

## City of Bisbee Community Wildfire Protection Plan (BCWPP) Update – 2025

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**CITY OF BISBEE**  
**COMMUNITY WILDFIRE PROTECTION PLAN (BCWPP) – 2025**  
Prepared for: Arizona Department of Forestry and Fire Management  
Date of Adoption: December 16th 2025

*Document completed in collaboration with Bisbee Fire Department, City of Bisbee, Old Bisbee Firewise Bisbee stakeholders, County and DFFM guidance.*

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**Cover photo: Fuels reduction project– Firewise volunteer day**



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## Acronyms & Abbreviations

<b>Acronym</b>	<b>Definition</b>
AAR	After-Action Review
ADOT	Arizona Department of Transportation
AFG	Assistance to Firefighters Grant (FEMA)
APS	Arizona Public Service (electric utility)
AZWC	Arizona Water Company
AZWRAP	Arizona Wildfire Risk Assessment Portal
BFD	Bisbee Fire Department
BJA	Bureau of Justice Assistance (DOJ)
BLM	Bureau of Land Management (U.S. DOI)
BUSD	Bisbee Unified School District
CERT	Community Emergency Response Team
CWDG	Community Wildfire Defense Grant (DFFM/USDA)
CWPP	Community Wildfire Protection Plan
DEMA	Arizona Department of Emergency & Military Affairs
DFFM	Arizona Department of Forestry & Fire Management
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
GIS	Geographic Information System
HFRA	Healthy Forests Restoration Act (2003)
ICS	Incident Command System
IFC	International Fire Code (2018, adopted)
KPI	Key Performance Indicator
LANDFIRE	Landscape Fire and Resource Management Planning Tools (USFS/USGS)
MJHMP	Multi-Jurisdictional Hazard Mitigation Plan (Cochise County)
NFPA	National Fire Protection Association
NOAA	National Oceanic and Atmospheric Administration
OBF	Old Bisbee Firewise
R-25-04	City of Bisbee Resolution adopting 2018 IFC & Firewise practices
SUBN	Step Up Bisbee/Naco (501(c)(3))
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
WUI	Wildland–Urban Interface

# 1. Executive Summary

## 1.1 Vision & Key Themes

The City of Bisbee envisions a wildfire-resilient community rooted in strong multi-agency collaboration, equity-focused outreach to vulnerable populations, and proactive sustainable land management to protect lives, property, and ecological health.

## 1.2 Major Changes Since 2015

- Expanded fuel treatments: Increased from 105 acres (2019–21) to 160 acres (2024–25).
- Home-hardening initiatives launched: Ongoing smoke/CO detector drives and portable heater exchange programs since 2019.
- Adoption of Resolution R-25-04: Enforces 2018 fire codes and defensible-space standards.
- Integration of climate projections: Incorporated EPA Southwest Climate Assessment data and AZWRAP wildfire risk modeling.

## 1.3 Summary of Goals & Policies

1. Reduce hazardous fuels within WUI zones.
2. Enhance public education through Firewise outreach and demonstration gardens.
3. Improve structural ignitability by enforcing Zone 0 defensible space.
4. Upgrade fire suppression infrastructure and water system reliability, especially in Old Bisbee.
5. Support low-income and high-risk populations with home-hardening grant programs.
6. Improving public/firefighter safety and response capabilities including new supplies, equipment, wildfire turnout gear and vehicles.

## 1.4 Implementation Roadmap

Year	Milestone	Lead Agency
2025/26	Submit Community Wildfire Defense Grant for home hardening	SUBN / Bisbee Fire Dept.
Ongoing	Public Education	Firewise, BFD, SUBN, City of Bisbee
2026-27	Conduct first CWPP review and GIS map update	Planning Department
2026-27	Submit grant to complete firebreak and fuels reduction in moderate to high-risk areas of the City	BFD
2026-2030	Abandon old, failing gravity fed fire suppression system and upgrade Az. Water co. water system and add hydrants to meet code	City of Bisbee, BFD, Public works and Arizona Water Co.
2026-ongoing	Purchase equipment, turnout gear and vehicles (Grant applications)	BFD
2028	Publish second CWPP update and strategic revisions	All Stakeholders

## **2. Introduction & Legislative Context**

### **2.1 Role, Purpose, and Statutory Basis (ARS §9-461.05)**

This BCWPP update meets the requirements of Arizona Revised Statutes §9-461.05, which mandates municipalities to adopt a plan that:

- Identifies priority wildfire mitigation areas
- Establishes measures to reduce structural ignitability
- Defines implementation schedules and responsible entities
- Improving public/firefighter safety and response capabilities

The purpose of the BCWPP is to increase preparedness, to reduce hazardous wildland fuels, and to increase communication with local, county, state, and federal emergency response personnel by determining high-risk areas for catastrophic wildland fire, developing mitigation measures to reduce hazardous wildland fuels, improving emergency response to unplanned wildfire, and reducing structural ignitability.

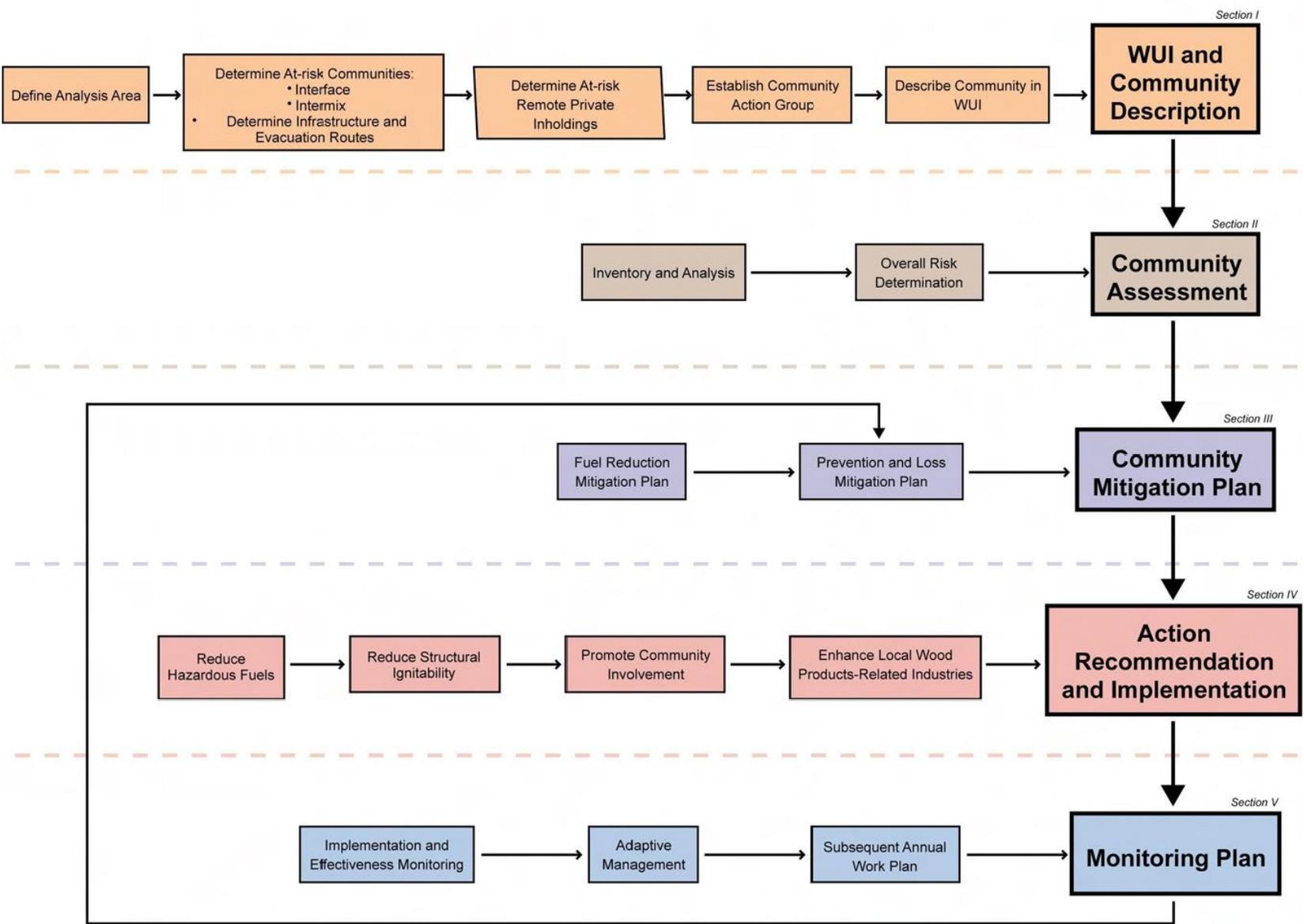
The Bisbee CWPP aligns with the Healthy Forests Restoration Act (HFRA) of 2003, fostering collaboration between local governments, fire departments, the State Forester (DFFM), and federal agencies (BLM Tucson Field Office) to address at-risk lands and community values.

### **2.2 Plan Update Process & Public Engagement**

The update process was guided by DFFM CWPP templates and included:

- Stakeholder Workshops: Nov 13, 2024; Mar 3, 2025; May 25, 2025, convening, City Council, BFD leadership, Firewise coordinators, SUBN rep. and community members.
- Interviews: Residents and homeowners in Old Bisbee, Warren, and San Jose provided feedback on risk perceptions and mitigation priorities.
- Interagency Coordination: Regular consultation with DFFM, Cochise County Emergency Management, and Arizona Water Company to align fuels treatments and infrastructure upgrades.

Table - Process followed to produce the BCWPPP



### **3. Planning Process & Participation**

#### **3.1 Collaboration activities used to develop this CWPP**

This CWPP update followed the DFFM CWPP Template and was developed through a collaborative, inclusive process that blended technical analysis with community input.

Core activities included:

- Formation of a multi-agency working group led by the City of Bisbee and Bisbee Fire Department (BFD), with participation from Old Bisbee Firewise (OBF), Step Up Bisbee/Naco (SUBN), Cochise County Emergency Management (EM), Arizona Department of Forestry & Fire Management (DFFM), Arizona Water Company (AZWC), and other local partners.
- Public involvement & outreach, including a community town hall (May 25, 2025), Firewise volunteer days, safety displays, and ongoing Firewise USA activities to gather input on priorities, and defensible space.
- Data-driven risk assessment using AZWRAP risk layers, updated LANDFIRE fuel models, and local incident experience to prioritize neighborhoods (Old Bisbee Canyon, Spring Canyon Corridor, San Jose fringe) and to align treatments with access/egress constraints.
- Policy and infrastructure coordination, aligning CWPP actions with adoption of the 2018 IFC (Resolution R-25-04) and with a proposed public-private partnership to modernize fire-flow reliability via AZ Water Company (tanks, booster, hydrants, mains).
- Iterative drafting and review using the DFFM template's minimum standards to ensure completeness and clarity for state approval.

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#### **3.2 Core planning/leadership group**

##### City Leadership & Planning

- Mayor Ken Budge, City of Bisbee
- City Council: Ward I (Karen Schumacher, Leslie Johns), Ward II (Pete Skinner, Mel Sowid), Ward III (Anna Cline, Trish Damon)
- Stephen Pauken, City Manager's Office
- Emanuel Stuart, Planning Department (CWPP coordination, land-use integration)

##### Emergency Services

- Jim Richardson, Fire Chief, Bisbee Fire Department (BFD)
- Andy DeCastro, Captain, BFD
- Kevin Pacheco, Fire Inspector, BFD
- Dan Duchon, Director, Cochise County EM
- Albert Echave, Coordinator, Cochise County EM

##### Community & Nonprofits

- Old Bisbee Firewise (OBF) – volunteer leadership and assessors
- Step Up Bisbee/Naco (SUBN) – Danielle Boochever (Firewise coordinator, grant writer)
- Copper Rafael, Volunteer Firewise Evaluator
- Lindsey Kohler, Community Volunteer/Evaluator

- Copper Queen Library – education partner

State & Federal Partners / Utilities

- Arizona Department of Forestry & Fire Management (DFFM) – State Forester support
- Arizona Water Company (AZWC) – water infrastructure coordination
- Arizona Public Service (APS) – utility vegetation management and safety protocols

Public Safety/Health Partners

- Cochise County Sheriff’s Office & Bisbee Police Department – public safety liaison
- Copper Queen Community Hospital – medical support & continuity planning

These members constituted the core planning/leadership team, with ad-hoc technical subgroups (risk mapping; infrastructure/water; public education; vulnerable populations) convened as needed during drafting.

**3.3 Meetings held (who attended, number of meetings, what was done)**

<b>Date</b>	<b>Type &amp; Focus</b>	<b>Representative attendees</b>	<b>Key outcomes</b>
Nov 13, 2024	Kickoff / scoping workshop	City leadership; BFD; Planning; OBF; SUBN; Cochise County EM	Confirmed scope, data sources (AZWRAP/LANDFIRE), template alignment, initial WUI and priority neighborhoods list.
Mar 3, 2025	Risk & treatments working session	BFD command; Fire Inspector; Firewise leaders; DFFM reps; Planning	Reviewed neighborhood risk (Old Bisbee Canyon, Spring Canyon, San Jose); refined fuel-treatment methods (mechanical thinning, chipper program); discussed evacuation chokepoints.
May 25, 2025	Community town hall & open house	Mayor & Council; BFD; Firewise; SUBN; ~50 residents	Presented draft priorities; gathered public input on defensible space, home-hardening, sheltering, and evacuation; recorded comments for revisions.
Late May 2025	Technical working session	BFD (Chief, Fire Inspector, Lieutenant); Firewise coordinator; Planning	Converted public feedback into an action list; finalized education timeline and equipment inventory language.
June 9, 2025	Follow-up working session	BFD leadership; Firewise coordinator; Planning	Finalized monitoring metrics, added vulnerable-population measures, synchronized policy/code integration section for permitting.

## 4. Description of Partners and Communities

### 4.1 Core Planning Team — Chair/Key Contacts

- Chair (CWPP Lead): Jim Richardson, Fire Chief, Bisbee Fire Department (BFD) — convenes the working group, validates risk/treatment priorities, and liaises with Cochise County EM during plan activation.
- Planning Co-Lead: Emanuel Stuart, City of Bisbee Planning Department — integrates CWPP actions with land-use/permit review; maintains maps and biennial update schedule.
- Community/Outreach Co-Lead: Danielle Boochever, Step Up Bisbee/Naco (SUBN) & Old Bisbee Firewise (OBF) — leads Firewise education, equity-focused outreach, home-hardening grant pipeline.
- State Technical Advisor: Arizona Department of Forestry & Fire Management (DFFM) — ensures alignment with DFFM minimum standards.

### 4.2. Core Planning Team — Roster (Names, Organizations, Roles)

Name	Organization / Agency	CWPP Role
Jim Richardson	Bisbee Fire Department (BFD), Fire Chief	Chair; operational lead; fuels & response priorities; mutual aid coordination.
Emanuel Stuart	City of Bisbee Planning Department	Planning co-lead; WUI/permit integration; mapping & biennial reviews.
Andy DeCastro	BFD, Captain	WUI operations; equipment/readiness inputs; evacuation/egress review.
Kevin Pacheco	BFD, Fire Inspector	2018 IFC enforcement; Zone 0 inspections; hydrant/flow test coordination.
Dan Duchon	Cochise County Emergency Management (EM), Director	Evacuation annex; AlertSense/reverse-911; shelter coordination.
Albert Echave	Cochise County EM, Coordinator	Incident coordination; training/drills; after-action reporting.
Danielle Boochever	Step Up Bisbee/Naco (SUBN) & Old Bisbee Firewise (OBF)	Community engagement; Firewise & low-income home-hardening grants.
Copper Rafael	Old Bisbee Firewise	Volunteer assessor; neighborhood outreach & defensible-space coaching.
Lindsey Kohler	Community Volunteer/Firewise Evaluator/Old Bisbee Firewise	Public education; event staffing; resident assessments.

Mayor Ken Budge	City of Bisbee (Mayor)	Executive sponsorship; inter-department alignment; public messaging.
City Council (Wards I–III)	City of Bisbee	Policy support; adoption of resolution(s) and funding authorizations.
Arizona Department of Forestry & Fire Management (DFFM)	State Forester’s Office	Template compliance; AZWRAP/risk guidance; grant alignment.
Arizona Water Company	Utility partner	Water-system modernization inputs (tanks/booster/mains/hydrants).
Arizona Public Service (APS)	Electric utility	Vegetation management near lines; fire-weather protocols.
Cooper Queen Library	Education partner	Youth education; Firewise presentations; venue support; evacuation messaging to families.
Copper Queen Community Hospital	Health partner	Continuity of care; medical shelter coordination.
Bisbee Police Department / Cochise County Sheriff’s Office	Law enforcement	Traffic control; evacuation enforcement; perimeter security.

*Note:* Additional contributors (e.g., ADOT for roadside fuel/traffic control) participate as needed for projects and exercises.

#### **4.3 Smaller Working Groups (standing sub-teams)**

1. Risk, Mapping & Analytics – *Planning Dept., BFD (operations/inspections), DFFM (AZWRAP), BLM (adjacent lands).*  
Tasks: Maintain WUI boundary and risk layers; neighborhood risk scoring; map figure updates for appendices.
2. Infrastructure & Water Supply – *Public Works, BFD, Arizona Water Company; coordination with APS.*  
Tasks: Hydrant retrofit schedule; storage/booster/mains plan; integration of IFC fire-flow standards with CWPP projects.
3. Public Education, Equity & Engagement – *OBP, SUBN, Firewise Working Group, BUSD, Library/Senior Center.*  
Tasks: Firewise recertification; bilingual outreach; demonstrations (Zone 0 landscaping, heater-safety); vulnerable-household programs (detectors, mini-splits, panel upgrades).

#### **4.4 Primary Points of Contact**

- Operational/Chair: Jim Richardson, Fire Chief, BFD
  - Planning/Permitting & Maps: Emanuel Stuart, City Planning
  - Community Programs/Grants: Danielle Boochever, SUBN & Old Bisbee Firewise
- These contacts ensure continuity from planning through implementation and meet DFFM’s expectation for a small, accountable leadership group.

### **5. Community Profile & Trends**

#### **5.1 Demographics & Social Vulnerability**

According to the 2020 U.S. Census and 2021 ACS data, Bisbee has 4,963 residents with a median age of 61.0 years, well above the state median. Key social vulnerability factors include:

- Elderly Population: 35.2% of residents are aged 65 or older, requiring specialized evacuation planning and outreach for seniors (Census Reporter, 2021).
- Low-Income Households: The median household income is \$41,094, with a poverty rate of 21.7%, indicating financial constraints on home-hardening investments (Data USA, 2021).
- Language & Access: Approximately 15% of residents speak a language other than English at home, necessitating multilingual outreach for Firewise programs.

#### **5.2 Economic Base & Tourism Impacts**

Bisbee’s economy relies heavily on tourism and historic preservation:

- Tourism Volume: Approximately 200,000 visitors annually, supporting local hospitality, retail, and cultural sectors.
- Historic Downtown: The City of Bisbee is an Historic District per SHPO and has the core Old Bisbee (Bisbee Historic District listed in 1980) which contains about 80 contributing buildings. The loss of these buildings due to spreading wildfire to the community would be an unrecoverable economic blow to the entire community. Historic buildings would be impossible to rebuild or financially prohibitive.
- Economic Vulnerability: Wildfire smoke episodes or evacuation orders could disrupt tourism revenue and small-business operations.

#### **5.3 Housing Market**

- Homeownership Rate: Approximately 52% owner-occupied units; low turnover and high renovation costs challenge structural hardening efforts.
- Evacuation Challenges: Narrow roads and dense housing increase evacuation complexity during wildfire events.
- Many houses are found in or near the WUI.
- Many houses in Bisbee (600 units) are on the City of Bisbee’s abandoned and delapidated homes list, all at higher risk of fire damage.

## 5.4 Environmental Context & Climate Trends

Bisbee lies in a semi-arid climate zone at an elevation of 5,300 ft on the Mule Mountains. Key environmental and climate trends impacting wildfire risk include:

- **Rising Temperatures:** Mean annual temperatures are projected to increase by 3–5 °F by mid-century, extending the length and severity of the fire season (EPA, 2023).
- **Precipitation Variability:** Summer monsoon rainfall has declined by approximately 8% over the past 30 years, with more erratic, intense storms that fail to alleviate prolonged drought conditions (NOAA, 2022).
- **Extended Drought:** Climate models forecast a 10–15% decrease in soil moisture by 2050, increasing both the quantity and continuity of dead fuels (USGS, 2021).
- **Insurance Cost Increase:** Homeowners' insurance premiums in Cochise County have risen by 22% since 2019 due to elevated wildfire risk and extreme heat events, making coverage less affordable for low-income residents (NAIC, 2023).
- **Housing Age & Roof Vulnerability:** Over 60% of Bisbee homes were built prior to 1950, many over 100 years ago. Many retaining wood-shake or ungraded composite roofs that are highly susceptible to ember ignitions (U.S. Census Bureau, 2020).

### Sources:

EPA. (2023). *Future Climate: Projected Averages in the Southwest*; NOAA. (2022). *Climate Data Modernization Program Annual Monsoon Trends*; USGS. (2021). *Drought and Soil Moisture Projections*; NAIC. (2023). *Homeowners Insurance Experience Report — Wildfire Risk*; U.S. Census Bureau. (2020). *American Community Survey 5-Year Estimates*. AZWRAP (2025) risk modeling layers.

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## 6. Local Area Description & Wildland–Urban Interface (WUI)

### 6.1 WUI Area the CWPP Covers

The CWPP planning area encompasses the City of Bisbee and immediately adjacent intermix zones—Old Bisbee (historic canyon neighborhoods), Warren, San Jose, Bisbee Junction, Rio Vista, and Banning Creek—where homes, businesses, and critical infrastructure meet or intermingle with wildland vegetation. The working WUI polygon follows the municipal boundary and extends into surrounding canyons, ridgelines, and desert shrublands to capture areas with steep slopes, limited ingress/egress, and continuous fuels that influence fire behavior and evacuation.

### 6.2 CWPP Boundaries & Adjacent Public Lands

The CWPP boundary is defined by the WUI polygon and includes lands under multiple jurisdictions:

- City of Bisbee/Private parcels — residential, commercial, historic downtown, utilities, rights-of-way.
- Adjacent federal lands (BLM – Tucson Field Office) — public lands immediately upslope or downwind of Old Bisbee, Spring Canyon, and along portions of the municipal fringe.
- Arizona State Trust Lands — scattered sections near State Routes 80 and 92 and the suburban fringe.

- County/ADOT corridors — state highways and county roads that function as evacuation routes and fire-break opportunities.

This mix reflects the interdependence of municipal, private, state, and federal ownerships in driving both wildfire exposure and mitigation opportunities.

### 6.3 Land Ownership — Acres/Percentages

The WUI planning footprint includes municipal/private lands plus adjoining BLM and State Trust tracts. Exact acreages and percentages are being finalized from the AZWRAP Risk Assessment Summary

<b>Ownership / Jurisdiction</b>	<b>Acres</b>	<b>% of WUI</b>	<b>Notes</b>
City & Private Parcels	<i>(AZWRAP export)</i>	<i>(%)</i>	Homes/businesses, historic district, utilities, rights-of-way
BLM (Tucson Field Office)	<i>(AZWRAP export)</i>	<i>(%)</i>	Public lands upslope/adjacent to Old Bisbee, Spring Canyon
Arizona State Trust Land	<i>(AZWRAP export)</i>	<i>(%)</i>	Discrete sections near SR-80/SR-92; interface with suburbs
County/Other Public	<i>(AZWRAP export)</i>	<i>(%)</i>	Transportation corridors, public facilities parcels

### 6.4 Fuels & Vegetation (Brief Description)

The WUI contains a mosaic of fuel types that influence rate of spread, flame lengths, and ember production:

- Chaparral / Mixed Oak Scrub (manzanita, scrub oak): high ladder-fuel continuity; supports crown and torching under wind.
- Pinyon–Juniper Woodlands: needle litter and downed woody fuels increase intensity; ember production affects structures downslope.
- Desert Shrub/Grass Complex (mesquite, creosote with flashy grasses): rapid spread under dry/windy conditions along roads and open lots.
- Urban-interface fuels: ornamental vegetation, wood fencing/decks, landscape debris, and accumulations within the Home Ignition Zone.

### 6.5 Ten-Year Fire History & Community Impacts (2015–2024)

Incident data and local experience indicate multiple unplanned ignitions annually in and around the WUI, driven by human causes (roadside starts, equipment, powerline-related) and lightning during monsoon season. Within a 5-mile radius of Bisbee, ~5–7 ignitions per year have been typical; most are contained quickly but steep slopes, narrow canyons, and fuel continuity create periods of elevated risk. Some documented impacts over the last decade include:

**Ten-Year Fire History: Bisbee Community Wildfire Protection Plan Area (2015–2025)**

<b>Year</b>	<b>Fire Name / Incident</b>	<b>Approx. Size / Type</b>	<b>Location / Notes</b>	<b>Community Impact / Response</b>
2025	<b>Mason Fire</b>	~9 acres	Mason Hill area, southwest of SR 80 near Old Bisbee	Forward progress stopped quickly by Bisbee Fire Dept. and DOC crews; no structure loss or injuries reported. <i>Source: KOLD News</i>
2024	<b>Historic Main Street Structural Fire</b>	Urban / Commercial	Downtown Bisbee Historic District (Main St.)	Two historic buildings damaged; adjacent structures protected; extensive recovery work and road closures followed. <i>Source: AZ Family News</i>
2022	<b>John Fire &amp; Copper King Fire</b>	~40 acres (combined)	Hillsides adjacent to Old Bisbee on Freeport-McMoRan property	Multi-agency response; FCX provided water trucks and access; no structure loss reported. <i>Source: Freeport-McMoRan Mine Safety Reports</i>
2022	<b>Locklin Fire</b>	~112 acres	Hills above Old Bisbee	Evacuations and pre-evacuation alerts issued; fire threatened homes but was contained with no losses. <i>Source: KVOA Tucson News</i>
2022	<b>Old Bisbee / Saginaw Fire</b>	Multiple ignitions / Urban Interface	Saginaw Subdivision, Hwy 80 corridor	Several homes destroyed; full evacuation of C and D Streets; coordinated response prevented spread to Main St. <i>Source: FOX 10 Phoenix</i>
2021	<b>Zacatecas / “Zacattack” Fire</b>	~30 acres	Zacatecas Canyon / Old Bisbee	Threatened ~30 structures; evacuation orders lifted after containment; no structure damage reported. <i>Source: AP News Regional Desk</i>
2021	<b>Wildcat Fire (Zacatecas Area)</b>	~100 acres (estimated overlap)	Zacatecas Canyon / Brewery Gulch vicinity	Fire advanced within ¼ mile of structures in Tombstone Canyon and

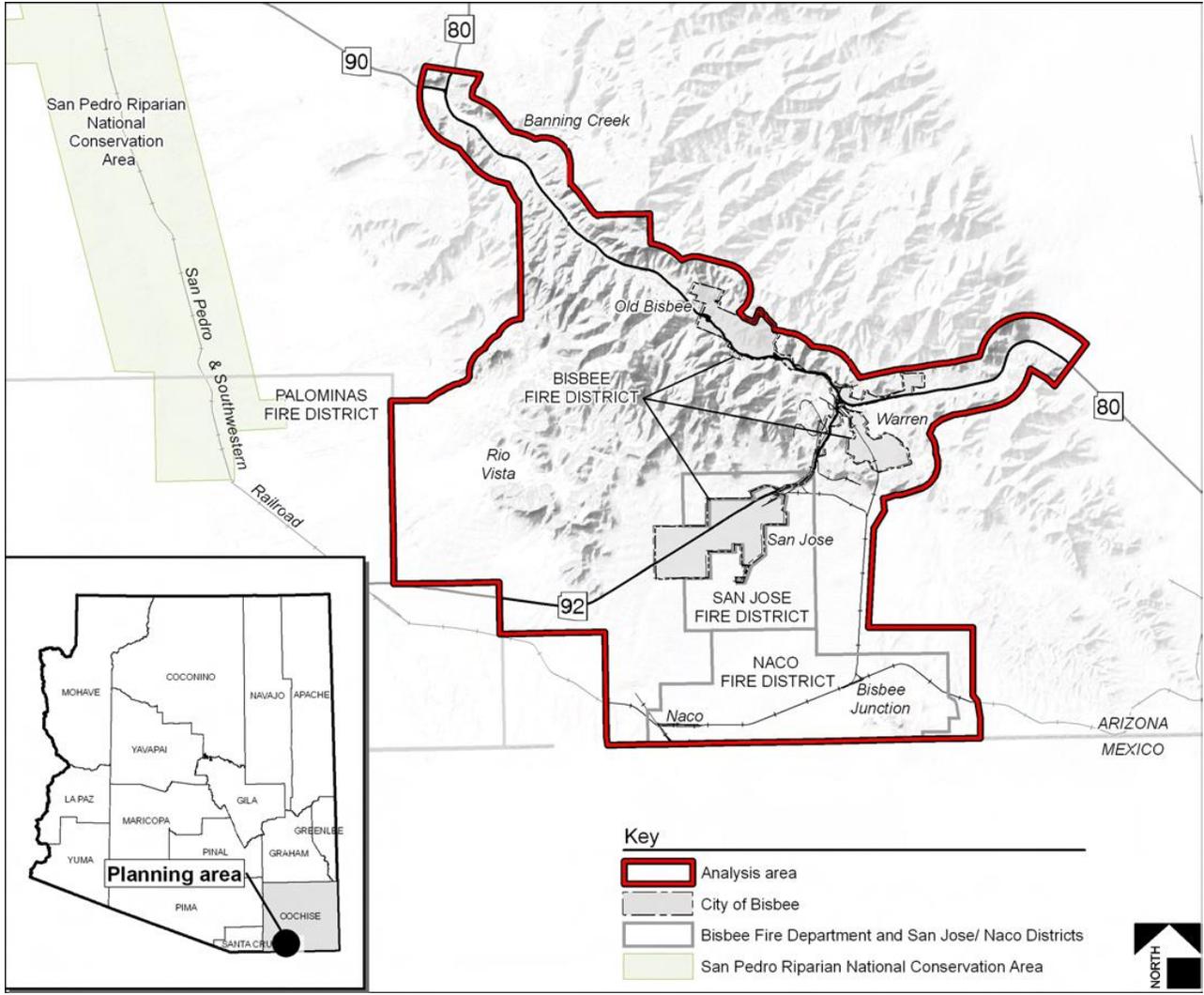
				Main St.; contained by state and federal crews. <i>Source: This Is Tucson News</i>
2017	Star Fire	~5.1 acres	Star Avenue / Old Bisbee	Ignited in vacant home, spread into hillside brush; six structures damaged; neighborhood evacuations implemented. <i>Source: ABC 15 Phoenix</i>
2015	Warren Grass Fire	~15 acres	Near Warren District / Golf Course Rd	Controlled burn escaped containment; prompted local review of fuel break maintenance practices. <i>Source: Bisbee FD Incident Log</i>

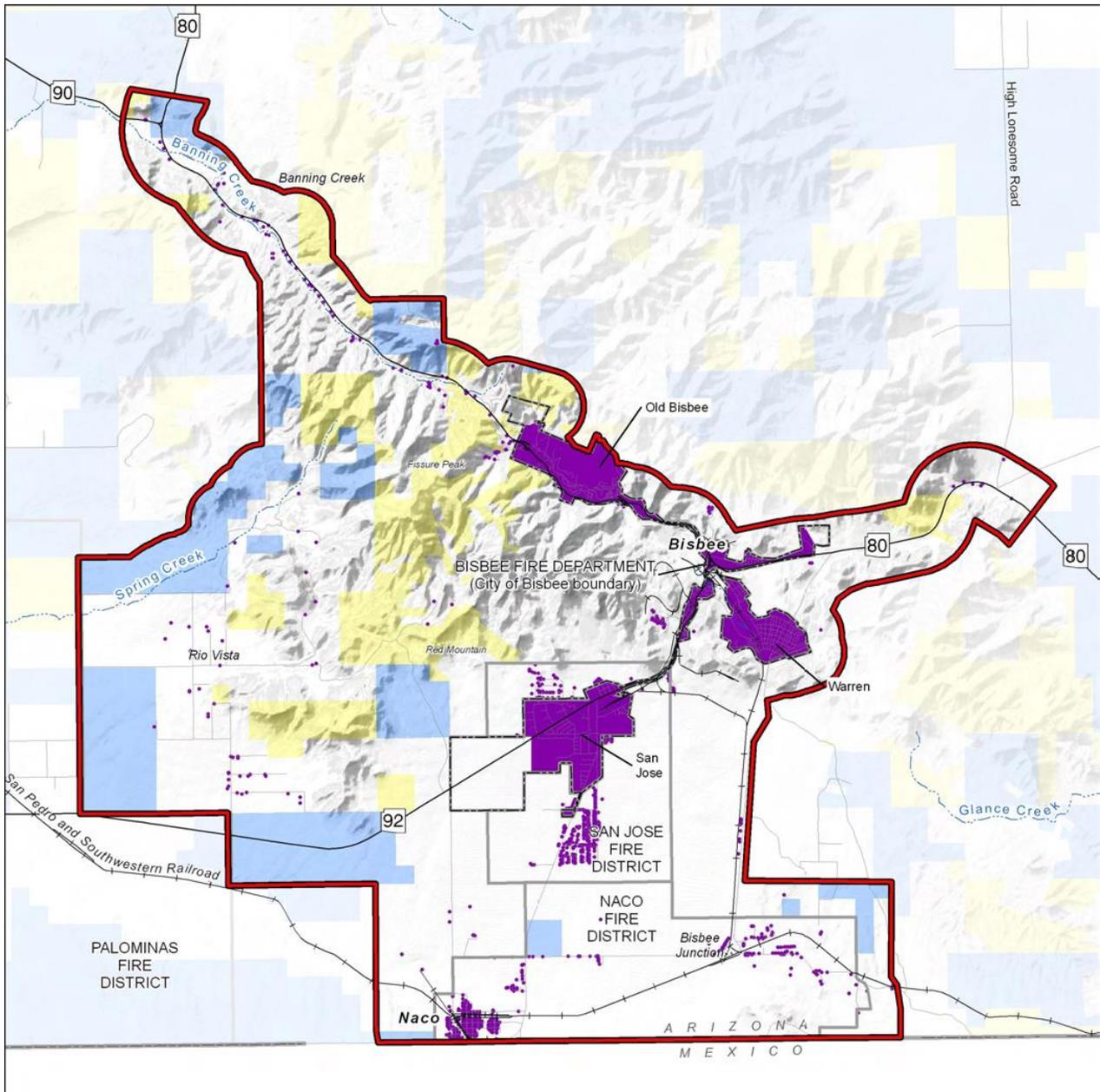
**Community impacts:**

- Short-term road closures and tactical staging on steep, single-access lanes in Old Bisbee canyons.
- Exposure of structures and critical assets (e.g., communications sites, water infrastructure), prompting multi-agency responses and the use of aerial support during peak events.
- Operational challenges tied to hydrant spacing/pressure in Old Bisbee’s legacy gravity-fed system—reinforcing the need for the pressurized system transition and hydrant upgrades identified in this plan.

**Summary (2015–2025):**

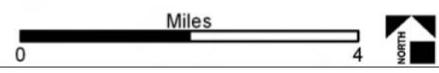
- Average of **2–3 wildland or structural fires per year** within or near the CWPP boundary.
- **Primary ignition causes:** human activity, electrical malfunction, and structure-to-wildland spread.
- **Community Impacts:** Old Bisbee and Zacatecas areas most frequently threatened due to steep slopes, heavy vegetation, and limited evacuation routes.
- **Response Improvements:** Hydrant upgrades, acquisition of new brush engines and tender, and improved mutual aid coordination since 2022.





**Key**

----- City of Bisbee	Land Owner:
<span style="border: 2px solid red; display: inline-block; width: 20px; height: 10px;"></span> Wildland-Urban Interface (WUI)	<span style="background-color: white; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> Private
<span style="border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> Bisbee Fire Department and San Jose/ Naco Districts	<span style="background-color: lightblue; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> State Trust
<span style="background-color: purple; display: inline-block; width: 20px; height: 10px;"></span> Dense Housing within City Limits	<span style="background-color: yellow; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> BLM
• Structure	



**Bisbee WUI land ownership**

## 7. Wildfire Risk Assessment

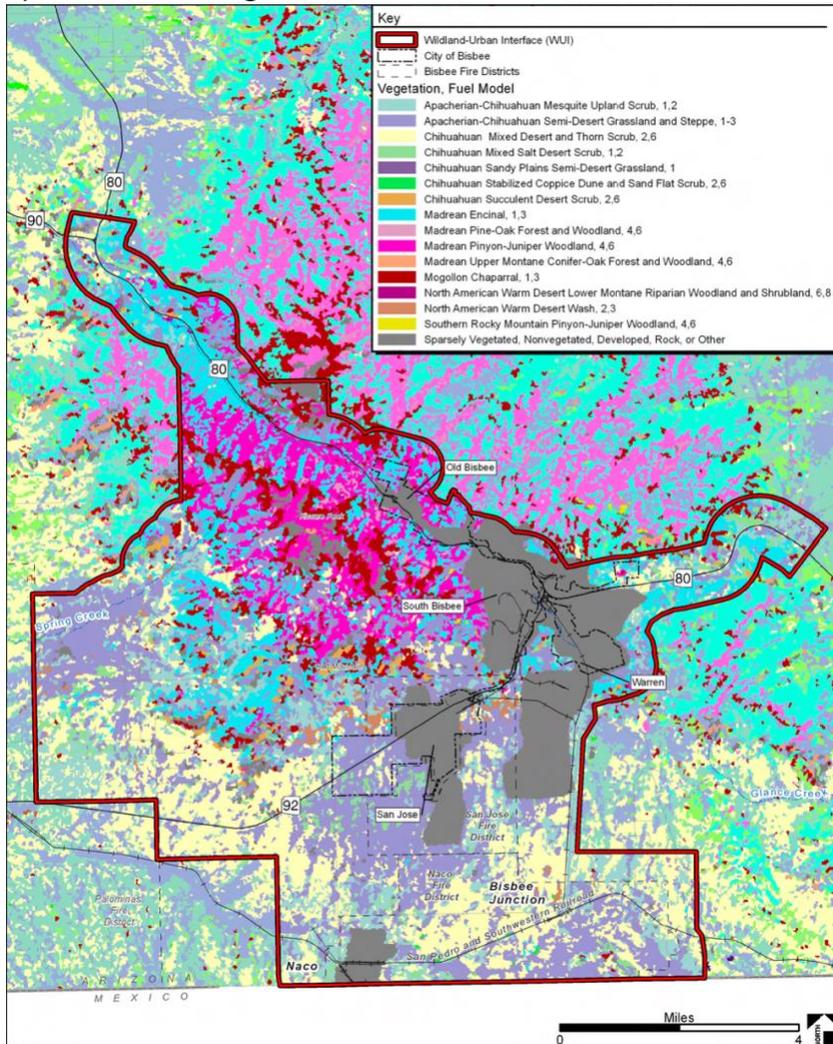
Bisbee’s wildfire risk profile combines steep terrain, historic structures, and diverse vegetation fuels. Using AZWRAP data and local field surveys, three primary risk factors emerged:

### 7.1 Hazard Analysis

A hazard analysis identifies the likelihood of wildfire ignition and potential severity. For Bisbee, three primary ignition sources are considered:

- **Human-caused:** Equipment use, debris burns, arson, and accidental ignitions from vehicles or powerlines.
- **Natural:** Lightning strikes during monsoon storms.
- **Overshoot:** Wildfires burning beyond national forest or BLM boundaries into urban areas.

Using historical fire occurrence data (DFFM, 2024), Bisbee has averaged 5–7 unplanned ignitions per year within a 5-mile radius. Steep slopes and dense fuels accelerate fire spread, increasing hazard levels.



**Vegetation types within the WUI**

## 7.2 Fuels Characterization

Wildfire “fuel” refers to the vegetation and combustible materials that sustain a fire. In Bisbee’s WUI, key fuel types include:

- **Chaparral/Mixed Oak Scrub:** Dense shrub canopy, with ladder fuels allowing fire to climb into tree crowns.
- **Pinyon-Juniper Woodlands:** High fuel loading of dead wood and needles.
- **Urban Interface Fuels:** Landscape debris, non-compliant ornamental vegetation, and accumulated leaf litter around homes.

Recent LANDFIRE 2020 fuel models (LF2020) provide updated, high-resolution data for this region, superseding older 2005 models (LANDFIRE, 2021). Fuel modification treatments such as thinning, pruning, and strategic fuel breaks are recommended to alter these fuel beds and reduce fire intensity.



*Grassland vegetation*



*Desert Scrub vegetation*



*Shrubland vegetation*



*Oak/Juniper/Pinyon vegetation*



*Deciduous Southwest Riparian vegetation*

### 7.3 Fire Behavior

Fire behavior describes how a fire spreads and its intensity. Key factors:

- **Rate of Spread:** Influenced by wind, slope, and fuel continuity; steep canyon walls in Bisbee increase uphill spread by up to 30%.
- **Flame Length:** Directly related to fuel load; lengths over 8 feet render handline firefighting ineffective.
- **Firebrand Production:** Embers from crown fires can travel over 1,000 feet, starting spot fires within urban areas.

Fire behavior modeling (BehavePlus, 2024) for worst-case conditions (90th percentile temperature and wind) predicts head fire rates of 3–5 chains/hour (198–330 ft/hour) and flame lengths of 10–12 feet in mixed fuels.

### 7.4 Risk Rating, Mapping & Prioritized Fuel Reduction Areas

A composite risk rating was developed using LANDFIRE 2020 fuels data, Arizona Department of Forestry & Fire Management (DFFM) risk layers, and local knowledge from the Bisbee Fire Department. This model combines **hazard** (fuels, topography, fire weather), **exposure** (homes, infrastructure), and **vulnerability** (aging homes, steep access, limited water supply).

#### Risk Categories

- **High Risk:** Dense wildland fuels adjacent to homes, steep slopes, limited evacuation/access, and inadequate suppression water supply.
- **Moderate Risk:** Scattered fuels, mixed densities of development, improved evacuation capacity.
- **Low Risk:** Urban core with minimal native vegetation, hardened structures, and compliant defensible space.

#### Priority Hazardous Fuel Reduction Areas (HFRA-Required)

In compliance with the **Healthy Forests Restoration Act (2004)**, this CWPP identifies and prioritizes areas requiring hazardous fuel reduction to protect at-risk communities and essential infrastructure.

#### Priority 1 — Old Bisbee Canyon (Risk Score > 8 – Extreme Risk)

##### Primary Hazards:

- Narrow canyons concentrating heat, smoke, and flame upslope.
- Dense chaparral fuels (manzanita, oak, juniper).
- Heavy ladder fuels and near-structure vegetation.
- Single-access neighborhoods with evacuation choke points.
- Failing gravity-fed hydrant system.

##### Recommended Treatments:

- Mechanical thinning of chaparral and ladder fuels along canyon walls (2–3 year rotation).

- Construction and maintenance of a **continuous fuels break** from Star Ave → Wood Canyon → Zacatecas.
- 5-ft Zone Zero clearance around all structures; removal of wood piles, combustibles.
- Ember-resistant retrofits for pre-1970s homes.

**If No Action Is Taken:**

- A fast-moving fire could outrun evacuation capability.
- Fire behavior modeling shows extreme flame lengths with ember cast projected directly into Old Bisbee’s historic district.
- Loss of life, loss of historic buildings, and permanent economic damage are credible outcomes.
- Insurance withdrawal in this neighborhood is expected to accelerate.

**Priority 2 — Spring Canyon Corridor (Risk Score 7–8 – Very High Risk)**

**Primary Hazards:**

- Steep topography with oak woodland and grassy understory.
- Wind funneling increases rate of spread up-canyon.
- Direct adjacency to residential parcels.

**Recommended Treatments:**

- Annual corridor thinning to remove continuous canopy and ladder fuels.
- Roadside brushing to maintain evacuation viability.
- Fuel breaks extending from SR 80 to upper Spring Canyon ridgelines.

**If No Action Is Taken:**

- Fire would run rapidly upslope into homes.
- Residents could become trapped along narrow canyon roads.
- Fuel continuity increases the chance of fire spreading into multiple sub-canyons of Old Bisbee.

**Priority 3 — San Jose Suburban Fringe (Risk Score 6–7 – High Risk)**

**Primary Hazards:**

- Fuel types include mesquite, acacia, creosote, and buffelgrass.
- Wildfire ignition risk elevated near utility corridors and water infrastructure.
- Structures generally newer but less defensible space.

**Recommended Treatments:**

- Roadside fuel reduction around municipal water infrastructure.
- Neighborhood defensible-space program focusing on 0–30 ft clearance.
- Removal of buffelgrass (high flame-length and spread potential).

**If No Action Is Taken:**

- Fire may jump SR 92 or SR 80 under high winds.
- Damage to water infrastructure could impair suppression city-wide.
- Increasing structure density without mitigation raises cumulative exposure.

## Citywide Infrastructure Vulnerabilities:

### Hydrant Deficiencies

Old Bisbee has only ~75 operational hydrants—**half the 150 required**—with inconsistent flows (City of Bisbee, 2024).

### Water Supply Reliability

Gravity-fed system produces inadequate pressure during fire conditions; transition to Arizona Water Company’s pressurized system will stabilize flows.

### If No Action Is Taken:

- Hydrant failure during a major fire remains highly probable.
- Multi-structure loss becomes significantly more likely.
- Firefighter safety is reduced; mutual aid becomes slower and less effective.

## 7.5 Proposed Water System Partnership

A private–public partnership between the City of Bisbee and Arizona Water Company is proposed to entirely replace the historic gravity-fed fire system in Old Bisbee with a modern, pressurized potable water network designed for fire suppression. Key components include:

- **Water Storage Tanks:** Three new tanks totaling 725,000 gallons of dedicated fire storage, increasing system capacity to 1,286,000 gallons (doubling current storage).
- **Booster Pump Station:** One high-capacity pump station to ensure consistent delivery pressures across multiple sub-canyons.
- **Water Mains & Hydrants:** Installation of ~150,000 ft of new mains and 180 fire hydrants (City wide) at 500 ft spacing, meeting International Fire Code and NFPA 1142 standards.

This plan follows recommendations from the 2012 City–EPA workshop and aligns with Cochise County hazard mitigation plans (Cochise County, 2023). It will not only modernize infrastructure but also enhance community resilience against wildfire and extreme-weather events.

Approximately 40% of Bisbee’s parcels fall into the High-Risk category, guiding priority for mitigation funding and actions.

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## 8. Communities / Values At-Risk List

Consistent with the Healthy Forests Restoration Act (HFRA), this list identifies WUI neighborhoods and locally important values (historic districts, critical infrastructure, watersheds, and community facilities) that would be significantly impacted by a wildfire. It also notes current preparations and resource gaps to guide project prioritization in this CWPP update.

Risk basis. Neighborhood risk levels reflect AZWRAP/LANDFIRE fuels, topography (slope/canyons), structure density, access/egress, and exposure of vulnerable populations.

Current analysis prioritizes Old Bisbee Canyon (>8 Risk Score), Spring Canyon (7–8), and San Jose (6–7); roughly ~40% of parcels fall into high-risk classes citywide.

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1) Old Bisbee Canyon — High Risk (Score > 8)

- Values at risk. Dense historic housing in steep, narrow canyons; concentrated commercial/residential blocks; communications assets; tourism economy.
- Primary risk drivers. Juniper/manzanita/oak ladder fuels; extreme slopes and wind channeling; limited ingress/egress; legacy hydrant spacing/pressure deficiencies from the gravity-fed system.
- Preparation completed. 105 acres of WUI fuels work (2019–20) and a 160-acre firebreak (2024–25); Firewise USA activities (assessments, volunteer days); Resolution R-25-04 adopting 2018 IFC (Zone 0, materials).
- Additional resources needed. Transition to pressurized AZ Water Co. network (tanks, booster, ~150k ft mains, 180 hydrants @ 500 ft); home-hardening for older roofs/vents; continued corridor thinning.
- Evacuation notes. Primary egress: SH-80 to SR-92; pre-stage escorts for dead-end lanes and stairway exits; staging: Warren Ballpark/High School; shelter: Copper Queen Library & Hospital coordination.

2) Spring Canyon Corridor — High Risk (Score 7–8)

- Values at risk. Steep-slope residential blocks, utility corridors, and access roads directly adjacent to heavy fuels.
- Drivers. Dense oak with grassy understory; wind-aided upslope spread; spot-fire potential toward structures.
- Preparation. Annual corridor thinning; integration into 160-acre treatment footprint; public outreach and assessments.
- Needs. Two-year maintenance cycle; chipper program expansion; roadside fuel breaks; evacuation signage with ADOT.
- Evacuation. Use SR-80 east/west based on wind/origin; coordinate temporary traffic control and contraflow if required.

3) San Jose Suburban Fringe — Moderate–High Risk (Score 6–7)

- Values at risk. Residential subdivisions, Arizona Water Co. infrastructure, and key arterials.
- Drivers. Desert shrub/flashy grass fuels (mesquite/creosote); interface with infrastructure; ember exposure to homes.
- Preparation. Defensible-space outreach; smoke/CO detector installs; heater-exchange safety program (2019–23).
- Needs. Parcel-by-parcel defensible space (Zone 0/1), HOA messaging, and home-hardening assistance (CWDG).
- Evacuation. Multiple arterials; designate primary/secondary routes and signalization; ensure transit for car-less seniors.

4) Warren District (Ballpark/Schools/Neighborhoods) — Moderate Risk

- Values at risk. Warren Ballpark (historic venue), schools, and established neighborhoods; venues also serve as staging during incidents.

- Drivers. Mixed ornamental vegetation/urban fuels and adjacent grasslands; event-day population surges.
- Preparation. Firewise education events; yard-sign campaigns; demonstration programming; detector drives.
- Needs. School-family evacuation messaging, address signage, shaded-fuel breaks along edges and routes.
- Evacuation. Pre-identify traffic control points; coordinate school reunification locations in EOP/CWPP annex.

#### 6) Bisbee Junction / Rio Vista — Moderate Risk

- Values at risk. Residential pockets, highway junctions, and utility corridors with grass/shrub fuels.
- Drivers. Fast-moving grass fires from roadside ignitions; wind alignment along corridors.
- Preparation. Roadside mowing coordination; public messaging; detector installs via SUBN/BFD.
- Needs. Expanded roadside breaks, HOA clean-up days, target hardening of fence lines and sheds.
- Evacuation. Multiple routes available; pre-assign traffic control and signage kits with ADOT.

#### 7) Historic Downtown Business District — High Value at Risk

- Values at risk. National-register historic fabric (e.g., Bisbee Mining & Historical Museum), tightly packed commercial blocks, and a tourism economy (~200,000 visitors/year).
- Drivers. Ember intrusion to older roofs/vents; structure-to-structure spread; constrained streets for apparatus.
- Preparation. IFC 2018 adoption; ignition-resistant materials in permits; public-education campaigns.
- Needs. Grants for roofing/vent retrofits; alley fuel/debris removal; hydrant redundancy and flow/pressure upgrades.
- Evacuation. Clear wayfinding to SH-80; staged traffic control; shelters at Library/Hospital per Annex.

#### 8) Critical Infrastructure Nodes — High Value at Risk

- Values at risk. Arizona Water Co. tanks/mains/hydrants; wastewater plant; APS electric lines; communications towers; Copper Queen Community Hospital; public-safety facilities.
- Drivers. Exposure to slope-driven fire and ember cast; cascading service failures (power/water/comms).
- Preparation. Utility vegetation management: CWPP-aligned hydrant retrofit program; hospital continuity planning.
- Needs. Pressurized fire-flow project (tanks/booster/new mains); expanded defensible space around assets; redundant comms.
- Evacuation/continuity. Facility-specific plans; hospital medical-needs sheltering; utility coordination in EOC activation.

## 9. Emergency Management

### 9.1 Protection Capabilities & Infrastructure Protection

#### A. Fire Protection District Capabilities

City of Bisbee Fire Department (BFD)

- Service Area: Old Bisbee, Warren, San Jose, and Bisbee Junction; mutual aid to Naco and surrounding areas.
- Average Response Time:
  - Urban core: ~4–6 minutes
  - Periphery/WUI areas: ~8–12 minutes (terrain dependent)
- Call Volume: Increasing due to climate-driven risk and aging infrastructure; structure fire, brush fire, and rescue calls comprise ~30% of volume.

Mutual Aid Districts:

- San Jose Fire District
- Naco Fire District
- Palominas Fire District
- Tombstone Fire Department
- Formal and informal mutual aid agreements are in place; cross-boundary coordination supported by Cochise County Emergency Management and AZ DFFM.

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#### B. Fire Protection Resources (Personnel & Equipment)

##### Personnel

- BFD: 22 career firefighters (certified in wildland & structure fire suppression)
- Training includes:
  - ICS-100 to ICS-300
  - S-130/S-190 (Basic Wildland)
  - Engine Boss certification (one per shift)
  - Evacuation and shelter-in-place protocols

##### Equipment

- Type I and Type VI engines
- Water tender (planned)
- Chainsaws, radios, GIS tablets, fire shelters, portable pumps
- Defensible space hand tools, hydrant adapters
- Mutual aid engines from adjacent districts and DFFM

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#### C. Local Mitigation Plans in Place

- **City of Bisbee CWPP (2025 Update):** Prioritizes WUI fuel reduction, hydrant upgrades, community outreach, and structural hardening.
- **Resolution R-25-04 (2025):** Adopts 2018 International Fire Code, enabling defensible space enforcement and integration of Zone 0 home-hardening.
- **Bisbee Water Infrastructure Master Plan (2024):**
  - Joint planning with Arizona Water Company to replace gravity-fed fire suppression system with pressurized hydrants and expanded storage.

- Adds 180 code-compliant hydrants and 725,000 gallons of new water storage.
- **Cochise County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP)**
  - Bisbee identified as high wildfire risk area
  - Aligns with CWPP priorities for fuels reduction and emergency response

#### **D. Coordination with Other Plans**

- **Bisbee General Plan**  
CWPP goals and maps incorporated into the Safety, Open Space, and Environmental Elements.
- **Cochise County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP)**  
Shared risk-mapping and priority treatment areas (Old Bisbee, Spring Canyon) referenced in the County’s Mitigation Actions.
- **Emergency Operations Plan (EOP)**  
Evacuation routes, GIS risk layers, and community notification protocols from this CWPP update inform the EOP Annex on Wildfire Response.

#### **E. Utility Infrastructure Protection & Coordination**

##### **Arizona Water Company**

- Partner on infrastructure transition project for Old Bisbee fire suppression (2025–2030)
- Plans include:
  - Three new storage tanks
  - Booster pump station
  - 150,000 linear feet of new mains
  - Coordination with CWPP evacuation plans

##### **Arizona Public Service (APS)**

- Wildfire mitigation efforts:
  - Regular vegetation clearance around powerlines in WUI zones
  - High-wind and red-flag day outage protocols
  - Coordination with City and County EM on fire danger days

##### **Southwest Gas**

- Pipeline inspection and emergency shutoff protocols
- Maps provided to BFD for emergency response routing

##### *References:*

- DFFM. (2024). *Arizona Wildfire Risk Assessment Portal*.
- Scott, J., & Burgan, R. (2005). *Standard Fire Behavior Fuel Models*.
- BehavePlus. (2024). *Fire Modeling System*.
- U.S. Census Bureau. (2020). *ACS 5-Year Estimates*.

## **10. Agreements, Policies, and Education**

To ensure effective wildfire mitigation and response, the City of Bisbee has adopted policies, entered into interagency agreements, and implemented robust public education strategies.

### 10.1 Local Wildland Fire Management Policies

The Bisbee Fire Department (BFD) currently operates under a **full suppression strategy** for all wildfire events occurring within city boundaries and adjacent WUI zones. This means:

- All fires are suppressed immediately upon detection to prevent spread.
- Initial response is led by BFD, supported by mutual aid partners based on threat severity.
- No prescribed fire or natural fire-use programs are currently permitted within Bisbee’s jurisdiction due to terrain, proximity of structures, and public safety concerns.

This policy is aligned with **City Resolution R-25-04**, which enforces 2018 International Fire Code provisions, including defensible space and home hardening standards.

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### 10.2 Mutual Aid Agreements

To expand response capacity, Bisbee maintains **formal mutual aid agreements** with the following agencies:

Agency	Type of Support	Details
Cochise County Emergency Management	Emergency coordination, EOC activation	Coordinates sheltering, evacuation, and resources
Arizona Department of Forestry & Fire Management (DFFM)	Wildland fire suppression and grant support	Direct support in major fire events
Palominas Fire District	Fire suppression and cross-boundary fuel mitigation	Cooperative training and planning
Naco and San Jose Fire Districts	Initial response and mutual aid	Joint drills and equipment staging
U.S. Forest Service / BLM (Gila District)	Support on adjoining federal lands	Fuel treatment coordination

These agreements support rapid mobilization of resources, shared equipment access, and personnel deployment.

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### 10.3 Evacuation Information & Community Alerts

**Evacuation readiness** has been a growing focus of the CWPP update. Key elements include:

- **Emergency Communication Tools:**
  - *Cochise County AlertSense*: Reverse-911 and SMS alert system.
  - Local Radio: KBRP broadcasts emergency updates.
  - Social Media & City Website: Provide evacuation levels, shelter info, and updates.
- **Phone Tree System:** Firewise Ambassadors maintain informal neighborhood contact chains for rapid outreach to vulnerable residents.
- **Address Signage & Identification:**
  - Reflective address signs encouraged in WUI zones.

- Homes participating in Firewise assessments are tagged with yard signs and map pins.
- 

#### **10.4 Public Education & Fire Awareness Resources**

Bisbee has a well-established community education framework driven by the **Old Bisbee Firewise group (OBF)**, BFD, and partners like Step Up Bisbee/Naco. Education activities include:

- **Annual Firewise Recertification:** Includes community presentations, community cleanup days, and media campaigns using “Sparky the Firewise Mascot.”
- **Community Fire Prevention Workshops:**
  - Held at the Copper Queen Library and Senior Center.
  - Focus on defensible space, safe heating, and wildfire home assessments.
- **Demonstration Garden Program:**
  - Fire/drought-resistant landscaping education.
  - Onsite signage and public tours.
- **Training Events:**
  - Evacuation drills and tabletop exercises-County EM lead.
  - Volunteer training for Firewise Ambassadors, CERT, and shelter operations.
- **Fire Safety Literature:**
  - Distributed via real estate welcome packets, and the Bisbee Observer.
  - Bilingual signage and materials available throughout the WUI.

### **11. 5-Year Wildfire Resilience Project Priorities**

This section outlines the top projects Bisbee plans to pursue between 2025 and 2030. All activities align with state and federal grant eligibility under DFFM, FEMA, and related hazard mitigation programs.

**Objective:** Prioritize WUI fuel reduction, home-hardening, and education to mitigate catastrophic wildfire risk while supporting vulnerable populations.

Based on risk assessment, stakeholder input, and best practices, the following priorities are established:

#### **11.1 Education & Community Outreach**

**Objective:** Expand Firewise USA implementation and engage all neighborhoods in wildfire education.

##### **Planned Activities:**

- Expand the **Firewise Ambassador Program** to all WUI neighborhoods by 2026.
- Hold **semi-annual educational events** at the Copper Queen Library Annex and Senior Center.
- Launch **bilingual public awareness campaign** (radio, flyers, signage) focusing on home ignition zones and defensible space.
- Develop **school-based wildfire curriculum** in partnership with Bisbee Unified School District (BUSD).

- Maintain **Firewise USA recertification** annually through cleanup days, assessments, and outreach.
- 

### 11.2 Fuels Reduction Projects

**Objective:** Reduce hazardous fuels across public and private lands to lower wildfire intensity and protect community assets.

**Planned Activities:**

- Complete **Spring Canyon 160-acre firebreak** by 2026 with follow-up maintenance in 2028.
- Implement annual **corridor thinning and brush removal** in Old Bisbee.
- Expand **Homeowner Chipper Service** to support private defensible space clearing.
- Partner with BLM and AZ DFFM on **50% cost-share defensible space grants** for high-risk homes near federal lands.
- Update **LANDFIRE fuel model maps** using AZWRAP and community GIS data.

**Treatment Methods:**

- Mechanical thinning, brush chipping, debris removal to disposal sites (no on-site burning or prescribed fire).
- Firebreak construction on public and private lands; 50% cost-share for private landowners through BLM grants; maintenance stipulations per Categorical Exclusion protocols.
- **Homeowner Chipper Program:** Subsidized chipper/shredder service for defensible space cleanup.

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### 11.3 Policies & Agreements

**Objective:** Establish new local ordinances and update interagency response frameworks.

**Planned Activities:**

- Finalize **City Ordinance for management of abandoned/dilapidated buildings** in the WUI.
- Pursue **updated mutual aid agreements** with Tombstone, Palominas, and other regional districts for cross-boundary mitigation.
- Develop **CWPP-aligned building permit guidelines** for new construction in WUI zones.
- Draft a **public-private drought (infrastructure) mitigation MOU** between the City and Arizona Water Company.
- Include CWPP implementation tasks in the **City's General Plan Safety Element** update.

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### 11.4 Structural Ignitability Reduction

**Objective:** Retrofit existing homes to resist ember intrusion and ignition during wildfire events.

**Statutory Basis & Intent**

Under the **Healthy Forests Restoration Act (2004)**, every CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures within the planning area. This section documents Bisbee’s ongoing commitment to home hardening—past, present, and future—to safeguard residents, historic assets, and the built environment from wildfire impacts.

#### **Past Activities (2019 – 2025)**

- **Code Adoption:** The City adopted the **2018 International Fire Code** through **Resolution R-25-04**, establishing enforceable standards for defensible space, roofing, vents, and siding.
- **Firewise Outreach:** Annual **Firewise USA** recertification, neighborhood assessments, senior-center and library presentations, and door-to-door safety literature.
- **Public Safety Programs:** Ongoing **smoke/CO detector** installation and **space-heater exchange** programs led by Step Up Bisbee/Naco (SUBN) and the Bisbee Fire Department (BFD).
- **Demonstration Projects:** Creation of the **Firewise Demonstration Garden** at the Copper Queen Library Annex, featuring non-combustible materials, fire-resistant native vegetation, and educational signage.
- **Fuels Treatment Near Structures:** Two major WUI fuels-reduction projects (2019–2020 and 2024–2025) removed ladder fuels adjacent to residences in Old Bisbee Canyon and Spring Canyon.

#### **Current Initiatives (2025)**

- **Zone 0 Enforcement:** New construction and renovations must maintain a 5-foot non-combustible buffer around structures; verification during permit review.
- **Free Home Assessments:** Firewise volunteers conduct assessments and deliver step-by-step retrofit checklists.
- **Electrical Safety Retrofits:** SUBN and BFD coordinate mini-split installations and electrical panel upgrades in older homes to reduce fire starts from overloaded systems.

#### **Future Priorities (2025 – 2028)**

- Bisbee will launch a grant-ready **Home Hardening Program** focused on low-income and high-risk households, leveraging **DDFM Community Wildfire Defense Grant (CWDG)**
  - Ember-resistant vents, Class A roofing, non-combustible siding, create defensible zone, remove exterior yard debris.

#### **Program Components**

- **Retrofit Menu:**
  - Ember-resistant vents (1/8" mesh, metal screening) and sealed soffits
  - **Class A roofs** (metal, tile, asphalt architectural shingles)
  - **Non-combustible siding** and deck/fence interfaces

- **Defensible Space Zones 0 and 1** implementation, including removal of combustible mulch, relocation of wood piles, and vegetation management
- **Equity Focus:** Prioritize Old Bisbee, Spring Canyon, and San Jose fringe neighborhoods with limited egress and high social vulnerability.
- **Workforce & Verification:** Use trained contractors following IBHS Wildfire Standards; BFD inspections and photo verification.
- **Maintenance & Education:** Annual “Clean & Chip” events and maintenance reminders through Firewise Ambassadors.

### 11.5 Emergency Facilities & Equipment Enhancements

**Objective:** Modernize equipment, expand facilities, and improve emergency response infrastructure.

**Planned Activities:**

- Replace **75 substandard hydrants** and install 180 code-compliant hydrants across Old Bisbee.
- Construct **three new water storage tanks** and **one booster station**.
- Acquire a new **fire engine, wildland engine (Type 6)** and **2,000-gallon tender** through FEMA AFG grant.
- Upgrade **City GIS systems** and deploy **mobile command tablets** in BFD vehicles.

### 11.6 Vulnerable Populations & Equity

- **Low-Income Homeowner Assistance:** Grant-writing support for DFFM-CWDG to fund defensible space and home hardening; electrical safety upgrades to prevent hazard from heating systems.
- **Community-led Biomass Utilization:** Promote fuelwood and pellet markets; partner with local contractors and nonprofits for slash repurposing; fundraising via bagged mesquite sales.
- **Smoke/CO Detector Drives:** SUBN & BFD install free detectors for low-income, elderly, and medically vulnerable households.
- **Grant Assistance to Assist Low-income homeowners install mini-splits in their homes** (Step Up Bisbee Naco, SEAGO’s AAA program for home repairs) and upgrade electrical panels as needed to avoid homeowners starting fires in the WUI from portable heaters, use of extension cords for heaters, other unsafe home heating practices, and overtaxing not to code electrical panels.

## 12. Monitoring & Evaluation Framework

To ensure the Bisbee Community Wildfire Protection Plan (CWPP) remains actionable, current, and community-driven, this section establishes a framework for tracking progress, evaluating lessons learned, and updating strategies on an annual basis.

### 12.1 Key Benchmarks & Objectives

Progress will be assessed against the following indicators:

Category	Benchmark	Target Date
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<b>Fuel Treatment</b>	80% of Spring Canyon firebreak completed	End of 2026
<b>Defensible Space</b>	10% of WUI homes assessed and cleared to Zone 1 standards	2027
<b>Home Hardening</b>	Homes retrofitted with ember-resistant materials via grants	2026/27
<b>Water Pipe upgrade and Hydrant Retrofit</b>	Upgrade all Arizona Water Co. water pipes from well field to Old Bisbee with 150 hydrants added with proper fire flow and pressure. Old, failing gravity fed fire suppression system abandoned.	2026/30
<b>Firewise Recertification</b>	Maintain Firewise USA status through education, assessments, events	Every calendar year
<b>Community Participation</b>	Reach 80 residents per year via outreach events	Ongoing
<b>Digital CWPP Updates</b>	Maintain live dashboard and map tracking project implementation	2026

### 12.2 Annual Evaluation Schedule

The CWPP will be reviewed and updated **annually in January**, following a review of the prior fire season and grant cycles. A full strategic update will occur every **5 years** or following a significant wildfire event, regulatory change, or shift in climate/fire risk conditions.

### 12.3 Monitoring Committee – Core Participants

The following individuals and representatives will be invited to participate in the **Annual CWPP Evaluation Meeting**:

<b>Role/Agency</b>	<b>Representative(s)</b>
<b>Bisbee Fire Department (BFD)</b>	Fire Chief and Wildland Program Lead
<b>Bisbee Planning Department</b>	CWPP Coordinator / GIS Analyst
<b>SUBN</b>	Co-Chair for Home Hardening Program Manager
<b>Cochise County Emergency Management</b>	Wildfire Liaison
<b>Arizona Department of Forestry and Fire Management (DFFM)</b>	District Forester
<b>Firewise Working Group</b>	Neighborhood Ambassador Leads
<b>Arizona Water Company (Bisbee Division)</b>	Infrastructure Liaison
<b>Bisbee Police Department</b>	Emergency Planning Liaison
<b>Community Volunteers</b>	Firewise Ambassadors & CERT reps

### 12.4 Lessons Learned & Adaptive Management

Each annual update will include a formal **Lessons Learned Review**, which will document:

- Successes in community engagement or fuel mitigation

- Challenges or delays in project implementation
- Resource gaps (staffing, funding, partnerships)
- Feedback from residents and vulnerable populations
- After-Action Reports (AARs) from drills or wildfire events

Outcomes will inform tactical adjustments and budget reallocation.

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### 12.5 Community Engagement Continuity

To ensure residents remain involved:

- Maintain an **active Firewise Ambassador program** with rotating neighborhood assignments
- Continue **public reporting** via the City website and local media
- Provide **annual CWPP updates at Town Hall meetings** in June
- Integrate community feedback into project prioritization through surveys and public comment periods

## 13. Appendices

### Appendix A: Demonstration Garden Narrative & Photos

**Location:** Copper Queen Library Annex

**Partners:** Old Bisbee Firewise (OBF), Step Up Bisbee/Naco (SUBN), Bisbee Unified School District (BUSD), City of Bisbee, Firewise Volunteers, The Bisbee Science Center, Bisbee Bloomers, Bisbee Rotary Club.

The Demonstration Garden at the Copper Queen Library Annex showcases:

- **Native Firewise and drought resistant Plant Species**
- **Hardscaping Techniques:** Noncombustible pavers and gravel pathways illustrating Zone 0 principles.
- **Educational Signage:** Informational panels explaining plant selection and defensible space strategies.
- **Catchwater and drip systems.**

*Figure B-1: Garden layout diagram highlighting plant zones.*

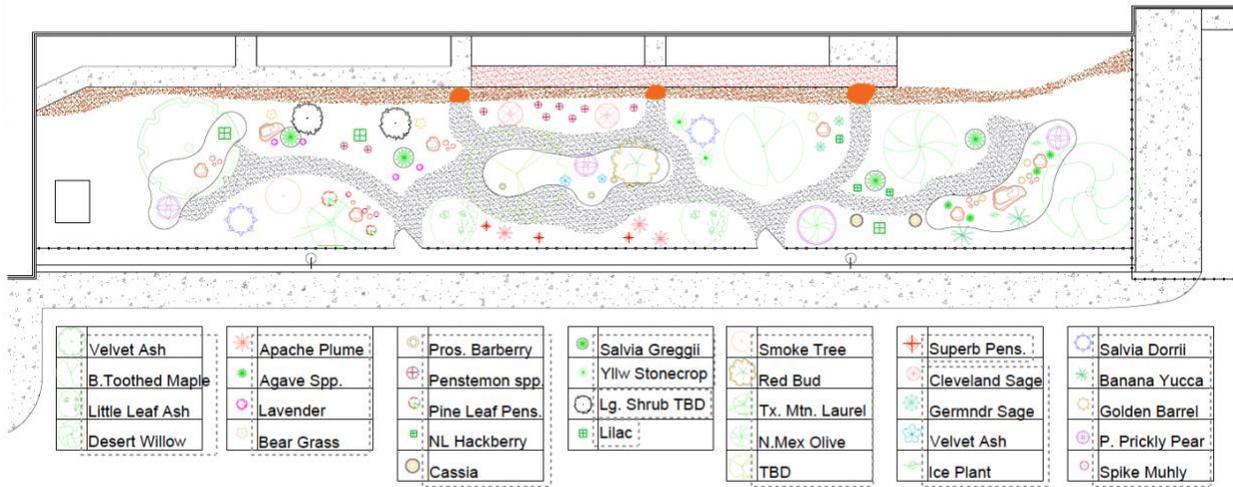


Figure B-2: Onsite view of planting beds and educational signage.

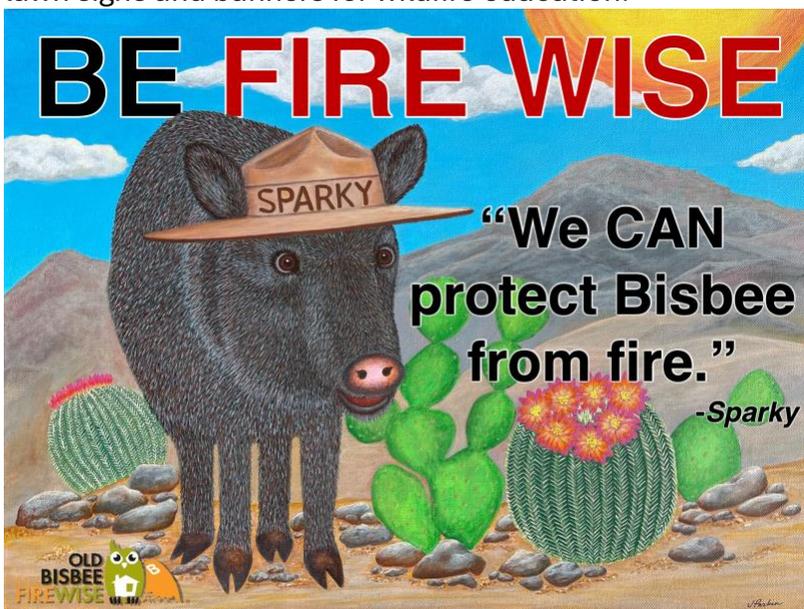


Figure B-2 Onsite view of planting beds and educational signage.



## Appendix B: Flyers & Community Meeting Documentation

1. Sparky Firewise Mascot Sign Community-created mascot “Sparky” used on billboards, lawn signs and banners for wildfire education.



2. **May 25, 2025 Town Hall Flyer**

*Flyer announcing the public meeting with Mayor Budge, Councilmembers, and community partners.*



**Appendix C: Volunteer Fuel Reduction Days:**

Volunteer Day 2023



Volunteer Day 2022



Volunteer day 2021



No Volunteer days during COVID 2020

Volunteer Day 2019



*Photos of community members participating in fuels reduction workdays.*

**Appendix D: Grant Support Materials (past and forward looking)**

Program	Year	Funding Source	Amount	Purpose
DOJ-OJP BJA Communications	2018-2020	DOJ Office of Justice	\$352,000	Radios & infrastructure for BFD, BPD, and hospital. Upgraded interoperability. Community Fundraising.
DFFM Community Challenge Grant	2018-2020	DFFM	\$53,854	Demonstration garden & public outreach programs.
Assistance to Firefighter grant	2022-2024	FEMA	\$50,000	Firefighting supplies, turnout gear.
DFFM Healthy Forest Initiative-Fuel Reduction	2019-2021	DFFM Wildland Fire Hazardous Fuels Project	\$214,000	WUI Fuels Reduction.

DFFM Healthy Forest Initiative-Fuel Reductions	2023/2025	DFFM Community Challenge	\$152,456	WUI Fuels Reduction.
DFFM Healthy Forest Initiative-Fuel Reductions.	2025–Ongoing	DFFM	\$150,000	Proposed-Targeted Fuels reduction including Fuel break around Mule Mtn. communication towers. Maintained every 1–2 years.
DFFM-Community Wildfire defense Grant (CWDG)	2025-2026	DFFM, Step Up Bisbee Naco	\$90,000	Proposed Zone Zero for Low-Income person’s homes.
FEMA/DEMA-BRIC Grant	2026-2030	FEMA/DEMA-BRIC Grant/ Match Arizona Water Co.	\$72,000,000	Arizona Water Co. and City of Bisbee public Private Partnership to upgrade water system and add hydrants Written for 2024/25 but FEMA pulled the grant to be rewritten. Hopefully will be reinstated. without DEI reference.

**Appendix E: Emergency Response Equipment Inventory**

City of Bisbee Fire Department – Equipment Inventory (2025)

Equipment Type	Frontline Units	Reserve Units
Engines or Pumpers (≥750 GPM, ≥300 gal)	2	2
Ambulances (Transport/Emergency)	2	2
Tankers or Tenders (≥1,000 gal)	0	2

Brush/Quick Attack Units (<750 GPM, ≥300 gal)	2	0
Rescue Vehicles	2	0
Additional Vehicles (Command/Support)	1	0

### Appendix F: Treatment Project Budget Tables & Timelines

Timeframe	Project	Partners	Funding Sources	Status
2019–2021	105-acre WUI fuel reduction	OBF, BFD	DFFM WFHF, OBF match	Completed
2019	Demonstration Garden-Fire and Drought resistant	OBF, SUBN, BUSD, BSERC, Rotary, BFD	DFFM CCG	Completed
2023–2025	Identified high risk areas in WUI - 160-acre firebreak (fuels reduction)	BFD, DOC wildland crews	DFFM WCHF	Completed
2025–Ongoing	Targeted Fuels reduction including Fuel break around Mule Mtn. communication towers. Maintained every 1–2 years	OBF, BFD	DFFM	Proposed
2025-2026	Zone Zero for Low-Income person’s homes.	Step UP Bisbee Naco, City of Bisbee and Bisbee Fire Department.	DFFM-Community Wildfire defense Grant (CWDG)	Proposed

### Appendix G: Partner Profiles: Old Bisbee Firewise



Overview: Old Bisbee Firewise (OBF) is an officially recognized Firewise USA site and community group serving the historic Old Bisbee area. Established to increase wildfire preparedness and resilience.

Key Activities:

- Annual Firewise community recertification
- Fuels reduction projects in collaboration with DFFM and City of Bisbee
- Community meetings, Firewise outreach materials, and home assessments
- Development of educational tools, including the Sparky mascot signage campaign

Role in CWPP Implementation: OBF leads on-the-ground Firewise volunteer efforts, conducts outreach to homeowners, and coordinates neighborhood-level risk assessments to support grant-funded defensible space and home hardening programs. The group partners with the City of Bisbee Fire Department, Step Up Bisbee/Naco, and Cochise County for mitigation planning, and is a designated stakeholder in prioritizing treatment areas within the Old Bisbee WUI.

### Step Up Bisbee/Naco (SUBN)



**Overview:** Step Up Bisbee/Naco has served Bisbee’s low-income residents since 1998, partnering with the City and Firewise to deliver home repairs and wildfire resilience programs.

**Key Contributions:**

- **Smoke/CO Detector Drives:** SUBN purchases detectors; BFD installs in low-income homes yearly.
- **Home Hardening & Zone Zero Projects:** Women and Children’s Hope Foundation grant for ember-resistant upgrades and noncombustible buffers for low-income persons. 10 homes in old Bisbee. 2018.
- **Space Heater Exchange:** 2019–2023 annual program replacing unsafe units in partnership with Bisbee Fire Department, Copper Queen Library and Old Bisbee Firewise.

Killer Space Heater Display and Firewise Info.



Killer Space Heater Library Display



Turned in Heaters through exchange program



**Appendix H- Fuels Reduction and Fire Photos**

DFFM Grant Fuels Reduction- Before and After 2019



After fuels reduction around the Cell tower.



Example of before and after fuels reduction in Bisbee.



Mayor Budge's Photo- Wildfire WUI 2022



Mayor Budge Wildfire WUI 2022



Mayor Budge Wildfire WUI 2022



Mayor Budge Wildfire WUI 2022





Fire department Education Day. 8<sup>th</sup> graders



## References:

### Guidance & Legal Framework

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**Utilities & Infrastructure**

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**Programs & Community**

- Firewise USA / National Fire Protection Association (NFPA). 2021–2025. *Wildfire Prepared Home and Firewise USA Program Guidance.*

**Signature & Adoption Page**

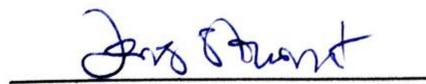
This CWPP was prepared in collaboration with the City of Bisbee, Bisbee Fire Department, Old Bisbee Firewise, Step Up Bisbee/Naco, Cochise County Emergency Management, the Arizona Department of Forestry & Fire Management, and partner agencies and utilities. The signatories below acknowledge their participation in, and commitment to, implementing the actions described in this plan.

**Adopted by the Mayor and City Council of Bisbee on this 2nd day of December, 2025.**

 **Mayor Ken Budge, City of Bisbee**

 **Stephen Pauken, Manager, City of Bisbee**

 **Jim Richardson, Fire Chief, Bisbee Fire Department**

 **Emanuel Stuart, Planning Dept., City of Bisbee**

 **Dan Duchon Director, Cochise County Emergency Management**

*Lathe Evans*

**Lathe Evans** Division Chief, Arizona, DFFM

*Frank G. Cabello Sr.*

**Frank Cabello** Arizona Water Company

*JCA*

**Cooper Raphael** Old Bisbee Firewise

*Danielle Boochever*

**Danielle Boochever** Step Up Bisbee/Naco

**Clerk's Attestation:**

I hereby attest that this plan was adopted by the City of Bisbee on the date above.

*Ashlee Coronado*

**Ashlee Coronado**, City Clerk, City of Bisbee