Safety Administration PHMSA Datamart Hazardous Materials
[119] EPA Facility Registry Service and FRS Query; ESRI ArcGIS EPA Maps - FRS Sites

While not publicly published, the locations of notably high concentrations of hazardous materials are captured via EPA facilitated Emergency Planning and Community-Right-To-Know Act (EPCRA) Reporting. This information is provided to Local Emergency Planning Committees to facilitate emergency planning. Arizona facilitates data collection and applies additional state-specific requirements via the Arizona Department of Environmental Quality. Locations captured through this reporting include:

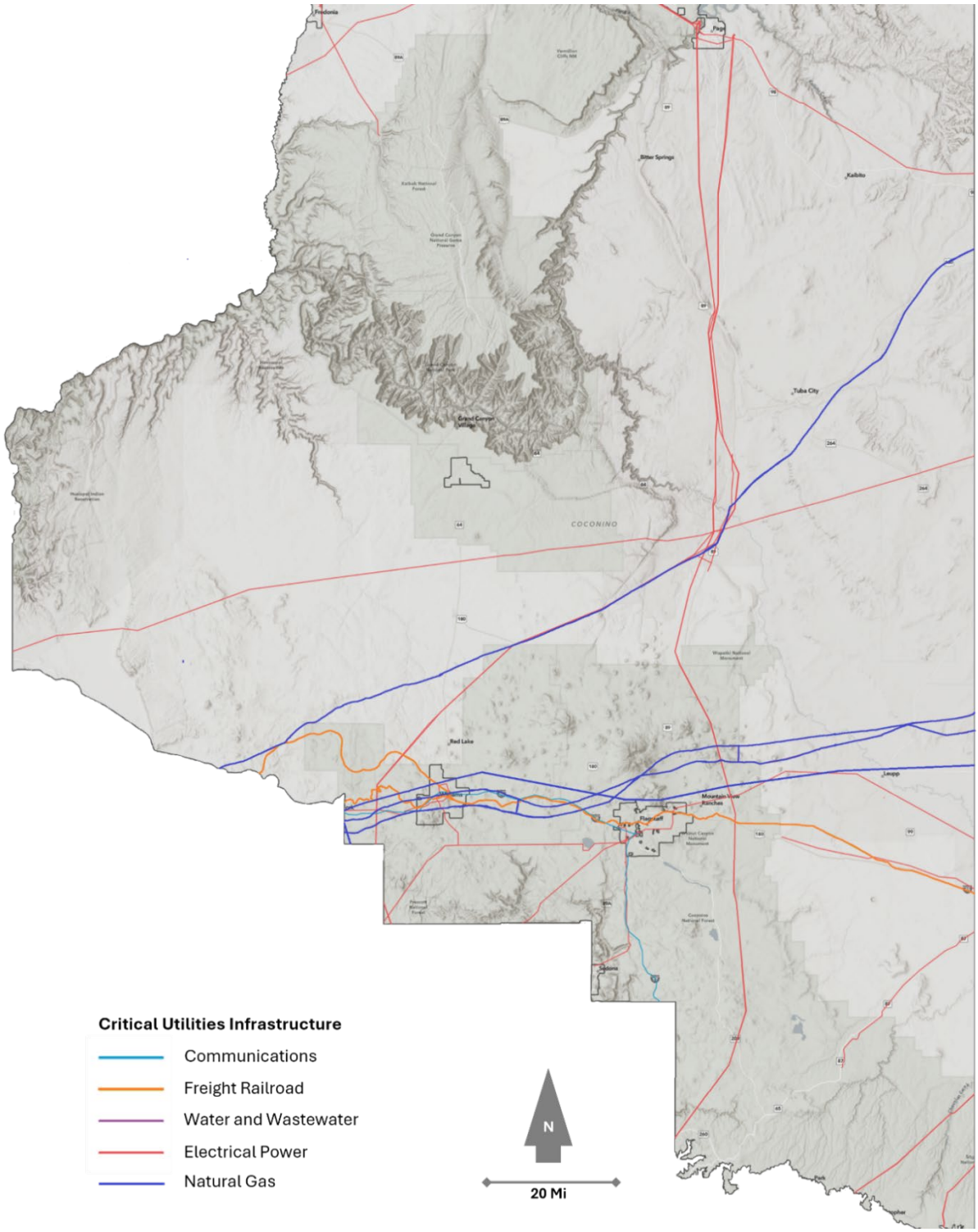
Transport routes for OSHA defined Extremely Hazardous Substances (EHS) as identified by facilities subject to Emergency Planning and Community Right-to-Know Act (EPCRA) Reporting;

Facilities with EHS in quantities in excess of Threshold Planning Quantities (TPQ), that require Tier II Reporting as identified in the EPCRA;

Facilities that employ, process, and/or store radioactive materials.

Additional hazardous materials risks for the County stem from pipelines that flow through the jurisdiction. The interstate pipeline delivering Arizona's natural gas flows directly from East to West through the Navajo Nation and Hopi Reservations into the County. These major pipelines run parallel to I-40 and underneath Flagstaff.

Figure 4.24: Coconino County Pipelines, Utilities, and Related HAZMAT Transport Routes [120]



[120] U.S. Energy Information Administration (EIA) Arizona Profile and Maps for Coconino County, AZ ; Coconino County Hazard Explorer

The County's strategic location makes it a hub for local, regional, and national cargo shipments, and transportation corridors pose a significant threat with risks of spills and accidents. The I-40 corridor runs East and West through the county from the Navajo Nation through Flagstaff and to Seligman. The freight and passenger supporting Burlington Northern Santa Fe (BNSF) Railway takes a similar path. North and South, from Grand Canyon to Congress (just north of Williams) runs the passenger-oriented Grand Canyon Railway. Each of these heavily traveled lines runs through densely populated areas, including downtown Flagstaff and Williams. Based on past event data, the most likely cause of hazardous material release incidents in the County has been due to spills and accidents on transportation corridors or vehicles. Transportation routes with the highest probability of hazardous materials incidents include:

- Interstate 17, 40
- US Highway 89, 89A, 160, 180
- State Route 64, 66, 87, 89, 89A, 98, 99, , 260, 264
- Business 40 (Santa Fe Avenue through Flagstaff)
- Lake Mary Road (FH 3)
- Leupp Road (County Road 127, Flagstaff to Leupp)
- Burlington Northern Santa Fe Railway.

Over 70 trains travel through Coconino per day via the BNSF line, with an average of 70 cars per train. These move over 250,000 cars and over 30 million tons of material into and out of Arizona every year, of which approximately 13.5%, based on the state average, carry hazardous materials. These materials include sulfuric acid, alcohol, and liquid petroleum gas. The volume of hazardous materials being transported into the states is expected to increase moderately at an annual compounding growth rate of .7% while outbound chemicals are likely to increase by 1.4%. However, based on national averages, this is likely only a small proportion of hazardous materials moving through the county – since only 7.6% of hazardous materials travels via this mode on average in the United States.[121]

The majority of hazardous materials transported in the United State, approximately 58.5%, travels via truck at some point in its delivery process.[122] The north-south oriented I-17 highway sees an average daily truck traffic of between 3,000 and 5,000 trucks per day. The I-40 west of Flagstaff sees between 5,000 and 7,500 trucks per day while the eastbound route can see over 7500 per day.[123] Most other highways in the County see less than 1,500 trucks per day. A 2011 estimate integrated in the County's emergency planning estimated that, at the time, 300 – 450 trucks per day traveled this highway system with hazardous materials.[124] Since the volume of traffic on this highway system has more doubled since the study, it can be surmised that the number of trucks carrying such cargo have, at a minimum, doubled as well.

The historical and re-emerging production of uranium and heavy metals in Northern Arizona can pose another form of hazardous materials risk centered around mines, their nearby water features, and aquifers. The process utilized to extract heavy metals may generate solid and liquid toxic waste. Outside waste could present a risk for toxic spill events secondary to dam failure, major rainfall, or flooding events as it is held for processing and decontamination. Waste inside the mines could present an ongoing risk of contaminants infiltrating into local groundwater and aquifers. Spill or infiltration contamination events

[121] AZDOT Arizona State Rail Plan 2022; US DOT "Moving Goods in the United States"
[122] US DOT "Moving Goods in the United States"
[123] AZDOT Arizona State Freight Plan 2022
[124] Coconino County Emergency Operations Plan, 2011.

from such facilities, which can occur long after the end of active operations if a mine is improperly closed, can severely impact regional water supplies and have widespread effects based on regional geology, hydrological systems, and aquifer interconnectivity. As such, these risks are the focus of significant regulatory and risk management efforts among local, state, federal, and private stakeholders.

The extent of a hazardous material spill may vary from significant impacts causing injuries and evacuation to minor impacts requiring cleanup. Hazardous material releases can be harmful in the following ways:

- Chemical, biological, and radiological agents can cause significant health risks to those exposed to them; biological agents can be additionally dangerous if they are infectious. Flammable and explosive materials pose additional risks when exposed to heat.
- Spills can present an immediate fire hazard and can contaminate drinking water supplies. Any release of hazardous material requires a thorough clean-up of the site and decontamination of those exposed. Clean-up and recovery are time and cost consuming. Extensive water supply contamination can have long-term habitability, ecological, and economic consequences.
- Delays caused by hazardous materials releases and the ensuing evacuation and cleanup processes could lead to significant economic losses due to traffic delays (i.e. mobile releases) or operational shut-down (i.e. fixed facilities).

Overall, hazardous materials can cause death, serious injury, long-lasting health effects, and damage to buildings, the environment, homes, and other property.

Regulatory Environment

The Hazardous Materials Transportation Act (HMTA), enacted in 1975, is the principal federal law regulating the transportation of hazardous materials. Its purpose is to "protect against the risks to life, property, and the environment inherent in the transportation of hazardous material in intrastate, interstate, and foreign commerce." Implementation is under the authority of the U.S. Secretary of Transportation. The Act was passed as a means to improve the uniformity of existing regulations for transporting hazardous materials and preventing the spills and illegal dumping endangering the public and the environment – a problem exacerbated by uncoordinated and fragmented regulations.

Regulations are enforced through four key provisions encompassing federal standards under Title 49 of the United States Code:

- Procedures and policies
- Material designations and labeling
- Packaging requirements
- Operational rules

In 1990, Congress enacted the Hazardous Materials Transportation Uniform Safety Act (HMTUSA) to clarify the maze of conflicting state, local, and federal regulations. Like the HMTA, the HMTUSA requires the Secretary of Transportation to promulgate regulations for the safe transport of hazardous material in intrastate, interstate, and foreign commerce. The Secretary also retains authority to designate materials as hazardous when they pose unreasonable risks to health, safety, or property. The statute includes provisions to encourage uniformity among different state and local highway routing regulations, to develop criteria for issuance of federal permits carriers of hazardous materials, and to regulate radioactive material transport.

Originally published in 1973 under the authority of §311 of the Clean Water Act, the Oil Pollution Prevention regulation sets forth requirements for prevention of, preparedness for, and response to oil discharges at specific non-transportation-related facilities. To prevent oil from reaching navigable waters and adjoining shorelines and to contain discharges of oil, the regulation requires these facilities to develop and implement Spill Prevention, Control, and Countermeasure (SPCC) Plans and establishes procedures, methods, and equipment requirements (Subparts A, B, and C). In 1990, the Oil Pollution Act (OPA) amended the Clean Water Act to require some oil storage facilities to prepare Facility Response Plans (FRP). On July 1, 1994, the EPA finalized the revisions that direct facility owners or operators to prepare and submit plans for responding to a worst-case discharge of oil.

Federal

- Resource Conservation and Recovery Act – At the federal level, the principal agency regulating the generation, transport, and disposal of hazardous substances is the EPA, under the authority of the Resource Conservation and Recovery Act (RCRA). The RCRA established an all-encompassing federal regulatory program for hazardous substances that are administered by the EPA. Under the act, the EPA regulates the generation, transportation, treatment, storage, and disposal of hazardous substances.

- Hazardous Materials Transport Regulations – The U.S. Department of Transportation (USDOT) regulates the transportation of hazardous materials between states. The USDOT Federal Railroad Administration enforces the Hazardous Materials Regulations promulgated by the Pipeline and Hazardous Materials Safety Administration for rail transportation. These regulations include requirements that railroads and other transporters of hazardous materials, as well as shippers, have and adhere to security plans and also train employees involved in offering, accepting, or transporting hazardous materials on both safety and security matters.

- Comprehensive Environmental Response, Compensation, and Liability Act – Congress enacted this Act, commonly known as Superfund, in 1980. It established prohibitions and requirements concerning closed and abandoned hazardous waste sites, provided for liability of persons responsible for hazardous waste release at sites, and established a trust fund to pay for cleanup when no responsible party could be identified.

- Regulation of Polychlorinated Biphenyls and Lead-Based Paint – The Toxic Substances Control Act (TSCA) of 1976 banned polychlorinated biphenyls (PCBs) in enclosed systems and, via EPA Region 9, oversees PCB remediation in states including California. The 1992 Residential Lead

  Based Paint Hazard Reduction Act added Title IV to TSCA, giving the EPA authority to regulate renovations that create lead-based paint hazards and to set hazard and dust cleanup standards for most pre-1978 housing and child-occupied facilities.

State

- Arizona Administrative Code Rules (AAC R) 17-5-209 lists regulations applicable to hazardous materials transportation within Arizona, which is managed by the Arizona Department of Transportation (ADOT) and the Arizona Department of Public Safety Highway Patrol Division. Arizona has adopted the federal hazardous materials regulations as they apply to the transportation and storage of hazardous materials. ADOT and Highway Patrol administer and enforce the hazardous materials transportation rules.

- Pursuant to the Arizona Environmental Quality Act and the Resource Conservation and Recovery Act, the Arizona Department of Environmental Quality (ADEQ) has the authority to monitor and direct businesses that may generate, transport, or dispose of hazardous waste in Arizona.
- The Arizona State Fire Marshal, ADEQ, and the Arizona Department of Agriculture (AZDA) Environmental Services Division are responsible for state regulations of hazardous materials storage.

Applicable Arizona codes and regulations include:

- Aboveground storage tanks (ASTs): Uniform Fire Code (UFC), Arizona Revised Statutes (ARS) 41-2146(C) and AAC R 4-36-201 *et seq.*
- Hazardous substance release: ARS 26-348
- Community Right-to-Know Act and HAZMAT Emergency Response: ARS 49-120
- Toxic chemical release forms (spill reporting): ARS 49-131
- Hazardous materials transportation regulations: AAC R 17-5-209
- Hazardous waste management: AAC R 18-8-270
- Hazardous substance dry wells: AAC R 18-9-C301
- Hazardous underground storage tanks (USTs): AAC R 18-12-240 to 18-12-242
- Pesticide storage: AAC R 3-3-308

Local

Coconino County has several Codes and Ordinances regarding hazardous Materials

- **Coconino County Stormwater Quality and Runoff Control Ordinance (2017):** Specifies rules and penalties for managing stormwater runoff from sites, stormwater quality, minimizing pollution, and handling hazardous materials discharge. Includes requirements for emergency notification in the event of a hazardous material spill or discharge.
- **Coconino County Health and Human Services Unified Health Code (2025):** Provides minimum standards for protection of the health of people in the County including incorporated and unincorporated areas with regard to the storage, collection, transportation, and disposal of refuse and other objectionable waste. The Code prevents the creation or maintenance of unhealthful, unsanitary conditions or public health nuisances, including potentially hazardous waste.
- **Coconino Zoning Ordinance (2026):** Includes guidance regarding whether different zoning types and land-uses can store or dispose of hazardous materials, and the requirements for doing so.

Vulnerability

The day-to-day operation of business and industrial facilities, as well as transportation infrastructure, handling hazardous materials ensures a persistent low-grade exposure to the hazard for communities throughout the planning area. However, zoning regulations ensure that the large concentrations of these materials and handling activities are separated from most residential and commercial areas – minimizing

the potential impact of catastrophic accidents. In addition, existing safety practices keep facility-based incidents relatively rare. However, incident records demonstrate that the vast majority of accidents occur through the transportation process – making transportation routes, supporting facilities, and adjacent communities the most vulnerable to an incident.

Communities are most vulnerable to incidents that involve the spilling of gaseous, flammable, or radioactive materials. The latter two may have significant secondary complications in terms of wildfire and long-term human and environmental impacts respectively.

Rural and native American populations have been the most heavily impacted and the most vulnerable to these incidents due to their deep reliance on natural systems for fresh water, sustenance, and livelihoods

Table 4-28 captures the Planning Team's estimation of their jurisdictions' risk for this hazard.

Table 4-28: CPRI Rating for HAZMAT / Pipeline Failure / Transportation Accident

Jurisdiction	Probability 45%	Magnitude/Severity 30%	Warning Time 15%	Duration 10%	CPRI Score (Max 4.0)
Coconino County	3	3	4	3	**3.15**
Flagstaff	3	3	4	3	**3.15**
Fredonia	1	1	4	2	**1.55**
NAU	4	3	4	3	**3.6**
Page	2	2	4	2	**2.3**
Tusayan	1	2	1	2	**1.4**
Williams	3	3	4	3	**3.15**
County-wide average CPRI =					**2.61**

Probability of Future Events

Despite regulations and safety programs, facility-based incidents from equipment failure and human error remain likely. Meanwhile, major hazards such as earthquakes, fires, and floods can breach piping, tanks, and controls –causing releases, fires, and public-health impacts. Such risks are inherent to facilities handling hazardous materials, particularly in hazard-prone areas, and historical data indicate a steady likelihood of one to five major incidents annually, most with minimal impact.

In contrast, the probability of transportation related accidents resulting in small-scale spills and releases is clearly high and increasing. This reflects ongoing economic growth and the strategic positioning of Coconino County for inter- and intra-state commerce. Fortunately, this trend is predominately isolated to truck-based transport, and the probabilities of train and pipeline related incidents remain low.

Loss Estimates

Hazardous material releases may cause harm to people, the environment, critical infrastructure, and property. Their potential for harm exists regardless of whether they are released by accident, malicious actor, fire, or weather-related event. These incidents affect a range of stakeholders in the whole

community.[125] Generalized loss estimates are difficult to predict for hazardous material incidents, but modeling programs such as those available through the Interagency Modeling and Atmospheric Assessment Center (IMAAC) can support incidents specific loss and exposure risk determinations.[126]

Developmental Trends

The danger of a hazmat incident or release in the County will continue to pose a threat based on existing transportation corridors, traffic, severe weather incidents, and potential future development and construction. Ongoing economic and population expansion can also be expected to increase the volume and frequency of hazardous materials being transported through the County.

Future expansion of highways and new roads will encourage an increase in traffic and the percentage of commercial trucks carrying hazardous materials. In addition, the increased likelihood of severe weather incidents such as flooding, wildland fires, and severe heat may further increase the likelihood of a railway or vehicle crash and spill, or facility damage resulting in a release.

4.3.11 Disease Outbreaks, Epidemics, and Pandemics

Description

Infectious and contagious disease is a primary public health hazard that poses significant and ongoing risk to human society. While diseases are an intrinsic part of the planet's ecology and systems, major outbreaks and pandemics among both humans and domesticated animals have regularly caused significant and enduring loss of life, health, economic vitality, and social stability throughout history. As a result, the development and implementation of measures to actively monitor and control disease prevalence, occurrence, and impact have been a pre-eminent focus for human civilizations.

An instance or occurrence of a communicable or transmissible disease is known as a case.

The variety and forms of communicable and infectious diseases vary by geographic area and ecoregion. Each hosts an endemic set of diseases evolved to survive based on the area's climate, ecology, human population, and biodiversity. In this context, the base frequency of cases tends to rise and fall in regular cycles that reflect periodic shifts in environmental conditions, human and animal population dynamics, and their behavior. Public health and healthcare professionals monitor these trends via public health surveillance and other epidemiology methods. At the same time, they use medical treatment, immunization, education, regulatory, and environmental management strategies to treat affected individuals, prevent occurrences, disrupt transmission, and manage conditions that support disease and vector reproduction.

However, these risk management measures and normative cycles can be disrupted in several ways – resulting in a surge of cases that strains support systems and disrupts communities. These include when:

- Conditions occur that significantly support disease reproduction and transmission (e.g. the rise in vector-borne illnesses after periods of heavy rain or floods and the rise in respiratory illnesses after events that cause people to congregate in close proximity for extended periods).
- Diseases evolve or adapt such that their infectiousness, transmissibility, or resistance to human management methods significantly increase (e.g. antibiotic-resistant bacteria)
- Diseases that occur in animals evolve to infect, and be transmissible among, humans – known as zoonosis (e.g. Ebola, Monkeypox, Smallpox, Tuberculosis, Avian and Swine Influenza)

[125] FEMA Hazardous Materials Incidents: Guidance for State, Local, Tribal, Territorial, and Private Sector Partners
[126] FEMA Interagency Modeling and Atmospheric Assessment Center

- Human travelers or vector species carry a disease from a geographic area where the disease occurs normally, or is endemic, to another that is hospitable for reproduction and transmission and where there is little existing immuno-resistance among the population or existing relevant disease management measures (e.g. Smallpox and Ebola).
- Climate and environmental conditions change in a way that allows diseases and vector-species to survive, reproduce, and transmit to or among humans in areas that were previously inhospitable – often due to climate change (e.g. West Nile Virus and Chagas Disease)

Case spikes caused by such events are classified as clusters, outbreaks, epidemics, or pandemics based on the concentration, frequency of cases above expected norms, and the breadth of geography affected.[127]

- **Cluster:** A notably close aggregation of cases grouped in place and time.
- **Outbreak:** More cases occur than expected in an area within a given time period.
- **Epidemic:** A significantly larger number of cases, often over a larger area, than expected.
- **Pandemic:** An epidemic that affects numerous people across several countries/continents.

Communicable and infectious diseases that pose substantial and ongoing risk in terms of resulting in major outbreaks, epidemics, or pandemics include:

- **Coronaviruses** – Coronaviruses are RNA viruses that cause a large percentage of colds and upper respiratory infections that range from mild to lethal. There are six known variants that affect humans, with four that have mild effects and three that are notably lethal – these include Severe Acute Respiratory Syndrome (SARS-CoV-1), Middle East Respiratory Syndrome (MERS), and COVID-19 (SARS-CoV-2). These have caused the bulk of major epidemics and pandemics since 2000 – killing an estimated 29 million people worldwide.[128] Coronaviruses affect many species and is known to undergo zoonosis across species including bats, birds, pigs, cattle, and domestic pets. Migratory birds are of particular concern for surveillance and transmission due to the long distances they can travel while sick or carrying the disease (this concern is shared with influenza).
- **Influenza Virus and Respiratory Syncytial Virus (Flu and RSV)** – Viral respiratory infections that cause epidemics routinely, typically in the fall and winter, and periodically result in major pandemics. The CDC estimates that the 2024-2025 Flu and RSV season led to 47-82 million cases of the flu, resulting in 610,000-1.3 million hospitalizations and 27,000-130,000 deaths while RSV yielded 3.6-6.5 million outpatient visits, 190,000-350,000 hospitalizations and 10,000-23,000 deaths across the United States.[129] Influenza has four variants found in aquatic birds, humans, cattle, and pigs – with rapidly evolving strains that regularly undergo zoonosis given adequate exposure. Novel strains emerge every 10-50 years that result in major outbreaks and pandemics. RSV has notably severe and potentially deadly effects on children under 5 years of age and the elderly.

[127] CDC Outbreak and Case Definitions; CDC Epidemiology Glossary
[128] Our World In Data – Historical Pandemics
[129] CDC Influenza Burden 2024-2025; CDC RSV Burden 2024-2025

- **Tuberculosis** – Tuberculosis (TB) is a bacterial infection transmitted by airborne water droplets and saliva that primarily affects the lungs but can involve other organs. In the United States, there are approximately 10,000 TB cases per year, with higher incidence among people born abroad, those with weakened immune systems, and in certain congregate settings.[130] Untreated TB can cause progressive lung damage and can spread to others, but most active cases are curable with months-long antibiotic therapy and latent infections can be treated to prevent activation. However, multi-drug-resistant versions of TB have emerged – steadily leading to a rise in cases. In 2023, TB infected an estimated 10.8 million people and caused 1.25 million deaths worldwide.[131]

- **Hepatitis** – Hepatitis is an inflammation of the liver commonly caused by viral infections (types A, B, C, D, and E) associated with fecal contaminated food and water, unhygienic living conditions, sexual transmission, and contact with infected blood or mucous membranes. In the United States, there are tens of thousands of acute viral hepatitis cases each year, causing several thousand deaths.[132] Hepatitis A and B cases are reduced by vaccination while Hepatitis C affects an estimated 2–3 million people living with chronic infection). Periodic outbreaks occur nationwide and are considered a serious public health threat due to the highly virulent nature of the disease.

- **Measles** – An extremely contagious, human specific, viral disease that can be prevented via immunization but has no specific treatment once an individual is infected beyond supportive care. The disease is spread by airborne water droplets or contact with mouth and nasal secretions. Between 1987 and 2000 the fatality rate for measles cases was .3%, in the United States due to access to supportive care to prevent complications, while globally the fatality rate went up to 28% in places with malnutrition and poor healthcare. Permanent brain damage and respiratory failure or neurological complications are common. The fatality rate for immunocompromised persons is 30%. Global vaccination efforts cut the number of deaths from measles from 2.6 million to 73,000 worldwide between 1980 and 2014. However, 95% population immunization is required to achieve herd immunity and recent drops in immunizations in recent years have caused a resurgence of the disease in the United States and abroad.[133]

- **Hemorrhagic Fevers** – Viral hemorrhagic fevers are a group of illnesses caused by several distinct families of viruses. In general, the term “viral hemorrhagic fever” is used to describe a severe multisystem syndrome. Characteristically, the overall vascular system is damaged, and the body’s ability to regulate itself is impaired. These symptoms are often accompanied by hemorrhage. However, bleeding is itself rarely life-threatening. While some types of hemorrhagic fever viruses can cause relatively mild illnesses, many of these viruses cause severe, life-threatening disease. Hemorrhagic fevers include Ebola and Yellow Fever.

- **Vector-Borne Diseases** – Insects such as mosquitos, ticks, and fleas are key transmitters of disease. Ticks can carry Colorado Tick Fever; Ehrlichiosis; Lyme Disease; Rocky Mountain Spotted Fever; Tularemia. Mosquitoes can carry Eastern Equine Encephalitis, malaria, plague, West Nile virus, Zika virus, Dengue virus, St. Louis Encephalitis virus, Oropouche virus, Yellow Fever, and Chikungunya virus. Fleas can carry plague, murine typhus, cat scratch disease, and

[130] CDC Provisional 2024 Tuberculosis Data
[131] WHO Tuberculosis Factsheet 2025
[132] CDC Viral Hepatitis Surveillance Report 2023
[133] CDC Measles Cases and Outbreaks; New England Journal of Medicine – Measles 2025

tapeworms. The frequency of these diseases is rapidly increasing nationwide due to climate change, and an increasing number of diseases that only occurred in more equatorial regions have steadily spread northward.[134] An example in the Southwest is Chagas disease, caused by parasites primarily spread by triatomine or "kissing" bugs.

- **Foodborne and Waterborne Diseases:** Diseases spread by contaminated food and water are generally suppressed due to health and sanitation codes and regulations. However, they continue to arise periodically and cause health system strain, supply chain disruption, and economic losses. Common diseases are Salmonella, norovirus, E. coli, Campylobacter, Listeria, and Cholera (though the latter is largely eliminated in developed countries).
- **Valley Fever** – An infection of the lungs that can "disseminate" to other parts of the body which is caused by a fungus that grows in the soil. Considered endemic in the Southwest United States, cases surge during periods of high rainfall and high winds. Between 2018 and 2023, Arizona detected between 7,478 and 11,523 cases each year, with Coconino seeing between 39 and 81 cases annually between 2020 and 2023.[135]

History

According to the Arizona Department of Public Health, there were 12 disease outbreaks in Coconino County between 2015 and 2019. This increased to over 217 between 2020 and 2023 due to the COVID-19 pandemic. However, disentangling pandemic data from normative disease patterns for predictive purposes has been challenging for experts. The impacts of COVID, and the associated changes in human behavior to combat it, effectively increased the occurrence of some diseases while suppressing others between 2020 and 2023.[136] In the wake of the pandemic, additional atypical case surges and outbreaks have been observed as people increase their engagement in activities prevented during the pandemic and renew activities that expose them to the diseases that were suppressed. With that in mind, the county saw 19 non-COVID outbreaks between 2019 and 2022, with multiple outbreaks occurring per year.

Major epidemics and pandemics have occurred throughout history – but at a much more infrequent interval. The largest pandemics since 1900 have primarily involved Influenza, Bubonic Plague, Cholera, Coronaviruses, HIV/AIDS, and Ebola. Prior recorded pandemics also involved diseases such as smallpox, diphtheria, and typhoid fever – many of which have been largely suppressed through vaccination, improved healthcare, and hygiene programs. Some of the largest public health and pandemic incidents include:

- **COVID-19 (2019-2023) –** Beginning in December 2019, in the region of Wuhan, China, a new ("novel") coronavirus appeared and rapidly spread across the globe. It resulted in over 3 million hospitalizations, and 1.1 million deaths in the United States by its close in 2024. The pandemic involved multiple waves driven by novel variants due to rapid evolution of the disease. The pandemic caused widespread social and economic disruption (workplace and school closures, supply-chain shocks, political upheaval, healthcare system overload, and long-COVID disability) while also spurring rapid vaccine and therapy development. From 2022 to 2025 the disease transitioned into a more endemic form with seasonal and regional surges. As of July 2025, the

[134] CDC Climate Change Increases Geographic Range of Disease Carrying Insects and Ticks; CDC Vector Borne Disease National Strategy 2024
[135] AZDHS Epidemiology and Disease Control – Data and Statistics Past Years
[136] AZDHS 2019-2022 Infectious Diseases Outbreak Surveillance Report; Airfinity: Global surge in diseases

disease has infected over 778.7 million people and killed between 7.1 and 35 million worldwide.[137] In Arizona, the pandemic caused an estimated 2.5 million cases, 149,121 hospitalizations, and 33,900 deaths from 2020-2023.[138]

- **HIV/AIDS (1976-Present, peak at 2005-2012) –** HIV/AIDs was first identified in the Democratic Republic of the Congo in 1976. HIV/AIDS is a global pandemic, having killed more than 36 million people since 1981. Currently, there are between 31 and 35 million people living with HIV infections.
- **H3N2 Flu (1968) –** A category 2 Flu pandemic, the 1968 flu pandemic was caused by the H3N2 strain of the Influenza A virus. Within three months, it had spread to the Philippines, India, Australia, Europe, and the U.S. While the 1968 pandemic had a comparatively low mortality rate (.5%), it still resulted in the deaths of more than a million people, including 500,000 residents of Hong Kong; approximately 15% of its population at the time.
- **H2N2 Flu (1956-1958)** – The Asian Flu was a pandemic outbreak of Influenza A of the H2N2 subtype that originated in China in 1956 and lasted until 1958. In its two-year infectious duration, it resulted in approximately two million deaths worldwide and 69,800 in the U.S.
- **H1N1 Flu (1918-1920)** – A strain of H1N1 influenza resulted in a deadly outbreak that tore across the globe, infecting over a third of the world's population and ending the lives of 20 to 50 million people. Of the 500 million people infected in the 1918 infection wave, mortality rates were estimated at 10% to 20%, with up to 25 million deaths in the first 25 weeks alone.
- **Plague (1346 to 1353)** – The Black Death was an outbreak of Bubonic Plague that ravaged Europe, Africa, and Asia, with an estimated death toll between 75 and 200 million people. Thought to have originated in Asia, the pandemic most likely jumped continents via the fleas living on the rats found aboard merchant ships.

Location

Pandemics occur worldwide. Smaller-scale public health incidents or epidemics may be localized, such as the Ebola outbreak in Central Africa. All locations are susceptible to outbreaks, epidemics, and pandemics. However, the specific diseases involved, their dynamics, and impact can vary substantially based on population density, environmental conditions, and social vulnerability. For example, while contagious diseases may spread fastest in areas with high population densities such as cities, impacts and fatalities may be greatest in rural areas where existing health factors and infrastructure are limited or constrained.

On a facility level, public health experts closely monitor facilities in which large numbers of people who congregate that are in either extremely close proximity, are ill, may be immunocompromised, or share heightened systemic vulnerability (such as youth and elderly). These include healthcare, correctional, child-care, and assisted living/nursing care facilities.

Extent

Public health outbreaks, epidemics, and pandemics can range in size from small and isolated clusters of cases at the facility or neighborhood level to incidents that affect entire communities or the whole county.

[137] WHO COVID-19 Dashboard; Our World In Data – Historical Pandemics
[138] Medical Clinical Research – Arizona and COVID-19

While potential impacts are likely to scale proportionately, they will share several distinct characteristics: deep cascading system impacts, disproportionate effect on vulnerable populations, and long-term consequences for individuals and communities alike.

On the smaller side of the scale, isolated outbreaks are likely to produce short-term and geographically limited increases in illnesses, hospitalizations, fatalities. These occurrences may cause surges in local healthcare systems, disrupt economic activity in specific locations, and interrupt critical services such as schools, child-care, public transit, deliveries and social services. In addition, affected citizens and their families are likely to experience short term income loss, increased caregiving load, and missed work. Meanwhile, misinformation and fear may cause stigma and mistrust for affected individuals, locations, and public institutions. Though resolved quickly, survivors may endure long term physical and mental health challenges and costs, local government may experience fiscal strain in handling response and recovery.

Larger events, like the global pandemic caused by COVID-19, can be expected to multiply and compound the impacts previously listed while adding greater disruption and complexity. As such, in addition to much greater numbers of illnesses, hospitalizations, and fatalities one may see significant disruption of key community systems and functions. This may include supply chain disruptions, forced shutdown of businesses and key service providers, heightened unemployment and prices, an exacerbation of social vulnerability factors (particularly poverty and homelessness), health system collapse or the severe curtailing of available services, mass deferment of non-emergency medical care, and an increase in parallel health issues. In the long run, there may be significant population displacement, economic scarring and tax revenue loss, critical infrastructure renewal costs, educational losses for cohorts of students, and damage to public confidence in governance. These may take significant time and resources to recover from.

Regulatory Context

There are numerous regulatory organizations that provide public health direction and guidance. The County Board of Supervisors may declare a State of Emergency for public health incidents. The formal declaration provides extraordinary power to regulate businesses, schools, houses of worship and general public activity, as well as provide financial authority to procure resources and deliver emergency protective measures. The state has similar authority to declare a state-wide emergency with comparable power to address an incident such as a pandemic. The federal government may also declare an emergency and/or a disaster under the provision of the Stafford Act. Federal declarations are made state by state.

Vulnerability

The entire population of the County is vulnerable to a pandemic. The nature of the population that is most susceptible varies from one event to another. During the 1918-1919 influenza pandemic, young, healthy adults were most likely to be fatalities. Meanwhile, COVID-19 has disproportionate impacts and fatality rates among older adults. Most public health and pandemics affect disadvantaged and socially vulnerable communities to a greater degree. This is due to more frequent, underlying health conditions among this population, less access to health care / health insurance and living in more densely occupied housing.

Table 4-29 captures the Planning Team's estimation of their jurisdictions' risk for this hazard.

Table 4-29: CPRI Rating for Public Health/Pandemic

Jurisdiction	Probability 45%	Magnitude/Severity 30%	Warning Time 15%	Duration 10%	CPRI Score (Max 4.0)
Coconino County	3	4	2	4	**3.25**
Flagstaff	3	4	2	4	**3.25**
Fredonia	2	1	1	4	**1.75**
NAU	3	4	2	4	**3.25**
Page	2	2	4	2	**2.3**
Tusayan	2	4	1	4	**2.65**
Williams	3	3	2	4	**2.95**
County-wide average CPRI =					**2.77**

Probability of Future Events

According to the data, public health outbreaks are a common event that occur on a monthly or semi-annual basis. However, most of these are limited events that solely require focused management by public health and healthcare authorities, with specific support from other public and private entities. Moderate epidemics and pandemics occur much more infrequently at intervals of every 3 to 7 years since 2020. Large, global pandemics that cause millions of fatalities have been recorded at approximately 20-to-40-year intervals. However, it is important to be aware that the advent of modern immunization, public health development programs, and surveillance/response capabilities have forestalled a series of potentially major incidents – to include multiple outbreaks, such as the 2014-2016 Ebola outbreak, that posed major global threats.

Based on the available data, future disease outbreaks, epidemics, and pandemics are guaranteed to occur. While some diseases, such as typhoid, diphtheria and cholera that caused past health care emergencies have been largely eliminated due to vaccines and better public health practices, new threats are emerging and the frequency of incidents across the United States is increasing. This pattern is being spurred by the ever-growing interconnectivity between nations in terms of travel and transport, the effects of climate change, the continuous mutation and adaptation of existing pathogens and vectors, a decline in support for immunization and health programming, and an ongoing disruption of international coordination systems. As such, more and larger incidents involving new or regionally novel diseases are probable.

Loss Estimates

Outbreaks, epidemics, and pandemics cause significant impacts to communities through direct impacts on individual health and safety and critical infrastructure systems (particularly healthcare) while also causing indirect impacts on economic and social systems. These can extend from the short to the long term due to long-term health complications, business and employment disruption, and population behavior. Unfortunately, there are no models for loss estimation for such events, and the complexity of both minor and incidents cause all measurements to yield rough estimates.

For Coconino County, small scale outbreaks can cause tens or hundreds of hospitalizations and tens of tens of fatalities while incurring economic losses and costs for individuals, households, and communities ranging from thousands of dollars to millions of dollars depending on the breadth and duration of impacts. Large, widespread pandemics that last multiple years can cause millions of hospitalizations or long-term health cases, thousands of fatalities, and millions or billions of dollars in economic impacts and costs.

Developmental Trends

The built environment is a critical social determinate of health and the definition of social vulnerability to negative health outcomes. In Coconino County, the primary development trend affecting public health is a deficit in affordable housing stock, high housing cost burden, and the prevalence of communal housing arrangements. This is shared among all jurisdictions, and its reduction is a development target for all.

4.3.12 Wildland Fire

Description

A wildland fire (or wildfire) is an uncontrolled fire spreading through wild land vegetative fuels and/or urban interface areas where fuels may include structures. They often begin unnoticed, spread quickly, and may be signaled by dense smoke that may fill the area for miles around. Wildland fires can be human caused through acts such as arson or campfires or can be caused by natural events such as lightning. If not promptly controlled, wildland fires may grow into an emergency or disaster. Even small fires can threaten lives, resources, and destroy improved properties.

The indirect effects of wildland fires can also be catastrophic. In addition to stripping the land of vegetation and destroying forest resources and personal property, large, intense fires can harm the soil, waterways and the land itself. Soil exposed to intense heat may temporarily lose its capability to absorb moisture and support life. Exposed soils in denuded watersheds erode quickly and are easily transported to rivers and streams thereby enhancing flood potential, harming aquatic life and degrading water quality. Lands stripped of vegetation are also subject to increased debris flows and landslide hazards.

To the extent that wildland fires are a cascading effect of drought or warmer temperatures, wildfire risk will likely increase somewhat in the future. Due to the effects of climate change, deserts may have more extreme temperature swings, meaning days can reach extremely high temperatures in the summer. These high temperatures will result in increased numbers of low humidity hot days, which can lead to excess dry brush and optimal conditions for fires to ignite.

History

The mountainous regions of the County offer significant sources of fuel, topography, and climate conditions favorable to wildland fire throughout available recorded history. This has resulted in regular annual cycles of small to moderate fires impacting the landscape. However, the widespread implementation of fire-suppression focused forest management strategies in the early 1900s, as opposed to enabling historically natural fire regimes, resulted in a major buildup of fuels that has yet to be fully dealt with. This situation, combined with increasing drought conditions due to climate change and mass tree die-offs caused by pests like the bark beetle, has primed much of the forests of Coconino for extremely destructive fires. The Planning Team rates wildfires, and related post-fire debris flows, as the County's leading hazards.

Numerous fires have impacted the County as demonstrated by the following recent and notable events:

- **July 2025 – White Sage Fire:** Started by lightning near Jacob Lake, Arizona –southeast of Fredonia. The fire expanded to nearly 59,000 acres resulting in evacuations of residents and causing major smoke impacts on surrounding communities. It also led to closure of US Highway

89A – one of only two routes that connect Fredonia and surrounding communities to the rest of Coconino County.[139]

- **July 2025 – Dragon Bravo Fire:** A massive fire started by lightning near the North Rim of the Grand Canyon that spread to 145,504 acres and took nearly two months to control. The fire caused widespread significant impacts within and adjacent to Grand Canyon National Park, to include closure of surrounding national parks and forests, flight restrictions, closure of State Route 67, the destruction of 113 structures (including the historic Grand Canyon Lodge), and a major hazardous materials release from a National Park Service water treatment facility it destroyed. Suppression costs alone are estimated at over $135 million.[140]

- **June 2022 – Pipeline and Haywire Fires:** Two major fires that started just days after one another to the north of Flagstaff in the San Francisco Peaks and around Haywire Crater, resulting in the burning of 26,771and 5,575 acres respectively. The fire abutted areas impacted by the Tunnel Fire. The fires burned a significant amount of forest and caused closure of US Highway 89. However, while the fires themselves did not cause extensive damage to the built environment, the post-wildfire debris flows that followed devastated adjacent communities to the east and caused an estimated $20-30 million in damage. This led to a massive flood mitigation project costing over $100 million.[141]

- **April 2022 – Tunnel Fire:** A fire that occurred northeast of flagstaff that spanned from the eastern foothills of the San Francisco Peaks to virtually all of Sunset Crater Volcano National Monument and into the wilderness area beyond. The fire burned 19,060 acres, destroyed 30 homes and 24 outbuildings, caused 766 households and 1,000 animals to evacuate, and shut down US Highway 89.[142]

- **July 2019 – The Museum Fire:** The fire began approximately four miles north of Flagstaff on July 21st at approximately 11:15 AM MST. The fire grew to 1,962 acres in the Dry Lake Hills area. Much of this area drains into the Spruce Wash which runs into the heart of Flagstaff. To guard against post-wildfire flooding and debris flows, the community laid sandbags, 5,000 feet of concrete barriers, and a 300-foot water barrier. A 200–500-year rain event occurred in 2021, resulting in a rapid sequence of three flooding and debris flow events. Total costs were over $5.2 million.[143]

- **April 2018 – The Tinder Fire:** First seen by Moqui Tower lookout on April 27th, 11:43 AM MDT. Investigators determined that the fire originated in the East Clear Creek drainage approximately one mile downstream from Forest Road 95. Forest Road 95 runs north-south and is located

[139] InciWeb – White Sage Fire; BBC – Rapidly growing fire near Grand Canyon prompts evacuations
[140] InciWeb – Dragon Bravo Fire; Incident Management Situation Report 9/29/2025; NAZA Earth Observatory – Fires Rage in Arizona
[141] American Geophysical Union – Mudflows at the site of the Pipeline Fire in Arizona;
[142] InciWeb – Tunnel Fire; USFS Coconino National Forest – Recent Large Wildfires; CNN – Arizona governor declares state of emergency for areas affected by Tunnel Fire
[143] National Weather Service – Museum Fire 2019; Joint Fire Science Program – Post-Fire Flooding: The Museum Fire; Museum Fire Flood Projects Brochure 2022

approximately 1.5 miles east of C.C. Cragin (Blue Ridge) Reservoir. The fire burned 16,309 acres, 33 homes and 63 minor structures, and caused evacuation of over 1,000 households.[144]

- **May 2014 – The Slide Fire:** A human caused fire that scorched 21,227 acres in Oak Creek Canyon north of Sedona. Approximately 100 homes were evacuated and US Highway 89A was closed from Pine Flats campground north to the overlook at the top of the switchbacks. Fire suppression costs are listed at $10.1 million. The Oak Creek Canyon Interagency Emergency Operations Flood Plan was produced to guide response to post fire floods and debris flows. [145]
- **June 2010 – The Schultz Fire:** Fire ignited from an abandoned campfire near Schultz Tank and Elden Trail and consumed 15,000 acres of the San Francisco Peaks while causing evacuation of 1,000 residents. This fire was driven by high winds across the steep terrain of the eastern slope. The fire caused the evacuation of more than 1,000 residents. Post fire flooding from heavy rains from the fourth wettest monsoon on record in Flagstaff resulted in numerous debris flows, significant erosion, and substantial flooding of the residential areas on both sides of US Highway 89 North inclusive of Timberline-Fernwood and traveling north past Wupatki Trails subdivision.[146]
- **2002 – Rodeo-Chediski Fire:** The worst forest fire in Arizona history until the 2011 Wallow Fire, and previously the nineth largest fire in United States history. Originally two fires caused by arson and human error respectively, they merged and ultimately burned over 468,638 acres in Navajo and Coconino Counties. The incident took 19 days to control, destroyed 491 structures, and caused nearly 50,000 people to evacuate. It additionally destroyed key economic and cultural resources for the Fort Apache Indian Reservation. Fire control efforts were followed by massive earth stabilization efforts to mitigate debris flows and flooding. Fire control alone cost $43 million.[147]

Location

Wildland fires may occur throughout the County. However, there are discrete concentrations of fire risk. **Figures 4.26 and 4.27** below depict the fire danger zones for the Planning Team's jurisdictions. Risk is indicated on a scale ranging from grey and green as no or low risk and red as very high risk.[148]

[144] Ecological Restoration Institute – 2018 Wildfire Season; USFS Coconino Natl. Forest – Recent Large Wildfires
[145] USFS Coconino National Forest – Recent Large Wildfires;
[146] Arizona Hydrological Society Annual symposium, 2011, Field Trip Guide to the 2010 Schultz Burn Area
[147] ABC Arizona 15 – Inside the Rodeo-Chediski burn scars 20 years later; USFS – Rodeo-Chediski Wildfire: A Summary of Impacts
[148] USDA Forest Service Wildland Fire Risk; Coconino County Hazard Mitigation Explorer

Figure 4.26: USDA Forest Service Wildland Fire Risk (Planning Team Jurisdictions)

Note: Page has been omitted from this group of maps because its estimated wildfire risk via this index is uniformly low or none. See Figure 4.27 or the Coconino Hazard Viewer for additional detail.

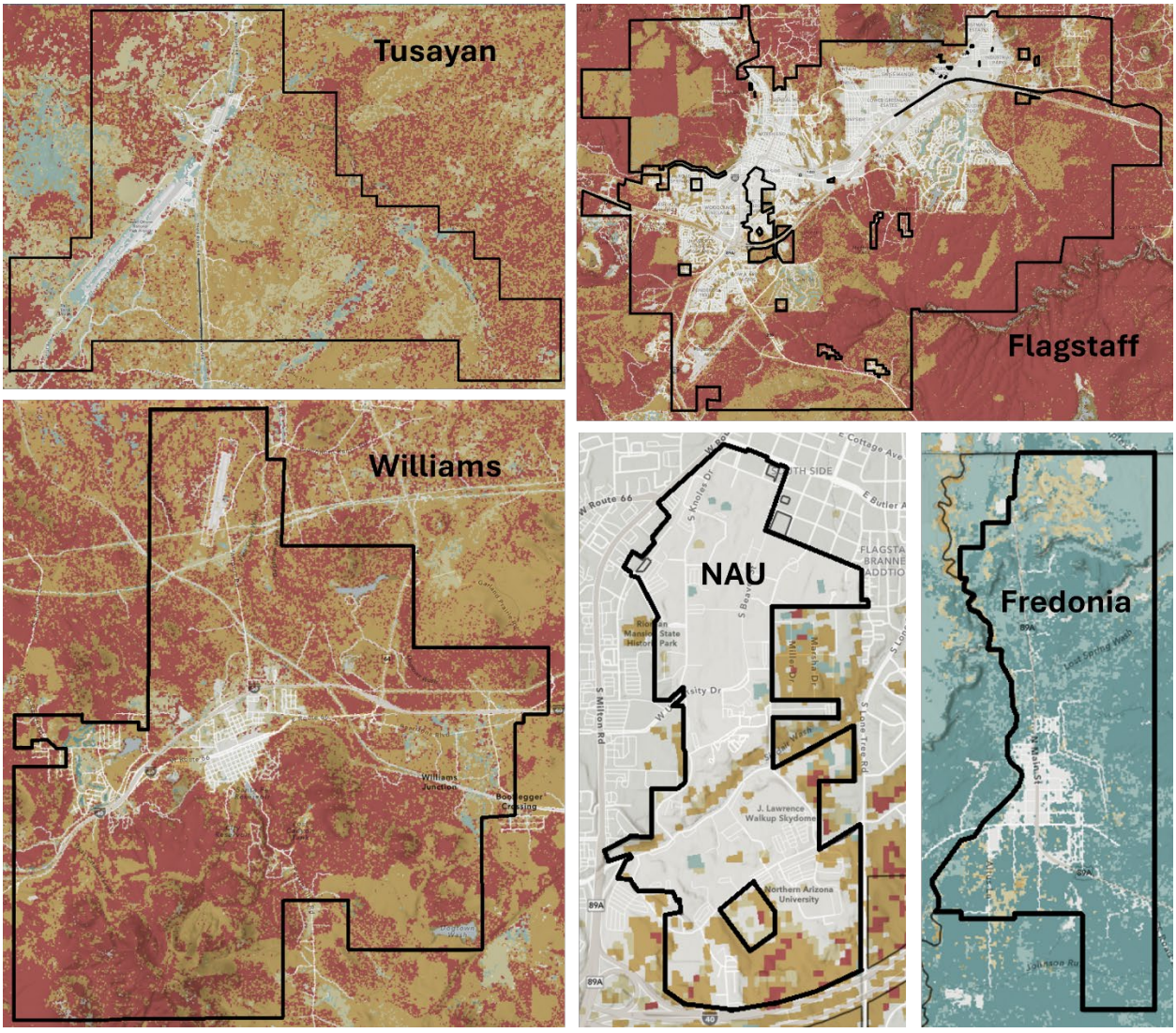


Figure 4.27: USDA Forest Service Wildland Fire Risk (Coconino County)

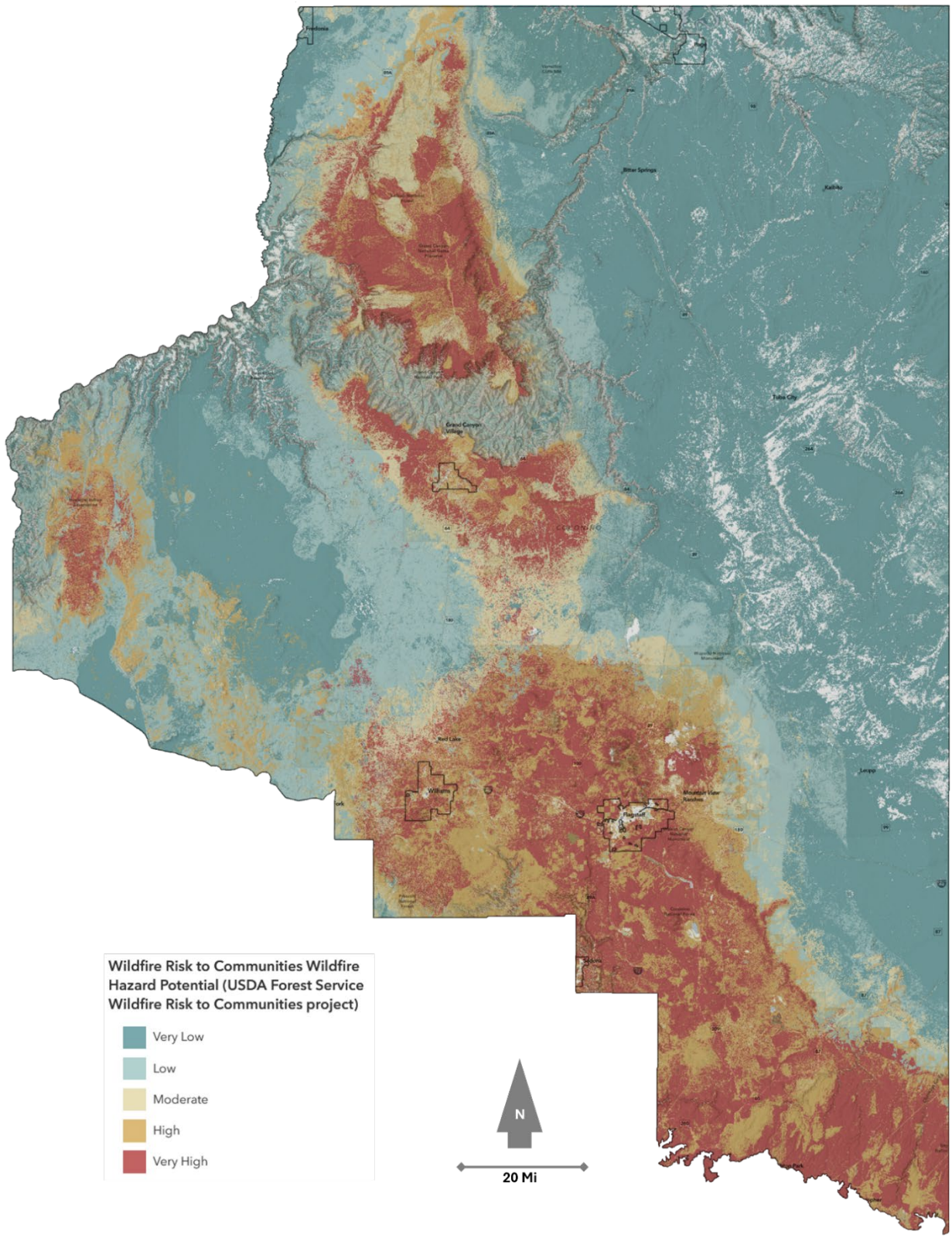
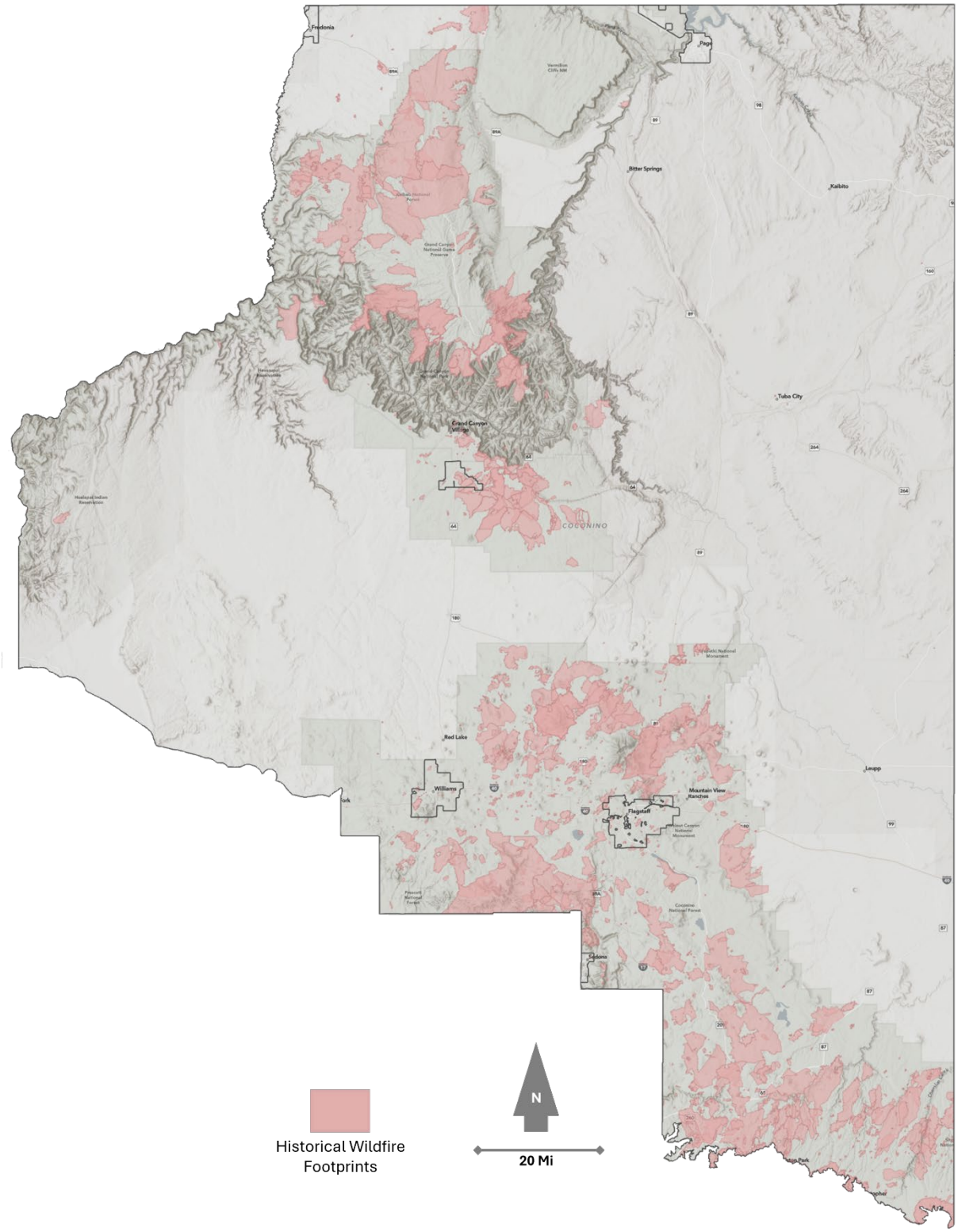


Figure 4.28: NIFC Historical Fire Perimeters (as of July 2025)[149]



[149] NIFC Interagency Fire Perimeter History (as of July 2025); Coconino County Hazard Mitigation Explorer

Extent

Wildfires can devastate ecosystems, communities, and infrastructure through rapidly spreading flames that destroy homes, critical infrastructure, and wildlife habitats; produce hazardous air quality from dense smoke and particulates; contaminate water supplies with ash and erosion-driven sediment; disrupt transportation and emergency services; and impose long-term economic and mental-health burdens on affected populations. Major wildfires can have impacts across multiple jurisdictions and states through both direct impacts and disruptions of environmental quality and economic activities

Wildfire intensity increases based on topography, fuel availability, and climate conditions. The combination of abundant, dry fuels (dead vegetation, dense shrubs, treated or unmanaged timber) with steep slopes that allow the preheating of uphill fuels, low humidity, high temperatures, and strong, gusty winds can yield some of the largest and fastest moving fires. This is because, in these conditions, steep slopes allow pre-heating of lower moisture fuels by flames enhanced by oxygen-rich winds that also propel embers ahead of the main fire (known as spotting). Erratic and extreme fire behavior is often seen during crown fires (since consumption of canopy layers releases substantially more heat than surface fires), in forests killed by prolonged drought or pest outbreaks that provide continuous vertical and horizontal fuel continuity, and when there is complex fire–atmosphere interaction (pyrogenic convection columns and fire-driven winds).

The rate of a wildfire's expansion depends on fuel type, moisture, topography, wind speed and direction, and weather conditions – under extreme drought and high winds a wildfire can grow tens of thousands of acres in a single day and exhibit spotting that starts new fires kilometers ahead of the main front, while under milder conditions growth may be measured in acres per day. Notice to a jurisdiction varies similarly: some fires are detected quickly by lookouts, satellites, automated sensors, or public reports and allow hours to days for evacuation and prepositioning of resources, but fast-moving crown fires in windy, dry conditions can give residents and authorities only minutes to an hour of warning before evacuation becomes urgent.

Potential fire conditions are described by the warnings issued by the NWS, as shown in **Table 4-31**.

Table 4-31: NWS Wildland Fire Warnings[150]

Warning Type	Warning Criteria	Zones Affected
Red Flag Warning	Combination of weather and fuels conditions for three hours or more in a 12-hour period. Criteria may include: • Frequent gusts of 25 mph or greater and/or frequent gusts of 35 mph or greater. • Relative humidity of 15% or less Additional criteria include: • Wind shifts associated with frontal passages	A warning may be issued for all or portions of a fire weather zone or region. Zones impacted by the event will be listed within the Red Flag Warning product.

[150] NWS Fire weather watch and warning definitions

Warning Type	Warning Criteria	Zones Affected
	• Poor relative humidity recovery overnight (40% or lower) • Any combination of weather and fuel moisture conditions which, to the judgement of the forecaster, would cause extensive wildland fire occurrences	
Fire Weather Watch	Alerts land management agencies to the high potential for development of the above Red Flag criteria in the next 12-72 hours.	A watch may be issued for all or portions of a fire weather zone or region. Zones impacted by the event will be listed within the Red Flag Warning

The NWS produces fire danger maps that depict current fire weather across the U.S. The U.S. Forest Service Wildland Fire Assessment System (USFS-WFAS) also provides daily potential wildfire conditions throughout the Country.

Regulatory Context

There are a wide variety of regulations and guidance documents which guide the management of wildfire and wildfire risk in Coconino County.

- **Federal**
    - **Southwest Forest Health and Wildfire Prevention Act:** Directs the Department of Agriculture (DOA) to establish institutions to promote use of adaptive ecosystem management to reduce wildfire risk and restore forest and woodland health. Directed sites for institutes include Northern Arizona University.
    - **Healthy Forests Restoration Act:** Directs the Department of Interior (DOI) and DOA to plan and conduct hazardous fuel reduction projects on federal lands while protecting key features necessary for forest health.
    - **National Environmental Policy Act and Clean Air Act:** Requires environmental planning and review for wildfire prevention and mitigation actions that may have long-term environmental effects. Restricts air quality impacts caused by preventive burns.
    - **National Historical Preservation Act, Archaeological Resources Protection Act, National Historic Preservation Act, and Antiquities Act:** Requires the protection of historical and cultural resources (particularly with significance to pre-history, history, or ongoing significance to a Native American tribe or affiliated group) when conducting fire mitigation, prevention, suppression, and recovery efforts.
    - **Consultation and Coordination with Indian Tribal Governments (Executive Order 13175):** Requires substantive consultation with tribal governments by federal agencies

and departments as part of the development and implementation of any regulatory policy that have tribal implications. Additionally sets relevant policymaking criteria.

- **US Department of Agriculture, Forest Service Functions (36 CFR § 200.3):** Defines the authority of the US Forest Service (USFS) in administering and managing national forests, grasslands, and other lands transferred to it for administration – to include forest protection form fire, insects, and disease.
- **Bureau of Land Management (BLM) Fire Prevention Orders (43 CFR § 9212):** Establishes powers and regulatory procedures for the prevention of wildfire on federally managed public lands, to include permitting and fire prevention orders. Directs BLM to coordinate actions with state and local efforts whenever possible.
- **Fish and Wildlife Fire Authorities (50 CFR § 35.7):** Empowers director of US Fish and Wildlife Service (FWS) to implement policies to control wildfire, pests, and disease.
- **Fire Management on Indian Lands (25 CFR § 163.28):** Empowers the Secretary of the Interior to retain resources, develop aid agreements, conduct prevention programs, and expend funds for rehabilitation measures on "Indian reservation or Indian lands" via the Bureau of Indian Affairs (BIA). Requires consultation with Native American landowners for prescribed burns.
- **National Cohesive Wildland Fire Management Strategy:** A unified strategy for wildland fire management integrating the resources and perspectives of all federal departments to support development of resilient landscapes, fire adapted communities, and safe and effective wildfire response.[151]
- **Federal Wildland Fire Management Policy** and the **Interagency Standards for Fire and Fire Aviation Operations:** Unified policy guidance and detailed playbook for wildfire management and response by responsible federal agencies (USFS, National Park Service - NPS, BLM, BIA). Developed and maintained by the National Interagency Fire Center and supported by National Wildfire Coordinating Group. Federal agencies additionally develop and adopt internal plans and policies supporting these central tools. [152]

- **State**
  - **Livestock Operator Fire and Flood Assistance Grant Program (ARS § 3-109.13):** Establishes a grant program for livestock operators for infrastructure projects that are required as a result of a single wildfire and its associated flood events.
  - **County Volunteer Forest Fire Wardens (ARS 11-571):** Empowers judges of the superior court in a county to appoint any number of volunteer wardens to aid in forest protection.
  - **Authorization for County Prohibition of Fires (ARS 11-251):** Authorizes county Board of Supervisors to restrict use of fires and other activities contributing to wildfire on

[151] US Forests and Rangelands (US DOI and USDA) – National Cohesive Wildland Fire Management Strategy
[152] US DOI Wildland Fire Policy

designated lands in unincorporated areas as deemed necessary to protect public health and safety.

- **Court Actions Related to Natural Resources Projects (ARS § 37-108):** An individual that gains an injunction on a project (particularly those that risk catastrophic fire or loss from erosion, flooding, or landslides that protects watersheds) but does not prevail in the final case may be held accountable for costs related to fire suppression, flooding, watershed damage, or losses to natural resources and property that result from the injunction.
- **Program to Remove Hazardous Vegetation (ARS § 37-483):** Empowers the commissioner and state forester to establish a program to remove vegetative natural products for the purpose of ire prevention and watershed restoration, as well as wood product industry development for the state.
- **Concurrent Jurisdiction (ARS § 37-620):** Provides for joint criminal jurisdiction over lands owned or controlled by the federal government. This includes a standing list of major dams, parks, and monuments, recreation areas, and historic sites as well as locations by request of the Secretary of the Department of the Interior.
- **Trespass on State Lands (ARS § 37-501):** Identifies the negligent causing of trees, shrubs and undergrowth on state lands by fire as trespass and a class 2 misdemeanor.
- **Arizona Dept of Forestry and Fire Management (DFFM) (ARS § 37-1301 to 37-1409):** Establishes authorities for fire management, mitigation, and suppression regarding state public lands. It also implements mechanisms for regulating activities that cause ignition on public lands (such as use restrictions) and a variety of programs for supporting mitigation and prevention efforts. This includes support for community wildfire protection plans.
- **Fire District Powers and Duties (ARS § 48-805):** Defines the roles, powers, and authorities of fire districts – to include adoption, implementation, or revision of fire codes.
- **Arizona Fire Code:** Sets minimum fire-safety standards including provisions for the wildland-urban interface, defensible space, outdoor burning, and wildfire mitigation. Local jurisdictions enforce the code through permits, inspections, and penalties, while the State Fire Marshal provides guidance and coordinates wildfire-related policy and response.

- **Local**
  - **Coconino Wildfire Defense Ordinance (2024-01):** Establishes rules for the restriction of fires and activities that may result in fire ignition during periods of significant wildfire risk, current fire activity levels, and the availability of firefighting resources. Additionally, it specifies how the information will be communicated to the public.
  - **Community Wildfire Protection Plans (CWPPs):** Multiple communities in Coconino have developed and maintained CWPPs over the years. However, as of 2025, the County and the Greater Flagstaff Forests Partnership (GFFP) have initiated work to develop a unified CWPP that integrates the fire departments and districts of the county's rural

communities and unincorporated areas. These include Blue Ridge, Fredonia, Kaibab Estates West, Sherwood Forest Estates, Tusayan, Greenhaven, High Country, Forest Lakes, and the City of Williams. The tribal communities of the Havasupai, Hopi, Hualapai, Kaibab Paiute, Navajo, and San Juan Southern Paiute have been invited to engage as well. Flagstaff and its immediate surrounding communities (including Doney Park, Mountain View Ranches, Fort, Valley, Parks/Bellemont, Kachina Village, Mountainair, Munds Park, Sedona, Mormon Lake, and adjacent areas) will continue to maintain their own CWPP develop and maintained by the GFFP and the Ponderosa Fire Council.[153]

- **City Municipal and Zoning Codes:** Flagstaff, Page, Williams, Tusayan, and Fredonia have adopted zoning codes that support fire prevention through setbacks and design requirements. Tusayan, Williams, and Flagstaff integrate detailed specifications for select residential zones regarding wildfire and flooding protective measures. Flagstaff has specific municipal codes supporting wildfire management and mitigation via resource protection standards (10-50.90) and maintenance requirements for fuel reduction (13-18-005).

Probability of Future Events

The National Interagency Fire Center has records of 4,944 wildfires in Coconino County since the start of 2015. Analysis of this data by fire size and date shows a 20% reduction in the total number of fires, but a continued elevated frequency of large fires (as identified in the prior mitigation planning period). Whatever the reprieve in volume, the trend of significantly increasing average and maximum fire size (>1 acre), and attendant costs, continues. This indicates that, while the probability of wildfire occurrence fluctuates, the probability of large, and potentially catastrophic or regionally impactful, events is still increasing precipitously.

Table 4-32: Wildland Fire Frequency and Size Data (National Interagency Fire Center).

Fire Size	2015-2019	2020-2024	2025 (to-date)
Greater than 1 acre	498	395	62
Greater than 1,000 acres	55	57	3
Greater than 10,000 acres	10	8	2
Average Size (Largest) in acres	712 (33,850)	790 (71,450)	N/A (58,985)

Based on this data, the County can expect to experience numerous small fires, tens of moderate to large fires, and 0-3 very large fires every year. The concentration of these probabilities will be highest in those areas evaluated as moderate to high risk in the mapping provided previously. As fires occur, areas previously affected by major fires can be expected to see minimal fire activity until the area re-grows and/or another fire intersects with that location (if there is adequate re-growth or remaining fuels). As the probability of major wildfires continues to increase, it can be expected that more communities in the region will experience their indirect effects on an annual or more frequent basis – to include health and safety issues from smoke, regional economic losses, surges of displaced persons, and critical

[153] Greater Flagstaff Forests Partnership CWPP; Coconino County CWPP Planning Invitation; Flagscanner – Greater Flagstaff Forests Partnership Receives Grant to Develop CWPP in Coconino County

infrastructure disruption. It is expected that, in the long run, the probability of fire occurrence will continue to grow as increased temperatures, dry atmospheric conditions, and drought continue to become more prevalent.

Vulnerability

Wildland fire remains the most threatening hazard within the County. This is due to hazard's combined capacity for destruction and rapid growth with minimal advance warning of location or occurrence beyond ambient climactic conditions. Growth can be explosive in nature and, in the right climate conditions, travel tens of miles per hour while expanding by thousands of acres per day. According to the US Forest Service and National Risk Index, Coconino has higher wildfire risk than 96% of counties in the United States.[154]

Communities most vulnerable to wildfire are those in rural and mountainous areas with an extensive urban-wildland interface – or where the community is virtually indistinguishable from the surrounding forests and rangeland. These are at risk of being directly consumed by fire. Coming a close second are communities with limited routes of ingress and egress (particularly those with only one) that could potentially be physically isolated or experience extended infrastructure failures or supply shortages damage or disruption of key transport and supply routes. This includes impacts on power lines and water supply infrastructure. As mentioned for the county's flooding hazard, wildland fires present further vulnerability to homeowners as insurance costs increase and regional withdrawal by home insurers is a growing issue in addition to the long-term costs of wildland fires.

Due to the explosive nature of fires, and the time sensitive threats posed by them, effective emergency alert and notification is crucial to ensuring that populations become aware of the threat and receive timely instructions regarding necessary actions and resources. As such, communities with limited communications redundancies are vulnerable to being isolated if cellular and radio towers are affected.

At the population level, wildfire significantly exacerbates all social vulnerability factors. Disproportionate impacts are frequently seen among the young and elderly, individuals experiencing homelessness, households without access to vehicles, and those without access to internet or cellular phones. Mobile home communities also tend to be at risk due to their location, limited mitigation, and limited fire resistance.

Table 4-32: CPRI Rating for Wildland Fire

Jurisdiction	Probability 45%	Magnitude/Severity 30%	Warning Time 15%	Duration 10%	CPRI Score (Max 4.0)
Coconino County	4	4	4	4	**4**
Flagstaff	4	4	4	4	**4**
Fredonia	3	3	3	2	**2.9**
NAU	4	4	4	4	**4**
Page	1	3	4	2	**2.15**
Tusayan	4	4	4	3	**3.9**

[154] USFS Wildfire Risk to Communities - Coconino

Jurisdiction	Probability 45%	Magnitude/Severity 30%	Warning Time 15%	Duration 10%	CPRI Score (Max 4.0)
Williams	4	4	4	4	**4**
County-wide average CPRI =					**3.56**

Loss Estimates

According to the National Risk Index, Coconino's estimated annual losses to wildfire is $20,228,581, which places it in the 99.3 percentile of potential impacts in the United States.[155] A study by First Street indicates that 77,400 properties in the county, 98% of all properties in the county, are at some risk of being affected by wildfire over the next 30 years.[156] The National Risk Index values the property, population, and agriculture exposed to wildfires in the county at $312.3 billion dollars (with $6.2 billion for building value and $17.6 billion for agricultural losses). It further states that approximately 144,629 people are exposed to wildfire impacts.

Detailed scenario modeling for highly populated and developed regions such as Williams or Flagstaff indicates that major fires within, or directly adjacent to their jurisdictions, can result in tremendous single-event losses. A 2018 estimate of the damage that could occur from a catastrophic fire on Bill Williams Mountain, just south of Williams, forecast total costs ranging from $379 million to $694 million. Of these costs, roughly $164.3 million to $303.3 million could be attributed to primary and secondary impacts of the fire alone.[157] A 2023 study of the potential costs of fires in the San Francisco Peaks, just north of Flagstaff, estimated total costs ranging from $535.2 million to $2.8 billion. Of these costs, roughly $174.6 million to $392.8 million could be attributed to the fire's primary and secondary impacts.[158] Costs integrated in these studies included fire suppression and flood mitigation actions, utility and infrastructure disruption (including water, communications, and transportation), property loss, business losses, critical habitat destruction for endangered species, tourism disruption, and long-term recovery costs, and health costs. Both studies noted that their estimates were conservative in nature.[159]

It is important to note that the indirect impacts of wildland fires can also be catastrophic – and difficult to value. In addition to stripping the land of vegetation and destroying forest resources and personal property, large, intense fires can harm the soil, waterways and the land itself. Soil exposed to intense heat may temporarily lose its capability to absorb moisture and support life. Exposed soils in denuded watersheds erode quickly and are easily transported to rivers and streams thereby enhancing flood potential, harming aquatic life and degrading water quality. Lands stripped of vegetation are also subject to increased debris flows and landslide hazards.

Since monsoon season in Northern Arizona arrives just after wildfire season, the impacts of larger wildfires are often followed and compounded by flooding and debris flows events. In such events, rains scour and burn scare of fire affected areas while causing catastrophic impacts to downhill/downstream communities in the watershed – which are often already heavily impacted by the original wildfire. This compounds the impacts of a wildfire event. However, it is worth noting that the slow regrowth of burn scars and variable frequency of intense monsoonal rainfalls can mean that these follow-up hazard events can come up to three years after the original fire.

[155] National Risk Index Community Report – Coconino County, AZ
[156] First Street – Does Coconino County Have Wildfire Risk?
[157] NAU – The Economic Impact of Post Fire Flooding: Bill Williams Mountain 2018
[158] NAU – The True Cost of Wildfire on the San Francisco Peaks 2023
[159] Note: For the purpose of this plan, all costs that were not explicitly disambiguated or specific to a given hazard were split 50/50 between flooding and fire respectively (e.g. long-term recovery costs)

Developmental Trends

The potential for communities to be impacted by wildland fire has continued to increase since the last plan update. Wildland fires throughout the western United States have become, larger, hotter, and more deadly over the past years. This is due to record drought which has resulted in 100's of millions of dead trees, hotter temperatures and forest management programs that left very high fuel loads in place. As the County's population grows and additional development in rural areas expands the urban/wildland interface, impacts of wildfire are likely to increase across the entire planning area.

4.3.13 Winter Storm

Description

Severe snowstorms affect many aspects of life in the County, including transportation, emergency services, utilities, agriculture and the supply of basic subsistence to isolated communities. Interstates 40 and 17 have produced numerous fatal multi-car accidents due to heavy winter snowfall and icy road conditions. Heavy snowfalls can also leave motorists stranded in their vehicles with potentially disastrous results like hypothermia and carbon-monoxide poisoning. Significant snowstorms can also hinder both ground and air emergency services vehicles from responding to accidents or other emergencies. Remote areas and communities can be easily cut off from basic resources such as food, water, electricity, and fuel for extended periods during a heavy storm. Extremely heavy snowstorms can produce excessive snow loads that can cause structural damage to under-designed buildings. Agricultural livestock can also be vulnerable to exposure and starvation during heavy snowstorms.

Freezing rain is formed as snow falls through a warm zone in the atmosphere completely melting the snow. The melted snow then passes through another zone of cool air "super cooling" the rain below freezing temperature while still in a liquid state. The rain then instantly freezes when it comes in contact with the ground or other solid object. Because freezing rain hits the ground as a rain droplet, it conforms to the shape of the ground, making one thick layer of ice. Sleet is similar to hail in appearance but is formed through atmospheric conditions more like freezing rain. The difference is that the snowflakes do not completely thaw through the warm zone and then freeze through the cool air zone closer to the ground. Sleet typically bounces as it hits a surface similar to hail. Sleet is also informally used to describe a mixture of rain and snow and is sometimes used to describe the icy coating on trees and power lines.

Sleet and freezing rain can cause slippery roadway surfaces and poor visibility leading to traffic accidents and can leave motorists stranded in their vehicles with potentially disastrous results like hypothermia and carbon monoxide poisoning. Heavy sleet or freezing rain can produce excessive ice-loads on power lines, telecommunication lines and other communication towers, tree limbs, and buildings causing power outages, communication disruptions, and other structural damage to under-designed facilities.

The warmer oceans and atmosphere observed in the recent past lead to increased evaporation and increased water vapor in the atmosphere. The higher water vapor values translate directly into greater perceptible water – the amount of liquid water found in a column of air, if all the water were squeezed out of the column of air. Increased atmospheric moisture can result in more extreme storm and precipitation events. For the County, there is a possibility of higher intensity winter storms, though there is no clear trend. Rather, there is an increase in variability, with both higher snowfall events and months with no storms at all.

History

The National Oceanic and Atmospheric Administration has tracked winter storm events since 1996. To date, Coconino County has experienced 537 winter weather events and 109 winter storms specifically. From 2015 to 2019 there were 114 winter weather events and between 2020 and 2025 there have been 106 to date. A selection of prominent incidents is described below:

- **March 13, 2025 –** A short and intense snowfall combined with 40 mile per hour winds causes a 18-22 car pile-up on Interstate 40 at mile post 159 west of Williams. The wreck causes a fire that burns for 22 hours. The incident resulted in 5 fatalities and interstate closure for several days.[160]
- **November 29, 2019 –** A major winter storm impacted northern Arizona over the Thanksgiving holiday, bringing very heavy wet snow and causing significant travel disruptions, road closures, and power outages. The combination of heavy snow and strong winds caused multiple power outages, most notably in Tusayan and the Grand Canyon. Over 30 inches of snow was reported near Hwy 180. Power was lost to portions of the northwestern areas of the County along Old Route 66. A State of Emergency was declared for Tusayan.[161]
- **February 20-22, 2019 –** A cold, strong, intensifying low pressure system spread a blanket of snow over a majority of central and northern Arizona. As a result of the heavy snowfall, major roadways were closed, trees were downed, and power was lost in local communities. Snowfall recorded at NWS Flagstaff and Flagstaff Pulliam Airport was 40.8 inches, breaking Flagstaff's record for snowfall – last set in 1915. State of Emergencies were declared by all counties along with some cities and reservations in central and northern Arizona.[162]
- **January 18-23, 2010 –** A series of three low pressure systems tracked across the state during a 6-day period. These systems brought heavy snowfall to the higher elevations of northern Arizona, record flooding to lower elevation locations, and strong winds area wide. The third and most intense system resulted in record low pressure readings. Several snow and rainfall records were set throughout the week, with estimates of over 90 inches at the highest peaks of northern Arizona and liquid precipitation amounts exceeding 10 inches in some areas. Snowfall resulted in numerous roof collapses in Flagstaff, widespread power outages for several days along the Eastern Mogollon Rim and White Mountains, severely hampered services across the Navajo and Hopi reservations, and impassable roads due to limited powering services. Two homes were damaged in Williams due to a fallen tree.[163] The incident resulted in over $1 million of damage.[164]
- **December 12-20, 1967 –** A series of snowstorms caused substantial disruption to communities in northern Arizona and shattered snowfall records. Measurements taken at the Flagstaff Pulliam Airport totaled the snowfall at 86 inches. The storm caused road closures, power outages, and devastating impacts for residents seeking basic necessities such as food, water, and shelter. Navajo Nation lands experienced significant hardship, requiring airlifted food and livestock feed.[165]

Location

The entire County is susceptible to winter storms and related weather events. Populations travelling on roadways during storm events experience particularly high hazard exposure and risk. Low altitude areas may experience heavy rainfall, versus snow, outside of the winter months.

[160] NOAA Storm Events Database – Event 1235065
[161] National Weather Service, Flagstaff AZ Weather Forecast Office
[162] National Weather Service, Flagstaff AZ Weather Forecast Office
[163] National Weather Service, Flagstaff AZ Weather Forecast Office
[164] NOAA Storm Event Database – Event
[165] Arizona Central, "Extreme Weather: The Snowiest Storm in Arizona History," December 23, 2015

Extent

Although winter snows are the lifeblood of regional water supplies for most of the County, they are also one of County's deadliest natural hazards. Winter weather and storm events regularly disrupt transportation routes by causing airport delays or shutdowns, large-scale car accidents, road closures, injuries, and fatalities. In addition, they can isolate rural areas, damage structures, cause power outages, adversely impact first response operations (ground and air), and disrupt supply chains. Winter storms are generally one to three days in duration, though the snowfall they leave behind can remain for days or weeks. Particularly severe storms can result in snowfall that isolates rural areas for extended periods and require mobilization of specialized air and ground resources to deliver supplies and ensure emergency services access. When winter storms yield heavy rainfall, flash flooding and debris flows may occur – particularly in locations recently affected by wildfires.

Winter storms usually begin to impact the County and especially the northern areas beginning in the fall (October / November) and can continue through April and portions of May. The higher elevations of the County will feel the immediate impacts first. However, as snow elevations drop and precipitation amounts (both rain and snow) increase, lower elevations will begin to experience severe weather impacts including but not limited to flooding, hazardous road conditions, and potential structural damage. Winter storm post event rain and water runoff due to melting snow can lead to flooding impacts in many populated areas of the County. These areas include Flagstaff and the immediate surrounding area, and potentially areas several miles from Flagstaff.

The NWS produces several notifications about potential winter storm events.

Table 4-33: Winter Storm Warnings Issued by the NWS[166]

Warning Type	Warning Criteria	Zones Affected
Winter Storm Watch	Issued when confidence is 50% that we will exceed a Winter Storm Warning Criteria for greater than 24 hours in advance: • Eight inches or more of snow above 5,000 feet; • Four inches or more of snow above 4,000 feet	Advisory may vary from area to area.
Blizzard Warning	Issued when the following conditions are occurring or expected within 12-18 hours. Criteria include: • Snow and/or blowing snow reducing visibility to a quarter mile or less for three hours or longer; • Sustained winds of 35 mph or greater; • Frequent gusts to 35 mph or greater. There is no temperature requirement to achieve blizzard conditions.	Advisory may vary from area to area.
Winter Storm Warning	Issued when a significant combination of hazardous winter weather is occurring or imminent. Criteria include:	Advisory may vary from area to area.

[166] National Weather Service Winter Weather Warnings, Watches, and Advisories

Warning Type	Warning Criteria	Zones Affected
	• 8" of snow above 5,000 feet and 4" of snow below 5,000 feetAND/OR; • Seven inches or more of snow/sleet within a 24-hour period AND/OR; • Enough ice accumulation to cause damage to trees or powerlines AND/OR; • Life-threatening or damaging combination of snow and/or ice accumulation with wind.	
Ice Storm Warning	Issued when an ice storm event is expected to meet or exceed local ice storm warning criteria in the next 12-36 hours. Criteria include: • Ice that is ½ inch or more over at least 50% of the zone or encompassing most of the population	Advisory may vary from area to area.
Snow Advisory	Issued when a low-pressure system produces snow that may cause significant inconveniences, but do not meet warning criteria and if caution is not exercised, could lead to life-threatening situations.	Advisory may vary from area to area

NOAA's National Centers for Environmental Information produces the Winter Storm Severity Index (WSSI) to provide NWS partners and the public with an indication of winter precipitation (snow and ice) severity and its potential related societal impacts. The WSSI does not depict official warnings and should always be used in context with official NWS forecasts and warnings.

Table 4-34: NOAA Winter Storm Severity Index – Potential Winter Storm Impact Scale

Color Code	Severity Level	Definition
	No Impacts	Impacts not expected
	Limited Impacts	Rarely a direct threat to life and property. Typically results in little inconveniences
	Minor Impacts	Rarely a direct threat to life and property. Typically results in an inconvenience to daily life
	Moderate Impacts	Often threatening to life and property. Some damage is unavoidable. Typically results in disruptions to daily life.
	Major Impacts	Extensive property damage likely and lifesaving actions needed. Will likely result in major disruptions to way of life

	Extreme Impacts	Extensive and widespread severe property damage and lifesaving actions will be needed. Results in extreme disruptions to daily life

Regulatory Context

There are few statutory requirements related to winter storms. Flagstaff and Williams have ordinances specifically guiding when and how to conduct snow an ice removal – requiring owners, lessees, or residents to remove snow from public walkways and public transit sites bordering their property within 24 hours.[167] In addition, the County and Flagstaff restrict parking on streets in wintertime to enable snowplow and street sweeping operations.[168]

OSHA provides a variety of resources to guide employers on how to prevent serious injuries and fatalities.[169]

Probability of Future Events

Winter weather is an annual occurrence that can be expected to continue. However, with rising average temperatures and dry climate conditions, these events can be expected to yield less precipitation, as well as more heavy rain versus snow in coming years. This may lead to an increase in flooding events.

The frequency of winter storms has decreased significantly over the last 15 years. From 1996 to 2011, there was an 87.5% chance of a winter storm occurring each year – with between one and five events occurring each year. Since 2011, winter storms have occurred at increasing intervals – growing from once every five years during the last mitigation plan update to once every ten. The result has been a drop in annual probability to 14.3% per year. This shift also matches the regional trend of increasing temperatures and drier conditions – both of which are contributing to an ongoing state of drought. If trends in climate change remain predictive, those storms that do occur can be expected to be more intense. However, it has yet to be revealed whether this is a long-term trend or part of a short-term cycle

Vulnerability

All County populations and assets are exposed to winter storm events. Impacts are predicated heavily by drivers on highways and roads are highly exposed to the effects of winter storms. The substantial distances between major urban areas and the prevalence of multi-vehicle accidents blocking roads or causing traffic can lead to individuals being stranded in severe storm conditions for extended periods.

Remote areas and communities can be easily cut off from basic resources such as food, water, electricity, and fuel for extended periods during a heavy storm. These could include the Navajo Reservation lands, Page, Sedona-Oak Creek, the Mogollon Rim area, and the areas inclusive of and surrounding Williams.

Winter storms additionally have a disproportionate effect on vulnerable populations – particularly those experiencing homelessness or who live in structures without adequate heating, insulation, or backup power.

Table 4-35 captures the Planning Team's estimation of their jurisdictions' risk for this hazard.

[167] Flagstaff Snow removal Ordinance 8-03-001-0004; Williams Snow and Ice Removal Ordinance 152.16
[168] Flagstaff Winter Parking Ordinance 9-01-001-0003 E 7; Coconino Ordinance 2022-06
[169] OSHA Hazard Alert – Removing Snow from Elevated Surfaces; OSHA Snow Removal Guidance; OSHA Winter Weather Safety Website

Table 4-35: CPRI Rating for Winter Storms

Jurisdiction	Probability 45%	Magnitude/Severity 30%	Warning Time 15%	Duration 10%	CPRI Score (Max 4.0)
Coconino County	4	4	2	4	**3.7**
Flagstaff	4	2	1	3	**2.85**
Fredonia	3	2	1	3	**2.4**
NAU	4	4	2	3	**3.6**
Page	2	1	1	3	**1.65**
Tusayan	4	2	1	3	**2.85**
Williams	4	4	2	3	**3.6**
County-wide average CPRI =					**2.95**

Loss Estimates

According to the National Risk Index, the expected annual loss for winter storm events is approximately $218,000 – placing the county in the 83.4 percentile for potential impacts.[170] Annual losses due to related events such as cold waves and ice storms are calculated at $172,000 and $87,000 respectively. At least one fatality and multiple injuries can also be expected.

Developmental Trends

Increased community development in the County can be expected to expand hazard exposure. Increased people commuting on highways to major employment centers as well as greater reliance on distributed power infrastructure is likely to increase potential impacts. This is especially as winter storm events decrease in frequency but increase in severity.

[170] National Risk Index

Section 5: Mitigation Strategy

This section describes the participating jurisdictions overall vision, goals, available capabilities, and planned mitigation actions for reducing or eliminating hazard risk in their communities.

FEMA REGULATION CHECKLIST: MITIGATION STRATEGY AND PLAN UPDATE

44 CFR § 201.6(c)(3): A mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.

44 CFR § 201.6(c)(3)(i): Description of mitigation goals to reduce or avoid long-term vulnerabilities to identified hazards

44 CFR § 201.6(c)(3)(ii): A section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure…

44 CFR § 201.6(c)(3)(iii): An action plan describing how the actions identified in paragraph (c)(3)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization will include a special emphasis on the extent to which benefits are maximized according to a cost-benefit review of the proposed projects and their associated costs.

44 CFR § 201.6(c)(3)(iv): For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit.

44 CFR § 201.6 (d)(3): "A local jurisdiction must review and revise its plan to reflect . . . progress in local mitigation efforts "

ELEMENTS

C1. Does the plan document each participant's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement 44 CFR § 201.6(c)(3))

C2. Does the plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement 44 CFR § 201.6(c)(3)(ii))

C3: Does the plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement 44 CFR § 201.6(c)(3)(i))

C4. Does the plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement 44 CFR § 201.6(c)(3)(ii))

C5. Does the plan contain an action plan that describes how the actions identified will be prioritized (including a cost-benefit review), implemented, and administered by each jurisdiction? (Requirement 44 CFR § 201.6(c)(3)(iv)); (Requirement 44 CFR §201.6(c)(3)(iii))

E1. Was the Plan revised to reflect progress in local mitigation efforts? (Requirement 44 CFR § 201.6(d)(3))

E2. Was the plan revised to reflect changes in priorities and progress in local mitigation efforts? (Requirement 44 CFR § 201.6(d)(3))

Source: FEMA, *Local Mitigation Planning Handbook,* June 2025.

5.1 Hazard Mitigation Statement

The 2026 MJHMP represents the County's and participating jurisdiction's commitment to create safer, more resilient communities by taking actions to reduce risk and by committing resources to lessen the effects of hazards on the people and property.

5.2 Hazard Mitigation Goals and Objectives

Mitigation goals are guidelines that represent what the community wants to accomplish through the mitigation plan. Goals are broad statements that represent a long-term, community-wide vision. The Planning Team reviewed the goals and objectives from the previous MJHMP and determined which best met their jurisdiction's mitigation requirements. The result was a new streamlined set of unified hazard mitigation goals listed in **Table 5-1**. The goals support addressing the hazards in the General Plans and reflect input provided by stakeholders and the public. The jurisdictions worked with their Planning Departments to align these goals, and their mitigation strategies, with their General Plan Safety Elements.

Table 5-1: Hazard Mitigation Goals

2026 Goals
Goal 1: Protect life, property, and reduce potential injuries from natural, technological, and human-caused disasters – with particular emphasis on reducing the threat and impacts of wildland fires and post-wildfire flooding/debris flows.
Goal 2: Improve public understanding of, and support for, hazard mitigation measures
Goal 3: Promote disaster resistance for the natural, existing, and future built environment.
Goal 4: Strengthen partnerships and collaboration to enable a whole community approach to hazard mitigation.
Goal 5: Enhance the ability of the County, and jurisdictions within it, to effectively and rapidly respond to disasters.

5.3 Capabilities

Federal regulations require local hazard mitigation plans identify goals for reducing long-term vulnerabilities to the identified hazards in the planning area (Section 201.6(c)(3)(i)). Elements of this requirement include a description of capabilities that support mitigation activities. A capability assessment was conducted of the MJHMP participating jurisdictions' authorities, policies, programs, and resources. From the assessment, goals and mitigation actions were developed. Capabilities for the County and other participating jurisdictions are described in detail below. The Yes/No column denotes if a particular jurisdiction has that specific capability.

5.3.1 Opportunities to Enhance Capabilities

Based on the capability assessment previously provided, the participating jurisdictions have existing regulatory, administrative/technical, fiscal mechanisms in place to help mitigate hazards. In addition, to these existing capabilities, there are opportunities for the participating jurisdictions to expand or improve these policies and programs to further protect the community. The following opportunities for enhancement of this MJHMP are organized below by the planning and policy, administrative/technical, fiscal and outreach opportunities.

Planning and Policy Opportunities

Future opportunities for planning and regulatory enhancement include integration of the information from the 2026 MJHMP in participating jurisdiction Safety Plan updates and other regularly updated planning mechanisms (discussed more thoroughly in Section 6.4). Additionally, synchronization of the MJHMP with the concurrently developed Community Wildfire Protection Plan for Rural and Tribal Communities could generate substantial synergy for long-term wildfire and post-wildfire flooding mitigation efforts.

Participating jurisdictions will continue throughout the planning cycle to identify work-ready projects to implements soon as funding becomes available. In the process, they will define scopes of work, objectives, and desired outcomes of the mitigation projects prioritized – collaborating closely when there are overlapping interests, jurisdiction, or benefits. In addition, this effort will help identify specific risks or hazards the project aims to address and determine the project area for community implementation. In the process of preparing work-ready projects, participating jurisdictions will also assess the level of stakeholder engagement needed, regulatory compliance needs, budgeting and funding options, procurement resources, and foreseeable risk management issues. By doing so, participation jurisdictions will continue to be proactive in effectively managing project preparation to ultimately reduce city risks from emergency and disaster events to enhance local and regional community resilience.

Administrative and Technical Opportunities

Enhancements to administrative and technical capabilities include the implementation of further mitigation training and the further deployment of technology innovations. Hazard mitigation training, provided via FEMA or the Arizona Department of Emergency and Military Affairs, to participating jurisdiction staff would help to expand participant's capabilities to implement mitigation actions successfully, engage with the grant process, and maximize risk reduction opportunities. Meanwhile, participating jurisdictions will continue to expand their use of developing technology tools to support and guide mitigation efforts. This includes expanding the use of ESRI Story Maps (utilized to develop the Coconino County Hazard Explorer) to evaluate risk, track mitigation efforts, and engage with the public as well as the CDC Social Vulnerability Index, AZHG Arizona Social Vulnerability Index, and Resilience Analysis and Planning Tool. Potential additional tools to leverage include the Climate Mapping for Resilience and Adaptation tool and the Climate Risk and Resilience Portal.

Fiscal Opportunities

Opportunities to enhance fiscal capabilities include engagement chambers of commerce, cooperation with the private sector to identify potential public-private partnerships, and grant applications. Can yield unique opportunities and fundings sources based on shared interests. Chambers of commerce engagement may be particularly fruitful by aligning their mission of fostering a robust economy with mitigation projects that address hazards which could adversely affect local and regional economies. Participating jurisdictions should also apply for the myriad of hazard mitigation grants available from the Federal and State government to fund identified mitigation actions/projects. The appointment of personnel to monitor mitigation grants substantially assist in this process. This person (or persons), would be the specialist that notifies jurisdictions and agencies of upcoming grant cycles, supports tracking and completion of Notice of Intent (NOI) applications, grant applications, and final grant management reporting requirements.

Outreach Opportunities

Community and public engagement can continue to be enhanced through a variety of means. Participating jurisdictions will continue to expand their outreach and public engagement by publishing the approved and adopted MJHMP on their websites, placing copies at key public facilities, sharing the plan with special jurisdictions and community-based organizations, and providing updates on status and progress via social media and community meetings as appropriate. Participating jurisdictions will ensure copies of the MJHMP are distributed to the Planning Team and that they are engaged in future public outreach strategies. They will also continue engagement with neighboring jurisdictions to ensure comprehensive mitigation planning, outreach, and implementation coordination.

The Planning Team recognizes the importance of a dynamic and ongoing planning process, emphasizing that community engagement is essential before any disaster or emergency occurs. To this end they are dedicated to ensuring that mitigation is considered as part of after-action review and recovery

processes. This is aimed at identifying and addressing developing or new opportunities for hazard mitigation, thereby supporting comprehensive community planning and enhancing overall resilience.

Participating jurisdictions will also continue to actively engage and conduct outreach to vulnerable populations, especially during the mitigation process. They will continue to do so through engagement with various assistance and community groups, as well as individuals that support vulnerable populations. These populations include, but are not limited to, individuals with developmental or intellectual disabilities, physical disabilities, chronic conditions, injuries, limited English proficiency/non-English, seniors, children, people living in institutionalized settings, low income, homeless, transportation disadvantaged, those dependent on public transportation, and those who are pregnant. In doing so, participating in jurisdictions will continue to ensure the considerations of vulnerable populations are effectively integrated at all points. This outreach will be continuous throughout the planning cycle and in partnership with neighboring jurisdictions.

5.3.2 National Flood Insurance Program Participation

Joining the NFIP requires the adoption of a floodplain management ordinance by jurisdictions and following established minimum standards set forth by FEMA and the State of Arizona, when developing in the floodplain. These standards require that all new buildings and substantial improvements to existing buildings will be protected from damage by the 100-year flood, and that new floodplain development will not aggravate existing flood problems or increase damage to other properties. As a participant in the NFIP, communities also benefit from having Flood Insurance Rate Maps (FIRM) that map identified flood hazard areas and can be used to assess flood risk, regulate construction practices and set flood insurance rates.

If a community adopts and enforces a floodplain management ordinance to reduce future flood risk to new construction in floodplains, the Federal Government will make flood insurance available within the community as financial protection against flood losses. This insurance is designed to provide an insurance alternative to disaster assistance to reduce the escalating costs of repairing damage to buildings and their contents caused by floods.

The County and four of the five incorporated jurisdictions currently participate in the NFIP. Northern Arizona University (NAU), as a state entity insured through the Arizona Department of Administration's self-insurance program, does not obtain flood insurance coverage through the NFIP. However, being located within NFIP-participating jurisdictions (Flagstaff and Coconino County), its facilities planning and hazard mitigation efforts are informed by FEMA FIRMs, applicable floodplain regulations, and coordination with local authorities as appropriate. **Table 5-26** summarizes participating jurisdiction NFIP status and statistics.

Table 5-26: NFIP Status for Coconino County[1]

Jurisdiction	Comm ID	NFIP Entry Date	Map Date (DFIRM)	# of Policies	Total Coverage	Floodplain Management Role
Coconino County	040019	11/16/1983	09/03/2010	361	$110,901,100	Provides floodplain management for the Unincorporated County. Participant in the Coconino County Flood Control District (CCFCD).
Flagstaff	040020	1/19/1983	09/03/2010	648	$185,592,000	Regulates and administers floodplain management in-house. Collaboration with the CCFCD
Fredonia	040021	05/17/1982	09/03/2010	3	$675,000	Provides in-house floodplain management. Participant of the CCFCD.
NAU	N/A	N/A	N/A	N/A	N/A	Non-participant (state entity/ self-insured)
Page	040113	07/11/2011	09/03/2010	1	$210,000	Provides in-house floodplain management. Participant of the CCFCD.

Tusayan	N/A	N/A	09/03/2010	N/A	N/A	Relinquished to CCFCD in 2019 via Ordinance No. 2019-02
Williams	040027	12/15/1983	09/03/2010	32	$9,753,100	Provides in-house floodplain management. Participant of the CCFCD

- Community ID: The 6-character community ID in which the policy resides.
- # of Policies: The number of policies in force for a given state and combination of attributes.
- Total Coverage: The total building and contents coverage for the policies in force

Substantiation of continued compliance with NFIP requirements is listed for each jurisdiction:

Coconino County: Coconino County Floodplain Regulations 2023 – **"**The Special Flood Hazard Areas identified by the Federal Insurance Administration (FIA) of the Federal Emergency Management Agency (FEMA) in a scientific and engineering report entitled "The Flood Insurance Study (FIS) for Coconino County, dated September 3, 2010 with accompanying Flood Insurance Rate Maps (FIRMs), dated September 3, 2010 and all subsequent amendments and/or revisions, are hereby adopted by reference and declared to be a part of these Regulations.

This FIS and attendant mapping are the minimum area of applicability of these Regulations and may be supplemented by studies for other areas which allow implementation of these Regulations, and which are recommended to the Floodplain Board by the Floodplain Administrator. The Floodplain Board, within its area of jurisdiction, shall delineate (or may, by rule, require developers of land to delineate) for areas where development is ongoing or imminent, and thereafter as development becomes imminent, floodplains consistent with the criteria developed by the Federal Emergency Management Agency and the Director of the Arizona Department of Water Resources. The FIS and FIRMs are on file at the Department of Community Development, 2500 N. Fort Valley Road, Flagstaff."

Flagstaff: City Code Chapter 12-01-001-0004.02 Floodplain Regulations – "The Federal Emergency Management Agency (FEMA) scientific and engineering report entitled "Flood Insurance Study, dated September 3, 2010, Coconino County, Arizona and Incorporated Areas" with accompanying Flood Insurance Rate Maps (FIRMs), and all subsequent amendments and/or revisions, identifying special flood hazard areas, are hereby adopted by reference and declared to be a part of this chapter. The Flood Insurance Study (FIS) and the FIRM panels are on file in the office of the Floodplain Administrator, 2323 North Walgreens Drive, Flagstaff, AZ 86004 and online at flagstaffaz.gov/4315/flood-information. The FIS and attendant mapping are the minimum area of applicability of these regulations and may be supplemented by studies for other areas which allow implementation of this chapter, and which are recommended to the Floodplain Board by the Floodplain Administrator. The Floodplain Board, within its area of jurisdiction, shall delineate, or may by rule require developers of land to delineate, for areas where development is ongoing or imminent, and thereafter as development becomes imminent, floodplains consistent with the criteria developed by the Federal Emergency Management Agency and the Director of the Arizona Department of Water Resources.

The Floodplain Board may adopt additional floodplain studies or reports by reference and declare them to be part of these regulations; provided, that any differences in floodplain delineation between such additional studies or reports and the effective Flood Insurance Rate Map(s) shall be resolved by applying those provisions which result in a broader floodplain delineation. A copy of such studies shall be on file in the office of the Floodplain Administrator. (Ord. 2001-06, Amended, 04/03/2001) (Amended, Ord. No. 2011-11, 09/06/2011; Ord. 2024-20, Amended, 07/02/2024 (Res. 2024-32))"

"These floodplain management regulations of the City of Flagstaff are hereby amended by the addition thereto of the regulations of the NFIP as they may from time to time be amended.

In accordance with 44 CFR Ch. 1, Part 60, Subpart A, any state or local floodplain management regulations, including the regulations set forth in these regulations, which are more restrictive than the minimum criteria set forth in 44 CFR shall take precedence.

The amended regulations for the National Flood Insurance Program, identified as referenced herein above, are hereby declared to be a public record, and at least three (3) copies of the amendments shall be filed in the office of the City Clerk and be kept available for public use and inspection. (Ord. No. 1675, Amended, 09/18/90; Ord. No. 1886, Ren&Amd, 08/29/95, 12-01-001-0009; Ord. 2001-06, Amended, 04/03/2001)"

Fredonia: City Code 150.01 Flood Damage Prevention Regulations Adopted By Reference – "The town's flood damage prevention regulations, and any and all amendments, are hereby adopted by reference and incorporated herein as if set out in full. (Res. 05-002, passed 1-25-2005)"

Page: City Code Chapter 153.01 Delegation of Responsibility for Floodplain Management – "In accordance with A.R.S § 48-3610(E), floodplain management within the city has been relinquished to the Coconino County Flood Control District; and development within areas designated as special flood hazard areas located within city limits shall be subject to such rules and regulations as may be established by the state and the Coconino County Flood Control District in conformance with the National Flood Insurance Program requirements and the provisions of A.R.S. Article 1, Chapter 21, Title 48. Conformance to such rules and regulations shall be in addition to any other applicable code requirements."

Williams: City Code Chapter 155: Floodplain Management, Adopt by Reference – "The Arizona Floodplain Management Model Ordinance is adopted by reference and incorporated herein as though set forth in full. Copies of the ordinance are on file with the City Clerk and are available for public inspection. (Ord. 988, passed 2-10-2022)"

NFIP Repetitive Loss Properties:

According to FEMA, there are 17 repetitive loss (RL) properties are located in the planning area. Of these, 12 are single family dwellings. The remainder are non-residential. Fifteen of the properties are located in Sedona.

These NFIP-insured properties have experienced multiple flood losses since 1978. RL properties demonstrate a track record of repeated flooding for a certain location and are one element of the vulnerability analysis. RL properties are also important to the NFIP, since structures that flood frequently put a strain on the National Flood Insurance Fund.

5.4 Mitigation Actions/Projects and Implementation Strategy

The following section contains the status of mitigation actions from the 2026 MJHMP. It also provides for ongoing mitigation actions from the 2021 MJHMP and the new mitigation actions developed during the 2026 update process. The prioritization and cost-benefit analysis of identified mitigation actions/projects can be found in **Appendix D**.

5.4.1 Previous Mitigation Actions / Projects Assessment

The 2021 MJHMP contained mitigation actions for the County and each participating jurisdiction. Many of the mitigation actions were completed or carried out to some degree, are considered ongoing, were unable to be addressed during the time period, or were not feasible to accomplish. The tables below describe the current status of mitigation action from the previous plan.

Table 5-27: Coconino County Current Status of Previous Plan's Mitigation Actions

#	Mitigation Action	Status	Additional Details	POC/Dept.
1	Greater Flagstaff Forests Partnership: A community-based collaborative of environmental, business, land-management, emergency response, and regulatory agencies whose objectives include 1) forest restoration, 2) community protection from wildland fire, 3) sustainable, small-diameter wood utilization, and 4) adaptive management. The focus involves a multi-jurisdiction area of 180,000 acres surrounding Flagstaff, but the area of interest extends to include the nearly 900,000-acre area encompassed by the Greater Flagstaff Community Wildfire Protection Plan.	Ongoing	In 2019, GFFP's work and accomplishments were focused on the Four Forest Restoration Initiative (4FRI), Fire Adapted Communities Learning Network (FACLN), Arizona Fire Adapted Communities (AZFAC) and in cost-share grant programs that encourage and fund on-the-ground forest restoration treatments on private and non-federal land, adjacent to and complimenting project treatment areas on federal land, like the Flagstaff Watershed Protection Project (FWPP) in the Coconino National Forest. For detailed project information and annual reports for the GFFP and the 4Fri please consult: www.gffp.org/annual-reports & fs.usda.gov/4fri	Greater Flagstaff Forests Partnership; includes the 4FRI (Four Forest Restoration Initiative)
2	Flagstaff Fire Dept Wildland Fire Management Program: Housed within the Prevention Bureau, the staff lead and manage a program focused on 1) prevention, 2) preparedness, 3) hazard mitigation, 4) response, and 5) recovery. Efforts are centered on education, engineering, enforcement, and ecosystem. The Flagstaff Wildland-Urban Interface Fire Code was adopted in 2008.	Ongoing	Neil Chapman & Paul Oltrogge of the Flagstaff Fire Department oversee this very broad scoped and year-round process. Paul Oltrogge's focus is on Operations while Neil Chapman focuses on the water shed and Prevention side. This program serves to protect the watershed resources and is funded via Water Services Protection Fees.	Flagstaff Fire Department
3	Floodplain re-mapping, including any local requests for map updates to provide the community with a regulatory tool to reduce the losses to property and people for Munds Park and Kachina/Mountainaire.	Ongoing	Floodplain re-mapping, including any local requests for map updates to provide the community with a regulatory tool to reduce the losses to property and people for Ft. Valley; Doney Park; Munds Park.	County PW/ Flood Control District/County Engineer
4	Develop neighborhood wildland fire assessment and rank at-risk neighborhoods with the goal to provide residents with accurate wildland fire information and motivate them to implement personal and neighborhood mitigation measures.	Ongoing	This action ties into PFAC. The County is seeking grant funding through the Building Resilience Infrastructure and Communities (BRIC) program to enhance this mitigation effort.	PFAC/County Public Works
5	Conduct roadside thinning along Forest Highway 3 (Lake Mary Road), Perkinsville Road, Old Munds Hwy, Garland Prairie, and Spring Valley Rd to reduce vulnerability to wildland fire.	Ongoing	This action ties into PFAC. The County is seeking grant funding through the Building Resilience Infrastructure and Communities (BRIC) program to enhance this mitigation effort.	PFAC/County Public Works
6	Enforcement of floodplain management requirements in accordance with the NFIP, including regulating all and substantially improved construction in floodplains to reduce losses to property and people.	Ongoing	None	County Engineer/ Community Development
7	Develop additional GIS data layers including Sedona and Winona areas to facilitate future revisions of the greater Flagstaff area Community Wildfire Protection Plan	Ongoing	Project in development.	PFAC/CCPW/ USFS Grants

8	Rural Communities Fuel Management Partnerships: An informal multi-agency alliance has been created to work with landowners to reduce fuel hazards on their property in two (2) communities located in the County. Initial complementary work was conducted on the Kaibab National Forest adjacent to the communities of Sherwood Forest Estates and Parks. Additional grant funds are continually being sought to continue the fuels reduction work on private property in other local communities including Doney Park and Williams. The Blue Ridge community is now included.	Paused	The County is now applying for new funding through the BRIC grant. Project continuation is pending additional grant funding.	Kaibab National Forest/Arizona State Land Department/ University of Arizona/County Cooperative Extension/ County fire districts
9	Establish and maintain a county component of the state GIS mapping system documenting forest treatments, hazard data, grants, etc.	Pending Further Review	This is pending further review and coordination with County GIS.	County EM
10	Winter Weather Preparedness Campaign and brochures developed for public/PSA/webpage input.	Ongoing	Winter Weather Preparedness classes are conducted as available. Community Outreach remains a high priority for the County.	County EM/ County PW
11	Educational programs and outreach to outlying areas of the County that are not currently served by any organized fire protection system with the goal to assist in organizing districts.	Pending	Pending due to lack of funding.	All fire agencies
12	Flash Flood Early Warning System for hikers in Havasupai Canyon to alert campers of life-threatening event in canyon. Feasibility study and implementation.	Partially Complete	NWS installed Weather Station upstream at well site in Supai Village Havasupai Canyon in October 2016 and then moved to well site in 2017. The Supai weather instrument has not reported since January 28, 2019, likely due to comms failure with the internet. Frequent emails with Supai facilities have not rectified the communications issue. The instrument is still physically at the well site but is not transmitting the data online.	County EM/ DEMA/NWS/ Tribal EM
13	Expand education activities to include Northern Arizona Home Show, public service announcements, public access TV, and website.	Ongoing	County Emergency Management Home Page is continually updated. EM participated in 2018 Health Fair at the Flagstaff Aquatic Center. Public Service announcements conducted for events such as the Oak Creek Canyon Siren Tests in 2017, 2018, 2019, and 2020. In the spring of 2020, Coconino County Emergency Management worked with the NAU School of Communications to develop a multimodal plan for community outreach education and engagement.	County EM
14	Commodity flow study for State Hwy 89 from Utah Boundary to Flagstaff.	Not Started	Instead, the County is currently part of a Commodity Flow Study coordinated and paid for through the Arizona State Emergency Response Commission (AZSERC) that addresses the portions of Highway 260 in the County.	County EM/ AZSERC

Table 5-28: Flagstaff Current Status of Previous Plan's Mitigation Actions

#	Mitigation Action	Status	Additional Details	POC/Dept.
1	Red Gap Ranch Study: This is underway to evaluate the future pumping for Red Gap Ranch and potential impacts on regional stream depletion rates.	Complete	Southwest Ground Water, Inc. completed this groundwater computer modeling study in 2015.	Flagstaff Water Services Division
2	Flagstaff Well Field & Pipeline Evaluation: The city purchased Red Gap Ranch and has drilled ten (10) wells for the purpose of future water supply. The city is currently negotiating a Right of Water with ADOT along 1-40 and is performing the first phase of a feasibility study.	In progress	JACOBS Engineering is completing the Pipeline Feasibility Study. The study hould be completed by the end of 2020, pending USFS approvals. The city and DOT entered into an Intergovernmental Agreement in 2016 to establish the process and requirements necessary to obtain permits from Arizona Department of Transportation which would allow the city to place a waterline in the right-of-way of Interstate 40.	Flagstaff Water Services Division
3	Flagstaff Watershed Protection Project (also referred to as County & Dry Hills Watershed Protection Project): Approved by the voters, this project is being pursued to ensure the viability of this surface reservoir and stormwater runoff through forest treatments.	In progress	The project is 56% complete. Remaining work includes Picture Canyon, Orion Task Order, Dry Lake Hills Stewardship Contract and Shultz Tank Timber Sale (2,348 acres). All other DLH, Observatory Mesa and State Land acres are completed (5,755 acres.) Mormon Mtn/Upper Lake Mary Watershed workplans and funding TBD (2,573 acres).	Flagstaff Fire & Water Services Division
4	Upgrade existing conservation measures to provide for water during periods of drought. The city depends on surface reservoirs and groundwater for domestic water supply. Conservation efforts expand the capacity of this limited resource.	Ongoing	The Flagstaff Watershed Protection Program is underway, and reclaimed water is required for large area irrigation and lawn watering restrictions are in place. A water harvesting rebate program started in 2012. Water conservation outreach was presented to all students at the fourth (4th) grade level.	Water Services Department/ Conservation Manager
5	Enhance flood mitigation efforts through channelization and detention. Due to drainage patterns and topography many areas of the city are subject to periodic flooding during snow melts and monsoon periods.	Complete	The Clay Avenue Wash Basin flood mitigation dam was completed. The Linda Vista/Rainer Street and drainage project was completed. Additional major flood reduction projects at Lockett Road, Fanning Wash, and Zuni Drive have been completed. The Road Repair and Street Safety initiative (RRSS) will address many additional flood improvements over the next few years. The Stormwater CIP budget will continue indefinitely to construct smaller flood reduction projects.	Stormwater Manager
6	Plan and conduct forest treatments to reduce severity and impact of unwanted wildland fire both within and adjacent to the community. The Flagstaff area is ranked as the #1 wildland fire threatened area in the state.	Ongoing	Hazard mitigation (e.g. selective thinning, debris disposal, prescribed fire, hazard trees), response and recovery efforts – both internal city stand-alone work as well as collaborative efforts with our partners (e.g. Four Forest Restoration Initiative, Ponderosa Fire Advisory Council, Greater Flagstaff Forests Partnership, others).	Fire Department/ Wildland Fire Management Officer
7	Provide equipment and human resources sufficient to handle comprehensive road,	Ongoing	Flagstaff Fire Department continues to train, equip, and respond to	Fire Department/ Training Chief

	air, and railway hazmat and mass casualty incidents. Nearly 120 trains travel through the city boundaries each day. I-40 and I-17 generate truck traffic that carry hazardous materials through the city each day.		transportation and fixed site emergencies throughout Northern Arizona.	
8	Educate the local and regional community (including tourists) about the potential and consequences of catastrophic wildland fire and actions necessary to mitigate the risk/threat.	Complete	Prevention and preparedness programs are in place: Firewise Neighborhood and Fire-Adapted-Community programs, Annual Restrictions & Closure Plan, Annual Wildfire Preparedness Day, Flagstaff Wildland-Urban Interface Fire Code, and general outreach efforts and events.	Fire Department/ Firewise Coordinator
9	The Rio de Flag Project is a major flood control initiative designed to remove 1,500 structures from the flood plain. The downtown area is prone to flooding. This effort will both reduce the threat and enable further economic development in this area.	In progress	This project has received funding from the Army Corps of Engineers, and is progressing in the property acquisitions, engineering design, outreach and developing agreements with impacted parties (BNSF, ADOT),	Capital Improvements/ Rio De Flag Project Manager
10	Install generators for water wells vulnerable to losing power during wildland fires. More than 60% of the water supply is pumped from underground wells. Many of these are subject to wildland fire threats that disrupt power.	Complete	Five diesel-powered, trailer mounted, portable generators have been purchased and manual transfer switches installed at four critical water production facilities. The final step in completion was installing “shore power” for the five portable gensets at two locations.	Water Services/ Division Head
11	Flagstaff Stormwater Public Outreach: Public awareness program on topic of flooding and dam risks.	Ongoing	These efforts are required to be repeated annually per FEMA requirements	Water Services
12	County emergency notification system	Ongoing	System has been deployed. Working on public engagement and increasing participation.	Coconino County EM
13	Building code adoption: Maintain current building standards for seismic protection.	Ongoing	None	Community Development
14	Building code adoption: Maintain building standards for snow loading.	Complete	None	Community Development
15	Building code adoption: Maintain building standards for wind shear.	Complete	None	Community Development
16	Fire prevention inspection: Perform building inspections to prevent exceeding snow load limits.	Complete	These efforts are required to be repeated periodically.	Fire Department
17	Fire prevention patrols: Fire prevention patrols by law enforcement including flyovers to discover illegal transient camps and illegal fires within the city limits.	Complete	These are ongoing efforts.	Flagstaff Police Dept
18	Pulliam Airport Security Screening: Armed police officers are present at airport screenings prior to boarding to ensure passenger safety.	Complete	Continue to have local police officers at airport screenings funded in part by TSA.	Flagstaff Fire Dept
19	Clay Avenue Wash Detention (Dam) Basin Emergency Action Plan. A plan to address how to warn the public in the event of dam failure or flood.	In progress	City is waiting for finalized plan.	Stormwater
20	Construct and equip a multi-agency EOC to coordinate disasters. The area is subject to periodic disasters. On an annual basis the EOC is activated two to three (2-3) times each year.	In progress	The Gemini EOC (formerly known as the alternate EOC) is located at 2201 North Gemini. It is the primary EOC. It is to be completed when funding becomes available.	Fire Department/ Fire Chief

21	Floodplain identification and mapping, including any local requests for map updates to provide the community with a regulatory tool to reduce the losses to property and people.	Complete	All Flood Insurance Rate Maps (FIRM) have been updated and converted to Digital Flood Insurance Rate Maps (D-FIRM), to help enforce flood plain regulations. We completed the Northeast Area Master Drainage Study, to conceptually identify and mitigate major flooding in northeast Flagstaff.	Stormwater/ Stormwater Manager

Table 5-29: Fredonia Current Status of Previous Plan's Mitigation Actions

#	Mitigation Action	Status	Additional Details	POC/Dept.
1	Replacing existing dike to a levy.	Seeking funding	Estimate $11 million for construction.	Public Works
2	Replace existing backwash basin at the water ponds. Repair pumps in the wells.	Completed	Backwash Basin replaced and wells were repaired	Public Works
3	Hold annual community meeting in September with all residents and churches to educate residents about 72- hour kits and food storage.	Ongoing	None	Town Manager/ Marshall's Office
4	Conduct fire department training for hazardous fires and spills.	Ongoing	Department trains weekly with HAZMAT training quarterly	Fire Department
5	Conduct severe wind community outreach through newsletter in the spring and fall, reminding residents to put outdoor belongings away.	Ongoing	None	Town Clerk's Office
6	Enforce speed limits and training.	Ongoing	Speed enforcement conducted daily	Marshall's Office
7	Fire department training and community outreach (through annual community meeting, with specifics being prepared).	Ongoing	None	Fire Department/ Town Clerk
8	Quarterly outreach to the community through the town, discussing what to do in the event of an earthquake.	Ongoing	None	Marshall's Office/ Town Clerk
9	Conduct feasibility study for curb and gutters to determine cost.	Not started	None	Public Works/ Town Manager

Table 5-30: Page Current Status of Previous Plan's Mitigation Actions

#	Mitigation Action	Status	Additional Details	POC/Dept.
1	Provide equipment and other resources sufficient to provide initial response to major road, air, hazardous materials and mass casualty incidents.	In progress	None	Fire Department
2	The city will develop a plan and mutual aid agreement with the State, County, Navajo Nation, National Park Service and other governmental entities as necessary to implement mitigation actions.	In progress	None	Community Development, Building Official
3	Page Fire Department will develop a public awareness program. Handouts and presentations will be developed and presented at area clubs, schools, and other public gatherings. Goals shall include increasing public support for funding disaster preparation, educating the public on what to do in a disaster, and increasing public awareness of how public safety agencies respond in a disaster.	Ongoing	None	Fire Department

#	Mitigation Action	Status	Additional Details	POC/Dept.
4	Design and construct drainage structures for problem flood areas throughout the city to prevent flooding of properties and buildings.	Ongoing	None	Engineering/Public Works
5	Water supply system upgrade: This project is to upgrade the current pumping units and possibly identify an alternative lower-level intake with a new pumping system and a separate pipeline to deliver water to the water treatment plant. This will allow for dependability and a backup to the current system. It will also provide water if the lake level drops below the current intake levels.	In progress	Preliminary design stages.	Engineering and Utility Department/ City Engineer
6	Construction mitigation from drainage study for Letter of Map Revision (LOMR): Construct any channels, berms, bank stabilization, etc. indicated by drainage study.	Completed	None	Engineering Department/City Engineer
7	The city will develop a plan and pamphlets and implement a public information program that will identify the following: Who can apply? What types of emergencies can be applied for? Where to apply.	Ongoing	None	Risk Management/ Human Resources/ Public Information Officer
8	Train fire department and school personnel to set up and operate a medical countermeasure point of dispensing site for residents and visitors.	Partially Complete	Project designed to provide open points of dispensing in the event of a public health emergency or pandemic. Training was provided by Coconino County Health and Human Services for City of Page and Page Unified School District employees.	Fire Department
9	Enforcement and/or implementation of modern building codes to regulate new development to mitigate against loss.	Completed/Ongoing	None	Community Development/ Building and Engineering Department

Table 5-31: Tusayan Current Status of Previous Plan's Mitigation Actions

#	Mitigation Action	Status	Additional Details	POC/Dept.
1	Tusayan Fire Department (TFD) Digital Newsletter: Explain hazards of smoke/CO, fireplaces, chimneys, cleaning, and fire hazards. Regularly scheduled cleaning of chimneys. Smoke/CO detector maintenance program (as a follow up to the previous month's safety topic). Smoke and CO detectors use and maintenance. Explanation of two (2) types of detectors. Regularly scheduled replacement of batteries and testing.	Completed and ongoing	Through TFD Newsletter: Statistics for fires due to heating. Chimney cleaning reminders. TFD/Red Cross program provided free smoke detectors and installation in the area. The TFD Newsletter messages were replaced by the Facebook TFD page. These reminders will continue through the Facebook page.	Tusayan Fire District
2	Tusayan Fire Department Digital Newsletter: Publish links and email brochures and topics for [the County's website] emergency kits, Winter Preparation and Safety Brochure, additional tips from the County.	Completed and ongoing	Through TFD Newsletter: Links for County Emergency Preparation shared. Car stocking tips provided for winter travel. The TFD Newsletter messages were replaced by the Facebook TFD page. These reminders will continue through the Facebook page.	Tusayan Fire District

#	Mitigation Action	Status	Additional Details	POC/Dept.
3	Tusayan Fire Department Digital Newsletter: Storm roof loading education. For preparation of 2016 winter, educated residents of online resources and building considerations for the town.	Completed and ongoing	Through TFD Newsletter: FEMA Snow Load Safety Guide promoted, warning signs of roof collapse, and online link for snow-load safety. The TFD Newsletter messages were replaced by the Facebook TFD page. These reminders will continue through the Facebook page.	Tusayan Fire District
4	Perform Initial Engineering Assessment and Hydrologic Analysis, coordinate with County for drainage improvements work plan and perform various projects identified in this plan.	Ongoing	The town has invested more than $465,000 towards these efforts since 2015. It continues to work with the County as the Town's flood plain administrator.	Town Administration
5	Partner with the County to use its emergency notification system to improve warning and evacuation systems during hazmat incidents.	Ongoing	The town is in the process of registering residents in the County's emergency notification system and providing educational opportunities to the entire community.	Town Administration and Sheriff's Office
6	Support Tusayan Fire District in wildland fire mitigation activities through Reduction of Hazardous Fuels Grant program.	Ongoing	Forest service continues to work on the reduction of forest fuels through thinning and burn-pile.	Tusayan Fire, Kaibab NF, and Arizona State Forestry
7	Promote and enforce water conservation through cooperative programs with water company.	Ongoing	The town is providing education through the facilitation of tabletop exercises, the development of a website and other educational opportunities.	Town Administration
8	Work with ADOT to replace and add signage along Highway 64, including crosswalk blinker signs for pedestrian safety.	Partially Complete	The town has added and maintained signage along Highway 64.	Maintenance Division
9	Implement plan for snow removal throughout the town, including for severe storms. Maintain snow removal equipment and have list of contractors available for severe incidents.	Ongoing	The town has implemented a plan for snow removal throughout the town, based on after action response from a severe storm. The town maintains snow removal equipment. In the summer of 2020, the town issued a new RFQ for snow removal service and elected to choose a local contractor to assist in severe incident response.	Maintenance Division
10	Educate public with links and/or information available from the Arizona Geological Survey.	Ongoing	The town is working with a third-party contractor to develop an educational webpage that will contain links to this information.	Town Administration
11	Assist with educating the public about impacts associated with severe wind hazard in this region.	Ongoing	The town provides education through the facilitation of tabletop exercises, the development of a website, and other educational opportunities.	Town Administration and Sheriff Office

Table 5-32: Williams Current Status of Previous Plan's Mitigation Actions

#	Mitigation Action	Status	Additional Details	POC/Dept.
1	Perform public outreach and education campaign with informational booklets from the Arizona Geological Survey.	Completed and ongoing	Williams Police Department Facebook page, city webpage	Williams Police/ Fire Public Works Director
2	Partnering with the County to use its emergency notification system to better warn and evacuate citizens during HazMat events.	Completed and ongoing	City uses County's emergency notification system	Williams Police/ Fire
3	Working with NACOG to update, replace, and add signage on the roads in Williams that meet current standards, add reflectivity, and increase driver awareness.	Completed and ongoing	None	Williams Police/ Fire/ Public Works/Streets
4	Enforcement of floodplain management requirements, including regulating all and substantially improved construction in floodplains to reduce the losses to property and people.	Completed and ongoing	City Ordinance #858 Flood Ordinance	Planning and Building Code Enforcement/ Building Official
5	Continue to enforce zoning and building codes through current site plan, subdivision, and building permit review processes to reduce the effects of drought, flood, severe wind, wildland fire, and other hazards on new buildings and infrastructure.	Completed and ongoing	Adopted in 2015; will update in 2021	Planning and Building Code Enforcement/ Building Official
6	Perform fuel thinning around water treatment plant to create a wildland fire defensible space perimeter and install exterior sprinkler system on the structures and site perimeter.	Completed and ongoing	City Ordinance #843 Defensible Space Ordinance; regulates city and private infrastructures	Public Works/ Director
7	Annual Inspections and maintenance work on five (5) existing city dams. Continued monitoring by the city water department in cooperation with ADEQ.	Completed and ongoing	ADEQ and Arizona Department Water Resources inspected annually	Public Works/ Director
8	Continued planning as part of the annual Snow Removal Plan. This planning effort continues annually in advance of the winter season and includes inventorying and maintenance of existing snow removal vehicles, plows, cutting edges, chains, and other equipment. The city also contacts local contractors to identify resources in the event of a major snowstorm.	Completed and ongoing	City of Williams Snow Removal Plan; if overwhelmed, have contractor list to remove snow	Public Works/ Director
9	Continued tree and shrub pruning around power lines, telephone lines, and other infrastructure as part of regular city maintenance.	Completed and ongoing	Evaluation done by APS 3-5-year survey.	Public Works/ Director
10	Enforcement of the newly adopted Defensible Space Ordinance for the protection of future and existing structures within the wildland urban interface.	Completed and ongoing	City of Williams Defensible Space Ordinance #843; regulates city and private Infrastructures	Planning and Building Code Enforcement/ Building Official
11	Perform public outreach activities, including fliers, town hall meetings, safety fairs, and others to educate the public on wildland fire protection	Planning phase and ongoing	Due to COVID-19, no public outreach meetings are being held.	Public Works/ Director

#	Mitigation Action	Status	Additional Details	POC/Dept.
	activities and best management practices.			
12	Create new storage facilities for effluent to be used for irrigation and emergency wildland fire protection.	Planning phase and ongoing	Five (5) Year Capital Improvement Plan; effluent irrigates city golf course	Public Works/ Director
13	Bill Williams Mountain Steep Slope forest restoration treatments to reduce threat from catastrophic wildland fires and post-wildfire flooding.	300 acres completed; ongoing	Identified 1,200 acres of steep slopes on Bill Williams Mountain to complete forest restoration treatments on to reduce the risk of catastrophic wildland fire and post-wildfire flooding that would critically impact the city of Williams infrastructure, public lives, and regional economy.	Flood Control District Administrator/Forest Restoration Director

5.4.2 New Mitigation Actions

Mitigation actions are specific activities or projects that serve to meet the goals that the community has identified. Mitigation actions and projects are more specific than goals or objectives, and often include a mechanism, such as an assigned time period, to measure the success and ensure the actions are accomplished. The Planning Team conducted a review of the mitigation actions and strategies from the 2021 MJHMP. With information from the risk assessment, capability assessment, and status of the actions implemented since the plan's approval, the Planning Team developed a variety of new mitigation actions and projects to reduce the effects of hazard, with emphasis on new and existing buildings and infrastructure.

These mitigation actions reflect the revised priorities of the participating jurisdictions and their shifting risk profiles as reflected in their adjusted CPRI ratings. Based upon the updated priorities, each jurisdiction selected and developed their own new mitigation actions as listed in the following tables. These were then synchronized across the planning team where coordination was necessary. For each mitigation action, the following information is listed: mitigation goal, mitigation action description, mitigation type, hazard(s) addressed, and potential implementing city / town organizations.

Table 5-33: Coconino County New Mitigation Activities

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
East Bellemont Traffic Interchange - Secondary I-40 Access for Bellemont: Construct a secondary Interstate 40 interchange at East Bellemont to eliminate the community's current single-point-of-failure access, improve evacuation capacity, and enhance emergency response reliability. This project will provide redundant ingress/egress during wildland fire, winter storm, flood, HAZMAT transport incidents, and extended power outages, reducing life-safety risk and economic disruption. The interchange strengthens transportation lifeline resilience consistent with County infrastructure mitigation priorities.	1 - 5 years	General Fund/ Highway User Revenue Fund	$60M	Public Works
Bellemont to Bader Connection - US 180: Design and construct an approximately 8-mile roadway connection from Brannigan Road (Bellemont) to US 180, creating a secondary north–	1 - 5 years	General Fund/ Highway User Revenue Fund	$55M	Public Works

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
south access route for Bellemont, Bader Ville, and the Fort Valley area. This project eliminates existing single-access vulnerabilities, improves evacuation capacity, and strengthens emergency response reliability during wildland fire, winter storms, flooding/debris flows, and major transportation incidents. The corridor enhances regional transportation lifeline resilience and aligns with County infrastructure mitigation priorities.				
Systematic Drainage Projects - Replace all culverts identified as needing to be replaced in the Drainage Infrastructure Inspection Study: Implement a phased capital program to replace all culverts identified as deficient in the County Drainage Infrastructure Inspection Study to reduce roadway overtopping, washouts, and failure during flood and post-wildfire runoff events. This project will restore hydraulic capacity, improve stormwater conveyance, and strengthen transportation system resilience against flooding, debris flows, and extreme precipitation. The program directly protects critical lifeline routes and aligns with County infrastructure mitigation priorities.	1 - 5 years	General Fund/ Highway User Revenue Fund	$300,000	Public Works
Magdalena Drainage Improvements - Upsizing culverts and ditches to mitigate hydraulic impact across and along US 180: Upsize and improve culverts and roadside drainage infrastructure along Magdalena to prevent stormwater runoff from overtopping roadways and impacting US 180 during high-intensity rainfall and post-wildfire runoff events. This project will increase hydraulic capacity, reduce flood-related roadway damage, and protect a critical regional transportation corridor from closure and erosion. The improvements strengthen transportation lifeline resilience consistent with County infrastructure mitigation priorities.	1 - 5 years	General Fund/ Highway User Revenue Fund	$800,000	Public Works
Suzette Lane and Bader Road - Roadside drainage: Upsize existing culverts and improve roadside drainage along Suzette Lane and Bader Road to prevent roadway overtopping, localized flooding, and erosion during high-intensity rainfall and post-wildfire runoff events. This project will restore hydraulic capacity, reduce roadway damage and maintenance costs, and improve access reliability for residents and emergency responders. The improvements enhance transportation lifeline resilience consistent with County infrastructure mitigation priorities.	1 - 5 years	General Fund/ Highway User Revenue Fund	$1.25M	Public Works
Espey Road Drainage Improvements – Targeted Culvert Installation: Install new culverts at identified drainage crossings along Espey Road to prevent roadway overtopping, erosion, and washouts during high-intensity rainfall and post-wildfire runoff events. This project will improve stormwater conveyance, reduce maintenance and emergency repair costs, and ensure reliable access for residents and emergency services. The improvements strengthen transportation lifeline resilience consistent with County infrastructure mitigation priorities.	1 - 5 years	General Fund/ Highway User Revenue Fund	$1.25M	Public Works

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
Sherwood Forest Drainage Study and Infrastructure Improvements: Conduct a comprehensive drainage study for the Sherwood Forest area and design and construct prioritized stormwater improvements to address recurring residential flooding. The project will identify flow paths, capacity deficiencies, and mitigation solutions, followed by implementation of culverts, channelization, and conveyance upgrades to reduce structure flooding and roadway overtopping during high-intensity rainfall and post-wildfire runoff events. This action reduces risk to homes and critical access routes while strengthening community resilience consistent with County mitigation priorities.	1 - 5 years	General Fund/ Highway User Revenue Fund	$1.25M	Public Works
Perkinsville Road Wildfire Mitigation – Roadside Fuel Reduction and Fire Break Enhancement: Implement targeted vegetation management along Perkinsville Road by clearing brush and hazardous trees within the right of way clear recovery zone and thinning fuels throughout the right-of-way to reduce wildfire intensity and improve defensible space along this critical access corridor. This project will decrease the likelihood of roadway closure, enhance firefighter access and evacuation reliability, and reduce post-fire erosion and debris flow impacts. The action strengthens transportation and emergency response resilience consistent with County mitigation priorities	1 - 5 years	General Fund/ Highway User Revenue Fund	$5M	Public Works
Lake Mary Road Wildfire Mitigation – Roadside Fuel Reduction and Right-of-Way Thinning: Conduct targeted vegetation removal along Lake Mary Road by clearing brush and hazardous trees within the right of way clear recovery zone and thinning fuels throughout the right-of-way to reduce wildfire intensity and improve defensible space along this critical regional corridor. This project will lower the risk of roadway closure, enhance evacuation and emergency response reliability, and reduce the potential for post-fire erosion and debris flow impacts. The action strengthens transportation lifeline resilience consistent with County mitigation priorities.	1 - 5 years	General Fund/ Highway User Revenue Fund	$2M	Public Works
Old Route 66 Wildfire Mitigation – Roadside Fuel Reduction and Right-of-Way Thinning: Implement targeted vegetation management along Old Route 66 by removing brush and hazardous trees within the right of way clear recovery zone and thinning fuels throughout the right-of-way to reduce wildfire intensity and improve defensible space along this transportation corridor. This project will decrease the likelihood of roadway closure, enhance evacuation and emergency response reliability, and reduce post-fire erosion and debris flow impacts. The action strengthens transportation lifeline resilience consistent with County mitigation priorities.	1 - 5 years	General Fund/ Highway User Revenue Fund	$200,000	Public Works
Solar-Powered Mobile Digital Message Boards – Winter Hazard and Road Closure Safety Enhancement (6 Units): Procure six solar-powered	1-5 years	General Fund/	$150,000	Public Works

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
mobile digital message boards to provide rapid deployment warning capability during hazardous and life-threatening winter weather events, including extreme snowfall, ice accumulation, whiteout conditions, and prolonged roadway closures. These units will be strategically deployed on high-risk corridors to alert motorists to road closures, unsafe travel conditions, chain requirements, and emergency detours, reducing crash risk, secondary incidents, and motorist exposure during severe winter storms. The boards enhance real-time public warning capacity, strengthen transportation lifeline resilience, and support emergency traffic management operations during winter storms, wildland fire evacuations, flooding events, and extended power outages. Solar operation ensures functionality during grid disruptions, maintaining continuous communication during declared emergencies and non-declared life-safety incidents.		Highway User Revenue Fund		
Sheep Hill Public Works Maintenance Yard – Sitewide Emergency Alert and Paging System (Critical Infrastructure Hardening): Install a sitewide IP-based emergency alert and paging system at the Sheep Hill Coconino County Public Works Maintenance Yard to provide immediate, facility-wide notification capability during hazardous and life-threatening events. The project will deploy indoor and outdoor IP speakers integrated through a SIP paging gateway into the County's communications network, enabling rapid dissemination of emergency alerts to personnel across all yard buildings and operational areas. Currently, no centralized sitewide alert system exists. Sheep Hill serves as a critical Public Works operational hub supporting transportation lifeline maintenance, emergency roadway clearance, snow operations, and disaster response. The absence of a unified alert system creates vulnerability to delayed notification during wildland fire, severe winter storms, hazardous materials incidents, extended power outages, or other emergent threats. This project directly reduces risk to a critical facility by: Improving life-safety notification capability for on-site personnel, reducing exposure time during rapidly evolving hazardous conditions, enhancing coordinated response and evacuation procedures. Strengthening continuity of operations for essential Public Works functions, hardening communications infrastructure supporting transportation and emergency response lifelines. The improvement increases resilience of a mission-critical facility and aligns with mitigation priorities focused on protection of essential government services and lifeline infrastructure.	1-5 years	General Fund/ Highway User Revenue Fund	$13,000	Public Works
High-Capacity Jet Truck – Drainage Infrastructure Risk Reduction Asset: Procure one 800-HPR truck-mounted high-pressure jet cleaning unit to systematically maintain and restore hydraulic capacity in culverts, storm drains, and critical roadway drainage infrastructure throughout	1-5 years	General Fund/ Highway User Revenue Fund	$412,998	Public Works

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
Coconino County. The unit's 1,500 to 2000-gallon tank capacity and high-volume pump system enable removal of sediment, debris, and post-wildfire material buildup that restricts flow and contributes to roadway overtopping and washouts. This equipment directly supports and sustains the County's culvert replacement and drainage improvement mitigation projects by preventing blockage-related failures, reducing flood risk to transportation lifelines, and decreasing emergency repair costs. Proactive maintenance of stormwater conveyance systems reduces the likelihood of roadway closures during high-intensity rainfall, snowmelt events, and post-fire runoff conditions. The jet truck enhances the resilience of critical transportation infrastructure by enabling systematic, preventative drainage maintenance, protecting public safety, and preserving reliable access for residents and emergency responders.				
Mobile Fuel Trailers (4 Units) – Emergency Operations and Lifeline Support Enhancement: Procure four Thunder Creek MTT920 mobile fuel trailers to support rapid deployment, sustained emergency operations, and interagency response coordination during declared and non-declared disaster events. These units will provide decentralized, field-based fueling capability for snow removal equipment, roadway maintenance vehicles, generators, heavy equipment, and mutual aid resources operating in remote or infrastructure-compromised areas. The trailers reduce operational vulnerability during extended power outages, severe winter storms, wildland fires, flooding events, and transportation disruptions by ensuring uninterrupted fuel access when commercial fueling stations are inaccessible or grid-dependent systems fail. Distributed mobile fueling strengthens continuity of operations for Public Works and supports regional interagency response efforts, enhancing resilience of critical transportation and emergency response lifelines. By enabling sustained field operations without reliance on fixed-site infrastructure, this project directly reduces risk to essential government services and improves the County's capacity to maintain roadway access, debris clearance, snow removal, and emergency support functions during prolonged incidents.	1-5 years	General Fund/ Highway User Revenue Fund	$187,164	Public Works
High-Pressure Water Trailer (1,000-Gallon Capacity) – Infrastructure Protection and Decontamination Support: Procure a 1,000-gallon high-pressure water trailer to support field and facility decontamination operations for Public Works assets, structures, and equipment following hazardous materials incidents, wildfire smoke exposure, flood events, winter storm response, and debris operations. The unit will enable rapid washing and contamination control in remote or infrastructure-compromised areas, reducing corrosion, mechanical damage, cross-contamination, and long-term asset degradation.	1-5 years	General Fund/ Highway User Revenue Fund	Requires Study	Public Works

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
This capability protects critical Public Works facilities and operational equipment that support transportation lifelines, drainage infrastructure maintenance, snow operations, and disaster response. By providing a mobile, self-contained water source independent of fixed utility systems, the trailer strengthens continuity of operations during extended power outages and emergency conditions. In addition, the unit can provide limited light fire suppression and structure exposure protection as a secondary benefit during small vegetation fires or spot ignitions threatening County facilities.				
Six-Wheel Salt Application Truck – Winter Access and Operational Surge Capacity Enhancement: Procure one dedicated six-wheel salt application truck to support winter storm operations in communities and roadway segments with limited access where full-size 10-wheel salt trucks cannot safely or efficiently operate. The smaller vehicle footprint allows access to constrained roadways, residential areas, and critical secondary routes that are vulnerable to prolonged ice accumulation during severe winter weather events. The vehicle will be specified as the maximum size allowable for operation without a Commercial Driver License (CDL), significantly expanding the pool of qualified operators during extended winter storms. This approach increases operational surge capacity while preserving CDL-certified personnel for heavy equipment and plow units that legally require specialized licensing. By improving deployment flexibility and maintaining coverage of secondary and hard-to-reach corridors, this project reduces roadway closure duration, improves emergency response access, and strengthens transportation lifeline resilience during hazardous and life-threatening winter weather conditions.	1-5 years	General Fund/ Highway User Revenue Fund	Requires Study	Public Works
Forestry Masticator – Roadway Easement and Right-of-Way Hazard Mitigation: Procure one forestry masticator to support systematic clearing of hazardous vegetation within roadway easements and public rights-of-way throughout Coconino County. The equipment will be used to remove ladder fuels, dense understory, and encroaching woody vegetation that increase wildfire intensity and threaten transportation corridors and adjacent critical infrastructure. This asset enables efficient fuel reduction along primary and secondary roadways, improving defensible space, reducing the likelihood of roadway closure during wildfire events, and limiting post-fire erosion and debris flow impacts to drainage infrastructure. The masticator supports proactive mitigation of wildfire risk to transportation lifelines, Public Works facilities, and community access routes. By enhancing the County's capacity to maintain vegetation clearance in high-risk areas, this project strengthens evacuation reliability, protects critical access corridors, and reduces long-term wildfire suppression and recovery costs.	1-5 years	General Fund/ Highway User Revenue Fund	Requires Study	Public Works

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
Portable Radio Communications Upgrade – Operational and Surge Capacity Enhancement (12 Units with 2 Multi-Bank Chargers): Procure twelve Harris XL-95 portable radios and two six-bank charging stations to enhance field communications reliability and surge capacity during emergency and disaster operations. These radios are the current standard-issue communication platform for Public Works personnel, ensuring interoperability with existing County systems and seamless integration into established response protocols. The additional units expand deployable communications capability during severe winter storms, wildland fire incidents, flood response, hazardous materials events, and extended power outages. Increasing available radios reduces communication gaps during multi-shift operations, supports interagency coordination, and strengthens continuity of operations across transportation, drainage, and facility response functions. By expanding standardized communications equipment capacity, this project reduces operational risk, improves responder safety, and enhances coordinated field operations during high-demand, prolonged emergency events.	1-5 years	General Fund/ Highway User Revenue Fund	Requires Study	Public Works
Mobile Scene Lighting Units – Night and Low-Visibility Emergency Operations Support (6 Nomad 360, 1 Nomad Transformer): Procure six Nomad 360 portable lighting units and one Nomad Transformer lighting system to enhance nighttime and low-visibility operational safety during road closures, winter storm response, wildfire incidents, and smoke-impacted deployments. These units provide rapid deployment, high-output illumination for traffic control points, equipment staging areas, debris operations, and emergency work zones. The lighting systems reduce risk to personnel and the traveling public by improving visibility during hazardous and life-threatening winter weather conditions, nighttime snow and ice control operations, wildfire smoke events, and extended power outages. Portable, self-contained illumination capability strengthens operational continuity when fixed lighting infrastructure is unavailable or compromised. By increasing safe operating conditions during prolonged incidents and reduced-visibility environments, this project enhances transportation lifeline protection, improves responder safety, and supports sustained emergency operations across multiple hazard scenarios.	1-5 years	General Fund/ Highway User Revenue Fund	Requires Study	Public Works
Procure Compact Collapse & Wrap portable sign systems (six units each) for "Be Prepared to Stop," "Lane Closed Ahead," "Flagger Ahead," and "Caution Low Visibility" to enhance rapid deployment traffic control during emergency operations: These high-visibility, reflective, collapsible signs provide immediate warning capability during hazardous and life-threatening winter weather conditions, wildfire smoke events,	1-5 years	General Fund/ Highway User Revenue Fund	Requires Study	Public Works

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
roadway flooding, debris incidents, and nighttime closures. The portable systems allow Public Works crews to quickly establish compliant traffic control zones in remote or infrastructure-compromised areas, reducing crash risk, protecting personnel, and improving safety for the traveling public. Increased sign inventory supports simultaneous multi-location deployments and sustained operations during prolonged winter storms or wildfire incidents. By expanding rapid-deployment traffic control capacity, this project strengthens transportation lifeline protection, reduces secondary accident risk, and enhances operational resilience during multi-hazard emergency events.				
Systematic Drainage Inspection and Rehabilitation Program – Flood and Debris Flow Risk Reduction: Perform systematic inspection, assessment, and rehabilitation of County drainage infrastructure, including culverts, channels, and roadside conveyance systems, to identify structural deficiencies, sediment accumulation, hydraulic restrictions, and erosion vulnerabilities. This program will proactively address capacity limitations and deterioration that increase the likelihood of roadway overtopping, washouts, and infrastructure failure during high-intensity rainfall, snowmelt, and post-wildfire debris flow events. Rehabilitation activities may include cleaning, repair, armoring, upsizing, and replacement of deficient structures. By institutionalizing routine inspection and prioritized rehabilitation of drainage assets, this action reduces flood risk to transportation lifelines, protects critical access routes, minimizes emergency repair costs, and strengthens long-term resilience of County infrastructure.	Ongoing (Programmatic – Continuous Implementation)	General Fund/ Highway User Revenue Fund	Requires Study	Public Works
Critical Roadway Reconstruction and Rehabilitation Program – Emergency Route Resilience Enhancement: Strengthen and harden critical County roadway corridors, including Lake Mary Road, Old Route 66, Canyon Loop, and Stardust Trail, to improve pavement integrity, shoulder stability, drainage performance, and structural resilience. Improvements will increase roadway durability under severe winter weather conditions, heavy emergency vehicle loads, wildfire evacuations, and post-flood recovery operations. Activities may include pavement strengthening, base stabilization, shoulder reinforcement, drainage enhancements, and structural hardening to reduce susceptibility to failure. These corridors serve as key emergency response and evacuation routes. Hardening these transportation lifelines reduces the risk of roadway degradation, improves year-round access reliability, and enhances operational continuity during wildland fire, winter storm, flood, and extended power outage events.	On Going 5–10 Years (Phased Implementation)	General Fund/ Highway User Revenue Fund	Requires Study	Public Works
Rural and Collector Road Shoulder Widening and Safety Hardening Program: Implement shoulder widening and targeted safety enhancements on rural and collector roadways to	On Going 3–7 Years (Phased	General Fund/ Highway User Revenue Fund	Requires Study	Public Works

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
improve vehicle recovery space, emergency pull-outs, and safe maneuverability during adverse weather conditions. Enhancements may include shoulder widening and stabilization, edge reinforcement, guardrail improvements, improved striping and delineation, and grading to increase clear recovery zones. These improvements reduce crash risk during hazardous and life-threatening winter weather conditions, low visibility events, and emergency response operations. Expanding recovery space along critical transportation corridors enhances emergency vehicle access, reduces secondary incidents, and strengthens transportation lifeline resilience during winter storms, wildfire evacuations, flood events, and extended power outages.	by corridor priority)			
School and Community Facility Access Improvements – Emergency Access and Safety Enhancement: Improve access routes to schools and community facilities, including projects such as Doney Park School access improvements, to reduce traffic hazards and ensure reliable ingress and egress during emergency conditions. Enhancements may include roadway widening, shoulder improvements, intersection safety upgrades, drainage improvements, turn lanes, traffic control modifications, and improved sight distance. These improvements reduce congestion and collision risk during peak use periods while strengthening access reliability during severe winter weather, wildfire evacuations, flooding events, and extended power outages. Improving access to schools and community facilities supports life-safety objectives, protects vulnerable populations, and enhances continuity of operations for essential public services during multi-hazard events.	On Going 3–5 Years (Phased by Facility Priority)	General Fund/ Highway User Revenue Fund	Requires Study	Public Works
Unpaved and Gravel Road Stabilization Program – Emergency Access and Erosion Reduction: Stabilize and improve unpaved and gravel roadways, including corridors such as Hutton Ranch Road, to reduce erosion, dust generation, surface degradation, and washouts that limit reliable access during storm events and wildfire incidents. Improvements may include surface stabilization treatments, drainage enhancements, grading improvements, culvert upgrades, base reinforcement, and erosion control measures to reduce sediment transport and roadway failure. These actions decrease roadway vulnerability to heavy precipitation, snowmelt runoff, and post-wildfire debris flows. Strengthening unpaved and gravel corridors enhances emergency response access, reduces isolation of rural communities, and improves transportation lifeline reliability during winter storms, flood events, wildland fire evacuations, and extended power outages.	On Going 3–7 Years (Phased by Corridor Priority)	General Fund/ Highway User Revenue Fund	Requires Study	Public Works
Integration of Intersection and Interchange Safety Study Findings – Evacuation and Congestion Risk Reduction: Integrate recommendations and findings from completed	Ongoing	General Fund/ Highway User Revenue Fund	Requires Study	Public Works

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
intersection and interchange safety studies, including the Bellemont Interchange and Bellemont Intersection Study, into future roadway design, hardening, and improvement projects. Implementation may include geometric improvements, turn lane additions, signalization modifications, access management strategies, capacity enhancements, and traffic control upgrades identified through formal safety analyses. Incorporating study findings into capital projects reduces crash risk, improves traffic flow, and mitigates congestion during daily operations and emergency evacuations. Applying data-driven safety improvements enhances evacuation reliability, strengthens transportation lifeline resilience, and reduces the likelihood of bottlenecks during wildland fire events, hazardous materials incidents, winter storms, and other large-scale emergencies.				
Roadway Safety Action Plan (RSAP) Implementation – Safe System and Vision Zero Framework: Implement the County's Roadway Safety Action Plan (RSAP) utilizing a Safe System and Vision Zero approach to systematically reduce roadway fatalities and serious injuries. This action includes data-driven identification of high-risk corridors, intersections, and vulnerable roadway users, followed by prioritized infrastructure improvements and operational enhancements. Implementation measures may include roadway hardening, geometric improvements, speed management strategies, access management, traffic control upgrades, pedestrian and bicycle safety enhancements, and targeted corridor safety treatments. The Safe System approach emphasizes redundancy and resilience within the transportation network to prevent fatal and severe injury crashes even when human error occurs. By proactively addressing high-risk locations and systemic roadway vulnerabilities, this program strengthens transportation lifeline reliability, reduces congestion during emergency evacuations, improves response access, and enhances community resilience during winter storms, wildfire events, flooding, and extended power outages.	Ongoing (Multi-Year Implementation)	General Fund/ Highway User Revenue Fund	Requires Study	Public Works
High Injury Network (HIN) and Crash Data Integration – Emergency Corridor Prioritization Program: Utilize High Injury Network (HIN) mapping and crash data dashboards to prioritize capital investments, safety countermeasures, and operational improvements on County roadways most critical for emergency access and evacuation. This action formalizes the integration of crash severity data, traffic patterns, and roadway performance metrics into the County's capital improvement and maintenance planning processes. High-risk corridors identified through HIN analysis will receive prioritized consideration for infrastructure hardening, geometric improvements, access	Ongoing	General Fund/ Highway User Revenue Fund	Requires Study	Public Works

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
management, shoulder widening, traffic control upgrades, and other targeted safety treatments. By directing resources to corridors with elevated crash and injury risk, particularly those serving as key evacuation routes or emergency response corridors, this program reduces life-safety risk, mitigates congestion during disaster events, and strengthens transportation lifeline resilience during wildland fire, winter storms, flooding, and other hazard scenarios.				
Continue to maintain evaluations of structural integrity for County and non-County facilities identified as potential shelter sites through application of adopted codes and locally developed hazard-specific studies. Evaluation standards will be enhanced by incorporating updated structural and system safety provisions through adoption of the 2024 ICC code suite and applying locally developed ground snow load methodology, while identifying and integrating other locally relevant hazard studies as appropriate to strengthen life-safety and resilience capabilities for designated shelter facilities.	Ongoing	General Fund	Requires Study	Community Development
Advance implementation and monitoring of code-regulated design criteria through the formal review and adoption process of the 2024 International Code suite and the 2023 National Electrical Code. This update incorporates the most current hazard data, structural load requirements, fire-resistance provisions, and electrical safety standards to strengthen safeguards for life and property and reduce vulnerability to natural and manmade hazards. In parallel, apply locally developed supporting studies such as the Northern Arizona ground snow load methodology and the Fort Valley Initial Engineering Assessment to inform locally appropriate design criteria.	Ongoing	General Fund	$10,000 annually	Community Development
Continue to integrate hazard mitigation principles and priorities from the MJHMP into the Comprehensive Plan, including policies addressing wildfire risk reduction, emergency preparedness, infrastructure resilience, coordinated emergency access, and land use planning that accounts for natural hazards. Institutionalize mitigation strategies within the County's long-range planning framework and regulatory processes.	Ongoing	General Fund	$10,000 annually	Community Development
Institutionalize mitigation strategies within the County's long-range planning framework and regulatory processes.	Ongoing	General Fund	Requires Study	Community Development
Increase public awareness of dam failure hazards and identify mitigation measures to address those hazards.	Ongoing	General Fund	$20,000	Emergency Management/ Flood Control District
Partner with local insurance agencies to hold workshops for property owners to educate about the Flood Insurance Programs and requirements. Community Development performs this function through NFIP and the Engineering Division for flood only.	Ongoing	FCD Tax Revenue/ Local Match	$10,000	Flood Control District/ Community Development

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
Encourage participation in the National Flood Insurance Program through public engagement campaigns.	Ongoing	General Fund	$10,000	Flood Control District/ Community Development
Acquire and deploy IT infrastructure for regional flood warning system for County locations subject to post wildfire flooding.	Ongoing	FCD Tax Revenue/ Local Match	$250,000	Flood Control District
U.S. 89 Post-Wildfire Flood Resiliency Project	1-2 years	Fed. DOT PROTECT Grant/AZ SMART Grant/FCD	$19.6M	Flood Control District
Implement the FEMA Special Flood Hazard Area (SFHA) Capital Investment Plan to allocate funding for specific projects in the following areas: Tusayan, Munds Park, Sedona, Fort Valley, and Kachina Village/Mountainaire.	1-5 years	BUILD, FLAP, AZ SMART, EPA/WIFA, FEMA, NRCS, USDA Rural Development, AZ Parks & Rec, AZ Game & Fish Grants; District & Town of Tusayan Funding	$80-$120M	Flood Control District
Ensuring Grand Canyon National Park Visitor Access Project and Town of Tusayan SR 64 Flood mitigation projects	3-6 years	BUILD, FLAP, AZ SMART, EPA/WIFA, FEMA, NRCS, USDA Rural Development, AZ Parks & Rec, AZ Game & Fish Grants; District & Town of Tusayan Funding	$60M	Flood Control District
Bill Williams Mountain Steep Slope Forest restoration treatments to reduce threat from catastrophic wildland fires and post-wildfire flooding. Identified 1,200 acres of steep slopes on Bill Williams Mountain to complete forest restoration treatments to reduce the risk of catastrophic wildland fire and post-wildfire flooding that would critically impact the city of Williams infrastructure, public lives, and regional economy.	Ongoing	County/U.S. Forest Service/ National Forest Foundation/ The Nature Conservancy/ AZ Dept. Forestry and Fire Mgmt.	$3.3M (FCD) $11M (USFS) $1.8M (Partners)	Flood Control District/Forest Restoration Initiative
Conduct Pre-wildfire and post-wildfire risk assessments for Coconino County.	2-5 years	General Fund	Requires Study	Forest Restoration Initiative/ Emergency Management
Bill Williams Mountain Watershed Restoration Project (AB Base & Creek Project)	1-2 years	FCD General Fund/ US Forest Service/ The Nature Conservancy	$3M (FCD) $4.2M (USFS)	Flood Control District/Forest Restoration Initiative
Upper Rio de Flag Watershed Restoration Leroux Projects	1-2 years	FCD General Fund /U.S. Forest Service	$3.8M (FCD)	Flood Control District/Forest Restoration Initiative

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
The Lowell Observatory Mesa Project is being completed in partnership with the City of Flagstaff and Lowell Observatory. The District is partnering with the Greater Flagstaff Forest Partnership to conduct administrative and fiscal management of this project. District is overseeing project.	1-2 years	Congressionally Directed Spending Grant; Flagstaff/ Lowell Observatory	$816,77 (CDS Funding) $150,000 (Partners)	Flood Control District
Bill Williams Mountain Watershed Restoration Project (Charlie)	3-4 years	FCD General Fund / US Forest Service/The Nature Conservancy	$2.6M (FCD) $3.5M (USFS)	Flood Control District Forest Restoration Initiative
Oak Creek Watershed Project	3-4 years	FCD General Fund / US Forest Service	$3.5M (FCD)	Flood Control District Forest Restoration Initiative
Identify and pursue funding opportunities to develop and implement local mitigation activities.	Ongoing	Grant: BRIC FMA CDBG	Variable Per Project	All County Departments
Coordinate with local stakeholders and partners for the enhancement of public outreach and awareness regarding regional hazards and mitigation actions community members can implement for self-reliance and protection to property and life safety.	Ongoing	General Fund	$25,000 Annually	All County departments and local stakeholders
Increase public awareness of the natural, human-caused, and technological hazards to residents and businesses as a means to reduce the potential impacts through education and outreach. Continue to maintain a resource center of information accessible to the public at key government facilities, providing informational brochures and information on government websites and social media.	Ongoing	General Fund	$25,000 Annually	Emergency Management/ Public Affairs
Increase public awareness of dam failure hazards and identify mitigation measures to address those hazards.	1-3 years	General Fund	$20,000	Emergency Management / Flood Control District
Enhance winter weather preparedness campaign including brochures, Public Service Announcements and County webpage content development for public awareness.	Ongoing	General Fund	$20,000 Annually	Emergency Management/ Public Affairs
Deliver educational programs and outreach to outlying areas of county that are not currently served by any organized fire protection system, with the goal of assisting organizing districts.	Ongoing	General Fund	$10,000 Annually	Emergency Management/ Public Affairs
Continue to maintain a resource center of information accessible to the public at key government facilities, providing informational brochures and information on government websites and social media.	Ongoing	General Fund/ EMPG	Requires Further Study	Emergency Management/ Public Affairs
Establish and maintain a County component of the state GIS mapping system documenting forest treatment, hazard data, and grant funding sources to monitor our wildland fire threat.	Ongoing	General Fund/ BRIC	$50,000 Annually	Emergency Management/ GIS
Continue support for Flagstaff Fire Department Fire Management Program to mitigate wildland fire hazards to watershed resources through prevention, preparedness, hazard mitigation, response, and	Ongoing	General Fund/ BRIC/ Hazard Mitigation Grant	$125,000 Annually	Emergency Management/ Flagstaff Fire Department

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
recovery efforts – with an emphasis on education engineering, enforcement, and ecosystems.				
Continue to develop mutual aid agreements and memorandum of understanding with agencies to serve emergency and disaster purposes – notably by encouraging additional signatories to the Arizona Mutual Aid Compact.	Ongoing	General Fund	Requires Further Study	Emergency Management
Continue County partnership and support with local government, NGO and non-profits to maintain and build upon our cadre of committed, trained volunteers to augment disaster response and recovery efforts in compliance with Arizona Disaster Service Worker program guidance (e.g. shelter workers, animal rescue and care, CERT, communications staff, medical and health, and human service providers).	1-3 Years	General Fund/ EMPG	$150,000	Emergency Management
Provide support and coordination as requested (and as funding is available) toward the deployment and maintenance of the Flash Flood Early Warning System in Havasupai Canyon.	2 Years	FMA Grant	Requires Study	Emergency Management
Secure funding and strategic partnerships necessary to develop County Medical Reserve Corps capability.	2-3 Years	HHS/ASPR Grants	$250,000	Health and Human Services
Establish air monitoring capability for wildfire incidents to monitor smoke/contaminants and enable real-time advisories regarding risk management and safety precautions.	2-4 Years	EMPG	Requires Study	Health and Human Services
Establish a program to enable smoke safety planning, public education, public facility retrofits and enhanced air filtration, as well as the development of air-quality shelter capabilities.	1-5 years	General Fund/ EMPG/ Hazard Mitigation Grant	Requires Study	Health and Human Services

Table 5-34: Flagstaff New Mitigation Activities

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
Fulfill the Council-adopted Water Conservation Strategic Plan conservation measures to pump as little water from the aquifer as possible. The city depends on surface reservoirs and groundwater for domestic water supply. Conservation efforts prolong the capacity of this limited resource.	Ongoing	Operational Budget/ Water Rates	Requires Study	Flagstaff Water Services Division
Plan and conduct vegetation treatments, code updates, and risk modeling to reduce the negative impacts of undesirable wildland fire within the built and natural environments.	Ongoing	Operational Budget, grants, partners	Requires study	Fire Department/ Wildland Fire Management Program
Identify and pursue funding opportunities to develop and implement local mitigation activities.	Ongoing	Envi. Mgmt. Fee	Requires Study	Office of Sustainability
Develop greenhouse gas mitigation strategies that address multiple objectives, including damage reduction, environmental enhancement, historic preservation, tourism/ recreation, economic recovery /development, and building community resilience to climate variance.	Ongoing	Envi. Mgmt. Fee	Requires Study	Office of Sustainability
Flagstaff Well Field & Pipeline Evaluation. The city purchased Red Gap Ranch with 3 existing municipal-sized wells and has drilled another ten	5-15 years	Capital Improve. Fund/ Water Rates/	$575M	Flagstaff Water Services Division

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
(10) wells for the purpose of future water supply. The city has acquired a right-of-way for the pipeline through an agreement with ADOT and is performing the first phase of a feasibility study.		Potential federal partnership		
Flagstaff Watershed Protection Project: Approved by the voters, this project is being pursued to ensure the viability of this surface reservoir and stormwater runoff through forest treatments.	2 years	FWPP Bond	$600,000	Flagstaff Fire Department/ Wildland Fire Management Program
Develop a public outreach and awareness program about regional hazards and mitigation actions community members can do in their homes	Ongoing	Operational Budget/ Partnership	$50,000	Fire Dept./ Emergency Management
Increase public awareness of the natural, human-caused, and technological hazards to businesses to reduce the potential damage from each hazard through educational and outreach. Maintain a resource center accessible to the public at key government facilities. Provide information on government websites and social media accounts.	Ongoing	Operational Budget	Requires Study	Emergency Management / PIO
Provide information on tools; partnership opportunities, and funding resources for business and philanthropical organizations to assist in implementing mitigation activities.	Ongoing	Operational Budget	Requires Study	Community Development
Place more stress on the risks associated with natural and man-made hazards in public awareness campaigns conducted by various city departments.	Ongoing	Internal / Federal Partnership	Requires Study	All Departments
Advance education programs to increase awareness and mitigation impacts of climate change	Ongoing	Envi. Mgmt. Fee	Requires Study	Office of Sustainability - Climate Action
Flagstaff Stormwater Public Outreach: Public awareness program on topic of flooding and dam risks.	Ongoing	Stormwater Program	$5,000	Water Services - Stormwater
Flood Prevention Assistance Grants for at-risk residents	Ongoing	Envi. Mgmt. Fee	$200,000	Office of Sustainability
Identify water resources management opportunities.	Ongoing	Operational Budget/ Water Rates	Built into personnel costs	Water Services
Improve flood hazard assessment information through administrative floodplains to assist in appropriate new development in high hazard areas and encouraging preventative measures for existing development in such areas .	Ongoing	Stormwater Program	$5000	Water Services - Stormwater/ Planning/ Community Development
Integrate appropriate items from the MJHMP into the Safety Element of the General Plan and other regulatory documents as appropriate.	1-2 Years	Operational Budget	Requires Study	Public Works
Continue to invest in up-sizing drainage ways, improving floodplain flood mitigations, and enhancing streams and washes to convey design storms.	Ongoing	Stormwater Program	Requires Study	Water Services - Stormwater

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
The Rio De Flag Project is a major flood control initiative designed to remove 1500 structures from the flood plain. The downtown/Southside area is prone to flooding, and this effort will reduce the flood threat and enable further economic development in this area.	1-5 Years	Stormwater	$266M total project, City share being determined	PUE and City Engineering
Partner with local insurance agencies to hold workshops for property owners to educate about the Flood and Earthquake Insurance Programs and their requirements.	Ongoing	Stormwater	$500	Water Services - Stormwater

Table 5-35: Fredonia New Mitigation Activities

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
Hold annual community meeting in September with all residents and churches to educate residents about 72- hour kits and food storage.	Ongoing	General Fund	$2000	Town Manager/ County Emergency Mgmt.
Conduct fire department training for hazardous fires and spills.	Ongoing	General Fund/ EMPG	$15,000	Fire Department
Conduct community outreach through town newsletter in the spring and fall to inform residents regarding hazards and important seasonal mitigation actions (e.g. reminding residents to put outdoor belongings away for severe wind events).	Ongoing	General Fund	$5,000	Town Clerk's Office
Enforce speed limits and training.	Ongoing	General Fund	$10,000	Marshal's Office
Fire department training and community outreach (through annual community meeting, with specifics being prepared).	Ongoing	General Fund	Requires Study	Fire Department/ Town Clerk
Annual outreach to the community through the town, discussing what to do in the event of an earthquake.	Ongoing	General Fund	$2000	Marshal's Office/ Town Clerk/ County Emergency Mgmt.
Conduct feasibility study for curb and gutters to determine cost.	1-2 Years	General Fund	Requires Study	Public Works/ Town Manger
Evaluate facilities identified as potential shelter sites for structural integrity.	1-2 Years	General Fund	Requires Study	Town Marshal, Fire Dept., County Emergency Mgmt., Red Cross
Identify and pursue funding opportunities to develop and implement local mitigation activities.	Ongoing	General Fund	N/A	Emergency Services/ Public Works / County Emergency Mgmt

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
Integrate appropriate items from the MJHMP into the Safety Element of the 10-year General Plan as part of the General Plan Update and integrate content in other regulatory documents as appropriate.	1-5 Years	General Fund/ BRIC	Requires Study	Manager/ Planning/ Community Development
Develop a public outreach and awareness program about regional hazards and mitigation actions community members can do for their properties.	1-3 Years	General Fund/ HMGP	Requires Study	Town Manager/ Fire Dept./ Town Marshal/ Library
Increase public awareness of the natural, human-caused, and technological hazards to businesses to reduce the potential damage from each hazard through education and outreach. Maintain a resource center accessible to the public at key government facilities. Provide information on government websites and social media.	Ongoing	General Fund	Requires Study	Town Manager/ Fire Department/ Town Marshal/ County Emergency Mgmt.
Identify water resources management and conservation opportunities.	2-4 Years	General Fund	Requires Study	PUE/ Public Works
Coordinate with the utility companies and vendors to strengthen, safeguard, or take other appropriate measures such as providing supplemental services, to identify, repair, protect and secure high-voltage lines, water, sewer and trunk electrical and telephone conduits from hazards.	Ongoing	General Fund/ Public-Private Partnership	$10,000	Public Works
Educate property owners about the Flood and Earthquake Insurance Programs and their requirements through outreach activities at community events. Community Development performs this function through NEIPA and the Engineering Division for flood only.	Ongoing	General Fund/ HMGP	$2,000	Community Development/ County Emergency Mgmt.
Build a cadre of committed, trained volunteers to augment disaster response and recovery efforts in compliance with Arizona Disaster Service Worker program guidance (e.g. shelter workers, animal rescue and care, Community Emergency Response Team, communications staff, medical and health, and human services) during and after a disaster.	3-5 Years	General Fund/ EMPG	$30,000	Emergency Services
Initiate a mapping project to map all critical infrastructure, utilities, fire hydrants, etc. in a GIS system to increase situational awareness, enhance hazard risk management, and support response.	1-3 Years	General Fund/ BRIC	$15,000	Town Manager, Public Works

Table 5-35: NAU (Northern Arizona University) New Mitigation Activities

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
Campus Hazard Mitigation Education: Develop hazard awareness campaigns and preparedness training for students, faculty, and staff addressing wildfire safety, flood/debris flow awareness, and	1-2 years	Internal/FEMA Preparedness Grants	$25,000–$75,000 annually	Office of Emergency Management, Strategic Communications

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
earthquake preparedness. Provide information on campus websites and social media accounts.				Office, & Student Affairs
Campus Multi-Hazard Shelter and Resilient Infrastructure: Identify, evaluate, and enhance campus facilities capable of serving as emergency shelters for the university and surrounding community. The program will assess structural and functional capacity of candidate facilities and implement upgrades to improve resilience to multiple hazards. Improvements may include backup power, ADA accessibility, sanitation capacity, enhanced HVAC filtration for wildfire smoke, and cooling center capabilities for extreme heat events. The program will also integrate shelter facilities into regional emergency planning through coordination with local partners and incorporate public education, signage, and emergency alerting to support safe shelter operations before, during and after disasters.	Ongoing Facility Identification; 2-4 years or longer for upgrades and integration into regional plans.	Internal/FEMA HMA, BRIC, applicable EPA or energy resilience grants	Requires Identification & Assessment; $50,000–$5M depending on infrastructure needs	Office of Emergency Management, Facilities Services, Student Affairs, Campus Health Services, Flagstaff EM, Coconino County EM, & NAZ Chapter of the American Red Cross
Campus Wildland-Urban Interface Fuel Reduction & Vegetation Management: Maintain and expand campus-wide fuel reduction and defensible space program for all university properties located within the wildland-urban interface. Activities include strategic forest thinning, removal of ladder fuels, maintenance of defensible space buffers around structures, integration of green fire breaks such as irrigated landscapes or fire-resistant vegetation zones, and procurement or enhancement of equipment necessary to support vegetation management and long-term wildfire risk reduction.	Ongoing	Internal/FEMA HMA, BRIC, any applicable Wildfire Grants	$500,000–$2M	Office of Emergency Management & Facilities Services
Campus Wildfire Smoke Situational Awareness: Install remote environmental sensors and integrate them onto campus smart poles and the campus emergency operations center to improve visibility of nearby wildfire smoke conditions affecting the campus community.	3-5 years	Internal/FEMA BRIC; applicable EPA Grants	$250,000–$750,000	Office of Emergency Management, Facilities Services, Information Technology, & Campus Police
Green Stormwater Infrastructure: Implement campus-wide green stormwater infrastructure such as bioswales, rain gardens, permeable pavement, and detention basins to reduce stormwater runoff and mitigate flooding and debris flow impacts following wildfire events.	Phased into future building processes over next 5-10 years	Internal/FEMA BRIC, applicable EPA Grants	$1M–$10M depending on scale	Facilities Services, Planning & Capital Improvements, & Sustainability Group
Earthquake Securement Program for Interior Hazards: Implement a campus-wide preparedness program to secure interior hazards such as shelving, laboratory equipment, and hazardous materials storage to reduce injuries during seismic events.	2-4 years	Internal/FEMA Mitigation Grants	$50,000–$250,000	Office of Emergency Management, Facilities Services, & EH&S
Campus Post-Earthquake Building Damage Assessment: Develop and maintain a trained campus building damage assessment team capable	2-4 years	Internal/HMA, FEMA BRIC	$25,000–$100,000	Office of Emergency Management,

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
of conducting rapid post-earthquake safety evaluations of key university facilities. The program will train designated staff in rapid building safety evaluation methods (FEMA-endorsed Applied Technology Council (ATC) rapid post-earthquake building evaluation methods), establish standardized assessment procedures, and maintain equipment and documentation needed to conduct timely inspections of campus buildings following a seismic event. The program will support rapid identification of unsafe structures, reduce risk to occupants and responders, and accelerate campus recovery operations.				Facilities Services, & EH&S
Emergency Transportation and Evacuation Support: Develop and maintain a coordinated evacuation transportation plan utilizing the university's bus and vehicle fleet to support large-scale evacuations during regional disasters such as wildfires. The program will include pre-incident planning, identification of transportation assets, development of evacuation support protocols, coordination with local emergency management partners, and training for drivers and operational staff. The program may also include upgrades to fleet communication systems, planning for staging and routing, and integration with campus and city/regional evacuation plans to assist both the university and surrounding community.	1–3 years for planning and coordination; ongoing maintenance and exercises	Internal/FEMA Mitigation or Preparedness Grants, applicable transportation grants	$50,000–$250,000 depending on planning, training, and equipment needs.	Office of Emergency Management, Facilities Services, Transportation Services, Mountain Line, Flagstaff EM, & Coconino County EM

Table 5-36: Page New Mitigation Activities

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
Evaluate city/County and non-city/County facilities identified as potential shelter sites for structural integrity.	2 Years	General Fund	N/A	Emergency Services and Building-Safety
Identify and pursue funding opportunities to develop and implement local mitigation activities.	1 Year	General Fund	Requires Study	Emergency Services/ Public Works / County Emergency Mgmt
Enforcement and/or implementation of modern building codes to regulate new development to mitigate against loss.	1-2 Years	General Fund	Requires study	Community Development/ Building and Engineering Department
Coordinate with local stakeholders and partners for the enhancement of public outreach and awareness regarding regional hazards and mitigation actions community members can implement for self-reliance and protection to property and life safety.	1 Year	N/A	N/A	All departments and local stakeholders
Place more stress on the risks associated with natural and manmade hazards in public awareness campaigns conducted by various County/city departments (i.e. partner with local	1 Year	HMGP Grant	Requires study	All Departments

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
insurance agencies to hold workshops for property owners to educate about the Flood and Earthquake Insurance Programs and its requirements).				
Develop a public awareness program. Handouts and presentations will be developed and presented at area clubs, schools, and other public gatherings. Goals of the project shall include increasing public support for funding disaster preparation, educating the public what to do in case of a disaster, and increasing public awareness as to how public safety agencies will respond in a disaster.	1 Year	Local and/or County budget	$500	Emergency Services/ Public Information Officer
The city will develop a plan and pamphlets and implement a public information program that will identify the following: Who can apply? What types of emergencies can be applied for? Where to apply?	1 Year	General Fund/ Hazard Mitigation Grant Program	$500	Risk Management/ Human Resources/ Public Information Officer
Identify water resources management and conservation opportunities.	1 Year	AZDWR Grants/ BRIC	Requires study	Page Utility Enterprises /Public Works
Design and construct drainage structures for problem flood areas throughout the city to prevent flooding of properties and buildings.	5 Years	HMGP Grant	Requires study	Engineering/ Public Works
Water supply system upgrade. This project is to upgrade the current pumping units and possibly identify an alternative lower-level intake with a new pumping system and a separate pipeline to deliver water to the water treatment plant. This will allow for dependability and a backup to the current system. It will also provide water if lake level drops below current intake levels.	1-10 Years	AZDWR Grants/ BRIC	Requires study	Engineering/ Page Utility Enterprises/ City Engineer
Maintain cloud storage for vital records and data to allow access if government servers are disrupted.	1 Year	Local	N/A	IT
Partner with local insurance agencies to hold workshops for property owners to educate about Flood Insurance Programs and their requirements. Community Development performs this function through NEIPA and the Engineering Division for flood only	1 Year	General Fund	Requires study	Community Development
The city will develop a plan and mutual aid agreement with the state, County, Navajo Nation, National Park Service, and other governmental entities as necessary to implement mitigation actions.	2 Years	Local/tribal/county/NPS Funds	Requires study	Legal/City Manager
Continue County partnership and support with local government, NGO and non-profits to maintain and build upon our cadre of committed, trained, volunteers to augment disaster response and recovery efforts in compliance with Arizona Disaster Service Worker program guidance (e.g. shelter workers, animal rescue and care, Community Emergency Response Team, communications staff, medical and health, and human service providers).	1 Year	N/A	N/A	Emergency Services

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
Develop a disaster debris plan.	1 Year	N/A	N/A	Emergency Services/ Public Works
Budget for maintenance and replacement of County/city owned fire and police stations.	1-5 Years	General Fund/ EMPG	Requires study	Public Works
Build a cadre of committed, trained volunteers to augment disaster response and recovery efforts in compliance with Arizona Disaster Service Worker program guidance (e.g. shelter workers, animal rescue and care, CERT, communications staff, medical, and health, and human services), during and after a disaster.	1 Year	General Fund/ EMPG	Requires Study	Emergency Service
Provide equipment and other resources sufficient to provide initial response to major road, air, HAZMAT, and mass casualty incidents.	Ongoing	General Fund	N/A	Fire Department

Table 5-37: Tusayan New Mitigation Activities

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
Evaluate town/County and non-town/County facilities identified as potential shelter sites for structural integrity.	1-5 Years	General Fund	$500	Facilities & Grounds
Identify and pursue funding opportunities to develop and implement local mitigation activities.	1-5 Years	TFD Budget & General Fund	$1.000	Management and Support / County Emergency Mgmt
Develop a public outreach and awareness program about regional hazards and mitigation actions community members can do in their homes.	Ongoing	TFD Budget & General Fund	Requires Study	PIO/ Management and Support
Increase public awareness of the natural, human-caused, and technological hazards to businesses as a means to reduce the potential damage from each hazard through educational and outreach. Maintain a resource center accessible to the public at key government facilities. Provide information on government websites and social media accounts.	Ongoing	TFD Budget & General Fund	Requires Study	Manager Support/Town Manager/PIO
Place more stress on the risks associated with natural and manmade hazards in public awareness campaigns conducted by various County/town departments.	1-5 Years	TFD Budget & General Fund	$500	All departments

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
Increase public awareness of dam failure hazards and mitigation measures to address them	Ongoing	TFD Budget	Requires Study	Manager Support
Tusayan Fire Department Digital Newsletter: Explain hazards of smoke/carbon dioxide (CO2), fireplaces, chimneys, cleaning, and fire hazards. Regularly scheduled cleaning of chimneys. Smoke/CO2 detector maintenance program (as a follow up to the previous month's safety topic). Smoke and CO2 detectors use and maintenance. Explanation of two (2) types of detectors. Regularly scheduled replacement of batteries and testing.*	Ongoing	TFD Budget	Requires Study	Tusayan Fire District
Publish key preparedness information and links via town website and Tusayan Fire Department (TFD) digital newsletter to include information on emergency kits, winter preparation and safety, and relevant tips/guidance from the County.	Ongoing	TFD Budget	Requires Study	Tusayan Fire District / Manager Support
Utilize town website and TFD digital newsletter to educate residents on winter hazards – with a particular focus on storm roof loading and other relevant building safety considerations.	Ongoing	TFD Budget	Requires Study	Tusayan Fire District / Manager Support
Seek to implement codes, standards, and policies that will protect life and property from the impacts of hazards.	1-5 Years	General Fund	Requires Study	Planning & Zoning / Manager Support
Integrate appropriate items from the MJHMP into the Safety Element of the General Plan as being updated and other regulatory documents as appropriate.	1-5 Years	General Fund	Requires Study	Mayor Council/ Manager Support
Maintain cloud storage for vital records and data to allow access if government servers are disrupted.	1-5 Years	General Fund	Requires Study	Manager Support
Coordinate with the utility companies, ADOT, and vendors to strengthen, safeguard, or take other appropriate measures such as providing supplemental services, to protect and secure high-voltage lines, water, sewer, natural gas and petroleum pipelines, and trunk electrical and telephone conduits from hazards.	Ongoing	General Fund / Grants / Partner Funds	Requires Study	Facilities
Continue to incorporate the outcomes of the Engineering Assessment and Hydrological Analysis for the drainage improvements, as now embodied in the Drainage Master Plan, in future infrastructure and development projects. Utilize	1-10 Years	Town, County, Grants: Flood Mitigation Program	$60M	Town Administration / Flood Control District

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
Local Flood Plain Map in conjunction with FEMA Flood Plain Map as regulatory framework within the Town. Pursue state and federal grant opportunities to assist with funding to construct drainage improvements on-forest and within the corporate boundaries of the Town.				
Continue to develop mutual aid agreements and memorandum of understanding with agencies to serve emergency and disaster purposes.	1-3 Years	TFD Budget	Requires Study	City Attorney/ Manager Support / Tusayan Fire District
Collaborate with partners and service providers to identify and implement water resource management and conservation opportunities as applicable.	1-5 Years	General Fund	Requires Study	Facilities and Maintenance
Build a cadre of committed, trained volunteers to augment disaster response and recovery efforts in compliance with Arizona Disaster Service Worker program guidance (e.g. shelter workers, animal rescue and care, Community Emergency Response Team, communications staff, medical and health, and human services), during and after a disaster.	Ongoing	General Fund	Requires Study	Parks & Rec/ Manager Support/ Tusayan Fire District
Develop an emergency preparedness network for community members (and visitors) to access food, water, communications, warming/cooling stations in times of emergent need.	Ongoing	General Fund	Requires Study	Manager Support/ County Sheriff's Office
Continue to work with ADOT and Emergency Services to mitigate hazards associated with high traffic on Hwy 64 outside and within town limits	Ongoing	General Fund/ AZDOT Grant	Requires Study	Town of Tusayan, Tusayan Fire District, ADOT

Table 5-38: Williams New Mitigation Activities

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
Evaluate city/County and non-city/County facilities identified as potential shelter sites for structural integrity.	12-18 Months	FEMA HMGP or BRIC; City Capital Improvements; potential County cost-share	Requires Study	Building & Safety/ Planning
Identify and pursue funding opportunities to develop and implement local mitigation activities.	Ongoing	FEMA BRIC, HMGP, FMA; USDA Rural	N/A	Emergency Services / County Emergency Mgmt

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
		Development; State of Arizona grants		
Enforcement of floodplain management requirements, including regulating all and substantially improved construction in floodplains to reduce the losses to property and people.	Ongoing	General Fund; National Flood Insurance Program (NFIP) participation	Staff time within existing operations	Planning and Building Code Enforcement/ Building Official
Continue to enforce zoning and building codes through current site plan, subdivision, and building permit review processes to reduce the effects of drought, flood, severe wind, wildland fire, and other hazards on new buildings and infrastructure.	Ongoing	General Fund	Staff time within existing operations	Planning and Building Code Enforcement/ Building Official
Enforcement of the newly adopted Defensible Space Ordinance for the protection of future and existing structures within the wildland urban interface.	Ongoing	General Fund; Arizona Department of Forestry & Fire Management grants (outreach/support)	$15,000	Planning and Building Code Enforcement/ Building Official
Increase public awareness of dam failure hazards and mitigation measures to address them.	12 months to develop outreach materials; ongoing updates	FEMA Risk MAP; General Fund; partner agency support	$10,000	Emergency Services
Coordinate with the utility companies and vendors to strengthen, safeguard, or take other appropriate measures such as providing supplemental services, to identify, repair, protect and secure high-voltage lines, water, sewer and trunk electrical and telephone conduits from hazards.	2–3 years	FEMA BRIC; Utility company capital programs; City Capital Improvements	Requires Study	Public Works
Perform fuel thinning around water treatment plant to create a wildland fire defensible space perimeter and install exterior sprinkler system on the structures and site perimeter.	18–24 months	FEMA BRIC; Arizona Department of Forestry & Fire Management; City Capital Improvements	Requires Study	Public Works
Annual inspections and maintenance work on five (5) existing city dams. Continued monitoring	Ongoing	Water Enterprise Fund; ADEQ	Requires Study	Public Works

Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department
by the City Water Department in cooperation with ADEQ.		technical assistance		
Bill Williams Mountain Steep Slope forest restoration treatments to reduce threat from catastrophic wildland fires and post-wildfire flooding.	5-10 Years	Coconino County Flood Control District; U.S. Forest Service; State and federal mitigation grants	Requires Study	Coconino County Flood Control District Administrator / Coconino County Forest Restoration Director
Continue to develop mutual aid agreements and memorandum of understanding with agencies to serve emergency and disaster purposes.	12–24 Months	General Fund	N/A	City Attorney/ Emergency Services
Create new storage facilities for effluent to be used for irrigation and emergency wildland fire protection.	3–5 Years	FEMA HMGP; USDA Rural Development; Water Enterprise Fund	Requires Study	Public Works

5.4.2 Mitigation Action Plans

The final mitigation action plan developed by the Planning Team includes the action items that the participating jurisdictions intend to implement during the next five years, pending funding and resource availability. The action plans, shown in **Table 5-38** through **Table 5-43,** include all planned or ongoing mitigations for each participating jurisdiction. These are numbered by mitigation goal and list the priority, description, implementation timeline estimate, potential funding sources, implementing department, and associated hazards of each. Mitigation actions retained from the 2021 MJHMP that are ongoing, or not completed and still applicable, are marked with an asterisk.

The new mitigation actions include a broad range of approaches to hazard mitigation such as retrofitting, code enforcement, development of new regulations, public education, development of redundant facilities, and others. Measures are included to mitigate risks to existing buildings and infrastructure, as well as new buildings and infrastructure. The mitigation action plan assigns primary responsibility for each of the action items to an implementing department. The implementing department is the controlling department that will assign funding and oversee activity implementation, monitoring, and evaluation.

The Planning Team does not presume the expertise to prescribe which projects will be implemented. Prioritization of projects in the MJHMP is a means to provide a basis for realistically advancing mitigation strategies and assisting with project selection when limited funding, resources, or capacity is available. All mitigation actions and projects will ultimately be formally selected, scoped, and prioritized for execution by their designated implementing department. This is meant to accommodate the variability in project funding, schedules, staff requirements, and capacity to integrate the new projects into existing and ongoing efforts. Departments will take into account the funding source, the cost effectiveness of the project, alternative projects, the compatibility of the new project with ongoing projects, the extent to which the project addresses the risks assessed in Section 4, and the potential for economic and social damage. The final mitigation action plans identify desired mitigation actions for each participating jurisdiction pending future funding and resource availability – they are not obligations or funding commitments.

Prioritization

To assist with implementing the mitigation action plan, the Planning Team used the following ranking process to provide a method to prioritize the projects for the Action Plan. Designations of High, Medium, and Low priorities have been assigned to each action using the following criteria.

Table 5-39: Mitigation Action Prioritization Criteria

Does the action…	Can the action…	Will the action…	Is there…
• Solve the problem? • Address vulnerability assessment? • Reduce the exposure or vulnerability to the highest priority hazard? • Address multiple hazards? • Offer benefits that equal or exceed costs? • Implement a goal, policy, or project identified in the General Plan or Capital Improvement Plan?	• Be implemented with existing funds? • Be implemented by existing state or federal grant programs? • Be completed within the five (5) year life cycle of the HMP?	• Be implemented with currently available technologies? • Be accepted by the community? • Be supported by community leaders? • Adversely affect segments of the population or neighborhoods? • Require a change in local ordinances or zoning laws? • Result in positive or neutral impact on the environment? • Comply with all local, state, and federal environmental laws and regulations?	• Sufficient staffing to undertake the project? • Existing authority to undertake the project?

Each positive response is equal to one point. Answers to the criteria above determined the priority according to the following scale:

1–6 = Low priority ***7–12 = Medium priority*** ***13–18 = High priority***

Using the criteria above, the Planning Team employed the STAPLEE method to rank mitigation actions. This analysis is contained in **Appendix D**.

Benefit-Cost Analysis

FEMA provides detailed guidance for analyzing the economic feasibility of mitigation activities. Benefit-Cost Analysis (BCA) is the method by which the future benefits of a hazard mitigation project are determined and compared to its costs. The end result is a Benefit-Cost Ratio (BCR), which is calculated by a project's total benefits divided by its total costs. The BCR is a numerical expression of the "cost-effectiveness" of a project. A project is considered to be cost effective when the BCR is 1.0 or greater, indicating the benefits of a prospective hazard mitigation project are sufficient to justify the costs.

FEMA requires a BCA to validate cost effectiveness of proposed hazard mitigation projects prior to funding. There are two drivers behind this requirement: 1) the Office of Management and Budget's (OMB) Circular A-94 Revised, "Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs" and 2) the Stafford Act.

Conducting BCA for a mitigation activity can assist the County in determining whether a project is worth undertaking now, in order to avoid disaster related damages later. Cost-effectiveness analysis evaluates how to best spend a given amount of money to achieve a specific goal. Determining the economic

feasibility of mitigating hazards can provide decision makers with an understanding of the potential benefits and costs of an activity, as well as a basis for comparing alternative projects. Additional information on BCA is available on the FEMA BCA website.

Funding

The funds required to implement the mitigation action plan will come from a variety of sources including Federal Hazard Mitigation Grants, city/town budgets, bonds, fees and assessments, and others. Some projects are (or will be) included in capital improvement budgets, while some, especially ongoing projects, are included in department operating budgets.

Prior to beginning a project or when federal funding is involved, the implementing department will use a FEMA approved benefit/cost analysis approach to identify the actual costs and benefits of implementing these mitigation actions. For non-structural projects, implementing departments will use other appropriate methods to weigh the costs and benefits of each action item, and then develop a prioritized list.

Implementation

Mitigation projects were assigned to one of three categories as a tentative schedule for implementation, short-range, mid-range, and long-range. Projects that are currently being implemented by various departments are assigned to the ongoing category. Implementation of short-range projects will typically begin within the next three years. Mid-range projects will require some planning and likely require funding beyond what is currently allocated to the various departments in the County and city / towns' general funds. Projects in the mid-range category will generally begin implementation in the next three to five years. Long range projects will require great planning and funding and will generally begin implementation within five years and beyond.

Table 5-40: County Mitigation Action Plan

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
1.1	Medium	East Bellemont Traffic Interchange - Secondary I-40 Access for Bellemont:	1-5 Years	General Fund/ Highway User Revenue Fund	$60M	Public Works	Wildland fire, winter storm, flood, HAZMAT transport incidents, and extended power outages.
1.2	Medium	Bellemont to Bader Connection - US 180	1-5 Years	General Fund/ Highway User Revenue Fund	$55M	Public Works	Wildland fire, winter storm, flood, HAZMAT transport incidents, and extended power outages.
1.3	High	Systematic Drainage Projects - Replace all culverts identified as needing to be replaced in the Drainage Infrastructure Inspection Study.	1-5 Years	General Fund/ Highway User Revenue Fund	$300,000	Public Works	Flood
1.4	High	Magdalena Drainage Improvements - Upsizing culverts and ditches to mitigate	1-5 Years	General Fund/ Highway User Revenue Fund	$800,000	Public Works	Flood

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
		hydraulic impact across and along US 180.					
1.5	High	Suzette Lane and Bader Road - Roadside drainage	1-5 Years	General Fund/ Highway User Revenue Fund	$1.25M	Public Works	Flood, wildfire, winter storm
1.6	High	Espey Road Drainage Improvements – Targeted Culvert Installation.	1-5 Years	General Fund/ Highway User Revenue Fund	$1.25M	Public Works	Flood, wildfire
1.7	High	Sherwood Forest Drainage Study and Infrastructure Improvements	1-5 Years	General Fund/ Highway User Revenue Fund	$1.25M	Public Works	Flood, wildfire, winter storm
1.8	High	Perkinsville Road Wildfire Mitigation – Roadside Fuel Reduction and Fire Break Enhancement	1-5 Years	General Fund/ Highway User Revenue Fund	$5M	Public Works	Wildland fire
1.9	High	Lake Mary Road Wildfire Mitigation – Roadside Fuel Reduction and Right-of-Way Thinning	1-5 Years	General Fund/ Highway User Revenue Fund	$2M	Public Works	Wildland fire
1.10	High	Old Route 66 Wildfire Mitigation – Roadside Fuel Reduction and Right-of-Way Thinning.	1-5 Years	General Fund/ Highway User Revenue Fund	$200,000	Public Works	Wildland fire
1.11	Med	Solar-Powered Mobile Digital Message Boards – Winter Hazard and Road Closure Safety Enhancement (6 Units).	1-5 Years	General Fund/ Highway User Revenue Fund	$150,000	Public Works	Transport accident, wildland fire, winter storm
1.12	High	Sheep Hill Public Works Maintenance Yard – Sitewide Emergency Alert and Paging System (Critical Infrastructure Hardening).	1-5 Years	General Fund/ Highway User Revenue Fund	$13,000	Public Works	Severe weather, wildland fire
1.13	High	High-Capacity Jet Truck – Drainage Infrastructure Risk Reduction Asset	1-5 Years	General Fund/ Highway User Revenue Fund	$412,998	Public Works	Transport accident, severe weather, wildland fire, winter storm
1.14	High	Mobile Fuel Trailers (4 Units) – Emergency Operations and Lifeline Support Enhancement	1-5 Years	General Fund/ Highway User Revenue Fund	$187,164	Public Works	Severe weather, wildland fire
1.15	High	High-Pressure Water Trailer (1,000-Gallon Capacity) – Infrastructure Protection and Decontamination Support	1-5 Years	General Fund/ Highway User Revenue Fund	Requires study	Public Works	Severe weather
1.16	Med	Six-Wheel Salt Application Truck – Winter Access and Operational Surge Capacity Enhancement	1-5 Years	General Fund/ Highway User Revenue Fund	Requires study	Public Works	Severe weather
1.17	High	Forestry Masticator – Roadway Easement and Right-of-Way Hazard Mitigation.	1-5 Years	General Fund/ Highway User Revenue Fund	Requires study	Public Works	Wildland fire
1.18	High	Portable Radio Communications Upgrade – Operational and Surge Capacity Enhancement (12 Units with 2 Multi-Bank Chargers).	1-5 Years	General Fund/ Highway User Revenue Fund	Requires study	Public Works	All

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
1.19	High	Mobile Scene Lighting Units – Night and Low-Visibility Emergency Operations Support (6 Nomad 360, 1 Nomad Transformer)	1-5 Years	General Fund/ Highway User Revenue Fund	Requires study	Public Works	All
1.20	High	Procure Compact Collapse & Wrap portable sign systems (six units each) for “Be Prepared to Stop,” “Lane Closed Ahead,” “Flagger Ahead,” and “Caution Low Visibility” to enhance rapid deployment traffic control during emergency operations.	1-5 Years	General Fund/ Highway User Revenue Fund	Requires study	Public Works	Flood, severe weather, transport accident, wildland fire
1.21	High	Systematic Drainage Inspection and Rehabilitation Program – Flood and Debris Flow Risk Reduction	Ongoing (Programmatic – Continuous Implementation)	General Fund/ Highway User Revenue Fund	Requires study	Public Works	Debris flow, flood, severe weather, wildland fire
1.22	High	Critical Roadway Reconstruction and Rehabilitation Program – Emergency Route Resilience Enhancement	Ongoing 5–10 Years (Phased Implementation)	General Fund/ Highway User Revenue Fund	Requires study	Public Works	Flood, severe weather, transport accident, wildland fire
1.23	Med	Rural and Collector Road Shoulder Widening and Safety Hardening Program	Ongoing 3–7 Years (Phased by corridor priority)	General Fund/ Highway User Revenue Fund	Requires study	Public Works	Flood, severe weather, transport accident
1.24	High	School and Community Facility Access Improvements – Emergency Access and Safety Enhancement	On Going 3–5 Years (Phased by Facility Priority)	General Fund/ Highway User Revenue Fund	Requires study	Public Works	All
1.25	High	Unpaved and Gravel Road Stabilization Program – Emergency Access and Erosion Reduction	Ongoing 3–7 Years (Phased by corridor priority)	General Fund/ Highway User Revenue Fund	Requires study	Public Works	Transport accident
1.26	High	Integration of Intersection and Interchange Safety Study Findings – Evacuation and Congestion Risk Reduction	Ongoing	General Fund/ Highway User Revenue Fund	Requires study	Public Works	Transport accident
1.27	High	Roadway Safety Action Plan (RSAP) Implementation – Safe System and Vision Zero Framework	Ongoing (Multi-Year Implementation)	General Fund/ Highway User Revenue Fund	Requires study	Public Works	Transport accident
1.28	High	Continue to maintain evaluations of structural integrity for County and non-County facilities identified as potential shelter sites through application of adopted codes and locally developed hazard-specific studies. Evaluation standards will be enhanced by incorporating updated structural and system safety provisions through adoption of the 2024 ICC code suite and applying locally developed ground snow load methodology, while identifying and integrating other locally relevant hazard studies	Ongoing	General Fund	Requires study	Community Development	All

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
		as appropriate to strengthen life-safety and resilience capabilities for designated shelter facilities.					
1.29	High	High Injury Network (HIN) and Crash Data Integration – Emergency Corridor Prioritization Program	Ongoing	General Fund/ Highway User Revenue Fund	Requires study	Public Works	Transport accident
1.30	High	Advance implementation and monitoring of code-regulated design criteria through the formal review and adoption process of the 2024 International Code suite and the 2023 National Electrical Code. This update incorporates the most current hazard data, structural load requirements, fire-resistance provisions, and electrical safety standards to strengthen safeguards for life and property and reduce vulnerability to natural and manmade hazards. In parallel, apply locally developed supporting studies such as the Northern Arizona ground snow load methodology and the Fort Valley Initial Engineering Assessment to inform locally appropriate design criteria.	Ongoing	General Fund	$10,000 annually	Community Development	All
1.31	High	Continue to integrate hazard mitigation principles and priorities from the MJHMP into the Comprehensive Plan, including policies addressing wildfire risk reduction, emergency preparedness, infrastructure resilience, coordinated emergency access, and land use planning that accounts for natural hazards. Institutionalize mitigation strategies within the County's long-range planning framework and regulatory processes.	Ongoing	General Fund	$10,000 annually	Community Development	All
1.32	High	Institutionalize mitigation strategies within the County's long-range planning framework and regulatory processes.	Ongoing	General Fund	Requires study	Community Development	All
1.33	High	Increase public awareness of dam failure hazards and identify mitigation measures to address those hazards.	Ongoing	General Fund	$20,000	Emergency Management/ Flood Control District	Dam failure, flood
1.34	High	Partner with local insurance agencies to hold workshops for property owners to educate about the Flood Insurance Programs and requirements. Community Development performs this function through	Ongoing	FCD Tax Revenue/ Local Match	$10,000	Flood Control District/ Community Development	Flood

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
		NFIP and the Engineering Division for flood only.					
1.35	High	Encourage participation in the National Flood Insurance Program through public engagement campaigns.	Ongoing	General Fund	$10,000	Flood Control District/ Community Development	Flood
1.36	High	Acquire and deploy IT infrastructure for regional flood warning system for County locations subject to post wildfire flooding.	Ongoing	FCD Tax Revenue/ Local Match	$250,000	Flood Control District	Flood
1.37	High	U.S. 89 Post-Wildfire Flood Resiliency Project	1-2 years	Fed. DOT PROTECT Grant/AZ SMART Grant/FCD	$19.6M	Flood Control District	Flood, transport accident, wildland fire
1.38	High	Implement the FEMA Special Flood Hazard Area (SFHA) Capital Investment Plan to allocate funding for specific projects in the following areas: Tusayan, Munds Park, Sedona, Fort Valley, and Kachina Village/Mountainaire.	1-5 years	BUILD, FLAP, AZ SMART, EPA/WIFA, FEMA, NRCS, USDA Rural Development, AZ Parks & Rec, AZ Game & Fish Grants; District & Town of Tusayan Funding	$80-$120M	Flood Control District	Flood
1.39	High	*Ensuring Grand Canyon National Park Visitor Access Project* and Town of Tusayan SR 64 Flood mitigation projects	3-6 years	BUILD, FLAP, AZ SMART, EPA/WIFA, FEMA, NRCS, USDA Rural Development, AZ Parks & Rec, AZ Game & Fish Grants; District & Town of Tusayan Funding	$60M	Flood Control District	Flood
1.40	High	Bill Williams Mountain Steep Slope Forest restoration treatments to reduce threat from catastrophic wildland fires and post-wildfire flooding. Identified 1,200 acres of steep slopes on Bill Williams Mountain to complete forest restoration treatments to reduce the risk of catastrophic wildland fire and post-wildfire flooding that would critically impact the city of Williams infrastructure, public lives, and regional economy.	Ongoing .	County/U.S. Forest Service/ National Forest Foundation/ The Nature Conservancy/AZ Dept. Forestry and Fire Mgmt	$3.3M (FCD) $11M (USFS) $1.8M (Partners)	Flood Control District/Forest Restoration Initiative	Flood, wildland fire
1.41	High	Conduct pre-wildfire and post-wildfire risk assessments for Coconino County.	2-5 years	General Fund	Requires Study	Forest Restoration Initiative/ Emergency Management	Wildland fire

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
1.42	High	Bill Williams Mountain Watershed Restoration Project (AB Base & Creek Project)	1-2 years	FCD General Fund/ US Forest Service/ The Nature Conservancy	$3M (FCD) $4.2M (USFS)	Flood Control District/Forest Restoration Initiative	Dam failure, flood, wildland fire
1.43	High	Upper Rio de Flag Watershed Restoration Leroux Projects	1-2 years	FCD General Fund /U.S. Forest Service	$3.8M (FCD)	Flood Control District/Forest Restoration Initiative	Flood
1.44	High	The Lowell Observatory Mesa Project is being completed in partnership with the City of Flagstaff and Lowell Observatory. The District is partnering with the Greater Flagstaff Forest Partnership to conduct administrative and fiscal management of this project. District is overseeing project.	1-2 years	Congressionally Directed Spending Grant; Flagstaff/ Lowell Observatory	$81,677 (CDS Funding) $150,000 (Partners)	Flood Control District	Flood
1.45	High	Bill Williams Mountain Watershed Restoration Project (Charlie)	3-4 years	FCD General Fund / US Forest Service/The Nature Conservancy	$2.6M (FCD) $3.5M (USFS)	Flood Control District Forest Restoration Initiative	Dam failure, flood, wildland fire
1.46	High	Oak Creek Watershed Project	3-4 years	FCD General Fund / US Forest Service	$3.5M (FCD)	Flood Control District Forest Restoration Initiative	Flood
1.47	High	Identify and pursue funding opportunities to develop and implement local mitigation activities.	Ongoing	Grant: BRIC FMA CDBG	Variable Per Project	All County Departments	All
1.48	High	Coordinate with local stakeholders and partners for the enhancement of public outreach and awareness regarding regional hazards and mitigation actions community members can implement for self- reliance and protection to property and life safety.	Ongoing	General Fund	$25,000 Annually	All County departments and local stakeholders	All
1.49	High	Increase public awareness of the natural, human-caused, and technological hazards to residents and businesses as a means to reduce the potential impacts through education and outreach. Continue to maintain a resource center of information accessible to the public at key government facilities, providing informational brochures and information on government websites and social media.	Ongoing	General Fund	$25,000 Annually	Emergency Management/ Public Affairs	All
1.50	High	Increase public awareness of dam failure hazards and identify mitigation measures to address those hazards.	Ongoing	General Fund	$25,000 Annually	Emergency Management/ Public Affairs	Dam failure

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
1.51	High	Enhance winter weather preparedness campaign including brochures, Public Service Announcements and County webpage content development for public awareness.	Ongoing	General Fund	$20,000 Annually	Emergency Management/ Public Affairs	Severe weather/winter weather
1.52	High	Deliver educational programs and outreach to outlying areas of county that are not currently served by any organized fire protection system, with the goal of assisting with organizing districts. Education will include Firewise certification and home hardening advocacy for residents.	Ongoing	General Fund	$10,000 Annually	Emergency Management/ Public Affairs	All
1.53	High	Establish and maintain a County component of the state GIS mapping system documenting forest treatment, hazard data, and grant funding sources to monitor our wildland fire threat.	Ongoing	General Fund/ BRIC	$50,000 Annually	Emergency Management/ GIS	Wildland fire
1.54	High	Continue to maintain a resource center of information accessible to the public at key government facilities, providing informational brochures and information on government websites and social media.	Ongoing	General Fund/ BRIC/ Hazard Mitigation Grant	$125,000 Annually	Emergency Management/ Flagstaff Fire Department	All
1.55	High	Continue to develop mutual aid agreements and memorandum of understanding with agencies to serve emergency and disaster purposes – notably by encouraging additional signatories to the Arizona Mutual Aid Compact.	Ongoing	General Fund	Requires Further Study	Emergency Management	All
1.56	High	Continue County partnership and support with local government, NGO and non-profits to maintain and build upon our cadre of committed, trained volunteers to augment disaster response and recovery efforts in compliance with Arizona Disaster Service Worker program guidance (e.g. shelter workers, animal rescue and care, CERT, communications staff, medical and health, and human service providers).	1-3 Years	General Fund/ EMPG	$150,000	Emergency Management	All
1.57	High	Continue support for Flagstaff Fire Department Fire Management Program to mitigate wildland fire hazards to watershed resources through prevention, preparedness, hazard mitigation, response,	Ongoing	General Fund	Requires Study	Emergency Management, County Fire Districts	Wildland fire

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
		and recovery efforts – with an emphasis on education engineering, enforcement, and ecosystems.					
1.58	High	Provide support and coordination as requested (and as funding is available) toward the deployment and maintenance of the Flash Flood Early Warning System in Havasupai Canyon.	2 Years	FMA Grant	Requires Study	Emergency Management	Flood
1.59	High	Secure funding and strategic partnerships necessary to develop County Medical Reserve Corps capability.	2-3 Years	HHS/ASPR Grants	$250,000	Health and Human Services	All
1.60	High	Establish air monitoring capability for wildfire incidents to monitor smoke/contaminants and enable real-time advisories regarding risk management and safety precautions.	2-4 Years	EMPG	Requires Study	Health and Human Services	All
1.61	High	Establish a program to enable smoke safety planning, public education, public facility retrofits and enhanced air filtration, as well as the development of air-quality shelter capabilities.	1-5 Years	General Fund/ EMPG/ Hazard Mitigation Grant	Requires Study	Health and Human Services	Wildland fire
1.62	Med	Implement large-scale hazardous vegetation removal and forest thinning to clear dead, dying, and over-stressed trees along primary transportation arteries, specifically I-17, I-40, and Highway 89A in the Greater Flagstaff and Sedona regions.	1-5 Years	General Fund	Requires Study	Emergency Management	Wildland fire
1.63	Med	Reduce secondary property damage, health risks, and financial loss following a disaster by increasing property owner knowledge of recovery hazards.	1-5 Years	General Fund	Requires Study	Emergency Management	All
1.64	Low	Collection, analysis, and integration of insurance coverage and cost data, as well as assessment of impact on cost of living and community vulnerability as practicable, in future iterations of the hazard mitigation plan.	1-5 Years	General Fund	Requires Study	Emergency Management	Flooding, Wildland fire
1.65	Med	Engage with community partners, including the Flagstaff Arboretum, to facilitate implementation of demonstration gardens and place-based education programming to educate the public on how to implement home, private facility, and	1-5 Years	General Fund	Requires Study	Emergency Management	All

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
		community hazard mitigation measures.					
1.66	Med	Develop a public education program to support Community Wildfire Protection Plan implementation by the public that connects regional mitigation efforts to activities that private individuals and entities can implement on their own properties, to include defensible space, fire-resistant landscaping, and home hardening.	1-5 Years	General Fund	Requires Study	Emergency Management	All

Table 5-41: Flagstaff Mitigation Action Plan

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
2.1	High	Fulfill the Council-adopted Water Conservation Strategic Plan conservation measures to pump as little water from the aquifer as possible. The city depends on surface reservoirs and groundwater for domestic water supply. Conservation efforts prolong the capacity of this limited resource.	Ongoing	Operational Budget/ Water Rates	Requires Study	Flagstaff Water Services Division	Drought
2.2	High	Plan and conduct vegetation treatments, PDS, code updates, and risk modeling to reduce the negative impacts of undesirable wildland fire within the built and natural environments.	Ongoing	Operational Budget, grants, partners	Requires study	Fire Department/ Wildland Fire Management Program	Wildland fire
2.3	High	Identify and pursue funding opportunities to develop and implement local mitigation activities.	Ongoing	Envi. Mgmt. Fee	Requires Study	Office of Sustainability	All
2.4	Med	Magdalena Drainage Improvements - Upsizing culverts and ditches to mitigate hydraulic impact across and along US 180.	1-5 Years	General Fund/ Highway User Revenue Fund	$800,000	Public Works	Flood
2.5	High	Develop greenhouse gas mitigation strategies that address multiple objectives, including damage reduction, environmental enhancement, historic preservation, tourism/ recreation, economic recovery /development, and building community resilience to climate variance.	Ongoing	Envi. Mgmt. Fee	Requires Study	Office of Sustainability	All
2.6	High	Flagstaff Well Field & Pipeline Evaluation. The city purchased Red Gap Ranch with 3 existing municipal-sized wells and has	5-15 years	Capital Improve. Fund/ Water Rates/ Potential	$575M	Flagstaff Water Services Division	Flood, pipeline failure

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
		drilled another ten (10) wells for the purpose of future water supply. The city has acquired a right-of-way for the pipeline through an agreement with ADOT and is performing the first phase of a feasibility study.		federal partnership			
2.7	High	Flagstaff Watershed Protection Project: Approved by the voters, this project is being pursued to ensure the viability of this surface reservoir and stormwater runoff through forest treatments.	2 years	FWPP Bond	$600,000	Flagstaff Fire Department/ Wildland Fire Management Program	Drought, flood
2.8	High	Develop a public outreach and awareness program about regional hazards and mitigation actions community members can do in their homes	Ongoing	Operational Budget/ Partnership	$50,000	Fire Dept./ Emergency Management	All
2.9	High	Increase public awareness of the natural, human-caused, and technological hazards to businesses to reduce the potential damage from each hazard through educational and outreach. Maintain a resource center accessible to the public at key government facilities. Provide information on government websites and social media accounts.	Ongoing	Operational Budget	Requires Study	Emergency Management / PIO	All
2.10	High	Provide information on tools; partnership opportunities, and funding resources for business and philanthropical organizations to assist in implementing mitigation activities.	Ongoing	Operational Budget	Requires Study	Community Development	All
2.11	High	Place more stress on the risks associated with natural and man-made hazards in public awareness campaigns conducted by various city departments.	Ongoing	Internal / Federal Partnership	Requires Study	All Departments	All
2.12	High	Advance education programs to increase awareness and mitigation impacts of climate change	Ongoing	Envi. Mgmt. Fee	Requires Study	Office of Sustainability - Climate Action	Climate Change
2.13	High	Flagstaff Stormwater Public Outreach: Public awareness program on topic of flooding and dam risks.	Ongoing	Stormwater Program	$5,000	Water Services - Stormwater	Drought, flood, dam failure
2.14	High	Flood Prevention Assistance Grants for at-risk residents	Ongoing	Envi. Mgmt. Fee	$200,000	Office of Sustainability	Flood
2.15	High	Identify water resources management opportunities.	Ongoing	Operational Budget/ Water Rates	Built into personnel costs	Water Services	Flood
2.16	High	Improve flood hazard assessment information through administrative floodplains to assist in	Ongoing	Stormwater Program	$5000	Water Services - Stormwater/ Planning and	Flood, severe weather

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
		appropriate new development in high hazard areas and encouraging preventative measures for existing development in such areas.				Development Services	
2.17	High	Integrate appropriate items from the MJHMP (2026) into the Safety Element of the General Plan and other regulatory documents as appropriate.	1-2 Years	Operational Budget	Requires Study	Public Works	All
2.18	Med	Continue to invest in up-sizing drainage ways, improving floodplain flood mitigations, and enhancing streams and washes to convey design storms.	Ongoing	Stormwater Program	Requires Study	Water Services - Stormwater	Flood
2.19	Med	The Rio De Flag Project is a major flood control initiative designed to remove 1500 structures from the flood plain. The downtown/Southside area is prone to flooding, and this effort will reduce the flood threat and enable further economic development in this area.	1-5 Years	Stormwater	$266M total project, City share being determined	PUE and City Engineering	Flood
2.20	High	Partner with local insurance agencies to hold workshops for property owners to educate about the Flood and Earthquake Insurance Programs and their requirements.	Ongoing	Stormwater	$500	Water Services - Stormwater	Earthquake, flood

Table 5-42: Town of Fredonia Mitigation Action Plan

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
3.1	High	Hold annual community meeting in September with all residents and churches to educate residents about 72-hour kits and food storage.	Ongoing	General Fund	$2000	Town Manager/ County Emergency Mgmt.	All
3.2	High	Conduct fire department training for hazardous fires and spills.	Ongoing	General Fund/ EMPG	$15,000	Fire Department	HAZMAT Release, wildland fire
3.3	High	Conduct community outreach through town newsletter in the spring and fall to inform residents regarding hazards and important seasonal mitigation actions (e.g. reminding residents to put outdoor belongings away for severe wind events).	Ongoing	General Fund	$5,000	Town Clerk's Office / County Emergency Mgmt	All
3.4	High	Enforce speed limits and training.	Ongoing	General Fund	$10,000	Marshal's Office	All
3.5	High	Fire department training and community outreach (through	Ongoing	General Fund	Requires Study	Fire Department/ Town Clerk	All

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
		annual community meeting, with specifics being prepared).					
3.6	High	Annual outreach to the community through the town, discussing what to do in the event of an earthquake.	Ongoing	General Fund	$2000	Marshal's Office/ Town Clerk/ County Emergency Mgmt.	Earthquake
3.7	High	Conduct feasibility study for curb and gutters to determine cost.	1-2 Years	General Fund	Requires Study	Public Works/ Town Manger	All
3.8	High	Evaluating facilities identified as potential shelter sites for structural integrity.	1-2 Years	General Fund	Requires Study	Town Marshal / Fire Dept./ County Emergency Mgmt./ Red Cross	All
3.9	High	Identify and pursue funding opportunities to develop and implement local mitigation activities.	Ongoing	General Fund	N/A	Emergency Services/ Public Works	All
3.10	High	Integrate appropriate items from the MJHMP into the Safety Element of the 10-year General Plan as part of the General Plan Update and integrate content in other regulatory documents as appropriate.	1-5 Years	General Fund/ BRIC	Requires Study	Town Manager/ Planning/ Community Development	All
3.11	High	Develop a public outreach and awareness program about regional hazards and mitigation actions community members can do for their properties.	1-3 Years	General Fund/ HMGP	Requires Study	Town Manager/ Fire Dept./ Town Marshal/ Library	All
3.12	High	Increase public awareness of the natural, human-caused, and technological hazards to businesses to reduce the potential damage from each hazard through education and outreach. Maintain a resource center accessible to the public at key government facilities. Provide information on government websites and social media.	Ongoing	General Fund	Requires Study	Town Manager/ Fire Department/ Town Marshal/ County Emergency Mgmt.	All
3.13	High	Identify water resources management and conservation opportunities.	2-4 Years	General Fund	Requires Study	PUE/ Public Works	Flood
3.14	High	Flood Prevention Assistance Grants for at-risk residents	Ongoing	Envi. Mgmt. Fee	$200,000	Office of Sustainability	Flood
3.15	High	Coordinate with the utility companies and vendors to strengthen, safeguard, or take other appropriate measures such as providing supplemental services, to identify, repair, protect and secure high-voltage lines, water, sewer and trunk electrical and telephone conduits from hazards.	Ongoing	General Fund/ Public-Private Partnership	$10,000	Public Works	Flood
3.16	High	Educate property owners about the Flood and Earthquake Insurance Programs and their requirements through outreach	Ongoing	General Fund/ HMGP	$2,000	Community Development/ County Emergency Mgmt.	Earthquake, flood

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
		activities at community events. Community Development performs this function through NEIPA and the Engineering Division for flood only.					
3.17	High	Build a cadre of committed, trained volunteers to augment disaster response and recovery efforts in compliance with Arizona Disaster Service Worker program guidance (e.g. shelter workers, animal rescue and care, Community Emergency Response Team, communications staff, medical and health, and human services) during and after a disaster.	3-5 Years	General Fund/ EMPG	$30,000	Emergency Services	All
3.18	High	Initiate a mapping project to map all critical infrastructure, utilities, fire hydrants, etc. in a GIS system to increase situational awareness, enhance hazard risk management, and support response.	1-3 Years	General Fund/ BRIC	$15,000	Town Manager, Public Works	Flood

Table 5-43: NAU Mitigation Action Plan

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
4.1	High	**Campus Hazard Mitigation Education:** Develop hazard awareness campaigns and preparedness training for students, faculty, and staff addressing wildfire safety, flood/debris flow awareness, and earthquake preparedness. Provide information on campus websites and social media accounts.	1-2 years	Internal/FEMA Preparedness Grants	$25,000–$75,000 annually	Office of Emergency Management, Strategic Communications Office, & Student Affairs	All

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
.2	High	**Campus Multi-Hazard Shelter and Resilient Infrastructure:** Identify, evaluate, and enhance campus facilities capable of serving as emergency shelters for the university and surrounding community. The program will assess structural and functional capacity of candidate facilities and implement upgrades to improve resilience to multiple hazards. Improvements may include backup power, ADA accessibility, sanitation capacity, enhanced HVAC filtration for wildfire smoke, and cooling center capabilities for extreme heat events. The program will also integrate shelter facilities into regional emergency planning through coordination with local partners and incorporate public education, signage, and emergency alerting to support safe shelter operations before, during and after disasters.	Ongoing Facility Identification; 2-4 years or longer for upgrades and integration into regional plans.	Internal/FEMA HMA, BRIC, applicable EPA or energy resilience grants	Requires Identification & Assessment; $50,000–$5M depending on infrastructure needs	Office of Emergency Management, Facilities Services, Student Affairs, Campus Health Services, Flagstaff EM, Coconino County EM, & NAZ Chapter of the American Red Cross	All
4.3	High	**Campus Wildland-Urban Interface Fuel Reduction & Vegetation Management:** Maintain and expand campus-wide fuel reduction and defensible space program for all university properties located within the wildland-urban interface. Activities include strategic forest thinning, removal of ladder fuels, maintenance of defensible space buffers around structures, integration of green fire breaks such as irrigated landscapes or fire-resistant vegetation zones, and procurement or enhancement of equipment necessary to support vegetation management and long-term wildfire risk reduction.	Ongoing	Internal/FEMA HMA, BRIC, any applicable Wildfire Grants	$500,000 –$2M	Office of Emergency Management & Facilities Services	All
4.4	High	**Campus Wildfire Smoke Situational Awareness**: Install remote environmental sensors and integrate them onto campus smart poles and the campus emergency operations center to improve visibility of nearby wildfire smoke conditions affecting the campus community.	3-5 years	Internal/FEMA BRIC; applicable EPA Grants	$250,000 – $750,000	Office of Emergency Management, Facilities Services, Information Technology, & Campus Police	All

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
4.5	High	**Green Stormwater Infrastructure:** Implement campus-wide green stormwater infrastructure such as bioswales, rain gardens, permeable pavement, and detention basins to reduce stormwater runoff and mitigate flooding and debris flow impacts following wildfire events.	Phased into future building processes over next 5-10 years	Internal/FEMA BRIC, applicable EPA Grants	$1M–$10M depending on scale	Facilities Services, Planning & Capital Improvements, & Sustainability Group	Drought
4.6	High	**Earthquake Securement Program for Interior Hazards:** Implement a campus-wide preparedness program to secure interior hazards such as shelving, laboratory equipment, and hazardous materials storage to reduce injuries during seismic events.	2-4 years	Internal/FEMA Mitigation Grants	$50,000–$250,000	Office of Emergency Management, Facilities Services, & EH&S	Earthquake
4.7	High	**Campus Post-Earthquake Building Damage Assessment:** Develop and maintain a trained campus building damage assessment team capable of conducting rapid post-earthquake safety evaluations of key university facilities. The program will train designated staff in rapid building safety evaluation methods (FEMA-endorsed Applied Technology Council (ATC) rapid post-earthquake building evaluation methods), establish standardized assessment procedures, and maintain equipment and documentation needed to conduct timely inspections of campus buildings following a seismic event. The program will support rapid identification of unsafe structures, reduce risk to occupants and responders, and accelerate campus recovery operations.	2-4 years	Internal/HMA, FEMA BRIC	$25,000–$100,000	Office of Emergency Management, Facilities Services, & EH&S	Earthquake
4.8	High	**Emergency Transportation and Evacuation Support:** Develop and maintain a coordinated evacuation transportation plan utilizing the university's bus and vehicle fleet to support large-scale evacuations during regional disasters such as wildfires. The program will include pre-incident planning, identification of transportation assets, development of evacuation support protocols, coordination	1–3 years for planning and coordination; ongoing maintenance and exercises	Internal/FEMA Mitigation or Preparedness Grants, applicable transportation grants	$50,000–$250,000 depending on planning, training, and equipment needs.	Office of Emergency Management, Facilities Services, Transportation Services, Mountain Line, Flagstaff EM, & Coconino County EM	Transport Accident, wildland fire

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
		with local emergency management partners, and training for drivers and operational staff. The program may also include upgrades to fleet communication systems, planning for staging and routing, and integration with campus and city/regional evacuation plans to assist both the university and surrounding community.					

Table 5-44: City of Page Mitigation Action Plan

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
5.1	High	Evaluate city/County and non-city/County facilities identified as potential shelter sites for structural integrity.	2 Years	General Fund	N/A	Emergency Services and Building-Safety	All
5.2	High	Identify and pursue funding opportunities to develop and implement local mitigation activities.	1 Year	General Fund	Requires Study	Emergency Services/ Public Works / County Emergency Mgmt	All
5.3	High	Enforcement and/or implementation of modern building codes to regulate new development to mitigate against loss.	1-2 Years	General Fund	Requires study	Community Development/ Building and Engineering Department	All
5.4	High	Coordinate with local stakeholders and partners for the enhancement of public outreach and awareness regarding regional hazards and mitigation actions community members can implement for self-reliance and protection to property and life safety.	1 Year	N/A	N/A	All departments and local stakeholders	All
5.5	High	Place more stress on the risks associated with natural and manmade hazards in public awareness campaigns conducted by various County/city departments (i.e. partner with local insurance agencies to hold workshops for property owners to educate about the Flood and Earthquake Insurance Programs and its requirements).	1 Year	HMGP Grant	Requires study	All Departments	Earthquake, flood
5.6	High	Develop a public awareness program. Handouts and presentations will be developed and presented at area clubs, schools, and other public gatherings. Goals of the project shall include increasing public support for funding disaster	1 Year	Local and/or County budget	$500	Emergency Services/ Public Information Officer	All

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
		preparation, educating the public what to do in case of a disaster, and increasing public awareness as to how public safety agencies will respond in a disaster.					
5.7	High	The city will develop a plan and pamphlets and implement a public information program that will identify the following: Who can apply? What types of emergencies can be applied for? Where to apply?	1 Year	General Fund/ Hazard Mitigation Grant Program	$500	Risk Management/ Human Resources/ Public Information Officer	All
5.8	High	Identify water resources management and conservation opportunities.	1 Year	AZDWR Grants/ BRIC	Requires study	Page Utility Enterprises /Public Works	All
5.9	High	Design and construct drainage structures for problem flood areas throughout the city to prevent flooding of properties and buildings.	5 Years	HMGP Grant	Requires study	Engineering/ Public Works	Flood
5.10	High	Water supply system upgrade. This project is to upgrade the current pumping units and possibly identify an alternative lower-level intake with a new pumping system and a separate pipeline to deliver water to the water treatment plant. This will allow for dependability and a backup to the current system. It will also provide water if lake level drops below current intake levels.	1-10 Years	AZDWR Grants/ BRIC	Requires study	Engineering/ Page Utility Enterprises/ City Engineer	Flood, pipeline failure
5.11	High	Maintain cloud storage for vital records and data to allow access if government servers are disrupted.	1 Year	Local	N/A	IT	Extended power outage
5.12	High	Partner with local insurance agencies to hold workshops for property owners to educate about Flood Insurance Programs and their requirements. Community Development performs this function through NEIPA and the Engineering Division for flood only.	1 Year	General Fund	Requires study	Community Development	Flood
5.13	High	The city will develop a plan and mutual aid agreement with the state, County, Navajo Nation, National Park Service, and other governmental entities as necessary to implement mitigation actions.	2 Years	Local/tribal/county/NPS Funds	Requires study	Legal/City Manager	All
5.14	High	Continue County partnership and support with local government, NGO and non-profits to maintain and build upon our cadre of committed, trained, volunteers to augment	1 Year	N/A	N/A	Emergency Services	All

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
		disaster response and recovery efforts in compliance with Arizona Disaster Service Worker program guidance (e.g. shelter workers, animal rescue and care, Community Emergency Response Team, communications staff, medical and health, and human service providers).					
5.15	High	Develop a disaster debris plan.	1 Year	N/A	N/A	Emergency Services/ Public Works	All
5.16	Med	Budget for maintenance and replacement of County/city owned fire and police stations.	1-5 Years	General Fund/ EMPG	Requires study	Public Works	All
5.17	High	Build a cadre of committed, trained volunteers to augment disaster response and recovery efforts in compliance with Arizona Disaster Service Worker program guidance (e.g. shelter workers, animal rescue and care, CERT, communications staff, medical, and health, and human services), during and after a disaster.	1 Year	General Fund/ EMPG	Requires Study	Emergency Services	All
5.18	High	Provide equipment and other resources sufficient to provide initial response to major road, air, HAZMAT, and mass casualty incidents.	Ongoing	General Fund	N/A	Fire Department	All

Table 5-45: Tusayan Mitigation Action Plan

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
6.1	High	Evaluate town/County and non-town/County facilities identified as potential shelter sites for structural integrity.	1-5 Years	General Fund	$500	Facilities & Grounds	All
6.2	High	Identify and pursue funding opportunities to develop and implement local mitigation activities.	1-5 Years	TFD Budget & General Fund	$1.000	Management and Support / County Emergency Mgmt	All
6.3	High	Develop a public outreach and awareness program about regional hazards and mitigation actions community members can do in their homes.	Ongoing	TFD Budget & General Fund	Requires Study	PIO/ Management and Support	All
6.4	High	Increase public awareness of the natural, human-caused, and technological hazards to businesses as a means to reduce the potential damage from each hazard through educational and outreach. Maintain a resource center accessible to the public at key	Ongoing	TFD Budget & General Fund	Requires Study	Manager Support/Town Manager/PIO	All

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
		government facilities. Provide information on government websites and social media accounts.					
6.5	High	Place more stress on the risks associated with natural and manmade hazards in public awareness campaigns conducted by various County/town departments.	1-5 Years	TFD Budget & General Fund	$500	All departments	All
6.6	High	Tusayan Fire Department Digital Newsletter: Explain hazards of smoke/carbon dioxide (CO2), fireplaces, chimneys, cleaning, and fire hazards. Regularly scheduled cleaning of chimneys. Smoke/CO2 detector maintenance program (as a follow up to the previous month's safety topic). Smoke and CO2 detectors use and maintenance. Explanation of two (2) types of detectors. Regularly scheduled replacement of batteries and testing.*	Ongoing	TFD Budget	Requires Study	Tusayan Fire District	All
6.7	High	Seek to implement codes, standards, and policies that will protect life and property from the impacts of hazards.	1-5 Years	General Fund	Requires Study	Planning & Zoning / Manager Support	All
6.8	High	Integrate appropriate items from the MJHMP into the Safety Element of the General Plan as being updated and other regulatory documents as appropriate.	1-5 Years	General Fund	Requires Study	Mayor Council/ Manager Support	All
6.9	High	Maintain cloud storage for vital records and data to allow access if government servers are disrupted.	1-5 Years	General Fund	Requires Study	Manager Support	Extended power outage
6.10	High	Coordinate with the utility companies, ADOT, and vendors to strengthen, safeguard, or take other appropriate measures such as providing supplemental services, to protect and secure high-voltage lines, water, sewer, natural gas and petroleum pipelines, and trunk electrical and telephone conduits from hazards.	Ongoing	General Fund / Grants / Partner Funds	Requires Study	Facilities	Extended power failure, flood, pipeline failure
6.11	High	Continue to incorporate the outcomes of the Engineering Assessment and Hydrological Analysis for the drainage improvements, as now embodied in the Drainage Master Plan, in future infrastructure and development	1-10 Years	Town, County, Grants: Flood Mitigation Program	$60M	Town Administration / Flood Control District	Drought, flood

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
		projects. Utilize Local Flood Plain Map in conjunction with FEMA Flood Plain Map as regulatory framework within the Town. Pursue state and federal grant opportunities to assist with funding to construct drainage improvements on-forest and within the corporate boundaries of the Town.					
6.12	High	Continue to develop mutual aid agreements and memorandum of understanding with agencies to serve emergency and disaster purposes.	1-3 Years	TFD Budget	Requires Study	Town Manager / Tusayan Fire District / County Emergency Mgmt	Flood
6.13	Med	Collaborate with partners and service providers to identify and implement water resource management and conservation opportunities as applicable.	1-5 Years	General Fund	Requires Study	Facilities and Maintenance	All
6.14	High	Build a cadre of committed, trained volunteers to augment disaster response and recovery efforts in compliance with Arizona Disaster Service Worker program guidance (e.g. shelter workers, animal rescue and care, Community Emergency Response Team, communications staff, medical and health, and human services), during and after a disaster.	Ongoing	General Fund	Requires Study	Parks & Rec/ Manager Support/ Tusayan Fire District	All
6.15	High	Develop an emergency preparedness network for community members (and visitors) to access food, water, communications, warming/cooling stations in times of emergent need.	Ongoing	General Fund	Requires Study	Manager Support/ County Sheriff's Office	All
6.16	Med	Continue to work with ADOT and Emergency Services to mitigate hazards associated with high traffic on Hwy 64 outside and within town limits	Ongoing	General Fund/ AZDOT Grant	Requires Study	Town of Tusayan, Tusayan Fire District, ADOT	All
6.17	High	Build a cadre of committed, trained volunteers to augment disaster response and recovery efforts in compliance with Arizona Disaster Service Worker program guidance (e.g. shelter workers, animal rescue and care, CERT, communications staff, medical, and health, and human services), during and after a disaster.	1 Year	General Fund/ EMPG	Requires Study	Emergency Services	All
6.18	High	Provide equipment and other resources sufficient to provide initial response to major road,	Ongoing	General Fund	N/A	Fire Department	All

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
		air, HAZMAT, and mass casualty incidents.					

Table 5-45: Williams Mitigation Action Plan

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
7.1	High	Evaluate city/County and non-city/County facilities identified as potential shelter sites for structural integrity.	12-18 Months	FEMA HMGP or BRIC; City Capital Improvements; potential County cost-share	Requires Study	Building & Safety/ Planning	All
7.2	High	Identify and pursue funding opportunities to develop and implement local mitigation activities.	Ongoing	FEMA BRIC, HMGP, FMA; USDA Rural Development; State of Arizona grants	N/A	Emergency Services	All
7.3	High	Enforcement of floodplain management requirements, including regulating all and substantially improved construction in floodplains to reduce the losses to property and people.	Ongoing	General Fund; National Flood Insurance Program (NFIP) participation	Staff time within existing operations	Planning and Building Code Enforcement/ Building Official	All
7.4	High	Continue to enforce zoning and building codes through current site plan, subdivision, and building permit review processes to reduce the effects of drought, flood, severe wind, wildland fire, and other hazards on new buildings and infrastructure.	Ongoing	General Fund	Staff time within existing operations	Planning and Building Code Enforcement/ Building Official	All
7.5	High	Enforcement of the newly adopted Defensible Space Ordinance for the protection of future and existing structures within the wildland urban interface.	Ongoing	General Fund; Arizona Department of Forestry & Fire Management grants (outreach/support)	$15,000	Planning and Building Code Enforcement/ Building Official	All
7.6	High	Increase public awareness of dam failure hazards and mitigation measures to address them.	12 months to develop outreach materials; ongoing updates	FEMA Risk MAP; General Fund; partner agency support	$10,000	Emergency Services	All
7.7	High	Perform fuel thinning around water treatment plant to create a wildland fire defensible space perimeter and install exterior sprinkler system on the structures and site perimeter.	18–24 months	FEMA BRIC; Arizona Department of Forestry & Fire Management; City Capital Improvements	Requires Study	Public Works	All
7.8	High	Bill Williams Mountain Steep Slope forest restoration treatments to reduce threat from catastrophic wildland fires and post-wildfire flooding.	5-10 Years	Coconino County Flood Control District; U.S. Forest Service; State	Requires Study	Coconino County Flood Control District Administrator / Coconino County	All

#	Priority	Action Description	Timeline	Funding Source	Estimated Cost	Implementing Department	Related Hazards
				and federal mitigation grants		Forest Restoration Director	
7.9	High	Continue to develop mutual aid agreements and memorandum of understanding with agencies to serve emergency and disaster purposes.	12–24 Months	General Fund	N/A	City Attorney/ Emergency Services	Flood
7.10	High	Create new storage facilities for effluent to be used for irrigation and emergency wildland fire protection.	3–5 Years	FEMA HMGP; USDA Rural Development; Water Enterprise Fund	Requires Study	Public Works	Flood

5.4.3 Planning and Regulatory Capabilities

These include local ordinances, policies and laws to manage growth and development. Examples include land use plans, capital improvement plans, transportation plans, emergency preparedness and response plans, building codes and zoning ordinances. Based upon the specific authorities contained in each of these planning and regulatory capabilities, they may be used to support mitigation activities.

Table 5-2: Planning and Regulatory Capability Assessment for Coconino County

PLANS	**Yes/No Year**	**Does the plan address hazards? Does the plan ID project to include in the mitigation strategy? Can the plan be used to implement mitigation actions?**
Capital Improvements Plan	Yes	2015. Yes, it addresses all hazards, identifies projects and includes mitigation strategies, and can be used to implement mitigation actions.
Community Wildfire Protection Plan	Yes	Yes, these plans address hazards, and provide for identification of values, risks and threats, identify projects to include in the mitigation strategy, community preparedness and protection capability, and implementation and monitoring actions. CWPP's currently exist for Tusayan (2013), Blue Ridge area and Mogollon Rim, Greater Flagstaff Area. This plan also covers communities in the Coconino and Kaibab National Forests of Coconino County.
Comprehensive/Master Plan	Yes	Yes, it addresses all hazards, identifies projects and includes mitigation strategies, and can be used to implement mitigation actions. It is currently being updated.
Continuity of Operations Plan	Yes	Yes, it addresses all hazards and is always in a state of being updated.
Economic Development Plan	Yes	No, the plan does not address hazards. However, the plan includes Action Initiative Items, including a Land and Natural Environment category to which mitigation actions can be added.
Emergency Operations Plan	Yes	Yes, it addresses all hazards. Yes, it can be used to implement mitigation actions via application of applicable ESF Annexes.
Stormwater Management Plan	Yes	Yes, it addresses all hazards, identifies projects in the mitigation strategy, and can be used to implement mitigation actions. This is included in County ordinances.
Transportation Plan	Yes	Yes, it addresses all hazards, identifies projects and includes mitigation strategies, and can be used to implement mitigation actions.
How can these capabilities be expanded and improved to reduce risk?		Plan reviews and updates will include consideration of the hazards identified in the MJHMP including new hazards in the 2026 update.
BUILDING CODES, PERMITTING, INSPECTIONS	**Yes/No**	**What type of codes? Are codes adequately enforced?**
Building Codes	Yes	The 2018 IBC Code Suite. Yes, codes are adequately enforced.
Site plan review requirements	Yes	Yes, codes are adequately enforced.

How can these capabilities be expanded and improved to reduce risk?		Codes and requirements will be reviewed based on developing trends in identified hazards and mitigation measures that can make them more effective at preventing losses.
LAND USE PLANNING & ORDINANCES	**Yes/No**	**Is the ordinance effective for reducing hazard impacts?** **Is the ordinance adequately administered and enforced?**
Floodplain ordinance	Yes	Yes, 2023 updated 2025.
Subdivision ordinance	Yes	Yes, 2019
Zoning ordinance	Yes	Yes, 2026
How can capabilities be expanded and improved to reduce risk?		Planning and land use regulations will be reviewed based on developing trends in identified hazards and mitigation measures that can make them more effective at preventing losses.

Table 5-3: Planning and Regulatory Capability Assessment for Flagstaff

PLANS	**Yes/No Year**	**Does the plan address hazards?** **Does the plan ID projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?**
Capital Improvements Plan	Yes/Five (5) year plan updated annually	Yes to all.
(Greater Flagstaff Area) Community Wildfire Protection Plan	Yes/Updated in 2026	Yes to all.
Comprehensive/Master Plan (Flagstaff Regional Plan)	Yes/2025	Yes, No, No
Continuity of Operations Plan	Yes/2026	Yes, Yes, Yes
Economic Development Plan	Yes/2024	Yes, No, No
Emergency Operations Plan	Yes/2023	Yes, No, Yes
Stormwater Management Plan	Yes/Annually	Yes to all.
Transportation Plan	Yes/2022	Yes to all.
How can these capabilities be expanded and improved to reduce risk?		Plan reviews and updates will include consideration of the hazards identified in the MJHMP including new hazards in the 2026 update.

BUILDING CODES, PERMITTING, INSPECTIONS	Yes/No	What type of codes? Are codes adequately enforced?
Building Codes	Yes	2018 International Building Code, 2018 International Plumbing Code, 2018 Int'l Fuel Gas Code, 2018 International Residential Code, 2018 International Mechanical Code, 2018 International Existing Building Code, 2018 International Energy Conservation Code, 2018 International Swimming Pool & Spa Code, 2018 International Solar Energy Provisions, 2017 NFPA70/National Electric Code, ICC A117.1-2017 Accessible and Usable Buildings & Facilities, 1997 Uniform Code for the Abatement of Dangerous Buildings, 1997 Uniform Administrative Code, 1997 Uniform House Code. Codes are adequately and appropriately enforced through the Code Enforcement Section.
Site plan review requirements	Yes	
COF Wildland Urban Interface Code	Yes	Yes, codes adopted by the city council in 2008
How can these capabilities be expanded and improved to reduce risk?		Codes and requirements will be reviewed based on developing trends in identified hazards and mitigation measures that can make them more effective at preventing losses.
LAND USE PLANNING & ORDINANCES	**Yes/No**	**Is the ordinance effective for reducing hazard impacts? Is the ordinance adequately administered and enforced?**
Floodplain ordinance	Yes	Yes to both.
Subdivision ordinance	Yes	Yes to both.
Zoning ordinance	Yes	Yes to both.
How can these capabilities be expanded and improved to reduce risk?		Plan reviews and updates will include consideration of the hazards identified in the MJHMP including new hazards in the 2026 update.

Table 5-4: Planning and Regulatory Capability Assessment for Fredonia

PLANS	Yes/No Year	Does the plan address hazards? Does the plan ID projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Capital Improvements Plan	No	N/A
Community Wildfire Protection Plan	No	N/A
Comprehensive/Master Plan	Yes, 1994	General Plan is in process of being updated.
Continuity of Operations Plan	No	N/A
Economic Development Plan	No	N/A
Emergency Operations Plan	Yes, 1986	Yes to all
Stormwater Management Plan	No	N/A
Transportation Plan	No	N/A

How can these capabilities be expanded and improved to reduce risk?		Plan reviews and updates will include consideration of the hazards identified in the MJHMP including new hazards in the 2021 update.
BUILDING CODES, PERMITTING, INSPECTIONS	**Yes/No**	**What type of codes? Are codes adequately enforced?**
Building Codes	Yes	Town Code Chapter 151.
Site plan review requirements	Yes	Town Code Chapter 153.
How can these capabilities be expanded and improved to reduce risk?		Codes and requirements will be reviewed based on developing trends in identified hazards and mitigation measures that can make them more effective at preventing losses.
LAND USE PLANNING & ORDINANCES		**Is the ordinance effective for reducing hazard impacts? Is the ordinance adequately administered and enforced?**
Floodplain ordinance	Yes	Yes to both.
Subdivision ordinance	Yes	Yes to both.
Zoning ordinance	Yes	Yes to both.
How can these capabilities be expanded and improved to reduce risk?		Plan reviews and updates will include consideration of the hazards identified in the MJHMP including new hazards in the 2026 update.

Table 5-5: Planning and Regulatory Capability Assessment for Page

PLANS	**Yes/No Year**	**Does the plan address hazards? Does the plan ID projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?**
Capital Improvements Plan	Yes	No, No, No
Community Wildfire Protection Plan	No	N/A
Comprehensive/Master Plan	No	N/A
Continuity of Operations Plan	Yes	Yes, No, Yes
Economic Development Plan	Yes	No, No, No
Emergency Operations Plan	Yes	Yes, No, Yes
Stormwater Management Plan	Yes	No, No, No
Transportation Plan	Yes	No, No, No
How can these capabilities be expanded and improved to reduce risk?		Plan reviews and updates will include consideration of the hazards identified in the MJHMP including new hazards in the 2026 update.

BUILDING CODES, PERMITTING, INSPECTIONS	Yes/No	What type of codes? Are codes adequately enforced?
Building Codes	Yes	2018 IBC, IRC, IPC, IMC, IFC, 2017 National Electric Code, 2020 City Code, Yes
Site plan review requirements	Yes	Planning and Zoning Ordinance, Yes
How can these capabilities be expanded and improved to reduce risk?		Codes and requirements will be reviewed based on developing trends in identified hazards and mitigation measures that can make them more effective at preventing losses.
LAND USE PLANNING & ORDINANCES	**Yes/No**	**Is the ordinance effective for reducing hazard impacts? Is the ordinance adequately administered and enforced?**
Floodplain ordinance	Yes	Yes to both.
Subdivision ordinance	Yes	Yes to both.
Zoning ordinance	Yes	Yes to both.
How can these capabilities be expanded and improved to reduce risk?		Plan reviews and updates will include consideration of the hazards identified in the MJHMP including new hazards in the 2026 update.

Table 5-6: Planning and Regulatory Capability Assessment for Tusayan

PLANS	Yes/No Year	Does the plan address hazards? Does the plan ID projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Capital Improvements Plan	Yes	Yes to all. Capital Improvements budget that addresses drainage and street improvements, as well as monies to assist with grant for wildland fire mitigation.
Community Wildfire Protection Plan	Yes, 2026	Yes to all. Tusayan Fire District.
Comprehensive/Master Plan	Yes, 2014	Yes to all. The town adopted a General Plan in 2014 (due for updates).
Continuity of Operations Plan	No	N/A
Economic Development Plan	No	Policies noted in General Plan.
Emergency Operations Plan	Yes	Yes to all. Included within the current Coconino County Emergency Operations Plan.
Stormwater Management Plan	Yes	Yes to all. Included within the current County and the Grand Canyon National Park Airport operated by ADOT, has a storm water management plan unique to the airport facility.
Transportation Plan	Yes	General Plan has a transportation element which can be used to aid in mitigation actions, but no plan to address specific hazards (due for updates).
BUILDING CODES, PERMITTING, INSPECTIONS	**Yes/No**	**What type of codes? Are codes adequately enforced?**
Building Codes	No	Yes to all. Current application of IBC 2018
Site plan review requirements	Yes	Yes to all. Willdan & Woodson Engineering Firms fulfill these needs.

LAND USE PLANNING & ORDINANCES		Is the ordinance effective for reducing hazard impacts? Is the ordinance adequately administered and enforced?
Floodplain ordinance	Yes	Tusayan is included in the Coconino County ordinance of 2025.
Subdivision ordinance	Yes/2016	N/A
Zoning ordinance	Yes	Adopted on December 5, 2012, and in the process of updating.
How can capabilities be expanded and improved to reduce risk?		Town staff will review and draft policies, plans and other documents (to better address hazard mitigation strategies) and present to leadership for review. Town staff will identify areas within their regulations to increase a greater level of enforcement and to implement projects and practices to reduce risks for hazards.

Table 5-7: Planning and Regulatory Capability Assessment for Williams

PLANS	Yes/No Year	Does the plan address hazards? Does the plan ID projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Capital Improvements Plan	Yes 2008	Yes, it addresses all hazards, identifies projects and includes mitigation strategies, and can be used to implement mitigation actions.
Community Wildfire Protection Plan	Yes	WFAC
Comprehensive/Master Plan	Yes	Yes, it addresses all hazards, identifies projects and includes mitigation strategies, and can be used to implement mitigation actions. It is currently being updated.
Continuity of Operations Plan	No	N/A
Economic Development Plan	Yes/2023	
Emergency Operations Plan	No	Uses the County Emergency Operations Plan.
Stormwater Management Plan	Yes/2019	Yes, it addresses all hazards, identifies projects in the mitigation strategy, and can be used to implement mitigation actions. This is included in county ordinances.
Transportation Plan	Yes/2008	Yes, it addresses all hazards, identifies projects and includes mitigation strategies, and can be used to implement mitigation actions.
How can these capabilities be expanded and improved to reduce risk?		Plan reviews and updates will include consideration of the hazards identified in the MJHMP including new hazards in the 2021 update.
BUILDING CODES, PERMITTING, INSPECTIONS	**Yes/No**	**What type of codes? Are codes adequately enforced?**
Building Codes	Yes/2024	2024, IBC, IRC, NEC, IFC, Yes
Site plan review requirements	Yes	Yes, codes are adequately enforced.

How can these capabilities be expanded and improved to reduce risk?		Codes and requirements will be reviewed based on developing trends in identified hazards and mitigation measures that can make them more effective at preventing losses.
LAND USE PLANNING & ORDINANCES		**Is the ordinance effective for reducing hazard impacts? Is the ordinance adequately administered and enforced?**
Floodplain ordinance	Yes/2008	Yes to both.
Subdivision ordinance	Yes/2008	Yes to both.
Zoning ordinance	Yes/2008	Yes
How can these capabilities be expanded and improved to reduce risk?		Plan reviews and updates will include consideration of the hazards identified in the MJHMP including new hazards in the 2026 MJHMP update.

5.5 Administrative and Technical Capabilities

These capabilities include community (public and private) staff and their skills and tools which can be used for mitigation planning and implementation. This capability includes engineers, planners, emergency managers, GIS analysts, building inspectors, grant writers, and floodplain managers. Small communities may rely on other government entities such as counties or special districts for resources. Based upon the specific expertise contained in each of these administrative and technical capabilities, they may be used to support mitigation activities.

Table 5-8: Administrative and Technical Capability Assessment for Coconino County

ADMINISTRATION	**Yes/No**	**Describe capability. Is coordination effective?**
Mutual aid agreements	Yes	Yes, the County participates in the AZMAC (Arizona Mutual Aid Compact).
Planning Commission	Yes	They are effective in communication with the Board of Supervisors.
TECHNICAL STAFF	**Yes/No FT/PT**	**Are staff trained on hazards and mitigation? Is coordination between agencies and staff effective? Have skills/expertise been used to assess/mitigate risk in the past?**
Building Official	Yes	Yes, to all.
Community Planner	Yes	Yes, to all.
Emergency Manager	Yes	Yes, to all.
Engineer	Yes	Yes, to all.
Floodplain Manager/Administrator	Yes	Yes, to all.
GIS/HAZUS Coordinator	Yes	Yes, to all.
How can capabilities be expanded and improved to reduce risk?		By continuing to utilize and seek improved methods for including the necessary technical and planning staff in the development and updates of emergency operations plans, financial planning and mitigation

	planning efforts. An important component is the use of trained grant writers with the knowledge and skill sets to research and apply for federal funding opportunities.

Table 5-9: Administrative and Technical Capability Assessment for Flagstaff

ADMINISTRATION	**Yes/No**	**Describe capability.** **Is coordination effective?**
Mutual aid agreements	Yes	Agreements are in place with multiple Jurisdictions; The COF joined AZMAC and revised the Greater Flagstaff Fire Service Mutual Aid IGA. Agreements are effective in assisting with mitigation.
Planning (and Zoning) Commission	Yes	Advisory board to the council on matters related to growth and physical development of the city; conducts public hearings on amendments to the zoning map, and public meetings on preliminary subdivision plans.
Board of Adjustment	Yes	Hears and decides appeals of staff determinations of the Zoning Code.
TECHNICAL STAFF	**Yes/No** **FT/PT**	**Are staff trained on hazards and mitigation?** **Is coordination between agencies and staff effective?** **Have skills/expertise been used to assess/mitigate risk in the past?**
Building Official	Yes/FT	Yes to all.
Planning Director (and Staff)	Yes/FT	Yes to all.
Emergency Manager	Yes/FT	Yes to all.
City Engineer (and Staff)	Yes/FT	Yes to all.
Floodplain Manager/Administrator	Yes/FT	Yes to all.
GIS/HAZUS Coordinator	Yes/FT	No, Yes, Yes
Grant writer	Yes/FT	Yes to all. (Disaster Recovery Management also)
Firewise Specialist	Yes/FT	Yes to all.
How can capabilities be expanded and improved to reduce risk?		Additional training of staff in hazard mitigation and financial resources to pursue mitigation projects.

Table 5-10: Administrative and Technical Capability Assessment for Fredonia

ADMINISTRATION	**Yes/No**	**Describe capability.** **Is coordination effective?**
Mutual aid agreements	Yes	With Kane county, help when needed. Adoption of AZMAC is pending for July 2026.
Planning Commission	Yes	Planning and Zoning meet monthly to ensure Code is followed for building and land usage.

TECHNICAL STAFF	Yes/No FT/PT	Are staff trained on hazards and mitigation? Is coordination between agencies and staff effective? Have skills/expertise been used to assess/mitigate risk in the past?
Building Official	Yes/ PT	Trained, has skills.
Community Planner	No	Town manager, trained, good coordination, has skills.
Emergency Manager	Yes/FT	Town Manager/ Deputy Marshal, trained, coordination effective, has skills.
Engineer	No	Public Works Director, coordination is effective, has training, has skills.
Floodplain Manager/Administrator	Yes/ FT	Public Works Director, coordination is effective, has training, has skills.
GIS/HAZUS Coordinator	No	N/A
Grant writer	Yes	No mitigation training, coordination is effective, no.
How can capabilities be expanded and improved to reduce risk?		Additional training of staff in hazard mitigation and financial resources to pursue mitigation projects.

Table 5-11: Administrative and Technical Capability Assessment for Page

ADMINISTRATION	Yes/No	Describe capability. Is coordination effective?
Mutual aid agreements	Yes	Provide assistance to local agencies. Yes/ Adoption of AZMAC is pending for July 2026.
Planning Commission	Yes	Voting and public input. Yes.
TECHNICAL STAFF	**Yes/No FT/PT**	**Are staff trained on hazards and mitigation? Is coordination between agencies and staff effective? Have skills/expertise been used to assess/mitigate risk in the past?**
Building Official	FT	Yes to all.
Community Planner	FT	Yes to all.
Emergency Manager	NO	Yes to all.
Engineer	FT	Yes to all.
Floodplain Manager/Administrator	Yes	Yes to all.
GIS/HAZUS Coordinator	No	N/A
Grant writer	No	N/A
How can capabilities be expanded and improved to reduce risk?		Additional training of staff in hazard mitigation and financial resources to pursue mitigation projects.

Table 5-12: Administrative and Technical Capability Assessment for Tusayan

ADMINISTRATION	Yes/No	Describe capability. Is coordination effective?
Mutual aid agreements	Yes	Coconino County, Kaibab National Forest, National Park Service, ADOT and others. Adoption of AZMAC is pending for July 2026.
Planning and Zoning Commission	Yes	Planning Commission established in 2012 with Zoning Ordinance
TECHNICAL STAFF	**Yes/No FT/PT**	**Are staff trained on hazards and mitigation? Is coordination between agencies and staff effective? Have skills/expertise been used to assess/mitigate risk in the past?**
Building Official	Yes	Yes to all. Willdan performs building services under the direction of the Interim Town Engineer
Community Planner	Yes	Yes to all. Willdan performs planning functions under the direction of the Interim Town Engineer.
Emergency Manager	Yes	Yes to all. The town manager works in consultation with the County Emergency Management.
Engineer	Yes	Yes to all. Interim town engineer.
Floodplain Manager/Administrator	Yes	Yes to all. Tusayan included within the County agreement.
GIS/HAZUS Coordinator	Yes	Yes to all. Included within the County agreement.
Grant writer	Yes	Yes to all. Town manager and clerk perform grant writing functions.
How can capabilities be expanded and improved to reduce risk?		Making leadership and employees aware of the town's Hazard Mitigation Plan and having employees take advantage of County and state training. Address the CERT team concept with the County Sherriff's Office to assist community with any hazard.

Table 5-13: Administrative and Technical Capability Assessment for Williams

ADMINISTRATION	Yes/No	Describe capability. Is coordination effective?
Mutual aid agreements	Yes	Communications, Inner OP, DPS, SO (EOC), Yes. Adoption of AZMAC is pending for July 2026.
Planning Commission	Yes	Implement new ordinances, yes
TECHNICAL STAFF	**Yes/No FT/PT**	**Are staff trained on hazards and mitigation? Is coordination between agencies and staff effective? Have skills/expertise been used to assess/mitigate risk in the past?**
Building Official	Yes/FT	Yes to all.
Community Planner	Yes/FT	Yes to all.
Emergency Manager	Yes/FT	Yes to all. Fire Chief works in consultation with County Emergency Management.
Engineer	Yes	Off site.

Floodplain Manager/Administrator	Yes/FT	Yes to all.
GIS/HAZUS Coordinator	No	N/A
Grant writer	Yes/No	Williams PD, not the city.
How can capabilities be expanded and improved to reduce risk?		By continuing to utilize and seek improved methods for including the necessary technical and planning staff in the development and updates of emergency operations plans, financial planning and mitigation planning efforts. An important component is the use of trained grant writers with the knowledge and skill sets to research and apply for federal funding opportunities.

5.5.1 Financial Capabilities

Table 5-14 contains a list of administrative and financial capabilities available to Coconino County. Based upon procedures for each resource, these financial capabilities may be used to support mitigation activities.

Table 5-14: Financial Capability Assessment for Coconino County

FINANCIAL	Yes/No	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Hazard Mitigation Grant Program (HMPG)	Yes	Yes for hazardous vegetative fuels removal, Yes
Pre-Disaster Mitigation grant program (PDM)	Yes	
Flood Mitigation Assistance grant program (FMA)	Yes	Yes for post wildfire flooding, Yes
Capital improvements project funding	Yes	Funding source has been used in past for roads and flood control and could be used for future mitigation actions.
Community Development Block Grant	Yes	This source has been used for low-income housing rehabilitation and could be used for future mitigation actions.
Authority to levy taxes for specific purposes	Yes	Yes, examples include the recently passed Proposition 403 (road maintenance sales tax), Flood Control Tax was upgraded in 2011, and the 2012 Public Health District tax. These sources of revenue could be used for future mitigation actions.
Impact fees for new development	No	N/A
Incur debt through special tax bond	Yes	Yes, an example is the use by facilities for courthouse remodel. This source could be used for future mitigation actions.
Incur debt through general obligation bonds	Yes	This has not been used in the past but that is a possibility for future needs.
How can capabilities be expanded and improved to reduce risk?		Apply for FEMA program grants. Develop new and creative ways to acquire funding such as new legislation proposals to open the doors for improved funding opportunities.

Table 5-15: Financial Capability Assessment for Flagstaff

FINANCIAL	Yes/No	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Hazard Mitigation Grant Program (HMPG)	Yes	
Pre-Disaster Mitigation grant program (PDM)	Yes	
Flood Mitigation Assistance grant program (FMA)	Yes	
Capital improvements project funding	Yes	Yes, transportation improvement projects, Stormwater/winter storm drainage projects, water supply and storage protection, fire prevention/protection, Yes
Community Development Block Grant	Yes	No, Possibly
Authority to levy taxes for specific purposes	Yes	Yes, Yes
Impact fees for new development	Yes	Yes, Limited to public safety Equipment and facilities, No
Incur debt through special tax bond	Yes	Yes, public safety radio system bond, Flagstaff Watershed Protection Program (FWPP) bond, road repair and street safety tax, Yes
Incur debt through general obligation bonds	Yes	Yes, forest fuels treatments, $16.5M in street/utility improvements, $42M for municipal services maintenance facility, Yes
How can capabilities be expanded and improved to reduce risk?		Apply for FEMA program grants. Develop new and creative ways to acquire funding such as new legislation proposals to open the doors for improved funding opportunities.

Table 5-16: Financial Capability Assessment for Fredonia

FINANCIAL	Yes/No	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Hazard Mitigation Grant Program (HMPG)	Yes	
Pre-Disaster Mitigation grant program (PDM)	Yes	
Flood Mitigation Assistance grant program (FMA)	Yes	
Capital improvements project funding	Yes	Funding sources previously used for infrastructure could be used for mitigation.
Community Development Block Grant	Yes	Infrastructure, possibly.
Authority to levy taxes for specific purposes	No	No town property tax.
Impact fees for new development	Yes	No impact fees currently, just hookup fees for utilities.
Incur debt through special tax bond	No	N/A
Incur debt through general obligation bonds	Yes	Not in use currently.
How can capabilities be expanded and improved to reduce risk?		Apply for FEMA program grants. Develop new and creative ways to acquire funding such as new legislation proposals to open the doors for improved funding opportunities.

Table 5-17: Financial Capability Assessment for Page

FINANCIAL	Yes/No	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Hazard Mitigation Grant Program (HMPG)	Yes	
Pre-Disaster Mitigation grant program (PDM)	Yes	
Flood Mitigation Assistance grant program (FMA)	Yes	
Capital improvements project funding	Yes	Yes, capital needs of the city, primarily Airport; yes, with council approval.
Community Development Block Grant	Yes	Yes, various community needs; no, usually the funding cycle is every four (4) years and funds are specifically allocated from the beginning of the cycle.
Authority to levy taxes for specific purposes	Yes	Yes, to pay off existing bond debt; with council approval and direction.
Impact fees for new development	No	N/A
Incur debt through special tax bond	Yes	Yes, to construct city facilities; yes, with council direction.
Incur debt through general obligation bonds	No	N/A
How can capabilities be expanded and improved to reduce risk?		Apply for FEMA program grants. Develop new and creative ways to acquire funding such as new legislation proposals to open the doors for improved funding opportunities.

Table 5-18: Financial Capability Assessment for Tusayan

FINANCIAL	Yes/No	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	Yes	Yes to both questions. Town does have a capital improvements budget
Community Development Block Grant	No	N/A
Authority to levy taxes for specific purposes	Yes	Yes to both questions.
Impact fees for new development	No	N/A
Incur debt through special tax bond	No	N/A
Incur debt through general obligation bonds	No	N/A
How can capabilities be expanded and improved to reduce risk?		Continue to identify and budget for specific improvements listed in the MJHMP as well as those identified by the community in future planning efforts.

Table 5-19: Financial Capability Assessment for Williams

FINANCIAL	Yes/No	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Hazard Mitigation Grant Program (HMPG)	Yes	
Pre-Disaster Mitigation grant program (PDM)	Yes	
Flood Mitigation Assistance grant program (FMA)	Yes	
Capital improvements project funding	Yes	Yes, flood mitigation
Community Development Block Grant	Yes	Water infrastructure, housing
Authority to levy taxes for specific purposes	No	N/A
Impact fees for new development	No	N/A
Incur debt through special tax bond	No	N/A
Incur debt through general obligation bonds	No	N/A
How can capabilities be expanded and improved to reduce risk?		Apply for FEMA program grants. Increase of city financial resources, IGA's.

5.5.2 Education and Outreach Capabilities

Table 5-20 lists financial and public outreach capabilities. These capabilities include programs such as fire safety programs, hazard awareness campaigns, public information or communications offices. Education and outreach capabilities can be used to inform the public about current and potential mitigation activities.

Table 5-20: Education and Outreach Capability Assessment for Coconino County

PROGRAM / ORGANIZATION	Access / Eligibility (Yes/No)	Describe program/organization and how it relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
County Website and Social Media (PIO/PAO Programming	Yes	The County maintains a website and accounts with Facebook, Instagram, Twitter, and YouTube. County libraries, law enforcement, and fire/rescue agencies also maintain social media accounts. These resources are regularly used to convey hazard mitigation and disaster-related information to the public, as well as develop awareness of in-person and online events. They can be used to support future mitigation activities.
Firewise Communities certification	Yes	The Flagstaff Fire Dept and the individual Fire Depts/Districts within the County work in their respective communities to establish disaster resilience. These communities include Pine Canyon, Stoneman Lake, Sherwood Forest, Munds Park, Starlight Pines, The Meadows, Lockett Ranches, Sunset Vista, Flagstaff Ranch, Continental, Linwood Heights, Kachina Village, and Forest Highland. The Community Wildfire Protection Plans also serve to establish future mitigation projects and actions to support disaster resilience.

Storm Ready certification	Yes	The County Storm Ready Certification issued through the National Weather Service is current.
Citizen groups focused on emergency preparedness, environmental protection, etc.	Yes	CERT (Community Emergency Response Team), MRC (Medical Reserve Corps), Botanical and Conservation Institutions, ARES (Amateur Radio Emergency Services), Faith Based organizations such as the First Baptist support group, Salvation Army, and United Way of Northern Arizona. These organizations provide First Responder Support and Emergency Management and EOC support to local communities and local government during times of disaster and preparedness training for local needs.
Public education/information programs (fire safety, household preparedness, responsible water use, etc.)	Yes No (for water use)	The County frequently addresses public information needs through a variety of mechanisms. The local government organizations utilize a well-developed and coordinated PIO group with partners from all levels of government including city, county departments. and federal and state offices. This is especially effective during times of disaster. Coconino County Emergency Management utilizes public presentations and media outlets (e.g. radio, print) to provide public outreach on emergency preparedness. The County website is a primary tool for dissemination of public information.
Public-private partnership initiatives addressing disaster-related issues	Yes	Examples of organizations for this effort include VOAD (Volunteer Organizations Active in Disaster), LEPC (Local Emergency Planning Committee) for addressing hazardous materials issues, and PFAC (Ponderosa Fire Advisory Council) which brings together local, state, and federal fire resources to enhance efforts in pursuit of a Common Operating Picture for community fire protection.
How can capabilities be expanded and improved to reduce risk?		This can be accomplished by including the organizations in our public outreach, planning, training and overall preparedness efforts and real time events.

Table 5-21: Education and Outreach Capability Assessment for Flagstaff

PROGRAM / ORGANIZATION	Access / Eligibility (Yes/No)	Describe program/organization and how it relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
City Website and Social Media (PIO/PAO Programming)	Yes	The city maintains a website and accounts with Facebook and Twitter. Local libraries, law enforcement, and fire/rescue agencies also maintain social media accounts. These resources are regularly used to convey hazard mitigation and disaster-related information to the public, as well as develop awareness of in-person and online events. They can be used to support future mitigation activities.
Firewise (Fire-Adapted) Communities certification	Yes	Develops fire adapted communities; Yes, the County has 13 Firewise Communities (Pine Canyon, Stoneman Lake, Sherwood Forest, Munds Park, Starlight Pines, The Meadows, Lockett Ranches, Sunset Vista, Flagstaff Ranch, Continental, Linwood Heights, Kachina Village, and Forest Highlands)
Storm Ready certification	No	The County as a whole is certified; renewal is in July 2026
Citizen groups focused on emergency preparedness, environmental protection, etc.	Yes	Red Cross, Woods Watch, Emergency Operations Center Volunteers, Yes
Public education/information programs (fire safety, household preparedness, responsible water use, etc.)	Yes	Emergency notification system, stormwater public outreach, water conservation program, Firewise, city has a budget performance measurement the priority of “resiliency and preparedness efforts,” Yes

Public-private partnership initiatives addressing disaster-related issues	Yes	Red Cross, Pipeline Companies, FWPP, BNSF Railroad, Northern Arizona University, Purina companies, United Way of No Arizona, and various other non-profit agencies, Flagstaff Unified School District, Flagstaff Fire Occupancy Inspection Program.
How can capabilities be expanded and improved to reduce risk?		This can be accomplished by including the organizations in our public outreach, planning, training and overall preparedness efforts and real time events.

Table 5-22: Education and Outreach Capability Assessment for Fredonia

PROGRAM / ORGANIZATION	Access / Eligibility (Yes/No)	Describe program/organization and how it relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Town Website and Social Media (PIO/PAO Programming)	Yes	The town maintains a website and a Facebook account. Local libraries, law enforcement, and fire/rescue agencies also maintain social media accounts. These resources are regularly used to convey hazard mitigation and disaster-related information to the public, as well as develop awareness of in-person and online events. They can be used to support future mitigation activities.
Firewise Communities certification	No	N/A
Storm Ready certification	No	The County as a whole is certified; renewal is in July 2026
Citizen groups focused on emergency preparedness, environmental protection, etc.	Yes	Local faith-based groups are involved with education for emergency preparedness and organizing volunteers when needed.
Public education/information programs (fire safety, household preparedness, responsible water use, etc.)	Yes	Marshal's Office and Fire Department offer education on emergency preparedness, Fire Safety.
Public-private partnership initiatives addressing disaster-related issues	No	None currently.
How can capabilities be expanded and improved to reduce risk?		This can be accomplished by including the organizations in our public outreach, planning, training and overall preparedness efforts and real time events.

Table 5-23: Education and Outreach Capability Assessment for Page

PROGRAM / ORGANIZATION	Access / Eligibility (Yes/No)	Describe program/organization and how it relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
City Website and Social Media (PIO/PAO Programming)	Yes	The city maintains a website, as well as Facebook and YouTube accounts. Local libraries, law enforcement, and fire/rescue agencies also maintain social media accounts. These resources are regularly used to convey hazard mitigation and disaster-related information to the public, as well as develop awareness of in-person and online events. They can be used to support future mitigation activities.
Firewise Communities certification	No	N/A
Storm Ready certification	No	The County as a whole is certified; renewal is in July 2026
Citizen groups focused on emergency preparedness, environmental protection, etc.	No	N/A
Public education/information programs (fire safety, household preparedness, responsible water use, etc.)	Yes	Fire and life safety education, fire extinguisher training, Emergency preparedness. Yes.
Public-private partnership initiatives addressing disaster-related issues	No	N/A
How can capabilities be expanded and improved to reduce risk?		This can be accomplished by including the organizations in our public outreach, planning, training and overall preparedness efforts and real time events.

Table 5-24: Education and Outreach Capability Assessment for Tusayan

PROGRAM / ORGANIZATION	Access / Eligibility (Yes/No)	Describe program/organization and how it relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Town Website and Social Media (PIO/PAO Programming)	Yes	The town maintains a website and a Facebook account. Local libraries, law enforcement, and fire/rescue agencies also maintain social media accounts. These resources are regularly used to convey hazard mitigation and disaster-related information to the public, as well as develop awareness of in-person and online events. They can be used to support future mitigation activities.
Firewise Communities certification	No	N/A
Storm Ready certification	Yes	The County as a whole is certified; renewal is in July 2026
Citizen groups focused on emergency preparedness, environmental protection, etc.	No	N/A
Public education/information programs (fire safety, household preparedness, responsible water use, etc.)	Yes	The town provides certain public information, outreach, and training programs. Tusayan Fire District performs community outreach with the schools and pre-school education and works with businesses/community groups and with entities delineated in the County EOP.
Public-private partnership initiatives addressing disaster-related issues	Yes	The town has facilitated opportunities with partners such as Coconino Emergency Management. Examples include after action response exercises, evaluating communication assets, and stakeholder training and exercises related to regional disaster related issues.
How can capabilities be expanded and improved to reduce risk?		Participating in the Update of the MJHMP has helped identify areas where the Tusayan community can improve safety and mitigate possible hazards. This will aid in identifying specific projects and areas. Exercise and training will enhance partnerships, support and coordination and involvement with local resources (local state and federal). Targeted capital improvements will be essential as well.

Table 5-25: Education and Outreach Capability Assessment for Williams

PROGRAM / ORGANIZATION	Access / Eligibility (Yes/No)	Describe program/organization and how it relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
City Website and Social Media (PIO/PAO Programming)	Yes	The city maintains a website. Local libraries, law enforcement, and fire/rescue agencies also maintain social media accounts. These resources are regularly used to convey hazard mitigation and disaster-related information to the public, as well as develop awareness of in-person and online events. They can be used to support future mitigation activities.
Firewise Communities certification	No	N/A
Storm Ready certification	Yes	The County as a whole is certified; renewal is in July 2026
Citizen groups focused on emergency preparedness, environmental protection, etc.	No	N/A
How can capabilities be expanded and improved to reduce risk?		This can be accomplished by including the organizations in our public outreach, planning, training, and overall preparedness efforts and real time events.

Section 6: Maintenance Procedures

Elements of this section include:

- Monitoring, evaluating, and updating the MJHMP;
- Incorporation into existing plans and procedures;
- Continued public participation.

FEMA REGULATION CHECKLIST: PLAN MAINTENANCE

Documentation of the Planning Process
44 CFR § 201.6(c)(4)(i): A section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

44 CFR § 201.6(c)(4)(ii): A process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.

44 CFR § 201.6(c)(4)(iii): Discussion on how the community will continue public participation in the plan maintenance process.

Elements
D1. Is there discussion on how the community will continue public participation in the plan maintenance process? (Requirement 44 CFR § 201.6(c)(4)(iii))

D2. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement 44 CFR § 201.6(c)(4)(i))

D3. Does the plan describe a process by which each community will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement 44 CFR § 201.6(c)(4)(ii))

Source: FEMA, *Local Mitigation Planning Handbook,* June 2025.

Implementation and maintenance of the MJHMP is critical to the overall success of hazard mitigation planning. This section details the process that participating jurisdictions will use to monitor, update, and evaluate the plan within the five-year cycle of the plan's revision to ensure the MJHMP remains an active and relevant document. The format of the plan aligns with the regulation checklist and is divided into sections of information. When it is time to maintain or revise the MJHMP, data can be easily located and incorporated, resulting in an easy method to keep the plan current and relevant.

The Planning Team represents participating jurisdiction staff from and other stakeholders that contributed to the development of the 2026 MJHMP. The Planning Team oversaw the development of the MJHMP, and made recommendations on key elements of the MJHMP, including the maintenance strategy.

It was important that all members of the Planning Team be given the opportunity to provide input during MJHMP maintenance. This philosophy will continue for future plan revisions through evaluations, maintenance, and updates of data, processes, and programs. The Planning Team will convene annually to perform reviews of the MJHMP and its implementation. The Planning Team will include representation from residents, citizen groups, and stakeholders within the planning area. If Planning Team members can no longer serve in that role, the appropriate department director will assign another staff person to be on the Planning Team so that every participating jurisdiction is represented.

6.1 Continued Public Involvement

The overall success of the MJHMP is through implementation of the hazard mitigation strategy and activities to reduce the effects of hazards, protect people and property, and improve efforts to respond to and recover from disasters. Members of the public and the participating jurisdictions will ultimately benefit from the implementation of the MJHMP and must be given the opportunity to provide input to the continuous cycle of MJHMP planning.

Jurisdictions participating in the MJHMP will strive to keep the public aware of hazard mitigation projects that take place as a result of the plan. Public information will be released through press releases, website announcements, public hearings, board, council and commission meetings, and social media.

Projects that mitigate hazards are included in each jurisdiction's annual budget planning process. Workshops are held, meetings are convened, and the public is made aware of the planning through County Board and City / Town Council meetings, open workshop sessions, and press releases during this time. The budget planning process will serve as an annual opportunity to conduct outreach to the public on updates to the hazard mitigation planning process.

A survey can be developed to gather input on how the community feels about the progress being made on MJHMP activities. The participating jurisdictions will also provide press releases and information about hazard mitigation projects to the public on a regular basis, but at a minimum, the public will be engaged to learn about current MJHMP activities and given the opportunity to provide comments and information on an annual basis to update and maintain the MJHMP. The participating jurisdiction emergency managers are responsible for ensuring the public is included and involved in the annual plan evaluation and update.

Below is a sample list of additional public engagement efforts utilized by the participating jurisdictions to engage the public in hazard mitigation efforts and gather input.

- Coconino County Emergency Management Department participates in annual events such as the Coconino County Fair, other public events, and public outreach. It manages a booth at annual Home Shows, providing information on emergency preparedness and hazard awareness, as well as a booth at the Coconino County Fair.
- The Flagstaff Fire Department provides outreach to the public and developers in the fuel management arena utilizing multiple mediums. The Fire Department hosts a booth at the Coconino County Fair and during the Greater Flagstaff Home Show and provides information including suggested construction practices, materials, and other safety efforts. Flagstaff works with the Greater Flagstaff Forest Partnership in providing mail-outs, inserts in pizza boxes, and short promotional messages during movie intermissions, etc. In addition, the city provides presentations to civic groups and homeowners groups on fire safety and fuel management efforts. The city hosts workshops with the various forest thinning contractors regarding code requirements and the permitting process. The Flagstaff Water Utilities Department provides information and outreach to the public regarding water conservation measures and flooding. The city council-appointed Water Commission has public meetings on a monthly basis to convey these messages. The city has an annual public open house, during which outreach is done and written information regarding the various mitigation efforts taking place throughout the city is provided.
- Williams maintains a website with a hazard mitigation link to the County's website. The city hosts an annual meeting for all agencies and the public involved with the city's efforts to protect the community from natural disasters.
- Various departments within Page establish booths at public events to distribute hazard awareness information appropriate to the event. Appropriate items will also be released to the local media as

opportunities arise. These activities will be on a continuous basis and will involve all city departments. The city holds public meetings, makes public announcements, and distributes public safety brochures.

When the time comes to begin revising the 2026 MJHMP, the plan update process will be implemented, which will include continued public involvement and input through attendance at designated public meetings, web postings, through press releases to local media, community fairs and events, and surveys. As part of this effort, a series of public meetings will be held, and public comments will be solicited on the revisions to the MJHMP according to the five-year cycle.

Table 6-1 summarizes successful public involvement efforts previously conducted by participating jurisdictions and proposes activities for public involvement and dissemination of information. These shall be pursued whenever possible and appropriate.

Table 6-1: Public Involvement Activity or Opportunity

Departments	Past	Proposed
All	• Participate in annual public events such as annual fairs, home shows, and festivals to distribute information on emergency preparedness and hazards. • Conduct multi-medium public communications efforts to deliver critical information on hazards, mitigation programs, available resources, and best practices. Mediums can include mail-outs, pizza box inserts, brochures, social media campaigns, dedicated websites, outreach to community groups, and promotional messages during movie intermissions. • Deliver training, workshops, and presentations to help citizens and businesses comply with regulations, learn how to take advantage of existing programs, or benefit from relevant practices	• Place more emphasis on the risks associated with natural and manmade hazards at public awareness campaigns conducted by various city/town departments. Consider developing and distributing public education materials for natural hazards. • Continue to expand collaboration with educational institutions to deliver hazard and preparedness information, engage youth and young adults in relevant programming, and convey relevant knowledge to families. • Continue to expand support for multi-lingual and multi-cultural communication tools and engagement methods – including but not limited to documents, surveys, social media posts, and in-person events.
Administration	MJHMP survey conducted online.	Conduct annual surveys online and at the annual Public Safety Event.
Human Resources	N/A	Procure funding, staff, and develop CERT program as appropriate and facilitate participation in formal emergency and disaster management programs by government staff and the public.
Utilities and Public Works	Development and delivery of public information products on conservation methods and flooding.	Integrate methods for modifying billing and invoicing tools to inform, empower, and incentivize conservation among customers/users.
Law Enforcement, Fire/Rescue, Administration	City/Town agencies, such as law enforcement and human resources, and federal and congressional officials have conducted training events (e.g. first aid and CPR, active shooter drills, school lockdown drills, emergency alert notification, American Red Cross training and smoke alarm distribution) as ways to educate the public and community leaders in responding to circumstances and situations.	• Increase public awareness of the natural, human-caused, and technological hazards to businesses as a means to reduce the potential damage from each hazard through educational and outreach. • Place more stress on the risks associated with natural and manmade hazards at public awareness campaigns conducted by various city/town departments. Consider developing and distributing public education materials for natural hazards.

6.2 Monitoring and Evaluation

The MJHMP includes a range of action items to reduce losses from hazard events. Together, the action items provide a framework for activities that the participating jurisdictions can choose to implement over the next five years. The effectiveness of the MJHMP depends on the incorporation of the action items into other existing plans, policies, and programs. Although the chief executive offices of participating jurisdictions will have primary responsibility for the MJHMP's continual review, coordination, and promotion, plan implementation and evaluation will be a shared responsibility among all departments and agencies that contributed to development of the mitigation action plan.

The Planning Team will be jointly responsible for the MJHMP's implementation and maintenance through existing programs. Department managers will be responsible for implementing mitigation strategies and actions specific to their department operations. The County Emergency Manager will assume responsibility for facilitating plan maintenance and Planning Team coordination.

The Planning Team will monitor implementation of the hazard mitigation strategies throughout the fiscal year. Every March, the Planning Team will begin the process of reviewing the MJHMP and mitigation action implementation to develop an annual MJHMP progress report. To support this effort Planning Team members will provide jurisdictional information necessary to support evaluation and participate in any supporting meetings as appropriate. The evaluation, and resulting Annual Report, will include:

- A summary of any hazard events that occurred during the prior year and their impact on the planning area;
- A review of successful mitigation initiatives identified in the 2026 MJHMP;
- A brief discussion about the targeted strategies that were not completed;
- A re-evaluation of the action plan to determine if the timeline for identified projects needs to be amended, and the reason for the amendment (e.g. funding issues);
- Any recommendations for new projects;
- Any changes in, or potential for, new funding options (e.g. grant opportunities);
- Any impacts of planning programs or initiatives that involve hazard mitigation.

The Planning Team will aim to complete the MJHMP progress report by April or May. The report will subsequently be used to update the MJHMP as necessary and be provided to participating jurisdictions' budget planning teams for review and incorporation in the annual budget process. The report and updated MJHMP will be posted on participating jurisdiction websites, provided to the local media through a press release, and presented in the form of a report to the participating jurisdictions chief governance bodies as practicable and appropriate. Opportunities for public feedback will be implemented whenever practicable.

6.3 Plan Update

Section 201.6.d.3 of 44 CFR requires that MJHMPs be reviewed, revised as appropriate, and resubmitted for approval in order to remain eligible for benefits awarded under the Disaster Mitigation Act. The participating jurisdictions intend to update its MJHMP on a five-year cycle.

Based on needs identified by the Planning Team, the update will include the minimum following elements:

- Review and update of hazard risk assessments with the most recent information and technologies
- Review and revision of action plans to account risk assessment changes and the completion removal, or alteration of mitigation actions

- Integration of any new policies identified under other planning mechanisms, as appropriate
- Sharing of the draft MJHMP with appropriate agencies and organizations for comment
- Provision of opportunities for input, review, and comment to the public before plan adoption
- Adoption of the updated plan by participating jurisdictions' appropriate senior governance body

At a minimum of nine months prior to the expiration date of the 2026 MJHMP, the Planning Team will implement a revision schedule to formally update the plan. The MJHMP will be revised using the latest FEMA hazard mitigation guidance documents, such as the Mitigation Planning Tool and Regulation Checklist to ensure compliance with current mitigation planning regulations.

6.4 Incorporation Into Other Planning Mechanisms

The MJHMP planning process provided the Planning Team with an opportunity to review and expand on policies contained in other plans such as participating jurisdiction general/comprehensive plans. The Planning Team views their general plans and the MJHMP as complementary documents that work together to reduce risk exposure to their residents. Many of the ongoing recommendations identified in the MJHMP are programs recommended in the various General Plan Safety Elements.

The Planning Team will additionally incorporate the MJHMP's hazards, risks, recommendations, and mitigations included into the planning mechanism documents captured in **Table 6-2**, as appropriate.

Just as occurred with the 2021 MJHMP, incorporation of action items and processes from the 2026 MJHMP into these, and other planning documents as appropriate, will be completed as plans are updated and when new plans are developed. These efforts may coincide with the Plan Maintenance Method and Schedule Activities listed above. Additional action items may be implemented through the creation of new public educational programs, continued interagency coordination, and public input and participation. All participating jurisdictions in the 2026 MJHMP have elected to use this process for incorporation.

Table 6-2: Other Planning Mechanism Documents

Jurisdiction	Planning Documents
Coconino	• Coconino County Comprehensive Plan • Coconino County Area Plans • Coconino County Roads Capital Improvement Plan • Coconino County Economic Development Plan • Community Wildfire Protection Plan for Rural and Tribal Communities • Coconino County Flood Control District Long-term Flood Mitigation Plans • Four Forest Restoration Initiative Strategic Plan • Northern Arizona Council of Governments (NACOG) Comprehensive Economic Development Strategy, Broadband Strategic Plan, Water Quality Management Plan, Regional Transportation Safety Plan, and Transportation Investment Plan
Flagstaff	• Flagstaff Regional 2030 Plan and 2045 Update • Flagstaff Capital Improvements • Greater Flagstaff Area Community Wildfire Protection Plan • Flagstaff Watershed Protection Project Implementation Plan • Flagstaff Coordinated Public Transit - Human Services Transportation Plan • Flagstaff Regional Transportation Plan 2045 • Flagstaff 10-Year Housing Plan • Flagstaff Climate Action and Adaptation Plan • Flagstaff Management Plan for Legally Designated Open Space Properties • Flagstaff Economic Development Strategic Plan
Fredonia	• Fredonia General Plan • Fredonia Capital Improvement Plan
NAU	• NAU Comprehensive Sustainable Smart Campus Master Plan
Page	• Page 2040 General Plan
Tusayan	• Tusayan General Plan 2024 and 2034 Update • Tusayan Capital Improvement Projects List • Tusayan Multimodal Transportation Action Plan
Williams	• Williams General Plan • Williams Water Master Plan • Williams Snow Removal Plan

Section 7: Plan Adoption and Approval

*FEMA approval and plan adoption letters to be added once review cycle is complete. *

Appendix A: Local Mitigation Plan Review Tool and Adoption Documentation

FEMA REGULATION CHECKLIST: PLAN ADOPTION

ADOPTION DOCUMENTATION:
Requirement 44 CFR § 201.6(c)(5): Documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commissioner, Tribal Council). For multi-jurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted.

Elements
F2. For multi-jurisdictional plans, has the governing body of each jurisdiction officially adopted the plan to be eligible for certain FEMA assistance? (Requirement 44 CFR § 201.6(c)(5))

Source: FEMA, *Local Mitigation Planning Handbook,* June 2025.

This section captures formal documentation of this plan's adoption by the governing body of each participating jurisdiction to this plan, as well as documentation of plan approval by the State Hazard Mitigation Officer, or their designees, and FEMA.

Plan Review Checklist

The Local Mitigation Plan Review Tool (PRT) demonstrates how the local mitigation plan meets the regulation in 44 CFR § 201.6 and offers states and FEMA Mitigation Planners an opportunity to provide feedback to the local governments, including special districts.

1. The Multi-Jurisdictional Summary Sheet is a worksheet that is used to document how each jurisdiction met the requirements of the plan elements (Planning Process; Risk Assessment; Mitigation Strategy; Plan Maintenance; Plan Update; and Plan Adoption).
2. The Plan Review Checklist summarizes FEMA's evaluation of whether the plan has addressed all requirements.

For greater clarification of the elements in the Plan Review Checklist, please see Section 4 of the Local Mitigation Planning Policy Guide. Definitions of the terms and phrases used in the PRT can be found in Appendix E of the guide.

Plan Information	
Jurisdiction(s)	Flagstaff, Fredonia, Northern Arizona University (NAU), Page, Tusayan, Williams
Title of Plan	Coconino County Hazard Mitigation Plan (2026)
New Plan or Update	Update
Single-or Multi-Jurisdiction	Multi-Jurisdiction
Date of Plan	May 15th, 2026

Local Point of Contact	
Title	Tim Carter, Coconino County Emergency Manager
Agency	Coconino County, Emergency Management Department
Address	2625 N King Street Flagstaff, AZ 86004, United States
Phone Number	928-679-8311
Email	emergencymanagement@coconino.az.gov

Review Information	
State Review	
State Reviewer(s) and Title	
State Review Date	
FEMA Review	
FEMA Reviewer(s) and Title	
Date Received in FEMA Region	
Plan Not Approved	
Plan Approvable Pending Adoption	
Plan Approved	

Multi-Jurisdictional Summary Sheet

In the boxes for each element, mark if the element is met (Y) or not met (N).

#	Jurisdiction Name	A. Planning Process	B. Risk Assessment	C. Mitigation Strategy	D. Plan Maintenance	E. Plan Update	F. Plan Adoption	G. HHPD Requirements	H. State Requirements
1	Flagstaff	Y	Y	Y	Y	Y	Y	Y	Y
2	Fredonia	Y	Y	Y	Y	Y	Y	Y	Y
3	Northern Arizona University	Y	Y	Y	Y	Y	Y	Y	Y
4	Page	Y	Y	Y	Y	Y	Y	Y	Y
5	Tusayan	Y	Y	Y	Y	Y	Y	Y	Y
6	Williams	Y	Y	Y	Y	Y	Y	Y	Y

Plan Review Checklist

The Plan Review Checklist is completed by FEMA. States and local governments are encouraged, but not required, to use the PRT as a checklist to ensure all requirements have been met prior to submitting the plan for review and approval. The purpose of the checklist is to identify the location of relevant or applicable content in the plan by element/sub-element and to determine if each requirement has been "met" or "not met." FEMA completes the "required revisions" summary at the bottom of each element to clearly explain the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is "not met." Sub-elements in each summary should be referenced using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each element and sub-element are described in detail in Section 4: Local Plan Requirements of this guide.

Plan updates must include information from the current planning process.

If some elements of the plan do not require an update, due to minimal or no changes between updates, the plan must document the reasons for that.

Multi-jurisdictional elements must cover information unique to all participating jurisdictions.

Element A: Planning Process

Element A Requirements	Location in Plan (section and/or page number)	Met / Not Met
A1. Does the plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement 44 CFR § 201.6(c)(1))		
A1-a. Does the plan document how the plan was prepared, including the schedule or time frame and activities that made up the plan's development, as well as who was involved?	Sec. 2, p. 10-11 and Appendix B, p. 213-264	**Met**
A1-b. Does the plan list the jurisdiction(s) participating in the plan that seek approval, and describe how they participated in the planning process?	Sec. 2, pg. 7	**Met**
A2. Does the plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development as well as businesses, academia, and other private and non-profit interests to be involved in the planning process? (Requirement 44 CFR § 201.6(b)(2))		
A2-a. Does the plan identify all stakeholders involved or given an opportunity to be involved in the planning process, and how each stakeholder was presented with this opportunity?	Sec. 2, p. 8-10	**Met**

Element A Requirements	Location in Plan (section and/or page number)	Met / Not Met
A3. Does the plan document how the public was involved in the planning process during the drafting stage and prior to plan approval? (Requirement 44 CFR § 201.6(b)(1))		
A3-a. Does the plan document how the public was given the opportunity to be involved in the planning process and how their feedback was included in the plan?	Sec. 2, p. 12	**Met**
A4. Does the plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement 44 CFR § 201.6(b)(3))		
A4-a. Does the plan document what existing plans, studies, reports and technical information were reviewed for the development of the plan, as well as how they were incorporated into the document?	Sec. 2, pgs. 12-14	**Met**
ELEMENT A REQUIRED REVISIONS		
Required Revision:		

Element B: Risk Assessment

Element B Requirements	Location in Plan (section and/or page number)	Met / Not Met
B1. Does the plan include a description of the type, location, and extent of all natural hazards that can affect the jurisdiction? Does the plan also include information on previous occurrences of hazard events and on the probability of future hazard events? (Requirement 44 CFR § 201.6(c)(2)(i))		
B1-a. Does the plan describe all natural hazards that can affect the jurisdiction(s) in the planning area, and does it provide the rationale if omitting any natural hazards that are commonly recognized to affect the jurisdiction(s) in the planning area?	Sec. 4, pgs. 66-67	**Met**
B1-b. Does the plan include information on the location of each identified hazard?	Sec. 4, pg. 70	**Met**
B1-c. Does the plan describe the extent for each identified hazard?	Sec. 4, pgs. 72, 79, 86, 98, 110, 119, 123, 135, 141, 160, 168,	**Met**

	and 176	
Element B Requirements	**Location in Plan (section and/or page number)**	**Met / Not Met**
B1-d. Does the plan include the history of previous hazard events for each identified hazard?	Sec. 4, pgs. pgs. 71, 76, 84-85, 96, 104-105, 118, 122, 140, 145-146, 158-159, 163-164, and 176	**Met**
B1-e. Does the plan include the probability of future events for each identified hazard, including the type, location and range of anticipated intensities?	Sec. 4, pgs. 73, 82, 93, 100, 112, 120, 124, 136, 144, 155, 161-162, 172, and 179	**Met**
B1-f. For participating jurisdictions in a multi-jurisdictional plan, does the plan describe any hazards that are unique to and/or vary from those affecting the overall planning area?	Sec. 4, pgs. 64-180	**Met**
B2. Does the plan include a summary of the jurisdiction's vulnerability and the impacts on the community from the identified hazards? Does this summary also address NFIP-insured structures that have been repetitively damaged by floods? (Requirement 44 CFR § 201.6(c)(2)(ii))		
B2-a. Does the plan provide an overall summary of each jurisdiction's vulnerability to the identified hazards?	Sec. 3, pgs. 29-31, 37, 49, 59, and 63	**Met**
B2-b. For each participating jurisdiction, does the plan describe the potential impacts of each of the identified hazards on each participating jurisdiction?	Sec. 4, pgs. 74, 83, 94-95, 102, 116, 121, 124-125, 138-139, 144, 155, 162, 174, and 180	**Met**
B2-c. Does the plan address NFIP-insured structures within each jurisdiction that have been repetitively damaged by floods?	Sec. 5, pgs. 184-185	**Met**
ELEMENT B REQUIRED REVISIONS		
Required Revision:		

Element C: Mitigation Strategy

Element C Requirements	Location in Plan (section and/or page number)	Met / Not Met
C1. Does the plan document each participant's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement 44 CFR § 201.6(c)(3))		
C1-a. Does the plan describe how the existing capabilities of each participant are available to support the mitigation strategy? Does this include a discussion of the existing building codes and land use and development ordinances or regulations?	Sec. 5, pgs. 182, 193, 194, 218, and 240	**Met**
C1-b. Does the plan describe each participant's ability to expand and improve the identified capabilities to achieve mitigation?	Sec. 5, pgs. 243 and 244	**Met**
C2. Does the plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement 44 CFR § 201.6(c)(3)(ii))		
C2-a. Does the plan contain a narrative description or a table/list of their participation activities?	Sec. 5, pgs. 184-185	**Met**
C3. Does the plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement 44 CFR § 201.6(c)(3)(i))		
C3-a. Does the plan include goals to reduce the risk from the hazards identified in the plan?	Sec. 5, pgs. 220-241	**Met**
C4. Does the plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement 44 CFR § 201.6(c)(3)(ii))		
C4-a. Does the plan include an analysis of a comprehensive range of actions/projects that each jurisdiction considered to reduce the impacts of hazards identified in the risk assessment?	Sec. 5, pgs. 220-241	**Met**
C4-b. Does the plan include one or more action(s) per jurisdiction for each of the hazards as identified within the plan's risk assessment?	Sec. 5, pgs. 220-241	**Met**

Element C Requirements	Location in Plan (section and/or page number)	Met / Not Met

C5. Does the plan contain an action plan that describes how the actions identified will be prioritized (including a cost-benefit review), implemented, and administered by each jurisdiction? (Requirement 44 CFR § 201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))		
C5-a. Does the plan describe the criteria used for prioritizing actions?	Appendix D, pgs. 318-362	**Met**
C5-b. Does the plan provide the position, office, department or agency responsible for implementing/administrating the identified mitigation actions, as well as potential funding sources and expected time frame?	Sec. 5, pgs. 220-241	**Met**
ELEMENT C REQUIRED REVISIONS		
Required Revision:		

Element D: Plan Maintenance

Element D Requirements	Location in Plan (section and/or page number)	Met / Not Met
D1. Is there discussion of how each community will continue public participation in the plan maintenance process? (Requirement 44 CFR § 201.6(c)(4)(iii))		
D1-a. Does the plan describe how communities will continue to seek future public participation after the plan has been approved?	Sec. 2, pg. 12	**Met**
D2. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a five-year cycle)? (Requirement 44 CFR § 201.6(c)(4)(i))		
D2-a. Does the plan describe the process that will be followed to track the progress/status of the mitigation actions identified within the Mitigation Strategy, along with when this process will occur and who will be responsible for the process?	Sec. 5, pgs. 221-222	**Met**
Element D Requirements	**Location in Plan (section and/or page number)**	**Met / Not Met**

D2-b. Does the plan describe the process that will be followed to evaluate the plan for effectiveness? This process must identify the criteria that will be used to evaluate the information in the plan, along with when this process will occur and who will be responsible.	Sec. 6, pgs. 264-265	**Met**
D2-c. Does the plan describe the process that will be followed to update the plan, along with when this process will occur and who will be responsible for the process?	Sec. 6, pg. 265	**Met**
D3. Does the plan describe a process by which each community will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement 44 CFR § 201.6(c)(4)(ii))		
D3-a. Does the plan describe the process the community will follow to integrate the ideas, information and strategy of the mitigation plan into other planning mechanisms?	Sec. 6, pg. 265	**Met**
D3-b. Does the plan identify the planning mechanisms for each plan participant into which the ideas, information and strategy from the mitigation plan may be integrated?	Sec. 6, pg. 266	**Met**
D3-c. For multi-jurisdictional plans, does the plan describe each participant's individual process for integrating information from the mitigation strategy into their identified planning mechanisms?	Sec. 6, pgs. 265-266	**Met**
ELEMENT D REQUIRED REVISIONS		
Required Revision:		

Element E: Plan Update

Element E Requirements	Location in Plan (section and/or page number)	Met / Not Met
E1. Was the plan revised to reflect changes in development? (Requirement 44 CFR § 201.6(d)(3))		
E1-a. Does the plan describe the changes in development that have occurred in hazard-prone areas that have increased or decreased each community's vulnerability since the previous plan was approved?	Sec. 5, pgs. 186-194	Met

Element E Requirements	Location in Plan (section and/or page number)	Met / Not Met
E2. Was the plan revised to reflect changes in priorities and progress in local mitigation efforts? (Requirement 44 CFR § 201.6(d)(3))		
E2-a. Does the plan describe how it was revised due to changes in community priorities?	Sec. 5, pgs. 186-194	**Met**
E2-b. Does the plan include a status update for all mitigation actions identified in the previous mitigation plan?	Sec. 5, pgs. 186-194	**Met**
E2-c. Does the plan describe how jurisdictions integrated the mitigation plan, when appropriate, into other planning mechanisms?	Sec. 5, pgs. 186-194	**Met**
ELEMENT E REQUIRED REVISIONS		
Required Revision:		

Element F: Plan Adoption

Element F Requirements	Location in Plan (section and/or page number)	Met / Not Met
F1. For single-jurisdictional plans, has the governing body of the jurisdiction formally adopted the plan to be eligible for certain FEMA assistance? (Requirement 44 CFR § 201.6(c)(5))		
F1-a. Does the participant include documentation of adoption?	Sec. 7, pgs. 267	Choose
F2. For multi-jurisdictional plans, has the governing body of each jurisdiction officially adopted the plan to be eligible for certain FEMA assistance? (Requirement 44 CFR § 201.6(c)(5))		
F2-a. Did each participant adopt the plan and provide documentation of that adoption?	Sec. 7, pgs. 267	Choose
ELEMENT F REQUIRED REVISIONS		
Required Revision:		

Element G: High Hazard Potential Dams (Optional)

HHPD Requirements	Location in Plan (section and/or page number)	Met / Not Met
HHPD1. Did the plan describe the incorporation of existing plans, studies, reports and technical information for HHPDs?		
HHPD1-a. Does the plan describe how the local government worked with local dam owners and/or the state dam safety agency?	Sec. 4, pgs. 84-95	**Met**
HHPD1-b. Does the plan incorporate information shared by the state and/or local dam owners?	Sec. 4. pgs. 89-91	**Met**
HHPD2. Did the plan address HHPDs in the risk assessment?		
HHPD2-a. Does the plan describe the risks and vulnerabilities to and from HHPDs?	Sec. 4, pgs. 84-95	**Met** an item.
HHPD2-b. Does the plan document the limitations and describe how to address deficiencies?	Sec. 4, pg. 95	**Met**
HHPD3. Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?		
HHPD3-a. Does the plan address how to reduce vulnerabilities to and from HHPDs as part of its own goals or with other long-term strategies?	Sec. 5, pgs. 225, 226, 230, and 240	an item. **Met**
HHPD3-b. Does the plan link proposed actions to reducing long-term vulnerabilities that are consistent with its goals?	Sec. 5, pgs. 225, 226, 230, and 240	**Met**
HHPD4. Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPDs?		
HHPD4-a. Does the plan describe specific actions to address HHPDs?	Sec. 5, pgs. 225, 226, 230, and 240	**Met** an item.
HHPD4-b. Does the plan describe the criteria used to prioritize actions related to HHPDs?	Sec. 5, pgs. 225, 226, 230, and 240	**Met**
HHPD4-c. Does the plan identify the position, office, department or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?	Sec. 5, pgs. 225, 226, 230, and 240	**Met**

HHPD Required Revisions
Required Revision:

Element H: Additional State Requirements (Optional)

Element H Requirements	Location in Plan (section and/or page number)	Met / Not Met
This space is for the State to include additional requirements.		
Click or tap here to enter text.	Click or tap here to enter text.	Choose

Plan Assessment

These comments can be used to help guide your annual/regularly scheduled updates and the next plan update.

Element A. Planning Process

Strengths

- [insert comments]

Opportunities for Improvement

- [insert comments]

Element B. Risk Assessment

Strengths

- [insert comments]

Opportunities for Improvement

- [insert comments]

Element C. Mitigation Strategy

Strengths

- [insert comments]

Opportunities for Improvement

- [insert comments]

Element D. Plan Maintenance

Strengths

- [insert comments]

Opportunities for Improvement

- [insert comments]

Element E. Plan Update

Strengths

- [insert comments]

Opportunities for Improvement

- [insert comment

Appendix B: Planning Process Documentation

Appendix B contains documentation of the planning process for the MJHMP Planning Team, including meetings, presentations, etc.

Meeting Date	Meeting Title	Meeting Handouts, Presentation Included in MJHMP
May 6, 2025	MJHMP Planning Team Kickoff Meeting	- Presentation (cover only) - Meeting notes with attendance sheet
August 25, 2025	MJHMP Planning Team Meeting #1	- Invitation to stakeholders - Sign-in sheet - Agenda - Presentation (cover only) - Meeting notes
October 20, 2025	MJHMP Planning Team Meeting #2	- Invitation to stakeholders - Stakeholders invitation list - Sign-in sheet - Presentation (cover only) - Meeting notes

1. Project Kickoff Meeting

Date/Time: May 6th, 2025 @ 10:00AM-11:00AM MST

Location: 2625 N King St, Flagstaff, AZ 86004/Microsoft Teams (Remote)

Presentation:



Meeting notes (with attendance sheet):

2026 Coconino County MJHMP Update
Project Kickoff Meeting Minutes
May 6, 2025

Appendix: Meeting Attendance

Jurisdiction	Invitee	Project Role	Attendance
Coconino County	Tim Carter	County Sponsor	Present
Coconino County	Chance Wnuck	County Project Manager	Present
Coconino County	Kelsey Nielsen	Jurisdiction Representative (Role TBD)	Present
Coconino County	Nicole Harris	Jurisdiction Representative (Role TBD)	Present
Coconino County	Lana Kahle	Jurisdiction Representative (Role TBD)	Present
Flagstaff, City of	Daniel Kelly	Jurisdiction Representative (Role TBD)	Present
Flagstaff, City of	Stacey Brechler-Knaggs	Jurisdiction Representative (Role TBD)	Present
Fredonia, City of	Tracy Stumpf	Jurisdiction Representative (Role TBD)	Not Present
Northern Arizona University	Robert Church	Jurisdiction Representative (Role TBD)	Present
Page, City of	Terry Tereick	Jurisdiction Representative (Role TBD)	Present
Page, City of	Ted Barnard	Jurisdiction Representative (Role TBD)	Not Present
Sedona, City of	Stephanie Foley	Jurisdiction Representative (Role TBD)	Present
Sedona, City of	Jessica Bryson	Jurisdiction Representative (Role TBD)	Present
Tusayan, City of	Charlie Hendrix	Jurisdiction Representative (Role TBD)	Not Present
Williams, City of	Chase Pearson	Jurisdiction Representative (Role TBD)	Not Present
Williams, City of	Juan Cruz	Jurisdiction Representative (Role TBD)	Present
EM Partners	Wes Dison	Consultant Project Manager	Present
EM Partners	Evan Koepke	Consultant Planning Team (HMP SME)	Present
EM Partners	Aaron Walker	Consultant Planning Team (Support)	Present
EM Partners	Margo Keniff	Consultant Planning Team (GIS)	Present
EM Partners	Whitney McKay	Consultant Planning Team (Engagement)	Present

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2026 Coconino County MJHMP Update

Project Kickoff Meeting

Date/Time: May 6th, 2025, 9:00-11:00 AM MDT
Location: 2625 N. King Street, Flagstaff, AZ 86004 / Microsoft Teams

Action Items

#	Task	Responsible Party	Due
1	Organize jurisdiction planning team and advisory group. Submit relevant documentation to Consultant. • List of entities invited to join the advisory group (must represent community groups, academia, businesses) • List of final planning team and advisory group members including: name, organization, role, contact information. • Images of emails inviting potential team members to participate in planning and advisory teams respectively (recommend single email for each)	Core Planning Team	5/24/2025
2	Post hazard mitigation community survey on all participating jurisdiction websites/social media.	Core Planning Team	5/30/2025
3	Complete and submit data collection forms.	Core Planning Team	6/20/2025
4	Finalize and disseminate data collection forms to Core Planning Team Members	Consultant Team	5/16/2025
5	Develop and disseminate Hazard mitigation Survey and supporting media copy/guidance.	Consultant Team	5/16/2025
6	Begin hazard and community profile updates.	Consultant Team	5/30/2025

Meeting Notes

Hazard Mitigation Plan Overview and Update Process

- Formal tool for analyzing, documenting, and communicating community hazard risk whether it be natural or man-made
  - Content is set by state and federal regulations
  - Must be updated every 5 years
  - Can be single or multiple jurisdiction
  - Must demonstrate substantive engagement of the public and adjacent jurisdictions as part of the planning process.
  - Final plan must be reviewed and approved by both AZ DHSEM and FEMA
- Why are they important?
  - Having an approved plan is tied to federal requirements for pre and post disaster hazard mitigation grant funding and post-disaster recovery funding.
  - State requirement for: hazard mitigation grants and general plan completion
- Plan Components - Part 1: Capabilities and Risk Assessment
  - Geographic features, Demographic, Socio-Cultural, and Economic Traits
  - Development Patterns and Trends
  - Focus is on identifying new developments/changes since the last plan update.

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- Plan Components - Part 2: Mitigation Strategy
  - Mitigation Goals: Provide coordinated direction and targets for mitigation efforts. They are based on risk assessment findings, outreach findings, community goals, and state hazard mitigation goals.
  - Mitigation Actions: Projects that advance hazard mitigation and the fulfillment of mitigation goals. Mitigation actions identified in the plan identify what the jurisdiction would ideally do given the necessary resources. Projects should have a description, priority, responsible agency, estimated cost, and desired timeline.
  - NOTE: Inclusion of an mitigation action project in the mitigation plan is NOT a dedication by the jurisdiction to execute that project. The goal is to demonstrate progress and effort over time given available resources.
- Planning Process
  - The key phases are: Planning Preparation > Threat and Hazard Analysis > Mitigation Planning > Development Review, Adoption
  - Meetings will be conducted at the start of each phase to review and confirm outputs for integration in the final plan, as well as review the draft plan.
  - Public review period will be approximately one month
  - State and federal review process can take up to 6 months
  - All jurisdictions must conduct and document their own public engagement efforts. This includes images, meeting minutes, consolidated feedback to demonstrate that outreach was conducted. This is included in the plan. Consultant will provide guidance and support for execution and documentation.
  - All jurisdictions must adopt the plan once the approval process is complete.
  - Sedona overlaps two county lines. It is formally integrated in the plan of the adjacent County. It does not need to adopt this HMP, but it will be mentioned in the plan to ensure completeness.

Project Plan

- Project Schedule
  - Plan will run through May 2025 to February 2026
  - Initial data collection will run from May to June or early July. Participating jurisdictions should start data collection as early as possible.
  - Jurisdictions should prepare to help release and promote hazard mitigation community survey by late May.
  - Recommend that public engagement events be planned for Sept-Nov.
  - Aim is to release Final Draft of plan for public review in January and submit to AZ DHSEM in February 2025.
  - While HMP is in final review process, the Consultant team will begin work on hazard mitigation GIS viewer solution.
- Planning Meetings
  - Project will entail four core planning team meetings. These include the kickoff, two planning meetings, and one or two plan review meetings (as needed).

- Consultant and Core Planning Team tasks are coordinated to ensure the project flows through each phase of plan development fluidly.
- Meetings will be supplemented with individualized support for each jurisdiction.

- Organization/Roles and Responsibilities
  - Consulting Team facilitates and supports planning effort.
  - Core Planning Team provides overarching guidance, reviews planning products developed by consultant, and coordinate jurisdiction planning efforts. Members serve as the leads for their Jurisdictional Planning Teams.
  - Jurisdiction Planning Teams are composed of City/Organizational leadership and select support personnel and are responsible for data collection, jurisdiction-specific plan content review, and execution of public engagement efforts.
  - Advisory Groups are invited members of the wider jurisdiction community that represent key stakeholders form the whole community. Their representatives are provided the opportunity to provide feedback on jurisdictional planning products and plan content during the planning process.
  - Community Members will be engaged through the Hazard Mitigation Community Survey, jurisdictional engagement events, and the opportunity to provide feedback on the draft HMP.
  - Sept-Nov will be the best season for outreach regarding public engagement events to all jurisdictions
  - In discussion, meeting participants agreed that two weeks would be an adequate amount of time for them to review deliverables. They additionally agreed that a lack of response by the end of that timeframe could be interpreted as assent.

Key Initial Actions

- Jurisdiction Organization
  - Jurisdictions should identify participants for their Jurisdiction Planning Team and Advisory Groups. These should include representation from all departments, as well as key community stakeholders respectively.
  - Identification of potential Advisory Group members should be one of the first action items of the Jurisdiction Planning Team.
  - Engagement of these groups should be documented in the form of a copy of the email used to solicit engagement respectively. This must be provided to consultants for inclusion in plan. As planning continues, documentation of engagement of these groups (particularly the Advisory Groups) is key.
  - Provide consultants with lists of the members of each group, identifying their organization, name, role, and contact information.
- Internal Data Collection
  - Consultant will provide a data collection form to guide capture and update of key data and changes to the HMP. Focus will primarily be on changes in the last 5 years since the last plan update.

- Categories will include: hazard events and impacts, community assets, community mitigation capabilities, and mitigation action status (from prior plan).
- Prior plan content will be provided where appropriate for correction and update.
- Jurisdiction departments are highly encouraged to identify a staff member to lead collection of this data and answer questions. Timely collection is essential.
- The group noted that CWPP will have a substantial amount of data to share.

- Public Engagement Preparation
  - There will be four forms of public engagement including the Hazard Mitigation Community Survey, Advisory Groups, Engagement Events, and public feedback on the Draft HMP.
  - Jurisdiction public affairs/public information officers should be notified as soon as possible of the necessary actions to support this engagement and the approximate timing.
  - Documentation of these engagement efforts is critical. Collect images of website and social media posts, copies of press releases/articles should be collected, copies of emails soliciting feedback, and sign-in sheets/consolidated feedback, and photos from events. Captured material should be submitted to Consultant Team for cataloguing and inclusion in plan.
  - Consultant will provide draft copy for key social media and website posts, as well as other major messaging. It will also provide support with development of standardized public engagement event materials/approaches.

Mapping and GIS Solutions:

- Esri is hosted within the GIS world but it is a website (URL)
- Drafts and public engagement can be built in and use tools from the last update. The mapping portion is best presented in the ArcGIS environment.
- Having public go to a website will be most familiar for all parties to engage with
- Licensing will be set up in ArcGIS for Margo through the county to begin building data sources into the program.

Meeting Close-Out

- Action Items
  - Team reviewed major action items listed at the start of this document.
- Next Meeting
  - Will be conducted in late July/Early August. Meeting will be virtual.
  - Specific date and time will be determined via poll.
- Questions
  - Meeting participants were asked if they had any outstanding questions. Hearing none, the meeting was adjourned

2. Project Planning and Advisory Team Meeting #1

Date/Time: November 19, 2020 @ 10:00AM – 12:00PM MST

Location: GoToWebinar (virtual meeting)

Invitation:



Sign-in sheet:

Jurisdiction	Invitee	Project Role	Attendance
Coconino County	Tim Carter	County Sponsor	Present
Coconino County	Chance Wnuck	County Project Manager	Present
Coconino County	Kelsey Nielsen	Jurisdiction Representative	Present
Coconino County	Nicole Harris	Jurisdiction Representative	Present
Coconino County	Lana Kahle	Jurisdiction Representative (Public Outreach)	Present
Arizona Department of Emergency and Military Affairs, Emergency Management Planner	Brittnie Britton	Jurisdiction Representative	Present
Area Operations Manager, Kinder Morgan	Cody Cox	Jurisdiction Representative	Present
Town of Fredonia, Mayor	Don Johnson	Jurisdiction Representative	Present
NWS Flagstaff, Observing Program Leader	Evan LaGuardia	Jurisdiction Representative	Present
Arizona State Climatologist	Erinanne Saffell	Jurisdiction Representative	Present
Arizona Public Service	Patrick Fraher	Jurisdiction Representative	Present
Arizona Public Service	Brady Horn	Jurisdiction Representative	Present

Flagstaff Downtown Business Alliance, Executive Director	Hunter Hebert	Jurisdiction Representative	Present
Northern Arizona University	Jeffrey McKay	Jurisdiction Representative	Present
Coconino County Police Department, Lieutenant	Stephen McNerney	Jurisdiction Representative	Present
American Red Cross	Mel Miller	Jurisdiction Representative	Present
Northern Arizona University School of Forestry, Professor of Practice	Vic Morfin	Jurisdiction Representative	Present
Arizona Department of Emergency Management, Emergency Management Planner	Paul Krieg	Jurisdiction Representative	Present
City of Flagstaff Police, Deputy Chief of Operations	Collin Seay	Jurisdiction Representative	Present
City of Flagstaff Police Department, Lieutenant	Ryan Darr	Jurisdiction Representative	Present
City of Flagstaff, City Engineer	Paul Mood	Jurisdiction Representative	Present
City of Flagstaff, Sustainability Manager	Steven Thompson	Jurisdiction Representative	Present
City of Flagstaff, Zoning Code Manager	Tiffany Antol	Jurisdiction Representative	Present
Gammage & Burnham, Zoning and Land Use Attorney	Stephen Anderson	Jurisdiction Representative	Present
Coconino County Public Works, Deputy Director	Chad Auker	Jurisdiction Representative	Present
Coconino County Sheriff's Office, Chief Deputy	Gerrit Boeck	Jurisdiction Representative	Present
Williams Fire Department, Chase Pearson	Cameron Maebe	Jurisdiction Representative	Present
Coconino County Community Development, Director	Jason Christelman	Jurisdiction Representative	Present
Unisource Energy Services	Richard Perez	Jurisdiction Representative	Present
City of Flagstaff, Resilience Hub Specialist	Sam Wiley	Jurisdiction Representative	Present
Northern Arizona University, STEM Teaching and Learning	Sean Michael Ryan	Jurisdiction Representative	Present
Arizona Dept. Of Emergency and Military Affairs, Division of Emergency Management, State Hazard Mitigation Officer	Destiny Colorado	Jurisdiction Representative	Present
Community Disaster Program Manager, American Red Cross	Jeremy Sleeter	Jurisdiction Representative	Present
Coconino County Forest Restoration	Jay Smith	Jurisdiction Representative	Present
Coconino County Sheriff's Office, Commander	James Steng	Jurisdiction Representative	Present
Arizona Department of Water Resources, Administrative Assistant	Theresa Johnson	Jurisdiction Representative	Present
City of Flagstaff Water Services	Timothy Harrington	Jurisdiction Representative	Present
EM Partners	Wes Dison	Consultant Project Manager	Present

EM Partners	Evan Koepke	Consultant Planning Team (HMP SME)	Present
EM Partners	Aaron Walker	Consultant Planning Team (Support)	Present
EM Partners	Margo Neff	Consultant Planning Team (GIS)	Not Present
EM Partners	Whitney McKay	Consultant Planning Team (Engagement)	Not Present

Agenda:

2026 Coconino County MJHMP Update

Planning Team and Advisory Group Meeting

Date/Time: July 10th, 2025, 1:00-1:30 PM MDT
Location: Microsoft Teams

Action Items

#	Task	Responsible Party	Due
1	ID Planning Team members from each jurisdiction	Participating Jurisdictions	ASAP
2	Send list of planning team members to Coconino County EM/Consulting Team	Participating Jurisdictions	ASAP
3	Organize internal meeting to brief project, data collection and public engagement	Participating Jurisdictions	ASAP
4	Alert public affairs/public information officer and initiate/document public engagement for Hazard Mitigation Plan	Participating Jurisdictions	ASAP
5	Complete and submit data collection worksheet to Coconino County EM/Consulting Team	Participating Jurisdictions	August 8th
6	Prepare to attend next planning meeting in August	Participating Jurisdictions	TBD
7	Share meeting minutes with all attendees	Coconino County EM/Consulting Team	July 11th

3. Planning Team Meeting #1

Date/Time: August 25th, 2025 @ 2:00PM – 4:00PM MST

Location: Invitation: Microsoft Teams

Presentation (cover only):



Meeting notes:

Meeting Notes

- **Project Status**
  - Public survey has been completed (500+ responses).
    - The planning team recognizes significant survey fatigue from the public as a reason for responses being slightly under target.
    - Substantiation from all jurisdictions that something was posted which is a key requirement for getting the plan approved by FEMA.
  - Hazard Mitigation Planning Questionnaires submitted with strong participation.

EM PARTNERS 1

- Some jurisdictions are still working to get flood information from the NFIP.
- The planning team has been collecting data on previous declarations and hazards.

  - Working draft of plan underway; community profiles nearly complete.
    - Rough working draft of the HMP that is being fed with content as the project comes along.
    - Community descriptions will be sent out for jurisdictions' review soon to ensure what's important to be highlighted.
  - Outstanding need for FEMA NFIP data and infrastructure valuation.
    - FEMA NFIP data is needed to get the HMP approved; it should be considered a priority

- Outstanding need for FEMA NFIP data and infrastructure valuation.
  - FEMA NFIP data is needed to get the HMP approved; it should be considered a priority.
  - Infrastructure has been identified as a complimentary addition but not critical if core planning team members are encountering issues attaining it.

- **Hazard Review**
  - Major hazards reaffirmed: wildfire, flooding, winter storms, drought, and extreme heat.
    - Emergency declarations data from localities and county were reviewed to reaffirm some major hazards.
    - FEMA's definition of a severe storm was noted as being a bit broader than what was used in Coconino's 2020 HMP.
    - Flooding may be represented highly on the local level, may have to do with city/county declaring for the same event.
  - Hazards reaffirmed/expanded: HAZMAT (including pipeline & mine-related risks), dam failure, aviation, and extended power outages.
    - NTSB data shows evidence supporting the inclination that the scale of those events likely will not increase. The planning team recognizes there is always a running risk of an aircraft being a threat to critical infrastructure.
    - Dam failure has only one minor incident. However, there are currently 13 high-hazard dams while Fredonia and Williams have high inundation zone exposure.
    - Extended power outages have limited incident data. A resident mentioned 10-20 outages in the community survey.

- Terrorism as an included hazard in the updated plan:
  - Actions that are prevention or protection oriented are not captured in project mitigation approach.
  - The existing list has been reaffirmed with the subtraction of terrorism as a hazard.
  - FEMA is not looking for human-based items and looks for human-based hazards to be identified in a THIRA report.
  - Mitigation sits outside of preparedness due to mitigation planning being defined by tangible actions that can be taken to reduce hazard events.
  - Law enforcement to continue conversation regarding terrorism as a hazard whilst planning team moving forward with law enforcement's feedback.

- **Risk Trends**
  - Flooding and wildfire remain top hazards.
    - Exposure of built environments to the County, Williams, Tusayan, and Flagstaff are large concerns regarding large monsoon seasons.
    - NWS has been working with Grand Canyon officials to assess the impacts of heat within the canyon.
    - Long-term impacts of drought were exemplified during this wildfire season with the fires being exacerbated.
  - Extended power outages and extreme heat events increasing.
    - Five years of more than five days of continuous heat which is a huge increase in high heat days from the last HMP update.
  - Post-wildfire flooding/debris flows continue to pose risks.
    - Frequency of events has significantly increased each year along with the size, intensity, and cost impact of said events.
  - Jurisdiction Hazard Concern
    - Each jurisdiction had a variety of concerns but also a lot of similar. The

        - The proposed 25 final hazards were identified and voted on by meeting attendees.

- **Public Engagement**
    - Broader public outreach planned (Oct–Dec).
    - Goal: Collect feedback on hazard priorities and mitigation strategies.

Decisions

- Removal of terrorism/active shooter hazard from plan.
    - Human-caused hazards cause for some overlaps with law enforcement due to the sensitive nature of that planning effort.
- Maintain and update HAZMAT, wildfire (including community-originated fires), and flood hazards.
- Confirmed use of Calculated Priority Risk Index (CPRI) to prioritize hazards.

Action Items

- **Jurisdictions:**
    - Submit NFIP and flood data as soon as possible.
    - Review and validate draft community profiles.
    - Begin identifying/updating local mitigation actions.
- **Planning Team / Consultants:**
    - Finalize hazard profiles and risk assessments.
    - Incorporate public survey findings into draft plan.
    - Provide CPRI worksheets to jurisdictions by Sept. 26, 2025.
    - Coordinate scheduling of Planning Meeting #2 in October 2025.

3. Project Planning Team Meeting #2

Date/Time: October 20th, 2025 @ 2:00PM – 4:00PM MST

Location: Invitation: Microsoft Teams

Stakeholders invitation list:

Jurisdiction	Invitee	Project Role
Coconino County EM	Tim Carter	County Sponsor
Coconino County EM	Chance Wnuck	County Project Manager
Coconino County EM	Kelsey Nielsen	Jurisdiction Representative
Coconino County EM	Lana Kahle	Jurisdiction Representative (Public Outreach)
Coconino County Public Works	Stephen Anderson	Jurisdiction Representative
Coconino County Community Development	Jason Christelman	Jurisdiction Representative
Mayor, City of Tusayan	Clarinda Vail	Jurisdiction Representative
Flagstaff Police Department	Ryan Darr	Jurisdiction Representative
Arizona Public Service	Janet Dean	Jurisdiction Representative
City of Flagstaff, Office of Resilience	Sam Wiley	Jurisdiction Representative
Coconino County Sheriff's Office	Geritt Boeck	Jurisdiction Representative
Coconino County Sheriff's Office	Stephen McNerney	Jurisdiction Representative
City of Flagstaff, Engineering	Paul A. Mood	Jurisdiction Representative
City of Flagstaff Water Services	Tim Harrington	Jurisdiction Representative
Coconino County Flood Control District	Jay Smith	Jurisdiction Representative
Planning & Development Services	Tiffany Antol	Jurisdiction Representative
Arizona Dept of Emergency and Military Affairs	Brittnie Britton	Jurisdiction Representative
Town of Tusayan	Greg Brush	Jurisdiction Representative
Arizona State University, Geographical Sciences and Urban Planning	Erinanne Saffell	Jurisdiction Representative
Northern Arizona University Emergency Mgmt.	Whitney McKay	Jurisdiction Representative
Northern Arizona University	Nathan Renn	Jurisdiction Representative
Coconino County Flood Control	Capt. J. Smith	Jurisdiction Representative
Coconino County Flood Control	Lucinda Andreani	Jurisdiction Representative
Coconino County GIS	Nathan Wren	Jurisdiction Representative
City of Flagstaff Planning	Tiffany Antol	Jurisdiction Representative
City of Flagstaff Emergency Management	Daniel Kelly	Jurisdiction Representative
City of Flagstaff Sustainability	Steven Thompson	Jurisdiction Representative
City of Flagstaff Water Services	Tim Harrington	Jurisdiction Representative
Flagstaff Downtown Business Alliance	Manny Hernandez	Jurisdiction Representative
Kaibab Paiute Tribe	Jenny Kalauli	Jurisdiction Representative
Kinder Morgan	Cody Cox	Jurisdiction Representative
NAU Center for STEM	Sean Ryan	Jurisdiction Representative
NAU Emergency Management	Jeff McKay	Jurisdiction Representative
NAU School of Forestry	Victor Morfin	Jurisdiction Representative

Jurisdiction	Invitee	Project Role
EM Partners	Evan Koepke	Consultant Planning Team
EM Partners	Paul Manno	Consulting Planning Team
EM Partners	Kirby Felts	Consulting Planning Team
EM Partners	Aaron Walker	Consulting Planning Team

Presentation (cover only):



Meeting notes:

2026 Coconino County MJHMP Update

Planning Meeting 2

Date/Time: October 20th, 2025, 2:00-4:00 PM MDT
Location: Microsoft Teams

Action Items

#	Task	Responsible Party	Due
1.	Prepare for next meeting.	Coconino County EM/Consulting Team	TBD – January
2.	Finalize and share hazard profiles and mitigation worksheets.	Consulting Team / Coconino County EM	10/24
3.	Review draft hazard profiles for content.	Planning Team Members	11/21
4.	Complete mitigation action worksheets and update CPRI ratings if desired	Planning Team Members	11/21
5.	Coordinate public engagement materials preparation and demo event planning.	Consulting Team/ Coconino EM	11/21

Meeting Notes

- **Project Status**
  - Community Profile feedback and participating jurisdiction CPRI content received.
  - Initial public engagement and social media engagement have been completed.
  - Draft hazard profiles and risk assessments are being finalized.
    - Federal shutdown has led to the shutdown of some sources used to complete these items.
  - Second phase of public engagement will soon be underway.
- **Risk Assessment Review**
  - The Facilitator reviewed the CPRI results for all jurisdictions and confirmed what hazards each jurisdiction is exposed to and will need to mitigate for.
  - The Facilitator subsequently conducted an in-depth review of hazards that are high risk or whose analysis revealed dynamics not previously discussed with the planning team – highlighting their key locations, exposures, vulnerabilities, probabilities, and trends. These included wildfire, flood/debris flow, earthquake, landslide, and dam failure. Highlights from the presentation are noted below.

landslide, and dam failure. Highlights from the presentation are noted below.

- Number of hazards and probabilities of said hazards are seeing a shift of greater potential impact since the last update five years prior.
- Wildfires are being included as a hazard in most jurisdictions due to the smoke that would be present in higher risk areas.
- Infrastructural impacts for flood/debris flow make for distinct challenges specifically to future development being exposed.

EM PARTNERS

1

2026 Coconino County MJHMP Update
Planning Meeting 2 Minutes
October 20th, 2025

- Ongoing debate based on the accuracy of 100-year floodplain maps in the emergency management space. Current maps serve as great guidelines, but more specialized mapping would be more accurate.
- Earthquake events in Coconino County go back roughly 150 years making data more limited.
- Band of active fault lines from the Northwest to Southeast portion of the county could lead to devastating earthquakes.
- Lake Mary (near Flagstaff) fault zone leads to the concerning overlap of development in the city.
  - Enhanced earthquake codes is worth considering for the area due to the impact that the active fault zone may have on new developments in the city.
- US Geological Survey has released their recent models for earthquake models for coming years.
  - Rough approximation of highway routes and future development in coming years in Coconino County may be affected due to the survey's estimates.
  - Long-term mitigation will be necessary to brace for future impacts.
    - Most hazards occur in tandem with others (I.e.: Rainfall

- US Geological Survey has released their recent models for earthquake models for coming years.
  - Rough approximation of highway routes and future development in coming years in Coconino County may be affected due to the survey's estimates.
  - Long-term mitigation will be necessary to brace for future impacts.
    - Most hazards occur in tandem with others (I.e.: Rainfall and landslides).

- **Mitigation Goals and Action Planning**
  - Group reviewed and discussed the mitigation goals. Participants confirmed that they still are aligned with the participating jurisdictions' intent. It was requested that the concept of whole community engagement be integrated. No other changes were desired.
  - Facilitator reviewed what mitigation actions are, the different types, strategies for effectively mitigating hazards via multiple types of activities, and the key elements of information required to be provided for each mitigation action in the plan. Examples were reviewed.
  - Mitigation actions for each respective jurisdiction should work in your community, solve problems, and receive funding for.
- **Questions and Close-Out**
  - Next meeting expected for January to review draft plan – specific details TBD.
  - The Planning Team will be provided copies of the hazard profiles and risk assessment for general review and to help develop mitigation actions.
  - Mitigation Action Worksheets will be provided to guide jurisdictions through developing their mitigation actions and capturing them. The worksheets need to be completed promptly. Contact the Coconino PM and Consulting Team if assistance is required.
  - Planning Team should be prepared to coordinate the next phase of public engagement once initial scoping is done between the Consulting Team and the Coconino Project Manager.

Appendix C. Public Engagement Documentation

Appendix C contains documentation of stakeholder engagement and outreach. It includes survey format and results, webpage and social media account postings, and public notification material.

Dates	Event Activity	Documentation
May 2025 – October 2025	Media Campaign	• Posts on County, city/town, fire department, university websites • Posts on County, city/town, fire department, university Facebook, Instagram, and Twitter • County press release • County emergency notification system
May 22nd, 2025 – August 3rd, 2025	Public Engagement Survey and Results	• Survey questions, data analysis, and results report
May 5, 2026 – June 5, 2026	Public and Neighboring Jurisdiction Review Public draft MJHMP posted on County and cities' websites and sent to the following neighboring jurisdictions for review and comment.	• Posts on County and city/town websites (with select social media posts supporting outreach). • Email to neighboring jurisdictions and utilities ***NOTE:*** *No substantive feedback was received from the public, neighboring jurisdictions, or utility organizations engaged in the review process.*

Public Feedback

Source	Date Received	Summary of Feedback	Action Taken
Survey	5/11/2026	Feedback provides input that Coconino County should prioritize the reintroduction and protection of beavers as a critical, research-backed strategy for wildfire prevention. By seeing the ecosystem as a "helper" rather than a hindrance, the county can leverage beavers to clear flammable brush and create "beaver meadows," which act as natural firebreaks that have effectively mitigated damage in real-world emergencies. The comment criticizes current safety plans for overlooking this solution, asserting that excluding beavers compromises public safety and urging local officials to back	Referred to County Emergency Management for further examination and study.

		beaver health as a primary defense against fires.	
Survey	5/20/2026	Feedback looks to effectively address the wildfire threat in Flagstaff and its surrounding areas, current mitigation strategies emphasize a multi-faceted approach involving stricter regulations, aggressive forest management, and utility accountability. Proactive measures include implementing earlier and extended National Forest closures and fire bans—such as the Stage 1 restrictions enacted in May 2026 which prohibit open fires and limit smoking to enclosed or cleared areas. Aggressive thinning projects like the Upper Rio de Flag Forest Restoration aim to reduce hazardous fuel loads through mechanical thinning and prescribed burns to protect critical infrastructure. Legal and financial accountability is also rising; while new Arizona legislation like HB 2201 mandates that utilities submit rigorous wildfire mitigation plans, it also establishes liability protections for those in substantial compliance. Furthermore, strict enforcement of county ordinances can result in fines up to $750 or jail time for human-caused fire violations. Finally, there is a growing community dialogue regarding resource-heavy developments, such as data centers, to ensure they do not compromise the region's limited power and water supplies necessary for fire suppression and long-term sustainability	Referred to County Emergency Management for further examination and study. Multiple exiting mitigation actions cover the suggested items or require legislative and regulatory action beyond the scope of this plan.
Survey	5/21/2026	The reviewer highly praised the document's overall appearance but identified a single spelling error on page 26. Specifically, within Section 3.7 (Population	Spelling correction was made on Page 26.

		and Demographics) under the Unincorporated area plan, "Doney Park" was incorrectly written as "Donkey Park."	
Survey	5/22/2026	Feedback addressed the broken link to the 2021 Multi-Jurisdictional Hazard Mitigation Plan. Additionally, the plan PDF contains hardcoded placeholder text on pages 270–279 that requires correction to ensure compliance with FEMA requirements.	Correct link for 2021 MJHMP link has been added. Placeholder text for Plan Approval (Appendix A) has been removed.
Survey	5/24/2026	Feedback addressed a need for specific action plans, particularly regarding wildfire evacuation strategies for the Cheshire neighborhood to avoid gridlock. Further concerns addressed the transport of uranium and toxic substances on local highways, alongside demands for stronger protections for water resources against mining-related heavy metal contamination.	Risk to Cheshire, which is located within the city limits of Flagstaff, referred to County Emergency Management for further examination and integration in response planning. Uranium mining transportation risk is currently being monitored. Focused mitigation actions may be integrated in future editions as additional data becomes available.
Email	5/20/2026	Feedback advocates for shifting wildfire plans toward comprehensive, multi-year recovery operations by creating a dedicated recovery section and recognizing restoration contractors as critical infrastructure partners. Recommendations include establishing smoke contamination protocols, pre-event contractor credentialing, public-private recovery advisory groups, and metrics for economic, housing, and debris management to facilitate faster, long-term community recovery. These recommendations are informed by extensive experience in California's large-scale wildfire, smoke, and environmental recovery operations.	Added as an education and outreach mitigation action for Coconino County.
Email	5/23/2026	Feedback is proposing a pilot study for the Multi-Jurisdictional Hazard Mitigation Plan that uses compost-based	No action indicated. Since the study is still in progress, it won't make it into this version of the plan. Can be added after approval in an optional annual update.

		"bioberms" to accelerate post-wildfire habitat recovery. In collaboration with researchers from Northern Arizona University and the Composting Research & Education Foundation, the project aims to evaluate how these bioherms restore soil biology, control erosion, and reduce flash flooding on burn scars like the Dragon Bravo site. Beyond immediate recovery, the initiative explores using these soil amendments as a long-term mitigation strategy to create more resilient, fire-resistant corridors on public lands.	
Email	5/23/2026	Feedback recommended State of Arizona, including fire-prone counties such as Coconino, Yavapai, Navajo, and Apache, should receive increased federal funding for urgent wildfire mitigation efforts. Specifically, there is a critical need for large-scale hazardous vegetation removal to clear dead and dying trees along major transportation corridors like I-17, I-40, and Highway 89A in the Sedona and Flagstaff areas.	Addition will require inclusion in the mitigation action tables and prioritization table in the appendix. Best estimate for prioritization will suffice for prioritization table inputs.
Email	5/25/2026	Feedback highlighted that Table 3-29 for the City of Williams contains demographic percentages exceeding 100% [Page 62]. Furthermore, constituent identified a significant error regarding the city's water costs, clarifying that residential rates are $80.40 per 10,000 gallons, rather than the high-risk figure cited in the plan [Page 63].	No action indicated regarding the percentages as the percentages provided aren't meant to be summed up – they're select data points. Clarifying language was added in Section 3.11.6.
Email	5/28/2026	Proposed feedback includes updates for the Multi-Jurisdictional Hazard Mitigation Plan to focus on improving Coconino County's resilience through economic recognition, practical education, and	Mitigation actions at the county-level were made for home insurance coverage/cost data, Firewise certifications, home hardening, demonstration gardens, and a Community Wildfire Protection Plan.

		integrated outreach. A primary recommendation is to formally identify skyrocketing homeowner insurance premiums as a community vulnerability, using Firewise certification as a potential lever to stabilize coverage and costs. Additionally, the plan seeks to expand educational strategies by partnering with local institutions like the Arboretum at Flagstaff, which offers hands-on guidance through its Firewise demonstration garden and workshops. Finally, there is a push to better connect large-scale forest thinning projects with individual property-scale actions, helping residents understand how their personal "home hardening" efforts contribute to the broader goals of regional wildfire safety	Botanical and Conservation Institutions were added to County educational/outreach table. In addition, insurance cost increase and regional withdrawal have been added as a social vulnerability.

Outreach Email for Public Feedback (May 2026)

From Coconino County Emergency Management

Coconino County seeks public input on 2026 Hazard Mitigation Plan

FLAGSTAFF, Ariz. — Coconino County Emergency Management has released the draft 2026 Coconino County Multi-Jurisdictional Hazard Mitigation Plan for public review and comment throughout May.

This comprehensive plan identifies natural hazards that pose risks to communities across Coconino County and outlines strategies to reduce long-term vulnerability to those hazards. Developed through a collaborative process, the plan includes participation from Coconino County; the cities of Flagstaff, Page and Williams; the towns of Tusayan and Fredonia; and Northern Arizona University, along with other stakeholders and partner agencies.

Public participation is a key component of the hazard mitigation planning process. Community members, businesses and interested stakeholders are encouraged to review the draft plan and provide feedback to help ensure it reflects local priorities, concerns and insights.

The draft plan is available at coconino.az.gov/2474/Hazard-Mitigation-Plan.

Public comments will be accepted through **June 5, 2026**, via e-mail at emergencymanagement@coconino.az.gov or online at coconino.az.gov/hmpfeedback.

Following the comment period, the plan will be finalized for adoption.

###

Attachments

050126 Hazard Mitigation Plan.pdf

Click HERE to sign up for Coconino County Emergency Notifications and alerts.

To update your account preferences, or unsubscribe from all alerts and notifications, please click HERE.



Feedback Email #1

To: Shared Mailbox - Emergency Management <emergencymanagement@coconino.az.gov>
Subject: Emergency mitigation plan

[EXTERNAL EMAIL]
Use caution before clicking on links, opening attachments, or responding. DO NOT CLICK unless you recognize the sender and know the content is safe.

I would like to see the State of Arizona and each of the counties that have any type of forest or vegetation prone to fire to receive additional funds from the Federal Government. Specifically, I would like to see significant removal of trees that have died or are dying along I-17, I-40 and Highway 89A in and around Sedona and Flagstaff, Arizona.

Feedback Email #2

Sent: Wednesday, May 20, 2026 4:24 PM
To: Shared Mailbox - Emergency Management <emergencymanagement@coconino.az.gov>
Subject:

[EXTERNAL EMAIL]
Use caution before clicking on links, opening attachments, or responding. DO NOT CLICK unless you recognize the sender and know the content is safe.

Recommended Enhancements to the Coconino County Hazard Mitigation Plan

1. Add a Dedicated "Post-Disaster Recovery Operations" Section

The current plan is heavily weighted toward:

- hazard identification
- mitigation
- emergency response

…but large-scale recovery operations are minimally addressed.

Recommendation:
Create a dedicated section focused on:

- building stabilization
- environmental remediation
- smoke and soot recovery
- temporary protection
- debris management
- business continuity
- housing recovery
- contractor coordination
- building reoccupancy

Why:
In catastrophic wildfires, recovery operations can continue for years after emergency response ends.

2. Recognize Restoration Contractors as Recovery Infrastructure

The document recognizes:

- utilities
- transportation
- emergency management

2. Recognize Restoration Contractors as Recovery Infrastructure

The document recognizes:

- utilities
- transportation
- emergency management
- healthcare
- public works

…but not restoration and environmental recovery contractors.

Recommendation:
Formally recognize qualified restoration contractors as:

"critical recovery infrastructure partners."

Reason:
After a major wildfire:

- buildings cannot reoccupy without stabilization
- contamination must be addressed rapidly
- schools/businesses/hospitals remain closed without recovery services

3. Develop Wildfire Recovery & Smoke Contamination Protocols

The wildfire sections discuss fire behavior and debris flow well, but there is very little guidance regarding:

- smoke contamination
- corrosive residue
- HVAC contamination
- indoor air quality
- contents contamination
- reoccupancy standards

Recommendation:
Reference:

- ANSI/IICRC S700
- wildfire smoke recovery standards
- post-fire environmental guidance
- contamination assessment protocols

This is becoming one of the largest emerging issues in western wildfire recovery.

4. Establish Emergency Contractor Access & Credentialing Plans

One of the biggest operational failures after major disasters is lack of contractor coordination.

Recommendation:
Develop:

- pre-event credentialing systems
- emergency reentry protocols
- contractor access passes
- staging locations
- fuel access coordination
- debris hauling access
- utility coordination frameworks

Without this:

- recovery slows dramatically
- secondary damage increases
- residents remain displaced longer

5. Create Recovery Surge Capacity Planning

Large-scale disasters overwhelm local resources.

Recommendation:
Develop plans for:

- outside contractor surge support
- temporary workforce housing
- equipment staging
- drying equipment logistics
- emergency vendor coordination
- debris hauling capacity

Reason:
Local contractor capacity alone is rarely sufficient after catastrophic wildfire events.

Reason:
Local contractor capacity alone is rarely sufficient after catastrophic wildfire events.

6. Expand Public Education on Recovery Risks

Many property owners do not understand:

- smoke contamination
- delayed corrosion
- mold growth timelines
- unsafe cleanup practices
- contractor fraud risks

Recommendation:
Develop public guidance covering:

- immediate post-fire safety
- smoke exposure risks
- proper remediation expectations
- contractor verification resources
- insurance documentation best practices

7. Include Economic Recovery Metrics

The plan strongly addresses hazards but less strongly addresses:

"speed of community recovery."

Recommendation:
Add recovery metrics such as:

- business reopening timelines
- housing reoccupancy timelines
- school reopening timelines
- critical facility restoration priorities

Reason:
The speed of recovery directly impacts:

- local economy
- tax revenue
- tax revenue
- population displacement
- long-term community stability

8. Add Public-Private Recovery Coordination

Recommendation:
Establish a formal:

"Recovery Advisory Group"

Including:

- emergency management
- utilities
- restoration contractors
- environmental experts
- insurers
- building officials
- major employers
- healthcare representatives

This creates continuity before disasters occur.

9. Strengthen Debris Management Planning

Post-fire debris management is one of the largest operational bottlenecks nationally.

Recommendation:
Expand:

- debris staging strategies
- hazardous material separation
- temporary debris sites
- contractor dumping coordination
- ash/debris environmental handling guidance

10. Plan for Long-Term Wildfire Community Recovery

- debris staging strategies
- hazardous material separation
- temporary debris sites
- contractor dumping coordination
- ash/debris environmental handling guidance

10. Plan for Long-Term Wildfire Community Recovery

Large wildfire events are not 30-day incidents.

They become:

- multi-year recovery operations
- environmental recovery projects
- housing crises
- insurance crises
- labor crises

Recommendation:
The county should develop:

"Long-Term Recovery Frameworks"

for catastrophic wildfire events.

What You Should Say About Yourself

I'd keep it strong but clean:

I have spent my entire career in disaster restoration and recovery operations and currently help lead one of the largest restoration organizations in the United States. Our company is headquartered in Southern California and has extensive experience in wildfire, smoke, environmental, and catastrophe recovery operations, including significant involvement in many of the largest wildfire recovery efforts in California history. Collectively, our organization handles recovery work involving more than 100,000 damaged properties annually.

Then pivot immediately back to:

- helping the community
- sharing lessons learned
- strengthening recovery preparedness

That keeps the message powerful and credible.

Feedback Email #3

Use caution before clicking on links, opening attachments, or responding. DO NOT CLICK unless you recognize the sender and know the content is safe.

To the MJHMP Planning Committee:

I am writing to provide input regarding the current Multi-Jurisdictional Hazard Mitigation Plan. As Coconino County addresses the increasing frequency and intensity of wildland fires, I would like to bring your attention to an emerging research initiative focused on post-wildfire habitat recovery and soil resilience.

My organization, ESPE Resources (DBA "Grand Canyon Composting"), is currently designing a pilot study—in collaboration with **Dr. Jeff Meilander (Northern Arizona University)** and **Dr. Shelby Hoglund (Composting Research & Education Foundation, CREF)**—to evaluate the efficacy of compost-based "bioberms" as a habitat recovery technique on burn scars, potentially focusing on the Dragon Bravo site. We are also reaching out to researchers at NAU's Ecological Restoration Institute for possible collaboration.

A primary component of this study is a longitudinal analysis led by Dr. Meilander's team, which will examine the development of microbial and fungal communities within these compost-based bioberms compared to the surrounding fire-damaged soils. We aim to quantify how these amendments function as a habitat recovery technique to accelerate the restoration of healthy soil biology.

We anticipate that the application of these bioberms will provide critical, multi-faceted benefits to the burn scar, including:

- **Erosion Control & Soil Stability:** Mitigating sediment transport and soil loss on steep, fire-damaged slopes.
- **Runoff Retention:** Enhancing the water-holding capacity of scorched soils to reduce downstream flash flooding risks.
- **Ecological Restoration:** Facilitating the re-establishment of native vegetation by fostering healthy soil microbiomes in priority zones.

Beyond immediate recovery, our research team is interested in exploring the potential for these bioberm systems to serve as a long-term, passive wildfire mitigation strategy. By fostering "greener" corridors on drought-affected public lands, these engineered soil amendments may help decrease the continuity of flashy fuels and improve forest resilience against future ignition events.

We believe this research aligns with the County's goals of proactive hazard mitigation and sustainable land management. We would welcome the opportunity to present our study design and findings to the planning committee as you continue to evaluate and update the MJHMP.

Thank you for your dedication to the safety and resilience of Coconino County.

Feedback Email #4

Multi-Jurisdictional Hazard Mitigation Plan Update 2026

Page 62

Table 3-29: City of Williams – Race and Hispanic/Latino Origin Demographics

Select Demographics	2019	2023
White Alone	75.7%	59.3%
Some other race alone	11.8%	22.6%
American Indian or Alaska Native	5.5%	.30%
Two or More Races	2.7%	10.98%
Black or African American alone	3.6%	1.29%
Asian alone	0.6%	1.05%
Hispanic or Latino	37.6%	33.6%
Totals	**137.5%**	**129.12%**

How can the totals exceed 100%?

Page 63

Social Vulnerability

Williams had high risk ratings on cost of water ($1000/10,000 gallons)

The rate in listed is in error

RESIDENTIAL 10,000 (gal) General Public @ $ 0.00804 per gallon = $80.40

COMMERCIAL 10,000 (gal) General Public @ $ 0.01131 per gallon = $113.1

Refer attached City of Williams water rate sheet

Feedback Email #5

I'd like to offer three suggestions for the Planning Team's consideration:

1. NAME INSURANCE COST ESCALATION AS A COMMUNITY VULNERABILITY

Homeowner insurance premiums in Coconino County have increased dramatically in recent years — in my own experience, costs have quadrupled within a single year, with some carriers withdrawing from the market entirely. The current plan addresses economic impacts from wildfire broadly, but does not specifically identify insurance affordability and availability as a secondary hazard affecting WUI residents.

I'd encourage the plan to:
- Explicitly recognize insurance cost escalation as a measurable community resilience concern
- Explore whether Firewise community certification and home hardening actions can be promoted as tools that may help residents access or retain coverage and lower premiums
- Consider tracking insurance availability in the WUI as a metric in future plan updates

The plan already cites compelling data showing mitigation investments save $11 per $1 spent. Insurance cost reduction is a real part of that return, and naming it could help motivate resident participation in mitigation programs.

2. RECOGNIZE DEMONSTRATION GARDENS AND PLACE-BASED EDUCATION AS A MITIGATION STRATEGY

The plan identifies Firewise neighborhood certification and fire department outreach as existing education capabilities, which is excellent. I'd suggest expanding that category to include hands-on, community-accessible education sites.

The Arboretum at Flagstaff, already named in the plan as a notable community asset adjacent to the City of Flagstaff, newly hosts a Firewise demonstration garden that offers residents practical, plant-specific guidance on fire-adapted landscaping. This kind of on-the-ground education helps homeowners make defensible space decisions they can actually implement.

FYI: They are hosting an event: Fire & Water Wise Gardening Workshop on June 25. Details here: https://thearb.org/event/fire-and-water-wise-gardening-workshop-registration-required/

I'd encourage the plan to:
- Formally recognize demonstration gardens and horticultural education programs as a mitigation action category
- Consider the Arboretum at Flagstaff as a potential partner in resident education efforts, particularly around fire-adapted plant palettes for the WUI
- Include botanical and conservation institutions in the public-private partnership section alongside the Red Cross, United Way, and other listed organizations

3. CONNECT FOREST-SCALE WORK TO PROPERTY-SCALE ACTION

The community sees and appreciates the forest thinning and fuels reduction work being done through partnerships like the Greater Flagstaff Forests Partnership. That goodwill is an asset. As the County and GFFP develop the new unified Community Wildfire Protection Plan, I'd encourage building in a resident education component that explicitly connects large-scale forest work to what individual homeowners can do on their own properties — defensible space, fire-resistant landscaping, and home hardening.

Survey Feedback

ID	Start time	Draft Plan Feedback
1	5/11/26 17:50:21	In considering preventing dangerous fires in the Coconino region, it's important to consider seeing the ecosystem as a helper and not a hindrance. It's important to include the beaver. Beavers provide a variety of ecological functions such as clearing and flammable brush. But, more importantly creating beaver meadows which have been proven in real world fire emergencies to mitigate fire damage. There is plenty of research that it's a little hard to believe the beaver isn't the given a more important place in your plan. Leaving out beaver, is putting safety 3rd. Beaver reintroduction and beaver health stops fires. As a registered independent voter, I believe it's time for Coconino county to get behind the beaver.
2	5/20/26 16:00:01	Clearly, wildfire is the greatest threat to Flagstaff and surrounding area, so greatly expanded effort is required to help prevent and mitigate. Some suggestions: 1. earlier and longer closure of National Forest; 2. earlier and longer ban on open fires and naked flames in National Forests; 3. More aggressive, but sympathetic thinning of National Forests; 4. ban smoking in the county; 5. heavier fines/jail time for human-caused fires; 6. remove all above ground power lines - and make the utilites pay heavily if their lines cause fires; 7. no data centers - these are power and water hogs!
3	5/20/26 21:50:47	Very thorough. Praise for the planners. Thank you.
4	5/21/26 10:36:27	Spelling error on page 26. Section 3.7 Population and Demographics. Under the Unincorporated (area plan) Doney Park is spelled Donkey Park. Thanks for the opportunity to review. Looks amazing.
5	5/22/26 14:47:10	On the "2021 Multi-Jurisdictional Hazard Mitigation Plan" page, the link to this form is broken. The href starts with "www" instead of a protocol or slash. In the plan PDF, pages 270-279 have hardcoded placeholder text. It isn't interactive like it claims to be, so FEMA may have a hard time with it.
6	5/24/26 8:34:08	The plan seems descriptive of many issues but I am not seeing the action plan in several places of which I have concern. 1. fire that would require evacuation of cheshire and surrounding neighborhoods. We could easily be trapped as there is only one way out and roads would quiclky gridlock. 2. hauling uranium and other toxic substances on our highways that should be left in the ground. There has been an accident already and we know more will happen. It should not be allowed to pass. 3 . our water is precious and we cannot have it contaminated by heavy metals associated with mining and other things. We may even need to use our reclaimed water for human requirements for survival not for use as it is now on sacred lands for recreation.

Press Release Email (May 2025)

Wnuck, Chance

From: Communications Team
Sent: Thursday, May 22, 2025 1:22 PM
Subject: RELEASE | Coconino County Seeks Public Input for Hazard Mitigation Plan Update
Attachments: 052225 MJHMP Outreach.pdf

Good afternoon,

Please see the attached release which is also pasted below: Coconino County Seeks Public Input for Hazard Mitigation Plan Update.

Para encontrar este comunicado de prensa en español, por favor visite https://coconino.az.gov/ y 'Select Language' en la ondado izquierda del sitio web, y haga clic en Noticias del ondado para la publicación reciente.

Coconino County Seeks Public Input for Hazard Mitigation Plan Update

FLAGSTAFF, Ariz. — The frequency and severity of disasters continue to rise across the country. To prepare for, and reduce these risks, Coconino County is updating our Multi-Jurisdictional Hazard Mitigation Plan (MJHMP). The purpose of this plan is to evaluate the risk posed to the community by natural and man-made hazards and to identify actions that can reduce or eliminate those risks. This update is a joint project between Coconino County, the cities and towns of Flagstaff, Fredonia, Williams, Tusayan, and Page, as well as Northern Arizona University.

Community participation is at the heart of this planning process. Input from residents, business owners, and local organizations is essential to help planners understand local priorities, concerns, and historical knowledge. To kick off public involvement, the County has launched a Hazard Mitigation Planning Survey, available now at: www.coconino.az.gov/feedback.

"Mitigation starts with participation," said Tim Carter, Coconino County's Acting Director of Emergency Management. "The more input we receive from our communities, the better we can shape a plan that truly reflects the needs and values of the people we serve."

In addition to helping reduce disaster impacts, having a FEMA-approved hazard mitigation plan ensures the County and our partners remain eligible for state and federal funding. This includes both hazard mitigation grants, used for proactive projects like brush thinning and drainage improvements, and disaster relief funding to help communities recover from events more quickly and affordably.

1

"Mitigation activities directly increase our resilience to natural disasters. By reducing the impacts of disasters, it allows us to respond to, and recover from, incidents more quickly," said Carter.

Coconino County will offer multiple public engagement opportunities throughout the planning process, with updates and announcements shared online.

Stay informed and engaged by visiting Coconino County Emergency Management at www.coconino.az.gov/ready or on social media at:
Facebook: @CoconinoCountyEmergencyManagement
Instagram: @CoconinoEM

To support this effort, the County has partnered with EMPartners, LLC, a nationally recognized emergency management consulting firm. The updated MJHMP is expected to be completed by March 2026.

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2

Arizona Daily Sun Press Release

ARIZONA DAILY SUN Thursday, May 29, 2025 | A5

Is Arizona's lack of measles cases a fluke?

BY MADELINE BATES
Cronkite News

Measles — declared eliminated in the U.S. in 2002 thanks to widespread vaccination — has hit at least 22 states this year.

Arizona hasn't reported a single case during the current outbreak, despite its relatively low vaccination rate. The hot, dry climate could be a factor, as could demographics and population density.

But Arizona is no safe haven from measles. The state recorded six cases last year, and public health experts say it's probably a matter of time before Arizona joins this year's list.

Nearly everyone who has contracted measles this year was unvaccinated, according to the Centers for Disease Control and Prevention and state public health authorities. Roughly 12% of Arizona children haven't had the vaccine by the time they start school.

"Community immunity is highly effective and makes everyone's protection stronger, especially for those who are immunocompromised," said Dr. Nick Staab, chief medical officer and epidemiologist at the Maricopa County Department of Public Health.

Public health authorities say 19 out of 20 people must be immunized to confer herd immunity.

Measles targets children under age 5. But only three of the state's 15 counties have hit the 95% vaccination threshold for kindergarteners: La Paz, Santa Cruz and Yuma. In Yavapai and Mohave counties, one in four kindergarteners haven't been vaccinated. In Maricopa, it's one in 10.

Measles is a highly contagious airborne virus. Symptoms appear between one to three weeks of exposure. Watery eyes, fever, rash, cough and muscle aches are common. Individuals are infectious four days before and four days after the onset of the telltale rash.

Anyone who's had measles is immune for life. Before the vaccine was introduced in 1963, nearly every child caught it by age 15, according to the Infectious Diseases Society of America.

Arizona's demographics may have helped to stave off an outbreak. Nearly one in five residents is 65 or older, according to the Census Bureau. Apart from adults with compromised immune systems, young people are the most vulnerable, Staab said. And 21% of the state population is under 18, according to census data.

But the state's population density is low: 63 people per square mile compared to 111 in Texas, according to 2020 Census data. Experts say that might help delay an outbreak, though the hot zones in Texas and New Mexico are in rural areas.

In 2024, the CDC recorded 285 cases of measles across the country. So far in 2025, the CDC has reported more than 1,000 cases and three deaths: two in Texas and one in New Mexico. The agency says there are likely many more cases that haven't been reported.

Most of the cases are in Texas, and most of those are in Gaines County in far West Texas, according to state authorities. New Mexico is second, mostly in a county next to Gaines County. Kansas is third.

Dr. Shad Marvasti, director of Integrative Medicine at HonorHealth and an associate professor of Family, Community and Preventive Medicine at the University of Arizona College of Medicine-Phoenix, suspects that at least one person in Arizona already has contracted measles — either without knowing it or without going to a doctor.

With a growing number of people choosing not to vaccinate and the dense population of Maricopa County, Marvasti says it's only a matter of time.

There are currently two vaccines for measles, known as MMR and MMRV. Both protect against measles, mumps and rubella. MMRV also includes protection against varicella, the virus that causes chickenpox.

Arizona is among many states with a kindergarten MMR vaccination rate below 90% in 2024, according to the Arizona Department of Health Services. By comparison, the rates in New Mexico and California, which have both seen measles cases this year, topped 95%.

The Arizona Department of Health Services suggests two doses of the MMR or MMRV vaccine: the first between 12 and 15 months followed by a booster at age 4 to 6 years. The department encourages unvaccinated children and adults to get vaccinated as soon as possible.

ADHS says getting both doses provides 97% protection from measles.

Officials in the counties with the lowest vaccination rates in the state, Mohave at 78% and Yavapai at 75.2%, say they're concerned. Those rates are even lower than a year earlier, according to AZDHS records.

"There's always a concern and we want healthy residents, but we do respect the parent's decision to not vaccinate," said Dani Lagana, public information officer for the Mohave County Department of Public Health.

BRIEFS

Coconino County Attorney's Office unveils new logo

BY DAILY SUN STAFF

The Coconino County Attorney's Office debuted a new logo and seal on Friday, May 23, created in partnership with Northern Arizona University's VisualDESIGNLab.

"We wanted something that truly represented who we are as an office, and a community," County Attorney Ammon Barker stated in a press release. "Our new logo and seal tell that story. They reflect our landscape, our history and our shared commitment to justice and service."

The new design features the clock tower of the historic county courthouse, the San Francisco Peaks and sun rays, all rendered in contrasting blue and white. According to the office's announcement, those design elements are intended to symbolize "the heart of the justice system," northern Arizona's "diverse geography" and "hope, renewal and the possibility of a brighter future," respectively.

The office's old seal was a six-pointed star inside a circle, with the Great Seal of the State of Arizona at the middle — very similar to the badge of the Coconino County Sheriff's Office. The attorney's office said that the new logo "offers a bold, modern look while preserving the professionalism expected of a public legal office."

The VisualDESIGNLab (VDL) offers undergraduate design students a chance to gain real-world experience through collaboration with local partners.

VDL created the current logo for Coconino County, among numerous other brand-identity projects. VDL also created concepts for a new City of Flagstaff logo and seal, but that plan hit a snag when the current city council declined to move forward with the redesign in April.

The attorney's office will transition to the new design on official materials, including letterhead, business cards and public communications, over the coming weeks. Additional information about the Coconino County Attorney's Office is available at coconino.az.gov/countyattorney.

Health First Foundation adds 2 to board

BY DAILY SUN STAFF

Health First Foundation — Northern Arizona recently added two members to its board of directors.

Dr. Beth DuPree, MD, is board certified in general surgery and integrative and holistic medicine. She has 35 years of experience in surgical care and management of breast cancer and currently works part time in the surgical oncology practice at Redeemer Health in Pennsylvania.

She earned her medical degree from Hahnemann University and lives in Sedona.

Dr. Richard Smith is a graduate of Northern Arizona University where work has included executive roles in higher education, healthcare and youth development.

Before retirement, he was the founding president and CEO of Health First.

"The Health First Foundation is very excited to welcome doctors DuPree and Smith," said board Chair Christopher Bavasi in the May 22 announcement. "Their experience, wisdom and enthusiasm are huge assets and will be a great complement to our engaged and committed board."

The foundation works to advance community health across northern Arizona.

In 2024, it distributed a total of $600,000 in grants and sponsorships to health initiatives led by organizations in the region.

More information is available at healthfirstforall.org.

Arboretum offering camps for elementary schoolers

BY DAILY SUN STAFF

The Arboretum at Flagstaff will be offering its Eco-Explorers Summer Camp again in June and July, featuring outdoor learning experiences for kids aged 5 to 11.

The camp offers five weekly themed sessions at the Arboretum, from studying pollinators and wildlife habitats to honing wilderness survival skills.

Each week costs $360 per camper, with a limited number of scholarships available. Sessions are from 9 a.m. to 4 p.m. Monday through Friday the weeks beginning June 9 through July 11.

"I've seen campers blossom into confident adventurers, embracing challenges and forging friendships that last beyond the summer," said Arboretum education manager Helena Murray. "These outdoor experiences spark creativity, resilience and a deep appreciation for our environment."

Camp will kick off the week of June 9-13 with Pollinator Power, followed by Creature Camp July 7-11 and Weird Plant Science July 14-18.

It is also offering two weeks of Wilderness Explorers sessions, with one building off the other to teach outdoor skills. Wilderness Explorers I (June 16-20) covers Leave No Trace principles, identifying landmarks and using a compass, while Wilderness Explorers II (June 23-27) introduces campers to fire safety, edible plant identification and outdoor teamwork challenges.

Campers aged 8 to 11 can also camp out under the stars at the Arboretum during one of these sessions for an additional cost.

More information, including how to register, can be found at thearb.org/summer-camps.

County seeking public input for Hazard Mitigation Plan update

BY DAILY SUN STAFF

In order to prepare for and reduce the risks of disasters, Coconino County is updating its Multi-Jurisdictional Hazard Mitigation Plan (MJHMP).

The purpose of the plan is to evaluate the risk posed to the community by natural and man-made hazards and to identify actions that can reduce or eliminate those risks. This update is a joint project between Coconino County, the cities and towns of Flagstaff, Fredonia, Williams, Tusayan and Page, as well as Northern Arizona University.

Community participation is key to the planning process as input from residents, business owners and local organizations is essential to help planners understand local priorities, concerns and historical knowledge. To begin public involvement, the county has launched a Hazard Mitigation Planning Survey, which is available at coconino.az.gov/feedback.

"Mitigation starts with participation," said Tim Carter, Coconino County's acting director of Emergency Management. "The more input we receive from our communities, the better we can shape a plan that truly reflects the needs and values of the people we serve."

In addition to helping reduce disaster impacts, having a FEMA-approved hazard mitigation plan ensures the county and its partners remain eligible for state and federal funding. This includes both hazard mitigation grants, used for proactive projects such as brush thinning and drainage improvements, and disaster relief funding to help communities recover from events more quickly and affordably.

"Mitigation activities directly increase our resilience to natural disasters. By reducing the impacts of disasters, it allows us to respond to, and recover from, incidents more quickly," Carter said.

Coconino County will offer multiple public engagement opportunities throughout the planning process, with updates and announcements shared online. The updated MJHMP is expected to be completed by March 2026.



Coconino County Press Release (May 2025)

Coconino County Emergency Management

"A safer future through effective partnerships committed to saving lives, protecting property, reducing the impact of disasters, and providing effective planning for special events."

Tim Carter
Acting Director

FOR IMMEDIATE RELEASE

Coconino County Seeks Public Input for Hazard Mitigation Plan Update

FLAGSTAFF, Ariz. - The frequency and severity of disasters continue to rise across the country. To prepare for and reduce these risks, Coconino County is updating our Multi-Jurisdictional Hazard Mitigation Plan (MJHMP). The purpose of this plan is to evaluate the risk posed to the community by natural and man-made hazards and to identify actions that can reduce or eliminate those risks. This update is a joint project between Coconino County, the cities and towns of Flagstaff, Fredonia, Williams, Tusayan, and Page, as well as Northern Arizona University.

Community participation is at the heart of this planning process. Input from residents, business owners, and local organizations is essential to help planners understand local priorities, concerns, and historical knowledge. To kick off public involvement, the County has launched a Hazard Mitigation Planning Survey, available now at:

www.coconino.az.gov/feedback

"Mitigation starts with participation," said Tim Carter, Coconino County's Acting Director of Emergency Management. "The more input we receive from our communities, the better we can shape a plan that truly reflects the needs and values of the people we serve."

In addition to helping reduce disaster impacts, having a FEMA-approved hazard mitigation plan ensures the County and our partners remain eligible for state and federal funding. This includes both hazard mitigation grants -used for proactive projects like brush thinning and drainage improvements - and disaster relief funding to help communities recover from events more quickly and affordably. "Mitigation activities directly increase our resilience to natural disasters. By reducing the impacts of disasters, it allows us to respond to, and recover from, incidents more quickly," said Carter.

Coconino County will offer multiple public engagement opportunities throughout the planning process, with updates and announcements shared online. Stay informed and engaged by visiting Coconino County Emergency Management at www.coconino.az.gov/ready or on social media at:

Facebook: @CoconinoCountyEmergencyManagement

Instagram: @CoconinoEM

To support this effort, the County has partnered with EMPartners, LLC, a nationally recognized emergency management consulting firm. The updated MJHMP is expected to be completed by March 2026.

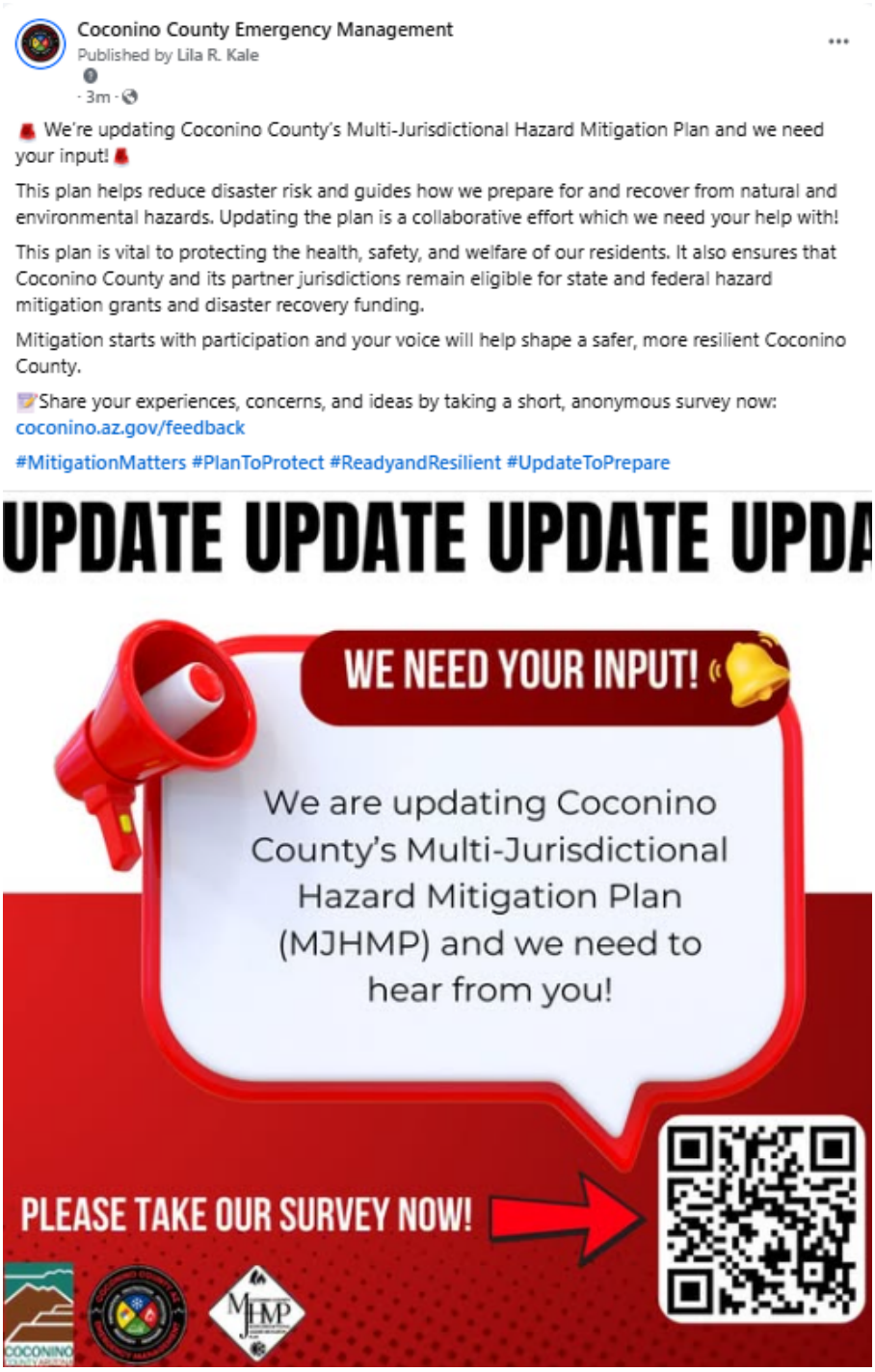
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2625 N. King Street, Flagstaff AZ 86004
emergencymanagement@coconino.az.gov | 928-679-8311

Coconino County Update Annoucement (May 2025)



Coconino County Instagram Post (May 2025)



Coconino County Instagram Post (June 2025)

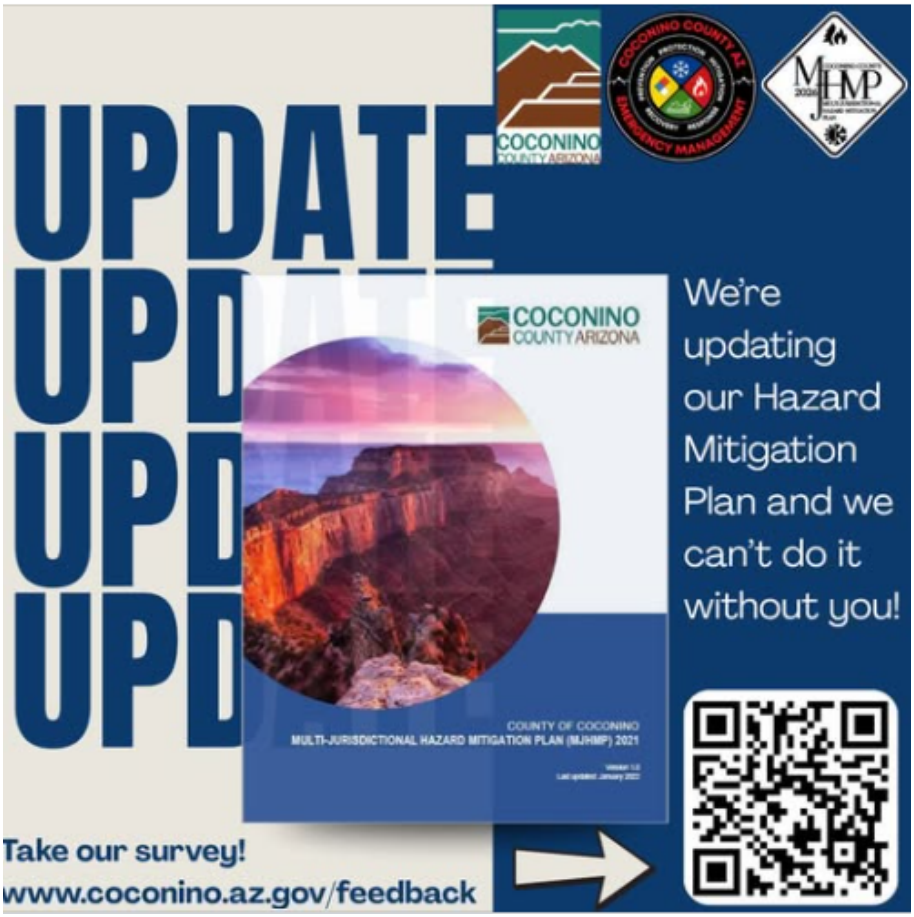
Coconino County Emergency Management
Published by Lila R. Kale
· Just now ·

Today is not just a regular Monday. It's the first of our Mitigation Mondays! We will be sharing everything there is to know about our Multi-Jurisdictional Hazard Mitigation Plan Update for the next few weeks, and why it is so important for us to have your feedback!

We're starting off this series with a myth-buster.

Myth: "Disasters can't be prevented, so why plan?"
Fact: While we can't stop disasters, we CAN reduce their impact. Here's why hazard mitigation matters:
💪 Hazard mitigation plans identify and prioritize risks, allowing communities to take proactive measures to reduce vulnerabilities.
💪 Investing in mitigation measures before a disaster can save lives and reduce recovery costs.
💪 By implementing mitigation strategies, communities become more resilient to disasters, ensuring a quicker recovery and less disruption to daily life.
🦾 Mitigation starts with participation. Get involved by taking our short survey today to make your voice heard: Link in bio or www.coconino.az.gov/feedback

#MitigationMatters #PlantoProtect #ReadyandResilient #UpdateToPrepare



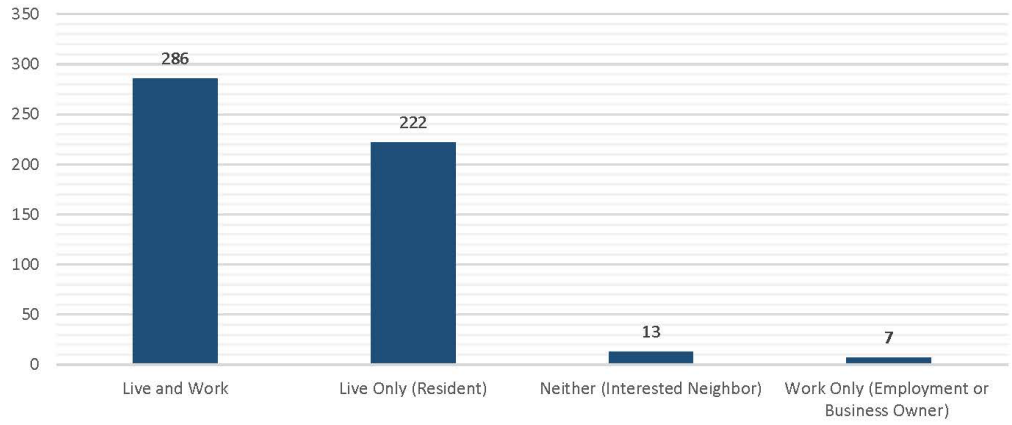
Survey Questions and Results (Data Analysis)

Hazard Mitigation Plan Update 2026
Mitigation Public Engagement Survey Report
August 2025

Hazard Mitigation Planning
Public Engagement Survey Report

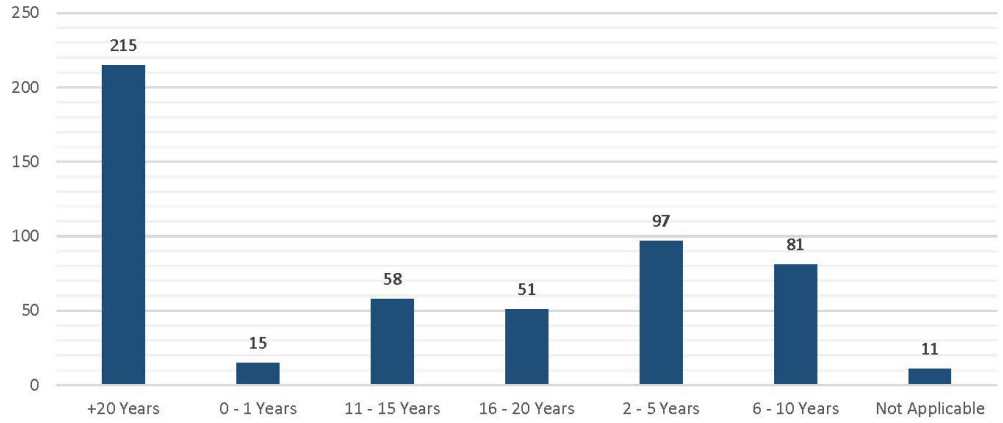
To inform the update of the Coconino County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP), a survey was conducted measuring citizen level of concern for various hazards and their general level of preparedness. This electronic survey was conducted from May 22, 2025 and was closed August 3, 2025. The survey was made available to the public using the Coconino County public alert system, jurisdictional websites, and social media channels. In total, 529 residents of Coconino County responded to the survey.

Question 1: Do you live and/or work in Coconino County?



Most respondents either live and work within Coconino County (just over half) or live there only (about 4 in 10). A much smaller number either work only in the area or were from neighboring jurisdictions, with no direct live/work connection. Overall, the data shows strong representation from people with a daily connection to the community, either by residency, employment, or both.

Question 2: How many years have you lived or worked in Coconino County?

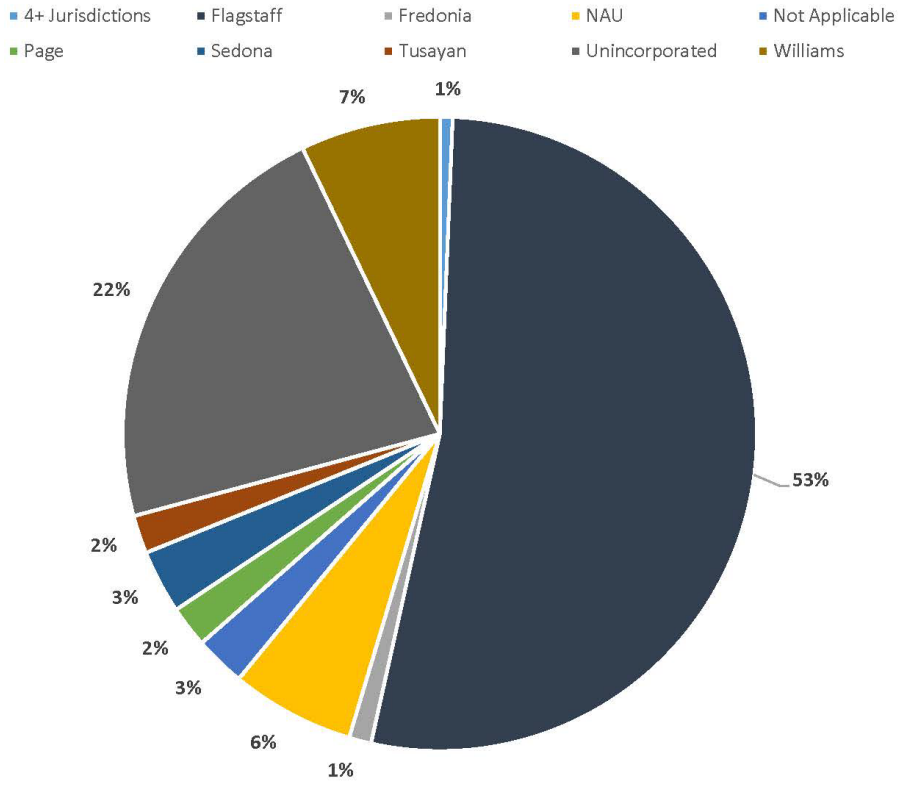


Most respondents have a long history in Coconino County, with the majority reporting 20+ years of living or working there. The next largest groups fall into the 16–20 year and 6–10-year ranges, showing a mix of long-term residents and those with more moderate tenure. Smaller but still notable numbers reported 2–5 years or 11–15 years, while relatively few indicated 0–1 year, suggesting lower recent in-migration or newcomers. A small portion selected Not Applicable, meaning they may not have lived or worked directly in the county but still participated.

Overall, the data highlights Coconino County as a place with deep roots and strong long-term connections, complemented by a smaller but steady presence of newer residents and workers.

Hazard Mitigation Plan Update 2026
Mitigation Public Engagement Survey Report
August 2025

Question 3: What jurisdictions in Coconino County do you reside and/or work in?

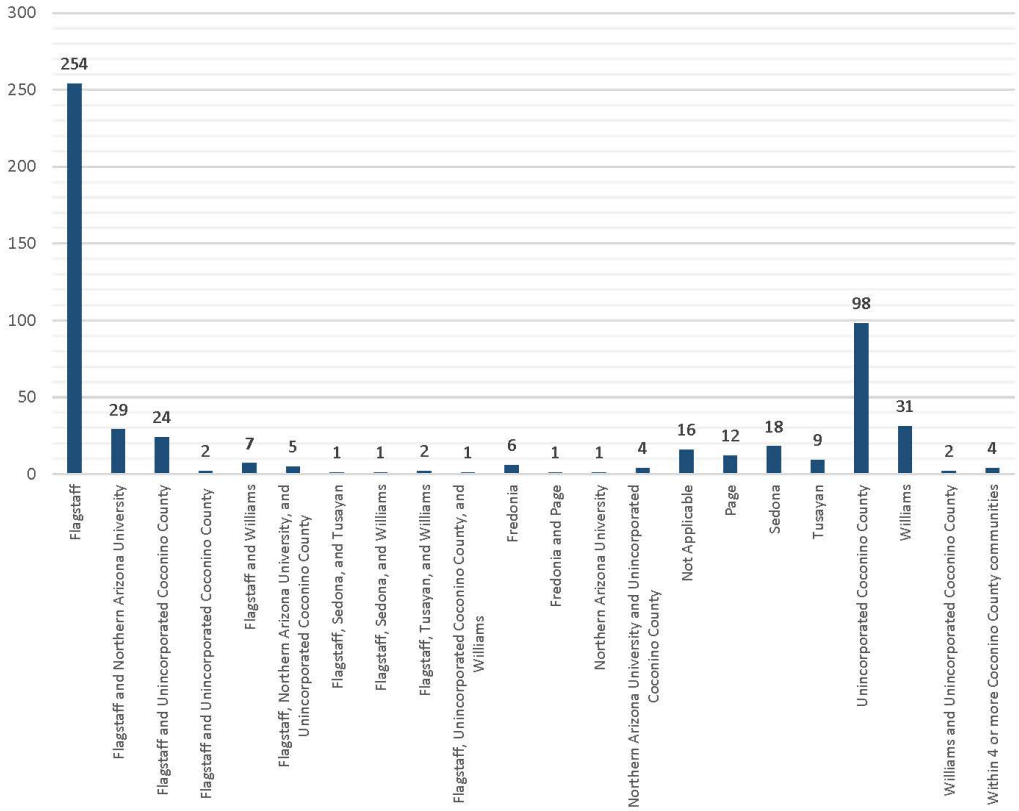


Most respondents identified Flagstaff as their primary place of residence or employment, making it by far the most common location. A significant number also reported living or working in the Unincorporated areas within Coconino County, showing strong representation from rural communities outside city limits. Smaller but consistent groups identified Williams, Tusayan, Page, Sedona, and Fredonia. A small number were not from Coconino County or did not wish to report on their location. An even smaller number reported more than four jurisdictions.

The significant variance in volume of responses between Flagstaff, Unincorporated Coconino County, and all other jurisdictions is likely due to population size differences and, more significantly, the significantly different amounts of public messaging and advertisement by each jurisdiction - the bulk of which was done by Coconino County and the City of Flagstaff.

Note that while part of Sedona is located within Coconino County, the bulk of the City is located in Yavapai County and is integrated in their Multi-Jurisdictional Hazard Mitigation Plan.

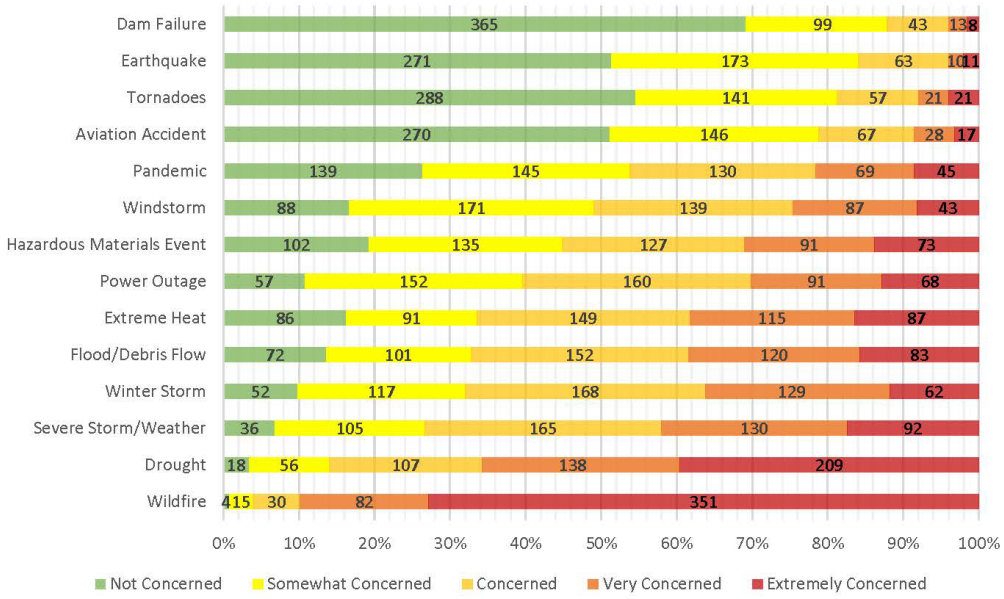
Hazard Mitigation Plan Update 2026
Mitigation Public Engagement Survey Report
August 2025



Respondents were provided with the opportunity to identify multiple jurisdictions as part of their response. This revealed a substantial amount of population mobility among the jurisdictions of Coconino County. Whie not necessarily representative of the volume or proportions of inter-jurisdictional movement, they are indicative of the patterns and relationships that may be observed. Many of these connections likely reflect commutes between home and work/school, as well as travel for family, friends, and/or recreation.

Hazard Mitigation Plan Update 2026
Mitigation Public Engagement Survey Report
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Question 4: Coconino County is exposed to a variety of natural and man-made hazards. How concerned are you about the following? (Check one for each hazard)



Survey responses show that concern levels vary widely across different hazards, with certain threats generating significantly more worry than others.

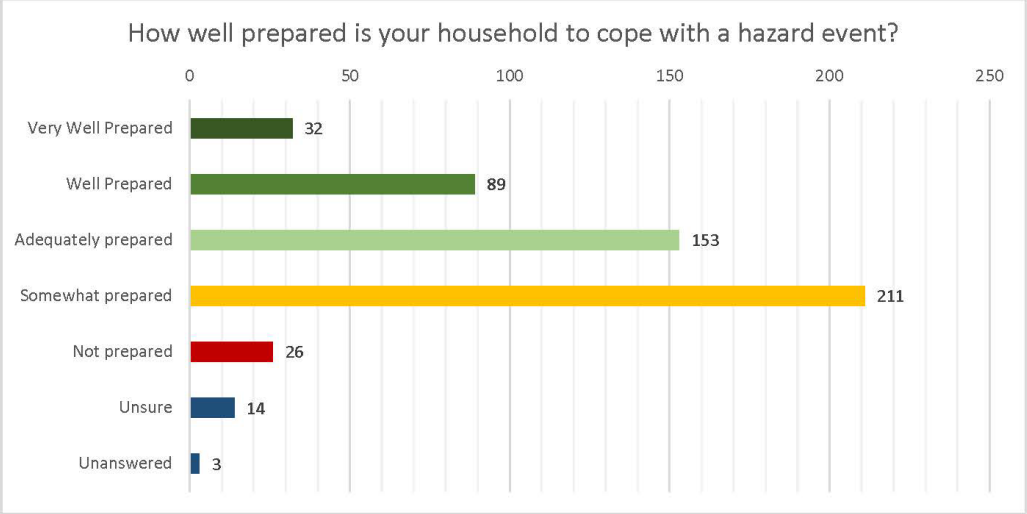
Wildfire and Drought emerged as the highest areas of concern, with over 75% of respondents noting moderate concern or greater, and over half indicating they were *very concerned or extremely concerned.*

Severe Storm/Weather, Winter Storms, Flood/Debris Flow, Extreme Heat, Power Outage, Hazardous Materials Event, and Windstorm followed with 75% to 50% or respondents report moderate or higher levels of concern. Between 42% and 25% of the responses were very concerned or extremely concerned. Windstorm and Pandemic trailed this group by a few percentage points, with their responses showing a similar distribution.

Lastly, Aviation Accident, Tornadoes, Earthquake, and Dam Failure were of substantially lower levels of concern. Each had over 50% of respondents indicate that they had no concern about those hazards, and only 22-12% of respondents indicate moderate to high levels of concern.

The levels of concern likely reflect memory of historical events, with all but the last group having notable occurrences with substantial impacts in recent history. The levels of concern may also reflect public engagement and outreach efforts that have occurred to advance regional mitigation and preparedness initiatives, as well as hazards that have significant economic and political impacts (such as drought).

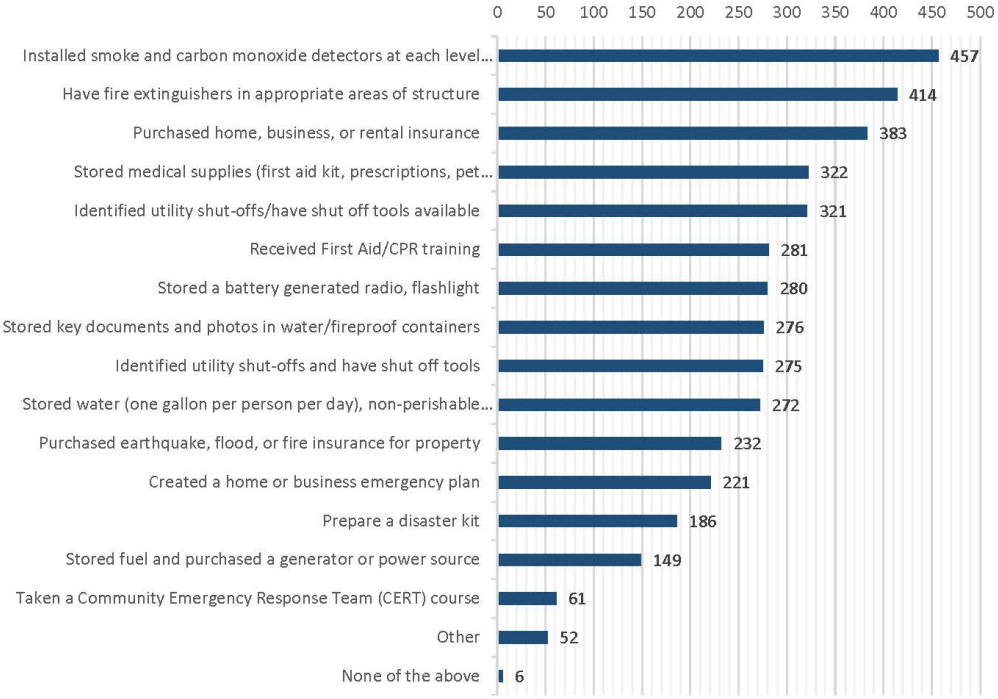
Question 5: How well prepared is your household to cope with a hazard event?



The survey data indicates that household preparedness for hazard events varies significantly across respondents, with the majority reporting moderate levels of readiness. Most households describe themselves as either adequately prepared or somewhat prepared, reflecting a baseline awareness of hazards and a regional culture of preparedness or self-sufficiency, but potential gaps in resources, planning, or training. A smaller proportion of households identify as well prepared or very well prepared – suggesting a subset of residents have taken comprehensive measures to cope with emergencies.

Notably, a minority of respondents indicated they are not prepared or unsure about their household's readiness, highlighting areas where targeted outreach, education, or support could enhance community resilience. Overall, the data suggests that while general awareness and preparation exist, there is significant room for improvement in achieving consistently high household preparedness across the community.

Question 6: Which of the following actions has your household and/or business taken to prepare for emergencies and disasters events?

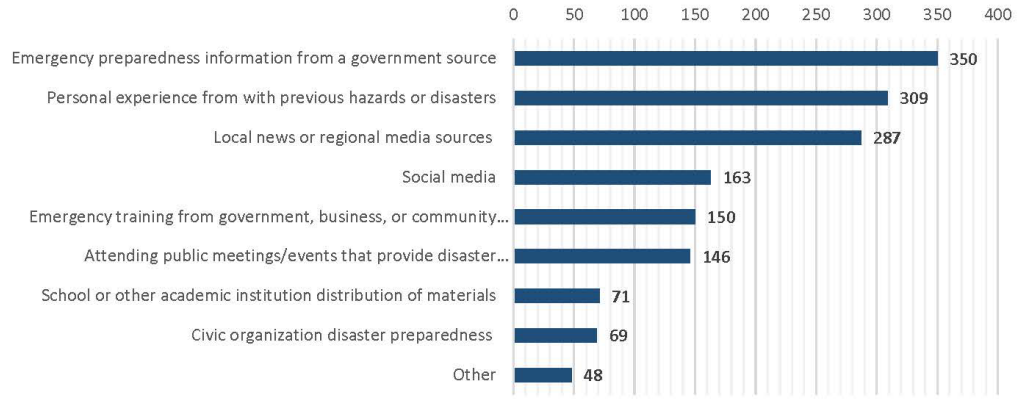


Nearly 75% of respondents reported installing smoke and carbon monoxide detectors at each level of the property, having fire extinguishers in appropriate areas, and purchasing home, business, or rental insurance, highlighting a strong focus on fire safety, medical emergencies, and financial protection.

Around half of respondents or less reported conducting enhanced preparedness actions that involve training, supply storage, preparation for utility disruption, and major hazard or disaster planning and financial preparation/insurance acquisition. The lowest reported actions include preparation of disaster kits, storage of alternate fuel or power sources, and CERT training. Very few respondents reported not implementing any of those actions.

This data indicates that respondents prioritize safety systems, insurance, and essential supplies. Meanwhile formal training and preparedness actions for less frequent, but more potentially catastrophic hazard events, are less frequently adopted.

Question 7: Which of the following sources of information have helped you to prepare for a hazard event?

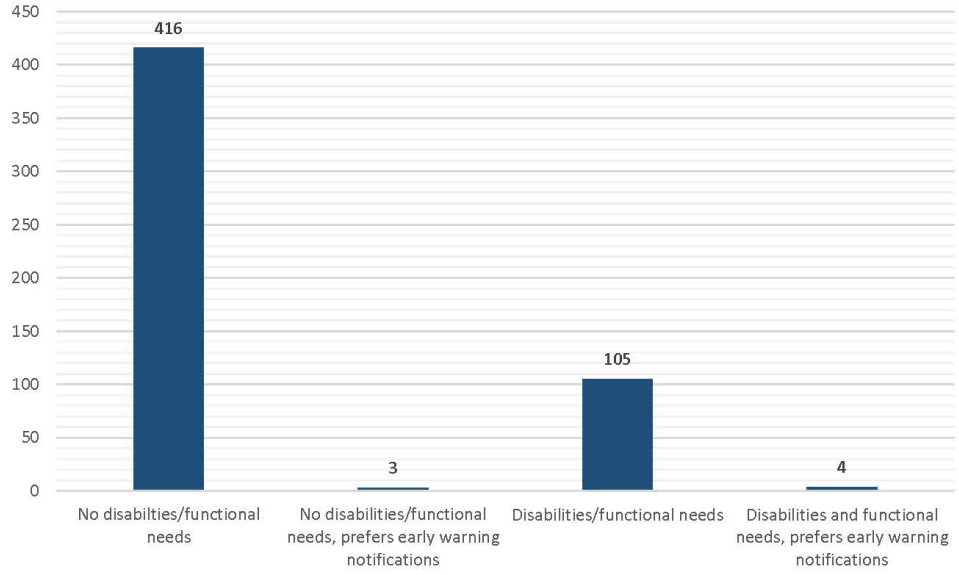


The data reflects the sources from which respondents obtain information about emergency preparedness. The most cited source is emergency preparedness information from a government source, indicating a strong reliance on official guidance. Personal experience with previous hazards or disasters and local news or regional media sources were also significant sources of information, highlighting the role of both lived experience and traditional media in shaping preparedness knowledge.

Less frequently reported sources include social media, emergency training from government, business, or community sources, and attending public meetings or events that provide disaster preparedness information. Academic institutions and civic organizations are cited even less, with school or other academic institution distribution of materials and civic organization disaster preparedness efforts. Finally, 48 respondents indicated obtaining information from other sources.

Overall, this suggests that government sources, past experiences, and local media are the primary channels for emergency preparedness information, while more formal training, educational distribution, and civic engagement play a smaller role.

Question 8: Do you or anyone in your household have disabilities and/or access and functional needs and would you be interested in early warning notifications or specialized response to evacuating during disasters?



The data shows that most survey respondents—over 400 individuals—reported having no disabilities or functional needs. A much smaller number, only a few respondents, indicated that they do not have disabilities but would prefer to receive early warning notifications.

Among those with disabilities or functional needs, just over 100 respondents identified themselves in this category. Only a very small group reported both having disabilities/functional needs and a preference for early warning notifications. These results suggest that while most respondents do not report special needs, there is still a meaningful subset of the population with functional needs that should be considered in emergency planning, particularly in relation to communication and early alerts.

Appendix D: Mitigation Plan Prioritization

These worksheets follow the FEMA State and Local Mitigation Planning How-To Guide: Developing the Mitigation Plan – Identifying Mitigation Actions and Implementation Strategies published by FEMA in 2003.

Coconino County

STAPLEE Prioritization Tool (Scoring: "+" = 1 point, "-" = -1 point, "n/a" = 0 point, "u/k" = unknown)							
	S	T	A	P	L	E	E

#	Mitigation Action	Community	Effect on Segment	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operati	Political Support	Local Champion	Public Support	State Authority	Existing Local	Potential Legal	Benefit of Action	Cost of Action	Contributes to	Outside Funding	Effect on	Effect on	Effect on HAZMAT/	Consistent w/Comm.	Consistent w/	Priority Total (net)
1.1	East Bellemont Traffic Interchange - Secondary I-40 Access for Bellemont	+	+	+	+	u/k	+	-	+	+	+	+	+	+	-	+	-	+	+	-	u/k	-	+	+	12
1.2	Bellemont to Bader Connection - US 180	+	+	+	+	-	+	-	+	+	+	+	+	+	-	+	-	+	+	-	u/k	-	+	+	10
1.3	Systematic Drainage Projects - Replace all culverts identified as needing to be replaced in the Drainage Infrastructure Inspection Study	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	u/k	+	+	+	21
1.4	Magdalena Drainage Improvements - Upsizing culverts and ditches to mitigate hydraulic impact across and along US 180	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	n/a	+	+	u/k	-	+	+	17
1.5	Suzette Lane and Bader Road - Roadside drainage	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	n/a	+	+	u/k	-	+	+	17

#	Mitigation Action	Community	Effect on Segment	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operati	Political Support	Local Champion	Public Support	State Authority	Existing Local	Potential Legal	Benefit of Action	Cost of Action	Contributes to	Outside Funding	Effect on	Effect on HAZMAT/	Consistent w/Comm.	Consistent w/	Priority Total (net)
1.6	Espey Road Drainage Improvements – Targeted Culvert Installation	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	n/a	+	+	u/k	-	+	+	17
1.7	Sherwood Forest Drainage Study and Infrastructure Improvements	+	+	+	+	n/a	+	+	+	+	+	+	+	+	+	+	+	n/a	+	n/a	n/a	n/a	+	+	18
1.8	Perkinsville Road Wildfire Mitigation – Roadside Fuel Reduction and Fire Break Enhancement	+	+	+	-	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+	17
1.9	Lake Mary Road Wildfire Mitigation – Roadside Fuel Reduction and Right-of-Way Thinning	+	+	+	-	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+	17
1.10	Old Route 66 Wildfire Mitigation – Roadside Fuel Reduction and Right-of-Way Thinning	+	+	+	-	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+	17
1.11	Solar-Powered Mobile Digital Message Boards – Winter Hazard and Road Closure Safety Enhancement (6 Units)	+	n/a	+	-	n/a	+	+	+	+	+	+	+	+	n/a	-	+	+	+	n/a	n/a	n/a	+	+	13
1.12	Sheep Hill Public Works Maintenance Yard – Sitewide Emergency Alert and Paging System (Critical Infrastructure Hardening)	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	+	+	n/a	n/a	+	+	+	20

#	Mitigation Action	Community	Effect on Segment	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operati	Political Support	Local Champion	Public Support	State Authority	Existing Local	Potential Legal	Benefit of Action	Cost of Action	Contributes to	Outside Funding	Effect on	Effect on	Effect on HAZMAT/	Consistent w/Comm.	Consistent w/	Priority Total (net)
1.13	High-Capacity Jet Truck – Drainage Infrastructure Risk Reduction Asset	+	+	+	n/a	+	+	-	+	+	+	+	+	+	n/a	+	-	+	-	+	+	+	+	+	15
1.14	Mobile Fuel Trailers (4 Units) – Emergency Operations and Lifeline Support Enhancement	+	+	+	n/a	+	+	+	+	+	+	+	+	+	n/a	+	-	+	+	n/a	n/a	n/a	+	+	16
1.15	High-Pressure Water Trailer (1,000-Gallon Capacity) – Infrastructure Protection and Decontamination Support	+	+	+	n/a	+	+	-	+	+	+	+	+	+	n/a	+	u/k	+	u/k	n/a	n/a	+	+	+	15
1.16	Six-Wheel Salt Application Truck – Winter Access and Operational Surge Capacity Enhancement	+	+	+	n/a	-	+	-	+	+	+	+	+	+	n/a	+	u/k	+	u/k	-	n/a	n/a	+	+	11
1.17	Forestry Masticator – Roadway Easement and Right-of-Way Hazard Mitigation	+	+	+	n/a	+	+	-	+	+	+	+	+	+	n/a	+	u/k	+	u/k	+	n/a	n/a	+	+	15
1.18	Portable Radio Communications Upgrade – Operational and Surge Capacity Enhancement (12 Units with 2 Multi-Bank Chargers)	+	+	+	n/a	+	+	-	+	+	+	+	+	+	n/a	+	u/k	+	u/k	n/a	n/a	n/a	+	+	14
1.19	Mobile Scene Lighting Units – Night and Low-Visibility Emergency Operations Support (6 Nomad 360, 1 Nomad Transformer)	+	+	+	n/a	+	+	+	+	+	+	+	+	+	n/a	+	u/k	+	+	n/a	n/a	n/a	+	+	17

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1.20	Procure Compact Collapse & Wrap portable sign systems (six units each) for "Be Prepared to Stop," "Lane Closed Ahead," "Flagger Ahead," and "Caution Low Visibility" to enhance rapid deployment traffic control during emergency operations	+	+	+	n/a	+	+	+	+	+	+	+	+	+	n/a	+	u/k	+	+	n/a	n/a	n/a	+	+	17
1.21	Systematic Drainage Inspection and Rehabilitation Program – Flood and Debris Flow Risk Reduction	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	+	20
1.22	Critical Roadway Reconstruction and Rehabilitation Program – Emergency Route Resilience Enhancement	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	u/k	+	-	+	n/a	+	+	+	17
1.23	Rural and Collector Road Shoulder Widening and Safety Hardening Program	+	+	+	+	u/k	+	-	+	+	+	u/k	+	+	-	+	-	+	-	n/a	n/a	n/a	+	+	+	10
1.24	School and Community Facility Access Improvements – Emergency Access and Safety Enhancement	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	-	n/a	-	+	n/a	+	+	+	15
1.25	Unpaved and Gravel Road Stabilization Program – Emergency Access and Erosion Reduction	+	+	+	-	+	+	-	+	+	+	+	+	+	n/a	+	+	n/a	+	+	n/a	+	+	+	16

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1.26	Integration of Intersection and Interchange Safety Study Findings – Evacuation and Congestion Risk Reduction	+	+	+	+	+	+	-	+	+	+	u/k	+	+	+	+	u/k	+	-	+	n/a	+	+	+	16
1.27	Roadway Safety Action Plan (RSAP) Implementation – Safe System and Vision Zero Framework	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	u/k	+	-	n/a	n/a	+	+	+	16

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1.28	Continue to maintain evaluations of structural integrity for County and non-County facilities identified as potential shelter sites through application of adopted codes and locally developed hazard-specific studies. Evaluation standards will be enhanced by incorporating updated structural and system safety provisions through adoption of the 2024 ICC code suite and applying locally developed ground snow load methodology, while identifying and integrating other locally relevant hazard studies as appropriate to strengthen life-safety and resilience capabilities for designated shelter facilities.	+	+	+	+	n/a	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	n/a	+	+	+	20
1.29	High Injury Network (HIN) and Crash Data Integration – Emergency Corridor Prioritization Program	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	u/k	+	-	n/a	n/a	+	+	+	16

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1.30	Advance implementation and monitoring of code-regulated design criteria through the formal review and adoption process of the 2024 International Code suite and the 2023 National Electrical Code. This update incorporates the most current hazard data, structural load requirements, fire-resistance provisions, and electrical safety standards to strengthen safeguards for life and property and reduce vulnerability to natural and manmade hazards. In parallel, apply locally developed supporting studies such as the Northern Arizona ground snow load methodology and the Fort Valley Initial Engineering Assessment to inform locally appropriate design criteria.	+	+	+	+	-	+	+	+	+	+	u/k	+	+	-	+	u/k	+	+	+	n/a	+	+	+	16

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1.31	Continue to integrate hazard mitigation principles and priorities from the MJHMP into the Comprehensive Plan, including policies addressing wildfire risk reduction, emergency preparedness, infrastructure resilience, coordinated emergency access, and land use planning that accounts for natural hazards. Institutionalize mitigation strategies within the County's long-range planning framework and regulatory processes.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	21
1.32	Institutionalize mitigation strategies within the County's long-range planning framework and regulatory processes.	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	21
1.33	Increase public awareness of dam failure hazards and identify mitigation measures to address those hazards.	+	+	+	+	+	+	+	-	+	+	+	+	+	n/a	+	-	+	+	+	n/a	+	+	+	19

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1.34	Partner with local insurance agencies to hold workshops for property owners to educate about the Flood Insurance Programs and requirements. Community Development performs this function through NFIP and the Engineering Division for flood only.	+	+	+	+	+	+	+	-	+	+	+	+	+	n/a	+	+	+	+	+	n/a	+	+	+	20
1.35	Encourage participation in the National Flood Insurance Program through public engagement campaigns.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	+	22
1.36	Acquire and deploy IT infrastructure for regional flood warning system for County locations subject to post wildfire flooding.	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	-	+	-	+	n/a	+	+	+	16
1.37	U.S. 89 Post-Wildfire Flood Resiliency Project	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	-	+	-	+	+	+	+	+	17
1.38	Implement the FEMA Special Flood Hazard Area (SFHA) Capital Investment Plan to allocate funding for specific projects in the following areas: Tusayan, Munds Park, Sedona, Fort Valley, and Kachina Village/Mountainaire.	+	+	+	+	+	+	-	+	+	+	+	+	+	-	+	-	+	-	+	u/k	+	+	+	14

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1.39	Ensuring Grand Canyon National Park Visitor Access Project and Town of Tusayan SR 64 Flood mitigation projects	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	-	+	-	+	u/k	n/a	+	+	15
1.40	Bill Williams Mountain Steep Slope Forest restoration treatments to reduce threat from catastrophic wildland fires and post-wildfire flooding. Identified 1,200 acres of steep slopes on Bill Williams Mountain to complete forest restoration treatments to reduce the risk of catastrophic wildland fire and post-wildfire flooding that would critically impact the city of Williams infrastructure, public lives, and regional economy.	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+	19
1.41	Conduct pre-wildfire and post-wildfire risk assessments for Coconino County.	+	+	+	n/a	+	+	-	+	+	+	+	+	+	n/a	+	+	+	u/k	+	+	+	+	+	18
1.42	Bill Williams Mountain Watershed Restoration Project (AB Base & Creek Project)	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	-	+	-	+	+	n/a	+	+	16
1.43	Upper Rio de Flag Watershed Restoration Leroux Projects	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	-	+	-	+	+	n/a	+	+	16

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1.44	The Lowell Observatory Mesa Project is being completed in partnership with the City of Flagstaff and Lowell Observatory. The District is partnering with the Greater Flagstaff Forest Partnership to conduct administrative and fiscal management of this project. District is overseeing project.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	+	u/k	n/a	+	+	20
1.45	Bill Williams Mountain Watershed Restoration Project (Charlie)	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	-	+	-	+	+	n/a	+	+	16
1.46	Oak Creek Watershed Project	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	-	+	-	+	+	n/a	+	+	16
1.47	Identify and pursue funding opportunities to develop and implement local mitigation activities.	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	-	+	n/a	+	+	+	+	+	19
1.48	Coordinate with local stakeholders and partners for the enhancement of public outreach and awareness regarding regional hazards and mitigation actions community members can implement for self- reliance and protection to property and life safety.	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	+	n/a	+	+	+	+	+	21

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1.49	Increase public awareness of the natural, human-caused, and technological hazards to residents and businesses as a means to reduce the potential impacts through education and outreach. Continue to maintain a resource center of information accessible to the public at key government facilities, providing informational brochures and information on government websites and social media.	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	+	+	+	+	+	+	+	22
1.50	Increase public awareness of dam failure hazards and identify mitigation measures to address those hazards.	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	+	+	+	n/a	+	+	+	21
1.51	Enhance winter weather preparedness campaign including brochures, Public Service Announcements and County webpage content development for public awareness.	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	+	+	+	n/a	+	+	+	21

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1.52	Deliver educational programs and outreach to outlying areas of county that are not currently served by any organized fire protection system, with the goal of assisting organizing districts. Education will include Firewise certification and home hardening advocacy for residents.	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	-	+	+	+	n/a	+	+	+	18
1.53	Continue to maintain a resource center of information accessible to the public at key government facilities, providing informational brochures and information on government websites and social media.	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	-	+	n/a	+	+	+	+	+	19
1.54	Establish and maintain a County component of the state GIS mapping system documenting forest treatment, hazard data, and grant funding sources to monitor our wildland fire threat.	+	+	+	+	+	-	-	+	+	+	+	+	+	n/a	+	-	n/a	-	+	+	+	+	+	13

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1.55	Continue support for Flagstaff Fire Department Fire Management Program to mitigate wildland fire hazards to watershed resources through prevention, preparedness, hazard mitigation, response, and recovery efforts – with an emphasis on education engineering, enforcement, and ecosystems.	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	+	-	+	u/k	+	+	+	19
1.56	Continue to develop mutual aid agreements and memorandum of understanding with agencies to serve emergency and disaster purposes – notably by encouraging additional signatories to the Arizona Mutual Aid Compact.	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	+	n/a	+	+	+	+	+	21

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1.57	Continue County partnership and support with local government, NGO and non-profits to maintain and build upon our cadre of committed, trained volunteers to augment disaster response and recovery efforts in compliance with Arizona Disaster Service Worker program guidance (e.g. shelter workers, animal rescue and care, CERT, communications staff, medical and health, and human service providers).	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	n/a	+	+	+	n/a	n/a	n/a	+	+	18
1.58	Provide support and coordination as requested (and as funding is available) toward the deployment and maintenance of the Flash Flood Early Warning System in Havasupai Canyon.	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	-	n/a	-	+	u/k	+	+	+	15
1.59	Secure funding and strategic partnerships necessary to develop County Medical Reserve Corps capability.	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	-	+	-	n/a	n/a	n/a	+	+	13

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1.60	Establish air monitoring capability for wildfire incidents to monitor smoke/contaminants and enable real-time advisories regarding risk management and safety precautions.	+	+	+	n/a	+	+	-	+	+	+	+	+	+	+	+	-	+	-	n/a	n/a	n/a	+	+	13
1.61	Establish a program to enable smoke safety planning, public education, public facility retrofits and enhanced air filtration, as well as the development of air-quality shelter capabilities.	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	-	+	-	n/a	n/a	+	+	+	15
1.62	Implement large-scale hazardous vegetation removal and forest thinning to clear dead, dying, and over-stressed trees along primary transportation arteries, specifically I-17, I-40, and Highway 89A in the Greater Flagstaff and Sedona regions.	+	+	+	+	+	+	+	-	-	+	-	-	-	+	+	+	+	-	+	u/k	+	+	+	11
1.63	Reduce secondary property damage, health risks, and financial loss following a disaster by increasing property owner knowledge of recovery hazards.	+	+	+	-	+	-	-	-	+	-	+	-	+	+	+	+	+	+	n/a	n/a	n/a	+	+	8

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1.64	Collection, analysis, and integration of insurance coverage and cost data, as well as assessment of impact on cost of living and community vulnerability as practicable, in future iterations of the hazard mitigation plan.	+	+	+	-	+	-	-	-	-	+	+	n/a	n/a	n/a	+	-	+	-	n/a	n/a	n/a	+	+	3
1.65	Engage with community partners, including the Flagstaff Arboretum, to facilitate implementation of demonstration gardens and place-based education programming to educate the public on how to implement home, private facilities, and community hazard mitigation measures.	+	+	+	+	+	+	+	-	+	+	+	-	+	-	+	-	+	-	n/a	n/a	n/a	+	+	11
1.66	Develop a public education program to support Community Wildfire Protection Plan implementation by the public that connects regional mitigation efforts to activities that private individuals and entities can implement on their own properties, to include defensible space, fire-resistant landscaping, and home hardening.	+	+	+	-	+	+	-	+	-	-	+	-	-	-	+	-	+	+	+	+	+	+	+	7

Flagstaff

STAPLEE Prioritization Tool

(Scoring: “+” = 1 point, “-” = -1 point, “n/a” = 0 point, “u/k” = unknown)

	S	T	A	P	L	E	E	

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2.1	Fulfill the Council-adopted Water Conservation Strategic Plan conservation measures to pump as little water from the aquifer as possible. The city depends on surface reservoirs and groundwater for domestic water supply. Conservation efforts prolong the capacity of this limited resource.	+	+	+	+	+	+	-	+	+	+	+	+	+	-	+	+	+	+	+	n/a	n/a	+	+	17
2.2	Plan and conduct vegetation treatments, code updates, and risk modeling to reduce the negative impacts of undesirable wildland fire within the built and natural environments.	+	+	+	+	+	+	-	+	+	+	+	+	+	-	+	-	+	+	+	+	+	+	+	17
2.3	Identify and pursue funding opportunities to develop and implement local mitigation activities.	+	+	+	+	+	+	-	+	+	+	+	+	+	n/a	+	-	+	+	+	+	+	+	+	18

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2.4	Develop greenhouse gas mitigation strategies that address multiple objectives, including damage reduction, environmental enhancement, historic preservation, tourism/ recreation, economic recovery /development, and building community resilience to climate variance.	+	-	+	+	-	+	+	+	+	+	u/k	+	+	-	+	-	-	n/a	+	+	+	+	+	11
2.5	Flagstaff Well Field & Pipeline Evaluation. The city purchased Red Gap Ranch with 3 existing municipal-sized wells and has drilled another ten (10) wells for the purpose of future water supply. The city has acquired a right-of-way for the pipeline through an agreement with ADOT and is performing the first phase of a feasibility study.	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	-	+	+	+	u/k	n/a	+	+	+	17
2.6	Flagstaff Watershed Protection Project: Approved by the voters, this project is being pursued to ensure the viability of this surface reservoir and stormwater runoff through forest treatments.	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	-	+	+	+	+	+	+	+	19

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2.7	Develop a public outreach and awareness program about regional hazards and mitigation actions community members can do in their homes	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	+	+	+	+	+	+	+	22
2.8	Increase public awareness of the natural, human-caused, and technological hazards to businesses to reduce the potential damage from each hazard through educational and outreach. Maintain a resource center accessible to the public at key government facilities. Provide information on government websites and social media accounts.	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	u/k	+	u/k	+	+	+	+	+	20
2.9	Provide information on tools; partnership opportunities, and funding resources for business and philanthropical organizations to assist in implementing mitigation activities.	+	+	+	+	+	+	-	+	+	+	+	+	+	n/a	+	+	+	u/k	+	+	+	+	+	19

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2.10	Place more stress on the risks associated with natural and man-made hazards in public awareness campaigns conducted by various city departments.	+	+	+	+	+	+	-	+	+	+	+	+	+	n/a	+	+	+	u/k	+	+	+	+	+	19
2.11	Advance education programs to increase awareness and mitigation impacts of climate change	+	+	+	+	+	u/k	-	u/k	+	+	+	+	+	-	+	u/k	+	u/k	+	+	+	+	+	15
2.12	Flagstaff Stormwater Public Outreach: Public awareness program on topic of flooding and dam risks.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	+	22
2.13	Flood Prevention Assistance Grants for at-risk residents	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+	n/a	+	+	+	20
2.14	Identify water resources mgmt. opportunities.	+	+	+	n/a	+	+	+	+	+	+	+	+	+	n/a	+	+	+	+	+	+	+	+	+	21
2.15	Improve flood hazard assessment information through administrative floodplains to assist in appropriate new development in high hazard areas and encouraging preventative measures for existing development in such areas.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	+	22

#	Mitigation Action	Community	Effect on Segment	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operati	Political Support	Local Champion	Public Support	State Authority	Existing Local	Potential Legal	Benefit of Action	Cost of Action	Contributes to	Outside Funding	Effect on	Effect on	Effect on HAZMAT/	Consistent with	Consistent with	Priority Total (net)
2.16	Integrate appropriate items from the MJHMP into the Safety Element of the General Plan and other regulatory documents as appropriate.	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	n/a	+	+	+	+	+	+	20
2.17	Continue to invest in up-sizing drainage ways, improving floodplain flood mitigations, and enhancing streams and washes to convey design storms.	+	+	+	+	-	+	u/k	+	+	+	+	+	+	-	+	-	+	-	+	u/k	n/a	+	+	12
2.18	The Rio De Flag Project is a major flood control initiative designed to remove 1500 structures from the flood plain. The downtown/Southside area is prone to flooding, and this effort will reduce the flood threat and enable further economic development in this area.	+	-	+	+	+	+	-	+	+	+	+	+	+	-	+	-	+	-	+	n/a	+	+	+	12
2.19	Partner with local insurance agencies to hold workshops for property owners to educate about the Flood and Earthquake Insurance Programs and their requirements.	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	+	u/k	n/a	n/a	n/a	+	+	18

Fredonia

STAPLEE Prioritization Tool

(Scoring: "+" = 1 point, "-" = -1 point, "n/a" = 0 point, "u/k" = unknown)

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#	Mitigation Action	Community	Effect on Segment	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operati	Political Support	Local Champion	Public Support	State Authority	Existing Local	Potential Legal	Benefit of Action	Cost of Action	Contributes to	Outside Funding	Effect on	Effect on	Effect on HAZMAT/	Consistent with	Consistent with	Priority Total (net)
3.1	Hold annual community meeting in September with all residents and churches to educate residents about 72-hour kits and food storage.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	n/a	n/a	n/a	+	+	19
3.2	Conduct fire department training for hazardous fires and spills.	+	+	+	-	+	+	+	+	+	+	+	+	+	n/a	+	+	n/a	+	+	+	+	+	+	19
3.3	Conduct community outreach through town newsletter in the spring and fall to inform residents regarding hazards and important seasonal mitigation actions (e.g. reminding residents to put outdoor belongings away for severe wind events).	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	n/a	+	+	n/a	+	+	+	20
3.4	Enforce speed limits and training.	+	+	+	+	n/a	+	+	+	+	+	+	+	+	-	+	+	n/a	+	n/a	n/a	+	+	+	17
3.5	Fire department training and community outreach (through annual community meeting, with specifics being prepared).	+	+	+	+	+	+	-	+	+	+	+	+	+	n/a	+	+	u/k	u/k	+	n/a	+	+	+	17

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3.6	Annual outreach to the community through the town, discussing what to do in the event of an earthquake.	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	n/a	+	n/a	n/a	+	+	+	19
3.7	Conduct feasibility study for curb and gutters to determine cost.	+	+	+	n/a	+	+	-	+	+	+	+	+	+	n/a	+	u/k	n/a	+	+	+	+	+	+	17
3.8	Evaluate facilities identified as potential shelter sites for structural integrity.	+	+	+	n/a	+	+	-	+	+	+	+	+	+	n/a	+	u/k	n/a	+	+	n/a	+	+	+	16
3.9	Identify and pursue funding opportunities to develop and implement local mitigation activities.	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	-	+	n/a	+	+	+	+	+	19
3.10	Integrate appropriate items from the MJHMP into the Safety Element of the 10-year General Plan as part of the General Plan Update and integrate content in other regulatory documents as appropriate.	+	+	+	+	+	-	+	+	+	+	+	+	+	n/a	+	-	+	u/k	+	+	+	+	+	17
3.11	Develop a public outreach and awareness program about regional hazards and mitigation actions community members can do for their properties.	+	+	+	+	+	+	-	+	+	+	+	+	+	n/a	+	u/k	+	u/k	+	+	+	+	+	18

#	Mitigation Action	Community	Effect on Segment	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operati	Political Support	Local Champion	Public Support	State Authority	Existing Local	Potential Legal	Benefit of Action	Cost of Action	Contributes to	Outside Funding	Effect on	Effect on	Effect on HAZMAT/	Consistent with	Consistent with	Priority Total (net)
3.12	Increase public awareness of the natural, human-caused, and technological hazards to businesses to reduce the potential damage from each hazard through education and outreach. Maintain a resource center accessible to the public at key government facilities. Provide information on government websites and social media.	+	+	+	+	+	+	-	+	+	+	+	+	+	n/a	+	+	+	+	+	+	+	+	+	20
3.13	Identify water resources management and conservation opportunities.	+	+	+	+	+	+	-	+	+	+	+	+	+	n/a	+	+	+	u/k	+	+	n/a	+	+	18
3.14	Coordinate with the utility companies and vendors to strengthen, safeguard, or take other appropriate measures such as providing supplemental services, to identify, repair, protect and secure high-voltage lines, water, sewer and trunk electrical and telephone conduits from hazards.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	23

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3.15	Educate property owners about the Flood and Earthquake Insurance Programs and their requirements through outreach activities at community events. Community Development performs this function through NEIPA and the Engineering Division for flood only.	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	+	+	+	n/a	+	+	+	21
3.16	Build a cadre of committed, trained volunteers to augment disaster response and recovery efforts in compliance with Arizona Disaster Service Worker program guidance (e.g. shelter workers, animal rescue and care, Community Emergency Response Team, communications staff, medical and health, and human services) during and after a disaster.	+	+	+	n/a	+	+	+	+	+	+	+	+	+	n/a	+	+	n/a	+	n/a	n/a	n/a	+	+	17
3.17	Initiate a mapping project to map all critical infrastructure, utilities, fire hydrants, etc. in a GIS system to increase situational awareness, enhance hazard risk management, and support response.	+	+	+	+	+	-	+	+	+	+	+	+	+	n/a	+	+	+	+	+	n/a	+	+	+	19

Northern Arizona University

STAPLEE Prioritization Tool (Scoring: “+” = 1 point, “-” = -1 point, “n/a” = 0 point, “u/k” = unknown)							
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4.1	Campus Hazard Mitigation Education: Develop hazard awareness campaigns and preparedness training for students, faculty, and staff addressing wildfire safety, flood/debris flow awareness, and earthquake preparedness. Provide information on campus websites and social media accounts.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	+	+	+	+	21

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4.2	Campus Multi-Hazard Shelter and Resilient Infrastructure: Identify, evaluate, and enhance campus facilities capable of serving as emergency shelters for the university and surrounding community. The program will assess structural and functional capacity of candidate facilities and implement upgrades to improve resilience to multiple hazards. Improvements may include backup power, ADA accessibility, sanitation capacity, enhanced HVAC filtration for wildfire smoke, and cooling center capabilities for extreme heat events. The program will also integrate shelter facilities into regional emergency planning through coordination with local partners and incorporate public education, signage, and emergency alerting to support safe shelter operations before, during and after disasters.	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	-	n/a	-	+	n/a	+	+	+	15

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4.3	Campus Wildland-Urban Interface Fuel Reduction & Vegetation Management: Maintain and expand campus-wide fuel reduction and defensible space program for all university properties located within the wildland-urban interface. Activities include strategic forest thinning, removal of ladder fuels, maintenance of defensible space buffers around structures, integration of green fire breaks such as irrigated landscapes or fire-resistant vegetation zones, and procurement or enhancement of equipment necessary to support vegetation management and long-term wildfire risk reduction.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	u/k	n/a	+	+	17

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4.4	Campus Wildfire Smoke Situational Awareness: Install remote environmental sensors and integrate them onto campus smart poles and the campus emergency operations center to improve visibility of nearby wildfire smoke conditions affecting the campus community.	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	-	n/a	+	n/a	n/a	+	+	+	17
4.5	Green Stormwater Infrastructure: Implement campus-wide green stormwater infrastructure such as bioswales, rain gardens, permeable pavement, and detention basins to reduce stormwater runoff and mitigate flooding and debris flow impacts following wildfire events.	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	-	n/a	-	+	+	+	+	+	16
4.6	Earthquake Securement Program for Interior Hazards: Implement a campus-wide preparedness program to secure interior hazards such as shelving, laboratory equipment, and hazardous materials storage to reduce injuries during seismic events.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	n/a	n/a	+	+	+	20

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4.7	Campus Post-Earthquake Building Damage Assessment: Develop and maintain a trained campus building damage assessment team capable of conducting rapid post-earthquake safety evaluations of key university facilities. The program will train designated staff in rapid building safety evaluation methods (FEMA-endorsed Applied Technology Council (ATC) rapid post-earthquake building evaluation methods), establish standardized assessment procedures, and maintain equipment and documentation needed to conduct timely inspections of campus buildings following a seismic event. The program will support rapid identification of unsafe structures, reduce risk to occupants and responders, and accelerate campus recovery operations.	+	+	+	n/a	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	n/a	+	+	+	20

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4.8	**Emergency Transportation and Evacuation Support: Develop and maintain a coordinated evacuation transportation plan utilizing the university's bus and vehicle fleet to support large-scale evacuations during regional disasters such as wildfires. The program will include pre-incident planning, identification of transportation assets, development of evacuation support protocols, coordination with local emergency management partners, and training for drivers and operational staff. The program may also include upgrades to fleet communication systems, planning for staging and routing, and integration with campus and city/regional evacuation plans to assist both the university and surrounding community.**	+	+	+	n/a	+	+	-	+	+	+	+	+	+	+	+	+	+	n/a	+	n/a	n/a	n/a	+	+	16

STAPLEE Prioritization Tool (Scoring: “+” = 1 point, “-” = -1 point, “n/a” = 0 point, “u/k” = unknown)							
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5.1	Evaluate City/County and non-City/County facilities identified as potential shelter sites for structural integrity.	+	+	+	n/a	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	n/a	n/a	+	+	+	19
5.2	Identify and pursue funding opportunities to develop and implement local mitigation activities.	+	+	+	+	+	+	-	+	+	+	+	+	+	n/a	+	-	+	n/a	+	+	+	+	+	17
5.3	Enforcement and/or implementation of modern building codes to regulate new development to mitigate against loss.	+	+	+	+	+	+	-	+	+	+	+	+	+	-	+	+	+	+	+	n/a	+	+	+	18
5.4	Coordinate with local stakeholders and partners for the enhancement of public outreach and awareness regarding regional hazards and mitigation actions community members can implement for self-reliance and protection to property and life safety.	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	+	+	+	n/a	+	+	+	21

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5.5	Place more stress on the risks associated with natural and manmade hazards in public awareness campaigns conducted by various County/city departments (i.e. partner with local insurance agencies to hold workshops for property owners to educate about the Flood and Earthquake Insurance Programs and its requirements).	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	+	+	+	+	+	+	+	22
5.6	Develop a public awareness program. Handouts and presentations will be developed and presented at area clubs, schools, and other public gatherings. Goals of the project shall include increasing public support for funding disaster preparation, educating the public what to do in case of a disaster, and increasing public awareness as to how public safety agencies will respond to a disaster.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	n/a	+	+	+	21

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5.7	The city will develop a plan and pamphlets and implement a public information program that will identify the following: Who can apply? What types of emergencies can be applied for? Where to apply?	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	n/a	+	+	+	21
5.8	Identify water resources management and conservation opportunities.	+	+	+	n/a	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	20
5.9	Design and construct drainage structures for problem flood areas throughout the city to prevent flooding of properties and buildings.	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	-	+	-	+	n/a	+	+	+	16
5.10	Water supply system upgrade. This project is to upgrade the current pumping units and possibly identify an alternative lower-level intake with a new pumping system and a separate pipeline to deliver water to the water treatment plant. This will allow for dependability and a backup to the current system. It will also provide water if lake level drops below current intake levels.	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	-	+	-	+	n/a	n/a	+	+	15

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5.11	Maintain cloud storage for vital records and data to allow access if government servers are disrupted.	+	+	+	n/a	+	+	+	+	+	+	+	+	+	n/a	+	+	n/a	+	n/a	n/a	+	+	+	18
5.12	Partner with local insurance agencies to hold workshops for property owners to educate about Flood Insurance Programs and their requirements. Community Development performs this function through NEIPA and the Engineering Division for flood only.	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	n/a	n/a	+	+	+	19
5.13	The city will develop a plan and mutual aid agreement with the state, County, Navajo Nation, National Park Service, and other governmental entities as necessary to implement mitigation actions.	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	21

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5.14	Continue County partnership and support with local government, NGO and non-profits to maintain and build upon our cadre of committed, trained, volunteers to augment disaster response and recovery efforts in compliance with Arizona Disaster Service Worker program guidance (e.g. shelter workers, animal rescue and care, Community Emergency Response Team, communications staff, medical and health, and human service providers).	+	+	+	+	+	-	-	+	+	+	+	+	+	+	+	u/k	n/a	+	+	+	+	+	+	17
5.15	Develop a disaster debris plan.	+	+	+	n/a	+	+	-	+	+	+	+	+	+	n/a	+	-	+	+	+	n/a	+	+	+	16
5.16	Budget for maintenance and replacement of County/city owned fire and police stations.	+	+	+	+	+	+	-	+	+	+	+	+	-	n/a	+	-	n/a	-	n/a	n/a	+	+	+	11

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5.17	Build a cadre of committed, trained volunteers to augment disaster response and recovery efforts in compliance with Arizona Disaster Service Worker program guidance (e.g. shelter workers, animal rescue and care, CERT, communications staff, medical, and health, and human services), during and after a disaster.	+	+	+	+	+	+	-	+	+	+	+	+	+	n/a	+	-	n/a	+	n/a	n/a	+	+	+	15
5.18	Provide equipment and other resources sufficient to provide initial response to major road, air, HAZMAT, and mass casualty incidents.	+	+	+	n/a	+	+	-	+	+	+	+	+	+	n/a	+	-	n/a	-	+	n/a	+	+	+	13

Tusayan

STAPLEE Prioritization Tool (Scoring: “+” = 1 point, “-” = -1 point, “n/a” = 0 point, “u/k” = unknown)							
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6.1	Evaluate town/County and non-town/County facilities identified as potential shelter sites for structural integrity.	+	+	+	n/a	+	+	+	+	+	+	+	+	+	n/a	+	+	n/a	+	n/a	n/a	n/a	+	+	17
6.2	Identify and pursue funding opportunities to develop and implement local mitigation activities.	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	-	+	n/a	+	+	+	+	+	19
6.3	Develop a public outreach and awareness program about regional hazards and mitigation actions community members can do in their homes.	+	+	+	+	+	+	-	+	+	+	+	+	+	n/a	+	u/k	+	+	+	n/a	+	+	+	18

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6.4	Increase public awareness of the natural, human-caused, and technological hazards to businesses as a means to reduce the potential damage from each hazard through educational and outreach. Maintain a resource center accessible to the public at key government facilities. Provide information on government websites and social media accounts.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	+	22
6.5	Place more stress on the risks associated with natural and manmade hazards in public awareness campaigns conducted by various County/town departments.	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	+	+	+	+	+	+	+	22
6.6	Increase public awareness of dam failure hazards and mitigation measures to address them	+	+	+	+	+	+	-	+	+	+	+	+	+	n/a	+	+	n/a	u/k	+	n/a	n/a	+	+	16

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6.7	Tusayan Fire Department Digital Newsletter: Explain hazards of smoke/carbon dioxide (CO2), fireplaces, chimneys, cleaning, and fire hazards. Regularly scheduled cleaning of chimneys. Smoke/CO2 detector maintenance program (as a follow up to the previous month's safety topic). Smoke and CO2 detectors use and maintenance. Explanation of two (2) types of detectors. Regularly scheduled replacement of batteries and testing.	+	+	+	+	+	+	-	+	+	+	+	+	+	n/a	+	+	n/a	u/k	n/a	n/a	+	+	+	16
6.8	Publish key preparedness information and links via town website and Tusayan Fire Department (TFD) digital newsletter to include information on emergency kits, winter preparation and safety, and relevant tips/guidance from the County.	+	+	+	+	+	+	-	+	+	+	+	+	+	n/a	+	+	n/a	+	+	n/a	+	+	+	18
6.9	Utilize town website and TFD digital newsletter to educate residents on winter hazards – with a particular focus on storm roof loading and other relevant building safety considerations.	+	+	+	+	+	+	-	+	+	+	+	+	+	n/a	+	+	+	+	n/a	n/a	+	+	+	18

#	Mitigation Action	Community	Effect on Segment of	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operati	Political Support	Local Champion	Public Support	State Authority	Existing Local	Potential Legal	Benefit of Action	Cost of Action	Contributes to	Outside Funding	Effect on Land/Water	Effect on	Effect on HAZMAT/	Consistent with	Consistent with	Priority Total (net)
6.10	Seek to implement codes, standards, and policies that will protect life and property from the impacts of hazards.	+	+	+	+	+	+	-	+	+	+	+	+	+	-	+	+	+	+	+	n/a	+	+	+	18
6.11	Integrate appropriate items from the MJHMP into the Safety Element of the General Plan as being updated and other regulatory documents as appropriate.	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	n/a	+	+	+	+	+	+	20
6.12	Maintain cloud storage for vital records and data to allow access if government servers are disrupted.	+	+	+	n/a	+	+	-	+	+	+	+	+	+	n/a	+	-	n/a	+	n/a	n/a	n/a	+	+	13
6.13	Coordinate with the utility companies, ADOT, and vendors to strengthen, safeguard, or take other appropriate measures such as providing supplemental services, to protect and secure high-voltage lines, water, sewer, natural gas and petroleum pipelines, and trunk electrical and telephone conduits from hazards.	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	-	+	-	+	+	+	+	+	17

#	Mitigation Action	Community	Effect on Segment of	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operati	Political Support	Local Champion	Public Support	State Authority	Existing Local	Potential Legal	Benefit of Action	Cost of Action	Contributes to	Outside Funding	Effect on Land/Water	Effect on	Effect on HAZMAT/	Consistent with	Consistent with	Priority Total (net)
6.14	Continue to incorporate the outcomes of the Engineering Assessment and Hydrological Analysis for the drainage improvements, as now embodied in the Drainage Master Plan, in future infrastructure and development projects. Utilize Local Flood Plain Map in conjunction with FEMA Flood Plain Map as regulatory framework within the Town. Pursue state and federal grant opportunities to assist with funding to construct drainage improvements on-forest and within the corporate boundaries of the Town.	+	+	+	+	+	-	-	+	+	+	+	+	+	-	+	-	+	-	+	+	+	+	+	13
6.15	Continue to develop mutual aid agreements and memorandum of understanding with agencies to serve emergency and disaster purposes.	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	n/a	+	n/a	n/a	+	+	+	19
6.16	Collaborate with partners and service providers to identify and implement water resource management and conservation opportunities as applicable.	+	-	+	+	+	+	-	+	+	+	u/k	+	u/k	-	+	-	n/a	+	+	+	+	+	+	12

#	Mitigation Action	Community	Effect on Segment of	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operati	Political Support	Local Champion	Public Support	State Authority	Existing Local	Potential Legal	Benefit of Action	Cost of Action	Contributes to	Outside Funding	Effect on Land/Water	Effect on	Effect on HAZMAT/	Consistent with	Consistent with	Priority Total (net)
6.17	Build a cadre of committed, trained volunteers to augment disaster response and recovery efforts in compliance with Arizona Disaster Service Worker program guidance (e.g. shelter workers, animal rescue and care, Community Emergency Response Team, communications staff, medical and health, and human services), during and after a disaster.	+	+	+	+	+	+	-	+	+	+	+	+	+	n/a	+	-	n/a	+	n/a	n/a	+	+	+	15
6.18	Develop an emergency preparedness network for community members (and visitors) to access food, water, communications, warming/cooling stations in times of emergent need.	+	+	+	n/a	+	+	-	+	+	+	+	+	+	+	+	-	+	u/k	n/a	n/a	n/a	+	+	14
6.19	Continue to work with ADOT and Emergency Services to mitigate hazards associated with high traffic on Hwy 64 outside and within town limits.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	+	22

Williams

STAPLEE Prioritization Tool (Scoring: "+" = 1 point, "-" = -1 point, "n/a" = 0 point, "u/k" = unknown)							
	S	T	A	P	L	E	E

#	Mitigation Action	Community	Effect on Segment of	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operati	Political Support	Local Champion	Public Support	State Authority	Existing Local	Potential Legal	Benefit of Action	Cost of Action	Contributes to	Outside Funding	Effect on Land/Water	Effect on	Effect on HAZMAT/	Consistent with	Consistent with	Priority Total (net)
7.1	Evaluate City/County and non-City/County facilities identified as potential shelter sites for structural integrity.	+	+	+	n/a	+	+	-	+	+	+	+	+	+	+	+	+	n/a	+	n/a	n/a	n/a	+	+	16
7.2	Identify and pursue funding opportunities to develop and implement local mitigation activities.	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	-	+	n/a	+	+	+	+	+	19
7.3	Enforcement of floodplain management requirements, including regulating all and substantially improved construction in floodplains to reduce the losses to property and people.	+	-	+	+	-	+	+	+	+	+	+	+	+	-	+	+	n/a	+	+	+	+	+	+	16

#	Mitigation Action	Community	Effect on Segment of	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operati	Political Support	Local Champion	Public Support	State Authority	Existing Local	Potential Legal	Benefit of Action	Cost of Action	Contributes to	Outside Funding	Effect on Land/Water	Effect on	Effect on HAZMAT/	Consistent with	Consistent with	Priority Total (net)
7.4	Continue to enforce zoning and building codes through current site plan, subdivision, and building permit review processes to reduce the effects of drought, flood, severe wind, wildland fire, and other hazards on new buildings and infrastructure.	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	21
7.5	Enforcement of the newly adopted Defensible Space Ordinance for the protection of future and existing structures within the wildland urban interface.	+	-	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	20
7.6	Increase public awareness of dam failure hazards and mitigation measures to address them.	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	n/a	+	+	n/a	n/a	+	+	19
7.7	Coordinate with the utility companies and vendors to strengthen, safeguard, or take other appropriate measures such as providing supplemental services, to identify, repair, protect and secure high-voltage lines, water, sewer and trunk electrical and telephone conduits from hazards.	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	u/k	+	-	+	+	+	+	+	18

#	Mitigation Action	Community	Effect on Segment of	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operati	Political Support	Local Champion	Public Support	State Authority	Existing Local	Potential Legal	Benefit of Action	Cost of Action	Contributes to	Outside Funding	Effect on Land/Water	Effect on	Effect on HAZMAT/	Consistent with	Consistent with	Priority Total (net)
7.8	Perform fuel thinning around water treatment plant to create a wildland fire defensible space perimeter and install exterior sprinkler system on the structures and site perimeter.	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	u/k	n/a	-	+	+	+	+	+	17
7.9	Annual inspections and maintenance work on five (5) existing city dams. Continued monitoring by the City Water Department in cooperation with ADEQ.	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	u/k	n/a	+	+	n/a	n/a	+	+	17
7.10	Bill Williams Mountain Steep Slope forest restoration treatments to reduce threat from catastrophic wildland fires and post-wildfire flooding.	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	-	+	-	+	+	+	+	+	17
7.11	Continue to develop mutual aid agreements and memorandum of understanding with agencies to serve emergency and disaster purposes.	+	+	+	+	+	+	+	+	+	+	+	+	+	n/a	+	+	n/a	+	+	+	+	+	+	21
7.12	Create new storage facilities for effluent to be used for irrigation and emergency wildland fire protection.	+	+	+	+	+	+	-	+	+	+	+	+	+	n/a	+	-	u/k	u/k	+	+	n/a	+	+	15

Appendix E: Acronyms

4FRI	Four Forest Restoration Initiative
ACTIC	Arizona Counter Terrorism Information Center
ADEQ	Arizona Department of Environmental Quality
ADOT	Arizona Department of Transportation
ADWR	Arizona Department of Water Resources
AEP	Annual Exceedance Probability
ALRIS	Arizona Land Resource Information System
APS	Arizona Public Service
ARES	Amateur Radio Emergency Services
AST	Aboveground storage tanks
AZ DEMA	Arizona Department of Emergency and Military Affairs
AZDA	Arizona Department of Agriculture
AZFAC	Arizona Fire Adapted Communities
AZGDTF	Arizona Governor's Drought Task Force
AZMAC	Arizona Mutual Aid Compact
AZSERC	Arizona State Emergency Response Commission
BCA	Benefit-Cost Analysis
BCR	Benefit-Cost Ratio
BNSF	Burlington-Northern Santa Fe Railway
BRIC	Building Resilient Infrastructure and Communities Program
CBRNE	Chemical, Biological, Radiological, Nuclear, and Explosive
CCEM	Coconino County Emergency Management
CCFCD	Coconino County Flood Control District
CCSO	Coconino County Sheriff's Office
CDC	Center for Disease Control and Prevention

CERT	Community Emergency Response Team
CII	Critical Information Act of 2002
COF	City of Flagstaff
CPRI	Calculated Priority Risk Index
CWPP	Community Wildfire Protection Plan
DFIRM	Digital Flood Insurance Rate Maps
DMA	Disaster Mitigation Act
DOE	United States Department of Energy
EAP	Emergency Action Plan
EHS	Extremely hazardous substances
ENSO	El Niño/Southern Oscillation
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
ERI	Ecological Restoration Institute
FACLN	Fire Adapted Communities Learning Network
FBI	Federal Bureau of Investigation
FCD	Flood Control District
FEMA	Federal Emergency Management Agency
FIRMs	Flood Insurance Rate Maps
FLG	Flagstaff-Pulliam Airport
FMA	Fire Management Assistance
FMA	Flood Mitigation Assistance
FRP	Facility Response Plans
FWPP	Flagstaff Watershed Protection Project
FY	Financial Year
GAO	United States Government Accountability Office

GCD	Glen Canyon Dam
GCN	Grand Canyon National Park Airport
GFFP	Greater Flagstaff Forests Partnership
GIS	Geographic Information System
HAZMAT	Hazardous Materials
HMGP	Hazard Mitigation Grant Program
HMTA	Hazardous Materials Transportation Act
HMTUSA	Hazardous Materials Transportation Uniform Safety Act
IDF	Inflow Design Flood
IGA	Inter-governmental Agreement
IMAAC	Interagency Modeling and Atmospheric Assessment Center
KCMR	H.A. Clark Memorial Field
LEPC	Local Emergency Planning Committee
LOMR	Letter of Map Revision
MJHMP	Multi-Jurisdictional Hazard Mitigation Plan
MMI	Modified Mercalli Intensity Scale
MOU	Memorandum of Understanding
MRC	Medical Reserve Corps
NACOG	Northern Arizona Council of Governments
NAU	Northern Arizona University
NFIP	National Flood Insurance Program
NID	National Inventory of Dams
NIDIS	National Integrated Drought Information System
NOAA	National Oceanic and Atmospheric Administration
NOFS	United States Naval Observatory Flagstaff Station
NWS	National Weather Service
OPA	Oil Pollution Act
PAO	Public Affairs Officer

PCB	Polychlorinated biphenyls
PDM	Pre-Disaster Mitigation Grant Program
PDSI	Palmer Drought Severity Index
PFAC	Ponderosa Fire Advisory Council
PGA	Page Municipal Airport
PIO	Public Information Officer
RCRA	Resource Conservation and Recovery Act
RFC	Repetitive Flood Claims
RL	Repetitive Loss
RRSS	Road Repair and Street Safety Initiative
SARS	Severe Acute Respiratory Syndrome
SMSA	Standard Metropolitan Statistical Area
SPCC	Spill Prevention, Control, and Countermeasures
SPI	Standardized Precipitation Matrix
SRL	Severe Repetitive Loss
TBC	Tuba City Airport
TFD	Tusayan Fire Department
TPD	Tusayan Police Department
TPQ	Threshold Planning Quantities
UBC	Uniform Building Code
UFC	Uniform Fire Code
USACE	US Army Corps of Engineers
USCG NRC	United States Coast Guard National Response Center
USDA	United States Department of Agriculture
USDM	United States Drought Monitor
USDOT	United States Department of Transportation
USFS	United States Forest Service
USGS	United States Geological Survey

USSDO	United States Seasonal Drought Outlook
UST	Underground storage tanks
VLE	Valle Airport
VOAD	Volunteer Organizations Active in Disaster
WFAS	Wildland Fire Assessment System
WMD	Weapons of mass destruction
WRCC	Western Region Climate Center
WSSI	Winter Storm Severity Index

RESOLUTION NO. 1350-26

A RESOLUTION OF THE MAYOR AND CITY COUNCIL OF THE CITY OF PAGE, ARIZONA ADOPTING THE 2026 COCONINO COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS, the City of Page recognizes the threat that natural and human-caused hazards pose to the people, property, environment, economy, and infrastructure of the City; and

WHEREAS, the Disaster Mitigation Act of 2000 (Public Law 106-390) requires state and local governments to develop and maintain hazard mitigation plans as a condition of eligibility for certain federal disaster assistance and hazard mitigation grant programs administered by the Federal Emergency Management Agency; and

WHEREAS, the 2026 Coconino County Multi-Jurisdictional Hazard Mitigation Plan identifies hazards affecting the City of Page and participating jurisdictions, assesses vulnerability and risk, and establishes mitigation goals, objectives, and actions intended to reduce long-term risk to life and property; and

WHEREAS, the City of Page coordinated with Coconino County Emergency Management on the development and update of the 2026 Coconino County Multi-Jurisdictional Hazard Mitigation Plan in cooperation with other participating jurisdictions, stakeholders, tribal partners, community organizations, and the public; and

WHEREAS, the planning process included opportunities for public involvement and intergovernmental coordination consistent with federal and state planning guidance; and

WHEREAS, participating jurisdictions in the Plan include Coconino County, the City of Flagstaff, the City of Page, the City of Williams, the Town of Fredonia, the Town of Tusayan, and Northern Arizona University; and

WHEREAS, adoption of the 2026 Coconino County Multi-Jurisdictional Hazard Mitigation Plan demonstrates the City's continued commitment to reducing disaster risk, enhancing resilience, and protecting the health, safety, and welfare of residents and visitors throughout the region.

NOW, THEREFORE, BE IT RESOLVED by the Mayor and City Council of the City of Page, Arizona as follows:

1. The Mayor and City Council hereby adopt the 2026 Coconino County Multi-Jurisdictional Hazard Mitigation Plan, including all appendices and supporting documentation, as an official plan of the City of Page.

2. The Mayor and City Council authorize the City's Fire Chief to assist the Director of Coconino County Emergency Management to coordinate State and Federal approval of the Plan, as well as implementation, maintenance, monitoring, and future updates of the Plan in accordance with applicable federal and state requirements. The City Fire Chief will provide the Mayor and City Council with any changes made during this approval process.
3. The Mayor and City Council encourage all City departments, participating jurisdictions, partner agencies, and stakeholders to support implementation of the mitigation strategies and actions identified within the Plan.
4. The adoption of this Resolution shall not obligate the expenditure of City of Page funds beyond those appropriated through the normal budgeting process.

PASSED AND ADOPTED BY THE MAYOR AND CITY COUNCIL OF THE CITY OF PAGE, COCONINO COUNTY, ARIZONA this 8th day of July, 2026, by the following vote:

Ayes _____
Nays _____
Abstentions _____
Absent _____

CITY OF PAGE

By_____
Mayor

ATTEST:

_____
CITY CLERK

APPROVED AS TO FORM:

_____
CITY ATTORNEY

REQUEST FOR COUNCIL ACTION

Request for Council Action:
Meeting Type: Regular Meeting
Meeting Date: July 8, 2026
Department: City Manager
Presented by:
Frank Marbury, City Manager

Brief Title: Arizona Mutual Aid Compact

Agenda Section: New Business
Agenda Sub-category: Agenda Item
Action: Motion
PowerPoint Needed?: No

Request for Council Action

Recommended Action:
Move to approve the Arizona Mutual Aid Compact and authorize the Mayor to sign.

Background:
Tim Carter from Coconino County Emergency Management will present. This is a uniform statewide agreement and no modifications to the document is allowed. See attachments for additional information.

Alternatives Considered:
N/A

Advisory Board/Commission Action:
N/A

Fiscal Impact:
Fiscal Year:
Amount Requested:
Line Item(s):

Budget Impact:

Notes:

Attachments:
1. 2024_AZMAC
2. AZMAC_FAQ_2024
3. 2024_AZMAC_Signatories_List_MAR2026

ARIZONA MUTUAL AID COMPACT

This Compact was made and entered into by and among the signatory Parties, including the State of Arizona, through the Emergency Management Division of the Arizona Department of Emergency and Military Affairs (DEMA/EM).

Recitals

WHEREAS one or more Parties may find it necessary to utilize all of their own resources to cope with emergencies, and may require the assistance of another Party or other Parties; and,

WHEREAS it is desirable that all resources of all Parties be available to all other Parties on pre-established terms, in order to respond to such emergencies; and,

WHEREAS it is desirable that each of the Parties should assist one another when such emergency occurs by providing such resources as are available and needed, including, but not limited to, fire, police, medical and health, environmental, communication, and transportation services to cope with the problems of response; and,

WHEREAS it is desirable that a compact be executed for the interchange of such mutual aid; and,

WHEREAS it is desirable to utilize this Compact in exercising adopted emergency plans; and,

WHEREAS it is desirable that the manner of financing of such cooperative undertakings be resolved in advance of such emergency.

NOW, THEREFORE, IT IS HEREBY AGREED by and between each and all of the Parties as follows:

COMPACT

1. Purpose.

The purpose of this Compact is to establish emergency management terms and procedures for participating Parties to provide mutual aid assistance to any affected area in accordance with local ordinances, resolutions, emergency plans, or agreements. This Compact shall be construed in accordance with all applicable laws.

2. Scope.

The Scope of this Compact is to (1) provide the procedures to notify the Providing Parties of the need for emergency assistance; (2) identify available resources; and (3) provide a mechanism for compensation for resources.

3. Definitions.

- **Automatic Mutual Aid** means the dispatch and response of requested resources without incident-specific approvals under an agreement separate from this Compact. These agreements are usually basic contracts; some may be informal accords.
- **Compact** means this document, the Arizona Mutual Aid Compact (AZMAC).
- **Director** means the Director of the Emergency Management Division of the Arizona Department of Emergency and Military Affairs (DEMA/EM).
- **Emergency or Emergencies** means any disaster or contingency situation that requires a collaborative effort among multiple Parties.
- **Local Mutual Aid Agreements** are separate agreements between Parties and/or other entities that involve a formal request for assistance.
- **Party** and **Parties** refers to any entity(ies) that have signed this Compact. All state agencies, tribal nations, and political subdivisions in the State of Arizona are eligible to sign this Compact as Parties.
- **Political Subdivision** means any county, incorporated city or town, or school district, community college district, or other tax-levying public district.
- **Providing Party** means the Party rendering aid under this Compact to another Party in the event of an emergency.
- **Requesting Party** means the Party seeking aid under this Compact from another Party in the event of an Emergency.
- **Self-deploy** refers to the act of a Party responding to another Party's emergency without being requested by the affected Party.

4. Guiding Framework.

Unless otherwise expressly agreed to in writing by a Providing Party and a Receiving Party in a separate agreement, the Parties agree to interpret the language of the Compact as operating consistently with:

- Arizona Revised Statute (A.R.S.), Title 26, Military Affairs and Emergency Management.
- Arizona Administrative Code (A.A.C.), Title 8, Chapter 2, Article 3 (addressing the Governor's Emergency Fund).
- National Incident Management System (NIMS), 2017.

5. Procedures for Requesting Assistance.

Any Party experiencing an emergency may request assistance from any other Party under this Compact. However, when making such requests, consideration should be given to the geographical proximity of the other Parties from which assistance is being requested. All requests for assistance from the State must be coordinated through the Requesting Party's county emergency manager or tribal emergency manager, whichever is applicable.

Any request for assistance must specify:

1. What the emergency is.
2. The amount and type of resources needed.
3. The estimated period during which such mutual aid is required.

Parties must use the Resource Request form provided in Appendix A. Additionally, it is recommended that Parties utilize WebEOC to track requests.

6. Providing Party's Assessment of Availability of Resources and Ability to Render Assistance.

In all instances, the Providing Party shall render such mutual aid as it is able to provide consistent with its own service needs at the time, taking into consideration the Providing Party's existing commitments within its own jurisdiction. The Providing Party shall be the sole judge of what mutual aid it has available to furnish to the Requesting Party pursuant to this Compact.

7. Implementation Plan.

Each Party that plans on retaining or seeking eligibility to receive Emergency Management Performance Grant (EMPG) funds must have an emergency operations plan that includes a process to provide for the effective mobilization of its resources, both public and private, including acceptance of mutual aid to provide or receive assistance under this Compact, and must provide a copy of its most current plan to DEMA/EM Grants Administration upon request.

8. Contact List.

Each Party shall develop a contact list as outlined in Appendix B, which shall be provided to the Director to make available to all other Parties. A minimum of two contacts, preferably

three, must be provided in Appendix B. A Party may update its contact information, at any time, by providing the updated contact information in writing to the Director, who shall make available the updated contact information to all other Parties. The contact list should be updated periodically, when necessary (i.e., personnel change).

9. Reimbursement Procedures between Parties.

If the Providing Party desires reimbursement for the assistance it is providing, the Requesting Party shall reimburse the Providing Party for one hundred percent (100%) of all costs incurred, and as agreed to, within the mutual assistance compact, whether an emergency has been declared or not. The Providing Party must declare its intent to seek reimbursement as part of its response to the Requesting Party's request for assistance (see Appendix A). The Providing Party and the Requesting Party shall agree upon allowable costs, both actual and estimated, for mutual assistance prior to the dispatch of any mutual assistance resources. In the event that the agreement includes reimbursement of all agreed to activities by the Providing Party, the Providing Party must submit a claim for all costs incurred during the execution of the mission assignment to the Requesting Party. The claim must include copies (no original documents) of all documentation to support their claim of reimbursement, including but not limited to timecards, payroll reports, fringe benefits information, pay policies, vehicle/daily logs, maintenance records, equipment lists, invoices, contracts, receipts, procurement policies, inventory reports, proofs of payments, insurance policies, rental agreements, etc.

The Requesting Party shall reimburse the Providing Party for all sufficiently documented submitted costs, as agreed to, regardless of the existence of a State Declaration or a State-Level Emergency, or a federal Emergency or Major Disaster Declaration.

Self-deployed resources will not be reimbursed under this Compact.

10. Reimbursement Procedures from the State or Federal Government.

The Providing Party shall be reimbursed for costs associated with this Compact by the Requesting Party only. The Providing Party is not eligible for reimbursement from the State or federal government under the terms of this Compact; eligibility for reimbursement from the State or federal government is determined solely by state and/or federal laws and policies. Additionally, neither the State nor the federal government is liable for any claim arising from an emergency for which the applicant receives funds from another source.

Costs and work performed by the Providing Party may, or may not, be reimbursable by the State or federal government, if submitted by the Requesting Party for reimbursement under a State Declaration for a State-Level Emergency, or federal Emergency, or Major Disaster declaration. Regardless of eligibility for reimbursement from the State or the federal government under a State Declaration for a State-Level Emergency, or federal Emergency or Major Disaster declaration, the Requesting Party shall fully reimburse the Providing Party’s claim, providing all requirements are met. Failure to fully reimburse claims may establish a history of non-payment of AZMAC claims and may disqualify a Requesting Party from being able to be reimbursed under future State Declaration for a State-Level Emergency, or federal Emergency, or Major Disaster

declaration events.

11. Personnel Compensation and Insurance.

Except to the extent that reimbursement is separately agreed to, the Requesting Party and the Providing Party each shall be responsible for all compensation of their respective employees and insurance coverage for their respective equipment.

12. Immunity.

Notwithstanding the indemnification provision set forth below, the Parties shall have such immunity as provided by applicable state, federal, or tribal law.

13. Indemnification.

To the extent permitted under applicable laws, each Party (as "Indemnitor") agrees to defend, indemnify, and hold harmless the other Party (as "Indemnitee") from and against any and all claims, losses, liability, costs, or expenses (including reasonable attorney's fees) (hereinafter collectively referred to as "Claims") arising out of bodily injury of any person (including death) or property damage, but only to the extent that such Claims are caused by negligent act or omission or other fault of the Indemnitor, its officers, officials, agents, employees, emergency workers, or volunteers. If a Claim or Claims become subject to this indemnity provision, the Parties in question shall expeditiously meet to discuss a common and mutual defense, including proportional liability and payment of possible litigation expense and money damages. Notwithstanding the foregoing, nothing herein shall be construed to modify the gross negligence standard applicable to each Party under the law applicable to that Party. Should a Party to this Compact use a contractor for any purpose, that Party must ensure that its contractor(s) (and all of their subcontractors and materials suppliers, regardless of their degree of removal from the Party's contractor) are required to abide by the insurance requirements which are set forth in Appendix C. The obligations under this Section shall survive termination of this Compact.

14. Term.

This Compact shall terminate ten years after the effective date or until participation in this Compact is terminated by the Party. The 2014 Compact shall cease to be effective as of midnight Arizona time on the evening of December 31, 2023, and this Compact shall go into effect immediately thereafter for all Parties that have signed this Compact before that date and time. This Compact shall continue in effect until midnight Arizona time on the evening of December 31, 2033.

15. Effect of Termination by a Party.

The termination by one or more of the Parties of its/their participation in this Compact shall not affect the operation of this Compact as between the other Parties. The Director shall identify on DEMA's website, with updates as needed, all Parties to this Compact.

16. Compliance with Laws.

Each Party shall comply with all federal, tribal, state, and local laws, rules, regulations, standards, and Executive Orders, as applicable, without limitation to those designated within this Compact. Any changes in such laws, rules and regulations during the terms of this Compact shall apply without the need to amend this Compact.

17. Workers' Compensation.

Each Party shall maintain Workers' Compensation insurance coverage on all of its own employees providing services pursuant to this Compact.

18. Insurance.

Except as expressly provided in this Compact, each Party shall bear the risk of its own actions, as it does with all its operations, and shall determine for itself an appropriate level of insurance coverage and maintain such coverage. Nothing in this Compact shall be construed as a waiver of any limitation on liability that may apply to a Party.

19. Non-Appropriation.

Every payment obligation of each of the Parties under this Compact is conditioned upon the availability of funds appropriated and allocated for the payment of such obligation. If a Party's funds are not appropriated, allocated, and available or if the appropriation is changed by the legislature or other governing body resulting in funds no longer being available for the continuance of that Party's participation in this Compact, that Party may terminate its participation in this Compact as of the end of the period for which funds are available by providing written notice in advance to the Director. No liability shall accrue to the Party in question in the event this provision is exercised, and that Party shall not be obligated or liable for any future payments or for any damages as a result of termination under this paragraph.

20. No Third-Party Beneficiaries.

Nothing in this Compact confers any rights or remedies to any person or entity that is not a Party. Nothing in this Compact affects the legal liability of any Party to this Compact by imposing any standard of care different from the standard of care imposed by law.

21. Entire Compact.

This document constitutes the entire Compact between the Parties pertaining to the subject matter hereof. This Compact shall not be modified, amended, or altered.

22. Jurisdiction.

Nothing in this Compact shall be construed as otherwise limiting or extending the legal jurisdiction of any Party.

23. Conflict of Interest.

If applicable to the Party in question, that Party may terminate its participation in this Compact, without penalty or further obligation, if any person significantly involved in initiating, negotiating, securing, drafting, creating, or executing this Compact on behalf of the Party is, at

any time while this Compact or any extension is in effect, an employee, agent or consultant of another Party with respect to the subject matter of this Compact.

24. Supervision and Control.

Management of an emergency shall remain with the Party originally responsible for responding to the emergency. From the time of arrival to the time of departure at the emergency scene, the Providing Party shall be considered for all purposes to be under the direction and control (other than for the purposes of Workers' Compensation, as provided in Section 17 of this Compact) of the Requesting Party. In proceeding to and returning from the emergency scene, the Providing Party shall not be under the direction and control of the Requesting Party. Supervision and control of Providing Parties' personnel and equipment shall be in accordance with the National Incident Management System. All equipment and personnel used pursuant to this Compact shall be returned to the Providing Party upon being released by the Requesting Party or on demand of the Providing Party for such return.

25. Severability: Effect on Other Agreements.

It is expressly understood that this Compact shall not supplant existing agreements between any of the Parties that provide for the exchange or furnishing of goods and/or service.

26. Severability.

If any provision of this Compact is held to be invalid or unenforceable, the remaining provisions shall continue to be valid and enforceable to the fullest extent permitted by law.

27. Responsibility of the Department of Emergency and Military Affairs.

Nothing in this Compact limits or restricts the legal duties and obligations of DEMA/EM when responding to the emergency of any Party.

28. Execution Procedure.

Execution of this Compact shall be as follows:

This Compact, which will be designated as "ARIZONA MUTUAL AID COMPACT," shall be executed in counterparts by the governing body of each Party. Upon execution, the counterpart will be provided to the Director. This Compact will be effective between all Parties that execute this Compact even if it is not executed by all eligible entities.

29. Termination.

Termination of participation in this Compact by any Party may be affected by that Party as follows:

Notice of termination will be given to the Director 20 days prior to termination. Any Party may, by resolution of its governing body or person, terminate its participation in this Compact by providing a copy of such resolution to the Director. The Parties understand and acknowledge that a Party's participation in this Compact may be subject to cancellation or termination by that Party pursuant to the terms of this Compact, or pursuant A.R.S. § 38-511, or applicable tribal law. Pursuant to the provisions of A.R.S. § 11-952(B)(4), in the event of termination by a Providing Party or a Requesting Party, any property belonging to such Party shall be returned to that Party.

30. Dispute Resolution.

The Parties to this Compact agree to resolve all disputes arising out of or relating to this Compact through arbitration, after exhausting applicable administrative review, to the extent required by law.

31. Record Retention.

Each Party shall retain all records relating to this Compact for a period of five (5) years after the expiration of its term. All records shall be subject to review and copying by any other Party that participated in the emergency response to which such records relate (including such entities that are former Parties whose participation in this Compact was terminated within the five years preceding a request to review and copy) at reasonable times.

32. Forced Labor of Ethnic Uyghurs.

To the extent applicable under A.R.S. § 35-394, each Party warrants and certifies that it does not currently, and agrees that it will not for the duration of this Compact, use the forced labor, any goods or services produced by the forced labor, or any contractors, subcontractors, or suppliers that use the forced labor or any goods or services produced by the forced labor of ethnic Uyghurs in the People's Republic of China. If a Party becomes aware that it is not in compliance with this paragraph, it shall notify all other Parties of the noncompliance within five business days of becoming aware of it. If the offending Party fails to provide a written certification that it has remedied the noncompliance within 180 days after that, said Party's participation in this Compact shall terminate unless the termination date of this Compact occurs before the end of the remedy, in which their participation will terminate on the Compact's termination date.

33. Counterparts.

This Compact may be executed simultaneously or in counterparts, each of which constitutes an original, but all of which together constitute one and the same agreement.

Arizona Mutual Aid Compact

Signature Page

(NAME OF PARTY)

IN WITNESS WHEREOF, the Party below hereby signs this Arizona Mutual Aid Compact signature page. The signor warrants that he or she has been duly authorized to commit the Party named to participate in this Compact by formal approval of the Party's governing body or person.

_____ _____

(Signing Authority) Date:

ATTEST:

_____ _____

(Attesting Authority) Date:

Date of formal approval by governing body: _____

Pursuant to A.R.S. § 11-952(D) or applicable tribal law, the attorney for the above entity has determined that the foregoing Compact is in proper form and is within the powers and authority of the entity as granted under the laws of this State and the applicable tribal government.

_____ _____

(Attorney) Date:

Appendix A

Arizona Mutual Aid Compact (AZMAC)
Emergency Management Resource Request

Requesting Party:

Point of Contact: _____

Work: _____ Cell: _____

Email: _____

Requested Resource:

Quantity: _____

Unit of Measure: _____

Date/Time Required: _____

Delivery Location: _____

Date of Request: _____

Requesting Party Tracking Number: _____

Mission

Special Instructions

(i.e., delivery instructions, if the resource must come with personnel, fuel, lodging, etc.)

Personnel

Name:				
Phone Number:				
Email Address:				
Regular Salary/ Hourly Rate:				
Regular Fringe Benefit Hourly:				
Overtime Salary Hourly Rate:				
Overtime Fringe Benefit Hourly Rate:				

Estimated Resource Cost:

Request Forwarded to

Contact Name: _____

Organization/Agency: _____

Date/Time of Submission: _____

Request Approved by: Date:

(Name, Title, Signature)

Reimbursement

Providing Party Representative Signature Date:

Requesting Party Representative Signature Date:

Appendix B

Arizona Mutual Aid Compact (AZMAC) Points of Contact

Date: _____

Name of Party: _____

Mailing Address: _____

Authorized Representatives to Contact for Mutual Aid Assistance

	Primary Contact	1st Alternate	2nd Alternate
Name			
Title			
24hr ☎			
Day ☎			
Night ☎			
Fax 🖷			
Email			

Appendix C

Arizona Mutual Aid Compact (AZMAC)
Use of A Contractor

Each Party shall cause all of its contractor(s) and subcontractors performing any service or work or providing any equipment or material relating to an emergency response undertaken through this Compact to defend, indemnify, and hold harmless the State of Arizona, all Requesting Parties, and all Providing Parties participating in responding to the emergency in question under this Compact, and their respective directors, officers, officials, agents, and employees (hereinafter referred to as "Indemnitee") from and against any and all claims, actions, liabilities, damages, losses, or expenses (including court costs, attorneys' fees, and costs of claim processing, investigation and litigation) (hereinafter referred to as "Claims") for bodily injury or personal injury (including death), or loss or damage to tangible or intangible property caused, or alleged to be caused, in whole or in part, by the negligent or willful acts or omissions of that Party's contractor or any of the directors, officers, agents, or employees or subcontractors of such contractor. This indemnity includes any claim or amount arising out of or recovered under the Workers' Compensation Law or arising out of the failure of such contractor to conform to any applicable federal, state, tribal or local law, statute, ordinance, rule, regulation, or court decree. It is the specific intention of the Parties that the Indemnitee shall, in all instances, except for Claims arising solely from the negligent or willful acts or omissions of the Indemnitee, be indemnified by such contractor from and against any and all claims. It is agreed that such a contractor will be responsible for primary loss investigation, defense, and judgment costs where this indemnification is applicable. Nothing herein shall be construed to expand or modify the gross negligence or immunity standard as set forth in the state, federal, or tribal law applicable to the Party in issue.

Insurance Requirements for Parties:

None.

Insurance Requirements for Any Contractors Used by a Party to this Compact:

(Note: this applies only to Contractors used by a Party, not to the Party itself.) The insurance requirements herein are minimum requirements and in no way limit the indemnity covenants contained in this Compact. The State of Arizona in no way warrants that the minimum limits contained herein are sufficient to protect the Party or Contractor from liabilities that might arise out of the performance of the work under this Contract by the Contractor, its agents, representatives, employees or subcontractors, and Contractor and the Party are free to purchase additional insurance.

A. Minimum Scope and Limits of Insurance: Contractor shall provide coverage with limits of

liability not less than those stated below.

1. Commercial General Liability- Occurrence Form

Policy shall include bodily injury, property damage, personal and advertising injury, and broad form contractual liability.

a. The policy shall be endorsed (Blanket Endorsements are not acceptable) to include the following additional insured language: "The State of Arizona, [insert names of the Requesting Party(ies) and Providing Party(ies) in issue], and their departments, agencies, boards, commissions, universities, officers, officials, agents, and employees shall be named as additional insureds with respect to liability arising out of the activities performed by or on behalf of the Contractor." Such additional insured shall be covered to the full limits of liability purchased by the Contractor, even if those limits of liability are in excess of those required by this Contract.

b. The policy shall contain a waiver of subrogation endorsement (Blanket Endorsements are not. acceptable) in favor of the "State of Arizona, [insert names of the Requesting Party(ies) and Providing Party(ies) in issue], and their departments, agencies, boards, commissions, universities, officers, officials, agents, and employees" for losses arising from work performed by or on behalf of the Contractor.

2. Business Automobile Liability

Bodily Injury and Property Damage for any owned, hired, and/or non-owned vehicles used in the performance of this Contract.

- Combined Single Limit (CSL) $1,000,000

a. The policy shall be endorsed (Blanket Endorsements are not acceptable) to include the following additional insured language: "The State of Arizona, [insert names of the Requesting Party(ies) and Providing Party(ies) in issue], and their departments, agencies, boards, commissions, universities, officers, officials, agents, and employees shall be named as additional insureds with respect to liability arising out of the activities performed by or on behalf of the Contractor, involving automobiles owned, leased, hired or borrowed by the Contractor". Such additional insured shall be covered to the full limits of liability purchased by the Contractor, even if those limits of liability are in excess of those required by this Contract.

b. Policy shall contain a waiver of subrogation endorsement (Blanket Endorsements are not acceptable) in favor of the "State of Arizona, [insert names of the Requesting Party(ies) and Providing Party(ies) in issue], and their departments, agencies, boards, commissions, universities and its officers,

officials, agents, and employees" for losses arising from work performed by or on behalf of the Contractor.

c. Policy shall contain a severability of interest provision.

3. Workers' Compensation and Employers' Liability

- Workers' Compensation — Statutory
- Employers' Liability

Each Accident	$1,000,000
Disease - Each Employee	$1,000,000
Disease - Policy Limit	$1,000,000

a. Policy shall contain a waiver of subrogation endorsement (Blanket Endorsements are not acceptable) in favor of the "State of Arizona, [insert names of the Requesting Party(ies) and Providing Party(ies) in issue], and their departments, agencies, boards, commissions, universities and its officers, officials, agents, and employees" for losses arising from work performed by or on behalf of the Contractor.

B. Additional Insurance Requirements: The policies are to contain, or be endorsed (Blanket Endorsements are not acceptable) to contain, the following provisions:

1. The Contractor's policies shall stipulate that the insurance afforded the Contractor shall be primary insurance and that any insurance carried by the State of Arizona, [insert names of the Requesting Part(ies) and Providing Part(ies) in issue], and their departments, agencies, boards, commissions, universities and its officers, officials, agents, and employees shall be excess and not contributory insurance.

2. The Contractor's insurance shall apply separately to each insured against whom a claim is made, or suit is brought, except with respect to the limits of the insurer's liability. Coverage provided by the Contractor shall not be limited to the liability assumed under the indemnification provisions of its Contract with the other Parties.

C. Notice of Cancellation: With the exception of (10) day notice of cancellation for non-payment of premium, any changes material to compliance with this Contract in the insurance policies above shall require (30) days written notice to the [insert names of the Requesting Party(ies) and Providing Party(ies) in issue].

D. Acceptability of Insurers: Contractor's insurance shall be placed with companies licensed in the State of Arizona. Insurers shall have an "A.M. Best" rating of not less than A-VII or be duly authorized to transact Workers' Compensation insurance in the State of Arizona. The State of Arizona in no way warrants that the above-required minimum insurer rating is sufficient to protect the Contractor from potential insurer insolvency.

E. Verification of Coverage: Contractor shall furnish the Parties retaining the contractor in question with certificates of insurance (ACORD form or equivalent approved by the State of Arizona) as required by this Contract. The certificates for each insurance policy are to be signed by an authorized representative.

   All certificates and endorsements (Blanket Endorsements are not acceptable} are to be received and approved by the Parties retaining the contractor in question before work commences. Each insurance policy required by this Contract must be in effect at or prior to the commencement of work under this Contract and remain in effect for the duration of the project. Failure to maintain the insurance policies as required by this Contractor or to provide evidence of renewal is a material breach of contract.

   All certificates required by this Contract shall be sent directly to the Parties retaining the contractor in question.

F. Subcontractors: Contractor's certificate(s) shall include all subcontractors as insureds under its policies or Contractor shall furnish separate certificates for each subcontractor to the Party to this Compact that the contractor in question has contracted with. All coverage for subcontractors shall be subject to the minimum requirements identified above.

G. Exceptions: In the event the Contractor or subcontractor(s) is/are a public entity, then the Insurance Requirements shall not apply. Such a public entity shall provide a Certificate of Self-Insurance. If the contractor or subcontractor(s) is/are a State of Arizona agency, board, commission, or university then none of the above shall apply.

Addendum #1

Arizona Mutual Aid Compact (AZMAC)

Cyber-Related Mutual Aid For Participating Tribal Parties

1. Purpose.

The purpose of this Addendum #1 ("Addendum") to the Arizona Mutual Aid Compact is to define for the participating Parties the Arizona National Guard Cyber Joint Task Force of the Arizona Department of Emergency and Military Affairs (AZNG-CJTF) terms and procedures which will be used among the participating Parties for dispatching cyber-related mutual aid assistance to any affected area in accordance with tribal laws, resolutions, and emergency plans or agreements. The AZNG-CJTF may work with other applicable State and federal cybersecurity entities, as needed. Except as expressly stated in this Addendum, all of the terms of the Arizona Mutual Aid Compact itself apply to this Addendum as if set forth in this Addendum in full.

2. Scope.

The scope of this Addendum is to (1) identify the available cyber resources of the AZNG-CJTF; (2) identify the terms and conditions for Requesting Parties to utilize those resources; and (3) provide a mechanism for compensation for those cyber resources.

3. Definitions.

In addition to the definitions listed below, all of the definitions set forth in the Arizona Mutual Aid Compact shall apply here.

- **Cyber** refers to both information and communications networks.
- **Cyber Attack** means any kind of malicious activity that attempts to collect, disrupt, deny, degrade, or destroy information system resources or the information itself.
- **Cyber Emergency** means any actual, imminent, or potential cyber-related incident that will adversely affect public health, safety, or security; the environment; or economic prosperity on a level materially significant.
- **Cyber Incident** means actions taken through the use of an information system or network that result in an actual or potentially adverse effect on an information system, network, and/or the information residing therein.
- **Cyber Threat** means any circumstance or event with the potential to adversely impact organizational operations (including mission, functions, image, or reputation), organizational assets, or individuals through an information system via unauthorized access, destruction, disclosure, modification of information, and/or denial of service. Also, the potential for a threat-source to successfully exploit a particular information system vulnerability.
- **Cybersecurity** means prevention of damage to, protection of, and restoration of computers, electronic communications systems, electronic communications services, wire communication, and electronic communication, including information contained

therein, to ensure its availability, integrity, authentication, confidentiality, and nonrepudiation.

4. Types of Assistance.

The AZNG-CJTF offers two types of assistance, (1) vulnerability assessment and (2) cyber incident response. Vulnerability assessments are pre-emptive examinations of a party's physical and electronic safeguards in place protecting the party's information system or network. Vulnerability assessments are not done in response to a particular cyber incident. Cyber incident response is assistance provided following a cyber-attack or intrusion on a party's information system or network.

Regardless of whether a party requests AZNG-CJTF assistance to conduct either a vulnerability assessment or a cyber incident response, AZNG-CJTF assistance is limited to examinations of relevant physical and electronic security measures for an information system or network, an outline of AZNG-CJTF identified risks, threats, or breaches that were found as a result of any examination, and AZNG-CJTF recommendations to either address or minimize any identified risks, threats, or breaches and how a party could undertake such measures. AZNG-CJTF assistance does not include implementing any cyber security recommendation it or its personnel make, nor does it include directly thwarting or eliminating any ongoing cyber incident.

To request a vulnerability assessment from the AZNG-CJTF, contact AZCyberJointTaskForce@arizona.gov. For cyber incident response, refer to section 5.

5. Procedures for Requesting Assistance.

All procedures for requesting cyber-related assistance should follow the provisions outlined below:

1. Notify the DEMA/EM Duty Officer of the incident via phone at (602) 469-3401.
2. Submit a Resource Request into WebEOC detailing:
    a. When the Cyber Incident began,
    b. what the Indicators of Compromise (IoCs) are,
    c. the systems that have been affected (i.e., host machines, servers, other devices),
    d. the steps that have been taken, and
    e. what assistance is being requested.

Additionally, prior to any cyber-related assistance is provided, the Requesting Party and AZNG-CJTF must enter into either a Memorandum of Understanding (MOU) or a Memorandum of Agreement (MOA). These Memoranda will outline the scope of the cyber-related assistance that the Requesting Party desires from the AZNG-CJTF and the conditions under which this assistance will be conducted. These conditions can include terms or limitations from both the Requesting Party and the AZNG-CJTF.

An MOU will be entered if the cyber-related assistance being requested relates to a preventative computer and network vulnerability assessment that is not in response to a particular Cyber Incident. Any cyber-assistance provided by the AZNG-CJTF pursuant to an MOU will not involve reimbursement or any other form of cost-sharing by the Requesting Party. An MOA will be entered if the cyber-related assistance being requested relates to a particular Cyber Incident and not merely preventative assessments or examinations. Cyber-related assistance conducted pursuant to an MOA may require the Requesting Party to reimburse some or all of the AZNG-CJTF costs to conduct such assistance.

Any cyber-related assistance may be available regardless of whether there has been a federal declaration of emergency. However, if the AZNG-CJTF provides cyber-related assistance pursuant to an MOA that requires the Requesting Party to reimburse assistance costs to DEMA, the Requesting Party shall be solely responsible for determining whether these costs can be reimbursed by the federal government. Whether or not any cyber-assistance costs incurred by the Requesting Party to the AZNG-CJTF are reimbursable by the federal government shall not be a basis by the Requesting Party to delay reimbursing these costs to the Arizona National Guard Cyber Response Revolving Fund in the timely manner outlined in the respective MOA.

State of Arizona Mutual Aid Compact (AZMAC)

Frequently Asked Questions

General Administration

What is the current version of the Arizona Mutual Aid Compact?

The 2014 version of the Arizona Mutual Aid Compact will no longer be valid as of 12:00 AM Mountain Standard time on December 31, 2023. The 2024 AZMAC will be effective on January 1, 2024.

Once filed with the Arizona Department of Emergency and Military Affairs, Emergency Management Division, what is the duration of the Arizona Mutual Aid Compact?

The Compact, upon mutual consent of the parties concerned, remains in effect for 10 years, to December 31, 2033, or until participation is terminated by the Party (see paragraph 14 of AZMAC for further details).

Purpose and Participation Guidelines



What is the purpose of the Arizona Mutual Aid Compact?

The Arizona Mutual Aid Compact enables participating political subdivisions and tribal nations to share resources, personnel, etc. during emergencies and then be reimbursed for the resources.

What are the benefits of participating in the Arizona Mutual Aid Compact?

Mutual aid agreements provide a mechanism to participating parties to quickly obtain emergency assistance in the form of personnel, equipment, materials, and other related services. The primary objective is to facilitate rapid, short-term deployment of emergency support prior to, during and after an incident. A signed agreement does not obligate the provision or receipt of aid, the Compact provides a tool for use should the incident dictate a need.

Who may participate in the Arizona Mutual Aid Compact?

All state agencies, any political subdivision, including counties; incorporated cities and towns; school districts; community college districts; and other tax levying public districts in the State of Arizona. Additionally, all federally recognized tribal nations may participate.

Can non-governmental entities such as nonprofit agencies and other non-tax levying organizations participate in the Arizona Mutual Aid Compact?

No, only political subdivisions, federally recognized tribal nations or other tax-levying organizations may participate in the Arizona Mutual Aid Compact.

Are other state agencies required to participate in the Arizona Mutual Aid Compact?

No, the Arizona Department of Emergency and Military Affairs (DEMA) signed the 2024 Arizona Mutual Aid Compact. In the event another state agency requires mutual aid assistance, DEMA/EM will coordinate.

What is required if a jurisdiction wants to terminate its participation in the Arizona Mutual Aid Compact?

Any party, by resolution of its governing body, may terminate its participation in the Arizona Mutual Aid Compact. The jurisdiction must file a copy of the resolution with the Director of the Arizona Department of Emergency and Military Affairs, Division of Emergency Management (DEMA/EM). Notice of Termination is required to be delivered to the DEMA/EM Director, 20 days prior to the date of termination.

Procedures and Reimbursement

What are the procedures for requesting assistance under the Arizona Mutual Aid Compact?

A Requesting Party that needs assistance in excess of its own resources and existing automatic or local mutual aid due to an emergency is authorized to request assistance from any Party that is signatory to the Arizona Mutual Aid Compact (see paragraph 5 of AZMAC for further details).

Are signatories to the Arizona Mutual Aid Compact required to render assistance if requested by the requesting jurisdiction?

No. The Providing Party shall provide mutual aid as it is able, considering its own service needs and existing commitments within its own jurisdiction. The Providing Party shall be the sole judge of what mutual aid it can provide the Requesting Party pursuant to this Compact.

How does reimbursement occur for services/resources if the emergency or event is not a state- or federally-declared emergency?

In accordance with the Arizona Mutual Aid Compact, if the Providing Party desires reimbursement for the assistance it is providing, the Requesting Party shall reimburse the Providing Party for all costs incurred in the mutual assistance, regardless of whether an incident has been declared an emergency. The Providing Party shall submit a request for payment with documentation of actual expenses to the Requesting Party (see paragraphs 9 and 10 of AZMAC for specific details).

Can a Requesting Party request reimbursement from the State of Arizona for the cost of mutual aid resources reimbursed to any Providing Parties under the Arizona Mutual Aid Compact?

Possibly. Regardless of eligibility for reimbursement from the state or the federal government, the Requesting Party shall fully reimburse the Providing Party's claim (see paragraph 10 of AZMAC for further details).

Can jurisdictions that are signatories to the Arizona Mutual Aid Compact be reimbursed for self-deployed resources?

No. In accordance with the Arizona Mutual Aid Compact, jurisdictions can only be reimbursed for resources mutually agreed upon between the Providing Party and the Requesting Party.

Who maintains supervision and control of the Providing Party resources and personnel under the Arizona Mutual Aid Compact?

From the time of arrival to the time of departure at the emergency scene, the Providing Party shall be considered for all purposes to be under the direction and control (other than for the purposes of Workers' Compensation) of the Requesting Party. In proceeding to and returning from the emergency scene, the Providing Party shall not be under the direction and control of the Requesting Party (see paragraph 24 of AZMAC for further details).

Addendum #1 Cyber-Related Mutual Aid



What is the Addendum?

The Addendum outlines the terms and procedures of the Arizona National Guard Cyber Joint Task Force (AZNG-CJTF), if cyber-related assistance is needed.

Why is the Addendum solely for participating Tribal Parties?

AZMAC is the mechanism for tribal nations to receive cyber-related mutual aid assistance from the Arizona National Guard Cyber Joint Task Force (AZNG-CJTF). The AZNG-CJTF is available to other parties and political subdivisions in Arizona.

Filing Requirements

What are the requirements for filing your Arizona Mutual Aid Compact?

1. Ensure that the **Signature Page** of the compact is signed, dated and attested to by:
   - the authorizing executive in your jurisdiction,and
   - your jurisdiction's legal representative.
2. Fill out the **Appendix B** - **Points of Contact form** with the jurisdiction contact information.
3. Send the original completed copy of both to: logistics@azdema.gov.

What will occur after you file your completed Arizona Mutual Aid Compact?

Upon DEMA/EM Logistics receiving your completed Compact:

- Will be reviewed and forwarded to the DEMA/EM Director for final approval and filing.
- The original copy of the Compact will be assigned a file number and filed at DEMA/EM.
- A copy of the contract will be sent via mail to the points of contact listed on Appendix B of the Compact.
- The DEMA website will be updated to reflect your jurisdiction as a signatory on the Arizona Mutual Aid
- Compact.

Who should I contact if I have a question or concern about the Arizona Mutual Aid Compact?

Any questions or concerns not covered in this FAQ should be addressed to the following:

Arizona Department of Emergency and Military Affairs
Division of Emergency Management
ATTN: Arizona Mutual Aid Coordinator
5636 E. McDowell Rd., Bldg. M5103, Phoenix, AZ 85008
Phone: (602) 464-6211 | Email: logistics@azdema.gov

Arizona Mutual Aid Compact (AZMAC) Signatories

DEMA/EM maintains a list of all current AZMAC signatories.
For questions or concerns regarding AZMAC, please contact DEMA/EM Logistics at logistics@azdema.gov

Last Updated: 05MAR2026

Apache County

Apache County
Alpine Fire District

Coconino County

Coconino County
City of Flagstaff
City of Sedona
Coconino Community College
Flagstaff Unified School District

Cochise County

Cochise County
City of Benson
City of Douglas
City of Sierra Vista
City of Tombstone
City of Willcox
Fry Fire District
San Jose Fire District
Sunsites-Pearce Fire District
Bisbee Police Department
Sierra Vista Unified School District
Northern Arizona Intergovernmental Public Transportation Authority

Gila County

Gila County
City of Globe
Town of Miami
Town of Payson

Graham County

Graham County

Greenlee County
Greenlee County
Town of Duncan
La Paz County
La Paz County
Maricopa County
Maricopa County
City of Buckeye
City of Chandler
City of Glendale
City of Goodyear
City of Mesa
City of Peoria
City of Scottsdale
City of Surprise
City of Tempe
Town of Cave Creek
Town of Guadalupe
Town of Queen Creek
Arizona Fire Medical Authority
City of Phoenix Fire Department
Daisy Mountain Fire and Medical
Gilbert Public Schools
Scottsdale Unified School District #48
Mohave County
Mohave County
Navajo County
Navajo County
City of Holbrook
City of Show Low
City of Winslow
Town of Pinetop-Lakeside
Timber Mesa Fire and Medical District
Show Low Unified School District
Whiteriver Unified School District

Pima County
Pima County
City of Tucson
Town of Sahuarita
Avra Valley Fire District
Drexel Heights Fire District
Golder Ranch Fire District
Helmet Peak Fire Department
Mescal J6 Fire District
Mount Lemmon Fire District
Northwest Fire District
Rincon Valley Fire District
Santa Rita Fire District
Three Points Fire District

Pinal County
Pinal County
City of Apache Junction
City of Casa Grande
City of Coolidge
City of Maricopa
Town of Florence
Town of Hayden
Town of Mammoth
Town of Superior
Electrical District No. 3 of Pinal County
Maricopa-Stanfield Irrigation and Drainage District
Magma Flood Control District
Maricopa Flood Control District
Sothwestern Utility Management
Queen Valley Domestic Water Improvement District
Dudleyville Fire District
Eloy Fire District
Oracle Fire District
Queen Valley Fire District
San Manuel Fire District
Superstition Fire & Medical District
Thunderbird Fire District
Apache Junction Unified School District
Casa Grande Elementary School District
Coolidge Unified School District
Hayden-Winkelman Unified School District #41
J.O Combs Unified School District

Mary C. O'Brien Accommodation District
Santa Cruz County
Santa Cruz County
City of Nogales
Yavapai County
Yavapai County
City of Prescott
City of Sedona
Town of Chino Valley
Town of Clarkdale
Town of Dewey-Humboldt
Town of Jerome
Town of Prescott Valley
Town of Wickenburg
Central Arizona Fire and Medical Authority
Copper Canyon Fire and Medical District
Congress Fire District
Crown King Fire District
Groom Creek Fire District
Mayer Fire District
Williamson Valley Fire District
Verde Valley Fire District
Chino Valley School District
Clarkdale-Jerome School District #3
Cottonwood-Oak Creek School District #6
Yuma County
Yuma County
Tribal Nations
Ak-Chin Indian Community
Cocopah Indian Tribe
Colorado River Indian Tribes
Fort McDowell Yavapai Nation
Gila River Indian Community
Havasupai Tribe
Pascua Yaqui Tribe
Salt River Pima-Maricopa Indian Community
San Carlos Apache Tribe

Tohono O'odham Nation
Tonto Apache Tribe

REQUEST FOR COUNCIL ACTION

Request for Council Action:
Meeting Type: Regular Meeting
Meeting Date: July 8, 2026
Department: City Council
Presented by:

Brief Title: Review Lake Powell Boulevard Safety

Agenda Section: Potential Future Agenda Items
Agenda Sub-category: Agenda Item
Action: Other
PowerPoint Needed?: No

Request for Council Action

Recommended Action:
TBD

Background:
A Councilmember has requested that this item be considered by Council to be discussed at a future Council Meeting.

Traffic studies consistently show LP Blvd to be a high accident area in Page. While the old Streetscape Plan proposed to address this it only proposed to address safety between North and South Navajo and did not address the areas where speed and lack of existing traffic control measures lead to the most accidents and speed violations (church row intersection with Coppermine and hills leading from the highway.) Recent accidents including a fatality and Citizen concerns sent to Council make this a timely problem to address. Should Council discuss this at a future meeting and establish a scope of study and action for the direction of staff?

Alternatives Considered:
N/A

Advisory Board/Commission Action:
N/A

Fiscal Impact:
Fiscal Year:
Amount Requested:
Line Item(s):

Budget Impact:

Notes:

Attachments:
None